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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 1.—1845.] SATURDAY, JANUARY 4. [PRICE 6*d.*

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GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given that a General Meeting of the Subscribers to this Institution will be held on WEDNESDAY, 22d JANUARY next, at the London Coffee House, Ludgate-hill, for the purpose of receiving the Accounts of the past year, and electing Officers for the ensuing year; also, for the purpose of electing Four Poor Persons of Sixty Years of Age and upwards to the benefit of a Pension of 10*l.* per annum. The Chair to be taken at Twelve o'clock precisely. The Ballot will commence at ONE and close at THREE precisely.

CANDIDATES.		*Residence.*
1. JOHN BLAYLOCK,	3rd application,	aged 72 Carlisle.
2. ROBERT CRACKNELL	2nd do.	aged 72 Clapham
3. GEORGE MARTIN,	2nd do.	aged 66 Bristol.
4. JOHN ADAMSON,	1st do.	aged 67 Mortlake.
5. WILLIAM EDWARDS	1st do.	aged 66 Battersea.
6. BARNEY FARELLY,	1st do.	aged 67 London.
7. THOMAS FARMER,	1st do.	aged 63 Mitcham.
8. JOHN FISHER,	1st do.	aged 69 Walworth.
9. JOHN GARNELL	1st do.,	aged 77 East Ham.
10. CHRISTOPHER GIBBONS	1st do.,	aged 58 Hendon.
11. CHARLES GRAY	1st do.,	aged 89 Dalston.
12. JAMES STEDMAN	1st do.,	aged 75 London.
13. RICHARD STOYLES	1st do.,	aged 77 Liskeard.
14. ANN SUTTLE	1st do,	aged 67 Walworth.

The Subscribers and Friends of the Charity will afterwards celebrate their Annual Festival at the London Coffee House, Ludgate-hill.

THOMAS SYDNEY, Esq., Alderman and Sheriff, in the Chair.

STEWARDS.

WILLIAM BRISTOW, Esq.; BARTO CHAUNDY, Esq.; ABEL LEWIS GOWER, Esq.; ROBERT HOGG, Esq.; O. E. LANE, Esq.; Capt. LAMONT, R.N.; CHARLES MILLS, Esq.; WM. G. M'MULLEN, Esq.; JOSEPH PAXTON, Esq; EDWARD PURSER, Esq.; ALEX. PONTY, Esq.; and JOHN SANOSTER, Esq.

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The afternoons of Wednesdays and Saturdays are devoted to Drawing.

The subjects taught (without extra charge) are Reading, Writing, the English, Latin, Greek, French, and German Languages, History, Geography, both Physical and Political, Arithmetic and Book-keeping, the Elements of Mathematics and of Natural Philosophy, and Drawing. Prospectuses and further particulars may be obtained at the Office of the College.

CHARLES C. ATKINSON,
Jan. 1845. Secretary to the Council.

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ADDRESS TO THE PLANTERS OF ENGLAND.

TRUE HIGHLAND PINE-TREE.—MY LORDS, LADIES, AND GENTLEMEN,—The time has come when all those who have waste lands at their disposal should plant them. Of this I am fully persuaded, and I beg you will allow me to explain on what grounds this opinion is founded. England, generally, is a thickly-wooded country yet, strange though it may appear, it has not been planted with any view to meet its most urgent wants. If the poor farmer require an outhouse built for his cattle, he cannot have it because there is no deal-wood in the neighbourhood: he builds it therefore of whins, or of any other rubbish he can lay hold of. Instead of having plenty of fir-wood on all hands to fence young hedges, planted like other things on the common surface of the ground, military-like fortifications have been raised to divide fields, occupying as much good land as is contained in three of the largest counties of Britain: it is on those banks ineffectual attempts have been made to grow hedges. After the 1st of March, when the Royal Agricultural Society's Prize on fences shall have been awarded, a great proportion of the hedges throughout England will be reconstructed by planting them on the plain surface; and the question will then arise, "Where is the wood to protect them in their young state to come from?" Turning to the railways which are now being formed in every county in England, another and greater question arises as to the supply of wood which will be required in *their* construction. Go up, I am told, to the Lebanons of our island—those immense forests in the north of Scotland—and there hew down as many trees as will be required. From those, however, I find we must expect but a limited supply. Like the famous Mount of old, they are already overrun with the axe, and a continuance of the present rate of demand for a few years more will reduce the trees upon them to a mere remnant. It is not the original numbers required for sleepers which will effect this change, but it is the incessant demand, *ad infinitum*, for timber to replace that which is already laid down, or may be for the future laid down in additional lines. Look at it how we may, the state of our country at the present crisis proves that our immense and almost measureless tracts of what is generally called waste land were not created to be a scene merely of unproductive solitude. The rains with which they are refreshed, and the fostering sunshine that rests upon them, might have taught us that Providence had designed them to contribute in some way or other to the wants of man; and though Nature has been unable to lead us to comprehend her lesson, so simply brought before us, necessity has at length compelled us to look to those districts where only a sufficient quantity of timber can be raised to meet our increasing wants. Now, then, is the time to plant: wherever there is a waste piece of ground, moor, or mountain, let it be forthwith invested with trees, for every year, for many years to come, will unquestionably bring with it an additional demand for timber. Thus far on the necessity of planting. Allow me next to bring under notice the sort of tree I would recommend to be planted, which is the chief aim of this Address. That tree is the TRUE HIGHLAND PINE, for introducing which, I had the honour, along with my brother, of receiving the Highland Society's prize. It is admirably fitted, in every respect, to take possession of all the uplands throughout England. It will grow freely on all soils suitable for the common Pine; its wood is very durable; and for railway sleepers it is unrivalled. Brindley, the celebrated engineer, considered its durability equal to that of the Oak; and Dr Smith states, in the *Transactions of the Highland Society of Scotland*, that he has seen some of it taken down after it had been 300 years in the roof of an old castle, as fresh and full of resin, as newly imported timber from Memel, and that it was actually worked up into new furniture. "Such," says Loudon, "is the durability of this wood, that while the bog timber of the Birch is often found reduced to a pulp, and the Oak cracks into splinters as it dries, the heart of this Pine remains fresh, embalmed in its own turpentine."

MY LORDS, LADIES, AND GENTLEMEN,—Allow me to add a word or two on the merits of this tree as a landscape ornament. In this respect it rivals, if not excels, the Cedar of Lebanon. It has, at any rate, a much better ramification than the Cedar; for, as Sir Walter Scott observes, it assumes in a great measure the bold and contorted figure of the Oak. In illustrating the Seats of Norfolk (and the remark is applicable to all England), it frequently occurred to me that advantage had not been taken of prominent situations by investing them with grand evergreen trees; for so soon as November comes, our parks lose almost all that weight of grandeur for which they are so celebrated in summer-time. Their solemnity ceases with the fall of the leaf; but were they ornamented with this Pine, its broad umbrageous canopy remaining green during winter, the change consequent upon the approach of winter would be much less observed, and our country residences would at all times be surrounded with the dignified accompaniments so consistent with their character.

The importance of this subject will, I doubt not, be accepted as an apology for my thus venturing to express my opinions so plainly on matters of English practice. My suggestion as to the improvement of park and pleasure-ground scenery by introducing the Pine in question is offered with the greatest deference, being fully persuaded that in matters of this description England has been always distinguished for its refined taste. I am ready to dispose of the Highland Pines at the following prices:—

Single Plants, strong and well rooted	6*d.* each.
Strong Plants, 18 to 20 inches high	5*s.* per 100.
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I have the honour to be, My Lords, Ladies, and Gentlemen,
Your most humble Servant,
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THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
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Chiswick Nursery, near London, Jan. 4, 1845.

THE FILBY RASPBERRY.—We, the Undersigned have sold Canes of the Filby Raspberry, to Messrs. YOUELL of Yarmouth, as per dates given below:—

WILLIAM CRISP	March, 1843	870 Canes.
ROBERT DIXON	,, 1842	500 ,,
,, ,,	November, 1843	750 ,,
WILLIAM SMITH	October, 1843	150 ,,
WILLIAM JAY	April, 1842	400 ,,
,, ,,	November, 1843	1400 ,,
THOMAS SKOYLES	1843	250 ,,
JOHN WHUR	1844	900 ,,
ROBERT JAY	1842	600 ,,
,, ,,	November, 1843	1300 ,,
	October, 1844	1300 ,,
SAMUEL HOWARD	October, 1843	1500 ,,
ESTHER CHACE	October, 1843	300 ,,
HENRY KOCKELS	1843	200 ,,
,, ,,	November, 1844	2000 ,,

The above are all residents of Filby.—December 31st, 1844. The price given was from 2*s.* 6*d.* to 5*s.* per 100.

THE TRUE FASTOLFF RASPBERRY.

YOUELL and CO. beg to state, that any further assertions or insinuations that may be made by any party regarding the above Raspberry, will find YOUELL and Co.'s reply by referring to their Advertisement in this Paper, of the 28th of December last; it being sufficient for them to know it has given universal satisfaction.

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Marchioness of Lorn	2 2 0	Sir W. Massey Stanley	2 2 0
		King of the French	2 2 0

With many first rate Seedlings raised by other cultivators. A Priced Catalogue of Pelargoniums, Pansies, Calceolarias, Camellias, Cinerarias, Fuchsias, Verbenas, Chrysanthemums, Carnations, Picotees, Auriculas, &c. &c., may be obtained of N. GAINES, Surrey-lane, Battersea.

PERFECTION IN PEAS.—FRASER'S SHANLEY MARROW.

F. FRASER, NURSERY and SEEDSMAN, Lea Bridge-road, Essex, in offering his friends and the public the above Pea begs to assure them it has no rival, its quality being as far superior to Knight's and all other Marrows as those surpass the commoner Peas. Its height is about 5 feet, a prodigious bearer, and continues in season much longer than the usual kinds. The stock on hand is very limited. Price 7*s.* 6*d.* per quart. A remittance expected to accompany orders from unknown correspondents.

ROBERT COOPER begs to inform his friends and the public, that his CATALOGUE OF NEW AND CHOICE FLOWER SEEDS for 1845 is just published, and will be sent by post, on application. R.C. can confidently recommend his Flower Seeds, having, with a few exceptions, grown them at his Nursery.—Sion Nursery, Croydon, January 4, 1845.

T. AND C. LOCKHART, FLORISTS and SEEDSMEN, 156, Cheapside, London, respectfully beg to inform the Nobility and Gentry, that their List of Flower and Vegetable Seeds for the present Season will be forwarded post free, on application, together with a complete List of the most showy hardy herbaceous plants, giving their respective heights and colours.

T. and C. L. take the present opportunity to request early orders for Ranunculus and Anemones, as their unique collection will be planted by the end of January; therefore they will not be able to execute any orders received after the 25th January.

S. GIRLING'S NEW DAHLIAS, PETUNIAS, FUCHSIAS, AND VERBENAS, FOR 1845.

S. GIRLING has the pleasure of offering to his numerous Friends and Patrons, both English and Foreign, the following Plants, in new and beautiful varieties; this he does with the greatest confidence, as they have been carefully selected, and highly approved by the most eminent cultivators, as well as amateur growers, and will be found to answer the full description given of them. S. G. returns thanks for past, and solicits future favours, which will be faithfully executed, carefully packed, and forwarded to order. Six of the Verbenas can be had immediately; those marked with an asterisk in April, with the Petunias and Fuchsias, or with the Dahlias, which will be sent out early in May.

NEW FANCY DAHLIAS. s. d.

MONS. JEAN WALLNER, nearly black, clear white tips, full and constant; one if not the best, fancy Dahlia. Prizes at Chelmsford and Baker-street Shows; hgt., 4 ft. 7 6

MADAME WALLNER, crimson purple, tipped with clear white, very fine full flower, well up in the centre, and constant; height, 5 feet 7 6

MADAME RIGNON, bright scarlet and white, of good shape and habit; height, 4 feet 5 0

SPEEDWELL, dark and clear, white tip; good for showing; full centre, and well up in the eye: height, 4 feet 5 0

CURIOSA, primrose, shaded or edged with deep rose; a novel and singular fancy variety; height, 5 feet . . 3 6

SELF AND TIPPED OR SHADED DAHLIAS.

MARCHIONESS OF ORMONDE (Bourn's), the best light-tipped Dahlia; to be sent out next May. No discount unless 12 plants are ordered; colour clear white, short cupped petals, tipped with rosy purple; habit and form of the first order. Has taken prizes wherever shown; very superior show variety; height, 4 feet . 10 6

QUEEN OF THE GIPSIES, dark crimson, shaded or striped with bright purple, cupped and well up in the centre; warranted a constant and good show flower; height 4 feet 10 6

LADY LEICESTER, pale buff, a new colour; cupped petals, good outline; a well-arranged and beautiful show flower, of fine habit and constant; hgt., 4 to 5 ft. 10 6

MRS. CHARLES KEAN, nearly black, petals well formed and of fine substance, deep and symmetrical; show flower; height, 4 to 5 feet 7 6

MARY, THE ROSE OF KEYDEL, dark rose, tipped with ruby, very constant, of good general habit, and fine show flower; height, 4 to 5 feet 7 6

VANGUARD, crimson scarlet, of fine form and excellent habit, producing none but constant good show flowers through the entire blooming season; height, 3 feet . 7 6

BEAUTY OF STOW, light lilac, of fine form and excellent habit, good depth of petal; a useful show flower when grown weak; height, 4 feet 7 6

MONSIEUR RIGNON, deep crimson, of good form; a fine and useful back-row flower, when grown weak; height, 3 feet 7 6

GLORIA MUNDI (Gebbard), inside the petal a clear orange buff, outside mottled carmine, presenting an orange appearance, by a reflection of colours; hgt., 5 ft. 10 6

BEAUTY OF CHELMSFORD (Wicks'), white tipped with purple, like Holmes' Exquisite; a good show flower; height, 4 feet 10 6

ESSEX PRIMROSE (Wicks'), fine light primrose; requires to be grown weak; fine show flower; hgt., 4 ft. 10 6

ESSEX SCARLET (Wicks'), dark scarlet, a very compact and desirable show flower; height, 4 feet . . 10 6

S. G. holds half the stock of those Dahlias, and can supply the rest of the Union Seedlings at the Catalogue Prices, with the usual discount to the Trade.

VERBENAS.

ALBA LUTESCENS, sulphur-yellow, large and sweet-scented 3 6

ALBA MAGNA, the largest and best white out . . 3 6

*BLANDA, rosy blush, of fine form 3 6

*GLADIATOR, orange scarlet, with bright yellow eye, fine 3 6

LOVELY RAMBLER, grey lilac, large and fine . . 3 6

MESSENGER, bright purple, of fine shape . . . 3 6

*MULBERRY, new in colour, distinct and fine . . 3 6

ROSE D'AMATEUR, bright pink, with beautiful yellow eye, quite distinct; the most beautiful and attractive Verbena ever raised 5 0

*RUBESCENS, bright ruby, large and well formed . . 3 6

THE GIANT, silvery lilac; the largest trussing Verbena S. G. has ever seen, some of the trusses measuring from 10 to 12 inches round, resembling in appearance a blue Hydrangea 5 0

SEEDLING PETUNIAS.

ATTRACTION, ground colour bright peach, with an immense throat of deep vermilion, beautifully veined, very large, flat, and circular; extra fine . . . 5 0

BEAUTE DU JOUR, ground colour light blue, striped and veined, with rich dark purple; extra . . . 5 0

BEAUTE PARFAIT, bright rosy-pink, veined and striped with the deepest blood-red imaginable; extra fine . 5 0

CERULEA STRIATA, white, beautifully striped with bright blue, large, round, and flat 3 6

FORGET-ME-NOT, ground-colour and throat of a beautiful blue, but towards the margin a pure white . . 3 6

LOUIS GULLDINO, dark rose, veined all over with dark mulberry, with an immense throat of the same rich colour, large, round, and flat 5 0

MEMBRANACEA, ground colour bright lilac, thickly intersected with veins of the richest purple, immense throat of the same 3 6

PERFECTION, ground colour pale rose, regularly and beautifully striped with rich crimson; in shape, size, and form quite perfect 5 0

PORTRAIT, rosy pink, veined with deep carmine . . 3 6

QUEEN OF MAY, lavender, very distinctly veined with dark purple, and regularly blotched with pure white, large, round, and flat; extra fine 5 0

SANS PAREIL, ground colour slate, with a large blotch of pure white in each of the segments, perfectly round, and very flat; a decided and beautiful variety; ex. fine 5 0

STRIATA DELICATISSIMA, white, spotted and striped with rosy pink; very delicate and pretty . . . 3 6

SEEDLING PHLOXES.

ALBA CERULESCENS, beautiful pure white, with blue tube 3 6

ALBA GLOMERATA, white, with an immense head of bloom, very distinct 3 6

SEEDLING FUCHSIAS.

ROSA MUNDI, bright pink sepals, green tips, corolla bright scarlet 3 6

FORMOSISSIMA, flesh-coloured tube, and sepals rather globose, green tips, long tube, corolla purple, goes off to orange crimson 5 0

EXIMIA, bright pink tube and sepals, violet crimson corolla 3 6

GLOBOSA PALLIDA, light globe kind, flesh-coloured sepals, green tips, deep chocolate corolla . . . 5 0

PULCHELLA CARNEA, bold sepals, stout short tube, pale flesh-coloured, purple crimson corolla . . . 3 6

DELICATISSIMA, pale short tube, and sepals tipped with green, open purple crimson corolla . . . 5 0

N.B.—The above are all of good habit; the set can be had for 20s. Selected Plants at Catalogue Price.

The Verbenas and Petunias have been submitted to the Editors of the *Gardeners' Chronicle*, and *Gardeners' Gazette*, from time to time, for decision, and pronounced to be fine; the former to Mr. Ayres, who speaks of them most favourably. Mr. Glenny says—"The Fuchsias are not what I could wish, but certainly a considerable advance on the varieties yet out." The Dahlia, "Marchioness of Ormonde" cannot help pleasing every Dahlia grower, and has taken prizes wherever exhibited; the others S. G. sends out on his own warranty, not doubting they will give entire satisfaction; should any one prove contrary to the description it will not be charged for. S. G. is convinced that those only charged 7*s.* 6*d.* will be found useful show Dahlias; but where the least doubt exists he would rather have the credit of sending out a good Dahlia at that price than charge 10*s.* 6*d.* if in any case short of first-rate varieties. Parties desirous of placing any of the above in Catalogue will be liberally treated, and in February next a list of the agents will be published.

P.S.—The set of 12 Petunias can be had for 2*l.* 2*s.* Selected Plants at the Catalogue Price.

S. G. has on sale ground or pot roots of nearly all the popular Dahlias of last and former years at moderate prices, lists of which can be had on prepaid application.

Foreign orders carefully executed; a reference or prompt payment from unknown correspondents.

*** Orders received in London by Messrs. HURST and Co., 6, Leadenhall-street; and Messrs. NOBLE, Seedsmen, Fleet-street.

UNDER THE PATRONAGE OF HER MAJESTY.

J. G. WAITE, SEEDSMAN, &c., 1 and 4, Eyre-street-hill, Hatton Garden, London, begs to inform the Trade, that his Wholesale Price Catalogues of Kitchen-garden and Flower-seeds are now ready, and can be had on application.

Waite's Queen of Dwarf Peas . . per quart 7*s.* 6*d.*

A splendid new variety growing only one foot high, producing a larger pod than any of the same habit; seed is quite distinct from all others, and larger than any Dwarf Pea in cultivation; it has been grown at the Royal Gardens at Frogmore, and approved of as a new variety, and also at her Majesty's table for its superior flavour.

N.B.—Be pleased to state, on application for Catalogues, whether for Cash or Credit.—Jan. 4.

EXHIBITIONS AT THE GARDEN OF THE Horticultural Society of London,

FOR THE YEAR 1845.

THE DAYS OF EXHIBITION will be the three following Saturdays, viz.: May 24, June 21, July 12.

EXHIBITORS.—All Persons, whether Fellows of the Society or not, will be at liberty to send subjects for exhibition.

FLOWER-STANDS.—Exhibitors of Cut Flowers must SUPPLY THEIR OWN BOXES OR STANDS. No box or stand should exceed eight inches in height at the back, or 18 inches in depth from front to back. The lids of all boxes MUST either be loose or made to unhinge.

MEDALS AND REWARDS.—The Society distributes the following Medals and Rewards,—namely,

	value.—£	s.	d.
C. The Certificate	0	10	0
SB. Silver Banksian Medal	1	0	0
SK. Silver Knightian Do.	1	5	0
LS. Large Silver Do.	1	15	0
SG. Large Silver Gilt Do.	4	0	0
GB. Gold Banksian Do.	7	0	0
GK. Gold Knightian Do.	10	0	0
LG. Large Gold Do.	20	0	0

Exhibitors to whom any of these shall be awarded can exchange them one for another, or may receive their value in money, or in plate. *If within one month after the third Exhibition of the year* no intimation shall have been received from an Exhibitor of the manner in which he desires his Medals to be disposed of, all the Medals due to him may be prepared and *transmitted to him through the usual public conveyances, without further notice.* In case an Exhibitor shall receive a First Prize in any one letter, he shall not be entitled to receive any other Medal in the same letter, except in *K K*, *M M*, and *N N*.

IT IS, HOWEVER, TO BE PARTICULARLY OBSERVED that if any Exhibitor shall obtain the award of a Medal, and it shall be afterwards ascertained that he has gained it by exhibiting plants not *bonâ fide* his own property, or that of his master, such award shall be cancelled, in favour of the Exhibitor next below him, whose Medal shall in like manner be transferred to the person immediately following him in the award, and so on.

SUBJECTS OF EXHIBITION.—These will be divided into Classes, as explained further on. No articles not of Horticultural produce will be allowed to be placed upon the tables. Exhibitors will do well to make themselves acquainted with the arrangements described in the following List, as they will in ALL CASES BE REQUIRED TO SIGN A PRINTED FORM OF DECLARATION TO BE FURNISHED TO THEM IN THE GARDEN, stating under what letter their plants are to be shown; and they are particularly requested to TAKE NOTICE, that if errors in the awards of the Judges should occur, in consequence of mistakes on the part of Exhibitors in filling up such Declarations, the Society cannot undertake to rectify the errors afterwards.

Names fairly written are to be attached by Exhibitors to all Florists' Flowers; and the Judges are restrained from awarding any Medal to such Exhibitions, whatever their merit may be, if this regulation is not complied with. By Florists' Flowers are meant not only flowers usually so named, but also Fuchsias, Pelargoniums, Roses, and Calceolarias. It is also hoped that all other subjects of Exhibition will be neatly and legibly labelled with their names.

(*Corrected List of Medals, &c.*)

CLASS I.—FLOWERS; for which Nurserymen and Private Growers exhibit independently of each other.

A. Pelargoniums; in collections of 12 new and first-rate varieties, cultivated with superior skill, in pots of 24 to a cast. GB—SG—LS.

B. Pelargoniums; in collections of 12 varieties, in pots of 24 to a cast. GB—SG—LS.

C. Pelargoniums; in collections of six varieties, in pots of 8 to a cast. LS—SK—SB.

D. Roses, in pots; Amateurs to show in collections of 12, Nurserymen in collections of 25, distinct vars. GB—SG—LS.

N.B. It is the wish of the Society, in a future season, to require Roses to be shown exclusively in pots, and not to allow cut specimens to be exhibited at all.

E. Roses in pots; single specimens displaying superior cultivation. SK—SB—C.

F. Moss Roses, in loose bunches, each consisting of three trusses as they are gathered, so as to exhibit, as far as possible, the habit of the variety; in 12 varieties. SK—SB—C.

G. Other Roses, exhibited as in the last letter, and in 50 varieties. LS—SK—SB.

N.B. No one who exhibits in this letter can also compete in the following.

H. Other Roses, exhibited as in the letter F, and in 25 varieties. SK—SB—C.

N.B. Higher Medals than those here offered for Roses cannot be given by the Judges. And if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I. Cape Heaths; in collections of 20 entirely distinct varieties. GK—SG—LS.

N.B. It is expected that the same plant shall not be exhibited on more than one occasion.

K. Cape Heaths; in collections of 12 entirely distinct varieties. GB—SG—LS.

L. Cape Heaths; in collections of 6 entirely distinct varieties. SG—LS—SK.

N.B. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M. Cape Heaths; single specimens displaying very superior cultivation. LS—SK—SB.

N. Calceolarias, in sixes; in pots of 24 to the cast. LS—SK—SB.

O. Carnations, in pans of 24 distinct varieties. LS—SK—SB.

P. Picotees, in pans of 24 distinct varieties. LS—SK—SB.

Q. Pinks, in pans of 24 distinct varieties. SK—SB.

R. Ranunculuses, excluding Turbans; in stands of 12 distinct varieties for Private Growers, and 24 for Nurserymen. LS—SK—SB.

CLASS II.—FLOWERS; for which all persons are admitted to equal competition.

S. Stove or Greenhouse Plants; in collections of 40 plants. LG—GK—GB.

N.B. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums to be excluded from *S*, *T*, *V*, and *W*.

T. Stove or Greenhouse Plants; in collections of 20 plants. GK—GB—SG.

N.B. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*.

V. Stove or Greenhouse Plants; in collections of 12 plants. GB—SG—LS.

W. Stove or Greenhouse Plants; in collections of 6 distinct species. SG—LS—SK.

X. Greenhouse Azaleas; in 12 distinct varieties. GB—SG—LS.

Y. Greenhouse Azaleas; in 6 distinct varieties. SG—LS—SK.

N.B. No one can show in both classes of Azaleas.

Z. Stove or Greenhouse Climbers; in collections of 6 species. SG—SK—SB.

AA. Exotic Orchidaceæ; in collections of not fewer than 20 species. LG—GK—GB.

N.B. Exhibitors cannot show in more than one of the classes *AA*, *BB*, and *CC*.

BB. Exotic Orchidaceæ; in collections of 12 species. GK—GB—SG.

CC. Exotic Orchidaceæ; in collections of 6 species. GB—SG—LS.

DD. Scarlet Pelargoniums; in 6 distinct vars. LS—SK—SB.

EE. Pelargoniums; in 6 DISTINCT SPECIES. SG—LS—SK.

N.B. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden crossbreds.

FF. Achimenes; in collections of 6 species, grown in pans not less than a foot in diameter. LS—SK—SB.

GG. Distinct varieties of Tall Cacti in flower. GB—SG—LS.

N.B. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH. Fuchsias; in collections of 12 VERY DISTINCT varieties, of which one-half shall have a light calyx. LS—SK—SB.

II. Cinerarias; in pots, in collections of 12 distinct varieties. SK—SB—C.

KK. New or extremely rare ornamental Plants. SG—LS—SK.

NB. These Medals will be awarded by the Society's Officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare plants can be exhibited under this letter. *Nothing will be regarded as new which has been exhibited in the Garden in a previous season.*

LL. Single specimens of very superior cultivation. SG—LS—SK.

MM. Miscellaneous subjects. SK—SB—C.

N.B. Exhibitors under *MM* will not be thereby *entitled* to a pass-ticket. Cockscombs, Heartsease, Hydrangeas, and bouquets are altogether excluded from exhibition.

NN. Seedling Florists' Flowers. SK—SB—C.

N.B. Every seedling must be shown singly, and marked with the name it is to bear. The same seedling cannot gain a prize more than once in the season. Pelargoniums are to be shown in pots, and not in a cut state. No person will be allowed to exhibit more than 6 seedlings at each meeting. Exhibitors under this head will not be thereby *entitled* to a pass-ticket. For seedling Pelargoniums exhibited the first year no higher prize shall be given than a Certificate, and this is to be awarded to flowers of decided merit. Seedling Pelargoniums of the second year must be shown in pots not smaller than 32s, and each exhibitor may produce six or them, but not a larger number.

IN ADDITION to any Medals assigned to the classes *I*, *S*, *T*, and *AA*, the SK, SB, and C are offered for the collections in those classes which shall be best named by the Exhibitor.

N.B. The Society's Officers, who will make this award, will be guided in their judgment by a consideration not only of the correctness of the names, but of the accuracy of the spelling, and the neatness of the writing.

CLASS III.—FRUIT; for which Market Gardeners, Fruiterers, or persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY RIPE and WELL-COLOURED and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary it will be disqualified.

OO. Miscellaneous Collections of Fruit, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS.

N.B.—Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter.

PP. Grapes. SG—LS—SK—SB.

QQ. Pine Apples. SG—LS—SK—SB.

RR. Peaches or Nectarines, in dishes of six specimens. SK—SB.

SS. Other kinds of Fruit. SK—SB—C.

JUDGES.—The Judges have the power of *increasing* or *diminishing* the number and value of the Silver Medals offered by the Society for particular objects, and also of *conferring* Silver Medals or Certificates in cases not contemplated in these regulations, if they think it necessary to do so.

The Judges are also required to bear in mind that the Society's Medals are offered less for new and curious objects than for fine specimens of Horticultural skill, the design of the Council in instituting these meetings being no so much to encourage the Collector as to reward the skilful Gardener. They are also not to make any award in cases where the objects exhibited do not appear worthy of a Medal; otherwise a bad single exhibition might obtain a prize, merely because there is no better exhibition of the same class to oppose it.

By order of the Exhibition Committee, JOHN LINDLEY,
Aug. 31, 1844. Vice Secretary.

*** Copies of these Regulations can be procured upon application at the Society's Office, 21, Regent street.

HOME GROWN SEEDS.—In calling attention to the Collections of Seeds Advertised in the 4th page of the *Gardeners' Chronicle* of Dec. 14th, Messrs. SUTTON AND SONS beg to add that they have the privilege of referring to Gardeners and Gentlemen residing at the under-mentioned places, who have in past years availed themselves of this advantageous mode of procuring NEW GARDEN SEEDS of best sorts, and have expressed themselves in the highest degree pleased with the crops:—Glasgow, Aberdeen, Perth, Edinburgh, Castle Douglas, Hull, Newcastle, York, Bristol, Plymouth, Dover, Isle of Wight, Portsmouth, Brighton, Oxford, Cirencester, Newport, Monmouth, Ludlow, Wolverhampton, Gloucester, Margate, Woolwich, Harlow, Carlisle, Carmarthen, Cardigan, and many others.

Full Collection, for large Establishment	.	£3 3s.
Ditto	second-rate Establishment	. 2 2
Ditto	third-rate Establishment	. 1 1

N.B.—Delivered free to any railway or packet office in London, or to any station of the Great Western Railway between London and Bristol inclusive. (See Adv. Dec. 14th). Further particulars by post if required.—Reading, Berks, Jan. 4.

The Gardeners' Chronicle.

SATURDAY, JANUARY 4, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Jan. 6	Entomological	8 P.M.
WEDNESDAY	Jan. 8	Society of Arts. . . .	8 P.M.
SATURDAY,	Jan. 11	Royal Botanic . . .	4 P.M.
WEDNESDAY	Jan. 15	Microscopical	8 P.M.

"OUR scarlet Pelargoniums and other plants against walls," writes an excellent practical gardener in the south of England, "have sustained little or no injury, although we have had the thermometer at 23°. They have stood in the same place for the two last years without protection. *But the bottom is remarkably dry* and well drained, and *the situations thoroughly sheltered* from the cold piercing winds." What a lesson is this for gardeners, and how thoroughly does the practical experience which it conveys correspond with theory! It cannot be otherwise.

Our daily experience shows us that all things which are wet freeze sooner than such as are dry: it is needless to ask why; it is enough that the fact is notorious. No wonder, then, that plants should be affected in the same manner. If plants are ill-drained they grow late, ripen their wood ill, are watery, and upon the approach of frost suffer excessively. But thorough drainage in a dry border has the effect of preventing the accumulation of watery sap; the delicate tubes of a plant are able to change its nature, or to throw it off for the winter, and the frost, when it arrives, has nothing to operate upon. Not indeed that tender plants, when most favourably circumstanced, will bear any amount of cold. On the contrary, every species has its own special degree of tenderness, which nothing has yet succeeded in changing; for acclimatising is a delusion. It is not in a case of this sort that well drained plants become more hardy; the truth is, that ill-drained plants become unnaturally tender. Besides, an ill-drained plant is in a state of perpetual bad health; well drained plants are the reverse; and sickly plants, like sickly animals, are always impatient of cold.

We well remember the surprise that some years since was felt by horticulturists near London, when it was known that a great many tender greenhouse plants had been living for years without protection in the garden of Mrs. Hamilton Nisbett, in East Lothian. The secret was the thorough drainage of every spot which was occupied by a tender plant.

The favourable influence of good drainage is not, however, confined to plants in the open ground; those in pots are affected by precisely the same circumstances. "How often," says the same intelligent correspondent, "have I seen our potted plants destroyed by a degree of cold which their neighbours, of the very same species, endured with impunity. This I have more particularly observed among Cape Heaths, New Holland plants, and hard-wooded greenhouse plants in general. The former have invariably been potted in the old-fashioned way, in finely sifted mould; the other in coarse unsifted materials mixed with stones." Here again we have the drainage exercising its salubrious effects; for the hardiness of one and the tenderness of another plant of the very same sort could be accounted for upon no other grounds. In fact, if this were but attended to, as it should be, there are hundreds of greenhouses in this country which would hardly require even a flue to keep their plants with. We can, in fact, point to one instance where the doors and sashes of a greenhouse have not been closed, night or day, for these four years, except for the purpose of fumigating with tobacco-smoke; and when a fire has been employed, it has been lighted in the day-time, in order to drive off damp. It is true that this is in a mild part of England, and cannot be universally adopted: the fact, however, is valuable, as showing how much more our greenhouse plants are coddled than they need be. The power of enduring cold in the plants alluded to depended entirely upon their wood being well ripened, and the pots thoroughly drained.

Plants in greenhouses have in all cases less need of warmth than if they were in the open air, because they are necessarily sheltered. The tender plants just mentioned as being unharmed by 9° of frost were in a thoroughly sheltered situation. Experience tells us that plants, like animals, can bear a much lower temperature when the air is still than if it is in motion. We find a still air, when the thermometer is 10°, by no means inconvenient; but a temperature of 30° with a brisk breeze is intolerable. Men suffer thus in consequence of a loss of their animal heat; but in plants, whose natural temperature is so inconsiderable, death from cold wind is probably caused by a loss of the water which is indispensable to their vitality. Be this as it may, the dangerous effect of cold winds on plants, beyond anything that the mere lowness of temperature can account for, is undoubted. How often do we see the common China Rose half destroyed beyond the screen of a plantation, while within a few yards, but under the lee of trees, the same kind of plant sustains no injury! Yet a thermometer suspended in the two situations would have indicated little or no difference in the temperature.

Thoroughly drained plants in a greenhouse are therefore guarded from cold, to a great extent, by that circumstance alone, and the stillness of the air about them enables them still further to dispense with the assistance of fire. Mr. Ward indeed tells us,* that he grew for three winters, in one of his houses, the Rhapis flabelliformis and Date Palm, both greenhouse plants, and they never received any artificial warmth during all that time. Dr. Royle also mentions an instance of a similar kind, where, in the comparatively cold and dry climate of Delhi, it was found possible to keep in health the *Xanthochymus dulcis*, a species of a most delicate family, by the mere aid of shelter.

"To show the effects of protection and culture, *Xanthochymus dulcis* may be adduced as a remarkable instance. This tree, which is found only in the southern parts of India, and which would not live in the more exposed climate of Saharunpore, exists as a large tree in the garden of the King of Delhi; but here, surrounded by the numerous buildings within the lofty palace wall, in the midst of almost a forest of trees, with perpetual irrigation from a branch of the canal which flows through the garden, an artificial climate is produced, which enables a plant even so sensitive of cold as one of the *Guttiferæ* to flourish in the open air of Delhi, where it is highly prized, and reported to have milk thrown over its roots, as well as its fruit protected from plunder by a guard of soldiers."

We have thrown together these remarks chiefly for the sake of cautioning those who have inadequate heating apparatus, as they suppose, from alarming themselves unnecessarily about their greenhouse plants. The Ice King is no doubt a formidable enemy, but we may be sure that the Fire King is not at all less to be dreaded. In fact, the latter does more harm in common gardens than the former.

As to the drainage that it may be most advantageous to employ, we suspect that no material will, upon the whole, be found better than lumps of charcoal. It is true that experiments have not in all cases proved the utility of that substance so much as might have been expected, but at the same time, opinion is evidently turning in its favour, and we believe that the adverse conclusions that have been arrived at are capable of a favourable explanation. But of this another time.

We have also another and a more cogent reason. The Horticultural Society received a few months since from Mr. FORTUNE, whom the Council had sent to China, at a very large expense, seeds of a bush found by him in the island of Chusan, which he called Buddlea Lindleyana. This plant produced one solitary flower last November in the Society's Conservatory, of a rich violet purple; from drawings and dried specimens we learn that those flowers are formed in clusters as large as what are borne by the Persian Lilac; and therefore if it is but hardy it will prove one of the most valuable introductions that have taken place since the China Rose. Now, large numbers of this promising plant have been distributed to the Fellows of the Society, many of whom have planted it in the open air; and we are extremely desirous of knowing, when the winter is over, how it has borne the cold. But we are also most anxious to ascertain what the circumstances really are under which it fails or succeeds; and these remarks upon drainage and shelter are written most especially for the purpose of enabling those who may possess the plant to know how to report. It is evident that its being killed by the frost when it grows in a low undrained situation is no proof that it is tender; but its surviving when the ground is drained and sheltered is, on the contrary, a proof of its being hardy; for every garden, deserving the name of garden, should be both the one and the other. For our own parts we believe it to be hardy, under all circumstances which are favourable to the China Rose; and in that case it will be, like so many other plants introduced of late years, a thing to make a man proud of having belonged to that great Horticultural Society which, by a wise application of its resources, has so enriched his country.

* On the Growth of Plants in Closely Glazed Cases, p. 31.

OUR Paris Correspondent has sounded a note of alarm which we trust will be heard all over the country. He announces the approach of certain ingenious Frenchmen who intend to favour John Bull with some prodigies in Gardening, such as none but a Gascon would have the hardihood to proffer.

Let them come.

If after this notice, and our caution, people are found to spend one franc with such people, they must not cry out if they are cheated, and if the honest English gardener looks upon them as patrons of foreign charlatans.

In former days we saw much of these foreign gentry, and, as far as our means of doing so then extended, we cautioned buyers against them. But we cannot boast of our success. On the contrary, many people persevered in encouraging them, and an ample harvest was carried back to France. Now, however, the columns of this Paper will spread the intelligence of their intentions among all classes of buyers, and no man can say that he has been cheated unawares.

Then let them come.

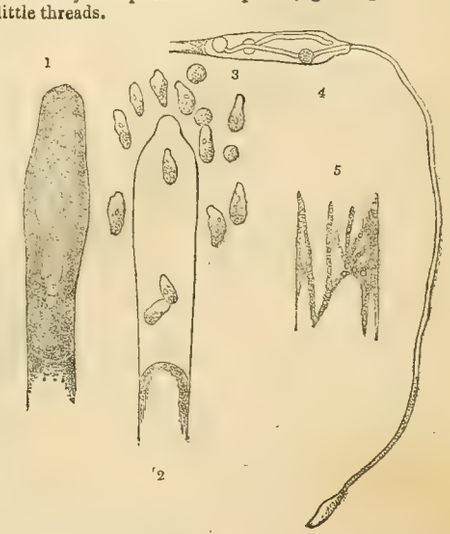
Persons who know nothing of this kind of rogue require perhaps to be told that the foreign nurserymen of respectability never hawk their goods about, never hire a room in the Haymarket, or Saltmarket, or any other street or market; but if they visit England do so in the legitimate exercise of their trade, which is carried on like English trade itself. The very circumstance of a man departing from this rule stamps "knave" upon his dealings, and ought to be a signal that his colours are black, and his commission a pirate's. Having given this warning, we again say to the honest gentlemen on the other side of the Channel, Pray come; and to our correspondents, Give us notice of their arrival.

FAMILIAR BOTANY.

DISEASE OF THE GOLD-FISH.—"Alas, for my beautiful gold-fish! I could be content to see them die, but to perish thus miserably is most distressing. Is there no remedy? Must that disgusting mouldiness which overruns their glittering bodies and in even a few hours kills the finest and freshest specimens that can be had, remain without a cure? My fish are in a large plate-glass cistern, elevated so as to be level with the eye, and it was impossible to conceive anything more beautiful than the play of light upon their gold and silver armour. But now they are reduced to a few sickly specimens, struggling for their lives, and I have no hope that even one will be left a few days longer. What *can* be done?"

Thus laments a fair correspondent. The best answer to her inquiry is a history of the disease itself; for then only, when we have learned its history, may we hope to cure it.

The soft and silky threads which may sometimes be seen adhering to the surface of such fish as these are a plant called *Achlya prolifera*. It is one of those simpler forms of vegetable structure in which the whole individual consists of a thread, and multiplies itself by means of little grains (or spores) formed in its interior, and, when they escape from the parent, growing into other little threads.



Plants of this nature are very common. The water-flannel formerly described (p. 735, 1843) was one, and you may find others in the form of the slender hairs which render stagnant water green and turbid. They are called Algæ, or Algals, or Confervæ, and can only exist

in the midst of water; any degree of dryness is fatal to them. They are, therefore, the frequent companions of fresh-water fish, but in general they are harmless, growing freely in the fluid without attaching themselves to other bodies. Achlya is an exception, for it invariably lays hold of either dead or living fish, seizing the back of the latter, in the first instance, and only occupying little spots, but rapidly spreading over all the scales, and often killing a healthy specimen in 10 hours.

The plant has been carefully examined by Dr. Unger, who gives a most interesting account of it. When arrived at its full growth it consists of transparent threads of extreme fineness, packed together as closely as the pile of velvet; they greatly resemble, in general appearance, certain kinds of mouldiness. When placed under the microscope—for the naked eye can perceive nothing of their true construction—the threads are found to be terminated by an extremity about $\frac{1}{1200}$ of an inch in diameter, and consisting of a long single cell, within which is collected some green mucilage intermixed with granules. Dr. Unger assures us that at this time no starch is present, but the whole of the green matter is of the nature of gum, as is proved by the action of iodine upon it. The contents of the cell are seen to be in constant motion, directing themselves in lines such as are represented at fig. 5. While this is going on, the end of the cell continues to grow, and at the same time the contents collect at the extremity and distend it into a small head in form resembling a club, immediately after which a chamber is formed, and then the first stage of fructification is accomplished (fig. 1).

The next change is observed to take place in the granular matter of the clubhead, which itself enlarges, while the contents gain opaqueness, and by degrees arrange themselves in five or six-sided meshes, which are in reality the sides of angular bodies, that are rapidly forming at the expense of the mucilage above mentioned, which has disappeared. It is not the least surprising part of this little history, that all the changes above mentioned take place in the course of an hour or an hour and a half, so that a patient observer may actually witness the creation of this singular plant.

At this time all the vital energy of the plant seems, according to Unger, to be directed towards changing the angular bodies in the inside of the clubhead into propagating germs or spores. Meanwhile the clubhead grows, and thus gives them a little room, and they in their turn alter their form a little, and become oval. Then it is that is witnessed the surprising phenomenon of spontaneous motion in the spores, which, notwithstanding the narrow space in which they are born, act with such vigour that at last they force a way through the end of the clubhead. At first one spore gets out into the water, then another, and another, till at last the clubhead is emptied, and assumes the appearance at fig. 2. All this takes place with such rapidity that a minute or two suffice for the complete evacuation of the clubhead or spore-chamber.

The spores, when they find their way into the water, are generally egg-shaped, and swim *with their small end* foremost; but they are often deformed, in consequence of the narrowness of the hole through which they have had to pass (fig. 3). It even happens that they stick fast in the hole, and perish there. They are extremely small, their breadth not exceeding the 1896th part of an inch. Their small end is the most transparent, and it is curious to see how constantly this is pushed forwards in the rapid evolutions made in the water by these living particles. This sort of *quasi* animal life does not last long—a few seconds, some minutes, or at the most half-an-hour. They often die: Unger assures us that he has seen them in the agonies of death, and *struggling convulsively* (!), with all the appearance of animal life.

Their real destiny is, however, to propagate the plant, and to shoot out into other silken threads; this generally happens in the water: but sometimes they germinate within the chamber of their mother, as is represented at fig. 4, where two spores are seen extending themselves into young Achlyas, while a third lies dead by their side.

What inferences are to be drawn from these strange facts, I must endeavour to explain another day.—*R. E.*

LESCHENAULTIA FORMOSA.

THIS delightful shrub was introduced from New Holland about twenty years ago, and although at that time considered a pretty plant, we had no idea for many years what improved cultivation could effect with it. During the last few years it has become an object of surpassing interest; so much so, that at our Exhibitions it is quite an indispensable plant, and takes a leading position in all first-rate collections. In truth, some of the specimens of this plant during the last season were cultivated with such extraordinary skill, as to be considered objects of sufficient merit to be awarded, as single specimens, Medals of considerable value.

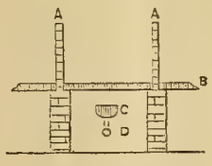
The cultivation of this plant is so exceedingly simple, that it may be successfully grown in any greenhouse where plenty of light is admitted. The kind of soil most suitable for it, is two-thirds of rough turfy peat, and one-third of silver sand, adding to this one-sixth of the whole of light, mellow, fibry loam. Let these be well mixed together, and used in a perfectly coarse lumpy state. Procure young healthy plants in March, and supposing them to be in 48 sized pots, in which they have been wintered, they may be at once shifted into 24s, taking especial care, however, that the pots are perfectly drained with broken potsherds to the depth of about an inch, having a little chopped Moss sprinkled over the drainage, to prevent the soil from mixing with the latter and thereby obstructing the free circulation of water—a most important point in the cultivation of this plant. After the operation of potting is performed, let the whole be well watered through the rose of the watering-pot, and then placed in a light part of the greenhouse near the glass. With attention and good management it shall have made, by the middle of July, sufficient progress to require another shifting. It may then be potted into a No. 12, following precisely the same mode as in the spring shifting. It will then remain in this pot until the following March, when it will be ready for a final shift, say into a No. 8, in which, during the following summer, it will become an object of surpassing beauty—an ample recompense for the care and attention bestowed upon it.

The training of the plant, during its growth, should not be forgotten. When it was first introduced at our Exhibitions, it was usually trained upon a wire frame, in a hemispherical form, with all the branches tied to one front, exposing the entire nakedness of the plant on the other side. This system of training greenhouse shrubs is in such bad taste, that we are glad to see it giving way to a more rational, because a more natural and elegant form, founded upon the principle of improving the habit which nature has properly assigned to plants. This assistance is not only justifiable, but it is the peculiar object of the eminent cultivator, and a distinguished mark of his taste and proficiency in an important part of his profession, not as regards the culture of plants in pots only, but with respect to every object, whether in the conservatory or shrubbery, that may be destined to adorn the gardens under his care. One stake alone will be sufficient for this plant: this will take the centre or leading shoot, and the lateral branches may be, as occasion requires, supported by ligatures of green worsted. The form, in this case, will be a perfect cone, the under branches hanging down over the sides of the pot; surely such a form and arrangement is decidedly superior to torturing and twisting the branches in every direction, as is often done when much wire and stakes are used.

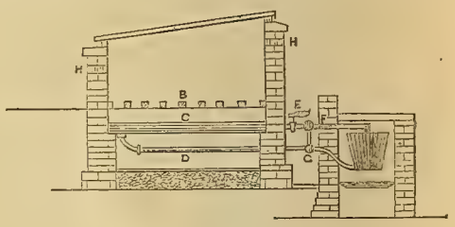
No plant with which we are acquainted is so apt to suffer from continued profuse blooming. Therefore, in order to strengthen its growth and add fresh vigour to its constitution, the flowers should be occasionally entirely and carefully picked off. It has been recommended in the culture of this species to place it in heat, but on no account do this; Leschenaultias are thorough greenhouse plants, and must be treated as such. Plants of that kind, when exposed to high temperatures, in an atmosphere charged with vapour, acquire an artificial constitution, and assume a weakly attenuated appearance quite unnatural to a plant of temperate habits. This is the common cause of inexplicable premature dissolution. Leschenaultia requires and should have a quiet, cool temperature, with plenty of light, and a regular yet judicious supply of water. Plants treated in this manner will never suffer to the same extent by the heats of summer or the damps of winter, as those produced in warm houses. In the autumn it may be placed in the open air, in a partially shady situation, which will harden its wood, and the better enable it to withstand the long confinement to which it must be subjected during winter.—*Duro.*

THE TANK SYSTEM OF HEATING.

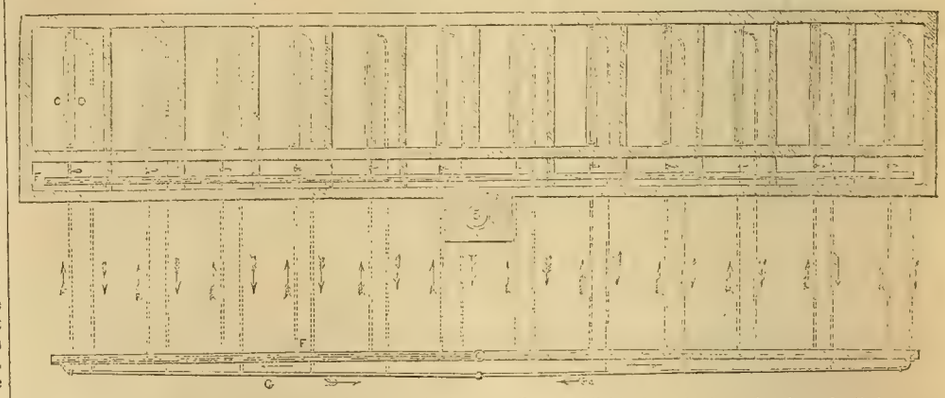
I HAVE recently put up a house, 45 feet in length, for the growth of Orchidaceous plants: it is warmed by Healy and Burbidge's ribbed boiler and iron tanks, and I am induced to think, from the satisfactory manner in which the apparatus heats the house, that the same principle may be beneficially extended to heating a range of pits for the growth of Melons and Cucumbers. By this means we shall be enabled to get rid of the annoyance, filth, and, I am inclined to add, expense of fermenting materials, as well as the pest of the smoke-flue. I am aware that pits have been heated on a somewhat similar plan, but there appear to be considerable objections to the *open* tank system at certain periods of the year, arising from a superabundance of moisture. Messrs. Healy and Burbidge's metal tanks completely obviate this difficulty, being available either as close pipes or open tanks, whichever may be required. I am not aware of any plan having been submitted to the public similar to that represented in the following engraving.



Section.
A A Partition walls.
B Bearers.
C Tank.
D Return-pipe.



Section.
E Stop-cock.
F Main flow-pipe.
G Return-pipe.
H Ventilators.



Main flow and return-pipes, showing the connection between them and the tanks and return-pipes in each pit, by the dotted lines.

I propose to construct 12 pits, each 7 feet in length, and 4 feet in width, separate from each other, but all worked by the same apparatus, in such number as may be required. This enables the gardener to have a succession of either Melons or Cucumbers, or both; and from each pit containing a distinct species of fruit, he will find no difficulty in preventing the seed from becoming hybridised. Some of the pits intended for a succession may in the interim be used for forcing Strawberries, French Beans, &c. I particularly recommend Healy and Burbidge's *ribbed* boiler, as generating more heat with an equal portion of fuel, and with more expedition, than any other boiler with which I am acquainted; and I must express my satisfaction at the complete manner in which all the materials were forwarded to me by that firm; so perfect, indeed, that the entire arrangement was put together by a handy labourer.

I would set the boiler in the centre, with a flow and return pipe right and left from it, extending to the required length of the range. Each pit is to be supplied with a tank connected, by means of a stop-cock, with the main flow-pipe, and a return-pipe from that tank to the main return-pipe. The stop-cocks admit or turn off the flow of hot water to or from whatever number of pits it is intended should be heated, the boiler being of sufficient capacity to work the entire 12 pits at once. The quantum of heat to be admitted can be regulated by means of the stop-cock to each pit. I would insert ventilators in the front and rear walls, under the stone coping, covered with perforated zinc, for the two-fold purpose of keeping out bees, and preventing a too sudden rush of cold air.

The plan and sections above will explain the nature of the range, and the mode by which it is intended that the several pits should be worked. It would be impossible to give an estimate with any degree of certainty, so much depends on the locality where they would be erected, but some idea may be formed by referring to Messrs. Healy and Burbidge's advertisement in the *Chronicle*.

I am induced to submit the above plan to the public, in hopes it may be of some use, if only to induce others to improve on it. I am not aware of any difficulty or objection to its working well. It may be extended or curtailed to suit the wants of each gardener, and I have no doubt of its being of the greatest advantage to the practical amateur. If we calculate the expense of labour, horses, hire, tan, leaves, and other fermenting materials now in use, I am certain that after the first outlay it will be found to be a saving. In towns, where such materials are costly and difficult to be procured, a moderate outlay at first will afford means of supplying a house with many luxuries in fruits and flowers during the winter season. Some of the pits may be used as cold frames, and by a small additional expense the centre might be appropriated either to a small greenhouse or a Grapery.—*J. Lyons, Mullingar, Ireland.*

ON THE SHANKING OF GRAPES.

Those who have written in the *Chronicle* last year on this subject appear to differ very much with regard to the cause of shanking: some attribute it to the borders; others to over-cropping, or to an over-moist atmosphere; and lastly, it has been attributed to cold currents of air. Now, with the first of these opinions I quite agree, but not with the others. With respect to the crop, however abundant that may be, it will not cause the Grapes to shank, provided the border is good, and the management inside the house what it ought to be. The only evil that I have ever found to arise from over-cropping has been smaller bunches, but still the fruit was perfect, well-coloured, and quite free from what is termed shanking. I do not think that the damp state of the atmosphere of the house would cause the evil; on the contrary, I imagine that it would be much more likely to occur in a dry atmosphere, being quite convinced that Vines cannot have too much support at the time when the fruit is swelling; and in what way can we assist them better than by raising a genial moisture in the house? I have frequently seen Grapes under my charge covered with dew in the morning, to such an extent as to be perfectly white with it; and in this state I always like to see them before air is given.

The following statement of facts may possibly in some measure prove that the principal, if not the sole cause of shanking, rests in the border.

When I entered upon a situation, which was in June, 1832, where there was a great extent of Vineries, I found one large house with the crop ripe, and quite regular throughout the house, the bunches averaging about three quarters of a pound each, with moderate-sized berries, the sound ones being of a good colour, but throughout the whole house there was not more than a third part of the bunches fit for table, and at least two-thirds of the berries composing the bunches were shrivelled and of the colour of claret, and were as acid as the best vinegar; the foot-stalk of the berries was quite black and dry. On inquiry, I found that this house had been forced first for a number of years, without any attention having been paid to the border; the Vines were planted inside the house, both at the back and front, and, on examining the borders, I found that they were quite dry, and completely exhausted of all nutriment—not a single fibre could be seen as far as I could search; the only roots were those of a large size, and when touched the bark or outer covering of these rubbed off where it was dry, like black powder; but where it was wet it adhered to and left a dark stain upon the fingers, and smelled like decaying wood. Feeling convinced that this was the cause of the crop failing, I endeavoured to remedy the evil by improving the borders, and, as they only extended to the width of the paths in both the back and front of the house, I could only do it partially without destroying the Vines; and this I had no wish to do at that time, as I imagined that they might be improved, and that they might possibly equal young ones; and, after treating them in the following manner, they certainly realised my utmost expectations.

Early in autumn I removed the whole of the old mould from the surface of the borders, for about a foot in depth or more, where I could get it away from among the old roots, and replaced it with equal parts of chopped turfy loam, and rich, well-decayed dung and leaf-mould, from old hot-beds; this was well mixed and turned before it was used; it was then worked in between the old roots, with the hand, and made moderately firm, but was not trod till the whole space was filled. In the front path I placed boards, so as to form boxes round the stems, the Vines being in front planted against the pit-wall; these boxes I also filled with the same compost as was applied to the border; this caused the Vines to root freely from every eye on the old stem, and these roots descending into the fresh soil, the border soon became filled with new roots. I shut the house up in the early part of December, and commenced forcing in the usual way, and before the Vines had pushed their buds, on examining the bottoms of the stems, I found quantities of young rootlets bursting forth, both from them and also from the upper ends of the old roots. As the young shoots advanced in growth, the new roots also made rapid progress in the new soil, which, by the time the fruit was ripe, had become one mass of fibres; the border was watered twice a week with manure-water, the effect of which was apparent on the Vines in the first season; they were much more healthy in appearance, and the fruit was much improved. Nothing more was done during that season, except adding fresh soil of the same kind as that used in the first instance, as the borders subsided. At next pruning-season it was impossible to fork up the borders, as they were full of roots to the very surface; consequently, they were covered over a few inches in thickness with dung and leaf-mould, from old beds; over this was put a thin covering of soil, and the pathway was laid down as before; this treatment they received annually ever afterwards, and in the second crop after the borders had been renewed there was scarcely a bad berry to be seen. The Vines grew with all the luxuriance of young plants, and I never afterwards saw the slightest appearance of shanking, the Grapes being very fine, well-coloured, and covered with a fine bloom. This statement goes far to show, that the chief cause of shanking lies in the border, and it in some measure proves what a useless thing a deep border is, as it appears that if Vines are encouraged at the surface with what they like, they will not descend in search of that which is pernicious to their well-being.—*C. Judd.* [Excellent advice.]

Home Correspondence.

Tank-Heating.—I lately put down a tank in a small plant-stove, 8 feet in width by 12 in length. As I wanted to make it at as little cost as possible, and to have the sides and bottom exposed, so as to give out atmospheric as well as bottom-heat, I selected common tin, as it was easily worked. The tank is 2 feet in width, 11 feet in length on the sides, 6 feet 6 inches on the end (one end of the house is occupied by the door), and 4 or 5 inches in depth, so as to allow 3 inches of water, which is covered with blue slates, with 8 inches of bark above them. It rests on front and back spars, which are connected by a few narrow cross bars; and it has 4 inches of the front exposed, and almost all the bottom; but I found that I could not get above 50 deg. or 55 deg. of heat, without having the water so hot that it would have been unsafe to plunge any pot into the bark. I got, therefore, two pipes 9 feet in length and 6 inches in width, and laid them down beside each other, an inch or two from the ground, under the back leg of the tank, connecting them with each other and with the boiler by lead pipes of an inch in the bore, and I can now keep the heat at 60 deg. in the coldest weather with facility, covering the lights with a mat. The tank, well painted, cost 35*s.*; the lead, pipes, &c., connecting it with the boiler, 25*s.*; making altogether, 3*l.* The iron pipes subsequently laid down, and the plumbers' work, will be something less than that sum. How long it will last without corroding has to be seen; but if I find it necessary to renew the paint, it can be done without much difficulty. The tank stands about 30 inches above the ground, and that space should be useful for something; what would you suggest?—*C. J. D., Bolton.* [It is a good place for forcing Rhubarb, Asparagus, or Sea-kale; its darkness renders it unfit for any plants except such as are to be blanched.]

The Tomtit.—One word in favour of the unfortunate tomtit, whom that wholesale murderer, who signs in your Paper "Scrutator," condemns to a lingering and painful death. No person who has a garden will deny that many birds are injurious to their fruit, peas, &c.; but very few seem to have the slightest knowledge of the good, which it is indisputably and weekly urged in your *Chronicle* they effect in other respects. The very bird condemned by "Scrutator" is, I believe, as useful as any, though he may be, perhaps, rather more of a depredator than some. I have observed, during the late frost, every morning from 20 to 30 of the great tomtit (*Parus major*) busily at work in one particular part of a meadow opposite my dining-room window, which is celebrated for having less hay upon it than the rest of the field. I have no doubt that the tits are devouring the larvæ of insects, which have prevented my Grass from growing. Another member of the family, too, the coal tit (*Parus ater*), I have often seen busily engaged in his crusade against larvæ, which he finds abundantly in the axils of the Fir branches, &c., while the little blue tit (*Parus cæruleus*) is a no less active insectivorous feeder. Now, for services done and performed, I claim for my tits (for the whole tribe of which I have an especial regard), some recompense. A few Peas, or Gooseberries, or Currants, are but trifling payments, and ought not to be grudgingly bestowed; much less do I think their valuable services ought to be basely returned by a bag of suet and nux vomica! Did "Scrutator" ever observe a tit crack a nut? If not, the next time he walks in his garden, let him listen for a tapping against the branches of some tree. If he looks carefully he will discover Tom very busy knocking with all his might and main the stone of the Haw or Yewberry, and not even "Scrutator's presence, redolent as it may be of suet and nux vomica, will interrupt his labours until the sought for kernel has been obtained; and I hope after seeing this he will suspend all hostility against birds in general, and tits in particular. It is quite possible to grow fruit and Peas without waging war against the birds, the destruction of which would be a national calamity. The great Ordainer of nature's laws has created one animal with the especial design that it shall prevent the too great increase of others. Birds have enemies enough in nature to keep them down, without the aid of man, whom they befriend the most, and are repaid with wanton destruction—guns, traps, and, *horribile dictu*, mutton suet and nux vomica. Let "Scrutator" in future spare the sweet, lively creature that enlivens Nature, beautiful in her own wild solitude, or in the haunts, and walks, and groves of civilised man. A few skeins of worsted and white paper will be sufficient, if he is niggardly; and if not, let him sow a little more seed, and let the birds as well as himself partake of the bounty of nature's God.—*C. R. Brce, Stowmarket.*—[We incline to think that men like "Scrutator" have more to dread from their own acts, than from those of the unfortunate tomtits.]

Stem-roots of Ivy.—In the course of some alterations I had occasion to sacrifice a very fine plant of broad-leaved Ivy. When it was uprooted and torn from the wall, one of the topmost shoots broke short, and remained firmly attached. Upwards of six weeks afterwards, when the wall was about to be removed, I observed that this shoot was still as green as ever; and, on procuring a ladder, I found that the Ivy, in the progress of its growth, had insinuated itself into a hole occasioned by the decay of a soft brick, and had struck vigorous root into the debris. I may here add, that I am convinced, from long experience, and contrary to earlier prejudice, that if care is taken to conduct away the rain from the eaves of a house, the broad-leaved Ivy is a powerful protection to the walls, both against damp and cold.—*A Subscriber.*

Brewing.—In reply to a "Reader," I beg to state that I put 3 lbs. of the best Hops to 6 bushels of *malt*; after it has been steeped for two hours, I throw it into the boiler with the wort, Hops, and all; and when sufficiently boiled, I strain it into the coolers. The Hops will do again to boil with small beer.—*A Farmer's Daughter.*

Vines.—While advising you to direct notice to the Welbeck Black Tripoli Vine, I beg also to give notice of two other Grapes of the first class also; I mean the genuine Purple Constantia, which the Duke of *Portland* frequently told me was first brought into this country from the Cape, by his father, and was the grape *from* which they made the Constantia wine. It is generally sent from the nurseries under the name of Black Frontignan; but his Grace is desirous that it should be known by no other name than by that introduced by his noble father. The genuine Black Frontignan has small bunches, and small berries, much resembling the small Black Cluster, but of a very high musky flavour, and ripens of a fine black colour; but I threw it away from the Welbeck collection, as it was an indifferent bearer. The other Grape deserving of better notice is grown at Clumber, the Duke of Newcastle's, in high perfection, and ought to be in every collection where there is room for it, and where a hardy, good late Grape is desirable. I believe it to be the genuine large Black Cluster Grape.—*John Mearns, F.H.S.*

Underwood.—In reply to an "Old Subscriber," who inquires what plants useful as underwood and cover are not liable, especially when young, to injury from hares and rabbits, I would mention that the Rhododendron will grow and flourish (I do not insure its flowering) in any soil and in any situation in which the common and Portugal Laurel, or Holly will grow; and in all stages of its growth, and in all seasons, is left untouched by hares and rabbits.—*An Old Subscriber.*

How to preserve Passiflora edulis.—Take four dozen of ripe fruit and peel them with a sharp knife as thin as possible, retaining the foot-stalks. In the end opposite to the stalk make a small cross incision, and take out the pulp, which must be preserved in a cool place until it is wanted; throw the fruit as peeled into a vessel of cold water until all is prepared; then having a preserving pan full of boiling water, throw in the fruit and give it a brisk boil until it becomes tender; then strain it, and throw it into cold water again. The following syrup being previously prepared viz.: 6 lbs of sugar boiled for 5 minutes with 6 quarts of water—immediately boil the fruit in it for 5 minutes; this 5 minutes' boiling must be repeated in four successive days, observing each day to take the fruit out of the syrup, and to reboil it for 20 minutes in order to reduce it to a proper strength; by this time the fruit will be clear, and the syrup strong enough to keep; then add the pulp in its original state, and the operation is finished.—*J. D., Stackpole.* [Our kind correspondent has, by means of a sample of this preserve, taught us two things: first, that P. edulis can be preserved; and, secondly, that it is perhaps the very best article of confectionery that is sent to table. We had no idea that the fruit had such value, or that it was worth growing, except as a curiosity, or for ices, for which purpose it is said to have been much esteemed by His Majesty King George IV.]

Contrast between English and Irish Weather.—In one of your late Papers I have just read a paragraph containing some remarks on this subject from the proprietor of the Victoria Nursery here, and mentioning some plants now in flower, which go far to corroborate the opinion of the late Mr. Loudon, as to the peculiar fitness of this locality for acclimatising several half-hardy plants—(*vide* "Gardener's Magazine.") Visiting my shrubberies this day, after an absence of some weeks, I found Magnolia grandiflora (var. ferruginea), with its blossoms expanding—Elæagnus angustifolia, having fine pale-green young leaves—Arbutus rigida, in a similar state—Benthamia fragifera—Eriobotrya japonica, covered with beautiful foliage; and near them some Orange trees (without any protection whatsoever) with their flower-buds half expanded. I also found Clianthus puniceus in full flower, and green as in June last—Ceanothus azureus and several Fuschias in bloom. Photinia serrulata appears also quite as hardy as its neighbour, the Portugal Laurel. We have had no frost as yet to call for protection.—*Medicus, Cork, Dec.* 22.

Pear-borders. — A curious instance, corroborating the acknowledged expediency of paving Pear-borders, occurred here a few weeks ago. We were obliged to take up an old border, made some years ago, which had been laid with flat flags without cement, having rubbish over them. The roots had swelled and crept through the rubbish to the flags and bulged out, and then became as fine as string and worked through the intervals of the flags, again swelling out under them, and proceeding on their heterodox course. This is surely a strong proof of the propriety of cementing the bottoms of borders.—*Bilegnis.*

Potatoes.—Mr. Knight recommended the system of plucking off the blossoms from the Potato plant many years ago, and Professor Low, in the first edition of his work entitled "Elements of Practical Agriculture," published in 1834, alludes to it at p. 313, as deprecated by some, but "especially recommended by Mr. Knight, who asserts that more than a ton of additional tubers per acre will be procured by this means;" and further says, "certainly an increased produce will be obtained if the operation be performed sufficiently early." Upon this authority I tried the experiment, depriving about a quarter of an acre of a field of Potatoes of their blossoms, and at harvest time had the produce weighed against that from a correctly measured similar extent adjoining;

the result was a loss, though not a very extensive one. Fearing this result might have happened from some error, the experiment was repeated in another year, but with the same result; and being now satisfied that the process was injurious I abandoned it. But finding the subject again brought forward by Professor Liebig, in his work on Agricultural Chemistry, I determined to repeat the experiment for a third time. Two ridges (or drills, as we term them in Lincashire), 2 feet 6 inches apart, about the middle of a field of between two and three acres, were deprived of their blossoms just when the whole field was in the height of bloom, and the produce at harvest was carefully weighed against that of the two drills adjoining, and the result was as before, a loss of eighty odd pounds by the process; the drills were each 24 rods, or 132 yards long, so that the two drills deprived of blossom, covered fully 7 square rods of land, so that the loss exceeded three quarters of a ton per acre, instead of a gain of one ton, as promised by Mr. Knight. The crop was good and uniform, as had also been the treatment; the ground was a sandy loam upon stiff clay; it is naturally wet owing to sand pits, but was laid dry by thorough under-drainage, 1 rod (5½ yards) apart, and was manured with from 20 to 22 tons of farm-yard manure per acre.—*E. D. F., Lancashire.* [This is a communication which renders a general repetition of the experiment more than ever desirable. It is incomprehensible how removing the Potato-flowers could do harm. Is our correspondent sure that his people did not pull off *branches* as well as flowers?]

Mr. Hoare's Vine-Pillars.—I feel very desirous that the discovery of Mr. Clement Hoare, with respect to Vine-pillars, should be more known. It is of great importance to cottagers, as it is impossible to make a small quantity of land so productive as by erecting a Vine-pillar, which may be done for 25*s.* Mr. Hoare states, in his book on the Vine, that a circle of land 3 feet in diameter will produce 50 lbs. of ripe Grapes every year, on a pillar 5 feet high. I would recommend to persons who can afford it to have bricks moulded for the purpose. I have partly erected a Vine-pillar with bricks of this description, and have planted a Vine as directed in Mr. Hoare's book. I intend to erect another Vine-pillar as soon as the weather permits, large enough for two Vines. I have placed a large slate as a foundation, and to prevent the roots of the Vine from penetrating into the earth when planted.—*C. A. A.' Lloyd, Whittington, Oswestry.* [*We* cannot recommend Mr. Hoare's plan till we have seen how it answers. Two such pillars will be built for experiment sake in the Garden of the Horticultural Society.]

Welbeck Black Tripoli Grape.—Be so kind as to inform between twenty and thirty gentlemen and gardeners, who have written to me respecting the above Grape, that I have not any of it to part with, and that it is not likely it will be for sale before the autumn of 1845. Those who inclosed me a postage stamp, I answered privately; but really those who neglect to do this, must not expect replies.—*W. P. Ayres.*

Whitney's Composition.—I do not know whether Mr. Whitney has been led to make any change in the ingredients forming this transparent composition, in consequence of the representations of its destructive agency on cloth, so often made in your columns; but as it forms so constantly one of your advertisements, I think it only due to you and the public, whom you wish to serve, to add my testimony to the many who have preceded me, as to its utter failure, as far as durability is concerned, whatever may be the texture of the cloth to which it is applied. Thinking that it promised to be a very useful article in a garden, I not only tried some bottles of it myself, on cloths of different qualities, but gave one to a neighbour, who did the same; but in a very few days after the application of the composition, the extreme brittleness and tenderness produced in each and all these articles, could scarcely be believed. I am sorry to give any testimony that may tend to injure, in any degree, a respectable tradesman, but I think it not right to withhold a caution, which may possibly prevent disappointment to more than one who can ill afford to purchase it. —*Passus.*

Couve Tronchuda.—Facile Princeps, of all the Cabbage tribe, does not head much, but the stalks of the leaves, when skinned, boil well, and supply the place of Seakale until that comes in.—*B. D. Greys.*

Johnson's Garden Almanack.—This work, which has been so highly spoken of by various persons, is in my opinion not so faultless as the Reviewers represent. Some of the directions in the Calendar of Operations are of questionable utility, and even calculated to lead inexperienced persons astray. For example, for the present month, under the head Hothouse, we are told to "admit as much air as possible;" and in the greenhouse it is to be "admitted at every favourable time." But I apprehend that if these directions were reversed, and the hothouse applied to greenhouse, and *vice versâ*, they would be rather more correct. Similar mistakes run throughout the Calendar. Again, at p. 32, under the head Draining, we are told that "Every garden should have drains, and varying in depth from two to three feet, according to the depth of the soil, with an interval of 24 ft. between the drains. At the bottom of the drains should be placed one-inch pipes; these should be well puddled over six inches deep with clay! and then the earth returned." Now, drains for garden purposes should not be more than half the above distance apart on clayey soils, and even at that distance what would be the use of them if they were "puddled" over with clay six inches deep? Puddling, as it is understood by working men, means making clay so firm as to prevent the percolation of water; and surely after going to the expense of burying draining-pipes, it must be a curious practice to puddle over them so as to prevent the water getting in. Had Mr. Johnson said "Put six inches of stone or clean gravel over the pipes, and remove the clay altogether, if any," he would drain his land more effectively.—*W. P. Ayres.*

Waterpipes.—I see in your Paper of Dec. 21, that "nothing but iron will answer for bringing water underground from a hill to the top of a house; the pressure of the water will, we fear, burst any weaker material." My pipes are ¾ patent lead pipes, and only burst twice, at the most, during 12 or 14 years. The height is 231 ft. 5 in., and the length of pipe is 599 ft.—*J. B. H., Abergele.*

Production of Pollen.—When Carnations are very double, their size will be somewhat reduced if planted in poor soil, and in small pots, and in this way they seem to produce more pollen, especially from the side blooms. According to the *Chronicle* of 26th Oct. we ought to mix solid guano with the compost where seed is required. Will you tell me what quantity of solid Peruvian guano, and of Potter's, might be safely mixed? I suppose a poorish sandy loam would be as well as anything richer to mix with guano, perhaps adding some leaf-mould or half-decayed leaves?—*G.*

Boilers.—In reply to your correspondent, who complains of Stephenson's Conical Boilers (see p. 870, 1844), I beg to observe, that I fear his "want of success does arise from defective management." I have had one in operation for the last two seasons, and have no cause to complain of its want of efficiency. I began by using coke, but I found it frequently desirable to use a portion of coal with it, whereby constant cleaning of the flues became necessary. I next directed all the cinders of the house to be carefully preserved, which I find to answer admirably, adding only (the last thing at night) a good coat of damped ashes. By those means, I find that the fire will last well for ten hours, and by stirring it up in the morning, and taking out the hard cake (or clinker), which is apt to coat over the grating, I have, during the late frost, had it kept constantly alight, with very little attention during the day, for a week at a time, without its having once gone out.—*C. G. B., Lincoln.*——Since the above was in type we have received other letters on the subject, the substance of which is as follows:—*C. J. D.*—says that he got one of Stephenson's boilers last year (the smallest size), for a small house, and that he found no difficulty in keeping the fire in from the time it is laid on—say at 5 o'clock P.M., to 6 A.M. the following morning—with once looking at, and regulating it in the interim—say about 10 or 11 o'clock at night. He states that he uses coke from the gas-works, which he finds to be much better for keeping in, than that made in the regular coke ovens. He finds it necessary, however, to regulate the draught, which is done by opening the feeding-door more or less. He mentions that if the door is close shut, the small quantity of coke which the cavity holds would be consumed in 6 or 7 hours, and then of course the fire would go out. Finally, he suggests that cinders from the house-fires should be mixed with the heavy coke which is used—if no gas-works are near.——Mr. *Craslin* writes, "The fire in this boiler has frequently continued burning for twenty-four hours without any attention, but I do not consider that it is safe to leave it more than from twelve to fourteen hours without looking at it, but for this length of time I can leave it with the greatest security. I use cinders chiefly, and occasionally, in very cold weather, a little Welch coal. At night I shut the damper nearly close in."——In conclusion *H. J.* says, that without a damper in the chimney it is impossible to regulate the draught or to keep the fire in.

New Large Green Savoy.—In June last, I planted a plot of ground containing about 200 of this vegetable, the seed of which was sown early in April. When I commenced cutting them, which was early in September, the average weight of each was about 15 lbs., but some of them weighed as much as 21 lbs. This is a very desirable variety, and is worthy of more general cultivation, as it possesses not only a large size and compact form, but also an excellent flavour, and being very tender, it is fit for table earlier than the old Savoy.—*J. J. H.*

The Portugal Cabbage.—This possesses considerable merit as an autumn vegetable; but being rather tender, it requires protection from severe frosts. Although it attains a large size by June or July, yet at that early period its flavour is somewhat bitter, but after being exposed to the slight frosts of October, this bitterness is quite extirpated. The leaf-stalks may be used like Seakale, and when used in this manner, they are best, as they are very succulent, and of a fine white colour. The ground on which I grow this vegetable is of a very heavy nature, and has a strong clayey subsoil. Prior to planting the crop, it received a slight dressing of dung and chalk; and soon after planting out the Cabbages, for the period of six weeks, they were watered with a mixture of ¼ lb. of superphosphate of lime, and ¼ lb. of Potter's artificial guano, in 4 gallons of water. Some of the heads, when divested of the outside leaves, so as to form a compact body, measured 36 inches in circumference.—*J. J. H., Winkfield Park, Berks.*

Foreign Correspondence.

Paris.—There is in France a class of persons known as "Fleuristes Ambulantes," being Gascons by birth, and adepts in those peculiar qualities for which their forefathers have become so celebrated; they manage to carry on a very profitable trade, and, like the fortune-teller and quack-doctor, fatten upon the credulity of the ignorant. Their operations are generally confined to the south or western departments; occasionally, however, they are to be found visiting the small towns in the north, and even the amateurs of Paris are not considered too enlightened for their impositions, or proof against the horticultural rarities which they so temptingly offer; for who would not willingly pay 20 or 30 francs for an Orange Camellia, Scarlet Rhododendron, Blue Pæony, Black Dahlia striped white, or White Rose margined black, even though offered by a Gascon? Fortunately for the public, their plans have sometimes been frustrated by accident or excess of impudence, which was the case some three years since in Paris. As, however, they have again appeared in this neighbourhood in the character of buyers instead of sellers, I think it right to inform you that London or Liverpool will in all probability shortly become (if not already) the theatre of these *hommes d'industrie*, from whence they purpose passing to America. An accidental interview some days since with the *Directeur en chef* of this company made me acquainted with their intentions, and revealed their true character. English amateurs (for nurserymen will not be so open to their attacks) will do well to guard against as great a set of swindlers as ever existed. This, be it known, is not their first appearance; about the year 1836 they quartered themselves in the Haymarket, and reaped a pretty considerable harvest by the sale of Apple-green Roses, Scarlet Laburnums, Black and Blue Dahlias, le Baton d'Adam, with its thousand different coloured flowers, and a host of other things equally wonderful; and before the horticultural journals had time to expose the roguery, more than one amateur was known to have been duped of upwards of 20*l.* This party will no doubt profess to be nurserymen from Bayonne, Toulon, or some other southern city; and the better to cover the deceit, will be prepared with a Bon Jardinier, local directory, and catalogues, in which the name they assume will appear conspicuous. During the last six weeks, they have procured catalogues from most of the florists in this neighbourhood, and visited the principal nurseries, that they may appear *au courant* with the novelties now in vogue; by such means, I make no doubt they will prepare a very attractive list of plants, in which will figure the rarest and most extraordinary Roses, Jasmines, Camellias, Azaleas, Pæonies, Dahlias, Achimenes, Vines, Chrysanthemums, &c. &c., which have been expressly metamorphosed for this voyage. I know for a fact, that they have been buying a large quantity of the most common varieties, or worthless seedlings, which could never pay the expense of carriage for a legitimate trade. Azalea coccinea and phœnicea cannot be wanted, either in England or America, even at 25*s.* or 30*s.* the hundred; neither would any one there think of giving 6*s.* for the same number of bad seedling Dahlias, yet these may appear (on paper) in colours far more brilliant and fanciful than Mr. Smith, of Norbiton, or Mr. Gilling, of Stowmarket, may ever hope to obtain. The plausibility and apparent honesty of the party also conduce to their success. Should any one hint at the possibility of an error in the description, or the necessity of caution, when paying high prices to entire strangers, they will not only commend your prudence, but at the same time profess the greatest confidence in your good faith, and even offer to allow half the purchase-money, if considerable, to remain unpaid, until after you have verified the *floraison*. By such means suspicion is lulled, and amateurs are induced to pay 10*s.* or 15*s.* for a plant not worth as many farthings; the same observations will apply to seeds, and any person foolish enough to buy of them will be, and deservedly, taken in.

Reviews.

Vestiges of the Natural History of the Creation. 2d Edition. 8vo. Churchill.

SINCE the days of Junius few things have occurred to excite curiosity so much as the authorship of this extraordinary book. Nothing, indeed, can well be more out of the ordinary course of events than to find a writer of very extensive reading, high scientific attainments, and a perfect master of the arts of writing and reasoning, anxious to shroud himself in the most impenetrable mystery. Considering, however, the nature of his opinions, and the very different sentiments that will be entertained about them, we think that he was right in assuming the incognito, and we take the liberty of advising him to preserve it.

The purpose of his book is to prove that there has been no *creation*, in the ordinary sense of that word; that is to say, that the Creator has never exercised His power by special acts, as man supposes; that revelation does not hold such language; or that, if it seems to do so, the language is ill interpreted: but that all created things have been produced successively, the least perfect first, the more perfect afterwards, and the most perfect last of all. He maintains, in fact (p. 156), that the first chapter

"Of the Mosaic record is not only not in harmony with the ordinary ideas of mankind respecting cosmical and organic creation, but is opposed to them, and only in accordance with the views here taken. When we carefully peruse it with awakened minds, we find that all the procedure is represented primarily and pre-eminently as flowing *from commands and expressions of will, not from direct acts.* Let there be light—let there be a firmament—let the dry land appear—let the earth bring forth Grass, the herb, the tree—let the waters bring forth the moving creature that hath life, let the earth bring forth the living creature after his kind—these are the terms in which the principal acts are described. The additional expressions—God made the firmament—God made the beast of the earth, &c., occur subordinately, and only in a few instances; they do not necessarily convey a different idea of the mode of creation, and indeed only appear as alternative phrases, in the usual duplicative manner of Eastern narrative. Keeping this in view, the words used in a subsequent place, 'God *formed* man in his own image,' cannot

well be understood as implying any more than what was implied before—namely, that man was produced in consequence of an expression of the Divine will to that effect. Under the scriptural objection quickly vanishes, and the prevalent ideas about the organic creation appear only as a mistaken inference from the text, formed at a time when man's ignorance prevented him from drawing therefrom a just conclusion. At the same time I freely own that I do not think it right to advance the Mosaic record, either in objection to, or support of, any natural hypothesis; and this for many reasons, but particularly for this, that there is not the least appearance of an intention in that book to give philosophically exact views of nature.

"To a reasonable mind the Divine attributes must appear, not diminished or reduced in any way, by supposing a creation by law, but infinitely exalted. It is the narrowest of all views of the Deity, and characteristic of a humble class of intellects, to suppose him acting constantly in particular ways for particular occasions. It, for one thing, greatly detracts from his foresight, the most undeniable of all the attributes of Omnipotence. It lowers him towards the level of our own humble intellects. Much more worthy of him it surely is to suppose that all things have been commissioned by him from the first, though neither is he absent from a particle of the current of natural affairs in one sense, seeing that the whole system is continually supported by his providence. Even in human affairs, if I may be allowed to adopt a familiar illustration, there is a constant progress from specific action for particular occasions, to arrangements which, once established, shall continue to answer for a great multitude of occasions. Such plans the enlightened readily form for themselves, and conceive as being adopted by all who have to attend to a multitude of affairs, while the ignorant suppose every act of the greatest public functionary to be the result of some special consideration and care on his part alone. Are we to suppose the Deity adopting plans which harmonise only with the modes of procedure of the less enlightened of our race? Those who would object to the hypothesis of a creation by the intervention of law, do not perhaps consider how powerful an argument in favour of the existence of God is lost by rejecting this doctrine. When all is seen to be the result of law, the idea of an Almighty author becomes irresistible, for the creation of a law for an endless series of phenomena—an act of intelligence above all else that we can conceive—could have no other imaginable source, and tells, moreover, as strongly for a sustaining as for an originating power."

We believe that the passage, thus extracted at length, gives as nearly as possible an epitome of the author's views. It is clear that he adopts, in their fullest extent, the opinions of those German and other Continental authors who have, for years past, been maintaining that organic bodies are produced out of peculiar forms of matter, influenced by *cosmica momenta;* and who believe that whether a point of organic material (a germ), becomes a plant or an animal (and if a plant or animal, any peculiar species), depends not upon any property inherent in the matter itself, but upon the peculiar circumstances that surround it. "*Omnes naturæ vires,*" says Fries, "*sunt, plus minus perfectæ evolutiones unius eis primitivæ, quæ in diversis productivis agit ad easdem leges æternas, immutabiles, absolutas.*" This is the kernel of our author's theory, as it is of the doctrine held by Carus, Horn-chuch, Kützing, and others.

We must, however, state the process of reasoning by which this ingenious philosopher attempts to prove that all created things are manifestations of one and the same law, and that everything in nature proceeds out of a few common kinds of matter, from the incomplete to the most complete condition. He begins with the formation of our planet; shows how astronomers have been led to believe that it was condensed out of nebulous matter, and that it gradually consolidated, shrinking from a diameter of 482,000 to 8000 miles; how it gradually changed its superficial condition, and cooled down till it became fitted for the appearance of life; how the ever-acting forces at length directed themselves to the formation of the lowest forms of the animal and vegetable kingdoms; how corals and other zoophytes appeared in the primeval ocean, and robbed it of its carbonic acid, as is proved by their remains in the slate beds, "the earliest of the earth's sepulchres;" how these were followed by seaweeds and fishes of a low structure: and how more completely organised fishes followed them. At last dry land appeared; and with it the author, still following geological evidence, finds land plants constituting the vegetation of the present coal-mines, low, however, in organisation, compared with the mass of existing plants. "Two-thirds," he says, "are of the cellular or cryptogamic kind, a proportion which would probably be much increased if we knew the whole flora of that æra. The ascertained dicotyledons, or higher class plants, are comparatively few in this formation; but it will be found that they constantly increased as the globe grew older." Next he tells of the appearance of land animals, ichthyosauri and megalosauri, and plesiosauri, amphibious monsters, of prodigious forms and sizes, but low in the structure of their class. To them succeeded birds, land reptiles, tortoises and crocodylians; then came insects; afterwards mammalian animals, lions, tigers, and elephants, till the scene is closed by the advent of man—a constant ascent in development from the lowest to the most perfect forms of the creation.

There is no space in such a journal as this to examine the truth of such statements. Suppose that we admit them, for argument sake, to be exactly as is represented, and that in truth the creation has advanced in the animal kingdom from polypes to human beings, through insensible gradations. But then we must inquire whether the ever-acting forces that have produced such prodigious results are utterly exhausted?—and if not, what is to happen to the existing order of things? for we, too, must be in a state of transition. It is, indeed, obvious that if the author's theory is sound, and if man is but a more complex form of animal matter, higher in his formation than the brutes, the time must come when something higher than himself shall appear. The author does not shrink from this conclusion: on the contrary, he inquires—

"Is our race but the initial of the grand crowning type? Are there yet to be species superior to us in organisation, purer in feeling, more powerful in device and act, and who shall take a hand over us? There is in this nothing improbable on other grounds. The present rare, rude and impulsive as it is, perhaps the best adapted to the present state of things in the world; but the external world goes through slow and gradual changes, which may bear it in time a more serene field of existence. There may then be occasion for a nobler type of humanity, which shall complete the zoological circle on this planet, and realise some of the dreams of the purest spirits of the present race."

We shall not pretend to deal with such high matters as this; but content ourselves, in our own humble way, with examining the so-called evidence on which depends the doctrine of the gradual advance of *plants* from a very low to a very high degree of organisation. It is said that Seaweeds are the earliest plants of which we have any knowledge, and that they present the lowest forms of structure in the Vegetable Creation. The first proposition is true, the second not. It is undeniable, indeed, that seaweeds belong to one of the most simple orders of vegetation; but then the plants that the ancient ocean has left behind were the most perfect of their kind; viz., the genera allied to the modern fuci. To prove the author's case, we should have had at the least such plants as Levers and Confervæ: but they have never been discovered. It is next contended that "when, for the first time, land plants appeared, two-thirds of them were of the cellular or cryptogamic kind—a proposition that would probably *be much increased* if we knew the whole flora of that æra." If this were indeed so, a firm step would be gained by the author in his argument; for such cryptogamic plants as remain from those remote times are chiefly Ferns or Clubmosses, a stage in advance of the Seaweed in their structure. But this we wholly deny: the unmistakeable evidence of the Newcastle and Somersetshire coalmines prove the contrary. It is true that the number of Ferns was very large; but they are the most perfect of all the cryptogamic races, unless Clubmosses be regarded as superior to them; here there is a development *per saltum* from Seaweeds, for which the theory of progressive development fails to account. Moreover, along with Ferns were many races of the most complete organisation; trees of considerable size, allied to Fir-trees, Palms, appearing to be in no material respect different from those of the present hour, and undoubted flowering plants of other kinds; for the Anthelithes Pitcairniæ, figured in the Fossil Flora, can be regarded in no other light. So far as the world of plants is concerned, then, the doctrine of progressive development cannot be true; for we actually find types of the most perfect structure of which we have any knowledge at the very first appearance of vegetation on the face of the earth. As to the proportion that Ferns may have borne to other plants, no argument can be built upon that; for we do not know what have perished, and a little but very conclusive experiment—(*one of the very few*, by the way, *that geologists can appeal to*)—has demonstrated that such plants as those of the Coal-measures are precisely such as are capable of remaining longest in water without rotting. What, moreover, is to be said to the Dictyophyllum crassinervium, also figured in the Fossil Flora? The age of that plant, which is as completely organised as a modern Cabbage-leaf, and it is very like one, belongs to the new red sandstone, but one remove from the days of the Coal-measures. Why at that time the world should have borne nothing more perfect than a Horsetail, if the views of those whose theories the author before us has pushed home to its final limit can be relied on.

Considerations such as these—and we have no space for others—render it quite impossible to allow that geological evidence is at all in favour of the progressive development of plants. Let us see whether modern testimony serves the author's purpose better. After referring to the well-known fact that the basis of all vegetable and animal substances consists of nucleated self-regenerating cells (mistaking, however, the meaning of nucleated), he appeals to an announcement made some years ago by a French physiologist, *that globules could be produced in albumen by electricity*, and upon this foundation is built up the whole theory of existing development. Supposing the announcement in question to be true—which we take leave to doubt—we are incapable of comprehending how such facts, curious as they undoubtedly are, can serve to show that every living thing was in the beginning born of some more simply-constructed body. We, however, wrong our very clever author by supposing that he takes such so-called evidence as proof; it is but a link in a long chain of ingenious reasoning, the validity of which we must leave our readers to judge of for themselves.

The formation, under the influence of local circumstances, of new species out of old ones, is another link in the argument, and is forged out of tougher metal. For our opinions upon that point the reader is referred to some remarks that we shall offer in an early publication.

NOTICES OF NEW PLANTS WHICH ARE EITHER USEFUL OR ORNAMENTAL.

DIPLADENIA GRASSINODA. Knob-jointed Dipladenia. (*Stove Twiner.* Apocynaceæ. Pentandria Monogynia.—Mons. Alphonse De Candolle, in his Monograph of the Apocynaceous order, has separated various plants from the old Linnæan genus Echites, and among others the E. splendens and atropurpurea, two well-known garden species, which he places in a genus called Dipladenia, from δὶς, double, and ἀδὴν, a gland, in allusion to the two tubercles which are found at the base of their ovary. This genus, to which 21 species in all are referred, also contains the plant here spoken of, whose resemblance to E. splendens must strike every one. It is a native of the more elevated parts of the Corcovado Mountain near Rio Janeiro, where it was found by Mr. Gardner. It differs from D. splendens in its smaller and more richly-coloured flowers, in the form of its leaves, which are smaller and not cordate at the base, and in its having at the insertion of the leaves a ring of fleshy hard teeth, which stand in the room of the glands, or raised lines found in allied species. A specimen of it flowered with R. G. Loraine, Esq., of Walthamstow, and gained the Horticultural Society's Silver Knightian Medal in October last. It requires to be treated in a similar manner to D. splendens, viz., to be potted in rough heath mould, mixed with about one-fourth silver-sand. In summer it should be grown in a damp atmosphere, and be amply supplied with water, but in winter it must be kept rather dry, otherwise it will be apt to damp off. It may be propagated by cuttings in the usual way.—*Bot. Reg.*

Bees.

THOUGH Solomon does not exactly say that ants store up food for the winter, yet his expression, "gathereth her food in harvest," has always been so understood. This has, indeed, been the constant belief of writers on Natural History, from the earliest times. It is, however, now well known that the ant does not lay up food for the winter; but that it passes the winter in a torpid state. On this, therefore, as on other matters of natural science, we may safely conclude that the Scriptures purposely spoke according to the received notions of the time; of this many instances might be adduced. Of the bee, however, the assertion would be more correct; though even bees store up provision chiefly with reference to the propagation of their species. I allude to the honey-bee, which is the only one of the genus that lives in community throughout the year. The reader who is unacquainted with the habits of bees, may naturally inquire, how they survive the winter? and to answer this inquiry is the main object of this communication. At the beginning of winter the labours of bees cease amongst the flowers, and they draw close together on the brood combs in the heart of the hive. In cold weather they become torpid and leave the brood to their fate. While in that state bees require no food, till roused by warmer weather; then they draw from the store of honey, which is often scanty, and if they are not supplied by other food they perish. I trust that this will explain the common charge against bees hoarding up more pollen or brood-bread than they want. Having stated that the brood perish during severe weather, consequently the store of pollen is but little diminished, and in old healthy hives accumulates, perhaps, to more than is wanted. But it is difficult to ascertain how long that substance holds good. The fact of bees eagerly collecting pollen in spring is no more proof that their store of it is bad, than that their other store is so while they are in search of honey. However anxious bees are in pursuit of pollen, yet when presented to them they take no notice of it, not even when it drops from their legs at the entrance to their hives.—*W.*

New Plan and, from experience, the best Plan of Managing Bees.—Rule 1. Never kill your bees. Rule 2. Never allow your bees to swarm.—Place an old stock of bees in a common straw hive on the middle of a board large enough to contain three hives, and on each side of the old stock place a wooden box, about 7 inches square outside and 6 inches high (or any other size you may think proper), or straw hives with wooden tops. The boards, forming the wooden boxes, may be made out of old packing-cases. Each side box should have glass windows with shutters. On the top of each of the side boxes there should be a hole 2 inches in diameter, with a perforated plate of zinc to slide over it and a cork to fit it. These small holes are for the purpose of ventilating the side hives, thereby preventing the queen from laying her eggs in them. When the bees fill the holes of the slide, exchange this for another of the same kind. The side box should not be aired until the bees have fairly taken to it. The board on which the hives are placed should be so prepared with passages that the three hives may be united or disunited at pleasure, by means of slides made of zinc. As soon as the bees are likely to swarm, open the passage between the middle hive and one at the side, and force the bees to pass through the latter by stopping up the mouth of the former. When the bees have filled one side box with honey, let them into the other side box, and remove the first (now fit for use), in the middle of a fine hot day, by means of a plate of sheet iron, to any convenient place in your garden. The bees will return to the parent hive, and the owners of the bees may take possession of the deserted hive.—*Anon. Corres.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

THE duty of giving directions in this department of gardening, which has devolved upon me, has been rendered an unusually onerous one, in consequence of the ground having been so ably pre-occupied. My predecessor's instructions have generally been very copious and perspicuous, so that little original can be added; therefore I fear that I shall fall under the accusation of plagiarism. My endeavour shall be to avoid this as much as possible, and to confine my directions to mere practical memoranda, with a view rather to help the memory in reviewing the work to be done, than to discuss the principles and practices of gardening.

Orchideæ.—Maintain a cool and comparatively dry atmosphere, say between 55° and 60°. Former Calendars are well worth reviewing under this head.

Hothouse.—See that none of the plants are suffering from want of water. The late severe weather has necessarily caused strong fires to be kept up, and although the surface of the pots may appear moist the bottom roots may, nevertheless, be perishing; let a few of the plants, therefore, be turned out of the pots and examined, especially at the hottest part of the house. Apply no extra stimuli at this season, but let repose be your watchword.

Greenhouse and Conservatory.—Never let the temperature by fire heat exceed 44°. With assiduous attention 40° is more desirable. It has been said never to water in this department until a plant actually wants it: see, however, that plants do not die before you observe that they really do want water.

Forcing Pit.—Keep the temperature, with a moderate supply of moisture, by night at 60°; let the maximum be 65°. Get in Moss and other Roses to keep up a supply. Anne Boleyn and

other Pinks may now be successfully forced; these of course must have all been properly prepared, for it is vexation of spirit to force such things unless due preparation has been made, by having them previously well established in pots.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Out-door Department.

Unless alterations are in progress, there will be little to do in the flower-garden at this season of the year, except occasional cleanings, and the manuring and digging of empty beds or flower-borders. If the weather should be frosty, wheel out the soil from beds which it may be necessary to renew; that taken out may be spread over the herbaceous borders with advantage to the plants.

Pits and Frames.—Attend to former directions, and keep the plants in these structures as hardy as possible by fully exposing them in mild weather; do not give them any more water than what is absolutely necessary; but when it is given take care that all the soil in the pots is thoroughly wetted. Clear the surface of the soil in the pots from Moss (if any), remove all decaying leaves, and preserve the atmosphere in as healthy a state as possible.—*B.*

III.—FLORISTS' FLOWERS.

The late severe frosts do not appear to have materially affected Auriculas or Polyanthuses; many of the latter in our collection are now in flower. We would advise all growers who may be similarly situated to remove them without delay. Should the soil on the top of Auricula pots become green or mossy, the surface must be stirred with a blunt instrument, in order that the roots may not be wounded, and as the leaves decay they should be pulled gently off. Particular care must also now be paid to the drainage; where this is ineffective no plants can flourish. Seedlings, both Auriculas and Polyanthuses, must be carefully tended, the frost often raising them from the soil. *Tulips*—Will soon be showing themselves, especially where planted early; though in consequence of the wet weather in November, we know of several large and first-rate collections which were not put in the ground till very late: this, as we have several times shown, is very prejudicial to the future bloom. *Carnations*—Are this season generally healthy; yet they also must receive every attention, especially by keeping them free from dead or decaying leaves, or from too much moisture. Take care never to close the frames when the foliage chances to be wet, as this is extremely pernicious, and induces mildew and other diseases, which often seriously affect a whole collection. *Pinks.*—Look over the beds, and fasten those plants which may have been raised by the late frost. Do not yet replace any casualties, but wait till nearer spring, when the blanks may be filled up with safety. Continue to use every precaution as to protection, &c. Turn composts, and keep a vigilant eye for destructive insects, &c.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—See that your bottom-heat ranges from 76° to 80°; it should be near the latter, for fruiters in their various stages, and a little above the former for young stock, especially for those in pits heated by fermenting material. Stir up well with a sharp stake the beds which have declined below that temperature; and it would be well to water the tan slightly (where dry) previously, more especially in the neighbourhood of pipes and flues. Do not water any plants for the present, unless they absolutely need it, more especially those in pits heated by fermenting materials alone. Uncover the latter as early in the day as the weather and the heat will permit; the main object being to dry the condensed steam on the leaves, and to keep their tissue hardened by the admission of light and air. The temperature of fruiters should be 65° by day, and 55° by night, allowing the thermometer to rise to 80° in sunshine before air is given. The young stock in dung-pits may be kept at 55° in the day, and 50° at night, with a liberal supply of air.

Vineries.—Presuming that the earliest Vinery had been closed in the early part of December, the buds will now be swelling; insure a moist atmosphere by some means—fermenting matter inside is a permanent source, where eligible; if not so, syringe and water all cool surfaces, to produce an enduring atmospheric moisture. If the roots are unluckily outside, the border must be warmed by fermenting matter, if not hitherto done. Try to produce a bottom-heat of 70°, which will suffice for the present. Turn and sprinkle the fermenting matter, where introduced, to produce a genial steam. Seize the opportunity of introducing pots of Roses, Figs, or anything that you are desirous of accelerating; *half plunged* in fresh fermenting materials of from 95° to 100° they will receive the necessary stimulus, and undergo a cleansing process. The temperature should be 60° by day, and 50° by night.

Fig house.—Gradual excitement must be observed with the Fig as well as the Vine. The borders of a Fig-house, which had been suffered to get very dry in the previous autumn, should now be watered slightly with tepid water; and this may be followed on the succeeding day with a slight watering of liquid manure. Supposing the house to be shut up at the same time as the early vinery above, a temperature of 60° by day and 50° by night will be amply sufficient, giving air freely and moistening the atmosphere.

Peach-house.—The earliest house will now be near blossoming; if so, moisture must be gradually withheld up to the period of the buds opening. The house will have been, for the last fortnight, ranging from 45° by night to 55° by day, fire-heat, with air. When the first blossom opens, increase the temperature to 60° by day, fire-heat, and from 45° to 50° by night. In sunshine allow the thermometer to reach 70° before giving air to subtilise the pollen, after which, give abundance of air (if safe) to disperse it.

Strawberries.—See last week's Calendar.—*D.*

V.—HARDY FRUIT AND KITCHEN-GARDEN.

All fruit-trees, but more especially those in which vegetation advances early, are best planted in autumn; such are the Plum, Cherry, Apricot, Peach and Nectarine, Pear, Apple, Gooseberry, and Currant. These, however, may still be planted; and better now in ground well trenched and otherwise properly prepared, than in autumn, supposing such preparation could not have been accomplished agreeably to the directions then given. In preparing a border for fruit-trees, the first step is to ascertain the height to which land-springs occasion stagnant water for any length of time after a wet period, for there are situations where such cannot be lowered by draining. Every precaution must be taken to prevent the roots from ever penetrating so low as to be damaged by stagnant water. Within half a foot of this the subsoil should not be disturbed in trenching; and the undisturbed stratum should be left still thicker at the wall, in order that its surface may slope from thence towards the outside. Where trees have been several years planted against walls, it will prove of great advantage to trench in advance of their roots; and in doing this the preceding observations should be borne in mind. Mr. Knight proved, by numerous experiments, that roots may be diverted into a particular direction, either horizontally or downwards, to the right or left, by supplying congenial soil; and accordingly, if soil be trenched in front of the horizontal roots, the latter will be induced to continue their direction. Mulch newly-planted trees with litter or other substances that will prevent the soil from freezing. Top-dress Strawberry plantations with dung or any rich compost. Leaves are excellent for this purpose. If they are likely to blow about, a little soil should be scattered over them. Proceed with pruning and nailing whilst the weather will permit.

In the Kitchen Garden, trenching of vacant ground, in the absence of frost and snow, should not be neglected. A sowing of Early Frame Peas should now be made in the open ground; and likewise in pots, in order to be forwarded under glass. Sow also Marshall's Dwarf Prolific Bean, an earlier variety than the Early Mazagan; the latter, however, must be substituted where the other cannot yet be obtained. The seeds of these legumes, being the favourite food of mice, will be rendered very unpalatable to them, if steeped for a short time in a solution of bitter aloes.—*E.*

VI.—ARBORICULTURE.

Old Woods.—Continue to fell, if desirable, trees of which the bark is not of value, and proceed with such work as may expedite future operations.

Coppice.—Little can be done here unless it is necessary to cut poles; but cleaning in every shape should be constantly kept in mind.

Hedge-rows may still be proceeded with as before recommended. Where it is the intention to remove large trees, now is the proper time to prepare them, by cutting a trench round them so as to sever the lateral roots about 2ft. or 3ft. from the bole, in proportion to the size of the tree, and then filling it in again; the tap roots should not be cut until the time of removal, as a security against high winds. By taking this precaution a year before transplanting, it is done with more certainty of success. We would recommend this particularly to those who may purpose to improve parks, for we are assured, by a little foresight in this way, many years may be saved in accomplishing the desired end; and there is scarcely a park which we have seen but whose scenery might be vastly improved by the judicious planting of large trees to break the hedge-row like appearance now too prevalent.—*F.*

VII.—COTTAGERS' CALENDAR.

At this season, when there is little to be done in the way of cropping, everything around the cottage should be made clean and neat; all vegetable refuse should be collected to rot for manure—nothing of this kind should be lost. While the weather is favourable, a sowing of Marshall's Dwarf Prolific or Mazagan Beans may be made. They may be sown in drills about 18 inches apart, and planted about 3 inches apart in the drill. A sowing of the Early Frame Pea, if not already done, may also now be made on a warm border. For this crop the seeds may be sown pretty thickly, and in case of hard frost they should be protected by Fern or Furze, &c.; and some of the latter chopped may be put in the drills to prevent the ravages of mice. As autumn is the best time for pruning all kinds of fruit-trees, even the Peach, every opportunity that occurs should be embraced for performing the operation. Gooseberries and Currants, if not already pruned, may now be done, so as to allow the ground to be dug amongst them; and all vacant ground, as formerly directed, should be turned up rough as early as possible, in order that it may receive the benefit of the winter frosts.—*G.*

State of the Weather near London for the week ending Jan. 2, 1845, as observed at the Horticultural Garden, Chiswick.

Dec.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	27	17	30.033	29.998	38	30	34.0	N.E.	—
Sat.	28	18	29 944	29.906	48	42	45.0	S.E.	.15
Sun.	29	19	29 932	29.910	49	38	43.5	S.E.	.15
Mon.	30	20	30.003	29.951	42	32	37.0	N.E.	—
Tues.	31	21	30.105	30.057	44	33	39.0	N.E.	—
Wed.	1	(	30.146	30.121	45	34	39.5	N.E.	—
Thurs.	2	.2	30.061	30.008	44	24	34.0	N.	—
Average			30 033	29.994	44.3	33.1	38 7		.30

Dec. 27—Dense fog throughout
— 28—Fine; overcast; drizzly
— 29—Hazy and drizzly; densely overcast; rain at night
— 30—Foggy throughout; densely overcast at night
— 31—Foggy; hazy; overcast
Jan. 1—Foggy; hazy; fine; uniformly overcast
— 2—Red and dusky clouds; fine; overcast at night.
Mean temperature of the week 1 deg. above the average.

State of the Weather at Chiswick during the last 10 years, for the ensuing Week ending Jan. 11, 1845.

Jan.		Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun.	5	40.3	31.6	36.0	6	0.40 in.	6	1	4	—	1	5	1	1
Mon.	6	40.2	29.7	34.9	7	0.33	1	4	2	2	3	5	2	—
Tues.	7	38 3	28.4	33.3	4	0.14	1	3	2	2	2	3	5	2
Wed.	8	37.5	29.1	33.4	3	0.26	3	2	6	1	—	5	1	1
Thur.	9	38 2	32 2	35.2	6	0.20	1	4	2	1	3	3	3	1
Fri.	10	40.5	29 3	34.9	7	0.40	1	5	2	3	3	1	2	2
Sat.	11	40.2	30.7	35.5	9	0.88	3	3	2	—	6	3	1	1

The highest temperature during the above period occurred on the 5th, 1844—therm. 54°; and the lowest on the 8th, 1841—therm. 6°.

Notices to Correspondents.

BACK NUMBERS OF THE GARDENERS' CHRONICLE.—So many Back Numbers are now out of print, that we think it will save all parties trouble if we publish a list of those which may still be had. Any subscriber who will forward to our publisher Post-office stamps equivalent to as many Numbers as are required, shall have them sent free by post:—

1841:—1, 6, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 52.

1842:—4, 6, 8, 11, 18, 30, 42, 43, 47, 48, 49, 50, 51, 52.

1843:—10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50, 51, 52.

*** *Canadensis, W. Chorlton. A Subscriber, T. Fullam, B., Tizy, T. Moore, Lagos, H. H.. Quercus II., One anxious, inter sylvas quærere verum, D. Beaton, G., W. Wakefield, P. Mackenzie, B. D., J. J. H., J. B. B., C. Babington, T. Bentall, N. S. H., T. E., W. May, Hautoniensis, Iris, Observer*, and a few more correspondents' letters, are in type, and will be made public at the earliest possible opportunity.

APPLES.—*W. W.*—The following are suitable for a small garden, viz., Blenheim Pippin, Court of Wick, Court-pendu Plat, Pitmaston Nonpareil, Claygate Pearmain, Sturmer Pippin.‖

BOOKS.—*Wm. I—n.*—The "Florists' Journal." *——*A Novice.*—You will not get a better book on the cultivation of the Cucumber than that of Mills, which is sold by all booksellers. There is nothing published separately on the Melon, which we can recommend. You will find the properties of a Cucumber given at page 19, vol. 1843.

CAMELLIAS.—*A. B.*—Without seeing your plants it is impossible to say what is the cause of their exuding at their leaves. Keeping the plants clean and healthy, and preserving the temperature as regular as possible, is the best way to prevent it.§

FIGS.—*Mabell.*—If the trees are out of doors, any fruit that are now upon them will not continue to ripen next season. Those that are in the bud on the upper part of the shoots may be expected to grow and acquire maturity in the course of the summer, if they have been sufficiently protected from frost.‖

FUCHSIAS.—*Clericus.*—Fuchsias for the open border: F. Riccartonia, globosa, and g. major, gracilis, Thompsonii, Clintonia, conica, reflexa, erecta, and virgata.*

GREENHOUSE STAGES.—*An Amateur.*—Stone shelves are much better than wooden stages for greenhouse plants; it is true that they are in some parts of the country expensive, but they never wear out, never want painting, and look better, independently of their suiting plants better. The old wooden stage, with currents of air constantly passing among the pots, although not objectionable in winter when common greenhouse plants are to be kept dry, is a very bad contrivance in the spring, when they are beginning to grow. We fear from your letter that your new greenhouse is a lean-to. A span-roofed house is far better, and not much more expensive, if at all.

HEATING.—*Two Subscribers.*—Your pipes should have a 4-inch bore. If you can lay the bricks of your arch without mortar, do so; you will get plenty of bottom *heat*. But what will you do for bottom moisture? Under such circumstances you will find it difficult to manage that. For 4-inch pipes substitute 4-inch open iron troughs placed side by side, not one over the other, and they will give you the moisture you want; but you must have air-heat in winter, and it is doubtful whether such an arrangement will give you that. It would be better to have a 6-inch iron trough in the chamber, and then a 4-inch pipe outside the chamber, next the front wall, in a space communicating with the air of the pit, as is often managed in Macphail-pits.——*Shirley.*—There is no end to what are called new stoves, and we are unacquainted with half of them. Haydon's is of that class. If we can learn anything about it, we will mention it next week, and at the same time answer your other question, which demands some consideration.——*F.S.A.*—We see Deane's Stove advertised, but we are not aware of its having been ever used for garden purposes, nor are we acquainted with it. Perhaps some one who has used it will state his experience, giving his name to us in confidence.

HYACINTHS.—*T. Wharton.*—The nearer your flowers approach to what is represented in the following cut, the nearer will they be to what florists call the perfection of a double Hyacinth.



INSECTS.—*N. S. H.*—It is the gall of the Cynips Quercus-folii. Vide Curtis's Guide Gen. 564. No. 1.*R.* —— *D. D.*—Your Pear-trees are suffering from the Mussel-scale (*Aspidiotus conchiformis*). The best remedy will be to scrape the trunks and branches with a wooden knife, then anoint the worst parts with any oil or gas-tar, and in March or April wash them over entirely with thick lime or clay and water. The history &c., of this insect, you will find in the 3d vol. of this Journal, p. 735, and vol. iv. p. 427 and 499. Why not put up a zinc trough, which is not expensive, to stop the dropping of the eaves?*R.*

ICEHOUSES.—*An Old Subscriber* begs for further information as to the means of building the Icehouses mentioned at p. 833, vol. 1844, by giving the ground-plan a little more in the detail, and upon a certain scale. How the ice is put into the building, and how taken out; what doors, &c., for the entrance will be required; and of what dimensions the buildings of the entrance, and the well, A, should be made, will be very desirable information. Will the author of that communication oblige him by giving it?

LAWN.—*C. M.*—Where the Grass of a lawn is very much worn down by feet, during the summer, it is almost impossible to keep it alive. The best mode of doing so is to rake the ground over roughly after rain, as soon as the trampling ceases for the season; to sow Crested Dogstail and Meadow Fescue Grasses pretty thickly upon it; to give it a good dressing of pure soot, and then to leave it all the winter, and as late in the spring as may be possible, without mowing or disturbing it. If the ground is walked upon *constantly*, you have no remedy, for the Grass must die. Half-a-dozen pounds of each of the Grass-seeds mentioned will be enough.

MUSHROOMS.—*H. M'Donald.*—It is obvious, if you read Mr. Hankin's excellent paper with attention, that his Mushrooms are grown in a glazed and perfectly light house. We cannot see why his turf should decay. It would in a dark, but not a light house. Perhaps Mr. H. will favour our readers with a section of his house.

NAMES OF FRUITS.—*Citrus.*—Your fruit from cool greenhouse is the common Orange, and the Madras Citron; the latter, however, is frequently grown much larger.‖——*J. Waldron.*—1, King of the Pippins; 2, Crimson Queening; 4, Bedfordshire Foundling; 5, Easter Pippin.‖

NAMES OF PLANTS.—*M. W. B.*—Your plant seems to be a species of Solanum, but a leaf will not enable us to ascertain what species.——*E. Z.*—1, Terminalia Catappa; 2, Episcia pulchella; 3, Hypocœna exsulca.

PEARS.—*W. W.*—For deep, rich, but rather damp soil, the following sorts may be planted:—Marie Louise, Glout Morceau, Hacon's Incomparable, Knight's Monarch, and Beurré Rance. The Quince-stock is better adapted for low damp soil than the Pear-stock.‖

PELARGONIUMS.—*Clericus.*—The cause of your Geranium-buds turning yellow arises from want of sun and air; autumn-formed bloom seldom opens unless under favourable circumstances. Shift those that are pot-bound immediately.*

STEPHANOTUS FLORIBUNDUS.—*A Subscriber.*—There is no doubt whatever that too much water has been the cause of your plant perishing. You may be supplied with plants of it by almost any nurseryman.§

STRAWBERRIES. — 557. — Keen's Seedling, Myatt's Eliza, Myatt's British Queen, Wellington, or Bostock—not worth growing, and the Elton, ripen in the order in which they are here enumerated. The others you mention are not sufficiently known. Myatt's Queen Victoria and the Elton are perhaps the same. ‖

MISCELLANEOUS.—Will *Mr. Appleby*, late of the Fence, oblige DR. LINDLEY with his address?——*R. P.*—Zero signifies different things in the language of different persons. Fahrenheit called Zero 32 degrees below the freezing point, and that is what is usually meant in England; but the freezing point itself is called Zero by the Continental writers.——*Wm. I—n.*—It is impossible to do what you require. We must refer you to Lists of Florists' Flowers that have been given at different times in this Journal; at p. 560 of the vol. for 1844, you will find a list of the best Carnations and Picotees, in their different colours and classes, from these you may safely choose; and the same with other flowers you mention. You should also examine the Report of the Shows, where class showing prevails.*——*B. D.*—Very much obliged; but we have had genuine Cabul Melon-seed from so many quarters already that we will not trespass on your kindness.——*C. J. D.*—We would be particularly obliged by a seed-pod of Æschynanthus; if you wish it we will return it after a drawing has been made of it.——*G. R.*—Specimens of the Glout Morceau Pear may be obtained in Covent Garden Market.‡——*C. G. B.*—There is no doubt that you may root-prune your Camellias with advantage, if dwarfing is your object.‡——*J. M.*—Leave your Apple and Pear-trees unshortened for the first year; it will be better to prune them next winter.——*I. Povey.*—The next meeting of the Horticultural Society will take place on the 21st of this month.‡

ERRATUM.—In Messrs. Youell and Co.'s Advertisement of last week, for *Scrasby* read *Scratby*.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made.

LOANS.—TO FARMERS AND OTHERS.—The sum of 20,000*l.*, and several smaller amounts not less than 150*l.*, to be advanced upon Leasehold or Freehold Property, Reversions, Money in the Funds, Annuities, Life Interests and good Personal Security, or upon Assignment of Farm Stock.
Apply to Mr. MULLINS, St. Michael's Chambers, St. Michael's-alley, near the Royal Exchange, Cornhill, London; if personally, between the hours of 11 and 3 o'Clock. Letters pre-paid.

The Agricultural Gazette.

SATURDAY, JANUARY 4, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
MONDAY, Jan. 9—Agricultural Imp. Soc. of Ireland.
THURSDAY, Jan. 16—Agricultural Imp. Soc. of Ireland.
FARMERS' CLUBS—Jan. 17—Debenham.

IN the climate of Great Britain, where redundancy of moisture is the natural consequence of an excess of rain over evaporation during two-thirds of the year; where redundancy of unemployed labour exists during half, and redundancy of capital the whole year round, the first thing which an intelligent agricultural visitor would expect to see, who had regarded in a truly political and philosophical light this suggestive and cognate combination of redundancies, would be a SYSTEM OF DRAINAGE established over the whole length and breadth of the land, as perfect by this time in practice as it was uniform in principle. Supposing him to be as fully alive to the almost infinite benefits of thorough drainage, as the very limited knowledge of our best agriculturists upon a subject so pregnant with scientific matter enables them to be; and, on the other hand, sufficiently acquainted with the commercial world to be aware of the enormous amount of floating funds that are daily tossed about in our Exchanges in the restless and uneasy posture of from two to three per cent.; what, we will venture to ask, would be his exclamation and astonishment on becoming aware of the actual and existing state of things, in reference to this our first and chiefest *Anomaly of Agriculture!*

And truly the first it is; for that which is practically the first essential, is, analytically speaking, if neglected, the first anomaly. The first essential it is, and was a hundred years ago as much as now. Yet at this very time, so recent is its introduction, so unsettled its first principles, that there is scarcely one part of the process which is not the subject of conflicting opinion and opposite practice. The depth of the drains, the width between them, the direction in reference to the fall of the land, the mode of filling in, the mode of outlet (whether independent or locked into a main-drain), the drain itself, whether tile, or stone, or any other material; and if tile, the shape, length, mode of manufacture, and proper expense, even with the necessary data ascertained—are not all these, and many other points, as open and obnoxious to the widest diversity of opinion, as if the whole art of Agriculture had been brought to England by Sir Henry Pottinger or Sir Robert Sale, as a curious practice of the Far East; and had taken the date of its origin in the British Isles, from the Khyber massacre or the opium war, as we are told that navigation and piracy did in the Mediterranean, from that of Troy. There is, indeed, something analogous in the unaccountable indefiniteness of first principles in these two ancient arts of sea and land. The perfect model of a ship and of a plough are equally matter, at this very hour, of uncertainty and speculation. In fact, if the antiquity of the human pedigree were to be judged of by our progress in the manufactures of iron, silk, cotton, steam-engines, railroads, and such ware, the very geologists would not seem to have proved the earth too ancient a family residence for it: whilst, if estimated by our ploughs and harrows, carts and waggons, and our mode of using them too, we should appear a set of *novi homines*, in the very infancy of creation.

As regards the comparative application of capital to the arts in question, the incongruity is still more incomprehensible. If the very weathercock had been consulted, the remotest corners of the earth could not have been better ransacked for an outlet for spare capital. Into Welsh quarries, Cornish mines, French railroads, Dutch debentures, Spanish bonds, Mexican loans, *repudiating States' debt*, into any scheme or speculation, abroad if possible, at home if unavoidable; but as far as is humanly feasible from that little spot where charity begins—rush headlong over each other, the hopes, the credulity, and the cash of poor John Bull—*rich* John Bull! His money goes out of him, and wanders, like the evil spirit, through *dry* places, seeking rest at five per cent. Oh! if it would but—just by way of a change—be a good spirit, and take a turn through the *wet ones!*

It is an ascertained fact, a matter of yearly experience in agriculture, that 10, 20, 30, 50 per cent. is no uncommon return for money laid out (truly may we say, on *terra firma*) in draining. Nay, a single crop has in some cases been known to repay the whole expense; and two crops have done it with ordinary frequency. Surprising as this may sound, to those who are better acquainted, from hearsay, with the *expense*, than familiar, from experience, with the *results* of thorough drainage, we will illustrate it, and then leave them to judge of its possibility, by a little sketch from our own farm. We had a field of 15 acres, a flat soaking black peat soil, but loamy and improvable, resting on a compact impervious bed, to whose obdurate and motley composition Buckland himself would have hesitated to assign a name. Clay of every colour—red, yellow, blue, and grey—imbedded gravel, marl, and iron-sand had conspired together to agglutinate themselves into as stern a substratum as ever the drainer's pick-axe broke, or subsoil-plough lifted. The surface soil lay in ridges, six yards wide, and from one to two feet high at the centre of the ridge, but exposing at each furrow the hideous induration that lay below; and where, during winter, the stagnating water lingered in long shining channels, starving the land for a yard on each side, so that to an imaginative eye the field might seem a vast "Corduroy" of land and water, or a small parcel of Dutch dykes packed close for convenient inspection. Need it be added that during the live-long summer no six-foot-wide strips from the desert of Petræa might present an aspect more utterly bare and hopeless? Such was "the black piece;" 15 acres to plough, harrow, and sow; 10 *acres to harvest*—for the obvious reason, that out of every six yards two were destroyed by stagnant water and scorching sun. This field was supposed to be undrainable, by reason of an insufficient depth of outlet to carry, or, as it is provincially termed, "draw" the water from furrows of such length, lying so flat. This difficulty was overcome by deepening a small brook course that bisected an adjoining meadow 600 yards in length, which was thus, with the inestimable aid of the spirit-level, tailed up into two main drains 3½ feet deep; one cut diagonally across the piece, the other along the bottom, thus cutting the long furrows in two, and reducing the depth of fall required to empty them. The drains were thus graduated from a fall of 3½ft. at the points where they locked into the main drains, to 2 ft. deep at their commencement. The tiles, when laid, were covered over with old Gorse, too coarse for other use, together with the prunings of a Larch and Fir plantation, and the brush from some new-pleached hedge-rows, and this was topped by one cast by the plough of the adjacent soil (we will refer to this practice more fully hereafter); the ridges were then cast down, and the clay, marl, and sand from the cuttings, spread over the surface, as exposed by the plough, to abide the winter's frost. In the following spring, the drag-harrows and clod-crusher completed the work of levelling, mixing, and pulverising; the clay and marl having broken down almost to powder under the dry exposure to the action of the weather, and requiring only the addition of lime to make a valuable dressing and refreshment to the original soil. The field was also subsoiled across, in part, with the three-soled subsoil-plough, invented by Messrs. Barrett, Exall, and Andrews. We are not yet able to state the exact acreable increase of crop, which was a spring-sown one—Oats and Peas. That it very nearly doubles any that the field ever bore before, and this in spite of the most unfavourable season ever remembered for Lent crops, our stackyard, and the testimony of all who saw the field in crop, and had known it before, will amply verify. The occupiers of two neighbouring farms both concurred in the declaration, that "the crop which grew where nothing grew before (viz., in the furrows, and for a yard on each side) was more than the whole field used to produce." And one of these farmers stated the same result in a Wheat crop on a field which he had drained the year before. It is natural, however, (and we particularise this, to avoid the possibility of an exaggeration equally undesired and unnecessary), that the best crop should grow where the furrow had been, because on "casting down" the high-backed ridges, the top soil necessarily falls towards the furrow, and leaves exposed upon the ridge the under soil which had been heaped up there by successive gatherings of the plough; and this, though good soil, would be rather in too unused and raw a state from lying dormant and buried so long, to produce well at the first bidding. The high ridges are now got rid of, having been again split down last autumn, after the crop was taken off, and the soil now lies at an equal depth upon the subsoil over the whole field; a point which we consider of great importance. The drainage is perfect in every part, and the expense, exclusive of haulage of tiles, and brush, amounts as nearly as possible to four guineas an acre. But the immediate increase of crop is only one item in the list of advantages secured by effectual drainage. The saving of seed and labour, the power of cross-ploughing and of using the subsoil-plough, the economy and certain effect in the application of manure, the ability to work the soil in any weather, the deepening of the soil and its consequent adaptation for root crops, the early mellowing in the spring, when wet soils are suffering their maximum of cold, from evaporation; and last, and perhaps most important of all, the laying the land flat, so as to receive the rain upon an even surface, and discharge it by percolation, extracting and absorbing its ammonia, instead of being washed by its superficial fall from the round-backed ridge into the furrows, carrying away with it the richest part of the soil and the manure it contains. This appears to us to be, of all the ameliorating consequences of drainage, the most important and the most lasting. To rid the soil of surplus water is of the same obvious and apparent benefit the first year as ever afterwards; but so to lay out the face of the ground as to make every shower a tribute of new fertility, and a precursor of fresh aeration (for every drop of rain that percolates *through* the soil *draws air after it as it falls*), this we believe to be the source of a *new constitution* to a drained soil, of whose annually increasing influence it would be difficult, except after a long series of years, to form an adequate estimate.

We do not pretend to have given anything approaching to a catalogue of the benefits resulting from drainage; nor is it, perhaps, possible for any one to do so, except by having first mastered every science which relates to those elements which are like the rain (only less visibly and obviously,) the agents of fertility on the one hand or of sterility on the other, according as the soil is placed in a position positive, or negative, to their influences. Perhaps the simplest and most comprehensive expression of its entire effects is that it at once invests a wet or a stiff soil with the mechanical advantages enjoyed by those the most favoured by Nature; and that with this more than compensating result often observed in the physical as well as the moral world, it produces those effects the more bountifully and beneficially in proportion to the pre-existing necessity; so that it may with truth be said, that, within reasonable limits, the worse the soil, the greater is the proportionate change of constitution that it will effect, and consequently, the better it will pay for the improvement. —*C. W. H.*

WE are anxious to act with perfect impartiality towards agricultural machine makers, for then only can we hope for their valuable assistance in the preparation of our papers on Agricultural Mechanics; but they must remember that our object is not to benefit *them*, but *their customers*; and while we wish to give all farm implements the opportunity which publicity affords of gaining the credit which their merits really deserve, that must not hinder us from calling special attention to any from which we think the farmer is likely to derive immediate advantage.

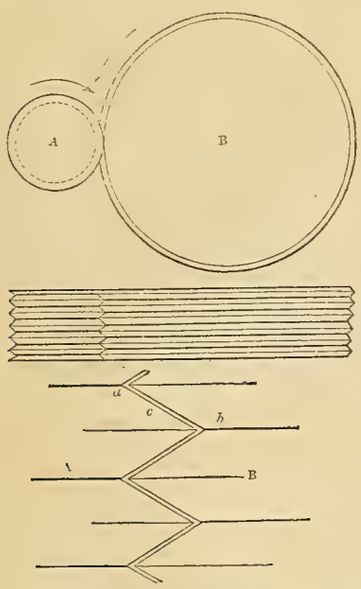
A case of this kind is now before us. Many complaints have been made by correspondents that they are unable to find a machine capable of crushing and grinding Linseed. We may observe, by the way, that the attention which has of late been directed to Linseed as food for cattle renders the want of such a machine a matter of some importance.

CORN AND SEED CRUSHERS are of two kinds: those in which the acting cylinders between which the seed passes are smooth, and those in which they are fluted. The latter mode of construction is, for most purposes, an improvement on the former; but it appears that neither the former, nor, as it has hitherto been carried into effect, the latter mode of construction, renders a machine capable of thoroughly crushing Linseed. Between the smooth cylinders, so small a seed, and of such a peculiar shape, cannot be expected to suffer much from a momentary squeeze; and in the case of the fluted cylinders, if the seed be crushed, the oil and meal expressed mingling with the husk, soon fill up the grooves with a pasty mixture, and the machine ceases to act.

We say that this mode of construction, *as it has hitherto been carried out*, is ineffectual, because the fault in it evidently is, that there is no possibility of cleaning the grooves when they become filled up, the rollers being fluted either spirally or transversely, *i. e.* parallelly to the axis. Now, obviously, the way of fluting the rollers, without destroying our ability to clean them while at work, is simply to *turn* the grooves upon them, to make them circular instead of transverse—such, in fact, as we have represented in the annexed figure. This idea, we believe, first occurred to Mr. CLYBURN, manager of the Earl of Ducie's agricultural-machine factory at Uley, Gloucestershire; at least, we have nowhere else seen the seed-crusher made on this principle; and, indeed, it has been patented by that gentleman.

We refer thus exclusively to Mr. CLYBURN'S machine, because of the complaints of correspondents, that their machines cannot crush Linseed, and because *we know* that this machine can do so; and a little consideration will show how, to the advantage of additional active surface which belongs to all fluted

rollers over smooth ones, there is added, in this case, not only the great practically useful point of ability to clean the cylinders while they are working, but also an advantage peculiarly its own.



It is obvious that, however the surface of a cylinder be disguised by grooving, the seed cannot get more than a simple and momentary squeeze as it passes between them; but in these circularly-grooved cylinders, beside this momentary squeeze, there is in almost every part of the cylinders where they touch, a passage of the one surface of contact over the other; in addition to the squeeze, the seed is thus subjected to a kind of grinding process. Let us explain: in the lowest of the above figures, we have given a section of the two cylinders where they are in contact; now, it is obvious that if the motion of the one cylinder is connected with that of the other by toothed wheels, or otherwise, so that at *c* the two surfaces simply approach, meet, and separate, as in smooth cylinders, then at *a* and at *b*, the surfaces must slide over one another; for at *a*, the surface of the cylinder A is nearer its axis of motion—it is at the end of a shorter radius; while that of the cylinder B is farther from its axis of motion—at the end of a longer radius; and thus the former moves more slowly there, and the latter faster, than they respectively did at *a*; at *b* again, for similar reasons, the surface of A moves faster than that of B. There is, therefore, necessarily a sliding of the surface of B over that of A, or of A over B everywhere, excepting only the line represented in section by the point *c*; a grinding process thus takes place, and thus the Linseed is not only squeezed or crushed, but, in a measure, ground.

We have just alluded to the principle of its construction as explanatory of the fact, which we vouch for from experience, that this machine performs its work efficiently. Of course we cannot be expected to have seen or to know all the kinds of corn-crushers now in use; and we by no means wish to be understood as doubting the efficiency of many other implements of this class besides Mr. CLYBURN'S, even as *Linseed*-crushers; only we have thought it right to meet the complaints of correspondents on this subject, by giving them such information as our experience affords.

SMITHFIELD MARKET.

I BEG to call your attention briefly to certain evils which affect a large portion of your readers. I allude to the present accommodation for sheep and beasts in Smithfield Market. Your notice of the facts which I submit to you may arouse to an attempt at amendment; at present I address myself only to the evils felt in the Sheep-market, the Beast department being better arranged, although much inconvenience is often felt there. Every Monday morning an account is publicly exhibited of the number of sheep and beasts for which room has been bespoken on the Sunday evening, and almost invariably the number of sheep returned by the clerk of the Market, as paid toll for, shows a deficiency from that statement of about 7000 or 8000; and I have ascertained it to be a fact that the number paid toll for, always much exceeds the actual supply. These exaggerated statements have the effect of causing a dullness of trade, which operates very prejudicially to the interests of many of your friends. On inquiring wherefore is this? the salesmen say it is necessary to bespeak for a much larger number than they expect, that they may get room for what they actually have. Again, I have observed with wonder the amazing difference between the Monday and Friday supply, which can be seen by your own weekly reports; and anybody attending the latter day must have noticed how comparatively insignificant a market it is in all respects, and how desirable it would be to throw more importance into it, especially after lamb season is over. I have been pondering on these evils for some time, and have thought a public notice of them would lead to the suggestion of a remedy. My own belief is that equalisation of supply to two market-days would produce the desired effect of giving plenty of room, and thereby destroying the false aspect given to the proceedings of the one, and increasing the importance of the other; and I believe all this is to be accomplished by an alteration of the market day from Monday to Tuesday. My scheme also promises a benefit to an immense number of persons in London, both of that class which desire rest on the Sunday, but cannot get it in consequence of the great preparation necessary for Monday market, and also of that class who wish to go to their respective places of worship without the annoyance of interruption by droves of cattle, drovers, dogs, &c.; and it would remove from the public path many unseemly exhibitions and expressions which offend the eyes and ears of the vast number of passengers that are to be seen in the suburbs of the metropolis on Sunday. The benefits of the change would indeed be numerous; it would set at liberty very many who desire to improve this day of rest, but cannot because Smithfield Market is held on Monday, and would allow a large number of graziers and salesmen to enjoy that rest in the midst of their families, instead of travelling as they now are obliged to do on that day or Saturday, to be ready for the market as now held. The power to effect this change is, I believe, vested in the City Authorities, and no doubt a petition addressed to them by the parties interested would receive attention.—*A Subscriber.*

ON LINSEED, RICE DUST, AND MAIZE, AS FOOD FOR CATTLE.

I HAVE the pleasure of forwarding to you, for the information of your readers, analyses by Mr. Gyde, agricultural chemist, of Painswick, of these three substances. They were sent to me by A. Littledale, Esq., of Liverpool. In whatever point of view you take it—whether you look at the small quantity of water that it contains, or at the large quantity of gluten and other nitrogenous ingredients, or at the large quantity of fat which it contains, the Linseed is decidedly the best food of the three here mentioned. And this agrees with the high value as food which it has borne in the experience of Sir C. Burrell, Rev. J. C. Blair Warren, and others, who have tried Mr. Warnes's plan of feeding. The Rice-dust, the material resulting from the process of separating the husk from the Rice seed, is just as eminently the worst of the three, as the Linseed is the best. The quantity of oil which it contains is, however, surprising; to this Mr. Gyde alludes in the communication below. These analyses differ somewhat from those hitherto published; and doubtless a good deal of the difference in the results obtained by different chemists is attributable, not to errors in the process, but to actual differences in the composition of the substances analysed. For the farmers know well enough, from the *various* results which attend at different times the same food, say oil-cake, that its quality and composition vary extremely.

In the subjoined analyses the first column represents the quantity of water in the article, as sold and used as food, amounting in one case to no less than one-seventh. It is rarely kept in mind by farmers how large a portion, not only of food, but of manures, that they buy is useless water. The second column is gluten, which is said to be identical in its composition with the flesh of animals, and which, when the other ingredients of food are administered in sufficient quantity, is supposed to be taken up bodily by the animal in the act of digestion, and thus made to form an equal weight of *flesh*. This is, therefore, a very valuable ingredient in food. The fourth column gives the quantities of fat these substances respectively contain. It is on the ultimate uses of this substance as food that so much discussion has taken place between the French and German chemists: the former asserting that it takes its place immediately in the animal frame, just as with the gluten; and the latter that it serves as fuel for sustaining the heat of the animal by the process of respiration in the lungs, and that animal fat is the result of an imperfect combustion of this and other substances there. The third column contains the quantities of substances, which it would certainly have been well to have kept separate, as starch, gum, sugar, and woody-fibre or husk; these differ so much in their value as food, that the table would have been more instructive had the quantity of each been stated. The last column gives the quantity of ash contained in Maize, Rice-dust, and Linseed respectively. The follow- is the tabular account to which I have alluded, and I have appended some remarks by Mr. Gyde, on the analyses contained in it.

	Water	Nitrogenous. Gluten, Albumen, and Casein.	Non-nitrogenous. Starch, Gum, Sugar, and Woody Fibre.	Fat.	Ash.
Maize.....	13	10.6	67.3	6.6	2.5
Rice Dust..	14.5	2.6	77.5	3.2	2.2
Linseed....	10	22.8	27.2	26.0	4.0

"Inclosed you will receive the analyses of the Maize, Rice, and Linseed. The fatty matter has been verified by a second analysis: this I was induced to do from the large amount of fat obtained from the Rice on my first analysis; for which I can only account by supposing that the husk was ground with the grain, *i. e.*, that the Rice was not freed from its outer covering as we see it in the market, before it was ground; if so, the increase of fat over the amount contained in the published analyses of Rice will be accounted for, since it is in the outer skin of all grain that the largest amount of oil or fat resides; hence the reason of bran fattening, and also a ready explanation of the effects of Rice-powder on pigs put up to fatten.

"I have estimated the water contained in the samples, since it is the composition of the several articles in the state in which they are given to cattle, and not as dried by artificial heat, as they usually are before the analysis that I presume you require.—*A. Gyde.*"

It will be observed that the composition of the Linseed, if it be correctly given above, as compared with that of Rice-dust and Maize, would render it twice as valuable for feeding purposes as the last named seed, and many times more valuable than the Rice-dust. The price of Maize at present is 4*s.* 6*d.* a bushel, that of Linseed 5*s.* 6*d.*—*John Morton, Whitfield, Thornbury.*

THE CULTIVATION OF THE APPLE.

[Read before the Winchcomb Farmers' Club on the 23d of November.]

THIS being the season in which the Apple can be best exhibited, and the tree itself pruned or transplanted, I have chosen the above subject as likely to be interesting, and—also from the discussion that may probably follow my remarks—useful.

The Apple amongst fruits, appears to hold the same rank as Wheat among cerealia, or Potatoes among roots; it is not a luxury only; from habit it has become almost one of the necessaries of life, and so deserves our attention. The Apple is recorded to have been first introduced into England by Leonard Mascall, in the reign of Henry the Eighth. The only fruits indigenous to Britain, were (we are told), the Acorn, the Sloe, the Hazel Nut, and the Crab; and although cultivation and skill have produced an almost unlimited number of varieties of them, yet the seeds or kernels of our best Apples, when sown, naturally reproduce the original parent fruit—the Crab or Wilding, as the Filbert also does the common Hazel Nut.

I say this is naturally and usually the result of planting kernels of Apples; probably not more than one in a thousand proves worth notice as an Apple; they require grafting before being worthy of admittance to an orchard. Botany, however, teaches us that we can propagate Apples from the blossoms of any sorts we choose to inoculate together, with almost the same certainty as to the result, as in crossing the breed of horses, sheep, or cattle.

The late Mr. Knight, of Downton Castle, in Herefordshire, takes the lead in having introduced the best fruits of the present day; many of these are crosses between selected sorts of Apples and the Siberian Crab. The Siberian Hervey was raised from the seed of the yellow Siberian Crab, inoculated with the pollen of the Golden Hervey. The Downton Pippin is also evidently a cross from the yellow Siberian Crab, probably with the old Orange Pippin. The Downton Pippin is said not to make good Cider. The Siberian Hervey has not, to my knowledge, been tried unmixed; my own opinion of it is favourable, and I have several young trees grafted with it; my reasons for doing so are—the hardy constitution and capability to bear the easterly winds and spring frosts it inherits from the Siberian Crab; and also the rich flavour and abundance of kernel it affords. The mode of inoculation is simple:—

Having fixed on the varieties you intend to cross, select a healthy bunch of blossoms, before quite open, and, carefully opening the buds, cut off the stamens, and close the buds again, which must then be inclosed in a bag of fine muslin or gauze that will admit the sun and air, but prevent bees or flies from touching them. In a few days the buds will open with the pistil or female organs only. Some healthy blossoms must then be selected from the tree intended for the male parent, and the tips or stigmas of the prepared blossom touched with the pollen or farina from the anthers or ends of the male blossoms; the covering must then be replaced and all other blossoms cut off the branch. The kernels of the Apples afterwards so produced must be carefully taken from the fruit, kept in dry sand during the winter, and sown in fine rich mould in February (if on a hot-bed the better), and if transplanted and kept well manured, they will probably bear fruit in six or seven years."* If, however, a more general and extensive quantity of seedlings are required, the plan I have adopted is to select a few bushels of the finest fruit at the cider-mill, and when half ground and the kernels not crushed, fill a hair-cloth with the pulp, which, when pressed dry and broken up fine, is put in a moderately dry place, secure from mice, and drilled with the kernels it contains in the spring, in February or March.

For a few weeks the young plants have many enemies. Birds must be scared, mice caught in traps, and worms and snails dressed occasionally with lime or wood ashes, or they will destroy numbers of the young seedlings; but in a short time wood is formed, and the only thing then necessary is to keep them hoed clean and well supplied with water or liquid manure. I have had plants 3 or 4 feet high the first year. In November or February the seedling plants should be transplanted into rows, 1 foot between each plant and 2 feet or a yard between the rows, and here they may remain two years. When three years old the freest growing trees, with large broad leaves and smooth dark-coloured bark, may be planted out by themselves to remain till they bear fruit, as they are most likely to produce new varieties. The remaining plants should be removed again into rows 2 feet by 3 feet asunder; and if this is done early in the

* See Baxter's "Horticultural Library."

autumn they may be grafted the next spring, or budded the preceding or succeeding midsummer till Michaelmas.

Grafting I prefer to be done while the stock is young, and in the nursery, as the graft being put into the stock, about 1 foot from the earth, becomes in fact the stem of the future tree, and is not liable to be broken off by high winds or split by a heavy crop of fruit, as is sometimes the case in cleft-grafting, when the stock is older. Splice-grafting on small trees is also more certain: not one graft in 20 ought to fail; and if the land is kept, as it should be, in high condition, they will shoot from 2 to 5 feet, and in two, or at most in three years, be fit for the orchard. I exhibit a young tree grafted the 10th of April last, now 5 feet high, and ¾ of an inch in circumference. Grafts may be sent any distance, by the simple plan of inserting the lower end in a Potato. In 1836 I brought home Apple and Crab grafts from the farthest settled part of Canada. I was two months travelling home; they came perfectly fresh, and have since borne fruit. The Potatoes I exhibit to-day are descended from those I brought home with the grafts stuck in them eight years since.

Budding is an operation that may be performed even earlier than splice-grafting, and has the advantage of not materially injuring the stock should it fail, which if done in proper season, (August or September,) will scarcely be the case to the amount of one per cent. There appears to exist an analogy in animal and vegetable life in many things: thus, the natural decay of individual families, not only of man but of the inferior animals, has its parallel in the history of the Apple. There are some kinds of old fruit that cannot be kept long in a healthy state—they strike readily from the graft, flourish for a few years, and then begin to canker, and die back one year what they grew the preceding. Of these I will mention the Russet, Orange Pippin, Orange Pearmain, and Golden Pippin; and there are symptoms of decline in young trees grafted with that very generally useful Apple the Bromley. I have tried most of these old sorts on the most vigorous young stocks, both by budding and grafting, but the seeds of degeneracy and decay are transmitted from the parent tree, so that premature decline and di appointment is the consequence. This predisposition to decay also appears to invite that pest to nurseries and orchards, the Aphis or American Blight: the best remedy I know of is simply to cut out the infected part with a keen knife, and afterwards wash the stem or bough with strong soap-suds applied with a brush and well rubbed in.

(*To be concluded next week.*)

ON SULPHATE OF IRON AS A MANURE.

This substance is composed of 25.7 parts of protoxide of iron, 28.9 of sulphuric acid, and 54.4 of water. It is often used in manuring meadows and other fields, generally in an impure state, as it is found naturally in certain sorts of brown coal and peat, of which it generally forms a constituent part. It will be of use wherever gypsum is beneficial, but it must not be used in large quantities; because, as it is very easily soluble in water, it will supply the plants with too much sulphuric acid, and also with iron; in fact, with more than they can assimilate. On calcareous soils, however, large quantities may be more safely applied, as then it will be easily decomposed; the sulphuric acid combining with the lime into gypsum. It is often said that green vitriol, or those substances which contain it, will only act beneficially on soils containing much carbonate of lime; but I entirely disapprove of this assertion, as I have seen cases in which it has acted most beneficially on soils which did not contain any carbonate of lime at all. It is true, however, that this substance will be of no use to a soil which already contains much gypsum, as the plants will have been supplied with the required sulphur from the latter source.

Of those mineral substances (peat, brown coal, &c.) which contain sulphate of iron, only so much is to be used as that 30 to 40 lbs. of the salt may come to one acre; and it is, therefore, quite impossible to say, till after analysis, how much of the mineral is to be taken.

In soils which contain much humus, or free humic acid, green vitriol, or a mineral containing it, will be always hurtful, as it will be decomposed by the humic acid, and both the humate of the protoxide of iron thus formed, and the sulphuric acid thus set free, will injure the plants; the former substance supplying them with too much iron, whilst the latter will corrode their roots. I have made many experiments on this subject, which remove any doubt that can possibly arise. At times, soils, whether rich or poor in humus, already contain so much sulphate of iron, that they are thereby quite barren; in this case, it may be much improved by lime or marl, for then gypsum will be formed, and the protoxide of iron separated, which, if the soil be exposed to the air, will be converted into the peroxide of iron.

As sulphate of iron assists vegetation by the sulphuric acid which it supplies, it will be especially beneficial to those plants which require much sulphur for the formation of albumen, gluten, and legumen, amongst which are Clovers, Peas, Beans, Vetches, Flax, Rape, and generally the different sorts of Cruciferæ. It is strewed in the form of powder over the growing plants, or harrowed in with the seed. The scattering of it, however, must be done most accurately; because, where it comes to lie too thick, it kills the plants instantaneously, very soon giving them the appearance of having been burnt. It will, therefore, be safest to strew it over the fields before sowing, and also to mix it with a little dry earth. Heavy, clayey soils will bear more of this substance than light ones.

The effects of sulphate of iron, as it is so very soluble in water, will pass away still more quickly than those of gypsum; the more so, as, unless the soil be very calcareous, small quantites only are to be used.

Arthur Young says, that in some parts of England, a certain sort of peat-dust is strewed over pastures, which has the effect of destroying Thistles; most probably it contains also some vitriol of iron, for this substance will kill weeds whose roots reach deep into the soil.

It is generally in an impure state that this substance is used as manure; thus, for instance, in Upper Lausnitz (Oppelsdorf and Niederengersdorf) it is found and applied in a sort of brown coal; in Picardy, in a sort of peat; and in Hanover, in a sort of earth, lying on the borders of the high moors. It used formerly to be thought that the brown coal acts in virtue of its carbon; but, in the first place, carbon cannot nourish plants, as it is not soluble in water; and secondly, there is such a small quantity conveyed of it on the field, that it does not bear any proportion to the amount required for one crop; and thirdly, the ashes of peat and brown coal, containing vitriol, are a stronger manure than the substances themselves. The brown coal of the Upper Lausnitz, like the other minerals mentioned above, benefit (like the pure vitriol) those crops only which are also improved by gypsum; and this also proves that the sulphate of iron which they contain is the manuring substance. At times, brown coals and peats contain only sulphuret of iron; but this comes at once into operation as soon as the sulphate has been formed from it. Brown coal generally contains nitrogen, but as the amount of this is very trifling, it does not deserve attention. It does not excite decomposition in the soil, and, therefore, acts solely through the vitriol.—*Sprengel.*

MR. HEWITT DAVIS'S SYSTEM OF FARMING.

[The following letter is taken from the *Maidstone Gazette*.]

It has occurred to me that at the time I gave publicity to my rotation of crops, I should have accompanied it with estimates of the expenditure and returns, for I fancy the principal value of that rotation is the excess of the returns over the expenditure, which is obtained by it, and which can be shown only by figures. With a view to supply this omission, I forward you the inclosed account, which I hope will be understood.

It has been my desire, in this estimate, to make myself perfectly safe, and for that purpose I have taken a very high scale of charges on the one side, whilst on the other the quantity and value of the produce are put below what I have actually realised. To me, therefore, the calculation turns out very satisfactorily, for I find, with corn at the very low market prices at which I have put it, and the green crops and fodder at extremely low feeding prices, a profit of 25*s.* per annum per acre is the result.

The labour is taken at 2*s.* per day for the men, and 5*s.* per day for the horses and wear of tackle. There remains another calculation to be made, namely, the profit or loss on stock, valuing to them the farm produce at the low prices I have affixed, and giving them the advantage of the high price at which I have charged their manure.

My estimation of guano and artificial manures is very low, for even allowing these to produce Turnips (which, after all that has been said, is the only crop which it has been shown they can be applied to,) the value of the crop depends on the return the stock will pay, and it is of little use to grow cattle food, if the cattle will not afford a profit in their consumption of it.

Dr. CROPPINGS FOR TURNIP SOILS.

		£	s.	d.	£	s.	d.
1st Year.	GREEN RYE (one acre.)						
	Broadshearing the Wheat stubble	0	6	0			
	Ploughing	0	10	0			
	Harrowings and drilling	0	6	0			
	Seed, 1½ bushel	0	7	6			
	Sundries	0	5	0			
	Half a year's rent, rates, tithe, interest of capital, and management	0	15	0			
					2	9	6
	TURNIPS.						
	Dressing, 20 loads of dung at 6*s.*	6	0	0			
	Ploughings, twice (once deep)	1	8	0			
	Harrowings, rollings, drilling, scuffling, three times	0	13	0			
	Ridging and splitting	0	14	0			
	Seed	0	13	0			
	Hoeing and weeding	0	10	0			
	Sundries	0	5	0			
	Half a year's rent, &c.	0	15	0			
					10	8	0
2d Year.	OATS.						
	Ploughing (deep)	0	14	0			
	Rolling, harrowings, and drilling	0	6	0			
	Seed, two bushels	0	6	0			
	Sundries	0	5	0			
	Mowing, harvesting, stacking, threshing, and marketing	1	10	0			
	A year's rent, &c.	1	10	0			
					4	11	0
3d Year.	SEEDS.						
	Clover and expense of sowing	0	14	0			
	Rolling, stone picking, and harrowing	0	5	0			
	Sundries	0	5	0			
	Mowing, haying, and stacking	1	10	0			
	Ditto, second cut	1	0	0			
	A year's rent, &c.	1	10	0			
					5	4	0
4th Year.	PEAS.						
	Ploughing (deep)	0	14	0			
	Harrowings, rolling, drilling, and three times scuffling	0	13	6			
	Hoeing and weeding	0	6	6			
	Seed, two bushels	0	9	0			
	Sundries	0	5	0			
	Mowing, harvesting, stacking, and trenching	1	10	0			
	A year's rent, &c.	1	10	0			
					5	8	0
	Carried forward				£28	0	6
	Brought forward				£28	0	6
5th Year.	WHEAT.	£	s.	d.			
	Broadshearing Pea stubble	0	6	0			
	Ploughing (deep)	0	14	0			
	Harrowings, rolling, and drilling	0	7	6			
	Hoeing and weeding	0	7	0			
	Seed, one bushel	0	7	0			
	Sundries	0	5	0			
	Reaping, harvesting, threshing, and marketing	2	0	0			
	Rent, &c.	1	10	0			
					5	16	6
					£33	17	0
	Profit in five years, or 25*s.* per acre per annum (as shown by the following valuation of produce)				6	5	0
					£40	2	0

Cr.

1st Year.				
	Sheep feed (Rye) in April, valued at	1	5	0
	Sheep feed (Turnips)	3	0	0
			4	5 0
2d Year.				
	Oats, 7 qrs. at 22*s.*	7	14	0
	Straw, 2 loads, at 18*s.*	1	16	0
			9	10 0
3d Year.				
	Hay, 1½ loads, at 80*s.*	5	0	0
	Ditto, second cut, 1 load, at 60*s.*	3	0	0
	Sheep feed (Clover)	0	10	0
			8	10 0
4th Year.				
	Peas, 3 qrs., at 32*s.*	4	16	0
	Haulm, 1½ load, at 20*s.*	1	10	0
			6	6 0
5th Year.				
	Wheat, 3½ quarters, at 50*s.*	8	15	0
	Straw, 2 loads, at 28*s.*	2	16	0
			11	11 0
			£40	2 0

Hewitt Davis, Spring Park, near Croydon, Nov. 29.

Home Correspondence.

Wages of Farm Servants.—Your correspondent, at p. 859, speaking of the condition of the hinds of East Lothian, and of the custom of paying wages in kind, defends that remnant of feudalism, on grounds which appear to me utterly untenable, viz., that the hind seldom having money in his possession, is thereby prevented from frequenting the alehouse, and from acquiring habits of dissipation; and that the scarcity of money gives it a value in his eyes, which leads to habits of frugality, by which he is often enabled to lay by a store for old age. Now, allowing these arguments their utmost weight—admitting most fully the value of habits of frugality, and the odiousness of the custom of public-house tippling, a custom so pernicious that "no man's hatred ever wronged it yet,"—I think that even these advantages are dearly purchased by the loss of independence of spirit and self-respect; and it does appear to me that a system which places the labourer on a footing very similar to that of the cattle which he tends, though it may produce contented and laborious *serfs*, is not calculated to produce a manly and independent peasantry. Man has been made (and wisely made) an accountable being, with difficulties to be overcome, and with good and evil placed before him, and power, if he choose, to take the evil and reject the good; and it is by overcoming difficulties, and combating evil, that his moral character is exulted and perfected. If the labourer's propensity to dissipation is so great, and his power of self-control so small, as to render a system of this kind necessary to restrain him, I think it ought to be regarded (like putting a strait jacket on a madman, or confining a criminal in a prison) rather as an evil necessary to the avoidance of a greater, than as a system which it is desirable to continue one moment longer than the cause for it exists; and that the most strenuous endeavours should be made to raise the moral character of the labourer, that he may present the nobler spectacle of a man sober and industrious from principle and not from constraint.—*W. H. M., Trentham.*

Cotswold Farming.—Upon inquiry, I find that the farmers who make cheese upon the Cotswolds, in my immediate neighbourhood, make generally from 1½ tons to 2 tons per annum. The farmers who put Oats after Wheat generally breastplough the land after the stubble is secured, and they thus prepare the land for Peas or spring Vetches; but when Turnips are intended after Wheat, the land is ploughed up, and left for the frost to mollify it. But here there is great diversity of opinion, many objecting to deep ploughing; but I am confident land cannot be cleaned without it, and so far from its injuring the after crops, I have, though labouring under the disadvantage of impoverished land, invariably grown better Turnips than my neighbours. They argue that, if you keep the top soil clean, with light ploughing, or with even the breast-plough, the Couch-grass from beneath will die; but I very clearly proved the reverse this year, for I ploughed a few acres of land very shallow, and got the surface perfectly clean; it was left for some time, and the Couch-grass appeared; I examined it with my bailiff, and found the Couch sprung up from the soil which was not moved with the plough; I had it ploughed a little deeper and cleaned it perfectly: owing to the dry weather, it was left for some time, and the Couch again appeared; we a second time proved that it came from below the ploughed land; I then ploughed it a good deal deeper, got under the roots of Couch, and so far from the land being spoiled, as many prophesied, I have the best piece of late Turnips in the neighbourhood—and this on the very land which is stated will not bear deep ploughing; on part of it I drop-drilled about 4 bushels of bones, with a little dried night-soil and ashes; and on another part rather more than 1 cwt. of guano, with ashes; we generally drop-drill about 20

bushels of ashes and bones. I have never put on more than 6 bushels of bones with the drop-drill, and have succeeded well, considering the land the Turnips have been grown upon. The drop-drill has been little used on the Cotswolds till the last few years, and now it is becoming more general in its use. Those who do not use it drill about 2 qrs. of bones with ashes on the land which is not dunged for Turnips; and many people prefer drilling their Turnips on the manured land, in order to facilitate the hoeing, which operation is usually badly performed, by men with long handles to their hoes, and with erect bodies, so unlike the perfect hoers in Wiltshire, with their short handles and bent bodies. With an erect body a man can only chop the ground, and much is not cut at all. The Turnips are mostly consumed upon the land by sheep, and there are few farms without Gardener's turnip-cutter. I do not think enough Swedes are grown; they do not bear a greater proportion than one-fifth of the Turnip-land. The land is usually the following spring laid down with Clover and Rye-grass, in either Barley or Oats; on the poor land Cow-grass is superior to Clover, it lasts longer, and produces a much larger crop. On the best land 2 tons per acre is not a very unusual crop.—*Anonymous.*

Allotments.—Mr. Cowper's Bill.— I am perfectly convinced of the great advantages that will accrue to the labourer by a judicious system of allotments, always keeping in mind, that land thus appropriated should be let at the farming price. Yet, being intimately acquainted with parish affairs, there appears to be insuperable difficulties to overcome in legislating upon the question. If it is made incumbent upon wardens to hire land, in the event of no waste land existing, and to pay for it out of the rates, how are they to decide who is to benefit by it? for it is quite certain all cannot; and, as I have before remarked, those who pay rates as poor men will have a claim. Under all circumstances, and with the knowledge of the petty jealousies so prevalent in every small community, I am averse to legislative interference, which would excite endless squabbling and discontent. Since the subject of garden allotments has been brought before the public so prominently, landowners have more generally encouraged the project. The efficacy of the plan appears to rest mainly on two points, viz.;—a moderate rent to the holder, and not permitting him to have more than a quarter of an acre, free of tithes and rates—these to be charged in the rent. I am also an advocate for small farms (more of this another time), which should be kept distinct from allotments; the latter must not, on any account, be allowed to run into the former; such a mistake would destroy the benefit of both. A man must have either just enough to employ his leisure hours, or sufficient ground to maintain himself and family without seeking work elsewhere. Perhaps the condition of the labourer and manufacturer was never lower than it is at present, yet the idea of supposing men will take advantage of an indulgence, and neglect their master's interests, is too uncharitable to be entertained for a moment. I am satisfied the desire to raise themselves in the estimation of their fellow-creatures is still uppermost in the thoughts of the working classes, and only requires proper encouragement to shine forth, and become evidence of a true and kindly spirit. I should like to hear the opinion of a practical parish man on the Allotment Bill. I am not prejudiced in any way; and if the general wish appears to be for the measure, I will endeavour to assist in carrying it out to the best of my ability; but, at present, I conceive it will act more to the disadvantage than advantage of parishes and the labourers belonging to them. It is better to watch the gradual development of a plan voluntarily adopted, in the hope of doing good, than to force it upon willing shoulders in an arbitrary manner; the very act of compulsion makes even a positive benefit distasteful to the party conferring it—such is human nature. The meddling of the law with what may be more satisfactorily arranged by individuals, cannot be recommended. There is nothing to prevent half a dozen persons, resident in a parish, joining together to take land at a farmer's rent, which they may relet at the same to the labourer, under certain regulations and restrictions, insuring good behaviour and thorough tillage. But if such power is given to wardens for the relief of a parish, they will probably give the land to the highest bidder, in order to make it pay, and thus be authorised to convert intended allotments into accommodation land—two very different things—one adding to the comforts of the industrious but indigent man, the other entailing increased miseries upon him, by leading him into expense, which even his extra toil will not extricate him from. I trust some of your numerous correspondents will take up allotments in connection with rates and parish affairs. This should be fully and impartially examined before the meeting of Parliament.—*Falcon.*

Irish Furze.—In the answers to correspondents of the *Agricultural Gazette* (page 878), it is asked if any one can communicate information concerning the "Furze that has no thorns." In the first place, it may be stated that such a plant as a Furze without thorns does not exist. In the Irish Furze the thorns are very much less rigid and more slender than in our well-known English species; indeed so soft that the hand may be passed up a shoot of it without suffering any injury, which certainly could not be done with either the Ulex europæus or U. nanus. The Irish Furze (*Ulex strictus*) has been sometimes cultivated as fodder, and possesses the same highly nutritive properties which are found in the U. europæus, without requiring much, if any crushing. It is a native of Ireland, where it was first noticed in the Marquess of Londonderry's Park, in the county of Down, in about the year 1815, and is said also to occur in a few other places in the north of that county. Its habit of growth is very different from that of our other species, not having their spreading habit, but the branches all growing in an upright manner and close to each other, so as often to form a table-like surface at the top. Loudon informs us ("Encyc. of Trees and Shrubs," 202) that sheep and cattle are very fond of it, and eat its branches without injuring their mouths. It prefers a mild and moist climate, and would probably succeed in most parts of the kingdom. I have never seen it cultivated for fodder, but have known very excellent hedges formed of it, and believe that in Jersey, where it is used for that purpose, it has its shoots cut off for the use of the cows, without injuring, but rather improving the fence. It is scarcely necessary to add, that it can only be used as a fence in places where sheep and cattle have not access to it. As the plant very seldom flowers, it is difficult to obtain seed, and it must be increased by cuttings which strike easily. Some botanists have doubted the claims of the U. strictus to be considered as a distinct species, but they have not agreed amongst themselves to which of our species it ought to be referred; and I concur most fully with Dr. Lindley in believing it to be really distinct from both of them. This is not the place for a discussion of technical botanical characteristics, and I must therefore refer those who may take any interest in that part of the subject, to Dr. Lindley's "Synopsis of the British Flora," 2d ed. p. 322; to my paper in the "Annals of Nat. Hist." vol v. p. 300; or to my "Manual of Brit. Bot." p. 69, where they will be found. Numerous seedlings were raised from this plant by Mr. Cameron, the excellent Curator of the Birmingham Botanical Garden, all of which are exactly like their parent. It is not for me to enter upon the consideration of the agricultural value of Furze, since I am not a practical agriculturist, but only a botanist; but as many writers in the *Agricultural Gazette* seem to consider even common Furze to be deserving of cultivation as fodder, notwithstanding the necessity of crushing it before it can be used, it does seem to me that the Irish Furze must be well deserving of a trial, from its much more succulent character, and the weakness of its thorns, which are so slight as to have led to the idea that it is without any.—*Charles C. Babington, St. John's Coll. Cambridge*, Dec. 30.

Inorganic Elements of Grain and Straw.—In a lecture delivered at the Royal Victoria Gallery, Manchester, in May, 1841, it was there stated that the quantity of inorganic element required by the plant in 100 parts of Wheat, are 15·5 of ashes; in the same quantity of the dry stalks of Barley, 8·54; in 100 parts of the stalks of Oats, 4·42. I cannot in any way make this correspond with the table No. 1 in your valuable *Gazette* of April 20 of this year; the Editor would very much oblige by giving me the true quantity, if the above is not correct; also adding Beans, Peas, and Clover; Beet and Turnips, if any in the last two mentioned.—*D. S. J.* [Your figures are wrong:—According to Sprengel, 1000 lbs. of Wheat leave 11·77 lbs., and of Wheat straw 35·18 lbs. of ash; 1000 lbs. of the grain of Barley leave 23½ lbs., and of the ripe dry straw 52·42 lbs. of ash; 1000 lbs. of Oats leave 26 lbs., and of Oat straw 57½ lbs. of ash. See Johnston's Lectures.]

Refuse from Chemical Works.—You will much oblige me by stating the effect of the refuse from aqua-fortis works. I purpose mixing it with mud from pools.—*Civis.* [Aqua-fortis, or nitric acid, is manufactured thus:—Sulphuric acid is applied either to nitrate of potash or nitrate of soda, and the nitric acid driven off. The residuum will therefore be either sulphate of soda or sulphate of potash, according to the salt used; and, being a valuable material, cannot properly be termed refuse. There will be nothing but this in the residuum. It is doubtless a valuable manure, and may generally be applied with advantage at the rate of 2 cwt. per acre. We suspect, however, that "Civis" means refuse from soda works, not from aqua-fortis works. The refuse from soda works is soaper's ashes, which are extensively used on heavy land as manure. When first turned out they consist of sulphuret of calcium and carbonate of lime. The sulphuret of calcium by spontaneous combustion in the heap becomes oxidised to a considerable extent, and converted into sulphite and sulphate of lime. Other changes take place, leaving the main ingredients of the heap—sulphate, sulphite, and carbonate of lime. Some sulphuretted hydrogen is given off from it. This must be a valuable material, particularly to heavy land, and would be very suitable to mix with mud, as "Civis" proposes. Common salt might be a good addition, particularly if the mud were applied to light land—2 cwt. per acre. As to the quantity of soaper's ashes to be applied per acre, it must vary with the texture of the soil. Farmers generally use about 2 waggon-loads of soaper's ashes per acre.—*F.*]

Rabbits.—"An Old Subscriber" wishes to be informed of plants that are not subject to the attacks of rabbits. I beg to say that there is no plant better suited for under-shrubs than Rhododendrons: they are never attacked by hares and rabbits; they are not at all fastidious about what soil they grow in; I have seen them in very shady situations in shrubbery among old trees, in a yellow loam, growing most luxuriantly, forming bushes 4 feet high and covering a space 4 yards square, having broad healthy leaves, and of a prostrate habit. It is true they do not flower very freely, but they make excellent cover, and have an elegant appearance at the margins of rides. The commoner sorts may be bought as cheap as Hollies, and may be raised by thousands from seed. Vinca minor forms a carpet 1 foot high under old Beech trees, where everything else refuses to grow. For plants of large growth, the New answers well, and is seldom touched. Wood or Spruce Laurel (*Daphne laureola*) is quite safe from their attacks. I believe the common Box (*Buxus arboretum*) is seldom attacked, and I may add Butchers' Broom (*Ruscus aculeatus*).—*B. B. Billington, Elmham Hall Gardens.*

"Is Guano the Dung of Birds, or Fossil Earth?"—I feel assured the more fully this question is entered into, the greater will be the benefit conferred upon the agriculturist; for should it be found to be fossil earth, as many suppose, will it not cause such an inquiry to be made to ascertain if we have not in this country an earth similar in quality to that of guano?—*J. G., Fulham.* [The answer to this question is already sufficiently well determined. Guano is that which remains of the accumulated droppings of sea-fowl after an exposure for many—perhaps hundreds of years—to a hot *dry* climate.]

Linseed.—Like many of your readers, I was puzzled both as to bruising and grinding Linseed, as the metal corn-crushers that I tried were useless in a very few turns. Not wishing to be disappointed of so valuable an assistant to dairy purposes, I applied to a friend to make the attempt with his water-mill, and suggested to him damaged rice for a drier; without much expectation of success, the attempt was readily made, and succeeded. On account of the smallness of the seed, stones that are much worn are best adapted for this purpose. I see your correspondent, "C. E. W.," has succeeded with bran; and, most probably, Barley, or any other grain, may be used for grinding the Linseed. I boil about 12 lbs. of this Linseed and Rice-meal in 12 gallons of water, and then stir into it as much chaff as will absorb the whole; this I give to my milch cows with admirable effect. The 12 gallons of jelly last six cows about two days; a larger quantity, no doubt, would be attended with greater benefit, but as it is quite new with me, I commenced in a small way. My friend intends trying it on his sheep, and thinks it will supersede the use of cake.—*J. S.*

On Breaking up Inferior Pastures.—This is a subject of immense and pressing importance at the present time. The laws of the country, in their relief of able-bodied men out of employment, are destructive of the social position of the applicant, and which social position, however low in the relative scale it may be, is one which it is for the interest of the whole community that the poor man should correctly appreciate. In this, and other parishes in this county, where there is an abundance of inferior pasture land which bears a fallacious rent, and which on the average of years affords no remuneration to the occupier, and scarcely any employment to the poor, landlords generally are taught to object to the breaking up of pasture land. "No," is a short and easy answer to many applications, and agents are apt to foster this easy habit of disposing of extraordinary applications. But the common sense of the matter would soon show the question to be a landlord's question chiefly, and not that of the temporary ratepayer or occupier. The poor rate of a parish is in the nature of a permanent annuity of varying amount charged on the land, which must, in the long-run, find its payment out of the pocket of the landowner. He is, therefore, more interested than any other in the reduction of this charge, and yet it is he who refuses to allow his land to be converted from a culture in which it assists scarcely at all in reducing the poor rate to one in which it would most materially contribute to that result, and that without any loss, and, in many cases, with direct gain to himself. There are many benevolent individuals in this parish who would rejoice to see your arguments effective to the removal of prejudice on this point. Put the case strongly, therefore, that the old prejudice in favour of restricting tenants from breaking up any pastures is one which must ultimately fail, and the sooner the better.—*A. Whitaker, Bockington, Somerset.*

Foreign Correspondence.

Pleuro-Pneumonia.—Allow me the liberty of addressing to you a few lines on a subject which, it is to be feared, will become of the greatest moment to the agricultural interests of your country. I have observed in your *Gazette*, that the alarming distemper which partially exists among cattle in England, seems, from description, to have the same symptoms as those which have been observed for many years in some parts of this country, in the distemper called lung sickness, which has ruined many farmers, and has occasioned, and still continues to occasion, a loss of several millions in the national agricultural capital. This distemper is of such fatal influence in the disorganisation of the lungs, that no cure for it is to be found, and we consider every recommended specific as useless and without effect. I have the pleasure of sending you a Treatise on this distemper, written by one of our cleverest veterinary surgeons; it gives a full description of this disease, and proposes the only possible method for stopping the immense losses which it occasions. This Treatise has been already forwarded to your Government, by the English Consulate; but, being written in Dutch, is probably neither understood nor translated. If its translation could be ordered by your National Agricultural Society, it would give a more general knowledge of the character of this disease, and would open a dreadful prospect of its consequences, were it once to gain a seat in the blood of your immense and valuable stocks of cattle. There is no doubt, if no effectual measures are taken by your Government, your cattle-markets will soon bring this distress all over the country. The only way of preserv-

ktion against this infection is, not only to kill every head of cattle attacked by this disease, but likewise every other, though apparently in a healthy state, which has grazed, or been in the same stall with an infected animal. In this, our province of Zealand, this method has been adopted; and I have witnessed 18 instances of this distemper, against which, in the full conviction that no other remedy could have a chance of success, I proposed to Government, in my quality as President of the Provincial Board of Agriculture, to kill at once all the cattle existing on any farm where this disease had broken out —the value of the said cattle to be reimbursed by Government to the owner, after valuations ordered beforehand. This having been granted, I have had the satisfaction, by the execution of this very severe measure, of preserving till this day this part of the country from those immense losses which have been experienced in other provinces. It has been very remarkable that, in every instance, the origin of the distemper lay in infection by other cattle brought over from Holland, by which it has been fully proved that the cause must not be attributed to any atmospheric or other influence at home, but wholly to infection. The few instances of recovery are always partial; the virus of the infection is never extinguished; for the power of its influence on other cattle continues, though the animal itself should become fit for the butcher. When we consider this distemper in its various periods, together with the results of *post-mortem* examinations, the conviction is inevitable that the lungs, which are grown to an immense fleshy volume, can never be brought back again to their former natural state, and consequently that no cure is possible. I hope you will consider this communication as having no other aim than to make you acquainted with the dreadful consequences which must take place when a proper line of conduct is not prescribed; for if owners of cattle should rely on the promises of veterinary surgeons, who should give hope of a cure, they will be in a false position; the contagion will gain ground every day, and when it shall become more general, it will be beyond human ability to put a stop to it.—*C. Vis, Middelburg, President of the Board of Agriculture, Province of Zealand, Holland.*

Societies.

BRISTOL AGRICULTURAL SOCIETY.

At the late Annual Meeting of this Society, Wm. Miles, Esq., M.P., its Chairman, gave the following results of his experiments in agriculture during the past year. It may be recollected that last year he stated the results of experiments made with different manures on the growth of Swede Turnips, and his intention to carry them on for two years. The land on which the experiment was tried was a very good rich loam, the rent, including tithes, being 50*s.* an acre. The manures applied were Daniel's manure, a compost of Daniel's and dung, dung by itself, bones, guano, and Mr. Stotts's salts. These were used in equal proportions. Of Daniel's 40 bushels were sown broadcast previous to ploughing, and after ploughing, 12 bushels of what he called his B were drilled in before the seed. Of the compost of Daniel's and dung 10 tons of dung were mixed with 30 bushels of Daniel's B, and mixed a month before using. Of dung 20 tons were used, and of bones 20 bushels drilled in before the seed. His reason for using so small a quantity of bones was that he thought it better not to use so large a proportion at once, but to apply it in two quantities. Consequently, in the Wheat which preceded these Turnips he had used 10 bushels of bones, and therefore to that one acre to which bones were now applied he put only 20 bushels. Of guano he used 3 cwt., mixed with 15 bushels of ashes, drilled in before the seed; of Stotts's salts he used 2½ bushels mixed with 11 bushels of ashes, drilled in before the seed. In all cases where ashes were used it was the Newport coal ash:—

Daniel's manure, costing	£1	19	0	produced	15	tons	8	cwt.
Daniel's and dung	,,	3	10	0	,,	19	,,	18	,,
Dung	,,	5	0	0	,,	21	,,	0	,,
Bones	,,	2	15	0	,,	18	,,	4	,,
Guano	,,	2	2	6	,,	22	,,	18	,,
Stotts's	,,	1	16	4	,,	17	,,	12	,,

Comparing, then, his largest amount with his smallest, it would stand thus:—

No. 5 (guano) produced	7	tons	10	cwt.	more than No. 1.
No. 3	,,	5	,,	12	,,	ditto
No. 2	,,	4	,,	10	,,	ditto
No. 4	,,	2	,,	16	,,	ditto
No. 6	,,	2	,,	4	,,	ditto

So that it would appear that Daniel's manure was by far the worst, and of course, that being the case, he had supposed that when he grew Wheat, Daniel's manure would hold the same relative inferiority: but, instead of that, the most extraordinary change took place. Before proceeding, he would remark that the land, previous to the crop of Turnips being taken, had been subsoiled. As regarded the dung, also, the seasons should be taken into consideration, for in his opinion, from the extreme heat, the dung did not aid the growth of vegetables so much as it would had there been more moisture in the atmosphere. He would now give the results as to produce. He took the head, the tail, and the straw; as far as could be, every grain and every straw was weighed, and the produce was as follow:—

	Head.	Tail.	Straw.
Daniel's	36 bshls. 3 bshls. 2 pecks	1 ton 3 cwt. 2 qrs. 10lb.
Daniel's & dung	38 ditto 2 ,, 2 ,,	1 ,, 4 ,, 0 ,, 8
Dung	31 ditto 2 ,, 0 ,,	1 ,, 3 ,, 0 ,, 14
Bones	33 ditto 1 ,, 0 ,,	0 ,, 19 ,, 1 ,, 25
Guano	34 ditto 2 ,, 2 ,,	1 ,, 0 ,, 1 ,, 10
Stotts's Salts	32 ditto 1 ,, 3 ,,	1 ,, 0 ,, 2 ,, 9

Here the manures had actually changed places, and dung was the minimum produce, with which he would now make the comparison:—

No. 2 produced 7 bushels	more than No. 3 (dung)				
No. 1 ,,	4 bushels	2 pecks	,,		
No. 5 ,,	3 ,,	2 ,,	,,		
No. 4 ,,	1 ,,	0 ,,	,,		
No. 6 ,,	0 ,,	3 ,,	,,		

The Wheat was very good spring Wheat, which was known as Belle-vue Talavera; and he sold the produce to one person at 40*s.* per quarter, charging for the tail, which was also very good, 4*s.* per bushel. He charged nothing for the straw. The Swede Turnips were all pulled and taken out of the land, no sheep being folded upon it; every single thing was taken from the land, so that there was nothing but the common land, *plus* the fertility produced by the different manures. For the Swedes he charged 10*s.* a ton, all taken from the land. He had gone into these figures that practical men might see whether it was worth while to have these different manures on their farms or not. They were much more portable than dung, which was a great advantage to persons having fields lying at a distance from their farm-yards, and this was the case with the land of which he was now speaking; it was situated at a considerable distance from his farm, and he had a hill to contend with of a mile and a half in length. The value of the produce of these 6 acres, calculating it at the prices which he had mentioned, was as follows:—

Daniel's,	in 1843,	£7	14	0	.. in 1844,	£11	1	0
Daniel's and dung	,,	9	19	0	.. ,,	11	8	6
Dung	,,	10	10	0	.. ,,	9	6	3
Bone	,,	9	2	0	.. ,,	9	18	9
Guano	,,	11	9	0	.. ,,	10	5	6
Stotts's salts	,,	8	16	0	.. ,,	9	11	0

These were the gross proceeds, and deducting the cost of the manure per acre, he found that, on the two years, the following was the result:—

Daniel's	£16	16	0	Guano	£19	12	0
Daniel's and dung	17	17	6	Salts	16	10	8
Dung	14	16	3				
Bones	16	0	9	Total	£101	13	2

So that, taking the rent for the two years to be 30*l.* for the 6 acres, and looking at his receipts, he found that he had cleared considerably more than three rents. Those were the results of experiments carried on with the conviction that only by actually testing the advantage of manures, could any advantage be derived for the tenant farmer; and if such experiments were to be tried, they should be carried on by those who could afford it; the results should be laid before the tenant farmers, and then they would be able to judge as to the suitability of the manures in their own cases (cheers). It was needless to say that it had been totally impracticable to commence any experiments, this last year, with Mangold Wurzel or Turnips; he had, however, an experiment going on with Wheats, using a manure which he believed had been but little tried in this country, most of it having been exported; he referred to the refuse of the sugar-houses. Through his friend, Mr. Savage, he had obtained a considerable quantity, and he was trying it against what everybody knew to be the best manure applied to land—glue-dross; the result he hoped to have the happiness of communicating next year.

FARMERS' CLUBS.

Sittingbourne.—At the late meeting of this Club Mr. Lake read the following account of some experiments with artificial manure:—

Experiment upon a Wheat Crop, with farm-yard manure, ploughed in at the time of Wheat sowing, about the 22d Nov., 1843, and also guano and other manures, used as a top-dressing on the 19th of March, 1844.

	£	s.	d.
1. One acre with farm-yard manure, thirty cartloads, cost	4	10	0
2. One acre with Peruvian guano, 3 cwt. 2 qrs. 19 lbs., at 12*s.* per cwt., ditto	2	4	0
3. One acre, with rape-dust, 5 cwt., at 6*s.* 6*d.* per cwt., ditto	1	12	6
4. One acre with urate, 6 cwt. 2 qrs., at 5*s.* per cwt. ditto	1	12	6
5. One acre with super-phosphate of lime, 6 cwt., 1 qr. 4 lbs., at 7*s.* per cwt., ditto	2	4	0
6. One acre unmanured.			

	Produce. qr.	bus.	gal.	lbs. weight of straw	weight per bush.	Increase. qr.	bus.	gal.	At a cost of manure amounting to
1.	5	0	6	2376	62½	1	3	4	7*s.* 10*d.* pr. bsl.
2.	5	0	6	2196	62	1	3	4	3 10 ,,
3.	4	6	3	1872	61	1	1	1	3 6¾ ,,
4.	4	6	5	2028	60	1	1	3	3 5¼ ,,
5.	6	5	5	2940	61	3	0	3	1 9¾ ,,
6.	3	5	2	1472	61				
	6	6	3						22*s.* 6*d.* per q r.

N.B.—2 qr. 24 bus. super-phosphate of lime were also sowed on 20 perches of Clover, which increased the crop nearly one-half.

Mr. Bland, in the course of a speech, spoke as follows:—As respects Turnips, the culture of them in Scotland is decidedly superior to ours. When at Edinburgh I visited a farm near that city, and among other inquiries I made was of the system or course of crops, and learnt that on good land the course was as follows:—1st year. Turnips well city-manured, and the crop sold to cow-keepers in Edinburgh for 16*l.* to 18*l.* the acre. 2. Barley, sown broadcast, with Grass and Clover seeds. 3. Grass and Clover. Fed off or hayed. 4. Oats, sown broadcast. 5. Potatoes, well manured from the city at the rate of say 40 tons an acre. This crop sold off for 18*l.* an acre. 7. Wheat, sown broadcast, and the last crop. The straw of all crops sold off. On inferior soils and distant from any town, the land of a clayey nature, this was the course adopted:—1st year. Summer fallow manured from the yard. 2. Wheat, sown broadcast. 3. Beans, drilled in at twenty inches distant. 4. Barley, broadcast, manured with coal-ashes, and sown with Grass and Clover. 5. Grass and Clover fed off or hayed. 6. Oats, as the last crop. Sometimes, instead of all naked fallow, a portion of the land is prepared for Turnips and Potatoes, according to circumstances. All the straw is trodden down in the yard by stock fed on Turnips, cake, hay, &c., and the manure thus raised is applied on the fallow and fallowed crops. To revert again to the Turnip husbandry of Scotland, it is, as I have before observed, superior to ours in Kent. The farmers there go systematically to work to raise a crop. After the land has been sufficiently prepared, their first step is to drill in plenty of seed, nearly equal to a gallon on a Scotch acre, or rather better than half-a-gallon with us. The sort sown is a hardy green Turnip, between the Swede and the common one, and drilled in rows 27 inches apart. Their next step is to well cultivate the land between the drills both before and after the hoeing, and continue the operation, which is rarely practised with us, till the leaves of the plant almost meet from row to row. When hoed out the plants are left in the drills at 8 or 9 inches distant. It has been said that Turnips will grow better towards the north end of Scotland than in the south of England, from the climate of the former being moister than the climate of the latter. There are practical men in this room, I believe, who well remember experiencing no difficulty in raising Turnips some thirty years ago, and even as good then without manure as now with it. If this be admitted, and still the same sun shining upon us, the cause of our present difficulty in raising a crop must be looked for elsewhere. On my farm I used to grow good Turnips, but latterly the crops failed until I had recourse to sprats, when the land seemed renovated for that crop. Now what does this prove? Not that a change in the climate surely, but a deficiency in the supply of the essentials is necessary for the development and support of that plant.—*Kentish Courier.*

Rutland.—R. W. Baker, Esq., of Cottesmore, at a late meeting of this Society, made the following remarks on ploughing and digging. He had noticed very particularly the best ploughed fields and the produce, as far as he could ascertain, and he had also noticed the condition of the best cultivated small allotments, comprising, of course, good digging. He had come to the conclusion that there was a much greater produce from digging than from the plough; but although he said that, he was not inclined to desert the plough and take to the spade. But he thought it desirable to say that he should recommend it in a season like this for the digging of Wheat stubbles to be dibbed with Beans. Some of the gentlemen whom he addressed might try the experiment—and they would not be losers by so doing. He believed the land could be dug for 2*s.* a day, and that the cost of digging would not exceed 16*s.* an acre. An able-bodied man could dig an acre in about seven or eight days, which, at 2*s.* a day, would cost 16*s.* per acre. But the spade that he recommended to be used, more properly speaking, was a digging fork, such as were used in the best cultivated Hop districts in Kent. The object he had in view was profitable employment to the labourer, whether married or single. The small allotments established in 1830 and following years upon the Earl of Gainsborough's estate were of very different kinds of soil—some of it being fertile, and some of it poor. And the result of the experiments made showed a great difference in favour of manual labour. He should read to them the results of experiments for three years of the allotment system. Each allotment contained three half-roods of land, one-third being Potatoes, one-third Wheat or Barley, and the remaining third Beans, Peas, or any green crop. The rotation of crops being Potatoes, then Wheat, and then the green crop. The following are the results of the experiments made in four parishes, and during three years:—

Allotment Acreable Produce in 1840, 1841, and 1842.

Where situate.	No. of Allot.	Potatoes. Q.	B.	P.	1840. Wheat. Q.	B.	P.	Barley. Q.	B.	P.	Beans. Q.	B.	P.	Peas. Q.	B.	P.
Cottesmore	26	43	2	0	3	3	0	7	0	0	6	0	0	0	0	0
Barrow	11	52	2	0	6	1	0	0	0	0	7	1	0	0	0	0
Exton	66	42	0	0	5	1	0	8	0	0	7	0	0	0	0	0
Ridlington	19	45	0	0	5	4	0	0	0	0	0	0	0	5	0	0
					1841.											
Cottesmore	26	45	0	0	5	0	0	7	6	0	5	0	0	0	0	0
Barrow	11	51	0	0	5	0	0	0	0	0	7	4	0	0	4	0
Exton	66	43	4	0	5	0	0	7	5	0	7	0	0	5	4	0
Ridlington	19	41	2	0	5	2	0	0	0	0	0	0	0	5	0	0
					1842.											
Cottesmore	26	59	0	0	5	4	0	6	5	0	6	0	0	0	0	0
Barrow	11	64	0	0	5	7	0	0	0	0	9	0	0	0	0	0
Exton	66	41	4	0	5	0	0	6	6	0	7	3	0	6	2	0
Ridlington	19	42	0	0	5	4	0	0	0	0	6	0	0	5	0	0

Total average of the acreable produce of the 122 allotments:—1840. Potatoes, 45 qrs. 4 bush.; Wheat, 5 qrs. 1 peck; Barley, 7 qrs. 4 bush.; Beans, 6 qrs. 5 bush. 3 pecks; Peas, 5 qrs.—1841. Potatoes, 45 qrs. 1 bush. 2 pecks; Wheat, 5 qrs. 2 pecks; Barley, 7 qrs. 5 bush. 2 pecks; Beans, 6 qrs. 4 bush

Reviews.

Guano Streams. An Attempt to suggest a Method of preserving the Refuse of the Drains of Towns for the Purposes of Manure—in a Letter to the Duke of Buccleuch. 8vo, pp. 23. London, 1845.

The plan proposed by the author of this pamphlet consists mainly in diluting the contents of drains by a stream of running water, conceiving that by these means the most valuable parts of the manure will be saved, and rendered fit for the purposes of agriculture, without the production of putrid vapours or miasms. His pamphlet contains some good observations on the use and preservation of manure, which are well worthy of attentive consideration; but it has, at the same time, several cha-

mical errors, which compels us to regret that the author did not previously make himself better acquainted with the laws of that science.

Chemical facts are valuable things, but theories must not be advanced as facts, and, in all attempts to reason on deductions, we must be especially sure that our facts are real, and not mere assertion. Our author's remarks on the value of the gaseous matters dissolved in water are very good, but his speculations on the *formation* of nitrogen and phosphorus are, to say the least, very improbable, and quite unnecessary to explain the phenomena of vegetation. There is no doubt that oxygen has great influence on putrefaction, but it is equally certain that a very large portion of the most valuable parts of manure produced by the putrefaction of organic matters, is soluble in water, and would certainly be carried away in solution by the stream, in place of being deposited, as he supposes, in the form of mud. If the process of decomposition is completed, black mud will contain only a small portion of the valuable parts of drainage, the greater portion being carried away in the stream; whilst, if the decomposition is not so complete, the mud, though richer as manure, will undergo a second putrefaction when exposed to the air, like the mud of large rivers at low water.

This scheme of allowing a stream of running water, which receives refuse matters, to pass through a pond or pit, in which the suspended, finely-divided portions of the manure may be collected, is by no means new, having long been practised in Germany; and, from the analyses of this sort of mud, it is easy to see that it must be a good manure; though, both from practice, and also from chemical experiments, it is evident that a large part of the manure is lost, where the stream is made to pass through the pond, instead of terminating in it. Sprengel, in his valuable work on Manures, has given the analysis of two kinds of pond mud, the one from a pond having inlets but no outlet, the other from one having a stream passing through it; the farmer's experience proved that the first was by far the most valuable as a manure, and chemical analysis showed that it contained much more lime, magnesia, alkalies, phosphoric and sulphuric acids, and organic matter containing nitrogen, than the latter did; indeed, it did not appear that the latter contained any nitrogen, and only a trace of phosphoric acid.

The author of the pamphlet before us asks whether nitrogen exists in good loam, either as ammonia or nitric acid; and then, without attempting to answer this question by any evidence—which would certainly have gone to show that nitrogen does exist in most fertile soils, though in small quantity—he proceeds to observe, that it seems more probable that plants obtain their nitrogen from phosphates than from the atmosphere. The only arguments which are brought forward in support of this extraordinary theory are, that phosphorus *may* contain nitrogen, although chemists have hitherto failed in finding any; and, secondly, that putrid animal matter is often luminous in the dark. As for the idea that phosphorus *may* consist of nitrogen combined with something else, it certainly is possible; but as all known facts are opposed to it, it appears so highly improbable, that in the absence of any evidence in its favour, it would surely be very unwise to build rules for practical men on theoretical deductions of so wild and speculative a nature. With regard to the phosphorescence of putrefying organic matter, that is no evidence whatever of the presence of phosphorus. All substances which are feebly luminous in the dark are said to "phosphoresce," but no one can reasonably assert that all substances which are luminous in the dark contain phosphorus.

The experiments which the author of the pamphlet proceeds to suggest, for the purpose of proving the compound nature of phosphorus, are by no means unexceptionable. He proposes that animal matter, free from any phosphoric acid, be allowed to decompose in contact with pure carbonate of lime, under a variety of different circumstances; and conceives, that if phosphate of lime were subsequently found in the mixture, it would afford certain evidence of the compound nature of phosphorus. That this would not be the case is evident from the fact that animal matters contain phosphorus, as well as phosphoric acid; hence, phosphoric acid might readily be found, after decomposition, in substances which previously contained none. Such speculations are of very little use; and, when brought out in a pamphlet, such as the one under consideration, may do great harm; for when a plan is recommended to practical men, as likely to be of great advantage to them, if, in place of supporting it by simple straightforward chemical evidence, the author throws fact aside, and in its stead proposes new and improbable theories propounding experiments which farmers could not make, and speculations which can only puzzle them, he can only cause them to doubt the truth of science altogether. We are therefore obliged, although with much reluctance, to advise the committal of this pamphlet to the tomb of the Capulets.

Miscellaneous.

Mr. Warnes' System of Feeding.—Mr. Postle, of Smallburgh, a gentleman of considerable landed property, and no less practical skill as an agriculturist, undertook to make the trial, and a number of short-horn beasts were divided as equally as possible by two gentlemen of acknowledged judgment, averse to the new system. The two lots of beasts were within 12 stone of each other, on being weighed previously to being put into separate yards for feeding. This difference arose from one of the bullocks being so large that it could not be matched by another of the lot. They were fed in separate yards, and the food weighed daily. The following was the result:—

COMPOUND *versus* OIL-CAKE.

Statement of Consumption and Expense of Mr. Postle's short-horn Beasts, fed on native compound and foreign oil-cake.

The 12 Beasts were placed in the yard, and fed on white Turnips, from Dec. 15th to the 20th; from Dec. 20th to the 2d of January, on Swede Turnips, but these Turnips were not weighed.

Week ending 9th Jan.—Weight of Turnips . 1351 stones 3 lbs.
" 16th " " 1279 " 5 "
" 23d " Six compound beasts 638 " 3 "
" —— " Six oil-cake do. 603 " 10 "

COMPOUND BEASTS.

		stones	lbs.		lbs.		p.wk. lbs.
Jan. 30	Turnips p. wk.	560	8	Compound 7 ea., p. day, give	294		
Feb. 6	"	500	3½	"	10	"	420
" 13	"	460	0	"	—	"	420
" 20	"	439	12¼	"	—	"	420
" 27	(Cold and wet)	474	5½	"	—	"	420
Mar. 6	"	422	8½	"	14	"	588
" 13	"	422	8½	"	—	"	588
" 20	"	439	12¼	"	—	"	588
" 27	"	405	5½	"	—	"	588
Apr. 3	"	396	10½	"	21	"	882
" 10	"	405	5½	"	—	"	882
" 17	"	378	1½	"	—	"	882
" 24	"	388	1½	"	—	"	882
May 1	"	405	5½	"	—	"	882
" 8	"	378	6½	"	—	"	882
" 15	Hay 42 stone	285	13½	"	—	"	882
" 22	42 do.	294	5½	"	22½	"	945
" 29	42 do.	292	7	"	—	"	945
June 5	50 do.	267	6	"	—	"	945
" 12	Hay and Grass.			"	—	"	945
" 15	do.			"	—	"	405
		Stones 7028	1				lbs. 14,485

OIL-CAKE BEASTS.

		stones	lbs.		lbs.		p.wk. lbs
Jan. 30	Turnips p. wk.	569	6	Oil-cake 2 each p. day, give	84		
Feb. 6	"	503	12½	"	3	"	126
" 13	"	474	5½	"	—	"	126
" 20	"	439	12¼	"	—	"	126
" 27	"	483	0	"	—	"	126
Mar. 6	"	439	12¼	"	5½	"	231
" 13	"	422	8½	"	—	"	231
" 20	"	439	12¼	"	—	"	231
" 27	"	422	8½	"	—	"	231
Apr. 3	"	422	8½	"	8½	"	357
" 10	"	414	0	"	9	"	378
" 17	"	396	10½	"	—	"	378
" 24	"	388	1½	"	—	"	378
May 1	"	405	5½	"	—	"	378
" 8	"	378	6½	"	—	"	378
" 15	Hay 42 stone	285	13½	"	—	"	378
" 22	42 do.	294	5½	"	11	"	462
" 29	42 do.	292	7	"	—	"	462
June 5	50 do.	267	6	"	—	"	462
	Hay and Grass.			"	—	"	462
	do.			"	—	"	198
		Stones 7745	10½				lbs. 6183

SUMMARY.—COMPOUND.

	£.	s.	d.
14 cmbs. 2½ bush. of Peas, at 14s. 6d. per cmb.	10	12	0½—Wt. 18st. 3½lbs.
4 cmbs. 2½ bush. of Linseed, at 25s. 6d. per cmb.	5	17	11½
Peas grinding, 1s. per cmb.	0	14	7½
Linseed do., 2s. "	0	9	3
Making Compound	1	0	0
350 Thorns, as fuel, at 5s. per 100	0	17	6
	19	11	4½
Deduct for 3½ bushels of Wood Ashes at 1s. 6d. per bushel	0	5	3
Balance in favour of Compound	19	6	1½
	2	8	7½
	£21	14	9

OIL-CAKE.

January 2, 1843—One ton of Dieppe Linseed cake	£8	3	0
March 17, — Ditto " "	7	15	6
April 28, — 15 cwt. 1 st., 9 lbs., at 7l. 13s. per ton	5	16	3
	£21	14	9

The following Beasts are placed on the respective lines as they were divided by Mr. Wells, of Sco Ruston, and Mr. Heath, of Ludham; great attention being paid at the time to aptitude for fattening, and it was determined by lot which should be fed on Compound.

COMPOUND BEASTS.

Live Weight when Selected, Jan. 13th, 1843.	st.	Live Wgt. when Fat, June 17th. st.	Dead Weight, as received from Mr. Chapman, St. Giles', Norwich. st. lbs.	st. lbs.	st. lbs.
No. 1, Weight	108	128	76 7 Loose Fat	11 1 Hide	7 1
2 "	98	117	71 2 "	8 5 "	6 9
3 "	100	119	70 4 "	9 4 "	6 3
4 "	100	120	71 8 "	9 7 "	6 9
5 "	100	125	72 8 "	8 8 "	6 5
6 "	96	116	70 6 "	8 12 "	6 7
	602	725	432 7 "	55 9 "	39 6
			55 9 loose fat.		
			39 6 hides.		
		Stones	527 8 compound fed.		
		Do.	477 2 oil-cake fed.		
		Stones	50 6 diff. in favour of compound.		

OIL CAKE BEASTS.

Live Weight when Selected Jan. 13th 1843.	st.	Live Wgt. when Fat June 17th st.	Dead Weight, as received from Mr. Chapman, St. Giles', Norwich. st. lbs.	st. lbs.	st. lbs.
No. 1, Weight	102	120	66 4 Loose Fat	8 2 Hide	6 3
2 "	94	113	62 6 "	8 0 "	5 12
3 "	98	121	67 0 "	9 7 "	6 3
4 "	96	116	60 4 "	9 5 "	6 6
5 "	100	118	66 3 "	8 10 "	6 10
6 "	100	117	65 9 "	7 10 "	6 4
	590	705	387 12 "	51 7 "	37 11
			51 7 loose fat.		
			37 11 hides.		
		Stones	477 2		

N.B.—The respective weights are taken at 14 lbs. to the stone.

Mr. Postle is so satisfied with the result, that he continues the system. It has been followed by many farmers in the north-eastern part of the county.—*Bacon's Agriculture of Norfolk.*

Notices to Correspondents.

CALENDAR OF OPERATIONS.—*Maillew.*—Thanks for your suggestions. For this year, at any rate, we must say, that to do the thing efficiently, considering the great variety in the nature of farms, would, we fear, occupy too much of our limited space.

COAL ASHES.—*J. B. H.* repeats his inquiry as to what is the good or bad effect of coal-ashes and sand (sea, on Grass land? Would some correspondent favour him with his experience? We should expect both to be very advantageous, if the land were heavy.

COWS.—*Subscriber.*—Can any one say why the "knot cows," without horns, are of such a large frame, compared with those that are furnished with them? Such is invariably the case.

DRAINAGE.—*C. F.*—If you will forward your address we shall be happy to advise. The question does not admit of a published answer.

DRAINS, &c.—*W. C.*—A subsoil "approaching to clay," is not suited for wedge draining. You cannot expect it to last many years. It is your interest to buy tiles. You may apply liquid manure to your Grass land, without fear of hurting the sheep on it, and it will do the meadow good.

FLAX.—*Merlin.*—Presuming you have our last year's volume, we refer you for full information on the cultivation of this plant to pages 218, 233, 251, 267, 303, 322, 342, 379.

GORSE.—*Subscriber from West Kent.*—As your communication dates 1844, we presume you have the *Agricultural Gazette* of that year. If so, please to refer to pages 75, 90, 139, 156. If not, please to let us know, and we will answer your question fully.

HASSOCKS.—*What are they?*—Large tufts of coarse Grass, varying in dimensions from a mole to an ant-hill. Their only use is that labourers may clean their shoes upon them. *A Leicestershire Yeoman.*

HAY AND STRAW, CHAFF, AND LINSEED OIL AS HORSE-KEEP—*Mr. Blagg.*—Horses will not take linseed-oil, and will refuse any food with which oil or grease of any sort is mixed. In quantities of from one to two pints linseed-oil acts as a mild purgative. As an article of food it is entirely out of the question; horses will not even eat linseed-cake from which the oil has been almost entirely extracted, unless driven to do so by hunger. They will take, however, much more readily ground Linseed, or the same boiled to a jelly and given with a bran mash. We doubt the economy of this article for horses. The best plan to save your hay is to give your horses an extra quantity of corn, mixed with some straw and hay cut into chaff, and straw in the rack instead of hay, with as much swedish Turnips as they will eat. For an ordinary farm-horse, the following will be as economical a mode of feeding at the present time as we can suggest.—Oats, 1¼ bushel per week; Beans, 1 peck per week; hay, cut into chaff, 28 lbs. per week; Swedes, 1 cwt.; straw, 25 lbs. per week. This will keep a farm-horse in good working condition, and, with straw in the rack, will cost, as near as possible, 9s. per week. Swedes may either be given separately in slices, or mixed with the chaff and corn; of course, we presume you have no Carrots growing on your farm. *W. C. S.*

LABOUR-RATE.—*T. Dean.*—We are sorry our matter on hand is of such quantity, that your letter cannot be published for some weeks.

LAMBS.—*J. M. F.*—They *will* eat Turnips; starve them till they do it; they will take to them the second or third day. Do not absolutely starve them, but give them a little hay with the Turnips, and they will soon take to them. You are surely in error in saying that they will not take them. Breeding ewes may be kept in a store condition upon within 20 per cent. of 2 lbs. of hay and 12 lbs. of roots daily, according to their age and breed. A bullock may be kept in store condition on straw *ad. lib.*, with a few pounds of roots daily.

MORTAR.—*A Constant Reader.*—There is no *necessity* for adding any other material. Soot is a very good thing to apply, not on account of its suitableness as a mixture with mortar, but on the ground of its own fertilising properties.

PEAS.—*Hy. Odd.*—The Early Warwick, or Shilling's Grotto, are good early varieties; and the Prussian Blue, Prussian White, and Scymetar Peas, as second early Peas, will suit you. Apply to any wholesale seedsman; we cannot select for you *there.*

SHORT-HORN HEIFERS.—*Agrestis.*—Heifers may be put to the bull from one year and nine months to two years old.

SOOT.—*A Subscriber.*—It is a most powerful manure. Its value depends, 1st, upon the charcoal it contains, the fertilising powers of which, in such a finely comminuted state, are great, and dependent on various circumstances; and also upon the salts of ammonia, which it also contains. It is most efficient when applied to the ground just as the grain is sprouting through it. Sow it broadcast, 30 or 40 bushels per acre.

STEAMING FOOD.—*Novice.*—You need not wet the chaff; the steam will soon condense upon it; half an hour is long enough to steam it thoroughly, if you pass the steam through it rapidly. Our farm horses have done well without hay for the last four years; they eat Oats, straw, and Carrots. We do not know whether they would thrive upon steamed Beans and chaff. We have no experience of *steamed grain* of any kind as food for horses. A horse will probably eat 12 to 14 lbs. of hay chaff, after being steamed, besides his Oats; but this depends, of course, upon the quantity of other food he receives. Of course the chaff would be better than hay; but half and half Wheat straw and hay will make very good food, provided the horse receives a sufficiency of Oats besides.

URINE.—*A Subscriber.*—Mix it with burnt clay and charcoal. Moor peat-ashes, provided the peat be charred rather than burnt, will be a very good thing to mix it with.

RURAL CHEMISTRY.—By E. Solly, Esq., F.R.S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all booksellers, price 4s. 6d.

*** As usual, many communications have been received too late.

Markets.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Jan. 2.

Prime old Meadow Hay	105s to 110s	New Hay	—s to —s	Clover	105s to 120s
		Inferior Hay	50 100	Straw	25 28

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Jan. 2.

Superior Mead. Hay	108s to 115s	Superior Clover	115s to 120s		
Inferior "	90 100	Inferior "	98 108	Straw	31s to 32s
New Hay "	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Jan. 3.

Fine Old Hay	105s to 108s	Old Clover	120s 128s		
New Hay	90 100	New Clover	105 115	Straw	23s to 26s
		" Inferior	— —		

POTATOES.—SOUTHWARK WATERSIDE, Dec. 30.

THE contrary wind still prevails, and the large fleet of Potatoes remains wind bound. There has been some arrivals by barges and railway from Kent and Essex, and the Town Markets have been liberally supplied from the suburbs of London. The few samples at the Waterside have been sold at various prices, but we cannot state them with sufficient accuracy for this report.

HOPS, FRIDAY, Jan. 3.

THE Hop Market is active and prices advancing; the quantity on offer, of all descriptions, is trifling; the prospect for holders is very cheering.

PATTENDEN & SMITH, Hop-Factors.

WOOL.—BRITISH, FRIDAY, Jan. 3.

THE activity noticed in our last report continues. The demand for low and middle quality Wools has increased, consequently prices have advanced.

	per lb.		per lb.
Long-wooled Wethers	1s 0½ to 1s 2d	Southdown Hoggitts	1s 2d to 1s 3d
Do. Hoggitts	1 1 1 3½	Kent Fleeces	1 2 1 3
Southdown Fleeces	1 0½ 1 1½		

JAMES PEARIN, Wool Broker.

COVENT GARDEN, Jan. 4.—In consequence of the steady state of the weather during the week the supplies have been well kept up; but trade is far from being brisk. Pine-apples are plentiful; we noticed among them some fine specimens of Black Jamiacas and Enviles. No alteration has taken place in the prices of Grapes since our last Report. Among Apples good samples of Golden Pippin are selling at about 7s. per bushel, and excellent Ribstone Pippins may be procured at about 6s. per bushel. Pears are well supplied, and offered at nearly the same prices as mentioned last week. Nuts, generally speaking, are scarce, and are consequently dear. Oranges are abundant, and Lemons are sufficient to meet the demand. Among Vegetables Cauliflowers are scarce; but Broccoli is tolerably plentiful; and Cabbages, Brussels Sprouts, and Savoys, are abundant, and good in quality. Carrots are plentiful, and Turnips are also well supplied. Asparagus is becoming rather more plentiful, and is somewhat reduced in price. Rhubarb and Seakale are offered at last week's prices. Good specimens of Red Celery are selling at about 2s. per bunch; the white sort is rather cheaper. Lettuces, Endive, and other Salading, are tolerably abundant. Cut flowers chiefly consist of Cypripedium venustum, Combretum purpureum, Geneza zebrina, Gnidia pinifolia, Gloxinias, Heaths, Azaleas, Camellias, Acacias, Cinerarias, Tulips, and Roses.

FRUITS.

Pine Apple, per lb., 5s to 8s	Oranges, per dozen, 6d to 1s 6d
Grapes, Hothouse, p. lb., 2s to 5s	— per 100, 3s to 10s
— Spanish, per lb., 10s to 1s	— bitter, per 100, 12s
— Portugal, per lb., 1s to 2s	Lemons, per dozen, 6d to 2s
Apples, Dess., per bush., 3s to 7s	— per 100, 3s to 12s
— Kitchen, 3s to 5s	Almonds, per peck, 6s
Pears, Dess., per hf.-sv., 4s to 8s	Sweet Almonds, per lb., 2s 6d to 3s
Pomegranates, per doz., 2s to 4s	Cob Nuts, per 100 lbs., 150s to 190s
Medlars, per bushel, 3s. to 10s	Nuts, Barcelona, 24s
Filberts, per 100 lbs., 140s to 150s	— Brazil, 16s to 20s
Chesnuts, per peck, 3s to 7s	— Spanish, 20s
Walnuts, shelled, 12s to 20s	— Cob, 10s

VEGETABLES.

Cabbages, per dozen, 6d to 1s 2d	Salsafy, per bunch, 1s to 1s 2d
— plants, per doz. bnch., 1s to 3s	Leeks, per doz., 1s 6s to 2s
Cauliflowers, per doz., 2s to 10s	Garlic, per lb., 6d to 8d
Broccoli, per bundle, 1s 6d to 5s	Onions, per bunch, 4d
Brussels Sprouts, hf.-sv., 2s to 2s 6d	— large, per bushel, 2s to 3s 6d
French Beans, per 100, 3s to 4s	— Spanish, per doz., 1s to 4s
Sorrel, per hf.-sieve, 1s 6d to 2s	Shallots, per lb., 6d to 10d
Jerusal. Artichok, p. hf.-sv., 1s to 1s 6d	Capsicums, per 100, 4s to 8s
Potatoes, per ton, 80s to 90s	Lettuce, per score, 6d to 1s 6d
— cwt., 2s 6d to 5s	Celery, White, per bunch, 1s to 1s 6d
— bushel, 2s 3d to 3s	— Red, per bunch, 1s to 2s
— Kidney, per bsh., 2s to 3s	Endive, per score, 1s to 2s 6d
Turnips, per doz. bch., 1s 6d to 2s 6d	Mushrooms, per pottle, 1s to 1s 6d
Red Beet, per doz., 1s to 3s	Small Salads, per punnet, 2d to 2d
Carrots, per doz. bchs., 5s to 7s	Watercress, p. 12 sm. bun. 6d to 8d
Basil, per bunch, 2d to 3d	Parsley, per doz. bunches, 2s to 4s
Rhubarb, per bundle, 1s 3d to 1s 6d	— Roots, per bundle, 2d
Seakale, per punnet, 1s 6d to 2s 6d	Tarragon, per bunch, 6d
Asparagus, per bundle, 2s to 3s	Mint, per bunch, 6d
Horse Radish, per bundle, 1s 6d to 2s	Marjoram, per bunch, 2d to 3d
Savory, per bunch, 2d to 3d	Chervil, per punnet, 3d to 4d
Spinach, per sieve, 2s 6d to 4s	Chilis, per 100, 1s to 2s
Scorzonera, per bunch, 1s to 1s 6d	

SMITHFIELD, Monday, Dec. 30.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 2	Best Downs & Half-breds	4s 0 to 4s 4
Best Short Horns	3 8 4 0	Best Long-wools	3 8 4 0
Second quality Beasts	3 0 3 4	Ewes and second quality	3 2 3 6
Calves	4 0 4 8	Pigs	3 4 4 0

Beasts, 2063; Sheep, 21,310; Calves, 75; Pigs, 280.

We have a large supply of Beef and but a small demand. Trade in the morning was rather brisk amongst the choicest qualities, which in some few instances made rather over our top quotation, but became dull and heavy during the day, and a clearance of second-rate Beasts could not be effected. A great many very good Short Horns were sold under 4s, although that price was raised for the most saleable of that description. Although the supply of Sheep is but small, there are more than sufficient for the demand. The trade is exceedingly heavy. Some few of the very choicest Downs make 4s 4d, but many very good ones and best Half breds are sold at very little over 4s. A tendency to rise in the price of skins has helped the sale of Long-wools. Veal trade is not quite so good. Pork-trade is heavy.

FRIDAY, Jan. 3.

The number of Beasts to-day is rather large, and the trade by no means brisk, yet, there is a disposition to purchase the better qualities at Monday's prices. The weather being good gives a prospect of getting clearer, but still several must remain unsold. The supply of Sheep is very small, but there is scarcely trade enough for them so very little is wanted. We have but very few choice Downs; they are still worth nearly 4s 4d, Half breds a little over 4s, best Long wools about 4s, Ewes and second quality 3s to 3s 4d. Veal trade is not quite so good, it must be a very choice Calf to make 4s 8d: second quality are very little in demand at about 4s. Pork trade remains steady.

Beasts, 898; Sheep, 2450; Calves, 154; Pigs, 297.

41, West Smithfield.

MARK-LANE, Monday, Dec. 30.

The supply of Wheat from Essex, Kent, and Suffolk was small this morning, and the condition generally very much affected by the weather; a few picked samples were taken off at the prices of this day week, but a large proportion remained unsold at the close, although offered on lower terms. Barley fully maintains its value, but secondary qualities are neglected. We observe no alteration in Beans or Peas. The Market continues exceedingly bare of Oats, and sales confined to necessitous buyers, who are compelled to pay and advance of 6d. per quarter over the rates of this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	40	50	Red	42 48
—— Norfolk, Lincolnshire, and Yorkshire	—	—		White	— —
Barley, Malting and distilling	32s to 35s	Chevalier	34	35	Grind. 27 28
Oats, Lincolnshire and Yorkshire		Polande	20	23	Feed 19 22
—— Northumberland and Scotch		Feed	20	23	Potato 21 25
—— Irish		Feed	18	22	Potato 20 24
Malt, pale, ship			64	60	
—— Hertford and Essex			58	65	
Rye			29	32	
Beans, Mazagan, old and new		29 to 35	Tick	30	36 Harrow 31 37
—— Pigeon, Heligoland		38 to 41	Winds	—	— Longpod — —
Peas, White		34 to 37	Maple	31	33 Grey 30 32

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4s 5 Sks. — Brls.	3445	2520	3797	211	—	1365	7931
Irish	— — ,, — ,,	—	—	40	—	—	—	—
Foreign	— — ,, — ,,	—	—	—	—	—	—	—

FRIDAY, Jan. 3.

The arrivals of Corn and Flour since Monday have been moderate; Wheat meets a slow heavy sale, an Monday's currency is with difficulty obtained for English; in Foreign there is scarcely anything doing. Barley maintains its late value, but both Malting and Distilling meet a limited demand. Beans and Peas are unaltered. The wind having changed, several vessels with Oats have got up, and a large fleet being near at hand, they meet a slow sale at a decline of 6d. to 1s. per quarter.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	3380	3920	4510	4010 Sks
Irish	—	200	17100	—
Foreign	720	1210	—	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Nov.	16 per Quarter.	46s 4d	35s 9d	21s 9d	34s 2d	38s 4d	35s 7d
—	23	45 10	35 2	21 8	30 9	38 6	36 3
—	30	45 4	34 1	21 8	32 2	38 0	35 11
Dec.	6	45 2	34 9	21 10	31 2	37 5	36 4
—	13	45 1	34 5	21 11	32 0	36 9	36 1
—	20	45 6	34 3	20 10	31 9	35 7	35 5
6 weeks' Aggreg. Aver.		45 4	34 8	21 8	31 8	37 0	35 11
Duties on Foreign Grain		20 0	4 0	6 0	10 6	5 6	7 6

SEEDS, Jan. 3.

Canary	per qr	52s to 56s	Linseed Cakes, Foreign, p. ton	8l to 9l 10
Carraway	per cwt	44 52	Mustard, White - p. bush	10s 14
Clover, Red, English	—	—	— Superfine ,,	12 16
— — Foreign	—	—	— Brown ,,	12 16
— White, English	—	—	Rapeseed, English, per last	23l 25l
— — Foreign	—	—	Rape Cakes per ton	— —
Coriander	12	18	Sainfoin	— —
Hempseed	per last	35 38	Tares, Eng. winter p. bush.	5 6
Linseed	per qr	— —	— Foreign	— —
— Baltic	—	— —	Trefoil per cwt	— —
— Cakes, Eng. per 1000	12l 10	13l	Turnip (too variable for quotation).	

KINGSFORD AND LAY

SPLENDID NEW PRIZE PLANTS.

JAMES CUTHILL begs most respectfully to announce that he has very strong healthy plants of the beautiful Lisianthus Russellianus, from 2s. 6d to 7s. 6d. each; J. C. has been awarded 14 prizes for this lovely Flower. Seed of Lisianthus Russelianus, 2s. 6d. per packet; L. nigrescens, 5s.; each order will be accompanied with a printed Treatise on the best method of growing the same. The best Picotee seed, 5s. per packet; Calceolaria seed, from the very best varieties, 2s 6d. Cuthill's early Melon gained the first prize at Chiswick in May, 1836—Scarlet Flesh, from 2 to 3 lbs. weight; the true Cabul Melon, Hoosainee, Ispahan, Beechwood, and a fine Green-flesh Melon; Latter's Victory of England, and Cuthill's early Black Spine Cucumber, the above seeds 2s. 6d. each packet—if three are taken 6s.; fine plants of Cuthill's Prince of Denmark Clove Carnation, a brilliant scarlet, 12s. per dozen; Petunia ornatissima, a pencilled lilac, 1s. each; very fine sorts of Carnations and Picotees, 12s. per dozen; strong plants of British Queen and Keen's Seedling Strawberries can be selected from some thousands of pots; fine Cucumber plants at all times on sale. Money Orders on the Camberwell Post-office, directed to JAMES CUTHILL, Florist, Denmark Hill, Camberwell, London, will be immediately attended to.

N.B. Four handsome Medals will be presented to those who exhibit the best single specimen of Lisianthus Russelianus during 1845, one Medal to each of the following Societies,—Chiswick, Regent's Park, Edinburgh, and Dublin, independent of the Prizes given by those Societies.

HERTFORD NURSERIES.

E. P. FRANCIS having received various Testimonials from Gentlemen, &c., as to the excellence and superiority of SNOW'S WINTER WHITE BROCOLI, advertised in the *Chronicle* last season, begs now to inform the Nobility, Gentry, and Public, that it may be obtained at the Hertford Nurseries, Messrs. Noble, 152 Fleet-street, Messrs. Wrench, London-bridge, and Messrs. Flanagan, Mansion-house-street, at 2s. 6d. per oz.

E. P. F. begs further to recommend to those persons who have not yet obtained it, SNOW'S HYBRID GREEN-FLESH MELON, which was awarded a Knightian Medal at the Chiswick Show in May last, and which cannot be surpassed for hardy habit, most abundant bearer, and superiority of flavour over every other Melon exhibited at the same time. To be obtained at the Hertford Nurseries only, in sealed Packets containg eight seeds, 3s. 6d. each.

Also, E. P. F. begs to introduce to public notice, SNOW'S HARDY MATCHLESS GREEN COS LETTUCE, which has been proved by several growers to be superior in flavour and sweetness to any other Lettuce grown, very crisp, very hardy, requires no tying up, and is fit for use three weeks earlier than the common Green Cos—in sealed Packets, 1s. 6d. each.

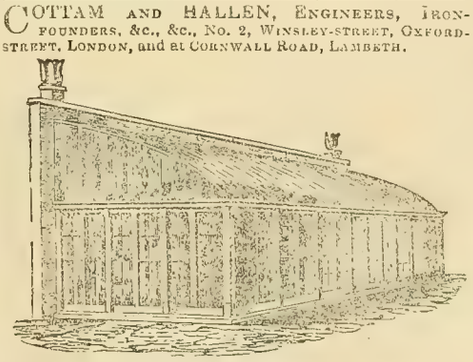
E. P. F. has also received from Mr. Snow a few Packets of his HORTICULTURAL PRIZE CUCUMBER, each Packet containing 7 seeds, 2s. 6d. per packet; also a small quantity of his very fine CHINESE PRIMULA Seed, of the white and purple kinds, and all saved from beautiful fringed varieties, in Packets, 2s. each.—Jan. 4.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4s. per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 3s. to 25s. each.—N.B. Packed safely, and sent anywhere in the country.

CUCUMBER and MELON BOXES and LIGHTS.—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1l. 8s. Garden-lights made, glazed, and painted, from 1s. per foot. Sashes and Frames made, glazed, and hung complete, 1s 8d. per foot.—At JAMES WATTS' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

HOT WATER HEATING APPARATUS.—J. PORTER begs to announce that, in addition to the many other and valuable purposes for which Galvanised Iron is peculiarly applicable, he is now manufacturing Tanks and Gutter for Vaporising, and Pipes for heating by top and bottom-heat, Hothouses, Pineries, Conservatories, &c. J. P. has also to state that, having secured the assistance of parties of the greatest skill and experience, he is prepared to furnish Plans and Estimates for Heating and Ventilating Horticultural Buildings, Public Edifices, Private Houses, Churches, Warehouses, Manufactories, &c., accompanied by references to executed works. J. P. does not profess to offer any one particular form of Boiler as the best, to the exclusion of every other, but adopts those which will insure the greatest share of efficacy and economy, in each particular case.—Grove Patent Galvanised Iron Roof and Fence Work, Saltwhark, second carriage turning to the right from Southwark Bridge.

COTTAM AND HALLEN, Engineers, Iron-founders, &c., &c., No. 2, Winsley-street, Oxford-street, London, and at Cornwall Road, Lambeth.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with COTTAM'S PATENT or ROGERS'S BOILERS. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c., &c., and every description of Implement for AGRICULTURAL and HORTICULTURAL PURPOSES.

Show Rooms at their Manufactory, 2, Winsley-street, Oxford-street, where a large assortment of the above can be seen.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park st., every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field, and Garden Fences, Wire Work, &c. &c.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street, Jan. 4.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.
London, Jan. 4, 1845.

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" 18th. CABINET PICTURES OF ENGLISH LIFE:—CHAUCER.
" 25th. THE PURSUIT OF KNOWLEDGE UNDER DIFFICULTIES. Vol. II.

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On Saturday next, (This Day.)

THE BIOGRAPHICAL DEPARTMENT of the New Family Newspaper, THE HISTORICAL REGISTER, of Saturday next (this day), contains Memoirs of H.R.H. the Princess Sophia Matilda (with Autographs)—Professor Webster (with Autograph)—Morris Morris *alias* Dr. Thurston, the Astrologer, &c.—New Facts about Shakespeare, &c.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 2.—1845.] SATURDAY, JANUARY 11. [Price 6*d*.

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SURREY HORTICULTURAL AND FLORAL SOCIETY.—The EXHIBITIONS of this Society will take place at the Swan Inn, Stockwell, on April 22d, May 22d, June 25th, July 24th, and Sept. 25th.

GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given that a General Meeting of the Subscribers to this Institution will be held on Wednesday, 22d January next, at the London Coffee House, Ludgate-hill, for the purpose of receiving the Accounts of the past year, and electing Officers for the ensuing year; also, for the purpose of electing Four Poor Persons of Sixty Years of Age and upwards to the benefit of a Pension of 16*l*. per annum. The Chair to be taken at Twelve o'clock precisely. The Ballot will commence at ONE and close at THREE precisely.

CANDIDATES.			*Residence.*
1. John Blaylock	3rd	application, aged 72	Carlisle.
2. Robert Cracknell	2nd	do. aged 72	Clapham
3. George Martin	2nd	do. aged 66	Bristol.
4. John Adamson	1st	do. aged 67	Mortlake.
5. William Edwards	1st	do. aged 66	Battersea.
6. Barney Farmily	1st	do. aged 67	London.
7. Thomas Farmer	1st	do. aged 63	Mitcham.
8. John Fisher	1st	do. aged 69	Walworth.
9. John Garnell	1st	do. aged 77	East Ham.
10. Christopher Gibbons	1st	do. aged 58	Hendon.
11. Charles Gray	1st	do. aged 89	Dalston.
12. James Stedman	1st	do. aged 75	London.
13. Richard Stoyles	1st	do. aged 77	Liskeard.
14. Ann Suttle	1st	do. aged 67	Walworth.

The Subscribers and Friends of the Charity will afterwards celebrate their Annual Festival at the London Coffee House, Ludgate-hill

Thomas Sydney, Esq., Alderman and Sheriff, in the Chair.

STEWARDS.

William Bristow, Esq.; Barto Chaundy, Esq.; Abel Lewis Gower, Esq.; Robert Hogg, Esq.; O. E. Lane, Esq.; Capt. Lamont, R.N.; Charles Mills, Esq.; Wm. G. M'Mullen, Esq.; Joseph Paxton, Esq; Edward Purser, Esq. Alex. Ponty, Esq.; and John Sangster, Esq.

E. R. Cutler, Sec., 97, Farringdon-street.

GARDENERS' BENEVOLENT INSTITUTION.—An Advertisement having appeared in the Gardening Journals, stating that a Flower Show will be again held at Bromley in June next, in aid of the Society's Funds, the Committee hereby disclaim all knowledge or connection with such Show.

By Order, E. R. Cutler, 97, Farringdon-street.

ROSES.

WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX; AND AT PARIS.

WM. WOOD and SON have still on hand a few strong plants of their New and Superb Seedling Gallica ROSE, "MARGARET MARY," a full description of which will be found in their former Advertisement of Nov. 9, price 5*s*. per plant. Standard or Dwarf with the usual discount to the Trade. Early orders are solicited.

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Superior selected standard ROSES	24*s*.	£ 8 *s*.
Superb ditto ditto	30 or 10	0
Select dwarf budded ditto	12 — 3	15
Superb ditto ditto	18 — 5	0
Superior dwarf Roses (on own roots)	9 — 2	10
Superb ditto ditto, fine show varieties	12 — 3	15
Fine Climbing ditto	9*s*. and 12 — 2	10

Catalogues of Roses will be sent gratis on application.

N.B. Plants will be presented GRATIS, in order to compensate the expense of carriage. A remittance, or reference, will be required from unknown correspondents.

ACHIMENES.—The following Collection of these truly beautiful and easily cultivated plants may be had, three bulbs of each for 7*s*. 6*d*., or individually as follows:—

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A. longiflora	1 6
A. pedunculata	1 6
A. hirsuta	2 6
A. rosea	1 6

The above, or any of them, will be sent post-free to any part of Britain, upon an order for the amount being sent to J. Mickle, Gardener, Folkestone, Kent.

Also, Martynia fragrans, 3 seeds, 1*s*.; Welcove Broccoli, a fine late indispensable sort, 1*s*. per packet, or 2*s*. 6*d*. per oz.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL and Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state, and such as they have had the honour of supplying to Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and many of the Nobility, as well as the Horticultural Society of London, the latter having awarded Youell and Co. two Certificates of Merit for it.

Packages containing 100 canes.	.	£2	0 0
Do. do. 50 do.	.	1	1 0
Do. do. 25 do.	.	0	12 0

YOUELL and CO. beg to state, that any further assertions or insinuations that may be made by any party regarding the above Raspberry, will find Youell and Co.'s reply by referring to their Advertisement in this Paper, of the 28th of December last; it being sufficient for them to know it has given universal satisfaction.

Great Yarmouth Nursery, Jan. 11, 1845.

DAHLIAS.—SEEDLINGS OF 1843.

WHALE'S "DUCHESS OF ST. ALBAN'S," a delicate primrose, tipped with dark mulberry, a most unique flower and petal, shape and size of Ansell's Unique; took the third prize at Salthill grand Show in 1843. Dwarf habit—3 feet. Strong plants in May, 10*s*. 6*d*. each, unless six plants are ordered. Was not exhibited last season, in consequence of a most severe family affliction, having lost my wife and three sons and a daughter in a short space of time.

"ADMIRATION," a shaded orange, margined with bright scarlet; a most desirable show flower, from its constancy and shape, and novel colour, never showing an eye the whole season; fine habit; height 4 feet. Strong plants in May, 10*s*. 6*d*. each, unless six or more plants are ordered. The stock of this variety is small; orders will be executed according to priority of application.

SEEDLING FANCY VARIETIES OF 1843.

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"MADAME HANSARD;" carmine, tipped with white; very pretty variety; height 3 feet. Price 7*s*. 6*d*.

"MISS DUNDAS;" carmine, striped with white; a fine bold petal; dwarf habit; height 3 feet. Price 7*s*. 6*d*.

"BICOLOR," crimson, tipped with white; very showy; height 3 feet. Price 7*s*. 6*d*.

W. R. Whale recommends these varieties to be trained on the ground with small pegs, and they have a pretty effect. He has grown show flowers this way with great success.

A few dry Ground Roots left of Proctor's Nonpareil and Bermondsey Bee, Widnall's Queen of Roses, &c., and most other varieties in cultivation, reasonable.

Elcot, near Hungerford, Jan. 11, 1845.

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WM. WOOD and SON beg to solicit the attention of their Friends and the Public to their enormous stock of COMMON LAURELS, of all heights and sizes, varying from 5*s*. to 25*s*. per 100. Also, Portugal Laurels, Arbutus, and all other Evergreen Shrubs, which they can offer in large quantities, and at very reasonable prices; together with every kind of Flowering Shrubs, American Plants, Fruit, Ornamental and Forest Trees.

Catalogues of the above may be had Gratis, on application, and plants will be added to each order, to compensate for long carriage.

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A few packages may still be had of Mr. G. Charlwood, Covent Garden, London; Messrs. Flanagan, Mansion House-street, London; Mr. Edward, Seedsman, York; or Mr. J. Craig, Sand Hutton, York. 2*s*. 6*d*., or 30 postage stamps, per packet of six seeds.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON.—The above are recommended to all Melon growers, as, independent of the good quality of the fruit, they are so hardy as to require comparatively little attention, a fact of considerable importance where fuel is expensive and fermenting material a scarce commodity. Both sorts were awarded Certificates of Merit by the London Horticultural Society, Regent-street—the Cantaloupe on the 7th of May, described as a "good early fruit," and the Green-fleshed on the 4th of June, described as a "capital green Melon, highly fragrant, and weighing nearly 5 lbs." The Cantaloupe grows from 4 to 6 lbs. in weight. Fruit was exhibited in July at Chiswick, weighing 4 lbs. 14 oz., and the fifth crop matured in November from the same plants cut from in May. Specimens of the Green-fleshed, from the same plants cut from in June, were exhibited at Regent-street, on the 1st of October, weighing 3 lbs. each. These have been grown on dung beds, as described in the *Chronicle* of the 7th of May and the 1st of October.

Youell and Co., having purchased the entire stock of the above valuable Melons, and feeling fully assured they will form a most desirable acquisition to all cultivators of this delicious fruit, offer them upon the following terms, namely:—Six Seeds (three of each variety) for 6*s*., sent post free to any part of the United Kingdom.—Great Yarmouth Nursery, Jan. 11, 1845.

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True Walcheren Broccoli	per oz.	2*s*. 6*d*.
Ne Plus Ultra Broccoli, an improvement on the Walcheren; more hardy, produces large, milk-white heads, delicious flavour, and may be had in succession fit for table throughout the year	per oz.	5 0
Victoria Cabbage, a new early dwarf kind, of a most delicious flavour	per oz.	2 6
White's new dark and delicious Beet	,,	1 6

With every assortment of the newest and most approved kinds of Vegetable Seeds in cultivation.

They also beg to call particular attention to their choice and extensive Collection of FLOWER SEEDS, comprising German Asters, Stocks, Wallflowers, Larkspurs, Zinnias, &c. (which they have just received from the principal German growers), with every choice and novel kind of Flower-seed worthy of cultivation, Catalogues of which will shortly appear, and may be had on application. A few of the leading articles are subjoined:—

	s.	*d*.
50 varieties of the finest double, dwarf, and globular Asters, in original packets, as imported, 6*d*. per packet, or 12 for	5	0
50 do. do. Stocks, do., 6*d*. per packet, or 12 for	5	0
Emperor Stock, which lasts two or three years, and blooms twice a year per packet	1	0
Anagallis Parksii ,,	1	0
Brachycome iberidifolia (warranted) ,,	1	0
Cineraria, from the newest flowers of last year, per packet	1	0
Calceolaria, do. do. per packet	1	0
Choice mixed Picotee, white, with yellow ground, per packet	1	6
Lisianthus Russellianus per packet	1	6
Martynia fragrans (true) ,,	1	0
Silene speciosa ,,	1	0
Thunbergia Frazeri ,,	1	0
Viscaria oculata ,,	1	0
Phlox Drummondii (dark variety) ,,	1	0
Primula sinensis (fringed) ,,	1	0
Nemophilla discoidalis ,,	1	6

If the last 14 packets are taken they will be charged 12*s*.

Nursery, Hackney, Jan. 11, 1845.

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively planted by YOUELL and CO. in the Royal Gardens, Windsor; also by His Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

This noble species of Pine is now in course of being extensively planted in this country, and, within a few years, will constitute an important element in the scenic character and landscape of English domains. No adequate conception can be formed of the majestic and ornamental character of this tree, and nothing can exceed the grandeur of an Araucaria imbricata when it has attained its growth. Its branches commence close to the ground, spreading out in horizontal expansions, rising flight by flight, in successive sheeted steps, into a spiral top. It is hardly possible to overrate its value as a Timber Tree, or the national advantages that will accrue by having it extensively planted in Great Britain, where there is every prospect of these lords of the vegetable world succeeding to our utmost wishes. Among the more striking objects that attract the visitor of Dropmore are the fine specimens of Araucaria imbricata, unprotected from the hardest frosts, and which are from 15 to 20 feet high. There they stand, not a leaf nor a shoot discoloured; their stems studded with leaves, as if they were columns of lanceheads, and forming a strange and beautiful contrast with other trees, by their singularly foreign aspect and magnificence. At the Earl of Orford's, at Wolterton, and at Kew Gardens, they are flourishing with equal vigour; as well as on the estate of the late Sir Francis Mackenzie, in the Highlands of Scotland.

YOUELL and CO., Great Yarmouth Nursery, being the largest holders of the above, beg to offer them upon the following advantageous terms, viz.:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l*. per 100, or 30*s*. per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s*. per dozen.

The above have been planted by Youell and Co. within 500 yards of the wash of the sea, and on the eastern point of Great Britain, fully exposed to the cutting north-easterly winds, without the slightest protection during the winter, and are flourishing in their native luxuriance.

For Particulars of their Extensive and Select Collection of CARNATIONS, PICOTEES, and PINKS, see their Advertisement of Nov. 9.—Great Yarmouth Nursery, Jan. 11, 1845.

FINE STRONG PLANTS OF SUPERB SEEDLING CINERARIAS, all well trussed, and forward for Winter and Spring Flowering, saved from the very best Blues and other fine choice named varieties, at 6*s*., 9*s*., and 12*s*. per doz. Packets of ANAGALLIS BREWERII & SUPERB CINERARIA SEED 2*s*. 6*d*. each.—Applications, including post-office orders or stamps, will be immediately and carefully executed. Direct to Michael Brewer, Senior, Nurseryman, Cambridge.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, Landscape Gardeners, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

ANDROMEDA FLORIBUNDA, Twelve, (well rooted), 21*s.*

20 Hybrid and 5 Scarlet Rhododendrons, 15*s.*
50 Do., Variegated, Scarlet, and others, Do., 35*s.*
12 Do., and 12 choice hardy Azaleas (named), 15*s.*
25 New Gent do. do., 20*s.*
50 Strong Plants, with buds, do. do., 50*s.*
25 Small American Shrubs, 1 of a sort, 10*s.*
50 Dwarf choice Roses (named), 20*s.*
100 Do. do., 2 of a sort, 30*s.*
100 Moss, 20*s.*; 25 crimson Moss, 10*s.*
18 Papers of Flower Seeds, 5*s.*; 36 do., 10*s.*, forwarded post free.

Priced Lists of Greenhouse Plants, &c., can be had by post.

Messrs. J. and H. BROWN are sending the above to any part, on receipt of a Post-office order.

Albion Nursery, Stoke Newington, London.

HERTFORD NURSERIES.

E. P. FRANCIS having received various Testimonials from Gentlemen, &c., as to the excellence and superiority of SNOW'S WINTER WHITE BROCOLI, advertised in the *Chronicle* last season, begs now to inform the Nobility, Gentry, and Public, that it may be obtained at the Hertford Nurseries; Messrs. Noble, 152 Fleet-street; Messrs. Wrench, London-bridge; and Messrs. Flanagan, Mansion-house-street, at 2*s.* 6*d.* per oz.

E. P. F. begs further to recommend to those persons who have not yet obtained it, SNOW'S HYBRID GREEN-FLESH MELON, which was awarded a Knightian Medal at the Chiswick Show in May last, and which cannot be surpassed for hardy habit, most abundant bearer, and superiority of flavour over every other Melon exhibited at the same time. To be obtained at the Hertford Nurseries only, in sealed Packets containing eight seeds, 3*s.* 6*d.* each.

Also, E. P. F. begs to introduce to public notice, SNOW'S HARDY MATCHLESS GREEN COS LETTUCE, which has been proved by several growers to be superior in flavour and sweetness to any other Lettuce grown, very crisp, very hardy, requires no tying up, and is fit for use three weeks earlier than the common Green Cos—in sealed Packets, 1*s.* 6*d.* each.

E. P. F. has also received from Mr. Snow a few Packets of his HORTICULTURAL PRIZE CUCUMBER, each Packet containing 7 seeds, 2*s.* 6*d.* per packet; also a small quantity of his very fine CHINESE PRIMULA Seed, of the white and purple kinds, and all saved from beautiful fringed varieties, in Packets 2*s.* each.—Jan. 11.

GREENHOUSE PLANTS.—A Gentleman who possesses a Collection of the popular varieties of Carnations and Picotees, as well as Pelargoniums of the choicest varieties, is desirous of *exchanging* his spare Stock for good varieties of Greenhouse-plants. Novelty not so much an object as good and free-blooming sorts.—Apply, with real name and address, to "ALPHA," Post-office, Manchester.

ROSE TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for sale, after the present Season, is desirous of disposing of his extensive stock of ROSE TREES and other Plants, at less than half the usual prices, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.—Brenchley, Kent, Jan. 11, 1845.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

CUCUMBER and MELON BOXES and LIGHTS.—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-lights made, glazed, and painted, from 1*s.* per foot. Sashes and Frames made, glazed, and hung complete, 1*s.* 8*d.* per foot.—At JAMES WATTS' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	11*s.* 0*d.*	20 inches	22*s.* 6*d.*
15 inches	12 6	22 inches	25 0
16 inches	16 0	24 inches	32 0
18 inches	19 0		

Slate Works, Isleworth, Middlesex.

WHITNEY'S PATENT CLOTH for COVERING GREEN HOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street.—Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

TO COLONISTS, EMIGRANTS, &c.—Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles, made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps.

Please to be particular in the address, MARY WEDLAKE 118, Fenchurch-street, London.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

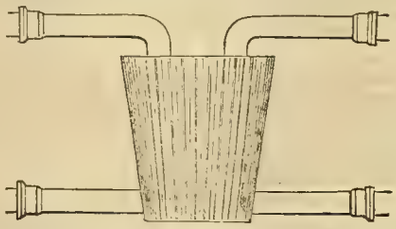
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

BURBIDGE AND HEALY'S NEW BOILER and FURNACE for HORTICULTURAL PURPOSES.
Registered under 6 & 7 Vict., Cap. 65.
No. 130, FLEET STREET, LONDON.



BURBIDGE and HEALY respectfully inform the Horticultural Public that they have constantly on hand an extensive assortment of their new Boiler and Furnace Doors. In very numerous cases where they have been fixed, they have the highest testimonials of their complete success: for the further assurance of those who may require this apparatus, BURBIDGE and HEALY refer them to the Horticultural Society's Gardens, Chiswick; also to Mr. GLENDINNING, Garden Architect, &c. &c., Chiswick Nursery, in the same neighbourhood, where the apparatus may be seen in successful operation, in connection with their new Tanks. The following are the present prices:—

Plain Boiler.		Patent Door and Frames.	Fire-bars & Dead Plate.	Flue Door.	Damper.	Will heat of Pipe.	Forcing Pit, Length by feet.
in.	£ *s.*	*s.*	*s. d.*	*s. d.*	*s. d.*		
10	1 5	20	7 6	6 6	2 6	30 feet.	12 to 20
Ribbed Boiler.							
10	2 2	20	10 6	7 6	2 6	50 to 70 ft. 4 in.	Under 25 to 40
12	2 15	30	12 6	7 6	3 6	80 to 125 feet.	40 to 65
14	3 10	35	17 5	8 6	4 6	150 to 250 feet.	65 to 100
18	5 5	42	25 0	8 6	5 6	300 to 400 feet.	Warm a grapery 35ft. long, and a pit 50ft.
24	8 15	50	35 0	8 6	7 6	600 to 800 feet.	

If 3-inch pipe be used, one-third more. If 2-inch pipe, as much more.

The above quantities are rough estimates, which may be varied by enlarging or contracting the fire, or by regulating the fire door. It is possible to heat a much larger quantity of pipe with the boiler, but it would be done at great loss of fuel. The above proportions can be generally relied on as a near approximation to what is correct.

COTTAM AND HALLEN, ENGINEERS, IRON-FOUNDERS, &c., &c., No. 2, WINSLEY-STREET, OXFORD-STREET, LONDON, and at CORNWALL ROAD, LAMBETH.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with COTTAM'S PATENT or ROGERS'S BOILERS. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c., &c., and every description of Implement for AGRICULTURAL and HORTICULTURAL PURPOSES.

Show Rooms at their Manufactory, 2, Winsley-street, Oxford-street, where a large assortment of the above can be seen.

CONICAL BOILERS.—The Boilers invented by JOHN ROGERS, Esq., are made of several sizes, and may be obtained of JOHN SHEWEN, Ironmonger, Sevenoaks, Kent.

They may be seen in operation at Messrs. Chandler's, Vauxhall; Loddiges', Hackney; Henderson's, Pine-apple-place, Edgware-road; Rollisson's, Tooting; Pontey's, Plymouth; The Horticultural Society's Gardens, Chiswick; and in the Gardens of the Royal Botanical Society, Regent's-park.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much-approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-st., every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field, and Garden Fences, Wire Work, &c. &c.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street, Jan. 11.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co., Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Jan. 11.

GUANO for SALE, in Bags of 1 cwt. each, just landed, with a succession of cargoes to arrive.—Successive years' experience has unquestionably proved that Genuine Guano is the simplest, cheapest, and best Manure within the reach of the Agriculturist. The only reasonable anxiety which now remains is to procure the Guano unadulterated, and to obtain such practical directions for using the Manure as shall fully develop its productive powers. To secure to buyers these indispensable requisites, with each purchase will be given a warranted chemical analysis of quality, and also a copy of the recently published Pamphlet, "Practical Instructions for using Guano as a Manure, illustrated by Practical Results."

Large parcels will be delivered direct from the ship or waterside premises; smaller quantities may be had at the warehouses, 24 and 25, Billiter-street, or delivered within any reasonable distance at a trifling additional cost. Apply to JAMES CLARE, 24, Billiter-street, Fenchurch-street, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

THE BEST AND MOST DURABLE ROOFING, FOR BUILDING AND GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THE ONLY PATENT ASPHALTE FELT FOR ROOFING, AS IMPROVED BY
THE ORIGINAL INVENTOR AND PATENTEE,
AND NOW IN USE AT
THE ROYAL HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK,
Can be had only by applying to
THOS. JOHN CROGGON, 2, INGRAM-COURT, FENCHURCH-STREET, LONDON.

The above Material has been used and approved of by the Nobility, Gentry, and Agriculturists generally, as a ROOFING and COVERING to SIDES of FARM BUILDINGS.

The Felt is perfectly impervious to rain, snow, and frost, and being a non-conductor, it has been proved an efficient PROTECTIVE MATERIAL TO PLANTS.

The price of the Felt is ONLY ONE PENNY PER SQUARE FOOT, being much less than half the expense of Slates, Tiles, &c., and from its LIGHTNESS, WARMTH, and CHEAPNESS is particularly well suited for Hothouses, &c. A discount allowed to the Trade. THOS. JOHN CROGGON, 2, Ingram-court, Fenchurch-street, London.

Patent Asphalte Felt Works, Jan. 11.

HEAL AND SON'S LIST OF BEDDING.—Containing a full description of weights, sizes, and prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London exclusively for the manufacture and sale of Bedding (no Bedsteads or other furniture being kept). HEAL AND SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham Court Road.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, JANUARY 11, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

SATURDAY,	Jan. 11	Royal Botanic . . .	4 P.M.
WEDNESDAY	Jan. 15	Microscopical . . .	8 P.M.
WEDNESDAY	Jan. 15	Society of Arts. . .	8 P.M.
TUESDAY,	Jan. 21	Horticultural . . .	2 P.M.
TUESDAY,	Jan. 21	Linnean	8 P.M.

THERE is one point in the HISTORY OF PROPAGATION which surpasses all others in its interest and importance, but which can scarcely yet be said to excite in this country the attention it demands. We mean the multiplication of plants by leaves. Gardeners unskilful in the art of striking cuttings, find it difficult to manage successfully anything more untractable than a Pelargonium, and fancy the propagation of hard-wooded plants by cuttings altogether impossible. As to leaf-striking, it is not thought of.

Gardeners are not to be blamed for this; physiologists, who should have directed them, have not given to the phenomena of leaf-propagation the consideration that they deserve. In De Candolle's Physiology the subject is dismissed in two or three pages; and although the theory of the matter is touched upon by that author, he by no means embraces the main points included in it. And in the Theory of Horticulture, where it occupies a chapter, the manifest error has been committed of assuming it to be probable, that "although many leaves may be used for the purpose of propagation, yet that the greater part, when separated from their parent, are incapable of being so."

When that strange compound of knowledge and quackery "Agricola's Husbandry" was translated by Bradley, the gardeners of the day must have regarded the author as a romancer, for he gravely assured them that all manner of trees may be multiplied by their leaves; and in corroboration of the assertion, he represents in one of his copperplates a field actually planted with the leaves of Oranges and Lemons. This plate illustrates, as he says, "How by means of fire and mummy, leaves, twigs, buds, and branches may be turned into shrubs and trees by planting them in the ground."

"Having observed," he adds, "that the leaves of some plants may very well be used instead of joints or shoots, I shall now undertake to show how the leaves take root. The curiosity for cultivating vegetables, it is well known, has long since been carried so far as to occasion an attempt to raise a tree from a leaf, just as F. Mandirola made the experiment with a Lemon-tree-leaf. His words upon this subject, taken out of his writings, are as follows:—'I tryed a masterpiece, to wit, to plant Citron, Lemon, and such like leaves after the following manner. I took for that purpose a sort of little flower-pot full of the best-sifted earth; I planted in it some leaves of those kinds of trees, with their stalks so deep that the third part of the leaf was covered with earth; over that pot I fastened a small pitcher full of water, so as that it might drop directly down into the middle of the pot, and the hollow which was made by the falling of the drops I continually filled up with fresh earth; thus they cost me but a little trouble, and they all shot up and grew very well. I pursued it with the greatest patience in the world, and found that through a too often dropping of the water, the leaves began to rot, and so wasted away of themselves by little and little, so as that at last nothing was left but the stems; but it having been observed since, that from the callous matter that came forth at the bottom, both roots and branches shot out, it appears that *all exotic leaves* may at any time be converted into trees. For this operation I make choice of the months of July, August, and November; but those who have stoves and greenhouses may perform it even in winter, and in that case they shoot the better in the spring. Those who have a mind to do it in the spring will have some success; but it is not so very sure, which ought to be chiefly ascribed to the inconstancy of that season.'"

This statement, made in the year 1721, is very remarkable on many accounts. To be sure, the enthusiasm of the worthy Dutchman did run away with him; and it must be confessed that he could have had little notion of what is possible in the vegetable world when he flattered himself that Orange and Lemon groves might be created by sticking their leaves in the open fields. Nevertheless, his speculations were founded on very important facts, and are connected with properties in leaves which we are only just beginning to recognise.

We never heard of any one striking Orange-trees from their leaves, but we entertain no doubt of the possibility of the thing; for although in this country we rarely attempt to apply the practice to any sorts of leaves except those of a fleshy texture, like Gloxinias, Gesneras, &c., yet Mr. Neumann tells us that the hard and dry-leaved Theophrasta latifolia has been struck by him in this way; and what is more, that when the leaf was cut into two halves, the one half struck root as well as the other. It will be obvious to all who know what a Theophrasta is, that if such a leaf as that may be made to strike root, there can be no conceivable difficulty in obtaining the same result from the leaves of Oranges, Lemons, Sweet Bays, Rhododendrons, Hollies, or any other sort of evergreen. The difficulty will reside in the varying structure of such plants, and the consequent uncertainty about the peculiar treatment which each leaf may demand. What may be extremely proper in one case will be destructive in another. Experience is therefore wanted; and numerous experiments must be made to determine the details of such a practice. But those experiments will have a better chance of leading quickly to success, if the theory of the action of leaves is understood.

No plant can form a new individual without first organising a bud. That *must* be in all cases the first step in the process of propagation. Now buds are known to spring exclusively from the soft pulpy or cellular matter that constitutes the flesh of plants, and not from their solid woody (or bony) parts. This cellular matter is formed by Nature out of organisable fluids produced by the leaves, and by the leaves only, or their equivalent, as in the instance of the green bark of the leafless Cacti. Hence it follows that leaves are really the great agents of propagation in any case, whether layers, cuttings, or other forms of multiplication are had recourse to; for the power possessed by the parts of plants so named is derived immediately and exclusively from the leaves. No wonder, then, that leaves should themselves become agents of propagation.

But leaves in their natural state are connected with the stem by a peculiar and admirable mechanism, which insures their being continually and abundantly supplied with food out of which they may prepare the organisable matter that is in the first instance to engender cellular substance and afterwards a bud. If this mechanism is disarranged the leaf dies, or becomes unhealthy, and loses its bud-creating power. No disturbance of the mechanism in question can well be greater than that which separates the leaf from its stem, and therefore the chances of the leaf dying are increased in proportion. But if, notwithstanding the separation of a leaf from its supply of food, means can be found to nourish it in some other manner, it may be kept alive; and if its vitality can only be preserved long enough, it must necessarily go on forming cellular matter, which again will obey that irresistible impulse which compels a bud to be engendered; and the bud being formed, a new plant will follow as a matter of course.

The problem to solve is how to nourish a leaf as well as it was nourished by its parent. To that question propagators have exclusively to direct their attention, for there is no fact more certain in nature than that if the supply of proper food to a leaf is but kept up, form a new plant it inevitably must. What the manner is of doing this will be the subject of consideration another week.

FORCING-PIT, HEATED ON RENDLE'S TANK SYSTEM.

THE cultivation of Cucumbers, Melons, and Pines, by means of steam, instead of by tan or dung, has long been successfully practised in large establishments; but steam-boilers now exist in comparatively few gardens, and in most places where they were formerly employed they have been exchanged for the more economical and simple contrivance of hot water circulating in tanks, as introduced by Mr. Rendle, for the purpose of communicating bottom-heat. The best method of applying this system to various structures, with a view to secure all the advantages likely to accrue from its adoption, has therefore become a matter of some importance. The following engraving shows a combination of expedients already severally in use, but which probably have not been hitherto applied in the manner here described.

Fig. 1 is a section of the pit, which is supposed to be built brick on edge, with hollow walls, partly under the ground level. This mode of construction is not essential to the plan; but economy and usefulness recommend it. Fig. 2 is a view of the same, showing the method of constructing the partitions. The tank is made of iron, which, for neatness and durability, is decidedly the best material that can be used. But where expense is an objection to the use of iron, brick tanks, coated with Roman cement, are to be recommended in preference to any other; these, with care, will last for many years, and have a neat appearance. We have here three large tanks, which answer admirably, constructed of these materials, and they are likely to last for many years. In the erection of such tanks, a good substantial foundation for the tank to rest on is essentially necessary, for without this a leaky tank will be the consequence.

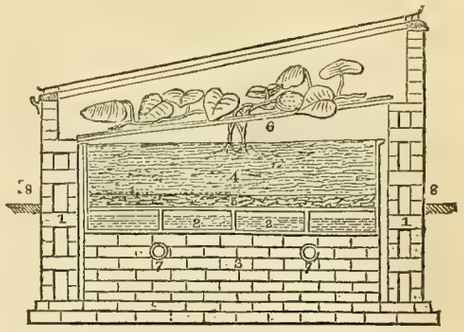
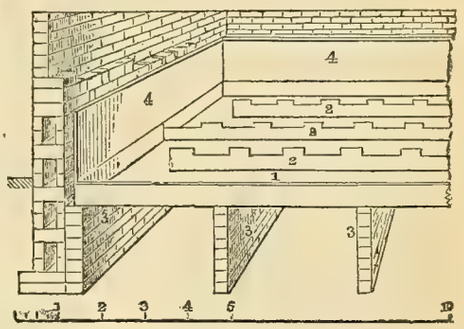


Fig. 1.—1. Walls of the pit; 2. Tank; 3. Cross-walls on which the tank is supported; 4. Bed of earth for plants; 5. Drainage; 6. Trellis to which the branches are trained; 7. Pipes for heating the atmosphere; 8. Ground level.



Scale of Feet.

Fig. 2.—1. Interior of tank; 2. Partitions with apertures in their upper edges for the circulation of heat; 3. Cross-walls by which the tank is supported; 4. Sides of the bed.

The tank in the accompanying engraving is supported on cross walls, which are three feet apart, and a vacancy of 2 inches is left between the sides of the tank and the walls of the pit, for the purpose of readily transmitting the heat given out from the sides and bottom, to the atmosphere. The interior of the tank is 6 inches in depth; it is divided longitudinally by three partitions: the middle one runs the whole length of the tank, dividing it into two separate compartments, each having its flow and return. In the upper edges of these partitions are apertures 12 in. in width, 2 in. in depth, and 6 in. apart; by means of which, the heat and steam from the hotter parts of the tank can act regularly on the cooler, thus equalising the temperature throughout the whole of the superincumbent materials. In the chamber underneath the tank are 4-inch cast-iron pipes, in which hot water circulates, for heating the atmosphere of the pit; and in order that the water may circulate freely in those pipes, the top of the boiler should be placed on a level with them, for by this arrangement the water flows more rapidly from the boiler to the tank. These pipes, as well as those which lead to the tank, are provided with valves of a simple construction, by which the flow of water can be regulated as circumstances may require. These valves will be found very useful in winter and spring, when perhaps the water in the pipes will require to be heated to 200° in order to maintain the necessary atmospheric temperature; and they are also necessary to regulate the flow of water into the tank; for if a full stream, at that temperature, was admitted into it, the consequence would be certain death to every plant growing above it. My reason for placing the pipes underneath the tank is, first, because it saves room, as in this way we get rid of the pipes, which in a small pit are always in the way, burning up everything near them; and, second, because in this way the whole atmosphere of the pit is kept in constant circulation, whereby ventilation is in a great measure superseded during the short days of winter, when cold renders the admission of air hazardous. This is of some consequence in cultivating winter Cucumbers at that season of the year, for then the atmosphere is generally too damp for preserving the plants in a healthy state.

In preparing the pit for the culture of Cucumbers, &c., a layer of coarse clean rubble, 3 inches in thickness, is first placed over the tank covers, and then over this is put a thin layer of Moss, to prevent the soil from choking up the drainage. The remaining space may be filled with good rich turfy loam, partially decomposed, to which should be added a small portion of rotten dung and leaf-mould; these materials should be thrown in, in as rough a state as possible, for the purpose of securing a thorough drainage throughout the whole mass. In this the plants are placed, and as their branches extend, they are trained to a trellis made of wire. This trellis is composed of suitable sized pieces, in order that it may be easily removed when required. It rests on the front and back walls, and on pieces of wood placed crosswise. The advantage of the trellis is that it brings the leaves and branches within a few inches of the glass, giving them the benefit of light and air; and it also keeps the fruit clean and free from woodlice, &c.—*H. Mitchell, Union Road Nursery, Plymouth.*

THE RANUNCULUS BED.

HAVING in a previous volume treated at length on the cultivation of the Ranunculus, I now purpose to communicate some new and important facts, the result of experiment, on the formation of the bed. If this be properly done, success is certain—provided the plants be let alone, and not destroyed or injured by watering, which nine times out of ten is the root of all mischief. The beds should have been made in September or October, being composed of about two parts rich pasture soil, and one part old pulverisable cow manure. The top four inches, however, should consist simply of soil, to which a little sand has been added, that it may be preserved free, and hence little liable to cracking (the greatest disaster to the Ranunculus bed); the uppermost two inches, in which the roots are set, should contain still more sand, say one-third or a fourth, with this view, as well as conducing greatly to the expansion and size of the tubers themselves. When the bed becomes cracked, the moisture, even in the lowest parts of it, quickly evaporates, and the long, delicate roots are torn asunder and destroyed; hence in very dry seasons the whole surface of the bed should be carefully covered with nearly half an inch of sand, which is quite effectual in preventing the evil, and is more cleanly, more easily applied, and more beneficial than bark or Moss.

Notwithstanding that all practical writers on the Ranunculus have again and again inculcated the necessity of making the beds early, it will yet be found that five florists out of six neglect the precaution; and then the universal complaint is raised that the flower is uncertain, capricious, and of impossible culture! I never yet knew an individual who did not admire the Ranunculus; nay, who did not admit on beholding a well bloomed collection—literally presenting all the varied tints and colours known even to the pencil of the painter—that it was the first of florists' flowers; yet nine out of ten will conclude, with all the air of injured innocence and misfortune, "as for their parts, they could never grow them;" it is simply because they never fairly tried. To such—however undeserving—I will now point out "a royal road" by which success is certain; at least it has proved so with me for two years, though I would still urge the excellency of the plan above pointed out. Six weeks before planting time (*i. e.* St. Valentine's day) let the soil of the bed be dug out, two feet in depth; put in four inches of good pasture soil, and then prepare the following solution:—Fill with soft water a large tub (or garden cart, moving on wheels, which all should possess), put into it two or three shovelfuls of fresh, quite fresh, cow manure; stir it well up with a garden rake till it acquire the consistence of thin pea-soup; pour this out with a watering pan (the rose being taken off) upon the four inches of soil till it is completely saturated. When the liquid is absorbed, which will be in a few minutes, carefully remove from the surface of the soil any small lumps of manure, straw, &c. which may be left thereon; then put on other four inches of soil; saturate this as before, and pick off pieces of litter or manure, and so proceed with the rest of the bed, putting on four inches of soil and saturating it with the liquid. Lastly, put on four inches of soil mixed with sand, as explained at the beginning of this article, which must not receive any of the liquid. I have tried this plan two years; the first year was with roots of shy sorts, which had become so small that I judged them incapable of blooming in the main bed; to my surprise they presented the most vigorous bloom in my collection. Last year I tried it more generally; and though this was the most unpropitious season in the memory of man for Ranunculuses, the roots so treated gave me a plentiful bloom, while the rest of my bed was certainly very much below par. Let not your readers shake their heads at this plan; a very wise head, viz., Mr. Lightbody's, was shaken at it, when I first communicated to him my intention of trying it. I shall this year adopt it with one-half of my valuable seedlings, that, come what weather it may, I may be sure of a vigorous bloom. I am fully aware of the danger of over-stimulating the Ranunculus, by which a strong bloom may often be got for one or two years, but which induces a dwindling and falling off of the roots for the future; but if the roots for three years bloom well and take up well, I shall not hesitate to recommend this as the best of all plans yet devised.

All the nutritious and stimulating ingredients contained in the fresh manure, being so diluted and intimately and equably dispersed through the soil, offer appropriate, easily digestible and absorbable ingredients of nourishment; and of course this is altogether different to the mixing or digging fresh manure *en masse* in the soil. The roots of the Ranunculus will not penetrate a piece or mass of fresh manure, but perish if kept in contact with it; and hence the necessity of using very old manure when the bed is made in the ordinary way. Mr. Lightbody's plan, and he is great authority, is to put a stratum of three or four inches of old manure eight inches below the surface, the soil above and below being only very moderately enriched; he also recommends that the roots should be immediately planted in soil made light and free with sand—they take up so much larger. Indeed, the roots of the Ranunculus penetrating so deep—15 or 20 inches—it is to the middle and lower depths that we must most carefully attend; here the soil must be retentive and without sand.

Though I now grow only my own seedlings, I would give the information to your readers that the new seedlings advertised in the *Chronicle* by Mr. Lightbody, are of first-rate excellence—indeed, quite unequalled; but in yellow grounds I must always except Mr. Tyson's Delectus, Dr. Horner, and Flaminius; Tyso's Edgar, though spoken of in London as a "model flower," is bad, at least in these parts—it is comparatively flat in the crown, and opens hardly in the eye.

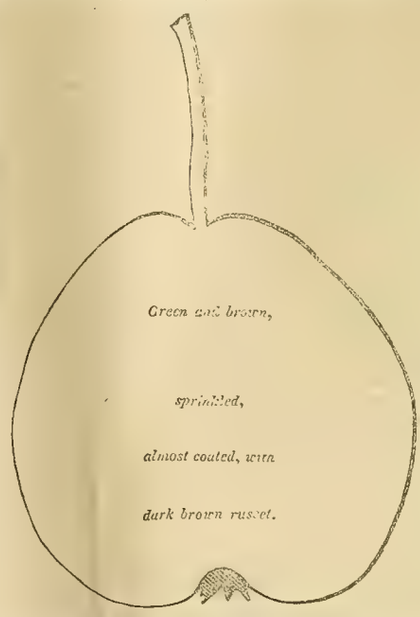
I should state that the soil in this neighbourhood is stiff and clayey; and hence the necessity of using so much sand in the surface of the bed. Where the soil is naturally light, and hence not disposed to crack, my precautions will be the less called for.—*F. R. Horner, M.D., Hull, Jan.* 1845.

WINTER NELIS PEAR.

Synonyms.—Nelis d'Hiver, Bonne de Malines, Beurré de Malines, La Bonne Malinaise, Milanaise Cuvelier, Etourneau.

Amongst the numerous varieties of Pears accounted first-rate by the generality of connoisseurs, there are but few with regard to the qualities of which some do not express a different opinion. The Passe Colmar, for example, is much esteemed by many for its sugary flavour; and because it is so much like sugar others do not prefer it. But there appears to be only one opinion respecting the Winter Nelis, for however frequently its quality may have been the subject of remark, the conclusions of all that I have heard have been invariably to the same effect, that of attributing a superior degree of excellence to this variety.

It was raised by M. Nelis, of Malines, or Mechlin; and it was introduced into this country by the Horticultural Society, under the names of Bonne de Malines and La Bonne Malinaise, as well as that of Nelis d'Hiver; and before it was ascertained that these names belonged to the same variety, it was figured in the Transactions of the Horticultural Society, first series, vol. v., p. 408, under that of La Bonne Malinaise. Subsequently, this name was set aside by the Horticultural Society, in justice to the raiser, M. Nelis, whose name it now bears.



The fruit represented is of medium size, from a standard. The flesh is yellowish-white, melting, buttery, and juicy, exceedingly rich and high-flavoured. In season December and January; but grown on some soils, it ripens in November, whilst in other cases it may be kept till the end of February. The tree bears well as a standard, at least in the southern counties of England; but it is not so hardy and vigorous as many other new varieties have proved to be; therefore, it should not be denied a place on a south wall, where such can possibly be afforded. Many of the Belgic Pears are better flavoured from standards or espaliers than from a wall with an east or west aspect. On such they may be grown large and handsome, but it has been frequently observed that what they gain in size they comparatively lose in flavour. The size of the Winter Nelis may, however, be increased against a wall, and yet the fruit prove excellent as regards flavour. It is, therefore, proper to plant it against a south, east, or west aspect, or all three, in order to obtain a succession. The wood is rather slender, darkish-yellow; leaves elliptical, many of them so narrow that they resemble those of a willow. Petioles long and slender, with linear stipules; flowers middle-sized, petals obovate, tapering much to the claw. Various peculiarities in this variety are so analogous to some that may be observed in the Bezi de la Motte as to induce a supposition that the latter has given rise to the Winter Nelis.—*R. T.*

PRUNING OF THE PEACH-TREE.

I AM induced to draw the attention of the readers of the *Chronicle* to this subject, which has interested me for many years, having been not only an extensive, but a successful cultivator of this fruit. In regard to pruning, my ideas of the *modus operandi* were generally in common with my practical brethren, viz., that the principal dressing should take place in the beginning of March; and this was with me as settled a question as that the fruit should be ripe in August and September. Now, I frankly confess that I held a fixed opinion, amounting, I may admit, to a prejudice, that the Peach-tree could only be pruned with advantage, and the branches properly regulated in spring, when the sap was getting into active motion. My reasons for preferring this season were, that in spring the wounds were less likely to suffer from the effects of frost than if the tree had been pruned during winter, and that the operation of pruning could then be performed with more expedition, the buds being at that period in a sufficiently advanced state to determine readily and precisely where amputation should be effected.

Now, it will be admitted that these reasons are worth attention, especially as they have been acted upon, not only generally, but almost universally. Let us therefore consider the best time for the performance of this work, and see whether we can adduce reasons sufficiently cogent in favour of autumn pruning, that the latter may be commonly adopted.

It is a well-known fact that just before or just as the leaves are falling in autumn, when sufficient sap is in motion, and in its downward course, a more speedy and perfect cicatrisation will be effected than in spring. Those who have been in the habit of making cuttings of shrubs, &c., well know that if the cuttings are put in early in autumn, success is beyond a doubt, but if they are delayed until late in the season, or until spring, that failure is as certain. In the former case a callosity is formed by the descending sap, and roots are eventually sent out, and a plant is established; in the latter, no callosity is formed, and the cutting dies. It may be inferred from this, that the wounds are healed by the descending sap before the approach of winter; so much so, that no moisture can enter from without, and hence no injury can result from frost. There is another important consideration which must not be overlooked in favour of autumn pruning. In many parts of England the young wood of the Peach does not ripen to the extremities, more particularly in wet seasons, and the consequence is that early frosts rend the bark in all directions, the sap escapes, and the unripened part of the shoot dies. This is of common occurrence. Were their shoots shortened in autumn instead of in spring, just while there is action enough left to heal the wounds perfectly, the declining energy of the tree would be economised; for instead of being uselessly expended in assisting to repair the extremities of the shoots which are ultimately to be cut off, it would be husbanded in the parts left, which would of course be greatly strengthened, and the buds would also assume a prominent healthy and vigorous appearance. I am strongly of opinion that autumn is decidedly the best time for pruning every kind of stone fruit, for the reasons I have advanced.

In almost all garden establishments spring has its double duty, besides pruning and nailing Peach trees, and this work cannot be slighted, even although it interferes at that season with other pressing and equally important garden operations. More time, therefore, can generally be spared in autumn for this, at all times, tedious work, and it is, therefore, likely then to be better done. I am anxious that this should have a fair trial by those who have never pruned their Peach trees except in spring, and should any have tried autumn-pruning, they would confer a kindness by giving the result of the trial. Finally, I have one more reason to urge in favour of autumn-pruning; and that is, the comfort of pruning in fine autumnal weather, compared to being exposed to the piercing, shrivelling winds of February and March; such weather is much more fit for operations requiring energy and exercise. The conducting of operations in weather suitable to them, is a subject well worth attention, and a more intimate knowledge of the laws which control vegetable action will indubitably lead to this; few of us, comparatively, will then have to complain of obstinate catarrhs, which stick to us for months, and inveterate rheumatisms, which prostrate able-bodied men for their lives.—*An Old Gardener.*

Home Correspondence.

Potatoes—Picking off the Flowers.—The attention of Potato-growers is directed (p. 851, 1844) to the importance of destroying the flowers, in order that the nourishment required for the growth of the seeds might be supplied exclusively to the tubers. From what I have myself seen and heard, I think that the subject is well worthy the attention of cultivators, although the results of the several experiments which have been made appear to be somewhat at variance with each other. The latter circumstance I imagine may arise from the fact that some varieties produce fruit (Apples) very freely, whilst others, although they sometimes flower freely, produce no fruit at all. In the former case a large proportion of nourishment is necessary for the support of the fruit, and the tubers are robbed in a corresponding degree, whilst in the latter the tubers do not suffer at all. By destroying the flowers, therefore, in the one case there is considerable advantage, but in the other there is none whatever. It would be well, in future, if those who try the experiment again will notice particularly the quantity of fruit produced by those plants from which the flowers have not been removed.—*Thomas Bentall.*

The Naturalist's Almanack.—Having waited two weeks, in the expectation that some one would reply to your remarks on the nomenclature employed in the "Naturalist's Almanack," for a few genera of Lepidoptera, and no notice having been taken of them, I shall feel obliged by your inserting the following:—Euthalia was characterised as a genus by Mr. Stephens, in his "Illustrations," vol. iii. page 252, published in 1832, to include Phalæna psittacata of Fabricius, and its allies. Anthocaris was first used by Boisduval, for a genus of butterflies differing from the true Pontiæ in their metamorphoses, and of which we have only one example in Britain, the common A. cardamines. Steropes is also a genus of Boisduval's (Index Methodicus, page 34), and

mentioned by Westwood, in "Humphrey's British Butterflies," page 128, but objected to on the ground of there being a Coleopterous genus, Steropus, and also of its being the specific name of one of the European Hesperidæ; this last objection, however, is not valid, as the species had long previously been named Aracynthus by Fabricius. Tephrosia is characterised by Boisduval (Index Methodicus, page 198), but having been previously applied to a genus of plants, is objectionable, although many other names are employed twice in Botany and Entomology. Charipteragwas established by Guenée, in 1838, in the "Annales de la Société Entomologique de France," page 124. Arge is a genus of Esper's, adopted by Boisduval, and also by Mr. Westwood, "British Butterflies," page 63.—*A.Z.*

Gooseberry Caterpillar.—To prevent the attack of this pestiferous insect, when the plants are beginning to open their leaf-buds, say in March, dust the whole of the plants over with dry soot. I have never known this simple method to fail, and I have practised it for many years, with two or three exceptions; and when I have thus failed to do so, I have suffered invariably more or less from caterpillars, but never when soot was applied: to all concerned I would earnestly and confidently recommend this application. I grow Gooseberry plants to a large extent, my stock seldom being less than 50,000 or 60,000, and I have known many people similarly situated with their trees completely eaten up, and thus rendered unsaleable, when my own have been vigorous and healthy. I imagine that soot also adds to the general health of the plant, as green-fly, which is almost as bad as the caterpillar, seldom or ever makes its appearance after being dressed with it. It must be borne in mind, that the soot is applied in a dry state, and may be kept so by putting it in a dry place till it is wanted; if it has been exposed to the atmosphere or damp, it is by no means so efficacious.—*W. May, Hope Nursery, Bedale, Yorkshire.*

Destruction of Small Birds.—There is a medium in all things; and, as Sir Roger de Coverley says, "Much is to be said on both sides in every question;" and I am sure this is especially the case as to killing birds. I live near large woods, and there is not a garden within a mile of my house; and I have not had a bird (sparrow, bulfinch, blackbird or thrush) killed for five years, so that I have thus more than my share. There is no neighbour's garden to help to support the birds, and the result is, I have not a Gooseberry, Currant, Pea or Strawberry unless I cover the whole with nets; and therefore I must wage war against the whole feathered tribe, or I shall lose my gardener. I am very much obliged to your correspondent who suggests the double cage for catching the blue tom-tits, but there is one point in which I have a difficulty. How am I to catch the decoy tits, which it appears is essential to your correspondent's plan? Without knowing this, I fear I must resort to the suet and nux vomica.—*Dodman.*

The Ribstone Pippin.—Observing in last year's *Chronicle* some remarks on the Ribstone Pippin, in which the question is raised as to the originality of the defunct tree at Ribstone, I think it may interest your readers to know that, in the autumn of 1830, I fell in with trees in some orchards of the valley of Sarnen, in Switzerland, the fruit of which I could not distinguish from the Ribstone Pippin. On referring to my Journal I find it was on the 25th Sept.; the fruit was then nearly but not quite ripe; the trees had all the character of Ribstones, but were rather more vigorous in growth. The precise spot where I most observed them was near a village called Kerns, in crossing orchards by a footpath which leads from that place towards the lake of Sarnen; and afterwards in the orchards along the south side of that lake, going towards Rudenz. They are, probably, not confined to that neighbourhood; and I entertained no doubt at that time of their identity with the Ribstone. It seems more probable that the tree has come to England from Switzerland than the reverse. The neighbourhood is not one which has much communication with this country.—*J. Rogers.*

Tomtits.—I cannot imagine how any civilised being, bearing the character of a Christian, can feel so cruelly disposed towards these and other harmless members of the feathered tribe, much less how he can openly advocate their annihilation, and by poison, too! It is monstrous thus to act towards these helpless creatures, who never fail to reward us a hundred-fold for our forbearance. The advent of spring will be a signal for their general rejoicing. Soon will our gardens and hedge-rows resound with the melody of their tiny voices; and I do not envy the feelings of that man who would remorselessly butcher such an orchestra, by concealing poison in their favourite food. Such a triumph is inglorious as it is barbarous, and I am sure your readers will unite with me in thanking Mr. Bree (and yourself) most cordially, for the censure passed at page 5 on "Scrutator." Let that individual enjoy his Currants and Gooseberries by himself, if he will; but let us, and all lovers of Nature, be at liberty to share the bounties of Providence with our good friends the robin, the tit-mouse, the wren, and other similar inoffensive choristers of the grove—we are not ashamed of such company.—*William Kidd.*——*X.* writes—"Whilst 'Scrutator' would be condemning this beautiful bird to a miserable death by poison, I hang up bones, and pieces of fat, that I may coax them to frequent and remain in my garden, where I am delighted with their graceful lively motions, their little quarrels, and their industrious search on old trees for insects and larvæ. I will not blame "Scrutator;" we live to learn. My gardener—who once destroyed every nest of the blackbird, the thrush, the chaffinch, the tit-mouse, &c.—now takes as much care of them as I do myself, and, I may add, finds a real pleasure in so doing."

Johnson's Gardeners' Almanack.—Since a practical man of Mr. Ayres's attainments has misunderstood my meaning, the "Directions for the Hothouse in January" say—"Air.—Admit as much as possible," shall, in the next impression of my Almanack, be rendered more explicit. When I wrote the words objected to, I had in mind the rarity of the days during this month, in which air can be admitted to our hothouses, and concluded that every reader would understand that I intended the gardener, before permitting its admission, would consult the thermometer, both within doors and without doors. Upon the modes of forming drains, I should hesitate in differing from Mr. Ayres, did I not have other authorities to confirm my own observations. These all agree that, in a free open soil, of which gardens should be formed, a drain will exhaust of its superfluous water a space of at least 12 feet on each side. In clayey soils, on which few gardens are inclosed, Mr. Ayres is quite right in saying the drains should be much closer. Stones placed over the draining-pipes may be a good addition if the soil be clayey, but they are not required in those open soils on which gardens are usually founded. In these, 6 inches of clay (not beaten solid, as Mr. Ayres thinks I intended to recommend) serve as the best conductor of the water to the pipes, and shield them from interruption by roots. Roots avoid the clay, and keep in the more fertile soil.—*G. W. Johnson.*

Whitney's Composition.—I see in your last Number another testimony, by "Passus," to the utter failure of Whitney's composition. Every one must appreciate the motive which induced "One who has Suffered" to come forward with a friendly warning against Mr. Whitney's preparation, particularly when we find him advertising with the utmost *nonchalance*, his invaluable discovery, in the midst, I will venture to say, of the most complete and marked failure which ever awaited an experiment. I have tried the composition on various descriptions of calico, all of which it has destroyed. The stoutest, of course, was the last which yielded to its influence, not, however, before it had become equally discoloured with others which I had been accustomed to coat with boiled linseed oil. All pains were taken in the application, due time given for the whole to become perfectly dry, and in several instances the lights remaining weeks without being exposed to sun or moisture previous to being placed upon the frames. Every one appreciates a sanguine man coming forward, apparently with a disinterested desire to further the particular hobby which may interest him; and every one is equally prepared to sympathise with his discomfiture in case failure has attended his scheme. Had Mr. Whitney remained quiet, your correspondent "Passus," as well as the host of other sufferers, would have borne their disappointment without a murmur; but their charity terminates when they see in every *Chronicle* an advertisement got up in the style of the lotion, ointment, and pill-puffs of the day.—*Passus sed non Passurus.*

Rabbits.—One of your correspondents assures us that rabbits will not touch Laurel of a large size; another, that a tarred rope will keep them off. Unhappily, I know by experience that these are fallacies. I live in a woodland country, where rabbits abound, and I am convinced that the only way to get rid of them is to destroy them, which is easily done, for any game-keeper will gladly do it, if he is allowed to sell them and give you half their price. I have seen rabbits get over a wall between 4 and 5 feet in height. They will burrow under anything, and the little ones will creep through wattling-net; a string they are afraid of at first, because it moves when they touch it; but they soon lose this fear, and then it is no fence to them. In one year they will fancy Verbena, and leave Carnations; in another, the Carnations are devoured, and the Verbena is safe, and so on; so that it is my firm belief that nothing will guard you against rabbits, especially in a hard season. In the winter of '38 our Laurels, with stems 2 inches and more in diameter, were destroyed by being peeled by the rabbits, since which time we have coated our young trees with soot, bullock's blood, and brimstone.—*Tizy.*

Mistletoe.—A beautiful bunch, decorated with white ribands, is suspended in my hall. It was cut, with Druidical solemnity, for my Yule festivities, from a large Acacia tree which adorns my lawn, and affords odoriferous shade amid the heats of summer. There is a fine Mistletoe growing on a Service-tree (as it is called), on a farm contiguous to my residence.—*B. D. Greys.*

The Frost.—Here the frost penetrated 10 inches.—*B. D. Greys.*

Sure Signs or Indications of Frost and Rough Weather.—I have invariably noticed for several weeks previous to severe frost setting in—during every severe winter in my remembrance, 1813-14 being among the first of which I can well recollect—that the earth-worms are unusually industrious in casting and clearing out their drains. This they do, I suppose, in order to admit air, and prevent obstruction at a time when they are unable to perform the operation on account of the surface of the earth becoming hard frozen. I particularly noticed their unusual industry for about a month, in the present autumn, in casting up their dirt on the sides of gravel-walks, pleasure-grounds and pastures, flower-gardens and Grass plats, in many instances representing the appearance of a fallow field, which was anything but pleasant to the industrious gardener, who feels a pleasure in keeping everything clean and in good condition that is under his charge. These reptiles of the earth seem always to have finished their excavations from 14 to 20 days before the commencement of severe frost, and, I should imagine, retire into safe quarters; for scarcely a fresh worm-cast is to be observed in any direction above ground, for about the above-mentioned space of time before the frost commences. The following is another sure indication of rough or severe weather, that I have particularly noticed to take place during every severe winter in my recollection. The wrens, those little, merry, active, cheerful songsters, which are friends to gardeners, suffer severely, and perish in large numbers in frosty weather. I have often known from 10 to 30 of these to have been huddled together, and taken out all dead from the hollow of an old Pollard or Ivy-covered hedge stem, or out of holes in dry walls, or from under thatch, &c. On observing more than two of these little songsters in winter in a gang, I have always observed that it denoted severe frost. In the evening of the 8th of December, in an old hollow lane, with high banks, and old Ivy-covered stems, I observed 10 of those little birds in one gang, darting about in company from one side of the lane to the other. On watching their movements for a short time, I observed that the whole ten passed under an old hollow Ivy-covered stem to roost; this I set down as a sure indication that severe frost would follow, in accordance with previous observations.—*J. B. B.*

Acorns and their Use.—The article headed as above, and signed "M. D. P.," in one of last year's *Chronicles*, contains much useful information, and I gladly give my testimony to the truth of the remarks contained in it, respecting the average amount of the Acorn crop—the advantage of sowing Acorns to raise Oak-plants, and the best manner of sowing them. My experience is principally in the south of Scotland, where the Acorn crop is more precarious than it is in England, in consequence of the still greater severity of the climate; still, however, even in Scotland there are years when Acorns are plentiful, and hardly any when enough do not ripen to carry on the purposes of Providence. In the year 1818, a field of about 22 acres was taken out of a farm and sown with Acorns, under the idea that seedlings would become finer trees than plants from a nursery, and would be better able to resist the attacks of rabbits, which had made great havoc in some neighbouring plantations, and also in the crops. Acorns were obtained from England on the supposition that Acorns ripened by an English sun were the finest. The field had borne a crop of Peas in 1817, was ploughed that autumn, and left fallow till the spring of 1818. Ridges, or drills, of about three inches high, were then formed with a small plough, and the Acorns sown in them some distance apart. The plants did not come up very regularly; and as it was feared that the Acorns had been destroyed by pheasants and mice, the ground was in the following year planted with young Oaks. Before long, however, the seedlings made their appearance in great quantities, and for some years were to be distinguished by their superior vigour and straightness of growth; the plantation having now been for some years in a regular course of thinning, it is no longer so easy to point out what are seedlings and which are not. Where the soil is good, the average circumference of the trees, at 6 feet from the ground, is about 15 inches, and their height about 20 feet. The whole is a fair illustration of the truth and practical nature of "M. D. P.'s" remarks. The field in question having been in a course of cultivation, was not, perhaps, in the best state for receiving the Acorns, and favoured too much the growth of weeds, which sprung up in overwhelming abundance; and sufficient care, as I understand, was not taken to clean the ground when the seedlings began to appear. It is very probable, also, that the Acorns were sown too deep. In defiance, however, of all obstacles, whether arising from defects of system, or from the attacks of natural enemies, the seedlings have maintained their ground and even surpassed their competitors.—*H. H.*

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Dec. 12.—At the late Annual Meeting of this Society, held at the Horns Tavern, Kennington, about 60 members were present, and Mr. Iliff, the Vice-President, was unanimously elected to preside on the occasion. The Chairman commenced the proceedings by stating the object of the Society, after which the Report was read. The Society, it appears, has been labouring under financial difficulties for some time. When Mr. Cuming resigned his Secretaryship last summer, the Committee found it necessary to form a new set of account-books, and, under the management of Mr. Iliff, to enter all the proceedings from the first formation of the Society, in a minute-book, and to submit them to a sub-committee, whose exertions have been instrumental in causing a reaction, and enabling the Society to hold together. The Report stated that in ten years there had been received 3000*l.*, arising from subscriptions of the members, and gratuities of the proprietors of the Surrey Zoological Gardens, exclusive of the free admission to each member, the five-guinea cups, and other prizes given by the members of the Committee; and that 2098*l.* 16*s.* 10*d.* had been paid during the same period for prizes. An application for the admission of a newspaper reporter having been notified, it was objected to on the ground of the meeting not being a public one. After some discussion it was, however, resolved by a small majority that the permission applied for should be granted; but when this was announced the reporter was not to be found. On resuming the business of the meeting, it appeared that the whole of the tradesmen's bills had been paid out of the balance of the aforesaid

sums, but that there were no assets to pay the outstanding prizes, amounting to about 200*l*. It was, therefore, proposed to raise a subscription to pay them off; but this was found impracticable; and, after arguing the topic for some time, a motion for cancelling the debt of prizes was carried by a majority of two to one. It was then proposed to dissolve the Society, but the proposal was negatived by seven to one, and a motion declaratory of the stability of the Society was immediately carried. It was announced that Messrs. Bruce, Atlee, Hamp, and others, had liberally relinquished their claims to the prizes due to them. The committee for the ensuing year was then appointed, and also a sub-committee to revise the rules, &c. We understand, that in future the prizes are to be paid immediately after the award is confirmed by the Committee, and that no member will be allowed his tickets of admission unless his subscription shall have been paid.

YORK HORTICULTURAL SOCIETY.

Dec. 23.—We extract from the *Yorkshire Gazette* the following statement of accounts of this Society for the year 1844, viz.:—

Dr. RECEIPTS.			
Balance from last year	£28	15	3½
Subscriptions	91	5	0
Entrances from Non members	0	11	0
Donations from the late Lord Mayor, James Richardson, Esq., John Roper, Esq., Wm. Whytehead, Esq., &c &c.	23	11	0
Admission of visitors at the Exhibitions:—First, 9*l*. 10*s*.; second, 10*l*.; third, 11*l*. 10*s*. 6*d*.; fourth, 93*l*. 10*s*.	124	10	6
	£268	12	9½

PAYMENTS.			
Paid for Prizes:—First Exhibition, 15*l*. 12*s*.; second, 16*l*. 12*s*; third, 25*l*. 6*s*.; fourth, 34*l*. 1*s*.	£91	11	6
Judges	12	15	0
Committee meetings	1	0	0
Porters, police, doorkeepers, &c.	14	12	0
Printing, advertising, tickets, &c.	29	11	10
Joiners' bills	6	5	8
Delivering schedules and collecting subscriptions	2	4	1
Music	13	17	3
Testimonials to the Secretary and the late Treasurer	6	0	0
Loan of Marquee and expenses	13	0	0
Bellringers and sundries	1	3	6
	£192	0	4
Balance in hand	76	12	5½
	£268	12	9½

Reviews.

Die Entdeckung der wahren Pflanzennahrung mit aussicht zu einer Agrikulturphysiologie. The Discovery of the true Food of Plants, with a Sketch of the Physiology of Agriculture. By Prof. Schultz. Berlin. 8vo. 1844.

Professor Schultz, the author of this little book, is well known to physiologists, from the remarkable views and statements which he has advanced. The object of his present publication is to describe some experiments which he has made on the nutrition of plants, to prove the incorrectness of existing theories, and to endeavour to establish what he believes is the true theory of vegetation. The following are the conclusions at which he arrives, as nearly as possible in his own words:—

1. The hitherto received theory, that carbonic acid is the principal food of plants, is erroneous, and altogether without foundation in nature. Carbonic acid is absorbed by the roots merely incidentally, together with their food, and is decomposed at the same time with it, but with great difficulty, by means of the leaves; whilst the large quantity of oxygen which plants exhale has a very different origin.

2. There is no proof of the truth of the assumption connected with the carbonic acid theory, that water is decomposed and assimilated by plants. This supposition has a purely theoretical origin; it was advanced in order to explain the formation of hydrogen compounds in plants, which could not be done on the carbonic acid theory alone. We have discovered what was hitherto unknown, namely, that plants sometimes exhale hydrogen; this takes place only in the dark, just at that time when they evolve no oxygen; and it does not result from the decomposition of water. An explosive mixture of oxygen and hydrogen is only formed when the oxygen evolved in the light is added to the hydrogen previously given off in the dark.

3. The view hitherto adopted with the carbonic acid theory, that plants feed on unaltered humic acid and salts of humic acid, is also wrong, inasmuch as plants never absorb unaltered humic acid, humus extract, and salts of humic acid. This view is likewise a mere theoretical deduction from the action of humus on vegetation generally, although it has never been shown whether, in truth, the humus does not dissolve in carbonic acid, and in this state act as food, as was supposed by Ingenhouss. The theory that plants absorb humic acid direct, is even less proved than the carbonic acid theory; on the contrary, it is in opposition to the latter, because the supposition of the absorption of humus does not in any way explain the evolution of oxygen. The internal circulation of matter has never been proved in the assimilation of humus; and, in fact, the unaltered particles of humus are not the true food of plants.

4. The true food of plants is rather the azotised humus in the vicinity of the roots, which is converted into other substances by their digesting action. These substances are wood, gum, sugar, and the peculiar vegetable acids of different plants, of which the most common is lactic acid; besides this, however, malic acid, citric acid, tartaric acid, acetic acid, and their acid salts. From the decomposition of these substances arises the large quantity of oxygen which plants exhale in the light. All those vegetable substances which contain hydrogen, such as cellular tissue, oils, resins, gum, the various forms of sugar and starch, have their origin from the same source.

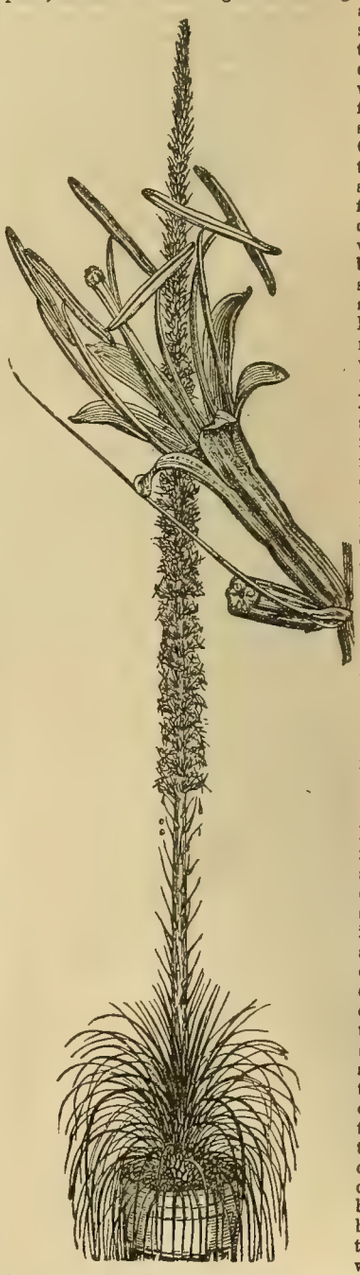
5. Sulphur and phosphorus are formed by plants from phosphate and sulphate of lime absorbed from the soil, and decomposed by the agency of oxalic acid; the chief use of which, in the economy of vegetation, appears to consist in this decomposition. From the decomposition of this free sulphuric and phosphoric acid in the light, oxygen is liberated, whilst the sulphur and phosphorus being themselves assimilated, assist in the formation of albumen, gluten, and the oils which contain sulphur.

Having thus, nearly in the author's own words, stated the conclusions which he draws from his experiments, it will be right briefly to advert to the mode in which his experiments were made. At first he employed healthy young plants, the roots of which were placed in solutions of the various substances to be examined, whilst the leaves were passed under the edges of glass receivers dipping in mercury, and filled with atmospheric air. He, however, soon abandoned this arrangement as inconvenient, and as he found it quite as accurate, adopted the more simple method of placing healthy sprigs of the various plants in inverted glass jars containing solutions of the substances under experiment; the gas which arose from the surface of the leaves was subsequently submitted to chemical examination. As an example of the experiments we may take the following:—¼ or ½ per cent. of tartar (bitartrate of potash) dissolved in 40 oz. of boiled water were allowed to act on a certain weight of fresh leaves; during 10 hours of sunshine 6·7 cubic inches of gas were evolved, of which 3·10ths of a cubic inch was carbonic acid, the remainder pure oxygen. When in place of the acid bitartrate, ½ per cent. of the neutral tartrate was employed, the evolution of gas was altogether prevented. When ½ per cent. of malic acid was used, 5·5 cubic inches of gas were evolved, of which 2·10ths of a cubic inch were carbonic acid, and the malic acid was found to have disappeared.

These experiments, of which there is a considerable number, are certainly curious; but we are by no means inclined to admit the justness of the conclusions which Dr. Schultz endeavours to draw from them. It is of comparatively little use to make experiments on plants under unnatural conditions, if we wish to compare our results with those of nature. Experiments on growing plants are difficult things to conduct, because there are so many circumstances which, if not carefully attended to, may vitiate the results; but it is even more difficult to draw correct conclusions from such experiments when made, because there are so many points connected with the physiology of chemistry which are ill understood. It is for these reasons that we caution our readers against the conclusions drawn by Dr. Schultz, as well as the mode in which his experiments were made; but as the subject is one of great interest as well as importance we shall probably, on a future occasion, make some further observations on Dr. Schultz's book.

Garden Memoranda.

Horticultural Society's Garden, Turnham-Green.—Since the late repairs and alterations have been completed in the Orchidaceous house here, the plants are looking much better; and from their fine dark-green foliage, they abundantly testify that the atmosphere is congenial to their well-being. The plan of supplying bottom-heat by means of the open tank system, inclosed in a hollow chamber, with means of commanding moisture directly from the surface of the water, has been found to answer exceedingly well, and the slate covers with which the chamber is closed in, and on which the plants are placed, are not only much cheaper than stone in the first instance, but possess the additional advantage of being more easily kept clean than the latter material. In the house next the Orchidaceous was the collection of Azaleas, and other plants recently received from Mr. Fortune; and, considering the time of the year when they arrived (in November), they look tolerably well, and promise soon, under proper treatment, to become good plants. In the large stove was a specimen of Vriesia psittacina just coming into bloom. This is a native of Rio Janeiro, and an exceedingly pretty stove plant, having a bright-red flower-stem, which contrasts well with the yellow blossoms. Lælia superbiens, mentioned in our last report, will soon disclose its showy blossoms here for the second time. It is understood that preparations are in progress for the cultivation of tropical fruits, it being considered desirable, now that the manner of heating and damping the air of hothouses is so much better understood, that an attempt should again be made to reduce Mangoes, Custard Apples, Mangosteens, and similar productions beneath the dominion of horticulture; and this house is to be fitted up with iron hot-water tanks for the purpose. In the vinery heated by Burbidge and Healy's iron tanks, the Vines have ripened their wood well, notwithstanding the house is constructed of wood with thick rafters, and the buds are much more plump than those on the Vines in the curvilinear house, where the system of heating is that of cement tanks covered with porous tile. In the latter house is a specimen of Psidium Cattleyanum, growing in a tub against the back wall, which, although a native of Brazil, was looking quite healthy, notwithstanding that the temperature of the house, being without fire-heat, was, on one or two occasions during the late frosty nights in last month, as low as 4° below freezing point. We may also mention here that the boiler which heats this house (one of Weeks's tubular boilers) has given way for the second time. It was found to answer when strong fires were required to be constantly kept up; but when only a small fire was needed, it did not answer at all. So much was this the case, that a small fire could not be kept in during a night; and even when a strong fire was required, the coals next the metal were not so effectually burned as they would have been in a furnace inclosed by fire-brick, Welch lumps, or similar non-conducting materials. In the latter case, the combustion of the fuel is generally so complete, that the residuum is little else than white ashes. The plants in the house, which was formerly a Pine-stove, but which some time ago underwent considerable alteration, were generally looking well; and the mode of heating the house, which is that of the tank system for bottom-heat, in connection with hot water circulating in iron pipes for surface-heat, answers admirably; but the slope of the old roof, which was originally fixed at an angle of 18°, is insufficient for carrying off the condensed moisture which collects on the under surface of the glass, and falls in considerable quantity on the plants, keeping them much too wet during winter, and rendering the preservation of tender things in a healthy state very difficult. Among the Orchidaceæ, which chiefly comprise the plants in this house, was in bloom a Mormodes, which was expected to be new, but which appears to be only M. lineatum: it was sent by Mr. Hartweg, who found it growing on old stumps of trees in damp woods near Escuintla, in Guatemala. The noble specimen of Luculia gratissima, in the large conservatory, is thriving remarkably well in a temperature seldom higher than 40°, and promises soon to be covered with numerous clusters of showy blossoms. Littæa geminiflora, which was noticed in our last report as having then been in bloom for upwards of three months, is still in flower, and promises to continue so for some months to come. As some of our readers may not be acquainted with this plant, we offer the following sketch of its general appearance. On the shelves, intermixed with other plants, were several fine young specimens of Cape Heaths, the autumn and winter flowering species of which were finely in bloom, and in some measure served to enliven the general dulness which pervades plant-houses at this season; and, finally, the fine specimen of Araucaria excelsa growing near the east entrance, has this season added about three feet to its height. On the Arboretum wall the three varieties of Chimonanthus fragrans have been and still are in profuse bloom; and here also Ceanothus thyrsiflorus, an evergreen shrub of late introduction, and that produces clusters of blue flowers in autumn, has stood the late severe weather with no other injury than that of the soft wood on the tops of the shoots being a little blackened by the frost; it will no doubt form a valuable addition to arboretums. The trenching of the half of the Peach border intended to be renovated this season is now completed, and the young trees are put in; they are planted 10 feet apart, each alternate tree being considered to be only temporary. It is intended to construct some high walls, 10 feet deep, at



right angles to the main wall, for the purpose of ascertaining experimentally whether the reflected heat so obtained will not give the Peach a better climate than usually occurs in this country. Preparation has also been made in the same place for trying the effect of one of Mr. Hoare's Vine-borders for Grapes in the open air. We also learned that two of his Vine-columns have been ordered to be constructed.

Miscellaneous.

The Weather.—Travellers assure us that winter is holding his New Year on the Continent with more than usual rigour. The Elbe is so frozen over that carriages are driven across it; the Rhine encumbered with blocks of ice, which have rendered it necessary to take up all the moveable bridges. And here, but a few miles off, we are in the midst of weather as genial as that of an early spring. The rapid conveyance by railway and steam-boats makes this far more striking than it used to be, and puts an end to our surprise that people should not keep alive the common Laurel, even at Hamburgh. Our correspondent, "J. W.," to whom we have been indebted on former occasions for memoranda of a similar kind, writes thus:—According to my Meteorological Journal, from the 22d of November down to the 4th of the present month, for the most part foggy, or cloudy, dull weather, but few days of brisk wind; the points of wind were nearly the whole period from N.E., E., or S.E.; frequently quite calm, and but just wind enough to carry chimney-smoke from some easterly point. Between the 5th and 14th of December, the mornings were frosty; the coldest were on the 7th, 8 A.M., 23°; and the 8th, 8 A.M., 20°. I always expect, and generally find, when not modified by other causes, some increase of moisture in the air about the 4th or 5th days after the new and full moons. I found on the 4th and 5th days after the new moon of 9th of December, some hygrometric indications of additional moisture, and a south-easterly wind with a slight fall of snow on the 4th day, but the wind backed again to the E. N. E. on the 5th day; there was a little increase of moisture and noon temperature, and I was in hopes of a change of a more decisive character. But I gave up all hope of any decisive change, till the fourth and fifth days after the full moon, which took place on 24th of December; here the increase of temperature was very perceptible, for the thermometer rose to 40° at 8 A.M. of 28th, and the maximum, at half-past 2 P.M., to 45°; the following day it was at 41° at 8 A.M., and 46° at 2 P.M.; and on the 4th inst. I told my gardener, when I saw the wind draw gently from the south, that in a couple of days we might expect a wind from over the surface of the great tank, the Atlantic Ocean, and that he might give air to the winter fruit rooms, that the temperature of the Pears might not be raised suddenly, and covered with the moisture that condenses on the surface of all substances cooled below the surrounding atmosphere. And this was fully verified yesterday, for the thermometer was at 45° at 8 A.M., and 52° at 2 P.M., with a south-west wind. As soon as the thaw reaches the opposite coast in the German Ocean, we may expect the usual winds to set in from the Atlantic towards Belgium, Holland, and north of Germany. These winds always cease when the Continent to the eastward of us is locked up by frost.—*J. W.*

Unfermented Bread.—After several careful trials, I find by this process, that 21 pounds of good flour produce 30 pounds of bread; this nearly agrees with the estimate of Pliny, who states that the bread should be one-third heavier than the flour which produced it. So large an increase will not take place if the bread be baked on the oven bottom. The great heat communicated to it so torrefies the outer crust, that considerable loss is occasioned thereby. The most economical way will be to bake the bread in tins. *Process:* Flour 7lbs., or half a peck; sesqui-carbonate of soda, in powder 1 oz.; tartaric acid in powder, ⅝ oz.; common salt, ¼ oz.; cold water, half a gallon. Mix the sesqui-carbonate of soda, the tartaric acid, and common salt, intimately together in a very dry mortar; if the mortar, or other vessel which may be used, is the least damp, the process will be injured. The whole is now to be stirred into the seven pounds of flour, by a circular motion with the hand, and constant stirring up from the bottom and all sides till the whole is thoroughly diffused through the flour; it will take on an average about five minutes to blend them together. The tins should now be in readiness, and everything so arranged that the dough may be put into the oven within five minutes after it is mixed with the cold water. The water should now be added in two or three portions, and the whole incorporated with the hand, the quicker the better; and immediately afterwards send it to the oven. When mixed, the dough should not be so fluid as to pour out of the jowl into the tins, it should be sufficiently adhesive to put into the tins with the hands; if it is intended to bake on the oven bottom, the bread must be stiffer, and less water should be used, but tins are the best. This quantity will fill three moderate sized tins, and will produce from seven pounds of flour, between 10 and 11 pounds of good wholesome bread, which will keep good for a fortnight; it should not be cut till it is two days old. It is very important that the sesqui-carbonate of soda be quite pure, as well as the tartaric acid. A great deal of the carbonate of soda in the market is contaminated with the sulphate, and the tartaric acid is very liable to adulteration with alum. This must be guarded against by purchasing them pure, or the process will fail.—*A. Bird, in Midland Counties' Herald.*

A Fact for Potato Growers.—A correspondent from West Lothian informs us, that one row of Potatoes, 23 yards in length, off which he pulled the bloom, produced 13¼ lbs. weight more Potatoes than any of the rows on which he left the blooms growing.—*Hereford Journal, August* 21.

Bees.

Ingenuity of Bees.—I have often read of the surprise excited by the ingenuity, and even mathematical skill displayed in the formation of the bees' equilateral cells. Latterly, however, I have not been so willing to admit such an extraordinary degree of instinct as is generally allowed to this industrious insect, although the simplicity of their proceeding, in my eyes, is much more pleasing than the mysterious and almost human power of reasoning which is rather largely lavished on them. It certainly has been for some time a matter quite inexplicable to me, how they contrived to build the sides of their cells so very much of the same breadth. From all appearances, it could be imagined that rule and other instruments must have been resorted to, that the animal had argued the matter, and then proceeded with the construction of its dwelling. Part of the foregoing is not far from the truth, for the bee does use a kind of measure, as on examining the width of the side of a cell, it will be observed that, with the exception of some little difference, it is a measure which exactly corresponds with the space which is between the legs of the bee when it is standing. We must perceive that it would be far from convenient for the animal to lay down its wax to a greater extent transversely. Also, as bees crowd close together when building, it cannot but be allowed that each bee must necessarily confine itself to the space which its body covers, or which is bestridden by its legs. I think such a view of the affair accounts very satisfactorily for this part of the insect's mathematics. I will now draw the attention to an equally difficult and obscure problem, viz.:—How does the instinct of these animals guide them in the apparently very clever method of applying one cell to the other in regular series, side to side, not side to angle, or angle to the apex of a cell, and in some such other confused order? After the solution of the first question this was not long in being answered. All obscurity vanishes when you remember that animals, either during labour, amusement, or when going to rest, will always select a level and convenient space whereupon to perform their operations. It would actually be painful for them to do otherwise than instinct or feeling directs them. The dog will prefer the hearth or lap for its resting-place, and does not seem inclined to occupy the narrow space offered by the elbow of the arm-chair. The cat, whom habit has obliged to climb, will repose herself on this elevated post for a short time, but even she will shortly prefer the ground. Inconvenience and painfulness of position compel these two animals to keep to the floor; they are forced, and do not reason themselves into the preference. In a similar way does the bee select the side of a cell to build upon, and not the angle or apex. I cannot imagine greater instinct than is exhibited in the two examples just quoted. In the same way we behold the bee placing cell by cell in the most exact manner. To compare more nearly, great with little things, it ought to surprise us as much to see the bee building a cell on the angle or apex of another cell, as we should be amused and astonished to view the dog attempting to poise and settle itself to rest on the great-chair elbow. I fear I shall be abused for detracting somewhat from the merits of the busy bee, but I deem when he is deprived of his borrowed plumes the insect will be found a much more attractive, though a less reasoning animal than it has hitherto been considered. To conclude, I object to his being endued with the forethought which is supposed to be very evident in his building his hive, and putting up food for his winter consumption. It must be called to mind that the fluid prepared by the flower is very sweet and tempting, and that nothing is so natural but that the creature in youth seduced into excess has, after a while, been fain to disgorge superfluities, and has thus acquired the useful habit which it has rather incautiously been overpraised for. If men will over-eat and drink themselves, why should not the poor bee do so likewise? In either case there is more good than evil done. The bees' honey serves for its winter food, and we also take a share. The drunken man will, in all probability, deter a greater number from the indulgence in his vice than he will involve in its miseries. I almost forgot to point out how the cells come to have six sides. When the bees begin to work, being close together, each is surmounted by as many bees as there are sides to the cell, and thus they cannot but make a six-sided cavity. Also I omitted to say that the weight of the bee operates through its feet on each side of the space it is working upon, and prevents all tendency of the wax to take a circular shape.—*B.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

As this is generally a leisure time, apply it in making preparations for the forthcoming spring. Get plenty of pot-sherds broken of different sizes; prepare stakes of all kinds, and paint them. See that all the pots are perfectly clean, and in a dry shed. Look to the compost yard and observe that all is in order; soils and manures requiring to be turned will benefit by having the insides exposed to the frost; and should there be any deficiency here, lose not a moment in supplying it. This is a good time for collecting the droppings of deer, sheep, and stall-fed oxen; these and such manures as can be procured should always be had in store. Half the victory is in preparing for the battle; therefore, let us see that our magazines are well stored, and the danger of action will be rendered less precarious. Spring will be upon us in "double quick time," when there is no remedy for negligence; defeat and disgrace will surely be our lot unless we avail ourselves of the opportunity now offered, and lay in a supply to meet every imaginable want.

Greenhouse and Conservatories.—This should present a gay appearance now if the forcing-pit has been well supplied. Examine daily every flowering plant, and remove every decaying flower as it appears, and see that the foliage of Camellias, Rhododendrons, Oranges, and similar plants, are perfectly clean. The contrast produced by the fine clean large leaves, with the numerous blossoms, at this season especially, gives a relish for such houses, and renders them doubly capable of yielding enjoyment.

Forcing-Pit.—The principal thing to attend to here is to maintain the temperature recommended in last Calendar, and keep up the supply of such plants as can be forced successfully and be made available in the greenhouse or conservatory, either for decoration or perfume; get in Persian and common Lilacs, Azaleas, both the Hardy and Chinese kinds, Lily of the Valley, Hyacinths, and other bulbs, Acacia armata, Epacris, and the various kinds of Pelargoniums suitable for forcing, Hardy and Nepal Rhododendrons, Daphnes, Deutzias, &c.

Heath-house.—Never light a fire here as long as the frost can be kept out by coverings or otherwise. A few degrees of frost will never injure Cape Heaths; whereas, fires are their ruin. Let the air blow upon them on all favourable occasions. Nothing destroys the constitution of these plants so much as close and damp houses.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

During fine weather like the present, continue to dig borders where they have not been already done; and if the weather changes to wet, edge and clean walks, lay turf, and make edgings good where that is necessary. In good weather keep all hands busy out of doors, leaving in-door jobs for bad days; sweep and clean where it is necessary, and in showery weather dig gravel for spring use. Plant shrubs, and regulate herbaceous plants; reduce Phloxes, &c., where they require it, and replant them after well digging the ground; take care not to plant too thickly, and leave room for planting tender plants in spring and summer. Where tree Pæonies are not growing freely, much good might be done by taking them up carefully, and digging holes 4 or 5 feet in depth, and 6 or 8 feet in diameter, and filling them with the following compost, viz:—one-third well rotted manure, one do. loam, and one-third sandy peat; these should be well mixed up. If the sub-soil is wet, it must be well drained, for stagnant water is sure to destroy the long fleshy roots of this plant; the dryer that the situation is the better Moutan Pæonies thrive; in severe weather they must be protected with mats, particularly after they have begun to grow. I have seen plants treated in this manner, produce splendid flowers, sometimes measuring as much as 9 inches in diameter. On P. Moutan, and on P. papaveracea, I have seen flowers that measured 11 inches in diameter, when fully expanded; when the plants are well grown, they seed freely; the seed should be sown as soon as it is ripe, in pots, and should be kept moderately dry till spring, when it should be placed in a frame in a gentle heat. After the plants are up, they might be potted off into small pots, and treated as above.

Pits and Frames.—Examine your stock, and such plants as you are short of should now be placed in a gentle heat for the purpose of exciting their growth for cuttings. Anagallises, Verbenas, Petunias, Salvias, &c., should now be brought forward for filling beds and borders in summer; be sure you have enough of these. Give abundance of air in mild weather to cold pits during both night and day, and withhold water from the plants at this season of the year. Prepare soil for potting off store plants: this might soon be commenced with.—*B.*

III.—FLORISTS' FLOWERS.

At this time of the year Auriculas require all the air possible, and in fact the directions given during the past weeks must be scrupulously followed. We have lately seen several collections in a bad state, and on inquiry we found that all the compost had been passed through a fine sieve, and that a piece of tile or oyster-shell had been placed over the hole at the bottom of the pot. We were not surprised to find the pots heavy with wet—nothing is more detrimental to the health of this beautiful Alpine plant than bad drainage. Damp in the pit or frame is bad enough; but excess of moisture at the roots or the surface is death. When a plant, from the latter cause, loses its leaves, and the heart decays, no time must be lost; but with a sharp knife the stem must be cut over to a healthy part; it is probable that the root will then emit small shoots or crowns from the sides, and thus the variety will be saved. When the plant is diseased in consequence of canker at the root, the remedy (if any), is to immediately take the plant out of the soil, and wash the roots clean, cutting away all brown or decayed parts; it may then be repotted in pure loam, putting round the wounded parts a small quantity of silver sand. A hand-glass may be kept over the plant, occasionally removing it for an hour or two; but experience proves that a diseased Auricula is a difficult thing to cure. *Carnations.*—We have to regret the loss, every few years, of fine varieties of these splendid flowers, either because they are constitutionally weak, as in the case of Morris's Prince Arthur, C.B., or because the raiser has been too jealous of his favourite, and actually killed it with kindness before the trade got hold of it. Several instances of this sort have lately come under our own observation; but we trust the parties who have suffered, will in future grow their stock of seedlings in more than one situation; so that, should one lot of a fine sort be smothered by ill-judged care, the loss may not be irreparable. With regard to these plants, attend to directions given during the few previous weeks, and keep them free from decaying leaves and weeds, which are now beginning to start. *Ranunculuses.*—The amateur, if he has not got sufficient for his bed, should now lose no time in getting in what he wants. Fine and new dark flowers are much wanted; the attention of those who raise seedlings having of late years been directed more especially to spots and edged flowers. We shall give the necessary directions for planting in a week or two.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Those plants now swelling off fruit, would, if tolerably dry, be benefited by a little tepid manure water, and should have a gentle syringing once or twice a week, in the event of sunny days occurring. These, for the present, should have a dry temperature of from 68° to 70°; for the night it should be 60°; the bottom-heat should be encouraged up to 80°, but should not be allowed to rise above 85° at present. Keep a free circulation of air in the early part of the day, and moisten the atmosphere well as soon as the houses are closed. For plants in dung pits persist in the plan recommended in the last Calendar, securing a bottom-heat in these structures of from 70° to 80°, with a free circulation of air, and refrain from both watering and syringing for the present.

Peach Houses.—Proceed very gradually with those breaking the bud; syringe during morning and evening, and, if possible, keep fermenting materials inside the house; where this is the case a higher temperature by 5° may be safely encouraged, where time is an object. Those in bloom should be allowed a temperature of 60° by day, with a free circulation of air; water all cool surfaces, as the soil, paths, &c., every evening; but withhold water entirely for the present in the mornings. If very dull or bad weather, and if there exists any difficulty in giving air, agitate or shake the trellis towards noon, for the purpose of dispersing the pollen. Fruit swelling should have a temperature of from 60° to 65° by day; it should be lowered to 50° at night, allowing a heat of 72° in sunshine before giving air. Syringe the trees freely about two o'clock on sunny days, and

shut up directly afterwards, taking care that the fire has been lowered, or entirely out, during such days. In all syringing of Peaches during early forcing, remember that keeping their wood continually damp is a fruitful source of gum; therefore, at this period, when the syringe is used, let the operation be performed early in the afternoons, and, above all, avoid great night heat.

Mushroom House.—Let the general temperature be about 55° keep all parts of the house exept the beds constantly, or rather daily, supplied with water. Do not aim at producing a sudden steam, but maintain a constant and genial atmosphere. Prepare fresh droppings, with plenty of litter mixed with them, by drying them in a shed to succeed the early beds. If any difficulty occurs as to getting them dry enough, they may undergo one sharp fermentation for a few days, and then be spread abroad in the shed for a week to sweeten.

Fig House.—Follow nearly the same general directions for these as those recommended above for the earliest Peaches.

Cherry House.—Moderation is the best maxim here, and great regularity in point of air and moisture. Take a little liberty on sunny afternoons by shutting up a few degrees more heat. If the buds are beginning to swell, 45° will be enough to maintain by fire heat, lowering the temperature down to 40° at night, with a moist atmosphere.

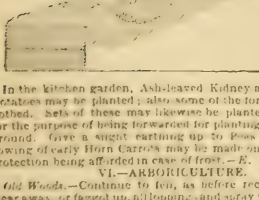
Vineries.—Vines in blossom should have the thermometer standing by day at nearly 70°, sinking to 60° at night. Keep as dry an atmosphere as possible for a few days, with a free circulation of air through the day, cautiously avoiding cold currents. Have recourse to artificial impregnation in the case of shy setters, such as Sweetwaters, Muscats, &c., using the pollen of the Hamburgh, if possible. Continue to disbud every useless shoot, and divest the shoots of their laterals as they appear, except in the case of long rods of a very luxuriant character. Stop at one joint above the fruit, except when length of cane is desired. Above all things insure a bottom-heat of from 70° to 80° in the fermenting material, where the roots are outside. Vines swelling their buds may have the same treatment as was mentioned last week, increasing the day heat a couple of degrees. Disbud progressively, not by any means hastily.

Strawberries.—I will say more about these in the next Calendar; for the present, advance moderately; water lightly, and keep a moist atmosphere. This is a safe time to introduce a good stock of plants, for which purpose a Peach-house or Vinery just closed is a very good situation.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Planting, pruning, and nailing should be proceeded with. If Vines on walls have not been already pruned the operation should not be further delayed. Trees intended to be grafted in the ensuing spring ought to be now cut back almost to the place where the scion is intended to be placed. In pruning, if a prolongation in the direction of any branch is required, cut immediately above the most eligible bud for producing a leader. Generally, in trees sufficiently vigorous, three buds next the section break into shoots, in consequence of other channels being cut off. Therefore, to insure the springing of branches at any particular place, it is necessary to cut immediately above such place. This should be kept especially in mind in pruning wall trees trained horizontally, otherwise a regular distance will not be maintained between the side branches. Observe the line of brickwork along which the new horizontals should proceed; select two buds next below that line, and one above these for a leader, to which the upright shoot must be shortened. The sap will flow better into a branch that ascends in the natural direction from the main stem, than in one constrained into a horizontal position from its very base; therefore the lower branches of a tree should proceed from the main stem at least a course of bricks below that along which they are trained, because they are apt to become weaker than the upper branches; the latter may be less indulged in this respect. The same principle is applicable to the training of Peach, Nectarine, and Apricot trees on walls; in fact it is more necessary to be attended to in the case of stone fruits than in that of the Pear, because their branches are more apt to die off. Hence the fan method of training is generally adopted for them, as affording greater facility of replacement. Yet the lower branches of these are placed at great disadvantage compared with the upper, as regards the flow of sap, and they are apt to die off, or become useless from weakness, conditions which have been proven to be accelerated by such endeavours as are too frequently made to train the two lowest branches as directly at right angles from the stem as the branches of a Spruce Fir may be found naturally to proceed. But the branches of wall fruit-trees do not diverge like those of the Spruce; and if by great constraint they are made to do so, the flow of sap must be in consequence greatly obstructed. Therefore, head back newly-planted trees, so as the lowest shoots may push a little way upwards, in their natural direction, before they require to be inclined in a horizontal one. By doing thus, and elevating their points during the growing season, these lower branches will be maintained in a much healthier state than is generally the case.

The following shows the manner of constructing Strawberry banks, concerning which inquiries have been made:—



In the kitchen garden, Ash-leaved Kidney and early Manly Potatoes may be planted; also some of the former on a slight hotbed. Sets of these may likewise be planted in small pots, for the purpose of being forwarded for planting out in the open ground. Give a slight earthing up to Peas and Beans. A sowing of early Horn Carrots may be made on a warm border, protection being afforded in case of frost.—*K.*

VI.—AGRICULTURE.

Old Woods.—Continue to fell, as before recommended, and clear away, or faggot up, all lopping, and spray wood as you proceed; thus occupies but little time, and prevents the unsightly appearance which they occasion when left. Open and clear out water-courses and drains from overgrowths, dead leaves, &c.

Coppice.—Continue to prune away the weakest and misplaced shoots of two years' growth, leaving only a limited number of the strongest. Trench and drain land intended to be planted, where the ground is dry making good holes for the plants will be sufficient.

Young Plantations.—Proceed with judicious thinning and pruning, instead of taking the plants clean out at the margins of plantations, it is better to take off their heads only, 5 or 6 feet from the ground, and leave them for the sake of shelter.

Nursery.—Shelter young evergreens. There is more danger to be apprehended from frosts in spring than in the depth of winter. Transplant two years' seedlings; shorten their tap-roots before transplanting, but preserve carefully the fibrous ones. Prepare ground for sowing forest-tree seeds. Proceed with planting new groups, and improving old ones in parks, as recommended last week; young, vigorous trees in parks show that the spirit of improvement is proceeding, and give the scene a healthy aspect.—*F.*

State of the Weather near London for the week ending Jan. 9, 1845, as observed at the Horticultural Garden, Chiswick.

Jan.	Moon's Age	Barometer.		Thermometer.			Wind.	Rain.
		Max.	Min.	Max.	Min.	Mean.		
Frid. 3	24	29.974	29.924	40	29	34.5	S.W.	—
Sat. 4	25	30.148	30.141	45	36	40.5	S.W.	.09
Mon. 6	26	30.110	30.058	53	42	47.5	S.W.	.03
Mon. 6	27	30.100	30.064	54	43	48.5	S.W.	—
Tues. 7	28	30.230	30.205	54	32	43.0	W.	—
Wed. 8	●	30.285	30.240	51	31	41.0	S.E.	—
Thurs. 9	1	30.056	30.047	35	28	31.5	S.E.	—
Average		30.129	30.087	45.1	34.4	39.7		.16

Jan. 3—Slight frost and calm; partially overcast, with dusky white clouds uniformly so

— 4—Cloudy; overcast; slight rain at night

— 5—Rain; overcast; rain at night

— 6—Fine; an unbroken period of the season

— 7—Uniform thick haze; mild and fine; overcast

— 8—Foggy throughout; densely overcast at night

— 9—Foggy; cold easterly haze; overcast.

Mean temperature of the week 4½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Jan. 18, 1845.

Jan.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 12	41.6	29.7	35.6	8	0.76 in.	2	2	2	1	5	4	2	1
Mon. 13	41.4	3.9	27.1	11	0.29	3	1	3	1	4	3	3	1
Tues. 14	40.6	30.3	35.4	10	0.39	4	4	2	—	3	3	1	3
Wed. 15	39.3	29.9	34.6	7	0.56	2	3	2	1	1	4	4	2
Thur. 16	39.3	30.3	34.7	10	0.34	—	6	3	—	1	4	3	2
Frl. 17	41.5	30.5	36.0	6	0.11	2	4	2	3	1	3	2	2
Sat. 18	41.4	31.0	36.2	9	0.24	—	3	—	2	3	4	4	3

The highest temperature during the above period occurred on the 15th, 1834—therm. 56°; and the lowest on the night of the 19th and morning of the 20th—therm. 4° below zero.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Those wishing to have copies for distribution among their tenantry can have them at the rate of 2*s* for 5*s*.

ANCIENT YEW.—*Cavenensis.* Thanks. A woodcut is in preparation.

CAMELLIAS.—*M. A.*—It is probable that your plants have produced more flower-buds than they have strength to bring to perfection. Pick the buds all off, except one on each twig; this will not only induce the plants to expand the remaining flower-buds, but will strengthen them for next season.‖

CUCUMBERS.—*Silex* inquires, What is the largest number of acres of Cucumbers grown by any one person in the Vale of Evesham; and whether the climate there is superior to that of other parts of England and the Isle of Wight?

EXPERIMENTS.—*H. Murray.*—Excuse our saying that opinion is of no value against experiments. You may be right; but if so, give us the evidence of experiment to refute that which the experiments we have published seem to establish.

FRUITS.—*J. C.*—Exoniensis, Epps's Kentish Bride, Youell's Queen Victoria and Countess Tyrconnell, Smith's Vesta, Robusta, Halley's Sanguinea, Bell's Queen, Standish's Colossus, Pride of Peckham, Youell's Lady Walsingham, and Conspicua arborea.*

GAME.—*R. S.*—There is no possibility of keeping off hares and rabbits from plantations *going* to be made on open downs, without inclosures.

GESNERA ZEBRINA.—*M. A.*—This will not succeed in a greenhouse in winter. Cold is doubtless the cause of its leaves dropping off.§

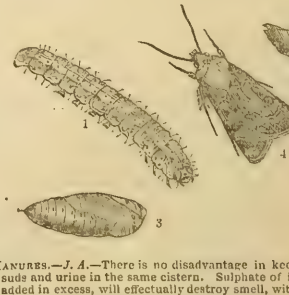
HEATING.—*Llandilo.*—You will get a pressure of ½ lb. to the inch for every foot of elevation; therefore your cistern must be 10 feet above the highest point whether you will ever be able to convey steam through 30 feet of naked pipe, even although you wrap it with straw. Your best way would be to case the steam-pipe with wood, and to pack the interval with perfectly dry (baked) sawdust.——*A Novice.*—No doubt it was the dryness of the mould in your Camellia pots that has caused all their buds to fall off. No other result could attend the placing them over the pipes. The latter are quite well placed. They should run all round the Greenhouse, level with the ground, or as nearly so as you could get them. Then the plants might have occupied the centre as near the glass as it may have been possible to place them. As it is, we fear that you will suffer from darkness, or at least that you will be as badly off as in the old flat-roofed conservatories. Since your pipes are fixed, it would, perhaps, answer the purpose to cover them with a flooring, *open at the sides*, so as to enable you to get readily at the inside, and to arrange your plants on rising stages on either side, so contriving the stages that as little light as possible is intercepted. We fear this advice will not be very intelligible; but it is difficult to describe how these things should be done. Have you no clever gardener whom you can consult?——*A. Z.*—A 4-inch flow and a 4-inch return-pipe are sufficient to heat a pit 45 feet long, 8 feet wide, and 7 feet high; the pipes being fixed under the bed and built over, leaving chambers and outlets at the side for top-heat, the bed being covered with rubble or rough bricks and stones, and the house being intended to grow Cucumbers started in the month of February.

HEDGE-ROW TIMBER.—*R. P. K.*—Since you were compelled to amputate large limbs of your Oaks, you took the most judicious means of doing so. What you should now do is, in the first place cut the wounds to a perfectly smooth face, rounded off at the edge, and slanting in such a degree that rain cannot lodge on them; secondly, coat them with any sort of adhesive material that will resist weather. Forsyth's Composition is as good as any; he made it by thoroughly mixing 1 bushel fresh cow-dung, ½ bushel lime rubbish, old plaster dust or even chalk in powder, ½ bushel of wood ashes, and about a quart of river sand; they were well mixed by passing through a fine sieve, and were then worked up with water till of the consistence of the fine plaster used for the ceilings of rooms. This mixture was applied to the thickness of ½ of an inch, and was afterwards well dusted with a mixture of wood ashes and burnt bones applied through a coarse pepper box; after an hour or two the dusting was repeated, and the plaster smoothed down with the hand, and this was again done till the surface became dry and quite smooth. See "Lindley's Guide to the Orchard," p. 507. The operation is rather tedious, but unexpensive.

ICE.—*T. P.*—We never heard of such a thing as packing ice at the back of a 9 inch front wall; but we are sure of two things—the one, that in such a situation the ice will melt; and the other, that the constant obstruction of heat from the wall must have a very bad effect upon the trees.

KITCHEN GARDENING.—*A. B.*—It is difficult to determine the quantity of ground necessary to supply a family of 35 persons with vegetables, unless we were acquainted with the kind of soil, as an acre of land in some situations would produce twice as much as in others, and some persons are desirous of prolonging the seasons of certain kinds of vegetables, which would of course require more ground than under ordinary circumstances. Again, much depends on the style in which the family lives, as this may perhaps influence the consumption to the amount of 50, or even 100 per cent. Besides these, there are many other considerations which should be taken into account in forming a kitchen garden, such as whether it is to be surrounded with a wall, and whether any part will be appropriated to framing, or whether the smaller kinds of fruit are to be cultivated. These things materially affect the size of the garden and the labour required. You should consult a competent person on the spot, who would render you every information. If you apply to us we can obtain such a person for you.

INSECTS.—*R. W.*—Your grub is the caterpillar of a moth, of which the accompanying is a representation, called Noctua exclamationis; and you will find its history in vol. iv. p. 619. Hand-picking is the most effectual remedy. The flies are not the Chlorops, but Musca atramentaria. Your question is a difficult one, but I cannot conceive that they have any connection with the fever. Fumigate your closet either with tobacco, burned into a smoke—which will evaporate, and destroy the flies in a few days—or by burning sulphur; in both cases the access of air must be prevented as far as possible.*R.*



MANURES.—*J. A.*—There is no disadvantage in keeping soapsuds and urine in the same cistern. Sulphate of iron, if not added in excess, will effectually destroy smell, without interfering with their fertilising properties.——*Ignoramus.*—Poultry dung answers well for Onions, and may be applied at the rate of two barrow-loads per rod. You may apply it as other manure for crops generally, if you form it into a compost by mixing it up with five parts of soil to one of the manure.‖

MUSHROOMS.—*Z.*—You may put a covering of hot dung on your Mushroom bed, which is rather cold, with advantage; but take care not to raise too great a heat in it. Keep the temperature at about 60°. To make success more certain, you had better introduce fresh spawn into the beds. When the Mushrooms appear, the dung should be removed, and the bed should be covered with hay, or light litter.‡

NAMES OF FRUITS.—*J. M.*—Cornish Gilliflower.¶——*M.*—Minchal Crab.‖——*W. R.*—1 appears to be Knight's Monarch; 3, Rouse Leech; 4, Gloria Mundi; 5, Old Colmar.§——*G. B.*—1, 3, Winter Bon Chrétien; 2, Glout Morceau; 4, Beurré Diel.‖

NAMES OF PLANTS.—*W. Johnson.*—Either your plant is Cœlogyne Cumingii, or it is not distinguishable in the crushed state in which we have received it. Chelonanthera is a synonyme of Cœlogyne; but Chelonanthera speciosa is quite different from Cœlogyne Cumingii.——*A Young Gardener.*—Mahernia incisa, Rhododendron ferrugineum.‡——*S. P.*—Pimpinella saxifraga.§

NATURAL CLASSIFICATION.—*Student.*—A great press of matter obliges us to defer replying till next week.

PEAS.—*G. P.*—The Early Frame is a very good early Pea for sowing in an open border, in a warm situation.‡

POOR'S RATES.—*Falcon.*—Your letter was not answered last week because we wished to take time for giving it the consideration its importance demands. We do not at all differ from you in opinion; but when we look at the extent to which such a discussion as your letter would produce must necessarily run, and think, moreover, upon the little room we have for the proper business of this Paper, we are reluctantly obliged to say that, for the present at least, we must avoid all allusion to the topic.

VINES.—*A.*—It is not too soon to bring in Vines which are intended to be forced early in March, and which have been for some time exposed in the open air. In case of severe weather, a good coating of stable dung should be laid on the border.‡

VINERIES.—*A. B.*—It is sufficient to build the front wall on arches with a pier under each rafter. You may plant the Vines immediately in the hot-house part, White Muscat of Alexandria, Black and White Frontignans, and Black Muscat of Alexandria; and in the green-house, Black Hamburgh, Black Prince, and Royal Muscadine.‖

VINE-BORDERS.—*W. P.*—For an old Vine-border, bone-dust and some half-inch bones mixed will be better than whole. This should be worked in near the roots with a fork, and afterwards give plenty of manure-water.‖

WALL TREES.—*J. L.*—Having only room for six trees on a south wall, you may plant the Moorpark Apricot; the Grosse Mignonne, Royal George, and Bellegarde Peaches; and the Elruge and Violette Hâtive Nectarines. Allow 18 or 20 feet for each tree if the soil is rich.‖

MISCELLANEOUS.—*M. R. C. S.*—Very much obliged; but our crowded columns forbid the further introduction of meteorological tables, except on special cases of great importance.——*W. Kemp.*—We have received your printed papers. Your selection of a guide and friend has doubtless been made after due consideration, and we trust it will prove advantageous to the interests of the Philanthropic Society.——*Amateur.*—Plant your Fuchsias about 4 ft. apart, and train every alternate one to a single stem. Your soil will answer well if you omit mixing it with sawdust.¶——*M. A.*—To have Roses good at this season, they should be kept in a temperature of not less than 50° at night.§——*E. O. Oakwood.*—The charge will be 4*s.*——*A. B.*—Two long panes of sheet glass, having only one lap, are best adapted for the admission of light; but in case of repairs, panes 12 inches in length are more convenient, and will make very little difference to the light. It is always preferable to have the roof and sides of the same size of pane. The sash-bars should be 2 inches by 1, having their longer sides bevelled off to two-eighths, so as to correspond with the rebate on the upper side.‡——*J. C. L.*—Over luxuriance, and want of air and light to ripen the young wood, is the cause of disease in the ends of the young shoots of your Chorozema varium. If you lift it carefully and replant it, giving it, if possible, an airy light situation, the evil will possibly disappear.‡——*J. A.*—Apples and Pears are better for being allowed to remain a fortnight or three weeks after they have been pulled, before they are packed in sand. If the sand employed was not perfectly dry, that might possibly cause the skin to crack in the way you mention.‡——*Caledon* should apply to the Secretary of the New Zealand Company, Broad-Street Buildings, City.‡——*A Clerical Subscriber* will be able to obtain grafts of the Jersey Gratioli or Norris's Pear, through any Fellow of the Horticultural Society.——*C. J. D.*—A thousand thanks for the Æschynanthus.——*F. D. H.*—You did wrong to put your Ranunculuses into a hothouse; you must take them out, harden them by degrees, and treat them as Dr. Horner directs in another column. They are spoiled for the season.——*L. L.*—Yow Bent Grass seems to be Elymus arenarius; if it is as sweet a you state, it would, no doubt, become good fodder when cu to pieces by the chaff-cutter.

*** As usual, many communications have been received t late, and others are unavoidably detained till the requis inquiries can be made.

[We must also beg for the indulgence of those numerous cor spondents, the insertion of whose interesting communicati is still delayed.]

GLOUCESTERSHIRE ASSOCIATION FOR THE ENCOURAGEMENT OF AGRICULTURE, ARTS, MANUFACTURES, AND COMMERCE.

MEETING 27TH NOVEMBER, 1845.—£50 PREMIUM.

To the Manufacturer who shall offer for sale within six miles of Gloucester, or within 25 miles of the same place if adjoining to any railway or navigable river or canal, the largest number of GOOD DRAINING TILES at the lowest price. The quantity not to be less than 500,000, nor the price to exceed 17s. per 1000 ft., for Tiles 2½, or 15s. for Pipes, 1½ inch bore.—For further particulars apply to Mr. A. G. Jones, Gloucester, Secretary to the above Association.

The Agricultural Gazette.

SATURDAY, JANUARY 11, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Jan. 16—Agricultural Imp. Soc. of Ireland.

THURSDAY, Jan. 23—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS—Jan. 17—Debenham.

SEVERAL Articles appeared last year in our columns illustrative of the benefits which are derivable from a well-conducted system of letting to labourers portions of land of such a size as they may be able to cultivate well in *their leisure hours*. The usefulness of THE ALLOTMENT SYSTEM, as it is called—its usefulness to the labourer, and by consequence to all the other classes immediately dependent on Agriculture, is no longer mere matter of opinion, it is matter of fact and history. The pages of "The Labourer's Friend," a monthly periodical published in London, contain detailed accounts of many a parish benefited by the adoption of the system; our own columns are also instructive on the same subject; and we shall be careful to keep the attention of our readers directed to it as a means of national good; and we shall always be willing to give publication to the histories and arguments bearing upon it with which correspondents may favour us.

It is true enough that in some instances the Allotment System has failed of its usual result; but we are persuaded this has been always the result of mismanagement. Perhaps more good would arise from a strict analysis of some such instances than from constantly harping upon the numerous cases in which it has proved beneficial. We leave this hint with such of our correspondents as may be interested in the subject. Does any one know of a case in which the Allotment System has failed? Let him lay the details in all their fullness before our readers; the beneficial tendencies of the system are so obvious, that it is next to certain that on the very face of these details such mismanagement would appear as would thoroughly clear the Allotment System of any share in the evils which, in such instances, may have arisen from its adoption.

DID any of our readers overlook Mr. Maughan's paper on THE EXPEDIENCY OF AGRICULTURAL LEASES, which was published in the *Agricultural Gazette* on the 14th of last month? It is possible that amid the mass of matter—nearly double the ordinary quantity—which was laid before them in our Number for that week, it may have escaped their notice. If so, they cannot do better than turn to page 844 of our last year's volume, and give this paper an attentive perusal. It was read at the December meeting of the Stewponey Farmers' Club, before an audience amongst whom were Lord Lyttelton and J. H. H. Foley, Esq., two extensive landowners in that neighbourhood, who, at the conclusion of the lecture, expressed their approval of the views embodied in it, and their willingness to act upon them.

Considered in itself, this paper is one of the most impartial statements on the subject that we have seen; and, as expressive of the opinion of so experienced a person as its author, who is agent to the trustees of the late Earl of Dudley, it well deserves our respectful consideration.

The advantage of securing to a tenant, by a legal instrument, an interest in his occupation for a term of years, like all other matters of opinion capable of being tested by fact, admits of *à priori* or demonstrative as well as of practical proof. Consider the tendencies of such a practice. Even admitting—as there are a few admirable but rare cases of the kind—that confidence in the personal character of a landlord and his heir will occasionally induce the tenant-at-will to invest his capital in agricultural improvements of which he cannot reap the entire benefit for many years, how much more perfectly and generally can this be effected by "the lease!" Look at the influence of such a deed upon the landowner. Will it not make him more careful in his selection of his tenant, than if he were able to get rid of him by a six months' notice? Caution of this kind would be beneficial to all classes—to tenants, landowner, and labourers—it would raise the standard of the first, secure the interests of the second, and, as good farming would be its consequence, it would insure employment for the third. Look at the influence of a lease for a sufficiently long term of years on the farmer—if he be a man of skill and sufficient capital, both of which, as Mr. Maughan carefully states, are essential to the success of "the lease" as a means of agricultural improvement; if he possess both these qualifications, he will immediately avail himself of the security he enjoys, in order to invest his money in those improvements of the land which, though unquestionably the most profitable of any in the long-run, are nevertheless somewhat dilatory in repayment.

But the expediency of granting leases admits of practical and historical proof. Compare Norfolk, Lincolnshire, portions of the north of England, and great part of Scotland, on the one side, where leases have long been customary, with midland, southern, and western England, on the other, where leases are not customary. It is singular how, in a degree unaccountable for on any ground of difference in soil or climate, the first-named districts are almost entirely arable, while the last-named are pasture. There is a vast difference between these two conditions of land, so far as the nation is concerned—in the amount of food they produce; and, as affecting the various agricultural classes in the nation, there is a great difference between them too: the former, as has already been shown in these columns, yields food, profit, and employment in abundance; the latter, all three but scarcely. And were it not that there are many instances scattered up and down in both the districts, which are apparently opposed to the idea, we might be tempted to represent the condition of the latter as the result of mutual distrust between landlord and tenant, while that of the former represents the happy consequences of mutual confidence. In the case of arable lands held on lease, is there not on the one side an investment of capital in cultivation, in a manner, in fact, in which it is not immediately convertible? and is not this obviously the result of that confidence which is inspired by a hold in law upon the land? and on the other, is not security that the land will not be injured made sufficiently secure by that very investment of the tenant's capital to so large an amount? In the case of pasture lands again, which are rarely, if ever, held on lease, can their existence in such a comparatively unproductive condition be accounted for except by the distrust of the owner lest a tenant, if permission to break it up were granted, should cross-crop and exhaust it? And does not the mode in which the tenant's capital is invested—in live stock, which may be driven to market to-morrow—equally exhibit that want of confidence on the part of the farmer, by which he is necessarily affected, under a system which renders him at any time liable to be the victim of a whim or an accident? Now, just compare, in a national point of view, the relative economy or profitableness of these two modes of investing farm capital—the one, the result of confidence on the part of the tenant; the other, that of his distrust. The capital invested in *cultivation* reproduces 70 per cent. upon its value every year; 12 or 14 per cent. may go to the farmer; 30 to 35 per cent. to the landowner; and 24 to 30 per cent. to labourers, either directly as wages, or indirectly in replacing the tear and wear of implements, to the plough and wheelwright, the harness-maker, &c. How useful and productive, in a national point of view, is capital so invested! Again, that which is invested in dairy and other live stock on *pasture lands*, equal in amount, perhaps, to two-thirds of the above per acre, is not annually productive of 60 per cent. upon its value, of which 10 may go to the farmer, 40 to the landowner, and only 10 to the labourer! And all these, be it observed, per centages upon a sum not more than two-thirds of that invested in the cultivation of arable land. Our statements here are capable of proof—no comment upon them is necessary.

Do not let any one think that, in making the above remarks, we have been running away from our subject. This serious difference in the condition of different portions of this country, as contributors to the common weal, is, as indeed we have shown, obviously and necessarily connected with the consideration of the lease as a means of agricultural improvement.

While, however, we contend that the security of the tenant, wherever he is able and willing to avail himself of it, will be productive of the greatest benefit to all classes dependent on agriculture, we are far from thinking that an *indiscriminate* and *immediate* adoption of the system of leasing lands would be beneficial. Mr. Maughan, in his paper on this subject, has adduced a most interesting case, proving the uselessness of the lease in the great majority of instances, under such circumstances. We extract the following:—"The Beeston Castle and Peckforton estates, of about 4000 acres, in Cheshire, at the period referred to, belonged to the late Sir Thomas Mostyn, as tenant for life, with remainder to a party whose pecuniary embarrassments gave grounds for apprehension that he would, if he came into possession, bear hard upon his tenantry. Sir Thomas, than whom a better landlord, or kinder-hearted man never lived, offered, under the powers he possessed, leases for twenty-one years to such of his tenants on those Cheshire estates as might choose to apply for them, and his agent might deem fit to be intrusted with them. Thirteen of the principal tenants on those estates asked for and obtained leases—the only test of fitness applied to the applicants being their having paid up their rents. The leases have been granted about 14 years. I went over the estate in September last with my relative and namesake, who has been familiar with every corner of the property for 30 years, and who settled the terms of the leases 14 years ago, which were very well and equitably arranged. The farms in question being dairy farms, the rents were made to fluctuate with the price of cheese. From the testimony of my relative, and that of some intelligent parties who accompanied us, and from my own recollections of the property, I can state, that only two individuals out of the whole number of 13 have made the least use of the security and advantages afforded them by their leases. As to 11 out of the 13, they and their land have remained alike, as it were, in *statu quo*; the idea of improvement never for one moment appears to have entered into their minds. Some of those men—the greatest part of them—had not the necessary means of effecting material improvements—they were needy men; some few were in better circumstances, and better results might have been expected. There were, however, two individuals, whom I may hope without offence to name, who had the good sense to set to work at once to put their land into condition. The names of those tenants are Mr. Bird, of Beeston Hall, and Mr. Jones, of Park Gate, a farm near Beeston Castle, both near Tarporley. Their process of improvement consisted in draining and in dressing heavily with bones. They drained extensively, and they manured with bones at an expense altogether of from 10*l.* to 12*l.* per acre. Mr. Bird's leasehold consists of two farms, one of about 330 acres, the other of about 84 acres. I heard Mr. Bird affirm, that such was the change produced by management upon the farm of 84 acres (where he, when he was first married, was by his late father placed to live) on nearly the whole of which he expended 10*l.* per acre at the commencement of his term, that where his predecessor made about 25 or 30 cwt. of cheese per annum, he (Mr. Bird) made upwards of 4 tons, and maintained besides as much stock in horses and young cattle, unproductive of milk, as had been before maintained. Other portions of Mr. Bird's land, besides the 84 acres farm, have been much improved, and he has been repaid, and is being repaid, in a degree that is satisfactory to him, and to which his good management and industry entitle him. The case of Mr. Jones is scarcely less striking. His farm is about 200 acres. He adopted a course of treatment similar to that of Mr. Bird. It is known to all his neighbours, and I heard him admit it, that before he drained and boned, he kept only 23 cows; his land now maintains 46, and such of his lands as were in tillage before are in tillage still, and partake of the good management bestowed upon his Grass lands. I consider the case of those Cheshire estates very interesting, in connection with the subject of leases, and I give the names and addresses of Mr. Bird and Mr. Jones, that those who take any interest in the matter may, if they please, take occasion to see them and their farms."

Mr. Maughan justly adds, "This case proves how important, in a national as well as individual point of view, would be the effect of granting leases to well-selected tenants, and how absolutely necessary it would be, under a system of leasing, to constrain the drones and the incapables to move on or out of the way."

The above is an instance of the uselessness of the lease under circumstances unfavourable to its success—want of vigour, skill, or capital in the tenant. It also proves how beneficial its influence is on those who possess all these requisites—and how, even where permission to break up pasture-land is not given—and we can conceive of many cases in which such permission, were it offered, would not be accepted—how, under such comparatively unfavourable circumstances, the influence of the lease has resulted in the profitable investment of much capital *in the improvement of the land*.

We again recommend our readers to give Mr. MAUGHAN'S Paper an attentive perusal.

WANT OF COTTAGE ACCOMMODATION.

IT cannot be denied that the present are days of peculiar trial and difficulty to the British farmer, and almost every periodical offers some plan to alleviate the burdens of the master or his labourers. But I believe few evils are more severely felt or less attended to than the want of cottage accommodation in the southern and western counties of England.

From witnessing the deplorable effects arising from this cause, and feeling assured "that blessed is the man

that considereth the poor ;" and having an equal conviction that "the poor shall never cease out of the land;" allow me to implore your valuable aid in bringing the matter—however unpopular it may be—before the public. I believe much is to be done by personal attention, and an honest application of the powers we do possess, without vainly endeavouring to shift the burden from our own shoulders, or idly calling for help, like the waggoner in the fable. Misery and wretchedness, only to be known by ocular demonstration, are some of the effects I speak of; and here the surgeons of Unions could offer evidence no other witnesses can, were it possible to do so without giving offence to their employers. But fearful demoralisation is too often its consequence ; and on the other hand, it has added to the towns in our rural districts a sad number of wretched inhabitants, whose attenuated forms and squalid appearance afford painful proof of the additional labour and privations they endure, by going to and from their labour, often 4, 6, or 7 miles per day. The same cause also frequently produces a cruel competition for houses both in town and country parishes, affording mercenary men an excuse for exacting such rents as farm-labourers ought not, nor are able to pay. It may be said, and with much truth, cottage property is often a nuisance to estates, and to get rid of a difficulty they are frequently pulled down ; but I would beseech any one interested in the matter, to ask themselves, with our rapidly-increasing population, where the system is to end, and to whom the poor man must appeal in a case so utterly beyond his own control. The recent census shows, in the parish in which I reside, an increase of upwards of 20 per cent. on the preceding one, and not a single cottage has been built during the same period, and the additional numbers are almost wholly labourers ; and this parish is by no means a solitary one. Hence every day developes some bad effect of this growing evil; and I fear without timely assistance, religious instruction and education will prove but of little benefit. I had hoped, ere now, to have seen the subject taken up by some much more able pen than mine, but a deep sense of the importance of it has induced me to essay this epistle ; but should you deem it worthy of notice I will endeavour to offer, at a future time, a few suggestions for benefitting the labourer—the practice of which has afforded me pleasure, and is within the compass of every man who is, as your constant reader, a *Tenant Farmer*.

THE PLOUGH.

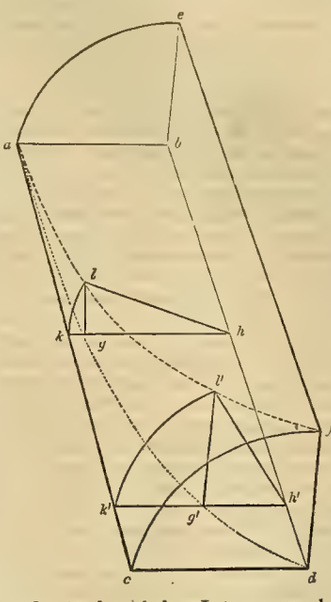
THE following few remarks are additional to the observations on this subject published in last year's Vol. :—

There may be a case in which the sod is so light, and its elasticity—*i. e.* its aversion to a bend—so great, that the mouldboard of least resistance would need to be longer and more taper than would even be required by the angle of repose of earth on iron, which, as we have already said, will practically, in most instances, put an end to all further consideration of the subject ; and let me now endeavour to state the problem—What in this case will be the nature of the curve of least resistance? And first, I assume, what appears to me almost self-evident, that the curved surface of least resistance is neither a hollow nor a full-breasted curve—that its sections by a vertical plane at right angles to the direction in which the plough moves, will always be a straight line. If we take the lower surface of the turf—that which, in the act of ploughing, coincides with the surface of the mould-board—it is evident that a section of it by such a plane will be a straight line where the turf is horizontal, before being moved by the mould-board ; it will also be a straight line where the turf is in a vertical position ; and it will also be a straight line where it has assumed its ultimate position at 45° beyond the vertical. It appears to me that, being thus a straight line in the three most important positions of the turf, it will also be a straight line in every intermediate position ; in short, that the curve of least resistance will consist, so to speak, of straight lines all at right angles to one straight line, and varying in position from the horizontal at its commencement to the vertical, and thence to an angle 45° beyond the vertical at its termination—the one straight line to which all these lines are perpendicular, is, in the working position of the mould-board, coincident both in direction and position with that corner of the turf about which it turns. Let me, for conveniency, call this the axis of the turf. It is evident that all we have yet said about the curve of the mould-board, either regarding its performance or the resistance it may meet with, applies to a great number of curves, any one of which will answer all the conditions we have shown to be necessary. It is yet required to choose from amongst them the one of least resistance. Though unable, myself, to state all the conditions on which such a choice must depend, I shall pursue the subject a little farther, in the hope of exciting the attention of any among your readers who may be in the habit of conducting such mathematical inquiries.

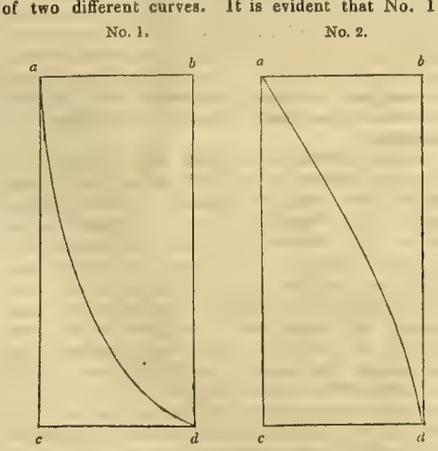
It requires but little consideration to see, that while the turf is being raised from the horizontal to its vertical position, every particle in the lower surface of it must describe a quadrant of a circle.

Were any particle in the lower surface of the sod to score a mark on the surface of the mould-board, as it passes over it, that mark would, whatever were the form of the mouldboard, be equi-distant in every point from the axis of the turf; it would, in short, lie in the surface of a cylinder whose axis was that of the turf; taking any longitudinal row of particles in the turf—that, for instance, along the outer edge of its lower surface, and stopping the plough when it was engaged in turning the turf —that row of particles would, whatever were the form of the mould-board, lie in the surface of a cylinder whose axis was that of the furrowslice, and whose radius was its breadth. If, now, we can ascertain the form of the curved line on the surface of the cylinder, which this row of particles in the turf would assume, while it was being forced in the easiest way from its original to its ultimate position ; then, joining this line with the axis of the cylinder by straight lines at right angles to the axis, we at once obtain the required surface. I shall first show how the position and nature of this line will affect the nature of the curved surface of our mould-board.

In the annexed figure I have given a perspective view of the quadrant of a cylinder *e c*, lying on its plain surface, *a b c d*, with a curved line, *a l l' f*, drawn upon its curved surface. The axis of the cylinder being that of the turf, it is evident that so far as the front and most important part of the mould-board is concerned, it is only with one quadrant of the cylinder that we have to do. Now, the curved line lying in the surface of the quadrant, it appears that its projection on a vertical plain across the cylinder, would be the quadrant of a circle. Let us now look at its projection on a horizontal plane. It must be observed here, that the weight of the turf lying on a mould-board is not borne wholly by the mould-board ; it is borne partly by the ground, on which one of its edges is all the while resting. This is evident, if we consider the turf when in a vertical position—the mould-board is then not pressed on by it at all—and if we consider it when in a horizontal position, when the mould-board receives the whole weight of it. If, then, we look at it in every intermediate position, we shall find that the portion of its weight borne by the surface of the mould-board is inversely proportional in some way to the inclination of that surface. The relation between the total weight of a body lying upon an inclined surface, and that portion of its weight actually sustained by that surface is, in fact, the same as that which exists between the dimensions of a given portion of the surface, and the dimension of the ground plan of that portion; and this relation, it is evident, will vary with the angle at which the surface is inclined ; for the ground plan will be nothing when the surface is vertical, and it will be equal to the surface itself when it is horizontal. This relation is expressed mathematically, as that existing between the radius and the cosine of the angle of inclination.



Now it is evidently the case, that the magnitude of this ground plan is dependent on the form of the curved line drawn on the surface of the cylinder ; that if the projection of this curve on a horizontal plane be convex to the working side of the plough, then the ground plan of the mould-board, which is bounded by it on one side, will, of course, be smaller than if it were concave. The line *a g g' d* is the projection on a horizontal plane of the curved line *a l l' f*, and the figure *a b d g' g*, is the ground plan of the surface of a mould-board formed by the line *a l l' f*, and is therefore representative of the friction by weight of the turf on such a mould-board. I have drawn in the annexed figures two lines, projections of two different curves. It is evident that No. 1 of these will, if adopted, form a surface which will bear a great weight of turf, but which will be very gradual in its twist ; and that No. 2 will, on the other hand, form a very abrupt curve, but one bearing a small weight of turf.



It thus appears that though, by giving due attention respectively to the contending claims of the weight, and of the elasticity of the turf, we should succeed in determining the proper length of our mould-board; yet the form of the line bounding that portion of its surface, upon which the turf rests, on which we see the nature of that surface depends, still remains to be settled ; and that another case thus appears for arbitration, between the above contending claims.

It appears, from what we have said, that the friction on the mould-board due to the weight of the turf, is proportioned to the dimension of the ground plan of that portion of its surface on which it rests ; and this again is entirely dependent on the nature of this curved line, of which we are speaking ; for the length of the mould-board, as well as its surface, is dependent on the form of the curve, when the width of the turf is fixed.

The dependence on the nature of the curve of that portion of the friction which is due to the elasticity of the turf, is more difficult to define. If we look at the curve as projecting upon a vertical plane, parallel to the motion of the plough, we find that, in every longitudinal row of particles in the turf, there is an upward bending ; and, if we look again to any of these rows of particles, projected on a horizontal plane, we find that they have a lateral bending likewise. Now, to each of these bendings, or rather to the union of them, which constitutes a twist, elasticity opposes its resistance ; and it is in the difficulty of expressing this double manner in which resistance is offered, that one hindrance to a solution of the problem lies. If I could express in few and manageable terms—common to both—first, the manner in which the projection on a horizontal plane of that part of the surface of the mould-board on which the turf lies, depends upon the form of the curve ; and secondly, the manner in which that part of the friction due to the elasticity of the turf depends on the curve, then, in all probability, such an expression of the character of the curve itself might be arrived at, as would be capable of practical and useful application.

So much for the theory of the thing. It is evident that if we could thus obtain the form of the curve on the surface of a cylinder whose radius is the breadth of the turf—say 10 inches—and then make the surface by uniting it with the axis of the cylinder by straight lines, at right angles to that axis, then we could, by producing these lines, obtain a mould-board of any required dimensions. I have but little to add. In the first place, it must be acknowledged that the whole of the above statement depends upon what, however nearly it may be so, is by no means altogether an axiomatic assumption, viz., that the surface of least resistance is one whose section with a transverse vertical plane is everywhere a straight line. And in the second place, in reference to the above section of my paper on this subject, I must apologise for occupying your columns with matter which, however important may be its agricultural bearings, is certainly unsuited for the pages of an agricultural Journal. I only ask for its publication in the hope that you may have mathematicians among your readers able and willing to carry the analysis and solution of this problem successfully to a conclusion. It is possible, and indeed not altogether improbable, that to do so it may be necessary to commence upon other considerations than those I have endeavoured to set forth ; it is of importance, by the way, to consider how far friction (when the turf is simply lying upon the mould-board, the latter being at rest) affects the value of the above figure, *a b d g' g*, as an accurate expression of the effect of the weight of the turf in causing the draught of the plough. It is a very interesting physico-mathematical problem, and should any of your readers succeed in its solution, though the details of the process may not be permitted publication in your Paper, the announcement of the fact would, I am sure, be of too general agricultural interest to be refused all the publicity which your circulation can give it. It only remains to say, that though I have at present no further statement of my own to make on the subject of the plough, I hope shortly to request insertion in your Paper for the evidence, through the medium of the recording pencil of Mr. Clyburn's Dynamometer, of the plough itself, in a variety of instances under a variety of circumstances. —*M. S.*

ON THE CULTIVATION OF FLAX.

I WISH to place before those who are interested in the relief of agricultural labourers, my views on the cultivation of a plant that has been, until lately, totally overlooked by the landowners of this country, although the soil and climate is altogether adapted to it. The plant I allude to is Flax—an article in the cultivation and importation of which I have been engaged for many years ; and, when I inform you we pay our Continental neighbours between five and six millions sterling annually, you will no doubt consider, if our English farmers had that sum divided among them yearly, they could better afford to employ labourers ; and the industrious small farmer would be relieved, to a certain extent, of the poors'-rate taxation, which at present presses heavily on him.

I have had practical experience in the cultivation and mode of management of this very important plant—in the sowing, pulling, watering, rooling, scutching—then in the purchasing and selecting it into different qualities suited for the numbers that the fibre should be spun to ; and therefore feel competent to speak on the subject.

In the first place, we pay for and import Flax, valued between five and six millions sterling every year, from the different countries below mentioned; and although we admit it *free of duty*, and the inhabitants of those countries require and take part of it back when spun and manufactured, as they have but few mills as yet, they will not admit *one piece of our goods*, nor *one bundle of our yarns*, made from the said Flax, *under* 40 *to* 60 *per cent. duty*. Our importations in 1840 were as follow, in hundred weights:—

Russia.	Denmark.	Prussia.	Germany.	Holland.	Belgium.	France.	Italy.	Turkey.	Gibraltar.	Egypt.	Guernsey.
cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt	cwt	cwt	cwt	cwt
870,401	1091	135,590	8105	113,108	80,748	43,295	748	107	19	15	13

Total . . 1,253,240 cwt.
or,

1840	. . .	62,662 tons.
1841	. . .	67,368 ,,
1842	. . .	55,113 ,,
1843	. . .	62,662 ,,

This establishes the fact as to the quantity and amount of Flax imported, which has been valued at between five and six millions sterling; and now I proceed to give, from practical experience, particulars as to the profits on *one acre of land* cultivated and prepared with Flax; and let those farmers that have calculated the expense and profit on one acre of Wheat or Barley, compare it with this, and answer the question—Whether or not it is advisable for them to grow something, as they do in the north of Ireland, to meet their rents, which cannot be affected by the rise or fall of grain? Observing in a table I have, which shows the annual value of land per statute acre in England and Wales, in which I find—Leicester, 1*l.* 6*s.* 9*d.*; Somerset, 1*l.* 5*s.* 10*d.*; and Worcester, 1*l.* 6*s.* 2*d.*;—these three being the highest average, I select one of them:—

FLAX.

Dr.	£ s. d.	Cr.	£ s. d.
Rent of 1 acre of land	1 6 9	By produce of 1 acre of middle quality of Flax, say 60 stone, at 10*s.*	30 0 0
2½ bushels of Flax seed	1 10 3		
Ploughing and sowing	0 15 0		
12 hands employed weeding	0 12 0		
12 ditto, pulling	0 18 0		
6 ditto, watering and grassing	0 10 0		
8 ditto, lifting and carting home	0 8 0		
Scutching, say 60 stone	3 0 0	Deduct rent and expenses of same	9 0 0
	£9 0 0	Nett Profit	£21 0 0

I have given the outside expense of the cultivation of one acre of Flax crop, and the average weight of a middling crop and quality; at the same time I must observe, if our English farmers could be trained into the way of managing it as the Belgians do, there is nothing to prevent them to obtain, in lieu of 10*s.* per stone, 20*s.* per stone—as very often spinners give from 120*l.* to 160*l.* per ton for Courtray Flax; and some farmers in Ireland, this last year, who managed their crop after the Belgian system, got so high as 140*l.* per ton; and, as Flax is not like Wheat, or any grain crop—which, if it is sown thick, produces short head and small pickle—Flax, if the land is well prepared, should be sown rather thick; by this mode you have the greater bulk, the more weight, and the finer quality; and, as a consequence, the more valuable article.

Having thus far explained what is, or might be turned to, a national benefit, I will just state, as an additional proof—I am informed from the best authority that in 1843 the Flax seed sown in Ireland was, in all, 37,400 hhds. A bogshead will sow three English acres; therefore, 112,200 acres were sown last year in Ireland; and, taking it at the low average of seven cwt. to the acre, the total amount would be 39,270 tons, which at 45*l.* per ton, would be 1,767,150*l.*, although, as I said before, some farmers get 140*l.* per ton, because they follow up the Belgian system; and I cannot see that it is impossible to bring our farmers to see the good results from extra attention to this plant.

Being of opinion that this is a fit subject for the consideration of those gentlemen who kindly consult the interest of the miserably-paid agricultural labourers, I beg leave to conclude this part of my observations, as a proof of the good that the poor farmer reaps from the cultivation of the plant in Ireland, by noticing what transpired during a conversation I had with several small farmers in the north of Ireland, when attending the markets in that country purchasing Flax. In the different market towns in Ireland there is one day in the week set apart for the sale of farm produce and for the sale of Flax; the principal towns are Armagh, Ballybay, Tanderagee, Ballymena, Ballymoney, Derry, and Belfast. I have frequently put the following questions, when paying them for whatever weight of Flax I had bought of them, for example:—If 50 or 60 stone, I ask, what quantity of seed, and how much ground, did you sow for such? The answer would be, two-and-half bushels and one acre. What is the size of your farm? Answer, 15 or perhaps 25 acres. What rent, taxes, &c., do you pay? Answer, 20*l.* to 30*l.* Then you have on one acre what very near pays the rent of your whole farm? Answer, yes. Then why do you not sow more? Answer, so I am determined, but I was not up to the proper way of handling it, but next year I will show you some better quality.

Now, the condition and improved position of those small farmers who grow Flax in the north of Ireland is proof positive of the good results; and, as a consequence, the labouring population comes in for a share in the benefits derived by extra employment, and in that province there is no discontent among them. You may inquire of these landed proprietors, who have given their best support and encouragement to the Flax Improvement Society, Lord Gosford, the Marquis of Downshire, Sir R. Bateson, and Lord Lurgan, and you will no doubt be informed that, latterly, the rise and fall in the price of grain has very little to do with their incomes, as their tenants can afford to pay their rents by the Flax plant, and live comfortably on the other productions of their farms.—*J. H. Dickson*, 15, *St. Mary Axe, London.* [This statement is *professedly* one of *averages;* an appeal addressed generally on the subject could not be justly founded except on statements of averages; but really we cannot admit this to be one; 21*l.* per acre *net profit!* Does Mr. Dickson think that the 112,200 acres of which he speaks, yielded the occupiers 2,356,200*l.* profit? We insert Mr. D.'s communication because we believe him to be correct when he talks of Flax being a profitable article *for* cultivation, but such a statement as he has given is not only erroneous—it is impolitic, for it can have no other effect on the practical farmer than that of shutting up his ears to further statements on the subject altogether. We shall give the rest of Mr. Dickson's communication in our next.]

GARDEN ALLOTMENTS.

MR. WARNER, of Jervis-street, having expressed a wish that I would state in what manner I proceed to recover the possession of allotments when the tenants do not perform their agreements, I inclose the form of agreement usually made with the tenants; and for breach thereof, if persisted in, I proceed against them after notice, under the Wilful Trespass Act, by summons before the magistrates in petty sessions, which, except in the case of the 88 gardens alluded to in a former article, has hitherto been successful. How such a proceeding may be defeated I need not state here, but Mr. Warner's lawyer will tell him upon application, no doubt. Hence the great necessity there is for an Act of Parliament such as the Hon. W. Cowper, M.P., intends to procure in the ensuing session, without which, the letting of garden allotments may involve the owners of the land in expensive and ruinous litigation.—*Jas. Dean, Tottenham, 1st Jan.*, 1845.

The following is the agreement alluded to:—

TOTTENHAM GARDEN ALLOTMENT SOCIETY.

AN AGREEMENT entered into this 28th day of December, 1844, between JOHN JONES, of the parish of Tottenham, in the county of Middlesex, and ROBERT FOWLER, Esq., of the same parish and county, Chairman for the time being of the Committee appointed by the Tottenham Garden Allotment Society, whereby the said ROBERT FOWLER agrees to let for the express purpose of bettering the condition of the said JOHN JONES; and the said JOHN JONES agrees to take, and to consider himself to have taken, from the 25th day of December last, all that allotment and portion of land containing 20 perches as the same is now marked out, being part of a close in the said Parish situate, adjoining to White Hartlane, and numbered on the head of such allotment 82, upon the following conditions:—

I. The rent to be twenty shillings per annum, payable in equal portions on the first day of the months of June, July, August, September, October, and November in each year. The first payment to be made on the first day of June, 1845.

II. That if the rent be not paid on the days above specified, and without being demanded, this agreement shall be absolutely at an end, and the said ROBERT FOWLER, or the Chairman of the general Committee for the time being, or his agent, shall be empowered to enter and take possession of the allotment with the crops and manure thereon without further notice.

III. No occupier will be suffered to re-let his allotment without the consent of the Committee in writing first had and obtained.

IV. No person shall be employed on the land who does not reside in this parish.

V. No occupier shall be allowed to plough his land, but is required to cultivate it solely by spade husbandry, first trenching the same, as the Committee shall direct, viz., 2 feet deep.

VI. Every occupier to leave a margin of grass 6 inches wide next to the principal walks. Each allotment to have a path down the middle lengthways, and the beds to be laid north and south, or as near thereto as may be; not more than one half of each allotment to be planted with Potatoes or other root crop, the remainder to be planted with vegetables, changing the course of cropping every year.

VII. Every occupier to fully manure his allotment with every second crop, and not to put or leave any manure or rubbish on the roads and foot-ways: and every occupier who does not dig, manure, cultivate, and crop his allotment according to the rules of good gardening, and to the satisfaction of the Committee, will be deprived of his allotment.

VIII. No occupier to trespass on another's allotment.

IX. Any occupier found at work on his land, or the land of any other occupier, during Sunday, except in gathering vegetables or roots for his family's use, and then not later than 9 o'clock in the morning, will be deprived of his allotment.

X. All occupiers are expected to conduct themselves with civility at all times, and to bring up their families in a decent and orderly manner.

XI. No occupier shall be allowed to hold any other land than the allotment rented of this Society, except any small quantity which may join his cottage, subject to approval by the Committee.

XII. Any occupier convicted of an offence against the laws of his country, will be liable to be deprived of his allotment.

XIII. No occupier will be allowed to enter the field except by the gates or stiles, and any occupier convicted of damaging the fences will be required to repair the same forthwith, or forfeit his allotment.

XIV. Any occupier convicted of leaving open or unfastened the gates, by which means any of the allotments shall be trespassed upon by horses, asses, cows, sheep, pigs, dogs, or otherwise, must make compensation to the injured parties, or forfeit his allotment, and the tenant, or any of his family last in the field at night, must lock the gate and leave the key at some house near, as the Committee shall appoint.

XV. That either party shall be at liberty to put an end to this agreement by giving three months' notice in writing to quit, previous to Christmas Day in any year; if notice be given by the Committee the crops and manure to be paid for by the Society, but if given by the tenant, the surface of the ground to be left even and free from weeds. Culinary roots and vegetables raised from seed in the same year only will be paid for, all other plants must be removed.

XVI. Any dispute among the occupiers to be settled by the Committee, whose award shall be final and conclusive.

XVII. In cases of forfeiture of any allotment from either of the causes hereinbefore mentioned, the Committee to be at liberty to re-enter the allotment without any process of law, and without payment for the crops or manure.

Witness the hands of the parties hereto, the day and year first above written. ROBERT FOWLER.

Witness, JOSEPH FOSTER. JOHN JONES.

THE CULTIVATION OF THE APPLE.

[Read before the Winchcomb Farmers' Club on the 23d of November.

THE site of an orchard should be near the wellinghouse, on good quality of soil, and rich deep land, with a subsoil either naturally dry or that can be made so by draining. Soil on which the Elm grows freely is, we may be sure, fit for the growth of the Apple or Pear. No foot-path or other road should cross the orchard, and an impenetrable fence of hedge and ditch, or better still, a strong stone wall should surround it. Previous to planting, the distances between the trees should be fixed on, and the whole field laid out in right-angled lines, a straight stake being placed at each intersection. Thus only can the trees be planted in lines so as to be perfectly straight when viewed in any direction; and while the planting is proceeding, a person whose eye can be depended on should superintend it from various parts of the field, previous to the earth being filled in—as a single mistake of a few inches will throw all out of square. This is seldom attended to in this district, and I never noticed so much the crooked straggling appearance of our orchards until I had an opportunity of contrasting them with some that I saw in the far western States of America, in Illinois, at a place called Harmony, the property of the well-known Robert Owen, the Socialist, but originally settled and planted by a colony of Germans. These orchards were laid out with the nicest precision, which in a field I have lately planted at Prescott I have endeavoured to copy. By this method the greatest number of trees can be planted in a given space, so as to afford to each an equal area to occupy with roots and branches, besides the advantage of passing with carts or waggons to carry hay or collect fruit; or if the field be arable, the plough can thus cross in any direction, so as to leave but a narrow portion untilled.

As regards distance, some persons who have written on planting orchards recommend the trees to stand 22 yards from each other; but from my own observation and experience, I think half that distance (that is, 33 feet) will, on the average of land and seasons, produce more fruit, and the trees will come earlier into bearing. An orchard on pasture land (and there are few arable in Gloucestershire) should be appropriated to the specific purpose of a fruit manufactory, the under crop of Grass being quite a secondary consideration. The best orchard I know, as a constant bearer, is one where the branches of the trees meet each other in every direction, and shade the whole ground. I account for this by considering that there are no intervals for the keen winds of spring to find a current through, so as to check the sap; and, provided the orchard is exposed to the full influence of the sun, and on the south side, I do not think it can be too much sheltered from every other quarter. A friend of mine, living at Bishop's Cleeve, has an orchard with every other advantage, but situated in an exposed situation on the eastern side of the village; it happens, year after year, that his orchard produces abundance of blossom, but when the fruit should be forming, each bud covers a grub, and of course the blossom perishes; and as his neighbours have generally abundance of fruit, he declares, somewhat pettishly, that his orchard is "Filterer-general" to the whole village.

A probable reason for earlier bearing in an orchard thickly planted would be that the trees have less space for their roots to extend; and as a tree seldom produces much new wood and fruit at the same time, it seems a reasonable conclusion, that as there is not much surplus sap to form new shoots, blossom-buds will be formed instead; and as nurserymen tell us, that if by any means we can once cause a tree to produce fruit, it will after continue the habit, and as we do not require Apple-trees for timber, a diameter of 33 feet is large enough for the head of a fruit-tree.

Having determined to plant an orchard, the first

thing to be prepared ready for transplanting is a heap of compost formed of old turf, slaked lime, and farm-yard manure; these should be well turned and mixed together during the spring and summer preceding, so as to form a mass of material resembling the mole-casts on deep good land — indeed, could a sufficient quantity of this be obtained, it would at once form the material required. The holes should be dug in the winter, so as to expose the soil to the action of the frost. If the subsoil be clay, the earth should be cast in three divisions round the hole, so as to place separately the turf, the second quality of soil, and the subsoil clay—the latter to be spread or carted off. The second quality should then be returned into the holes, the turf chopped fine and levelled on it, and it will then be fit for the reception of the roots of the tree—about a wheelbarrowful of the compost to each tree being within reach of the planters.

Far too little pains are generally taken in the important operation of planting. To do this well, three persons should always be employed — a lad to hold the tree upright; a man kneeling, to manage the roots, spreading them with the ends inclining a little upward, while the third levels the prepared soil underneath them, so that when loosed they may be nearly horizontal, and radiating evenly on all sides from the stem, like the spokes of a wheel; more soil should then be levelled amongst them with the hand, while the tree is slightly shaken, taking care that the crown of the roots shall not be below the level of the surface of the ground. The roots will at length be covered with mould, and the man who had the care of them, best knowing their position, should tread the mould over them. The treading should be firmly, not violently done—the heel of the shoe first coming in contact with the soil on the outside the hole, and the toe will then gradually press the earth to the centre of the roots. This is very different to the usual method of throwing in coarse clods, and stamping on them so as to form a puddle of clay impenetrable to water, as I have often seen done in planting. I am aware that trees so planted will, if the roots are good and the stock healthy, after a struggle for a year or two, overcome these impediments, but by following the rules I have laid down, there will be scarcely a check to its growth; last year was peculiarly trying to trees newly planted, and many perished in the drought of summer; yet in an orchard I planted in February I only lost three or four trees out of eight or ten dozen.

The planting being completed, the tree should be defended from cattle, high winds, and other casualties, by two posts, one on each side, with two cross bars at top and two at bottom: a piece of tar twine passing across them and round the tree prevents the wind from moving it out of place, until the roots are well established. On pasture land it will be necessary to have upright paling nailed to the bars, reaching from the root to the head, which, if of a proper height (that is about six feet), is thus securely protected. The cost of workmanship to this fencing will be about 5*s.* or 6*s.* per dozen. A simple and efficient defence against sheep, when the tree is not otherwise fenced, will be obtained by twisting a rough Hip Briar round the stock till above their reach; and this will last several years. The prime cost of these is nothing, as they are a nuisance in hedges or woods, and an active man would finish 50 or 60 in one day. Neither of these plans are so apt to gall and injure the tree as the common fence of stakes and Blackthorns; neither do they encourage Docks, Nettles, and other rubbish, as the other method does. I prefer February as the time for planting. Mild, serene weather, if possible, is to be chosen, and all the necessary operations should be going on at the same time, under the personal superintendence of the master. One trusty person should prune the injured parts of the tree, and cut off all broken roots, and such as are inclined to become tap or perpendicular ones, forming at the same time with his knife a fair balance in the proportion of root and top, the former rather preponderating, and the tree should pass at once out of his hands into those of the three planters; these should be followed the same day by the persons employed to fence the trees (the materials for which should be ready prepared), so as to leave all finished and secure at night. Should this be neglected, and a wet windy night succeed, injury will be done that cannot be remedied.

The trees, if purchased of a nurseryman, should be selected in September, and marked with the buyer's name on parchment shreds. A liberal price being paid, few nurserymen would object to their stock being picked out, and the best plants of the season are thus secured with more certainty as to sorts. The day for planting being fixed, an order for the trees to be ready one day before will bring them fresh to hand, and the neglect of this produces more failure than any other cause. If the stocks are reared at home, they should be taken up and replanted the same day. To give a list of fruits would be an endless task, and produce, I think, little practical good—the same Apple in different localities bearing frequently different names. The freest bearers in my own orchard are—the Rissington Redstreak, Captain Hussey's Kernel, a kernel fruit I call the Prescott Seedling, the Bachelor's Crab or New Bromley, and the Blenheim Orange. This last kind being now in the full vigour of its growth, is, I think, a proper sort for the outside rows of the orchard, as it will have more room to extend itself, and being full of sap, is better calculated to bear the chances incident to such exposure. I have a Blenheim-tree 60 yards in circumference, and have picked fruit from it weighing 18 oz. As a dessert fruit the Nonpareil Russet is a general favourite, and fast grower, as the grafts of one year, I have to-day exhibited, will prove. The selection of table-fruit, however, depends entirely on the taste of the individual; influenced, perhaps, by the changing fashion of the day.

The subject of Cider-making is in itself of sufficient importance to form an essay for some future evening; and, as I hope the gentleman who has favoured us once with a Paper on this subject will be induced next year to give us the results of his late experiments, I will not enter into it now. Opinions differ also as to what constitute the desired qualities of the article; and habit would, in this neighbourhood, frequently give the preference to that description of rough, strong liquor, which a Londoner or Devonshireman would, with wry face, pronounce to be *good vinegar*. More cider has, however, been made of late years than formerly, and many young orchards are now coming into bearing; but there are still many farms unprovided with an orchard. In most companies I have frequented, I find the majority prefer cider to beer; it is, in fact, the native wine of England; and one of the good effects of leases would be that of inducing the tenant to join the landlord in the expense of planting and protecting an orchard, where there is none; thus making the country richer, more beautiful, and, by producing more cider, leaving more Barley to be converted into beef and bacon.—*J. J. Peacey, Prestcot, Nov.* 23.

Home Correspondence.

Dr. Yelloly's Fork. — Your correspondent "H." has expressed a wish that Mr. Dixon, of Witham, would give such a description of Dr. Yelloly's Fork as would enable him to have some made. Having recently received a fork from Mr. Dixon, and knowing that his time is well taken up by professional and agricultural pursuits, I have taken the liberty of sending you a rough sketch and measurement of the implement, for the information of your numerous readers, and have, by this same post, apprised Mr. Dixon of it.—*W. Bartlett, Burbage, near Marlborough.*.



Fig. 1.

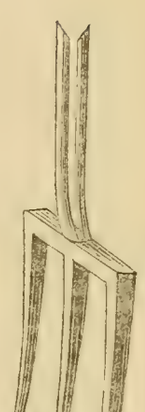


Fig. 2.

Fig. 1. Front view of the fork. Whole length, 3 ft. 3¼ in. Handle, 2 ft. 2 in. Diam. 1⅛ in. Diam. near cross-piece, 1¼ in. Width of cross-piece or base of the trident, 7 in.; at the points, 6 in. The upper part of each lateral trident is ⅜ in. in front, by ⅝ at the sides, where more strength is required; the centre one is ½ by ⅜in., all gradually tapering to a point. Each strap appears to be ¼ in. thick at its junction with the base of the trident, diminishing up the handle; they are 11 in. long, 2 in. wide. The handle goes down nearly to the cross piece. The length of the trident is 13¾ in. Weight of the fork, 8lbs. It appears to be made of a good material, as it is as sonorous as bell-metal; a file makes but little impression on it.

Fig. 2 is given to show the curve, which is similar to that of a spade or shovel.

Pleuro-pneumonia.—The disease described in the letter of your foreign correspondent, C. Vis, Esq., is unquestionably the same as that which has extended its ravages in this country under this name; but the writer does not appear to be aware of the extent to which it has prevailed in this kingdom, during the last two years. The term he gives it—lung sickness—is expressive, and the disorganisation of the lungs which he mentions, is precisely similar to that which we find in fatal cases, which indeed form the immense majority of those attacked by the disease. The term Pleuro-pneumonia, given to it in this country, denotes that it partakes both of the character of inflammation of the pleura, or membrane lining the chest, and covering the lungs, as well as of the substance of the lungs themselves; thus the former is exhibited in the attachment of the lungs to the chest, and the flakes of lymph, and the water, often found in the cavity; and the latter form of disease is exemplified by the solidification, or condensation of the lungs, which become enormously increased in weight, and, of course, useless for the purposes of life. We may observe, that similar diseased appearances are occasionally found in horses, either as a distinct and non-infectious disease, or as the consequence of the epizootic called the influenza. The writer is quite correct in saying that it is impossible to restore the lungs, when thus diseased, to their normal state; but the object of treatment is to prevent these morbid changes taking place. I entirely coincide with the views of the infectious character of the disease, expressed by Mr. Vis, though this is not uniformly acknowledged in this country. I am also pretty nearly disposed to agree with him in regard to the great fatality of the malady. I would at any rate say, that of the animals attacked in this country, the fatal cases are not less than 75 per cent.; and I am by no means prepared to deny that the wisest course to pursue, when an animal is positively affected with the disease, is to slaughter it at once. This is the plan adopted by several local mutual Insurance Societies, viz: —for the suspected animal to be examined by a veterinary surgeon, or some competent person; and if it is affected with the prevailing disease, to slaughter it at once, making as much of the carcase as possible, and paying the owner, I believe, three-fourths of the value. The slaughter, however, is not extended to the sound animals, in any instance that I am aware of, in this country; but in Switzerland, where the disease prevailed very extensively in 1840, the custom was to slaughter indiscriminately, both the sound animals and the diseased ones, paying the owner one-half the value of the latter, and three-fourths that of the former. Though believing that the wisest plan is to slaughter the diseased animals as soon as they are decidedly affected, yet I cannot altogether acquiesce in the propriety of destroying the sound animals likewise. There are difficulties opposed to this plan in this country, which probably do not obtain in an equal degree in others; such as the greater individual value of our cattle, the general love of fat meat, and the consequent almost worthlessness of the carcases of lean animals; to which we may add the much greater extent to which our cattle change hands. At the same time, I believe that it would be extremely desirable, and beneficial to the agricultural world, if our Government were to interfere, and establish some general rules whereby the disease might be prevented from spreading, and the purses of the buyers of cattle protected; for it is found in this country, as in others, that the cattle first affected on a farm are those recently purchased. I would suggest that proper persons should be appointed in every district, whose province should be to order the destruction of any animal affected by the pleuro-pneumonia; and that the owner of such animal be paid one-half its value, on condition that he sells no cattle from his farm, except for the butcher, within a given time, and carries out certain regulations, which should be strictly enforced—such as the proper cleansing and purification of the cow-sheds and stables; the separation of the sound from the suspected animals; and other methods, by which a sanatory cordon could be established. Though I believe that the disease is decidedly infectious, yet I cannot agree with the writer, that this is the only mode of its propagation; but I am of opinion that it is produced and extended by some poisonous principle in the atmosphere, too subtle for our chemists to detect, or imprison; and which probably receives an accession of morbific elements from the emanations of those animals that are suffering under its influence. I forgot to observe, with regard to the writer's observation, that the lungs grow to an immense fleshy volume, that they cannot attain a size larger than the healthy lungs, when filled with air; but they are much larger than they appear in healthy animals after death, for then they are only partially inflated. They lose their light spongy character, and are sometimes found eight or ten times their natural weight.—*W. C. Spooner, Southampton.*

Dibbling.—In your Leading Article you describe the dibbles as of iron, and 4 feet long; this surely must be a mistake, for few men would have occasion for "bending the back" to use a dibble 4 feet long—the proper length is from 2 feet 4 inches to 2 feet 6 inches; the workman would then have no occasion to stoop in using them. Might not the number of grains dropped into each hole be ascertained with tolerable accuracy, by depositing from a flask with a spring charger, like the common powder-flask, but the charger of such size as to hold only 2 or 3 grains of corn at once? By placing the finger over the aperture, and moving the spring with the thumb, as in using the powder-flask, the grains might be dropped with much greater speed and accuracy than by dropping them with the finger and thumb, as is usually done.—*Lusor.*

Swedish Turnips—Norfolk and Ireland.—Are we to estimate the success which the Turnip-famed county of Norfolk has arrived at in Swede culture, by the results of an Exhibition, detailed in your Paper of the 28th Dec., which lately took place at Holt, in the above-named county? The Prize Turnips were six grown by the highest garden culture, weighing 65 lbs.; the heaviest six from field culture weighing 42½ lbs. Now, Sir, I have a farm in the south-west of Ireland, and in my field of Swedes this year, I venture to assert that every six Turnips through the field average above 48 lbs. In the middle of October I sent to an Agricultural Show, 12 of them weighing 140 lbs.; and you will say our Swedes are a nation of giants, when I tell you that mine did not gain the prize. I must presume it to be by climate, not skill, that we beat the Norfolk farmers in Turnip-culture; but, if any of them feel curiosity to know my mode of field-culture, I shall be happy to impart it on a future

occasion, if you think it worth a place in your columns. —*An Irish Farmer.* [We should be exceedingly glad to know your mode of Turnip culture. The Holt Exhibition was certainly a very poor one. In 1840 we pulled 12 Swedes, averaging rather more than 15 lbs. each, out of a 12-acre field on our farm. Skirving's variety will occasionally grow to a large size. Are you not in error when you say that your *average* weight was 8 lbs.? Just calculate what your crop would be per acre at this rate, supposing the roots to be ordinarily frequent on the ground—over 60 tons per imperial acre—a crop which, however possible it may be in theory, was never yet, we venture to assert, realised in practice.]

Irish Furze.—I see you wish to have some information respecting the Furze without thorns, sometimes called the Donegal, or Irish Furze; I have had the plant for the last 20 years, as an ornamental evergreen shrub on dressed Grass ground. It grows very round, close, and compact, without any clipping or pruning; is of slow growth, and is long-lived, as one plant I have now, and which is still compact and handsome, is more than 12 years in its present situation; it is about 5 feet in height, and about 7 feet in diameter; it is well furnished with foliage to within 1 foot of the Grass. I originally bought this variety from a nurseryman, considering that if planted on a large scale it would have been valuable for feeding cattle; but I gave up that idea from the extreme difficulty and trouble of propagating it to any extent; it very rarely shows a blossom, and still more rarely forms seed, and the only way I have been able to propagate a few plants for ornamental use, has been by cuttings struck in bottom-heat, taking the tender tops of about an inch long for that purpose. I inclose you some of the tops of it; they are now at this season rather harsh to feel, but are very soft and tender at other seasons, so that you might grasp it in the hand without being pricked by it. As to feeding with the common Furze, I am surprised it is not more used by farmers for their cattle. I have been in the habit of using it for my farming horses for more than 20 years, and a most nutritious and valuable food it is. But I fear the Donegal Furze could not be propagated to sufficient extent for this purpose. I bruise the common Furze with a small hand-machine; there is a roller with square iron teeth, which pass while revolving through four fixed sets of similar teeth, and this quickly, and with very little labour, mashes up the Furze so as to bruise all the thorns.—*C. A. W., Wexford.* [We should be glad to receive your drawing.]

Guano, &c.—As a proof how long guano has been used and esteemed as a manure, I extract the following curious passage from a very old book I have been lately reading, entitled "The First Book of the Art of Metals, &c. Written in Spanish by Alvaro Alonzo Barba, Master of Art, Curate of St. Bernard's Parish, in the Imperial City of Potosi, in the Kingdom of Peru in the West Indies, in the year 1640. Done into English in the year 1669."—*Chap.* 4. *Of the Names and Uses of some sorts of Earths.*—"Cardanus amongst his curiosities makes mention of another kind of earth anciently called Britanica (from the country where it is found); they were fain to dig very deep mines to come at it. It was white, and after they had separated the plate it contained, they manured their tilth fields with the earth, which were put in heart thereby for 100 years after." Query, —Can this be gypsum? or marl? or what? In Cornwall there is a formation about the Lizard Point called by the inhabitants Marl, which so fertilises the land, that the tenants can easily pay from 3*l.* to 4*l.* per acre rent for their arable land; but that is not white. Not having analysed it, I do not know whether its constituents are the same as those of marl, commonly so called. But to proceed with my quotation:—"Out of the islands in the South Sea, not far from the city of Arica, they fetch earth, that does the same effect as the last mentioned. It is called guano (*i. e.* dung), not because it is the dung of sea-fowls, as many would have it understood," (rather out there, Master Alonzo Barba), "but because of its admirable virtue in making ploughed ground fertile. It is light and spongy; and that which is brought from the island of Iqueque is of a dark-grey colour, like unto Tobacco ground small, although from other islands nearer Arica they get a white earth, inclining to a sallow, of the same virtue; it instantly colours water whereunto it is put, as if it were the best ley, and smells very strong. The qualities and virtues of this, and of many other simples of the new world, are a large field for ingenious persons to discourse philosophically upon, when they shall bend their minds more to the searching out of truth than riches." When will that time come, I wonder? If you think the foregoing extract will amuse your readers, it is very much at your service, whilst some of those more scientific may be able to throw a light upon the Terra Britannica alluded to by honest Master Alonzo Barba. From its name it ought to be found in Britain. What a treasure it would be!—*A. L. G.*

Butter Made in Ten Minutes.—An advertisement headed thus, has frequently, of late, appeared in your Journal. This is said to be effected by using a block tin churn, which is immersed in a vessel of hot or cold water, to raise or depress the heat of the cream in the churn to the desired temperature, previous to commencing the operation of churning. The same effect may be produced in any churn, by reversing the process, and instead of putting the churn into a vessel of water, by putting a vessel of water into the churn—cold or hot, as the object may be, to raise or depress the temperature of the cream. This practice I have lately adopted in my dairy, and for the purpose I use a cylindrical vessel of block tin, five inches in diameter, and the height of the churn—a common timber plunge-churn—in which I usually churn by horse-power, as I keep a large dairy. This cylinder I fill with hot or cold-water, as the case may be, and place standing in the cream, to bring the temperature to 56°, or thereabouts, before I commence churning. Thus this week, with the thermometer several degrees below freezing point, and the ground covered with snow, we had a churning to make. The temperature of the cream, when put into the churn, was 40°; by inserting the cylinder of hot water, it was soon raised to 56°, and in about three quarters of an hour, churning by hand, we had completed the churning, which produced about 20 lbs. of excellent butter, as perfect in flavour and colour as if made during the most favourable state of the atmosphere. Had we not thus raised the temperature of the cream before we commenced churning, it would have required more than treble the time to make the butter, even by using horse-power, in the same state of the atmosphere, as I have frequently experienced before the idea occurred to me, of heating the cream in the manner described. I may observe that, on this occasion, we had to change the water once, in our tin vessel, *i. e.*, when the first water got cool, to throw it out, and put in fresh boiling-water. When a large body of cream is required to be heated, and the weather so cold as it is at present, it would be desirable to have a larger cylinder, so as to bring a greater heated surface into contact with the cream, which would obviate the necessity of renewing the hot water. As to regulating the temperature of the cream, by mixing hot or cold water with it, which is recommended in some treatises on dairies, every experienced dairy-keeper knows the very great objections there are to this practice; none of which operate, as my experience enables me to assert, against the mode here suggested of effecting the same object. And no complicated or expensive apparatus is required for the purpose; for if no more suitable article is at hand, bottles of hot water might be used.—*A Tipperary Subscriber, Roscrea.*

Sea Buckthorn—Rabbits.—"An Old Subscriber" is assured that the plant above mentioned grows spontaneously where rabbits swarm, and spreads itself by its roots, in spite of them, in sandy soil; probably it would grow inland as well as it does on the sea-shore, where it grows quite high enough to cut for underwood, but of course it is not much planted where other things will grow well, and which will not grow by the sea-side, where it is most valuable, from that very circumstance. There is an article as to the best mode of raising trees among rabbits, in the *Chronicle* of Saturday last, under this signature, which contains almost all that "M. D. P." has to say on the subject. He has never seen any of the Berberis Aquifolium planted among rabbits, but he remembers seeing the common Elder grow up from self-sown seed among rabbits, and probably planted trees of them would resist rabbits and hares. "M. D. P." once raised a good many plants of the Canadian Elder, from seeds sent to him from that country. This plant deserves more notice than is taken of it; it flowers very early, and produces beautiful bunches of red berries, about the size of those of the English Elder—whether they are of the same quality he has never tried; those that were planted out among rabbits and hares escaped. The plant, he supposes, is to be had at nursery gardens; it can be propagated by cuttings, like the English Elder; it is perfectly hardy, of course; the largest plants he ever saw of the Canadian Elder were at Dunkeld—almost trees. "M. D. P." is sorry for "A Subscriber's" Hollies, but no plant is more difficult to rear. Mice are as destructive to them as hares or rabbits—they even creep up old Hollies and bark them; mice attack young Hollies more when planted in long Grass than those in dry borders. In another part of the last *Chronicle* a correspondent advises killing hares, selling their skins, and with the money buying a licence to kill the hares. This is surely beginning with the wrong animal: kill the rabbits, sell them and their skins, and then buy your licence; one fine for selling game might destroy all your profit from the skins of hares. There are various ways of killing rabbits—steel-traps, nets, and ferrets; it only requires a little activity, and observation of their habits; rabbits are always attracted to a spot where earth has been scratched up; set your traps there, but conceal them with earth.—*M. D. P.*

Bencraft's Hames.—With respect to Bencraft's Patent Hames, a correspondent has misled you; and perhaps you will think some explanation due. He states 8*l.* as the price in London. A printed paper from the makers (Brace and Box) is now before me; and the prices stated are from 1*l.* 8*s.* 6*d.* per horse polished hames for coach-work, to 2*l.* 13*s.* 6*d.* per horse carriage hames, silver-plated mountings. The same paper contains strongly-expressed recommendations from coach and post-masters at Barnstaple and Exeter—hilly countries—the first especially. With thanks for the attention given to my inquiry about this invention—*S. J. P. Wolfenstein.*

The Winchcomb Farmer's Club was established in 1840 by the proposition of a public-spirited gentleman of the neighbourhood, who, both in the official capacities of acting magistrate, and Chairman of the Board of Guardians, and in his private capacity as resident landlord and country gentleman, is equally respected and beloved; indeed, the popularity of the proposer was the principal magnet by which sufficient members were at first attracted to form a club, as considerable prejudice existed as to the effect of breaking through old established rules, and danger was apprehended from the possibility of making the landlord too well acquainted with the management and produce of the tenant's farm. The new idea, too, of farmers writing monthly essays on given subjects was considered impracticable. All these fears have, however, proved unfounded. The best farmers in the neighbourhood have dared to inform their fellow agriculturists of the means by which they have renovated their farms and doubled the produce formerly raised by their slovenly predecessors, neither seeking to shirk the disclosure of expenses nor increased produce. The best landlords of the locality have been the most liberal supporters of the Club, and the ice having been once broken, there has been no meeting without an essay being ready for the consideration and discussion of the Club. Amongst the collateral advantages springing therefrom, the most prominent are: the formation of a permanent library, the establishment of an annual ploughing match in October, and the friendly rivalry of a Show of grain, roots, fruit, &c., for sweepstakes for small sums, at the November meeting. The easy annual subscription of 5*s.*, with a few handsome donations, enable the honorary secretary and treasurer to meet current expenses, purchase all the best standard works and periodicals on agriculture, and with the balance in hand during the last year, to add many of the cheap publications, of Chambers of Edinburgh, and others, which, although not strictly agricultural, tend to convey useful general knowledge, and blend amusement with instruction: indeed, the library has now assumed so bulky and respectable an appearance, that a resolution has been unanimously agreed to, to give the neighbourhood an opportunity of participating in the advantages of cheap reading, by admitting a new class of members to the library alone, at the low subscription of 2*s.* 6*d.* per annum. Prizes to the amount of more than 10*l.* have been divided each year amongst the winners in the different classes of ploughmen, and the improvement in the work, not only in the field where the match is held, but throughout the neighbourhood generally, since the first trial of skill, is one proof of the practical good arising from the Farmers' Club. The November Show of roots, &c., has produced some excellent specimens of Swedish Turnips, Mangold Wurzel and Carrots, and a premium given by the President, Edward Holland, Esq., of Dumbleton, has each year been keenly contested for. It is a sweepstakes of 5*s.* each, to which Mr. Holland adds a premium of 3*l.*, for the best four acres of Swedes. A splendid crop was shown by Mr. H., grown on light hill land, and to him the premium was this year awarded by the judges; but it was handsomely handed to the member showing second best (Mr. Walker, of Washborne) a first-rate farmer, who also took the sweepstakes for the 12 best Swedes. A beautiful show of dessert and cider Apples was exhibited, and the sweepstakes awarded to Mr. J. F. Peacey, the secretary, who afterwards read an essay on the management of orchards.—*J. F. P.* [We give the first part of this Essay in another column.]

Societies.

DORSET AGRICULTURAL SOCIETY.

At the late Annual Meeting of this Society, Dr. Buckland delivered an interesting speech on the Theory of Agriculture, the following extracts from which we take from the *Taunton Courier*:—"He would advise the farmers of Devon and Dorset to go by railway to Lincolnshire and Norfolk, where the most beneficial changes had been realised over entire counties. There were men now living who could remember when 40,000 acres of land, belonging to the late Lord Leicester, in Norfolk, which are now worth 40,000*l.* a year, were nothing but rabbit warrens and barren heaths. Lord Yarborough had 30,000 acres of land in Lincolnshire, which formerly let at 4*s.* 6*d.* per acre, and at this low rate ruined almost every farmer who rented it; this same land is now rented at an average of 25*s.* per acre, by farmers who are all making such large fortunes that many of them keep their carriages. In Norfolk it was the custom of Lord Leicester, when applied to for a farm, to ask the applicant how much capital he could command. 'I have farms,' he would say, 'of all sizes for every amount of capital—from 2000 down to 200 acres.' This was an admirable plan. He was satisfied that one great cause of bad farming was the ambition of tenants in undertaking a larger farm than they could stock and adequately manure. It was not surprising that that farmer could not succeed, who, having a capital of 1000*l.*, took a farm which required 2000*l.* The learned Professor then referred to the important operation of draining, as the foundation of all good farming. It was useless to put tons of manure on land that was not dry; in that case it would only float upon the surface, for wet clay would not allow it to go down—it was almost entirely thrown away. Draining rendered the land penetrable by water, and enabled the rain to descend freely through it, carrying to the roots those fertilising elements of carbonic acid and ammonia, with which rain water was always charged. Carbonic acid was continually supplied to the air from chimneys, and from putrefying animal and vegetable substances, also from the breath expired from the lungs of animals, and a hundred other sources; it floated in the atmosphere in a gaseous form, and was brought down again by rain. Falling upon drained land, this rain penetrated its surface, and, as he had just said, carried with it to the roots of plants two of their greatest elements of fertility. It was the landed proprietors' and the farmers' incumbent duty to increase the fertility of the soil, because the soil alone afforded the food which it was our business to provide for ourselves and families. Fifty years ago Parliament had given a premium

for draining to Mr. Elkington, and his system, where it was applicable, had answered the required purpose; but it was not applicable so generally as newer systems, for the publication of which the country was mainly indebted to Mr. Smith, of Deanston. He remembered, when returning from Scotland after visiting Mr. Smith's farm at Deanston four years ago, being taken by Sir Robert Peel into a field of his near Tamworth, which was almost swamped with water, and nearly unproductive. He advised Sir Robert to drain it after the manner of Mr. Smith, which he forthwith did, and the result was in the very first year a splendid crop of Turnips, and the second year a crop of Barley so luxuriant that the stalks could not support the ears, and fell prostrate to the ground. The expenses were repaid in two years, and this worthless field was now a most profitable piece of land. The Rev. Doctor then mentioned another instance of the effect of drainage near Wolverhampton, in Staffordshire, by Lord Hatherton. His Lordship had reclaimed a wild tract of 1500 acres adjoining Cannock Chase, on hills higher than those in East Devon, and had increased its value from 5*s.* to 25*s.* per acre. After impressing thus forcibly the importance of draining as the first step in agricultural improvement, the learned Professor proceeded to remark on the application of manures. As the elements of manure could only act on plants when in a state of solution, it ought never to be applied as a top-dressing, except in wet weather. It was common to see manure applied to Turnips during the dog-days, when the sky was bright and clear, and not a particle of rain falling. In this case, so far from the manure doing any immediate good, its ammonia was speedily evaporated, being extremely volatile, and passed into the atmosphere, instead of to the roots of plants. In a dry season, if manures were used at all, they ought to be buried in the ground, and not applied as a top-dressing; in rainy seasons the virtue of manures descended with the rain-water, to the immediate benefit of the growing plants. There were two advantages to be derived from draining, which were—Time and Money. He who was always behind-hand could not be a good farmer. The early farmer takes his commodities early to market from well-drained land, which is fit to be worked at almost any time, and has threshed his Barley, and converted it into cash, while the late farmer's crops are not yet ripe for the harvest. No farm on a wet clay soil can produce half the corn it is capable of growing if thoroughly drained. Referring to different kinds of manure applied to land after it was prepared by drainage for receiving it, the Professor observed that he need hardly say that the best of all manures was farmyard dung, though he was sorry to remark the farmers did neither produce nor preserve so much of it as they might easily do. Farmyard dung was the best of all manures, because it gave back directly to the soil the elements of the plants that had been consumed by cattle as their food. But besides the manure produced on his own land, the good farmer is obliged to borrow and fetch from a distance the elementary substances of imported artificial manures. The farmers of the east side of England go to London for bone-dust, and to Holland for rape-cake and oil-cake. This oil-cake, together with straw, is used for the winter food of oxen in their farm-yards, which are thus annually charged with an abundance of rich manure. There was another kind of manure which he wished particularly to impress upon the farmer's attention—he alluded to guano. It was, as they knew, the droppings of sea-fowl, accumulated for ages upon islands off the coasts of Africa and America, and on many islands in the Pacific Ocean. Since its first importation, four years only ago, guano had been used with the greatest success in various parts of the country. It was notorious that experiments made with it during the present year had almost universally failed; and their failure proved that it ought never to be applied as a top-dressing except in rainy weather, and when the plant is in a state of active growth. There were many advantages attending the use of guano, not the least of which was its portability, and its power of retaining its properties for many years, if kept dry and excluded from the air. It was much cheaper now than on its introduction into this country, and next year the supply would be such as to reduce its price to half of that charged last year. He knew that no less than 600 ships had left Liverpool alone in the present year to get guano, and they would bring back at least 60,000 tons. Some of the guano sold in this country was adulterated by art, and some by nature, but a little precaution on the part of the buyer would prevent his being imposed upon. He had only to put a tea-spoonful into a tumblerful of warm water, and to wash and rinse it, whirling it round briskly, when the sand (if any were mixed with it) might be detected at the bottom. The learned Professor then referred to night-soil and cloacine, as the most valuable of all animal manures. It was extensively used on the Continent, though not in Britain. In Belgium it was valued at 1*l.* 17*s.* 6*d.* per individual, whilst Englishmen are travelling to distant regions of the earth—to Africa and America, traversing sea and land, to bring home elements which they may readily obtain at home. Night-soil was most valuable, because it contained the elements of all kinds of food consumed by man, and in applying these to the soil we returned the identical constituents which former crops and animals had taken from it. It contained phosphate of lime, which was indispensable to the growth of animals' bones and to the nutriment of plants, and which was not supplied from the atmosphere like carbonic acid and ammonia. He recommended the preserving of all fluid and solid excretions by mixing with them sawdust or ashes, or burnt clay, in a dry place, which would deprive them of their unpleasant smell. The Professor then urged that in all good farming there must be a debtor and creditor account between the farmer and his land. Give and Take must be the rule; if no manure be applied, it was unjust and idle to expect abundant produce. If the farmer starves the land, the land will assuredly starve him. The man who gives nothing deserves nothing. He is a plunderer—a plunderer and a robber of his mother earth, and his speedy ruin is the merited punishment of her revenge. But the intelligent renting farmers must not risk their property in making too extensive experiments; it was the landlord's duty to make them (or assist in making them, by giving the new manure), and by his failures and successes to show his tenants what they ought to do, and what to avoid."

Rebietos.

Report of the Judges appointed to inspect the Farms entered for the Prize and Sweepstakes, proposed by the Yorkshire Agricultural Society, 1844.

We shall adopt with this the same course as we did with the last Report of the Yorkshire Agricultural Society's Farm Judges, *i. e.* give copious extracts, unaccompanied by many notes. This Report appears in the volume of the Yorkshire Society's Transactions, which has just been published, and contains, among other valuable articles, an Essay on Guano, by M. M. Milburn, Esq.—an Essay that we find has been lately published in a separate form.

The following is the statement of the Judges:—

"Four farms were submitted to us for inspection, which were taken in the following order of route:—

Occupiers.	Situated at	Owners.	Extent in Acres.
William Heddon	Baldersby	Duke of Devonshire	314
W. M. Beetham	Gatenby	Duchess of Cleveland	164
Messrs. Outhwaite	Bainessee	S. Lane Fox	484
Wm. Mauleverer	East Harlsey	William Mauleverer	103

"On entering into the particulars of the several farms brought under our notice, we commence with those to which we have awarded the prizes, and will afterwards endeavour to give such a description of the other two, as we conceive their character and condition entitle them to. The Messrs. Outhwaite succeeded their father on the Bainessee farm, in the parish of Catterick, about 12 years ago. At that time it was full of old crooked fences, the fields being most of them small in proportion to the size of the farm. To these evils the proper remedies were applied, by stubbing up the old fences, and planting new ones where required; the fields have thus been very much enlarged, and appear to be well proportioned to a farm of such magnitude. Two maps were shown to us; one of them representing the farm in its unimproved state, the other as at present laid out; and certainly the contrast was very great. Since the year 1839, 65 acres of this farm have been drained with tiles and stones; the greater part of which has been laid 3 feet deep, and 21 feet apart; and the remainder 2 feet deep, and 12 feet apart. All these drains empty themselves into the gravel at the low part of the farm. The water for the cattle in the fold-yards is brought from the high side of the farm by a lead pipe; the distance is considerable, and the cost not less than 100*l.* All these improvements have been effected at the entire cost of the tenants. The farm consists of 118 acres of Grass land, and 367 acres of arable, the greater part of which is of excellent quality, and well adapted to the four-course system which is pursued upon it, though the mode of cropping is very different to that which is generally adopted. The usual quantity of Turnips sown is near 100 acres. The ridges are all formed by the younger Outhwaite, who is a first-rate workman; consequently they are done in a very superior manner. The Swedes are manured from the fold-yard, at the rate of 18 tons per acre; the yellow bullock and white Turnips have from 10 to 16 tons per acre, with 1 or 2 cwt. of guano, or 2 quarters of bones, or half a ton of salt per acre, where it is considered necessary to make such addition."

What an extraordinary quantity of salt to apply! This may, perhaps, meet the eye of some one acquainted with the neighbourhood. If so, perhaps he will be kind enough to favour us with the details of Messrs. Outhwaite's practice in this respect, with the nature of their soil, their distance from the sea, and the direction of the prevalent winds in that neighbourhood. Is this enormous dose ever repeated?

"A quantity of manure is purchased at Catterick, and not less than 250*l.* is laid out annually in one kind of manure or another. About half the Turnips are drawn and consumed by the cattle in the fold-yards, and the remainder are eaten by sheep upon the land. The principal part of the land that has grown Turnips is sown with Wheat in the spring; and whenever it happens that any Wheat is sown after seeds or Clover-ley, the land is ploughed during the autumn, but not sown till the spring, the Messrs. Outhwaite having found by experience, that they can grow considerably more Wheat by this method, and also grow it of superior quality. Seeds, Clover, or Beans, follow the Wheat; and Barley is generally sown after the seeds and Clover-ley. This is a peculiar mode of cropping, but it has been found very beneficial on this farm.

"The quantity of seed sown per acre is 2½ bushels of Wheat, 3 bushels of Barley, 4 bushels of Oats; 14 lbs. of red Clover, when intended to be mown; 10 lbs. of white Clover, and 2 lbs. of red, for pasture; 3 lbs. of Swedish Turnip seed, and 2 lbs. of yellow Bullock's and white ones. In addition to the Turnips drawn into the fold-yards, Bean-meal and Linseed cake are both given very liberally to the cattle in winter, and the horses are soiled in the summer; so that the whole of the straw is made into excellent manure. The horses, cattle, and sheep that are kept on this farm are all exceedingly good and profitable. The fences are regularly plashed, and the refuse carried into the fold-yards, to be converted into manure. The land is kept remarkably clean; and the work done upon the farm, in every department, is altogether executed in a first-rate style. In short, everything appears to be so admirably conducted, that it reflects the greatest credit on the Messrs. Outhwaite; and, in our judgment, they are fully entitled to the prize." We shall continue our extracts next week.

Notices to Correspondents.

Agricultural Gazette.—*J. S.*—We must admit that you are quite right; and had it been thought at the time that the passage you name would have any such tendency as that to which you allude, it should not have been published. The MS. was but a short time in our possession, and its many excellencies in other respects blinded us then to what, in reference to one of its paragraphs, maturer consideration must convince any one is a serious fact.

Books.—*A Leicestershire Yeoman.*—Morton "On Soils."

Clay.—*A Country Subscriber* having a clay very much impregnated with small gravel, is led, by an observation of the facility and cheapness of washing clay about London (page 381 of the *Agricultural Gazette* of last year), to inquire the particular method by which it is accomplished, having found great difficulty and much expense in his endeavours.

Cost of Food.—*E.*—You are unquestionably right in the price you affix to *home made* food, and probably two-thirds of the cost of *purchased* food is a fair charge upon the beef or mutton produced thereby, the remaining one-third going to increase the value and quantity of manure produced. In Lincolnshire, the outgoing tenant is allowed one-third, one-half, and sometimes two-thirds of his oil-cake bill of the last year, under the supposition that that portion of it is handed over to his successor in the manure which is made by its consumption. This variety of opinion shows that there is no fixed and acknowledged principle to guide such calculation. Perhaps as a matter of private satisfaction, in order to ascertain how the money spent in this way is returned, it would be well in your stock account to put on the Dr. side *all* the cost of oil-cake, &c., as well as your estimated value of home produce; and on the Cr. side to place, besides the sale-money of stock sold, and the valuation of that on hand, the estimated value of dung on hand, at so much per cubic yard, according to the market value of manure of that quality. The subject of farm-accounts will soon occupy our attention.

Cow-keeping.—*Subscriber and Constant Reader.*—Too late for publication this week.

Farm Buildings.—*J. W. G.*—Will you be kind enough to wait a while? Our arrangements in reference to this subject are hardly completed.

Gypsum.—*A Yeoman.*—You may use it burnt, provided you take care that water never comes in contact with it, when it is together in quantity. It must be carefully scattered about and spread, otherwise it will cake and harden. To burn gypsum is the cheapest way of pulverising it. Its chemical qualities, excepting those which it bears in relation to water, are in no degree altered by the process.

Horn Parings.—*J. B. C.*—You could not do better than use them *after* solution in sulphuric acid.

Mole Plough.—*H. M. L.*—This implement is much used, and with advantage, on the permanent partures of Gloucestershire. It is generally worked by a chain wound round a windlass worked by one horse at the upper end of the field. It is drawn through the ground at a depth of 18 inches, at intervals of 20 to 40 feet; and after a field has been completed, all the tunnels made by it are crossed at their lower end by an artificial spade-made drain; in making which, care is taken to open a communication with every mole-plough channel. Perhaps under your circumstances it is the best implement you could use. You will see a description of the implement in Mr. Ransome's work on the "Implements of Agriculture."

Pigeon-dung.—*Inquirer.*—Apply 8 or 10 cwt. per acre. Mix it with any convenient matter, such as mould, rotten straw, &c., for the purpose of giving it such bulk as will enable you to spread it evenly.

Subsoil Ploughing.—*A Subscriber.*—We know of no *case* to guide us in answering you. It is Mr. Smith's opinion, and one which appears to be reasonable from a consideration of the subject, that subsoil-ploughing, so far from being beneficial, would be injurious, except where the land has a good natural or artificial drainage. Much land is called dry which is not so really. If your land has a free, open, rocky or gravelly subsoil, you may safely subsoil plough it.

Tile-pipes.—*M. S. E.*—Your question is only answerable as an advertisement. There are many machines manufactured by Ransome and Co., Ipswich; Barrett, Exall, and Co., Reading, and many others, any of which appear to answer perfectly. The principle of all is the same.

Van Diemen's Land Wheat.—*E. B.*—Thanks for your beautiful sample, of which we shall make a comparative trial as seed with some good English varieties.

*** As usual, many communications have been received too late.

Markets.

HAY.—Per Load of 36 Trusses.

Smithfield, Jan. 9.

Prime old Meadow Hay	105s to 110s	New Hay	—s to —s	Clover	105s to 120s
		Inferior Hay	90 100	Straw	32 36

John Cooper, Salesman.

Cumberland Market, Jan. 9.

Superior Mead. Hay	105s to 114s	Superior Clover	115s to 120s		
Inferior -	90 97	Inferior ,,	98 108	Straw	36s to 39s
New Hay -	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

Whitechapel, Jan. 10.

Fine Old Hay -	105s to 108s	Old Clover	120s 126s		
New Hay -	90 100	New Clover	110 115	Straw	28s to 36s
		,, Inferior	— —		

POTATOES.—Southwark Waterside, Jan. 6.

The arrivals during the past week have been liberal, especially from the northern districts. At the commencement of the week there were a few cargoes of the first arrivals of the Scotch Reds sold at from 90s to 100s; at the middle of the week the arrivals became more abundant, and the following prices were submitted to.

York Reds - - -	70s to 80s	Kent and Essex Whites -	—s to —s
Perth - - -	60 —	— Kidneys	— —
Fifeshire - - -	— —	Wisbeach Kidneys -	60 65
Early Devons - -	65 —	— Blues -	— —
Late Devons - -	— —	— Whites -	— —
Cornwall - - -	65 —	Guernsey Blues -	60 —
Jersey Blues - -	60 —	— Whites -	— —
— Whites - - -	— —	Prince Regents -	70 —.

ENGLISH TIMBER AND BARK.—Jan. 8.

	Round Timber, per load.	Plank, per foot cube.	Inch board, p. ft. sup.
Oak . .	5l 0s to 8l 0s	3s 0d to 5s 6d	4½d to 6d
Ash . .	5 0 8 0	3 0 5 6	½ 6
Elm . .	2 15 3 5	1 8 2 2	2 2½
Beech .	2 5 2 15	1 6 1 8	2 2½
Lime . .	3 10 4 0	2 0 2 3	3½ 5

Oak Bark (per load of 45 cwt.), 15l. to 18l.

J. S.

HOPS, Friday, Jan. 10.

The demand for Hops is unabated, both for consumption and speculation, at the prices of this day se'nnight; but holders are not disposed to submit to the duty. Many samples have been sold at rates which make some amounts above the maximum duty. Should the present quantity of Hops remain in bond, the duty will be 70s. per cwt. Many samples of Mid and Best are sold, and the following are the prices:—

Good Mid. and Best		Good Weald of Kents	70s to 80s
Kents	80s to 120s	Poor Sussex	7 7 to 8 8
Farnhams	80s to 150s.		

Choice old Hops and yearlings very scarce.

PATTESON & SMITH, Hop-Factors.

COVENT GARDEN, Jan. 11.—The unusual mildness of the weather during the week has caused an abundant supply of most articles to be brought into the market: but the demand for them is far from being brisk, and consequently the prices remain nearly the same as those quoted in our last Report. Good specimens of Pine-apples are offered at about 6s. per lb. Hothouse Grapes, although very scarce, are yet to be met with: Portugal and Spanish sorts are good and tolerably abundant. Of Apples there are in the market a sort called Lady Apple, an American variety; Kirke's Lord Nelson, Nonpareils, and Blenheims; good samples of the latter, however, are becoming scarce. Among Pears we observed good specimens of Glout Morceau, Winter Nelis, Passe Colmar, and Ne Plus Meuris. Oranges are plentiful and low in price, and Lemons are also supplied in tolerable abundance. Chesnuts are slightly advanced in price: other Nuts remain nearly the same as last week. Among Vegetables, Cauliflowers are now nearly over for a season: but Broccoli is pretty plentiful: it has not altered in price since last week. The supply of Cabbages, Brussels Sprouts, and other Winter Greens is well kept up, as is also that of Rhubarb, Seakale, and Asparagus. Spinach is somewhat cheaper, and the price of Leeks is also rather on the decline. Autumn Potatoes of good quality have been offered at about 6d. per lb.; Dutch varieties bring about 3d. per lb. Celery, Lettuces, Endive, and other Salading are plentiful. Among Cut Flowers we noticed Gesnerias, Gloxinias, Hedeorrigues, Persian Lilacs, Hyacinths, Narcissus, Acacias, Azaleas, Heaths, Camellias, Cinerarias, Tulips, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Oranges, per dozen, 9d to 2s
Grapes, Hothouse, per lb., 5s to 8s	— per 100, 4s to 10s
— Spanish, per lb., 10s to 12s 6d	— bitter, per 100, 12s
— Portugal, per lb., 2s to 3s	Lemons, per dozen, 1s to 2s
Apples, Dess., per bush., 3s to 7s	— per 100, 6s to 14s
— Ruckets, 2s to 5s	Almonds, per pack, 6s
Pears, Dess., per bu'sv., 4s to 6s	Sweet Almonds, per lb., 2s 6d to 3s
Pomecranates, per doz., 2s to 4s	Cob Nuts, per 100 lbs., 130s to 190s
Medlars, per bushel, 3s. to 10s	Nuts, Barcelona, 24s
Filberts, per 100 lbs., 140s to 150s	— Brazil, 16s to 20s
Chesnuts, per peck, 3s to 6s	— Spanish, 21s
Walnuts, shelled, 12s to 20s	— Cob, 12s

VEGETABLES.

Cabbages, per dozen, 6d to 1s 3d	Salsafy, per bunch, 1s to 1s 6d
— plants, per doz. bnch., 1s 6d to 2s	Leeks, per doz., 2s to 2s 6d
Broccoli, per bundle, 1s 6d to 5s	Garlic, per lb., 6d to 8d
Brussels Sprouts, kit sv., 1s 6d to 2s	Onions, per bunch, 4d
French Beans, per 100, 2s to 4s	— large, per bushel, 2s to 2s 6d
Sorrel, per pot-sieve, 1s 6d to 2s	— Spanish, per 2doz., 1s to 4s
Jerusalem Artichoke, p. bf-sv., 1s to 1s 6d	Shallots, per lb., 3d to 10d
Potatoes, per ton, 90s to 95s	Capsicums, per 100, 4s to 8s
— cwt., 2s 6d to 3s	Lettuce, per score, 6d to 1s 6d
— bushel, 2s 3s to 3s	Celery, White, per bunch, 10d to 1s 6d
— Kidney, per bush., 3s to 5s	— Red, per bunch, 9d to 2s
Turnips, per doz. bch., 1s 6d to 2s 6d	Endive, per score, 1s to 2s 6d
Red Beet, per doz., 1s to 3s	Mushrooms, per pottle, 1s to 1s 6d
Carrots, per doz. bchs., 3s to 7s	Mixed Salads, per punnet, 2s to 3d
Basil, per bunch, 2d to 3d	Watercress, p. 18 bnch., 2s 6d to 3d
Rhubarb, per bundle, 1s 6d to 1s 6d	Parsley, per doz. bunches, 2s to 4s.
Seakale, per punnet, 1s 6d to 2s 6d	— Roots, per bundle, 9d
Asparagus, per bundle, 2s to 3s.	Tarragon, per bunch, 6d
Horse Radish, per bundle, 1s 6d to 2s	Mint, per bunch, 6d
Savory, per bunch, 3d to 6d	Marjoram, per bunch, 3d to 6d
Spinach, per sieve, 1s 6d to 2s 6d	Chervil, per punnet, 3d to 4d
Scorzonera, per bunch, 1s to 1s 6d	Chibls, per 100, 1s to 2s

SMITHFIELD, Monday, Jan. 6.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 2	Best Downs & Half-breds	4s 0 to 4s 4
Best Short Horns	3 8 4 0	Best Long-woods	3 6 4 0
Second quality Beasts	3 0 3 6	Ewes and second quality	3 2 3 8
Calves	4 0 4 6	Pigs	3 4 4 4

Beasts, 2964; Sheep, 24,580; Calves, 92; Pigs, 290.

The Beef trade is very heavy indeed to-day, although the supply is rather lighter; the demand is very limited. Our top quotations are only realised in some instances for the best qualities; as being the more general price for good Scots, &c., and 3s 10d for the best Short Horns. The demand for Mutton has rather increased; the supply is about the same as last week, but cannot observe any quotable advance. Everything is readily disposed of at the prices quoted above; the rise in Wools has produced a briskness in the Sheep trade. Veal trade is very dull, at rather lower prices. Pork trade is rather more lively.

Friday, Jan. 10.

The supply of fresh Beasts to this day's Market is but small, and we are now getting a little relieved from the pressure of the Christmas superabundance, consequently there is a tendency to improvement to trade. Although there is a ready sale at, and in a few instances over Monday's prices, we cannot observe any quotable advance. Best Scots, 4s to 4s 2d: best Short Horns, 3s 8d to 4s; second quality, 3s to 3s 6d. We have but very few Sheep in to-day, and the trade is a little brisker for the best Wethers at about the same prices as Monday; Downs, &c., 4s to 4s 4d: Longwools, 3s 8d to 4s: Ewes and second quality, are a very heavy trade, at from 3s to 3s 8d. There is a good demand for the best Veal, at advanced prices; a good Calf is fully worth 4s 4d; in a few instances rather more has been obtained. Second quality are making about 4s. Pork trade lively, at from 3s 4d to 4s 4d.

Beasts, 708; Sheep, 8550; Calves, 123; Pigs, 388.

41, West Smithfield.

MARK-LANE, Monday, Jan. 6.

There was a small show of Wheat samples from Essex this morning, and a fair quantity from Kent; the condition generally was much affected by the weather; all excepting the very finest dry samples which obtained last week's prices, met a slow heavy sale on barely as good terms. There was scarcely any business doing in Foreign Wheat, and its value is unaltered. The picked samples of best Barley sold freely, but others barely supported late rates, and grinding qualities are much neglected. Beans, both old and new, are 1s. cheaper. White Peas are unaltered; Grey inquired after.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk White	40	50	Red	42	48
—— Norfolk, Lincoln, and Yorkshire	—	—	White	—	—
Barley, Malting and Distilling 32s to 33s	Chevalier	34	35	Grind.	27	28
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19	21
—— Northumberland and Scotch	Feed	20	23	Potato	21	25
—— Irish	Feed	18	22	Potato	20	24
Malt, pale, ship		54	60			
—— Hertford and Essex		53	55			
Rye		29	32			
Beans, Mazagan, old and new	29 to 34	Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland	37 to 40	Winds	—	—	Lempord	—	—
Peas, White	34 to 37	Maple	31	33	Grey	30	33

Friday, Jan. 10.

There were a few runs of English Wheat fresh up for this morning's Market, but the trade ruling dull little progress was made in their disposal; sales of Foreign were equally limited, and we observe no alteration in the value of either.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Nov.	29 per Quarter.	45s 10d	35s 2d	21s 8d	30s 5d	38s 6d	36s 5d
Dec.	6	45 4	35 1	21 8	29 3	38 0	35 11
—	13	45 2	34 9	21 10	31 2	37 6	36 4
—	20	45 1	34 5	21 11	32 0	36 9	36 1
—	28	45 0	34 3	20 10	31 9	35 7	35 5
Jan.	4	45 8	34 2	21 10	33 9	36 3	36 1
6 weeks' Aggreg. Aver.		45 4	34 6	21 8	32 2	36 8	35 10
Duties on Foreign Grain		20 0	4 0	6 0	10 6	6 6	7 6

SEEDS, Jan. 10.

Canary	per qr	50s to 54s	Linseed Cakes, Foreign, p. ton		8l to 9l 10
Carraway	per cwt	44 52	Mustard, White, p. bush.	10s	14
Clover, Red, English	— —	— —	— Superfine ,,	13	16
— — Foreign	— —	— —	— Brown ,,	13	16
— White, English	— —	— —	Rapeseed, English, per last	22l	23l
— — Foreign	— —	— —	Rape Cakes per ton	—	—
Coriander	12	18	Saintoin	—	—
Hempseed	per last	35 36	Tares, Eng. winter p. bush.	5	6
Linseed	per qr	— —	— Foreign	—	—
— Baltic	—	— —	Trefoil per cwt	—	—
— Cakes, Eng. per 1000	12l 10	13l	Turnip (too variable for quotation).		

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TO BE LET, with immediate possession, a small NURSERY and SEED BUSINESS, held at a low rental, eligibly situate to a railway station, and within an hour's drive of the City. There is a Propagating House, Plant House, with Pits and Frames. The Stock consists of Ericas in varieties, with some fine grown specimens: Epacris, Azalea Indica, Chorozema, Standard and Dwarf Roses, Evergreens, Herbaceous Plants, &c. &c. This is an opportunity rarely to be met with by a young person who can command from 150l. to 200l.—Apply to Mr. W. Watts, Nurseryman, &c., Stoke Newington-road, Middlesex; if by letter, prepaid.

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Is particularly applicable as a Substitute for Slate, Zinc, Tiles, Thatch, and other articles used for Roofing, from its Economy, Durability, and Lightness. It is quite impervious to wet and damp, resists the heat of the sun, and is a non-conductor of heat or cold. Besides the economy in repairs, the timber where it is used may be so light as to save its whole expense. It requires no other coping, and by attention to printed directions may be applied by a common labourer. It is free from breakage and contraction, like zinc, and requires neither painting nor coating. It is now in very general use for Roofing Houses, Verandahs, Sheds, Workshops, Ropewalks, Railway Stations, Icehouses, &c. &c., and for protecting Plants, covering Garden Frames, Corn, and Hay Ricks, the top and sides of Sheep-folds; and to Emigrants it provides a cheap, warm, durable, and portable Roof.

This Improved Roofing Felt is much more durable than the common Felt, made in lengths, not being subject, like it or other materials in continuous lengths, to be stripped by storm; and being fastened down at the overlaps only, the wet cannot percolate through the nail-holes.

TESTIMONIAL.

London, Nov. 1, 1844.

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It is with much pleasure I add my humble testimony to the superiority of your Felt over any other preparation of the kind with which I am acquainted. This Testimony I give with the greater cheerfulness from the many reports I have heard in its favour, and from the likelihood of its being used extensively in Agricultural purposes. I shall not fail to notice it in my Lectures when on the subject.

(Signed) JOHN ROBINSON, M.B., Senior Lecturer on Chemistry, &c., as applied to Agriculture and Rural Economy in this Kingdom.

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THE GARDENERS' CHRONICLE
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AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 3.—1845.] SATURDAY, JANUARY 18. [PRICE 6*d.*

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Dr. LINDLEY's opinion.—See *Gardeners' Chronicle*, Sept. 28, 1844.—"W. J. E.—Your seedling having a very light tube and sepals with green terminations, and the crimson corolla having a purple tinge, is a distinct and handsome flower of a medium size."

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„ Wheeler's improved Imperial . . . „	0	6
Beet, Cattle's extra fine Blood Red . . . „	0	6
Celery, Jones's Matchless Solid Red . . . „	0	6
„ New Earthnut . . . . . „	0	6
„ Seymour's Superb . . . . . „	0	6
Parsley, Myatt's Superb Garnishing . . . „	0	6
Frame Cucumbers, Elphinstone's Prince Albert . „	1	0
„ Latter's Victory of England . „	1	0
„ Warwickshire Hero . . . . „	1	0
„ Victory of Suffolk . . . . „	1	0
„ Cuthill's New Black Spine . „	1	0
„ Weedon's celebrated Black Spine „	1	0
Melons, Cabul . . . . . „	1	0
„ Beechwood, new . . . . . „	1	0
„ Winds r Prize . . . . . „	1	0
„ Matta Greenflesh, and many other excellent sorts . . . . . „	1	0
Potatoes, Soden's Early Oxford (too well known to require description) . . . . per peck	3	6
„ Haigh's splendid new Kidney, fine flavour and large produce (about ten days later than the Ash-leaved) . . . . . „	3	0
„ New Red Kidney very early, boils white (delicious flavour) . . . . . „	2	6
„ New Dwarf Goldfinder . . . . . „	2	0
Rhubarb, Myatt's Victoria . . . . each	1	3
„ Marshall's Early Scarlet . . . . „	0	9
Currants, New Dutch Red Grape . . per dozen	6	0
Raspberries, Fastolff, strong canes . . per 100, £2	0	0
Anemones, splendid mixed . . . . per lb	8	0
Ranunculus . . . . . per 100, 5*s.* to	8	0
Tuberoses, Double Italian . . . . per dozen	4	0
Tigridia Conchiflora . . . . . „	12	0
„ Pavonia . . . . . „	3	0
Peach, Walburton Admirable, new late, fine trained Dwarfs . . . . . each	10	6

Fine Giant Asparagus, Seakale, &c., &c.
Selections of Seeds carefully assorted and packed for Foreign Climates.
General Catalogues may be had on application.
N.B.—A List of new and choice Flower Seeds, &c., will be published in March.

DAHLIAS.—SEEDLINGS OF 1843.

WHALE'S "DUCHESS OF ST. ALBAN'S," a delicate primrose, tipped with dark mulberry, a most unique flower and petal, shape and size of Ansell's Unique; took the third prize at Saltbill grand Show in 1843. Dwarf habit—3 feet. Strong plants in May, 10*s.* 6*d.* each, unless six plants are ordered. Was not exhibited last season, in consequence of a most severe family affliction, having lost my wife and three sons and a daughter in a short space of time.

"ADMIRATION," a shaded orange, margined with bright scarlet; a most desirable show flower, from its constancy and shape, and novel colour, never showing an eye the whole season; fine habit; height 4 feet. Strong plants in May, 10*s.* 6*d.* each, unless six or more plants are ordered. The stock of this variety is small; orders will be executed according to priority of application.

SEEDLING FANCY VARIETIES OF 1843.

WHALE'S "MADAME VILLABOIS;" white ground, tipped with pink; a very showy variety for the clump or border; height 3 feet. Price 7*s.* 6*d.*

"MADAME HANSARD;" carmine, tipped with white; very pretty variety; height 3 feet. Price 7*s.* 6*d.*

"MISS DUNDAS;" carmine, striped with white; a fine bold petal; dwarf habit; height 3 feet. Price 7*s.* 6*d.*

"BICOLOR," crimson, tipped with white; very showy; height 3 feet. Price 7*s.* 6*d.*

W. R. WHALE recommends these varieties to be trained on the ground with small pegs, and they have a pretty effect. He has grown show flowers this way with great success.

A few dry Ground Roots left of Proctor's Nonpareil and Bermondsey Bee, Widnall's Queen of Roses, &c., and most other varieties in cultivation, reasonable.

Elcot, near Hungerford, Jan. 18, 1845.

THE SELF-PROTECTING BROCOLI.

J. DELLISTON, Sen., solicits the particular attention of Gentlemen and Horticulturists in general to the above superb article: it is a white BROCOLI, stands unrivalled for its beauty and flavour: its growth is peculiar to itself, inclosing itself as its undulating leaves grow, until it gets to perfection, and is allowed to be the best ever offered to the public.

Sold by Mr. J. DELLISTON, jun., Seedsman, Royston, Herts, in packets at 2*s.* 6*d.* Money to accompany the order.

ADDRESS TO THE PLANTERS OF ENGLAND.

TRUE HIGHLAND PINE-TREE.—MY LORDS, LADIES, AND GENTLEMEN,—The time has come when all those who have waste lands at their disposal should plant them. Of this I am fully persuaded, and I beg you will allow me to explain on what grounds this opinion is founded. England, generally, is a thickly-wooded country yet, strange though it may appear, it has not been planted with any view to meet its most urgent wants. If the poor farmer require an outhouse built for his cattle, he cannot have it because there is no dead-wood in the neighbourhood he builds it therefore of whins, or of any other rubbish he can lay hold of. Instead of having plenty of fir-wood on all hands to fence young hedges, planted like other things on the common surface of the ground, military-like fortifications have been raised to divide fields, occupying as much good land as is contained in three of the largest counties of Britain: it is on those banks ineffectual attempts have been made to grow hedges. After the 1st of March, when the Royal Agricultural Society's Prize on fences shall have been awarded, a great proportion of the hedges throughout England will be reconstructed by planting them on the plain surface; and the question will then arise, "Where is the wood to protect them in their young state to come from?" Turning to the railways which are now being formed in every county in England, another and greater question arises as to the supply of wood which will be required in *their* construction. Go up, I am told, to the Lebanons of our island—those immense forests in the north of Scotland—and there hew down as many trees as will be required. From those, however, I find we must expect but a limited supply. Like the famous Mount of old, they are already overrun with the axe, and a continuance of the present rate of demand for a few years more will reduce the trees upon them to a mere remnant. It is not the original numbers required for sleepers which will effect this change, but it is the incessant demand, *ad infinitum*, for timber to replace that which is already laid down, or may be for the future laid down in additional lines. Look at it how we may, the state of our country at the present crisis proves that our immense and almost measureless tracts of what is generally called waste land were not created to be a scene merely of unproductive solitude. The rains with which they are refreshed, and the fostering sunshine that rests upon them, might have taught us that Providence had designed them to contribute in some way or other to the wants of man; and though Nature has been unable to lead us to comprehend her lesson, so simply brought before us, necessity has at length compelled us to look to those districts where only a sufficient quantity of timber can be raised to meet our increasing wants. Now, then, is the time to plant: wherever there is a waste piece of ground, moor, or mountain, let it be forthwith invested with trees, for every year, for many years to come, will unquestionably bring with it an additional demand for timber. Thus far on the necessity of planting. Allow me next to bring under notice the sort of tree I would recommend to be planted, which is the chief aim of this Address. That tree is the TRUE HIGHLAND PINE, for introducing which, I had the honour, along with my brother, of receiving the Highland Society's prize. It is admirably fitted, in every respect, to take possession of all the uplands throughout England. It will grow freely on all soils suitable for the common Pine; its wood is very durable; and for railway sleepers it is unrivalled. Brindley, the celebrated engineer, considered its durability equal to that of the Oak; and Dr. Smith states, in the *Transactions of the Highland Society of Scotland*, that he has seen some of it taken down after it had been 300 years in the roof of an old castle, as fresh and full of resin, as newly imported timber from Memel, and that it was actually worked up into new furniture. "Such," says Loudon, "is the durability of this wood, that while the bog timber of the Birch is often found reduced to a pulp, and the Oak cracks into splinters as it dries, the heart of this Pine remains fresh, embalmed in its own turpentine."

MY LORDS, LADIES, AND GENTLEMEN,—Allow me to add a word or two on the merits of this tree as a landscape ornament. In this respect it rivals, if not excels, the Cedar of Lebanon. It has, at any rate, a much better ramification than the Cedar; for, as Sir Walter Scott observes, it assumes in a great measure the bold and contorted figure of the Oak. In illustrating the Seats of Norfolk (and the remark is applicable to all England), it frequently occurred to me that advantage had not been taken of prominent situations by investing them with grand evergreen trees; for so soon as November comes, our parks lose almost all that weight of grandeur for which they are so celebrated in summer-time. Their solemnity ceases with the fall of the leaf; but were they ornamented with this Pine, its broad umbrageous canopy remaining green during winter, the change consequent upon the approach of winter would be much less observed, and our country residences would at all times be surrounded with the dignified accompaniments so consistent with their character.

The importance of this subject will, I doubt not, be accepted as an apology for my thus venturing to express my opinions so plainly on matters of English practice. My suggestion as to the improvement of park and pleasure-ground scenery by introducing the Pine in question is offered with the greatest deference, being fully persuaded that in matters of this description England has been always distinguished for its refined taste. I am ready to dispose of the Highland Pines at the following prices:—

Single Plants, strong and well rooted	6*d.* each.
Strong Plants, 18 to 20 inches high	5*s.* per 100.
Strong Plants, 15 to 18 inches	30*s.* p. 1000
Smaller-sized Plants for exposed situations 10*s.* to 20*s.* p. 1000.	

I have the honour to be, My Lords, Ladies, and Gentlemen,
Your most humble Servant,
JAMES GRIGOR, Nurseryman, Norwich.

ROSES.

WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX; AND AT PARIS.

WM. WOOD AND SON have still on hand a few strong plants of their New and Superb Seedling Gallica ROSE, "MARGARET MARY," a full description of which will be found in their former Advertisement of Nov. 9, price 5*s.* per plant. Standard or Dwarf with the usual discount to the Trade. Early orders are solicited.

W. W. and Son further beg to state that they are now sending out Collections of ROSES, at the following prices, the selection being left to themselves:—

	per doz.	per 100.
Superior selected standard ROSES	21*s.*	£ 8.
Superb ditto ditto	30 or 10	0
Select dwarf budded ditto	12 — 3	15
Superb ditto ditto	18 — 5	0
Superior dwarf Roses (on own roots	9 — 2	10
Superb ditto ditto, fine show varieties	12 — 3	15
Fine Climbing ditto	9*s.* and 12 — 2	10

Catalogues of Roses will be sent gratis on application.

N.B. Plants will be presented GRATIS, in order to compensate the expense of carriage. A remittance, or reference, will be required from unknown correspondents.

WOODLANDS NURSERY, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON beg to solicit the attention of their Friends and the Public to their enormous stock of COMMON LAURELS, of all heights and sizes, varying from 5*s.* to 25*s.* per 100. Also, Portugal Laurels, Arbutus, and all other Evergreen Shrubs, which they can offer in large quantities, and at very reasonable prices; together with every kind of Flowering Shrubs, American Plants, Fruit, Ornamental and Forest Trees.

Catalogues of the above may be had GRATIS, on application, and plants will be added to each order, to compensate for long carriage.

ROSE TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for sale after the present Season, is desirous of disposing of his extensive stock of ROSE TREES and other Plants, at less than half the usual prices, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.—Brenchley, Kent, Jan. 18, 1845.

JESSOP'S NURSERY, Cheltenham, Established in 1815, from its extensive connection offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm Bailiffs, of established skill and reputation. All communications promptly attended to.

LISIANTHUS RUSSELLIANUS.—The subscribers can supply strong Seed, saved by themselves, of the best variety of this favourite Plant, at 1*s.* 6*d.* per packet. The usual discount to the trade, when 12 or more packets are ordered.
JAS. DICKSON & SONS, Edinburgh, January, 1845.

TO GROWERS OF ROSES.

T. and C. LOCKHART, FLORISTS and SEEDSMEN, 156, Cheapside, London, have now on sale a first-rate Collection of STANDARD ROSES, at 18*s.* per doz.; and strong Plants of MOSS ROSES, at 6*s.* per dozen.

A Catalogue of Seeds and Herbaceous Plants will be forwarded free by post, on application.

Rene Langelier's Early KIDNEY POTATO, much earlier and more prolific than the ASHLEAF, at 3*s.* 6*d.* per peck.

MESSRS. MARNOCK AND MANLEY, in returning their sincere thanks to their friends for the encouragement they received last season in the sale of the true WALCHEREN CAULIFLOWER, beg to say they have the entire supply this season from the same stock, which has proved to be genuine; and from the difficulty of obtaining seed from the true kind, they cannot offer it at less than 4*s.* per oz.

		s.	*d.*
True Walcheren Broccoli	per oz.	2	6
Ne Plus Ultra Broccoli, an improvement on the Walcheren; more hardy, produces large, milk-white heads, delicious flavour, and may be had in succession fit for table throughout the year;	per oz.	5	0
Victoria Cabbage, a new early dwarf kind, of a most delicious flavour	per oz.	2	6
White's new dark and delicious Beet	„	1	6

With every assortment of the newest and most approved kinds of Vegetable Seeds in cultivation.

They also beg to call particular attention to their choice and extensive Collection of FLOWER SEEDS, comprising German Asters, Stocks, Wallflowers, Larkspurs, Zinnias, &c. (which they have just received from the principal German growers), with every choice and novel kind of Flower-seed worthy of cultivation, Catalogues of which will shortly appear, and may be had on application. A few of the leading articles are subjoined:—

	s.	*d.*
50 varieties of the finest double, dwarf, and globular Asters, in original packets, as imported, 6*d.* per packet, or 12 for	5	0
50 do. do. Stocks, do., 6*d.* per packet, or 12 for	5	0
Emperor Stock, which lasts two or three years, and blooms twice a year per packet	1	0
Anagallis Parksii „	1	0
Brachycome iberidifolia (warranted) „	1	0
Cineraria, from the newest flowers of last year, per packet per packet	1	0
Calceolaria, do. do. per packet	1	0
Choice mixed Picotee, white, with yellow ground, per packet	1	6
Lisianthus Russellianus per packet	1	6
Martynia fragrans (true) „	1	0
Silene speciosa „	1	0
Thunbergia Frazeri „	1	0
Viscaria oculata „	1	0
Phlox Drummondii (dark variety) „	1	0
Primula sinensis (fringed) „	1	0
Nemophilla discoidalis „	1	6

If the last 14 packets are taken they will be charged 12*s.*
Nursery, Hackney, Jan 18, 1845.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, LANDSCAPE GARDENERS, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

ACHIMENES.—The following Collection of these truly beautiful and easily cultivated plants may be had, three bulbs of each for 7*s.* 6*d.*, or individually as follows:—

A. coccinea Cyrella pulchella, T. coccinea)	1*s* 0*d.*
A. grandiflora	1 6
A. longiflora	1 6
A. pedunculata	1 6
A. hirsuta	2 6
A. rosea	1 6

The above, or any of them, will be sent post-free to any part of Britain, upon an order for the amount being sent to J. MICKLE, Gardener, Folkestone, Kent.

Also, Martynia fragrans, 3 seeds, 1*s.*; Welcove Broccoli, a fine late indispensable sort, 1*s.* per packet, or 2*s.* 6*d.* per oz.

CUCUMBER and MELON BOXES and LIGHTS.—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-lights made, glazed, and painted, from 1*s.* per foot. Sashes and Frames made, glazed, and hung complete, 1*s.* 8*d.* per foot.—At JAMES WATTS' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

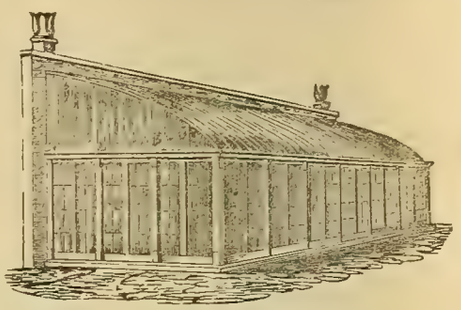
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

COTTAM AND HALLEN, ENGINEERS, IRON-FOUNDERS, &c., &c., No. 2, WINSLEY-STREET, OXFORD-STREET, LONDON, and at CORNWALL ROAD, LAMBETH.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with COTTAM'S PATENT or ROGERS'S BOILERS. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c., &c., and every description of Implement for AGRICULTURAL and HORTICULTURAL PURPOSES.

Show Rooms at their Manufactory, 2, Winsley-street, Oxford-street, where a large assortment of the above can be seen.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-st., every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field, and Garden Fences, Wire Work, &c. &c.

HOT WATER HEATING APPARATUS.—J PORTER begs to announce that, in addition to the many other and valuable purposes for which Galvanised Iron is peculiarly applicable, he is now manufacturing Tanks and Gutter for Vaporising, and Pipes for heating by top and bottom-heat, Hothouses, Pineries, Conservatories, &c. J. P. has also to state, that, having secured the assistance of parties of the greatest skill and experience, he is prepared to furnish Plans and Estimates for Heating and Ventilating Horticultural Buildings, Public Edifices, Private Houses, Churches, Warehouses, Manufactories, &c., accompanied by references to executed works. J. P. does not profess to offer any one particular form of Boiler as the best, to the exclusion of every other, but adopts those which will insure the greatest share of efficacy and economy, in each particular case.—Grove Patent Galvanised Iron Roof and Fence Work, Southwark, second carriage turning to the right from Southwark Bridge.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Jan. 18.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, JANUARY 18, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	Jan. 21	Horticultural	2 P.M.
TUESDAY,	Jan. 21	Linnean	8 P.M.
WEDNESDAY	Jan. 22	Society of Arts.	8 P.M.
SATURDAY,	Jan. 25	Royal Botanic	4 P.M.
MONDAY,	Jan. 27	Entomological	8 P.M.

STRIKING the LEAVES of plants is not, as at first sight may appear, a process more curious than useful. It is quite conceivable that it may become of the highest horticultural interest. Mr. Barnes, of Bicton, in another column, has suggested that the Camellia would be much improved if it was grafted on a better stock than that which is commonly employed, viz ,the Single Red; and he remarks that the unhealthy condition of Camellia reticulata itself is also undoubtedly owing to its dislike of that particular stock. He is probably right; and it would be desirable to ascertain, firstly, whether Camellia reticulata will not grow better if not grafted at all; and, secondly, whether it would not make a far better stock for the others of its race. But if this should prove to be so, there will remain the difficulty of getting Camellia reticulata cheaply enough to be used as a stock. Striking its leaves offers the only means of doing so; and there should be no greater difficulty in operating on it than on a Theophrasta.

This is, we trust, a sufficient reply to a correspondent who criticises the statement made by us last week, when we asserted that the operation of leaf-striking surpasses all others in interest and importance. That it is of the highest interest no one can deny; for what thing is there in the whole circle of gardening more surprising than the fact that a plant may be multiplied not only by its seeds, by its branches, and by its buds, but even by pieces of its leaves—by division of parts which the passer-by regards as mere objects of decoration, and scarcely of greater moment than the green shreds of linen and velvet which the flower-maker stamps into a wreath for a lady's bonnet. Can we possibly conceive anything better calculated to impress upon the mind the prodigious importance of these wonderful organs than a knowledge that they possess a vital energy of such force as to be able to produce a young plant? Physiologists teach us that leaves breathe and perspire; but common people can see nothing of that, and possibly disbelieve it. The microscope shows the leaf to be a most complicated and elaborate combination of tubes for carrying sap, and pores for ventilation, and twisted threads like windpipes, and cavities that act like stomachs, and long galleries of communication, a single square inch of which is more intricate than the skill of a thousand children of Dædalus could—we do not say contrive but—imagine. But there is not one man in ten thousand who possesses a microscope, or can use it if he has one; and statements like these carry no conviction to his mind; for he can see nothing more in a leaf than in a piece of paper or parchment. The regenerating power which a leaf possesses is one, however, palpable to the senses, and which all men can see; it therefore serves, better than any other demonstration, to impress upon the mind a conviction that it is an organ of the highest importance in the vegetable economy. For he must indeed be dull who can suppose that the office of propagation is intrusted by Nature to any except parts of the most essential consequence. That consideration alone should put an end for ever to the ignorant practices of smothering or destroying foliage, for which bad gardeners are notorious.

With regard to its importance in a practical point of view, that, no doubt, remains to be proved; and it is mainly in the hope that attention will be skilfully directed to it that these observations have been made. It will, however, we trust, be considered, that if the operation of striking leaves can be reduced to tolerable certainty, it will give a new arm to gardening; and it is only reasonable to conclude that if several kinds of plants will readily submit to such treatment, others may be brought to obey the same power.

As has been already stated, the problem to be solved is how to nourish a leaf, removed from its parent, as effectually as if it were in its natural position. The difficulties connected with the question will perhaps be diminished, if we first ascertain what the means are by which certain leaves have been made to grow already. Mandirola tells us that he struck his Lemon and Orange leaves by keeping the soil in which they were inserted continually wet; that those of July, August, and November struck best, and the spring leaves worst. Mr. Knight, who made the leaves of the common Peppermint grow, planted them in the early part of summer, in small pots, in heat, under glass. Bits of Watercress leaves will strike root freely; but it is only such as float on the water. A curious instance of this is mentioned by Turpin. The larva, he says, of a species of Phryganea, very common in ditches, uses its sharp jaws to cut in pieces the leaves of the Watercress, in order to form the sheath in which it lives. But the stalk is the only part of which this little creature makes use; the leaflets it snips off; these, abandoned to their fate, float about until they shoot out a few rootlets; next follows from the centre of such roots a conical bud, and presently afterwards a young plant springs into existence. The common way of converting succulent leaves into plants is to place them on damp sand, under a bell-glass, or without one, according to the nature of the leaf. Mr. Neumann does not tell us how he struck bits of Theophrasta leaves, and we therefore conclude that it was done under bell-glasses like other cuttings: he, however, states that the end of the stalk should always be a little buried in the earth, and that the leaves should be taken from the *middle of a branch*; the result is then more certain than if "radical" leaves are selected, by which we suppose him to mean leaves near the bottom of the branches.

It is clear from this that water is employed as a substitute for sap, in order to nourish the leaf, and that this is mainly relied upon. There are, however, some other points to which attention should be directed.

Of these, the first is to select leaves at the right season: if they are too young, they are not capable of feeding themselves when sundered from their parent; if too old, their vigour is impaired, and their vitality on the wane; this, too, diminishes the chances of success. Hence it was, no doubt, that Mandirola preferred the leaves of July and the following months—a period when the Orange leaf in Italy is in its greatest vigour; and this, too, seems to explain the reason for Mr. Neumann's direction, that leaves should be taken from the middle of a branch.

A second precaution should doubtless be the application of more warmth than the leaves had been previously subject to. All the vital energies of plants are increased under the influence of heat, and in a case of this sort nothing should be neglected that would stimulate the flagging powers of life. Aided by warmth the leaves form their secretions faster, generate their cellular matter faster, and so form their callus sooner. Quickness of action is everything in such an operation as leaf-striking.

A third condition to insure will be perfect equability of moisture; the leaf must not be expected to feed by the end of its stalk exclusively, but food must be presented to its whole surface: not, however, too much, nor too little. If too much, the leaf will be unable to digest it, and will perish of repletion; if too little, the cells will collapse, their excitability will be impaired, and there is an end of the experiment. In this consists the great difficulty of the operation, for leaves have very different powers of taking in food and of digesting it; and nothing but experience can adjust exterior conditions to the peculiar organisation of species.

The last point to which we need direct the attention of our readers is the necessity of exposing leaves to the free action of light. In natural conditions, a leaf does something more than feed—it breathes. The one act is as needful as the other. In the light, respiration goes on freely; in the dark, it is suspended, or at least is much impeded. But in sunlight, a leaf not only breathes, but loses water—a circumstance of no importance to it while upon its parent plant, because all loss is then made good from instant to instant, through the veins which pass out of the stem. Separated from its natural source of supply, the condition of the leaf is entirely altered; and it cannot be expected that the loss occasioned by evaporation should be as equally and instantaneously compensated. The only way of meeting this difficulty is by covering leaves with bell-glasses, whose edges are sunk in the damp sand, or earth, in which the leaf is to be struck. In this way, the leaf will always be in contact with moist air. Under a bell-glass, the perspiration of a leaf in sunlight is then so much diminished as to be of no importance, because, if the leaf is losing water, it is also absorbing it, and this as copiously as its necessities demand. It may therefore be exposed to the conditions favourable to its breathing, without danger of injury.

We are not, however, prepared to state whether thin leaves will really bear any amount of sunlight under the circumstances just described: that is a matter for inquiry; and we now commend it and all other questions connected with this operation to the ingenuity and skill of those whose knowledge of plants enables them to grapple with difficulties. We may be sure of this, that no one can institute a series of experiments into the subject of leaf-striking without gaining very valuable physiological information, whether he succeeds in the attempt or not.

WE were not an hour too soon in our warning. The *fleuristes ambulantes*, whose kind intentions were exposed by our Paris correspondent (p. 6), are here. One set has landed at Southampton, and another is established in London.

The former of these worthies offers *blue* Asphodels, *red* Asphodels, the Emperor of China, Cardinal Tonkin, Aurora, a climbing plant to decorate a summer-house, bearing 50 flowers on the same stem, of different colours, with the smell of the Jonquil, and remaining in flower 4 months; the Imperial Rush, which grows 6 feet high, violet and blue, with a white heart, and remaining 4 months in flower, &c., &c., &c. The other honest man will sell Yellow Oleanders, Yellow Moss Roses, Violet Asphodels striped with yellow, and Green-yellow Anemones, blue in the middle, and "flourishing" every three months.

Surely no one will be simple enough to fancy that these attractive descriptions belong to anything new. It is ten to one that the blue Asphodel is the common Harebell; and as for the other fine names, people may depend upon it that they belong to things just as common, if, indeed, they can be made to apply to anything. We would just take the liberty of making one suggestion. Good-natured people are apt on these occasions to say, "Oh! the things are very cheap; I will just buy a few to try; there is no harm in that." With all submission we would represent that it would be far better to give the money to the first poor person they may meet.

We trust that these industrious gentlemen will not find John Bull so great a fool as they take him to be.

PLANT POTTING.

THERE is nothing attending successful culture of so much importance as good potting. A great deal more depends upon this than people are aware of, and I will venture to say that there is no instance of first-rate cultivation without it. There are few gardeners who have produced specimens of any merit, that do not make this an important part of their work, however large their charge may be; they consider, and wisely, that bad potting with good soil, has less chance of success than good potting with bad material. One of the best cultivators which this country has produced, and the fame of his success is not less extensive than it justly merits, has laid it down as a rule in practice never to suffer any one to perform this work but himself, however great his pretensions may be, and no one can deny but that his time has as many demands upon it as that of most people—I allude to my friend, Mr. M'Nab, of the Edinburgh Botanic Garden. His success in the culture of Cape Heaths, and, in fact, in the entire extensive collection under his charge, betrays such fine cultivation as to be the admiration of every one; and to judicious and well-timed potting, performed with his own hands, may be ascribed much of his success.

Good potting, like good trenching, is the first step in good gardening. Indeed no one need make pretensions to plant-growing at all, in these days of improved and improving cultivation, unless he understands potting both theoretically and practically. Theoretically, that he may calculate precisely on the result; and practically, that he may render his calculation beyond defeat. A man may travel from Dan to Beersheba in quest of soils and manures, and may fill his compost yard to the very gateway with every variety and description of material imaginable, but all this will be of no use unless he opens his eyes, and applies his hands at the same time.

Enter even some of the principal establishments in the country, and you will find this one complaining that his Camellias do not blossom, or that all the flower-buds drop off; another, that his Heaths are stunted, and look yellow; and a third, that his stove-plants lose their leaves, and never flower well; in fact, these complaints, with their apologies, are as thick as blackberries. Pray just examine the roots of these plants, and marvel not at this; why, one may as well expect a Carrot to grow a yard in length in the middle of the turnpike road as to imagine that plants will flourish under such treatment. If you examine the roots of the Camellias, you will find the ball of earth to be as hard and as dry as a clinker, and more fit for a cannon-ball than a ball of earth through which the roots of plants are expected to penetrate and derive nourishment. The water which is supplied passes down the sides of the pots, and escapes at the bottom, without being of any further benefit. The surface of the pot looks all right; and if the plant is turned out, no unusual appearance is presented; but cut it in two, and you will find it fit to burn. This will explain the reason, in nine cases out of ten, why the buds drop off the plants instead of opening in a kindly and vigorous manner. Such also will be the case with the Heaths. The stove plants are in all likelihood suffering from the opposite cause.

The pots, even in this instance, may have been drained, but the unctuous soil and slovenly potting has produced the evil. No doubt the compost used has been quite fine enough, with a good mixture of decomposed manure, containing a tolerable breed of small worms, which increase in size under these favourable circum-

stances much faster than the roots. Besides, in all probability, no preparation has been made to prevent the soil from mixing with the drainage. The worms increase in activity with the increase of temperature, and the result is a series of soured puddles that would almost kill the common Crowfoot. Such, I will venture to say, is no overdrawn picture, and by no means beyond the truth. Let us, however, hope for better things; meanwhile investigate the matter, and resolve that this must no longer be.—*Duro.*

THE HIGHLAND PINE.

In Scotland there are forests of Fir-trees that extend over many square miles, and from which clouds of rooks come in search of food, sometimes in such heavy columns as rather to create alarm among farmers, as to where and on what they are to dine; and if it were not for the mountain Pine, which yields them food as well as lodging, they would soon be called by dishonest names, which they would, no doubt, deserve; yet, of these clouds of crows, as they fly high and glide harmlessly overhead on their homeward passage in autumn evenings, Scotland may be proud; for these sable birds have had their homes in the Highland glens time out of mind, and have sowed the seeds of almost all the Fir-trees that are to be found in the natural forests. It is well known that the rook has a natural propensity to steal away to some lonely quiet place with its *morceau*, such as a Fir cone or a Potato, and there to eat what he can, leaving the rest, which, in the case of the Pine cone, is just what is necessary for the production of timber; for the first heavy snow presses the shattered cone, with any seeds that may remain in it, close to the ground, and these seeds, finding themselves in good circumstances as to soil, moisture, and heat, soon vegetate in the open heath, and eventually become trees. Here, then, is a lesson to be learned from the crows.

But lest any one should imagine that labour is ill bestowed if applied to the growing of Scotch Fir, I would state that few can form any correct idea of the true character of the mountain Pine from the samples generally seen in English screen plantations, where this noble tree is made the nurse and drudge of something else for which the soil and climate are better adapted, the muddy swamp and arid barren steep being alike unfavourable to its perfection. Nor need we look to plantations of Scotch Fir in England and Wales for better samples, for though the soil and climate may be suitable, the systematic butchering of the young trees by the scientific pruner, renders the forest only a host of stalwart cripples. Common sense and observation cry aloud that trees abundant in resin and gum must be injured by pruning, which is only another name for wounding. Let any one make a tour in the Highlands and islands of Scotland, and when he has seen in the Highland glens and straths, the patriarchs that have been planted there by the fowls of heaven and that have never known what culture, pruning, or protection meant, and, after visiting the few trees that remain of what were once the forests of Rothiemurchus and Glenmore, and having seen the sylvan beauties of Braemar, he will then be able to judge more correctly of the merits and individual beauties of this valuable tree. The stumps of the departed are more than a man can stride across, so that "from the stubble you might guess the grain;" whoever has seen these, and compared their stately grandeur and the quality of their timber with the Scotch Fir that we now generally see in England, would scarcely credit his botanical skill, that these stunted wretches could be akin to the fine flat-headed picturesque trees that form the chief ornament of the "land of brown heath and shaggy wood." I need scarcely remark that the mountain Pine will thrive at great elevations, rearing its stunted branches very near the marches of perpetual snow; it is to be found warring with the elements for the last inch of earth whereon to rear a tree for the use of man.

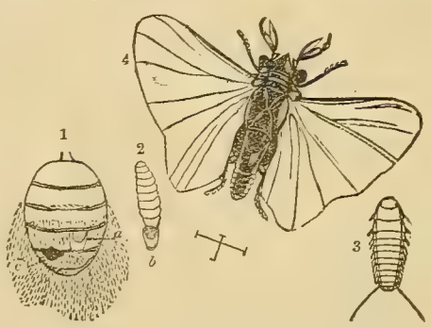
This tree, therefore, may be counted first-rate for shelter; for whilst deciduous trees desert us in our utmost need, and offer for protection from the storm only a naked trunk and leafless branches, the mountain Pine, after it has subdued the intensity of the summer light and heat, has reserved for the wintry wind its rank and file of wiry leaves: and when to its hardihood, its shade, and shelter, we add its rapidity of growth and the value of its timber, it becomes a very desirable article—a sort of standing crop for all the dry land of the kingdom that is not already more profitably employed. But, lest I should be misunderstood, I beg that it may be borne in mind that this high character belongs only to the red Scotch Fir—the Pinus silvestris, var. horizontalis. Some idea may be formed of the cheapness of its seeds when I mention the fact that grown plants are sold at 1*s.* a 100.

In planting, let me entreat planters to consider that the tearing up a plant to be replanted by the roots must injure it, not to speak of the change from a warm and crowded nursery to a cold hill-side, where the transplanted tree has to war, as it were, single-handed with the storm. Such treatment is decidedly unnatural; therefore, in order to avoid these evils, I would plant the Fir-trees, not in the form of plants, but in the form of pellets as large as Walnuts, each containing one seed; the pellets to be made of clay, mixed with a little chopped straw, or similar material, to make them strong. In this form the planter, after preparing the ground for the pellet by turning a Grass clod the wrong side up, lays the pellet on it, and gives it one good tread with his foot, and the work is done. The seed has thus now a first-rate compost to begin the world with, and cannot be planted either too deep or too shallow. Moreover, the pellet is of a reasonable size, that labouring men and boys may finger without risk of spilling and losing the seeds, which would be the case with bare seeds. Proprietors of waste land, however high and dry it may be, are now altogether left without excuse, if they allow it to lie idle any longer. The beauty of the real mountain Pine when living, and its value when dead, are not to be called in question; and seeds sufficient for a large plantation may now be bought for a crown, and sent by post from one end of the kingdom to the other for a groat; and planting in pellets has reduced the art to plain clod-hopping. Surely, if rooks succeed in rearing forests where never tree has been, man, with reasonable pains, need not despair. And what more could we wish for, when we see Nature, year after year, folding for our use forests of Fir-trees, in the form of seeds!—a form by far the most portable, safe, and simple, that trees could travel in; and all experience goes to prove that trees planted out young thrive better than those at more advanced stages; besides, at no period of their growth can they be more easily transmitted from one place to another, free from injury, than before that growth begins.—*A. Forsyth.*

ENTOMOLOGY.

Stylops Melittæ(?).—The more we study the wonderful works of creation, the greater will be our astonishment and delight at the power and wisdom which are manifested; and we believe that in nothing on earth is this more strikingly displayed than in the economy of insects: their transformations are marvellous, their instinct is incomprehensible, their varied forms and curious mechanism are full of instruction, the beauty of their colours delight the eye and gladden the heart, and when we contemplate these legions and consider the check which one tribe holds upon another, maintaining that delicately adjusted balance, which prevents the noxious species from overpowering the industry of man, at the same time never pressing the destroyer to extinction, one may well exclaim, with the Psalmist, "O Lord, how great are thy works! and thy thoughts are very deep."

The economy of Stylops has puzzled entomologists for many years, but we are now making rapid advances towards a perfect knowledge of its history. The following sketch of its habits will show how very dissimilar it is to other insects:—The male is winged; the female is wingless, has no legs, and is altogether deprived of locomotion; the eggs are hatched in her abdomen, and the young larvæ go forth and return to the matrix at pleasure, until they have an opportunity of attaching themselves to some other bee, in order to be transported to her nest, where they insinuate themselves into the body of the young bees; they there lose their legs and every other member, and become comparatively great parasitic maggots! If such an anomaly were to occur amongst birds, what would naturalists say? and why should it be less deserving of our attention because it is an insect? There can be no reason, unless it be that it is diminutive in size; but this objection falls to the ground by the aid of the microscope.



On the 16th of last May I caught an old female of Andrena nigroænea on a Nut-bush, and seeing that it was infested by the Stylops, I placed it under a tumbler with sugar and flowers; but the bee was restless, and being removed to a breeding cage, it died in a few days. I then examined the abdomen, and saw three objects protruding from under the fourth segment: they were, as is usually the case, of an ochreous colour, and rounded (fig. 1, *a*), and are generally described as the larvæ of the Stylops: having passed a pin through the thorax of the bee, I placed it in a box containing some camphor, and in a few days I saw the abdomen surrounded by a vast quantity of what appeared to be dark dust (fig. 1.), but on examining it with a very high power, the particles proved to be excessively minute animals, smaller than the finest dust, and of which there must have been a thousand individuals, unfortunately all dead: they were pale ochreous, elliptical, depressed, and pubescent; the head was broad and semiorbicular, with two minute black eyes; there were two or three indistinct thoracic segments, and eight or nine short abdominal ones, the last furnished with two long divaricating hairs, and six articulated legs were visible (fig. 3). There can be no doubt that these little creatures are the larvæ of a Stylops, probably the S. melittæ of Kirby, for that they were bred from the cases in the abdomen of the bee is certain; it consequently follows that many of the ochreous objects protruding from the segments must be the females (figs. *a* and *b*), which, like the same sex of Psyche, and some other Lepidoptera, are larvæ-form, and never leave the case in which they lived during their imperfect state; when the segments of the bee are removed, the fleshy bodies and ovaries of the female Stylops are found to ascend nearly to the base (fig. 2.)

Some of these objects, however, are pupæ, which are broader than the females, and produce the male flies (fig. 4); these are intensely black, and velvety; the antennæ are large and six-jointed, two basal joints short, third produced internally, and forming a concave sheath; fourth large, fifth obovate, sixth slender; the head is broad, the forehead conical, with a large prominent granulated eye on each side; trunk very long and broad; abdomen short, narrow, and composed of several segments; the apex acuminated and incurved; pseudolytra small, inflated, and rounded, attached to the mesothorax; wings very ample, fan-shaped, folding longitudinally, milky white, iridescent; the costa thickened and fuscous; the four anterior legs approximating the third pair, very remote; the four anterior coxæ are very large; the tibiæ are not spurred; the tarsi are four-jointed, and surrounded by a pubescent membrane; claws none.

From these facts I concluded that the female remains in *situ*, the eggs being matured in the abdomen until the young larvæ issue forth, when, it may be presumed, they either insinuate themselves between the abdominal segments of younger bees in the nest, or else in the nymphæ, and are there nourished until they attain their full growth, when they become male and female pupæ. Since my observations were made, I find that Mr. Westwood had described the parasitic hexapods;* and I have seen the account also given of them by Dr. Siebold, in the "Revue Zoologique," where he states that the little larvæ penetrate the bodies of the maggots of the bees, when they change their skins, and become footless white worms; and when full grown, they force their thoracic heads out between the segments of the bees.

It is likewise very remarkable that these hexapod larvæ bear a considerable resemblance to the pediculiform animals found upon bees, saw-flies, sand-wasps, &c., and supposed to be the early or larvæ state of the Meloe, amongst which are the Pediculus apis of Fabricius, and the P. melittæ of Kirby's "Mon. Apium Angliæ," vol. i., pl. 14, f. 10. It must be observed that fig. 1 represents the abdomen of a wild bee; *a* shows the head and thorax of the female Stylops, and *c* the cavity after all the larvæ had hatched from a similar animal; the atoms surrounding the abdomen are the hexapod larvæ; the cross lines exhibit the natural dimensions of the male. The dissections and histories of three genera of the order Strepsiptera will be found in Curtis's "Brit. Ent." fol. and pl. 226, 385, and 433.—*Ruricola.*

FAMILIAR BOTANY.

Disease of Gold Fish, No. II.—An ingenious man would have no difficulty in writing a Romance of Vegetable Life; and if it should have less interest with some readers than a fashionable novel, it might, at least, have the advantage of being real. What a tale, for instance, could be woven out of the history of the Achlya! Of what a world of prodigies is it the wondrous herald! The mere fact of a living plant attacking a living animal and killing it, is something that the mind recoils from in absolute horror. If gold-fish die this miserable death, how are we to know that our own turn may not come next? Only conceive a Fungus rooting among the hair, and spreading its hideous arms over the scalp! Fancy it fastening upon the gums, and running into the lungs! Just conceive a human being attacked by dry-rot, like a kitchen-floor! This not only *may* happen, but *has* happened, and probably occurs in disease more often than we suspect. Ugh!

But I must not venture to draw the veil from before these horrors—my business is with Achlya. Mr. Goodsir found it on Lady Brisbane's gold-fish; and it has been remarked on the same animal by the late Mr. Daniel Cooper. According to German writers it attacks frogs and newts. Unger tells us, that about Gratz it is so common as to be seen upon the fresh-water fish brought to market; and that in one case a fish-pond was actually depopulated by its attacks. It is, in fact, only too common. When we see little tufts of what seems cotton wool attached to the gills or tail of gold-fish, that is the enemy.

I do not find any information as to the mode of arresting the advance of this pest, except a statement by Unger, that the German peasants believe the fish able to get rid of their parasite by rubbing themselves against coarse sand or gravel. But, considering the nature of the Achlya, it does not seem a difficult matter to destroy it. It is evident that it is very short-lived; its history, too, informs us that it cannot live out of water. But if it has once attacked a place it is impossible to tell whither it is gone, for its seeds or germs are much too small to be seen; and it is improbable that it will disappear so long as there is water for it to generate in. Considering, too, its wonderful rate of multiplication, it is evident that the least sign of it upon a fish is to be regarded as a warning that every fish in the same water-vessel may be attacked—that millions of invisible germinating motes must be dispersed through the fluid in a few hours.

We would suggest that the best course to follow is probably this:—1. To remove any fish that is attacked. 2. To transfer the others into clean *rain* water, and to watch them; if the Achlya remains attached to their bodies, it will soon show itself; and the specimens attacked should be removed again. 3. Rain-water should be far more pure than that of lands or ditches, in which the seeds of Achlya are too apt to lurk. 4. As to the vessel in which the fish have been attacked, it is probable that simple drying would purify it: but in order to insure the destruction of the seeds, it would be as well to dis-

* Trans. Ent. Soc., ii., p. 184.

solve some green or blue vitriol, or wood-ashes, or common soda, in the water, and to leave it for a few hours before emptying it out. Afterwards it would require to be thoroughly washed with pump-water, and subsequently dried for a few hours.

Such a plan would probably drive off the enemy—at least, it is worth the trial. If any one has a better method, I dare say he will have the good nature to communicate it, for the sake of our fair correspondent, and her beautiful plate-glass fishpond.—*R. E.*

Home Correspondence.

National Plantations.—In this age of inquiry, in which the public mind and the public purse are both actively employed to discover improvements in science and practice, I hope a plain Englishman (of the old school of that family) may be permitted to address you on a subject, which nothing can occur to prevent being one, through all time, of the deepest interest to Britons, whether as it has regard to the ornament, the wealth, or to the security of our country in its hours of conflict and peril. My object is to bring before the Lords Commissioners of the Woods and Forests the consideration how their trees may be most profitably planted, pruned, thinned, and generally improved by the aid that is in the power of man to offer for those important purposes. I have been led to introduce this subject for consideration, because I have seen in the *Chronicle*, and other Agricultural Papers, discussions on these subjects at the greatest possible degree of variation from each other—some Papers seeming to be written physiologically and philosophically, and others in a plain matter-of-fact way, giving the period when the plantations were made, the nature and elevation of the ground, the course pursued at all times and all seasons in pruning and thinning, at what time these thinnings and prunings commenced, how long the system has been persevered in, and what have been the results. In addition to all this, that which above all satisfies me, that this plain matter-of-fact way of stating things is well deserving of attention—is this, that the public are invited in one instance to inspect minutely these woods, and assured that the planting-steward of them has directions to accompany any and every person who will please to minutely examine them, and who thus may learn all that is necessary in regard to all the points to which I have alluded—nature of the soil, its elevation, period of planting, mode of training and pruning, effects resulting therefrom in regard to the appearance of these plantations as ornaments to the district, or at present producing repayment for money expended in purchase of ground, and of labour and general superintendence. To those who have attentively read the papers to which I have referred, it will immediately occur, that I have been led to this communication from what has been written about woods in Wales, which, indeed, I believe have given rise to these discussions, so exclusively, that I may term them the Welsh controversy. Namely, whether the mode of managing plantations on the system there pursued (I think for upwards of 40 years) ought to be encouraged or rejected? It is clear that those who have examined and have reported their opinions respecting them, think it is a system highly to be approved of, and which ought generally to be adopted; but the strongest ground for my conviction on this subject is this, that the adversaries to it are invited to examine these woods, and are promised every assistance by the wood-manager on the spot. And now I come to the point where I think the Commissioners of Woods and Forests might take a course of the greatest benefit to the public, not only as regards planting grounds connected with their office, but the general improvement of all grounds to be planted, and the encouragement of all the gentry of the country, who have lands to improve by plantations—nay, who have only hedge-row timber to turn to the best advantage. The course I would presume to recommend is as follows: that wherever there are plantation grounds under their trust, they would set apart a few acres, land of equal elevation and equal value; on these acres, to direct their officers to try the various experiments as described by the various upholders and practitioners in their respective systems; five acres for each experiment would, I suppose, suffice. No great loss would be sustained, because the defenders of each think their system the most beneficial; but even if failure followed in any case, the public must benefit, because the experiment will have established what is the best. A few years would suffice to test the subject, not only as regards the public forests, but those of private individuals. I beg pardon for extending this letter to so great a length, but the subject of it merits, in my humble judgment, the most serious attention of the Commissioners of the Public Forests of this country, if they wish to insure to our navy at all times "hearts of oak" in our ships, as well as our men.—*One anxious inter Sylvas quærere verum.*

Gardeners' Clothing.—It is astonishing to witness the disregard evinced by most people, and by gardeners especially, as regards proper clothing. We see every day men working in the open air in bad weather, drenched to the skin, liable to colds, rheumatism, loss of time, and all its attendant miseries, and even death itself, when a 3*s.* 6*d.* oil water-proof cape would keep them dry, warm, and comfortable. This the most useful article of clothing ever invented, as it is not in the least inconvenient, leaves the arms at liberty, and can be easily laid aside when not wanted. I have seen gardeners making useless attempts at work, blowing and beating their hands about, rather than procure a shilling pair of gloves. If they could only see the cheerless, shabby appearance they make, they would set about and remedy the evil immediately. The above two necessaries are to be had at a trifling expense, and would make a vast addition to the comforts of every one.—*A Lover of Comfort.* [As we never wear gloves ourselves, we cannot recommend them to gardeners, unless they are employed in pruning thorny plants. A man might as well put a bag on his nose, as a glove on his hand. We do not fancy tender-fingered gardeners. Oil-skin capes are of a very different degree of necessity, and we wish they were in general use. Keep the body dry, and the feet warm, and the fingers will take care of themselves.]

Florists' Flower Seeds.—Allow me to pour out my complaint to you, as a kind sort of a go-between and universal friend to the gardener, gentle or simple. I have been in the habit of purchasing various sorts of seeds advertised, and with a wish to vary and to improve my stock of Pansies, I have embarked in the purchase of that seed also; and seeing respectable names and celebrated growers of that beautiful flower attached, announcing for sale packets of "choice and select" Pansy seed, I have gone to them for supply. But alas! as yet, the produce of the "choice and select" has been only such as I have discarded from my borders as rubbish. Really, 5*s.* and 2*s.* 6*d.* is plenty for a tea-spoonful, or half that quantity of seed, to insure better results. And I trust, through your intervention, I may meet with better treatment for the time to come. I mention no names. *Verbum sat.*—*An Original Subscriber.* [We believe that the *choicest* seed is always saved by florists for their own growing. It would not be worth their while to sell *that.*]

Potato Culture.—My experience is decisively in favour of nipping off the blossoms, but that experience was gained in Essex, on a siliceous soil resting on gravel. In that soil the Potato-plants never had an exuberant foliage; but where this is the case, the plants thus intimate that they have an over-excited vigour. This, if not allowed to be expended in the formation of seed, will be directed to such courses as forming stem-tubers, with a still longer development of foliage; and these excesses will be at the expense of the root-tubers. In this, as in all other rules for culture, the gardener must modify it as circumstances require. The practice is of universal applicability, but each has its exceptions, which every gardener may discern if he tests it by asking of himself this question—What is its purpose?—*G. W. Johnson.*

Potatoes.—I agree with "E. D. F." as to the injury of removing blossoms from Potatoes. In the year 1843 I caused the blooms on each alternate drill to be taken off as soon as they made their appearance, by way of trial, on about half an acre. At the harvesting I paid particular attention to the result, and as far as I could judge from observation, those having the blooms produced the best crop. Last year I planted a few drills with whole sets, of a size not larger than that of a pigeon's egg; the product from these was an abundant crop of full sized, or rather large Potatoes. I have never had a failure in my crop. At planting time I cause the seed to be carefully selected, taking only those tubers that show symptoms of growth, but not so far sprouted as to endanger the young shoot being broken off, and always plant on the day on which I cut the seed. —*A Subscriber, Aberdeen.* [This does not convince us.]

Potatoes.—Having been induced to cut off the flowers of my Potatoes, in consequence of advice given by some of the correspondents of the *Chronicle*, I have to state that it did not at all answer the desired end. I did it by topping every other bed in about 30, and found in digging them up, that those uncut produced a considerably more abundant crop.—*T. E. Cole, Aston Hall, Hawarden.*

Potato Planting.—From what appeared at p. 801 of last year's *Chronicle*, respecting planting Potatoes in autumn, I was induced to plant a few early Kidneys on the 2d of Dec., in an exposed situation in the garden. The tubers were buried only 3 in. below the surface, merely as an experiment, and I think that we have had quite sufficient frost here to put the thing fairly to the test. I examined them on the 4th of this month, and I find that they have not been injured in the least, and in fact vegetation has clearly taken place. I planted them without any horse or cow manure, but a little guano was given them. They had no artificial protection whatever, and I have no doubt that the earth was frozen both above and below the Potatoes. They were planted whole; and I find that a neighbour has been trying the experiment for the last two years, of planting his early Potatoes in his garden in October; and that he has found that they are at least a fortnight earlier than those planted in spring, and that they also produce a better crop.—*M. Saul, Fort Green Cottage.*

Potatoes.—I have observed lately the result of some experiments which had been made in raising Potatoes; and from trials which I have also made, I entertain no doubt but that planting whole Potatoes of a middling size is by much preferable to those which are cut. In dry ground, or in ordinary seasons, the latter, no doubt, grow very well, but there is always a loss by cutting in pieces the large Potatoes, while the others are ready, are not so valuable, and have the skin entire. In damp or wet ground not thoroughly drained, or in cold backward seasons where vegetation is checked, the cut sets parch and never grow, so that blanks of some yards are everywhere visible; whilst the drills planted with whole Potatoes are as close as a hedge. I have also made some experiments as to the best and easiest mode of keeping the one crop of Potatoes in a proper state for use until the following crop is ready. Persons residing in the country who have frames of glass, can have Potatoes very early; and they can also have old Potatoes kept in pits in the earth, &c.; but people residing in towns, the lower classes especially, have no such conveniences. In the spring, when the Potatoes begin to grow, they send out long shoots, and when these are removed others succeed—the root all the time shrivelling, and wasting its substance. An effectual way of killing the vegetative powers at that period (and no sooner), occurred to me. The heat of boiling water being 212° and three minutes being sufficient to boil an egg, the question came to be, how short a time would effect the present object? and an immersion till a person could count six, seems amply sufficient: this might be tested exactly, and be done on a large scale with a copper and netted bag. Potatoes so served keep for many weeks quite plump and fresh, and until new ones could be got in the market at a reasonable price. This plan may also be useful for preserving them longer fit for use at sea, where vegetables are not to be had.—*Observer.*

The Misletoe.—I have seen Misletoe (see p. 856, 1844) growing freely on the large branches of the common Laurel. I also observed that on the Whitethorn its fibres extend under the bark, and appear to send forth branches when the plant is broken off, which may account for some trees being so much infested with this parasite.—*N. S. H., Bury St. Edmunds.*

Camellias.—If men would turn their attention to finding a stock that would improve the growth of Camellia reticulata, and prevent it from becoming variegated when old, something of importance would be effected. Poverty is the cause of the plant becoming variegated, as I am ready to prove, through its being unnaturally grafted or inarched on the Single Reds, and on others of slower growth and with a weaker habit than itself. These are incapable of supplying the full demands of reticulata, which is naturally a stronger grower than most other varieties. If C. reticulata were grown for stocks, on which to graft our best varieties, I have no doubt we should soon see a vast improvement in the Camellia; and if it were grown on its own bottom, we should soon lose sight of its unnatural variegation.—*James Barnes.*

The Tomtit.—I have been observing a friendly contention in your columns as to the merits and demerits of Mr. Tom Tit, and certainly so far that little gentleman has it. I have, however, one accusation more to bring against him, and shall be much obliged to any one who will tell me how, in a delicate way, to cure him of his roguery and cannibalism. I certainly am a lover of "all the brave birds of the air." The

"matutini volucrum sub culmine cantus"

is particularly delightful anywhere, except "sub culmine" of my bee-house. My gardener tells me that a shrubbery at the bottom of my kitchen garden abounds with the family Tit; and that he observes them come down on the roof of my wooden bee-house, and tap upon it until a bee comes out, when he jumps down and pounces on the poor bee and eats it. This murder is going on daily to some extent, and I am almost tempted to let my man have his wish "to have a shot at the thieves," rather than lose more of my industrious little friends. Will Mr. Bree, or some other of Mr. T. T.'s counsel, give me a remedy—bail for his better behaviour? My wooden bee-hive I am leaving on its stand in the garden under an open shed. Mr. Cotton recommends the hive to be taken up and hung up in a dry out-house to the roof, wrapped in a dry linen cloth. Might I not put a mat over the hives as well as on their stand, or a cloth, or cover up their entrance to keep them in till spring (as they will come out these warm days and often perish), and so save them from dying of starvation, or the ravages of that bee-slayer Tom Tit?—*Northwood.*

To Secure the Fruiting of a Tree.—The following directions may, probably, be interesting to some experimentalists and amateur gardeners. They were given to me several years ago by the late Lady G. Murray, but I confess I am unable to say, from practical experience, whether they will have the desired effect or not:—Select a tree well furnished with blossom buds, just as they are beginning to expand. Take a Potato-fork and with it make holes all over the surface of the space occupied by the roots, heaving the earth by pressing on the handle, and with this exertion make holes about 18 inches apart. Having dissolved 1 oz. of nitre to 3 gallons of water, fill the holes with the solution. No manure must be given. Should, after stoning, the tree appear unable to sustain the fruit, the following preparation may be applied in the same manner. To 1 gal. of blood add 1 gal. of water and 1 oz. of potash. Stir the whole well together, and when it has settled, pour off the liquid, and mix 1 gal. of this liquid with 1 gal. of water and pour it into holes made in the manner already described.—*M. E. H.*

Willcove Broccoli.—The name of this variety is derived from a little village on the western side of the Tamar, about a mile from Devonport, which has been proverbial for the last 30 years as producing the latest Broccoli. This sort is brought to these markets in great abundance when all the others have gone out, and immediately before the Cauliflowers make their appearance. The seed is invariably sold as the "Late Willcove Broccoli," and not as the earliest, as has been stated in the advertising columns. It is a good late kind, and is grown in great perfection at Willcove, where the soil appears peculiarly adapted for it.—*Brassica.*

The Oak.—I am indebted to a friend for the discovery of the following curious passage in the article "Chêne," of Jaune Saint Hilaire's "Plantes de la France," a work not of the highest authority, but a pleasing book of reference, and possessing the rare excellence among books of coloured plates, of not colouring beyond the modesty of Nature. The date of the publication is 1819, when wars with France were "Modern History," and our ports

contained more French-built war-craft than they do at present:—"Pendant mon séjour en Angleterre, je m'aperçus qu'on faisait le plus grand cas du Chêne Anglais, et qu'on regardait son bois comme supérieur à celui de tous les Chênes d'Europe. Cette préférence n'est qu'une conséquence de la prévention nationale pour tout ce qui est Anglais. Elle n'est pourtant pas entièrement dénuée de fondement, parcequ'on n'a comparé le bois de Chêne Anglais qu'avec celui de la marine royale, qui vient ordinairement de Dantzic, qui est mou et ne résiste pas longtemps au service des stations maritimes; mais si on avait comparé le bois de Chêne Anglais avec celui de nos provinces Méridionales, on trouverait une différence en faveur de celui-ci, encore plus grande qu'entre le premier et le Chêne du nord de l'Europe. Je suis convaincu que les meilleurs vaisseaux de la marine Anglaise ont été construits à Toulon ou en Espagne." Besides the amusing *naïveté* of the last passage, we may gather from the whole of this quotation a corroboration of the opinion of the Editor of the *Gardeners' Chronicle*, that Oak-trees of quick growth afford the best timber.—*P. P.*

Deane's Stoves.—I see you make inquiry about Deane's Stoves. Some time since I wanted to try the tank system for bringing forward cuttings. I had a wooden tank made 12 feet long and 3 feet wide, with a division in the middle for the hot water to flow round; this I covered with slates, leaving a small chimney at each end for steam to escape, which I could close or open by covering with a tile. On this tank I put two Cucumber-lights—it answered very well; and in which I grew also Melons and Cucumbers. To heat it I used one of Stephenson's Conical Boilers, and, by properly making up the fire at night, it was not out in the morning. I afterwards got one of Deane's Stoves, and carried the pipe through the top under the glass, for the purpose of top-heat. I found the dry hot air answer all the purpose for which I intended it—that of preventing cuttings damping off, as well as giving top-heat. It would answer every purpose for a small greenhouse. I have this season forced Rhubarb and Asparagus with the same arrangement; it is decidedly more certain and more economical than dung for small garden purposes.—*T. W.*—[The stove called Deane's is an ingenious contrivance for adding effectual ventilation to a Joyce, or Chunk, or Vesta, or Arnott stove. We have not seen it at work.]

Tulips.—Having seeded about a dozen of Tulips in my bed, I allowed the whole to remain in the ground until the beginning of August; and after taking them up, and drying them in the shade, and then in the sun, they were put into boxes, arranged in a single layer. Inspecting them about three weeks afterwards, I found that they were all, more or less, mouldy. I cut out all the infected parts, and immediately planted them; they grew vigorously, and most of them are now up, but they appear sickly, and the roots are surrounded by mould. In France the Tulip is occasionally attacked by Sclerotium tuliparum. Is this the same Fungus? It is not described in the last volume of the English Flora. At the time of planting, I dipped three bulbs in a strong solution of common salt, hoping that a thin coating of this material would destroy the Fungus, without injuring the bulb; but it only made them grow more quickly; the dipped bulbs, six weeks ago, being an inch in height, while the others had scarcely appeared.—*T. Allestree.* [Would some correspondent oblige us with his experience in this matter?]

Mr. Johnson's Almanack.—This is a very useful Almanack, yet a careful revision would greatly improve it. The Author should not take all for granted that is asserted, or he will lead his readers into expensive errors. For instance, he says Captain Thurtell is the most successful raiser of Pelargoniums in the present day. If this was the case his flowers, when shown at the Horticultural Exhibitions at Chiswick, would have taken prizes, but they did not either in the season of 1843 or 1844. In the former year Horatio Nelson appeared, and in the latter, Othello. There is no raiser of this flower who can compete with Mr. Foster. If Captain Thurtell thinks differently let him try his strength in the coming season. Small plants properly packed will ride as well by rail from the west, as Mr. F.'s will travel in the cart that his gardener employs. I remember Mr. Hodge's Oberon being first exhibited. It arrived from Cheltenham in as fine condition as any seedling upon the table. I would also submit the paragraph at p. 50, commencing "Captain Thurtell informs us," &c., to the judgment of any cultivator of the Pelargonium, and ask him if he would knowingly purchase a rootlet. I have even heard this plan of progagation condemned in unmeasured terms, as being only productive of weak spindly plants. The next paragraph is a puff to the advertisement at the end. I respectfully recommend Mr. Johnson to read Macaulay's Essay on "Mr. Robt. Montgomery." Substitute flowers for books and it will just fit the case.—*X.*

Chinese Quinces.—In the very interesting translation of Father Ripa's account of China by Mr. Prandi, just published by Murray, he observes the Quinces are larger than ours, and of exquisite flavour: the Apples and Pears also are so wholesome that they are given uncooked to sick persons. They consist almost entirely of juice, so that when dried in the sun, as is done in Europe, nothing but the rind remains.—*Dodman.*

Societies.

MICROSCOPICAL SOCIETY.

Jan. 15.—PROFESSOR BELL in the chair. Mr. Loddiges and Mr. Lister were balloted for and elected auditors for the ensuing year. A paper was read on a Peculiarity in the Structure of the Feathers of the Owl-tribe, by John Quekett, Esq. The veins of the feathers of all birds of flight are held together by little hooks or barbules, which are not found in the loose feathers of birds which do not fly, as the Cassowary, Ostrich, Apteryx, &c. In the Owls, not only are the feathers held together by barbules, but these are furnished with barbulets, which are very evident on the upper side of the feathers of the wing. The use of these barbulets appears to be to break the vibrations of the air against the feathers, and thus to enable these nocturnal birds to pounce noiselessly upon their timid prey.—A paper was read by Edwin J. Quekett, Esq., on the Microscopic Appearances of Guano. He stated that genuine might be distinguished from adulterated guano by the use of the microscope. In guano from Ichaboe, he had found—1, portions of muscular fibre; 2, the spiculæ of sponges; 3, the skeletons of animalcules; 4, crystals of various salts. The goodness of the guano was not always in proportion to the quantity of crystals. Some of the crystals were found in the medullary cavities of the bones of birds. These Mr. Warrington had found to contain sulphate of potassa and ammonia. The ammonia was probably derived from the decomposition of the flesh of the birds; the potassa must be obtained from the food of the bird, probably fish, which derived it in small quantities from sea-water. The muscular fibre was from the flesh of birds and fish, the latter being excrementitious. The spiculæ of the sponges and the skeletons of the animalcules were undoubtedly voided after having been taken into the stomachs of the fish, and then into those of the bird as food.—Mr. Topping presented several species of fossil Infusoria, for the cabinet of the Society.—Mr. Ince presented the scales of several New Holland fishes.

AGRI-HORTICULTURAL SOCIETY OF WESTERN INDIA.

THE Annual General Meeting of this institution took place in the Society's Garden on the evening of Thursday the 21st November. We extract from the *Bombay Times* such matter as is likely to interest persons in this country. One of the most common complaints made in India, is of the badness of the European seeds sent out to them. Upon this subject the Garden Committee have still to regret that, in so many instances, members should have suffered disappointment from the failure of their seeds. Those obtained from the Cape of Good Hope have, in almost every instance, been unproductive. The Committee have now bound themselves to distribute only such seeds as are received by the overland route, and in the transmission of which every precaution has been adopted. *Unfortunately for horticulturists in India, nurserymen have not arrived at a perfect method of packing seeds for exportation; and it is probable that we shall not be well supplied with seeds till some tradesman takes up, as a distinct branch of his business, the supplying of India and the Colonies, and studies the proper methods of procuring perfectly-ripened and fresh seeds.* It is also with the greatest difficulty that the English seedsmen can be induced to make a proper selection of flower-seeds for this country; they either send out such as are indigenous here, or such as, from their very nature, can never succeed in the tropics.—Extracts were read from a correspondence with Professor Lindley, on the part of the Horticultural Society of London, proposing an interchange of plants and seeds, and requesting communications on subjects of interest to the London Society, but particularly on the culture of tropical fruit-trees—which, from the improved construction of hothouses in England, are becoming objects of attention to the European horticulturist. Dr. Lindley stated, that in the growth of the Plantain, success is already complete; but that the endeavours to fruit the Leechee, the Mango, the Custard-apple, the Cherimoyer, the Sapota, and others, have hitherto wholly, or in part failed. He pointed out the nature of the inquiries likely to lead to more correct methods of treating these plants; and concluded by observing that the reports upon tropical climates which reach England, are generally deficient in two points of great interest to horticulture, viz., the intensity of solar light, and the temperature of the soil at different seasons; and that if the Society would cause a daily journal to be kept of them for a year, the results could not fail to be important.—With reference to the request that observations on the intensity of solar light, and on the temperature of the soil at certain depths, should be conducted, it was stated that facilities existed at the Observatory for the prosecution of these inquiries, and it was resolved that application be made to Government to have these researches conducted at that establishment. It was also ordered that three pluviometers should be procured, in order to render available the favourable positions which exist in the Society's grounds for determining an interesting question relative to the unequal quantity of rain falling at different elevations from the earth's surface.—Among the more interesting plants which the Society had received during the year were the following:—From J. S. Law, Esq., Tanna, plants of Saccolabium Wightianum, Ledebouria hyacinthina, Anthericum Nimmoi, Remusatia vivipara, Habenaria longicornis, Platanthera Susannæ, Guatteria Laurifolia, Madaractis Sp.; also seeds of the Cheekun, a species of Cucumis, cultivated only at Mandana and Nandod, from whence it is sent to Surat, where it is considered a great delicacy: the fruit is about 3 feet in length, and resembles in taste both the Cucumber and the Melon. From the Botanic Garden of Mauritius, in one of Ward's cases, plants of Cocculus palmatus, the famous Calumba root; Colvillea racemosa, Sorindeia Madagascariensis, Clerodendron emirnense, Dombeya Opuliflora, Plumbago Jenecea, Ruellia formosa, Euphorbia pulcherrima, Tanæcium pinnatum, Lomatophyllum fusciflorum. All these plants, with one or two exceptions, were in perfect preservation, and are now flourishing. From H. Fawcett, Esq., a Cabool Yellow Rose-tree, and two boxes of wild Neilgherry Strawberry-plants. Nor had the Society been inattentive to the wants of their correspondents. Presents had been made in a great many directions, and more especially the following:—20 grafted Mango-trees, a large quantity of Teak-seeds, and packets of indigenous flower-seeds, to the garden of Ibrahim Pasha, at Cairo. Mangoes had already been ripened on plants previously sent to Egypt from the Society's Garden. Grafted Mangoes, rooted cuttings of indigenous plants, and indigenous seeds, to Swan River.—A letter had been received from Lieut. Helpman, R.N, of the Champion, stating that, with scarcely one exception, the plants reached their destination in a thriving condition, particularly the Mangoes, the most valuable part of the collection. A packet of fresh Assam Tea-seed, to the care of Dr. Bradley, at Ellichpoor, a garden on a range of hills at an elevation of 3000 feet and upwards: the hills are, in regard to temperature, just within the "Tea Range," having a mean temperature of about 72° in summer, and 50° in winter, with a light soil and sufficient moisture.—Several cases, containing in all 153 plants, had been forwarded to Kurrachee, the chief port of Scinde; the greater part of them to the care of Capt. Blenkins, for the Government Experimental Garden; with various Indian and European seeds.—It is gratifying to see by the Auditors' Report that this very useful Society is well supported. It appears that their income for 1843-44 was 10,100 rupees, and their expenditure 8682, leaving a sum of 1418 rupees to the credit of the ensuing year.

Reviews.

Mills on the Cucumber. Second Edition. 12mo. Smith.

THIS is a re-issue of the last edition (also called the second), with a plan for a hot-water pit, and some observations connected with it.

"Many subscribers," says the author, "to the first edition of my work on the "Cultivation of Cucumbers and Melons," having found it inconvenient to procure fermenting material, and having expressed a wish to have the pit so constructed as to be heated by hot water, I have, in accordance with that wish, had one of my improved pits arranged as to be so heated, and have the satisfaction to find it answer every expectation I had formed of it, having cut Cucumbers 24 inches long from plants that had been only twenty days planted therein. The fruit was exhibited at the July Show, in Chiswick Gardens."

Mr. Mills has had more than 30 years' experience in the cultivation of Cucumbers and Melons by dung-heat; and his success by this mode is well known. He must be well acquainted with its advantages and defects, and his opinion of it comparatively with that of the hot-water system is therefore worthy of notice. He remarks—

"Where manure is plentiful, Cucumbers and Melons can be grown quite as good by the dung system as by that of hot water; and where a quantity of manure is required for the kitchen garden, it is a good method of preparing it for that purpose, as also for the growth of Mushrooms. The hot-water system is by far the cleanest, and much less labour is required in using it than by the dung system. The heat can also be regulated to a greater degree of exactness, especially when strong winds, with rain, prevail, as the fermentation of dung is much affected thereby. All that the gardener or amateur requires of a forcing apparatus, is that by which he can have at command a sufficiency of top and bottom-heat, with moisture. There can be nothing worse than an excess of bottom-heat without a corresponding top-heat, and *vice versâ*. I have long held the opinion that hot water, judiciously applied, would be equal to fermenting material; and it is, doubtless, the want of a proper application, where it is not."

Mr. Mills has, in fact, proved these statements by producing in his improved pit Cucumbers 24 inches in length. These were not old and past use, as is frequently the case with many that are exhibited, but young and tender. He annexes a plan of the pit they were grown in, Mills's Improved, heated by Burbidge and Healy's boiler and tanks. This, he states, will be found to answer every expectation that can be formed of it, the heat being regularly diffused, and neither too dry nor the reverse. The apparatus, he observes, is "very easy of management in consequence of the very superior arrangement of the furnace-door, damper, &c. The best fuel, at least that which answers exceedingly well, is three parts coke and one part Welsh coal; these mixed, the fire will not require looking to more than once in eight hours, if properly managed, viz., the combustion allowed to go on slowly. The boiler should be of ample dimensions, and the quantity of tanks should be such as not to require the water to boil."

Garden Memoranda.

Bicton Gardens, Jan. 2, 1845.—There is at this time in fruit here a noble specimen of CYCAS REVOLUTA, and Mr. Barnes has favoured us with the following interesting particulars respecting it:—"I fruited the plant, from which the fruit sent has been taken, in the year 1842, and the fruit retained its beauty for a period of 12 months. Many persons, and among them some good practical gardeners, said that the plant would not survive after having produced fruit, and consequently I took care to secure a sucker from it, which has now attained as large a size as

some specimens that have been in the country for many years. Notwithstanding what people said, I imagined that I could induce the old plant to make a fresh start, although I might possibly not be able to fruit it again. In February, 1843, I accordingly set to work in good earnest, and with hooks and narrow hoes carefully worked out all the soil that I possibly could from amongst the roots, and replaced it with a good dressing of turfy loam and charcoal well mixed together, watering it with lukewarm water. After this the plant soon began to grow vigorously; the young growth bursting through the midst of the fruit pushed the latter away on every side, and soon formed a handsome crown of new foliage. It continued to increase with astonishing vigour for about three months, after which it was allowed to rest. Much of the fruit produced in 1842 is still on the plant. Had I not been able to fruit the plant again in 1844, I imagined that if I continued with it until 1846 I should then have been able again to accomplish the desired object. I had, however, the gratification of seeing the noble fellow start into fruit again in May last, and if possible, with double the former vigour. How interesting an object it has continued to be ever since, may be easily imagined; and should I be spared, and the plant continue under my care, I have no doubt that I shall have it in fruit again in 1846. The height of the stem of Cycas revoluta, when in fruit, was 2 feet 6 inches, girth or circumference of stem, 3 feet 8 inches, and the circumference of the whole plant was 30 feet. It has at this time upwards of 1400 fruit on it, and the head of fruit measures 2 feet 8 inches in diameter. The sucker previously mentioned, after three years' growth, measures 2 feet 7½ inches in circumference, and 8 inches in height. The soil in which it has been grown consists of rough sods of loam mixed with stones and charcoal. The loam was taken from a poor common, having small scrubby Furze and Heath growing on it, and lying at an elevation of 900 feet above the level of the sea." The sucker will no doubt produce fruit soon. A noble plant of Cycas circinalis in the same house is doing well with precisely the same treatment. In the same house also, but in the coolest corner of it, is a plant of Luculia gratissima, which has had a fine appearance during the last two months; it has had on it 94 heads of its beautiful and sweet pink flowers all at one time; they were as large as those of the common Hydrangea. The soil in which it is growing consists of ½ light turfy loam, ⅓ heath soil, ⅛ coarse charcoal, and ⅛ half rotted leaves mixed with a portion of coarse sand and rough flints. This mixture was used in a very rough state, moderately pressed together. The plant was struck a cutting about three years ago, and measures between 14 and 16 feet in circumference, and 8 feet in height, and has a stem or two thicker than the thumb. Gardeners say that the Luculia is a troublesome plant to manage; but with Mr. Barnes it grows like a Willow. As to the notion that it should be grafted, it is hard to say what kind of stock could be used to surpass the growth of this specimen in the same space of time. It having been reported that no one is allowed to see the Gardens at Bicton, we take the present opportunity of contradicting so unfounded an assertion. On the contrary, it has always been the wish of the Lady Rolle, that all gardeners and nurserymen should see those noble gardens whenever it is convenient to Mr. Barnes to show them. This has, in fact, been the rule ever since he entered upon the superintendence of the gardens.

Miscelianeous.

Quercus Quexigo.—We learn that an ample supply of Acorns of this species of Oak has been procured for the Horticultural Society by the kind assistance of Lord Aberdeen, and the good offices of the British Consuls at Malaga and Cadiz. Capt. Widdrington supposes that it may be the Quercus alpestris of Boissier, and that its spray, when in the state of a scrub, may have given rise to the Q. humilis of the older botanists. He describes it as being a very beautiful *deciduous* tree, second to none of the European species in appearance, and no doubt hardy enough for the climate of England. The foliage is dark shining green, the leaves oval and serrated, varying in length from 1 to 4 inches. Its timber is of good quality. The bark is much fissured. It grows on 3000 feet above the sea. See "Spain and the Spaniards," the mountains of Leon, at the height of from 2000 to by Capt. S. E. Widdrington, R.N., vol. i., Appendix.

Bees.

Bee-flowers, &c.—I agree with the greater part of Mr. Smartt's account of Bee Management, given at p. 853 of last year's *Chronicle*, but a few things in it require explanation. For instance, he "considers ventilation to be not only unnecessary but injurious, for the higher the temperature inside the hive is, the greater is the draught." Though I do not think that ventilation is altogether necessary, especially as recommended in novel hives, yet in some cases it is of use. The tightest straw hives are, in some degree, pervious to air, even after the bees have daubed them with propolis, for they will not hold water, consequently the heat and damp air escape better from them than from wooden ones. Early in April is not, in my opinion, the proper time to remove bees into a case "worked with split cane," which I presume has an opening at top; and I question if the canvass covering over it, sized and painted, will not be objectionable by preventing the damp or vapour from escaping from the hive under it. Boxes, or small straw hives, will do as well as glasses, but where they are placed there will be less heat and less inducement for the queen to deposit eggs in them, than if they were on the top of the hive; but the same thing acts against the bees entering them, or at least sooner quitting them, which is a great disappointment. The plan adopted to keep out insects may be good, but how can it keep out moths? Will they not enter while in the fly state, where a bee can? Mr. S. considers that brood combs get too old, sooner than I do. He observes that "every three or four years the inside stocks should be examined by fumigating with fungus." The proper time to do this is mid-summer, as brood combs can hardly be taken away at any period without injury to the bees; the operation, therefore, ought to be done with caution, taking only one or two combs at a time. But as old bee-hives have been known to rear healthy broods, and evidence is wanted respecting how long they might do so, perhaps their brood combs had better be let alone, and examined when the bees die. The following are a few flowers frequented by bees:—the Crocus, Mezereum, Apricot, Peach, and White Willow. When they get to the Currant and Gooseberry blooms, I consider their winter is past. Orchard blossoms afford them a rich supply also: those of the Lime and Sycamore trees, Lemon, Thyme, Marjoram, Borage, blotch-leaved Geranium, Mignonette, and Wood Sage (*Salvia nemorosa*), are amongst the best flowers to cultivate for bees: the latter ought to be better known to bee-keepers. It will take a wide range of pasturage for 20 boxes of bees, especially if there are other apiaries in the neighbourhood; Heath, and plenty of sheep pasturage, abounding in Dutch Clover, is far beyond a few cultivated flowers.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

Greenhouse, &c.—The gardener who aspires to more than the mere name will do well to con over our remarks of last week. Economy of time studied, and well applied during what may be termed the gardener's leisure months, will give him an advantage over the kind of dormouse gardener, who never arouses from his apathy until he is in the position of a man with his house on fire about his ears without being insured.

Hothouse.—Examine the various tubers and bulbs that are dormant, and see that they are in a proper condition, neither suffering from wet nor mouldiness. Achimenes and such plants will soon require to be excited; there is little, however, to be gained by commencing before the season. When heat is applied to start them during winter, the shoots are of necessity drawn and etiolated. It is at all times better to do things well in good season, for it is scarcely possible to do them so at a bad one. The art in this department at this season is to prevent plants from growing; therefore, in temperature maintain the *status quo.*

Pelargonium House.—The plants in this house that have been prepared for specimens should be finally shifted. Admit air at all favourable times, and increase the temperature at night to 55°. See that they are quite free from green-fly, and kept near the glass. If they have made no winter growth, they will be the better able to do their work well now.

Greenhouse.—The continued damp atmosphere which has prevailed for some time, especially about London, has caused great destruction amongst many soft-wooded plants. They should be carefully examined individually, and every infected leaf or branch removed. Occasional slight fires must be applied, but this should be carefully and judiciously done, or the cure will be worse than the disease. The injury greenhouse plants suffer from overheating, is at least equal to that from frost.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The weather having changed to wet, leave off digging borders for a time, particularly where the soil is of a stiff nature; proceed with new work where improvements are contemplated. Prepare for planting hardy shrubs; if the soil is not suitable for the kinds intended to be planted, replace it, as much is gained by doing things well at first. Where choice shrubs are not growing vigorously, examine the roots, and if it is found that they are badly rooted, take out a trench at some distance from the stem, from 1 to 2 feet in depth, and replace it with soil suited to the plant; the labour is well bestowed, and if properly done, sickly trees and shrubs will soon assume a more vigorous growth, which will add much to the beauty of the garden. Prune hardy climbers during this favourable weather, nailing and tying as you proceed. Remove all temporary coverings from half-hardy plants in mild weather, but if a change takes place, cover up again immediately. Relay Box-edgings, if necessary, also flint-edgings. Continue to level turf on lawns, adding fresh where it is wanted. This is the best season to put forward these operations, for those who are behind in spring cannot recover it unless additional hands are set on. Attend strictly to neatness in every operation. Clean walks, where necessary turning the gravel; in March a thin coat of fresh gravel might be laid on, which will look well during the whole summer, and may be kept clean without much labour. Collect soil of all kinds for spring use; have your compost exposed to the weather; and where the soil in beds is not 3 feet in depth, proceed at once to wheel the subsoil out, substituting the surface-mould for it; in March a compost suited to the plants intended for the bed should be wheeled in; this saves much watering in a dry season.

Pits and Frames.—Should the light become green from damp, or other causes, take advantage of the weather, and have them washed; it helps to strengthen the plants at this dull season by admitting more light. Surface-dress the pots, and pick off all damp leaves; place in heat Lobelia fulgens, splendens, ignea, &c., for potting off in February; I find them to do much better treated in this way, than potted off earlier, as the young roots, having been excited, take at once to the soil. Calceolarias, which were put in last October, are now ready to pot off, therefore do this at once with such as are rooted, and should there be any that are not rooted, place them in a gentle bottom-heat. All new kinds of Verbenas, where the stock is short, should be excited for cuttings.—*B.*

III.—FLORISTS' FLOWERS.

A visible alteration has taken place in the whole tribe during the past week or ten days. Tulips have begun to appear above ground, and in order to prevent damage and, if possible to make "assurance doubly sure," put about a table spoonful of silver sand over each protruding spike: this will, in a great measure, prevent any frost from affecting them; it should, however, be done before the leaves separate. Watch carefully for any that may be cankered, and immediately remove the soil from the diseased part, which should be cut off with a penknife. We may yet expect severe weather, and as they are now rapidly advancing, redoubled precautions will be necessary. If the nights are clear and frosty the mats or other covering should be thrown over. *Auriculas* may now be top-dressed, though some defer it to the latter end of the month; we prefer doing it now, as the risk of injuring the growing fibres is not so great as at a later period. The surface soil should be carefully removed, and a compost of one-half two or three years' night soil (British guano), which has been well turned and subjected to the action of frost (but not rain), and one-half thoroughly rotten leaf-mould; may replace the surface soil already directed to be taken away, taking care that your plant stands well up in the centre of the pot, the top-dressing being lowest round the margin. The above manure will prove invaluable to florists, when, by experiment on inferior flowers, they shall have ascertained the proper method of applying it. *Carnations.*—The centre leaves are beginning to move, and assume in their progress a singular bent appearance. It is absolutely necessary that they should have all the air possible. A little rain, if not accompanied with cold wind or sleet, will be beneficial; in fact, all my frames have been through all the frosts of this winter raised at least from 6 to 9 inches from the ground, the pots standing on a paved sloping surface, and without any covering except the glasses put over them in very severe or rainy weather, I have not, in consequence of a constant free circulation of air, run any risk of damp, with its accompaniments of mildew, &c. &c., and the stock of layers never were in finer condition. *Pinks.*—Where these have been planted late, and have not yet got fairly hold of the ground, earth-worms, which are now troublesome, are apt to drag them out. The plants must occasionally be looked over, and when the surface of the beds are dry fasten the plants.—*C.*

IV.—PINERIES, VINERIES, &c.

Strawberries.—Those introduced under cover in December will now be coming into blossom; for such, a slightly increased temperature is necessary. The thermometer should reach 65° in the morning before air is given; but remember that on a free circulation of air the setting of the fruit in a great measure depends. Withhold moisture of all kinds in the morning, but water floors, and endeavour to raise a genial steam in the afternoon, when the house or pit is closed. Do not by any means syringe them until the crop is set. The chief success of Strawberry forcing, however, depends on the due preparation of the plants. Those who think to obtain a crop from plants with half-organised buds, by dint of heat alone, will find themselves greatly deceived. To insure a prosperous crop it is necessary to obtain early runners, and these must have early and free cultivation—not a day must be lost; and whether cultivated in beds, and potted in the end of August, or (which is perhaps the best mode) layered in 60 or 48 pots, and afterwards shifted into 32s or 24s, no check of any kind should be permitted until the end of September, when they may be suffered to become drier at the root, to induce a slight repose. A brick pit, with a bottom-heat through fermenting matter of 75°, is by far the best place for them until they have set their blossoms: here the thermometer should not range above 55° or 60°, the object being to get the root in advance of the leaf, as a pot full of good and healthy roots is the grand desideratum: use clean water sparingly until you see the blossom-bud rising into stem, and then water rather more freely with weak liquid manure—merely as much as will slightly colour the water. The temperature in the day whilst swelling at this season should be from 60° to 65°, allowing 75° in sunshine, before giving air, and suffering (if possible) the thermometer to sink to 50° at night. When well set, syringe them during morning and evening, and keep floors and all cool surfaces continually moist; aiming rather at a constantly genial atmosphere, than at a sudden deluge of steam.

Pineries.—Still maintain repose in these structures, and endeavour to insure the points laid down in last week's Calendar. Lose no chance of giving air in dung-pits. Endeavour, like a good Cucumber grower, to get their leaves thoroughly dry once a day. Keep a sharp eye on your linings, as the bottom-heat inside will be now declining. Stir up, or otherwise encourage a bottom-heat of from 80° to 85° amongst early fruiters, now about rising or already up, and increase the atmospheric temperature a degree or two each week; taking considerable liberty on sunny days by shutting up with a glass reaching 80°, if possible on such occasions. See that a good stock of fresh turfy loam is dried, and in readiness for the approaching potting period; get also plenty of charcoal, rough bone, &c., ready for drainage.

Vineries.—Pursue the general directions in my last Calendar; get your stopping, tying, disbudding, &c., done preparatory to thinning the berries. When set and swelling insure a day heat at 70°, with a very quiet circulation of air, by no means a draught. In sunshine endeavour to gain time by shutting up early—say at 2 o'clock, raising a genial moisture by sprinkling all floors and cool surfaces; but by no means by the sudden steaming of hot pipes or flues. Let your glass sink to 60° soon after dark, for the night.

Fig-house.—As soon as the young shoot is four or five joints in length squeeze the terminal bud flat with your finger and thumb, to produce a secondary growth for succession, as well as to avoid taxing the root power in an undue degree, with too heavy a crop. Insure 65° of heat by day, and 55° or 60° by night, allowing air and moisture as before.

Peach house.—Follow up last week's directions. Be always disbudding in the early stages, but never much at a time. "Do not take Nature by surprise." Where fruit is swelling increase your thermometer a couple of degrees beyond last week, but, above all things, let increase of light and heat be coupled together: all increase of heat on dull and dark days, with the idea of hurrying the crop, is done in general at the expense of the vital energies of the tree. Do not by any means increase your night heat beyond that mentioned in last Calendar.

Cherry-house.—As soon as the trees are in blossom observe the same general principles as in the case of Peaches and Vines, for the dispersion of pollen. Insure a thorough circulation of air, with a tolerably dry atmosphere, maintaining a temperature of 55° by day whilst in blossom; sinking to 45° by night.—*D.*

[In last week's Calendar, under the head Pineries, for "*day* temperature" read "*dry* temperature."]

V.—HARDY FRUIT AND KITCHEN GARDEN.

The late heavy rains have been favourable for newly-planted trees, by washing down the finer particles of soil from the surface amongst the fibres. In some cases, however, openings may have been formed by the same means, which would prove injurious if not closed in by working the surface with the spade or hoe; for although the soil be pressed close to the roots, as it ought to be in planting, yet, in the case of trees with large roots, a settling from heavy rains will occasion vacuities near the stem, whilst round the latter an opening is frequently occasioned by the motion of the tree by winds. If water lodge in this, it is bad for the tree. It is the reverse of that which naturally takes place; for, if a tree spring from seed, and be not removed, the neck becomes elevated and surrounded by a small mound. Planting, pruning, and nailing should be proceeded with. Some recommend deferring the pruning of Peach, Nectarine, and Apricot trees till late in the spring, or, at all events, till the period when severe frosts are not likely to occur. It is certain that, by late pruning, the force of vegetation may be weakened one-half. The French recommend it for trees that are over vigorous; but it is much better to effect this purpose by a reduction of the foliage of the over-luxuriant portions, whilst the weaker are allowed to retain all their foliage; for, by this means the weak is encouraged, and the strong checked, thus balancing the force of vegetation throughout. Late pruning weakens the whole—the side branches as much as the upright; it does not tend to produce the equilibrium so desirable, and therefore must be considered objectionable. The only question, then, is, whether it may be best to prune now, and insure the buds pushing boldly, supposing no severe frost should occur; or defer, in case the latter should prove injuriously severe. In the one case the advantages are great and certain; whilst the injury that even severe frost occasions to well-ripened wood is trifling; besides, if it should occur, a slight protection will be sufficient: 15° or 20° below freezing will do no harm to trees against walls, although not otherwise protected. In nailing, if old shreds are used, they should be previously boiled. It is also advisable to heat nails red-hot, and when the

redness disappears, immerse them in linseed-oil; or the oil may be heated considerably above 212°, and the nails put in; in either case no moisture in the form of water can possibly remain on their surfaces, to prevent the oil from closely varnishing them. Thus prepared they will not rust for many years; and they can be drawn from the wall with less adherence of mortar than when, unprepared, they rust in the lime.

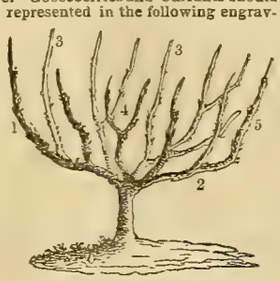
In the Kitchen-garden proceed with the usual routine of trenching and preparing for spring-crops. Earth up Peas slightly as they appear above ground. Seakale and Succory may be taken up and put in any dark place to forward and blanch. Lose no opportunity of giving full air to young Lettuces and Cauliflower plants in frames or under hand-glasses. Guard the former from birds when the sashes are off; and all young crops from slugs, &c.—*E.*

VI.—ARBORICULTURE.

Old Woods.—The felling of timber whose bark is not valuable may be continued; proceed a'so with judicious pruning in all kinds of plantations, always taking care not to do so too severely in one season, and not at all at the outskirts and sides most exposed to the prevailing winds. Effectually drain any land intended for Oak plantations, this is equally important as for Wheat. Where it is intended to sow Acorns in April, now is the proper time to prepare the pits, unless they were got ready in autumn, which is still better; they should be about 6 feet apart, 1foot deep, and 12 or 15 inches diameter, laying the sward in the bottom, and chopping it in pieces to act as drainage. Larches, as nurses, should be planted about a yard apart; these will afford the young Oaks shelter, and forward them. In pruning, cut close to the bole, making the wound as small as possible. Continue in frosty weather to clear the woods of all extraneous matters, as spray wood, brambles, &c. Make new drains, and clear out old ones. *Coppice.*—See last week's Calendar. *Young Plantations.*—Where new ones are to be formed, bear in mind that the proper preparation of the soil is of the highest importance; trees in a middling soil well prepared often surpass in growth those in better land, which has been done in a superficial manner. Success also in a great measure depends upon a proper selection of plants. *Nursery.*—Dig or trench all vacant quarters; dig between the rows of all standing stock, first pruning the plants where necessary. Cut the tap roots of young Oaks, Chesnuts, &c., transplant the plants at increased distances, when they have been two seasons from the seed-bed. Too great care cannot be bestowed in lifting young plants for transplanting. Gather Fir cones of all kinds, but do not take out the seeds until near the time of sowing. Plash old hedgerows, renew, or make fences of all kinds.—*F.*

VII.—COTTAGERS' CALENDAR.

The operation of pruning all kinds of fruit-trees may still be performed with advantage. Gooseberries and Currants should be pruned in the manner represented in the following engraving. As has been formerly mentioned, let the centre of the bushes be kept free and open, and cut out all branches that cross one another, leaving the leading shoots about 10 inches apart, and topping at a bud inclining to the open space. All lateral twigs not required to form branches should be spurred in to a few eyes. The fruit is borne on short natural spurs, 1; or on clusters of buds formed on the old wood itself, 2; and also on young shoots, which should be shortened to one-third of their length, 3, 3; or the latter may be cut back to a well-placed shoot, as at 4. Old worn-out branches, such as 5, are to be cut back to a well-placed shoot, as at 2.—*G.*



"State of the Weather" near London for the week ending Jan. 16, 1845, as observed at the Horticultural Garden, Chiswick.

Jan.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	10	2	29.916	29.764	49	30	39.5	S.	.04
Sat.	11	☽	29.663	29.643	51	44	47.5	S.W.	.77
Sun.	12	4	29.778	29.745	47	32	39.5	N.E.	.16
Mon.	13	5	29.662	29.555	51	30	40.5	S.	.04
Tues.	14	6	29.730	29.606	50	35	42.5	S.E.	.12
Wed.	15	☽	29.778	29.666	50	39	44.5	S.E.	.02
Thurs.	16	☽	30.080	29.983	48	32	40.0	S.W.	—
Average			29.805	29.7 9	49.4	34.6	42.0		1.15

Jan. 10—Flying haze; overcast; boisterous; rain
— 11—Boisterous, with rain; constant heavy rain at night
— 12—Hazy; rain; uniformly overcast; fine
— 13—Overcast; cloudy; clear and fine
— 14—Rain; hazy and drizzly; uniformly overcast; rain
— 15—Rain; overcast and fine
— 16—Overcast; cloudy and fine.

Mean temperature of the week 6 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Jan. 25, 1845.

Jan.		Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun.	19	40.6	29.2	34.9	9	0.37 in.	3	2	3	—	3	3	4	1
Mon.	20	39.6	30.0	34.8	5	0.65	3	3	4	1	2	3	2	1
Tues.	21	42.5	33.0	37.7	8	0.34	2	3	1	3	3	2	4	1
Wed.	22	42.3	34.0	38.6	9	0.57	—	1	2	4	2	7	1	2
Thur.	23	44.1	34.0	39.0	7	0.12	—	1	2	3	3	4	1	4
Fri.	24	43.2	33.2	38.2	7	0.51	2	2	2	1	2	6	3	1
Sat.	25	43.0	32.6	37.8	7	0.99	1	2	2	1	3	3	4	3

The highest temperature during the above period occurred on the 19th, 1838—therm. 60°; and the lowest on the night of the 19th and morning of the 20th, 1833—therm. 45° below zero.

Notices to Correspondents.

ARAUCARIA IMBRICATA.—*H. M.*—Sow the seeds of this now, in pans about three parts filled with light sandy loam; place the seeds with the small ends downwards, and insert them about half their depth into the soil, covering them afterwards with Moss. They should have a moist heat of from 60° to 70°, until they begin to vegetate; afterwards take off the Moss, and cover with fresh soil, removing the pans to a drier situation. Give no water for the first ten days after sowing, and but sparingly afterwards.*

BOOKS.—*Enquirer.*—Lindley's "Theory of Horticulture."——*J. C.*—As you are a poor man, we will say that the book may be had of Mr. Parker, in the Strand.

BRICK FLUES.—*An Old Correspondent* has found plants in his forcing-houses destroyed by a vapour arising from a new brick flue, the fuel burnt in the stove being chiefly green Fir roots. It is probable that either the bricks are bad, or the setting imperfect. Such an effect would be very likely with a flue composed of porous materials, and would be remedied by carefully coating the flue with cement or plaster. It appears that the tarry matter which collects sometimes in flues, where wood is burnt, is even more hurtful to vegetation than that formed when coal is burnt, though the former has one advantage over the latter, in being free from sulphur, which is seldom the case with coal. *E.*

BUDDLEA LINDLEYANA.—*A Lady.*—As this plant is only of very late introduction, nothing certain can be said of its habits; but it will evidently bear any degree of pruning, and may therefore be kept within bounds without difficulty. Possibly, at its full size, it may be 5 or 6 feet high. It is probable that Buddlea will flower in the autumn: but this, too, is uncertain. Whether its colour will harmonise well with Wistaria, you may judge when you are told that it is that of a purple Sweet Pea; but the flowers are more like those of a Verbena in form. It is evergreen, and seems very indifferent about soil. Mr. Fortune found it in Chusan.

CHISWICK SHOWS.—*X.* puts this question:—"Can a person who sends cut flowers to Covent garden Market, during the season, be called an Amateur, and be entitled to show in that class? He may not be doing so at this time, but if he does so six months in the year, does it class him as a Florist or not?" If he does not grow *plants* or *seeds* for sale, he is not in the trade, and must take his place as an Amateur. The mere sale of *flowers* no more makes a man a nurseryman than the sale of his fruit or trees makes a country gentleman a market-gardener or a timber-merchant.

FINOCCHIO.—*Claud.* This is uncultivable in England, or at least is not worth the necessary trouble. You will find it fully described in 1841, p. 199.

FURNACE.—*Shirley.*—The draught of a furnace cannot be determined by any permanent aperture behind the fire. There should be a sliding iron door in some part of the flue, by which it may be regulated at pleasure. A mode of applying the principle of the Argand furnace to boilers for gardening purposes is shown in a Leading Article of this Paper for March 23, 1844. *A.*

GOLD-FISH.—*Amateur.*—What you describe cannot have been a disease produced by the attacks of Achlya, but by some other cause. It has been repeatedly stated that rabbits are repelled by tar; but others do not find it answer well.

GOOSEBERRIES.—*Dodman.*—We have no doubt that the Gooseberries and Currants mentioned by Washington Irving in his "Astoria" are all well known; but it is impossible to recognise them by his description. As to their quality, we can easily believe that they would appear delicious to a half-starved traveller, but to nobody else.

HEATING.—*An Amateur.*—If you are near London you had better visit the garden of the Horticultural Society. If you are not, we will endeavour to explain how you should heat your house. Pipes, tanks, and bottom-heat are all indispensable.

ICEHOUSES.—*A. S. M.* inquires how Mr. Gent constructs the porch of his icehouse; whether there is more than one door? where it is placed? and whether the pit is not more than six feet in diameter?

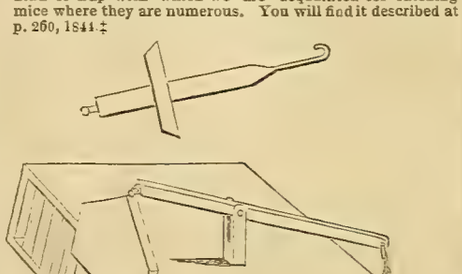
INSECTS.—*Mr. J. Henderson.*—Your box and red spiders were so crushed, that I can only guess the latter to be identical with the species which infests Rose-trees. The other insects are the Aleyrodes phillyreæ of Curtis's Guide, Genus 1044. *R.*——*G.*—No doubt, spirits of turpentine will kill green-fly, and thin-skinned plants as well. It is only fit to apply to old bark.

LEAVES.—*J. H.*—Next week.

MANURES.—*G.*—The only object to be gained by using bone-sawdust, instead of bone-dust itself, consists in obtaining pure bones in a finely divided state. We should think bone-ash better still, or superphosphate of lime preferable to any. The objection to common bone-dust is, that it is almost invariably adulterated.

MELONS.—*Omicron.*—The Beechwood.‡

MICE.—*Inquirer.*—The accompanying woodcut shows the best kind of trap with which we are acquainted for catching mice where they are numerous. You will find it described at p. 260, 1841.‡



MORPHOLOGY.—*B. B.*—No. It is more of the nature of galls; if you break the woolly knobs of your Ash-trees, you will see that they are perforated in all directions by the galleries of insects whose eggs were deposited in the buds some time last summer. Thanks for the paper.

NAMES OF FRUITS.—*J.O.*—Possibly a seedling from Reinette Grise, which it is exceedingly like.‖——*R.H.B.*—2, Ribstone Pippin; 3, Beauty of Kent; 6, Syke House Russet; 7, Rymer; 8, Flower of Kent; 10, Pomme Violet; 11, Gravenstein; 12, Braddick's Nonpareil; 13, Maiden's Blush—not the Newtown Pippin; 1, 4, correct; 5, 9, not known. The Pear is the Beurré Rance.‖—*L.D.N.*—2, 10, Old Colmar; 4, Winter Nelis; 5, Crassane; 6, Easter Beurré; 7, Passe Colmar; 8, Beurré d'Aremberg; 10, 13, Glout Morceau; 12, Black Worcester; 14, Doyenné Blanc; 16, Beurré Diel; 18, Easter Bergamot; 23, Bishop's Thumb.‖——*Jersey.*—1, Easter Beurré; 2, Beurré Diel; 3, Beurré d'Aremberg; Scarlet Nonpareil Apple.‖

NAMES OF PLANTS.—*G. W.*—Buddlea americana. Probably Epidendrum lacernm; but it belongs to a set of species very difficult to name, unless the specimens are fresh and good.——*A. C.*—Much obliged for the pod of Æschynanthus.——*T. B.*—Mimulus glutinosus.

NYMPHÆA-SEED.—*An Amateur.*—In order to raise N. cyanea, and N. Lotus-seeds, fill 32-sized pots within an inch of the brim, with sandy loam; sow the seeds, and cover them slightly with silver-sand. Both being aquatic plants, and natives of a warm country, the pots should be plunged in water (at a temperature of 80°), sufficiently deep to cover the soil. They are both very desirable stove aquatics.§

PELARGONIUMS.—*J. C.*—Procure the following 12 varieties:—Matilda, Foster's Sir R. Peel, Luna, Pulchellum, Erectum, Lynes's Duke of Cornwall, Hodge's Oberon, Sultana, Cyrus Superb, Garth's Constellation, Symmetry, and Beck's Susanna.*

PINE-APPLES.—*D. R.*—Much obliged, but your communication is partly illegible, and chiefly incomprehensible.

PUTTY.—*Reader.*—This is made of perfectly dry common whiting, powdered very fine, and mixed up with linseed oil until it is nearly as thick as dough. *S*

ROGUES.—*S. S.*—We cannot interfere any further. We have stated that the man has been imprisoned for robbery, and if the buyers of flowers will, notwithstanding that warning, buy them of those who steal them, we do not see how we can prevent it. The man should be exposed on the spot. Those who deal with thieves must not wonder if they are taken to be thieves themselves; if they do so knowingly, they are no better.

ROSES.—*Andat*—You surely do not require to be told that Moss Roses can be grown in greenhouses for forcing. Perhaps we do not understand your question.

SEEDS.—*X. X.*—Thanks; the seeds are of no value. We think it very advantageous to print on all labels of seed papers a few general directions: this is done by the Horticultural Society, when seeds are at all novel, and has long been a common practice abroad.

STRAWBERRIES.—*A Correspondent.*—It is to be understood, with reference to some queries respecting Strawberries, answered p. 8, that the Wellington and Bostock are names which have been applied to a variety of Strawberry unworthy of cultivation. Myatt's Victoria has been found to be the same as the Elton.]

THE CALENDAR.—*Q.*—We never interfere with the directions in this part of our Paper. The writers live in some of the greatest places in England, and severally describe their own practice and opinions. Your letter is sent to Mr. F.

VINES.—*A. B.*—The main bulk of the compost for your border should consist of rich turf, to which may be added bone-dust and cow-manure.‡——*A Subscriber.*—Varieties for growing under the rafters of a greenhouse should be such as will bear with close pruning, as Black Hamburgh, Black Prince, Royal Muscadine, and Sweetwater. Your other plants will not be much injured if you dress the Vines so as to extend as little as possible under the glass. You may plant a Vine for each rafter. The border being a light loam, 4ft. in depth, on a free-stone bottom, if rendered sufficiently rich with manure, is suitable for them. Plant in spring; and in turning the plants out of the pots, carefully shake all the soil from the roots, which should be well spread out individually by the hand.‡——*A. B.*—One-year old Vines.‡

WALLS.—*An Old S.*—Such walls as you propose to build will be excellent. If they run E. and W., then it is not desirable to have arches, for the roots should be kept to the south side; if they run N. and S., then arches are admissible. We, however, should prefer solid foundations in all cases.

WATER DROPWORT.—*J.*—This is one of the most dangerous of our native poisons. Hundreds of poor persons have perished by eating its roots under the belief that they were Wild Parsnips. The roots are also sold by dishonest trampers for Dahlias.



WOODLICE.—*G. D.*—Directions for destroying these are given at p. 358, of last year's *Chronicle.* A toad or two, if kept in your house, will thin their numbers, and large quantities may also be caught by placing two tiles or boards over each other, between which they crawl as morning approaches, to conceal themselves; tiles laid over Cabbage-leaves form good traps.‡

WOOLLEN NETTING.—*W. B. H.*—We believe this has been occasionally advertised in our columns. If not, it probably will be found in any tent-maker's shop. We would be happy to give you the information you desire, but we never recommend tradesmen, or act as brokers for them. We are sure that you will appreciate our motives. Woollen netting is the best material for covering walls; and, if Burnettised, it is the cheapest in the long-run.

MISCELLANEOUS.—*A Subscriber* will find directions for the culture of the Pansey, given at p. 429 of last year's volume.‡——*X. X.*—Cut down your Cineraria, which is exhausting itself by blooming too long.‡——*T. E. Cole.*—Nobody knows a cure for canker.‡——*R. B.*—By the 1st of March at the soonest.——*Amateur.*—The seeds of Tropæolum tricolorum will germinate in a temperature of 70°. The soil should consist of peat, loam, and sand, in nearly equal proportions.‡——*Q. Z.* will find full directions for the management of Hyacinths in glasses, given in a Leader at p. 619, vol. for 1844.‡——*Subscr.*—Your seeds are from the Cape, and all of them belong to handsome plants; but, with the exception of the Elichrysum and Polygalas, not worth your growing in a small greenhouse.——*Davis.*—The enemy of your Azalea is bad management, and not a Fungus.——*Reader.*—We would willingly give you information if we knew what you want, but we can hardly decipher your letter. Cannot you get some one to write it for you? What is the signification of "chuckie," "pleasure pound," or "hages?"——*Ruffer.*—Can you not spend your time more profitably than in writing doggerel verses?——*E. T. O.*—Thanks for Æschynanthus.——*S. T. W.*—Hibiscus mutabilis does not stand alone in its changes of colour. They are common. Does not the double White Hawthorn change to pink?—all flowers from green to gayer colours?—the Cheiranthus mutabilis from white to violet, through yellow and red? We are unacquainted with the colonial or Portuguese names of the plant.——*A. C.*, *Reader*—Shall have full directions shortly.——*A. B. G.*—No one has ever in this country succeeded in obtaining Truffles artificially, though it has certainly been done in Prussia. You will find an article on Truffles given at p. 590, vol. 1843.‡——*W. D.*—Some bind the *Chronicle* with the advertisements, and some without them. We bind it with them.‡——*A. B.*—Send the Numbers to the Office, with your address, and we will return those you require to complete your set.——*Gerard A.*—Your letter is an advertisement.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made.

[We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.]

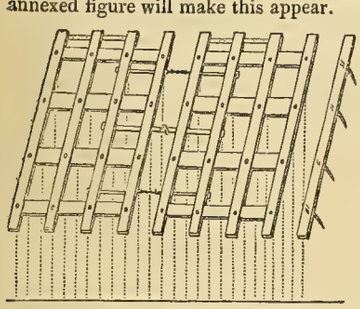
TO AMATEUR FARMERS.—The Advertiser would be glad to let on lease, to an improving Tenant, a SMALL FARM (of about 70 acres), situate in the favourable climate of the Isle of Wight, within four or five hours of London, where all sorts of produce, from the great resort of visitors and the residence of the Court, finds a ready and profitable market. A large Furnished House, with Garden, Paddocks, &c, might be also had, detached from the Farm; or a small Villa would be built by the proprietor, on a beautiful site, upon the Farm itself. The land being at present very much out of order, in want of drainage, &c., great scope for improvement is open to a Tenant possessed of capital and energy; and the Proprietor would do everything in the way of erecting Farm Buildings, or other conveniences, to meet the wishes of an eligible Tenant, on receiving proper security for the outlay. Pipe-tiles are manufactured cheap, near at hand. The best references required. For further particulars, an Advertisement in this Paper, giving an address, will meet with attention.

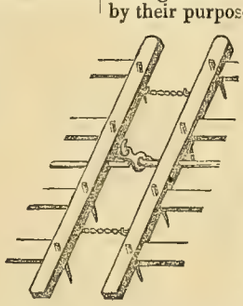
The Agricultural Gazette.

SATURDAY, JANUARY 18, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Jan. 23—Agricultural Imp. Soc. of Ireland.
THURSDAY, Jan. 30—Agricultural Imp. Soc. of Ireland.
FARMERS' CLUBS—Jan. 20—Botley, Hants.

IN pursuing our remarks on implements of cultivation, we come next upon THE HARROW. This implement is of such simple use and construction, that but few words will suffice for its description. The general purposes of the Harrow are to break surface clods, to gather together and shake weeds out of the soil, and to cover the seed. Besides these, it is sometimes used, as on Wheat lands for instance, in spring, to break up and loosen the hardened surface of soil, so as to admit the influence of light and air to some depth into it. In all these cases it is the object to act upon the soil with perfect uniformity—the aim is to stir every portion of the surface thoroughly and equally. This, it is evident, is not likely to be effected by a form of harrow which we have often seen, the teeth being closest together in the front part of the implement, and the distance between them widening towards the end of the machine. Indeed, if it be used to reduce a rough surface, if there is to be any irregularity in the distance of the teeth, they should be nearer towards the back part of the machine; for the clods of earth will be partially broken by the front teeth, and will thus be more efficiently acted on by those behind. It is evidently incorrect to have the teeth closest where the earth is roughest, and farthest apart where it is finest. The best form of the harrow is the rhomboidal, with the teeth equi-distant throughout. It is this form alone, or some such modification of it, as appears in the zig-zag arrangement of the implement as it is now constructed at many manufactories, which insures that all the teeth, when placed regularly and uniformly over its surface, shall work in different paths, and that thus the whole of the ground shall be uniformly stirred and broken. A consideration of the annexed figure will make this appear.





In addition to this we must observe, what is not always conceded, that harrowing is purely a *surface* operation. It is by no means to be aimed at that the harrow should penetrate to the bottom of the furrow-slice, and stir the land thoroughly to its depth—this is work for the grubber, or scarifier, or cultivator, by which it will be done with greater economy of power. Indeed, whether such a process be aimed at or not, the farmer may rest assured that it will not be effected; the form of the implement is obviously unsuited to such work. We have seen heavy drags, as they are termed, loaded with the trunk of a tree lashed on to it, so that (whether required or not) eight or nine oxen had to be yoked to it; their slow motion, and the depth to which the teeth of the implement penetrated, made its work resemble an imperfect grubbing or scarifying—not by any means a harrowing—of the land.

The process of harrowing is most complete when the surface, after being thoroughly stirred, is left fine and smooth, and when any rubbish or weeds lying under or upon it are fairly shaken free of the earth in which they were imbedded. For this purpose the teeth of the implement should be short and frequent; so short, indeed, that the framework may rather rub along the surface of the land, or at least knock over and break any of the large clods lying upon it; the surface of the land is much more perfectly reduced by it when the framework actually lies and rubs along the ground, than when it rests on twenty or thirty long tines, as it does in the long-toothed drags. The implement thus partially combines the properties both of a roller and a harrow.

The rhomboidal form of the harrows, which insures that the teeth shall all proceed in different paths, is the best form for all the three purposes to which the implement is applied. It is best for reducing a rough surface, for gathering and shaking out weeds, and it is best for covering the seeds. For the latter purpose a lighter harrow with a greater number of teeth may be used, for the land is generally reduced to a good tilth before the seed is sown, and the implement has not to contend with any irregularity or roughness in the surface.

The motion of the harrows should be rapid, and the more jerking and irregular the better; on this latter account the connecting link between its parts is a matter of some importance—the object in contriving such a link should be to allow the utmost irregularity in the motion of the parts, so that the one is hindered from riding on the top or hooking into the framework of the other. The arrangement represented in the woodcut below is a good one, only the engraver has erred in representing the connecting chains as tight; they should be very loose.

We must not omit, here, to mention an implement termed the *web-harrow*, invented by Mr. Smith, of Deanston, which has been found very efficient in pulverising a cloddy surface. It consists of a heavy chain-web possessing such a degree of flexibility as enables it to accommodate itself to the unevenness of the land. It owes its efficiency to this, to its weight, and to the free rotatory motion of the discs or quoits which hold it together, and of which, indeed, it consists. This motion of its parts hinders it from clogging up with the earth, a fault to which it would otherwise be liable. This implement is well adapted for the purpose of covering in seed, and a heavier form of it may be used beneficially in ordinary fallow operations.

The next implement we shall have to describe is the Grubber, Cultivator, or Scarifier, as its various forms have respectively been named.

No apology is offered—few will think one to be needed—for filling so many of our columns this week with an account* of THE ANNUAL MEETING OF LORD GOSFORD'S TENANTRY AT MARKETHILL. We hope no one will be deterred by its length from reading this Report. The fact is, we are unable to give more than half of it to day—the whole of it would have occupied nearly *all* our limited space—but notwithstanding its length no one, we are sure, will accuse it of prolixity. The discussions, under the guidance of Mr. BLACKER as Chairman, which took place on Drainage, on Flax Culture, on the Management of Manures, &c., were distinguished by their purpose-like character. The results of experience and observation, simply and tersely stated by the farmers who recorded them, when explained and illustrated by the deeper knowledge of the scientific man, readily indicate the truth on most agricultural subjects; and as not only intelligence and practice, but distinguished science also, was assembled at the Markethill annual meeting, the discussions which ensued, and the conclusions arrived at, were most instructive and satisfactory.

The practice of agricultural discussion at large public meetings originated, we believe, with the Highland Society. How very much more useful are meetings, for such a purpose, of people personally acquainted with the matters to be discussed, than those which are drawn together by Cattle Shows! Compare the report of the Markethill meeting with one detailing the prize list and pedigrees of an exhibition of live stock. How incomparably the more useful to a reader is the former!

The value of Cattle Shows, to be sure, must be estimated not only by their influence in keeping up the attention of farmers to that important branch of their business, the breeding of live stock, but also, and perhaps chiefly, by their influence as means—and they are probably the only means which would be successful in this way with the majority of the agricultural body—of getting farmers together, and thus indirectly inducing that interchange amongst them of experience and opinion on the various branches of farm management which is so necessary an element in any general plan of agricultural improvement. But whenever such meetings are assembled, and whatever be the source of attraction, advantage ought to be taken of them in order to disseminate more systematically and perfectly than by mere conversational parties, the knowledge of those who have directed special attention to any particular agricultural subject. Some such arrangement for this purpose, as that of the British Scientific Association, might surely be usefully adopted by our National Agricultural Societies at their Annual Meetings.

* Abridged from the *Newry Telegraph*.

NEWBERRY'S DIBBLING MACHINE.

As many agriculturists, who have not tried this implement, may be desirous of learning something about it, I think it my duty to state what I know of its operation on my own farm, without favour or prejudice. The quality and quantity of crops grown from it I cannot yet give any opinion about from my own experience, but that is not necessary, because the report published in the Royal Agricultural Society's Journal (March, 1844) is quite conclusive of their superiority over the drilled crops. My machine has five rows of dibbles, cost me 60*l*., besides carriage, and expenses of a man to instruct us in its use. I have dibbled with it one acre in several fields amongst the drilled corn, one-half of the acre having five to six kernels in a hole—the inventor's quantity; the other half two to three kernels in a hole: this is my quantity. The former takes about 5½ pecks per acre, the latter about 2¾ pecks. This will enable me next year to compare the result fairly, with a view to the most advantageous quantity of seed. I have also hand-dibbled one land in each field—one foot from row to row, and one foot from dibble to dibble—two kernels in each hole, as a still further comparison of the best distance and quantity of seed. Newberry's machine dibbles eight inches from row to row, and six inches from hole to hole. I received the machine too late for October sowing; however, in spite of the prejudice of my folks against it, I resolved on trying it, with a view to reporting progress next year. The quantity of Wheat already dibbled is about 12 acres, and if the weather permits I shall have done a further quantity. So far as I have tried it, I come to the following conclusions:—

1st. That on sandy, light, or mellow soils, it is, in its present state, an indispensable and most valuable implement, only requiring to take a greater breadth.

2d. That on heavy land, in a DRY state, it is also perfectly available, with some modifications and improvements hereafter suggested.

3d. That on dense soil in a wet or pasty state it cannot be advantageously used, the dibbles bringing up stones with the bird-lime—like clay. These stones choke the machine and interrupt its action, obliging one frequently to stop the horses to remove them. Being a very heavy implement it solidifies such land too much if in a wet state. Independent of the lateness of the season at which we received it, we had many difficulties to overcome which caused delay. I had several improvements to make, which I consider absolutely essential, where it is intended for *heavy* land, and which the inventor should attend to. These are—

1st. The scrapers being of *cast* iron, broke off piece by piece, where the stones I spoke of came in contact with them. I have substituted *wrought* iron scrapers.

2d. In its present form, the horses have all to walk in a line on the land before the machine. This is very objectionable on heavy land, even in a slightly moist state. I have arranged mine differently, so that two horses walk in each furrow, or where only three strong horses are used, two in one furrow one in the other. Even so, it requires judgment in the driver, because the weight being greater on one side than the other, a sudden start would cause the machine to deviate from the straight line, which does not look well.

3d. The machine in its present state covers about 3 feet 6 inches, one wheel on the land the other in the furrow. I would strongly recommend (even at the increased expense) its being made to cover a whole land, so that one wheel might go in each furrow, same as a drill; six horses would draw it well, and it would economise time when it is too precious to be wasted, and where a day lost is six to eight acres unseeded.

As to the quantity of work the machine will perform in its present state, I should say, on light land, four acres per day; on heavy land, in a *dry* state, not above three acres per day, much depending on the men and horses being perfectly used to it. Three strong horses, or four middling ones, are required. Of course it is well understood that the machine drops the seed as well as dibbling it. I consider it perfectly available for Oats, Barley, Peas, or Beans (except the large Beans), using suitable rollers. For the information of those who may not have seen the machine, I will endeavour to describe its action.

The hoppers contain the seed—the feed rollers are solid wooden wheels; in their circumference or rim are small cupped openings, made to contain one or more kernels, as may be desired. These rollers revolve under the hoppers against a brush, which sweeps off all the seed except what is in the cupped rim of the rollers. As soon as the cup passes the brush, the seed or seeds fall out of it into the hollow dibbles. The dibbles are of cast-iron, about the diameter of an egg, hollow within, and slit into two parts—one attached to the rim of a wheel, and the other moveable. After dibbling the hole, one-half of the dibble rises out of the hole before the other, and of course the seed slips out from the tarrying half. The operation is simple and certain. The dibbles in passing round are met by revolving scrapers, which remove the adhesive clay in heavy soils. In light dry soils they are scarcely required.

There are many advantages in the seed being deposited so deep as two to three inches on a firm bed or basis: the harrowed soil falls lightly on it; it is below the reach of birds, and difficult of access to insects, which cannot follow the line of seed as in a drill. The plant is longer appearing, but having a deep root and firm sup-

port of earth on every side, it is less liable to be thrown out by frost or laid by wind. The greatest advantage of all is, perhaps, the ample room between each plant for deep and frequent hoeing. The solid bearing of the machine on the soil renders the land available immediately after the plough, without intermediate harrowing or rolling, provided it is clean. There can be no question as to this machine paying an ample interest beyond its wear and tear, in the diminution of seed and increase in produce, even on a farm of 100 acres. —*I. J. Mechi*, 4, *Leadenhall-street*.

ON THE CULTIVATION OF FLAX.

HAVING laid before you sufficient proof of the good results to the farmers from the growing of this plant, I would suggest a plan by which it can be cultivated in this country, not only for the benefit of the small farmers (who are quite in ignorance of the mode of management) but for the benefit of the labouring classes in every district in these kingdoms, when it will be found that Flax can be produced and when establishments for the carrying into effect such an object can be carried on.

I propose that a public joint stock company be commenced, and that branch establishments be formed in every district throughout England and Scotland. When it is found the soil is adapted for the growth and cultivation of Flax, such a company will, no doubt, meet with the support of every landed proprietor who wishes to improve not only his estate but the condition of his tenantry, and give increased employment to the agricultural labourers; and there is no doubt but such a company will have the support of most of the Flax-spinners in Yorkshire and Lancashire—several of whom have, to their great credit, amassed princely fortunes by their improvements in spinning this article to perfection within the last 20 years. Those gentlemen are not only likely to become shareholders, but will be glad to encourage the growth of Flax in these kingdoms; and as to the profits likely to accrue to the shareholders in such a speculation, I am prepared to prove that money so invested could not be more profitably nor more safely employed than it would be under the management and direction of such a company as I think may be established.

Why is it that nearly three-fourths of the population of this great city wear *cotton* shirts with linen breasts? Because of the extravagant prices of foreign Flax, and the difficulty spinners have to get what is suited to their wants; they cannot get Flax to make what we term 16°°, or shirting linens, below 60*l.* to 70*l.* per ton; and if they require finer quality, the price then starts to 80*l.*, 100*l.*, 120*l.*, and on up to 160*l.* per ton for very fine Flax; and previous to the Irish farmers turning their attention to the cultivation and management on the Belgian system, which has enabled them so to supply their own spinners, that one of them said this year at the annual meeting of the Belfast Flax Society, that formerly they paid 40,000*l.* to the Continent for Flax, but this year the supply at home caused them not to send this year 40*s.* out of their country for Flax; previous to this, foreign Flax was from 15 to 25 per cent. more than the prices just now, and the consequence was, that yarns (say numbers 60 to 80 Lea, which are calculated for a shirting web) were sold in 1834 at 10*s.* to 11*s.* per bundle; and now, in consequence of the increased quantity of Irish Flax, the same numbers and quality, produced by the same spinners, are selling at 5*s.* to 5*s.* 9*d.* per bundle. It may be said, if more be grown, the prices will come down; that I altogether deny, and I refer parties to make these inquiries—in 1828, 1829, up to 1834, the prices for these seven years, and the prices for the last seven years? during which time the growing has increased ten-fold—the alteration in prices has been hardly worth talking about.

Therefore I am of opinion, that the object I have in view could be well carried out by the plans I now propose; and I think if the landed proprietors in Norfolk and Suffolk, who have lately turned their attention to the cultivation of Flax, were consulted, you will find in them a support, that must do much to carry out all I represent equal to our most sanguine wishes and expectations. —*James Hill Dickson*, 15, *St. Mary Axe, London*.

P.S. Although I only show by the above statement that a farmer can grow Flax and have a profit of 21*l.* per acre, I have shown by my letters to the *Agricultural Gazette* on the 21st February last, from the reports of the Belfast Flax Society, that M. Demann grew Flax near Armagh, for which he got 140*l.* per ton; now as one acre of good Flax will produce half a ton, and 9*l.* to 10*l.* will pay the expenses of cultivation, as a consequence it leaves 60*l.* per acre profit. I was favoured last spring with letters from Norfolk, Essex, Suffolk, and Scotland, requesting instructions as to the best modes of cultivation of Flax, and having given them the instructions required, I have the pleasure to say, these gentlemen have grown some to such perfection, that the samples now before me appear to be worth from 80*l.* to 120*l.* per ton.—*J. H. D.*

Home Correspondence.

Bones as Manure.—In the year 1837 I applied 1 qr. of bone-dust on the third of an acre of land, for Turnips; it was sown broadcast on the ploughing, and harrowed in with the seed; the ground adjoining was manured with farm-yard dung, at the rate of 40 loads to an acre. The superiority of the produce from the land manured with bone-dust over that manured with dung was almost incredible, being at least 50 per cent., and the good effects of the bone-dust were even apparent in the succeeding crops of Barley and Hay, as well as in the pasture for a year or two afterwards. The ground in question is now producing a crop of Turnips (after Wheat); it was manured with farm-yard dung, with the addition of a small quantity of guano, and drilled. The effects of the bone-dust applied seven years ago were as apparent in this crop as in the last, and, without the least exaggeration, its benefit on the present crop of Turnips is fully 20 per cent. Another piece of ground was manured with bone-dust in the year 1838, just in the same proportion as in the previous year, but in this instance it was drilled instead of being applied broadcast. The superiority of the bone-dust over the farm-yard manure in this case was as great as in the previous year. In the spring of 1843 this ground was tilled to lay Rape, without any manure being applied, as a preparation for Wheat; and the effects of the bone-dust applied five years previously were truly surprising, the Rape being fit to stack three weeks earlier than the rest of the crop, and the produce was greater by one half.—*W. C. Herring, Trecombe, Quethiok, Liskeard.*

Drainage.—Being a constant reader of your Paper, I have been particularly struck with the account you gave at page 9, of the worthlessness of a field, until it had undergone the process of drainage, as being, in many of the instances you relate, a parallel to one of my own, which was drained in the summer of 1843. This field, consisting of 11 acres and 9 perches, was originally part of a parochial common, which by Act of Parliament was allotted and inclosed in the year 1768. There is not even a tradition of its having ever been ploughed, with the exception of a small corner of it, which, in the memory of the oldest persons in the parish, is known to have been once under crop; it presented in appearance, the very emblems of misery and desolation—a perfect swamp—producing certainly an abundant crop of Rushes, but little else to support life in any living creature, save a snipe. It, with nearly 50 acres besides, had been for 50 years previous to my purchasing the land, two years since, in the occupation of a farmer, who, with his proprietor, did not deem it worthy of any expense. It was altogether so unseemly in appearance, that lying by the side of the road, and in the immediate vicinity of my house, I felt it necessary to inform all strangers it was not my land; therefore, in becoming its proprietor, I felt myself strongly bound to improve it; and I think, from the description given, which I assure you is not an exaggerated one, you will allow it was not even so good as the field you allude to. In the summer of 1843, as already mentioned, it was drained, the operation being finished in time to admit of our ploughing it in the fall of the year, but not to subsoil it, as I had many other works going on at the time; and besides, it was considered the moisture had not sufficiently subsided, to make this essential operation effective. There are in all, both main and lesser drains, 1043 roods of 7 yards in these 11 acres, none of which are less than 30 inches deep—many above a yard—and some of the main drains 5 feet. In one of the 5 feet ones, cut and filled at my own expense, through another person's field, in order to get a better fall, there are 9-inch tiles for the distance of 150 yards, and in what was an open cut, or intended to be one, but perfectly clogged up, running angularly through the field for a distance of upwards of 300 yards; these are often being cleaned out—a double row of 6-inch tiles—and now closed up like the other drains. At certain points of the main drains there are openings covered at the surface by a flag, which any person can lift to see how the drains act; such openings being walled up from the bottom of the drain. The field was so flat in some parts, there was much difficulty in getting a fall, but where the inclination was greater, broken stones alone were the material used, but chiefly tiles, covered with broken stone, and refuse slabs of wood from my saw-mill; then over those, the top sod, with its bushy rushes under; and over all, the best of the broken soil, the rest spread on the ground, all the tiles resting on soles. The whole expense incurred amounted to 8*l.* 17*s.* 2*d.* per acre, exclusive of ploughing, but inclusive of pulling down stunted interior hedges, (the field being in the first instance in three), and repairing, and partly making anew the exterior ones. The whole field was sown partly with Hopeton, and partly Cumberland early Oats, last spring, which in due time came up so rankly, that the only fear entertained was, that they were too good; and this was unfortunately realised, for they were very early laid, and for some weeks previous to being shorn, were laid perfectly flat; and the second growth ensuing, they were becoming quite green again. There were, however, 758 stooks of 12 sheaves each in the field; we have already threshed out 375 bushels, and expecting in the rest, 150 more at least; certainly, considering all things, it has not been a bad return. The field was ploughed again last Martinmas, and is perfectly dry, requiring only to be subsoil-ploughed, when other operations on the farm will permit. It is now the admiration of all who knew what it had been. I have been thus tedious, in order that, should you deem my long yarn worthy of publication, it may, with the aid of your widely circulated valuable Paper, induce others to go and do likewise.—*J. R. W., Gilyarran, Cumberland, Jan.* 8.

Liebig and Playfair versus *Sprengel.*—"In soils which contain much humus, or free humic acid, green vitriol, or a mineral containing it, will be always hurtful, as it will be decomposed by the humic acid, and both the humate of the protoxide of iron thus formed, and the sulphuric acid thus set free, will injure the plants; the former substance supplying them with too much iron, whilst the latter will corrode their roots. I have made many experiments on this subject, which remove any doubt that can possibly arise." Thus says Sprengel (vide *Agricultural Gazette*, January 4, 1845). But Liebig and Playfair assure us that there is no such thing as humic acid in our soils. See "Liebig's Chemistry of Agriculture," 2d edition, pages 113, 114, 115. See, also, Dr. Playfair's Remarks, in a foot-note, at page 75. What shall we say then? Must we say that the Professor of Chemistry in the University of Giessen, &c., &c., &c., does not understand Agricultural Chemistry? Must we, likewise, say Dr. Playfair does not understand it? Or, must we come to the conclusion that Dr. Sprengel is not the accomplished analyst the whole world has hitherto given him credit for. For my own part, I know not what to say; but of this we may be assured—they cannot all be right.—*R. C. L.*

Conversion of Chalk to Gypsum.—In my immediate neighbourhood there is much chalk and lime-kilns on the whole range of the hills. I wish to ask if gypsum might not be produced at little cost by the fumes of sulphur passing through the kiln when the chalk is undergoing the mutation from chalk to lime, by burning stone brimstone below in the furnace?—*W. B.* [The result of the union of the fumes of sulphur with the lime of the chalk would be a *sulphite* of lime. This would, by long exposure to the air, attract oxygen from the air and become *sulphate* of lime or gypsum. It is almost certain that the fumes of sulphur would not dispossess the carbonic acid of the lime with which it is united in chalk, unless assisted by the presence of water to bring it more closely into contact with the chalk than it could be in an aeriform state. The best mode of availing one's self of this assistance is matter for experiment. Possibly the occasional wetting of the chalk from above might be effectual. The result of your experiment, should it be successful, will be a sulphite of lime, which in consequence of its affinity for oxygen would probably be a dangerous application to land. But if exposed, and frequently turned over to fresh air for some months, it would ultimately become a sulphate, possessing, of course, all the fertilising properties of gypsum.]

Flax Culture.—Mr. Dickson's Paper contains much deserving of serious consideration, but it affords, I think, unquestionable evidence of his not being practically acquainted with the subject. You will perceive from the prices he quotes, that Flax is either a highly valuable or a ruinous crop. Much of that produced in the north of Ireland is sold at 70*l.* per ton, or even less; while for some samples so much as 140*l.* per ton is obtained! Here, then, is a contrast depending on quality, which does not exist in the case of any other crop, and hence a principal reason of such great diversity of opinion existing on the subject. I have often known a much larger return than 21*l.* per acre from Flax; at the same time, I do not think it safe to assume anything approaching to this sum as the average produce of any district, unless indeed a very great degree of perfection has been attained in the culture and management of the crop. I am not sufficiently acquainted with this country to state what sum should be assumed as rent; but it appears to me that Mr. Dickson's estimate is much too low, when the various other charges on land to which the English farmer is subject, are added. The necessary cultivation will consist of one autumn, and two spring ploughings, with the necessary degree of harrowing and picking of weeds to insure a fine and clean bed for the seeds; and this certainly cannot be accomplished for 15*s.* In Ireland we should estimate this at least at 25*s*, and here it should probably be much more. When the soil has been properly prepared, little weeding will be required, and in Ireland 12*s.* per acre would be considered amply sufficient for this purpose. The other charges for pulling &c., would also be sufficient; saving the seed is not noticed,—a most unpardonable omission in any case; this would add a few shillings per acre to the outlay for rippling, &c. Now as to the produce, 60 stone per acre appears to be a most unreasonable estimation. I do not say that so much has not been raised in some cases; but you would not feel justified in taking some of the extraordinary statements of produce of Wheat which you may have witnessed, as data on which to found any general conclusions. [The average might often be one-third of the maximum.] I should say 40 stone would be a large produce, and one perhaps not generally realised. The value of the seed is however to be added, which is worth from 4*l.* to 5*l.* an acre. The price assumed, 10*s.* per stone, is not too high for good Flax. The account should probably stand thus:—

	£	s	d
Rent and charges	1	11	6
2½ bushels seed	1	10	3
Tillage	1	5	0
Weeding	0	12	0
Pulling, watering, and grassing	1	16	0
Expenses sowing seed	0	10	0
Scutching 40 stone	2	0	0
	£9	4	9

Produce.

40 stone Flax at 10*s.*	20	0	0
Seed for feeding cattle	4	10	0
	24	10	0
Deduct Expenses.	9	4	9
	£15	5	3

The above calculation is nearer the mark, but is certainly over the usual return. There can be no question that the more extended cultivation of Flax is entitled to the most serious consideration, both as affording an ample return to the farmer, and increased employment to the labourer; but the raising of our sanguine hopes of success is not the proper plan to promote the object in view. The statement in the last page, as to the price obtained by M. Demann the Belgian agent of the Flax Society, is quite correct; but here again comes the extraordinary produce of half a ton per acre, or 80 stones!! —*John Sproule.*

Allotments.—If Robert Warner shall think the inclosed Rules good for the letting of lands in allotment, and the 7th applicable to his own case, he is very welcome to them. The allotment system is very prevalent in this

part of North Wilts, and with no drawbacks, but many great advantages to all parties—I mean the tenants themselves, the landlords, and the parish. A quarter of an acre is the proper quantity, and does not interfere with the tenant as a labourer; fairly let, after the rate of land in the neighbourhood, it gives him many advantages and comforts, and this makes him and his busy family more cheerful and contented, and gives employment to many hours which might otherwise be badly spent.—*Spectator.* The following are the Rules alluded to:—1. That the tenant shall hold his allotment as a yearly tenant, from the 25th day of March, 1844, after the rate of fourpence per lug, free of all rates, tithes, and taxes. 2. That the rent shall be punctually paid by the tenant to the landlord, or his agent, on the 28th day of September, in each year; but if that day happens to fall on Sunday, then on the day preceding. 3. That all parochial rates, tithes, and taxes, shall be paid by the landlord. 4. That the tenant shall keep the bounds and fences which join or belong to his allotment in good repair, and shall not trespass upon any other land, in going to or returning from his allotment, or in hauling any manure thereto, but shall use and keep the regular and appointed road to and from the same. 5. That the tenant shall cultivate his allotment by spade husbandry. 6. That on the tenant removing his residence from the village of —— he shall no longer continue in the occupation of his allotment. 7. That if the tenant shall be convicted of felony, of any breach of the game laws, or do or commit any act punishable by law, or shall wilfully trespass or encroach upon the land of another tenant, or underlet any part of his own allotment, or make default in the payment of his rent at the time above mentioned, or fail to perform any of the foregoing conditions, he shall immediately forfeit his interest in the land, together with his crop upon the same; and the landlord, or his agent, shall be at full liberty to take possession thereof, and to enforce the payment of all rent then due, by sale of the crop, or otherwise, as in cases of rent in arrear. I, the undersigned ——— do hereby agree to rent forty lugs of land, ——— at the rent of fourpence per lug, upon the conditions above-mentioned. As witness my hand this —— day of ——, 18—. Witness, ———

Sulphuric Acid and Bones.—As the result of an experiment in farming is worth noticing, I may mention that I have tried the sulphuric acid and bones together, and have found that Swedes grown with sulphuric acid and bones, 8 bushels of the latter and 4 stones of acid to the acre, have equalled those grown with 6 loads of manure and 2½ cwt. of guano, and those grown with 12 loads of manure. The crop in neither case has become more than a moderate one, from the unfavourable season at the time of sowing, but it proves to me the great value of the sulphate in the growth of Swedes, to which I was led to attend by the analyses of Sprengel. Can any one inform me how to make the cream rise in milk, where there is a sufficient richness in the milk, but from some cause the cream will not separate?—*A Subscriber.* [Try the Devonshire plan—place your milk in earthenware pans, and after 12 or 24 hours put it on a charcoal fire till the milk begins to blister: then remove it.]

Town Dairies.—Having daily experience of the money that is made in London by cow-keeping for the sale of milk, I have been thinking that by a proper selection of cows, butter may be produced in the same manner. For example, the Alderney cow, the Ayrshire, the Welch, and the Irish Kerry, are all much more productive in quality than in quantity, and may be well kept, at very little more than half the cost of the large English milking breeds, such as cow-keepers patronise. Carrots are the very best food for butter, which can be given to a cow; and these roots (broken) may be bought in the Borough market now for 30*s.* per ton. Mangold Wurzel varies from 21*s.* to 24*s.* 40 lbs. of the former, with 20 lbs. of the latter root, ½ bushel of grains, ¼ oz. of salt, and 12 lbs. of cut hay and straw per day, will keep any one of the above cows right well, at a weekly cost of about 8*s.* 6*d.* Alderney or Ayrshire cows will average from 8 lbs. to 12 lbs. of butter per week; this I know from actual experience. Thus, the butter, at the minimum, would be worth 10*s.*; and the skim-milk (in London) as much more—besides the manure and calves. At a fair moderate estimate, I hold that each cow would clear 10*s.* per week. Now, sir, if you agree with me, I shall certainly try the novel experiment of cow-keeping in London, for the produce and sale of butter alone. I can see no reason why this should not succeed, as well as selling milk; there is not one-half the trouble, no unreasonably late and early hours, though, I am free to admit, not near the profit—butter cannot be adulterated. If you think my calculations safe, and that the speculation must pay, I shall forthwith take a yard, and import six of the best Alderney cows. You shall hear the result from me.—*A Subscriber and Constant Reader.* [Your calculation, so far as the food and yield of the animals go, appears to be safe enough. As to prices, you know them a great deal better than we do. We should like to know how your experiment succeeds].

Potato-feeding.—A Correspondent in your last Number, "Hatfield," asks if he may give Potatoes to his cows in a raw state; and if so, in what quantity? If he has no means of cooking them I would recommend him to sell them, and expend the proceeds in some other kind of food. I have had considerable experience in feeding with raw Potatoes, but always with unfavourable results. If the Potatoes are given in sufficient quantity to produce any effect, they will (notwithstanding as much hay be given with them as the cattle will eat) relax the bowels to such an extent that the effluvia of the cattle-house will be almost insupportable, and neither bedding in abundance, nor every attention to cleanliness, will keep the stock comfortably dry. I do not think it would be possible to get sweet milk from cows fed upon raw Potatoes, whatever attention might be paid to washing the udder previously to milking. On the other hand, if "Hatfield" can contrive to steam his Potatoes, I think he will not repent it. I have not tried cooked Potatoes for cattle, but have given them for many years to horses in work of the severest description, mixed with their chaff and bruised corn, and have every reason to be satisfied with the result.—*Lusor.*

Fences.—I occupy a large farm of alluvial clay at a distance of about half a mile from the sea. The situation is not greatly exposed; but the fields are extensive, and the farm lying in the midst of a wide plain, with no hedge-row timber, the young brairds in the early part of winter and spring sometimes suffer severely from scourging east winds. Several of the fields are surrounded by high banks, to prevent inundations, and it has often occurred to me that much shelter could be obtained by planting some quick-growing wood on these banks. The banks have been long in Grass, and are every year cut for hay. Hard wood of any kind is not suitable to the soil, and would take too long time before becoming useful. My object in writing is to request you to name such trees as you would recommend for the purpose I have in view, namely, of affording speedily shelter and at small cost (as it is a tenant's operation), and the proper time and mode of planting.—*Saule.* [We must refer you to our Correspondents.]

Wild-Boar Breed.—I have received the present of a fine young sow of true wild-boar breed; and the young lady is truly wild—as wild as a gos-hawk, and as saucy; nothing stands in her way, or in the least degree daunts her. But now, what is the value of such a creature in the pig-breeding way? With what breeds may she be crossed, so as to improve them? In fact, will a mixture of this wild with the tame be any improvement? I should imagine not; but will you be so kind as to advise me generally, and specially as to the housing and food which this tameless animal should have? As to food, I should add that daintiness is by no means her foible; while she can get a man-of-war's-man's grog and biscuit she is quite content, and she is remarkably teachable of every antic and fancy excepting that for a quiet life. If I find that as I am not a professed pig-breeder, nor much of a farmer, I cannot manage the proper accommodation for this stranger, would she be an acceptable present to any more competent naturalist and agriculturist who can? She came from Negropont.—*J. T., Plymouth.* [We presume the ordinary attendance and food will suit her. Let her have a well-fenced and dry sty, and feed her on Potatoes and Barley-meal. She is a *curiosity*, and, so far as the English farmer is concerned, we fear, nothing more.]

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

At the Council Meeting, on Thursday, January 2, a letter was read from Mr. Hall, secretary to the Fermanagh Farming Society, submitting the following case to the consideration of the Council—viz., A. B. having thorough-drained more than the necessary number of acres required by the Society, most effectually, and C. D. having also drained a much larger quantity than A. B., but not in so effectual a manner in the opinion of the judges—A. B.'s drains were 30 inches deep, and filled with stones, whilst C. D.'s were only 27 inches deep, and made with tiles, but both works were supposed to be executed upon the principles of Mr. Smith, of Deanston. The Council were of opinion that A. B., who had executed more than the necessary number of acres, in the most effectual manner, was entitled to the Society's Medal; and they also expressed a wish that in forwarding statements of similar cases for the future, the particulars of such case, and the opinions of the judges, would be stated more in full, so as to enable the Council to come to a more satisfactory conclusion on the subject. The secretary stated that he had received several essays on different subjects, and also notices from competitors for reclaiming waste land, and thorough-draining, &c., for the Society's Gold Medal. But it appearing to the Council advisable that the time for receiving the above essays and reports should be extended, it was ordered that all persons desirous of competing for the Society's Gold Medals for reclaiming waste land, building labourers' cottages, planting, and for having thorough-drained the greatest quantity of land, not less than 100 statute acres, should forward notices of the same to the secretary, previous to the 1st of February next, in order that the different works executed should be properly inspected for the purpose, and that the successful prize essays and reports should be published in the Transactions of the Society.

MARKETHILL AGRICULTURAL SOCIETY.

The Annual Meeting and Dinner of this Society took place at Markethill on the 19th ult. Mr. Blacker, in the absence of Lord Gosford, who was indisposed, presided. Among the immense benefits which the tenantry and estates of Lord Gosford have derived from the spirit of emulation, and from the instruction imparted at these Annual Meetings, were the following, as stated by Mr. Ringland, one of the judges:—

In the first place, visible improvement exhibits itself by the levelling of the useless crooked fences, which were more a nuisance than a real benefit, being a loss of land and a harbour for vermin. The next improvement that attracted notice was the adopting of a more regular rotation, the straightening of the crooked ridges, and the filling up of the large drains or ditches along the fences. We were gratified to observe the attention and care that was directed to the accumulation and preservation of farm-yard manure. A great many have sunk wells or ponds for receiving the liquid manure, that is sometimes allowed to run to waste, notwithstanding its being the most important part of all the manure. Furrow-draining has engaged the attention of almost every person whose farm we visited; and they have executed it on a very good principle, namely in a line with the declivity, with the drains at suitable distances from each other, as the soil was retentive or porous. There is one good feature in the making of drains in this country, which is, that they are made sufficiently deep—more so than is usually the case with parallel drains. They are generally found to be made from 34 to 36 inches deep, which is very answerable for this locality. The deepening of the soil is beginning, also, to attract the attention of a good many within the range of the Society's influence; and until such be adopted generally, the benefits arising from draining will be limited comparatively. This is being effected, in almost every instance, on the small farms where it has been attended to, by spade-husbandry. Notwithstanding all the improvements, there is something still to be done, and that is, adopting the requisite regularity in the formation of the drills in the Turnip crop. Thus, upon Mr. O'Hagan's farm, some of the drills were 29 inches apart, and some were 30, whilst others were only 25 inches. They received an excellent after-culture, and the Turnips were a fine crop, but, in consequence of the irregularities of the drills, they only weighed at the rate of 23¾ tons to the acre. They would have weighed 30 tons were the drills only 26 inches wide, or 28 inches where extra of manure was given; but the crop has improved since, for I saw an average portion of them weighed on last Friday, which was at the rate of 27½ tons an acre, being an increase of 4¼ tons during the lapse of six weeks. With respect to the best tillage farm, we visited a good many that were offered for competition, and none was so commendable as Mr. Alexander Small's, of Shanecracken. It consists of 25 acres, and is divided into 9 fields. There is on each field a good iron gate, with suitable pillars. The housing is in excellent repair, the hedges properly trimmed, and the fields judiciously ridged, and entirely free from weeds. The management of the Turnip crop we considered very judicious; although sown on the 10th of July, they are a good crop, from the great attention paid to them during their growth. The cause of his late sowing of Turnips was owing to a failure in the first crop. The farm of Mr. George Scott, of Lurgaboy, was the next we visited. It contains 44 acres, divided into 11 fields, well fenced and well ridged. He follows the four-course rotation, and his land was proportionately cropped. The housing was in good order, the offices well arranged, and the dung-heap very judiciously placed. We observed that the growth of Flax is very much attended to by all; and numerous complaints were made that, although great trouble was taken, still the crop did not meet the expectations of the grower. This, I think, arose from its not having a proper place in the rotation. Where the four-course is adopted, the better way would be to put only half the manured ground under Flax, and the other half under Oats—on the fifth year reversing their places. By such a mode the Flax would come on the same ground only every ninth year.

The Chairman here observed, that formerly his lordship had given premiums for furrow-draining, house-feeding, &c., in order to induce the tenantry to make trial of what he recommended, but when this object was accomplished all his premiums were withdrawn, as he had no wish to induce his tenants to continue to practise, for the sake of premiums, what was not worth practising for its own sake. The premiums, therefore, which they had just heard read, were premiums offered by subscription among the tenants, to be competed for by themselves: and the only premium offered directly by his lordship was a challenge cup for the best cultivated farm above ten acres, to be competed for by such members of the Markethill Farming Society as were his lordship's immediate tenants, which had just been adjudged to Mr. James Black; and a challenge clock, for farms under 10 acres, open to be competed for by all his tenants of that rank, to which he had added, this last year, a premium for the persons who obtained the highest price for their butter in the London market, and another for the better providing of tanks for liquid manure.

Mr. Herd, one of the judges, having given in the award of the judges, as regards the challenge clock, in favour of J. Beatty, the holder of 9 acres of land, near Hamilton's Bawn, the Chairman congratulated him on his success, and proposed his health, requesting that he would favour the company by stating some of the results of his exertions.

Mr. John Beatty said—I hold 9 acres and a few perches of land in my farm—house-stead and roads included. This is only the third year I have been in this place. Being poor, wet, and weedy, I could keep but one cow on it the first year. I have now three cows and one heifer. My manure is increasing as much as my stock, and the judges say I have an abundance of provision for my stock this year. I have thorough-drained 100 perches, part of which grew nothing previously except Rushes and sour Grass, as it was wet, weighty land. I had a better crop of Potatoes on the drained land than on the part of the field that was not drained, although that was of a much superior quality. I have set Potatoes on a composition of liquid manure and rich soil-

scrapings and gatherings, which will be found in all cases profitable to the farmer. I have also adopted the use of guano, and top-dressed my young Clover with it in the beginning of April, on wet mornings, and in ten days after it could be observed much greener than the rest of the field. It was cut ten or twelve days earlier. I set Potatoes on guano, lime, and soil, and farm-yard manure. The portion planted on guano was one-fourth better than that on the lime, and as full a crop as that on the farm-yard manure, but of a larger size. I sowed Carrots on guano, and had an excellent crop. I had but 5½ acres formerly, which I brought into such condition, that I got for it nearly 13*l.* more than I paid for the 9 acres I now have, it was then in such poor condition.

The CHAIRMAN then called on Mr. Hard to state what circumstances had influenced the judges to decide against J. Gilliland, who had the clock in possession since last year, and also against Jacob Albin, the other competitor.

Mr. HARD said—I beg to state that I and my brother judges went through the farms of the different competitors, who are John Beatty, John Gilliland, the winner of the clock last year, and Jacob Albin. I believe they hold nearly equal portions of land — about 9 acres each—and I can assure you the taste displayed, in both labour and neatness, does them great credit. John Gilliland's farm is naturally very compact, but has a great number of useless ditches in it, which we objected to. His green crop appears very good, and everything about his place very neat. The stock he has on it is a horse, three cows, and one pig. We next examined Jacob Albin's, which is also very neat. He has no waste ground in it. It is well laboured, and in very good order, and produces excellent Turnips. The stock he has on it consists of four cows and one heifer. John Beatty's farm is not so well situated, which is no fault of the farmer's. He has only occupied it for a few years. It is much weightier and more difficult to labour than the other competitors' farms, and we are of opinion that he labours it equally well. The stock consists of three cows in very fine condition. On the whole, we consider that John Beatty is entitled to the clock for this year, as we believe him to have the best supply of winter moist food and fodder, to bring his stock on to the Clover season. He has his farm in as good condition as either of the other two, although at first sight it does not so appear, owing to the way it is situated. It is most important that a farmer should have a due proportion of food for his stock for every season of the year; a deficiency in this particular is the only fault it is possible to find with either Gilliland or Albin, as their farms, in every other respect, would do them credit in any part of the world that could be named. I attribute the scarcity of fodder to the growth of too large a quantity of Flax in place of Wheat or Oats.

The CHAIRMAN said he regretted the mortification to Gilliland of losing the clock, which it was evident was occasioned by having sown too large a quantity of Flax, which had deprived him of the fodder required for the support of his stock, but this was a fault that might be remedied hereafter; and from what the judges had pointed out to him, in respect to levelling the useless ditches on his farm, he considered he would, very probably, be able to recover the clock next year; and, in the meantime, he had great pleasure in telling him, that he had not only gained the first premium given by his lordship for butter, but that he had also got the first premium contributed by the landlords who had attended the formation of the Butter Association in Armagh.

The CHAIRMAN here begged to propose, as a toast, preparatory to the consideration of Furrow Draining, which was the first subject of discussion for the evening, "The health of Mr. Smith, of Deanston, a man who had done more to increase the agricultural produce of the United Kingdom than any other man in existence." He said—We are now advanced to that period when it becomes my duty to introduce the discussion upon Furrow Draining. Having lately seen it stated, in one of the public prints, that thorough-draining meant the adoption of diagonal drains, and that furrow-draining meant running the drains direct up and down the slope, I think it is important to explain that furrow-draining, thorough-draining, parallel-draining, and the Deanston system of draining, all mean one and the same thing, viz., the effecting its object by running parallel drains up and down the fall, at regular distances from each other, of the depth of 30 inches, a passage for the water being preserved by means of tiles or broken stones, such as are employed in the repair of the public roads, to be carefully freed from all clay, and mud, and covered with thin sods or scraws, the Grassy side down, over which the subsoil, taken out, should be tramped firmly down, so as to prevent the descent of water perpendicularly from above, which would be likely to carry down a portion of the clay with it; whereas by entering through the sides it runs pure into the drain, and the chances of stoppage are in a great degree prevented. Many people may think that the nature and effects of furrow-draining have been so often discussed here that it is unnecessary ever to recur to it again; but I am sorry to say this is not the case, for during the draining season, I can scarcely ride in any direction without seeing people running their drains here and there across the slope, in opposition to all that has been said and written upon the subject. The origin of this adherence to old customs seems to me to be the idea, that water can always freely descend under the surface as it is seen to do above ground; but if this was the case, how could springs of water burst out often at the very top of hills? Is it not evident that the water has been inclosed by impervious soils, so that it could not escape, and has been thus forced up in place of running down, as it would do were it to get its liberty? You may all have seen instances that by tapping a spring below you may dry a well at a great distance above. This is done by cutting into some bed of sand or gravel, which thus discharges the water which before could not escape, and *you are almost certain to do this* where you run the drains up and down the hill, and any accidental spout breaking out between the drains should have a small pipe to conduct it into them. But, gentlemen, it is not drawing off springs alone in which the old and new systems are to be compared. Nine times out of ten it is the water from the clouds, which, falling on a clay surface, cannot get away, and is only dried up by evaporation. Now I am strongly inclined to think that the majority of small farmers have never thought at all upon the effects produced by this evaporation. They say, from common observation, such a soil is a dry and warm, early soil—but they have never considered what makes a dry soil warm, and a wet one cold; it is effected by this very evaporation to which I have alluded, and the cold produced thereby you will soon be convinced of, if any of you will take off your coat and dip one arm in water, so as to completely wet your shirt sleeve, and then hold both arms to a sharp north-east wind. The evaporation from the wet sleeve, thereby produced, will very soon give an idea of the cold occasioned in a wet soil by the wind passing over it, and also how shelter from wind tends to make the cold less penetrating. Now, gentlemen, in furrow-drained land the rain sinks as fast as it falls; for if you will consider a little you will see that a wet soil is swelled up by the quantity of water contained in it; but where these parallel drains are dug, the water oozes out, and the consequence is, the soil cracks under the surface, just as you often see the dryness in summer crack it on the surface; and through these cracks the water is immediately conveyed into the drains, and the land is kept constantly dry. But, gentlemen, the superiority of the furrow-draining is not confined to the mere *warming* the soil, by carrying off both under and upper water; it has another and most important use, which I think it very likely many here have never turned their attention to. It is now about 12 years since, in the small pamphlet I then addressed to you, in order to show you the fertilising influence which the air exerted when brought in contact with the soil, I pointed out the change, which you must all have witnessed in the nature of the yellow, hungry till, which is often thrown up out of the gripe of a new-made ditch to form the bank. This cold till, in a few years, by being exposed to the air, becomes fruitful, good soil, whereas the seat of the ditch upon which the bank was raised being excluded thereby from the air, becomes barren, though before it was good surface soil. Now the advantage of the furrow-drains is, that they introduce a constant current of air through the soil to the bottom of the drain, and thus change its entire nature in the same way as the back of the ditch is changed; and it is done in this way:—When rain falls, these cracks, to which I have alluded, are filled with water. Now you all know that when a cask is full you cannot get a drop to run out, even though you bore a hole in the bottom of it, without you let the air get in above to fill up the space which the running out of the liquid leaves. This is exactly what takes place under ground. The air follows, and occupies the space from which the water escapes; and again, when more rain falls, the descent of the water drives out the air, and this is repeated day after day, keeping up a constant passage of air through the soil, by which it is fertilised much more rapidly than that is which forms the back of the ditch. These effects are much accelerated by the practice of subsoiling with the plough, or by the spade and two-pronged grape; and by these combined operations the soil is in a comparatively short time made fertile, dry, warm, and early, and the *air is also admitted to the roots of the plants, which is a principal object* in digging, ploughing, and every agricultural process, the necessity of which is exemplified by the death of a number of trees on the hill going into Armagh, of 50 or 60 years' standing, which have, nevertheless, been killed by laying around them a quantity of clay taken out of the new reservoir for the supply of water to the town, which clay prevented that access of air to their roots, which was necessary for their existence. I have, perhaps, gone too much into particulars, but I cannot help thinking that it will be gratifying to many who have been too much occupied with the practical working of what I have been endeavouring to explain, to hear what they may have often observed satisfactorily accounted for. As it is always, however, desirable to have practical testimony to support theory, I will call upon some whose experience will enable them to give practical testimony to the truth of what I have said; and I beg Mr. Herd to explain the results of his draining in the demesne at Gosford—merely adding, that the only particular in which I venture to differ from Mr. Smith is, that I would always prefer making the drains 36 ins. deep in place of 30 ins., where the fall is sufficient. They are less liable to injury, and any additional expense is saved by fewer drains being required.

Mr. HERD—I have had much experience in both draining and subsoiling, these eight or nine years past. In Gosford demesne we have made nearly 100 miles of drains. To mention all the benefits arising from furrow-draining would take up too much time; every practical farmer knows when his land is wet he can neither put in his crop in season nor take it out; neither will it ripen regularly, presenting always a number of green patches. He must, consequently, lose one part of the crop by waiting on the other; and at the same time will not have more than half a crop for all his labour and expense. I shall merely call your attention to one field which I furrow-drained and subsoil-ploughed, about five years ago; it is well known by several gentlemen here present, that worse land could scarcely be found. I am sure that a farmer who had 50 acres of the same kind (without paying any rent for it), could not make a comfortable living off it. After being furrow-drained and subsoil-ploughed, the first year, I put it in Turnips, and in part of that field I had 39 tons of Swedish Turnips to the English acre. I have since had an excellent crop of Flax and Oats, and two crops of Clover and Grass off the same field; and last season it grew a crop of Oats, which averaged, in length, from 6 feet to 6 feet 3 inches. His lordship's schoolmaster had half an acre for a Potato-garden off this field, which was not drained, but had been manured successively for seven years, and this year I got that half-acre into the field, and the fact is, there was only about two stooks on it (of inferior quality) for every three I had on the other, which I think is a very good proof of the advantages to be reaped from furrow-draining and subsoiling. The drained portion was also the soonest ripe. This field has been lately ploughed, and any one that recollects what it was before will now find both its colour and nature completely changed, verifying exactly what Mr. Blacker has just explained.

Mr. ALEXANDER SMALL here said—When Mr. Smith, of Deanston, formerly visited us, I complained that I had not stones to fill the drains, but he showed me that the stones, which I had not thought worth gathering, were the very best of all for that purpose, being broken ready to my hand, and nearly small enough. As far as my experience goes, I would say that 18 feet is the best distance between the drains.

Mr. SKILLING.—In regard to draining I differ very much in my opinions from those expressed, and from what I hear every day promulgated, on that subject. I know what any individual may expect, and the risk he runs in opposing any fashionable theory, while that theory is in the ascendant, and until its votaries have been cooled down and tamed by practical experience; but I shall not hesitate to express my opinions openly and candidly. The great and paramount necessity of sufficiently draining and drying the land, in this and every other country, as a precursor of successful cultivation, is now fully admitted by every sensible man, and the experience of the success of complete drainage has settled the question; on that head, therefore, there can be no difference between us, but the modes by which the necessary drainage of the land can be most efficiently executed, and at the cheapest rate, is altogether another question, and one that will bear a great deal of discussion. I believe that every system hitherto adopted will be found in error under various circumstances, and that we have yet much to learn and discover on this difficult subject. We hear it said that certain individuals have made so many miles of drains, consumed so many thousands of tiles, or tons of stones, and we know that premiums are offered and given for such, if constructed on one particular mode. Now I would give the man more credit who could say that he had *dried the greatest number of acres* for the smallest sum per acre. I think his example would be more worthy of imitation, and be better entitled to public approbation than the former, who had perhaps made double the quantity of drains that his land required. I deem it absurd to say that all the various soils of Ireland require a certain or like quantity of drainage by the acre, the drains all the same depth or dimensions, running in the same direction and at somewhat equal distances asunder—say from 15 to 30 feet—and that this standard shall be the test of thorough-draining over all the country; this I consider a great mistake, into which the advocates of the whole Deanston system run. There can be no doubt that the system adopted by Mr. Smith is the very best known for drying the peculiar soil and subsoil of his lands in Stirlingshire, for the greater portion of Scotland, for much of England, and for all such heavy and retentive soils in this country. I would even go farther, and say that such frequent and numerous drains would dry any kind of land; but the application of such an expensive principle in all cases (and where a much cheaper process would suit all the purposes required), is what I particularly object to. It may be urged that thorough-draining, besides benefitting the land, gives employment and encouragement to the poor; I admit that, and if every tenant-farmer was enabled to lay out money so, or if every landlord would advance money to drain his estate, I would be glad to see the work going on; but in the present circumstances of the country I fear this is not likely to take place; and I fear further that there is a kind of stand-still among the people, from sheer dread of the expense. They are told that if they intend to dry their land at all they must thorough-drain it, and they come to understand that this process, if done in a proper manner, will cost from 6*l.* to 10*l.* per acre; this is a settling case, so far as they are concerned. We know what a "god-send" a good excuse is to an Irishman. What I would say to the farmer is—"You have it in your power to dry your land much cheaper and by degrees; begin, clean out your gripes and water-courses, make a good fall, run deep main drains through all hollows where the water would accumulate, fill them carefully, so that they may discharge well; where a land-spring shows itself run a deep drain through it, cutting the strata at right angles, and discharging into the main drain. As soon as possible after this process, commence to trench and deepen your ground from 16 to 20 ins.; this you may do at a moderate rate, and in a most efficient manner, with the

common plough and spade—on a small farm, with the spade alone; let the water down through every square inch, it will find its way into the main-drains. Trust me, after trenching you will not be troubled with surface-water; and if at any time wetness appears in any part of the field, run a drain or two through it, you have always your main-drains for receivers." This, sir, is what I call draining in a moderate way, or beginning to drain: this mode is practicable, and can be extended; it will coax them into the system. If once they can be induced to clean out their water-courses and run main-drains, the benefits resulting will teach the most stupid the importance and benefit of going further. Nor is this a wild theory, it is a system I have adopted and carried out successfully on one of the wettest farms in the county Dublin.

The CHAIRMAN here stated that Mr. Skilling, in speaking of his mode of draining, alluded chiefly to carrying off under-water from springs in the land, which was excellent, where the surface-soil was porous enough to afford an immediate passage for the rain-water to sink as it fell; but that the peculiar merit of the Deanston plan was, that it at the same time accomplished both objects, and carried off both under and upper water. For his part, he considered that in all clay soils no other system of draining, except Mr. Smith's, could perfectly accomplish the object.

The efficacy of drains across the slope then came under consideration.

Mr. POLLARD, who had obtained the Royal Irish Agricultural Improvement Society's medal for draining, said—He had adopted Mr. Blacker's method; it answered well. He had commenced farming with two cows, and he now had nine, and when fed on Turnips in winter, they gave as much milk as in summer. He had at first disliked taking any manure from the Potatoes, but he found the Turnips increased the manure, so that he had 13 acres of Potatoes now, and 4 acres of Turnips. He intended to drain 6 acres more this season, according to the Deanston method.

Mr. SIMPSON, of Killen, said—For years I made all my sewers as cross-drains, and a leading sewer to convey the water to the ditch. After putting the cross-drains as close to each other as I considered necessary, I always found, at seed-time some parts of the land damper than others. Hearing you, sir, state your views of furrow-draining, I commenced and furrow-drained a field, and it fully answered my expectations of drying it in the most perfect manner. At seed-time the field was all perfectly dry alike, and the grain ripened all at the same time. I can say with perfect confidence that furrow-draining is superior to cross drains in every respect. Having heard objections made against the Turnip crop, I can only say I have found great benefit from sowing Turnips, so much so, that I can have as many Potatoes planted now as when I sowed no Turnips, besides the great benefit of green food in winter for my cattle.

Mr. RENNOX rose and said—I have had some experience of both the old and the new systems of draining, and I consider the new preferable to the old. Our practice in the old system was to cut the drains across the hill, and sink them from 4 to 5 feet deep. We thought this would lift the spring from 20 to 30 feet, but it did not lift it more than from 8 to 10 feet. Finding the land not dried, we then commenced furrow-draining; and running the drains through those formerly cut across, we found that a large quantity of water had lodged in them. But there are many advantages in the new system that are not in the old. In the first place, less and less manure will do, and the ground is sooner ready for the seed; for after heavy rains, when the cross-drained land would not be fit for labour for a considerable time, a day or two will bring the furrow-drained land into a good state for cultivation. We also subsoil-ploughed our drained land, and I consider it renders the new system of draining still more advantageous. I have no doubt but the superior crops to be obtained off the drained land would, in a few years, fully repay the expenses.

Mr. SCOTT replied—I have observed that furrow-draining causes an entire change in the nature and colour of the soil; that land that was stiff and weighty becomes black and friable by being furrow-drained. It is superior to every other method, inasmuch as it dries the land equally, and insures earlier and more equal reaping, as there will be no unripe spots through the crop, as is the case in spouty land. The crop will also be more abundant from the deepening and subsoiling that the land undergoes in draining. I am of opinion that from 18 to 21 feet is the proper distance that the drains should be from each other in this part of the country. Where the land is very weighty, and has a clay bottom, I think it would be better to drain at a distance of 36 feet, and to mark the drains at the head and foot of the field, so that in three or four years there might be a drain run between every two of the others. By this method the field will not be too heavily coated at once with the subsoil, and the whole farm got speedily over. I think it preferable that the first crop after draining should be Potatoes or Turnips as the soil and subsoil will be more equally mixed than they would be in the case of any other crop. In conclusion, I may state my conviction, that money spent by a farmer in draining and subsoiling, will in a short time, by the superior crops the land so treated will carry, be repaid, together with a handsome per centage for years to come.

Mr. SMALL here mentioned, in opposition to what Mr. Skilling had said, that he had drained a field of heavy clay land, which wanted draining very much, and was greatly improved by it, but there was no under-water whatever, there not being a spring in the whole of it. It was the rain-water did the mischief, for which Mr. Skilling's drains, at such a distance, could be no remedy.—The company then drank to "The health of the Hon. James Hewitt, and Lady Mary Hewitt, and success to their exertions in bettering the condition of the labouring classes in their neighbourhood."

Hon. J. HEWITT, after some preliminary remarks said—Gentlemen, I have served my apprenticeship to bog reclaiming, this being the eighth year since I began upon a very wild and unproductive tract in the county Donegal. The mode I have pursued is the obvious one which has succeeded in many other places, viz.—cutting off the water from the upper part of the ground to be reclaimed, dividing it into fields of 4 or 5 acres, by open drains, and running parallel closed drains through the whole, about 15 feet apart, 3 or more feet deep, and formed of stones, with a small pipe at bottom, where the clay is near the surface; and where the bog is deep, by laying the top sod face downwards, on two shoulders left at the bottom of the drain when dug, thus leaving a small pipe at bottom, rather larger than a draining-tile. The result of my experience so far is this—that where the bog is sufficiently shallow to allow it to be completely mixed with the clay subsoil, a loam may be formed varying in quality with the quality of the subsoil, but in every case that I have seen well adapted for any kind of crop. Where the bog is very deep, I do not think that the cultivation of the cereal crops will pay, for the simple reason that most of their constituent parts are hardly to be found in pure bog, and can only be supplied by repeated and expensive manurings. But by draining, in the way I have described, taking two crops of Potatoes, the ridges of one where the furrows of the other were, top-dressing with clay and lime, and laying down perennial Grasses, the deepest bog may be changed into excellent meadow, especially if, as is generally the case, it can be made into water meadows. I myself have excellent meadow of this description, the depth of which I have never been able to fathom—which, eight years ago, was not worth 6*d.* an acre, and on which I was able to cart manure this winter. It is worthy of note that three of the best perennial Grasses we have, viz., Cocks-foot, Timothy, and White Clover, are peculiarly suited to reclaimed bog. Gentlemen, this is a matter of considerable importance to a country like Ireland, abounding in unreclaimed bogs; for by this means I have been able to locate above 20 families, consisting perhaps of 100 or 120 souls, in allotments, upon which, by industry and perseverance, they may gradually improve their circumstances as they improve the soil, and ultimately attain to comfort and independence. At present no family is without one cow, and some of them two and three; but this, however it may be interesting in a national point of view, does not so much come home to the tillers of the strong clay of this neighbourhood. Will you, therefore, allow me to say a few words on a subject more intimately connected with yourselves, as a preliminary to a toast which I hope to be allowed to propose. It happens that I am well acquainted with not only the poor and wild district I have referred to, but also one of the most fertile parts of one of the midland counties of England. I confess it is to me the greatest pleasure leaving the wretched cabins, the naked children, the ill-tilled land of the district I have mentioned, which I hope is beginning to improve, but where the people are crowded together in, for the most part, very small farms, on a small portion of arable land attached to a large extent of mountain, and to turn to the comfortable dwellings, the stately barns, the wide well-cultivated fields of English farmers, all of them holding from 100 to 400 acres of land, and many of them richer than persons who hold a far higher station in society in this country. And I confess, when I compared this picture with the wretchedness I have seen among the small farmers in Ireland, I almost came to the conclusion that it was the duty of an Irish landed proprietor, both as regards the productiveness of the country, his own interests, and ultimately the good of the people, to promote the system of consolidating many small farms into a few large ones. But there is an ingredient in the English agricultural system of which you here know but little, viz., the agricultural labourer; and when I look to his condition my opinion is much changed. Now, as there are many labourers to a few farmers, this is not the least important consideration. And what is the lot of the English labourer? I do not speak of those who have a small portion of land attached to their dwellings—for that I look on as the adoption of the small-farm system, and by far the most prudent mode of adopting it under present circumstances in England. But the English labourer in general depends solely on his labours. He has sons and daughters to work in their turn, if work can be found for them, or if not, to be supported by the parish in the workhouse. Though he be honest as the day, and hard-working as the team he drives, he can never rise above the lot to which he was born—the tiller of another's land—and at last, in most cases, from the cruel system of large farms, and the demoralising principle of the poor laws, he dies in want in the workhouse. This result to the largest class of the agricultural community—the consequent loss of their independence—their tendency to trust to poor-rates instead of their own exertions—the reckless early marriages caused by this, and the injury to property resulting from it all—staggered me as to the soundness of the large farm system. And when, for two or three years, I had observed the farms of those of Lord Gosford's tenants who have had the sense to follow the advice of Mr. Blacker (to whom I, in common with every owner of land in Ireland, owe so much, but to whom the small farmers of Ireland owe far more)—when I heard many of you say that you paid your rent by your milk and butter alone—when I saw your smiling homesteads, your chubby children, your land producing even more in proportion to quality and circumstances than similar land in England—when I compared your decent, moral, and religious habits with the results of the infamous system of Scotch bothies and Northumberland gang-workers—when I remembered that all this applies to the class analogous to the English labourer, the bulk of the agricultural population—I could not but feel convinced that the strength of the country, the wealth of the landlord, and, above all, the happiness of the people, are best promoted by a system of small farms, with enlightened, industrious farmers, and under liberal and far-sighted landlords—ruinous as I know the same system to be when the farmers are ignorant and lazy, and the landlord and agent careless or grasping. I believe that the habits of respectability, the comforts, the education, which are the natural consequences of a better system of farming, will go far to prevent the division of the land into too small farms; it will even enlarge them to a certain point; it will do more, it will give you a fixity of tenure in 99 cases in 100, better than any depending on the quibbles of a law—for no landlord that is not insane will part with an improving tenant. I do believe that the peace and prosperity of Ireland will spring as completely from amelioration of the condition of the agricultural population, as her turbulence and poverty from their too general distress and destitution. The landowners are fast learning to do their part: they are setting before the people agricultural instructions, and are finding out the good policy, the necessity of cherishing the thriving tenant; and when we once have peace and security in this country, English capital will flow in to develope our vast natural resources, and you will have an increase of comfort and prosperity, which can spring from no legislative enactments, but from the increased employment and raised condition of the people. Gentlemen, in the opinions I have stated, I am stating the case of the tenantry of Ireland; and if, as I am sure, they find a response in your heart, you will join with me in heartily drinking the health of a gentleman who has done more for the solid happiness of Irishmen than all the politicians put together for the last hundred years. I give you the health of Mr. Blacker.

Mr. BLACKER, in reply, said—Gentlemen, all present are, I believe, aware that Lord Gosford's wish is, to render these meetings practically useful, and that each speaker should confine himself as much as possible to what might be more or less interesting in a public point of view, or in some way calculated to afford useful instruction to those present. I shall therefore merely thank you all, which I do very sincerely, for the compliment just paid me, and shall proceed to advert to that success which has for so far attended the undertaking, to promote which these meetings were originally established.

We must postpone the rest of the Report till next week

Reviews.

Report of the Judges appointed to inspect the Farms entered for the Prize and Sweepstakes, proposed by the Yorkshire Agricultural Society, 1844.

We continue our extracts:—

"William Heddon has occupied the Howefield farm, in the township of Baldersby, for 25 years. This farm has in it 60 acres of Grass land, and 254 acres of arable, all of which, with the exception of about 30 acres, is a fine Turnip-soil. The four-course system is adopted, and the cropping is generally pursued in the following order:—1st, Turnips; 2d, Barley, or sometimes Wheat in the spring; 3d, Seeds, Clover, or Beans; 4th, Wheat, except when it happens that Wheat has been sown after Turnips; in that case, Barley or Oats are generally substituted.

"The manures used by Mr. Heddon are, fold-yard manure, bones, rape-dust, lime, lime and salt mixed, ashes and night-soil from Ripon, and of late a little guano. The quantity of Wheat sown per acre is, from 10 to 12 pecks; of Barley 11 pecks; from 4 to 5 bushels of Oats; and from 10 to 11 pecks of Beans; from 12 to 14 lbs. of Clover for mowing, with half a peck of Rye-grass. The seeds for pasture consist of 7 lbs. white Clover, mixed with 7 lbs. of Trefoil, Rib-grass, Cow-grass, and Parsley, and also half a peck of Italian Rye-grass.

"The draining upon this farm has, of late years, been more to relieve old stone drains, by cutting across them and inserting new ones where it was found necessary, than any extensive new draining; but the strong land part of the farm, which had not been previously drained, has of late been laid with drains 30 inches deep, and at a distance of eight yards from each other. The draining, as well as all other improvements on the farm, have been done at the sole cost of the tenant.

"About two-thirds of the Swedes are drawn in the early part of the winter, and stored for the ewes and cattle in the spring, and the break-rows and hedge-sides of the others are drawn for the cattle in the fold-yards; the remainder of them are consumed by sheep upon the land where they are grown. The stall-fed beasts have Bean-meal and Linseed cake given, in addition to the Turnips. The milk cows are fed much in the same way; and the young cattle have a little cake given them in the early part of the winter, which is generally increased towards the spring. The horses are fed on chopped Oat-sheaves, with a little hay or Clover mixed, the quantity given being regulated by the degree of labour they are required to perform.

"A great part of the Wheat is threshed in summer,

and the straw converted into manure by soiling the horses in the fold-yards. Green Clover, Tares, and Grass, are used for this purpose, as most convenient. By these means, excellent manure is made in the yards all the year round. A large tank has been made for the liquid manure; and the spouts round the buildings are so arranged as either to throw the water completely away or turn it into the yards, and through them into the tank, as occasion may require. A supply of this liquid is thus kept in readiness for the yards in a dry time, which is found to be of essential service, as the manure can always be put into a good sappy state before it need be carted from the yards. When the yards are full of manure, it is carted out and formed into heaps in the fields that are intended for Turnips, and as soon as completed the heaps are closely covered with earth, either taken from the place, or carted from a distance; then, at a convenient season, the sides are taken off and mixed with the soil at the top.

"Rape-dust is generally used for Wheat when it is sown upon Bean stubble; and sometimes a little fold-yard manure is spread over the land in addition, after it has been well cleaned. It is then ploughed in and the land pressed. The rape-dust is sown by hand after the pressing, so that the seed and it go in together. Lime mixed with salt, in the proportion of two parts lime to one of salt, has also been used some years."

We should very much like to know the details and effect of this practice. Perhaps some our readers in the neighbourhood may be able to oblige us.

"All the Clover and seed-land is limed at the rate of half a chaldron per acre, before the land is ploughed for Wheat in the autumn, taking care to apply it during the night, and in damp weather. This is done for the destruction of slugs and snails, and answers remarkably well. About one-third of the land intended for Turnips is annually limed, at the rate of three chaldrons per acre. Barley is drilled at six inches distance in the rows, and when Wheat is drilled it is the same; but all the Bean-stubbles, and the lighter parts of the Clover-leys, are pressed at the distance of 9 inches. Beans are drilled in ridges at 22 inches apart; Turnips, when in ridges, at 24 inches; and, when drilled upon the level, at 20 inches apart. Clover seeds are sown by hand—one cast, longitudinally, and the other transversely. By this practice Mr. Heddon considers that the Rye-grass is distributed much more equally over the surface of the land. The Potato ridges are 30 inches apart from each other. This farm is kept in excellent order—the land being clean, and the crops good; so that we cannot entertain the least doubt of its being conducted in a very profitable manner, and we consider Mr. Heddon entitled to the returned stake."

Unquestionably, the opinion of the Judges, as here indicated, that the true test of good farming is its profitableness, is perfectly correct. The best system of agriculture is that which, in a long series of years, is most profitable to the three classes interested in agriculture—landlord, tenant, and labourer. And it may be safely adopted as true, in the general, that the interests of these three classes are the same—that the system most profitable to the landlord is that which, while it insures the success of his tenant, also regards the welfare of the labourer. We shall give the rest of this Report next week.

Miscellaneous.

Water Meadows.—But it is time to finish this digression and return to the detail of Kliyogg's observations on watering of meadows; he finds the water on Mossy grounds is very injurious to Grass, and dries up the roots entirely. Water loaded with gravel may likewise be of the worst consequence to a meadow, so that the husbandman cannot attend too carefully to this article, otherwise his lands may suffer more from overflowing than from drought. Nothing ascertains the salubrity of water more than the production of Cresses, Brooklime, and succulent plants. But when a river is choked with Rushes, Spearwort, or Moss, that water will be destructive to vegetation.—"*The Rural Socrates,*" *by M. Hirzel*, 1764.

Changing Seed.—Kliyogg likewise observes, that whoever is desirous of constantly plenteous crops, should be sensible how very essential it is frequently to vary the seed upon the same ground. Thus he is indefatigable in the search of new; and is so thoroughly convinced of the importance and utility of this rule, that he affirms there is a very advantageous difference if he buys seed at a village only four leagues distant from his own.—"*The Rural Socrates,*" *by M. Hirzel*, 1764.

Notices to Correspondents.

*** Will our Correspondents be kind enough to excuse the unavoidable delay which has attended the publication of their letters? Communications from the following are in type, and only waiting for room to appear:—*J. Towers, J. Trimmer, H. Davis, H. W., Tetbury; A Quiet Observer, J. Mechi, Subscriber, West Kent; S. W., J. Hudson, R. C. L., Inquirer, D. E. F., J. R., Kentish Subscriber, Veritas, Leicestershire Farmer, J. Sproule, W. Wakefield, A. Gyde, L. Somerset, W. C. Spooner, &c.*

A GARDEN FARM.—*J. L.*—Two acres of such land may easily keep two cows. If one-third of an acre were sown to Lucerne, it would be ready for its first cut in August, and unless you choose to buy hay, or other food, *that* will be the first food you will have for your cows. Two-thirds of an acre may be sown to Wheat *now*; this will provide you with straw. One-half of the Wheat land should be sown to Clover in April, and you will thus have hay from one-third of an acre of Clover next year. The other acre may be divided into three parts—half an acre should be sown to Carrots, quarter to Mangold Wurzel, and quarter to Parsnips. You had better apply 4 cwt. of guano per acre the first year, and the consumption of the produce will supply sufficient manure hereafter.

ARTIFICIAL MANURES.—*H. Davis.*—Thanks for your paper on this subject, which we shall publish with some comments on it as soon as possible.

BEST TIME FOR MANURING MEADOWS.—*Yellowley.*—As you have not yet done it, the earliest is now the best time; that is, the earliest time when you can get on the field without the wheels sinking deep into the Grass.

BOOKS.—*Young Beginner.*—Prof. Johnston's book, "Lectures on Agricultural Chemistry and Geology," is rather costly, but it is the best. It begins at *the beginning* too

DIBBLING WHEAT.—*H. W., Tetbury.*—We shall be exceedingly obliged by the transmission of your papers on this subject, and many thanks for the excellent article you have sent.

EXTENT OF GRASS LAND FOR SIX COWS.—*Subscriber.*—It altogether depends on the quality of the land. Six acres of ordinary crop, *mown*, will keep six cows in winter; and six acres of pasture, with the aftermath of the meadow land, will, in ordinary seasons, suffice for their summer feed.

FENCES.—*Semirusticus.*—If B takes away or lets down fences, which he is bound to repair, he cannot distrain A's cattle which come upon his land from the defect of the fences, until he has given notice to A, and the latter has neglected to remove them within a reasonable time after such notice. If two persons are possessed of adjoining lands, neither being under an obligation to fence, each must take care that his cattle do not enter the land of the other. *W.*

GORSE.—*J. Delap Wilson.*—"C. H. W." is kind enough to offer us a drawing of his Gorse-crusher, and when it arrives you shall see it.

GUANO.—*A Subscriber.*—It may be sown any wet day at the rate of from 2 to 3 cwt. per acre on the crop, as soon as it is up; being as soon as possible afterwards mixed with the soil by a harrowing over the young crop. The application would doubtless be beneficial.

JEAN BAPTISTE.—Will you have the goodness to repeat your question? We have mislaid your letter, but remember your signature. Your remarks on the printing will be attended to.

KYANISING.—*G. V.*—The chief ingredient in Sir W. Burnett's preparation is, we believe, muriate of zinc.

LUCERNE.—*Betchworth.*—You may safely dig the land between the rows now.

MOSS LAND.—*A Young Farmer.*—Clay is the best dressing. Read Hon. Mr. Hewitt's speech, in another column. If the clay is near the surface you can take it out of the furrows and spread it over the ridges at the rate of about 100 cubic yards per acre. It ought to be done before frost.

PEAS.—*A Norfolk Subscriber.*—If you sow several varieties together, there certainly is no *certainty* of any one of them remaining pure. What *the degree* of risk may be which you thus run, however, we cannot say.

RED WATER IN SHEEP.—*C D.*—Are you correct in saying that 2 quarts of red water are secreted *in* the stomach? Is not this serous fluid found in the abdomen, outside the stomach and intestines? It is, in fact, secreted by the outer or peritoneal coat of these parts. Such is the fatality and rapidity of the disease, from the time of its first being noticed till death (although it is extremely likely that the disease has been progressing for 12 or 24 hours previously), that we can scarcely offer a remedy that can be relied on when the disease is strongly manifested. The following, however, will be the best treatment:—Linseed Oil, 1 pint; Spirit of Nitrous Ether, 2 oz.; powdered Opium, 2 drs.; Gentian and Ginger powdered, of each, 1 oz. The above will be sufficient for about 8 teggs, and should be carefully mixed and shaken up before being used. A dose should be administered on the least symptom of illness or dullness. If active pain is exhibited, bleed from the neck. Prevention is of more importance than the cure. Give fewer Turnips, more sound good hay, a little corn, and rock-salt to lick: if the lair has been wet, change it. It has been stated that a table-spoonful of common tar, given once a fortnight, is a safe preventive. It may be tried, at any rate, on a portion of the flock. Do not allow your teggs to eat any of the Turnip-greens, and the shells of the roots will suit them best.—*W. C. S.*

SAMPLE OF WHEAT.—*C. M. S.*—It is a very uneven sample; and the weakness of the grain has rendered it particularly liable to injury from the threshing machine. The concave or breast of the machine has been a great deal too near the beaters. We could show a sample just threshed by machine in which you would have to look a long time for a broken grain. It all depends on the way the machine is set. Your sample is certainly injured by insects as well as in the threshing.

WHITE CARROTS.—*W. J. Nicholson.*—White Carrots run to seed more when the seed they were grown from was old, than when it was harvested the previous year. It is worthy of inquiry whether imperfect cultivation of the land where they are growing does not tend to cause the plant to run to seed—whether, in fact, the difficulty which the plant finds in growing below ground, owing to the hardness of the soil, does not induce its vital energy to expend itself in the undue development of roots that parts above the surface. If you can grow 26 tons per acre, you have no reason to complain. What mode of cultivation did you adopt, and how did you ascertain the weight of the crop? We should be obliged by any information on the subject.

ERRATA.—At page 12, in the paragraph headed "*Rabbits,*" for *Spruce* Laurel, it should be *Spurge* Laurel; for Buxus *arborétum*, it should be Buxus *arborescens.*

*** As usual, many communications have been received too late.

Markets.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Jan. 16.

Prime old Meadow Hay	105s to 108s	New Hay	—s to —s	Clover	105s to 120s
		Inferior Hay	90 100	Straw	30 35

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Jan. 16.

Superior Mead. Hay	108s to 115s	Superior Clover	112s to 120s		
Inferior -	88 96	Inferior ,,	100 107	Straw	35s to 40s
New Hay -	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Jan. 17.

Fine Old Hay -	105s to 110s	Old Clover	120s 126s		
New Hay -	90 100	New Clover	105 115	Straw	28s to 36s
		,, Inferior	— —		

WOOL.—BRITISH, FRIDAY, Jan. 17.

Our Market continues in nearly the same state as we last reported. If there be any difference it is that perhaps rather less business has been done. Prices are firm, and we think likely to continue so, although we see no reason to anticipate any material or permanent advance. Price current as last. JAMES PERRIN, Wool Broker.

HOPS, FRIDAY, Jan. 17.

THE Market remains in the same firm state as last week, with a regular demand, unusual at this season of the year.

FATTENDEN & SMITH, Hop-Factors.

POTATOES.—SOUTHWARK WATERSIDE, Jan. 13.

THE supply during the past week, and those left of former arrivals, were more than sufficient for the demand. Some cargoes from the northern districts that were shipped in the late severe storm opened much damaged, and were a complete drug; but the best samples from all countries sold freely at the subjoined quotations.

York Reds - - -	60s to 80s	Kent and Essex Whites -	—s to —s
Perth - - -	55 60	— — Kidneys	60 65s
Fifeshire - - -	— —	Wisbeach Kidneys -	60 65
Early Devons - -	— —	— Blues -	— —
Late Devons - -	60 65	— Whites -	60 60
Cornwall - - -	60 65	Guernsey Blues -	55 60
Jersey Blues - -	55 60	— Whites -	— —
— Whites - -	— —	Prince Regents -	60 65

COVENT GARDEN, Jan. 18.—In consequence of the steady state of the weather the supplies of most articles have been well kept up, and generally speaking there has been little alteration in the prices. Trade is still dull. Pine Apples are selling at the same price as last week, as are also Grapes; the latter are almost entirely confined to foreign sorts. Apples consist of the same varieties as were mentioned in our last report. Among Pears are good specimens of Winter Nelis, and Ne Plus Meuris; the Catillac, which is the best sort for baking, is also pretty plentiful. Oranges are abundant, as are also Lemons; the latter are slightly on the rise. Filberts are a little cheaper; other Nuts remain nearly the same. Among Vegetables, Broccoli is rather lower in price; it is pretty plentifully supplied, as are also most kinds of Winter Greens. Leeks are good in quality, and sufficient for the demand. Rhubarb, Seakale, and Asparagus, are plentiful; the latter is much improved in quality; it is, however, somewhat advanced in price. Celery, Lettuces, Endive, and other Salading are pretty plentiful. Cut Flowers chiefly consist of Heaths, Epacrises, Persian Lilacs, Lily of the Valley, Heliotropes, Hyacinths, Narcissus, Azaleas, Acacias, Cinerarias, Camellias, Tulips, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Oranges per 100, 4s to 14s
Grapes, Spanish, per lb., 10d to 1s	— bitter, per 100, 16s
— Portugal, per lb., 1s to 3s	Lemons per dozen, 1s to 2s
Apples, Dess., per bush., 3s to 7s	— per 100, 6s to 16s
— Kitchen, 3s to 5s	Almonds, per peck, 6s
Pears, Dess., per hf.-sv., 4s to 8s	Sweet Almonds, per lb., 2s 6d to 3s
Pomegranates, per doz., 2s to 4s	Cob Nuts, per 100 lbs., 150s to 170s
Filberts, per 100 lbs., 140s to 150s	Nuts, Barcelona, 24s
Chesnuts, per peck, 2s to 3s	— Brazil, 16s to 20s
Walnuts, shelled, 12s to 20s	— Spanish, 2s
Oranges, per dozen, 9d to 2s	— Cob, 16s

VEGETABLES.

Cabbages, per dozen, 6d to 1s 2d	Salsafy, per bunch, 1s to 1s 3d
— plants, per doz. bnch., 1s 6d to 3s	Leeks, per doz., 1s to 1s 6d
Broccoli, per bundle, 1s 6d to 4s	Garlic, per lb., 6d to 8d
Brussels Sprouts, hf.-sv., 1s 6d to 2s	Onions, per bunch, 4d
French Beans, per 100, 2s to 4s	— large, per bushel, 2s to 3s 6d
Sorrel, per hf.-sieve, 1s 6d to 2s	— Spanish, per doz., 2s to 4s
Jerusal. Artichok, p. hf.-sv., 9d to 1s 3d	Shallots, per lb., 8d to 10d
Potatoes, per ton, 80s to 80s	Lettuce, per score, 6d to 1s 6d
— cwt., 2s 6d to 5s	Celery, White, per bunch, 10d to 1s 6d
— bushel, 1s 6d to 3s	— Red, per bunch, 9d to 2s
— Kidney, per bsh., 2s to 2s 6d	Endive, per score, 1s to 2s 6d
Turnips, per doz. bch., 1s 6d to 2s 6d	Mushrooms, per pottle, 1s to 1s 3d
Red Beet, per doz., 1s to 3s	Small Salads, per punnet, 2d to 3d
Carrots, per doz. bchs., 5s to 6s	Watercress, p. 12 sm. bun. 6d to 8d
Basil, per bunch, 2d to 3d	Parsley, per doz. bunches, 2s to 4s
Rhubarb, per bundle, 1s to 1s 6d	— Roots, per bundle, 9d
Seakale, per punnet, 1s to 2s 6d	Tarragon, per bunch, 6d
Asparagus, per bundle, 3s to 9s.	Mint, per bunch, 6d
Horse Radish, per bundle, 1s 6d to 2s	Marjoram, per bunch, 2d to 3d
Savory, per bunch, 2d to 3d	Chervil, per punnet, 2d to 4d
Spinach, per sieve, 1s 6d to 3s 6d	Chilis, per 100, 1s to 2s
Scorzonera, per bunch, 1s to 1s 6d	

SMITHFIELD, MONDAY, Jan 13.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 2 to 4s 4	Best Downs & Half-breds	4s 2 to 4s 4
Best Short Horns -	3 10 4 2	Best Long-wools - -	3 3 4 0
Second quality Beasts -	3 0 3 6	Ewes and second quality	3 2 3 8
Calves - - - -	4 0 4 8	Pigs - - - -	3 0 4 0

Beasts, 2493; Sheep, 25,860; Calves, 59; Pigs, 360.

Our supply of Beef is short, especially of the best qualities, in which we notice an advance of fully 2d per 8 lbs. The best Scots, &c. readily make 4s 4d, but for the most part best Short Horns realise 4s 2d; there is, however, a large proportion of middling quality in, the prices for which we cannot observe any improvement, although the shortness of supply gives an opportunity of clearance. We have rather more Sheep in Market than on last Monday, but the demand is also somewhat increased. Half-breds are more in request than of late, and many lots of good quality have made 4s 4d; also choicest old Downs are readily disposed of at, in many instances, a little over that price. Best Longwools are making little over 4s, but there is no quotable advance in this description. Veal trade is brisk at a little more money. Pork-trade is very heavy; prices rather lower.

FRIDAY, Jan. 17.

We have a very fair supply of Beef to day, and the trade for it is very heavy, owing to considerable depression in the dead Market. Monday's prices cannot be maintained; the best Scots, &c. do not realise more than 4s 2d, and best Short Horns 4s; second quality range from 3s to 3s 6d. We have rather more Sheep than last week, yet the supply is but small, and readily disposed of at Monday's prices. Best Downs, &c., 4s 2d to 4s 4d; best Longwools, 3s 8d to 4s; Ewes and second quality, 3s 2d to 3s 8d. Good Calves are rather scarce, and the choicest readily make 5s per 8 lbs.; second quality, 3s 8d to 4s 4d. Pork trade is still very heavy, and nice small Porkers make from 3s 4d to 4s 4d; large Pigs, 3s 8d to 3s 4d.

Beasts, 745; Sheep, 2950; Calves, 117; Pigs, 375.

41, West Smithfield.

MARK-LANE, MONDAY, Jan. 13.

THE supply of Wheat by land carriage samples this morning being moderate, enabled Factors to realise the prices of last week; Foreign was in improved demand, but its value remains the same. Malting and Distilling Barley was neglected, and must be written 1s. cheaper; Grinding fully maintained late prices, with a better inquiry. Beans are the turn cheaper. Peas unaltered. The arrivals of Oats being very large, more desire was evinced by holders to effect sales, which were made at a decline of fully 1s. per quarter below the rates of this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.		s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk .	White	40	50	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire		—	—	White	—	—
Barley, Malting and distilling 32s to 35s	Chevalier	31	36	Grind.	25	28
Oats, Lincolnshire and Yorkshire . .	Polands	20	24	Feed	19	23
—— Northumberland and Scotch . .	Feed	20	23	Potato	21	24
—— Irish	Feed	19	23	Potato	21	24
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	29 to 34	Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland .	37 to 40	Winds	—	—	Longpod	—	—
Peas, White	34 to 37	Maple	31	33	Grey	30	32

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye	Bns.	Peas
English .	5370 Sks. — Brls.	11244	6084	5627	2809	—	1640	511
Irish .	— ,, — ,,	—	—	—	60	54030	—	—
Foreign .	— ,, — ,,	2082	2230	4179	—	—	1055	85

FRIDAY, Jan. 17.

THE supplies of all Corn have been good during the week; a few runs of Wheat by land carriage samples, fresh up for this morning's Market, were partially disposed of at Monday's prices, but the trade is not brisk. Foreign meets a limited sale at our quotations. Barley of all descriptions is very difficult to quit, and barely maintains its late value. Beans and Peas remain the same. Oats are held rather more firmly than on Wednesday, which checks business.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	7520	4080	4490	5450 Sks
Irish . .	—	270	27860	—
Foreign . .	200	—	270	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Dec.	6 per Quarter.	45s 4d	33s 1d	21s 8d	32s 2d	38s 0d	35s 11d
—	13 . . .	45 2	34 9	21 10	31 2	37 5	36 4
—	20 . . .	45 1	34 5	21 11	32 0	36 9	36 1
—	28 . . .	45 1	34 3	20 10	31 9	35 7	35 5
Jan.	4 . . .	45 8	34 2	21 10	33 9	36 3	36 1
—	11 . . .	45 10	34 5	21 7	31 8	35 9	36 0
6 weeks' Aggreg. Aver.		45 5	34 4	21 8	32 0	36 3	35 11
Duties on Foreign Grain		20 0	4 0	6 0	10 6	6 6	7 6

SEEDS, Jan. 17.

Canary - - per qr	48s to 52s	Linseed Cakes, Foreign, p. ton	8l to 9l 10
Carraway - per cwt	44 52	Mustard, White - p. bush.	10s 14
Clover, Red, English -	— —	— Superfine ,, -	12 16
— — Foreign -	— —	— Brown ,, -	12 16
— White, English -	— —	Rapeseed, English, per last	23l 25l
— — Foreign -	— —	Rape Cakes - - per ton	— —
Coriander - -	12 18	Saintoin - - -	— —
Hempseed - per last	36 36	Tares, Eng. winter p. bush.	5 6
Linseed - - per qr	— —	— Foreign - - -	— —
— Baltic - - -	— —	Trefoil - - per cwt	— —
— Cakes, Eng. per 1000	12l 10 13l	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

MR. W. PITT has received instructions to sell by Auction, upon the Premises at New Cross, Deptford, on Friday 24th January, at Eleven o'clock precisely, without reserve, MESSRS. CORMACK'S NURSERY STOCK. Comprising a Fine Collection of Evergreens, Deciduous Shrubs, trained and untrained Peaches, Nectarines, Apricots, Cherries, Plums, Pears, and Apples. A quantity of Forest-trees, Dwarf Box, &c. To be viewed the day previously and morning of Sale. Catalogues had on the premises, at Mr. Clarke's, Seedsman, Bishopsgate-street; Mr. J. King, Hackney-road; and of Mr. W. Pitt, Auctioneer, Estate, and House, Agent, 25, New Broad-street, City.

SHOOTING WANTED, with a well-furnished Mansion, with not less than 3 Sitting, School, 10 Bed, and 2 Dressing-rooms. South Wales, or the adjoining Counties preferred.—Direct, with full particulars, prepaid. B. D., 52, Nottinghill-square, Bayswater, Middlesex.

IMPROVED ROOFING FELT.

McKIBBIN'S PATENT ROOFING FELT

Is particularly applicable as a Substitute for Slate, Zinc, Tiles, Thatch, and other articles used for Roofing, from its Economy, Durability, and Lightness. It is quite impervious to wet and damp, resists the heat of the sun, and is a non-conductor of heat or cold. Besides the economy in repairs, the timber where it is used may be so light as to save its whole expense. It requires no other coping, and by attention to printed directions may be applied by a common labourer. It is free from breakage and contraction, like zinc, and requires neither painting nor coating. It is now in very general use for Roofing Houses, Verandahs, Sheds, Workshops, Ropewalks, Railway Stations, Icehouses, &c. &c., and for protecting Plants, covering Garden Frames, Corn, and Hay Ricks, the top and sides of Sheep-folds; and to Emigrants it provides a cheap, warm, durable, and portable Roof.

This Improved Roofing Felt is much more durable than the common Felt, made in lengths, not being subject, like it or other materials in continuous lengths, to be stripped by storm; and being fastened down at the overlaps only, the wet cannot percolate through the nail-holes.

TESTIMONIAL.

London, Nov. 1, 1844.

H. C. BOWDEN, Esq., Agent for McKIBBIN'S Roofing Felt.

It is with much pleasure I add my humble testimony to the superiority of your Felt over any other preparation of the kind with which I am acquainted. This Testimony I give with the greater cheerfulness from the many reports I have heard in its favour, and from the likelihood of its being used extensively in Agricultural purposes. I shall not fail to notice it in my Lectures when on the subject.

(Signed) JOHN ROBINSON, M.B., Senior Lecturer on Chemistry, &c., as applied to Agriculture and Rural Economy in this Kingdom.

Sold in Sheets 32 inches by 20, at 5*d.* each (being less than 9*s.* 6*d.* per square of 100 feet).

Apply to H. C. BOWDEN,
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CHEAP AND DURABLE ROOFING,

AND THE BEST RESISTER OF FROST FOR GARDEN USES.

BY HER MAJESTY'S ROYAL LETTERS PATENT

TO GARDENERS, NURSERYMEN, AND OTHERS.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers, and only Patentees of IMPROVED PATENT ASPHALTED FELT, for Roofing Houses, Sheds, Verandahs, &c., and particularly for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.* It has been tested in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference can be made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN, (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET.) NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'S, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

Samples, with directions for laying on, and testimonials as to its merits, sent free to any part of the town or country.

PATENT FELT MANUFACTORY (THE ONLY FACTORY IN GREAT BRITAIN WHERE THE ABOVE DESCRIPTION OF ROOFING IS MADE), LAMB'S BUILDINGS, BUNHILL-ROW, LONDON.

A Sample Roof and Frame to be seen at the Factory, and a Discount allowed to the Trade.

WHITNEY'S PATENT CLOTH for COVERING GREEN HOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street. — Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS,
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And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
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METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1*s.* An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Hoiles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

SHEEP NETS RABBIT NETS, WORSTED GARDEN NETS, &c. &c.—Sheep-nets, of strong tarred cord, 4½*d.* per yard, nearly 6 feet high. Cocoa-nut fibre Nets, the same price. The fibre-nets are not recommended, as they curl up, and Sheep are apt to gnaw them to pieces. Long Hare and Rabbit-nets, on cords, 50, 80, and 100 yards long. Net, as fences against Rabbits, &c., 2*d.* per yard. Garden-nets, 1 inch mesh, 1½*d.* per yard; ditto in four-strand worsted, 2½*d.* per yard; made with a fixed knot, so that it may be cut in any manner without coming undone. Net ½ inch mesh, 2½*d.* per yard. Wasp-net, to protect trees from frost, and afterwards from Wasps and Flies, 7½*d* per yard.—ROBERT RICHARDSON, Net and Tent Maker, 21, Tunbridge Place, corner of Judd-street, New-road, London.

N.B.—2000 London Police Capes, for Labourers and Farm Servants, 2*s.* and 2*s.* 6*d.* each.

ROWLAND'S ODONTO, OR PEARL DENTIFRICE, patronised by "Her MAJESTY," H.R.H. Prince ALBERT, the Royal Family, and the several Courts of Europe. A FRAGRANT WHITE POWDER, prepared from Oriental Herbs of inestimable virtue, for strengthening, preserving, and cleansing the teeth. It eradicates the factitious formation of tartar, and by the removal of that extraneous substance lends a salutary growth and freshness to the gums. It removes from the surface of the teeth the spots of incipient decay, polishes and preserves the enamel, substituting for discolour and the aspect of impurity, the most pure and pearl-like whiteness; while, from its salubrious and disinfecting qualities, it gives sweetness and perfume to the breath, bestowing at once cleanliness, and the appearance and reality of health. Price 2*s.* 9*d.* per box, duty included.

CAUTION.—To protect the public from fraud, the Hon. Commissioners of Her Majesty's Stamps have authorised the Proprietors' Signature to be engraved on the Government Stamp thus,—A. ROWLAND and SON, 20, Hatton Garden, which is affixed to each Box. Ask for ROWLAND'S ODONTO. Sold by them, and by Perfumers and Chemists.

*** All others are SPURIOUS IMITATIONS.

CORNS AND BUNIONS.

Patronised by the Royal Family, Nobility, Clergy, &c.

PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances, without causing the least pain or inconvenience.

Unlike all other remedies for corns, its operation is such as to render the cutting of the corns altogether unnecessary: (indeed, we may say, the practice of cutting corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth;) it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate corns and bunions.

Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.

Prepared by JOHN FOX, in boxes, at 1*s.* 1½*d.*, or three in one for 2*s.* 9*d.*, and to be had of C. KING, Napier-street, near the Albert Saloon, Hoxton, London; and all wholesale and retail medicine vendors in town and country. The genuine has the name of JOHN FOX on the stamp.

A 2*s.* 9*d.* box cures the most obdurate corns.

Ask for "PAUL'S Every Man's Friend."

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent-Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday Jan. 18, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 4.—1845.] SATURDAY, JANUARY 25. [PRICE 6*d.*

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GARDENERS' BENEVOLENT INSTITUTION.—At a General Meeting of the Subscribers to this Society, held on Wednesday the 22d inst., at the London Coffee-house, Ludgate-hill, for the purpose of electing Four persons on the Funds of the Charity, to a pension of 16*l.* per annum, at the close of the Ballot the Chairman declared the election to have fallen on the following persons, viz.:—

JOHN BLAYLOCK, of Carlisle	248 Votes
CHARLES GRAY, of Dalston	225 ,,
ROBERT CRACKNELL, of Clapham . . .	196 ,,
ANN SUTTLE, of Walworth	166 ,,

EDWARD R. CUTLER, Secretary, 97, Farringdon-st.

CAUTION.—MESSRS. J. WEEKS AND DAY, in returning their humble and sincere thanks for the extensive practice they have been honoured with, find it necessary for the protection of themselves and those who may wish to honour them with their commands, to inform the Nobility, Gentry, and Horticulturists, that there is, in this road, another party of the name of WEEKS, carrying on the same line of business as ourselves, but with whom we have no connection whatever. All communications intended for us should be addressed Messrs. J. WEEKS and DAY, Gloucester-place, King's-road, Chelsea.

IMPORTANT TO THE SEED TRADE.

J. G. WAITE, under the impression that it is to the advantage of every one to purchase at the Mart where they can be supplied with goods of the best quality, and lowest in price, thinks it only necessary to publish the prices of a few of the leading articles in Seeds, to convince the Public that his establishment offers these advantages. The increasing patronage bestowed upon J. G. W. is the best proof that his system of doing business is duly appreciated; and notwithstanding the reduced prices the Seeds sold by him are genuine;—

CARROT—selected Altringham	. .	per cwt.	£6	6 0
,, imported Early Horn	.	,,	5	12 0
,, Long Red Surrey	. . .	,,	6	6 0
,, Large Green-topped White	.	,,	2	10 0
CABBAGE—Early York	. . . .	,,	6	0 0
,, East Ham	. . . .	,,	7	0 0
TURNIP—Purple Topped Scotch	. .	per bush.	1	17 0
,, Green Round	. . .	,,	0	16 0
,, White do.	. . . .	,,	1	0 0
,, Red do.	. . . .	,,	1	0 0
,, White Globe	. . . .	,,	1	1 0
,, White Tankard	. . .	,,	1	6 0
,, Green do.	. . . .	,,	1	0 0
,, Red do.	. . . .	,,	1	0 0
,, Yellow do.	. . . .	,,	1	10 0
,, Laing's Improved Swede	.	,,	1	12 0
,, Dale's Hybrid	. . .	,,	2	0 0
,, Skirving's Liverpool Swede	.	,,	1	1 0
,, Purple-topped do.	. . .	,,	0	18 0
,, Green do. do.	. . .	,,	0	18 0
,, Do. Globe	. . . .	,,	1	0 0
,, Red do.	. . . .	,,	1	1 0
,, New Zealand Yellow Melon Swede		per lb.	0	1 0
GRASS—Crested Dogstail	. . .	per bush.	1	0 0
,, Poa Pratensis	. . .	per cwt.	3	10 0
,, Do. Trivialis	. . .	,,	3	10 0
,, Sweet Vernal	. . .	,,	8	0 0
,, Mixed Lawn	. . .	per bush.	0	12 0
,, Do. Pasture	. . .	,,	0	8 0
MANGOLD WURZEL—Long Red	. .	per cwt.	2	10 0
,, Yellow Globe	.	,,	3	0 0
,, Long Yellow	. .	,,	3	0 0
PARSNIP—Large Cattle	. . . .	,,	2	10 0

All other kinds of Seeds at equally low prices.
4, Eyre-street-hill, January 25.

KINGHORN'S SPLENDID SEEDLING CALCEOLARIAS, which gained the Prizes at the Horticultural and Royal Botanic Exhibitions of London:—

Duchess of Sutherland	15*s.* 0*d.*	Countess of Mornington	10*s.* 6*d.*
Professor Wilson . .	10 6	Lady Ann Charteris . .	15 0
Flash	10 6	Kinghornii	10 6

N. GAINES begs to say that the whole stock of the above are at present in his own possession, and will be until March; therefore early orders are particularly requested, as the stock is limited, and will be delivered early in March. A priced Catalogue of Pelargoniums, Dahlias, Pansies, Calceolarias, Cinerarias, Camellias, Fuchsias, Verbenas, Chrysanthemums, Carnations, Picotees, Auriculas, &c., &c. may be obtained of N. GAINES, Surrey-lane, Battersea.—January 25.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL AND Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state, and such as they have had the honour of supplying to Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and many of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL and Co. two Certificates of Merit for it.

Packages containing 100 canes .	.	£2	0 0
Do. do. 50 do.	.	1	1 0
Do. do. 25 do.	.	0	12 0

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Jan. 11. Six Seeds (three of each variety), for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively planted by YOUELL AND CO. in the Royal Gardens, Windsor; also by his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL AND CO. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL and Co.'s Advertisement of Jan. 11.

YOUELL AND CO.'S Collection of CARNATIONS, PICOTEES, and PINKS, will be found the most extensive and select in Europe; full particulars and prices of which will be found in the *Gardeners' Chronicle* of the 9th of November last.

Great Yarmouth Nursery, Jan. 25, 1845.

DAHLIAS.—SEEDLINGS OF 1843.

WHALE'S "DUCHESS OF ST. ALBAN'S," a delicate primrose, tipped with dark mulberry, a most unique flower and petal, shape and size of Ansell's Unique; took the third prize at Saltbill grand Show in 1843. Dwarf habit—3 feet. Strong plants in May, 10*s.* 6*d.* each, unless six plants are ordered. Was not exhibited last season, in consequence of a most severe family affliction, having lost my wife and three sons and a daughter in a short space of time.

"ADMIRATION," a shaded orange, margined with bright scarlet; a most desirable show flower, from its constancy and shape, and novel colour, never showing an eye the whole season; fine habit; height 4 feet. Strong plants in May, 10*s.* 6*d.* each, unless six or more plants are ordered. The stock of this variety is small; orders will be executed according to priority of application.

SEEDLING FANCY VARIETIES OF 1843.

WHALE'S "MADAME VILLABOIS;" white ground, tipped with pink; a very showy variety for the clump or border; height 3 feet. Price 7*s.* 6*d.*

"MADAME HANSARD;" carmine, tipped with white; very pretty variety; height 3 feet. Price 7*s.* 6*d.*

"MISS DUNDAS;" carmine, striped with white; a fine bold petal; dwarf habit; height 3 feet. Price 7*s.* 6*d.*

"BICOLOR," crimson, tipped with white; very showy; height 3 feet. Price 7*s.* 6*d.*

W. R. WHALE recommends these varieties to be trained on the ground with small pegs, and they have a pretty effect. He has grown show flowers this way with great success.

A few dry Ground Roots left of Proctor's Nonpareil and Bermondsey Bee, Widnall's Queen of Roses, &c., and most other varieties in cultivation, reasonable.

Elcot, near Hungerford, Jan. 25, 1845.

THE TRUE FASTOLFF RASPBERRY.

WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully beg to inform their Friends and the Public, that in the season of 1843, they were supplied by Messrs. YOUELL & Co., of Great Yarmouth, with a quantity of plants from the original stock of the true FASTOLFF RASPBERRY, from which W. W. and Son are now enabled to offer canes of the genuine variety for general sale.

WM. WOOD and SON feel it to be due to themselves to make this announcement, in consequence of an advertisement recently published by Messrs. YOUELL & Co., from which it might be inferred that canes of the true variety can only be had of them, or certain specified agents, although it was supplied by Messrs. Y. & Co. to WOOD and SON for the express purpose of raising a stock for sale.

W. W. and SON therefore take this opportunity of assuring their Friends and the Public that they are now ready to furnish strong canes of "THE TRUE FASTOLFF RASPBERRY" (in its pure state, as supplied by YOUELL & Co.), at the following reduced prices:—30*s.* per 100, or 6*s.* per score.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, LANDSCAPE GARDENERS, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

ROSES.

WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX; AND AT PARIS.

WM. WOOD AND SON have still on hand a few strong plants of their New and Superb Seedling Gallica ROSE, "MARGARET MARY," a full description of which will be found in their former Advertisement of Nov. 9, price 5*s.* per plant. Standard or Dwarf with the usual discount to the Trade. Early orders are solicited.

W. W. and Son further beg to state that they are now sending out Collections of ROSES, at the following prices, the selection being left to themselves:—

	per doz.	per 100.
Superior selected standard ROSES . .	24*s.*	£. *s.*
Superb ditto ditto . . .	30 or 10	0
Select dwarf budded ditto . . .	12 — 3	15
Superb ditto ditto . . .	18 — 5	0
Superior dwarf Roses (on own roots) . .	9 — 2	10
Superb ditto ditto, fine show varieties	12 — 3	15
Fine Climbing ditto	9*s.* and 12 — 2	10

Catalogues of Roses will be sent gratis on application.

N.B. Plants will be presented GRATIS, in order to compensate the expense of carriage. A remittance, or reference, will be required from unknown correspondents.

MESSRS. MARNOCK AND MANLEY, in returning their sincere thanks to their friends for the encouragement they received last season in the sale of the true WALCHEREN CAULIFLOWER, beg to say they have the entire supply this season from the same stock, which has proved to be genuine; and from the difficulty of obtaining seed from the true kind, they cannot offer it at less than 4*s.* per oz.

True Walcheren Broccoli	per oz.	2*s.* 6*d.*
Ne Plus Ultra Broccoli, an improvement on the Walcheren; more hardy, produces large, milk-white heads, delicious flavour, and may be had in succession fit for table throughout the year;	per oz.	5 0
Victoria Cabbage, a new early dwarf kind, of a most delicious flavour	per oz.	2 6
White's new dark and delicious Beet .	,,	1 6

With every assortment of the newest and most approved kinds of Vegetable Seeds in cultivation.

They also beg to call particular attention to their choice and extensive Collection of FLOWER SEEDS, comprising German Asters, Stocks, Wallflowers, Larkspurs, Zinnias, &c. (which they have just received from the principal German growers), with every choice and novel kind of Flower-seed worthy of cultivation, Catalogues of which will shortly appear, and may be had on application. A few of the leading articles are subjoined:—

	s.	*d.*
50 varieties of the finest double, dwarf, and globular Asters, in original packets, as imported, 6*d.* per packet, or 12 for	5	0
50 do. do. Stocks, do., 6*d.* per packet, or 12 for .	5	0
Emperor Stock, which lasts two or three years, and blooms twice a year . . per packet	1	0
Anagallis Parksii . . . . ,,	1	0
Brachycome iberidifolia (warranted) ,,	1	0
Cineraria, from the newest flowers of last year, per packet	1	0
Calceolaria, do. do. . . . per packet	1	0
Choice mixed Picotee, white, with yellow ground, per packet	1	6
Lisianthus Russellianus . . . per packet	1	6
Martynia fragrans (true) . . ,,	1	0
Silene speciosa . . . . ,,	1	0
Thunbergia Frazeri . . . ,,	1	0
Viscaria oculata . . . . ,,	1	0
Phlox Drummondii (dark variety) . ,,	1	0
Primula sinensis (fringed) . . ,,	1	0
Nemophilla discoidalis . . . ,,	1	6

If the last 14 packets are taken they will be charged 12*s.*

Nursery, Hackney, Jan. 25, 1845.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (late Hammond's), Surrey.

TO NURSERYMEN.

WANTED to PURCHASE, a quantity of young QUICK, from 3 to 4 feet high.—Address, post paid, to X. Y. Z., to be left at Mr. Henman's, 9, Bow-lane, Cheapside, London, stating price per 1000, delivered six miles south of London.

TO GENTLEMEN AND AMATEUR FLORISTS.—As the return of Spring is fast approaching, so is the season for planting that very delightful flower the RANUNCULUS. A few hundred roots (named) to be parted with, containing the best old flowers, with some new ones; time of planting, Feb. and March. Apply, pre-paid, to Mr. EYRE, Farnham, Surrey, where may be seen in the blooming season, in Mr. E.'s house of PELARGONIUMS, (being an amateur grower) a few fine Seedlings of 1844, and many very high bred for 1845; among the former is a high-tinted clean flower named "ELISHA," nice habit and growth.

TO GROWERS OF ROSES.

T. and C. LOCKHART, FLORISTS and SEEDSMEN, 156, Cheapside, London, have now on sale a first-rate Collection of STANDARD ROSES, at 18*s.* per doz.; and strong Plants of MOSS ROSES, at 6*s.* per dozen.

A Catalogue of Seeds and Herbaceous Plants will be forwarded free by post, on application.

Rene Langelier's Early KIDNEY POTATO, much earlier and more prolific than the ASHLEAF, at 3*s.* 6*d.* per peck.

EXHIBITIONS
OF
PLANTS, FLOWERS, AND FRUIT,
IN THE GARDENS OF THE
Royal Botanic Society of London,
REGENT'S PARK,

ON WEDNESDAYS, MAY 7th, JUNE 4th, and JULY 2d, 1845.

SCHEDULE OF PRIZES.

CLASS I.—MISCELLANEOUS GROUPS AND SPECIMENS.	To be awarded on MAY 7 £ s.	JUNE 4 £ s.	JULY 2 £ s.
Letters.			
A Stove and Greenhouse Plants, collections of 30 species, or distinct varieties	15 0	15 0	15 0
	10 0	10 0	10 0
	5 0	5 0	5 0
B Stove and Greenhouse Plants; collections of 15 species, or distinct varieties	7 0	7 0	7 0
	4 0	4 0	4 0
N.B.—Nurserymen only are to compete in B	2 0	2 0	2 0
C Stove and Greenhouse Plants; collections 10 species, or distinct varieties	5 0	5 0	5 0
	3 0	3 0	3 0
N.B.—Private growers only are to compete in C. Persons who exhibit in A cannot also exhibit in B or C. Fuchsias, Pelargoniums, and Calceolarias are entirely excluded from A, B, and C. In letter A, not more than 6 species or varieties of any one genus will be admitted; in letter B not more than 4; and in letter C not more than 2.	2 0	2 0	2 0
	1 0	1 0	1 0
D Specimen plants; whether new or old kinds	2 0	2 0	2 0
	1 0	1 0	1 0
N.B.—In this letter the awards will be given to the most ornamental plants; being also those in the highest state of perfection, both with respect to culture and bloom. None but plants of the most decided merit, as objects of ornament, can be allowed to compete in D.	0 10	0 10	0 10
E New or rare Plants, in bloom	2 0	2 0	2 0
	1 0	1 0	1 0
	0 10	0 10	0 10
F New or rare Plants, not in bloom, but remarkable for the beauty of their foliage or habit of growth	2 0	2 0	2 0
N.B.—No plant will be considered as NEW which has been exhibited at any of the Royal Botanic Society's Exhibitions; nor will any award be given to plants entered under E and F, whatever their merit may be, unless they are considered by the Judges to be new or extremely rare.	1 0	1 0	1 0
	0 10	0 10	0 10
G Alpine Plants; collections of 24 rare species	1 10	1 10	1 10
Note.—All plants exhibited in Class I. (except under letter F), are required to be in bloom.	1 0	1 0	1 0
CLASS II.—NATURAL GROUPS.			
BA Papilionaceous Plants; collections of 12 greenhouse species	3 0		
	1 0		
BB Cactaceous plants, the tall-growing kinds, including Epiphyllum, Cereus, &c.; collections of 6 species or varieties	..	5 0	
		3 0	
		1 0	
BC Cactaceous Plants, the dwarf-growing kinds, including Mammillaria, Echinocactus, &c.; collections of 30 species	..	..	3 0
			2 0
BD Composite Plants, restricted to Helichrysum, Aphelexis, Astelma (Helipterum), or Phænocoma; collections of 6 species	..	..	1 0
			0 10
BE Gesneriaceous Plants; including Gesneria, Gloxinia, Sinningia, Niphæa, Achimenes, or others; collections of 10 species. (See Reg. No. 9)	..	..	5 0
			3 0
			1 0
ERICACEOUS PLANTS.			
BF Cape Heaths; collections of 15 species, or distinct varieties	8 0	8 0	8 0
N.B.—Private growers only are to compete in BF.	5 0	5 0	5 0
	3 0	3 0	3 0
BG Cape Heaths; collections of 12 species, or distinct varieties	4 0	4 0	4 0
N.B.—Nurserymen only are to compete in BG.	3 0	3 0	3 0
	2 0	2 0	2 0
BH Cape Heaths; collections of 8 species, or very distinct varieties	4 0	4 0	4 0
N.B.—For Private growers only, who do not compete in BF.	2 10	2 10	2 10
BI Cape Heaths; collections of 6 species, or very distinct varieties, grown in No. 24 or No. 16-sized pots	1 10	1 10	1 10
	2 0	2 0	2 0
N.B.—Private growers only, who do not compete in BF and BH, can exhibit in BI.	1 0	1 0	1 0
BK Greenhouse Azaleas; collections of 10 plants	5 0		
N.B.—These plants are expected to be large and of superior growth: preference will also be given to those collections which contain the greatest number of distinct kinds, where merit in other respects is equal.	3 0		
	2 0		
BL Greenhouse Azaleas; collections of 12 plants	5 0		
N.B.—These plants may be small, but will be expected to consist of new varieties.	3 0		
	1 10		
N.B.—Nurserymen only are to compete in BL.			
BM Greenhouse Azaleas; collections of 6 distinct varieties	3 10		
N.B.—These plants are expected to be large and of superior growth. Private growers only are to compete in BM.	2 10		
	1 10		
BN Rhododendrons (cultivated in pots); single specimen plants	1 0		
BO Clerodendrons; collections of 4 species or distinct varieties	..	..	2 10
			1 10
ORCHIDACEOUS PLANTS.			
BP Collections of 15 exotic species, or distinct varieties	15 0	15 0	15 0
	7 0	7 0	7 0
BQ Collections of 10 exotic species, or distinct varieties	10 0	10 0	10 0
	5 0	5 0	5 0
BR Collections of 6 exotic species, or distinct varieties	7 0	7 0	7 0
N.B.—The same Exhibitor can only compete in one of the letters BP, BQ, or BR.	4 0	4 0	4 0
	1 10	1 10	1 10
BS British Ferns (cultivated in pots); collections of 30 species	..	2 0	2 0
Note.—The Exhibitions in this Class are intended to display the effect of natural classification, by representing the habits and affinities of natural orders, or of genera. All the plants, with the exceptions of those in BC and BS, are required to be in bloom.		1 0	1 0

SCHEDULE OF PRIZES—*continued.*	To be awarded on MAY 7 £ s.	JUNE 4 £ s.	JULY 2 £ s.
CLASS III.—FLORIST'S FLOWERS, IN POTS.			
Letters.			
CA Calceolarias; collections of 6 distinct varieties, grown in No. 12 sized pots	..	3 0	3 0
N.B.—Private growers and Nurserymen compete separately in CA.		2 0	2 0
		1 0	1 0
CB Cinerarias; collections of 4 distinct varieties, grown in No. 12 sized pots. (See Reg. No. 9.)	1 0	1 0	
	0 10	0 10	
CC Fuchsias; collections of 12 distinct varieties, grown in No. 12 sized pots	2 0	2 0	2 0
	1 0	1 0	1 0
CD Pelargoniums; collections of 12 new, first-rate, and distinct varieties, grown in No. 24 sized pots	7 0	7 0	7 0
	4 0	4 0	4 0
	2 0	2 0	2 0
CE Pelargoniums; collections of 12 distinct varieties, grown in No. 12 sized pots	6 0	6 0	6 0
N.B.—Private growers and Nurserymen compete separately in CD and CE.	3 10	3 10	3 10
	2 0	2 0	2 0
CF Pelargoniums; collections of 8 distinct varieties, grown in No. 24 sized pots	3 10	3 10	3 10
N.B.—Private growers only, who do not compete in CD and CE, can compete in CF.	2 0	2 0	2 0
	1 0	1 0	1 0
CG Roses (cultivated in pots); collections of 20 distinct varieties	7 0	7 0	7 0
	4 0	4 0	4 0
	2 0	2 0	2 0
CH Roses (cultivated in pots); collections of 10 distinct varieties	4 0	4 0	4 0
N.B.—Private growers only can exhibit in CH. If "worked" plants are exhibited, the stems to be not more than 6 inches in height.	3 0	3 0	3 0
	2 0	2 0	2 0
CLASS IV.—CUT FLOWERS.			
DA British Plants; collections of fresh and wild specimens, illustrating the *exogenous* portion of the British Flora	..	3 0	
DB British Plants; collections of fresh and wild specimens, illustrating the *endogenous* portion of the British Flora	..	3 0	
		2 0	
N.B.—The prizes offered in DA and DB will not be awarded to fewer than 25 species; and it will be required that the names of the plants, and of the places in which they are gathered, shall be attached to them.			
DC Device, executed with cut flowers, illustrating the principles of arrangement and combination of colours, as published by Dr. Milner, in Repton's "Landscape Gardening," Professor Henslow, in the "Cabinet Cyclopædia" (Botany), Hay, or other authors	..	..	3 0
N.B.—The device to occupy 8 feet in length by 4 feet in width.			1 0
DD Roses; collections of 100 distinct vars.	..	2 0	2 0
		1 10	1 10
		1 0	1 0
		0 10	0 10
DE Roses; collections of 50 distinct varieties	..	1 10	1 10
N.B.—Private growers only are to exhibit in DE.		1 0	1 0
		0 15	0 15
		0 10	0 10
DF Roses; collections of 25 new, first-rate, and distinct varieties	..	1 10	1 10
N.B.—Private growers are to adopt such method of arrangement or classification as may best accord with their own views. Nurserymen and dealers are required to follow the classification published in their respective catalogues. Not more than three trusses of bloom of each variety to be exhibited.		1 0	1 0
		0 10	0 10
DG Verbenas; in stands of 24 varieties	..	..	1 0
N.B.—Each variety to be shown in a single truss; not in bunches.			
DH Carnations; in stands of 24 varieties	..	1 10	1 10
		1 0	1 0
DI Picotees; in stands of 24 varieties	..	1 10	1 10
		1 0	1 0
DK Pinks; in stands of 24 varieties	..	1 0	1 0
		0 10	0 10
DL Pansies; in stands of 36 varieties	..	1 0	1 0
Note.—Exhibitors of cut flowers to provide their own boxes or stands, which are not to exceed 8 inches in depth at the back, nor 20 inches from the front to the back, with covers to remove.		0 10	0 10
CLASS V.—SEEDLINGS.			
EA Greenhouse Azaleas	1 0	1 0	1 0
	0 15	0 15	0 15
EB Heaths	..	1 0	1 0
		0 15	0 15
EC Pelargoniums of 1844	..	1 0	
N.B.—These are to be exhibited in No. 32 or No. 24 sized pots, so as to show the habit of the variety under superior cultivation. In awarding the prizes the Judges will take into consideration the habit of the plant, as well as the quality of the flower.		0 15	
ED Pelargoniums of 1845	..	0 15	0 15
EE Pelargoniums, combining brilliant scarlet flowers, with the habit, foliage, and character of the "fancy" varieties	..	1 0	1 0
EF Scarlet Pelargoniums	..	0 15	0 15
EG Calceolarias	..	0 15	0 15
EH Fuchsias	..	..	0 15
EI Roses	..	..	0 15
EK Verbenas	..	..	0 15
Note.—Certificates will be given to seedlings of merit which have not money prizes awarded to them, the exhibitor having the option of receiving either the certificate or the money value, 10*s.* To be eligible for competition, all the subjects exhibited in this Class must be growing in pots, and distinctly marked with the names they are to bear. No seedling can have a prize awarded to it unless these conditions are complied with.			

CLASS VI.—FRUIT. To be exhibited on July 2d.

[The attention of both Amateurs and Market Gardeners is particularly requested to the last five letters in this Class.]

*** Fruiterers, and retail Dealers in Fruit, are to compete only in the following letters, which are provided exclusively for them, viz.:—FB, FF, FI, FL, FP, FX, GA, GD.

FA Miscellaneous Collection; consisting of 10 dishes of distinct kinds of dessert fruit cultivated in the United Kingdom. 10*l.*—5*l.*—3*l.*

FB Miscellaneous Collection of 10 dishes, as in FA, 5*l.*—3*l.*
N.B.—Merit in other respects being equal, preference will be given to the collections which contain the most distinct kinds of fruit.

FC Pine-apples; a single fruit of the "Providence," 2*l.*10*s.*—1*l.* 10*s.*—1*l.*

FD Pine-apples; a single fruit of the "Queen," 2*l.* 10*s.*—1*l.* 10*s.*—1*l.*

FE Pine-apples; a single fruit of other kinds, 2*l* 10*s.*—1*l.*10*s.*—1*l.*

FF Pine-apples a single fruit of any kind, 1*l.* 10*s.*—1*l.*

FG Melons; a single fruit of the common varieties, 1*l.* 10*s.*—1*l.*

FH Melons; a single fruit of the Persian varieties, 1*l.* 10*s.*—1*l.*

FI Melons; a single fruit of any kind, 1*l.*—10*s.*

FK Grapes; collections of three dishes of distinct varieties, 3*l.* 10*s.*—2*l.* 10*s.*—1*l.* 10*s.*

FL Grapes; collections of three dishes, as in FK, 1*l.* 10*s.*—1*l.*

FM Grapes; single dish of one black variety, 2*l.*—1*l.* 10*s.*—1*l.*—10*s.*

FN Grapes; single dish of one white variety, 2*l.*—1*l.* 10*s.*—1*l.*—10*s.*

FO Peaches and Nectarines; collections of four dishes of distinct varieties, 3*l.*—2*l.*—1*l.*

FP Peaches and Nectarines; collections as in FO, 1*l.* 10*s.*—1*l.*

FQ Peaches and Nectarines; collections of two dishes of distinct varieties, 1*l.* 10*s.*—1*l.*—10*s.*

FR Apricots; single dish, 1*l.*—10*s.*

FS Plums; single dish, 1*l.*—10*s.*

FT Figs; single dish, 1*l.*—10*s.*

FU Cherries; single dish, 1*l.*—10*s.*

FW Apples; collections of six dishes of distinct varieties, 2*l.*—1*l.* 10*s.*—1*l.*

FX Apples; collections as in FW, 1*l.*—15*s.*

FY Apples; single dish, 15*s.*—10*s.*

FZ Pears; collections of four dishes of distinct varieties, 2*l.*—1*l.* 10*s.*—1*l.*

GA Pears; collections as in FZ, 1*l.*—15*s.*

GB Pears; single dish, 15*s.*—10*s.*

GC Strawberries; collections of four dishes of distinct varieties, 1*l.* 10*s.*—1*l.*—10*s.*

GD Strawberries; collections as in GC, 15*s.*—10*s.*

GE Strawberries; single dish, 1*l.*—10*s.*

GF Musas; single dish or large bunch, 1*l.*—10*s.*

GG Citrus; collections of four dishes of distinct species or varieties of this genus, 2*l.*—1*l.*

GH Rare Exotic Fruit, suitable for the dessert, 3*l.*—2*l.*—1*l.*

GI Exotic Fruit, of other useful or rare kinds, 2*l.*—1*l.*

GK Neglected Hardy Fruit, 3*l.*—2*l.*—1*l.*

Note.—A DISH of Fruit is defined thus:—Grapes, 3 bunches. Peaches, Nectarines, Apricots, the Citrus family, Apples, and Pears, 6 fruits. Figs, Plums, and Musas, 12 fruits. Cherries and Strawberries, 24 fruits. Any EXCESS or DEFICIENCY in the numbers specified will DISQUALIFY. All fruit must be perfectly ripe and sound; and (except Pine-apples and Grapes, and GF to GK), it must be exhibited in punnets of 9 inches diameter, dressed with the leaves respectively belonging to each kind of fruit.

REGULATIONS.

1. The Exhibition will be open to all competitors, whether Fellows of the Society or not.

2. In order that the subjects received for Exhibition may be promptly arranged and displayed to advantage, the Exhibitors are requested to communicate their intentions to the Secretary previously to the several days of Exhibition, specifying the probable extent of table room, in square feet or otherwise, which their plants, flowers, or fruit will require.

3. Unless previous notice has been given, the Exhibitors on entering the Garden will be requested to sign a book, or deliver a statement in writing, specifying in what letter or letters their articles are to be exhibited. They are also to apply to the Clerk for labels to attach to their several Exhibitions, and to see that when staged they are marked with the proper letters. The Exhibitors are particularly requested to bear in mind, that omissions or mistakes arising from neglect or improper entries on their part cannot be rectified after the awards have been made.

4. No subjects will be eligible for competition unless the entry has been made previously to half-past eight o'clock in the morning, at which time precisely the gates will be closed, and after which no subjects for competition can on any account whatever be received, nor can any person be allowed to open packages containing articles for competition.

5. Exhibitors are requested to observe that the Judges must proceed at TEN o'clock to examine the merits of the subjects exhibited, by which hour the placing and arranging of all plants, flowers, and fruit must be completed.

6. At Seven o'clock in the evening the Exhibitions will close, and the several articles exhibited will then be delivered up to the Exhibitors.

7. All persons who supply subjects for competition for which rewards are offered, may obtain Pass Tickets before Ten o'clock, and will be re-admitted to the Garden at Two o'clock, by delivering their tickets at the workmen's gate.

8. Assistant gardeners will be admitted with the Exhibitors until half-past Eight o'clock in the morning; but no person whose services are not required in that capacity will be allowed to enter with the Exhibitors, nor can any person remain in the Garden after Ten o'clock, excepting those who are engaged by the Society.

9. Subjects of decidedly inferior quality cannot be received for competition, and such subjects the Judges are empowered to REJECT. And in order to uphold the value and importance of the Society's awards, the Judges are authorised either to WITHHOLD or to DIMINISH the value of the awards; that is, to grant either first, second, or third prizes at their discretion. The Judges are also invited to recommend to the Council to INCREASE the number or amount of the awards, and to give medals for subjects of extraordinary merit which may be exhibited, although not specified in the Schedule.

10. It is particularly desired that *all plants* be distinctly labelled with their *scientific names*, and the places whence introduced, where practicable; and *all cut flowers* and *fruit* are required to be distinctly named.

11. Exhibitors who shall obtain a first prize cannot receive any other award in the same letter, except in E and F and in Class V.

12. Should any Exhibition contain one or more plants which have not been in the possession of the Exhibitor *two months* previous to the Exhibition at which the plant or plants are shown, such circumstance will *disqualify* the Exhibition to compete for prizes; except in the case of plants newly imported by the Exhibitor, and entered under the letter E or F. In the event of any dispute with respect to this rule, the Exhibitor will be required to sign a written declaration, which will be considered final.

13. The Judges will not be appointed from among the Fellows, Members, or Officers of the Society; nor will any person who shall accept the office of a Judge be allowed to compete for prizes.

14. Successful competitors are requested to notify to the Secretary, within one fortnight after the last Exhibition, in what form they are desirous of receiving their prizes, viz., whether in medals, plate, or money.

By order of the Council,
J. DE C. SOWERBY, Secretary.

Further particulars and Schedules may be had at the Gardens.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, JANUARY 25, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Jan. 27	Entomological	8 P.M.
WEDNESDAY	Jan. 29	Society of Arts.	8 P.M.
TUESDAY,	Feb. 4	Linnean	8 P.M.
FRIDAY,	Feb. 7	Botanical	8 P.M.

OUR readers know that much difference of opinion exists as to the merits of the various schemes for pruning forest-trees, and that many of the best gardeners in the country object to the use of the pruning-knife altogether. In order to settle these differences, it has even been proposed to form a National Pruning Society.

We do not quite advocate that. So cumbrous a machine is not likely to settle a point which a small quantity of common sense, and some simple experiments that any man can try, will decide in a couple of years.

The question is, however, one of the greatest importance; and we would have all who are interested in woodland property give it their serious consideration. The course which we would recommend in order to bring the question to issue is this: let all who have nurseries plant out in rows, under exactly equal circumstances, 500 Alders, 500 Ashes, and 500 Walnuts, or any smaller number. The more the better, because we should have a better average result. Fast-growing, cheap trees are what we recommend, because they will give a more decisive result in a short time; and what is true of them will be true of all others.

Divide each of these into five lots. Leave one parcel to itself; prune the second to a single shoot, removing every lateral; from the third take not more than five, nor fewer than three, of the strongest shoots, beginning at the top, and descending; from the fourth, take not more than five, nor fewer than three, of the strongest shoots, beginning at the bottom, and ascending; and in the fifth, give the leader a good start by stopping and checking the laterals, without removing them altogether. If this is done, we will publish the results, and then everybody will know what course to take on a larger scale.

A few independent experiments made in this way would do more to settle the pruning question than all the talk between London and Chester; for it is always to be remembered, that what is true of one tree is true of another, and that young nursery plants are affected as much in proportion by pruning as older.

The experiment ought, however, to be persevered in for two years, in order to be quite satisfactory. All that we ask for next November is, that those who try the experiment will report progress honestly, and without favour or prejudice.

SOME of our correspondents having expressed a desire to be furnished with a formula for calculating the AGE OF A TREE, we have selected the following as being likely to answer their purpose. It is to be found in De Candolle's "Organographie Végétale," where it is given as an extract from the "Journal des Forêts," a work to which we have not access, but it is so disfigured in the former work by typographical errors as to be almost unintelligible:—

We measure the diameter at the height of about 5 ft., and we make a notch at the same point on a circular surface, to count a certain number of annual layers which we measure. We then find the annual growth of those trees which have left off growing in height, by the formula $\frac{4\,d\,(D-d)\,V}{n\,D^2}$; and for those which continue to grow in height, by the formula $\frac{D^3-(D-2\,d)^3\,V}{n\,D^3}$, in which D = diam. of tree, V = the volume of the same, d the thickness of the annual layers which have been counted, and n the number of these layers. These formulæ depend upon two theorems: 1st, that cones or cylinders of the same altitude are to one another as the squares of their diameters; 2d, that similar cones or cylinders are to one another as the cubes of their diameters. In fact, calling n the number of layers, whose volume is = C, we have two proportions, viz., V : C :: D^2 : $D^2-(D-2\,d)^2$, and V : C :: D^3 : $D^3-(D-2\,d)^3$; whence we have $C=\frac{4\,d\,(D-d)\,V}{D^2}$, and $C=\frac{(D^3-(D-2\,d)^3)\,V}{D^3}$.

Dividing this total growth of layers by n, we have the growth of one year. The formulæ are correct, if we admit that during any ten or twenty years a tree does not acquire more or less wood than in an equal number of other years; but if the layers of growth, calculated every twenty years for about eighty years, are of equal thickness, the quotient will be too small, and in this case we must make use of the following formulæ: 1st, for trees which do not increase in height we have V : C :: D^2 : $(D+2\,d)^2-(D-2\,d)^2$; whence we have $C=\frac{8\,d\times V}{D}$, and the annual growth will be $\frac{8\,d\times V}{2\,n\,D}=\frac{4\,d\times V}{n\,D}$; 2d, for trees which grow in height, we have V : C :: D^3 : $(D+2\,d)^3-(D-2\,d)^3$, and the annual growth will be

$$C=\left\{\frac{(D+2\,d)^3-(D-2\,d)^3}{2\,n\,D^3}\right\}V.$$

Reducing this for convenience when we work with large numbers, this expression becomes

$$C=\frac{(6\,D^2+8\,D^2)\,d\,V}{n\,D^3}.$$

The estimator who prefers measuring the circumference of the tree after having determined the diameter, may use the following formulæ:—Let P be the circumference of the tree, and π = the circumference of a circle whose diameter = 1; *i. e.* 3·14159, &c.: these two formulæ then become $C=\frac{4\,\pi d\,(P-\pi d)\,V}{n\,P^2}$ and $C=\frac{4\,\pi d\,V}{n\,P}$.

While, however, we have furnished this extract for the use of those whose taste leads them into similar calculations, we cannot but add, that if two notches are made on opposite sides of a tree, and the mean of the number of the annual layers be so ascertained, as near an approach to the determination of its age in this country will be obtained as by any other mode of investigation. Suppose two inches in depth are thus extracted, and one has 10 annual rings while the other has 16, it is evident that the average rate of growth will be 13 rings per inch. If we then ascertain the diameter of the tree, deduct the thickness of bark, and multiply half the remaining diameter by 13, we shall have a close approach to the true age of the tree.

Computation by concentric circles is indeed the method usually followed in determining the age of trees. Calculating thus, De Candolle concluded that a famous Ivy tree in the village of Gigean, near Montpellier, was 433 years old, and a Hornbeam in another place 335 years. Then, taking several such cases, an average rate of growth was obtained by that philosopher, from which he estimated the age of other trees whose annual rings could not be counted at all. Thus he found, by the examination of their annual rings, that the average rate of growth of old Lime trees was $1\frac{3}{4}$ or 2 lines in diameter annually; and hence he inferred that a famous Lime tree, of unknown antiquity, growing in 1831 at Neustadt, on the Kocher, in the kingdom of Wurtemberg, was 1147 years old upon the former supposition, or 764 on the latter. Similar computations led him to assign an age of 4000 or even 6000 years to an extraordinary deciduous Cypress tree growing in the burial-ground of Santa Maria de Tesla, in Mexico.

Martius, too, adopting the same views, has made an elaborate computation of the age of some colossal trees, supposed to be Courbarils, which he found in one of the primæval woods of Brazil. To use his own words: "The place where these prodigious trees were found appeared to me as if it were the portal of a magnificent temple, not constructed by the hands of man, but by the Deity Himself, as if to awe the mind of the spectator with a holy dread of His own presence. Never before had I beheld such enormous trunks; they looked more like living rocks than trees, for it was only on the pinnacle of their bare and naked bark that foliage could be discovered, and that at such a distance from the eye, that the form of the leaves could not be made out." Fifteen Indians, with outstretched arms, could only just embrace one of them. At the bottom they were 84 ft. in circumference, and 60 ft. where the boles became cylindrical. By counting the concentric rings of such parts as were accessible, the distinguished traveller, whose account we are quoting, arrived at the conclusion that they were of the age of Homer, and 332 years old in the days of Pythagoras; one estimate indeed, reduced their antiquity to 2052 years, while another carried it up to 4104; from which he concludes that the trees cannot but date far beyond the time of our Saviour.



BRAZILIAN TREES, SUPPOSED TO BE OLDER THAN THE ERA OF OUR SAVIOUR.

While, however, the number of concentric zones is admissible as evidence of the age of trees growing in countries where a total suspension of growth takes place on the approach of winter, it is doubtful whether they are safe guides for the trees of hot countries. On the contrary it is probable that in the East Indies trees will produce more than even two rings of wood annually. We have seen as many as four in what we were assured were one-year-old branches, produced near Calcutta. And if so, all such calculations as those we have alluded to fall to the ground.

Is there no tropical botanist who will take the trouble of determining such a point as this? We are sure that the knowledge of the inquiry being wanted will at once induce them to institute it; and we trust they will make our columns the medium of communicating their observations to the public.

IT having been stated in one of our late Numbers that a WEEKS'S BOILER put up in the Horticultural Society's Garden, has proved an entire failure, it is only proper to mention that the boiler in question was not supplied by Messrs. Weeks and Day, of Gloucester Place, King's Road.

WE had prepared some additional remarks upon the subject of PROPAGATING PLANTS BY THEIR LEAVES; but circumstances compel us to postpone them. Next week we shall return to this curious topic, respecting which we have received several interesting communications.

CULTURE OF PIMELEA SPECTABILIS.

THIS is one of those beautiful New Holland shrubs which has attracted of late years great interest at our Exhibitions, and has deservedly assumed a prominent position in all good collections. When first introduced to our notice, the specimens shown were but indifferently grown; they had, however, one advantage over those more recently produced, viz., the prolonged duration of their existence. One of the errors of modern cultivation has been to do too much in a given period; for

instead of allowing the plant quietly and naturally to mature its growth, it has been excited by the introduction of enriching materials into the soil, and confined in a warm and humid temperature, where little air is admitted. The result of such treatment has certainly been the production of enormous shoots of soft spongy wood full of watery matter, and consequently liable to sudden decay, on the least variation either in the treatment or in the temperature. This I again observe is an evil into which some of our best cultivators fall, forgetting that this and many others under similar treatment, are indisputably ligneous plants, which when having made their annual growth should have sun and air to mature that growth, in order to enable it to resist atmospheric and other changes, instead of being again immediately excited, and kept growing into the dark days, when the absence of sun renders the accomplishment of this impossible. The fatal consequence of such injudicious cultivation is sure to manifest itself in one way or another, for in all probability, when the plant is in full bloom, and when we have calculated on having secured a matchless specimen wherewith to enrich our collection for years to come, it in a moment falls a sacrifice to over indulgence.

The kind of soil best suited for Pimelea spectabilis is three parts of turfy peat, two parts silver sand, and one part turfy loam; let these be intimately mixed, and used in a perfectly rough state; the process of potting will be the same as in similar cases. The plant, if in a 48 sized pot in spring, may be at once shifted into a 24, and then into a 12 about mid-summer; let it be fully exposed to light, and let the temperature be cool and dry, so that the shoots may be well matured. In autumn it may be exposed in the open air for a couple of months, which will enable it to ripen its wood, taking care to remove it in doors should heavy rains occur. Keep it cool and moderately dry during winter, and in the succeeding spring it may receive a final potting, and be permitted to bloom. By such a course of treatment, a rather longer period will be required to produce a perfect plant; but then we have a fair right to calculate on retaining it in our collections for years longer than if produced by the over feeding and forcing process. In course of culture very little training will be required with this plant. The first lateral shoots may require to be pegged or tied down for a short time, and also stopped; but these props may soon be removed and the plant left without more than one stake. It will then exhibit the true character of a woody shrub, supporting itself with perfect impunity without the aid of stakes, because it has been produced in a soil and temperature in every way suitable to it. Pimelea spectabilis is frequently to be procured in nurseries grafted on P. decussata, and it is by some cultivators preferred in this state; and perhaps there is something in this, as the latter is considered a hardier and easily cultivated species, and not so subject to early and sudden disease and death as P. spectabilis. There are, however, fine specimens, both grafted and on their own bottoms, of this plant in many of our greenhouses, which would lead us to question the propriety of grafting it, and induce us rather to solve this abstruse point by means of judicious cultivation.—*Duro.*

RENANTHERA COCCINEA.

WE seldom see this fine Orchidaceous plant exhibited in good condition at any of the floricultural displays in the neighbourhood of London, not even in those magnificent collections of Orchidaceæ which are brought to the Chiswick Shows, and which evince so much skill, care, and attention in their cultivation. Having had the Renanthera for many years under my care, it has been subjected to different modes of treatment and to various situations in the houses, with little or no success. It is true the plants grew freely enough, emitting plenty of roots, but much to my disappointment there was no development of flowers. At last, at the suggestion of my employer, another mode was adopted, which has met with complete success.

A strong branch of Renanthera was fixed with wire to a stake about 4 feet in length, and 4 inches in diameter, leaving about 12 inches of the plant above the end of the stake; the roots were carefully tied down in order that their points should come in contact with the stake; the roots were then completely covered with Moss to the thickness of 4 or 5 inches; the stake was afterwards fixed with wire to the end of the house under the top light, which was made fast; no air was admitted whilst the plant remained in that situation, and care was taken that the point of the plant should never get nearer the glass than 9 or 10 inches; it was trained horizontally under the glass. The roots were liberally supplied from the spout of a watering-pot with water, which was applied at the top of the stake that served as a conductor to the roots. This kept the interior of the Moss in a damp state, and water was also occasionally given with a syringe to the whole of the plant when it was not in flower. As the Moss decayed or the thickly-intertwined roots protruded, fresh Moss was tied on, and to make the whole have a lively appearance pieces of Æschynanthus grandiflorus were inserted in the Moss; they rooted and grew freely. When the flower-scape had grown about 4 or 5 inches in length (which with me is generally about the middle of May), the branch on which it was situated was gently brought round towards the stake, to which it was tied; by this means the scape grows to a greater length, and the flowers are brought nearer the spectator. Besides, the gentle strain to which the flowering branch is subjected causes another branch to protrude itself.

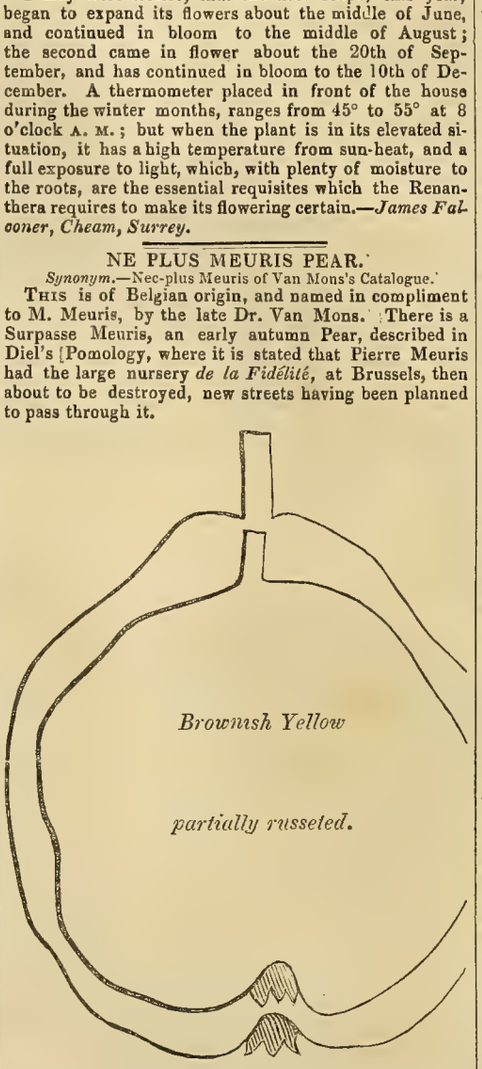
I have not been able, after repeated trials, to get the same branch to produce flowers in two years consecutively, but the same plant has, nevertheless, for these three years past, borne two scapes of flowers, each year successively. Hence the advantage of having a succession of young stems near the stake, that their roots may have the benefit of the damp Moss. Before any of the flowers were expanded, the plant was removed from its elevated situation at the back of the house, to near the foot-path in front, where it was shaded, which greatly prolongs the period of blooming.

I may here notice, that the first scape, this year, began to expand its flowers about the middle of June, and continued in bloom to the middle of August; the second came in flower about the 20th of September, and has continued in bloom to the 10th of December. A thermometer placed in front of the house during the winter months, ranges from 45° to 55° at 8 o'clock A. M.; but when the plant is in its elevated situation, it has a high temperature from sun-heat, and a full exposure to light, which, with plenty of moisture to the roots, are the essential requisites which the Renanthera requires to make its flowering certain.—*James Falconer, Cheam, Surrey.*

NE PLUS MEURIS PEAR.

Synonym.—Nec-plus Meuris of Van Mons's Catalogue.

THIS is of Belgian origin, and named in compliment to M. Meuris, by the late Dr. Van Mons. There is a Surpasse Meuris, an early autumn Pear, described in Diel's Pomology, where it is stated that Pierre Meuris had the large nursery *de la Fidélité*, at Brussels, then about to be destroyed, new streets having been planned to pass through it.



The Ne plus Meuris has nothing, so far as regards form, that can tend to its recommendation. It will be seen from the accompanying outlines of specimens grown against a wall, and as a standard, that its form is singularly irregular, always jutted out; sometimes the projections are greatest in the middle, in other specimens near the eye or stalk. The flesh is yellowish-white, buttery, melting, rich and sugary. It is sometimes rather gritty near the core; but this may be in a great measure prevented by keeping the roots sufficiently supplied with moisture when the fruit is in a young state. It is occasionally fit for use in December, but its general season is February and March. The tree grows rather upright, and bears abundantly, forming compact clusters, the fruit-stalks being very short. It is not subject to canker. The shoots are stout and rather short-jointed, of an olive colour, irregularly sprinkled with gray specks. Leaves ovate, tapering to the point, sharply serrated. Flowers large, petals oval, their edges scarcely overlapping.

Taking into consideration the very limited number of good dessert Pears which keep till spring, it must be concluded that the variety here described is highly deserving of cultivation. Good judges will excuse its rude exterior.—*R. T.*

SHANKING OF GRAPES.

DEEP planting is by many supposed to be the real cause of this disease. Although I consider deep planting a great evil in itself, which is much aggravated if the soil is badly drained, yet I have observed other causes produce shanking in Grapes; and one in particular, with which I apprehend deep planting is often confounded, namely over-rich Vine borders. I have frequently observed the very worst results arise from this, for which deep planting has been blamed. The following remarks will show that a very rich soil is not the most suitable for the Vine. Some years back, having had occasion to prepare two Vine borders, and being fond of experiments, I made a bottom the full length and width of the border. Sloping it outwardly and terminating it with a drain, I divided it into four equal parts; the first part (No. 1) was made in the usual way, and of the full size; it was composed of a very rich mixture of leaf-mould, rich loam, dung, and bones, &c.; the next part (No. 2), which was opposite the same house, was made also of the full size, thus completing half the whole length of the border; but the soil for this part was composed of poor material, namely, fibrous loam and shingle, *i. e.*, sand and stones, which were taken from the bed of a river. They were mixed in the proportion of 2 of loam to 1 of sand and pebbles. The divisions of the border (Nos. 3 and 4) of the next house were made to the full height, of the same poor material as that employed for No. 2, but this compost extended only 6 feet in width, and was banked up with sand. Nos. 1, 2, and 3, were planted early in February; the Vines for No. 4 being very small, were cut back, and nursed in a small forcing-house, and were planted out in the first of June. A few days previously to planting, a part of the sand in front of the border was removed, and a strong lining of hot dung was applied, covering the surface of the border with straw; the hot dung was renewed from time to time, until the Vines became thoroughly established, which was in the end of July. The internal arrangements in both houses were alike in every respect; the ripening of the wood was encouraged by slight fires, and by the end of the season, the Vines in the partly-made border Nos. 3 and 4 were far superior to those in the divisions that were entirely filled with new soil; but those planted in No. 4, although put in so late, exceeded all the others; the free growth induced in the first instance in the hothouse, and when planted out encouraged by the dung linings that were applied to the roots, proved to be of much advantage in causing a free circulation of sap, thus maintaining a reciprocity between roots and branches. The Vines in No. 4 were superior to those in No. 3, which were superior to those in No. 2; and those in No. 2 again were infinitely superior to those in No. 1, although those in No. 1 were growing in the richest soil of all. The growth of the plants in this division was soft and watery, the eyes were far apart, and the canes were of a dull pale colour, whereas the canes of those planted in a poor sandy soil had a sound appearance, and were of a bright brown colour; the unfinished divisions of the border Nos. 3 and 4 received an addition of fresh compost the next season, and were finished in the third year, with the same kind of poor material as was used in the first instance, always leaving a portion of the sand-bank standing between each of the annual additions. Thus, if the border is finished in three years, there will be two divisions of sand, but if not till the fourth year, there will be three of this material. This system of border-making by intervals is not only best as regards the growth of the Vines, but it offers facilities for doing the job well. The advantage of having two or three divisions of sand and pebbles, a foot in thickness, is that the roots naturally multiply in the sand, become healthy and numerous in passing through it, and with renewed force and avidity seize upon the soil on the other side. I did not allow the Vines to bear fruit until the third year, when liquid manure was freely applied during the season of rapid growth, for which the Vines repaid me with an excellent crop, excepting those growing in the division No. 1, which although bearing less fruit, did not produce bunches of a good colour, and a few of the berries composing the bunches were shanked. Liquid manure was totally withheld from this division during the next year, without any improvement; straw only was used in the forcing season for the protection of the roots, hot dung being scarce. Here I would advise young gardeners to be cautious how they apply hot stable-dung to the roots of early-forced Vines, unless they can command a full supply—and then great caution is necessary. It is to be regretted that, with all our improvements in heating, some plan has not yet been devised, consonant with the nature of the Vine, for judiciously heating the border. I should be inclined to try what earthen pipes would do, embedded in the soil, in connection with a steam apparatus or hot-air chamber.

I have found the practice of protecting the Vine border with straw, particularly beneficial in March, April, and May, when the days are clear and warm and the nights cold and frosty; the straw is drawn to one side during the hours of strong sunshine, exposing the soil to its genial influence; towards sunset the straw is again spread over the border, and being a good non-conductor it retains in the border much of the solar heat. If persons not having better means of heating the border will adopt this plan, they will find a great improvement in their Grapes. I always cover after an application of liquid manure, as it in some measure prevents the ammonia from escaping, and the heat of the border from being lost; for with the escape of watery vapour more or less heat is abstracted from the earth. This should be guarded against where forcing is going forward; for though the fluids may be always in motion, yet the absorbing powers of the plant become less active when the roots are exposed to a low temperature. The foregoing case, as well as many similar ones with which I am acquainted, enables me to say, that many of our difappointments in the successful culture of the Vine may be traced to over-rich borders; the enormous mass usually put together naturally produces a crude unhealthy action long before the young Vines gain sufficient strength to digest or assimilate the rich store prematurely provided for them. In the south of Italy where the climate is matchless, in some districts the soil has been found to be too rich for the Vine. The growers there have found that a light soil favoured by irrigation is best, and my own experience supports this inference. I can see no difficulty in obtaining fine Grapes if the house is well ventilated, and admits plenty of light, and the border a sloping one, well-drained, and made of loam well incorporated with sand. Due regard must, however, be paid to thinning out of the berries

early and carefully; and the result of an experiment in thinning the white Raisin Grape, which always produced shanked fruit, may not be unworthy of remark.

This Vine bears large bunches, and the foot-stalks of the berries are also large: a bunch thinned out with a pair of scissors when very small, had many shanked berries in it; one thinned out a second time when half grown, produced a greater number of shanked berries than the former; and a bunch which was arranged so as not to require thinning, had not a single bad Grape in it; whereas, one similarly arranged, with the shoulders rather twisted or turned short in tying, had several bad berries on the twisted shoulders; and finally, a bunch thinned when very small, by cutting the berries in the middle to prevent wounding of the foot-stalks, had not one bad berry. Thus it appears that shanking is produced independently of the border; indeed, the other kinds growing in the same border and in the same house, produced very fine fruit.

Whenever I find a Vine-border too rich, I work into it a large quantity of sand; but now that tanks for liquid manure are so generally in use, there will be less necessity for using so much dung and other rich materials in forming borders. Liquid manure will be found to be a great auxiliary in the hands of a skilful cultivator. We constructed tanks here last summer for collecting it, and I am happy to say that the example has already been followed in this neighbourhood.—*H. Bowers, Busbridge.*

Home Correspondence.

Disease in Tulips.—Though your correspondent has not fully stated his case (see p. 38), it is highly probable that the mouldy disease in his Tulip bulbs arose from his dressing them immediately on taking them up—that is, entirely removing the stem and roots. About an inch of the stem, and all the adhering roots, should be left on for a month, that the superabundant moisture in the bulbs may have a natural outlet by which to escape. The first year of my growing Tulips, I committed the error of removing all these parts at once, and though every other due precaution was taken in harvesting them, three-fourths were affected with the dry mouldy disease alluded to. Let your correspondent eschew salt in his management of Tulips. A friend of mine, in Cambridgeshire, had, on two occasions, fine collections, value 1000*l.*, destroyed by an enemy strewing salt on his beds, as was proved by analysis of the soil. I take the opportunity of giving a further hint. When the foliage of Tulips, just where it appears above ground, exhibits canker or rot, let the soil be wholly removed, till the affected bulb be completely laid bare, though undisturbed; then carefully strip off every portion of foliage that exhibits disease; and also scrape cautiously with a penknife that part of the bulb in which it was inserted, and fill up the hole with dry sand: the top awning should also be kept on till taking-up time. On account of want of protection from rain and snow, my Tulips, some years ago, were all affected with rot in the foliage. One-half of them, which were treated as just described, were saved; the rest, which were left to themselves, perished. The course recommended is a very old one, but seldom acted on, from doubts of its efficacy; there is no doubt, however, of its being a remedy, and the only one; as might be expected, but few of the bulbs which have thus suffered will bloom the following year.—*F. R. Horner, M.D.*

Small Birds.—I observe the most extraordinary differences of opinion among your correspondents; some advocating the cause of birds, and others wishing their destruction. I am no naturalist, or skilled in ornithology, neither do I watch the motions of birds, as some people do, for hours together, in order to ascertain their habits of life, and the modes by which they procure their food. I am willing to admit, on the testimony of others, that birds devour many insects, but I want no other evidence than that of my own eyes to be able to testify the frightful devastation these creatures make. I suspect that those persons who profess such great regard for birds, are none of them market-gardeners, or, in other words, men who gain their daily bread by their horticultural produce. I conclude a market-gardener, who possessed a Cherry orchard, would not stand up in defence of blackbirds that stole his Cherries, not merely one by one, but fled off with whole bunches at a time. Would he be favourable to tits when he saw them boring holes at the foot-stalks of his choicest Pears, long before they were ripe, and thereby entirely spoiling the sale of them? Or would he be so tender-hearted as to spare bulfinches, and other birds, which, in the winter season, were engaged in picking out every blossom-bud from his standard Green Gages, and thereby not only depriving him of all hopes of a crop, but also seriously injuring the wood of his trees into the bargain? The productions of our gardens are not the natural food of British birds, inasmuch as hardly a fruit tree can be named but what is an exotic, and has been brought over here from different parts of the world. The birds are not satisfied with the plentiful provision with which Nature has stocked the country during the summer months, but acquire an artificial taste for foreign fruits, by poaching those commodities which man, and not Providence, has introduced into this island. Birds are the very worst of thieves, and, like all other marauders, follow the policy of quartering on the enemy. Your correspondent from Stowmarket says, "It is quite possible to grow fruit and Peas without waging war against the birds." This I totally deny in my own person. I have a large kitchen-garden, and for the last two or three years have given up raising Peas, as birds eat them all in defiance of every precaution. Last spring, in order to get out of their reach, I broke up some ground in a Grass meadow far removed from my garden, and where I had never seen birds resort. From nine rows of Peas, each 53 feet long, I solemnly declare not even a single dish ever came to my table. The tits and other birds followed me, and bored holes in the pods when about half formed, and extracted all the diminutive Peas; and, in addition to this, actually picked off wantonly a vast number of the blossoms. It may be said, why did I not hire a bird-keeper? To ask this question is to ask why I did not put myself to a weekly expense for nearly four months in the year; and the very asking it would be an admission that birds are a pestilence, and that a hired security is necessary for a gardener's protection. As self-preservation is the first law of Nature, I strongly approve of the advice of the individual who recommends suet and nux vomica for the destruction of birds, inasmuch as to lose the entire produce from 477 feet of Pea ground is no small curse to a gardener. I have actually been obliged to request the farmers to supply me with Peas from their fields, as I can raise none of my own; and yet I have no doubt but some your readers will espouse the cause of birds against all gardeners suffering like myself, merely because these winged enemies are pretty creatures, and some of them are endowed with the gift of singing. Your correspondent from Stowmarket says, "Birds have enemies enough in Nature to keep them down, without the aid of man." This assertion is a decided fallacy. Fortunately, boys have naturally a strong propensity to take nests, for without such assistance the birds would multiply so as to render the country insupportable, though this very same gentleman considers their destruction as a national calamity. A very sensible writer in your Paper, who signs his name "Dodman," says he should not have a Gooseberry, Currant, Pea, or Strawberry, unless he covered the whole with nets. No trifling expense this, to be subjected to, on account of a set of harpies—as bad in their way as those which Virgil has pourtrayed in the "Æneid." This individual is prudently prepared with means of defence. I always suspect the sincerity of those who appear to have about them such trebly-distilled essence of tenderness, nor do I give them full credit for it. I have known persons who would have appeared horrified at the bare idea of killing a robin, or shooting a blackbird, yet feel no compunction at having lobsters boiled alive, or having eels stripped of their skin when quite alive, and left to writhe with agony in a burning-hot frying-pan.—*Furibus Hostis.*

Destruction of Small Birds.—In reply to "Dodman" (p. 21), I beg to observe that the whole family of tits are greedily fond of suet, bruised Hemp-seed, and of the seeds of Sunflowers in particular. If some of these luxuries be strewn about on the ground, and the traps placed in the immediate vicinity, some one of the tribe is sure to fall a victim to his curiosity; for when the supply on the ground becomes scanty, Tom will most systematically inspect the cages, and seeing therein a tempting lump of suet, or his still more favourite Sunflower-seed, he will pop down, nothing doubting, and at once be secured by the wily spring. I wish your correspondent resided in my vicinity—I would gladly give him what he requires; for I always have a number of these beautiful little fellows at work in a large wire cage, where their diverting gambols are exhibited with excellent effect. The cost of their keep is only nominal; it seems, therefore, an unnecessary branch of "political economy" to kill them outright. I must still persist in thinking, until more proof is adduced to the contrary, that these young gentlemen do infinitely more good than harm, for they annihilate insects by the million; at all events, they should be allowed the benefit of any reasonable doubt.—*Wm. Kidd, New-road, Hammersmith.*

Melons.—Some very few years ago, when I first attempted to grow Melons, I was quite impressed with the belief that their cultivation was a thing of no inconsiderable difficulty. I consulted, for instruction, I know not how many books, and was at pains to converse on the subject with any gardener that fell in way, and I was met at every turn and in all quarters by similar directions as to the importance of a regular and well-maintained high temperature. Indeed, it appeared to be a rubric of gardening, of unquestioned authority, that bottom-heat to the Melon, like action to the orator, was, above others, the one thing needful. Now, mine is a very small suburban garden, open altogether to the back windows of the house; and as the unsightliness and dirt attendant upon a succession of manure linings would therefore be objectionable, I determined, though rather hopeless of success, to try if 2 feet 6 inches or so of stable dung, just to start the plants, might not answer the purpose tolerably well. The first year my success was rather equivocal, or, indeed, not equivocal at all; most of my plants got sadly infested with the green-fly, and my crop of fruit was neither numerous nor of good quality. Still, as there appeared to me no certain evidence of the failure being attributable to the want of renewed or maintained heat, I prepared the following season to "try again." In the mean time I met with a gardener known in the neighbourhood as a successful Melon-grower. He said to me, "Sir, if you want fruit early, that is, to cut Melons in May, why then, to be sure, you must have linings to keep the heat up; but if you will be content with a later crop, you may grow capital Melons without bottom-heat at all." This heresy, as I then considered it, I did not venture to follow, but prepared my beds of stable-dung as before. But, behold! whether from the coldness of the wet soil (they were sunk full two feet in the ground), or from what other cause I know not, the materials never fermented, and not heat enough was evolved to raise the thermometer a degree. In this strait, I was driven, whether I would or no, to act upon the disregarded advice of my friend the gardener. I placed my plants in these cold frames about the middle of April, and before the middle of July I cut fine fruit of good flavour, but the crop was scanty, not averaging more than one to a plant. This last season the same thing—I mean the non-fermenting of the dung—happened to me again; but, satisfied now that bottom-heat was not the *sine quâ non* I had been taught to believe it, I planted my Melons once more in these cold frames, and had excellent success, both as to flavour, weight, and number of fruit. In other lights that had been used for Early Potatoes, I grew Melons with no other preparation than removing the light mould, and substituting heavier; and here, also, I had excellent success as to health of plants, and weight, and number of fruit; but I had given them scarcely a foot's depth of mould, and the flavour was injured by the roots obtaining too ready access to the rich body of rotten dung that had served for the Potatoes. In another light I grew the Beechwood Melon with bottom-heat just to start the plants, but there were no linings used. All the Vines were most healthy and thriving, and I had not occasion till late in the season to remove a leaf. I cut fine fruit of 3 lbs. on the 20th of June; and altogether my crop averaged more than six fruit to a light, a good sprinkling of them weighing 4 lbs., and several reaching to nearly 5 lbs. I saw a good many Melons under cultivation in different gardens last year, and by far the best in the neighbourhood were a range of lights grown, like my own, without artificial heat at all.—*Theta.*

Hares and Rabbits.—We have been much troubled with them for years, and have tried tar, oil, soot, lime, string tarred and oiled, but all to no purpose. In the autumn of 1843, we had a fine plantation of Sturmer Pippins spoiled in one night, as well as other young Apple-trees. So very destructive were these creatures that we determined upon having every plant of Crab and Apple removed into another garden; but one of our men observing that he had seen brimstone tried, and that it had the desired effect, we immediately set to work, and made a quantity of matches, like those used for suffocating bees, and stuck them about the ground (the matches were not lighted), and since using the sulphur not a leaf has been touched. As to rabbits not eating Rhododendrons, we have proof to the contrary, for on a piece of land where we have not used matches, the Rhododendrons are bitten off as clean as if the pruning shears had been at work on them. In very severe weather rabbits have been known to attack and bark the stems of Standard Roses. We melted the sulphur in an iron pot, and when hot dipped the matches, which were made by winding tow, rags, or anything we could lay hold of round sticks and firmly binding it on.—*S. and J. Dillistone, Nurseries, Slurmere.*

Propagation by Leaves.—I have been in the habit for the last three years of raising Camellia stocks from leaves, and I consider the plan an excellent one. The Camellia pæoniflora being the strongest growing sort with which I am acquainted, is the one I select for the purpose. In March, with a sharp knife, I cut off as many leaves close to the branch as I want, taking, of course, the buds off with them. The leaves are potted immediately in 48-sized pots, in peat and sand, and are placed about one-third their depth into the soil, and the pots are then plunged into a tan-bed where no fire-heat is employed; they are covered with a hand-glass, kept moderately moist, and shaded when necessary. These leaves strike root, grow vigorously, and in two seasons make good stocks for grafting on. This mode of raising Camellia stocks is very convenient, for it is often easier to procure leaves than grafts, and the plan answers well when leaves are sent from a distance. In April, 1843, a blossom of a new double Camellia was sent to me; it had travelled upwards of 300 miles, and was so dry that I could not discover its colour; there were, however, two or three leaves attached to it, one of which was treated as above, and I have now from it a very strong plant, 5 feet 6 inches in height, producing nine flower-buds ready to expand. The plant has been stopped twice in order to cause it to throw out branches, which are now 11 in number; the circumference of the stem is 1½ inch at the bottom. I likewise raise Orange stocks in a similar manner: the leaves are cut off in August, and are potted but not covered with hand-glasses. The stocks which I use for Orange grafting are Citrons, which being strong growers, make excellent plants by the following summer. The Citrons, I imagine, may however be grown much quicker by putting in the leaves in February instead of in August. I have no doubt that the plants will be sufficiently strong to be grafted by the end of July or early in August.—*J. Markham, The Gardens, Hewell.*

Horticultural Society.—I beg to call the attention of the Council of the Horticultural Society to a subject well deserving their consideration, embracing as it does the comfort of a very deserving body—the exhibitors. Many of us, after a hard and late day's work of preparation, have to start at night, or very early in the morning of the days of exhibition, to arrive at Chiswick in due time. I need hardly say how welcome would be a cup of tea or coffee, with bread and butter, preparatory to staging our plants. Though hurriedly got, it would be a great refreshment, and readily paid for to a respectable purveyor. Again, at 10 o'clock, when we have to retire for the Judges to examine our productions, to what desirable place can we go? Complaints are made of our reeking of Tobacco-smoke, &c.; but if we are forced by imperious necessity to the pot-house—of the pot-house

we must be flavoured. If the Society will provide us with refreshments, and rooms at moderate charges, we shall be justly open to censure if we choose the ale-house. I offer the hint in a spirit which I hope will claim for it indulgent attention.—*X.* [We are happy to say that the wishes of our correspondent have been anticipated. The subject has for some time been under consideration, and it has been recently ordered by the Council that a room be built for the purpose of enabling exhibitors to obtain *substantial* refreshment in the garden. Indeed the work has actually commenced, by pulling down some sheds on the site of which the proposed room is to be erected.]

Johnson's "Gardeners' Almanack."—Surely Mr. Johnson, in his Almanack, is not wrong in stating that Captain Thurtell's Pelargoniums are surpassed by none, for they obtained two prizes at Bath, another at Torquay, and a third at the Botanical Society's Show in Regent's Park. No one can dispute the excellence of the Pelargoniums grown by Beck, Foster, Lyne, and others; but that Captain Thurtell's are equally excellent, may be admitted without detracting from their merits.—*XX.*

The Calendar.—"Quercus" having requested information from the correspondent who writes the Arboricultural part of the Calendar as to what he means by "judicious pruning," we publish the following reply:—"I consider judicious pruning to consist in removing the dead branches from resinous trees; in hard wood, as Oak, &c., the balancing their branches by shortening unsightly or ill-disposed shoots which may be taking precedence of more suitable ones. This I would commence to do the third or fourth year after planting, and at intervals of 4 or 5 years for 10 or 15 years, removing at the same time one tier of the lower shoots, which may be done without making a wound that could be detected after a season or two. By these means I am convinced that better timber, greater bulk, and increased growth, can be obtained than by the ordinary method of treating young woods. In many places nothing is so much neglected as young plantations; and where these have been allowed to attain a considerable size without timely pruning, then "Quercus" may be right, but from what we have experienced, we are convinced that the advantages we state are obtained by early attention to *judicious pruning*, as well as thinning."—In a late Calendar, under the head "Vineries," the writer's remarks astonish me not a little. He considers it an unlucky circumstance where Vines are planted outside the house. Would he inform us whether Vines succeed best planted inside or outside the house? My own opinion is decidedly in favour of the latter method, being convinced that the roots can be more judiciously treated than when they are half roasted among flues, as is often the case. They have also the advantage of receiving better supplies of light, air, and moisture, which are the great stimulants of vegetation. He further recommends producing a heat of about 70°, by fermenting matter on the border. This I consider much too strong for the roots, especially those near the surface, where they ought to be; 45° or 50° I consider sufficient at any period of forcing.—*A. Norlander.*

The Vestiges of Creation.—Is it not essential to the consistency of any one who holds that the higher orders of animals have originated, by a process of gradual improvement, in those lower on the scale of being, that he admit the probability of beings of a higher status than our own, but ascending from man, hereafter occupying our place in the world? The kind and degree of truth which there is in such an idea, as well as the complete refutation of it as it would be generally understood, is beautifully expressed in the concluding passages of Mr. Miller's work on the old red sandstone, entitled "New Walks in an Old Field"—a work which deserves perusal not merely on account of its geological but also on account of its high literary value.—*M.S.*

Allotment System.—This is not free from evil. An industrious man has a cottage with a small garden—his own property. He grows Carnations, which he is very fond of. Taking care always to stick to those sorts most in demand, and having a first-rate character for integrity, every one is willing to exchange with, or purchase from him. In this way he has grown a fair stock for some time at little expense. But latterly a neighbouring gentleman has introduced the allotment system. Since then, my friend can keep nothing. His best, or rather strongest plants, are selected by plunderers when potted out in spring—nay, he can hardly keep an empty flower-pot. The thieves are supposed to be certain mechanics, who never had gardens before. Gentlemen should be careful to let their gardens only to persons of good character. But will they ever be so, especially when they have a political interest in view? If not, they are but rearing a set of thieves, to prey on the community.—*O.*

Frames.—The frost being very severe with us on the 12th and 13th ult., I put half a rushlight into the frame (see p. 869, 1844,) each night, and it proved just too much; for, on uncovering on the 14th, I found one half of my plants quite fresh and green, while the other portion, although not frozen, had the appearance of having suffered from a July sun. I keep all my hardy plants in one half, and the more delicate in the other. The first I had thoroughly watered a few days before the frost commenced; the other I had left much drier. I examined the plants on both sides, and found that unless my seedlings were immediately watered, I should lose them all; therefore, although it froze sharply at the time, I was obliged to convey them to the house. I there placed them in a room without fire, and at night I had them put on an old tea-tray and conveyed to a room in which the fire was extinguished. I then watered them copiously, and although the greater part were Cinerariae, Primulas, and Pelargoniums that were sown in September last, I have lost but two. Can the lime-wash assist in drying the air? I have restored the seedlings to their places, and they are doing well, and it is impossible for plants to look more healthy than they all do at this time. —*P. S.*

Laurel versus *Rabbits.*—"Tizy" says, in the year 1838, rabbits destroyed Laurels 2 inches and more in diameter, in his grounds, by peeling them—of course we infer they eat the bark. I have unfortunately lost a cow this season, from eating leaves of the common Laurel; on inquiry I was informed that the leaves contained prussic acid, which produced apoplexy and death. There can be but little doubt that such was the fact, as the cow died about half-an-hour after the leaves had been eaten, and other appearances go to strengthen the supposition. If, in this case, leaves poisoned a cow, upon what principle did the rabbits escape the like consequence? I by no means wish to insinuate that the rabbits did not bark the trees; but I am surprised that leaves should contain prussic acid, and not the bark.—*J. J. F.*

Galvanic Protectors.—I have never seen, nor met with any one who has used them. Does not the moisture of the air, &c., render them useless in a while? Would they effectually prevent the ingress of slugs, supposing a frame to stand on four feet, bound with protectors? In summer, feeders filled with lime-water keep out most insects, but in winter they would be cracked the first frost. However, perhaps salt placed in the feeders might answer, but would be tiresome to renew. Would any cheap poison, as arsenic, &c., answer? Leaden pans would be very costly. Would cast-iron ones, dipped in tar, serve the purpose?—*G.*

Bast.—As the season for grafting is approaching, men in bad weather might be employed in rendering pieces of bast matting waterproof. It is done as follows:—Dissolve in the proportion of a cake of white Windsor soap in a pint and a half of soft water; soak the bast in it 24 hours; prepare a saturated solution of alum, and, after pressing the bast as dry as possible, lay it in the solution 24 hours; then dry it, and it will be impervious to water. If required in a hurry, 12 hours will do, but 24 are better. P.S. Your printer made a mistake in making me say that I put one-fourth of ashes in my frame; it ought to have been "4 inches."—*X. X.*

Ranunculus, to Flower Early in Pots.—I find the roots germinate more quickly and stronger, when placed in damp earth about a fortnight before planting. I put a thin layer of earth in the bottom of a flower-pot, then a layer of roots, and so on till the pot is filled; of course, they are kept in the house till planted.—*X. X.*

Imagination.—Lately it was stated in the *Chronicle* that earth-worms, from 14 to 20 days before the commencement of severe frost, cast up their dirt on gravel walks, lawns, &c. &c. Do they not cast it up freely in autumn, during wet weather? Is this a sign of storm? Did they, then, whisper anything to "J. B. B." about the storm? As to the wrens, on the evening of the 8th Dec., roosting in an old hollow Ivy-covered stem—this I make no wonder of; for the weather was cold, and we were filling our icehouse on the 10th Dec. That was a better sign of frost.—*A Constant Reader.*

Nitrate of Soda.—In March last I sprinkled a little of this over a part of the beds where Carrots, Cabbages, Radish, and Lettuce had been sown. The weather was very dry, but the nitrate kept the soil moist, and I thought the plants where it was applied came up sooner and grew faster. I regretted afterwards that I had not used it in the same way for the Onions, which seemed greatly checked by the drought. Perhaps when common salt is applied over the seed, it benefits the crop in a similar way. I fancied that nitrate of soda, or salt, or alum, might be employed in compost for Carnations, Pinks, Polyanthuses, &c., and that by preserving more moisture in the soil it might obviate the necessity of frequent watering. If you give me any encouragement, I will make up a little compost now, to try it. I have occasionally used alum in potting Carnation-layers, and they mostly kept moist all winter; but I doubt whether the plants thrive well, though I am sure they flower no worse for it.—*G.*—[Better try muriate of lime for this purpose.]

Protection of Plants.—On reading the Leading Article (p. 3), which stated that it was the stillness of the atmosphere in sheltered situations, in connection with perfect drainage, that accounted for the non-injury of half-hardy plants, it occurred to me that, as fine gauze-wire possesses the property of preventing a corresponding action between internal and external fluids (as in the Davy-lamp), whether by the covering of a piece of ground—say a small flower-garden—with fine gauze-wire, sufficiently high to admit of a person walking under it, we might keep a perfectly still atmosphere, and might grow most of the more hardy greenhouse-plants in perfect health, with no care but that of cleaning. With meshes $\frac{1}{8}$ or $\frac{1}{10}$ of an inch in size, the obstruction of light would be but trifling, particularly if the wire was of copper, which would not require painting. In the greenhouse here, the lights where air is given are fitted with moveable wire-work, for the purpose of excluding wasps, Grapes being grown up the rafters; by using the wire-work this winter, I have been able to give a great deal of air, without exposing the plants to cold currents of air.—*B. B. Billington, Elmham Hall Gardens.*

Societies.

HORTICULTURAL SOCIETY.

Jan. 21.—R. H. SOLLY, Esq., in the chair. Mrs. Stackhouse Acton, and S. L. Stephens, Esq., were elected Fellows; and W. Rich, Esq., of Washington, and A. Oliveira, Esq., of Madeira, corresponding Members. Among the articles exhibited the following are more particularly deserving of notice. The greatest novelty was a specimen of Francisceæ Hydrangeæformis, from Messrs. Veitch and Son. This addition to the genus had been considered of great importance; it does not, however, realise the expectations formed of it, for unlike the other species it possesses little or no fragrance. A Certificate was awarded for it. Mr. Robertson, gr. to Mrs. Lawrence, sent among other things an enormous plant of Centradenia rosea, studded with numerous rose-coloured star-shaped flowers; Catasetum spinosum, remarkable for having the lip divided into numerous spine-like processes; the rare Angræcum bilobum, a pretty species from Sierra Leone, with star-shaped snow-white flowers; Oncidium Cavendishianum, and cut flowers of Astræa Wallichii. A Banksian Medal was awarded for the three first named plants.—From J. Allnutt, Esq., was a seedling Camellia, resembling speciosa; it was named Allnuttii rosea grandiflora.—Messrs. Rollisson, of Tooting, sent two cut spikes of varieties of Oncidium sanguineum, and a very curious plant from Ichaboe, called Ceradia furcata.—From C. B. Warner, Esq., was a handsome plant of Dendrobium moniliforme, and some other Orchidaceæ; they were received after the minutes were made up, and consequently no prize was awarded them.—Of FRUIT, Mr. Povey, gr. to the Rev. T. Thornycroft, sent a handsome Montserrat Pine-apple, weighing 4 lbs. 1 oz., and measuring 15 inches in circumference, and 10½ in length; the number of pips was 11. A Certificate was awarded for it.—Of Grapes, Mr. Toy, gr. to Col. Challoner, sent fine bunches of Black Hamburgh, West's St. Peter's, and an unnamed red variety. A Certificate was awarded for them.—Fine specimens of West's St. Peter's were also sent from Chatsworth, by Mr. Paxton; they were said to have been grown without any fire-heat, except what was necessary to exclude frost and preserve a dry atmosphere. It was also stated that the Vines which produced these Grapes, had for many years been allowed to break their buds by sun-heat alone, and that they had always borne large crops of well-ripened fruit, which had often been preserved fit for table until the end of March. A Certificate was awarded for them.—From J. Moorman, Esq., was a collection of beautifully-kept Pears, including Napoleon. A Certificate was awarded for them.—From A. Matthews, Esq., was an Apple, named Oxfordshire Pippin, a variety raised by R. Hinks, a cottager, residing in the village of Weston-on-the-Green. The colour is of a deep lemon-yellow, and the flesh is firm, sugary, and pleasant to eat. It was stated to be good either for dessert or culinary purposes, possessing the additional recommendation of being a good keeper. —Finally, from Col. Reid, Governor of Bermuda, were specimens of Oranges, which were exhibited for the purpose of showing what Bermuda can produce in that way. These specimens possessed great excellence — equal to any in Covent Garden market; and, in consequence of the destruction of the Orange trees in the Azores, it is not improbable that the Bermudas will be able to supply large quantities of Oranges for the English market.—From the Garden of the Society were cut flowers of Chimonanthus fragrans, and of the larger variety, grandiflorus. Of fruit there were several sorts of Apples and Pears, and, among the former, specimens of the Rymer Apple, which is one of the best varieties for kitchen use, and exceedingly productive. The crop of one tree of this variety near Nottingham, in the autumn of last year, was sold for 12*l.*; a fact worthy attention by cottagers and others possessing small gardens.

LINNEAN SOCIETY.

Jan. 21.—R. BROWN, Esq. in the Chair. Dr. Packman and Mr. Leeks were elected Fellows. A paper was read from J. Curtis, Esq., on the cause of a peculiar cellular appearance in the cocoons of an emperor moth. These cells, he believed now, were produced by the larvæ of some parasitical insect, which had attacked the insect in its cocoon. He had not been able to obtain a perfect specimen of the parasite. Notes on the Natural History of Norfolk Island, by Captain Macconochie, late Governor of the island, were read. The island is composed principally of porphyry, lying over which is a sandstone which is constantly forming at the present day. It is well wooded, and in some places under the sandstone there are vegetable deposits, but no coal. The fish on the shores of the island are numerous. There are two species of cod eatable, and weighing upwards of 100lbs. There are sharks, but they do not bite. The Ring-fish is the most dangerous fish. The trees are numerous, and some of them valuable. The following is a selection of the most valuable:—1, Araucaria excelsa, called Pine-wood, and used for building. 2, Eriodendron australe, Cherry-tree, the bark is used for tanning, and an extract in medicine. 3, Iron-wood, used for spokes, &c. 4, Maple-tree. 5, Blackburnia pinnata, yellow wood; and Coprosma villosa, soft yellow wood, used for making bedsteads. 7, Teak-wood, used for fences. 8, Dodonæa australis, Hop-wood, used for turning. 9, Black-wood, employed for thatching. 10, Croton sanguifluum, Broad-wood, used for handles of tools; the liquid which flows from it is used for staining wood, &c. 11, Guava, the fruit is eaten. 12, Citrus medica, and the Lemon used for hedges. Other plants of less use, mentioned in the paper, are Daphne indica, an Hibiscus, Alsophila extensa, a species of Tetramera, &c. The fruit grown on the island are the Peach, Almond, Quince, Apple, Grape, Pine-apple, Bananas, Melons, Strawberries, very fine. The Mulberry

gr very well, and silkworms have been reared; m of the fruit-trees have been attacked by a coccus, w has produced great ravages. European vegetables g well, and the British system of gardening is found t pay the labour expended on it. Of tropical plants Arrow-root and Sweet-potato produce good and table crops. The Sugar-cane, Chili Peppers, and iboo, grow in perfection. There are several sorts of is on the island, which, on account of the interdiction he use of fire-arms, will allow themselves to be closely proached. The fan-tail, in the woods, will perch on a ck held in the hand. The islands are much exposed high wind; the hedges, which are composed chiefly f Lemon and Pomegranate, suffer much from this cause, nd the introduction of the Hawthorn would be of great service. A hive of bees, which the author took out, have prospered, but they have suffered from the wind.

Rebiews.

The Natural History of Animals. By T. R. Jones, F.R.S. Van Voorst.

We are glad to see another work devoted to the general subject of the natural history of animals, as it proves that a taste for this study must be on the increase. We can hardly conceive a person in any position in life, who would not possess the inclination, and who ought not to have the time, to study with some attention the history of the structure and functions of the animal kingdom. Whether we regard this subject as one capable of affording to the mind the highest delight, as developing the wondrous laws of organic life in its most perfect forms, or as bearing more immediately upon the great questions of physiology, on which the happiness and even existence of man himself depends, it must find sympathy in every mind. The extensive use of the works of Buffon and Goldsmith proves the existence of a native interest in the natural history of animals; but these, independent of their giving a quite one-sided view of the animal kingdom, are meagre and out of date, so that they can no longer be said, however interesting they may be, to be even good introductions to zoology. Comparative anatomy has made rapid strides in the last few years, and a very incomplete view could be given of the animal kingdom without its aid. Within a short period we have had several excellent works published on comparative anatomy and zoology, by Grant, Owen, and Rymer Jones. These have been technical, and more adapted for popular teachers than for popular readers. Professor Rymer Jones, however, is not less favourably known as a popular teacher than as a man of science, and we are glad to find that he has been induced to publish his Lectures in a form that is suitable to the popular reader. This volume, it appears, is one of a series, and contains the substance of three courses of lectures delivered by the author before the Royal Institution of Great Britain. Beginning with the sponges, the author passes on through the polypes, polygastric animalcules, jellyfishes, the tribes of the nematonema, which include the wheel animalcules and the star-fishes, and, commencing the articulata, the volume terminates with the myriapoda. We suppose, from the ground gone over, that the whole work will be complete in four volumes. This volume contains 105 wood-cut illustrations, worked in with the text, and if the subsequent volumes are as well done as the present, it will form one of our best introductions to the natural history of animals.

De Candolle, Prodromus Regni Vegetabilis. Part IX. Dulau.

We only announce the arrival in London of the new volume of this important work. It contains Gentianeæ, Bignoniaceæ, Polemoniaceæ, Convolvulaceæ, and some less important natural orders. It is sufficient to add that to all the merits of its predecessors, it adds some peculiar merits of its own.

NEW PLANTS.

Cuphea strigulosa. Strigulose Cuphea. (*Half-Hardy Greenhouse Shrub.*) Lythraceæ. Dodecandria Monogynia.—The specimen which first made us acquainted with this species had been grown in a stove, and the blossoms were so void of colour that we passed it by as deficient in interest; however, in a short time we were surprised to find specimens in the open air of a much better colour. It cannot be compared, even in its best condition, with some of the showy members of this genus; but it is, nevertheless, a very interesting species. It grows wild at the foot of the Andes near Ibague, and has only recently been introduced to this country through the Continental Nurseries. The warmth of its natural habitat precludes us from entertaining a hope that it will ever prove quite hardy in England. It will probably require much the same protection in winter as Verbenas and Salvias. When planted out in the summer season a shallow well-drained border should be selected, where the roots may be kept near the surface, and the soil should not be too rich, lest the plant be induced to grow exuberantly. The beauty of the species is dependent on the bushiness of the plant, for where there is only one or two long weak shoots the flowers are too far removed from each other to produce any striking effect. Pruning back to growing shoots must then be early and often practised. It is necessary, too, that the flowers be exposed to all the light that can be commanded; otherwise they will not acquire a good colour. The points of the young shoots an inch or two long, taken off below a joint and subjected to the ordinary treatment of cuttings, rarely fail to strike root in a short time.—*Paxton's Mag.*

Garden Memoranda.

The Hope Nursery, Leeming Lane, Bedale.—At this place is a small propagating-house, which is heated in an ingenious manner. The top of the furnace of the stove having been removed, it was replaced by a small boiler, from which two iron pipes of 1½ inch in the bo e proceed in the usual way, pass to the propagating-house, and enter what may be called the propagating-box, the one at the top near the front corner, the other near the bottom of the back corner; the box occupies a pit having a path before and behind; it is 3 inches in depth inside, and is formed of 1½ inch deal, having a division up the centre for the circulation of water; the top is covered about 3 inches in depth with sand, there being an edging of wood that height all round, and in this the pots are plunged. The temperature of the house is kept up by zinc pipes, which issue from the front of the box at the corner near where the flow iron pipe enters. The whole is found to answer very well, especially in autumn and spring, when heat is most required; it is all gained heat. A span-roofed house here is glazed in a peculiar manner; the glass, after being placed on a bedding of putty in the usual way, is not puttied down, but painted with white lead of the consistence of rather thick paint; two or three coats of this are said to answer admirably; the white lead does not give way and peel off as putty often does.—*P. S.*

Miscellaneous.

Effects produced on Plants by Isolated Solar Rays transmitted through Coloured Glasses.—Professor Zantedeschi, of the Royal Academy of Venice, has published a memoir on this subject. The following are the results of his observations:—"Vegetation becomes languid under the influence of coloured light, as has been already stated by Senebier and Carradori. But the order observed in the germination of seeds by Senebier has not been confirmed by the experiments I have made. In Senebier's experiments the order was from violet to red; in my observations it has been, for the seeds of Iberis amara, from red to yellow and violet—for those of Echinocactus ottonis, from violet to red and yellow. In like manner, for the growth of Oxalis multiflora, I have found it to proceed in the order of red, yellow, and violet. Tulip-bulbs pushed most promptly under the orange glass, and next under blue and green. The statements of Senebier, with regard to elongation, have not been fully confirmed. His experiments agree well with mine in the extremes; that is to say, according to both, the maximum of elongation takes place in total darkness, and the minimum in the absence of any coloured medium; but they differ intermediately, for according to Senebier's experiments, the diminution followed the order of yellow, violet, and red; whilst in mine, in the case of Oxalis multiflora, this order was reversed; and, in the case of Echinocactus, the gradation of diminished elongation was according to the order of violet, yellow, and red. Further, according to Senebier, the transparency and weakness of the stems are in direct ratio to their elongation; whilst my observations are as follow: Under a deep sky-blue glass, the stem of an Oxalis multiflora attained a length of 16½ ins., another under the yellow glass 13 77/100 ins., and a third under the Orange glass 13 88/100 ins.; or, in other words, the growths in length under the blue, yellow, and orange-glasses, were respectively in the proportion of 42, 35, 34. The plant under the yellow glass exhibited no appearance of flowering; that under the orange gave some indications of flowers, but they were imperfect and dropped; whilst the one under the influence of the blue glass completely developed three flowers. The green colour of foliage is attributed by Senebier to the special action of the violet rays; and according to him, they possess, in this respect, an influence much superior to that of the red and yellow, and at least equal to that of white light. This corresponds exactly with the results of my experiments on the Impatiens balsamina, but not as regards those on the Oxalis multiflora. With regard to the corroborative power—the power of giving strength to vegetation—the inferiority attributed by Senebier to the violet ray comparatively with the red and yellow, is not confirmed by the experiments of Poggioli, nor by those which I have made on the Impatiens balsamina. But with respect to the power of accelerating vegetation, the inferiority attributed by Poggioli to the green ray, as compared with the effects of the red ray, accords with the results which I have obtained from my experiments on the Impatiens balsamina, Ocymum viride, and Myrtus moschatus(?). The case in which I have seen the strengthening action most decidedly exhibited is that of an Oxalis multiflora under a sky-blue glass. In my experiments, when the Oxalis multiflora received the solar rays through red, orange, or yellow glasses, the stems maintained a vertical direction, as did likewise those of Impatiens balsamina under orange and yellow glasses; but the stems of both declined from the light when the latter was transmitted through glasses differently coloured."—*Revue Horticole*, p. 336.

Bees.

The precise age of the Queen-bee is not ascertained, but she has been known to live at least four years, and is perhaps the longest-lived insect we have. It has occurred to me that old Queen-bees are larger than young ones; if so, their growth is at variance with the received belief that "the period of growth in insects is during the larva condition." May there not, however, be an analogy in this respect between the Queen-bee and the mole-cricket, which increases in size with age? But that insect, if I may so call it, belongs to a class that have no "abstinent, or chrysalid state." Some of the Queen-bees have a slight yellowish mark on their sides, which I never observed in young ones. Though Queens seldom quit the hive, and are less lively than the workers, yet they seem to be more hardy. I have known them to survive the winter, while all the rest perished; but I never observed one come to feed with famished bees. The statement that the Queen leads off the swarm has been objected to, because she is seldom or never the first to quit the hive, nor to alight where the bees muster. Strictly speaking, this is true; but a swarm will not quit the hive without a Queen; or if they do, they will return to it as soon as they miss her. It might, with equal propriety, be said that an officer did not lead on his men, because he might not happen to be the first to start. There is no difference between the sex of Queen-bees, and of workers, no of the eggs that produce them. I am indebted to Mr. Golding for my knowledge respecting the latter. To some this may appear trifling, but if others had seen this as clearly as that apiarian, most likely we should have never heard of such a thing as that the sex of bees was changed by "royal jelly." More room being given while the insects are in the larva state is all that is required to complete the development of the insects. The space is given by merely widening the cells, the insects make up the length by their complete cocoons, in a similar way as Queen-wasps and hornets do when bred in the cells of drones.—*J. W.*

Dark Honey.—In No. 50 of last year's *Chronicle*, Mr. Saul mentions the circumstance of honey-combs having been found in the side wall of Nateby Hall. He says, that "about 2 feet of the honey and the comb in the centre, was black; in other parts it was excellent;" and observes that, "it is stated by some writers that there are bees which produce black honey, but from this it would appear that it was age that turned it black." Mr. S. must mean that writers speak of bees collecting dark honey, which they frequently do from what is called honey-dews; the sooty like substance which accompanies that saccharine fluid, renders honey dark. That produced, also, from some sorts of flowers, varies both in colour and flavour, but in general the purest honey is obtained in the fore part of the season, before honey-dews appear. The combs being dark in the centre was but a usual occurrence—the like is found less or more in the heart of all hives. Age has to do with it, but not all; the centre combs soon get dark from the heat and traffic of the bees, while adding and taking from the store of pollen to supply the brood. But it is worthy of remark, that old dark combs may contain as pure honey as lighter ones, provided it had been collected at the time already noticed. That is easily known by letting some of the honey drop out without squeezing the cells. I question if bees have the power of refining honey after they have collected it. That from honey-dews seems neither to differ in taste nor colour from that substance while it is on the leaves of the Oak or Plum. And the boy who sucks the ends of honeysuckle flowers finds their contents as sweet as that from the honey-bag of the bee.—*W.*

To keep Tomtits from Bees.—The ravages which are made upon bees by tomtits may be easily prevented by pasting some hair mortar round the outside of the hive. I have done this for several years with success. My hives have been made with a copper slide at the entrance to shut down as soon as the winter sets in. This keeps out all kinds o insects.—*Archus, St. John's Wood.*

Profits of Bee-keeping.—Mr. D. Auld, of Doonbrae Cottage, in Ayrshire, obtained 108 lbs. of honey from one hive during the past season; it was valued at 2*s.* per lb., making a profit of more than 10*l.* from one hive. And Mr. T. Nutt, of Spalding, Lincolnshire, obtained 110 lbs. of pure honey from a set of his collateral boxes during the same season, which, at the above price, would be a profit of 11*l.* from one hive. Perhaps somebody acquainted with their system of management, or with another equally profitable, will relate the particulars in an early Number.—*E. B., Stamford.*

Answers.—*G P H*—Nutt's Bee-hives are perhaps the best for the amateur. We never recommend dealers. *W.*—*A New Corresp.*—Neighbour's improved single box hive is on the storifying principle, and differs but little from other hives on that plan, save the ventilator to admit air between the glass and the stock hive below, which is said "to prevent the bees from swarming, and effectually prevent the queen from laying her eggs in the upper story." But you may be assured that bees will have their own way in that respect, in spite of such schemes. The hive in question, however, has a very tasteful appearance, and is well adapted for the amateur, but as you expect a "profitable return for a given outlay," we fear that the price of it will be a drawback. *W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

It will soon be requisite to have bottom-heat at command. If this is to be produced by fermenting tanner's bark, the latter should be immediately procured, and laid in a heap in a dry open shed, and regularly turned every two or three days; this preparation will lessen excessive fermentation, and obviate to some extent its usual injurious effects. Bottom-heat obtained from troughs of hot water is decidedly to be preferred, being so completely under the gardener's control. *Greenhouse.*—At every opportunity when the external atmosphere is dry and rather warm, admit air freely to dry the plants. This will be a means of saving many a valuable leaf and branch. The main object at this period is to save your plants entire, and not to grow them; hence let your principal endeavour be to keep cold out of the house, by external coverings or other precautionary measures. *Conservatory.*—This being the chief resort of the family during the winter, render it worthy of your employer and yourself; your character depends upon it. Everything should indicate nigh keeping; trust to no eye but your own; see that this house every morning is in perfect order; every leaf, flower, and plant should vie with each other in cleanliness and health.

Dirtiness, disorder, and disease will surely betray your incapacity. Keep up the supply of blooming plants, which will require daily attention.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

As there is no appearance of frost, Moss, Provins, and other hardy Roses should now be pruned. Cut out as much of the old wood as can be conveniently spared, and shorten back young wood to the most prominent buds. The sooner that all Roses are planted now the better, except the more tender Chinese kinds. Examine shrubberies, and cut out all dead wood from the shrubs, pruning such as require it with a knife, or mallet and chisel, but not with the saw. Roll gravel-walks, sweep and clean as often as practicable; weed Box, Gentian, and other edgings, in mild weather. *Pits and Frames.*—Place in heat all kinds of store plants for cuttings. The various sorts of Salvia make beautiful border plants for autumn. The sooner cuttings are struck now the better; they should be potted off as soon as they are rooted, and grown in heat during the spring, to make strong plants for turning out.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—The general stock may be top-dressed, as recommended last week; and amateurs will do well to complete their purchases. *Polyanthuses*—Will often at this season throw up blooms; to the competing florist this is not desirable: in this case they should be removed forthwith. *Tulips.*—This is a critical period of their growth: to insure a good bloom no chance must be given away; attend to the directions given during past weeks. *Carnations.*—The regular routine—occasional waterings, giving abundance of air, removing decayed leaves, and attending to the compost, in anticipation of the coming potting season, must be sedulously attended to. *Pansies*—Are growing fast in sheltered situations. Where the plants are long and straggling (which is far from desirable), the shoots must either be shortened, or pegged down, as the rough winds in spring will otherwise break them over at the surface. *Dahlias.*—These may now be started, where a large stock of plants is required. *Ranunculuses.*—Complete their arrangement preparatory to planting.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—As there is now a considerable increase of solar light, the stock in houses that is up, or rising, may have a slight syringing, on sunny afternoons, twice or thrice a week. Those not up should have a drier atmosphere. Maintain the conditions mentioned in last Calendar in all other respects. Attend well to the linings of dung-pits. *Vineries.*—Those who grow the West's St. Peter's for late crops, will in general have finished cutting the crop by this time. If turned out to rest, the Vines should now be pruned, laid flat on the ground, and covered immediately with litter, for fear of frost. Proceed with thinning early Grapes as soon as possible, going over lightly at first, and removing the crowded berries. Follow the directions given in last week's Calendar in all other respects, slightly increasing the heat by day, more especially on sunny afternoons. Beware of giving too much night heat. *Fig-house.*—Beware of drought at the root, more especially with regard to those in pots or tubs; the latter, if well drained, will require water liberally, which should be slightly coloured with liquid manure. Let the heat of the water for syringing be from 70° to 75°: syringe freely on most afternoons. Manure-water for the roots may be used as high as from 75° to 80°. Begin to use sulphur on the walls, or other places, to prevent the red spider. *Cherry-house.*—Keep a mild sweet atmosphere here, and if the trees are not in bloom sprinkle all cool surfaces frequently to soften the atmosphere; endeavour to gain a degree or two honestly on sunny days, by shutting up a little of the solar warmth.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Operations recommended last week, if not completed, should be continued. In pruning the Plum, Cherry, and other stone-fruit trees, it is hazardous to cut large limbs close to the stem, as gumming is apt to ensue. Shortening back is therefore advisable in the first instance; and, after the sap has had time to find its way into other channels, with the exception of a small portion to keep alive the reduced limb, the latter may be cut closely off with more safety in the following season. Proceed with pruning in preference to nailing; the latter can be more advantageously performed when there is longer sunshine. Clear off the prunings of Gooseberries and Currants, and dig between the rows. In the case of Gooseberries, the surface soil should be carefully drawn back from below the bushes with a hoe, and buried in the middle of the space, from whence fresh soil should be dug, to replace that taken away from about the plants. Some strictly adopted this plan for 30 years, and were never troubled with the caterpillar. *Kitchen Garden.*—A plantation of Cabbages may now be made, if the weather prove favourable. If the ground is not too wet, Potatoes may be planted, in open weather. Sow Lettuces on a warm border; also some Onions. Prepare Pea-sticks in bad weather; they will last longer if cut before the sap begins to flow.—*E.*

VI.—ARBORICULTURE.

Woods and Copses.—On dry soils the planting of deciduous trees should be finished as soon as possible, but evergreens and resinous kinds, except Larch, had better be deferred for the present: continue thinning, but do not let this delay planting. Pay the greatest attention to drainage, as before recommended. *Nursery.*—Finish digging between the rows of plants which are not to be removed this season. Prepare ground for sowing Haws, Mountain-ash Berries, Hazel-nuts, Gean-stones, &c. Collect scions for grafting, and lay them in at the ends of rows of intended stocks; success in grafting is much more certain when the sap of the stock is more active than in the graft.—*F.*

State of the Weather near London for the week ending Jan. 23, 1845, as observed at the Horticultural Garden, Chiswick.

Jan.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	17	9	30.095	29.988	42	37	39.5	S.	—
Sat.	18	10	29.[illegible]	29.[illegible]	46	34	39.5	S.	.45
Sun.	19	11	29.568	29.[illegible]	45	32	38.5	S.W.	.03
Mon.	20	12	29.878	29.117	45	24	34.5	N.	.03
Tues.	21	13	30.[illegible]	29.[illegible]	45	21	33.0	S.	—
Wed.	22	14	30.159	30.[illegible]	43	28	43.0	S.	—
Thurs.	23	○	30.135	29.677	48	39	43.5	S.W.	.03
Average			29.983	29.845	45.6	32.0	38.8		1.39

Jan. 17—Overcast throughout
— 18—Densely clouded: constant heavy rain
— 19—Clear; hail shower at noon; afterwards continued heavy rain
— 20—Boisterous with rain; dense dark clouds and showers; clear, frosty
— 21—Clear with sharp frost; fine; frosty at night
— 22—Frosty and hazy; fine; uniformly overcast and mild
— 23—Overcast throughout; hazy; rain at night.
Mean temperature of the week 2 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Feb. 1, 1845.

Jan.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 26	44.2	32.9	38.5	6	0.34 in.	1	4	1	2	1	7	1	2
Mon. 27	42.7	33.1	38.4	7	0.21	2	3	2	—	2	7	3	—
Tues. 28	44.5	32.5	38.5	9	0.17	2	3	1	—	—	7	5	1
Wed. 29	44.5	32.6	38.5	5	0.32	2	3	—	1	1	4	4	4
Thur. 30	43.2	32.3	37.7	9	0.12	2	2	2	4	1	2	5	1
Fri. 31	42.5	32.0	37.7	10	0.32	—	3	1	1	2	4	1	1
Sat. 1	42.3	31.5	36.9	5	0.30	2	4	1	2	3	4	1	2

The highest temperature during the above period occurred on the 28th, 1843—therm. 56°; and the lowest on the 1st Feb., 1839—therm. 15°.

Notices to Correspondents.

FACE NUMBERS—1841: 3, 9, 12, 35, 37, 39, 50.—1842: 13, 14, 26 Full price will be given for the above Numbers. One shilling each will be given for Nos. 35, 44, and 45, for 1843.

BOOKS—*Veronica*—Selby's "British Forest-trees" will probably answer your purpose. We have no other that comes near your price——*West.*—Pfeiffer's "Enumeratio Cacteарum," or the 2d Volume of Walper's "Enumeratio Plantarum," or the Prince of Salm Dyck's "Catalogus Horti Dyckensis," contain the only lists of Cactaceous plants, which are worth consulting. You will learn how to manage such plants by consulting our Vol. for 1841, p. 135. You cannot grow them without a glass covering of some sort.

BONES—*Omega*—Your calcined bones will be useful for all kinds of plants, except perhaps Heaths; but they will act better if moistened with oil of vitriol, that is to say, quicker. The unburnt bones will act nearly as well; but we should prefer the calcined, because of the animal charcoal they contain. It is not, however, worth calcining them, unless doing so is a part of the process of some manufacture.

BULBS—*V*—In fine weather like the present, Tulips and Hyacinths may be planted with advantage immediately.‡

CAPES.—*Economy*—What is Hayes's Composition?

CONSERVATIVE-WALL—*Experimenter*—If you desire to take effectual means for preserving half-hardy shrubs in front of your wall, do three things.—1, Drain the border thoroughly, at least four feet deep, so that no water can possibly lodge in the winter. 2, Make the soil light and poor, rather than the reverse; it is a great point to prevent the too rapid growth of tender plants. 3, Keep them dry in winter by a thatched or other roof. Hurdles covered with straw or with Croggan's asphalte, will form a more durable covering than canvas; but the latter has the advantage of admitting light to the upper branches, when they first begin to grow in spring.

FRUIT-TREES—*Dodman* wishes to know whether any of our readers have had experience in growing fruit (Cherries, Pears, and Plums) against poles and reed-fences, so as to be able to state the comparative merits of these constructions? It is well known that a close-boarded fence answers exceedingly well, not only for the kinds of fruit above mentioned, but also for Peaches and Nectarines.‖

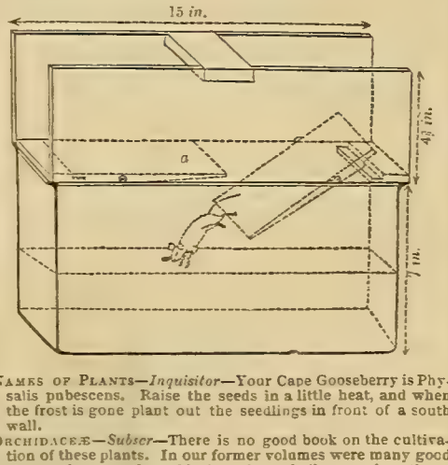
HEATING—*John*—Your plan, No. 2, is the surest; 6 inches will be sufficient width for the tank, which may be 5 inches in depth, but 2 or 3 inches depth of water is as much as is necessary. The flow-pipe along the front cavity will afford you full command of top heat, which in all cases ought to be secured. There is no danger to be apprehended from moisture of bottom-heat in the case of Melons and Cucumbers.‖

INSECTS—*A Young Cabbage*—Try the effect of Tobacco-water on the soil in the pots, or ammoniacal liquor, which will not kill the plants. Cannot you bake the peat and loam, or otherwise subject them to sufficient heat to destroy the worms, before they are used for potting? *R.*

MANURE—*R H*—Before applying guano as a top-dressing to a lawn, mix it with six or seven times its bulk of ashes, peat, or soil of some kind, or it will burn the Grass; and for this reason it should be applied in wet weather. Scatter it over the Grass at the rate of 4 cwt. to the acre.‡——*S S*—Use clear soot-water once a week, and liquid guano once every six weeks.

MEAD—*F J*—The following is said to be an old and good receipt:—Put 30 lbs. honey into 15 gallons water; boil till 1 gallon is wasted; skim it; take it off the fire; have ready 1½ dozen Lemons quartered; pour a gallon of the liquor boiling hot upon them; put the remainder of the liquor into a tub, with 7 pecks of Cowslip-pips; let them remain there all night; then take away the Lemons, mix the two liquors, add 8 spoonfuls of new yeast, and a handful of Sweetbriar. Stir all well together, and let it work for three or four days. Strain it, and put into the cask; let it stand six months, and then bottle it for keeping.

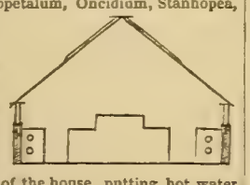
MICE—*F M H*—In addition to the trap published last week we give the following, which consists of a box with two sides open at the ends, having a false bottom, which is in two lengths, hung by pivots. Each piece of board forming the swing bottom is made to taper at one end in the form of a wedge, the thin end being placed inwards as at *a* in the fig. A pan filled with water is plunged in the earth to its rim, and the trap is placed on it, so that the mice in running along the bottom are precipitated into the water.‡



NAMES OF PLANTS—*Inquisitor*—Your Cape Gooseberry is Physalis pubescens. Raise the seeds in a little heat, and when the frost is gone plant out the seedlings in front of a south wall.

ORCHIDACEÆ—*Subscr*—There is no good book on the cultivation of these plants. In our former volumes were many good observations on the subject, and we shall soon give others. There is a nice little book by Mr. Lyons, of Mullingar, but it is only given to that gentleman's personal friends.

ORCHIDACEOUS HOUSE—*Amateur*—Heat with hot-water pipes for air heat, carried *all round* your house; with hot-water troughs for bottom-heat and vapour, inclosed in a central chamber serving for a stage, and perforated at the sides with openings which may be closed when necessary. Build a roof facing east and west, if you can; let the roof rise at an angle of 35°, or not less than 30°. Provide a tank inside the house to receive rain-water from the roof; and so place the tank that it may be warmed by the hot-water pipes. The water should be always lukewarm. Catch a score of toads, to keep down insects. Purchase any cheap species of Cattleya, Epidendrum, Zygopetalum, Oncidium, Stanhopea, Catasetum, Saccolabium, Dendrobium and Vanda, Maxillaria punctata and picta, Cymbidium sinense, Bletia verecunda, Goodyera discolor, Odontoglossum grande, and Brassia maculata, to try your skill upon; and you will be in a fair way for success. The annexed sketch will give you an idea of the arrangement of the house, putting hot-water troughs into the central stage, which must be covered with slate or stone, or wood if you like.



OSIERS—*A*—Much depends on the purposes for which you want the Osiers; if for common purposes, procure alix Forbyana and S. viminalis, both of which are rapid, stag-growing kinds; but if for fine wicker-work, Salix vitina and S. rubra are better. In planting, procure pieces not 2 feet in length, of the two or three-year old shoots, and put them 1 foot in the ground. Plant them in rows 6 feet apart, and 2 feet between the plants. Plant in winter.¶

PEAS—*Z L*—Your Pea which bears in clusters appears to be the Crown Pea.‖

PEARS—*Subscr*—The Chaumontel is a good Pear when it can be obtained in full perfection; but this is rarely the case. In some seasons, and grown on some soils, it does not become melting. The fruit may, however, be greatly improved in being put in a warm place when gathered. The Summer Bon Chrétien is esteemed in Jersey, &c., but none of the Bon Chrétiens are worth growing in this climate.‖

SEED SAVING—*Guernsey*—Always save seed from the handsomest varieties you can procure; it is useless to save it from bad ones. It is immaterial whether the mother plants are on their own roots or not; but it is very material that they should be in the highest possible health. In raising Camellias and Roses, always fertilise them artificially, and choose the pollen from the finest varieties. Camellia seeds, if fresh, come up readily in bottom-heat; but they will not retain their vitality very long.

TRAMPERS—*W R*—If, notwithstanding the warnings we have given them, people will throw away their funds on these men—why so let them. A fool and his money is soon parted.

VINES—*Phreno*—Your Vines, infested with scale and mealy-bug, will require to have every particle of loose bark stripped off, and then scrub them well with a brush and solution of soft soap and sulphur, using it moderately warm. The inside of the house should likewise be washed, and the walls white-washed. You had best shorten the whole of your Vines pretty well down, especially as they are rather weak; and attend only to the production of healthy wood and foliage for this season.‖——*J W T*—Having 4 or 5 cwt. of dead fish from your fish-pond, you had best make it into a compost with fresh loam. It should be dug in with a fork as deep as you can with safety to the roots of the Vines.‖

WALLS—*Subscr*—Plums, Cherries, and Pears for kitchen use may be grown on a north aspect; and a few kinds of dessert Pears; also Currants. You will find lists of varieties best adapted for such a situation in previous Numbers.‖

MISC.—*S*—The whole paper, or none, we believe, is the law.——*A M*—Apply to some Fellow of the Society.‡——*D C L*—You are quite misinformed. Many American plants are identical with those of Europe: for example, Anemone alpina and baldensis, Ranunculus aquatilis, and many others, Myosurus minimus, Caltha palustris, *x. r. a.*——*A W G*—The Highland Pine seems to be really a well-marked variety of Pinus sylvestris; it is often advertised in our columns.——*Guichenet*—It is as well to leave your Jerusalem Artichokes in the ground. Their bad quality is owing to the heat and dryness of last season. All the first-formed tubers have become woody; the latter ones only remain tender.——*W D*—Zigadenus elegans is a very doubtful plant; no modern botanist has seen it. The species of the genus have dull-whitish or yellowish-green flowers, of little beauty. Lilium canadense is very different from the Orange-lily.——*E L*—The plant of Barringtonia



speciosa, to which you allude, must have been an admirable specimen of growth. It was reared by Mr. Dodds, the skilful gardener of Colonel Baker, of Salisbury, and has been well figured in "Paxton's Magazine of Botany," from which we borrow the accompanying figure, and where you will find full information respecting the manner in which this noble plant was led to blossom.——*R J*—We must refer you, for the culture of Fuchsias, to Mr. Wood's papers, published in last year's volume.‡——*Q*—Keep your Rhododendrons cool while their buds are swelling; and as they advance, raise the temperature gradually. Mind also that they are well watered and fully exposed to light, otherwise they will throw off their flowers. You may force them pretty smartly when their growth has fairly begun. The plant seems to be Kalanchöe crenata.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

IMPORTANT TO GARDENERS, NURSERYMEN, SEEDSMEN, &c.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THE ONLY PROTECTION FOR PLANTS, &c. against Frost, Rain, Snow, and Changes of Climate, is CROGGON'S PATENT ASPHALTE FELT, as Improved by the Original Inventor and Patentee, being the only Felt in which hair is used, and the best of Asphalte, without any mixture of pitch, tar, rosin, or other inferior materials.

This Felt is guaranteed to be the Only Patented ASPHALTE FELT, all others being imitations; and is the only one used in THE ROYAL HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK.

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Of whom may be had the best Foreign Bitumen for Paving, Flooring, &c.

The Agricultural Gazette.

SATURDAY, JANUARY 25, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Jan. 30—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, Feb. 5—Agricultural Society of England.
WEDNESDAY, Feb. 5—Highland and Agricultural Society.
THURSDAY, Feb. 6—Agricultural Imp. Soc. of Ireland.

We have received, through the Rev. J. C. Blair Warren, of Colchester, accompanied by a testimonial from him to the efficiency of their Linseed Mill, a letter from Messrs. Bond and Co., of Ipswich, in which an exception is taken to the superiority of circularly grooved over smooth cylinders for seed-crushers, chiefly on the ground of an assumed greater difficulty in cleaning them when at work. We do not know the mill manufactured for this purpose by Messrs. Bond and Co.; but, though nothing can be more conclusive as to its efficiency than the experience of Mr. Warren, it appears to us that the circularly grooved cylinders must have an advantage over smooth ones, just in proportion to the extent of their respective acting surfaces. Supposing the same quantity of seed to pass through two machines in the same time, it is fair to suppose that the one which employs most surface in grinding it will do its work best. And, in machines of equal width, this advantage is possessed by that whose rollers are deeply grooved over that whose rollers are smooth. With regard to the assertion, that circularly-grooved rollers cannot be easily cleaned when at work, there can of course be no more difficulty in this than there was originally in *turning* the grooves on them.

The attention of our readers can hardly be directed to a more important subject than the cause of the prevalence in certain districts of the Mildew in Wheat. In another column it is stated that certain parishes in Middlesex, once celebrated for the quality of their Wheat, are now much infested with this disease, and produce, under the present system of cultivation, a great bulk of weak straw, with an occasional large yield of corn, but very rarely of a good sample. This change we once heard ascribed by an old labourer, a native of one of those parishes, to the alternate system of cropping, which commenced as the land began to be inclosed from a state of common-field. There had been no good Wheat grown, he said, since they gave up the *good old system* of three corn crops and a fallow; and there is perhaps more truth in the remark than may at first be apparent.

Mildew has been shown by naturalists to be a minute fungus, whose germs are floating in the atmosphere, and only require, for their development, a particular condition of the surface of whatever plant they attack. Thus, their growth is, doubtless, favoured—perhaps insured—by the exudation of sap from the ruptured vessels of the Wheat plant, on which they may alight. This rupture may be caused by a plethoric state of those vessels—perhaps, also, by a deficiency of silex in the epidermis of the straw; and this condition is brought on by whatever occasions a great flow of sap, or causes it to continue too long; and the indications of it are a deep green colour in the leaves and straw, and the continuance of this dark green colour a few inches below the ear after the chaff has begun to turn off. When this symptom appears, a bad case of mildew is inevitable.

That the excessive use of nitrogenous manures will produce this disease is evident, from the mildew which follows the use of nitrate of soda and guano, on rich soils and in growing seasons, as a dressing for Wheat—from that, also, which attacks the Wheat growing on the sites of dung-heaps, when other parts of the field are free from it—and also from the usually diseased state of Wheat grown in highly cultivated gardens. A continuance of warm and humid weather, which produces a rapid and luxuriant growth of leaf and straw, and keeps the plant in this state when the grain ought to be approaching maturity, is highly favourable to the development of mildew. Now, the common-field system of cultivation was eminently calculated to discourage anything like luxuriance of growth; and it is probable that it would generally produce on a naturally good soil a light crop, but of a good sample. The market-garden system of farming, like *high farming* generally, has just the opposite tendency; it induces that luxuriance of growth which predisposes for the reception of the disease. To the excessive use, then, of London dung, with its large supplies of ammonia and carbonic acid, we may attribute the prevalence of mildew in the district under consideration. The redundance of these substances in the soil is aggravated by the supplies of them with which the atmosphere round London for many miles is loaded. As a palliative for the disease when it has commenced, early cutting is resorted to. The excessive flow of sap which, instead of reaching the grain goes to the nourishment of the fungus, is thus cut off, and sufficient remains in the straw to enable the grain to consolidate; and instead of a shrivelled kernel, all bran, one that is at any rate half filled is obtained.

Winter-sown Wheats which have lost plant, and which tiller excessively, producing a thin and irregular crop, continuing green at the season when other crops are ripening, are peculiarly liable to the disease. Early and thick sowing is therefore recommended as a preventive, and the result in seasons when these thick crops of weak straw can keep their legs till they are nearly ripe is a great bulk both of straw and corn. But in dripping seasons, or when heavy thunder storms occur before the ear is well filled, such crops are sure to be laid, and this conspires with mildew to reduce the five, six, or seven quarters per acre, to three or fewer, leaving the grower to console himself, if he can, with the adage that "lodged crops never ruined a farmer."

To these remarks, which, though they have special reference to the neighbourhood of London, are nevertheless, we believe, *generally* true, we add the following, by Professor Henslow, extracted from the second volume of the English Agricultural Society's Journal:—

"*On the Precautions to be taken against Rust and Mildew.*—I do not think it has been clearly determined by experiment, whether the sporules of the rust and mildew fungi are absorbed by the roots of corn, like those of the bunt and smut fungi; or whether (which seems to be the more prevalent idea) they enter through those minute pores on the stem and leaves which botanists term '*stomata*.' The fungi at first make their appearance in little cavities seated immediately beneath these pores, which certainly looks very much as if the sporules entered there. The stomata are naturally exhaling organs, continually discharging, under the influence of light, a large proportion of the water imbibed by the root. But in moist weather this function is impeded, if, in some cases, it be not actually reversed; when it would be easy for the sporules to enter these invisible stomata, with the moisture imbibed by them. The fact, however, stands in need of proof; and hitherto the evidence is more in favour of similar fungi being imbibed by the roots of the plants which they attack. Mr. Knight, indeed, who is high authority, particularly insists upon mildew being induced by foggy weather, happening at a time when the ground is particularly dry: circumstances which we may readily understand as likely to convert the stomata (or even the whole superficial tissue of plants) into imbibing organs. If the autumnal fogs really predispose Wheat to the attacks of the mildew fungus, we must agree with those who recommend the growth of early varieties in places subject to these fogs. It seems to be pretty generally admitted that spring Wheats are less liable to mildew than winter Wheats; and that heavy soils are less subject to it than light ones. But, at present, the information on these points is very vague and unsatisfactory. We may safely conclude, that a generally healthy state of the plant, without any over-luxuriance of vegetation, is most likely to secure a crop against the attacks of the rust and mildew fungi; but, that whatever tends to render the plant sickly, whether it be excess of heat or cold, drought or wet, sudden changes of temperature, poverty of soil, over-manuring, shade, &c., must be considered as a pre-disposing cause to these diseases."—*E. W.*

ON DIBBLING SEED.

As you have lately been calling the attention of farmers to the great superiority of dibbling over sowing or drilling corn, I beg to offer the following observations on the subject.

The gist of the whole matter appears to turn on a point on which agriculturists do not often seem to think it worth while to make any inquiry, viz., What becomes of the 2½ bushels of Wheat which they commonly sow or drill per acre? It might, therefore, startle them considerably, if, upon examination, they were to find out how utterly impossible it is for such a vast number of seeds to come to perfection upon that space of ground: for, if the average number of grains in a bushel be counted, it will be discovered, that, should the seed be regularly disposed over the soil, there will be just four superficial inches for each grain to grow upon. If each of those grains, therefore, were to produce a perfect plant of Wheat, the ears at harvest must be as closely packed together as they would be in a rick. This, of course, cannot take place, because 10 or 15 ears (often the offspring of one root) cannot stand on four superficial inches of ground. It is clear, therefore, that if all grow, all do not come to fine plants. But if they do all grow (which is a possible and probable case), what then becomes of them? We imagine it will be found thus: In winter or spring we often see a plant of Wheat which so perfectly covers the ground that it looks like a beautifully green pasture-field. Inexperienced farmers say, "What a fine plant!" Older ones shake their heads, and call it too "proud." The harvest proves which are right. If the soil is very rich and strong, the crop may even then be very thick; but in 19 out of 20 cases it will be generally "knee-broken," lying down at an angle of 45 degrees, instead of standing firm and erect, as a good crop should. But even suppose it is not thus lodged, if we enter the field and pull up a few plants, what will be their appearance? The majority of seeds will not have tillered at all; some will have two, three, or four stalks, perhaps; one of these may be tolerably fine, the rest will be small and thin. If we look more closely into the crop we shall find many plants totally root-fallen—beaten down beneath the rest; not a few will be taken with what is termed "the white blight;" the straw, too, instead of being of a fine, clear, bright colour, will be dull and spangled over with black, brown, and rusty spots; and when the sheaves are brought to the threshing-floor, and the produce to the winnowing-fan, it will be found that the quantity of tail is unusually large—very probably that the whole sample is uneven and inferior. Now, how often does it enter into the ideas of the farmer that this is the consequence of wasting two bushels of seed?

But, upon the generality of soils, it is very plain that a great portion of the seed never produces any plant for harvest at all; for, let 99 out of 100 then examine their crops, they will not find one plant to six inches square, much less one plant to four square inches: the rest have disappeared in some way or other; blown out by the winds, washed out by the wet, pulled up by the larks, eaten up by the slugs, or starved out.

Now, it does not seem very difficult to propound the *rationale* of all this. When an experienced gardener plants his Cabbage or Broccoli he says, "It is of no use to try to economise ground by putting them closer than they can grow well. I must let each plant have full scope." If he sees an ignorant neighbour neglecting this rule he will be very certain what will follow, and will advise him not to do it. The advice is not taken; and perhaps in the few first stages of their growth Ignoramus will seem to triumph; the small plants will have room enough in their infancy, and he will boast that his Cabbages look as well as those of his adviser. But by-and-by the case is altered; the roots begin to traverse the portion of soil belonging to their neighbours; a fight takes place among them for the richness of it; soon each Cabbage gets but half his proper rations; the fibres and spongioles begin to get dry and sticky, and the stems participate in this unfavourable change; so that matters are going on very badly below ground. But above, also, it is no better: the heads approach too nearly to one another; and here is a squabble for pure air; the leaves become damp or flaccid; a host of insects recognise their proper food in the unhealthy plant, and it is shortly covered with blue mould or some other equally disagreeable sauce. The sequel is easily divined. Ignoramus is condemned to eat a withered unwholesome dab of a Cabbage, or a Broccoli about the size of a large Walnut, and as tough as whit-leather. By this time his nether lip is as long as an old horse's, and he discontentedly mutters something about "the confounded blight," or else his Cabbages would have been as good as any one's, &c. &c. If he would have listened, his friend could have told him that it took so many inches of good soil, and so many inches of pure air, to grow a Cabbage which the insects could not eat, and which he could.

Now, we suppose that a plant is a plant, whether it be Cabbage or Wheat. It is very clear, then, that if one seed of Wheat be planted on every space of four superficial inches, whenever the roots of two adjoining plants have grown more than an inch long they have begun to invade each other's territory; then the struggle for food begins. If the soil is very poor, the contest soon ends in the death of one or both of them; if it is indifferent, the battle will be carried on a little longer; if it is good, the fight is kept up till the coming into ear, and then down goes the weakest, while the victor remains, little stronger than his fallen neighbour, a half-starved, piteous spectacle. If the first Wheat plant that the young earth ever grew could see it, he would say, "This is no child of mine." But then, to be sure, he could never suppose that men would so mistake their interest as to starve his offspring out of knowledge by trying to make seven or eight grow where one only could stand.

But, as with the Cabbage, the conflict is not in the ground only; when the blade first comes up, four inches is space enough for a single spike; the air comes round about it, and nourishes every part; the dew is deposited on it at night, and is exhaled seasonably in the morning; it waves its green flag joyously in the balmy zephyr, and

seems to defy even the rudeness of old Boreas himself. But by-and-by the scene is sadly altered. Suppose a throng of Lilliputians assembled in a county hall to hear some interesting trial, were, during the course of the morning, to swell out into Brobdignagians, what pushing and squeezing and groaning and perspiring would ensue! How would some endeavour to rise above the rest, for a puff of fresh air! How would others be trampled under-foot, to make room for the increasing mass! Here would be one fainting; there another black in the face; a third with his ribs staved in, and a fourth taken off his legs altogether, and carried about anywhere by the heaving throng. Every one would be execrating his neighbour for growing so much. Now, if our crops of Wheat could speak, they would be doing just the same. It might be very well while there was only the single blade rearing his Lilliputian form; but when it had tillered forth its two or three stems, and had swelled out into a comparative Brobdignagian; "when Greek meets Greek then comes the tug of war;" then would ensue a regular race to get nearest to the sun and air; when the wind blows they jostle one another; when the dew falls they stand in a damp skin all day, for there is no room to dry themselves; they are so thick together that an unwholesome sweat breaks out all over them, till, mildewed, rusty, the prey of all kinds of vermin, they fall down, or turn off, or become prematurely ripe, and in consequence are a source of the most poignant disappointment to the farmer, who expected so much from their former vigorous appearance. But who ought to expect to see advantages arise from ill-feeding and over-crowding?

The farmer walks among his crop, and sagely remarks, "How it is going off!" "What blighty weather it is!" &c. &c. We propose to him to consider, instead these two questions—If a country has just bread enough to feed two millions of people, what would be the result of the introduction of eight millions more to share it? We say there will either be a general scramble, and some will be immediately starved, or each will be fasted to the extent of 4-5ths of his due quantity of food, and will in consequence gradually pine away to "the shadow of his former self." Yet this is exactly the way we balance matters between our seed-corn, and the land it is grown upon. Again, if a garrison has provisions enough to last till they shall be relieved, at 1 lb. of bread and 1 lb. of meat per head per diem, what will be the consequence of issuing a double quantity? They must either surrender or be starved before help arrives? And so must our crop.

We conclude from the foregoing observations that no more plants ought to be planted upon an acre than the ground can ultimately bring to perfection; and that, if more are planted, not only will the supernumerary seed be wasted, but the remaining plants will be starved and thinned, in proportion as few or many are prematurely cut off, and in proportion to the length of time which these supernumeraries occupy the ground.—*H. W., Tetbury.*

AN INCLOSURE FROM THE SEA.

WHEN the estate of North Sommercotes, lying between Saltfleet and Tetney Haven, on the north-east coast of Lincolnshire, was purchased in 1843 by W. Thimbleby, Esq.—an inclosure had been taken from the sea some 200 years before—a part of the estate adjoining the sea-bank, called the Jarvisses or Fitties, had remained in an undrained and most neglected state; but after some opposition from men long located there, a drainage was found for the lands, and they are now made perfectly dry. Two centuries having passed since the late inclosure, the sea had again receded, and left a large outmarsh liable to be flooded only during spring or high tides; the water in running off had rendered the surface somewhat uneven by the occurrence here and there of broad and deep gullies or water-courses; in these places, owing to their more frequently being covered with the sea water, the soil is more thoroughly impregnated with sea-salt.

The sea has encroached much on that part of the coast from Tetney Haven to Grimsby, opposite to the Spurn at the mouth of the Humber; so much so, indeed, that the signal-house near Cleathorpes has been removed inshore three times within the memory of man; from the mouth of the Humber, near Grimsby, however, eastward to Douna-nook, there is a shallow sand-beach, which is left dry a mile and more in width every receding tide, and at Douna-nook it widens out considerably, continuing its course southward, which is a great protection to the forming of a sea-barrier, although it renders the navigation very dangerous; and it frequently happens that vessels are stranded on this part of the coast.

These marshes are composed of horizontal layers of alluvial soil, thin sandy or clayey layers alternating with each other, according to the nature of the tide. When a storm sets in from the north, sweeping along the coast of Yorkshire, the tide deposits the clay which it has brought thence; when it comes from the south, along the Lincolnshire coasts, the deposit is sand; and thus, as might be expected, the marsh varies very much in its quality. In the old inclosure there are about 100 acres of land (called the Old Sign-hills, all blowing sand), converted into a rabbit-warren. Mr. Thimbleby has about 20 acres put to that purpose, the same quality of land, well stocked with the silver-hair warren rabbit; the late inclosure is a much better sort of soil than the land first purchased, being more stiff and retentive, with less admixture of sand, except a small part of it.

In forming an embankment round the marsh it was necessary to make it not only higher but also much wider and stronger on the north side than on the south, because it was naturally better protected on this quarter, and less subject to the destructive effects of the waves from the North or German Ocean. The embankment is from 5 to 8 feet high, sloping 4 feet in length for one in height towards the sea, and 1½ foot for one towards the land; it is well puddled with clay on the sea-side, and turfed. The foundation of it, where it is 8 feet high, is 44 feet wide, running up to a feather-edge at top, to prevent a footpath being made on it. The whole length of the embankment is 110 chains, or 7260 feet, executed at a cost of 800*l.*, or a little over 7*l.* per chain. The extent of land inclosed is 160 acres. The work was begun on the 30th June, 1843, and was finished on the 1st October the same year; the old creeks and water-courses were well filled up, and under-drains put in them, as well as in other wet parts; the new ditches were cut, and borders prepared for the quicks to subdivide it. The land was then well ploughed, and about two-thirds of it sown with Hunter's White Wheat in autumn; the remainder was sown in spring with three or four different varieties, the last sown as late as the middle of April. The appearance of the crop on the 8th June promised a yield of not more than from 24 to 28 bushels per acre. After the land was drained and the watercourses filled up, the land was only once ploughed, rolled, and well harrowed, and the Wheat drilled at the rate of 10 pecks per acre. The crop, probably from the dryness of the season, was very short in the straw, not more than 2½ feet long, but the ears of the Wheat were excessively plump, generally having six rows in the head. Before the corn was ripe a strong wind passed over it, and shook out from 4 to 6 bushels per acre. At harvest, the straw being so short was mown, and the heads and cut ends of the sheaves were so mingled, that a great part of it was carted home and threshed with a portable steam threshing-machine, instead of putting it in a stack (75 quarters were threshed in one day). The straw was stacked and thatched for fodder. The portion of the crop threshed averages fully 4 quarters per acre, and the remainder is expected to be as productive; taking into account the great loss sustained by the wind, and also making allowance for the partial failure of the crop where the salt water used to stand, and where the deposit of salt was so great as to appear white on the surface of the land in June—little vegetation took place there—this must be considered a large produce. Though formerly the value of this land, before it was inclosed, was really so small as not to be estimated, it is now worth at least 30*s.* per acre.

After harvest the stubbles were ploughed; and in some parts of the autumn-sown Wheat of the previous year, where the most damage appeared to have been done by the grain being shaken out, there was no seed sown; the other parts are drilled, so that the whole of the land (except about 5 acres) is again in Wheat. At this time it is looking very well; and that which was first ploughed, and self-sown, has been thinned by the hoe, and also some of the other, as by the shaking, it was irregularly planted, and much too thick for a crop. The ploughing this autumn is done as thin as possible—not more than 2½ or 3 inches. Last year it was ploughed double the depth, so that the furrow-slices this year are cut about half the depth of last year, and ploughed across, the way it was last year. There having been so little rain this season, the expense of harrowing has been very great. Next year, Mr. Thimbleby intends ploughing it rather deeper than it was ploughed the first year, and to sow a part of it again with Wheat.—*W. B. Wingate, Hareby, Lincolnshire, Jan.* 13, 1845.

ARTIFICIAL MANURES.

[THE following amended copy of a letter which lately appeared in the *Maidstone Gazette* has been sent us by its Author. We do not agree with him in the inferences which he draws from the composition of the crops which are annually removed from the soil. *All* the matters of which crops are composed must unquestionably be presented to them every successive year, or they will fail; but, if this be done at all, it matters not by whom. Much, perhaps nearly all, of the carbon, oxygen, hydrogen, and nitrogen, on the great weight of which removed from the soil in four years by the crops Mr. Davis lays so much stress, is supplied by *the atmosphere*, and is administered to the plants through their leaves, or, dissolved in water, through their roots. *The farmer* has thus little more than the ash—the mineral ingredients of plants—to supply to them; so urge those whose views Mr. Davis here combats; and they contend that the necessary quantity of the required material is present in the 3 or 4 cwt. of guano, and other mineral manure, to the application of which in such small doses Mr. Davis here objects. Although, however, we do not agree with the Author, so far as this goes, yet we are happy to insert his letter; because, in the present rage for these mineral manures, there is a liability to forget the advantage which most soils derive from the *bulk* of a manure. Farmyard-dung has a beneficial influence on the *texture* of a soil; its value as a fertiliser thus depends not only on the quantity and quality of the food it supplies to plants, but on the improvement it may effect in the soil, as a vehicle for this food to their roots. This element, in its value, is one in which none of these concentrated mineral manures participate. Besides, although it is not its chief value, nor so much so as Mr. Davis appears to suppose, yet the manure of the farmyard *does* supply vegetable food in the results of the decomposition of its vegetable matter, as well as in its mineral ingredients. The various vegetable acids and ammonia—all the soluble results, in fact, of vegetable decomposition—are, doubtless, taken up by the roots of plants, and act as food. The farmer may, doubtless, benefit his crops by supplying matter from which the plants may derive carbon, oxygen, and hydrogen, although these are present in the air, just as he unquestionably derives benefit from supplying them with ammoniacal salts from which they may derive nitrogen; but in all these cases, should he omit doing so, his negligence will in a measure be remedied by the availability, as vegetable food, of the stores of all these substances in the atmosphere; whereas, if he neglect to supply the mineral matter which plants require, if there be none in the soil, they must die.—ED. *Ag. Gaz.*]

When Sir Robert Peel, in his address to the farmers at Tamworth, called their attention to guano, he did so under the impression that it might be a means for increasing the fertility of the land, and thus prove a panacea for the losses occasioned by the fall in prices in consequence of the new tariff and the new Corn Laws. Since then this manure has been further raised in estimation by the extravagant encomiums that have been published in its favour, many of which may be traced to persons interested in the sale, or to those who have limited their trial to the effect on the first crop—and that a green one. I am not going to deny that as an assistant to start the early growth of the Turnip crop it may answer; but it is to prevent farmers placing too much reliance on it, or any other slight dressing, for the growth of corn, that I am about to put before them very strongly the fact that the dressing of guano supplies to the soil only about 400 lbs. of the elements of vegetation, whilst a crop of corn takes away between 1000 and 5000 lbs. of the same materials, and that its use therefore must, unless other sources of nutriment be at the same time supplied, cause disappointment, or a rapid exhaustion of the land. A very common impression prevails, that the consumption of a crop of Turnips, no matter how produced, is a certain means of enriching the soil; but as I have several times tried the effect of growing green crops, and feeding them on the land on portions of fields, and not on the rest, having prepared the entire alike, and found no difference afterwards in the corn in the parts where the sheep fed, and where not, the mere returning the crop through animals, without oil-cake or other additional food, has little or no effect. This, I know, is a new doctrine; but I have frequently proved it, and found it confirmed by others: of course this applies only to where no other food is given with the crop.

An application of 4 cwt. of guano is considered a full dressing for an acre of ground; this comprises about 400 lbs. of carbon, hydrogen, oxygen, nitrogen, and ashes, the remainder being water; whilst a crop of corn takes away 4000 or 5000 lbs. of precisely the same elements. The following Table gives the actual amount of the elements of vegetation which are taken from the earth under the ordinary course of cropping in four years, and after a dressing and prior to another application; and although a portion of these may be supposed to have been derived from the air and rain, still experience proves that vegetation is principally supported by matter from the soil; for by no means can the earth be made to continue producing corn without resuscitation with matter containing the elements; and the difference in the growth where manure is applied and where none has been given, at once shows that the principal portion of plants (if not the entire), are derived from matter taken from the soil. An acre of land cropped with Turnips, Oats, seeds, and Wheat, allowing the Turnips to have been fed on the land, and only one cutting of hay taken, affords, exclusive of water, the following elements of vegetation in four years:—

WEIGHT.

		Dried.		Carbon.	Hydro.	Oxyg.	Nitro.	Ashes.
	lbs.	lbs.		lbs.	lbs	lbs.	lbs.	lbs.
Oats ...	2240	1900	consisting of	963	122	697	42	76
Straw	3888	2750	,,	1378	148	1073	11	140
Hay.....	3024	2400	,,	1137	120	908	50	185
Wheat ..	1890	1600	,,	735	94	695	37	39
Straw ...	3240	2400	,,	1161	127	935	9	168
Total ..	14,282	11,050		5374	611	4308	149	608

The rotation of cropping by many conceived to be the most enlightened and profitable, is that of the above four-course, namely, Turnips, Oats, Seeds, and Wheat; and by beginning with a dressing, and by consuming on the land the Turnips and the after-growth of the Clover or Grass, sufficient dressing is considered to have been bestowed to admit of two crops of corn and one of hay to be taken; and that this should be successful practice when dung is applied, and without detriment to the soil, is readily understood, when the fact that an ordinary dressing of dung consists of 15 to 25 tons per acre, whilst these crops remove only about 5 tons; and it is curious but true, that after allowing for the water in this dressing, the debtor and creditor account of matter applied and withdrawn may be said to balance. But how will the account stand if the dressing has been guano, and the same weight of corn and hay been taken? Why, that whilst only 400 lbs. of nutriment has been supplied, the soil will have lost 11,050 lbs. It is therefore clear to me that placing dependence on guano will either hurt the soil or cause disappointment. That guano can afford materials for the growth of a corn crop I have shown to be impossible; and I very much fear great mischief is being done by the high terms in which it is spoken of and recommended, in lessening the estimation for animal excrement from yard stock; and that its use much tends to decrease the proper care and production of yard manure; and the consequence will be certain, although gradual deterioration of

the soil. I would have landlords well consider what may be the effect before they encourage the use of this manure, and I wish to caution farmers not to expect 400 lbs. of guano will raise 11,050 of produce. I liken the pursuit of the present day after artificial manures, to the search after the Philosopher's Stone, or for the essence of food, of which a pill a-day was to suffice for a strong man; and yet, even in this error, the ancients were too wise to think of doing more than to meet the daily waste by an equal daily supply; it was for moderns to make the discovery that matter can be created out of nothing. To give the earth a ton to get back a ton sounds reasonable, but to imagine that one can create eleven is —— I leave the reader to supply the hiatus.—*Hewitt Davis, Spring Park, near Croydon.*

Note.—The impossibility of maintaining the growth of corn or garden produce without the application of dressings—and which are given in proportion to the quantity of produce withdrawn—is in practice thoroughly understood by both farmers and gardeners. That all vegetation springs from matter collected in the soil is being fatally proved by the practice in America of breaking up fresh soil and abandonment of the old clearings now going on. There the earth, when first brought into cultivation, has a luxuriance which enables the farmer to take corn, year after year, for 20 or 30 years, without dressing being applied; but then the land becomes so sterile, this system can be continued no longer; and the farmer finds it cheaper to remove to fresh uncropped ground rather than be at the expense of renovating the land he has so thoroughly exhausted. Does not this show how dependent vegetable growth is on matter that soils contain? The reader must bear in mind that all through this letter the primitive elements are always treated of—which can neither increase or diminish—and that in speaking of produce and of guano, the elements forming them are put in contrast.—*H. D.*

GEO-AGRICULTURE OF MIDDLESEX.

In a former article (No. 44, 1844), the process of chalking land in Hertfordshire was described, as observed during an excursion from the banks of the Thames to St. Alban's. Let me now offer a few observations on the district traversed, as illustrating the influence of geological structure on the amount of population and the nature of their employment, and also as illustrating the effects of the deposits of the drift or diluvial period in geology, in modifying the agricultural character of a district, derived from the nature of the regular strata nearest to the surface.

The whole of this part of the valley of the Thames, bounded on the south by the chalk hills of Surrey, and on the north by those of Hertfordshire, is laid down in our geological maps as London clay. Considerable portions of it, however, are deeply covered by the sand, gravel, and loam of the drift; and even in those parts where the clay appears to constitute the surface, it will be found, on closer examination, that the cultivated soil is not pure clay but a thin deposit of drift, in which the larger portion of the component matter is, indeed, argillaceous, and derived from the London clay, but mixed with irregular seams of sand and loam, and many pebbles, furnished by the ruins of other beds of the same formation.

As we proceed northwards from the Thames, the tenacity of the soil gradually increases. On its right bank we have a gravelly and sandy tract occupied by market gardens, heaths, villas, and parks, in the parishes of Putney, Mortlake, Barnes, and Richmond; and under arable culture about Petersham and Kingston. On the opposite bank, at Fulham, and thence by Chiswick, Brentford, Isleworth, and Twickenham, is a loamy surface, from 3 to 6 feet deep, having a deposit of gravel rarely exceeding 16 feet in depth interposed between it and the London clay. The upper portion of this loam and gravel consists of drift; the lower is a local fresh-water formation, containing land and fluviatile shells, identical in species with those now deposited by the river, but elevated 30 or 40 feet above the reach of its highest tides, and associated with bones of the elephant, rhinoceros, hippopotamus, ox, horse, hog, and deer. This fresh-water deposit extends to the distance of half a mile from the present stream. Its lower portion is a calcareous loam—the marlm of the brickmakers, which imparts to the clamp-burned bricks, which have been extensively made in the neighbourhood, that hardness and yellow tint which are the results of partial vitrification. This marlm would form a good dressing for land, were it not too valuable as brick-earth. As a substitute for it when absent, chalk is mixed with the coarser portions of the upper brick-earth, by a process technically called "washing," which is an imitation of that by which the natural marlm was formed. The surface of this loamy tract is chiefly cultivated as market gardens, a large portion of which are inclosed with high walls. In the western portions of the parishes of Isleworth and Twickenham, the loam passes off into sand and gravel. This is the prevailing character of the soil over that large plain, south of the Bath-road, which extends over the parishes of Feltham, Hatton, Hanworth, Bedfont, Stanwell, Laleham, and Sunbury; large portions of which, notwithstanding its contiguity to the metropolis, formed, till within the last 60 years, a chain of commons connected with Hounslow Heath. Hounslow Heath proper, in the parishes of Isleworth, Twickenham, and Heston, was inclosed as recently as 1814. The best and most loamy portions of it lay in the last-named parish, bordering on the Bath-road. North of that road is a fine tract of deep rich and dry loam, extending to the Uxbridge-road, in the parishes of Heston, Norwood, Southall, Cranford, Hayes, Harlington, Drayton, and Harmondsworth, chiefly employed in market-garden farming. From the facility with which manure is procured from London, the landlords allow the straw to be sold as well as the clover hay, of which two crops are mown in the year. The fallow crops supply Covent Garden with Green Peas and Beans, Potatoes, and Turnips. Little live stock is kept, and the Turnips are rarely sown on a fallow, but succeed Peas, Tares, and early Potatoes, or are sown on the corn stubbles. "Bunching" being the primary object of the growers, few sorts are cultivated except the Nimbles or Early Stone Turnip, and they are only consumed by sheep when there is little demand for them for Covent Garden, or for the London cow-keepers. Mangold Wurzel, for the use of the latter, is a crop of comparatively recent introduction, the growth of which is extending. A large part of this rich loamy district remained in the state of common field up to 1814; and some of the finest portions were inclosed even more recently. Heston and Drayton were famed of old for the quality of their Wheat; and the excellence of that grown in the former parish caused the supplies for the table of Queen Elizabeth to be drawn from it. It is well that Queen Victoria has other Wheat-growing districts to resort to, for this is now more remarkable for the bulk of its straw, and sometimes of its grain, than for the quality of its sample. It is particularly subject to mildew; and the straw rarely dyes of so bright a colour, or yields so plump a kernel as it did last season.

The best farmers in this district do not scruple to grow Barley and Oats after Wheat; and where the land is so full of dung, the practice does not appear to be attended with any injurious results; on the contrary, the Barley so grown is generally better than that which succeeds Turnips consumed on the ground, which is apt to be a coarse sample, or thin, from the crop having been lodged. The profits of this system of market-garden farming are less than the cultivators of remote districts would suppose. The returns may be high, but the expenses are high also, leaving no greater free produce—and attended with a great increase of trouble—than under the best systems of cultivation in which the supply of manure is raised by the consumption of the green crops and straw upon the land. The best loams of Heston, Drayton, and Harmondsworth are very similar in quality to those of the Fleg and Happing Hundreds in Norfolk, also members of the drift. The tenants of the latter, restricted from the sale of straw and hay, and confining themselves to the growth of Wheat and Barley, a large portion of which are conveyed to London by sea, and of Turnips and Clover, which walk some 120 miles to Smithfield in the form of beef and mutton, pay, with their cheaper mode of cultivation, quite as high rents as the tenants of the former can pay who cart everything to London from a distance not exceeding 15 miles. At about 16 miles from Hyde Park Corner, the influence of the London dung-cart upon the character of the farming nearly disappears. I have often heard the farmers, not of this rich loamy tract only, but of the lighter soils lying to the south of it, congratulate themselves that their lot was not cast north of the Uxbridge-road. North of that road the clay district commences, to speak in general terms, for in some places it extends a little to the south; and then what a change! Brick-fields, market-gardens, and market-garden farms, with their dense population, suddenly disappear. Strawberries and Asparagus, Moss-roses and Peaches, fields of Windsor Beans and Prussian Blues, of Potatoes and Turnips for bunching, all vanish. The landscape becomes diversified with hill and dale, and wears a more picturesque and rural aspect, but it wears also an aspect of less prosperity. On the main roads from London, the houses cease to be continuous much sooner; and on the cross roads you may travel for hours within seven miles of the metropolis without meeting a human being. From the cold, wet, and unmanageable nature of the soil, in its present state, the larger portion of the district is in Grass, mown to supply the hay-market; and the transient demand for agricultural labour during the few weeks of hay-making is far greater than can be supplied by its scanty population. The hiatus is filled by mowers from distant counties, and by swarms of Irish haymakers, and a multitude whom the metropolis pours forth at this season to rural labour, and who migrate later in the year to the hop-picking of Kent. The small proportion of arable land is gathered into three and four-bout ridges, and the rotation consists of Wheat, Clover, Wheat, Beans, Wheat, fallow, the land very foul, and yielding in general but scanty crops.

Now, what is the reason of this change on crossing the Uxbridge-road? Simply this: that in the southern portion of the district, the London clay is covered with a thicker coat of drift than in the northern portion. The internal resources which this part of the Vale of London contains for the improvement both of its light and heavy soils will be adverted to in future articles.—*J. Trimmer.*

Home Correspondence.

Allotment System at Farnham.—For some time past I have noticed in your Paper frequent communications on the subject of the allotment system, and as you invite your subscribers to give their experience or suggestions relative to the best mode of carrying it into effectual operation, I am induced to offer a few remarks, having been a witness, during nearly 20 years, to its beneficial effects, when judiciously conducted. During the period above mentioned my father and I have allowed, upon an average, some 20 to 25 of our own labourers to rent small portions of land at a moderate rate, as near as could be to their cottages—the quantities varying according to the circumstances of the families, from a quarter to one and two acres each. In this parish there is, and has been for a long time, a redundancy of labourers (unless, indeed, a more liberal system of cultivation were generally adopted); and this circumstance, combined with the knowledge that the welfare of the labourer is most materially increased by the permission to hold as much land as he can properly manage, has induced me to continue and to recommend the practice of the allotment system. I consider that the largest amount of benefit will be effected in those cases where the farmer, or still better, the occupying landlord, lets these allotment portions to his own labourers. His eye then can always be upon them, to watch, to encourage, and to advise when necessary. By carrying out this plan, without sustaining any pecuniary loss to myself, I have had the gratification of contributing the means of essential comfort to several families; I have seen many of them gradually becoming possessed of some little property, and bringing up their children in an industrious and respectable manner. The land, moreover, is all well cultivated; their terms of agreement with me being simply good management of their ground, and good conduct in themselves. It indeed affords one sincere pleasure to view the excellent crops that are usually grown: 40 bushels of Wheat and 400 bushels of Potatoes per acre are very commonly obtained by them. In their management the recognised principles of good farming are observed, viz., the application of plenty of manure, frequent trenching, and where requisite, thorough draining. I can also bear my willing testimony that the class of labourers above alluded to are amongst my very best servants; they are conscious that they possess a something valuable which may be lost, and therefore, by good conduct, are anxious to preserve it. The objections against the plan which are sometimes urged by farmers are perhaps scarcely worthy of notice, viz., that it has a tendency, by affording facilities of stealing and secreting, to make the men dishonest; and also to neglect their masters' work. To the first I feel almost ashamed to offer any reply; it is so thoroughly unchristian in its character, and so untrue in practice, that I would merely remark—let a fair trial be given; treat your men kindly, let them see that you take an interest in their welfare, place confidence in their integrity, and you will soon find your suspicions to be groundless; and unless my experience greatly misleads me, you will be repaid by gratitude rather than dishonesty. It is an acknowledged fact that the surest way of making a man dishonest is to treat him with suspicion. With regard to the other objection, provided the employer let his land to his own labourers, it will be his own fault if he gives them more ground than they can properly attend to without injury to himself. I have never suffered the slightest inconvenience, and my experience is tolerably extensive. I would be careful to urge nothing that might tend to discourage the many schemes which are now brought prominently forward for the benefit of the labouring classes, and more particularly as regards the extension of the allotment system; nevertheless I do feel so thoroughly convinced that individual exertion, in this respect, is so infinitely preferable to parochial, or any other form of associated enterprise, that I would earnestly beg all landholders to try the plan under their own immediate superintendence.—*T. Mainwaring Paine.* [Thanks for your Pamphlet.]

Swedish Turnips.—I find in the agricultural portion of your paper of the 11th inst. a communication from "An Irish Farmer," comparing the produce of Turnips in Ireland and Norfolk. The Irish farmer states he sent 12 bulbs to a Show, weighing 140 lbs, or very near 12 lbs. per Turnip, and yet did not get the prize. An Editorial note follows the Irish farmer's paper, in which it is remarked that, "In 1840 we pulled 12 Swedes averaging rather more than 15 lbs. each," and asks the Irish farmer whether he is not in error in stating his average weight at 8 lbs.? and calls on him to calculate that such an average would be more than 60 tons per acre—"A crop never yet, we venture to assert, realised in practice." So much for Ireland and Norfolk. In an old memorandum book of mine now before me, I find the following entries:—

"Weight of Turnips grown in 1814 on the Duke of Portland's farm, in the parish of Dundonald, in Ayrshire:—

Without leaves . .	76 tons per acre.
With leaves . . .	90 tons per acre.

"The Rev. James Muir, of Beith, grew same year:—

Tubers . . .	49 tons.	11 cwt.	17 lb.
Leaves . . .	17 ,,	5 ,,	51 ,,
Total weight .	66 tons.	16 cwt.	68lb. per acre.

"In the parish of Irvine, Ayrshire, William Taylor, Esq., of Stonearth, grew white Turnips, which produced 68 tons, 7 cwt., and 16 lb. per acre, and yellow, 41 tons, 11 cwt., and 48 lb. per acre."

The above were extracted from the May Number of the "Scotch Farmers' Magazine," in 1815, lent to me by an old farmer friend when on a visit in that part of the country in the above year; to which I beg to add the following:—Being again in Scotland in 1831, I passed one day through a Turnip field on the estate of Kinnaird, once the property of the celebrated Bruce, the African traveller, on my way to the mansion now belonging to his granddaughter. The land there is by no means of first-rate quality, but on taking 2 Turnips to the offices and weighing them, one was 13 lbs. and the other 14 lbs. I could not assert the field would average 8 lbs., as I took little more notice than remarking they were a very fine crop, very regular, and grown on raised drills: the sort were yellow rounds, not Swedes. Some other day I may venture to give an opinion of Turnip culture generally, and its comparative productiveness in different parts as compared with others.—*Quercus.*

[We have seen many such statements as those given

above by our correspondent, but their accuracy is so necessarily dependent on the mode in which their truth was ascertained, that, in the absence of explanations on this point, we attach no value to them. In the *Dublin Farmers' Gazette* of Jan. 18, is the following statement:—"Cabra, 7th January, 1845. I certify to have weighed one square perch of Swedish Turnips, net weight, 10 cwt. 6 stone, making 86 tons to the acre; Turnip average from 12 to 17 lbs.—JOHN CULLEN." We cast no doubt on the accuracy of this certificate, but an inference from it that the produce per acre was 86 tons is very questionable. The only unquestionable mode of ascertaining this is by weighing a much larger portion than one perch—half-an-acre at least ought to be weighed.]

Liquid Manure.—During winter I find it better to use the soot manure alternately with pure water. Sir H. Davy says, "Soot is a compound of ammoniacal salts, empyreumatic oil, and charcoal—a most powerful manure when applied in a liquid state, but frequently most destructive if, when applied dry, it be not soon followed by rain." Would it not be very useful if applied to Turnips as soon as they begin to vegetate? Before using, it ought to be kept dry, and excluded from the air.—*Anon.* [It would doubtless be very useful so applied. It is often so applied to Potatoes.]

Coal-ashes.—I beg to offer, for the information of "J. B. H.," the result of an application, on a small scale, of coal-ashes on Grass land. Part of a piece of wet heavy land was dressed with them; the result was most satisfactory. It could be easily seen at a considerable distance how far they had been applied; and the crop was quite as heavy as it could have been expected, had good manure been applied. I imagine they act not directly as a manure, but, like charcoal, they are instrumental in absorbing ammonia and other gases, which plants are known to feed rapidly on; and to yield it to the plants, without giving off any of their own substance, which remains unchanged for a series of years.—*W. Wakefield.*

Breaking up Grass—I agree with "A. W.," in your last Number, as to the advantages of breaking up inferior pasture. Would it not be very desirable for landlords to dispose of a per centage on their rentals in effecting this by spade husbandry? Such a plan would afford employment during the winter months to labourers who at present are without work; it would teach farmers the advantages of turning up land to a greater depth, lessen the poor-rates, and ultimately benefit tenant and labourer. The landlord should, of course, insist on his tenant spending an adequate sum in bones and guano to insure a crop of Turnips on the land broken up.—*L., Somerset.*

Gorse, Food for Cattle.—I had already seen the papers you refer to on Gorse. My object was to elicit, if possible, more practical information on the use and management of Gorse as applicable to a large business; but as I see in the Transactions of the Agricultural Society there is a premium for the best article on this subject, full information will, ere long, be given to the public, which I make no doubt you will circulate through your valuable Paper.—*A Subscriber from West Kent.*

Cultivation of the Potato.—Mr. Joseph Melony, of Brightwell, Oxon., in a letter, to the *Reading Mercury*, says he has discovered a mode of culture by which he can obtain 1000 bushels of fine mealy Potatoes from one acre of land. He intends to publish a pamphlet detailing the means by which this extraordinary produce is to be obtained. Land in this part of the country is well adapted to the growth of the Potato, and 480 bushels of the Rednose Kidney have been obtained this year, which is considered above an average crop; if this quantity can be more than doubled, by an easy and simple process, J. M. will be doing more good to the labourers than most persons are aware of, and will well deserve their gratitude. The wages of farm-labourers in this county are from 7*s.* to 8*s.* per week, which, of itself, is barely sufficient to purchase necessary articles of consumption, but, having grown a few Potatoes for winter use, they are able to get on with less difficulty. To the poor man the Potato is a necessary of life, forming, in many cases, his principal article of diet; it is of consequence, therefore, to him to grow a large crop. It is estimated that some families consume 120 bushels per year.—*D. E. F., Devizes, Dec.* 31.

Steam Engine.—I have often wondered that no agricultural mechanic has attempted to construct an inferior kind of steam-engine, the working parts of which might be of wood, and which, without being as accurate as a watch, or more saving in coal than some of the very early constructions, might still be sufficiently good to work a rough circular saw, or chop straw or Turnips, &c., in a farm yard. If such a thing could be made for 40*l.* or 50*l.* it would be a great advance in agricultural improvement. A one-horse power would be sufficient. —*Enquirer.*

Potatoes.—I tried about half a hundred weight of guano last May on some garden-ground that had been cropped with Potatoes for fifteen successive years, so that the tubers had greatly degenerated in size. I was so well rewarded for the trouble of putting a dessert spoonful of this capital stuff upon every Potato set, that several farmers in the neighbourhood declared that they never saw finer or cleaner Potatoes grown in any field. The greediness with which cows and pigs devour Salsify leads me to think that it might be cultivated to advantage as green fodder. I should be glad to learn from any of your correspondents whether it has ever been put to this use. I am certain it would produce a great weight above ground, and there can be little doubt as to an enlargement of the root under proper cultivation; whilst it is so hardy, as to continue growing during the severest weather. Certain I am that cows and pigs relish nothing better; whether they would fatten upon it may be doubted, from its extreme succulence. The side shoots, which appear preparatory to its seeding, are used in America as a substitute for Asparagus, and are considered by those who have tried them as of excellent flavour.—*An Amateur.*

Blowing Sands.—I have some land on the western coast of Ireland (lat. 54° 30′), open to the full sweep of the Atlantic. A number of acres have been destroyed by the sand blowing over them, in some places to a considerable depth, and the evil increases every year, by the sand blowing further inland. I should feel much obliged if you, or some of your correspondents, could give me a plan to fix the sand on the present destroyed part, so as to prevent its further encroachment on the good land. Could it be possible to make this sand of any value? If so, in what manner would you recommend it to be reclaimed? Sea-weed is rather abundant on the shore. Is there any description of trees that could be planted, that would afford some shelter from the sea-blast?—*Q. Z.* [You had better try to bind your sand together by sowing Carex arenaria and Elymus arenarius. Perhaps also the experience of Mr. Forster of Aberdeenshire may be useful to you. See last year's volume of the *Agricultural Gazette.*]

The No-pasture System.—To "W.C."—Experience has proved (and will prove to your correspondent, if he tries), that, whether young or old, sheep, cattle, and horses thrive best in dry, warm yards, with sheds, protected from the north and east, but open to the south and west (I have found it so with all stock—having 100 lambs in a paved, warm yard, since August last), their food cut, mixed, and prepared for them without waste. In parts of Scotland, the hamel system for young stock is an established custom. There is no comparison between a two-year old colt or heifer—the one hameled with mixed food, the other depastured—so great is the difference in their growth and appearance. I know several cases in point. Your correspondent should read Mr. Karkeek's Essay on Fat and Muscle, in the Royal Agricultural Society's last Journal. My green food (Rape as well), is cut by boys, with Gardner's chaff-cutter. It never chokes, even without straw, although I generally introduce layers of straw above and below the green food. Hay without straw, cut very fine, is dangerous for horses, as they are apt to bolt it in masses without mastication; it then ferments, and produces gripes. Cut very fine with straw they must masticate it, and no such danger can arise. If no straw is used, 1½ to 3 inches is a good length. In practice, I find my horses and cattle get their stomachs better filled, and consume more in less time, by having it finely comminuted. Bullocks will eat 25 per cent. more, (mine eat four bushels of roots daily, besides oil-cake, straw, chaff, &c. &c.), and of course lay on their fat in proportion. A truss of straw, cut into ⅛-inch size, occupies a very small space. The fact is, the stomach will contain at least 25 per cent. more of finely divided food, than large angular pieces, or loose straw, with much intermediate air. Time is saved in mastication, leaving more time for repose. In economy of food, and rapid increase of condition, the advantages are beyond a question. Of course our roots are all washed, or cleansed, before cutting.—*J. Mechi.*

A Hint to The Farmers of England.—Are the farmers fully alive to their own interest? I think they are not, for I scarcely pass a farm-yard that I do not see the very best of the manure allowed to run to waste, that is, down some neighbouring ditch. This is strange mismanagement, when we consider that manure to the amount of a great many thousand pounds is annually imported. Farmers must not complain of bad times while they allow so much of their valuable property to be wasted for want of manure tanks, and a more business-like way of managing their dunghills, and applying the manure to the land. I am very happy to foresee a better state of things coming about. I would just warn farmers generally, that the eyes of landlords are abroad, and slovenly and negligent farmers must give place to men of improved practice. Let me advise you, old friends (we do not like new faces), to suit your practice to the improvements of the age; for believe me, that nothing but improved management and business habits can save you from ruin.—*A Friend.* [Landlords must supply the manure tanks.]

Flax-seed as Food.—Will you allow me to communicate to the readers of your valuable Paper the result of my little experience in the use of Flax-seed for feeding a saddle-horse. I was induced, from reading Mr. Sproule's articles in the *Gazette*, on Flax, and Warnes's system, &c. for farm horses, to try the experiment with my saddle-horse, which has now been fed 12 weeks upon the following diet, and is in excellent condition, with a good coat, notwithstanding the severe weather to which it has been a good deal exposed; for, being a surgeon, I am obliged to leave it standing at the doors of my patients continually:—

6 stone (of 20 lbs.) of Wheat straw, at 6*d.*	3*s.* 0*d.*
½ stone good hay, at 13*d.*	0 6½
½ score bran	0 6
7 lbs. ground Linseed, at 3*d.*	1 9
(Per week)	5*s.* 9½*d.*

These are retail prices and include straw for bedding, which however is economised by being put up under the manger during the day-time. Upon this my horse has, of course, done easy work; it has, however, only been four days in the stable, and has averaged 8 miles a day for the last 12 weeks. I have also a drawback on the manure, which, at the price here, will I think reduce the cost of keep to 5*s.* a week. I should state that my apparatus is neither extensive nor expensive. I boil in a 5 quart pan a gallon of water, with ½ lb. of good Linseed and a little salt, a common butter firkin being filled with the chaff (straw and hay) mixed with the proportion of bran; the boiling Linseed is poured over it, and well mixed with a broomstick, more chaff being added as it settles, after standing an hour or two; this is given at night, and a second supply (the operation being repeated with a little more chaff) stands all night, and affords the animal as much as she can eat the whole of the next day; the salt increases her relish.—*J. B. N., Liverpool.*

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

AT the Anniversary General Meeting of this Society, held last week, in terms of their charter, in their hall, Professor Low said the members were all aware that there at present prevailed an epidemic on the Continent among cattle. He believed it originated in the marshy swamps of Hungary; but it was steadily and rapidly extending northward. The opinion of medical men was, that the disease was contagious; and he thought it was safest to act upon that supposition. The French Government had been eagerly urged to take some precautions to prevent the admittance of these animals. He thought, therefore, that the Directors should apply to the Board of Trade, that, if necessary, they might suspend the operation of that portion of the tariff which refers to the importation of German cattle, so long as the epidemic continues. This would be no injury to the consumer, as the quantity of cattle hitherto imported had been very small, while the injury which might be inflicted by the importation of diseased cattle would be enormous.

Want of room forces us to delay the publication of our Report of the late monthly meeting of this Society.

MARKETHILL AGRICULTURAL SOCIETY.

We continue our Report:—Mr. BLACKER, the Chairman, said—The objects held in view by his lordship were the introduction of alternate husbandry, by the cultivation of green crops, and the practice of house-feeding the stock. In stating the degree of success which has attended his lordship's endeavours in these respects, I shall chiefly allude to the two principal green crops, Red Clover, mixed with Rye-grass, sown with first grain crop on the manured land, and Turnips. With regard to these crops, it must be in the recollection of many here present that Red Clover was formerly considered as unsuited to the cold clay soil of this neighbourhood, and although partially cultivated by a few of the higher class of farmers, the crop was seldom devoted to house-feeding the stock; and as far as regards the small farmers, they were ignorant of the benefits of both the crop and the most beneficial mode of using it. The advantages of this crop, as well as Vetches, Cabbages, and Rape, as affording the means of house-feeding during the summer months, are now perfectly well known, and almost universally cultivated. This is one great step in advance. With respect to Turnips, the difficulty of introducing them has been much greater. The parting with the manure from the Potato-crop has been a great obstacle. They were at first grown more to please the landlord and agent than from any conviction of their own great value, and the small patches of ground generally sown gave no adequate idea of the advantage the crop afforded, both in milk and manure; and his lordship's absence for several years, in Canada, and my own continued bad health, which disabled me from personally visiting the farms for nearly three years, occasioned many to apply all the manure they had acquired to their Potato crop, which rendered the cultivation of Turnips the following season impracticable. From these causes the slow advance of Turnip cultivation may be readily accounted for; but, notwithstanding all this, numbers found such benefit from the crop, both in milk, manure, and the condition of their stock, that, although left to themselves, the crop gradually advanced in the opinion of the small farmers; and, if I may judge from the greater extent to which it has been this year cultivated, on his lordship's property, and the manner it is now spreading over the surrounding estates, I am satisfied that all are now beginning to think they were wrong in not earlier attending to the recommendations given to them. To this change of opinion, not only here, but in many distant places, I think that the establishment of these meetings, and the publication, in the reports of the statements of the premium men, detailing the benefits they had derived from their change of system, has very materially contributed; and I have no doubt, before many years go round, the whole of the kingdom will be convinced of the value of this crop, for which its soil and climate are particularly adapted. Whilst on this subject, I cannot help alluding to the facility which the recent discovery of guano affords for Turnip cultivation, and thereby obtaining a sufficient supply of farm-yard manure, by which with due attention to the cultivation of that crop, and the care of the liquid manure, abundance will be for ever secured without the necessity of purchasing any of any other kind. The value of guano manure in this respect cannot be better exemplified than by a reference to what took place on the farm called Baleek Park, which has for many years been lying in almost a state of nature. His lordship being anxious to prove to his tenants, in that manor, the effect of draining, which is much wanted in that mountainous part of the country, desired me to have this land furrow drained and trenched, and put into

crop. This farm had been entirely in Grass for years, and no manure was evidently to be had to put the entire into Potatoes and Turnips, and numbers were curious to know where I meant to get manure from, and to all inquiries I gave the same answer—that I would bring it from South America, which they considered so absurd as not to be credited. However, I put the whole farm into Potatoes and Turnips upon guano, and by feeding young cattle upon the Turnips, and taking care of the liquid manure, I had the next year plenty for potatoing nearly the whole field, with scarcely any assistance; and this year I had a crop of Oats upon this farm, 657 feet above the level of the sea, which exceeded anything ever seen in that neighbourhood, and sold as high by the acre as any in the immediate vicinity of Armagh. This shows what guano will do, and if applied to grow as much Turnips as Potatoes, there will be manure ever after for both crops; and his lordship is so sensible of this, that he has desired me to procure, on the best terms I can, such quantity as his tenants may apply for, and I strongly recommend them to take advantage of the offer. I know it has been stated, in many places, that all the attempts here made to improve the cultivation of the soil, and to better thereby the condition of the tenantry, have all been unsuccessful. I regret this, because it may prevent others from following a plan which I am certain will succeed wherever the landlord and agent exert the influence they possess in aid of the agriculturist; but I am quite indifferent to the circumstance in any other respect. That an improvement is gradually in progress among those who are following the agriculturist's instructions, and that improved cultivation does not tend to the greater subdivision of farms, it would be easy to show, by referring to the improved circumstances of many premiummen here present, who have doubled or trebled the size of their farms, and, from commencing with but a few acres, are now 10*l.* freeholders, and have a lease of their farms at the old rent, for their own lives or 21 years. I see two or three of the persons I allude to here present; and any of the company who choose to call on them will, I have no doubt, be told that their land is now producing double or treble what it formerly produced, and that they have their leases, as I have said, at the former rent; and I do not think there is one among them that is not fully satisfied that his lordship has been as well pleased to *give* it as they have been pleased to *get* it; and, for my part, I must say that nothing could give me greater satisfaction than to see every tenant on the estate with the same story to tell. One instance I cannot help adverting to with peculiar satisfaction, in which a tenant of the name of Whitley was obliged to give up his farm of 9 or 10 acres, from being unable to pay the rent of it. He was allowed, however, to sell the tenant-right, which enabled him to purchase a small holding of 3 acres, in the same townland; and by the steady practice of house-feeding, and the cultivation of green crops, he has been enabled to save money, and to purchase back half of the old farm he had to leave; and, with the blessing of God on his industrious exertions, I hope yet to see him reinstated in the possession of his old farm, and able to keep the new one besides. A system which is capable of producing such results must gradually make progress as it becomes known, and I am happy to say that it has been introduced into some places, both in England and Scotland, as well as in Ireland, with decided advantage. I know many travellers have expressed disappointment at not seeing more appearance of improved cultivation in the neighbourhood of Markethill, when travelling between Armagh and Newry. But this road runs a very short way through the Gosford property, and that mostly in town-parks, and an old lease, the life of which is said still to be in existence in America, which has been a bar to all improvement; nor do I think the traveller will be struck with the improved appearance of any part of the country until the small fields are got rid of, and the crops sowed in stripes, from one side of the farm to the other. I feel confident that the land gained by the levelling of these unnecessary ditches, would give crops which would be worth, in many cases, the entire rent of the field, besides the saving of expense in ploughing, by having fewer turnings, and being able to avoid so many head-ridges and foot-ridges. I shall now conclude by proposing, as a toast, long life and prosperity to the industrious tenants on the Gosford estates, both here and elsewhere.

Mr. Simpson, of Killeen, replied—I would have been glad that some person more competent than I am had been fixed upon to respond to this toast, for certainly it would admit of much being said upon it. I shall not, however, attempt to say more than that the appointment of the agriculturist on the Gosford estate, and the publication of Mr. Blacker's Address to the tenants, on the improvement to be made in small farms by green crops and house-feeding, was the first thing that turned the attention of the farmers in this neighbourhood to the improvement of their system of farming; and that a great improvement has taken place, every one acquainted with this part of the country must be perfectly sensible. The advantages that have been derived, by those who have most zealously followed the instructions given them, have been such that I may say the prejudice which at first prevailed against the Turnip crop is now almost entirely removed; and the cultivation of that crop, next season, will vastly exceed anything which has yet been seen.

The Chairman rose to introduce the second subject proposed for discussion, namely, the Nature and best Mode of preserving Farm-yard Manure; and the Loss arising from leaving it spread on the Ground, during the Potato-setting, exposed to Sun, Wind, and Rain. He said—With regard to this subject, I beg to read to you an extract from the *Agricultural Gazette*, which refers to the subject, and well deserves your attention. It is headed—"Loss of Crop by Exposure of the Manure to the Action of the Weather," and states that "On the 28th of April, 1843, in planting Potatoes, we spread the manure for 19 ridges, but we could only complete 12 before night came on, and the following morning being rainy, we could not proceed; the 30th was Saturday (a sunny day), and on Monday morning we finished the remaining 7 rows. The 12 rows first planted came up a week before the others, and distinctly kept the lead throughout their growth, so much so, indeed, that if we had not noted the circumstance at the time, we should have been at a loss to account for the great difference between the two plots, both manure and sets being alike for each. On the 27th October we raised the crop, and the seven exposed rows yielded less in weight by 5st. 3lbs. per row than the other twelve rows—the length of the rows was 75 yards, thus showing a lighter crop by 3½ tons to the acre; the Potatoes, too, were scabbed, and inferior in quality. The manure was night-soil and ashes, with Epsom salts." It seems to me (continued Mr. B.) that the practice I speak of would in some measure account for the extraordinary fact in regard to the failure in the Potato crop, namely, that sometimes those planted in the morning come up without any misses, whereas the very same seed planted in the evening is found to fail, and *vice versâ*; for when the manure is fresh put out in the morning, and immediately covered up, I can conceive the plant to grow, when it would not grow on the same manure dried up all day by the sun and wind; and again, if that planted in the morning has stood over from the previous day, it may fail, when what is planted towards evening on the moist manure recently put out, may succeed; and particularly if the ground is in a very dry and parched state. In the mean time, nothing can be a more important consideration to the farmer than the nature and properties of the manure he gives to his crops. In all other things he has to do with he seems to estimate them according to their quality. If he buys a yard of cloth he looks to its strength and texture—if he sells a cart-load of Wheat, he will ask more for it according to its quality. But if we are to judge by the manner in which he manages his manure, one would suppose that he did not care a farthing whether it was good or bad, for he often lets it lie when the rain washes through it, and when the sun and wind extract all its strength, without paying the trifling attention of protecting it from either one or other. This, gentleman, is a subject, nevertheless, which has been thought of sufficient importance to engage the most careful investigation of scientific men, and as we have a gentleman present who has made matters of this kind his peculiar study, and whose talents and acquirements are universally looked up to. I shall take the liberty to propose his health—The health of Dr. Kane, author of "The Industrial Resources of Ireland."

Dr. Kane, after returning thanks, said he should delay his observations until he had heard what would be said by the practical people present. "This subject is of such importance," says the reporter, "that I think it advisable to introduce here the letters of some who were not able to address the meeting; and I beg here to make a remark of my own, I think worthy the consideration of the small farmers, which is this—that the allowing the manure to lie out exposed by the small farmer is the consequence of his being obliged to hire a horse to draw it out, and it is thereby brought faster than he can cover it; but if the small farmer would train up a young heifer to work in his farm, or would employ his cow, after being milked, for two or three hours in this work, and in bringing in his Clover and Turnips, it would be nothing more than wholsome exercise; and if he had occasion to work her a little longer, her labour would well compensate for a little loss of milk, which would soon be recovered when she would get rest. This is the universal practice among the small farmers on the Continent; and where the spade is used, it enables those with only one cow to harrow in the seeds, and renders them quite independent of all assistance. Where he has two or three cows, he might even do his own ploughing in light land. But to return to the subject under discussion."

Mr. Rolleston's letter stated that he had lost by allowing his manure to remain uncovered, as, on one portion of the field where it was so allowed to remain, his crop was entirely missed; while on another portion, where it was covered when newly put out, he had as good a crop as usual.

Mr. William Albin's letter stated, that having spread a quantity of farm-yard manure on about half a rood of land for Potatoes, it was three days before he could get it covered, owing to heavy rain. The remainder of the field he covered as soon as the manure was spread, and the difference in the crop was very great. What was planted on the manure that lay exposed for the three days did not yield much more than half the quantity compared with those planted on the manure which was covered immediately.

Mr. Ringland said—I have practised top-dressing with guano, in various modes of preparation, on Grass land; that is, with guano in its solid state, without any mixture, mixed with ashes half and half, and liquefied with night-soil and urine from the tank. It was applied in these different stages of preparation, on the Grass as a top-dressing, immediately after the first cutting. The increase of the Grass, both second and third cutting, on the part dressed with liquid, was astonishing, being double as much, if not more, than that on which the other preparations were put. The portion that was top-dressed with the mixture of ashes with guano was a little better than that upon which guano was alone applied. Being anxious to know the length and weight of the Grass upon the part dressed with the liquid above mentioned, I made some experiments, and found the length of the third cutting, on the 27th of Sept., to be 4 feet, and the weight, on 21 square yards, 2 cwt. 3½ lbs., weighed 24 hours after being cut. This weight of Grass I consider to be sufficient for feeding a cow 24 hours, and from such calculation, having only two cuttings, it would appear that 1 rood 26 perches would be a sufficient portion for a cow for 26 weeks. Such has been the case with myself in this farm for the last half year. Such was the extraordinary effect of top-dressing with the guano, liquefied by the fluid from the tank, that the second and third cuttings were better than the first. The proportions used were—unmixed, 2 cwt. to the acre; mixed with ashes, 2 cwt.; and mixed with the liquid, 1 cwt. to the acre.

Mr. O'Hagan said—Having tried the effects of liquid guano as a top-dressing for Turnips, a little after their coming into rough leaf, I am enabled to communicate very favourable results as to its efficacy when so applied. The first preparation of the ground, being one acre in extent, was draining, and subsequently trenching with the spade, 14 inches deep. This operation was gone about rather later in the season than it should have been, in consequence of my not having entered upon the farm until the 4th March. After the ground had been drained and trenched, it was allowed to remain for some time until the atmospheric influence would operate upon the fresh soil turned up, when, previous to drilling for the seed, it was ploughed, cross-ploughed, harrowed, rolled, and picked in the usual way. It was, indeed, no easy task to clean it, being infested with all sorts of weeds indigenous to the soil. One-half of the entire was then manured with guano and ground bones, at the rate of 2 cwt. of the former and 20 bushels of the latter to the acre; another quarter was manured with guano alone, at the rate of 3 cwt. to the acre, and the remaining quarter with night-soil. The night-soil, being always exposed to the influence of the atmosphere, lost its volatile and most valuable ingredients, and, therefore, its effects were not so favourable as might have been expected. All the manures were applied to the surface previous to forming the drills (the forming of which mixed the manure with the soil), with the exception of the night-soil, which was put in in the same manner as farm-yard manure. On the 14th of June seed was sown on the entire of the ground so prepared, being Swedes, Purple-tops, Aberdeens, and Globes. The Swedes were sown on the portion manured with guano and bones; and as there was a continued drought of four or five weeks, both before and after the time of sowing, many persons proposed to plough up the ground on which the Swedes were sown, such dry weather being particularly unsuitable for them, and sowing Globes, or something else, more suitable to the season, in their stead. I, however, resolved upon trying an experiment with mine. Previous to doing so, and with that view, I purchased a common herring barrel, of which I made a temporary tank, in the corner of the field convenient to the Swedes. I then procured some guano, and mixed it in the proportion of 1 lb. to 6 gallons of water, and allowed it to remain 48 hours previous to applying it to the drills. They were then watered with it in the evening, at the rate of 80 gallons to the rood, and the results were soon very visible. From a very delicate state, the plants soon began to assume a most luxuriant appearance, and only that some of the drills were made a little too wide, there would at the time of taking up have been at the rate of 30 tons of produce to the acre. I attribute their wonderful success to the top-dressing with liquid guano. There was no perceptible difference between those sown on the night-soil and guano alone, but there was at the rate of 4 tons to the acre between those on the guano and bones and those on the guano alone. I should have mentioned that the bones, previous to applying, were saturated with diluted sulphuric acid, and kept in a heap until fermentation had partially commenced. Great care should at all times be taken to have the ground well pulverised, and as friable as possible, before applying guano, as it is so volatile in its nature, that its valuable properties are easily dissipated.

Dr. Kane said—In every way the action of the wind and rain could not but do harm. The most valuable elements of the manure were of a nature some volatile, some soluble in water, and the former were exposed to being almost inevitably carried away—the latter to being as certainly washed away. Thus the entire mass of dung is reduced in value and in efficacy. In other countries, where the perfect garden cultivation of the farms and the variety and amount of produce excited the admiration of travellers, and furnished so excellent an example for us, the most minute attention is given to the preservation of manure. Not merely are the drainings collected carefully and returned to the top of the heap, so as to percolate frequently through it, and bring it all into a uniform fermentation, but the top of the heap is kept really thatched. The whole heap is under cover, and the escape of ammonia, and other gases and vapours from it is looked upon as a most serious and useless waste.—We are forced, by want of room, to postpone the rest of our Report.

Reviews.

Report of the Judges appointed to inspect the Farms entered for the Prize and Sweepstakes, proposed by the Yorkshire Agricultural Society, 1844.

We continue our extracts from page 45:—

"W. M. Beetham occupies 97 acres of Grass land

and 67 races of tillage, in the township of Gatenby, the greater part of which appears to be strong cold land, not under any regular system of cropping; for by his own account, some of it has been Turnips, Barley, Seeds, Wheat, and Beans; while other parts have been fallow, Wheat, and Beans, or Oats and Beans mixed; so that it varies from the three to the five-course system. The method he adopts in the consumption of his Turnips is, to draw them off and take about two-thirds into the fold-yard for the cattle; the rest is consumed on the Grass land by sheep. The whole of the farm has been drained. He states that his object in managing a farm is to obtain from it the best living that he possibly can. 'The plan I adopt,' he says, 'is, as much as possible, to keep my land clean and in good condition; to put in the whole of the manure made upon the farm, and likewise all I can purchase at a reasonable rate. Also to consume upon it all the produce of grain I possibly can, to the advantage both of the farm and myself.' How far Mr. Beetham has been able to accomplish his object, we are not able to ascertain; but certainly the crops this year are far from being heavy. This perhaps, may, in some measure, be accounted for by the peculiarity of the season, which has been very unfavourable for heavy soils.

"Lady's Chapel Farm has been occupied, for nine years, by William Mauleverer, Esq., the owner. This farm contains 103*a.* 2*r.* 16*p.*, and was thrown up at May-day, 1835, at a rent of 50*l.* per annum, when Mr. Mauleverer took it into his own hands. He describes it as being, at the time, a perfect wilderness; the upper part of the farm, containing about 50 acres, was unin-closed, and covered with Whins and Thistles. This portion of the farm has all been stubbed and trenched, by which an immense quantity of stones were obtained for making roads and fence-walls round the fields, as well as for the drainage of the land. The lower part of the farm also abounded in large fast stones, which have all been taken up in a similar manner, and employed in draining the land. Dead Thorn fences divided the fields in this part of the farm, which have been removed, and stone walls substituted. The old Grass land has all been broken up, and is now producing abundant crops of Turnips, corn, and seeds. The seeds are allowed to lie three years before they are ploughed up. The method of cropping the high part of the farm is, by first taking Turnips, next Barley or Oats; and then the land lies three years in seeds, when a crop of Oats finishes the round. The low part of the farm is similarly treated, except that a second crop of Oats is taken after the seeds. By this mode of management, the average quantity of seeds is about 38 acres, and of Turnips about 12 acres, which are drawn off the land, and consumed by the cattle in the sheds and yards, or by the sheep in the fields, with hay in addition.

"The crops on this farm are looking remarkably well, considering the sterility of the soil, its situation and aspect; and, when contrasted with those growing on the lands adjoining, give ample proof of what has been done for it. Although we have no prize for Mr. Mauleverer, yet we feel confident that he will be handsomely rewarded for his skill and outlay, by the extra production which his farm is sure to yield him.

"We trust that it will not be thought presumptuous on our part, if, on closing our Report, we venture to offer a few remarks on the benefits which we conceive would be conferred on the community at large, were the landed proprietors to set to work in good earnest, and break up such portions of waste or moor land as might be found practicable; and also render assistance and encouragement to their tenants, by undertaking to make such improvements as appear to us to be both their duty and their interest to make. We are induced to do so by the wonderful improvement which has been effected by Mr. Mauleverer on his Lady's Chapel farm, and the position in which the tenants on the two prize farms are placed, as regards the improvements which have been made by them. The crops which are now growing on Mr. Mauleverer's farm, furnish a clear and striking illustration of what can be effected on high poor land, when properly treated; and the advantages derivable from such treatment, to all the parties concerned, must be obvious to every one who will be at the trouble of bestowing a moment's thought upon it.

"Instead of a complete waste, as the high part of the farm must have been, Mr. Mauleverer has now the gratification of seeing it divided into neat and commodious fields, which are producing him abundant crops of corn, Turnips, and seeds; so that, great as his outlay may have been, the contrast between nothing, as in its former state, and its present production is so great, that he is sure to be well remunerated for the cost he has been at. And while he has thus been engaged in the improvement of his estate, what blessings he must have conferred on those who have been employed as his labourers, as well as on the neighbourhood; for it is very probable that several of the men who have thus been set to work, and thereby furnished with the means of subsistence, would otherwise have been a burden to their parishes.

"With respect to the tenants on the two prize farms, we find that they have drained the land, stubbed up old crooked fences and planted new ones, and made many other improvements, by which means the two farms are brought as near to a state of perfection as perhaps they well can be. But this would not have been the case, had not the tenants been men of capital as well as skill and energy; for it appears that all the improvements have been effected entirely at their own cost. Now we consider that this ought not to be the case; for although the most certain way for a tenant to better his own condition is by managing his farm well, still there are many tenants who are both anxious and skilful enough, but who have not the means within themselves of making such improvements as are necessary, for the proper and profitable management of their farms. Besides, there are many improvements which the land requires in several parts of this country, which ought to be effected by the landlord, in order to enable the tenant to manage his farm in the most profitable manner; we allude to all such as a tenant must leave behind him in case of removal, and which must then become part and parcel of the estate.—*Wm. Henlock, Robert Brough, John Kilby.*

Notices to Correspondents.

RURAL CHEMISTRY—By E. Solly, Esq., F.R.S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all book-sellers, price 4*s.* 6*d*

BONES—*S L B*—Apply 20 bushels per acre, in autumn, over your Grass land. You may do it now with benefit, though October is the best time.

CHURN, &c—*J Macintosh*—Thanks for your paper. We have not been able to serve you in the other matter to which you refer.

DRAINING TILES—*W O S*—If the landlord distrained for the rent due at Michaelmas last, you could not set off or deduct the allowance agreed to be made as you mention. The course proposed by the steward, of deducting the amount paid for the tiles out of the rent for the current half-year, appears to be in accordance with the usual practice, and fair, and should therefore be acceded to, especially as some obstacles might occur if proceedings were commenced by you on the covenant; for instance, the landlord might perhaps object that you were not entitled to recover anything until you had completed the whole 30 acres; we do not say that such an interpretation of the wording of the covenant could be supported, but the matter is not free from doubt. *W.*

FLAX-SEED MILL—*A Subscriber*—See pages 9 and 10.

GORSE—*A Sub*—Sow 12 lbs. per acre of the seed of the Common Gorse, Ulex europæus, in drills 1 foot apart, in the month of April. You must apply for prices, &c., to any seedsman.

GYPSUM—*Amateur*—It is not likely that this alone will be sufficient to insure you a good crop of Potatoes. But if you should plant Potatoes manured in the ordinary way on the land gypsumed last year, there is no doubt of their being benefited by that application, and being superior to others planted under similar circumstances without the gypsum.

MOSS—*T P*—Probably the best way to get rid of it is to give it a good dressing of lime, and then fold sheep over it, giving them Turnips upon it. Soot and salt may be used only applied; it will be a good dressing for the land, though whether it will extirpate Moss we do not know. Apply 30 bushels of soot broadcast, mixed with 2 cwt. of salt, per acre.

PEAT SOIL—*G S H*—After tile-draining you had better clay it; spread some 80 or 100 cubic yards of clay per acre over it in autumn, and next spring work it well into the soil by a thorough cultivation of it. The following mixture of Grass seeds is suitable for a light peaty soil:—Agrostis stolonifera, 2 lb, Alopecurus pratensis, 2 lb, Festuca duriuscula, 2 lb, Lolium perenne, 10 lb, Phleum pratense, 2½ lb, Poa trivialis, 2½ lb, Tritolium repens, 6 lb. per acre.

PERMANENT PASTURE—*A T*—Guano is a valuable fertiliser, and if you mix with the surface soil 3 or 4 cwts. per acre of it, the young Grass will doubtless be benefited by it. Will you inform us what kind of soil your field is, and we shall then advise a suitable mixture of Grass seeds for it.

SALT AND ASHES—*G H Sussex*—We are not aware that the one will act on the other in any important degree, or that there is any necessary connection or suitableness between particular proportions in a mixture of the two. From 2 to 4 cwt. per acre of salt, according to the lightness of the land, may be beneficially applied, and 40 to 60 bushels of ashes may also be applied on the same ground. Mix, therefore, 3 cwt. of the one with 50 bushels of the other, as a dressing for one acre. According to this it appears you have too much salt in your mixture.

SUGGESTIONS FOR FATTENING CATTLE—*J. Baptiste*—The publishers are Edwards and Hughes, Ave-Maria-lane, London.

TO KILL LICE—*Anon*—Strong mercurial ointment mixed with six or eight times the quantity of lard, and well rubbed into the skin, will destroy these pests, particularly if assisted with an improvement in the keep. *W C S.*

***As usual, many communications have been received too late.

Markets.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, JAN. 23.

Prime old Meadow Hay	100s to 108s	New Hay	—s to —s	Clover	100s to 117s
		Inferior Hay	90 100	Straw	33 37

A very dull trade. JOHN COPPER, Salesman.

CUMBERLAND MARKET, JAN. 23.

Superior Mead. Hay	108s to 115s	Superior Clover	115s to 120s		
Inferior - 90 100		Inferior ,, 100 108		Straw	36s to 38s
New Hay - — —		New Clover — —			

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, JAN. 24.

Fine Old Hay -	105s to 110s	Old Clover	120s 128s		
New Hay - 90 100		New Clover	105 115	Straw	28s to 36s
		,, Inferior	— —		

HOPS, FRIDAY, JAN. 24.

We have nothing fresh to communicate since last week. The demand continues at full prices for all descriptions of Hops, with a very limited supply. PATTENDEN & SMITH, Hop-Factors

POTATOES.—SOUTHWARK WATERSIDE, JAN. 20.

THE weather during the past week has been mild, much against the consumption of Potatoes, and the trade having some stock on hand, the demand was limited, and the expectations of the salesmen were not realised. The arrivals have been moderate, but are fully equal to the demand, and the following prices were barely maintained.

York Reds - - -	70s to 80s	Kent and Essex Whites -	—s to —s
Perth - - -	60 60	— Kidneys	60 65
Fifeshire - - -	45 55	Wisbeach Kidneys - -	60 65
Early Devons - -	60 65	— Blues - -	— —
Late Devons - - -	— —	— Whites - -	50 60
Cornwall - - -	60 65	Guernsey Blues - -	55 60
Jersey Blues - - -	55 60	— Whites - -	— —
— Whites - - -	— —	Prince Regents - -	60 65

SMITHFIELD, MONDAY, JAN. 20.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 4	Best Downs & Half-breds	4s 2 to 4s 4
Best Short Horns -	3 10 4 0	Best Long-wools - -	3 10 4 2
Second quality Beasts -	3 0 3 6	Ewes and second quality	3 4 3 8
Calves - - - -	4 0 5 0	Pigs - - - -	3 4 4 4

Beasts, 2835; Sheep, 26,040; Calves, 70; Pigs, 347.

We have to-day an increased supply of Beef of general good quality. The demand for the best qualities is tolerably good; yet, our top quotations are the extreme prices that have been realised only in some instances. Some very good Scots have made 4s 4d, but the more general price is 4s 2d, at which a good clearance is effected. Short Horns, also, for the most part make a little under 4s. Our supply of Sheep is about the same as last week, and the prices then realised for the best qualities are fully supported, with a brisk trade. Good Calves are still scarce, and support late quotations. Pork trade is a little more lively.

FRIDAY, JAN. 24.

We have a fair supply of Beasts to-day, and the trade heavy. Prices, however, remain about the same as Monday. The best Scots make a little over 4s 2d, and the best Short Horns somewhat under 4s; second quality, 3s to 3s 6d; a clearance of this description cannot be effected, the dead trade being very bad for middling meat. The supply of Sheep is rather larger, and the trade not quite so good, especially for Ewes and middling quality, which form a large proportion of the quantity in Market. Best Downs, &c. 4s to 4s 4d; best Longwools, 3s 8d to 4s; Ewes, &c. 3s 2d to 3s 6d. Good Calves, which are not very plentiful, make fully as much as on Monday; the choicest have realised rather over 5s per 8 lbs. Pork trade is lively at former rates.

Beasts, 760; Sheep, 8740; Calves, 107; Pigs, 267.

41, West Smithfield.

COVENT GARDEN, JAN. 25.—The supplies have been well kept up during the past week; prices have varied but little, and trade remains much the same. Pine Apples are good, and tolerably abundant. The supply of Grapes is equal to the demand. Among Dessert Apples are the Newtown Pippin, the American Lady, or Pomme d'Api—a beautiful high-coloured variety, and Ribstone Pippins: good specimens of the latter are, however, scarce. Fine samples of the Wellington, which is one of the best Apples for kitchen use, may be procured at about 4*s.* per bushel. Pears are pretty plentiful; they consist of nearly the same sorts as formerly mentioned. No alteration has taken place in the prices of Oranges; Nuts are a trifle dearer. Among Vegetables, Asparagus is somewhat cheaper; the best bundles are offered at about 8*s.* each. Seakale is good, and sufficient for the demand. The supply of Broccoli, Brussels Sprouts, and other Winter Greens, is good; the best White Broccoli fetches about 3*s.* 6*d.* per bundle. Celery is offered at the same prices as mentioned in our last report. Mushrooms, being very plentiful, are considerably cheaper than they were last week. Lettuces, Endive, and other Salading, are well supplied. Among Cut Flowers we noticed Poinsettia pulcherrima, Lachenalia tricolor, Persian Lilacs Epacrises, Heaths, Lily of the Valley, Hyacinths, Roman Narcissus, Azaleas, Acacias, Camellias, Tulips, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 6*s*	Oranges, per 100, 4*s* to 14*s*
Grapes, Spanish, per lb., 1*s* to 1*s* 3*d*	— bitter, per 100, 16*s*
— Portugal, per lb., 1*s* to 3*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 3*s* to 7*s*	— per 100, 5*s* to 14*s*
— Kitchen, 3*s* to 5*s*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 4*s* to 8*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Pomegranates, per doz., 2*s* to 4*s*	Cob Nuts, per 100 lbs., 150*s* to 180*s*
Filberts, per 100 lbs., 140*s* to 150*s*	Nuts, Barcelona, 24*s*
Chesnuts, per peck, 3*s* to 8*s*	— Brazil, 16*s* to 20*s*
Walnuts, shelled, 12*s* to 20*s*	— Spanish, 8*s*
Oranges, per dozen, 9*d* to 2*s*	— Coh, 14*s*

VEGETABLES.

Cabbages, per dozen, 6*d* to 1*s* 3*d*	Scorzonera, per bunch, 1*s* to 1*s* 6*d*
— red, per doz., 2*s* to 3*s*	Salsafy, per bunch, 1*s* to 1*s* 6*d*
— plants, per doz. bnch., 2*s* to 3*s* 6*d*	Leeks, per doz., 1*s* to 1*s* 6*d*
Broccoli, per bundle, 1*s* 6*d* to 3*s* 6*d*	Garlic, per lb., 2*d* to 10*d*
Brussels Sprouts, hf sv., 1*s* 6*d* to 2*s*	Onions, per bunch, 4*d*
French Beans, per 100, 3*s* to 4*s*	— large, per bushel, 2*s* to 3*s*
Sorrel, per hf.-sieve, 1*s* 6*d* to 2*s*	— Spanish, per doz., 2*s* to 4*s*
Jerusal. Artichok, p. hf-sv., 9*d* to 1*s* 3*d*	Shallots, per lb., 8*d* to 10*d*
Potatoes, per ton, 50*s* to 80*s*	Lettuce, per score, 4*d* to 8*d*
— cwt., 2*s* 6*d* to 5*s*	Celery, White, per bunch, 10*d* to 1*s* 6*d*
— bushel, 1*s* 6*d* to 3*s*	— Red, per bunch, 9*d* to 2*s*
— Kidney, per bsh., 2*s* to 3*s*	Endive, per score, 1*s* to 2*s* 6*d*
— Autumn, per lb., 3*d* to 6*d*	Mushrooms, per pottle, 6*d* to 1*s*
Turnips, per doz. bch., 1*s* 6*d* to 3*s*	Small Salads, per punnet, 2*d* to 3*d*
Red Beet, per doz., 1*s* to 3*s*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Carrots, per doz. bchs, 5*s* to 6*s*	Parsley, per doz. bunches, 3*s* to 5*s*
Basil, per bunch, 2*d* to 3*d*	— Roots, per bundle, 3*d*
Rhubarb, per bundle, 1*s* to 1*s* 6*d*	Tarragon, per bunch, 6*d*
Seakale, per punnet, 1*s* to 2*s* 6*d*	Mint, per bunch, 6*d*
Asparagus, per bundle, 2*s* to 8*s*.	Marjoram, per bunch, 2*d* to 3*d*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*	Chervil, per punnet, 3*d* to 4*d*
Savory, per bunch, 2*d* to 3*d*	Chilis, per 100, 1*s* to 2*s*
Spinach, per sieve, 1*s* 6*d* to 3*s*	

MARK-LANE, MONDAY, JAN. 20.

THE supply of English Wheat by land carriage samples this morning was unusually small, and sold at the prices of this day se'nnight; the town millers, being well stocked with Lincolnshire, evince much indifference in purchasing. Foreign was in limited demand. Best Barley scarcely maintains its late value; all other descriptions must be written 1*s.* lower, with a large quantity left unsold. Beans and Grey Peas remain unaltered; White are fully 1*s.* cheaper. The show of Oats continues large, but the trade is rather firmer than on Monday last, with a fair sale.

BRITISH, PER IMPERIAL QUARTER.	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk .	White	40	50	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire	—	—	—	White	—	—
Barley, Malting and distilling 30*s* to 35*s*	Chevalier	33	36	Grind.	24	27
Oats, Lincolnshire and Yorkshire . .	Polands	20	24	Feed	19	23
—— Northumberland and Scotch . .	Feed	20	23	Potato	21	24
—— Irish	Feed	19	23	Potato	21	24
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	29 to 34	Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland .	37 to 40	Winds	—	—	Longpod	—	—
Peas, White	34 to 36	Maple	31	33	Grey	30	32

FRIDAY, JAN. 24.

THE Wheat Trade, both English and Foreign, has been dull since Monday, but prices remain nominally the same. English Barley is very unsaleable, although offered at a decline of 1*s.* per quarter; Foreign is difficult to quit, and rather cheaper. Beans and Peas are unaltered. The Oat trade is firmer, and in some instances a trifling advance is obtained, a great proportion of the late large arrivals having been cleared off.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	5680	9590	8270	5010 Sks
Irish . .	—	—	10160	—
Foreign . .	—	—	—	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Dec.	18 per Quarter.	45*s* 2*d*	34*s* 9*d*	21*s* 10*d*	31*s* 2*d*	37*s* 5*d*	36*s* 4*d*
—	20 . . .	45 1	34 5	21 11	32 0	36 9	36 1
—	23 . . .	45 6	34 3	20 10	31 9	35 7	35 5
Jan.	4 . . .	45 8	34 2	21 10	33 9	36 3	36 1
—	11 . . .	45 10	34 5	21 7	31 4	35 9	36 0
—	18 . . .	45 7	34 7	21 8	31 4	35 7	35 8
6 weeks' Aggreg. Aver.		45 6	34 4	21 7	32 0	36 0	35 9
Duties on Foreign Grain		20 0	4 0	6 0	10 6	6 6	7 6

SEEDS, Jan. 24.

Canary - -	per qr	48*s* to 52*s*		Linseed Cakes, Foreign, p. ton	8*l* to 9*l* 10
Carraway - -	per cwt	44	52	Mustard, White - p. bush.	10*s* 14
Clover, Red, English -	—	—		— Superfine ,, -	12 16
— — Foreign	—	—		— Brown ,, -	12 16
— White, English -	—	—		Rapeseed, English, per last	22*l* 25*l*
— — Foreign	—	—		Rape Cakes - per ton	— —
Coriander - -		12	18	Saintoin - - -	— —
Hempseed - per last		35	36	Tares, Eng. winter p. bush.	5 6
Linseed - - per qr		—	—	— Foreign - - -	— —
— Baltic - -		—	—	Trefoil - - per cwt	— —
— Cakes, Eng. per 1000		12*l* 10	13*l*	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

WHOLESALE PRICES OF MANURES.

Guano, Peruvian	per ton	10*l*	10*s* 0*d*	Carbonate of Soda .	cwt.	2*s* 6*d*
— Bolivian	,,	—	—	Nitrate of do. .	15*s* to 16	0
— Ichaboe	,,	6*l*	10 0	— Potash	,,	28 0
— Potter's	,,	10*l*	10 0	— Ammonia	lb.	3 0
— — Liquid	doz.	12	0	Nitric Acid . .	lb.	9*d* to 10
Gypsum . .	ton	27*s* 6*d*	to 35 0	Muriatic do. . .	,,	1*d* to 1½
Sulphate of Ammonia	cwt.	17*s*	to 18 0	Tartaric do. . .	,,	1*s* 4*d* to 1 6
— Soda	,,	5*s*	to 6 0	Chloride of Lime .	cwt.	24 0
— Potash	,,		18 0	Carbonate of do. .	,,	1 6
— Copper	,,		86 0	Soda Ash . .	,,	14 0
— Magnesia	,,		10 0	Agricultural Salt .	ton	32 0
— Iron	ton	4*l*	10 0	Hide do . .	,,	21 0
Sulph. Acid (London made)	lb.	0	1½	Rock do. . .	,,	56 0
— (country)	,,	0	1¼	Petre Salt (Residuum) of Salt		
Bonedust and half-inch	qr.	18	0	Petre . . .	ton	60 0
Calcined Bones .	cwt.	10	0	Clarke's Dessicated Compost . . .	hhd.	3*l* 13 6
Phosphate of Lime	cwt.	7	0	Watson's Compost .	cwt.	9 0
— Soda	,,	12	0	Humphreys's Compounds	,,	10 0
— Potash	,,	16	0	Dr. Hallet's Manures	,,	10 0
— Magnesia	,,	—		Rape Cake . .	ton	5*l* 0 0
— Ammonia	,,	28	0	— Dust . .	,,	4*l* 10 0
Superph. of Lime .	,,	8	0	Linseed Cake, Foreign	,,	9*l* 10 0
Graham's Phosphated Turnip Compost . .	cwt.	10	0	— English	,,	12*l* 10 0
Urate . . .	ton	4*l*	4 0	— Meal	cwt.	18 0
Muriate of Lime	cwt.	6	0	Whitney's Composition	doz	24*s* to 60 0
— Potash	,,	16	0	Lights and Frames.		
— Ammonia	,,	24	0	Sulphur . . .	cwt.	16 0
Carbonate of do.	,,	56	0	Alum . . .	,,	12 0
Sal Ammoniac .	,,	50	0	Pearlash . . .	,,	36 0

IMPORTATION OF GUANO,

From the 1st of July to the 31st of December, 1844.

LONDON.		LIVERPOOL.	
African . .	6759 tons.	African . .	10,928 tons.
South American .	6120 ,,	South American .	7025 ,,
BRISTOL.		HULL	
African . . .	700 tons.	African . . .	2647 tons

40, Upper Thames street.

Sale by Auction.

NATURAL HISTORY CURIOSITIES, CACTI, &c.

MESSRS. PROTHEROE & MORRIS will Sell by Auction, at the Auction Mart, Bartholomew-lane, on Friday, 7th Feb., 1845, at 12 o'cock, Sixteen Boxes containing CACTI, AMARYLLIS, &c., and a collection of Flower and other SEEDS from Chili, principally from the Cordilleras; also several Skeletons of GUANACOES, Guanaco Skins pr pared, a variety of beautiful BIRDS, mostly large; REPTILES, and other Curiosities, in spirits, likewise from the Cordilleras; collected with great expense by an English Amateur. May be viewed till the Sale at the Warehouse of Messrs. Browne, 83, Upper Thames-street, at the foot of Dowgate-hill, and Catalogues had at the Mart, and of the Auctioneers, Leytonstone.

TO NURSERYMEN, SEEDSMEN, BUILDERS, and OTHERS.

TO BE DISPOSED OF, most desirable NURSERY GROUNDS, situate within half an hour's ride of either of the Bridges, containing about Three Acres of Land, in a very high state of cultivation, and in the midst of a populous and wealthy neighbourhood. There is a Cottage, Greenhouse, Pit, and Seed Shop on the Premises. The above are held under a Lease, of which 31 years are unexpired. The Valuation of the Stock will not exceed 200*l.* For further particulars apply by letter, post paid, to C. D., No. 13, St. Martin's-le Grand.

TO BE DISPOSED OF, 100,000 ASH PLANTS, for 10*l.* The above are Three Years' Seedlings, and average 3 feet high. In small quantities, 2*s.* 6*d.* per 1000.—Apply to WM. JACKSON, Gardener, Wellingbro'.

ROSE TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for sale, after the present Season, is desirous of disposing of his extensive stock of ROSE TREES and other Plants, at less than half the usual prices, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.—Brenchley, Kent, Jan. 25, 1845.

J. HARRISON, NURSERY and SEEDSMAN, York, begs to call the attention of the Trade and the Public generally to the following DAHLIAS, which he intends to send out early in May next.

ITHURIEL (Harrison's), buff, tipped and shaded with rich amber; a beautiful and novel variety, and an acquisition to any stand. Gained first class prizes at Bradford, Britton, and Hull, and in numerous winning stands in Yorkshire and Durham, and pronounced by Mr. Glenny, and every one who has seen it, to be the best Dahlia of its colour; 3 to 4 feet. 10*s.* 6*d.*

DUKE OF YORK (Harrison's), beautiful bright yellow, similar to Dodd's Prince of Wales, but shows its blooms well above the foliage, and is well up in the centre; a constant and splendid variety, and has also taken many prizes this season; 3 to 4 feet. 10*s.* 6*d.*

ALICE HAWTHORN (Harrison's), light rich rose, full and constant show flower; took the first prize at Bradford, also the first prize at Hull, this season, and in many winning stands. 3 to 4 feet. 10*s.* 6*d.*

EBORACUM (Harrison's), dark crimson purple; has taken many prizes; was shown at Highgate; 4 feet. 7*s.* 6*d.*

SULPHUREA (Harrison's), fine light sulphur, a constant and free bloomer, but rather small; has been shown in many winning stands this season; 4 feet. 5*s.*

The above Dahlias have been shown and obtained prizes at all the principal shows in Yorkshire and Durham, and J. H. warrants them to give satisfaction to the parties that may grow them.

J. H. begs to state his intention of giving a Prize of Five Pounds at the Metropolitan Show next September, with One Pound towards a Subscription of 2*s.* 6*d.* each, to form a Second Prize for 6 blooms out of 12 varieties named by him, including the above, with Lord Howden, Constance, Lady Grey, Cotherstone (Hedley's), and two others, which he will name in a future Advertisement.—Grove Nursery, York, Jan. 25.

W. FOSTER, NURSERYMAN, SEEDSMAN, and FLORIST, Stroud, Gloucestershire, respectfully offers—

Carnations & Picotees, choice show flowers, 2*s.* to 2*s.* 6*d.* p. pair.
Ditto ditto, choice border flowers, 1*s.* 3*d.* to 1*s.* 6*d.* „
Hardy Herbaceous Plants; an extensive and choice selection, 6*s.* to 9*s.* per doz., 40*s.* to 50*s.* per 100.
Dahlias, selected show flowers, 12*s.* to 18*s.* per doz.
Ditto ditto fancy and border ditto, 10*s.* to 12*s.* per doz.
Roses, a choice named selection for gardens, 6*s.* to 9*s.* per doz.
Do. a general mixture of choice kinds, 4*s* per doz., 25*s.* p. 100
Do. Climbing, in pots, strong plants, 10*s.* per doz.
Geraniums, selected good kinds, some not generally known, 8*s.*, 12*s.*, and 15*s.* per doz.
Petunias, six seedlings, not yet sent out, some of extraordinary size, 3 to 4 inches across, the others of fine form, 15*s.* the set.
Ditto a choice selection of named varieties, 9*s.* per doz.
Fuchsias, a fine collection, 12*s.* per doz.
Verbenas, Salvias, Cinerarias, Heliotropes, &c., 6*s.* to 9*s.* p. doz.
Annual Flower-seeds, a choice selection, including some of the newest, 12 packets, 3*s.*
Ditto ditto, 24 packets, 5*s.*
Ditto ditto, 50 packets, 10*s.*

A general Catalogue of Fruit and Forest-trees, Evergreen and Deciduous Flowering Shrubs, and Vegetable and Flower Seeds may be had on application. All orders to the amount of 20*s.*, accompanied by a remittance, will be carriage paid to the nearest point of delivery, if within a moderate distance.

CUCUMBER and MELON BOXES and LIGHTS.—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-lights made, glazed, and painted, from 1*s.* per foot. Sashes and Frames made, glazed, and hung complete, 1*s.* 8*d.* per foot.—At JAMES WATTS' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

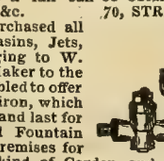
Present Prices for Cash or Post-office order.

14 inches . . .	11*s.* 0*d.*	20 inches . . .	22*s.* 6*d.*
15 inches . . .	12 6	22 inches . . .	25 0
16 inches . . .	16 0	24 inches . . .	32 0
18 inches . . .	19 0		

Slate Works, Isleworth, Middlesex.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c. formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above article in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. Heated by Hot Water.



HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

BURBIDGE AND HEALY'S NEW BOILER and FURNACE for HORTICULTURAL PURPOSES.
Registered under 6 & 7 Vict., Cap. 65.
No. 130, FLEET STREET, LONDON.



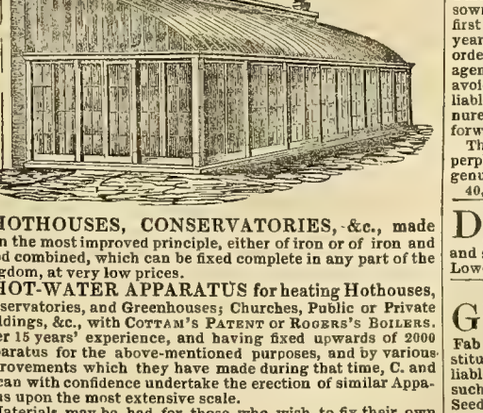
BURBIDGE and HEALY respectfully inform the Horticultural Public that they have constantly on hand an extensive assortment of their new Boiler and Furnace Doors. In very numerous cases where they have been fixed, they have the highest testimonials of their complete success: for the further assurance of those who may require this apparatus, BURBIDGE and HEALY refer them to the Horticultural Society's Gardens, Chiswick; also to Mr. GLENDINNING, Garden Architect, &c. &c., Chiswick Nursery, in the same neighbourhood, where the apparatus may be seen in successful operation, in connection with their new Tanks. The following are the present prices:—

Plain Boiler.		Patent Door and Frames.	Fire-bars & Dead Plate.	Flue Door.	Damper.	Will heat of Pipe.	Forcing Pit, Length by feet.
in.	£ s.	s.	s. d.	s. d.	s. d.		
10	1 5	20	7 6	6 6	2 6	30 feet.	12 to 20
Ribbed Boiler.							
10	2 2	20	10 6	7 6	2 6	50 to 70 ft. 4 in.	Under 25 to 40
12	2 15	30	12 6	7 6	3 6	80 to 125 feet.	40 to 65
14	3 10	35	17 5	8 6	4 6	150 to 250 feet.	65 to 100
18	5 5	42	25 0	8 6	5 6	300 to 400 feet.	Warm a grapery 35ft. long, and a pit 50ft.
24	8 15	50	35 0	8 6	7 6	600 to 800 feet.	

If 3-inch pipe be used, one-third more. If 2-inch pipe, as much more.

The above quantities are rough estimates, which may be varied by enlarging or contracting the fire, or by regulating the fire door. It is possible to heat a much larger quantity of pipe with the boiler, but it would be done at great loss of fuel. The above proportions can be generally relied on as a near approximation to what is correct.

COTTAM AND HALLEN, ENGINEERS, IRONFOUNDERS, &c., &c., No. 2, WINSLEY-STREET, OXFORD-STREET, LONDON, and at CORNWALL ROAD, LAMBETH.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with COTTAM'S PATENT or ROGERS'S BOILERS. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c., &c., and every description of Implement for AGRICULTURAL and HORTICULTURAL PURPOSES.

Show Rooms at their Manufactory, 2, Winsley-street, Oxford-street, where a large assortment of the above can be seen.

SLATE SOLES FOR TILE-DRAINING.—Prices:—Sole, 6 by 5 in., 11*s.*; 12 by 5 in., 15*s.* per 1000. WM. BROWN'S Slate Yard, 164, Broomielaw, Glasgow.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-st., every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field, and Garden Fences, Wire Work, &c. &c.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Jan. 25.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street, Jan. 25.

GUANO for SALE, in Bags of 1 cwt. each, just landed, with a succession of cargoes to arrive.—Successive years' experience has unquestionably proved that Genuine Guano is the simplest, cheapest, and best Manure within the reach of the Agriculturist. The only reasonable anxiety which now remains is to procure the Guano unadulterated, and to obtain such practical directions for using the Manure as shall fully develop its productive powers. To secure to buyers these indispensable requisites, with each purchase will be given a warranted chemical analysis of quality, and also a copy of the recently published Pamphlet, "Practical Instructions for using Guano as a Manure, illustrated by Practical Results."

Large parcels will be delivered direct from the ship or waterside premises; smaller quantities may be had at the warehouses, 24 and 25, Billiter-street, or delivered within any reasonable distance at a trifling additional cost. Apply to JAMES CLARK, 24, Billiter-street, Fenchurch-street, London.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poore-t part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 1*l.* per quarter, including sacks; warranted to stand the most rigorous analysis.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

DRAINING OF LAND.—THE WORKMAN'S LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30*s.*

SUBSTITUTES FOR GLASS.

GERARD, ARNEY, AND CO.'S COMPOSITION for rendering Paper, Linen, Calico, and other suitable Fabrics transparent and waterproof, forming excellent Substitutes for Glass for Horticultural Purposes, &c., not being so liable to breakage, much warmer, admitting a softer light, and such a genial degree of heat, that the tenderest Plants and Seedlings never burn nor scorch under them; they will be found invaluable for Melons and Cucumbers, as also for making Awnings for covering Beds of Tulips, Hyacinths, Balsams, &c. Market Gardeners will find them invaluable for affording protection to Early Vegetables, Wall-fruits, &c.

PRICES, &c.—Composition in pints, 2*s.*; Quarts, 3*s.* 6*d.* Each pint, when diluted with turpentine, will make about a quart sufficiently fluid for use.

PREPARED TRANSPARENT WATERPROOF FABRICS.—Paper, 23 in. wide, 6*d.* per yard. Calico, 31 in. wide, 1*s.* per yard. Linen, 28 in. wide, 1*s.* 6*d.* per yard, in 6 yard lengths.

Every information, and Samples of the prepared Fabrics, may be had by application, and letter prepaid, to the Proprietors, at the Manufactory, High Hill Ferry, Upper Clapton, Middlesex.

For Agency Appointments apply as above.

TANNER'S VITREOUS CLOTH—a SUBSTITUTE for GLASS for HORTICULTURAL PURPOSES.—In the above article is presented to the Horticulturist all the advantages derivable from the use of Glazed Frames, without their defects. The light admitted through the Vitreous Cloth is subdued to such a degree as to be at all times agreeable to the plant; for whilst sufficient light is admitted when in the shade, it requires no extra covering under a burning sun. Being a non-conductor of heat and cold, it is more economical than Glass for Hotbeds, Hothouses, &c., the heat of which is maintained at less expense.

Price—7-8ths of a yard wide, thin, 2s. 6d. per yard.
Ditto stout, 3s. "
1 yard wide . . . 3s. 6d. "

Prepared by N. W. TANNER, Chemist, Exeter. Sold by Messrs. BUTLER and MUCKLEY, Covent Garden, London; Mr. CUNNINGHAM, Paradise-street, Liverpool; Messrs. LUCOMBE and PINCE, Exeter Nursery.

WHITNEY'S PATENT CLOTH for COVERING GREENHOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street. — Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles, made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps.

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

IMPROVED ROOFING FELT.

McKIBBIN'S PATENT ROOFING FELT

Is particularly applicable as a Substitute for Slate, Zinc, Tiles, Thatch, and other articles used for Roofing, from its Economy, Durability, and Lightness. It is quite impervious to wet and damp, resists the heat of the sun, and is a non-conductor of heat or cold. Besides the economy in repairs, the timber where it is used may be so light as to save its whole expense. It requires no other coping, and by attention to printed directions may be applied by a common labourer. It is free from breakage and contraction, like zinc, and requires neither painting nor coating. It is now in very general use for Roofing Houses, Verandahs, Sheds, Workshops, Ropewalks, Railway Stations, Icehouses, &c. &c., and for protecting Plants, covering Garden Frames, Corn, and Hay Ricks, the top and sides of Sheep-folds; and to Emigrants it provides a cheap, warm, durable, and portable Roof.

This Improved Roofing Felt is much more durable than the common Felt, made in lengths, not being subject, like it or other materials in continuous lengths, to be stripped by storm; and being fastened down at the overlaps only, the wet cannot percolate through the nail-holes.

TESTIMONIAL.

London, Nov. 1, 1844.

H. C. BOWDEN, Esq., Agent for McKIBBIN'S Roofing Felt.

It is with much pleasure I add my humble testimony to the superiority of your Felt over any other preparation of the kind with which I am acquainted. This Testimony I give with the greater cheerfulness from the many reports I have heard in its favour, and from the likelihood of its being used extensively in Agricultural purposes. I shall not fail to notice it in my Lectures when on the subject.

(Signed) JOHN ROBINSON, M.B., Senior Lecturer on Chemistry, &c., as applied to Agriculture and Rural Economy in this Kingdom.

Sold in Sheets 32 inches by 20, at 5d. each (being less than 9s. 6d. per square of 100 feet).

Apply to H. C. BOWDEN,
Agent to the Manufacturers,
No. 18, East India Chambers, Leadenhall-street, London.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN USES.

BY HER MAJESTY'S ROYAL LETTERS PATENT

TO GARDENERS, NURSERYMEN, AND OTHERS.

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THE GARDENERS' CHRONICLE
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AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 5.—1845.] SATURDAY, FEBRUARY 1. [PRICE 6*d.*

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N. B.—Printed Rules, with a List of the Prizes, may be had on application.—Hexham, Jan. 1845.
HENRY WALTON and WILLIAM TURNER, Secretaries.

S. GIRLING begs to refer the readers of the *Gardeners' Chronicle* to his Advertisement of DAHLIAS, PETUNIAS, FUCHSIAS, and VERBENAS of the 16th November.
Danecroft Nursery, Stowmarket, Suffolk.

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CUTHILL'S Prince of Denmark Clove-scented CARNATION, a brilliant scarlet, 12*s.* per doz., a nosegay in itself.
Best PICOTEE SEED, 5*s.* per pckt. CALCEOLARIA ditto, 2*s.* 6*d.* per pckt.
CUTHILL'S Early MELON, Cabul, Hoosianee, Beechwood, Ispahan, and Green Flesh; CUTHILL'S Early Black Spine, and Latter's Victory of England CUCUMBER, 2*s.* 6*d.* per packet, or 3 packets for 6*s.*
STRAWBERRIES.—Plants of British Queen and Keen's Seedling in pots for forcing.
MELON and CUCUMBER Plants always ready; any or all of the Seeds sent post-free.
J. CUTHILL, Florist, Denmark-hill, Camberwell, London.

ADDRESS TO THE PLANTERS OF ENGLAND.

TRUE HIGHLAND PINE-TREE.—MY LORDS, LADIES, AND GENTLEMEN,—The time has come when all those who have waste lands at their disposal should plant them. Of this I am fully persuaded, and I beg you will allow me to explain on what grounds this opinion is founded. England, generally, is a thickly-wooded country, yet, strange though it may appear, it has not been planted with any view to meet its most urgent wants. If the poor farmer require an outhouse built for his cattle, he cannot have it because there is no deal-wood in the neighbourhood: he builds it therefore of whins, or of any other rubbish he can lay hold of. Instead of having plenty of fir-wood on all hands to fence young hedges, planted like other things on the common surface of the ground, military-like fortifications have been raised to divide fields, occupying as much good land as is contained in three of the largest counties of Britain: it is on those banks ineffectual attempts have been made to grow hedges. After the 1st of March, when the Royal Agricultural Society's Prize on fences shall have been awarded, a great proportion of the hedges throughout England will be reconstructed by planting them on the plain surface; and the question will then arise, "Where is the wood to protect them in their young state to come from?" Turning to the railways which are now being formed in every county in England, another and greater question arises as to the supply of wood which will be required in *their* construction. Go up, I am told, to the Lebanons of our island—those immense forests in the north of Scotland—and there hew down as many trees as will be required. From those, however, I find we must expect but a limited supply. Like the famous Mount of old, they are already overrun with the axe, and a continuance of the present rate of demand for a few years more will reduce the trees upon them to a mere remnant. It is not the original numbers required for sleepers which will effect this change, but it is the incessant demand, *ad infinitum*, for timber to replace that which is already laid down, or may be for the future laid down in additional lines. Look at it how we may, the state of our country at the present crisis proves that our immense and almost measureless tracts of what is generally called waste land were not created to be a scene merely of unproductive solitude. The rains with which they are refreshed, and the fostering sunshine that rests upon them, might have taught us that Providence had designed them to contribute in some way or other to the wants of man; and though Nature has been unable to lead us to comprehend her lesson, so simply brought before us, necessity has at length compelled us to look to those districts where only a sufficient quantity of timber can be raised to meet our increasing wants. Now, then, is the time to plant: wherever there is a waste piece of ground, moor, or mountain, let it be forthwith invested with trees, for every year, for many years to come, will unquestionably bring with it an additional demand for timber. Thus far on the necessity of planting. Allow me next to bring under notice the sort of tree I would recommend to be planted, which is the chief aim of this Address. That tree is the TRUE HIGHLAND PINE, for introducing which, I had the honour, along with my brother, of receiving the Highland Society's prize. It is admirably fitted, in every respect, to take possession of all the uplands throughout England. It will grow freely on all soils suitable for the common Pine; its wood is very durable; and for railway sleepers it is unrivalled. Brindley, the celebrated engineer, considered its durability equal to that of the Oak; and Dr. Smith states, in the *Transactions of the Highland Society of Scotland*, that he has seen some of it taken down after it had been 300 years in the roof of an old castle, as fresh and full of resin, as newly imported timber from Memel, and that it was actually worked up into new furniture. "Such," says Loudon, "is the durability of this wood, that while the bog timber of the Birch is often found reduced to a pulp, and the Oak cracks into splinters as it dries, the heart of this Pine remains fresh, embalmed in its own turpentine."

MY LORDS, LADIES, AND GENTLEMEN,—Allow me to add a word or two on the merits of this tree as a landscape ornament. In this respect it rivals, if not excels, the Cedar of Lebanon. It has, at any rate, a much better ramification than the Cedar; for, as Sir Walter Scott observes, it assumes in a great measure the bold and contorted figure of the Oak. In illustrating the Seats of Norfolk (and the remark is applicable to all England), it frequently occurred to me that advantage had not been taken of prominent situations by investing them with grand evergreen trees; for so soon as November comes, our parks lose almost all that weight of grandeur for which they are so celebrated in summer-time. Their solemnity ceases with the fall of the leaf; but were they ornamented with this Pine, its broad umbrageous canopy remaining green during winter, the change consequent upon the approach of winter would be much less observed, and our country residences would at all times be surrounded with the dignified accompaniments so consistent with their character.

The importance of this subject will, I doubt not, be accepted as an apology for my thus venturing to express my opinions so plainly on matters of English practice. My suggestion as to the improvement of park and pleasure-ground scenery by introducing the Pine in question is offered with the greatest deference, being fully persuaded that in matters of this description England has been always distinguished for its refined taste. I am ready to dispose of the Highland Pines at the following prices:—

Single Plants, strong and well rooted . . . 6*d.* each.
Strong Plants, 18 to 20 inches high . . . 5*s.* per 100.
Strong Plants, 15 to 18 inches . . . 30*s.* p. 1000.
Smaller-sized Plants for exposed situations 10*s.* to 20*s.* p. 1000.

I have the honour to be, My Lords, Ladies, and Gentlemen,
Your most humble Servant,
JAMES GRIGOR, NURSERYMAN, Norwich.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.
RAMSAY BROTHERS, LANDSCAPE GARDENERS, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.
Plans and Estimates submitted, and works contracted for in any part of the kingdom.
Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

FLORIST TO HER MAJESTY, THE QUEEN.

WILLIAM MILLER, Providence Nursery, Ramsgate, Kent, begs to thank his very many friends for the kind patronage they have honoured him with, and at the same time to inform them that the present List contains nothing but what is really good, for which he solicits early orders, viz.:—

FUCHSIAS, VERBENAS, PELARGONIUMS, PETUNIAS, ANTIRRHINUMS, &c. &c., for the Spring of 1845.

SUPERB SEEDLING FUCHSIAS.

DUKE OF YORK.—This variety is of a very robust habit; flowers very large and magnificent; tube and sepals carmine, with a large purple corolla, and an abundant bloomer. This Fuchsia is the largest that has yet been offered to the public. Noticed by Dr. Lindley in No. 34 *Gardeners' Chronicle*; "W. M. —Your Fuchsia, No. 227, is very large." Also by Mr. Glenny, in *Gardeners' Gazette*, No. 35; "Mr. Miller.—Your Fuchsia, No. 227, is the largest we have seen."—Price per plant, 10*s.* 6*d.*

UNIQUE.—This is a beautiful variety; tube glossy crimson; corolla dark purple, equal to that of Formosa elegans. Dr. Lindley describes it in the same week's *Chronicle*; "W. M.—In your Fuchsia, No. 219, the colours are very distinct, and the form of the flower elegant." Mr. G. Glenny speaks of it as having a "good contrast."—Price 10*s.* 6*d.*

QUEEN VICTORIA.—This is one of the best light ones coming out this season, being very large; colour light flesh, with crimson-purple corolla; good habit, like Eppsii, and an abundant bloomer.—Price 10*s.* 6*d.*

CHUBBY BOY.—This is a very bright scarlet-red; tube very stout; habit just like Smith's Robusta; extra free bloomer. Mr. Glenny speaks of 238 as being a "curiosity."—Price 7*s.* 6*d.*

BALLOONII SUPERB.—Of a fine rich red, colour of Meteor. —Price 5*s.*

CAPTIVATION.—Colour of sepals pink, corolla rose; very free bloomer, and novel.—Price 5*s.*

BRUTUS.—This is a truly beautiful variety; the flowers large and very stout, being by far the stoutest tube, and altogether the largest light Fuchsia yet known; colour light pink, corolla crimson; habit like Brockmanii. This is a first-rate flower.—Price 7*s.* 6*d.*

AURANTIA.—This is similar to Eclipse, but with more gloss. —Price 3*s.* 6*d.*

SPLENDISSIMA.—Tube very long; colour crimson, corolla crimson-purple. Dr. Lindley speaks of this variety as being "very large."—Price 3*s.* 6*d.*

EXPANSIA.—This is one of the most conspicuous, being just like Gigantea, with much larger corolla; sepals rose, corolla crimson. Mr. Glenny speaks of this as being "nearly as large as No. 227."—Price 5*s.*

ENCHANTRESS.—This is of very beautiful growth; sepals crimson, corolla purple.—Price 3*s.* 6*d.*

JEHU.—This is a large globe, like Candidate, but much finer, with purple corolla.—Price 3*s.* 6*d.*

The entire set of these 12 beautiful Seedlings, 3*l.*, with the usual allowance to the Trade.

	2*s.* 6*d*
Antagonist, Standish's	
Aurora, Bell's	1 6
,, Miller's	3 6
Albion, Smith's	2 6
,, Miller's	3 6
Attractor, Standish's	3 6
Adonis, Croft's	1 6
Augusta, Rickard's	2 0
Alata, Smith's	1 6
Aurantia, do.	1 0
Arborea grandiflora	1 0
Alice Maud Mary	2 0
Arayss	1 0
Bridegroom, Epps'	1 6
Beauty, Standish's	1 0
Britannia, Smith's	1 6
Brewsterii	1 0
Brockmanii	1 0
Balloonii, May's	1 0
Cassandra, Pawley's	5 0
Champion, Smith's	2 0
Candidate, Girling's	2 0
Cormackii, Cormack's	1 6
Chevalerii, Salter's	2 6
Colossus, Standish's	2 6
Coccinea verna, Smith's	2 6
Coronet do.	2 0
Cylindrica superb, do.	1 6
Cyrus, Miller's	3 6
Chandlerii	1 0
Coccinea	1 0
Conspicua arborea, Catleugh's	1 0
Curtisii	1 0
Compacta, Standish's	1 0
Carnea, Smith's	1 0
Clintonia	1 0
Conspicua, Smith's	1 0
Duke of Wellington	2 6
Decora, Smith's	2 6
Dickens, Ingram's	2 6
Desdemona, Harrison's	2 6
Decora, Bell's	1 0
Dalstonia, Smith's	1 0
Devonia	1 0
Dennisiana, Dennis	1 6
Deansii, Dean's	1 6
Defiance, Smith's	2 6
Eclipse, do.	1 6
Erectum, Day's	2 0
Espartero, Miller's	3 6
,, Epps'	1 6
,, Bell's	2 6
,, Knight's	1 6
Emperor of China, Epps'	1 6
Expansia, Miller's	2 6
Edwardsii	2 6
Eppsii, Epps'	1 0
Enchantress, Harrison	1 0
Exoniensis, Pince's	1 6
*Erecta elegans, Kendall's	5 0
Frostii, Lane's	1 6
Florabunda, May's	1 6
,, Standish's	1 0
,, Day's	2 6
,, magna, May's	1 0
Florada, May's	1 0
Formosa, Harrison's	1 6
Flora, do.	1 0
Flash, Bell's	2 6
Florence, Epps'	2 6
Fulgens superb, Miller's	1 0
,, longiflora, do.	1 0
Fairy, Harrison's	0 0
Formosa elegans	1 6
Fairy Queen, Bell's	1 6

	3*s.* 6*d*
Gigantea, Smith's	
Goliah, Day's	2 6
Globosa coccinea, Smith's	1 6
,, ,, purpurea, Miller's	3 6
Gem, Ivery's	1 6
,, Harrison's	1 0
Grenvillii, Lane's	1 0
Hercules, Stedman's	2 6
Hector, Smith's	3 6
Hero of Suffolk, Girling	2 0
Hebe, Standish's	1 0
Incarnata, Smith's	2 0
Iveryana	1 6
Isabella	1 0
*Junius, Smith's	10 6
Jehu, Miller's	3 6
King, Youell's	1 0
Kentish Bride, Epps'	1 6
King John, Halley's	1 6
Louis-Philippe, Miller's	2 6
London Rival, G. Smith	1 0
Lady Sale, Bell's	2 0
Laneii, Lane's	1 0
Longiflora, Miller's	0 6
Lowryii, Hancock's	1 6
La Chinois, Salter's	2 6
Magician, Bell's	1 6
Magnificent, do.	1 0
Multiflora coccinea	1 0
Majestica, Smith's	1 6
Magnifica, do.	1 0
Meteor	1 0
Marginata, Halley's	2 6
Maria, Epps'	1 6
Magnet, Pawley's	2 6
Modesta, Smith's	2 6
Medora, Harrison's	2 6
Madonna, do.	2 6
Macnabiana	1 6
Miss Talfourd	1 6
Norfolk Hero, Barkway	3 6
Nobilissima, Smith's	1 6
Nobilis, Miller's	2 6
,, Dean's	1 0
*Nymph, Epps'	5 0
*Othello, Kendall's	5 0
Ovid, Miller's	2 6
Oxonian, Day's	2 6
Princess Alice, Bunney	3 6
Paragon, Smith's	1 6
Pondii	2 6
Princess Sophia, Marnock's	1 6
Princess Royal, Bell's	1 6
Pr. of Wales, Pawley's	3 6
,, Bell's	1 6
Prima Donna, Harrison	2 6
Pride of Peckham	2 6
Prince Albert, Brown's	1 6
,, Bell's	1 6
Pulcherrima	1 6
*Pillar of Beauty, Kendall's	5 0
*Queen Victoria, G. Smith's	10 6
*Ditto, J. Smith's	21 0
*Ditto, Miller's	10 6
Qu. Adelaide, Holmes'	2 6
,, Pawley's	3 6
Qn. of Beauties, Epps'	5 0
Racemosa, Smith's	1 0
Rosea alba	1 6
Recurva, Dean's	1 6
Rodolphus, Bell's	1 6
Rogersiana, Rogers'	1 0
Reflexa, Bell's	2 6

List of Fuchsias—*continued.*

	2*s.* 6*d*
Salterii, Salter's	
Sir R. Sale, Bell's	1 6
Sidmouthii, Bartlett's	2 6
Sanguinea, Halley's	2 0
Stanwelliana	1 6
Splendens, Smith's	1 0
Salmonia, do.	1 0
Seratifolia	1 0
Speciosa	1 6
Triumphant, Smith's	1 0
Toddiana, Cripps'	1 6
Transparens, Youell's	1 0
Tricolor	1 6
Tolloris, or Curiosa	5 0

	3*s.* 6*d*
Uttoxeter Beauty, Rogers'	
Uttoxeter Rival, do.	2 6
Unique, Bell's	1 6
,, Croft's	1 6
Victory, Smith's	1 0
Venus Victrix, Cripps'	1 0
Variegata	1 0
Victory, Day's	2 6
Vesta, Smith's	3 6
Woodsii, May's	1 0
Youellii	0 6
Zebrina, Miller's	2 0

Plants of the above to be sent out in April, at the following prices, post free, to any part of the United Kingdom. (Warranted correct to name.)

12 Fine Varieties ..7*s.*6*d.* } the Selection left to Mr. Miller.
12 Extra fine do. .. 15*s.* }
12 Extra fine do. .. 21*s.* the Selection left to the Purchaser.
50 Fine Varieties.. 40*s.* the Selection left to Mr. Miller.
50 Extra fine do. .. 60*s.* the Selection left to the Purchaser.
100 Fine Varieties.. 80*s.* the Selection left to Mr. Miller.
100 Extra fine do.. 100*s.* the Selection left to the Purchaser.
Except those marked thus.*

*FUCHSIA CONSTELLATION. W. M. regrets that the smallness of the stock of this beautiful Fuchsia prevented its being sent out the past season, but it will positively be sent out the approaching one, at 12*s.* 6*d.* per plant, as far as the stock will go. The former orders are carefully preserved.

SUPERB SEEDLING VERBENAS.

ATTRACTOR.—This is one of the finest varieties ever offered, being very superior to Atrosanguinea, of which it is a Seedling. Colour velvety dark crimson; flowers very large and smooth; the truss compact and well formed, rising in the centre symmetrically.—Price per plant, 5*s.*

THE FAVOURITE.—This is a very beautiful variety: colour bright rose, with a large dark eye. Dr. Lindley thus describes it in *Gardeners' Chronicle*, page 624; "W. M.—Your variety, 140, is of a beautiful tint, clear and lively."—Price 5*s.*

ENCHANTRESS.—Large round flesh-colour flower, with dark eye. This flower is very distinct.—Price 5*s.*

JEWESS.—Of a brilliant dark rose, with large red eye. This is also very novel.—Price 3*s.* 6*d.*

The usual allowance to the Trade when three or more are ordered at once.

	2*s.* 0*d*
Alba lutescens, Girling	
,, magna, do.	2 0
,, rosea, Harrison's	1 0
Azurea grandiflora, Stewart's	1 0
Array, Smith's	1 0
Adonis, Croft's	1 0
Atrosanguinea, Chandler's	1 0
Aurora, Henderson's	0 6
Ami Jane, Girling's	1 0
Amethistina, do.	1 6
*Beauty, Smith's	3 6
Blue Queen, Miller's	2 6
Brilliant, Youell's	1 6
Beauty Supreme	2 0
Boule de Feu, Girling's	1 6
Bridesmaid, do.	1 0
Beauty, do.	1 6
Bride, Knight's	0 6
Barkerii	1 0
Celestina, Pearson's	2 0
Carnea superb, Stewart	1 0
Celestine, Henderson's	1 6
Conspicua, Knight's	1 0
Chalmerii, do.	0 6
Cœrulea, Harrison's	1 0
Carnea, Stewart's	0 6
Childe Harold, Henderson's	2 0
Defiance	2 0
Delicate, Smith's	1 6
,, Girling's	0 6
Duke of Cornwall, Knight's	1 6
Davisonia, do.	0 6
Excita	1 6
Elegans	1 6
Enchantress, Alexander	2 6
Eximia	1 0
French White, Harrison's	1 0
Fair Maid, do.	1 0
Formosa	1 0
,, elegans, Croft's	1 6
Formosissima	1 6
Fortune Teller, Girling	1 6
Howardii	1 0
Hendersonia	0 6
Incisa coccinea	1 0
Ignea	0 6
Joan of Arc	0 6
King	1 0
Lovely Rambler	1 6
Laconii	0 6
Longiflora	0 6
Lilacina	0 6
Minerva	1 6
Medora, Henderson's	1 6

	1*s.* 6*d*
Maid of Athens, Henderson's	
Messenger	1 6
Modesta	1 0
Monarch	1 6
Mortlock's Superb, Stewart's	0 6
Minstrel Boy, Girling's	1 6
Ne Plus Ultra, Lane's	0 6
Orange Perfection	2 6
Ovid, Knight's	0 6
Odorata, Miller's	0 6
,, alba, do.	1 6
Purple Queen, Ivery's	1 0
Purpurea	1 0
Ponteyii, Pontey's	1 0
Prince of Wales, Wood's	1 6
Pallida	0 6
Prince of Wales, Knight	3 6
Perfection, Girling's	1 6
Princess Royal, Youell's	1 0
,, Alice	1 6
Queen, Ivery's	0 6
Queen of the Whites, Stewart's	1 6
*Queen of England, Smith's	5 0
Ruby, Henderson's	0 6
Rosy Queen, Harrison's	1 0
Rosea alba, Halley's	0 6
Rosa rubra, Harrison's	1 6
Rose d'Amour, Girling's	2 6
Renown	1 0
Stewartii	0 6
Striata, Miller's	1 0
* ,, formosissima	3 6
Surprise, Youell's	1 6
Splendens, Kyle's	1 0
Speciosissima, Pearson	1 6
The Giant, Girling's	3 0
Tresor Parfait, do.	1 6
Teucroides rosea	1 0
,, carnea, Girling	0 6
Tweediana picta, Miller	1 6
,, magniflora	1 0
,, superb	1 0
,, multiflora, Smith's	0 6
Turchianna, Duffio's	0 6
*Vesta, Smith's	5 0
Vangendii	0 6
Variegata	0 6
Variabilis	0 6
Violacea, Girling's	0 6
Wonder, White's	1 0
White Perfection, Girling's	1 6
Westonii, Knight's	0 6
Zeuxis, Miller's	1 6

12 Fine Vars., fit for showing, 3*s.* 6*d.* the Selection left to W. M.
12 Extra fine ditto, ditto, 6*s.* 0*d.* the Selection left to W. M.
(all new kinds).
12 Extra fine and very superior, 10*s.* 6*d.* the Selection left to the Purchaser. Except those marked thus,*

SEEDLING PETUNIAS.

UNIQUE SUPERB.—This is one of the most beautiful Petunias ever raised; colour novel-rose with white throat; habit very small and compact. Spoken thus of in *Gardeners' Chronicle*, page 448, "W. M.—'Unique Superb' is a remarkably rich and fine-coloured variety."—Price 5*s.*

EXACTUM.—Large rosy-lavender strong flower. Dr. Lindley also speaks of this in the same Number, as being a fine flower.—Price 2*s.* 6*d.*

ILLUMINATA.—Vivid rosy crimson; the most beautiful of all Petunias for strong and close growth; very suitable for bedding.—Price 3*s.* 6*d.*

VARIEGATA, purple and blue, a fine shape.—Price 3*s.* 6*d.*

MAGNET.—Is one of fine form, of a fine rose colour, in the way of Conspicua.—Price 2*s.* 6*d.*

GIGANTEA.—A very large purple-crimson flower, like Beauty, but much thicker and better.—Price 3*s.* 6*d.*

	1*s.* 0*d*
Arethusa	
Alice Grey	1 0
Bicolor	1 0
Bumous de Willi, Van Houtte's	1 6
Beauty	0 6
Beauty Superb	2 6
Constance, Henderson's	1 6
Caryophylloides	2 6
Delicata	1 6
Dwarf Pencilled	1 0

	1*s.* 6*d*
Enchantress	
The Pet, Ivery's	1 6
Ovid	1 6
Prince Albert	1 0
Ne plus Ultra, Pearson's	1 6
Nixenii, Harrison's	5 0
Gem	0 6
Grandis	1 0
Hiclare	0 6
Hildida	0 6
Lady Sale	1 6

List of Petunias—*continued.*

	1*s.* 6*d*
Hope, Smith's	
Magna rosea	1 0
Medora	0 6
Magician	0 6
Masseyii	1 6
Magna Charta	1 6
Reliance	1 0
Ornalissima	1 6
Othello	1 0
Punctata, Miller's	1 6
Picta	1 0

	0*s.* 6*d*
Rook's Nest	
Rosea alba	0 6
Psyche	0 6
Splutherii	2 6
Conspicua	1 0
Picta grandiflora	1 6
Striata superb	1 6
Unique	1 0
Kentish Bride	0 6
,, Beauty	1 6

12 Fine sorts . 4*s.* 0*d.* the Selection left to Mr. Miller.
12 Extra fine do. . 6*s.* 0*d.* the Selection left to Mr. Miller.
12 Ex. very superior, 10*s.* 6*d.* the Selection left to the Purchaser.

MAGNIFICENT SEEDLING ANTIRRHINUMS.

	1*s.* 6*d*
Monarch—purple crimson, with large yellow throat, very superb	5*s.* 0*d*
Robustum—orange red, large lemon throat	3 6
Favourite—white, veined with crimson, large lemon throat, very novel and fine	5 0
Caryophylloides superb—very fine, large, white, striped with crimson, very beautiful and always constant	3 6
Striata formosissima—white, veined with dark crimson	2 0
Mogul—large, dark crimson purple	1 6
Splendens—very beautiful gold colour	2 6
Supreme—the largest and brightest yellow known	5 0
Magnet—rosy lilac, yellow throat	1 6
Gigantea—flowers of an extraordinary size, of a beautiful colour, with yellow throat	3 6
Purity—large and clear white	1 6
Lilacina—fine rosy lilac	1 6

The whole Collection for 1*l.* 1*s.* 6*d.* Will be sent in a stout case, post free, warranted to go safe. The usual allowance to the Trade.

Note.—The above beautiful Seedlings have been carefully selected from a great mass of fine flowers, and several of them were twice submitted to Dr. Lindley, whose opinion will be found in *Gardeners' Chronicle*, pages 448—508: "Their distinct bright colours and large flowers, with their compact dwarf habits (differing from this class generally) render them alike desirable for the flower-garden as for the shrubbery."* Their continuance in bloom throughout all the summer is too well known to need further comment.

Achimenes grandiflora, 1*s.*; longiflora, 6*d.*; rosea, 6*d.*; pedunculata, 6*d.*; coccinea, 6*d.*; picta, 3*s.* 6*d.* Anagallis Breweri, carnea, grandiflora, cœrulea grandiflora, and Parksii, 6*d.* each, or 4*s.* per dozen. Gesnera zebrina, 1*s.* 6*d.* Gloxinia rubra, 1*s.* Lilium lancifolium, 2*s.* 6*d.* each.

W. M. can supply all the New Varieties of Fuchsias, Verbenas, Pelargoniums, Petunias, &c., to be sent out by other raisers, at their advertised prices.

N.B.—Hybrid Pelargonium Seeds, from choice sorts, 50 seeds 5*s.*, 100 seeds 10*s.* Hoyle's Hybrid choice Seeds, 50 seeds, 6*s.*, 100 seeds 10*s.* Fine Hybridised Fuchsia Seed, from their very extensive stock, 50 seeds 5*s.*, 100 seeds 10*s.* Select Hybridised Petunia Seed, from striped and spotted flowers, small packets, 2*s.* 6*d.*, large ditto, 5*s.* Fine Cineraria Seeds, packets, 1*s.* 6*d.* each. All sealed and sent post free.

*** All orders will be packed in strong tin cases and sent post free, where practicable to go by post; or by railway, in boxes, to London, and plants put to compensate for carriage. A remittance from unknown correspondents.

A large stock of good strong plants of the choicest sorts of Geranium to sell by the dozen, very cheap, of which printed Catalogues can be had on application.

* W. M. would just say he perfectly coincides with Dr. Lindley that this class of flowers deserve to be more cultivated.

STUART'S GROVE NURSERY, FULHAM-ROAD, CHELSEA.

CHARLES MARTIN WESTMACOTT, Seedsman and Florist, begs to inform the Nobility and Gentry that he has opened the above Establishment. Many years' experience in and unwearied attention to the various branches of this business will, he trusts, enable him to give satisfaction and merit the patronage of the Public. His Catalogue of Flower and Kitchen-garden Seeds is now ready, and may be had (post-free) on application. It will be found to comprise the most rare kinds, as well as those generally known. The greatest attention will be paid to all who may honour this Establishment with their orders. A Catalogue of Stove, Greenhouse, and Hardy Plants, Shrubs, &c. &c., will be shortly printed, of which further notice will be given.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON.—The above are recommended to all Melon growers, as, independent of the good quality of the fruit, they are so hardy as to require comparatively little attention, a fact of considerable importance where fuel is expensive and fermenting material a scarce commodity. Both sorts were awarded Certificates of Merit by the London Horticultural Society, Regent-street—the Cantaloupe on the 7th of May, described as a "good early fruit," and the Green-fleshed on the 4th of June, described as a "capital green Melon, highly fragrant, and weighing nearly 5 lbs." The Cantaloupe grows from 4 to 6 lbs. in weight. Fruit was exhibited in July at Chiswick, weighing 4 lbs. 14 oz., and the fifth crop matured in November from the same plants cut from in May. Specimens of the Green-fleshed, from the same plants cut from in June, were exhibited at Regent-street, on the 1st of October, weighing 3 lbs. each. These have been grown on dung beds, as described in the *Chronicle* of the 7th of May and the 1st of October.

Youell and Co., having purchased the entire stock of the above valuable Melons, and feeling fully assured they will form a most desirable acquisition to all cultivators of this delicious fruit, offer them upon the following terms, namely:—Six Seeds (three of each variety) for 6*s.*, sent post free to any part of the United Kingdom.—Great Yarmouth Nursery, Jan. 31, 1845.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. George Baker, Bagshot Nursery (late Hammond's), Surrey.

CAUTION.—MESSRS. J. WEEKS and DAY, in returning their humble and sincere thanks for the extensive practice they have been honoured with, find it necessary for the protection of themselves and those who may wish to honour them with their commands, to inform the Nobility, Gentry, and Horticulturists, that there is, in this road, another party of the name of Weeks, carrying on the same line of business as ourselves, but with whom we have no connection whatever. All communications intended for us should be addressed Messrs. J. Weeks and Day, Gloucester-place, King's-road, Chelsea.

ROSE TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for sale, after the present Season, is desirous of disposing of his extensive stock of ROSE TREES and other Plants, at less than half the usual prices, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.—Brenchley, Kent, Feb. 1.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 1, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

TUESDAY,	Feb. 4	Linnean	8 P.M.
WEDNESDAY	Feb. 5	Society of Arts.	8 P.M.
FRIDAY,	Feb. 7	Botanical	8 P.M.
SATURDAY,	Feb. 8	Royal Botanic	4 P.M.

THERE are few things upon which sound information is more wanted than the improvements which modern science has introduced into the GLASSHOUSES that are required for HORTICULTURAL PURPOSES. Every man who can afford 20*l.* for a little greenhouse or a few pits, is of course anxious to lay the money out to the most advantage; and hence the multitude of questions which we continually receive from persons at a distance from the metropolis.

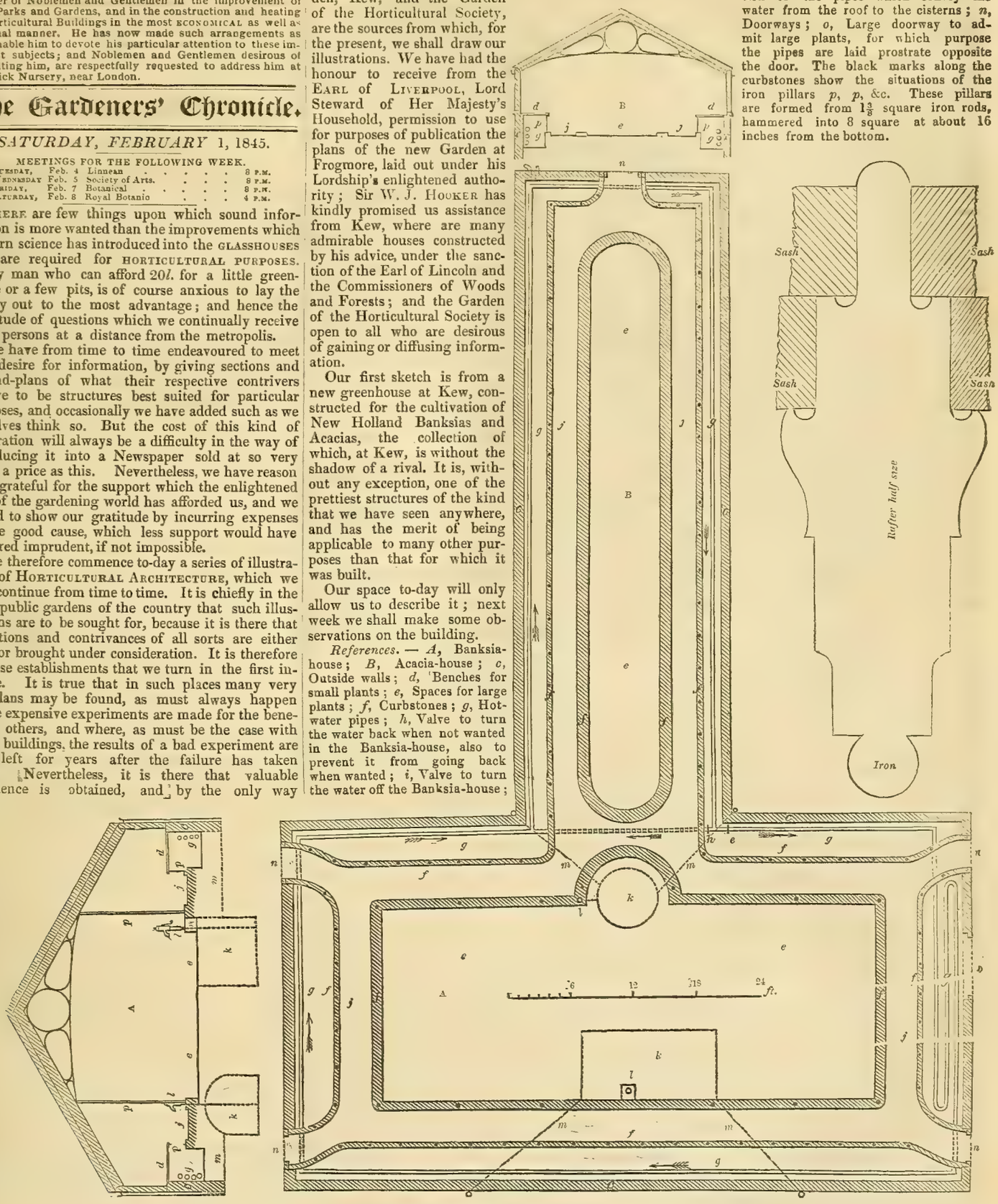
We have from time to time endeavoured to meet this desire for information, by giving sections and ground-plans of what their respective contrivers believe to be structures best suited for particular purposes, and occasionally we have added such as we ourselves think so. But the cost of this kind of illustration will always be a difficulty in the way of introducing it into a Newspaper sold at so very small a price as this. Nevertheless, we have reason to be grateful for the support which the enlightened part of the gardening world has afforded us, and we intend to show our gratitude by incurring expenses in the good cause, which less support would have rendered imprudent, if not impossible.

We therefore commence to-day a series of illustrations of HORTICULTURAL ARCHITECTURE, which we shall continue from time to time. It is chiefly in the great public gardens of the country that such illustrations are to be sought for, because it is there that inventions and contrivances of all sorts are either tried or brought under consideration. It is therefore to those establishments that we turn in the first instance. It is true that in such places many very bad plans may be found, as must always happen where expensive experiments are made for the benefit of others, and where, as must be the case with costly buildings, the results of a bad experiment are often left for years after the failure has taken place. Nevertheless, it is there that valuable experience is obtained, and by the only way that teaches anybody—by dear purchase. Her Majesty's Garden at Frogmore, the Royal Botanic Garden, Kew, and the Garden of the Horticultural Society, are the sources from which, for the present, we shall draw our illustrations. We have had the honour to receive from the EARL of LIVERPOOL, Lord Steward of Her Majesty's Household, permission to use for purposes of publication the plans of the new Garden at Frogmore, laid out under his Lordship's enlightened authority; Sir W. J. HOOKER has kindly promised us assistance from Kew, where are many admirable houses constructed by his advice, under the sanction of the Earl of Lincoln and the Commissioners of Woods and Forests; and the Garden of the Horticultural Society is open to all who are desirous of gaining or diffusing information.

Our first sketch is from a new greenhouse at Kew, constructed for the cultivation of New Holland Banksias and Acacias, the collection of which, at Kew, is without the shadow of a rival. It is, without any exception, one of the prettiest structures of the kind that we have seen anywhere, and has the merit of being applicable to many other purposes than that for which it was built.

Our space to-day will only allow us to describe it; next week we shall make some observations on the building.

References. — *A*, Banksia-house; *B*, Acacia-house; *c*, Outside walls; *d*, Benches for small plants; *e*, Spaces for large plants; *f*, Curbstones; *g*, Hot-water pipes; *h*, Valve to turn the water back when not wanted in the Banksia-house, also to prevent it from going back when wanted; *i*, Valve to turn the water off the Banksia-house; *j*, Pathways; *k*, Cisterns underneath the house; *l*, Pumps; *m*, Dotted lines, intended to show the direction of the pipes which convey the water from the roof to the cisterns; *n*, Doorways; *o*, Large doorway to admit large plants, for which purpose the pipes are laid prostrate opposite the door. The black marks along the curbstones show the situations of the iron pillars *p*, *p*, &c. These pillars are formed from 1⅜ square iron rods, hammered into 8 square at about 16 inches from the bottom.



THAT we did not over-estimate the interest to be taken in the question of PROPAGATING PLANTS BY THEIR LEAVES is evident from the letters that have reached us on the subject. We select a few only from the correspondence before us, for the sake of the facts they adduce with reference to this curious operation.

That success is attainable, even in the present state of our information, to a greater extent than is usually supposed, is quite certain. For example:—A more unpromising plant than the Fuchsia could hardly be selected for experiment, and yet it proves to be one of those most willing to multiply itself by its leaves. We have the following fact from an intelligent correspondent, Mr. REID, of Noblethorpe:—

"Last spring I put in a few cuttings of Fuchsias under a bell-glass; on taking them up for potting, I found amongst the sand two leaves that had dropped from the cuttings, and got imbedded amongst the sand about half their length, caused by occasionally taking off the glass to water the cuttings: to the petiole of each leaf was attached several fine fibres, nearly half an inch long. I carefully replaced them in the sand, and put the glass over them, and in a few weeks they both produced shoots, and are now good strong plants: the variety was Money-pennyii, a particular thin-leaved sort."

We do not, however, include among instances of unexpected success Mr. Markham's interesting account of his Camellia propagation (see p. 53), because that is, as Professor Henslow has pointed out in another column, analagous to striking from eyes, which is not at present under consideration. It will be better for the present to confine attention to instances of failure.

"F. H. S." states that the native gardeners in India are familiar with the operation of propagating plants from their leaves; and having frequently witnessed their success, he was induced to make the experiment on the leaf of an Orange-tree. He cut off the leaf-stalk close to the leaf, which was inserted about 1-5th of its length into the mould; it struck root as readily as any cutting could have done; at the expiration of a twelvemonth he shifted it, when the pot was found filled with healthy fibrous roots. The main stem was as thick as a crow-quill, but there was no appearance of the formation of buds. At the expiration of above three years and a half, matters continued much in the same state, except that latterly a diseased spot appeared on the upper part of the leaf; this he cut off, and the remainder continued healthy; the stem had enlarged to the thickness of a swan's quill; the pot was filled with roots, *but still there was no appearance of the form-*

ation of buds; and, despairing of success, he threw away the plants some months ago.

Mr. Paul, of Cheshunt, states that he has found some kinds of Rose-leaves root more freely than even cuttings, but that they have invariably refused to form buds.

Another letter, signed "J. H.," repeats the same complaint. The writer finds no difficulty in persuading leaves to root, but he cannot succeed in forcing them to form a stem. We quote his statement at length:—

"Among other leaves, I have tried, in rather an extensive way, those of Roses, especially the various kinds of Perpetuals, Bourbons, Teas, Lawranceanas, and their hybrids, and I find both leaves and leaflets, separated at any part of their stalk, to strike root even more freely than cuttings, when placed in *Shirley* sand, covered with bell-glasses, and plunged in a moderate bottom-heat. A single leaflet would emit one root about an inch in length in about 14 days; a cutting of the young wood, made in the usual way, several roots the same length, in about three weeks; and a whole leaf, or pair of leaflets, cut through the main stalk, in from 18 to 21 days, and sometimes would take longer, but the last would be more uncertain than either of the others. The whole leaves seldom lived long, their leaflets generally dropping on any change of temperature, and the roots decaying immediately afterwards; but the pairs of leaflets and single leaflets I have been able to inure to the open ground and keep alive for a whole year, by covering them during frost with a hand-glass; but with all the nursing and care I could bestow *I never could induce any of them to form a single bud.* In the hybrid Perpetuals, that part of the stalk which was attached to the leaflet became round like a small stem, forming an irregular bulb at the lower end, as *large as the point of one's little finger;* but it never gave any indication of shooting, *although the leaflets enlarged to double their natural size.* In the summer of 1843, I cut a strong shoot of the Paul Joseph Rose; had every bud that was fit inserted in stocks, and after making a cutting of the soft part at the summit, inserted as cuttings the five leaflets taken from each bud, 35 in the whole, as an experiment. This was attended with the following result:—The buds nearly all took, and have made good heads; the summit made a good plant, and flowered the following spring; the greater part of the leaflets rooted, but never made buds or plants. I tried a shoot of Cloth of Gold Noisette, in October of the same year, and with respect to buds, soft cuttings, and leaflets, met with just the same success. I should have continued my experiments still further, but I one day observed a plant of Rosa Devoniensis, which had been struck from a cutting, with one bud only, and that had gone blind. The leaf had preternaturally enlarged; the leaf-stalk had changed from a deciduous to a permanent organ, and had become a branch, which was bulbing out at the confluence of the roots. I thought I would wait and see what this would do before I troubled myself any more with leaf-cuttings. Instantly commencing a liberal treatment, I shifted it into a larger pot, and took every pains with it; but it never would make a bud, and in three or four months it died a natural death. This put me in mind of what gardeners call blind Cabbage plants, and I made up my mind to have nothing more to do with leaf-cuttings (except for bulbs, herbaceous plants, and tuberous-rooted plants) until I could make a blind Cabbage plant sprout. The art of doing this I have not yet discovered. When Statice arborea was a scarce plant, I struck several leaves by layering the mid-rib of the leaf, but with no better success. They formed roots and a tuberous appendage, but I kept them until I was tired before they showed any signs of buds. I cut through the mid-rib at about the centre, then passed the knife on each side sloping upwards, about half through the leaf; thus forming a tongue, which I bent down into a small pot full of light mould. These were kept in a moderate heat, and uniform moisture, and in about a month they rooted, and were taken off, but with the ill success already mentioned."

Whoever the writer of this letter may be, we must congratulate him upon his good sense and skilful way of recording his observations, which are full of useful suggestions. Just now we must confine ourselves to the matter in hand.

That some leaf-cuttings, after having made roots freely, refuse—either wholly, or for some time—to form buds, is well known. Clianthus puniceus belongs to the first class, and Gloxinias to the last; but Gloxinias sprout freely enough with a smart bottom-heat, and when bright days follow the winter, during which they lay dormant. We suspect that all such cases may be forced into bud-making by the judicious application of sufficient stimulus. What "J. H.'s" dormant leaves wanted was plenty of bottom-heat, and the utmost quantity of light to which they could possibly be exposed. We should have placed them close to the glass of a propagating-house, one half of them under and the other half without a bell-glass, and have given them a bottom-heat of from 70° to 80° for Statice arborea, or from 60° to 70° for Roses. We should have exchanged Shirley sand for coarse peat and loam, and have watered them with weak manure water. By this means we should have exposed them to the most favourable circumstances that could be brought to act upon them, and we should certainly anticipate a successful issue to the experiment: it is, however, but an experiment; for, as we have already stated, this curious operation has excited little attention up to the present time, and a good many failures may be expected before the high road to success shall be macadamised.

What the unwilling Roses and Statice, and Orange-tree wanted, was not vital force, for that they seem to have possessed in abundance. It was something on which to exercise their vital power that they stood in need of. That something was, in all probability, organisable matter; and organisable matter can only be generated by plants under the influence of bright sunlight. Darkness, or obscurity, are fatal to its production. In order to enable them to form such organisable matter with the utmost rapidity, an elevated temperature would probably be found of important assistance. We are not sure that we should not even lay bare the upper surface of the callus formed at the base of the leaf-cuttings, keeping up a moist atmosphere around it. For it is in that callus that lie concealed those invisible germs which are eventually to arrange themselves in the form of a bud.

Of this at least we are sure, that men like "J. H.," bearing in mind these recommendations, will easily devise some means of gaining their end. That the callus formed by a leaf-cutting *must* eventually form a leaf-bud, under the proper circumstances, is as certain as that a live egg must hatch if the bird will but sit upon it long enough.

It would be worth trying the experiment too upon blind Cabbage plants; not for the value of such things, certainly, but for the sake of settling a curious physiological question. If such plants can only be kept alive, there is no doubt that they will bud in the long-run.

VERONICA SPECIOSA.

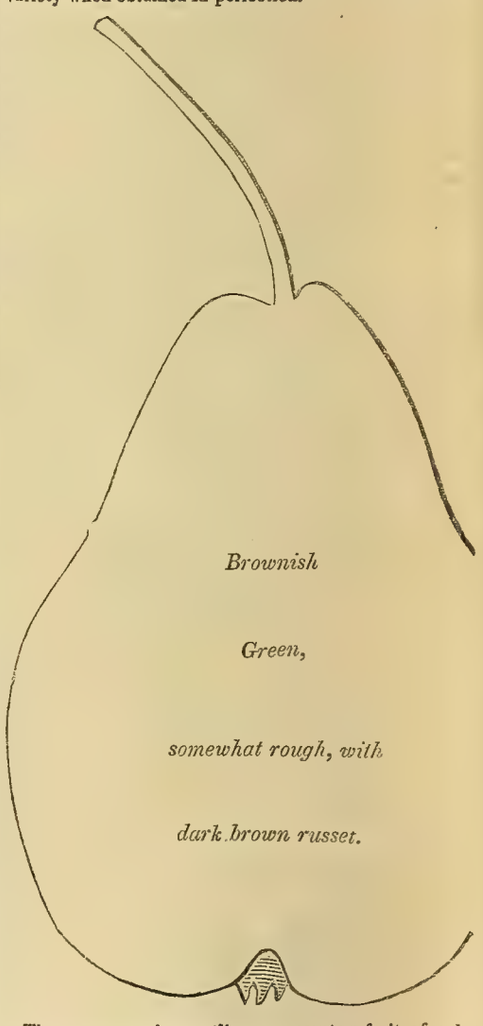
THE flora of New Zealand has hitherto been chiefly distinguished by curious rather than attractive ornamental flowering plants. Witness the numerous remarkable Coniferæ which have of late years been added to our collections. Veronica speciosa is a striking exception to this rule, and leads us to anticipate much more favourably of the yet unexplored regions of this vast territory. It is well known to botanists that there are other equally beautiful shrubby species of Speedwell not yet introduced, or at all events not common, in our gardens. This circumstance will certainly not in the least detract from the importance of this species, a most beautiful specimen of which was exhibited at one of the great meetings of the London Horticultural Society, from the Royal Gardens at Frogmore. This matchless plant produced quite a sensation; and thus, in spite of unfavourable predictions, fully established its merits as a first-rate greenhouse or conservatory plant. The claims of this noble species are enhanced considerably by its forming so fine a contrast with the yellow-flowering Leguminosæ from New Holland, which constitute so large a portion of our greenhouse exotics. The leaves also form no insignificant part of its beauty, contrasting so admirably with almost every greenhouse plant we have. Its probable value in the flower-garden is surely not one of the least of its claims; as, in all likelihood, it will stand the mild winters of the south-western counties and the Channel Islands, thus eventually forming a most important out-door plant, either in the border singly or in a bed as a mass; or, at all events, against a conservatory wall, where, with slight protection, it will doubtless flower during the greater portion of the year. Among other merits pertaining to this plant is its easy propagation, so that no difficulty is likely to occur in keeping up a stock of it; it seeds freely, and cuttings of the young wood strike readily in a common frame, with a gentle heat. It has, however, another quality to recommend it besides that of being easily increased, which, to the amateur especially, will render it doubly valuable. For, unlike many of our choice plants, its successful culture is attended with the least possible difficulty; and unlike these also it is not subject to sudden death.

On examining the roots of this plant, it will be clearly apparent to the practical eye that the soil and treatment must differ considerably from that usually bestowed upon New Holland plants, for it may be successfully grown without the use of peat soil. Rough turfy loam, with a little sand, and an admixture of one-third leaf-mould, well intermingled, will suit it admirably. It is one of those kinds of plants which are not so very particular about the compost, provided the potting is well done, and the situation for its growth suitable. It should be properly attended to with water during the growing season. It is likewise one of those free-growing plants which will be benefited by a large shift—say from a 48-sized pot to a 24, and then again, when sufficiently advanced, into a No. 8. Let the pot be well drained, and the compost used in a coarse state. Place it in a cool greenhouse, or, what would be preferable, a cold pit, and on no account let it want for water during the growing season. By commencing this mode of culture in the spring, and pursuing it diligently during summer, a splendid specimen may be produced in the first season; and as it flowers late in autumn, as well as in summer, a constant supply of blooming plants may, without difficulty, be kept up for at least six months in the year. Either for decorating the conservatory or greenhouse, or as an object for exhibition, it is unquestionably one of the most important subjects which has of late years been added to our collections.—*Duro.*

BEURRÉ RANCE PEAR.

Synonymes.—Beurré de Ranz, Beurré de Flandres, Beurré Epine, Hardenpont du Printemps, Josephine (of some), Ranzige Butterbirne.

THIS valuable late variety was raised by Counsellor Hardenpont, at Mons, as were also many others of the finest Belgic varieties. Van Mons, "Culture des Arbres Fruitiers," states that the Beurré Rance is the best of all late Pears, a character which, under favourable circumstances, it has maintained in this country. But according to soil, situation, and climate, its quality varies exceedingly. From a standard it is generally delicious; whilst in the same garden, although produced of larger size, yet the flavour is sometimes insipid when grown against an east or west aspect. When this is found to be the case, room should be made for the reception of some trees on a south aspect, if possible, for there is not any known Pear so handsome, rich, and lasting as this variety when obtained in perfection.



The accompanying outline represents a fruit of only medium size; for specimens have been grown 6 inches in length against a wall. The flesh is greenish, melting, rich, and sugary; it never becomes mealy, possessing in all cases abundance of juice. Though not so large and handsome, yet darkly russetted specimens from standards are the most delicious. In eating from December till March or April. The tree is hardy, of somewhat straggling growth, and an abundant bearer. It appears not to thrive well on the Quince stock. The shoots are brownish-yellow, sprinkled with roundish gray spots. Leaves middle-sized, ovate, toothed or not deeply serrated. Flowers rather early, large; petals roundish-oval, imbricated. It has probably sprung from seed of the Winter Bon Chrétien.—*R. T.*

RANUNCULUSES.

THIS being the time for purchasing RANUNCULUSES, I have the pleasure of sending you a list of twenty of the very best sorts in cultivation. Those comprised in it are, amongst Ranunculuses, what such flowers as Polyphemus, Strong's King, or Rose Brilliant, are among Tulips. Having for many years grown all the newest and best sorts in cultivation, I can speak confidently and advisedly:—

Lightbody's.—*Chimpanzee*, white, rose-edged; *Lady Sale*, white, rose spot; *Dr. Lindley*, white, rose mottle; *Larne*, white, purple mottle; *Duke of Sussex*, white, purple mottle; *Grace Darling*, white, rose-edged; *Queen Victoria*, white, purple-edged; *Lictor*, white, rose-edged; *Dr. Horner*, white, purple-edged; *Talisman*, white, purple-edged; *Constantia*, yellow, red-edged; *Sir Wm. Hoste*, yellow, red-edged.

Tyso's.—*Delectus*, yellow, edged; *Dr. Horner*, yellow, edged; *Flaminius*, yellow, spotted; *Alexis*, yellow, spotted; *Cathcart*, white, spotted; *Premium*, white, spotted.

Neilson's.—*Mr. Neilson's*, white, crimson-edged.

Costar's.—*Coronation*, buff, spotted.

Ten Old Varieties, quite necessary for every bed comprising most of the different colours:—*Naxara*, dark; *Adrian*, *Roi des Rénoncules*, yellow; *Beroth*, *Jourdon*, primrose; *Temeraire*, white, striped; *Melange de Beauté*, yellow, striped; *Duke of Bedford*, or *Henriette*, crimson; *Skiddaw*, white; *Jean en Pompadore*, olive.

P.S.—Two of those in Mr. Lightbody's list I have not grown; but, having had blooms politely sent me by Mr. L., I can bear record of their excellence.—*F. R. Horner, M.D.*

OSIER PLANTATIONS.

The sorts of Willow grown as Osiers are never known by Osier growers but by local names, and sometimes the names vary with the district in which they are grown; the common or local names which I shall use are such as are general on the banks of the Thames from Reading downwards. I have satisfied myself that no Osiers should be planted so wide as recommended at p. 56. Let it be borne in mind that the crop is to be cut annually, and that, if possible, no rod should be branched, and it will be evident that crowding will tend to lengthen the rod and prevent side shoots. Therefore plant the finest growing sorts in rows 3 feet apart, and the stools 2 feet apart in the row; and the finer sorts in rows 2 feet 6 inches or 2 feet apart, and the stools from 2 feet to 16 inches apart in the row: 15 inches is quite long enough for a set; and I prefer last year's shoots, taking and using about two lengths from the bottom, as they are much less liable to be injured by insects boring into them. The following is a list of kinds, viz.:

Salix viminalis (*common Osier*).—Very coarse and brittle; cast out of beds everywhere. *Brindled Osier*, *Blotched Osier*, *Snake Osier*, *Speckled Osier*.—Different names for the same variety: it is the very best variety of Salix viminalis grown. *Yellow-barked Osier*.—The next best variety. *Velvet-topped Osier*.—A good sort. *Apple-tree Osier*.—Ditto.

Salix Forbyana.—The last new kind: a very excellent Osier for general purposes, and of a good colour when stripped. The new kind good, but inferior by much to some.

Salix triandra (*black-budded Spaniard*).—The very best Osier for bottoming farmers' sieves, and for the narrow strips for finishing the handles and borders of baskets. *Grey Spaniard*.—Tolerably good for brown use. *Horse Spaniard*.—Coarse, very inferior. *Brown Spaniard*.—Rather better than Horse Spaniard.

Salix rubra (*green-leaved Osier*, or *Ornard*).—Very excellent and very tough; with the bark on, the best for carboy baskets.

Salix Hoffmanniana (*Brown rod Osier*, *Brownard Osier*, *Silver Osier*).—Silvery on under side of leaf; all sound shortish rods, good for eel-wheels.

Salix amygdalina.—There is a variety of this, grown near Chertsey, of long growth and tolerable quality; local name not known.

Gelster (g hard), *Horse-Gelster*.—Both shortish pretty solid rods for brown work, and for eel-wheels.

Salix Lambertiana (*blunt-leaved Ornard*); *Salix Helix* (*rose Ornard*); *Salix lanceolata* (*bastard French*).—All rubbish, but used for hampers and fish packing-baskets. It is one or other of these which, by snapping in working, causes our trousers to be torn by hampers.

Salix purpurea (or *bitter Ornard*).—I have not seen this grown as an Osier, but it ought to be; it is very tough, very slender, and will grow in wetter ground than any, except the Ornards, all which grow in water.

In addition to those named there are two excellent Osiers, the botanic name of which I am uncertain of.

Real French.—A most excellent Osier, especially for fine work; used very much for coopers' twigs; that is, the twigs used to bind wood hoops on wine casks, &c.

Stone Osier.—Also a very excellent Osier; much grown along the Kennet; used for fine work, twigs, &c.

Salix fragilis, *Salix Russelliana*, *Salix alba*, and the varieties *Alba cœrulea*, and *Alba repens*—are all occasionally grown as Osiers in Osier-grounds, for the purpose of making eel-wheels and for coopers' twigs; but Salix rubra and the real French are very much superior. Of these Russelliana is the best.

Salix vitellina—I have never seen grown as an Osier: it is used in gardens for its toughness; if it could be grown as an Osier, free from side twigs, it would be, with the bark on, the very best for carboy packing.

Now, if I had 4 acres to plant with Osiers, I would plant—

One with brindled Osier	. .	3 ft.	0 in.	by 2 ft.	0 in.
One with last new kind	. .	3	0	,, 2	0
Half with black-budded Spaniard		3	0	,, 2	0
Half with yellow-barked Osier	.	2	6	,, 1	8
Half with green-leaved Osier	.	2	6	,, 1	8
Half with real French	. .	2	0	,, 1	4

And I would try a rod or two of bitter Purple, remembering that the green-leaved Osier and bitter Ornard should be in the wettest ground.

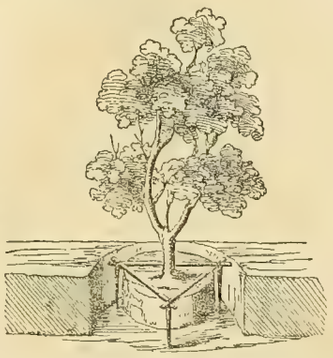
Nevertheless, it is a great error to suppose Osiers grow best in swampy ground. They grow best in a loose sandy loam, but do not mind being occasionally overflowed.—*J. C. X., Bermondsey.*

Home Correspondence.

Propagation by Leaves.—The example referred to at p. 53, of raising Camellia stocks from leaves, ought rather to be called the striking of buds. I am quite aware that germs are often developed from certain succulent leaves, and that they are capable of becoming perfect plants; but surely this is a physiological fact of a different description from the one referred to. The example with which I am most familiar is in Gloxinia; but here also I observe the gardener always cuts off a portion from the surface of the stem, where there is, doubtless, a latent bud. The use of the leaf, in these cases, appears to be much the same as that of a cotyledon to the plumule—to supply the bud with nutriment, until it shall have protruded its roots. The leaf may further act in continually absorbing moisture, and forming fresh proper juice, much as those cotyledons which rise above ground and become green.—*J. S. Henslow.*

Transplanting Hollies.—In April last I transplanted a considerable quantity of Hollies, measuring about 20 feet in height. I may mention, however, that it was compulsion that made me plant them at that time, for experience has taught me that evergreens, as well as most deciduous trees, succeed better if planted in autumn. They were taken up with good balls, and carried several miles upon a timber carriage, the holes being previously prepared for their reception by taking out the clayey soil and putting in some of a lighter nature, in which the trees were planted. They were well soaked with water at the time of planting, and for several weeks afterwards they were occasionally well watered. But before the end of June, there was scarcely a leaf on any of them, and some were dead. The hot, dry winds of May and June had the effect of drying up the moisture in the leaves before the tree had time to make new rootlets to supply it with food. A few, however, planted in the shade did not cast their foliage, the shade preventing the sun's rays from acting powerfully upon them. September or October are the months in which I would advise all evergreens to be planted; some large Hollies, planted in October last, look exceedingly healthy.—*T. S.*

[The accompanying woodcut shows a mode of securing a newly-planted tree from being blown about by wind. It consists in driving three sharp-pointed stakes from 3 to 3½ feet in length each, into the ground in a triangular position, and afterwards laying over the ball of the newly planted tree, three rough pieces of plank of a suitable length and thickness, so as to meet each other above the stakes, to which they are nailed and made fast in the manner represented in the cut. The whole is then covered over with soil, and the operation is finished.]



Strawberries.—I beg to correct an error which appeared in No. 1, p. 8, and No. 3, p. 40, respecting the Victoria Strawberry, which is there said to be Myatt's. In 1832, I sent out the Pine-apple or Myatt's Pine; in 1836, Eliza; in 1841, the British Queen; in 1842, Prince Albert; and in 1843, the Deptford Pine. These five sorts are dissimilar in habit, and none of them are like the Elton Pine. These are the only varieties that I have offered to the public, although I have discarded hundreds of good seedlings on account of their similiarity to older kinds. The only Victoria Strawberry with which I am acquainted, was sent out by Mr. Wilmot, of Isleworth.—*Joseph Myatt, Manor Farm, Deptford.*

Whitney's Composition.—Early last year I covered three lights with calico—one with muslin, and one with Irish. In autumn I found that the muslin and calico were wholly decayed, and the Irish much injured and mildewed: the latter material will, however, probably last another season, as it is of a thicker texture than the former. One of the lights covered with calico I did not make use of, and I find that the calico on it is as sound as when first put on. I am, therefore, warranted in saying that there is nothing injurious in the liquid, but that the decay arises from the action of the atmosphere both within and without the house, but principally from the internal vapour; which, perhaps, might also cause the cloth to become mildewed. The light in question has become yellow, which arises from its non-exposure to the air, for I find the same thing to happen with white paint; when mixed with a large portion of oil the yellow colour will go off in a short time when fully exposed. It is probable that mildew might be prevented by giving the lights a coating of liquid on the inside. I am now using the composition on stouter materials, and mixed with dissolved India-rubber.—*Joseph Yorke, Walberton, Arundel.*

Gardeners' Benevolent Society.—Why is it that the Gardeners' Benevolent Institution does not obtain support from the majority of gardeners? is a question frequently asked; and as there are some apparent reasons why such is not the case, it may be worth while to notice them. I must premise, that anything truly benevolent is entitled to general support; and this remark will at once exonerate what may follow from any charge of opposition to the institution above named. First—The pensions are too small in amount. It must be remembered, that those who are selected as the recipients of this charity are persons in actual need—the poor, the aged, and the infirm—at least, these are the avowed objects of relief; and on these, many of them, doubtless unable to help themselves, and without any other resource, the sum of 16*l.* per annum, at the farthest, is bestowed. If these unfortunate individuals happen to reside in London, this sum will scarcely more than suffice to procure them a comfortable home, clothing, and firing; on what, in the meantime, are they to subsist? If they reside in the country, some trifling advantage would probably be felt, but there it would be insufficient; and it has recently been remarked, that but a small proportion of the relieved reside at any distance from the metropolis. The pension, such as it now is, is better than nothing, may be said: true—but let those who think so, imagine what they would do upon the same miserable pittance. It must not be argued that the relief is intended to assist, and, in conjunction with other means, to make up a subsistence; this view of the case is not a just one: for the most destitute are ostensibly those who are professed to be most eligible for relief. Secondly—The subscribers have not an equitable assurance of a preference in obtaining relief when they may need it. In future, indeed, according to the rules, subscribers are to have a preference over non-subscribers; but this is not sufficient. Suppose a case 10 years hence; it may happen that one pensioner is to be elected, and a subscriber of 15 years, and another of 5 years are the candidates, both equally needing relief. These persons would stand on equal terms with reference to their election; in other words, he who could command the most extended interest would be successful, and this would as likely be the junior as the senior member. This surely cannot be the equitable arrangement which is calculated to insure universal support. Thirdly—The relief, when a title to it is obtained, is too distant. This may be illustrated by supposing another case. If any member should happen to need relief shortly after any one of the elections, he must await the result of his canvas and interest until the next election; then, if elected he has to wait a month at least* before the relief is forthcoming; between these two periods when relief was needed and applied for, and when it was obtained, the sufferer, despite the charitable intentions of the Institution, will have had time to perish or suffer the most intense privation. It may not be an element in the composition of the Benevolent Institution to afford immediate relief in cases of urgency, and therefore this is perhaps no departure from their established custom; but it is a feature which, I have no doubt, deters many from supporting it. Benevolence of any kind or degree is good in itself; but an institution is not calculated for universal or even general support, unless the benefit it conveys is both sufficient, well-timed, and equitably applied. Another point may be just named: some of the fundamental rules have not been duly acted on—so I am informed. According to the tenor of these rules, those persons who have subscribed should, in all cases, have a decided preference when in need of relief; at the last election (in June) one of the candidates who had subscribed three years previously, instead of being at once placed on the funds, as ought to have been the case, had to stand the ordeal of the poll, and, as I suppose, not having much interest, or so much as others, he was nearly excluded. This, if true, is an evil indeed. These remarks relate to a few matters which it can do no harm to talk about—it may do good; they are necessarily brief, but not too much so to be understood.—*T. Moore.*

Madame Laffay Rose.—This appears to be invaluable as an autumnal bloomer. I have a plant, in a situation exposed to the east, and have gathered blossoms from it from time to time during the last two months. I cut a perfect bloom on the 29th of December, which had not suffered during the late severe frost, when my glass marked 16° below freezing point.—*A. D.*

The Highland Pine.—It is often as useful to recall old observations as to make known new discoveries. I make this remark in reference to the Article (p. 36), recommending the sowing of Scotch Pine in all the light waste lands in England—a recommendation which I hope proprietors will be slow to adopt, as the result in many cases would be a miserable disappointment, owing to a singular property which the Heath plant possesses of forming a hard black stratum a few inches below the surface, impervious to water, and equally impervious to the roots of trees. Unless this stratum is broken through as by a rabbit-hole, or a cart-wheel, or the pick-axe, it is in vain to plant or sow trees—most of them will die, and those that survive will never come to any good. This stratum is so compact and heavy, when first dug up, that it might almost pass for iron-stone. It seems to contain a large quantity of carbonaceous matter, and when passed through a red heat is converted into an incoherent red sand. I believe it is found on all sandy gravelly tracts that are covered with Heath. Let every planter ascertain whether it exists in his land, for it must be broken through, otherwise his tree will come to nothing. This observation may be found in Pontey's

* I have been informed six months: the rules say, the pensions are to be paid once a month.

book, published many years ago; yet, though of the utmost importance to the planter, seems to have been hitherto little known or attended to. I have had ample experience to confirm its truth. The fact is also one highly deserving the attention of the botanist, and appears to favour the supposition of the excrementitious action of the roots of plants. It seems singular that the transition from the black stratum to the sand below is not gradual, as one should expect, but abrupt, forming a sharply defined line.—*Beobachter.*

Cottages.—One continually sees perfectly square cottages with a chimney in the middle, in the pointed Gothic style; that is, pointed windows and doors under a horizontal line, with nothing to connect them. Again, dipstones under over-banging roofs, or, in other words, a mixture of two totally different styles—the wooden Gothic and the stone—the roof in one (stone) never projecting, whilst in the wooden it always does—both absurdities.—*T. A. Y., Tenby.*

Pine-apples.—The following is a method of producing four fruit on the same plant, in four successive years, as has been practised by Mr. Dale, gardener, at Brancepeth Castle. At a Horticultural Meeting in Durham, in July, 1830, a Black Antigua was exhibited from the garden of R. E. D. Shaftoe, Esq., of Whitworth; for this the Society's Gold Medal was awarded. It was the fourth fruit that had been produced from the same plant in four successive years; the weight of the fruit in each year was as follows, viz.—in May, 1827 (5 lbs.); in September, 1828 (5 lbs. 7oz.); in August, 1829 (4 lbs. 15oz.), and in July, 1830 (5 lbs.); this Pine was grown by Mr. Robson, who had been a pupil of Mr. Dale's. The treatment of those Pines, supposing the first fruit to be cut, and the suckers and old plant growing away in a vigorous state, was as follows:—The suckers were reduced to one or two, according to the health of the plant, and when the roots became much matted, a few of the bottom leaves were pulled off to allow the plant to make fresh roots in a top-dressing of rich compost; the plant had a moderately moist heat in the bed, and a moist atmosphere was also kept up, and the plants were situated as near the glass as possible. In pursuing this mode of culture give the plants, if free rooters, a fair portion of water, and if the soil should become much exhausted, give liquid manure occasionally, allowing the plant and sucker or suckers to grow on until the suckers are strong enough to produce a good fruit; then the plant being tied up, turn it carefully out of the pot, and with a sharp-ended prong reduce the ball as much as possible, without injuring the fresh roots; then place the plant having part of the ball attached as low in the pot as you can, placing a small portion of compost in the bottom of the pot, and leaving a little room at top for top-dressing afterwards; by this means the plant will receive a partial check, and in making fresh growth will generally show fruit. The success during the following years will depend upon the health and treatment of the mother-plant. If the suckers break off from the plant near the pot, I endeavour to give strength by putting a circular case round the rim of the pot, and by this means I can add compost to the roots of the suckers, previously pulling off a few of the bottom leaves. Care must be observed as to the temperature of the bark in plunging, for fear of a scald, as much of the success depends on the state of the tan-bed.—*T. Fullam.*

Vineries.—In planting vineries, it is the usual practice to plant one Vine for each rafter, and sometimes even two. If we wanted variety, this plan might be a good one; but would not one Vine only be better in a vinery—say 30 feet in length—than 20 Vines or so in such a house? and could not more fruit be cut off the one than off the twenty? Many gardeners say that it is necessary to have all the twenty, in order to secure plenty of Grapes, and that two Vines on a rafter are not too many; but I imagine that a much larger quantity of fruit can be had from one Vine, when well established in a vinery, than from a greater number. And how much nobler is it to see one fine specimen, laden with 200 or 500 bunches, the only occupant of a vinery, than to see it confined to a single rafter, producing only 10 or 12 bunches!—*Orford.*

Disease in Gold-fish.—I have seen a great many fishes having on them a fungus or kind of fuzzy-looking stuff, and upon examining them I have always found that they had either been at some time or another cut or bruised. If a fresh-water fish receives any blemish on the skin it never heals, and on this the fungus grows. I lately saw the water drawn off a pond for the purpose of catching a large pike that had been in it for many years; the gamekeeper shot at it 12 years previous to catching, and that part of its back where the shots had entered was covered with fungus, and appeared to be quite rotten. I have seen salmon in the same state, but by going to the salt water they have returned quite sound. Fishes live long, and continue to grow as long as they live.—*W. Wallace, Perthshire.*

Pits.—I have a pit or low greenhouse, about 9 feet in width, and 24 feet in length. I want to heat this by the tank system, so as to use it as a forcing-house for flowers, raising seeds, growing Strawberries, &c. I see in Rendle's book and many other publications, numerous statements of this being done cheaply; I however had an estimate from the manufacturer of tanks and boilers, and I find the putting up a tank and boiler, which would not perhaps heat the house, costs 36*l.*, and 56*l.* if iron pipes are added. Has any one heated effectually a pit of this kind for a less sum?—*Dodman.* [See page 5 of this year.]

Small Birds.—The discussion of this subject will do good; some people are never happy unless waging war against the feathered tribe, no matter whether the latter be tomtits, goldfinches, or blackbirds—all share the same fate. In their boyhood their chief gratification was plundering nests, and in their manhood their gardens and shrubberies have no charms for them, unless with a gun under their arm, to the manifest danger of all near them. I remember, when a boy, of a very large rookery being destroyed by the farmers in the neighbourhood, as they complained that the rooks ate their seed corn. It took them two years to accomplish their work of devastation. Soon after this, when the rooks were either all destroyed or dispersed, a grub set in upon their corn, and literally, for miles round, destroyed one half of the crop. The farmers began to find that a worse enemy than the rooks had come amongst them. A boy might have kept the rooks from the seed Wheat, but 10,000 boys could not catch the grubs, neither could the farmers coax back the rooks, although anxious to do so. I have observed a tomtit carry to his young in the hour 50 and sometimes 70 grubs, collected from Rose bushes, &c., in the neighbourhood; and at this work he kept on indefatigably until the young could do this for themselves. Surely with such evidence as this before our eyes, we should pause before we butcher anything that charms animated nature, unless we are ready to dispute whether Providence or man is the wiser of the two.—*R. Glendinning.*

Small Birds.—It is quite impossible to make men humane by argument, although you may convince those who are so by nature, that it is a cruel thing to subject any living thing to a lingering death by poison, because it satisfies the instincts with which its Creator has endowed it, by presuming to eat when it is hungry. Your correspondent "Furibus Hostis" has shed a good deal of ink to prove the converse of this, and I wish sincerely that he had mingled with it a little more of that milk of human kindness singly, doubly, or trebly distilled, which he so valourously professes to despise. The question whether birds do harm or good will never be decided by controversy; there is much to say on both sides of the question; but I feel confident that the proofs preponderate on that of their usefulness. But supposing many think otherwise, and choose to destroy them, let them do so without inflicting cruelty as well as destruction. For the latter, they may consider they have a right by the power which Nature has given them in the endowment of reason over the mere instincts which fail to protect the lower animals from their power. For the former, they have no right; it is equally opposed by religion, morality, and the laws of the country. "Furibus Hostis," who I am afraid is some near relation of "Scrutator," has made a statement about his Peas, which I will meet by another. I grew about a quarter of the crop from which he last spring failed to get a dish, and I am never without them on my table for at least four months of the year. I adopt no means whatever to keep off the birds, except that which the presence of men working in the garden effects. I have always plenty of fruit, and seldom find my Pears with holes bored in their foot-stalks. The fact is, that birds are very often blamed for crimes they do not commit; and I do not believe they are half so destructive (except to seeds), as people imagine. Now "Furibus Hostis" was, I think, imprudent to break up his Grass land, which I presume was more noticed than his garden; neither did he evince much wisdom in entertaining the delusive hope, that if birds were not generally seen in his meadow, they would not become plentiful when he stuck up Pea-sticks for them to perch upon, with Peas to be tempted with. If he had put up his grandfather's cocked-hat, wig, and coat, upon a broom-stick, he might probably have saved his Peas, and your readers his furious vows of vengeance dire. One word to "Northwood:" I have made inquiries from a friend of mine who is a bee-fancier, and he quite confirms the statement that the tits are destructive of bees occasionally; and that they also adopt the very curious expedient of procuring their prey, by tapping against the hive until a bee makes its appearance. I see "Archus, St. John's Wood," in a late Paper, has suggested a remedy. I will, therefore, merely draw your intelligent correspondent's attention to the singular metaphysical question involved in his statement, and which, I think, is quite of sufficient importance to save Tom from destruction, even at the expense of a few bees from "Northwood's" hive. The question is this:—If Tom catches and eats a bee, he follows the dictates of what is called instinct. If he taps at the hive, and asks, in fact, the bee to come and be eaten—to what class of mental operations are we to refer this? Certainly not to instinct; because we might as well say that instinct induces the overseer to knock at your door and eat up a quarter's taxes. Now for starting this problem, which will certainly appear, and, perhaps, be solved in the next edition of Lord Brougham's "Dialogues upon Instinct," I think Tom ought to be saved; but whether or no, I feel quite sure that "Northwood" will be merciful—not cruel in his justice.—*C. R. Bree, Stowmarket.*

The Tomtit.—The little tomtit has fallen under the displeasure of some; and I am sorry that my testimony is not likely to afford him any relief. I can fully confirm the statement that he will occasionally visit the apiary, and take, with admirable dexterity, its industrious inhabitants. It is now four years since I first witnessed this occurrence. A family of tomtits had been reared on a neighbouring Apple-tree, and I had often been amused with their sprightly movements round the branches of various trees in the garden—doubtless in search of insects. I, one day in winter, saw one of them alight on the board of a bee-hive, and give successive taps at the entrance, till the bees came out, when he seized one, hopped off to devour it, and quickly returned. I imagined that his visit was an accidental one, but resolved to keep a strict eye on the depredator. Again and again the visit was repeated; and, being fearful lest my whole colony should be depopulated, the destruction of Mr. Tom was resolved on, and accomplished. Being, however, somewhat disconcerted by the loss of his lively chirpings and gambols, it occurred to me that if I had placed over the entrance to each hive a piece of tin, finely punctured, it would have answered a double purpose:—viz., saved the bees from falling a sacrifice to the cold winds by leaving the hive, and kept them from answering the polite taps of their treacherous visitor; he, too, might have been allowed to pursue his useful occupation in the destruction of insects. Is it not probable that those of the feathered tribe which annoy us most effect an equal amount of good in some way, though, perhaps, undiscovered? If so, it will tend more to our profit, and it is certainly more agreeable, to act on the defensive, than to plan the destruction of any of God's creatures—which, doubtless, in the vast economy of the universe, have, as well as ourselves, a part allotted to them on this terrestrial ball.—*W. Paul, Nurseries, Cheshunt.*

Tomtits and Robins.—There are very few save those who make a livelihood by gardening, who will read with any pleasure the poisoning of birds, related so quietly lately. Let it be remembered that all soft-billed singing-birds will eat the bait recommended, if, indeed, the others will not. This hard winter, since the "Naturalist's Magazine" has left us, your pages are a great source of pleasure to many field naturalists; so pray do not frighten us by such deadly recommendations.—*T. A. Y.*

Dahlias.—My Dahlias flower later and more strongly when not raised in heat, but to have early flowers a hot-bed is necessary. I have just hung up my first stock of roots in a flag, or as it is commonly called, a penny-basket, close by the spit racks in the kitchen, and there they will remain until they begin to start. I shall then pot them, leaving the crowns about 1 inch above the soil. When the shoots are sufficiently long I pot them into large 60-sized pots, and keep them in a room having a south aspect, but without fire. I had them in full flower until the end of November.—*C.*

Bottom-heat.—I beg to mention, in reference to a paragraph by "A Norlander," p. 54, that the finest early forced Grapes I have ever seen, were produced by Vines planted outside the house. The Vines were started about the 20th of December, and ripe Grapes were cut early in May; moreover, the border had nothing to protect it from the severity of the weather during the whole time. In this same vinery there were Vines also planted inside the house, and the Grapes produced by them were inferior to those planted outside; but, as "Norlander" remarks, the roots, perhaps, had not fair play. I imagine that gardeners often do wrong in applying too much heat to the roots of plants at the time of forcing in dull months. Dr. Lindley, in his "Theory of Horticulture," p. 112, says that "Mr. Fintelmann, the King of Prussia's gardener, at Potsdam, is celebrated for his success in the very difficult art of forcing Cherries, and he has given an account of his practice, Gard. Mag., vol. iii. p. 64, in which it appears that the most peculiar feature is the strict attention he pays to the temperature of the root." From experience, I can say, however, that Mr. Fintelmann is possibly mistaken in attributing the whole success of Cherry-forcing to the temperature of the root. Indeed, so little importance do I attach to this, that I force Cherries with any degree of bottom-heat whatever, and with excellent success every year, having the fruit often ripe in the month of March. I will venture to say, that many of your correspondents have seen both early and late Melons grown as well without bottom-heat as with it. Again, with respect to Orchidaceæ, some growers consider bottom-heat to be essential to their success. Now the best grown collection of Orchidaceæ I have yet seen was grown without bottom-heat, the plants being merely placed on stone shelves. I may remark that I have seen some of the principal collections in England, and have managed a large one myself. The Pine-apple requires more bottom-heat than any other plant with which I am acquainted. Finally, I might consider that bottom-heat is necessary in the cultivation of the Neapolitan Violet. Mr. Errington lately remarked that he had grown this plant for 30 years, and that every year he had learned something about it. He stated he had found out that bottom-heat was the grand secret in the cultivation of this delightful plant. Now, I grow it in thousands yearly, without any bottom-heat. I may here mention that the keeping down of the red-spider is essentially necessary in cultivating this flower. Whatever may be the merits or demerits of the system of applying bottom-heat to plants, I can only say that the above assertions are facts, and facts are stubborn things.—*Orford.*

Gold-fish.—After losing several fine gold-fish by the parasitical pest complained of by your correspondents, I was successful in several bad cases, in removing the pest, by placing the diseased fishes in a basin of clean water, and holding between the finger and thumb a little common salt right over the diseased part, and allowing the salt by little at a time to drop. The fishes soon began to dash about (from pain I suppose), and the result was that unless the disease had been too deeply rooted the fishes were restored to health. My reason for trying salt as a cure arose from having heard, when a boy, that salmon, when wounded, immediately run to the sea to get cured. After proving the good effects of salt in the manner stated above, I have been in the habit of drop-

ping a quantity of it into the water amongst healthy fishes, with the best results.—*G. M. Elliott, Ripley Castle.*

Are Laurel leaves injurious to Cows?—"I. I. F." says (p. 54.) that he has lost a cow this season from eating leaves of the common Laurel. Having transplanted a dozen of Laurel trees, each measuring 6 feet in height, and about 3 yards in circumference, I planted them close to a wire-fence that separated a small plantation from a meadow. There were two cows in the field, and the Grass being very short, they stripped every leaf from the whole of the Laurels, leaving nothing but bare branches. The cows suffered no inconvenience. One was with calf, and soon after was safely delivered. I saw the cows while engaged at their unusual meal, and although I had heard that Laurel leaves were dangerous to cattle, I did not interrupt them, from a conviction that instinct would prove to the cows a better guide than I should.—*H. Burgess, The Bury, Luton.*

Allotment System—The case noticed at p. 54 is hardly worthy of being styled an objection to the allotment system. That system has been proved to have done much towards reclaiming bad characters; but I presume no one supposes it to be a panacea against all pilferings, even if such had been proved against the holders of the allotments, in the instance noticed. It certainly would be as well to deprive such pilferers of their allotments, provided it be proved who are the guilty parties. Pilferings of this description are not confined to possessors of allotments. I was lately asking the director of a particular botanical establishment open to the public, whether he found the collections under his care suffer much in this way? His reply was, "Scarcely at all;" the only parties who had been detected in such practices had been some ladies of quality, and a few nursery gardeners! Collectors of various classes have often been accused of these shameless acts; and a friend informed me, not long ago, that he was exhibiting a rare coin at a meeting of antiquaries, which was secreted and carried off without his being able to detect the pilferer. The exposure of such practices is the best way of putting them down. But do not let us throw in such objections in the way of granting allotments to the poor, because a few of that class may place themselves on a level with some of their knavishly-inclined betters.—*J. S. Henslow.*

Pruning Forest-trees.—As you intimate a wish in your last Number to bring the controversy so long maintained in the *Chronicle*, on the expediency and best mode of pruning forest trees to the test of experiment, I am happy at once to give your readers the results of my own experience on the subject during the course of several years, so far at least as it bears upon the question at issue. I cultivate the Larch Fir to a large extent for the purpose of supplying me with Hop-poles, having in my plantations at the present time upwards of a million in different stages of growth, and invariably trim or prune them all, commencing at the third or fourth year after planting, and continue the operation at intervals of two or three years till the poles attain the size I require. My usual practice is to leave two or three years' growth of the upper lateral shoots; and when the trees are too high to be reached with the knife or handbill, the branches are cut off by a chisel affixed to a handle of various lengths according to the height of trimming required. This is by no means a tedious operation, for the men, who have been accustomed to the work, get on quite as fast as they do in trimming the lower branches with the bill. The branches are cut close to the body, and the rind quickly closes over the wound. I have no doubt whatever of the immense benefit which I derive from the practice of pruning, so far as my own immediate object is concerned in the growth of Hop-poles; nor do I hesitate to affirm that I can obtain at least one-fourth more per acre, than if I did not prune at all; and, at the same time, the poles are fully 20 per cent. better in quality. This is chiefly effected in the more general equality of growth, not only as regards one another, but also in the individual poles; as the larger trees are thus prevented injuring their feebler neighbours, and more woody fibre is deposited in the upper part of the pole. The above remarks would apply to the Scotch Fir. In those plantations, too, where Ash and other underwoods are planted with the Larch, with the view of eventually forming a permanent coppice, the collateral advantages of trimming the Larch (by giving room and light to the former) are, perhaps, even greater than the direct benefits. I have tried the process also, though, of course, on a comparatively small scale, upon Oak, Chestnut, Ash, Larch, and Scotch Firs, which I leave for timber; and it succeeds equally well. I take care, however, never to let the boughs which are cut off exceed the size of one's finger; and I trim them as high as I choose, to save the body of the tree; but on these timber-trees I leave more top branches than when I prune for poles.—*T. Manwaring Paine, Farnham.*

Jerusalem Artichokes.—"A. B." has been informed that, in some parts of England, these are much used and approved as food for pheasants in preserves; but having been unable to learn in what manner they are prepared and supplied, would be very glad of any information on the subject. Gardeners say that they will not grow when exposed to hares and rabbits, and that they decay if placed in heaps, as Potatoes. They are, therefore, usually planted in the garden for the supply of the table, and covered with litter when the stalk dies, taking up the roots as required for use; but this, of course, would not answer for the quantities required in pheasant feeding.

American Blight.—A short time ago, on transplanting some seedling Apple-trees, I found this aphis about the roots, and one of the fibres had a small excrescence adhering to it. I could see no trace of the insect on the bark, but I had found some on a branch of an Apple-tree which stood near. So long as they breed underground, I should greatly fear that no application to the bark can destroy them.—*O.*

Smoke-burners.—Perhaps some of your readers, who may have tried the plan for making furnaces consume their own smoke, as suggested in the *Chronicle*, at the commencement of last spring, will kindly mention the result. It is a subject of much interest to gardeners, not only upon economical grounds, but because the plan, if successful, would enable us to remove much of the great nuisance of smoke, both within and without. Externally it is a great disfigurement and annoyance in the garden, and internally it is an injury, as well as a disfigurement, to the plants, when driven in by the wind through the laps of the glass. It is stated in the newspapers that a recent Act of Parliament has required the manufacturers of Manchester to adopt smoke-burners by a given time. This indicates a more certain means of accomplishing the object than seemed to be contemplated by the writer of the article to which I have referred. I myself tried the method proposed, when setting one of Cottam and Hallen's bell-boilers, but without success. This, however, may have arisen from the peculiar construction of that very excellent form of boiler, in which the heat of the gas is probably too much expanded within the cavity, to ignite at the nearest point of its subsequent course, at which I could introduce the apertures in the brick-work, for the discharge of the required currents of air. Perhaps some one may have tried metal tubes to discharge air into the interior of the boiler, or may have applied the principle in some other mode with success, and will kindly give some information upon the subject. It might be of great use to others.—*Fumitory.*

An unusual Fruit.—A plant of Pyrus japonica, of the scarlet-flowering variety, planted in a border of strong sandy loam, collected from a coppice on the wood-sown land (part of the plastic clay formation), placed on a subsoil of chalk, with a good southern aspect, and trained to a brick wall, on an elevation of 250 or 300 feet above the sea, has this year produced with me a dozen or 15 ripe fruit filled with abundance of fine, plump, brown, well-ripened seeds; and the fleshy part of the fruit being strewed with sugar, made as good a marmalade as the fruit of the Pyrus cydonia, or common Quince. It did not, however, retain the highly fragrant smell which the fruit, when fresh gathered, possesses, but perhaps this may be owing to some inattention in the dressing, and might have been remedied by more care.—*Houtoniensis.*

Greenhouse Plants not Injured by Frost.—The following is a list of plants which stood from 3° to 6° of frost from the 6th to the 14th of Dec. last, with little or no injury. They are small plants for bedding out, with the exception of Acacia, Fuchsia, Nerium, Coronilla, and Corræa. Damp with little light I find to be much more destructive than cold; for though the houses are lofty (14 feet high,) and have a good angle of inclination, the glass unfortunately overlaps from half to 1 inch, consequently two-thirds of that in the roof is cracked by frost, and through these cracks the rain percolates, keeping my plants always wet. To obviate this evil I lighted a fire for two nights in each house at the commencement of the frost, but having scarcely sufficient fuel to raise a heat enough to exclude the frost from a third house, in which I have a more valuable and tender collection of plants, I discontinued the fires, the houses being dried. These have not perceptibly suffered, viz:—

Shrubby and herbaceous Calceolarias	Fuchsia microphylla
Nerium oleander	Lobelia bignonifolia
Daphne odorata	Dracocephalum canariense
Corræa speciosa	Cineraria populifolia
Cheiranthus strictus	,, amelloides
Acacia armata	Sollya heterophylla
,, ulicina	Clianthus puniceus.

These have lost foliage more or less, though not to such a degree as to be useless:—

Pelargoniums	Fuchsia gracilis
Fuchsia fulgens	Hydrangea hortensis
,, coccinea	Passiflora incarnata
,, globosa	Lobelia erinus.

The last stood out last winter in an ornamental tub unprotected, and pushed strongly from the collar of the roots.—*Tilington.*

Gardeners' Shoes.—In opposition to the cramped wooden shoes recommended by your correspondent, I beg to call the attention of gardeners and agriculturists generally, to a very neat, yet strong pliant half-boot, worn by agricultural students and others, on the Continent, in winter and summer: they are made high, and buttoned up to the commencement of the calf of the leg; the lower part is made of good stout soft calf leather, but the upper part of thinner calf; they are lined throughout, and the soles covered with a close textured lambs' wool flannel, which renders stockings or socks of course unnecessary. This half boot effectually prevents the ingress of dust, &c.; keeps the feet warm, but not disagreeably hot; and is, altogether, very comfortable, looks neat and respectable, and is fit for town or country. By wearing this boot the feet are not cramped or chilled, and consequently corns, bunions, chilblains, &c., are unknown. I would urge their adoption here, particularly for children, as it would tend early to keep the feet in their natural shape, a thing now almost unknown amongst us.—*Lagos.*

Reviews.

Modern Cookery in all its Branches. By Eliza Acton. 12mo. Longman. pp. 683.

A WORTHY rival of Mrs. Rundall, and one that bids fair to become as general a favourite. A great merit of the authoress is, her employment of English words and plain language, instead of the jumble of French and Italian jargon which renders some of the Cookery Books now on sale absurdly incomprehensible. She gives, too, the actual weights and measures of the articles to be employed in her receipts, and this is a decided improvement upon "a handful" of this, and "a pinch" of that, with which our grandmothers were contented. It will be as well, however, to bear in mind that Mrs. Acton is a great admirer of cayenne, and it will be necessary for most cooks to moderate the doses of this drug, which she prescribes. With regard to Vegetable Cookery we could have wished for more information; but the insufficiency of details upon that part of the subject is the universal fault of all our English Cookery Books.

NEW PLANTS.

BERBERIS TRIFOLIATA. Three-leaved Berberry. (*Half-hardy Shrub.*) Berberaceæ. Hexandria Monogynia.—This very rare and beautiful species was found in Mexico by Mr. Hartweg, near the Hacienda del Espiritu Santo, on the road from Zacatecas to San Luis de Potosi, an immense plain occupied chiefly by Opuntias, stunted plants of Prosopis dulcis, and Yuccas. It covered large tracts of country; the people called it Acrito, and the fruit was much eaten by children. Mr. Hartweg did not see it in flower. Its sessile ternate holly-like leaflets, beautifully marbled with pale blue and dull green, are entirely different from anything among the pinnated Berberries hitherto discovered, and it may be added, are very much more handsome. In the garden of the Horticultural Society, it forms a dwarf spreading evergreen shrub, growing freely in a rich sandy loam and rather dry situation. It has stood two winters planted against a south wall, and seems to be about as hardy as Berberis fascicularis. It may be increased in various ways—by layering, by cuttings, or by seeds; but when the kind is rare, like the present, grafting is the most certain and safest way; the grafting may be performed in the ordinary way in March or April, and the best stock for working it upon is Berberis aquifolium. When grafted it should be placed in a cold pit or frame, kept close and rather damp. It flowers freely in April and May.—*Botanical Register.*

MILTONIA CUNEATA. Wedge-lipped Miltonia.—(*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—This is a most beautiful epiphyte, allied to M. candida, with flowers nearly four inches in diameter; the sepals and petals a rich brown tipped with green. The lip is pure white, with a tinge of pink near the base, in form quite different from M. candida, for it is scarcely at all curled at the edge, is very much narrowed to the base, and has only one pair of plates instead of two and a half. The wings of the column too are scarcely divided, or at all events not at all notched. It should be potted in turfy-heath mould mixed with potsherds. During the summer an ample supply of water should be given to its roots, and it should be syringed over head once or twice a day. To prevent the leaves from being scorched as well as to keep the temperature between 80° and 90° by day without admitting much air, shading will be necessary in sunny weather. In winter for a few weeks little or no water should be given, but the house should be filled with steam once every fine day. The temperature should never be raised above 66° by fire heat.—*Botanical Register.*

Garden Memoranda.

Auckland Castle, the Seat of the Bishop of Durham.—At this place there is a plant of Musa Cavendishii, growing in the corner of a Pine-stove, which has this winter produced 120 fine fruit, the whole of which weighed from 2 to 3 stones. The plant measures 8 ft. from the top of its leaves to the surface of the soil, and the circumference of its stem is 22 inches.—*A. A.*

Bees.

Size of Hives.—Very large straw hives are recommended by some, and indeed may answer well for summer use; but those about 9 inches in depth and 1 foot in width in the clear, being near the size of common cottage hives, are best for winter. At that time bees draw closely together on the combs in the heart of the hive; and the smaller the surrounding space is, the less liable will the combs be to turn damp and mouldy, in consequence of the heat being more concentrated. This is a great object in spring, on whatever plan bees are kept. As the season advances more space can be given by various methods, and thus all the advantages of large hives in summer are gained, and their evils in winter avoided. An old bee-keeper once told me that we want large hives for summer and small ones for winter. In some districts and in good seasons, bees may fill very large hives; but the bees are apt to be weak in spring, for the reasons just noticed. There is another fault attending such hives: they are likely to contain more empty comb than those that are smaller. This I conceive is caused not by the bees striving to fill the whole space with combs before they collect honey, as is commonly imagined, but by more bees remaining at home to keep up the heat requisite for the brood, instead of being at work in the fields. Bees begin to collect honey and pollen as soon as there are a few cells to hold it, when the comb is not larger than an oyster shell, and even on the first day of their taking pos-

session of a hive, if the weather permits them to do so. This fact contradicts the statement that bees are fonder of making combs than of collecting honey. When that is deficient we may find fault with the pasturage and lament the seasons, but we must not throw the blame upon the poor industrious bees.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

CLERODENDRONS may now be started into growth; when the young shoots are about 3 inches in length, they may be put into thumb-pots, and struck in bottom-heat. These will make fine blooming plants during the following summer. Gloxinias and Gesneras may also now be placed in a gentle heat, and moistened, but not drenched with water, or the young shoots are sure to rot off at the base. Achimenes tubers may also now be separated, and sown in sandy peat, and merely covered; when they come up, prick the young plants out into single pots, or shallow pans, for blooming; let the temperature by night be kept as near as possible at 60°, increasing it by day 15° or 20°. *Heath-house.*—Examine the plants here very carefully, as they will soon begin to move; see that all dead branches and rusty foliage are removed, and that the soil is stirred a little on the surface. The plants will soon require to be watered more freely; Nature, in this respect, will indicate her own wants. *Forcing-pit.*—Never flag here, as the beauty of your greenhouse and conservatory depends on this for some time to come. Keep up the supply of American shrubs, Roses, Lilies of the Valley, Dutch bulbs, Verbenas, Heliotropes, and such things; and let the temperature at night be about 65°.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Follow the directions given last week; prune, nail, and tie all kinds of hardy climbers, Roses, &c., before the more busy season arrives. In light land finish digging, and make all possible progress in planting shrubs of all kinds; where it is necessary take up Azaleas, Rhododendrons, &c., and re-arrange them according to their size. If it is wished to increase any choice kinds, layer a few branches now by pegging them down: this is the best time for such operations. If the soil is poor give it a good dressing of half rotten leaves, which will enrich it greatly. *Pits and Frames.*—Examine your stock for bedding and pot off all kinds that are in store pots if there is heat and a proper place to put them into. Verbenas should be placed in a gentle heat after potting, until they are rooted, and then hardened by degrees; in sunny weather shut up early every afternoon: this will accelerate the growth of all plants in pits and frames, where no artificial means of heating is employed. Sow hardy annuals, particularly Ten-week Stocks; also Mignonette, in a gentle heat.—*B.*

III.—FLORISTS' FLOWERS.

Should the present weather continue (the ground being now covered with snow), little can be done amongst Florists' Flowers; still some few precautions are necessary. *Carnations.*—After a severe frost, they are better shaded (by mats being thrown over the frames), from the rays of the sun, till they are completely thawed, experience proving that the sudden transition is injurious. *Ranunculuses.*—If you have some finely-sifted compost under cover, which no florist ought to be without, your seed may now be sown in shallow earthen pans or square boxes; which may be filled within an inch and a half of the rim, and the soil pressed gently down. These should then be carefully and regularly watered, saturating the soil well. The following morning sprinkle the seed thickly over, and press it on the surface of the soil, covering it very slightly indeed. The boxes may then be placed in a cool frame, over which mats must be thrown at night, as frost is fatal to the germinating seeds. *Tulips* must continue to be protected as before advised, and all in-door work connected with Floriculture should, during inclement weather, be attended to.—*C.*

IV.—PINERIES, VINERIES, &c.

The earliest fruiters now showing or swelling may have a considerable advance of temperature, more especially on sunny days; on such the glass may be allowed to reach 90°, giving air betimes and shutting up early with a moist atmosphere, give a slight syringing two or three times a week. Let the glass sink to 65° after dark. Continue the former treatment with those in dung-pits, and do not make above from 2° to 5° in advance at present in atmospheric temperature; give plenty of air. Get tan and other fermenting materials in readiness for a general revision of the whole stock, likewise chopped turf and other necessary composts, which should be in a mellow and rather dry state. *Grapes* swelling, may have their day heat slightly increased, say to 75°, with a gentle circulation of air and moist atmosphere, allowing the glass to reach 85° in sunshine, and to fall to 65° at night. For *Peaches* swelling, let the heat be from 60° to 65° by day, allowing it to fall to between 45° and 50° by night, and in sunshine let it rise to 75° with air. Beware of insects. *Cherry-house.*—Pursue former directions. Be moderate in advances of heat; give air at all fair opportunities; syringe freely early in the afternoon. Fumigate this and other structures the moment that aphides appear. *Fig-house.*—Increase your heat a degree or two on sunny afternoons; in other respects see last Calendar. *Mushroom-house.*—Make succession beds in vacant places; beds made now will last as long as Mushrooms are good. Keep floors wet. *Strawberries.*—See last Calendar. Keep up a succession of Kidney Beans and observe thorough cleanliness in all the above departments.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Continue the operations of planting, pruning, and nailing; precedence being given to the more forward kinds of trees. The pruning of wall-trees on south aspects should be completed as soon as possible. In this climate every bearing shoot of the Peach and Nectarine requires to be shortened, otherwise a sufficient supply of young wood for future bearing cannot be insured. But if this has not been formerly done, there may be some difficulty, in consequence of these shoots having formed no wood-buds, excepting, of course, the terminal. In that case, it will not be acting too severely to cut back at least every other shoot so fully studded with blossom-buds, to within half-an-inch of their base, in order that from thence better shoots may spring; for after this reduction, the number of blossom-buds left will doubtless be ten times greater than the number of fruit which the tree ought to bear. It is now a good time for the application of manure to such fruit trees as require it. It will be properly applied to any that have made no young shoots. In the *Kitchen Garden*, if ground previously dug or trenched has become too compact from heavy rains, the surface should be well stirred with a broad-pronged fork before cropping. Forward digging and trenching if the weather admit. It is improper to turn down a frozen surface, or snow. This will appear evident from the fact that ice or snow will require a period twenty times longer to acquire by contact the present temperature of the soil, than the ice cold water from the melting of the same quantity of ice or snow would require. And again, that 9 lbs. of ice will cool 13 gallons of water from 42° down to freezing; whereas 9 lbs. of ice-cold water would cool down a similar quantity not half a degree. Hand-glasses may be placed over Rhubarb in order to forward it, where it cannot be taken up and placed in a warm situation. Place pots over plants of Sea-kale to succeed those forwarding by fermenting materials. Make fresh plantations of herbs if the old have become poor. Forward Mint under hand-glasses or otherwise. Make a sowing of Knight's Dwarf Marrow Pea, it being desirable to have this preferable variety as early in the season as it can be obtained. Observe the conditions of early crops, and make successional sowing accordingly.—*E.*

VI.—ARBORICULTURE.

Woods and Coppices.—During the continuance of the present storm, little can be done except thinning; but beware of opening plantations too much at one time, bearing in mind at all times that the thinning is intended for the good of the trees left, and not for the value of the thinnings. A good rule is, not to look at the distance the roots may be apart, but thin so as not to allow the tops of permanent trees to whip or overtop each other. There is no better time to observe where draining is necessary than after a snow-storm; the present weather will afford an opportunity for this important object. *Nursery.*—Prepare seeds for sowing of all kinds of forest-trees, &c.; make new labels, also mouse-traps, to guard seed-beds.—*F.*

State of the Weather near London for the week ending Jan. 30, 1845, as observed at the Horticultural Garden, Chiswick.

Jan.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	24	16	29.937	29.586	46	25	35.5	W.	—
Sat.	25	17	30.038	29.680	51	42	46.5	S.W.	.07
Sun.	26	18	29.707	29.571	52	33	42.5	N. W.	.11
Mon.	27	19	29.239	29.111	45	23	34.0	W.	.04
Tues.	28	20	29.034	28.932	45	19	32.0	S.W.	.11
Wed.	29	21	29.293	29.257	45	20	32 6	W.	—
Thurs.	30	22	29.212	29.171	34	27	30.5	S.W.	—
Average			29.494	29.329	45.4	27.0	36.2		0.33

Jan. 24—Fine; densely clouded; rain; clear and frosty
— 25—Clear and frosty; partially overcast; boisterous at night
— 26—Clear and boisterous; fine at night
— 27—Rain; boisterous; cloudy
— 28—Clear; ground slightly sprinkled with snow; bright sun; barometer very low; rain and sleet
— 29—Uniformly overcast throughout
— 30—Thick haze; overcast; snow at night.
Mean temperature of the week 2 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Feb. 8, 1845.

Feb.		Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun.	2	42.7	32.4	38.5	6	0.75 in.	1	2	3	3	3	4	3	1
Mon.	3	44.0	33.0	38.5	8	0.42	2	2	3	1	1	7	2	1
Tues.	4	43.6	33.4	38.5	10	0.30	1	4	2	—	6	3	3	—
Wed.	5	43.2	30.8	37.0	6	0.39	2	3	2	1	3	3	2	3
Thur.	6	44.7	32.6	38.7	11	0.25	1	1	3	3	4	3	3	1
Fri.	7	47.2	34.5	40.8	11	0.29	—	1	3	—	3	6	4	2
Sat.	8	46.2	35.3	40.8	12	0.67	1	2	—	—	4	7	2	1

The highest temperature during the above period occurred on the 8th, 1831, 5th 1833, 2d 1835—therm. 66°; and the lowest on the 3d 1841—therm. 14°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ACACIAS—*C J D*—Acacia pubescens being a robust grower requires plenty of pot room: this is, perhaps, what your plant wants; over-watering will also cause the leaves to drop off. If you wish to retard its flowering use as little fire-heat as possible, and give air always when the weather will permit.§

APPLES—*E M*—Dessert varieties for a small garden:—Golden Reinette, Court of Wick, Claygate Pearmain, Boston Russet, Pearson's Plate, Golden Harvey, Court-pendu Plat.‖

BOOKS—*Guano*—The "Theory of Horticulture" is the only book on the subject in which you will find any information. ——*Reader*—We never recommend booksellers. Apply to the nearest.

BULBS—*W G B*—The following are handsome Amaryllises for greenhouse culture, viz.:—Reginæ, vittata, Johnsoni, Solandriflora, venusta, aulica, and psittacina §

CAMELLIA RETICULATA—*Observer*—You are quite mistaken. This plant is never spotted when in health. As to its not being possible to strike its leaves, why that remains to be determined by experiment. Mere opinion upon such a point is of no value, especially where that opinion is founded upon unphilosophical reasoning. A Camellia leaf is like other leaves, which all contain "the constituents of their own elements," and nothing more.

CLIMBERS—*W G B*—The following are suitable for a south wall, viz.:—Bignonia capreolata; B. radicans major; Clematis florida; C. montana; C. Hendersoni, Lonicera flexuosa and Caprifolium japonicum §——*A B*—Plant the different varieties of Ivy on the north aspect, and train Pyracantha, Laurustinus and Magnolia grandiflora on the west aspect.¶

FIR-SEEDS—*H E M*—Sow Himalayan Fir-seeds now in dry sandy loam, and place the pans in which they are sown in a dry heat, observing as soon as the seeds begin to vegetate to remove them to a more airy and cooler situation; give no water after the seeds are sown until they begin to vegetate, and then only sparingly.¶

FORCING—*Subscr*—It is not impossible to force Peaches and Grapes in one house, so as to have them ready in May; but to have them in full perfection at that season is a very doubtful matter.‖

FROZEN SOIL—*Querist*—In some cases ground may be forked up in frosty mornings, but burying frozen soil is very improper.‖

GARDENERS' CHRONICLE—*C, Epsom*—You can have the volume for the past year; price, bound in cloth, with title-page and index, 1*l.* 10*s.* Order it of any bookseller; and the publisher will send you the Numbers complete, by post, price 26*s.*

GARDEN TOOLS—*Subscr*—Tools and implements essentially required in gardening are spades, rakes, hoes, forks, wheelbarrow, pick, planting trowel, knives, hatchet, saws, billhook, chisel, hedge-shears, scythe, hammer, garden-line and reel, watering-engine and tub, watering-pots, syringe, ladders, roller, grass-rakes and brooms, sieves for soil, thermometers.‖

HEATING—*Subscr*—You ought to have sufficient heat from the means you possess to effect all you require. Further information on the subject will be given next week.‖

ICE—*H P*—Nothing can be more erroneous than to add salt to ice in an ice-house. Its effect is to dissolve the ice, and the result is so much salt water. You will find some good observations on the subject at p. 86, vol. 1842.‡

INSECTS—*A W G B*—You should have sent specimens of the insects; but as I conclude you allude to an Aphis, I would recommend you to take ¼ lb. of Tobacco and infuse it in ½ a gallon of hot water; dip the young shoots and buds infested into this liquor for a few seconds, and repeat it in a few days if necessary, after which the plant may be washed with clean water; then dissolve 1 lb. of soft soap and 1 gallon of lime in sufficient water to make it of the consistence of thick whitewash, and if you object to the colour add soot to it. With a painter's brush cover the stem and as many branches as you possibly can with this mixture, and having sifted some powdered lime over the surface of the ground beneath, you will effectually subdue the troublesome insects. *R.*

LAWNS—*E*—Your Grass is probably a bad sort; frequent cutting will have a tendency to keep it from growing rankly. If it is necessary to scatter seeds over the lawn, sow Crested Dog's-tail and Sheep's Fescue.‡

LEGAL QUESTIONS—*L L*—We have sent your inquiry to the *Railway Chronicle.* As this requires explanation, we beg to state that for the future we must decline answering questions upon points of law. Hitherto this department has been in the hands of a gentleman eminently qualified for the duty, as the excellence of his replies has shown. But we find that professional men, both barristers and attorneys, have lately come to the understanding, that newspapers ought not to be made media for conveying professional advice upon such important matters as points of law. We are informed that this is the decision of the majority of the respectable part of the legal profession, and as we cannot consult any authorities, except the best, we must abandon legal answers altogether.

MELONS—*G G G*—The Beechwood is the best for both purposes.‡

NAMES OF FRUITS—*M G S*—1, Easter Beurré; 2, 3, Beurré Rance.‖——*J M B*—1, appears to be the Flemish Bon Chrétien; 2, worthless.‖——*W B*—1, Golden Noble.‖——*Rev. J H*—Your seedling Nonpareils will be specially noticed.‖——*R B*—Your Pear is the true Winter Nelis; certainly not so rich as this variety usually proves, but still it was considered good.‖

NAMES OF PLANTS—*Truly*—1, Azalea indica, white; 2, Some Hardenbergia; 3, Ajuga reptans; 4, Trollius asiaticus. Sensible men do not send three-cornered notes by the post-office, especially if by that mode of folding the contents are spoiled.——*Subs*—Setaria sibirica, a cultivated variety of S. italica.——*Reader*—1, Escallonia rubra; 2, Candleberry Myrtle.——*K L*—Melia Azedarach, a greenhouse shrub.——*T J*—Colchicum autumnale, or Meadow Saffron, very poisonous.

ORANGES—*Constant*—An Orange-tree will grow in the circumstances you describe; but it will not flourish unless you can find some means of warming the earth during summer. The coldness of their bottom is the ruin of Orange-trees in this country.——*G C*—Your trees having been 12 years in their tubs without having been shifted, are certainly in want of it now. Shake the old soil clean from their roots, and plant them in a rich compost, in tubs one third larger than those in which they are at present. Thin out a number of their stunted branches, as this will induce them to make young wood.§

PEACH-TREES—*Querist*—In pruning these some of the short natural spurs, furnished with blossom-buds, may be left.‖

PEARS—*Querist*—The D'Auch, which is the same as the Old Colmar, is a good dessert Pear. It may be had in perfection off the same tree from December till March, which is perhaps more than can be said of any other variety. In some instances it is known to bear freely, although generally it is rather shy. The Beurré de Capiaumont is a most abundant bearer, of moderate quality. The Easter Beurré is not particularly apt to shrivel. The Winter Bon Chrétien is now in season for stewing—never for any other purpose.‖——*J L H O*—Graft with Beurré Rance, and Ne plus Meuris.‖

PELARGONIUMS—*H E M*—It requires two-year old plants for forcing in winter; young plants from cuttings will not do well. Any of the free blooming kinds, as Lady Murray, Alba multiflora, Jewess, &c., are suitable for the purpose.¶

PLANTING—*W C*—There is no reason against planting Scotch and Larch trees intermixed. Of course attention must be paid to thinning. We should prefer Highland seed.

PLANTS—*W G B*—The following are good winter flowering greenhouse plants:—Candollea tetrandra; Boronia pinnata; B. anemonefolia; Lyperia pinnatifida; Erica hyemalis; Templetonia glauca; Corræa speciosa; Epacris campanulata; E. nivalis; E. grandiflora; E. impressa; and Primula sinensis plena.§

POTATOES—*G W P* would be glad if "Observer," who recommends Potatoes to be dipped in boiling water, would say for how many seconds, instead of the time consumed in counting six.

POTTING—*Admirer*—A full answer to your inquiry is in preparation.

PRIMULA SINENSIS—*J N C*—Your plants of this have evidently been kept too cold. They require a little heat to bring them forward at this season.§

RASPBERRIES—*Anon*—The ground should not be dug between the rows of Raspberries in such a way as to injure the roots; but, keeping the safety of these in view, the ground should be stirred and manure worked in with a fork. If this cannot be done, it is now a good time to lay a coat of manure on the surface.‖

SHOWS—*E*—We cannot undertake to interpret other persons' language. You should apply to the Secretary. Chiswick is not the proper place to exhibit British plants, unless they are specimens of *very extraordinary cultivation.* It was to encourage such things that the Royal Botanic Society received their charter.

SLATES—*A Sub*—We are aware that some descriptions of Slates will not stand the heat of boiling water; while others will. We are sure that Mr. Beck, of Isleworth, would willingly tell you which sort it is that does stand.

STRAWBERRY BANKS—*H W*—The material marked dark may be the burrs of brickfields, or lumps of stone; no matter what. All that is wanted is a good breastwork, to prevent the soil from washing down. The wood engraver has in hand another plan, which we will give as soon as possible.

TROPÆOLUM TRICOLORUM—*C H*—This may be raised freely from seeds, which should be sown in a mixture of sandy peat and loam as soon as they are ripe.‡

VINES—*J C* and *Orford*, on shanking, next week.—*A*—No young wood having been formed, the roots of your Vines must be in a very bad condition; nothing can be suggested till you examine the state of the border.‖

VINERIES—*Querist*—With reference to the query answered p. 24, the architect you consulted must surely be aware that although the strength of an arch is proverbial, yet it is most proper that solid parts should be placed above solid, where there is no good reason to the contrary. So far as appearance is concerned, it is best to have the piers below the rafters. As to the objection of the piers being in the way of the roots, it is not necessary that the latter should be planted close under the rafters; for they may be trained under the sashes, as is very often the case; besides, the roots will delight to creep round the brick-work.‖

WHITNEY'S COMPOSITION—*C H, A Z, Amateur*—There is no end to complaints about Whitney's Composition. We have never heard anything said against that by Devoniensis, described at p. 392, vol. 1844. It seems to answer the purpose.‡

MISC—*A New Subscriber*—The Paper is published on Saturday morning, in time for the early mails; we have no Friday edition.——*R D*—We cannot furnish you with the volumes, but you can have Nos. 7, 8, 10, 11, 13, 20, and 24 for 1844.——*B T*—Yes.——*E B*—It is very probable that squirrels have stripped the scales off your Larch cones, and eaten the seeds out of them.‡——*J B*—The genus Pholidota is both epiphytal and orchidaceous.——*G S*—A garden-wall is just as good built with stone as with brick; but trees cannot be so neatly trained on the former on account of the size of the stones.‡——*G K*—You may cut back your Eccremocarpus when it is beginning to shoot.——*K N*—Windsor Bean.‖——*C M*—We never name dealers or give prices; that is the business of advertisers.‡——*Gilpinetto*—Full directions about potting are in preparation. We believe that Fagus betuloides exists at Kew. We have little hope of its proving hardy.

SEEDLING FLOWERS.

CINERARIAS—*D B*—Your white seedling is a very good specimen—as good but not superior to the best in cultivation.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

MONMOUTHSHIRE.—To Let on lease, a FARM, TITHE-FREE, containing 154 Acres of Arable, Meadow, and Pasture Land, about 53 of which are arable, the remainder Grass-land of superior quality, well supplied with Water. The farm has been for some years in the occupation of the Proprietor, who has spared no expense in thorough-draining and subsoiling, to bring it into an improved state of cultivation. It is situated within Five miles of two good market towns; lime and coal cheap, and of easy access; roads good and rates very low There is a comfortable Farm-house, with good Garden, Barn, Stables, Cow, Calf, and Turnip-houses; and 4 Acres of good orchard. For further particulars, or to treat, apply to Mr. JOHN MORTON, Whitfield Farm, near Wotton-under-Edge, Gloucestershire. An adjoining Farm of about 55 Acres, of which 40 are arable, may be had with the above.

The Agricultural Gazette.

SATURDAY, FEBRUARY 1, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Feb. 5—Agricultural Society of England.
Highland and Agricultural Society.
THURSDAY, Feb. 6—Agricultural Imp. Soc. of Ireland.

WEDNESDAY, Feb. 12—Agricultural Society of England.
THURSDAY, Feb. 13—Agricultural Imp. Soc. of Ireland.

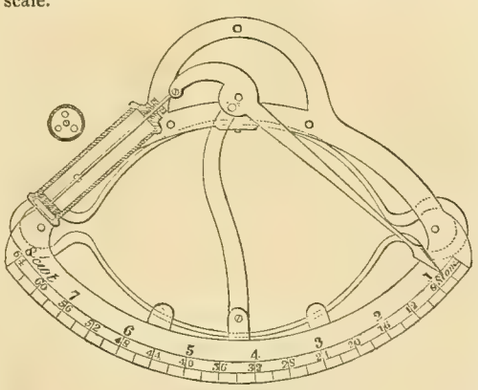
WE took an early opportunity, last year, of referring to the important influence which the employment of machines of easy draught has upon the amount of that important item in the farmer's account-book—horse-labour expense. Mr. Pusey and others have shown that the power required by ploughs of different forms in the performance of the same work varies, in some instances, as much as 30 per cent., so that three horses would be required by some implements, where two only were necessary with others. Having lately had an opportunity of testing the results obtained by previous observers, under circumstances particularly conducive to the accuracy of our conclusions, we return to this subject.

Among the points of interest to be determined by an EXPERIMENTAL INQUIRY ON DRAUGHT IN PLOUGHING, are—1st. The absolute resistance to the motion of any particular implement when at work *in different soils;* 2d. The relative draught of the various forms of the implement in the performance of *the same work;* 3d. The relative resistances to the motion of the plough made by *the different sources* of its draught, viz., its weight, the action of the share and coulter in *cutting* the sod, and that of the mould-board in *turning* it; 4th. The *absolute* influence of the weight of a plough upon its draught; 5th. The influence of velocity on draught in ploughing; 6th. That of an inclination of the surface of the ground; 7th. The influence of the depth of ploughing on the force required; 8th. The influence on the draught of the plough of one or more wheels as supports for its beam. Most of these points were adverted to, and many of them fully illustrated by Mr. Pusey, to whose systematic and valuable experiments on this subject* we have already alluded. The inquiries of the other observers, so far as they have been published, appear to have been chiefly directed to the 2d and 8th points mentioned above. To their results we shall refer in the sequel.

It is essential to the accuracy of any account of inquiries into these matters, not only that the amount of draught be correctly stated, but also that the nature and amount of the work done be accurately described, for it is from a comparison of *the two* that we draw our conclusions; and thus two difficulties occur at the very outset: the first of these, till lately, had been but imperfectly overcome—the instrument (dynamometer) employed for the purpose of measuring the draught of farm implements consists either of an elliptic or a spiral spring, whose length or width varies with, and thus indicates the intensity of the strain to which it may be subjected. These variations in its dimensions are magnified and communicated by a system of compound levers, or by means of rack-work and pinions, to an index, whose position on the scale over which it travels thus represents the tension which the spring is at any moment suffering. The second difficulty alluded to still exists—we are still in want of an instrument which shall each moment indicate on a dial-plate, as in the dynamometer, *the depth and width* of the sod as it is being cut and turned.

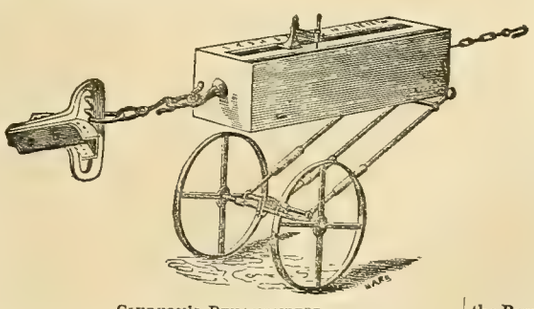
We have stated that the circumstances connected with our inquiry were favourable to the accuracy of its results: the land, a deep and firm sandy loam without stones, was in the best possible condition for ploughing, and during the course of the experiments, which occupied three days, it remained in one condition as to dryness; no rain fell, nor did the sun shine; hardly any wind blew which could affect it in this respect in the slightest degree—the weather was calm and clouded the whole time. All the experiments took place in one field, and thus of course none of them could have reference to the first point of inquiry alluded to above. This field had a slight inclination; the furrows were all up and down the greatest ascent, and, excepting where the object was to ascertain the difference in the draught of a plough up and down hill, the dynamometer was applied only when ascending the field. The greatest care was taken to cut the furrow-slice of the right dimensions; for this purpose two of the most skilful men we could obtain—the one accustomed to wheel and the other to swing-ploughs—were selected as ploughmen; and the draught of the ploughs was always taken when working into furrows of their own making, *i. e.* no plough was tried till after it had once or oftener gone round the feering. Considering that ploughs vary greatly in the width of their respective wakes, and that the draught of a wide plough would be much increased by its having to work into a furrow narrower than its own, and *vice versâ*, this is a point of great importance. It may be mentioned as, in a degree, affecting the accuracy of his conclusions, that there were rarely any other persons than the observer and the ploughmen in the field while the inquiry was proceeding; and as it will undoubtedly influence the value attached by some minds to the following account, we must mention that he was certainly prepossessed, or, if you will, *prejudiced*, in favour of the swing over the wheel-plough as a manageable and efficient farm implement; he has always used the former—a Scotch plough by Ferguson and Clark, of Stirling—on his own farm, and has no intention, for reasons which shall hereafter be stated, of altering his practice in this respect.

The influence of prepossession on the part of the observer is, however, hardly anything when, as in this case, he has only to ascertain the dimensions of the furrow-slice, and not to estimate and record the draught as indicated by the dynamometer. And this is the point connected with our inquiry, and insuring the accuracy of its results, to which we attach most importance. The draught of the ploughs was recorded by pencil on paper, not by the observer but *by the same instrument which indicated it.* The fact of the matter is, that in reference to the common dynamometer, and even to that also which has been improved by Messrs. Cottam and Hallen—a woodcut of which is annexed, and a description of which will be found at page 593 of our last year's volume—the oscillations of the index of the instrument are so frequent and incessant—owing probably in part to the gait of the draught animals, but chiefly to an unevenness in the texture of the soil—that the most practised and disinterested observer can rarely feel confident that he has correctly estimated its average position on the scale.



COTTAM'S DYNAMOMETER.

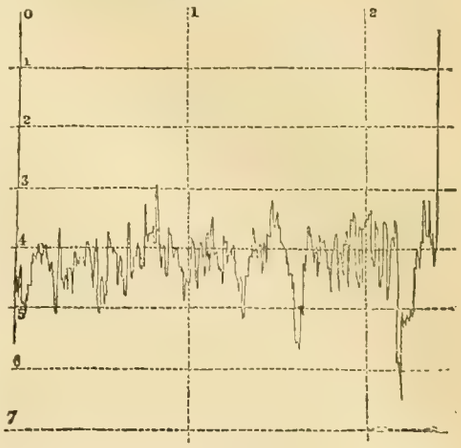
By Mr. Clyburn's Dynamometer however, these oscillations, instead of being left to the infinitesimal chance of a fair collation and correct reduction to average in the mind of the observer, are registered on paper with beautiful and minute accuracy at each moment of their occurrence. The woodcut below gives the general form of this instrument:—



CLYBURN'S DYNAMOMETER.

The following woodcut, reduced from the figure drawn by this dynamometer when attached to a plough at work, is a better illustration than many words, of the frequency and extent of these oscillations in its draught.

We can estimate with tolerable precision *here*, whereabouts between parallels 4 and 5—the one representing a draught of 4 cwt. and the other one of 5 cwt.—a line should be drawn—a medium between the extremes of the variations in the draught represented by this irregular line drawn by the pencil of the dynamometer; but any accurate estimation of the position of such a line, when the pencil was still oscillating as the plough proceeded over the ground, would have been impossible.



We may mention that the field in which these experiments were carried on was a one-year-old Clover lea ploughing up for Wheat. It had borne Wheat the previous year, for which the land had not been ploughed, but merely *cultivated** about 3 inches deep; the ground was thus somewhat hard: it is a deep siliceous loam, above the quartzose conglomerate of the old red sandstone formation. Two parallel lines 50 yards apart were drawn *across* the field, including that portion of it which was considered to be of the most uniform texture. The plough under trial was taken once or oftener *up and down* the field, round the feering, the dimensions of the furrow-slice being carefully measured at intervals to get the ploughman accustomed to the right depth and width; the dynamometer was then attached a few yards below the lower of the above-mentioned lines, and the wheels communicating motion to the paper on which the pencil of the instrument records the draught being dropped when over that line, and lifted again when the plough reached the upper one, a correct figure of the tractive effort of the horses during the passage of the plough through 50 yards of the land was thus obtained. Halves of these figures have been taken, and these being reduced to a suitable size for our columns, have been engraved; and thus, retaining to ourselves the office of describing the circumstances under which the different trials took place, instead of presenting to them a rough estimate of their draught by an unpractised observer, we shall have the pleasure of laying before our readers the depositions of the ploughs themselves on this subject.

There are many advantages connected with the appearance of an agricultural periodical *at weekly intervals*, but there are unquestionably disadvantages also, and among the latter is the necessity which limits impose upon us of parcelling out, piecemeal, any lengthened remarks on an interesting subject, instead of giving them in a more connected form. This necessity hinders us from proceeding further at present, as we otherwise should, with the account of these experiments. We shall, however, resume our remarks on this subject as soon as possible.

BONE MANURE.

THIS subject has been agitated during a course of years, and by writers innumerable; but in a spirit of generalisation which can lead to no satisfactory conclusions. Of one fact, however, we may rest assured—Bones have their uses, and those are very important to a certain extent, and under particular conditions of soil, &c., they greatly promote the growth of Turnips. Since the publication of Dr. Justus Liebig's "Organic Chemistry," a spirit of chemical investigation has been excited; Davy had paved the way to this advance, but his efforts were made at a period when the agricultural body was in high feather, plumed by the trophies of that bane of humanity—war. Necessity has subsequently led to research, and the results begin to be seen.

In vol. iv. page 408, "Journal of the Royal Agricultural Society," there is a short article "On the Solution of Bones in Sulphuric Acid for the Purposes of Manure," by the Duke of Richmond. He says, "On my own farm, which is light sandy soil, I tried one acre with it; another with guano, and a third with stable-yard dung. Early in November, I had a quarter of an acre of each drawn, and weighed; the heaviest crop was from the land manured with the sulphuric acid, though it did not cost me above 11*s.* or 11*s.* 6*d.* an acre. I understand also that the Turnips came into rough leaf sooner on that acre than on any of the others."

* The Journal of the English Agricultural Society, p. 219, vol. i.

* "*Cultivated*," *i. e.*, worked by the *cultivator*, scarifier, or grubber.

The above is the recital of a plain fact—a new one in the experience of the agriculturist, and worthy of record; but it makes no allusion to causes. Further evidence of the certain effects of bones treated with sulphuric acid, may be obtained from the Report of the Committee of the Morayshire Farmer's Club, p. 164—8, of the same volume. From this Report it appears—(the experiments being comparative), 1st. "That 200 yards of Turnips, treated with bone-dust and sulphuric acid, at an expense of 17*s.* 6*d.* per acre, yielded 976 lbs., or 13 tons, 10 cwt., 21 lbs. per acre; whilst, 2d. The same extent of plant manured with bones singly, at the expense of 38*s.* per acre, weighed only 825 lbs., or 11 tons, 9 cwt., 21 lbs. per acre."

The method of applying the bones in No. 1. is thus detailed by Mr. Geddes, to the committee:—"On the 1st June, 1842, the third part of an acre was measured off, and next day thrown up into drills, formed deep, and made 22 inches wide. On the same day a bushel of bones was sifted fine from a large heap of mixed drill and dust; the bones were then weighed and found to be 45 lbs.; they were then placed in a large box; 22½ lbs. of sulphuric acid, being one-half of the weight of the bone-dust, were then weighed out, and applied to the bone-dust, and immediately afterwards 67½ lbs. of water. The whole was then stirred about, and allowed to remain 24 hours, by which time the mixture had obtained the consistency of fine gruel, and the particles of bones were completely dissolved, with few exceptions. At this time were added 2200 lbs. of water, or 100 times the weight of the sulphuric acid; the whole mixture then appeared like water, and was carried to the fields; the expense standing thus—

	s.	*d.*
1 bushel of sifted bones at 3*s.* 6*d.*	3	6
22½ lbs. of sulphuric acid at 1½*d.* per lb. . .	2	4
Or 17*s.* 6*d.* per acre.	5	10

Independently, then, of other and more recent testimonials, we have, in the foregoing communications, two cases, distinctly stated, as evidences of the utility of bones treated with sulphuric acid, to the Turnip plants; and now, as a practical chemist, brought up from infancy as it were, in the laboratory of my father, to whom medicine was indebted for the first decided improvement, or rather perfecting of most of the then important "chemicals," which had been previously prepared in a very loose and careless manner, I have to show, by a few simple details, how bones, treated as described, must act upon plants which they bring to great and early perfection.

Liebig has correctly stated, that trustworthy analyses of the ashes of plants will, by revealing their inorganic elements, determine the manures which the culture of each requires; and, presuming from the facts recorded, that bones are congenial to the Turnip plant, we must conclude that it contains and requires some or all of the elements of bones to bring them to perfection.

Ox bones, according to Fourcroy and Vauquelin, consist—

Of decomposable animal matter . .	51.0
Phosphate of lime	37.7
Carbonate of lime (chalk)	10
Phosphate of magnesia	1.3
	100.0

The decomposable matters are fatty or oleaginous and gelatinous substances. It has been a matter of doubt whether the decomposable elements are available or otherwise. Be this as it may, they tend to retard the operation of the sulphuric acid, and are in no way concerned with the results of the experiments in question.

The first object of the manufacturing chemist, in order to decompose the bones completely, is to distil off the volatile products from iron vessels, similar to those used in the gas works. They are heated to redness, and the results are a quantity of impure liquid carbonate of ammonia (termed in the old nomenclature, hartshorn), and with it much black fetid animal oil. These productions show that the "fifty-one parts of decomposable organic matter" comprise the elements — oxygen, hydrogen, carbon, and nitrogen. The first and third, that is portions of them, unite and form water; the second and fourth constitute ammonia, and both together are carried off, and pass into receiving vessels attached to the iron stills or retorts. The inorganic constituents estimated at 49 per cent. remain; and so soon as the liquid portion ceases to flow off, they are withdrawn, while at a full red heat, by opening the front plates of the retorts, when they immediately inflame by attracting the oxygen of the open air, with which they come in contact. This process of combustion carries off the remaining carbon in the condition of carbonic acid, leaving the bones unaltered in form, but deprived of all their volatile constituents. Such was our first process, since modified, perhaps, during the lapse of 30 years, but still essentially the same.

2. To any definite quantity of these bones, say one or two hundred weight, placed in strong wood or leaden vessels, we added water sufficient to cover them, and to float an inch or two above their surface after they had absorbed the fluid to saturation; and then concentrated sulphuric acid (called oil of vitriol), to the amount of half the weight of the bones, stirring the whole repeatedly with a wooden oar, and superadding cold water for several days, until the texture was entirely broken up, as described in the articles quoted. Here it becomes necessary to inquire into the nature and results of the above process, by which some light will be thrown upon the chemical constitution of burnt animal bones.

In the first place, a quantity of water was absorbed; hence the necessity of waiting for a certain time; then, upon adding gradually and cautiously the sulphuric acid (stirring all the time), a violent effervescence was created, evidencing the extrication of carbonic acid. Now, our Table instructs, that 100 parts of bones contain 1-10th—*i. e.*, 10 lbs. of chalk—carbonate of lime; and 10 lbs. of it contain about 5 7-10ths of lime, and 4 3-10ths of carbonic acid. Were no more sulphuric acid employed, than is sufficient to neutralise the lime, the primary effect would be the expulsion of all the carbonic acid in the form of gas or air; and the secondary, though simultaneous effect, the substitution of an equivalent of sulphuric acid, and the consequent formation of about 10 parts of sulphate of lime, *i. e.*, artificial gypsum. Here we obtain knowledge of the important fact, that, by treating bones with oil of vitriol, we convert all the carbonate of lime which they contain into gypsum; and hence, that every plant which requires that substance as part of its organisation, will be assisted by acidulated bone-dust, provided the soil in which it grows is poor in this material.

3. But bones, we perceive, contain nearly 38 per cent. of phosphate of lime, or rather of subphosphate, wherein 53 or 54 per cent. of lime is combined with about 46 or 47 per cent. of phosphoric acid. In our process, the whole of the carbonate of lime, and of the subphosphate, were decomposed by the acid, added in the proportion I have stated; and thus we obtained a diluted phosphoric acid, because the sulphuric acid had seized upon and combined with the lime, from which, by superior affinity it had expelled the phosphoric acid; and here, again, if Turnips require phosphoric acid, bones so treated become excellent manure for them. The question now arises, Do the animal matters in unburned bones perform any important part in the manuring process? But this question time and experience alone can decide.

By the experiments thus detailed, it will be evident that crude bones contain the vegetable elements—oxygen, hydrogen, nitrogen, and carbon—but in a condition in which they mask the earthy constituents, and are themselves little inclined to decomposition;—that, by burning the bones, they develope ammonia, but retain salts of lime, which, combining with sulphuric acid, yield abundance of liquid superphosphate of lime, and of precipitated sulphate of lime (gypsum). Our process might be made to reveal other minutiæ, of little importance, however, to the question.

It is by teaching the causes of their usefulness, and so teaching economy in their use, that such explanation of the causes of the fertilising properties of manure are useful; and thus we see the importance of chemistry and other sciences as elements of agricultural education.

Above seven years have elapsed since I first heard of the German agricultural establishments; and from that period I have appealed to the public, the landlord, the tenant—to persons of every grade interested in the prosperity of the farmer, endeavouring to show that agricultural seminaries are indispensable. And now, in this publication, I urge the inestimable value of such establishments, wherein not only all the plain and mechanical operations of the farm shall be diligently and practically taught; but the process of chemical analyses of soils, of organic substances, and of manures, shall be exhibited and explained by faithful lectures.

Without these establishments agriculture must remain merely an empirical pursuit: with them, provided they are sufficiently numerous, facts will be elicited and impressed upon the minds of the rising generation of farmers, who will thus be enabled to raise the character of British agriculture beyond the control of foreign competition.—*J. Towers, Berks.*

GEO-AGRICULTURE OF MIDDLESEX.

I lately pointed out the effects of the geological structure of different parts of the Vale of London on the amount of its population and the nature of their employment, showing the influence which a thick or thin deposit of the drift has exercised on the agriculture and industrial resources of its northern and southern portions. Let me now draw attention to the subterranean agricultural resources which this tract contains for the improvement of its surface. These consist of the chalk and clay which everywhere form its substrata. The depth of the clay is too great, except on the borders of the basin, to render the chalk economically available, by means of pits sunk on the spot, after the Hertfordshire method. By means, however, of the Thames, and the Grand Junction and Paddington Canals, chalk, either from Hertfordshire, Kent, or Berkshire, is within easy distance of every part of the district. The chalk of all these localities has been used with success on some of the more modern inclosures from the plain of Hounslow Heath; rendering subsequent dressings of animal and vegetable manure more effective and permanent on this land, which was previously a great devourer of dung, the effects of which were only seen on one crop.

I am unable, at present, to state the difference in the chemical composition of the chalk from these different localities, but the farmers have recognised, in practice, a difference which they describe by the terms "fat" and "dry;" the former belonging to the chalk brought down the Thames from above Windsor, the latter to that from Harefield. If the qualities thus described indicate, as is probable, different proportions of argillaceous and siliceous earth, combined with calcareous matter, it happens, most opportunely, that each variety of chalk is most accessible to those soils to which it is best adapted—the fat, to the light soils lying between the Thames and the Bath road, the dry, to the heavy soils intersected by the canals before mentioned.

The success attending the use of chalk on the new inclosures has not led to its adoption on the old land so extensively as might have been expected. The farmers of the neighbourhood have been so accustomed to pile on London dung that they despise all other manures, which contain merely, or principally, the inorganic constituents of plants.

We are convinced, however, that saturated as most of this land is with ammoniacal manure, and carbonic acid, arising from the decomposition of animal and vegetable substances, great benefit would be derived from the occasional use of chalk, lime, bones, and London clay. In this we find the deductions of theory to be in accordance with the results of long-established practice, upon soils of similar quality—the sands, loams, and gravels of the drift in Norfolk and Suffolk. It is well known how much the light soils of that district have been increased in value during the last 60 years, by marling and claying. I have stated elsewhere, that the marl is nothing but the solid chalk, or transported chalk rubble, sufficiently pure to be burned for lime; and the clay, this same chalk rubble, mixed with a valuable proportion of clay or loam. It is sometimes called yellow clay, to distinguish it from the blue clay, which is the till, or unstratified boulder clay, and contains a mixture of fragmentary chalk, clay generally constituting the bulk of the mass, but calcareous matter occasionally predominating. The preference is given to those varieties which are most calcareous—lying at the bottom of the drift—except where contortions of the strata, or denudation of the upper beds have brought it near the surface; it has been less used than the yellow clay, which occupies a higher place in the drift. In those parts, however, where it has been used, it has been found superior to any other, not only upon the sands and gravels, but upon loamy soils as strong as those of Herton and Harmondsworth, in Middlesex. Even in the Fleg Hundreds, where the soil is such that it might be supposed to be least required, it has been used with advantage. It appears, however, not to contain sufficient calcareous matter; for chalk brought from a distance is also used there upon land which has been clayed. In the north-eastern parts of the county, where it is in general more deeply covered, it is chiefly obtained from the ruins of the cliffs, on which the sea is making such rapid encroachments. That raised at Trimmingham costs the farmers 1*s.* for a three-horse load at the top of the cliff, and is carried three or four miles inland. Such is the estimation in which it is held, that when I assured an extensive farmer in the interior, having abundance of the transported chalk rubble, both pure, and in the form of the yellow clay, upon his own land, that the valleys excavated in the drift must in several places, and among others on his own farm, have cut down nearly to the level of this blue clay, so that there was a probability of finding at a reasonable distance from the surface, he exclaimed, "A pit of it in such a situation would be a fortune." The London clay does not occur in Norfolk between the chalk and the drift, but in Suffolk; besides all the varieties already enumerated, it has long been extensively used, and with great advantage, and contributes, with the shelly beds of the crag, which in Norfolk are too feebly developed to have an agricultural influence, to increase the confusion in which the terms marl and clay are involved.

Now, the blue till resembles much a mass of London clay, mixed with lumps of chalk. The London clay has contributed largely to furnish its argillaceous portions, as appears by its bouldered fossils, imbedded in the mass; we may therefore conclude that a mixture of London clay and chalk would produce, on the sands, gravels, and loams of the drift in Middlesex, the same effects which it produces on those soils in Norfolk; while in Suffolk the London clay itself is, on such soils, found beneficial. I know, again, that in Norfolk a dressing of lime, to the extent of 3 chaldrons, 98 bushels per acre, is found to work more rapidly than the unburnt chalk marl from which it is made. I know, also, that the best application of chalk, clay, and marl, has been found, in Norfolk and Suffolk, to be in the form of a compost with dung; that they are used not as substitutes for dung, but as auxiliaries to it; and that one of the objections to those heavy clayings and marlings, which were formerly in vogue, is that they require, in order to make them work, a heavy mucking, which the resources of the farmer will not enable him to command. On the sands, gravels, and loams, then, of the vale of London, which have been heavily dosed with dung for a long series of years, there is every encouragement to try dressings of London clay alone; London clay and chalk, in compost; London clay and quicklime, in compost; London clay, chalk, and dung, in compost. The chalk is easily procurable by water carriage, and the clay is rarely at a greater depth from the surface than 15 to 20 feet.

Such are the geological resources which the vale of London contains for the improvement of its lighter soils. The consideration of the best means of improving its heavy soils must be reserved for a future occasion.—*J. Trimmer.*

Home Correspondence.

Failure of Allotment System.—In a late *Agricultural Gazette* you justly observe, that the usefulness of the allotment system to the labourer is no longer mere matter of opinion, but matter of fact and history. It is equally a matter of fact that the owner of the soil, in letting allotments suitable to the means of the labourers, confers a kindness upon them without injury to his land, or pecuniary loss to himself. Experience shows that spade husbandry is more efficient than that of the plough—that a greater proportionate quantity of manure

is supplied by the labourer than the farmer; and the rent, to say the least, is as punctually paid by the former as the latter. If, therefore, a system offering such reciprocal advantages should fail, it follows almost as a necessary consequence that the failure must be attributed to some want of judgment in the manner of carrying it out. Only two instances of failure have come to my knowledge, both of which may be traced to this cause. In the first, the allotments were let to manufacturing workmen at a high rent, they paying heavy rates in addition to their rent. In the second, the rent was very high, and the distance between the residences of the tenants and the allotments was so great as to be very inconvenient. My own experience of the system, confirmed by the opinion of competent persons, leads me to the conclusion that the following principles must be more or less kept in view to insure the success of the system, viz. :—The quantity of land no more than the labourer and his family can cultivate after the fulfilment of their duties to their employers. The rent, including rates, tithes, and taxes, and repair of fences, such as a farmer would give under a similar letting. The situation of the allotments within a moderate distance; the nearer the better to the residences of the tenants. The tenants, assured by the terms of occupancy of the permanency of their tenure, so long as they offend not against the laws of their country, do not become permanent paupers, and fulfil the conditions of their allotments faithfully. Bearing these principles in mind, I feel the strongest conviction that the allotment system will everywhere prove a blessing, and be entitled to take for its motto—

"It is twice blessed;
It blesseth him that gives and him that takes."—*G.*

Blowing Sands.—"Q. Z." may obtain the information he desires on application to "A. B.," No. 181, High-street, Southampton.

Artificial Egg-Hatcher.—Your correspondent "Sessima," (*Gardeners' Chronicle*, Nov. 30th), asks, "Can any one inform us of the success of this instrument? Is there more than one kind of it?" At the late exhibition of the Smithfield Club, there was an ingenious machine for this purpose, exhibited by Mr. Bermingham, and called the Portable Couvoise. It is made of tin, contained in a wooden case—is very portable, and the price very moderate, as a machine capable of hatching two dozen eggs may be had for 3*l.* 3*s.*, or 4*l.* 4*s.* The machine is in extensive use in France—not only for game, but on the farm-yard.—*S. W.*

Rats.— Last week, as Mr. Arnold, farmer, of this place, was taking in a small Wheat rick, he found about the middle of it a nest of young rats, containing 29, all about the size of mice. The old one was seen, but made her escape, unluckily for the owner, she being so good a breeder.—*Joseph Hudson, Appleby, Leicestershire.*

The Allotment System.—It is generally known that the Allotment System is very frequently condemned by the farmer, particularly if carried to more than a limited extent; so that its advocates have had to fight against a strong body of opponents; for the meetings called to consider the condition of the labourer invariably consist three-fourths of farmers. I well remember attending a meeting for the above purpose, in a small village, about six years ago, when every farmer present rose with his objection; some saying that if the landlord let the labourer land, he would be making the labourer too independent of the farmer; and others said that it would be an inducement to dishonesty, for they would be likely to rob the farmer's granary for seed to crop their own land with. In reference to the last charge, I may mention that in the village where I heard these animadversions, from fifteen to twenty-five men had been unemployed for the past month, yet not one instance of dishonesty could be brought forward on which to ground it. Surely if idleness and starvation bring not dishonesty, we may rely upon industry and comfort not being its cause. I think the farmers in this case are their own enemies. On the Bromham Hall estate, about twelve years since, a certain inclosed field, containing about 30 acres, had long lain idle, in want of a tenant; at length the steward, not finding a tenant, offered it to any of the farmers of the village if they would pay the rates of it. No farmer would accept of it. The labourers of the village hearing of this went to the steward and offered a rent for it, and the land was granted them; and this land, which was considered by the farmers not worth accepting, grew the second year, in the hands of the labourers, 40 bushels of Wheat per acre. I have received many proofs of the good and happiness this one piece of land has produced, which is, and I hope may be for many years to come, in the hands of the labourers; this now gives them happy homes and warm firesides. We find now that the labourer grows more corn per acre than the farmer; and if you ask the farmer why it is? he will tell you that they can better attend to it than the farmer! What a pity that a farmer should be allowed more land than he is able to attend to! In viewing a report which I have from one of the Earl de Grey's estates of last harvest, the best crops grown by the farmer did not average 40 bushels per acre, while several of the crops under spade husbandry averaged 55 bushels per acre. For the Allotment System to be well carried out, it is necessary that the landlord take an interest in it; for until such is the case it will always be too much bridled to be productive of much benefit to our farm labourers. And why should not the labourer have the land at the same price per acre as the farmer?—their 20*s.* for the ground is just as good as another's; but I find at his Grace the Duke of Bedford's, as well as several other land proprietors, the land which is let to the labourer is charged from 50*s.* to 60*s.* per acre, which when held by the farmer was but 20*s.* to 30*s.* per acre. Perhaps some correspondent, more able than myself, will be kind enough to give the reason why such a difference is made between the farmer and labourer. In conclusion, I wish to lay before your readers a report of an examination of the farm tenantry of a village containing 600 souls :—

The result of the examination by the landlord, Nov. 23, 1843.

Mr. A, holding a farm of	300	acres,	employs	3 men and 1 boy.
Mr. B, "	200	"	"	10 men.
Mr. C, "	300	"	"	2 men.
Mr. D, "	200	"	"	6 men and 2 boys
Mr. E, "	100	"	"	1 boy.
Mr. F, "	100	"	"	5 men and 1 boy.
Mr G, "	50	"	"	3 men and 2 boys

—*John Crew.* [Will our correspondent be kind enough to excuse this abridgment of his communication?—it is forced upon us by want of room.]

Flax.—The direct application of manure to the Flax crop is found to be injurious, unless indeed in the case of liquid manure, which is occasionally employed by the Flemings when the land is deficient in fertility; but as a general rule, it is desirable that the soil should be previously in the necessary state as regards fertility. You will see, from a paper by Dr. Kane, of Dublin, published as an appendix to my Essay on Flax Cultivation, that when cultivated exclusively for fibre, the Flax and Hemp plants are less exhausting to the soil than is commonly supposed; but still it cannot be doubted that, in a greater or less degree, they do exhaust the soil; and in estimating the profit to be derived from their cultivation, some deduction on this head should be made, which Mr. Dickenson has overlooked; however, it would not seriously affect the result. The water in which Flax is steeped possesses highly fertilising properties when allowed to run over Grass land; and the Grass on which the Flax is spread is also found to be materially improved by the matters washed off by the rains. These advantages will be a slight set-off against the exhaustion of the soil by the growth of the crop.—*John Sproule.*

An Amateur of Agriculture would be glad to be informed whether the female of the fallow deer might not be domesticated and milked, as well as the goat, the cow, and, as we see in other countries, the reindeer, camel, &c.? The writer has long kept one or two milk goats, merely on the surplus of a kitchen-garden, with a little hay in the winter; but if an animal equally useful could be found, something between the goat and ox tribe in size (whether of the deer, or llama, or alpaca kind), it would prove a great acquisition to such as have a little patch of ground attached to their cottages. But even if none better can be found, the goat would prove eminently useful to every cottager; and certainly it would be far preferable, if the rich as well as the poor were to direct their attention to the different breeds of useful animals, or birds, instead of keeping such pets, or rather pests, as lap-dogs, and sometimes large mastiffs, who endanger all those who come near their homes.—*A Friend to Rational Amusements.*

Wild Boar Breed.—With reference to "J. T.'s" inquiries respecting his sow of the wild boar breed, I should recommend him to cross her with a Chinese boar. If he can meet with one of the black variety it will be probably best. The young ones will be very nice small, hardy, compact porkers. Her wildness may be soon overcome by keeping her in a stye, in which by any simple contrivance she can be shut out from the interior. If kept very hungry, she will soon become familiarised with the person who feeds her, and like all wild animals, become bold and impudently familiar. I have had the wild boar so tame that at two and three years old he would follow me anywhere like a dog, and come when called. Do you know "J. T.'s" direction?—*W. D. F.* [We have not yet received the drawing you allude to.]

Dibbling Machine.—I have read with great interest Mr. Mechi's letter on Newberry's Dibbling Machine. I have seen a good deal of its working this autumn, and can bear out Mr. Mechi in all he says about it. In one or two instances I have known it purchased by individuals, and let out—the 4-row one at 3*s.* per acre, and the 5 at 3*s.* 6*d.* It has been made use of very much in the neighbourhood of Kenilworth, where the proprietor of the machine, I believe, is a tailor: they have generally sown about five pecks to the acre. Mr. Miles, near Bristol, has tried two pecks to the acre with this machine, and is to report to the Royal Agricultural Society the result of his experiment.—*Jean Baptiste.*

Drainage.—I am desirous of draining a piece of wet heavy land, with either stone or tiles, by placing the top of the draining materials 18 inches at least below the surface of the soil, and I shall be much obliged if some of your practical correspondents will favour me, through your columns, with simple and practical directions for ascertaining the degree of tenacity and wetness of the soil and subsoil, so as to know what distance the drains should be apart to effectually draw off all stagnant and superfluous water, and produce the greatest amount of profit from the land during succeeding years. I shall also feel obliged by being informed what is the greatest and least fall that should be given to stone, tile, or pipe-drains respectively, with the sizes of them that are most suitable for soils of different degrees of tenacity; also the kind of covering that should be in immediate contact with the draining materials, particularly in wet subsoils of a sandy nature; and I shall be glad to know what kind of soil, situation, and other circumstances each of the above kinds of materials are best adapted to, accompanied with a comparative statement of the advantages attending the use of either of them as regards cheapness, effectiveness, and durability. —*E. B., Stamford.* [Unless your land is very steep, you will do right to take the greatest fall you can get; and, if this does not amount to 6 inches in a chain, you had better use tiles—not stones. Pipe tiles will *probably* answer your purpose; sufficient time has not, however, yet elapsed since they were brought into use, to test their efficiency satisfactorily. The size of the tile should depend, not on the tenacity of the soil, but on the average fall of rain per annum in your neighbourhood. 1½ to 2 inches in diameter is amply sufficient in most districts of England. There cannot be more important subjects for the attention of our correspondents than those which you suggest.]

Flax.—My attention has been directed to Mr. Dickson's letter, in your Paper of the 11th inst., recommending an extended cultivation of Flax in England; and to your judicious remarks on it. I have not yet had a personal conference with Mr. Dickson, but have long corresponded with, and obtained much valuable information from him. His account of net profit is certainly not explained with that clearness and accuracy which all who are unacquainted with the subject so much require. The Irish acre is a fifth more than ours; this circumstance reduces the net profit of his averages, to the English calculator, from 21*l.* to 16*l.* per acre. That certain crops of Flax in Ireland average 21*l.* per acre, independent of all expenses, there can be no doubt; but from two visits that I made to that country, expressly for information, I learned that 5*l.* to 10*l.* was about the average net profit in general. This is what, I conceive, Mr. Dickson intended to convey; and I trust I shall be excused for amending his statements. Now, taking 5*l.* (the lowest sum), as the clear profit upon an acre of Flax, it amounts to much more than the average acreable profit of other crops; for, during the past seven years, few farmers have gained 10*s.* per acre; or, in other words, occupiers of 200 acres have seldom realised 700*l.*, exclusively by farming, during the past seven years. Such being the fact, Mr. Dickson's advocacy of Flax-culture is worthy of the most serious consideration; and, in directing attention to the obtaining of the lesser sum, I am confident that the greater will soon be placed within the reach of the industrious and intelligent farmer. With a soil and climate so remarkably adapted to the growth of Flax, good management alone is necessary to render success certain. But where the seed, of which Mr. Dickson takes no notice, is made the primary object, the crop, even under ordinary treatment, amply remunerates, as you will perceive by the inclosed Report, to which I hope you will afford publicity through the columns of your *Gazette*, in common, I trust, with every other Agricultural Journal in the kingdom. Because nothing is required but a fair and dispassionate investigation to insure for the poor that employment, and for the agriculturists those advantages, so clearly developed in the Report, several of the gentlemen to whom reference is made, with myself, will be in London during the first week in February, and be ready to afford further information to parties desirous of personal communications. Our address—Golden Cross, Charing-cross.—*John Warnes, Jun.*

Dairy Management.—In a late Number, "A Subscriber" says that an Alderney cow would not cost near so much to keep as those large beasts usually kept by milkmen. I have now one small milch Alderney and two large Durhams, and the Alderney will eat nearly as much as the other two.—*A Yeoman.*

Coal Ashes and Potatoes.—They have been applied to pastures here on a stiff gravelly clay incumbent on chalk, for many years past; they are London coal ashes sent to a neighbouring port in large quantities, in a finely sifted state. Six chaldrons per acre, at 6*s.* per chaldron, has been the spring dressing. The effect in wet seasons is decisive; the Grass is abundant, with a thick undergrowth of White Clover and the lesser trefoils. If the succeeding season should be dry the crop is, perhaps, rather burnt than benefited by the application; the beneficial effect, however, is only suspended until the next wet season. In any case the Moss is destroyed. I beg leave here to observe, on another subject, that your correspondent who stated a few weeks since that Potatoes left in the ground would not be injured by frost, has, probably, by this time, seen occasion to change his opinion. A field in this neighbourhood, which is yet undug, was examined this morning, and the Potatoes at various depths, from 4 to 6 inches, in all the hills examined are quite spoiled. They are soft and shrivelled, and on being cut across and squeezed yield juice like an Orange.—*A Kentish Subscriber.*

Guano.—You have noticed (p. 58), the inconclusive argument of Mr. Davis against the use of guano, who supposes that because this manure does not restore to the soil the same weight of materials as have been abstracted from it, that therefore it must be comparatively worthless. Now, we are told that in Peru it is by the mere addition to them of guano that certain barren sands are made to produce anything. In such cases, it is evident the great bulk of the vegetable produce must have been derived from the atmosphere.—*J. S. Henslow.*

The Plough.—I find that in your description of this implement you have omitted all notice of the theory of its form which was entertained by the late Rev. W. L. Rham. It is much to be wished that his "Essay on the Plough," to which the Prize of the English Agricultural Society was awarded, were published; for we should then be able fully to appreciate the views of so distinguished an agricultural writer and mechanician upon this intricate subject. His theory, I believe, was, that the mould-board of best form is formed thus:—Lay down a straight line, of convenient length, for a mould-board, in the position of that edge of the turf about which it turns; then, at one extremity, and on one side of it, draw a

horizontal line at right angles to it, equal to the breadth of the turf; and, on the other side, and at the other extremity, draw another line of similar length at right angles to it, upwards, at an angle of 45° to the horizon; and connect these two offsets by straight lines joining similarly placed points in each. The surface thus formed is the mould-board required. Till one can see the reasoning on which this opinion was founded, it is, of course, impossible to appreciate it correctly; and, as I said before, it is very desirable that the Society should publish the writings of Mr. Rham on this subject. I certainly do not see how this form can be defended; I only send this notice of it to you in order to supply an omission in your articles on this subject.—*J.C.M.*

Foreign Correspondence.

Pleuro-pneumonia.—The mutual insurance of your farmers against the losses occasioned by this distemper, I consider to be highly useful; but I fear at the same time that, in case this sickness exhibited itself on a larger scale, that then such a measure would be of no avail, on account of the immense losses which it would occasion. I take the liberty to add, with regard to the measure I mentioned in my former letter, that if there is no possibility of stopping this distemper at the first instance of its appearance, there is little probability of putting an end to it in its future more alarming progress. A century ago it seems to have existed in Prussia; and even now in Holland, where it first appeared in 1833, I must consider it to have become so general and hereditary a distemper among cattle, that the proposed measure of slaughtering a whole herd is impracticable. I only mentioned it, in the opinion that it was not too late as yet to apply this measure in your country. That many difficulties would be put in its way, and that it should not be approved of by the owners of stock, is a fact which equally took place in this province; but it was approved of by Government, and of course it was the duty of the individual to submit for the benefit of the nation; and besides, the restitution of the estimated value gave to such a proprietor the means of purchasing other cattle, of which he would have been deprived, in case his stock had perished one after another in consequence of the disease. I hope you will find means for the translation of the Treatise which I had the pleasure of offering to you; it has been very much approved of in the Veterinary Institutions in Prussia, and I do not doubt but it will obtain the same opinion with your medical men in that line. Accept my best wishes, that efficacious measures may be introduced for the preservation of your live-stock, so valuable a portion of your national wealth, from this dreadful disease. —*C. Vis, President of the Board of Agriculture, Province of Zealand, Holland.*

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

At a late Monthly Meeting of the Highland Society a paper on *Converting Sawdust into Manure*, by Mr. Bishop, Methven Castle, Perthshire, was read by David Milne, Esq. For several years back, the author has been desirous of discovering some method by which sawdust might be converted to some more useful purpose than it is generally applied to; and, under the idea that it might be employed as a manure, he was led to make several experiments with a view to ascertain in what manner this might be most effectually accomplished. He had noticed that undecomposed sawdust, especially that from resinous trees, had an injurious effect on vegetation; and his object was therefore to discover some cheap method by which it might be more quickly decomposed, and thereby become fitted to promote the growth of plants. The first attempt made with this view, was to reduce the sawdust to ashes, by spreading it over the surface of a piece of land, to the depth of 5 or 6 inches, and to set fire to it, as is sometimes done with peat-moss. Owing to wet weather, only the half was reduced to ashes, and no perceptible benefit was produced on the ensuing Grass crops; but a crop of Oats, after the land had lain four years in Grass, showed a marked superiority in those places where the sawdust had been burnt. Having heard of the fertilising properties of powdered charcoal, the author was led to conceive that the object he had in view would be most readily attained by converting the sawdust into charcoal, by partially excluding the air during combustion. For this purpose he procured a certain quantity of well-burnt lime-shells, which were mixed up in layers with sawdust, the latter in as dry a state as it could be obtained; the whole was then covered over. In a few days the mass became ignited, especially towards the top and sides of the heap. Wherever the flame burst forth, an additional quantity of sawdust was from time to time laid on, and thus the process was continued till interrupted by wet weather. In other instances, the lime-shells were broken into smaller pieces than in the former experiment, and mixed with the sawdust in oblong heaps; a method by which an equal quantity of sawdust was carbonised, but it was found necessary to turn over and mix the heaps while the burning continued, and thus a greater quantity of ashes was produced among the charred dust than would otherwise have been the case. When this carbonised dust was applied, along with lime, to Grass, Potatoes, and corn crops, the result proved highly satisfactory; and, in one instance, its beneficial effects were more obvious the second year than the first. In order to avoid the expense of purchasing lime-shells, and to show, at the same time, that the beneficial effects of the charred dust could not be ascribed to the lime used in the process of charring, another method was adopted, namely, by preparing two or three fire-heaps of brushwood, which, after they had burned for some time, were covered with a thin coating of sawdust; wherever the fire broke out to any extent, additional sawdust was applied, and this was continued from day to day; a thick coating being laid on in the evening, which was partly raked off again in the morning, so as to retain a regular thin covering, through which the air could pass, to carry on the burning within the heaps. By this method Mr. Bishop has converted into charcoal 600 bushels this season, and it has been applied in different ways to Turnips, and also used as a top-dressing, partly by itself, and partly in mixture with guano, ammoniacal water, malt cummings, and other substances; and in all these cases its beneficial effects have been more or less apparent. The aptness of this substance to imbibe the fertilising properties of liquid manure, the ammonia of byres and stables, and the effluvia of confined and unhealthy habitations, is a circumstance which entitles it to much consideration. It is recommended that the sawdust, when taken from the mill, should be deposited in a dry airy shed, as it is exceedingly liable to imbibe and retain moisture—a circumstance which greatly impedes the process of charring. By the above process, it is calculated that sawdust may be converted into this useful manure, at the rate of about 1*d.* per bushel.

The 2d communication, from the Rev. Mr. Noble, St. Madoes, relating to a *New Variety of Barley*, was read by P. Boyle, Esq. In July, 1838, Mr. Noble observed a single ear of Barley in a field, of the Dunlop species, which, from its marked difference from those around it, as well as from any in the neighbouring fields, he supposed might turn out to be a new species. When ripe this ear was secured, and the following year the grains were sown in a garden, when it was found that the produce retained all the peculiarities of the original ear. The seed continued to be preserved and sown for several successive seasons, till in 1842, about 2 qrs. were obtained. This was sown in a field, a portion of which was at the same time sown with early English Barley, mainly for the purpose of ascertaining the comparative earliness of the two varieties, but also with the view of determining their comparative productiveness. The result was, that, in respect to earliness, the English had the advantage by three or four days; but in regard to productiveness the new variety had a marked superiority, yielding at the rate of 11 bolls, or 66 bushels per acre, while the English did not exceed 7½ bolls, or 35 bshs. per acre. A result equally favourable was obtained by various individuals who had procured seed of this new kind for trial—the produce, in one instance, being at the rate of 14 bolls per acre. Its superiority to the early English Barley, both in respect to quantity and quality, seemed obvious to every one who had an opportunity of making the comparison. The distinctive marks of this new variety are—1st, the glossy whiteness of the straw, which remains up to the time of ripening without the least tinge of brown, a colour more or less observable in all the other varieties; 2d, the strength of the straw, which is much greater than in the common kinds; and 3d, the greater distance of the grains from each other than in the ordinary varieties; so that, for example, an ear of the new variety, with 12 grains on each side, will be found fully three-quarters of an inch longer than one with the same number of grains in either the Chevalier or early English Barley. The advantages of this Barley are—its superior productiveness, its length of straw, its tillering properties, the distance from each other at which the grains are placed in the ear, which is a recommendation in damp climates, as the moisture is not so easily retained as in a compactly-constructed ear.

The next paper, on *Sheep-washing*, with a description and model of a pond for washing sheep, by Mr. R. Boyd, Inverleithen, was read by Dr. Mercer. The author is of opinion that sheep are, in general, imperfectly washed in this country, and that the process is less understood or attended to than almost any other subject connected with the management of live stock. In proof of this he affirms that it is no uncommon occurrence for fleeces, in the process of scouring for the use of the manufacturer, to suffer a reduction in weight of not less than one-half. The mode of washing sheep ought to be regulated, in no small degree, by the nature and properties of the composition with which they are salved. In America, where artificial salves are seldom employed, Mr. Boyd found that sheep-farmers never washed their sheep in a running stream, but in a pond, corresponding in size to the number of sheep to be washed. After a few scores had been carefully hand-washed, the water in the pond assumed the appearance of soap-suds, when the rest of the sheep were made to swim across, and were twice dipped in their passage, by which it was found that the fleeces were completely freed from every kind of impurity, although still of a dusky hue; this also was removed by causing them subsequently to swim across a pool of clear water, by which the fleece was rendered of a pure white colour. From repeated experience of the efficacy of this mode of washing, as admirably adapted for flocks which have been salved with the artificial yolk-salve, the author strongly recommends that a similar method should be practised in Scotland, instead of river-washing, that is, merely swimming the sheep across a running stream or gently flowing pool, which can have little or no effect on the wool which has been salved with tallow, or oil of any kind. For this purpose, he advises that every store-farmer should construct a pond of a size corresponding to the extent of his stock, in a situation not only convenient for collecting the flocks, but where it can be easily filled from some adjoining stream. It sometimes happens that, owing to the nature of the soil in which ponds are constructed, and when animal or vegetable oils have been used in salving without being previously saponified, the alkaline earth in solution with the water, and also that raised from the bottom, is not found to possess sufficient power to saponify the greasy matter contained in the wool. The result in such a case is anything but satisfactory; but the evil may be remedied by mixing a quantity of fuller's earth with the water of the pond. During the operation of washing, it is necessary that a small quantity of water should be kept running into the pond, to supply the place of what is carried off by the wool of the sheep which have been washed. Having been collected on the margin, the sheep are seized one by one, pulled into the water, turned on their backs, drawn from side to side, &c., and, after being dipped over head and ears, are assisted up the sloping bank. They ought then to be allowed to stand for some time till relieved, in a great measure, from the water taken up by the fleeces, and as soon as a slight appearance of steam begins to issue from their bodies, they ought to be made to swim through a pool of clear water, as free from current as possible, so that the wool may float loosely around the animal, and allow any remaining impurities to escape. If the pond be filled with water several days, or rather weeks, before it is required, the change the water undergoes by exposure to the air, will greatly facilitate the operation; and if a quantity of urine—the larger the better—be thrown into it the morning of the washing day, it will be found to form, along with the fuller's earth, an admirable solution for extracting such substances used in smearing as are of more than ordinary difficulty in getting discharged from the fleece. From numerous experiments, the author finds that a great advantage arises from the pond being of small size, and the quantity of water consequently small, an effect owing to the increased temperature of the solution contained in the pond. He also recommends that a solution of soda-ash should be used, as that commodity is now comparatively cheap. It may also, he thinks, be an advantage to have the pond lined with Larch deals. By adopting this method of sheep-washing, Mr. Boyd has obtained fleeces of great purity and beauty; and he is of opinion that if generally followed, the Scottish fleece would obtain a character for purity, which unfortunately it has not hitherto attained.

Staddle Frame for Corn-Stacks.—The next communication related to an improved frame for corn-stacks, which, in the absence of the inventor, J. Stewart Hepburn, Esq., of Colquhalzie, was explained by Mr. Slight. The object of this improvement is to avoid the defects of stethel frames as usually constructed; these defects being chiefly, that they are built of much heavier timber than is necessary, by which they are rendered ponderous and unwieldy, and that they are liable to speedy decay from exposure to the weather. Mr. Hepburn has found that frames of sufficient strength, and capable of lasting, under ordinary exposure, 15 or 20 years, may be made of small Larch coated with tar, a tree of 6 or 8 inches diameter at the root slit up by the saw, affording four or six pieces for the frame, the two pieces nearest the root being reserved for the exterior circumference. In order that the frame may be rendered easily portable, so as to admit of being put under cover when unemployed, it is constructed in halves, which is easily accomplished by substituting for one strong transverse central beam a pair of light ones, one to each half of the frame, to lie in contact across the centre pillar, the halves being bound together when on the pillars by hasps and staples. Thus constructed, the demi-frames can be readily moved without injury by two men into any out-house or loft, secure from the weather until required for the harvested corn; the pillars being laid in sets (if desired) by the side of the barn wall. The construction is very simple and unexpensive.

MARKETHILL AGRICULTURAL SOCIETY.

[We conclude our Report from last week.]

The discussion upon the management and cultivation of the Flax-crop was then introduced.

The Chairman said—I think there is no necessity for my saying much to impress upon you the importance of the proper cultivation and management of the Flax-crop; for it is a lottery in which I fear you are all too much disposed to enter. At the same time I see some symptoms of public opinion coming round to what I have been always stating, that for an average of years we cannot compete with the cheap land and cheap labour of Russia, in the coarse Flax there produced. But the more this is felt, the more important it becomes to pay greater attention to every means of improving the quality of what we do grow, so as to come into competition with the Dutch, who pay, in some degree, rent and taxes more resembling our own, and with whom, therefore, we can compete with a better chance of success; but even in this case, unless the price obtained is very extravagant, I think when the crop is cultivated to such an extent as to diminish the farmer's stock, by even one cow, there is scarcely any price that can be obtained which will compensate for that loss, as the farmer not only loses the milk and butter of the cow for the present season, but, if Cobbett's calculation be right, that a cow will manure an acre of land in the year, the loss is not confined to the loss of the milk and butter for the present season, but the farmer loses an acre of Potatoes the succeeding year, and all the crops which ought to follow. To have the rent paid by milk and butter I think ought to satisfy any farmer, and have a moderate portion of Flax, besides grain, pigs, poultry, and Potatoes, all for his own use; and to show that this might be done, I beg to instance Jas. Rolleston, who, with

four cows, has paid double his rent by his milk and butter, and John Gilliland has paid more than one year's rent. Samuel Loudon, who is present, said he could pay one year's rent by his cows, one by his Flax, and one by his grain; and being asked what he sold off his farm last year, said 43*l.* worth, which proved what he said. I have, from these statements, been anxious to persuade farmers to limit the quantity of Flax grown to one-tenth of their farm. It is, however, true that the charge against the Flax crop, of leaving no manure, is not strictly a fact; for the seed of the Flax is excellent feeding for cattle, and the Flax-water is a powerful manure; but then I have found it impossible to persuade people to take the trouble of availing themselves of these capabilities. It is now twelve years since I first directed attention to this, in a small pamphlet, addressed to the farmers on this estate, and I do not think there are more than half a dozen persons who have been induced to practise, in this particular, what I then recommended; but in the present day old prejudices are much shaken by the numbers of new things which have been brought forward, and which, contrary to expectation, have been proved to be useful improvements; and I have, therefore hopes, that if Doctor Kane, who has made the nature of this crop a subject of laborious and scientific research, shall be induced to let us know the result of his experiments, that a suitable impression will be made upon all present, and the value of his remarks be duly appreciated. If we were to shoot a bird, and find the stomach full of grain, we should naturally conclude that it lived upon that food. In like manner, when we find certain substances in the Flax-water, we conclude that these substances have been necessary to the existence of the plant. What these substances are it belongs to science to inform us of, and after hearing from Dr. Kane what science points out, we shall then come with more advantage to the consideration of practical results, and what steps we ought to take. There were, some time since, considerable discussions going on in the public papers as to the average produce of this crop per acre, statute measure, in which a calculation of mine, that 4 cwt. was a fair estimate, was frequently referred to; in consequence of which I have made many inquiries to ascertain whether I had been correct or otherwise, and I have every reason to believe that it comes as near the truth as any general estimate can possibly be made. I beg, gentlemen, now to request your particular attention to such observations as Dr. Kane may be kind enough to make.

Dr. Kane said that he felt great pleasure in acceding to Mr. Blacker's request that he should endeavour to explain to the farmers present the principles upon which the employment of the refuse of the Flax crops, as manure, is proposed. It is really very simple; and he felt satisfied that, in that neighbourhood, where so much activity and intelligence was applied to the improvement of agriculture, it only required that the reasonableness of any practice should be shown in order that its adoption in practice might be secured. Every farmer present was aware that crops exhausted the soil; that the plants take out of the ground a number of materials, and that it was necessary to restore a similar material to the ground, in order to keep up its fertility; therefore, the manure which the farmer puts in with or before his seed, is, in a degree, the raw material of which the grown crop is to made. It is just as much a part of the plant as the seed itself. When the farmer sells and sends away his grown crop, to be used for food, as in the case of Wheat, or Oats, or Potatoes, he therefore sends away and sells the essence of the manure which he had put into the ground; and, as he thus gets paid for the manure, when it is exhausted, he must put in as much more for the next crop, which is to be dealt with in the same way. Now, in the case of Flax, there is the important peculiarity that it is not eaten, and hence does not return to the land any manure in the ordinary way, whilst it takes out of the soil just the same materials as Oats or Potatoes, so that it is really a very exhausting crop, if we only look to the growing of it. But the Flax crop differs from other crops in this, that the value of Oats or Potatoes, and all food crops, depends on what they take up out of the ground, whilst the valuable part of the Flax is the fine fibre, or thread, which has taken nothing out of the ground. If you burn away a bundle of Flax-straw, it will leave behind a large quantity of white ashes, which consist of the different substances which the plant took out of the ground. But, if you burn away a bundle of well-dressed Flax, it will leave no ashes. Now, what have become of the ashes? They have evidently been carried off with the waste parts of the plant in the steeping and dressing. They are thrown away; and yet they are the materials of which the plant had robbed the soil, and which should be given back to the soil, in order to keep up its fertility. To the practical farmer it is, therefore, of the greatest importance to recollect this principle—that the fibre or valuable part of the Flax is not formed by the exhaustion of the soil, but that the materials which the plant takes out of the soil are all found in the steep-water and in the chaff, and that, if these be returned to the soil, they will restore its fertility, and that thus the Flax crop may be rendered one of the least injurious to the ground, and most remunerative to the farmer. I am aware that there are many persons here ready to speak as to the practical use of Flax steep-water as a manure. I shall, therefore, rest satisfied with having thus stated the principle on which it rests. The Flax crop can be rendered little or not at all exhausting by a proper use of its residues as manure; but it must be recollected, that unless these residues be thus economised, the Flax crop is one of the most severe the land can have, and that the loss of substance to the soil is actually greater than with a corn or Potato crop.

Since the meeting Mr. Blacker has received the following letter from Dr. Kane, in reply to some queries of his relating to the exhaustion of the soil by the ripening of the seed of the Flax:—

"I am glad that you have noticed the subject of the ripening and collecting the seed of Flax, as it is important that farmers should not fall into the error of extending my views beyond their proper limit. As long as the Flax is grown for its fibre, the ligneous tissue being formed from air and water, the exhaustion of the soil may be counteracted by restoring to the soil, by means of the Flax water, what had been taken away. But when Flax is grown for food, or for seed—when this seed is separated by rippling, then it becomes like Wheat or any food crop. The formation of the seed takes from the soil nitrogen and phosphate, which are consumed in use, and cannot be returned to the soil. Hence the economy of the residual Flax products as manure refers to the crop as grown for fibre, and does not extend to the growth for food or seed; these, like Wheat or Potatoes, should pay independently for the good they take out of the land. The Flax-chaff is certainly in itself very intractable, but not so much so as it looks. When steeped, all that is of any use is dissolved out; and the dry chaff, when worked up along with fermenting stable-dung, will pass into a good mould. The chaff is, however, of little importance compared with the Flax-water, which certainly holds dissolved nine-tenths of all that the plant derived from the ground. Robert Kane."

"To William Blacker, Esq."

Mr. Byers, of Mowhan, being called on, said—Sir, although you might have selected some other person more capable of speaking on this important subject than I can be expected to do, yet, notwithstanding, as far as my experience and knowledge of the system goes, I will submit them to the meeting. It is true I have for a series of years past been a practical grower of Flax, and in a great measure closely connected with the trade; and when the expression "the growth and cultivation of Flax" is named, it stimulates a desire either to give or receive instruction on this all-important subject. The growth and cultivation of Flax in Ireland has given rise of late to numerous, and, as I think, illusory modes and systems for the farmer's practice, some of which were recommended, many years back, by people brought from Holland by the old Linen Board. Next came our Belgian friends, and a great deal has been said and written about their celebrated system. Their instructions have been held out as a great boon to Irish farmers; and as far as neat pulling and good handling go, I would give them credit; but when they proceed to combing and scraping, I think that it is not the business of farmers—it is quite enough for them to grow, handle, and scutch well, and leave spinners, who make pounds where farmers only make pence, to dress and prepare it as they like themselves, which they can do as cheap, or cheaper than most of the farmers. The Flax Improvement Society boast that they have afforded a large quantity of important information to the farmers in this country; but, to convince those who might be inclined to credit this assertion, I will make a bet with, or send out a challenge for the sum of 5*l.* or 10*l.* to the Belgian or Belfast agents, that such is not the fact; and, to test the matter, let us compete from a plot of ground equally divided, for who can raise the most and best Flax at the least expense, which I call the good old way; and to the practical illustration of this "good old way," I will produce you a sample of Flax grown by myself, in the years 1843 and 1844, handled according to my own old Irish system. [Two bundles of very fine Flax were here produced, amid great cheering.] There is another system called the Courtrai system, and a more vain invention could not be proposed. It is, to pull the Flax and to stack it by for the first year, water it then and stack it by to the next, and so on for a number of years. I would just inquire, How could farmers adopt this plan, and what remuneration would there be derived from such a process? Suppose a farmer would grow a quantity of Flax worth 6*s.* or 7*s.* a stone, and adopt the above system, it could not remunerate him. Besides it is impossible, almost, for the farmers always to ascertain, when the Flax is in a green state, whether it will be of a good, middling, or a bad quality. I would, then, invite the farmers to follow the old plan, with every improvement possible in draining, keeping the ground in a proper state, ridges as level as possible, &c. Take every pains to have it well grown, and neatly handled; but at the same time keep it as strong as possible; such a mode is, in my opinion, the "good old way," and if this system do not pay the farmer better than any other, I am much mistaken. This is the system adopted by me, as a practical grower of Flax for the last 30 years. Mr. Byers then handed in the following:—

"*Challenge.*—There are a great many people in this neighbourhood who question the good done by the Belfast Flax Society, in sending men to Belgium to learn their mode of cultivating the Flax plant, and afterwards going round the country to instruct farmers in the new plan. We confess we are of the number of those who have doubts of the utility of these measures; and in order to bring the matter fairly to trial, we challenge the Belfast Society to send a man to our farms, either now or hereafter, when we will make a fair division of a plot of our Flax land—the one-half thereof to be cultivated as such person may prefer, the other half we will cultivate according to our own system—or, we will make a fair division of a portion of our Flax crop when growing, should the person from the Flax Society prefer it: and we are willing to pay him whatever he can make of his portion, net money, more than we make of ours, if the Society will pay us in like manner, should we make more out of our portion than he shall have made of his; and in order to guard against any unnecessary expense in preparing the Flax for market, it is proposed that a person be mutually chosen to superintend and regulate such expenses. If the Society accept this challenge we will engage to afford every facility in our power in grassing and watering the crop, or properly preparing the land; and further, we are willing to bet any sum not exceeding 10*l.*, that we shall make as much of our half as the person from the Society will make of his—the Flax when dressed to be taken to the same market, and buyers appointed to fix the price, who shall be above suspicion of favouring any party.

(Signed) "Samuel Byers, Drumgeare.
"James M'Connell, Cornecrew.
"19th December, 1844."

Many other gentlemen present expressed their willingness to join in this challenge, and the Chairman said—I think I may say for his lordship, in his absence, that he takes the greatest interest in whatever interests his tenants; and as they seem so determined on carrying this challenge into effect, I think he will join them in their wager, particularly as this was the mode of trial he himself formerly proposed to the Belfast Flax Improvement Society—well knowing that the only real mode of settling all disputes about the best mode of treatment of the crop was by bringing it in this manner to the proof—who could realise the most money out of the same article similarly treated. He hoped that, in thus supporting his lordship's tenants, neither his lordship nor himself would be accused of doing or saying anything to disparage the Belfast Flax Improvement Society, or to undervalue the laudable exertions they were using to improve the cultivation and management of the Flax crop. His own opinion was, there was something likely to be gained by the challenge, let who would win it, for it would insure the greatest possible care and attention on all sides, and truth would be established, which would be a great matter, for it must be evident there was no use in attempting to *instruct, when the people to be taught denied the capability of those sent to teach them.* He would, in the meantime, call on those who had any experience in making use of the seed for cattle-feeding, or the Flax-water for manure, to state the results of their experiments.

Mr. Hugh Andrews, of Corromannon, said—In the present year, I had 14 bushels of Flax-seed sown on 3A. 3R. of land, Irish plantation measure, or thereabouts, and the bolls amounted to 65 cwt. Last season I had 22 cwt. of bolls, which I made into meal, and gave to six pigs, three calves, and two horses. The meal given to the horses I mixed with Potatoes. Eight calves were also fed with it till May, or whatever time they were turned on the Grass. The pigs were fed from the 1st of June till the latter end of July. Thistles pulled out of the different crops, boiled along with the Flax-seed meal, make an excellent food; and Cabbage, also boiled, without the assistance of any Potatoes. I sold five of the pigs in Tanderagree market on the 24th of November last, for 22*l.* 1*s.*, and the other one I kept for breeding; and I expect to feed a great many more this season, having so much more of the Flax-seed meal for that purpose. I do not mean it to be understood that the stock were fed on Flax-seed meal alone, but it was used to render inferior feeding palatable, and the quantity I have saved this year is the best proof that I am well satisfied with the experiment.

Mr. William King, of Corromannon, then rose and said—Respecting the using of Flax-water, I have had two trials of it, and found benefit by it. I had one acre of two-year-old lea, which I got flooded with Flax-water, and I had a double quantity of Oats on it the next season, compared with its usual produce for fifteen years previous. Last season I had a field of about two acres, and for the purpose of experimenting, I dressed one acre of it with about twenty barrels of lime, and procured Flax-water for the remainder. The portion to which the Flax-water was applied carried the best crop, by 30*s.*, and if we count the cost of the twenty barrels of lime, and the labour attending its application, it will amount to about 30*s.* more. With respect to furrow-draining, I had about an acre that had not been in crop for twelve years, in consequence of its wet and spouty condition, and having no fall for cross-drains, any attempt to dry it was considered impracticable. I have, however, tried the improved plan, with the drains fifteen feet apart, and it is now dried sufficiently to bear a good crop, having last year earned an excellent crop of Potatoes.

Mr. Samuel Loudon, Hamilstonbawn.—When I first took into consideration the use of Flax-water, my Flax-pools being situated on the top of a hill, I thought it would not be expensive to try the experiment, and I, of course, applied the water to a small portion of ground, off which I had taken a crop of Oats. The next year I planted the field with Potatoes, when the advantage of the Flax-water was quite apparent, the portion of the field to which it had been applied carrying a double crop. Nor was the effect confined to the Potato crop. It was easily discernible in the succeeding crop of Flax. Last season I was more particular about the water, and had it carefully put over a part of a field from which I reaped 55 stooks of Oats, producing 128 stones. Of the part not watered, I reaped, also, 55 stooks, but the produce was only 96 stones. I have no doubt that, by judicious management, I might have increased this produce considerably, and I have no hesitation in stating the good opinion I entertain of the application of Flax-water to

be such that, had I no other means of procuring it, I would pay for the carrying it to my fields in tin cans.

The CHAIRMAN now said he thought it was time to call upon Mr. Small to enliven the company with his annual song, which he gave with his usual success, and received the customary compliment of having his health proposed from the chair, and enthusiastically received by the company.

It being now very late, Mr. Blacker thought it best not to proceed with the discussion upon guano, and gave the concluding toast of "Our next merry meeting;" when all the company separated with the greatest good order and propriety, nor was there a single circumstance took place to interrupt the harmony and enjoyment of the evening.

It is only to be lamented that time did not permit the discussion upon guano to take place, as it has got into so much repute in this neighbourhood; but I have ascertained that Mr. Blacker would have stated that he had proof of the Peruvian guano remaining in the ground, so as to give Oats and Italian Rye-grass in succession, but that he had not the same experience of Ichaboe; and for this reason he would recommend Potatoes to be planted on the Turnip-ground, which that manure had been put upon, and that if as much land was put now under Turnips as under Potatoes, there would never be any want of manure felt hereafter, as the Turnips would give manure for both crops, and that, as Lord Gosford had offered to send the guano this year, to this extent, it was downright folly for the tenants not to avail themselves of it. The best mode of using it, when applied by itself, was to break it into a fine powder, and then mix it effectually with fine mould, burned clay, or turf mould, which latter was the best of all, and then sow it broad-cast on the field when fully prepared for drilling, and in forming the drills the guano would be so well mixed with the soil, that no bad effect would arise from its coming in contact with the seed.

The two green crops coming in succession would effectually clean the land, and put it in heart. Weeds are the destruction of half the farmers in this country, owing to allowing the seeds of Thistles, Coltsfoot, and Ragweed to be carried over the land by the wind. Care should be taken to pull up these noxious weeds as soon as the grain is cut, when they are easily rooted out, but if suffered to remain, they will get entire possession of the soil. I trust your agricultural readers will be gratified by the report of this meeting, which appears inferior to none that have preceded it, except in the interest and excitement which his Lordship's presence never fails to inspire.—*Abridged from the Newry Telegraph.*

FARMERS' CLUBS.

Exminster.—At the last Monthly Meeting of this Club, the subject for the evening's discussion was that of the Large Hedges and Small Inclosures of the County of Devon, on which much discussion took place, the result of which led to the following resolutions, adopted unanimously by the meeting:—1. That the present state of the large hedges and small inclosures in this county are highly prejudicial to the tenant-farmer, and also to the community at large, and that Mr. Grant is deserving of great credit for having so ably brought the subject before the public in the pamphlet which he has published. 2. That the sizes of inclosures on farms of the following measure, say 100 acres, 200, 300, and upwards, for the county of Devon, should be as follows:—A farm of 100 acres with a fair proportion of arable, pasture, and orchard, should be divided thus—arable fields from 6 to 8 acres each; pasture and meadow 4 to 6 acres, and the orchards in such sizes as may be found convenient to suit situations. A farm of 200 acres as above, arable fields, 8 to 10 acres, pasture and meadow, 6 to 8 acres each, and the orchard as above, to suit situations. A farm of 300 acres and upwards as above, arable fields, 12 to 15 acres each; pasture and meadow, 8 to 10 acres each; and the orchard to suit situation. It should be remarked, that the members came prepared with their opinions on the above in writing, and which were read to the meeting when it was found that the results in substance corresponded in almost every instance.—*Exeter Western Times, Jan.* 19.

Harleston.—By a resolution of the above Club, I am directed to forward to you, immediately after every meeting, the subject for discussion at that meeting, and the resolution arrived at. In accordance with those directions, I have to state that, at the monthly meeting lately held, the subject for discussion was, "The Damage caused by Hedgerow Timber." The following resolution was carried unanimously, after a very long discussion, which turned upon Pollard-trees as well as timber:—"Resolved, That, in the opinion of this Club, the hedgerow timber and Pollard-trees are an incalculable injury to the tenant-farmer, in the deterioration in quantity and quality of his corn and other crops, in preventing a proper circulation of air for the due ripening and harvesting the crop, in the breakage of implements, and by their acting so perniciously by their roots against tile-draining.—*W. L. R. Freuer, Secretary.*

Miscellaneous.

Proper Size of Farms.—The laudable ambition of Kliyogg is not satisfied with the improvement of his meadows, but seeks to extend his demesnes, without, however, deviating from his grand principle, never to think of purchasing more ground till he has carried the culture of what he possesses to the highest degree of perfection it is capable of attaining. How is it possible, says he, a husbandman should get through his annual rotation of work, unless he finishes the improvement of the old land before he involves himself with the culture of new? Distracted with a confused multiplicity of labour, the augmentation of acres would only increase his perplexity without increasing his wealth. The fertility of an estate is always in proportion to the culture bestowed; nay, it is even demonstrable, that if a man doubles his number of acres, and employs only the same number of labouring hands and the same quantity of manuring as when he had only half the number, that estate will clear less than it did before the additional purchase. Thus, it is evident, a farmer may have too much ground as well as too much live stock. For our conviction, nothing more is required than to take a survey of an overgrown farm badly occupied, where, on lands which have all advantages of situation, we shall see their crops of hay and corn that will not produce more than a fourth part of what lands of the same quantity and quality afford, divided into equal allotments amongst the inhabitants of a populous village.—"*The Rural Socrates,*" *by M. Hirzel,* 1764.

Notices to Correspondents.

GARDEN FARM—*A Novice*—You can easily keep 3 cows on your 4 acres, provided they be land of sufficiently good quality. With regard to the management of your field, see a paragraph in this section of the paper, p. 46.

GYPSUM—*H A S*—It is beneficial as an immediate source of nourishment to plants, as well as in being, in an imperfect manner, a fixer of ammonia. You may therefore apply with benefit more of it to your dunghills than would be required—could it be induced to act upon it—to fix all the ammonia generated there. 1 cwt. of gypsum to every 2 tons of manure will probably answer your purpose. Strew it over the dung once to every layer of 2 feet or thereabouts; or in the same proportion over the straw-yard. Let it be exposed to rain, &c.; only any liquid which oozes out should be pumped or thrown back on the heap.——*Mr. Biggar.*—Uncalcined gypsum in powder being more easily soluble in water, is better than that which has been calcined; though probably not so much so, if due care be taken in the use of the latter, as to render it advisable to undergo the expense of grinding. Has any one any facts to communicate on the use of coal-tar as a manure?

JACKDAWS—*A 9-months' Subscriber*—What is the best way to kill jackdaws? [Let them alone.]

LIME—*Big Farmer*—Apply it as soon as you can safely cart on the land, and plough it under with a shallow furrow.

LUCERNE—*A Sub*—Pare and burn the land as soon as possible, and trench it 15 inches deep, keeping the top soil uppermost, and breaking it down to a good tilth. Plant the seed in rows, about 18 inches apart, late in April, and thin out the plants to some 8 or 10 inches apart in June. You will be able to cut it a first time towards August, and once, or perhaps twice, afterwards, the same year. We shall next week publish the experience of a correspondent on this subject. If the land has been well treated hitherto, *i.e.* depastured—not mown—you need not apply manure; but you will require to do so annually afterwards. 3 cwt. of guano, or 15 to 20 cart-loads of good farm-manure will be most likely to answer your purpose.

MANURES AND CROPS—*John Barker*—Turnips, Mangold Wurzel, and probably Carrots, are distinguished by the quantity of potash they require. Oats require much soluble silica. Potatoes require for the tubers much potash, and for the haulm, lime; and Vetches require lime. The manure applied to the first 4 should contain potash or soda, and you might beneficially apply 3 cwt. of guano, mixed with 2 cwt. of common salt, and 2 cwt. of super-phosphate of lime to them, as well as to the Potatoes and Vetches. To the Oats apply the same kind, with 1 cwt. of silicate of soda, if it can be obtained sufficiently cheap. A portion should be left unmanured, in order to estimate the effect of the manure, and we shall be happy to know the results.

POULTRY—*A Sub* asks for some good and cheap mode of inclosing a poultry-yard. Can any one who has used the netting of Cocoa-nut fibre for such or for a similar purpose, give us his experience of it?

PRICKLY COMFREY—*A Subscriber and Country Clergyman*—It is propagated by dividing the roots, and planting them in good soil, in rows 2 feet apart, and 18 inches from plant to plant. Cattle will not eat it if they can get anything better; it must be eaten quite young. You can get plants at the nurseries for 11*s.* or 12*s.* per 100. The plant does not deserve the attention it once excited. Your other questions we must refer to correspondents. Supposing it planted this month, when will it be fit to cut? Is the plant cut quite down at each cutting, and allowed to spring up again, or only stripped partially of its leaves?

RYE—*H. H. Dunford*—It is said to be a suitable food for milch cows after calving, though we cannot affirm that it is, never having so used it. Perhaps some of our correspondents can give us their experience of it. It should not be fed off, by rights, till late in March. You speak of water-meadows—Can you give us an account of their management in your neighbourhood?

***As usual, many communications have been received too late.

Markets.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Jan. 30.

Prime old Meadow Hay	105*s* to 108*s*	New Hay	—*s* to —*s*	Clover	100*s* to 115*s*
		Inferior Hay	86 100	Straw	35 38

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Jan. 30.

Superior Mead. Hay	108*s* to 115*s*	Superior Clover	114*s* to 120*s*		
Inferior ,,	90 97	Inferior ,,	100 108	Straw	36*s* to 40*s*
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Jan. 31.

Fine Old Hay	105*s* to 108*s*	Old Clover	120*s* 122*s*		
New Hay	90 100	New Clover	105 115	Straw	28*s* to 36*s*
		,, Inferior	— —		

Trade very dull at the above prices.

POTATOES.—SOUTHWARK WATERSIDE, Jan. 27.

THE supplies during the past week have been moderate; these with those left of former arrivals have been more than sufficient for the demand, in consequence of the Town Markets being abundantly supplied with Vegetables, which are selling at unusually low prices. This Market has been considerably depressed, caused by several vessels coming on demurrage, and other cargoes turning out damaged, were forced into the trade at low prices.

York Reds	-	-	70*s* to 80*s*	Kett and Essex Whites	-	—*s* to —*s*	
Perth	-	-	50 60	—	—	Kidneys	60 65
Fifeshire	-	-	45 55	Wisbeach Kidneys	-	60 65	
Early Devons	-	-	60 65	—	Blues	-	— —
Late Devons	-	-	— —	—	Whites	-	50 60
Cornwall	-	-	60 65	Guernsey Blues	-	55 60	
Jersey Blues	-	-	55 60	—	Whites	-	— —
—	Whites	-	— —	Prince Regents	-	60 65	

WOOL.—BRITISH, FRIDAY, Jan. 31.

THE demand for all sorts of English Wool continues fully as good as we last reported, and prices have rather an upward tendency. We continue to have sad reports from the manufacturing districts of the unremunerating prices of goods and yarns. The public sales of Colonial and Foreign Wool commenced last evening, with a large attendance of buyers.

JAMES PERRIN, Wool Broker.

HOPS, FRIDAY, Jan. 31.

THE Market continues firm and prices gradually advancing, with a very short supply on offer.

PATTENDEN & SMITH, Hop-Factors.

SMITHFIELD, MONDAY, Jan. 27.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4*s* 0 to 4*s* 2	Best Downs & Half-breds	4*s* 2 to 4*s* 4
Best Short Horns -	3 6 3 10	Best Long-wools -	3 10 4 2
Second quality Beasts -	2 10 3 4	Ewes and second quality	3 2 3 8
Calves - - -	4 0 5 0	Pigs - - - -	3 4 4 4

Beasts, 8032; Sheep, 24,420; Calves, 61; Pigs, 370.

We have rather a large supply of Beef to-day, and the trade is very heavy. There is a decline in price of fully 2*d.* per 8 lbs; 4*s* 2*d* being the extreme price for best Scots, &c., and 3*s* 10*d* for the best Short Horns. Several remain unsold. The supply of Sheep is rather short, and the demand for the best qualities brisk, though there is but little if any alteration in price. Some of the choicest Downs make a little over our top quotation. Veal maintains its price; a very choice Calf is worth a little over 5*s* per 8 lbs. Pork trade is brisk.

FRIDAY, Jan. 31.

There are quite sufficient Beasts for the demand, although fresh arrivals up to to-day are not very strong. Trade is exceedingly heavy, and we are obliged to submit to a reduction to effect a clearance, which will scarcely be done. Best Scots make very little over 4*s*, and Short Horns, 3*s* 8*d*; second quality Beasts are heavy sale at 3*s* 8*d* to 3*s* 4*d*. Good Sheep are not very plentiful, nor is there much demand; the prices are about the same as Monday. Best Downs, &c. 4*s* 2*d* to 4*s* 4*d*. Best Longwools, 3*s* 10*d* to 4*s* 2*d*. Ewes and second quality, 3*s* 2*d* to 3*s* 8*d*. Good Veal is still scarce, and maintains its price. Pork trade is brisk, and the prices remain unaltered.

Beasts, 740; Sheep, 3040, Calves, 157; Pigs, 290.

41, West Smithfield.

COVENT GARDEN, FEB. 1.—The market has been, generally speaking, well supplied with most articles during the week, the demand, however, has been rather limited. There is a slight advance in the price of Pines. Scarcely any Hothouse Grapes have been offered during the week; foreign samples of good quality are, however, plentiful. The supply of good dessert Apples has been somewhat limited, and consequently they have slightly advanced in price. Good sorts for kitchen use meet with a ready market. Pears have not altered in price since last week; varieties for table are chiefly confined to Glout Morceau and Ne Plus Meuris. A few Cucumbers have been offered during the week, at from 5*s.* to 7*s.* each. Among Vegetables, Asparagus is improving in quality, as is also Seakale. Spinach is a trifle dearer. Turnips are becoming scarce. The best white Broccoli may be obtained for about 3*s.* 6*d.* per bundle. Rhubarb is good and plentiful, as are also Cabbages, Brussels Sprouts, and other Winter Greens. The supply of Lettuces and Endive is pretty good. Mushrooms are both plentiful and cheap. The display of cut Flowers has been brilliant throughout the week. Amongst them we noticed Combretum purpureum, Poinsettia pulcherrima, Lily of the Valley, Gardenias, Chinese Primroses, Persian Lilacs, Azaleas, Acacias, Camellias, Heaths, Tulips, and China Roses.

FRUITS.

Pine Apple, per lb., 5*s* to 7*s*	Oranges, per 100, 4*s* to 16*s*
Grapes, Spanish, per lb., 1*s* to 1*s* 3*d*	— bitter, per 100, 16*s*
— Portugal, per lb., 1*s* to 3*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 4*s* to 9*s*	— per 100, 6*s* to 14*s*
— Kitchen, 3*s* to 6*s*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 4*s* to 8*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Pomegranates, per doz., 2*s* to 4*s*	Cob Nuts, per 100 lbs., 150*s* to 160*s*
Filberts, per 100 lbs., 100*s* to 120*s*	Nuts, Barcelona, 24*s*
Chesnuts, per peck, 3*s* to 7*s*	— Brazil, 16*s* to 20*s*
Walnuts, shelled, 12*s* to 20*s*	— Spanish, 3*s*
Oranges, per dozen, 9*d* to 2*s*	— Cob, 16*s*

VEGETABLES.

Cabbages, per dozen, 6*d* to 1*s* 3*d*	Scorzonera, per bunch, 1*s* to 1*s* 3*d*
— red, per doz., 2*s* to 3*s*	Salsafy, per bunch, 1*s* to 2*s*
— plants, per doz. bnch., 2*s* to 3*s*	Leeks, per doz., 1*s* to 1*s* 6*d*
Broccoli, per bundle, 1*s* to 3*s* 6*d*	Garlic, per lb., 8*d* to 10*d*
Brussels Sprouts, hf.-sv., 1*s* 6*d* to 2*s*	Onions, per bunch, 4*d*
French Beans, per 100, 3*s* to 4*s*	— large, per bushel, 2*s* to 3*s*
Sorrel, per hf.-sieve, 1*s* 6*d* to 2*s*	— Spanish, per doz., 2*s* to 4*s*
Jerusal. Artichok, p. hf.-sv., 9*d* to 1*s* 3*d*	Shallots, per lb., 8*d* to 10*d*
Potatoes, per ton, 60*s* to 80*s*	Lettuce, per score, 4*d* to 8*d*
— cwt., 2*s* to 4*s*	Celery, White, per bunch, 10*d* to 1*s* 6*d*
— bushel, 1*s* 6*d* to 2*s* 6*d*	— Red, per bunch, 9*d* to 2*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	Endive, per score, 1*s* to 2*s* 6*d*
— Autumn, per lb., 3*d* to 6*d*	Mushrooms, per pottle, 5*d* to 10*d*
Turnips, per doz. bch., 2*s* 6*d* to 3*s* 6*d*	Small Salads, per punnet, 2*d* to 3*d*
Red Beet, per doz., 1*s* to 3*s*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Carrots, per doz. bchs., 5*s* to 6*s*	Parsley, per doz. bunches, 3*s* to 5*s*
Basil, per bunch, 2*d* to 3*d*	— Roots, per bundle, 3*d*
Rhubarb, per bundle, 1*s* to 1*s* 6*d*	Tarragon, per bunch, 6*d*
Seakale, per punnet, 1*s* to 2*s* 6*d*	Mint, per bunch, 6*d*
Asparagus, per bundle, 3*s* to 8*s.*	Marjoram, per bunch, 2*d* to 3*d*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*	Chervil, per punnet, 3*d* to 4*d*
Savory, per bunch, 2*d* to 3*d*	Chilis, per 100, 1*s* to 2*s*
Spinach, per sieve, 2*s* 6*d* to 3*s* 6*d*	

MARK-LANE, MONDAY, Jan. 27.

THE supply of Wheat by land-carriage samples was again moderate this morning; the finest qualities found buyers at late prices, but other descriptions were difficult of sale, although we do not reduce our quotations: Foreign meets a retail demand at late rates. Barley is almost unsaleable; best Maltiag, 18*s.*, inferior 2*s.* per quarter lower; Grinding and Distilling, as also Foreign for the same purposes, meet a moderate inquiry on nearly the same terms. Beans are unaltered in value, also Grey Peas, but White must be written 1*s.* cheaper. Oats are in fair demand at the extreme rates of Friday, being in many instances 6*d.* per quarter higher than on this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk . . White	40	50	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire .	—	—	White	—	—
Barley, Malting and distilling 30*s* to 35*s* Chevalier	33	36	Grind.	24	27
Oats, Lincolnshire and Yorkshire . . Polands	20	24	Feed	19	23
—— Northumberland and Scotch . . Feed	20	23	Potato	21	24
Irish . . . . . Feed	19	23	Potato	21	24
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new 29 to 33	Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland . 37 to 40	Winds	—	—	Longpod	—	—
Peas, White . . . . . 34 to 36	Maple	31	33	Grey	30	32

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English . 7980 Sks. — Brls.		10668	11215	9906	1793	—	2000	1356
Irish . — — ,, — ,,		—	—	24	12566	—	—	—
Foreign . — — ,, — ,,		—	730	—	—	—	328	—

FRIDAY, Jan. 31.

THERE has been little business doing in any description of Corn since Monday; Wheat, both English and Foreign, is a dull limited sale at that day's prices, although we believe a small parcel or two of the latter have been taken for shipment to Ireland. The Barley trade continues very much depressed, and sales are difficult to effect, even at a further decline. Beans and Peas are unaltered. The Oat trade is firm, but business not extensive. Offers of Wheat and Barley *f.o.b.* in spring, at the several Baltic Ports, continue to be made on late terms without finding buyers, and Oats are again somewhat inquired after.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	2890	5510	4940	3480 Sks
Irish . . .	—	—	3040	—
Foreign . .	20	660	—	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Dec.	20 per Quarter.	45*s* 1*d*	34*s* 5*d*	21*s* 11*d*	32*s* 0*d*	36*s* 9*d*	36*s* 1*d*
—	28 . . .	45 6	34 3	20 10	31 9	35 7	35 5
Jan.	4 . . .	45 3	34 2	21 10	33 9	36 3	36 1
—	11 . . .	45 10	34 5	21 7	31 4	35 9	36 0
—	18 . . .	45 7	34 7	21 8	31 4	35 7	35 8
—	25 . . .	45 7	34 2	32 11	35 4	36 1	
6 weeks' Aggreg. Aver.		45 7	34 4	21 6	32 2	35 9	35 9
Duties on Foreign Grain		20 0	4 0	6 0	10 6	7 6	7 6

SEEDS, Jan. 31.

Canary - - per qr	48*s* to 52*s*	Linseed Cakes, Foreign, p. ton		8*l* to 9*l*	10
Carraway - - per cwt	44	52	Mustard, White - p. bush.	10*s*	14
Clover, Red, English - —	—	—	— Superfine ,, -	12	16
— — Foreign - —	—	—	— Brown ,, -	12	16
— White, English - —	—	—	Rapeseed, English, per last	23*l*	25*l*
— — Foreign - —	—	—	Rape Cakes - per ton	—	—
Coriander - -	12	18	Sainfoin - - -	—	—
Hempseed - - per last	36	36	Tares, Eng. winter p. bush.	5	6
Linseed - - per qr	—	—	— Foreign - - -	—	—
— Baltic - - -	—	—	Trefoil - - per cwt	—	—
— Cakes, Eng. per 1000	12*l* 10	13*l*	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

Sale by Auction.

NATURAL HISTORY CURIOSITIES, CACTI, &c.

MESSRS. PROTHEROE & MORRIS will Sell by Auction, at the Auction Mart, Bartholomew-lane, on Friday, 7th Feb., 1845, at 12 o'clock, Sixteen Boxes containing CACTI, AMARYLLIS, &c., and a collection of Flower and other SEEDS from Chili, principally from the Cordilleras; also several Skeletons of GUANACOES, Guanaco Skins prepared, a variety of beautiful BIRDS, mostly large; REPTILES, and other Curiosities, in spirits, likewise from the Cordilleras; collected with great expense by an English Amateur. May be viewed two days prior to the Sale at the Warehouse of Messrs. Browne, 83, Upper Thames-street, at the foot of Dowgate-hill, and Catalogues had at the Mart, and of the Auctioneers, Leytonstone.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

RANUNCULUSES, ANEMONES, &c.

MESSRS. TYSO AND SON, Wallingford, respectfully invite the attention of Cultivators of the RANUNCULUS to their unique and splendid Collection of this admired flower, as the best season for planting has nearly arrived.

* RANUNCULUSES—100 Splendid-named varieties 60*s.* to 5*l.*
,, ,, 100 Superb mixed . . . 5*s.* — 1*l.*
* ,, SEEDLINGS 50 First-rate show flowers . 6*d.* — 8*d.*
ANEMONES . 50 Fine double-named sorts . 30*s.* —50*s.*
* Ranunculus Seed, 5*s.* and 10*s.* per paper.

The articles marked thus * will be forwarded free by post to order containing a remittance. A General Descriptive Priced Catalogue of Florists' Flowers sent free to applicants inclosing two postage labels.

CHARLES DALY AND SON, Coleraine, beg to inform the trade that they are ready to dispose of One-year Seedling THORN QUICKS, at 1*s.* 6*d.* per 1000; Two-year Ditto, 4*s.* per 1000; One-year Ditto, transplanted, 6*s.* per 1000; Three-year Seedling HOLLIES, 5*s.* per 1000; Two-year Seedling SCOTCH FIRS, 1*s.* 3*d.* per 1000; Two-year Seedling SPRUCE FIRS, 1*s.* 6*d.* per 1000; Two-year Seedling LABURNUM, 5*s.* per 1000; One-year ditto ASH, 1*s.* per 1000; Two-year ditto, 1*s.* 6*d.* per 1000; Common LAUREL, 15*s.* per 1000; Portugal ditto, 8*s.* per 100; LAURUSTINUS, 16*s.* per 100; RHODODENDRONS, good plants, 4*d.* each. Freight paid to Liverpool or Glasgow.

Parties indebted to C. D. and Son are requested to settle their former year's accounts.

An Agency wanted for the sale of Guano—respectable references can be given.—Coleraine, Feb. 1.

THOMAS ROBERTSON, GARDENER, Paisley, intends sending out in May next, his SEEDLING DAHLIA, "ELIZABETH;" colour white, slightly tipped with rose; when well shaded it comes a (self) rich glossy pure white, large, and always double; petals well arranged, well fitted for a back-tier flower in a stand of twelve. It was exhibited as a white at the Horticultural Show, in Glasgow, which took place in conjunction with the great Highland Agricultural Society's Show, and was much admired. A bloom was also sent to the Editor of the *Gardener's Chronicle* for his opinion, which will be found in answers to correspondents, in No 35, 1844, under the signature "*T. R.*" THOMAS ROBERTSON begs to refer the trade in general to Henderson and Sons, Den Nursery, Brechin, who have seen the plant in bloom, from whom plants may be had in May. Also of Thos. and W. Handasyde, Nurserymen, Musselburgh; Mr. James Thyne, Nurseryman, Glasgow; John Lawson and Sons, Nurserymen, Greenock; or THOMAS ROBERTSON, Paisley. Price, in May, 7*s.* 6*d.*; no discount unless six are ordered.

CINERARIA—"GEM."

T. AND J. BACKHOUSE, NURSERYMEN, &c., York, have pleasure in offering to the public the above new and beautiful variety. It was submitted to the judgment of Dr. LINDLEY, who gave the following character:—"Your seedling, rich purple, with black eye, is a *fine* and *handsome* variety."—See *Gardeners' Chronicle* for 1844, page 280.

The striking colour, broad petal, and large heads of blossom of this seedling, have attracted the admiration of those who have seen it, and it had a prize awarded at the exhibition of the York Horticultural Society.

Good plants are now ready to be sent out per post, or otherwise, at 5*s.* each.

T. and J. B. can also supply good plants of—

	each *s.* *d.*		each *s.* *d.*
Thunbergia chrysops,	. 2 6	Buddlea Lindleyana	. 2 6
Achimenes picta	. 2 6	Lisianthus nigrescens 2*s* 6*d* to 5*s*	
Statice Reinwardtii	. 3 6	,, Russellianus 2*s* 6*d* to 5*s*	

Acacia rotundifolia (a fine new species, and a profuse bloomer), 3*s.* 6*d.*

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	Orange Tubs, Flower Boxes, &c.
Garden Edging	

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

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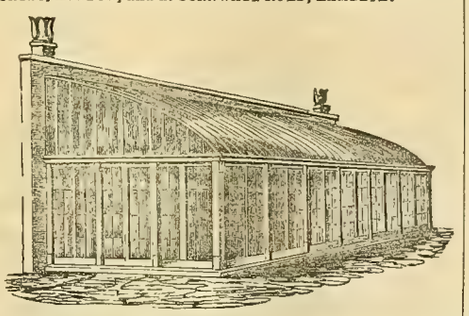
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It is also applicable to windows, coverings for sheds, tilts for carts and waggons, &c.

WHITNEY'S PATENT CLOTH for COVERING GREENHOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.
The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street.—Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Hoiles-street.
Caution—Beware of the words "From Metcalfe's," adopted by some houses.

DRAWING-ROOM CLOCKS.—A. B. SAVORY and SONS, No. 9, Cornhill, London, opposite the Bank of England, invite attention to a splendid variety of rosewood, china, bronze, and ormolu Clocks; they go for eight days, and strike the hours and half-hours. Price four guineas, seven guineas, and ten guineas each, and upwards. The performance is warranted. A Pamphlet, with detailed list of prices, and illustrated with sketches, may be had on application, gratis, or sent to all parts of Great Britain and Ireland, postage free, in answer to a paid letter.

SUBSTITUTES FOR GLASS.
GERARD, ARNEY, AND CO.'S COMPOSITION for rendering Paper, Linen, Calico, and other suitable Fabrics transparent and waterproof, forming excellent Substitutes for Glass for Horticultural Purposes, &c., not being so liable to breakage, much warmer, admitting a softer light, and such a genial degree of heat, that the tenderest Plants and Seedlings never burn nor scorch under them; they will be found invaluable for Melons and Cucumbers, as also for making Awnings for covering Beds of Tulips, Hyacinths, Balsams, &c. Market Gardeners will find them invaluable for affording protection to Early Vegetables, Wall-fruits, &c.
PRICES, &c.—Composition in pints, 2s.; Quarts, 3s. 6*d.* Each pint, when diluted with turpentine, will make about a quart sufficiently fluid for use.
PREPARED TRANSPARENT WATERPROOF FABRICS.—Paper, 23 in. wide, 6*d.* per yard. Calico, 31 in. wide, 1s. per yard. Linen, 28 in. wide, 1s. 6*d.* per yard, in 6 yard lengths.
Every information, and Samples of the prepared Fabrics, may be had by application, and letter prepaid, to the Proprietors, at the Manufactory, High Hill Ferry, Upper Clapton, Middlesex.
For Agency Appointments apply as above.

GARDEN POTS AND STANDS, Patent and others, in every variety at HUNT'S Wholesale and Retail Depôt. White Biscuit-stone and Wedgwood ware, from 9s. to 150s. per doz., for Drawing Rooms, &c. Improved and Elegant Hyacinth Pots and Supports, from 1s. 6*d.* each.—29, Queen's-row, Pimlico, near the Palace.

CLOSE OF THE HOLIDAYS.—Now that the season of annual festivity is about to terminate, and the respective boarding-schools be re-instated by the busy throng of youthful aspirants, the personal comfort and attractions of whom become naturally an object with friends and relatives of great solicitude, ROWLAND'S MACASSAR OIL, for accelerating the growth, and for preserving and beautifying the hair; ROWLAND'S KALYDOR, for preserving the skin and complexion, and removing cutaneous eruptions; and ROWLAND'S ODONTO, for beautifying the teeth, and preserving the gums, are universally considered indispensable in the requisite accompaniments of the decorative repository. The august patronage conceded by all the sovereigns of Europe to these creative renovating specifics, and confirmation, by experience, of their infallible efficacy, have characterised them with perfection, and given them a celebrity unparalleled.
*** Ask for "ROWLAND'S" articles.
All others sold under the same names are FRAUDULENT COUNTERFEITS!!!

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent-Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, Feb. 1, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 6.—1845.] SATURDAY, FEBRUARY 8. [PRICE 6*d.*

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HERTFORD NURSERIES.

E. P. FRANCIS begs to refer the readers of the *Gardeners' Chronicle* to his previous advertisements, for SNOW'S WINTER WHITE BROCOLI in half-ounce packets, at 1*s.* 6*d.*, and one-ounce packets at 2*s.* 6*d.* each. Snow's Hybrid Prolific Green Flesh MELON, eight seeds for 3*s.* 6*d.* Snow's Horticultural Prize White Spine CUCUMBER, seven seeds for 2*s.* 6*d.*; and Snow's Matchless Black Seed Green Cos LETTUCE, in packets 1*s.* 6*d.* each. Also a few remaining packets of Snow's very fine Fringed White and Purple PRIMULA SINENSIS at 2*s* each; or the whole will be sent, post-free, on receipt of a Post Office Order for 11*s.*—Feb. 8.

MAGNIFICENT SEEDLING FUCHSIAS.

W. J. EPPS begs to announce that he intends sending out, this month, Two Splendid Fuchsias, which he can with confidence recommend, as being the most distinct and beautiful varieties known; they have merited the highest opinions of Dr. LINDLEY and Mr. GLENNY of any this season.

NYMPH.—This beautiful flower was raised from "Venus Victrix," and it is far superior both in habit and richness of colour; the flowers are of a medium size, tube and sepals pure white, slightly veined with pink; sepals expanding, exhibiting a large bright velvet plum-colour purple corolla. The habit is truly splendid, of a dark green fleshy foliage, resembling Eppsii, but not so large, and quite as free in growth; an immense bloomer. 10*s.* 6*d.* per plant.

Dr. LINDLEY's opinion—See *Gardeners' Chronicle*, Oct. 12, 1844. "W. J. E.—Your seedling is a very pretty and striking variety, and deserves a place in every collection; there is a slight tinge of pink in the tube, which changes to white in the sepals, and these, which are long and expanding, terminate with green points; rosy purple corolla, flowers of a moderate size."

QUEEN OF THE BEAUTIES.—This is the most striking variety imaginable; the tube and sepals are of a beautiful waxy light buff colour, slightly tipped with green, corolla very large, of a splendid dark crimson blood colour, slightly tinged with purple; habit fine, and a profuse bloomer. 10*s.* 6*d.* per plant.

Dr. LINDLEY's opinion.—See *Gardeners' Chronicle*, Sept. 28, 1844. "W. J. E.—Your seedling having a very light tube and sepals with green terminations, and the crimson corolla having a purple tinge, is a distinct and handsome flower, of a medium size."

Mr. GLENNY's opinion of both.—See *Gardeners' Gazette*, Sept. 28, 1844. "Mr. EPPS.—We are very dainty about Fuchsias, and wish to see very different things to the plants now out; but the two sent, one with pale outside and violet corolla, and the other pale outside and scarlet corolla, are quite good enough in their individual flowers to let out with credit if the habit be good; their principal fault is a slight green tip to their sepals, but they are far better than the vast majority."

Plants sent carefully packed in tin boxes (postage paid, on receipt of a post-office order or a reference). Agents:—Messrs. WARNER and WARNER, Seedsmen, &c., Cornhill, and Messrs. HURST and M'MULLEN, Seedsmen, &c., 6, Leadenhall-street, London. Drawings of the above may be seen at either place. The usual allowance to the Trade where not less than three plants of each are taken.—Bower Nursery, Maidstone, Feb. 1845.

STUART'S GROVE NURSERY, FULHAM-ROAD, CHELSEA.

CHARLES MARTIN WESTMACOTT, SEEDSMAN and FLORIST, begs to inform the Nobility and Gentry that he has opened the above Establishment. Many years' experience in and unwearied attention to the various branches of this business will, he trusts, enable him to give satisfaction and merit the patronage of the Public. His Catalogue of Flower and Kitchen-garden Seeds is now ready, and may be had (post-free) on application. It will be found to comprise the most rare kinds, as well as those generally known. The greatest attention will be paid to all who may honour this Establishment with their orders. A Catalogue of Stove, Greenhouse, and Hardy Plants, Shrubs, &c. &c., will be shortly printed, of which further notice will be given.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (late Hammond's), Surrey.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY.



NORFOLK, 1845.

YOUELL AND CO. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state, and such as they have had the honour of supplying to Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and many of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL and Co. two Certificates of Merit for it.

Packages containing 100 canes	.	£2	0	0
Do. do. 50 do.	.	1	1	0
Do. do. 25 do.	.	0	12	0

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety), for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL AND CO. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL AND CO. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL and Co.'s Advertisement of Jan. 11.

CEDRUS DEODARA, 3 ft. to 3 ft. 6 in., 10*s.* 6*d.* per plant.

YOUELL AND CO.'S Collection of CARNATIONS, PICOTEES, and PINKS, will be found the most extensive and select in Europe; full particulars and prices of which will be found in the *Gardeners' Chronicle* of the 9th of November last.

Great Yarmouth Nursery, Feb. 8, 1845.

DAHLIA—HOLMES'S QUEEN OF PURPLES.

SUDBURY NURSERY,



DERBYSHIRE.

UNDER THE DISTINGUISHED PATRONAGE OF HER MAJESTY QUEEN VICTORIA, HER MAJESTY QUEEN ADELAIDE, AND HIS ROYAL HIGHNESS PRINCE ALBERT.

W. H. HOLMES, F.H.S., most respectfully informs Amateurs and the Trade, that the above splendid DAHLIA (a Seedling of 1843) will be sent out the first week in May next, at 10*s.* 6*d.* per plant. The colour is a rich deep purple, short cupped petals, fine form, perfect symmetry, beautifully up in the centre, and very constant. In 1844 it was in the first pan of 24, which won the Silver Cup at the North Staffordshire Horticultural Show, open to all England, and in the first pan of 12, and took the first prize for Purples in the classes. It was also in the first pan of 12, and first pan of 6, and first prize for Purples at Lichfield, being the only places at which it was exhibited.

MESSRS. MARNOCK AND MANLEY beg to inform their friends that they have just had consigned to them from the Continent the following choice Melon and other seeds, strongly recommended.

MELONS.		s.	d.
Black Carmelite, a scarlet flesh, fine flavour	per packet	1	0
Bevaisa, a green flesh, most delicious flavour	,,	1	0
Musk Melon of Cabul, fine musk flavour	,,	1	0
Large Cabul, do., fine flavour when grown in strong heat	,,	1	0
True Beechwood	,,	1	0
Malta green-flesh	,,	1	0
Trentham hybrid, delicious	,,	1	0
PORTUGAL CABBAGE.—A variety which comes in use in the winter, far superior to Savoy	per oz.	1	6
PARSLEY-LEAVED CELERY.—From America, the leaves of which are used for garnishing in winter, equal to Parsley	per packet	1	0
Also true WALCHEREN CAULIFLOWER, with a treatise: to be had fit for table throughout the year	per oz.	4	0
NE PLUS ULTRA BROCOLI.—This may also be had fit for table throughout the year	,,	5	0
VICTORIA CABBAGE.—An early dwarf kind, delicious flavour	,,	2	6

(If the above three varieties were once tried and successfully grown, no garden, however small, would be without them.)

With every choice variety of Vegetable and Flower-seeds in cultivation.—Nursery, Hackney, Feb. 8.

TRUE WALCHEREN BROCOLI.

WILLIAM E. RENDLE can, with much confidence, recommend the WALCHEREN BROCOLI, as being a very excellent and superior variety. The stock was saved by Messrs. Myatt, of Deptford, who are well known to grow this sort in the highest perfection. 1*s.* per packet.

TRUE WILLCOVE BROCOLI.

This can be highly recommended, as one of the *largest and most valuable white varieties for Spring use.* Sealed packets, 1*s.* each. The following can also be recommended as superior sorts of Vegetables.

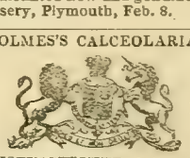
Superior Dark Crimson Beet	Dwarf Small Top and Scarlet Beet
Chappell's Cream Brocoli	Large Paignton ditto
Myatt's Superb Curled Parsley	Wood's Early Frame Radish
Atkins's Early Matchless Cabbage	Hammond's White Cape Brocoli
True Drumhead Lettuce	
Early Cornish Cabbage	

The above at 6*d.* per packet, or the whole set, including the WALCHEREN and WILLCOVE BROCOLI, will be sent free by post, for a Post-office Order, value 6*s.* All other kinds of Vegetable Seeds warranted new and genuine.

Union Road Nursery, Plymouth, Feb. 8.

HOLMES'S CALCEOLARIAS.

SUDBURY NURSERY,



DERBYSHIRE.

UNDER THE DISTINGUISHED PATRONAGE OF HER MAJESTY QUEEN VICTORIA, HER MAJESTY QUEEN ADELAIDE, AND HIS ROYAL HIGHNESS PRINCE ALBERT.

W. H. HOLMES, F.H.S., LANDSCAPE GARDENER, NURSERYMAN, and FLORIST, most respectfully announces that his Collection of Twelve Seedling CALCEOLARIAS, which have been so much admired, will be ready to send out on the 17th February, 1845; namely, Prince Alfred, 10*s.* 6*d.*; Lady Pottinger, 10*s.* 6*d.*; Duchess of Kent, 12*s.*; Duchess of Sutherland, 15*s.*; Lady Vernon, 10*s.* 6*d.*; Duke of Wellington, 15*s.*; Hon. Miss Vernon, 10*s.* 6*d.*; Lady Cotton Sheppard, 15*s.*; Hon. Mrs. Boothby, 5*s.*; Lady Sale, 15*s.*; Hon. Mr. G. E. Anson, 7*s.* 6*d.*; Lord Howe, 10*s.* 6*d.*; or the whole Collection, 5*l.* Early application is requested, as the stock of some of the varieties is small.

W. H. HOLMES's Catalogue of CALCEOLARIAS (containing the varieties let out by him in 1843 and 1844, which have given such general satisfaction), Geraniums, Fuchsias, Dahlias, Pansies, Cinerarias, Greenhouse Plants, &c., may be had on pre-paid application.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth.) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

		£	s.	d.
100 RANUNCULUSES in 100 Superfine sorts, named		2	10	0
Superfine Mixtures	per 100—10*s.* 6*d.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named		2	10	0
Superfine Mixtures	per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named		3	3	0
25 pair of CARNATIONS, in 25 ditto	ditto	2	10	0
25 pair of PICOTEES, in 25 ditto	ditto	2	10	0
25 GERANIUMS, in 25 Superfine sorts	ditto	3	10	0
Good kinds	per doz., from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each		0	3	6
,, ,, PUNCTATUM	,,	0	7	6
,, SPECIOSUM, (true)	,,	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Feb. 8.

Foreign Orders executed.

ROSE-TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for Sale, after the present season, is desirous of disposing of his extensive Stock of ROSE TREES and other PLANTS, at LESS THAN HALF THE USUAL PRICES, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.

Mr. HOOKER will supply ROSES at the following prices, provided the selection of sorts is entirely left to him. Standard Roses, 12 distinct vars., ticketed with their names, 15*s.* per doz.

Ditto, as above, without names, 12*s.* per dozen.

The China, Noisette, Bourbon, and the Thé and other Perpetual flowering Roses, are on stems from 18 inches to 2½ feet, at the same prices.

Dwarf Roses, on their own roots, 12 distinct varieties, with their names, 6*s.* per dozen.

Ditto, ditto, 12 varieties, 3*s.* per dozen, without names.

Ditto, ditto, per 100, 3 or 4 of each sort, without names, 16*s.*

Dwarf China, Noisette, Bourbon, and the Thé Roses, in pots, with names, 9*s.* per dozen.

Climbing Roses, in pots, named, 9*s.* per dozen.

STANDARD APPLE TREES, 50*s.* per 100; Dwarf do., 25*s.* per 100.

Large Ornamental Forest Trees, American Plants, Evergreen and Deciduous Shrubs, equally cheap in proportion.

Brenchley, Kent, Feb. 8, 1845.

BEECHWOOD MELON.—MUMMY WHEAT.

H SILVERLOCK has to offer packets of this fine MELON (highly recommended by Dr. Lindley as one of the best kinds) at 2*s.* 6*d.* per packet of 6 seeds, warranted true. Also a few packets of 36 grains each, at 2*s.* 6*d.*, of the very curious and prolific Mummy or Egyptian Wheat, one stalk of which produces many ears. They will be forwarded by post free, on receipt of a Post-order for the amount.—Nursery, Chichester.

SUPERB SEEDLING FUCHSIAS.

BASS AND BROWN, FLORISTS, Sudbury, Suffolk, beg to offer the following Fine Seedlings, which they can strongly recommend as distinct and first-rate. They are each of fine habit and handsome foliage.

No. 1.—AMETHYST.—Long tube and sepals of a brilliant scarlet, the latter much expanded, showing a deep violet purple corolla. This is a very pleasing and attractive variety, having the same depth of colour in the corolla as that of Formosa elegans; *s. d.* the form similar and very large . . each—7 6

No. 2.—SAPPHO.—A fine large and robust flower; the tube long, similar in form to Cormackii; of a very bright scarlet colour, with sepals spreading; the corolla scarlet, with a rich purple tinge . . each—7 6

No. 8.—EMPRESS.—A bold elegant flower, with bright scarlet tube and sepals, the latter much expanded, showing a fine spreading crimson corolla. A large and pleasing variety . . . . each—7 6

In allusion to the above three Seedlings, the following remarks by the Editor will be found in the *Gardeners' Chronicle*, Aug. 31, p. 592. "*Y Z*—Your Seedlings are very good flowers; fine in texture and good in colour. The violet-purple corolla in No. 1, forms an excellent contrast with its bright carmine tube and sepals. This is a large and elegant flower. No. 2 is also large and fine, with less violet in the corolla." Sept. 7, p. 608. "*Y. L.*—No. 8. This is the largest and most showy flower of this character we have seen."

Plants will be sent out in April, and can be forwarded in tin cases by post. The three will be charged 20*s.* The usual allowance to the trade.

A superb assortment of the best FUCHSIAS, GERANIUMS, VERBENAS, &c., of which Catalogues will be sent pre-paid on application.—Seed and Horticultural Establishment, Sudbury.

HOME-GROWN SEEDS.—In calling attention to the Collections of Seeds Advertised in the 4th page of the *Gardeners' Chronicle* of Dec. 14th, Messrs SUTTON AND SONS beg to add that they have the privilege of referring to Gardeners and Gentlemen residing at the under-mentioned places, who have in past years availed themselves of this advantageous mode of procuring NEW GARDEN SEEDS of best sorts, and have expressed themselves in the highest degree pleased with the crops:—Glasgow, Aberdeen, Perth, Edinburgh, Castle Douglas, Hull, Newcastle, York, Bristol, Plymouth, Dover, Isle of Wight, Portsmouth, Brighton, Oxford, Cirencester, Newport, Monmouth, Ludlow, Wolverhampton, Gloucester, Margate, Woolwich, Harlow, Carlisle, Carmarthen, Cardigan, and many others.

Full Collection, for large Establishment . £3 3*s.*
Ditto second-rate Establishment . 2 2
Ditto third-rate Establishment . 1 1

N.B.—Delivered free to any railway or packet office in London, or to any station of the Great Western Railway between London and Bristol inclusive. (See Adv. Dec. 14th.) Further particulars by post if required.—Reading, Berks, Feb. 8.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

CLARKE and Co., SEEDSMEN AND FLORISTS, beg to call the attention of the Nobility, Gentry, and the Trade to their extensive Collection of GARDEN and FLOWER-SEEDS, and which they are enabled to supply as cheap as any house in London.

Catalogues, comprising every novelty of the season, may be had, post free, on application.

All the new and choice varieties of FLOWER SEEDS, as advertised by other houses, from 6*d.* to 1*s.* per packet.

All the varieties of Prize CUCUMBERS, at 1*s.* per packet.

A constant supply of Herbaceous Plants during the Spring Months.

Agents for the sale of Waite's "Queen of Dwarf" PEA, price 7*s.* 6*d.* per quart.

86, High-street (opposite Town Hall), Borough.

TO DAHLIA GROWERS.

JAMES LINTON, Dudley Cottage, Mytton-street, Hulme, Manchester, begs to inform the Cultivators of the above-named flower, that he has a few small ground Roots to spare of his Splendid Seedling "COMET." Colour scarlet, form perfect, and very constant; size large, and altogether a flower fit for any stand. Price 3 guineas each. A remittance is respectfully requested from unknown correspondents.

UNRIVALLED YELLOW DAHLIA.—"LANGLEY'S DUKE OF YORK" was exhibited at Salt Hill, 1843 (too late for competition), and pronounced by Mr. Glenny very compact, and by Mr. Bragg (Slough) to be, he considered, the most promising Dahlia of the season. Sept. 25th, 1844—a certificate at the Great Metropolitan Show; and first prize at every other place where it has been shown. As a test of its superiority, 12 blooms (to be cut from 4 plants only) shall be shown against any other yellow, either new or old. Strong plants early in May, 10*s.* 6*d.* each. Discount to the trade on not less than 12 plants. A List of Agents will be published in due time. C. LANGLEY begs to state his intention of giving a Prize of 3*l.* at the Grand Metropolitan Show, for the best 6 blooms of new varieties sent out in 1845 by any party, and 2*l.* for the best 2 blooms of his Duke of York.—Mirfield, Yorkshire, February 8.

CHOICE HYBRIDISED SEEDS.—Pelargoniums (saved by Mr. Hoyle), 100 seeds, 10*s.*; 50 seeds, 6*s.* 100 fine Fuchsia seeds, 10*s.*; 50 seeds, 6*s.* Small packet spotted and striped Petunia seeds, 2*s.* 6*d.*; large, 5*s.* Small packet choice Cineraria seeds, 2*s.* 6*d.*; large, 5*s.* If a small packet of each be taken together, 15*s.*; or a large packet of each together, 25*s.*

WILLIAM MILLER, Providence Nursery, Ramsgate.

CHARLES DALY AND SON, Coleraine, beg to inform the Trade that they are ready to dispose of One-year Seedling THORN QUICKS, at 1*s.* 6*d.* per 1000; Two-year ditto, 4*s.* per 1000; One-year ditto, transplanted, 6*s.* per 1000; Three-year Seedling HOLLIES, 5*s.* per 1000; Two-year Seedling SCOTCH FIRS, 1*s.* 3*d.* per 1000; Two-year Seedling SPRUCE FIRS, 1*s.* 6*d.* per 1000; Two-year Seedling LABURNUM, 5*s.* per 1000; One-year ditto ASH, 1*s.* per 1000; Two-year ditto, 1*s.* 6*d.* per 1000; Common LAUREL, 15*s.* per 1000; Portugal ditto, 8*s.* per 100; LAURUSTINUS, 16*s.* per 100; RHODODENDRONS, good plants, 4*d.* each; Three-years transplanted LARCH, 2½ to 4 feet, at 15*s.* Freight paid to Liverpool or Glasgow.

Parties indebted to C. D. and Son are requested to settle their former year's accounts.

An Agency wanted for the sale of Guano—respectable references can be given.—Coleraine, Feb. 8.

CAUTION TO THE PUBLIC.

J. G. WAITE begs to caution Purchasers of "WAITE'S QUEEN OF DWARF PEA," to be very particular in observing that every package is sealed with his seal, and properly labelled, he having been credibly informed that several houses in London have been sending out Groom's "Dwarf PEA," and calling it "WAITE'S Queen of Dwarf." Groom's Dwarf is a blue, and WAITE'S "Queen of Dwarf" a White PEA. This PEA is three times the size of any other Dwarf Pea, and being so very different from all others, cannot be substituted. It has too frequently been the practice of sending out an old sort of Pea under five or six different names, and thus substituting an old variety for a new one, and causing a reluctance to purchase anything that is REALLY NEW.

True WALCHEREN BROCCOLI, 12*s.* per lb.

All other kinds of seed 30 per cent. lower than any other house in the trade.—4, Eyre street Hill, Hatton Garden, Feb. 8.

DANECROFT NURSERY, STOWMARKET, SUFFOLK.

S. GIRLING'S DESCRIPTIVE CATALOGUE of DAHLIAS, FUCHSIAS, GERANIUMS, HEARTSEASE, PETUNIAS, PHLOXES, and VERBENAS, is now ready, and can be had by forwarding two penny stamps inclosed in the letter of application.—Stowmarket, Feb. 8.

CAUTION.—MESSRS. J. WEEKS AND DAY, in returning their humble and sincere thanks for the extensive practice they have been honoured with, find it necessary for the protection of themselves and those who may wish to honour them with their commands, to inform the Nobility, Gentry, and Horticulturists, that there is, in this road, another party of the name of WEEKS, carrying on the same line of business as ourselves, but with whom we have no connection whatever. All communications intended for us should be addressed Messrs. J. WEEKS and DAY, Gloucester-place, King's-road, Chelsea.

WHITNEY'S PATENT CLOTH for COVERING GREENHOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street. — Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

SUBSTITUTES FOR GLASS.

GERARD, ARNEY, AND CO.'S COMPOSITION for rendering Paper, Linen, Calico, and other suitable Fabrics transparent and waterproof, forming excellent Substitutes for Glass for Horticultural Purposes, &c., not being so liable to breakage, much warmer, admitting a softer light, and such a genial degree of heat, that the tenderest Plants and Seedlings never burn nor scorch under them; they will be found invaluable for Melons and Cucumbers, as also for making Awnings for covering Beds of Tulips, Hyacinths, Balsams, &c. Market Gardeners will find them invaluable for affording protection to Early Vegetables, Wall-fruits, &c.

PRICES, &c.—Composition in pints, 2*s.*; Quarts, 3*s.* 6*d.* Each pint, when diluted with turpentine, will make about a quart sufficiently fluid for use.

PREPARED TRANSPARENT WATERPROOF FABRICS.—Paper, 23 in. wide, 6*d.* per yard. Calico, 31 in. wide, 1*s.* per yard. Linen, 28 in. wide, 1*s.* 6*d.* per yard, in 6 yard lengths.

Every information, and Samples of the prepared Fabrics, may be had by application, and letter prepaid, to the Proprietors, at the Manufactory, High Hill Ferry, Upper Clapton, Middlesex.

For Agency Appointments apply as above.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

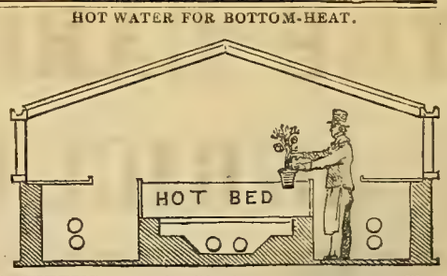
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-st., every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field, and Garden Fences, Wire Work, &c. &c.

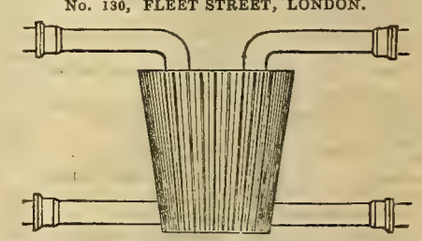
HOT WATER FOR BOTTOM-HEAT.



J. WEEKS AND DAY, ARCHITECTS, &c., Gloucester Place, King's Road, Chelsea, HORTICULTURAL BUILDERS, and Hot-water Apparatus Manufacturers, invite the attention of Horticulturists to their Improved Plan of Bottom-Heat, now becoming so universally adopted.

From the extensive Practice they have been honoured with for 20 years in designing and building CONSERVATORIES, GREENHOUSES, HOTHOUSES, PITS, &c. &c., and erecting their HOT-WATER APPARATUS to every description of Buildings to which heat is applicable, J. WEEKS and DAY have the greatest confidence in recommending their BOILERS as the most efficient of any yet invented, their largest being capable of heating a range of Forcing Houses 300 feet in length, with a comparatively small quantity of fuel, and only requiring attention once in 10 hours. To be seen in use at most of the London Nurseries, also at their Manufactory; and a variety of Horticultural Erections, Models, Plans, &c. &c.

BURBIDGE AND HEALY'S NEW BOILER and FURNACE for HORTICULTURAL PURPOSES.
Registered under 6 & 7 Vict., Cap. 65.
No. 130, FLEET STREET, LONDON.



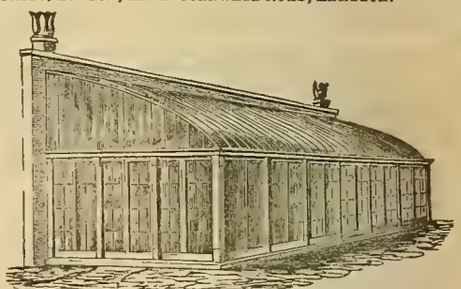
BURBIDGE and HEALY respectfully inform the Horticultural Public that they have constantly on hand an extensive assortment of their new Boiler and Furnace Doors. In very numerous cases where they have been fixed, they have the highest testimonials of their complete success: for the further assurance of those who may require this apparatus, BURBIDGE and HEALY refer them to the Horticultural Society's Gardens, Chiswick; also to Mr. GLENDINNING, Garden Architect, &c. &c., Chiswick Nursery, in the same neighbourhood, where the apparatus may be seen in successful operation, in connection with their new Tanks. The following are the present prices:—

Plain Boiler.		Patent Door and Frames.	Fire-bars & Dead Plate.	Flue Door.	Damper.	Will heat of Pipe.	Forcing Pit, Length by feet.
in.	£ *s.*	*s.*	*s. d.*	*s. d.*	*s. d.*		
10	1 5	20	7 6	6 6	2 6	30 feet.	12 to 20
Ribbed Boiler.							
10	2 2	20	10 6	7 6	2 6	50 to 70 ft. 4 in.	Under 25 to 40
12	2 15	30	12 6	7 6	3 6	80 to 125 feet.	40 to 65
14	3 10	35	17 5	8 6	4 6	150 to 250 feet.	65 to 100
18	5 5	42	25 0	8 6	5 6	300 to 400 feet.	Warm a grapery 35ft. long, and a pit 50ft.
24	8 15	50	35 0	8 6	7 6	600 to 800 feet.	

If 3-inch pipe be used, one-third more. If 2-inch pipe, as much more.

The above quantities are rough estimates, which may be varied by enlarging or contracting the fire, or by regulating the fire door. It is possible to heat a much larger quantity of pipe with the boiler, but it would be done at great loss of fuel. The above proportions can be generally relied on as a near approximation to what is correct.

COTTAM AND HALLEN, ENGINEERS, IRON-FOUNDERS, &c., &c., No. 2, WINSLEY-STREET, OXFORD-STREET, LONDON, and at CORNWALL ROAD, LAMBETH.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with COTTAM'S PATENT or ROGERS'S BOILERS. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c., &c., and every description of Implement for AGRICULTURAL and HORTICULTURAL PURPOSES.

Show Rooms at their Manufactory, 2, Winsley-street, Oxford-street, where a large assortment of the above can be seen.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 8, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY	Feb. 12	Society of Arts.	8 P.M.
TUESDAY,	Feb. 18	Horticultural	2 P.M.
WEDNESDAY	Feb. 19	Microscopical	7 P.M.
SATURDAY,	Feb. 22	Royal Botanic	4 P.M.

THE points to which we would particularly direct attention in the GREENHOUSE AT KEW, of which a plan was given last week, are the following:

The general arrangement is excellent. None of the doorways are placed in direct continuation of the walks, but they are either formed immediately opposite the principal masses of plants, or obliquely with respect to the walks, so that the eye necessarily rests upon the foliage as soon as the house is entered. Then, again, at the point where the houses join each other, a semicircular stage is thrown forward at *k*, by which the disagreeable effect of a long narrow walk in a small house is completely removed.

The house is span-roofed, and illustrates the great advantage of this kind of construction over the wretched lean-tos which were formerly in fashion. The architects who contrived the glazed sheds, commonly called greenhouses, and which form the principal part of all those in common use, could scarcely have hit upon a method worse suited for the cultivation of plants; such houses are, in fact, only fit for forcing, in which Vines or other fruit-trees can be trained, and even for those purposes span-roofed buildings are much to be preferred. We need not say that one of the advantages of a span-roofed house is, that plants are exposed to light in all directions; but all-important as is that property, it by no means forms the only valuable feature in them. Plants can be easily reached and easily removed; the appearance of the interior is very much improved, *and no space is wasted.* In a common glass shed, at least one-half is useless—that is to say, the whole of that part which is next the back wall. Here, on the contrary, every portion of the interior, except the walks, is rendered available.

The construction of the roof is excellent. It rises at an angle of 30°, which is exactly that best suited for houses of such a description; the rafters are very light, and of a better form than any we have previously seen; their effect may be judged of from the section which is given. We will not pretend to say why they produce so good an effect, for words will never convey an adequate idea of the cause of the beauty of such objects: perhaps it is the graceful curves of their mouldings; perhaps it is their lightness; probably it is the two combined. Lightness of appearance has been combined with strength, by the addition of an iron rod to the lower edge of the rafter in the place of a bead.

In order to strengthen the roof, and to provide for the cultivation of climbers, all the rafters are connected by means of curved iron rods, which themselves add much to the beautiful appearance of the interior. This mode of combining strength and decoration may of course be varied, but it will not be improved.

Another important thing in the arrangements is the ample provision for receiving in tanks the rain-water that falls on the roof of the building: this is raised for use by means of small hand-pumps.

It must be apparent that such a house as this is precisely what is most generally wanted by those who build greenhouses. If a larger space is required, it is easy to lengthen any of the arms; if more variety is desired, another cross-house could be readily added to the smaller one. Should it be too large, as will most frequently be the case, the smaller arm may be copied; or the larger, as the case may be. If a stove is wanted, instead of a greenhouse, it would only be necessary to inclose the stages, to put hot-water troughs into the chamber so obtained, and to add evaporating-pans to the pipes which are carried round the walls. In short, it appears to us that in this one house are contained illustrations of all the more important objects which are, in the majority of cases, to be attained in greenhouse-building.

It should be added that the upright sides of the house are glazed with panes of sheet-glass in one length; and that each of the roof-sashes has but two panes in its length; this, no doubt, adds very much to its beautiful appearance.

WE learn from a French journal that the Prefect of the Lower Seine has given effect to a French law enabling magistrates to prohibit the DESTRUCTION OF CROWS, rooks, and similar birds; and it is expected that his example will be generally followed. In this the French show good sense, and set an example which the English would do well to imitate.

While we are ignorantly exterminating our surest friends, the French are throwing over them a legal shield. A great English gentleman may afford to have his park and his tenants' fields devoured by grubs and similar vermin; for small losses are less felt when there is much to lose. But the injury inflicted by such pernicious enemies is ruin to the small French proprietors, who have so little in possession that they have nothing to waste. No wonder, then, that they should have formed an alliance, offensive and defensive, with their friends the crows. A compact like this is not so brilliant as that with Morocco, but it has the merit of being quite as useful.

Is there no hope that we English shall take a leaf from our neighbour's book? It is a pity that French laws cannot assume the shape of Paris gloves or Lyons silk, for in that case they would be followed eagerly enough, and we should have, in half our counties, associations of ladies for the protection of rooks. But the French law speaks only to humanity and common sense, not to vanity; and so we have less confidence in its general adoption here.

Of late our columns have been occupied by a discussion concerning the merits and demerits of certain small birds. It would seem that these creatures are incarnations of mischief, if the one party is to be credited; while the other maintains that they are the winged instruments of prosperity. S. declares that he would not have a Gooseberry if he left a tit alive; T. as stoutly asserts that neither Gooseberries nor anything else will be left if the tits are destroyed. We have thought it advisable to give this discussion full scope, because it may be truly regarded as one of the more important of the questions incidentally connected with gardening, and, moreover, as one concerning which there is the most marvellous ignorance. Thousands of people imagine that birds live on nothing but corn and fruit, and are therefore supported at the personal expense of those who grow corn and fruit, without making any sort of return. "What," say they, "*is* the use of such things? We can't eat them, and there is no good in feeding a swarm of useless plunderers." And, therefore, because of this wise conclusion, the order is given to shoot, trap, and poison without mercy. Let us hope, however, that the arguments in favour of birds, to which we have lately given so much space, will have removed this error, and that the question between man and birds will have reduced itself to whether the balance of good is in favour of the latter or against them.

It would be idle to assert that birds consume nothing which, but for them, we might consume ourselves. They feed in part at our expense. They destroy the insects that infest our gardens, when they can find any, and when the insects are gone they search for other food. The first is their labour, the second is their wages. And is not the workman worthy of his hire? The man who grudges a bird a little seed or fruit might as well begrudge his weekly pay to the labourer. There is no doubt that a garden would be less expensive if all the work in it were done for nothing. If a master could pocket his servant's wages he would have more to spend upon himself. But this sort of arrangement is not exactly consistent with the design of Providence; and we are sure that it would not meet with the approbation of either of our friends, Scrutator or Furibus Hostis. We repeat it, then, let us look at birds as skilful workmen, and the fruit or seed which they eat, as the coin in which they are paid their wages.

Not that birds are an unmixed good. Is man himself? Is anything? There are situations, doubtless, where birds are an absolute nuisance. Imagine, for instance, a garden surrounded by a wood, which swarms with blackbirds. Does any one suppose it possible to gather a ripe Cherry in such a place? If he does he is greatly mistaken. He would find the blackbird a much more dexterous gatherer than himself, and one who would relieve him from all trouble with his Cherry crop. In such a case the birds must be trapped, or the crop abandoned. There would be no alternative.

But such instances are special, and form the exception, not the rule. Every day's experience tells us that birds are among the most efficient instruments of Providence for destroying the vermin that would otherwise overrun us. And people may rely upon it that they cannot more effectually encourage the ravages of those insidious foes than by waging war upon the creatures which naturally feed upon them.

With this observation, and such others as may be found elsewhere in to-day's paper, we must close the discussion about the utility of birds for the present.

WE have so many complaints about the UNCERTAINTY OF THE SIZES which different potters furnish under the names of 12s, 24s, and so on, that we have determined to take the advice of a correspondent, and abandon such terms altogether for the future. This, like all reforms of inveterate bad habits, may, perhaps, be productive of some inconvenience in the first instance; but it is imperatively demanded, and the inconvenience, such as it is, must be borne.

What we propose to do is to adopt the plan of our correspondent who recommends the employment of the word inches in describing the size of a pot; and to name the sizes according to the number of inches such sizes should measure across the top. All that gardeners have to do is to employ the terms, to order pots of their potters by the new names, and a uniform standard of pot-making is at once secured.

According to this plan the following will be the names of the sizes of pots now in use:—

Old Name.	Usual breadth in inches.	Usual depth in inches.	New Name.
Twos	18	14	18 inch.
Fours	15	13	15 „
Sixes	13	12	13 „
Eights	12	11	12 „
Twelves	11½	10	11 „
Sixteens	9½	9	9 „
Twenty-fours	8½	8	8 „
Thirty-twos	6	6	6 „
Forty-eights	5	5	5 „
Sixties	3½	3½	3 „
Thumbs	2½	2½	Thumb.

It will, therefore, be in future understood that when we speak of an 8-inch pot we mean what is now called a 24—that an 18-inch pot will be a 2, and so on. Thumbs may retain their name, as the smallest sort of pot that is made.

It is too late now to change the terms used in the Prize Lists already published for the year; but we trust that the new names now proposed will be employed by all Horticultural Societies on future occasions.

Some may say, Why introduce a change in so trifling a matter as this, which is not worth the trouble of altering? We reply, that we propose it for adoption because it is so small; great changes are much less to our taste.

LUCULIA GRATISSIMA.

THIS splendid plant, although it has been an inhabitant of our gardens for upwards of 20 years, is still, with few exceptions, in its infancy as to cultivation. It is a native of Nepal, from whence also comes L. Pinciana, a species lately figured in the "Botanical Magazine," and at present exciting considerable interest.

That the cultivation of L. gratissima is not generally understood, is sufficiently evident from the fact that one cultivator considers himself successful in producing five flowers, while Mr. Barnes, of Bicton, and his brother in Shropshire, consider it no great feat to produce plants with from 50 to 100 flowers upon each. Mr. W. Barnes is equally successful, and has this season had, I am informed, some very admirable specimens. Why any person should wish to graft this upon a more hardy stock, I cannot imagine; for with me it grows with the greatest luxuriance, producing plants from 3 to 4 feet in height, and as much in diameter, with abundance of flowers, from a cutting, in the course of one season. Some of the leaves upon my plants this season were 9 inches in length, and 5 inches in width, and the trusses of flowers as large as good-sized Hydrangea blooms. It is not, however, when in such luxuriant growth that the plants produce the greatest quantity of bloom; but it is when they have been cut back for several successive seasons, and when they produce a great quantity of moderate sized branches, that they become so beautifully studded with flowers, as has been represented by Mr. J. Barnes. An old stump of this plant, judiciously treated, will continue to produce abundance of flowers for years, and will require little more attention than a common Pelargonium.

To proceed with their treatment, I will relate my own practice with some young plants during the last twelve months. They were received from a nurseryman about the end of February, and at that time were plants 3 inches in height, in 60-sized pots, and in very good health, but in rather a torpid state. To relax their tissue a little, and also to induce them to form some fresh roots, previously to being shifted into larger pots, they were placed in a forcing-pit on a strong bottom-heat, and with a brisk moist temperature, varying, with sunshine, from 55° to 80°. In about three weeks they began to show signs of growth, and at that time were removed into 24-sized pots, using the following compost:—Four parts turfy loam, two parts turfy peat, two parts half decomposed leaf-mould, one part charcoal broken to the size of garden Beans, using the dust as well, with sufficient Barwell sand, broken potsherds, and flinty pebbles to make and keep the soil thoroughly porous. This compost was used in as rough a state as possible; indeed, I always make it a rule in potting choice plants to throw the fine soil aside and to use the turfy part only. In this soil the plants grew admirably; they were plunged half the depth of the pots in a bottom-heat of about 80°, in the pit before mentioned, with a close

moist atmosphere of the same temperature as before. They were slightly shaded in bright sunshine, and air was admitted at all favourable opportunities, taking great care to avoid subjecting the plants to a draught. When the plants had attained the height of 15 inches, which was about the end of April, they were stopped by removing the terminal bud, and they shortly after broke from six to eight lateral branches each. After this they were encouraged by every available means, being watered about twice a week with liquid manure prepared by steeping sheep's dung and soot in soft water; and they also received a very slight top-dressing of super-phosphate of lime. By the end of June the pots were filled with roots, and the plants then received their final shift, some into 8s, and the others into 12-sized pots, using the same compost as before, with the addition of a sprinkling of half-inch bone-dust. Being potted, they were again removed to the pit before adverted to, subjecting them to the same treatment, until by renewed growth they adduced evidence of being established in the new soil. At this time the strongest plant was stopped for the second time, and it produced a fine head of bloom; but I would here remark, and also caution the inexperienced, that it is not advisable to stop this plant later than the middle of July, as the chances are, the growth will not be completed in sufficient time to enable the plant to store that highly elaborated matter which is so essential to the formation of flowers. After this the plants were gradually inured to the open air, and from the beginning of August to October were fully exposed, taking them under cover only during the night and on stormy days. During October and November they were kept in the greenhouse; but being removed into an intermediate house, at a temperature of from 45° to 60°, about the first week of December, they were beautifully in flower by Christmas, and are still (Feb. 3) regaling us with their delicious fragrance.

Such is the treatment to which my plants were subjected during the first year of their existence. How far it may accord with those natural circumstances to which this plant is exposed in its native country I am unable to say, but that it is there exposed to considerable heat in the growing season, as well as to a low temperature after the growth is completed, cannot be doubted. With the above treatment, however, my plants flourished as well as plants could flourish. But what is to be the treatment during the present season? This question I will endeavour to answer, by premising that at the present time they are in the intermediate house, and breaking strong shoots at all the most vertical buds. These shoots, when about an inch in length, will be cut out with a part of the old wood adhering; or, as gardeners term it, "with a heel," and be immediately inserted in well-drained pots, partly filled with the before-mentioned compost, surfaced with clean Barwell sand. The cuttings must be made firm in the sand, and, after being covered with a bell-glass, the pots must be plunged half their depth in a brisk bottom-heat of at least 80 degrees. When the cuttings have formed the callus the pots should be plunged their whole depth, and in a fortnight or three weeks afterwards the young plants will be fit to pot off. After they are potted they must receive liberal treatment, and by the autumn they will make plants as large as those before noticed. When a sufficient number of cuttings is obtained the old plants should be cut back, shortening each branch to the lowermost bud, in the same manner as Vines are spurred in. If it is wished to produce large specimens, the plants must be gradually excited at once, increasing the temperature as the days lengthen; but if more ordinary plants are required, the old stools may be placed in the greenhouse, and kept dry until the end of March, when they must be gently excited. Presuming that one matchless specimen, except where a succession of plants is required, is preferable to a number of small plants, those old stools first excited must be assiduously attended to until they are brought into luxuriant growth, which can be best secured by a gentle bottom-heat, and a moist atmospheric temperature. By the middle of May the plants will have made shoots from six inches to a foot in length; at this time the roots must be examined, by turning the plant out of the pot: if they are healthy and numerous remove the plant into a No. 4, but if not, clear the drainage, reinstate the plant in the old pot, remove the surface-soil, and give a good top-dressing of the compost, to which an extra handful of bone-dust may be added. Return the plant to its old quarters, and as soon as it appears established in the new soil stop it back, which will give you two and sometimes four shoots from each branch, thus making in the second season a plant with from 30 to 50 trusses of flowers upon it. The plants may be fed with manure-water once or twice a week during the growing season, and they must be fully exposed as before through August and September. By this exposure some of the leaves will become very red, but do not be alarmed: they will regain their colour when taken in-doors. Those who are admirers of dwarf plants in small pots may take cuttings after the flower-bud is formed, pot them singly in small pots, and plunge them in a brisk moist heat, and you may have plants 6 inches in height, in large 60-sized pots, with a beautiful truss of flowers upon each. In the above mode of management it must be recollected that I begin with young, healthy, vigorous plants, and allow them no rest until they have accomplished all I wish them to accomplish. If this plant is once checked it is no easy matter to start it again; but with proper attention at the right time it is as easily grown as a Pelargonium.—*Isaac Tomkins, Walton le Grand.* [Barwell sand is of just the same nature as that of Reigate.—*Ed.*]

ORCHIDACEÆ.

By T. Appleby, late Gardener to T. Brocklehurst, Esq.

No. I.—*Natural Habits.—Houses for them.*—To understand the culture of this extensive tribe of plants the student of horticulture will naturally wish to become acquainted with the climate, soil, and situation, in which they are found in a wild state.



Miltonia Clowesii.

Most of those kinds in cultivation in this country (and to them I shall chiefly have reference in the following remarks) are natives of hot moist climates. They mostly grow on trees, and are in consequence denominated epiphytes, which may be said to mean dwellers upon trees.



Dendrobium macrophyllum.

The temperature of these countries is high, ranging from 65° to more than 100° Faht. The seasons are divided into wet and dry, and in some districts those seasons occur twice in the year. During the wet season the rain falls very heavily, and almost without intermission; whilst during the dry season little or no rain occurs, but a heavy dew falls at night. A great number of sorts are natives of more temperate climates, such, for instance, as Central America, from whence a large number of species have been collected and sent to this country by Mr. Skinner and Mr. Hartweg, and as those are mostly fine species they are usually found in all good collections. Many species have pendent stems and flowers, showing evidently that they naturally grow on branches of trees or on elevated rocks. Others send their flower-stems directly downwards from the pseudo-bulbs, as the Stanhopeas, while the plants grow on the forked branches of trees amongst moss, rotten leaves, decaying sticks, and other vegetable matters.

Some grow on trees in shady situations, near the margins of rivers or lakes; others grow on trees in more exposed situations; and some on rocks exposed during the dry season to the burning rays of a tropical sun. Taking all these circumstances into consideration, what is required in this variable climate, to imitate the climate, situation, and soil of their native country, so as to cultivate successfully here this most interesting, and in many instances, splendid tribe of plants? The answer is —1st. Suitable hothouses or habitations. 2d. A proper supply of heat, moisture to the air, water, and atmospheric air. 3d. Situations in houses—in pots placed on stages; in pots hung up; in proper compost; drainage; seasons of potting; and increasing the specimens by division, &c. In baskets—either of rustic pieces of wood or copper wire; hung up near the glass; on logs with Moss tied over the roots; on logs without Moss, both hung up to the roof near the glass.

Suitable Hothouses or Habitations.—Bearing in mind that these plants require a season of growth and a season of rest, and that the seasons vary in the different parts of the world from whence they are brought, as to the time of the year, so that almost all the year round part of a good collection will be growing, and will require more heat, moisture, and water; while those at rest will require to be kept comparatively cool, and dry both at the root and in the air; it is evident that at least two houses are necessary to completely effect those different states, both for the above objects, and also on another account. The plants from Central America and the higher regions of the tropics, do not require, neither thrive nor flower so well in the temperature necessary for plants from India and low tropical regions. Plants in flower, from even the latter part, will last much longer and be less liable to spotting on the delicate sepals and petals, in the cooler and drier house. However, where there is but one house, and where it is not convenient either to divide it or erect more, one end of it may be kept cooler and drier than the other; those kinds growing, and from the hotter climates, should be placed in the warmest part of the house.

The form of the houses is not, in my opinion, of much consequence, provided they are not lofty, as very few of the Orchis tribe attain a great height; they are much better placed near the glass. If the house be 10 feet high inside it will be sufficient for all useful purposes. I consider Mr. Rucker's Orchidaceous house a very good one, a plan of which appeared at p. 908, 1843. The large one at Chatsworth is also a very useful house, as well as a very ornamental one. Mr. Clowes's house shows the plants off to great advantage. The houses at the Fence, on account of their variety of form and arrangement, may be studied with advantage by beginners, as also that of Mr. Barker, at Birmingham. The low house (almost a pit) with a walk in the centre, at Knypersly, is exceedingly well adapted for a growing house; the other there, which is more lofty, being suitable for large plants, and for plants in flower and at rest.

Heat.—The best known, and I may venture to say the most eligible mode of heating houses for Orchidaceæ, is by hot-water pipes, and if the latter are cast with troughs upon them that will hold water for evaporation, so as to be conveniently and readily kept full during the growing season, so much the better. Whether the tank system to supply both atmospheric heat and moisture to the air would answer, has not, that I am aware of, been tried to any extent for Orchidaceæ. If properly constructed I have no doubt it would succeed.

NATURAL HISTORY.

The Toad (*Rana Bufo*).—It is always with feelings of regret that I witness persons, especially those who have had the advantages of a liberal education, shrinking from an insect with expressions of horror and disgust; but it never can be otherwise whilst the fair sex are encouraged to cherish such prejudices from their infancy; for since the earliest impressions are the most permanent, and we receive them principally from our mothers and nurses, there is no chance of our becoming more enlightened or rational concerning such matters, until Natural History is made a standard part of education in our childhood, as well as in our schools. Why that has not been already done is surprising, since a more instructive or interesting branch of study cannot be found; for its value is beyond price, either as a rational source of amusement, or as a means of expanding and elevating the mind, and giving it a right direction. The neglecting to foster a taste for admiring and studying the beautiful works of creation, not unfrequently leads to a love of useless, if not of worse pursuits; and the encouragement of vulgar prejudices generally tends to absolute cruelty. Nothing saves the spider or fly from the child's violence but its fears, and when more advanced in life, the same passions are exhibited by the cruel persecution of larger animals, and even of his fellow man. With a view of dissipating such absurd and unjust antipathies, I purpose to sketch the histories of a few of the reptile race, hoping that it may be the means of creating a better feeling towards some of these unfortunate animals, which are not only inoffensive but of the greatest service to us in preserving our fruit and flowers from the inroads of noxious insects.

Let us consider the hapless toad, "the most deformed and hideous of all animals," as it has been called; and what is worse, a butt for every idle urchin and barbarian to aim at. Whence arises this persecution, but in ignorance? Even its venomous nature seems to be quite unfounded; for though the glands on the back secrete an acrid and milk-white humour, there is no evidence of its being poisonous; and the limpid water it discharges when alarmed is said to be by no means deleterious; both these are, in all probability, only engines of defence against its natural enemies; and it must be remembered that a cat will scratch, and a dog or parrot will bite, on a very slight provocation. I do not attempt to deny that the toad is by no means prepossessing; it is heavy and lazy in its gait, with a bloated body and carbuncled skin; but look at its beautiful eye, which may vie with the hawk or the roach; and the melancholy expression which pervades it makes one forget its less agreeable characteristics. Then when its valuable services in the greenhouse and hothouse are made known, instead of being kicked out of the garden, it is to be hoped that it will be considered deserving of a snug corner in the conservatory, where it may be petted like any other domesticated animal, and its curious habits may be observed at leisure.

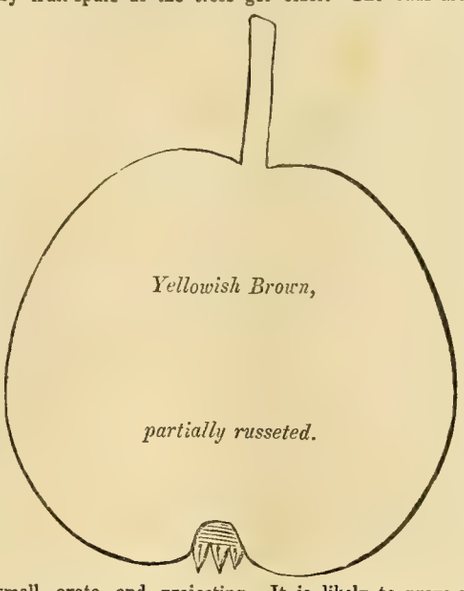


Their usefulness under a frame and amongst choice hothouse plants can scarcely be too highly estimated; for it is a well-established fact that toads live almost entirely upon small worms and insects; and they will keep Melon-frames quite free from ants, beetles, and woodlice, which they devour by thousands. A single toad will despatch 20 or more of the latter pests in two or three minutes. Blue-bottles and flesh-flies are also greatly to their taste; they will likewise attack wasps and a variety of bees, as the Calioxys conica, and Bombus terrestris; and if they do occasionally pounce upon a hive-bee, of which they are accused, it is a venial offence, which must not be weighed in the balance. It has been stated that toads will eat slugs; but it is probably only when their favourite food is exhausted. I also find that they are said to eat the Anthemis cotula, Actæa, Stachys, and other fetid plants; but this is possibly a mistake. Stewart says—"The toad is fond of woody, shady, and obscure situations; in summer, of stagnant waters; in winter, of slimy and muddy places, often digging and living under ground. It is very tenacious of life, and several accounts have been recorded, in different countries, of its being found inclosed in stones and trunks of trees, without any visible communication with the atmosphere. It is preyed upon by hawks, owls, and herons, and even by hedgehogs. It is killed by laying snuff on its back." It couples in stagnant water in the spring, and the female is several days producing her eggs, which like those of the frog, are enveloped in a mass of jelly; but they are disposed in two distinct lines, sometimes extending to 20 or 30 feet in length. The young tadpoles which are hatched from them are smaller and darker than those of the frog; they live in the water until the autumn, when they attain their legs and become terrestrial. The toad has only four toes on the fore feet, and five on the hinder, which are not webbed as in the frog; but there is a small membrane at the base. It has no teeth, and either swallows its food alive, or kills it first by compression. It catches insects with its viscid agile tongue, with a rapidity that the eye can scarcely follow; it has also been known to attempt to swallow a viper.* The Toad casts its skin as snakes and caterpillars do; but it pulls off its old coat, which splits down the back and belly when it is too small, with the assistance of the arms and mouth, and then, Professor Bell says, it disposes of its skin by rolling it up in a ball and swallowing it.—*Ruricola.*

MARCH BERGAMOT PEAR.

The variety here represented was raised by the late Thomas Andrew Knight, Esq., at Downton Castle, in Herefordshire, where it fruited for the first time in 1833. It is described in the Transactions of the Horticultural Society, 2d Series, vol. ii. p. 62; and cuttings have of late been distributed from the Garden of the Society to Fellows making application. Its origin and promulgation are, however, too recent to admit of its fruit being much known. Its qualities are such as to render it highly deserving of being included amongst a selection of first-rate late Pears.

The fruit resembles the Autumn Bergamot in form and size. The flesh is yellowish-white, buttery, a little gritty near the core, but with this exception, very rich and excellent. Its name indicates its general season of ripening; but, as Mr. Knight observed, it will even keep later than March. The tree, like many others raised by the same indefatigable horticulturist, is very hardy. The shoots are moderately vigorous, clear, approaching to a chesnut colour, and as yet occasionally thorny; but thorns are frequently seen on recent seedlings, from which they disappear, and their place becomes occupied by fruit-spurs as the trees get older. The buds are



small, ovate, and projecting. It is likely to prove a good bearer as a standard; and keeping so late, it is worthy of a place against a wall, especially in situations where, even with this advantage, tender varieties cannot be successfully cultivated."—*R. T.*

* Bell's British Reptiles.

Home Correspondence.

Cinerarias.—In order to insure fine plants of these, the very first step of the cultivator should be to cut all the bloom off his specimens directly they are past their prime. This done, remove the surface mould in the pots, replace it with a little light soil, and remove the plants into an open shady spot. There let them remain until they have thrown out fresh healthy shoots from the bottom. When this is the case, break the old stools up, and pot off the best pieces into small 60-sized pots, and place them in a cool frame, shifting them into larger pots as they require it. Give them the shift into the blooming-pots in November, and place them in the greenhouse. The soil most suitable for them is a mixture of mellow friable loam, old cow-dung, and fibrous peat in equal parts, with the addition of a portion of sharp silver sand; this compost should be unsifted, and the pots well drained. Water with judgment; freely, without soddening. The Cineraria being particularly subject to green-fly, it is essential to the production of well-grown and healthy specimens, to rid the plants of these pests. Fumigate, therefore, whenever a greenfly makes its appearance. When, in January, the flower-buds appear, pinch them out until the plants have become bushy. If any of the shoots flag, and if this cannot be accounted for by the action of the sun after cloudy weather, or from want of water, examine the roots near the surface carefully, as this plant is subject to the attacks of an insect similar to that which infests the roots of the Lettuce, Dandelion, &c. Should its presence be detected, try experiments for its destruction, and communicate the results.—*E.*

Imagination.—Under this head, at p. 54, a "Reader" criticises the remarks made by me at p. 21, where I stated that the earth-worm industriously casts and clears out its holes on the approach of frost, and observed that this is a sure sign of rough weather. In reply I would say that the observations there made are not the work of imagination, but the result of long and careful attention to the habits of this animal.—*J. B. B.*

The Highland Pine.—I have been delighted in reading (p. 36) Mr. Forsyth's graphic description of the Highland Pine (Pinus sylvestris, var. horizontalis), a tree which, as he observes, bids fair to take possession of much of the waste moorland throughout England and Wales. It has for several years been a matter of surprise to me that this tree has not been sooner adopted in all cases where poor soils in exposed situations have to be planted; for though only a variety of the P. sylvestris, it is, as Loudon observes, "of much more importance in this case than a species, it being well known and acknowledged to produce timber of a superior quality to the common kind." Mr. Forsyth states that the rooks in Scotland distribute the seeds of this tree by stealing away the cones to some lonely place, and leaving them, with any seeds that may remain in them, to be pressed down close to the ground by the first fall of snow; and thus he accounts for the rise of natural forests. It is rather more probable, I think, that the cones remaining on the trees expand with the heat of the sun in spring time, when the seeds fall out, and being winged, are thus carried away to considerable distances by the wind, and ultimately fixed on the surface of the ground. For clefts of rocks, and other inaccessible places, which cannot be reached with the planting iron, Mr. F.'s plan of making up pellets containing seeds is admirably adapted: in such situations this tree is, of all others, the most appropriate, and every effort should be made to try and fix it in those sites. In sheltered places, or where game is plentiful, I have always found large plants preferable; but on exposed places, low stocky plants are better than those of larger growth, and so far my experience coincides with that of Mr. F.—*An Arborist.*

Hares and Rabbits.—In p. 53, Messrs. S. and J. Dillistone give a receipt for keeping hares and rabbits from Apples, &c., by sticking brimstone matches round them. Would not a simpler plan be to brush over coarsely the stems of the trees with brimstone and oil? One man would do over an immense number in a day with a large brush, and it would not, I imagine, hurt the trees.—*W. D. F.*

Barringtonia speciosa.—Mr. Dodds very justly observes that this truly noble plant is one of easy growth; but it is only so when supplied with great heat and moisture; if it lacks this when in a growing state, no plant with which I am acquainted suffers so much. I have seen the plant in some few collections, but it is by no means common, and it is still more rarely to be met with in good health, which I am fully convinced arises from an insufficiency of heat and moisture. When the plant is in a growing state, the temperature in which it is placed should never be under 60°, for if it is so but for a short time the plant will be injured thereby. The specimen from which Mr. Dodds's plant was struck was in the possession of the late Sir E. Poore, Bart. Three years before Mr. Dodds received his plant, the parent was growing in the border of a stove conservatory, and was then about 18 inches high: as the winter approached, it began to show signs of ill-health; we then took it up and potted it, and it remained in a dormant state until the spring, when it was placed in a Pine-pit, and made an excellent shoot; but on the approach of winter, it again showed signs of ill health, and the extreme end of the shoot died away. In the spring, it was again potted, and cut down to the surface of the soil; it then grew vigorously, and from this growth three plants were struck, one of which was sent to Col. Baker, and was, I presume, the plant Mr. Dodds names as having been in his possession about 13 years. We may now hope to see this "the most noble plant in nature"—for so I believe it is said to be Rees's Encyclopædia—more common, and not unfrequently placed on the tables of the London Shows in full flower. The foliage is exceedingly handsome when the plant is vigorous and in good health. It has often struck me that the treatment given to the Erythrina crista-galli would suit this plant.—*H. C. Ogle, Gardener to the Earl of Abergavenny, Eridge Castle.*

The Calendar.—Your correspondent "Norlander," who complains that he is "astonished" at a former Calendar of mine, in which I stated that I preferred (in the case of early forced Grapes) having the roots inside the house, if possible, offers, in confutation of inside planting—what? facts? no, his opinion. He assumes that because Vines are planted inside the house that the roots must be "half roasted amongst flues." Although "Norlander's" house may possibly be badly planned in this respect, that is no reason why he should throw discredit on the principle of having both root and top under perfect control. If houses are properly constructed, and with special reference to the production of early Grapes, there is no real necessity for bringing the roots in contact with scorching flues. Again, is "Norlander" serious, or do I misunderstand him when he urges the superiority of outside planting, in regard to the admission of light to the roots? This is to me quite a new idea, which has undoubtedly originated with "Norlander." He next attacks a bottom-heat of 70°. Now, supposing that the whole of the roots could be made to reach this pitch, which is not very easily done—heat being so partial to rising in preference to sinking—I am not well assured that it would be prejudicial, provided the atmospheric temperature ranged from 65° to 75°; aye, and in cases of sunshine, to 90°. However, I did not intend that the volume of the border should be sustained at a temperature of 70°, nor could this be reasonably expected. What does "Norlander" think of Pines having an atmosphere averaging 70°, and a bottom-heat of 85°? If, in conclusion, the Calendar shall be attacked, let it be by facts, and not by mere opinions, for of such there is great diversity—their name is legion. —*D.*

Small Birds.—There has been a long discussion in the *Chronicle*, whether birds do more harm or good; and it is very natural that each individual should express himself according to the supposed benefit or injury received. None of your correspondents ought to infer that because horticulturists destroy birds, that they do so from sheer cruelty; this is a most unwarrantable assumption. Those who deprive them of life, do so, it may be presumed, not from a cruel impulse, but on the principle of self-preservation being the first law of nature, or (in other words) on the grounds whether birds are to consume those commodities which they want for their own use, and all of which (in case they are market gardeners) they would wish to dispose of, in order that they might carry on that trade in which they are embarked. Would any man say that it is inhuman to poison rats, because it is known that they eat mice? or to poison weasels, because they in their turn destroy rats? Yet, man wages war on them all, though they certainly do some sort of good by preying on each other. And what do birds eat and destroy beside insects? They will clear off your whole stock of fruit, unless you provide yourself with nets, copper caps, gunpowder, and dust-shot. As I am on this subject, I will give a remedy for preventing birds from picking out, in the winter, all the buds of Goose-

berries and Currants, as I have tried the effects of it for several years with the greatest success. I carefully save all the haulm of my sweet Peas (of which I annually sow a very large quantity), and store it up till I find the birds begin to make their attacks on the bushes; I then, by strewing this haulm very thickly over the Gooseberries, make the twigs so matted together and so intricate that birds cannot hop from one spray to another to commit their depredations. The thorns of the Gooseberry bushes take hold of the haulm and prevent the wind from blowing it off. The haulm of any Pea would do, but that of the sweet Pea is much the toughest. This remedy does not succeed so well with Currants, as they are devoid of thorns; and, therefore, I draw the extremities of all the shoots into a focus, with one or two hay-bands; this method protects the inside of the trees from being deprived of their buds, as the birds have not room to get at them; and I leave those that are outwards to take their chance, being assured that I have effectually secured the major part. I now come to answer a few observations made by your correspondent from Stowmarket. He says I might have saved my Peas, "if I had put up my grandfather's cocked hat, wig, and coat upon a broom-stick." I certainly put up a hat and coat on a stick, but without the slightest effect in frightening my enemies. They assuredly were not my grandfather's, and correspondents should not descend to personal allusions and sarcasms. The object was, no doubt, to create a laugh, but we all know that *Risu inepto nihil ineptius.* Persons may discuss points without interlarding them with uncivil remarks. But to proceed: Mr. Bree says I was imprudent in breaking up my Grass land, and sticking up sticks to my Peas for the birds to perch on. Highly imprudent indeed! but it so happened that I sowed dwarf Peas in the very same close in which my tall varieties were destroyed; the former lay on the ground devoid of sticks, and shared the same fate with the latter. I have lived for years in an uninclosed parish, devoid of trees to harbour birds, and yet I have seen sparrows fly up by the score from the Pea-fields. No sticks to perch on there. Perhaps I shall be told that these birds were innocently occupied in clearing the crop from insects, and not helping to injure the farmers in their present agricultural distress. Birds, in the longest summer days, commence their system of plunder about 3 o'clock in the morning, or at least three hours before my gardener begins his work, and by the time he has made his appearance, they have had their breakfast, and are almost ready for their luncheon. Perhaps birds are more honest and less destructive at Stowmarket than in Oxfordshire; and naturalists inform us that lions and tigers are not so ferocious in some climates of the world as they are in others. Certain principle the Suffolk and Oxfordshire birds may most materially vary in their nature.—*Furibus Hostis.*

Small Birds.—I cannot think that "Furibus Hostis" has settled the much-disputed question of the comparative utility or destructiveness of small birds quite so conclusively as he seems to imagine. He is in a perfect rage with them, and nothing but their utter extermination will appear to satisfy him; though, after all, the poor birds seem to be less in fault than himself. Doubtless, if allowed to have all their own way, they will be sufficiently destructive; but they are not, on that account, to be condemned as thieves, seeing that an all-bountiful Creator has given to them, as well as to man, the fruits of the earth for their sustenance. But this argument your correspondent seeks to evade, by alleging that most of our garden productions are exotics, and are not the natural food of the birds. This reminds me of the fable of the wolf and the lamb. But surely your correspondent has forgotten that many of our birds are migratory, and spend part of their time in those countries of which our exotics are natives, and are therefore the natural food of the birds. Though only a suburban gardener, I am not without my trouble from birds, especially from the house-sparrows, which frequent the suburbs in great numbers, and are, at various seasons, and in many ways, exceedingly troublesome. In the first week in this year I found that either the sparrows or the tits were attacking my Currant-bushes, and were rapidly disbudding them; and if I had followed the example of "Furibus Hostis," and left them to have their own way, doubtless Currants would have been as scarce with me in the ensuing season as Peas were last year with your correspondent. But I immediately set about finding a preventive, and having obtained a quantity of worsted yarn of gay colours, I ornamented my Currant-bushes with it, and I do not think they have since lost a bud. If that plan had not succeeded I would have tried some other, and would not quietly have allowed the birds to have the mastery, and then have denounced them as a pack of thieves. I cannot help thinking that with the exercise of a little ingenuity, our gardens may be preserved from any material injury by birds, without either shooting or poisoning them. In fact, few suburban gardeners can, with any safety or propriety, resort to either of the last-named plans, nor if they could, would they be able sensibly to diminish the number of their foes, or, as I consider them, friends; for I cordially agree with Mr. Kidd, that small birds do infinitely more good than harm; and I would venture gently to remonstrate with that gentleman, who seems to be an enthusiastic admirer of birds, against his furnishing their declared enemies with information as to the best modes of effecting their destruction—that destruction which he at the same time so earnestly deprecates.—*J. N.*

Heating.—In consequence of "Dodman's inquiry, (p. 70,) I will now add to my previous statement of the cost of a tin tank (p. 5), that the bill for the boiler, two 6-inch pipes 9 feet long, and other matters, amounts to 6*l.*, making the whole cost of boiler, tank, and pipes for atmospheric heat (and including everything except the wooden frame on which the tank rests,) just 11*l.* My house is only 12 feet long, but the boiler is large enough to heat one three or four times that size. It is a cylindric one. The outside diameter is 16 inches, inside do. (the cavity for fuel), 10½ inches, height 2 feet 6 inches, and it stands on a cast-iron pedestal one foot from the ground. A tank has been made in this neighbourhood, of sheet-iron, and I believe will cost less than mine, and if carefully painted will doubtless last longer. The boiler itself, without chimney, cost 3*l.* 15*s.*—*C. J. D., Bolton.*

Blue Tit.—However pugnacious the robin may be, he seems to fear the blue tit. One of each frequents my breakfast-room window, where I give them crumbs and bacon. This morning the tit has driven off the robin several times, nor will the latter stay to contest the point. Once the tit flew down from a distant tree with such force as to dash against the pane, striking the robin as he passed; but when a sparrow alighted on the window-sill, the tit retreated. Can these birds be pairing already? On the 31st Jan., I saw several blue and great tits busy among the dung on the road (the ground being covered with snow), but seemingly always in pairs. A few days ago, I noticed the sparrows fighting in a general *melée*, as they often do in spring.—*O.*

Galvanic Protectors.—In reply to your correspondent, I beg to explain that the reason why galvanic protectors are not in general use is, that gardeners are too idle or indolent to bestow the least care upon them. Long exposure to weather makes the metal of a dull and dirty appearance—it becoming oxidated by the action of the atmosphere. Now, all that is required is to rub the protector bright and clean, with a little brick dust, at the time of using it in spring (it occupies no more time than the washing out of a flower-pot). It will then afford an absolute protection from slugs for many weeks or months,—for a period, indeed, much longer than is required for the safety of the growing seeds, young plants, or flowers in bloom. I have used the galvanic plates for four years, to protect my bed of seedling Ranunculuses and Polyanthuses in bloom; the success is complete. And yet so valuable an invention is to be allowed to sink into disuse and disrepute, because men will not take the little trouble of cleaning about once a year, when putting it into use!—*F. R. Horner, M.D.*

Gardeners' Benevolent Institution.—With regard to the payment of pensioners, "Mr. T. Moore" states (p. 69), that he has been informed they have to wait six months after their election before they receive their money, and that the rules say that they are to receive this within a month after they have been admitted. The rules are, however, silent on the subject. The fact is, pensioners are paid on the first Tuesday after Quarter-Day, and recently elected pensioners from the time of their election, be that when it may. Again, with regard to a three years' subscriber having a preference to others, I beg to mention that the rules of the Institution declare that no person shall have preference, unless he has subscribed during a period of five years: therefore the committee have no power to put any person in any other position than that of a non-subscriber, unless such person has subscribed during the time above specified. If gardeners would come forward with their aid, they would see for themselves how affairs are conducted, and by this means the Institution would be placed in a better position to raise the pensions than it has hitherto been, the smallness of these being much complained of.—*A Subscriber.*——The object of Mr. Moore's letter is not very apparent. He takes upon himself to point out faults and errors in the management of a charitable Institution, with the laws, rules, object, and scope of which he is professedly ignorant; and he has published supposed faults, which exist only in his own imagination. Let us see what he has been told. First, that the pensions are too small, and that this is a reason why gardeners should not or do not join it. If gardeners think them too small, let them come forward and augment the funds; it might be more pleasant for a pensioner to receive 60*l.* than 16*l.*; but the person who finds 16*l.* too little will be much worse off without any. Neither are the most destitute the most eligible: however destitute a candidate for a pension, he must produce testimonials of good conduct before he can be admitted on the list. Mr. T. Moore's second objection is wholly groundless; for on the 22d Jan. last a gardener, W. Edwards, was admitted without election, as a pensioner of 16*l.* yearly, he having subscribed for five years. Whether the above easy mode of obtaining a pension will be continued is for the consideration of the subscribers. In the supposed case of a fifteen years' or a five years' subscriber, the first would be admitted without election, as of right. The above includes Mr. Moore's last objection. It is not the object, or within the means of this Institution, to grant immediate and unlimited relief to all destitute persons who may be in want of it; for a Society yet in its infancy it has done a great deal: it has, or will have in June next, 20 pensioners on its funds at an expense of 300*l.* yearly, besides having funded 1200*l.* or 1400*l.*, to secure payment of those pensions: it must, consequently, I conceive, be entitled to the support of all right-minded gardeners.—*Another Subscriber.*

Societies.

LINNEAN SOCIETY.

Feb. 4.—R. Brown, Esq., in the chair. Mr. G. R. Gray was elected a Fellow. Three vacancies existing in the list of Foreign Fellows, MM. Amici, Des Hayes, and Ledebour, were proposed to fill the place. A paper was read by G. Doubleday, Esq., on the Nervures of the Wings of Insects, as affording diagnostic characters. The author stated that he had found, in examining and arranging the extensive collection of the Lepidoptera at the British Museum, that the arrangement of the nervures of the wings was more to be relied on for distinguishing genera and families than characters derived from the antennæ and palpi. In the wings of all insects there is a double arrangement of the air-vessels—three sets below and three sets above. In some families he pointed these out in their normal condition. In others they became hypertrophied and atrophied according to circumstances, and thus furnished the valuable character to which he alluded. The author stated that his views had the entire concurrence of Mr. Newport. A Paper was read from A. Henfrey, Esq., on the cause of the first motion of the sap in spring. It had been attributed to endosmose, capillary attraction, and the opening of the buds. The objection to the two first causes was, that there was no more reason why the sap should rise in spring than at any other time of the year. The third could not be the cause, as at the time the sap began to move, the buds were not expanded, but covered over with their hybernacula. The author believed it was a chemical action going on in the bud through the absorption of moisture from the atmosphere, and the action of increased heat. The starch in the bud became converted into dextrine and sugar, and this action going on, the fluid in the bud became more dense, endosmose, then came into action, and effected the movement of the sap.

Reviews.

The Pursuit of Knowledge under Difficulties.
Vol I. 12mo. Knight.

To no class can a book, with this title, have more attraction than to gardeners, who, of all men in their station, have the greatest need of knowledge, and the smallest means of acquiring it. We therefore hope that the present treatise, one of Mr. Knight's weekly volumes, and a work of whose literary merit we can hardly say too much, will find its way very generally among them. Gardeners complain, and justly, of the inadequate means with which they have to work out the important objects of their lives. They complain that although they are expected to possess a more than common education, their wages are not better than are given to a day labourer. Let them read this book. Let them study the lives of the most brilliant men who have adorned the fields of science or of letters. They will then learn that knowledge is not denied to the most humble; that success in life has often been in direct proportion to the struggles to be encountered; and that it would almost seem as if ease and competence were far more dangerous obstacles in the road to eminence, than poverty and long suffering.

The author puts this in a very striking point of view.

"Furnished as society now is, in all its departments, with accommodations in aid of intellectual exertion, such as, in some respects, even the highest station and the greatest wealth in former times could not command, it may be safely asserted, that hardly any unassisted student can have at present difficulties to encounter, equal to those which have been a thousand times already triumphantly overcome by others. Above all, books, and especially elementary books, have, in our day, been multiplied to an extent that puts them within the reach almost of the poorest student; and books, after all, are at least to the more mature understanding, and in regard to such subjects as they are fitted to explain, the best teachers. He who can read, and is possessed of a good elementary treatise on the science he wishes to learn, hardly, in truth, needs a master. With only this assistance, and sometimes with hardly this, some of the greatest scholars and philosophers that ever appeared have formed themselves, as the following pages will show. And let him who, smitten by the love of knowledge, may yet conceive himself to be on any account unfortunately circumstanced for the business of mental cultivation, bethink him how often the eager student has made his way through a host of impediments, much more formidable in all probability than any by which he is surrounded. Want of leisure, want of instructors, want of books, poverty, ill health, imprisonment, uncongenial or distracting occupations, the force of opposing example, the discouragement of friends or relations, the depressing consideration that the better part of life was already spent and gone,—these have all, separately or in various combinations, exerted their influence either to check the pursuit of knowledge, or to prevent the very desire of it from springing up. But they exerted this influence in vain. Here then is enough both of encouragement and of direction for all. To the illustrious vanquishers of fortune, whose triumphs we are about to record, we would point as guides for all who, similarly circumstanced, may aspire to follow in the same honourable path. Their lives are lessons that cannot be read without profit; nor are they lessons for the perusal of one class of society only. All, even those who are seemingly the most happily situated for the cultivation of their minds, may derive a stimulus from such anecdotes. No situation, in truth, is altogether without its unfavourable influences. If there be no poverty to crush, there may be wealth and ease to relax, the spirit. He who is left to educate himself in everything, may have many difficulties to struggle with; but he who is saved every struggle is perhaps still more unfortunate. If one mind be in danger of starving for want of books, another may be surfeited by too many. If, again, a laborious occupation leave to some but little time for study, there are temptations, it should be remembered, attend-

ant upon rank and affluence, which are to the full as hard to escape from as any occupation."

Heyne, one of the greatest of classical scholars, was the son of a weaver, steeped to the lips in hopeless poverty. Haüy the great crystallographer had a similar origin; Duval the celebrated antiquary was a cowherd, Haydn the composer's father was a wheelwright, Opie's a working carpenter, and Linnæus was a shoemaker's apprentice.

The late Mr. Loudon had at one time a fixed belief that any man might become anything, even a king, if he willed it. An idea in its application absurd, but in itself containing much truth. There can be no doubt that what we become depends more upon ourselves than on our origin.

The Pictorial Museum of Animated Nature, Vol. II.; Birds, Reptiles, Mollusks, Insects. 4to. Knight.

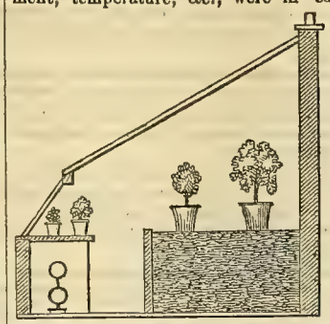
Mr. Knight's vast magazine of wood-cuts has enabled him to produce, at an insignificant price, a quarto volume of 432 pages, containing more than 2000 figures drawn with care, arranged in their classes, and explained by a connected letter-press. The matter is, we believe, taken from the pages of the Penny Cyclopædia, and this fact alone guarantees its general excellence. In the present volume, however, there is this advantage over the original work, that the whole of the illustrations relating to each class of animals are brought into one point of view, instead of being scattered through many volumes, and mixed up with matter that has no relation to them. We indeed regard this Museum as a most useful Natural History Index of the Cyclopædia itself. To young persons, and those who cannot possess the original work, it is invaluable, and should find a place in every school library in the United Kingdom, for it is impossible to teach Natural History without plates; and where will such a collection of such plates be found as is presented by the Museum of Animated Nature?

NEW PLANTS.

Ceradia furcata. Ichaboe Coral-bush. Compositæ. Syngenesia necessaria (*Greenhouse Shrub*).—In the garden of his Grace the Duke of Devonshire, at Chatsworth, there is, or was a few months since, a very singular plant having the appearance of a shrub of coral, leafless, spreading its short leather-coated branches upwards like a candelabra, and decorated with broad vivid patches of the scarlet Lichen called Dufourea flammea. It had been received from the west coast of Africa, and indicated a dry and sterile climate. Early in December last I received from Dr. Maclagan, of Edinburgh, a dead branch of the same plant, with its skin overrun with a small crustaceous Lichen; it had been brought from Ichaboe by the wife of a ship's captain, who went to the island (in search, I presume, of guano) and who reported that it yielded Olibanum, a fragrant gum-resin burned as frankincense. The branches, in fact, had transparent tears of a slightly bitter tender gum-resin sticking to their wounds, but the resin when burned was totally destitute of fragrance, and evidently had nothing to do with any of the drugs to which the name of Olibanum has been applied. The total absence of foliage, and the singular aspect of the branches, rendered it impossible even to guess what manner of plant this curious production might be. But the other day it appeared at a meeting of the Horticultural Society in leaf and flower, from Messrs. Rollissons the eminent nurserymen of Tooting. It then proved to be a plant of the composite order, and nearly related to those fleshy-stemmed shrubs from the Cape of Good Hope, which were formerly called Cacalias, but are now referred to the genus Kleinia. At the summit of the rugged branches grows a cluster of spathulate bright green veinless somewhat succulent leaves, and from their axils a few solitary flower-heads of a pale yellow colour, placed on stalks scarcely so long as the leaves. It is not, however, a Kleinia, nor does it belong to any genus hitherto defined; but is a member of the division called by De Candolle Erechthiteæ. It differs from Faujasia in the want of a calyculus, and in its abundant pappus; from Eriothrix in its involucre not being leafy; from Stilpnogyne in all the achænia bearing pappus; from Erechthites in the achænia not being rostrate, in the pappus being rough, in the florets of the ray not being toothed, and in the branches of the style not being terminated by a cone; and finally, from Cremocephalum in the involucrum not being many-leaved and calyculate, the achænia not being ribbed, and the receptacle not being fringed and thickened at the base. It is possible, however, that some of the plants doubtfully referred by De Candolle to Kleinia may belong to the same genus, especially his K. acaulis and subradiata. It may be named Ceradia, in allusion to the horned appearance of its branches, and thus defined.—*Botanical Register.*

Garden Memoranda.

Brooklands, Blackheath, Kent.—This is one of those delightful suburban villas which evince so strikingly the refined taste of the wealthy merchants of this great metropolis. It lies contiguous to Blackheath Park, and is the residence of James Cook, Esq. The house, an Italian structure, commands a pretty, extensive, and varied prospect; the grounds themselves are striking, being intersected by a stream of pure water which assumes the magnitude of a lake, and affords considerable scope for the exercise of good taste in the decorative style of gardening. Great improvements have lately been accomplished at this place, and many other alterations are now in progress; and when we say that these are under the direction of Mr. Ayres, the gardener, whose name has so frequently appeared in this Journal, it will be some guarantee that they are something more than mere alterations. A span-roofed greenhouse, most excellently contrived for the growth of plants, was erected about a year ago, and is now filled with a miscellaneous collection of beautiful plants in capital health. Indeed, this may be said of all the plants both in the greenhouses and stoves, and also of those in pits, all of which are heated with hot water in the most effectual manner. We particularly noticed Begonia incarnata and Gesnera zebrina in fine bloom. Mr. Ayres considers these valuable not only for decorating stoves in winter, but especially so, as affording cut flowers for bouquets. The Begonia was about 4 feet in height, and literally covered with bloom from the stand upwards. There were, also, other plants deserving of notice — several most remarkable; among which may be mentioned specimens of the double-flowering purple and white Primula sinensis. At no season of the year have we ever witnessed such perfect specimens; and with the kind permission of his employer, Mr. Ayres intends exhibiting them at the next meeting of the Horticultural Society in Regent-street. An experiment has here been tried, and very faithfully, with a pit of Pines during last year; one-half of the plants were planted in prepared Pine soil, of a loamy nature, and the other half in pure peat. The management, temperature, &c., were in each case precisely identical. Those in the loam look as well as Pine plants need look; whereas those in the peat-soil are a complete failure. There are several new hothouses now being erected, and while we were on the spot one of Burbidge and Healy's Boilers was being set, to which were about to be attached galvanised pipes, as an experiment. Mr. Ayres has had the front sashes of these houses placed obliquely, in order to render them more valuable, because more light can thus be admitted to the plants in winter. A great deal of ground-work is now in progress in various parts of the pleasure-gardens; but it would be premature to offer an opinion on this, while the work is in progress. There is, however, one subject we cannot help recording, and one, in our estimation, which renders this residence and these gardens of more than usual interest, and that is the benevolent feeling shown by Mr. Cook for those dependent upon him. His head gardener, as well as the under gardeners, are alike in their stations supplied with comfortable dwellings—in fact, models in themselves, presenting a striking contrast to the miserable hovels (for houses they cannot be styled), in which too many of this class, who contribute so largely to the luxuries of the higher orders are herded. Mr. Cook also shows great solicitude for the improvement of the under gardeners; for, in order that they may appear respectably clothed, and have means at their disposal of procuring for themselves publications for their professional and intellectual advancement, he pays them higher wages than is usually paid in the vicinity of London; such an example surely deserves to be recorded; and we would entreat others to go and do likewise.—*R. G.*



Miscellaneous.

Luminous Breath.—Dr. Watson mentions a singular occurrence, which took place in the West Derby poorhouse, near Liverpool. A man, about 47 years of age, a drunkard, was admitted into the house, labouring under hæmorrhage from the bowels, with cough and expectoration. A short time, about 20 minutes, before death, the attendant nurses observed a red-hot coal-like streak on the mouth, playing on the right cheek and upper lip, and continuing till death took place. The flame was persistent with the breath of expiration, and not at all lambent. This extraordinary circumstance was not reported for a day or two, as the nurse looked upon it as a proof of Divine vengeance, and consequently the body was not examined.—*Medical Times.*

Bees.

Straw Hives.—A well made tight straw hive is impervious to air, but is capable of absorbing moisture, which in a small degree is generated in the hive, and of getting rid of it by evaporation. I have also in fine warm weather observed moisture at the entrance. If a hive or box is ventilated, or if a free current of air is admitted through it, the higher the internal temperature rises (either from a greater number of bees, greater activity, or increase of external solar heat immediately in front of the hive), the greater is the draught, from the constant tendency this light hot air has to ascend. In winter bees evidently require a uniform degree of heat, which they instinctively endeavour to secure by skilfully closing every crevice in their house, and by fixing the latter securely to the bottom board. The heat in the breeding season probably increases, and by this means the eggs are hatched, and the young bees brought to maturity. Any possible draught therefore in the stock hive is exceedingly injurious, for the above reason; besides, damp air might often be admitted, which destroys the comb, and, of course, the hive. The habit of bees distinctly shows their aversion to any current of air in boxes or glasses. I find that they work well without ventilation, and there is no possible utility in the system, excepting with a view to prevent the queen from performing her offices in the boxes, which she will never do if the stock hive is in every respect as it ought to be. The latter end of March or early in April is the time to select a good stock for placing in a straw case, the only top to which, besides a piece of canvas being tied over the opening, to keep out wasps, moths, or spiders, should be a light moveable span-shaped wooden roof. The front, back, and ends of the case may be sized and painted, as may be also the canvas, in order to protect it from the weather. This, as must be obvious, can have nothing to do with the stock inside, or with the vapour escaping from the hive. The bees work in my glasses on boxes exceedingly well, and never leave them until they are filled. Moths being a great nuisance, "W." justly asks, "How can we keep them out of hives?" A plan for this purpose lately occurred to me, which I shall try. It is this:—At the entrances I intend to hang a piece of woollen cloth, 2 or 3 inches square, or, perhaps, 6 inches square would be better, allowing it to descend to within $\frac{1}{8}$ of an inch of the bottom board, so that, although it should touch the backs of the bees, it will not be an impediment to them in passing out and in under it. White or gray cloth will be best, and it should hang secure from the top edge. I imagine that this will not only keep moths out, but that they will be so enticed by the cloth as not to attempt getting into the hive. "W." must be aware that brood cells gradually become smaller, from the accumulation on the sides of the skins of the larvæ. If the comb is at first constructed of the proper dimensions, a continual decrease from that size proves the necessity of occasionally, say once in four or five years, removing two or three brood combs, which are soon restored. The best time for the operation is when the comb is known to be unoccupied by eggs or larvæ. "W.'s" remarks upon the food of bees are good; but as regards the number of stocks of which any place is capable of supporting, I think hundreds may be kept where there are only tens. With regard to a prevention for tomtits, as red worsted will keep them and other birds from Gooseberry buds, &c., I imagine that the same, passed over hives several times, keeping it about 2 inches from the hive, will also effectually preserve bees from being plundered by them. —*G. L. Smartt, Enfield.*

Sholl's Bee-hives.—If the description of Prince Albert's bee-hives, which appeared last season in the public prints, is correct, it appears to me that there is too much metal about them, and ventilators are only in keeping with the fruitless attempts of others at such schemes. In the "barrel-hive two bars are fixed at the top of the pavilion, to which the inhabitants attach their combs." By this are we to understand that the pavilion is to contain only two combs? And what is the meaning of the following?—"It is readily ascertained which surplus apartment is occupied by the bees, as the admission plug from the pavilion will be found placed on the top of it." Let that signify what it may, the "new hive" in question is on the old and common plan of storifying; and if certain statements are true respecting the produce from other novel hives, the whole "barrel or castle" would require to be almost filled with honey "to produce a larger quantity of this than has hitherto been done."—*W.*

Bee-keeping.—Your Stamford correspondent (p. 55.), in estimating the profits of bee-keeping, greatly overstates the value of the produce. The average price of honey in the neighbourhood of Stamford, from whence he writes, is about 7*d.* a pound. I have myself bought excellent honey, run from the comb, at 4*d.*; the usual price, however, is about 8*d.* At the same page there is a notice respecting the cause of dark honey, on which I would observe, that your correspondent is possibly not aware that the black spots on the leaves of the Oak and Plum, to which he alludes, though undoubtedly in the first instance produced by honey-dew, acquire their dark hue from the growth of a fungus, which it is highly improbable that the bees should collect. Indeed, when once the moulds are developed to which the sable velvety appearance is due, there is but little sweetness left to attract their notice. The easiest way, however, of deciding the point would be, to examine a little of the honey under the microscope, and if the fungi are in fault, their spores, which are far larger than those of many of their kindred, would instantly be recognised. In the same paper again, a receipt is given for making mead, which would be a very good one, if five pounds of honey were allowed to the gallon of water, instead of two. A less proportion will not produce a really good wine.—*M. J. B.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

Orchidaceous plants which have begun to send forth roots in earnest must have new turf, &c. put round the latter, first removing all the old turf that can be taken away without injury to the roots. Keep such plants as are in a growing state at the warmest and lightest end of the house, and occasionally syringe them. It is not yet time for a general shifting of these. *Greenhouse.*—Fuchsias will now be beginning to move; do not be over-anxious to place them in stove-heat. Those grown in a greenhouse or pit will display their natural characters and colours better than such as are forced. Young rooted plants, and such as are yet to be struck, should be gradually exposed to a low temperature, with plenty of sunlight, in order that stability and robustness of disposition may be gradually acquired. In other departments continue the directions of former Calendars, and maintain the temperatures therein recommended.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The recent fall of snow having very much impeded the performance of all out-door operations, embrace the present oppor-

tunity for making drains, digging gravel, cutting labels, pegs, &c. Prepare soils, by getting them into sheds to dry and sweeten for spring use. When thaw comes, walks might be turned, and prepared for receiving a thin coat of gravel in spring. Continue to prune shrubs, but do not plant until the weather better suits the operation. *Pits and Frames.*—The rays of the sun being now more powerful, watering must be more carefully attended to; therefore see that nothing is suffering for want of it; in dull weather little or no water is required. Scarlet and other Pelargoniums that were removed from beds in autumn should now be placed in heat, in order to encourage them to bloom early. Continue potting off from store pots, and refill them immediately with cuttings of such plants as are most required for bedding out in summer.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—Finish top-dressing with compost recommended last week; delay it not, while the weather is fine. Remove early blooms; and if any plants look sickly, examine the roots; if from canker, apply the knife, and if from inefficient drainage, put more into the pots, if possible, without breaking the ball of soil. *Tulips* are very rapidly coming forward; shade carefully from severe frosts and cutting winds. Continue to watch for leaves that are cankered, and remove them as soon as perceived. *Ranunculuses.*—Sowing the seed ought not now to be delayed; follow the directions given last week. *Dahlias.*—Still put these in gentle bottom-heat, and as soon as the shoots are two inches long strike them in brisk heat. *Pansies.*—Top-dress the beds with decayed leaves and manure from the Melon-pits, reduced to a black unctuous compost; peg down or remove all straggling shoots, and place bran under tiles, as a decoy for snails, &c., which will now, on mild nights, begin to be troublesome.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—See that your swelling fruit has a little tepid manure-water when necessary; they will now begin to require it. Take care to maintain a steady bottom-heat, remembering at all times to make 85° your maximum. Commence the spring arrangements, and shifting, as soon as weather will permit. Do not, however, make it a maxim to shift the whole stock because February has arrived. Shift such as are pot-bound, and those which are suspected to be in a bad state of root. The final shift into fruiting pots, as a general rule, should take place from six to nine months previous to the time at which the fruit is required "to show." In potting, use a compost of chopped turf, from an old pasture of strong loam—the coarser and newer the better; to this may be added about an 8th part of pounded charcoal and bone-waste, and another 8th or so of half-decomposed dung and leaf-soil. Crock your pots in a very hollow manner, and cover the crocks with bone, and charcoal pounded, rejecting all the mere dust. On this place the ball of the plant; or, if there is depth enough, introduce a layer of weedy turf. If the balls are very dry, water with tepid manure-water about three days previous to potting, but do not water immediately after potting. *Vineries.*—Follow the directions given in last Calendar, always bearing in mind that if any advance in heat is made, it must be under increase of light. Persist in rubbing off all superfluous shoots, and in frequent stoppings; and finish thinning the berries where necessary. *Cherry-house.*—Follow up the directions given in last Calendar. *Fig-house.*—Continue to stop young shoots when five or six eyes in length; avoid drought, but do not use water to excess. Other conditions as last week. Keep up successions of *Strawberries*; water moderately until they are in blossom, when they must have liquid manure abundantly. Keep them near the light and air. *Peaches.*—Syringe those swelling, heavily, morning and evening.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The state of the weather has rendered it impossible to proceed with various operations recommended last week. These should now be forwarded in the order proposed. The stems of fruit trees, on which moss, or the habitations of insects are apparent, should be cleaned. For this purpose, brushes varying in stiffness according to the hardness of the bark, should be employed. Those made of brass or iron wire, will be found well adapted for scrubbing old crusted bark. The scale may be dislodged to a great extent by such means, and the bark freed from myriads of parasites, animal and vegetable, which prey upon its substance and render it unsound, and likewise unsightly. Moist weather facilitates the operation. Prepare clay for grafting, by mixing with it a portion of cow-dung and a little fine hay. If the blossom buds of Pear trees, on walls, appear too numerous, the value of the crop will be increased by now thinning off a number of the weakest. *Kitchen Garden.*—Whilst rains and frosts alternately keep the surface in a raw state, little can be done in the way of cropping. Advantage should be taken of frosty mornings, for getting manure conveyed to the respective quarters requiring it, unless the weather prove very severe. Cauliflower plants, in frames, should be fully exposed through the day, and not closely shut up at night.—*E.*

VI.—ARBORICULTURE.

Woods and Coppices.—Proceed with the operations recommended last week; endeavour to finish the planting of deciduous trees as speedily as possible. Secure all newly-planted large trees against the effects of high winds; the method of securing a newly-planted tree, shown by a section in last week's Paper, is a good one and very neat; but where the heads are heavy, it is a safer method to secure them with three stout poles fixed to the stem triangularly, and reaching 6 or 7 feet up the trunk; secure single trees against the depredations of cattle, &c. *Nursery.*—Procure Rose stocks for standards.—*F.*

VII.—COTTAGERS' GARDENS.

Where the first sowing of Peas is coming through the ground it will be advisable to draw a little earth to the plants. In the case of mice attacking them, I know of no better mode of preventing their ravages than trapping them. Two kinds of mouse-traps have been given in the *Chronicle* lately, and that called the figure 4 trap, a number of which can soon be made, may also be employed. Those who have not already sown Peas may make a sowing of Early Warwick, in the warmest part of the garden, on the first favourable opportunity. Take care, however, that the ground be previously dug to a good depth, or trenched, and in tolerably "good heart." As Peas sown at this season of the year, especially in clayey soils, are liable to rot if buried too deeply, do not cover them more than 2 inches. A small plantation of Marshall's Dwarf Prolific or Mazagan Bean may also be made as soon as the weather is favourable for the operation. Dig vacant ground, as all soils, but especially such as are of a clayey nature, profit much by being fully exposed to the action of frost, which has the effect of rendering them friable and easy to work. Let the pruning of all kinds of fruit trees be finished as soon as possible, and forward every operation that can be done with advantage now, as the most busy period of cropping is fast approaching.—*G.*

State of the Weather near London for the week ending Feb. 6, 1845, as observed at the Horticultural Garden, Chiswick.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 31	☾	29.601	29.131	■	22	23.5	N.	—
Sat. Feb 1	24	29 824	29.747	38	27	33.5	N.	—
Sun. 2	25	29 984	29.862	40	21	30.5	N.E.	—
Mon. 3	26	29.972	29.873	43	34	38.5	N.W.	.10
Tues. 4	27	30.200	30.163	43	25	34.0	N.	—
Wed. 5	28	30.017	29.871	48	31	39.5	N.W.	—
Thurs. 6	●	29.940	29.851	43	19	31.0	N.	—
Average		29 934	29.785	41.4	25.6	33 5		.10

Jan. 31—Overcast: sharp frost; partially clouded; bright sun; clear, frosty
Feb. 1—Frosty; light clouds; cloudy with snow showers
— 2—Clear and frosty; cloudy; clear with sharp frost at night
— 3—Hazy and drizzly; overcast
—, 4—Overcast; cloudy; clear and frosty at night
— 5—Uniformly overcast; fine with sun; clear
— 6—Clear, cold, and dry throughout.
Mean temperature of the week 4½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Feb. 15, 1845.

Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 9	46.6	33.6	40.1	6	0.30 in.	—	2	1	1	1	8	4	2
Mon. 10	46.0	32.9	39.4	8	0.28	2	3	1	1	4	5	1	1
Tues. 11	45.4	35.0	40.2	11	0.84	3	2	—	—	5	5	2	2
Wed. 12	46.7	32.3	39.5	10	0.23	2	2	—	—	4	6	2	2
Thur. 13	46.3	32.3	39.2	8	0.08	1	2	1	1	5	4	3	2
Fri. 14	45.9	31.1	38.4	5	0.60	—	1	2	1	4	4	6	1
Sat. 15	45.5	32.9	39.2	7	0.18	1	2	2	—	3	7	4	1

The highest temperature during the above period occurred on the 10th, 1831—therm. 65°; and the lowest on the 12th and 13th 1838—therm. 14°.

Notices to Correspondents.

BACK NUMBERS OF THE "GARDENERS' CHRONICLE."—The vol. for 1844 can be had, either in Numbers, or bound in cloth, price *1l. 10s.* The following Numbers in the respective years can also be had. Any subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are required, will have them sent free by post:—
1841.—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34.
1841: 35, 37, 39—1842: 26—Full price given for these Nos.
1842.—2, 4, 5, 6, 8, 11, 18, 30, 42, 47, 48, 49, 50, 51, 52.
1843.—8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 43, 44, 45, 46, 48, 50, 52.

ADVERTISEMENTS—*Omega*—We really cannot undertake to settle the disputes of advertisers; they must do that for themselves. Were we to give room to strictures like yours we should have our columns filled. If we had any personal knowledge of the facts we might perhaps be justified in interfering; but we have not. Everybody must therefore draw his own conclusions.

APPLES—*Grower*—The following are good dessert varieties, viz.:—Early Harvest, Pearson's Plate, Golden Reinette, Golden Harvey, Court of Wick, Reinette du Canada, Courtpendu Plat, Boston Russet, and Sturmer Pippin. For kitchen use, procure Dumelow's seedling, Alfriston, Bedfordshire Foundling, and Dutch Codlin.‡

BOOKS—*J G B*—There is no such book as you ask for. The nearest approach to it is Mackintosh's "Hothouse and Greenhouse Cultivator."——*J G*—Loddiges' "Catalogue of Orchidaceæ" is published merely for private distribution.‡

BURNETTIZING—*G*—This is a patent process. We should think that frames and sticks *properly* Burnettized would last a long time.

CAMELLIAS—*A constant r*—Thirty first-rate varieties cannot be named, nor even ten. Get C. imbricata, or Myrtle-leaved old Double White, fringed white, candidissima, reticulata, pæony-flowered, warratah, and Double Sasanqua, and the rest are but "leather and prunella;" it matters little what you take. Full information respecting Japan Lilies is given by Mr. Groom, one of the best growers of them, at pages 591, 1844, and 68, 1841.

CHANGE OF RESIDENCE—*G*—Many of the hilly places near London would do; but none of the flat country. But London is expensive. Bury St. Edmund's is sandy; Winchester unexceptionable. Look at our manure *lists*. It is useless to apply to any except wholesale houses, unless you are willing to pay 200 per cent. more than an article is worth.

CLIMBERS—*C*—If your present climbers do not thrive, there is no hope for you except in Clematis flammula, Ivy, and Common Laurels.

COBURGIAS—*Subs*—Grow them in strong alluvial soil. Force them gently till they have quite formed their leaves, and take care that this is done in an airy place. As soon as the leaves are of the full size, give them a month's sunshine, a high temperature without much water, and then let them go to rest. They are not hardy.

COVERING FOR FRAMES—*Amateur*—The following is the mode of preparing the composition described by "Devoniensis" at page 301, 1843. "Three pints of old pale linseed-oil, one ounce of sugar of lead, and four ounces of white resin. The sugar of lead must be ground with a small quantity of the oil, and added to the remainder, incorporated with the resin by means of gentle heat. The composition is to be laid on by a brush, after the calico is nailed to the frames. One coat annually is sufficient. It dries in a short time when exposed to the air; and excludes as little light and heat as anything, except glass, and does not become mildewed."‡

DEAN'S STOVES—*F H*—We would willingly inform you, but our answer would be an advertisement in disguise.

DISINFECTION—*A F*—Of all the plans for removing offensive smells, that which consists in the employment of sulphate of iron is the most effectual and unexpensive; only you must take care to buy the sulphate at a wholesale house. See Leading Articles on this subject at pp. 555 and 571 of last year. At p. 635 of the same volume, you will also find the composition of the Siret cake, which is said to answer perfectly for permanent sweetening. We have not, however, tried it.

EVERGREENS—*P H*—The following hardy Evergreens flower freely; those marked thus * should have peat mixed with the common soil:—Berberis aquifolium, Garrya elliptica, Ceanothus thyrsiflorus, Ligustrum lucidum, Arbutus procera and Unedo, Cotoneaster microphylla, Ulex europæus (double), Viburnum Tinus strictum, Rhododendron Catawbiense*, Kalmia latifolia *, and Andromeda floribunda *.¶

FRUIT-TREES—*JNC*—The gas-tar which you put into your composition for the wounds in Peach and Apricot trees will prove injurious.‖

GARDENERS' CAPES—*An Inquirer* is desirous of knowing where the capes at *3s. 6d.* each, mentioned by a "Lover of Comfort" are to be procured. If they are on sale the vendor ought to advertise them.

GLAZING—*Carey Tyso*—You may dispense with laps in upright glazing, if you employ British sheet glass; common white-lead cement would be sufficient for the joints; or, if the building is not to be kept very hot, the joints will be close enough without cement. Such glass is about to be used at the Horticultural Society's garden.

GOOSEBERRIES—*Subs*—Procure Red Champagne, Red Warrington, Melling's Crown Bob, Pitmaston Greengage, Woodward's Whitesmith, and Massey's Heart of Oak. The sooner they are obtained the better. We cannot recommend nurserymen.‖

GUANO—*P L*—No wonder your plants died. Who ever heard of using raw guano? You should have mixed it with 6 times its bulk of loam, or peat, or charcoal, or something; or, in your case, should have applied it mixed with water 1 lb. to a gallon, once a month, as long as the plants continued to grow freely.

HEATING—*W S*—For short distances, 1-inch connecting pipes are found to answer, and we should have employed them in your case. Are you sure that your want of success is owing to the small bore of the pipes? We doubt it. If it really is so, try half-inch pipes.——*Inquirer*—Do not use Seaweed; it will not heat with sufficient certainty. Mix it with the soil, if you like; that will be really useful.

INSECTS—*T M*—If you can close the doors and windows of your carriage, so as to exclude the external air, you may destroy the moths, by placing a saucer of spirits of turpentine in the inside, as soon as the weather becomes warm, and leave it there, to evaporate, for two or three days; or you may burn some paper that has been dipped in sulphur, in an iron pot, in the carriage, the fumes of which will destroy the insects in the course of an hour. *R.*

LAWNS—*R W T*—You may plant on your lawn which is about to be renewed, Ash-leaved Kidney and early Manly Potatoes; afterwards let it be properly levelled, and sown with Meadow Fescue, Crested Dogstail, and Poa pratensis, mixed with a small quantity of White Clover and Black Medick. Do not be sparing in your Grass seeds.¶

MICE—*S D E*—Crocus roots in the ground can only be preserved from mice by trapping the latter. In Notices to Correspondents two kinds of mouse-trap have been lately figured; but, after all, the old figure 4 trap is, perhaps, as good as any, and it can be easiest made.‡

NAMES OF FRUITS—*Jersey*—See p. 40, where the names of your 3 Pears and 1 Apple are given.‖——*F Darby*—No. 1, Hanwell Souring; there is no Beachamwell Souring; 2, Kentish Fill-basket. The Pear is the Easter Beurré; it will be better flavoured grown as a dwarf standard or espalier than against your east wall.‖——*Mr. Silverlock*—Winter Nelis.‖——*Metator*—Syke House Russet.‖

NAMES OF PLANTS—*C S*—Amaryllis calyptrata; a fine and not common species.

OLD WALLS—*Flora*—The best way to deal with the nail holes of your old wall is to have it "grouted" over with thin Roman cement. Your plasterers will understand this.

ORANGES—*Ruricola*—Your Orange-trees may be re-potted in March. A compost of rich fibrous loam and peat, well mixed together, is a suitable soil for them. They like the very strongest manure; the pots should be well drained, and lumps of charcoal, or, if that cannot be procured, brick rubbish, may be freely mixed with the soil. They are generally placed out of doors in summer, and kept in an opaque-roofed house in winter, where they are managed like other greenhouse plants. ‡

PERSONAL—*T G n*—If you had followed the advice of your friends instead of believing uncertificated bankrupts; if you had attended to your duty instead of getting drunk; if you had spent your evenings in study instead of larking with omnibus cads; if you had been as punctual at church as at the beer-shop, you would not have been in your present condition; or if you had, good friends would have brought you out of your difficulties. As it is, you must apply to your friends of the beer-shop and stable-yard, and if they will not assist you there is no hope for you on this side the grave. Who will help an incorrigible sot? Not we.

POTATOES—*WFP*—It remains to be seen whether the check given to autumn-planted Potatoes by early spring-frosts is of importance to the crop: that is part of the experiment. A plan of preserving Potatoes by parboiling them has been suggested at p. 37. Have our correspondents the knowledge of any other method? To ships' crews it would be very important to be able to keep Potatoes for a long time in warm latitudes.——*A F*—Chapman's Potato proves to be a distinct and very excellent kidney. It is not early, but it is a very good autumn sort.

POTTING—*A K and others*—Have the kindness to wait a little, and you shall have all the information you can desire.

POULTRY, GAME, &c.—We have made many inquiries as to the possibility of giving weekly reports on these markets; but the principal salesmen declare it to be impossible, as the prices vary so very much, according to the supply.

RANUNCULUSES—*S W*—Many thanks. Next week.

REMOVAL—*Civis*—You have no right to move them without the permission of the landlord. If you do, you are liable to an action.

ROSES—*T J*—The following are good kinds, viz.:—PROVINS, *Adeline, bright rose; Duc d'Angouléme, dark.* MOSS, *Crested, bright rose; De Meaux, rosy pink.* FRENCH, *Belle Rosina, pinkish; Louis-Philippe, dark.* HYBRID PROVINS, *Globe White Hip; Duchesse d'Angouléme.* HYBRID CHINA, *Beauty of Billard, Blairii.* HYBRID BOURBON, *Eugene Barbet, rose; Victor Hugo, pale.* ROSE ALBA, *Sophie de Bavière, blush; Queen of Denmark.* DAMASK, *Madame Hardy, white; Arlinde, pale rose.* AUSTRIAN BRIARS, *Harrisonii, yellow; Persian, yellow.* PERPETUAL, *Du Roi, crimson; Palmira.* HYBRID PERPETUAL, *Comte de Paris, Fulgorie.* BOURBON, *Augustine Lelieur, rose; Cardinal Fesch, crimson.* CHINA, *Duchess of Kent, rosy white; Madame Desprez.* TEA-SCENTED CHINA, *Bardon, Hamon.* NOISETTE, *Lamarque, white; Jaune Desprez.* SEMPERVIRENS, *Donna Marie, white; Spectabilis, lilac.* AYRSHIRE, *Ruga, blush; Queen of the Belgians, creamy white.*

SEEDS—*Claudiocestrensis*—Everything in your list is hardy. Sow them in peat, loam, and sand, in a frame with a gentle bottom-heat; and as soon as they have formed green leaves, harden them by degrees. The Coniferæ will, however, succeed best if sown in pure loam. You must not be discouraged at former ill success, because Himalayan seeds are very often dead when they arrive. Sow them directly.

TREES—*F W S*—Plant the following; they will succeed well where the situation is damp, viz.:—Black and Italian Poplar, Bedford Willow, Purple Beech, Oriental Plane, Chichester and Cornish Elms, Black Walnut, Silver Lime, Common Alder, Turkey, Red, and Common Oaks, Silver Fir, Cedar of Lebanon, and Common Maple. If the soil is poor give it manure.¶

VEGETABLE CATERPILLARS—*Entomological*—You do not appear to be much acquainted with this subject. If we can manage a woodcut or two, we will see what we can do. Your drawings are unfit for publication.

VINERIES—*A B*—See our Home Correspondence of to-day. We quite agree with *D*. If a gardener has no greater objection to inside borders than their scorching and drying, we should not attach much value to his opinion. Why scorch and dry, except from negligence?——*An Amateur*—Certainly, till the flowers expand; 70° to 75°.

MISC—*J Y, South Wales*—The Numbers you mention, except 4, 6, 8, 11, 18, will be of service; we will pay you the usual price for them, viz., *5d.* per copy. They may be sent by post, in one cover, open at the ends.——*W D F*—There is no such tree as the Evergreen Larch. We are not aware that the Gooseberry becomes an evergreen in St. Helena, ceasing to bear fruit.——*Admirer*—All plants for show should be treated with the utmost care. Would a prize ox be fattened on a highland moor? Read Mr. Wood's papers on the Fuchsia, as published in our columns, and *study* them; and when you get at the kernel, which we admit to be difficult, you will find it worth the trouble of cracking the nut.——*Hibernicus*—Do not be afraid of your coping being too heavy; 18 inches by all means; nothing looks more miserable round ornamental water than a narrow wall; it is like a goblet with the rim cut off. Your other questions require consideration, and cannot be answered till next week.——*H B C*—We have forgotten your question, but will refer, and answer next week.

SEEDLING FLOWERS.

CAMELLIAS—*J P*—The want of petals in the centre of your seedling is a defect which destroys the beauty and value of the flower; in other respects it is neat and compact, of good colour, and with well-formed petals.*

CINERARIAS—*J S K*—Your seedlings bear a close resemblance to each other; they have a good colour, but the flowers are small, and the petals very narrow; they are not equal to others of the same colour in cultivation.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

FARM.—TO BE LET IN OXFORDSHIRE, A FARM of about 600 ACRES, chiefly Arable, with a good House and spacious Outbuildings. It will be Let from year to year from Michaelmas next, free of great tithes. For particulars, apply to Mr. DRUCE, Ensham, near Oxford; or to Mr. SOAR, Shirburn, Tetsworth.

The Agricultural Gazette.

SATURDAY, FEBRUARY 8, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, Feb. 12—Agricultural Society of England.
THURSDAY, Feb. 13—Agricultural Imp. Soc. of Ireland.

WEDNESDAY, Feb. 19—Agricultural Society of England.
THURSDAY, Feb. 20—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Feb. 10—Darlington
Feb. 17—Wenlock
West Hereford
Cirencester
W. Firle
Yoxford
Feb. 18—Rochford Hundred
Framlingham
Feb. 19—Harleston
Feb 20—Richmondshire
Grove Ferry
St Peters
Feb. 21—Stoke Ferry
Wrentham
Halesworth
Feb. 22—Cardiff
Glo'ster.

THE first step towards the knowledge of a remedy is to be obtained by study of the disease; and the truly practical mind will always endeavour to ascertain and judge of causes by a careful and comprehensive observation of effects. This is the true analytical method by which all the arts of life have been improved and brought (if any art ever can be said to be brought) to perfection, and from which all the sciences have been gradually deduced and shaped out into a synthetical form, exhibiting often in a single sentence, or even in a *single word*, the condensed result of the work of many minds and of many years. It was this analytical (and it is the natural) view of THE SUBJECT OF DRAINAGE, which we proposed to ourselves and our readers, in the first Number for this year; and we feel assured that the differences of opinion and practice to which we then alluded are likely to be reconciled, if only apparently opposed—or corrected, if absolutely wrong—much more satisfactorily to the mind of each individual, by pointing the attention of all to the defects observable in those soils, which are rendered intractable by stagnation of surface-water, and the effects both immediate and remote of that *change of constitution* which drainage produces, than by attempting to lay down dogmatical rules upon the subject, as applicable in all cases, and to every description of soil.

It has always, nevertheless, been a matter of regret to us that no single work has ever yet appeared which could in any degree be regarded as a scientific treatise or text-book upon the subject of drainage. It has now become a question of such extensive interest, that the dry and almost forbidding character, which a work of that description sometimes has in the eyes of practical men, would be of no real detriment to its utility, because there is always a class of readers residing midway between the practitioner of the fields on the one hand, and the scientific writer on the other, whose genius and natural occupation consist in comparing the mere practice on their right, with the mere science on their left, and deducing the most valuable and suggestive conclusions, like interpreters who, with a little knowledge of two languages, render mutually intelligible two parties who each understand very well their own, but are ignorant of the other.

The pamphlet written by Mr. Smith, of Deanston, and many other short articles of the same sort, that have appeared in the various agricultural periodicals, are rather to be regarded as so many different reports of what different individuals have done, and how they have done it, and the various degrees of success and benefit that have attended their operations, than as anything like an approach to that comprehensive grasp of general principles, which would result from a full scrutiny and digest of such reports, under the combined guidance of all those sciences which really preside over the subject.

A man who had the most glimmering notion of Hydrostatics would never try to make water run over ridges, as we have sometimes heard of; one who understood something of Vegetable Physiology would never *desire* to lay his drains shallower than the known depth to which the roots of annuals *would* descend if they could; the merest tyro in pneumatical science would never doubt for an instant that where water *had gone air would follow*, and the consequent aeration of a drained soil; the mere dabbler in Chemistry would know that rain-water is always more or less charged with ammonia and carbonic acid gas, therefore that the object of drainage is not merely the *getting rid* of the water as speedily as possible, and as fast as it falls, but rather the free dispersion and filtration of it through the whole of the soil, laterally as well as perpendicularly, so as to obtain from it all its precious qualities in the course of its escape into the drain. Again, in the laying out of a master drain a little knowledge of engineering, and the use of the spirit level, would be of no small importance; and many other kindred sciences might be mentioned, each of which must contribute its quota to the production of that very compound result of applied skill, represented by a truly well drained field. And it is from a *partial* acquaintance only with the object to be aimed at, and the means to be employed, that such incongruous diversities of opinion and practice (and in some cases such inveterate perseverance in error) have arisen. One man rams the clay down upon the top of his drain, while another throws out every particle, and covers the tile over with brushwood, stubble, or the most porous substance he can lay hands on, covering that again with the friable surface soil, so that not a spadeful of impervious matter may retard the descent of the water. *Both* can hardly be right, let the varieties of soil be what they may. Another cuts his drains diagonally across the ridges and slope of the land, asserting that by this means he *catches* the water in its pressure down hill, and dries the land more effectually during those delicate and important periods when it is ridged up for Turnips, and has to bear the cart in winter, having observed that the Turnip-ridges which lie in the centre between the drains (if carried down the furrow) are apt to retain the wet between them, more than those which lie near to the drains. This is a point of some nicety, and we have this year made an experiment with a view to its solution, in two fields which are in process of drainage, each of which happens to have a portion of its lower side so inclined that the greatest degree of "fall" is diagonal to the furrow. In each field this obliquity in the descent extends to about one quarter of the whole area, and the reader will understand that in carrying the drains obliquely across the old ridges, we have, in fact, followed the fall of the land more truly than the old furrows were able to do. The ridges are all split down, and the fields previous to the Turnip-ridging will be cross-ploughed and laid perfectly flat.

We have before given expression to the importance which we attach to the casting down of the old high-backed ridges in a drained field; of all the methods that could be devised for the purpose of putting Nature out of her course, and turning what should be the perpetual sources of fertility into causes of inequality and barrenness, this agricultural corduroy of ridge and furrow is the most ancient, and certainly the most effectual. Regarded as a substitute for drainage, which it hitherto has been, the remedy that it affords against surface stagnation is almost as bad as the disease. The rain which ought to fall upon an even surface, and percolate equally *down through* the whole of the soil, runs off a round ridge into the furrow as it would from the roof of a house into the gutter; then scours down the furrows, saturating again and again the long line of subsoil that there forms its channel, and reaching at last the bottom of the field deposits there its deep beds of stolen sand, the most precious of the mechanical—and in the ditch the washings of the manure—the most precious of the chemical constituents of the field that it has traversed. What a perversion of one of Nature's choicest gifts—the dew of heaven! and yet even to this day there are many who imagine that if a field has got a "good fall," so as to throw off the rain superficially down its furrows like an umbrella, it is of little consequence, however clayey and impenetrable, whether it be drained or not. And the error arises from the supposition, before noticed, that the object of drainage is to get rid of the water, not *through* but *off* the land.—*C. W. H.*

IF our remarks, in a former paper, on the cause of THE MILDEW IN WHEAT be correct, it would appear that ITS PREVENTION is in a measure within the power of the farmer. In so far as vegetable disease is a consequence of the *artificial* condition of the plant affected, it is manifestly under our control; the *over*-luxuriance of a Wheat crop, caused by an unequal supply of the necessary elements of its food—a preponderance of certain of them over others which are equally essential—we have shown to be a condition in which the plant is particularly liable to the attack of mildew, and it is a condition which finds its obvious remedy in the restoration of that balance among those elements of vegetable nourishment the want of which had induced the disease. And such a restoration may be effected either by supplying to the soil that in which it is deficient, or by removing a portion of what it already contains in excess.

This may be done in poor districts where the farmers grow little corn and less straw—where the land is limed once in every rotation, and tastes, in the way of dung, hardly anything but rotten straw, with its volatile salts evaporated, and its soluble salts washed out of it—we say the supply of the elements of fertility wanting here might be effected by the application of some ammonial manure, such as guano; by the beasts in the straw-yard being indulged with a little oil-cake; and by the land being treated with the salts of ammonia and the alkaline and earthy phosphates produced by them, instead of so much pains being taken to drive off the one into the atmosphere, and to conduct the other into the horse-ponds and rivers.

The market-garden farms round London and other highly farmed districts, have, on the other hand, as we lately stated, been surfeited with such luxuries as ammonia and carbonic acid; and in order to adjust more correctly the proportions between the organic and the inorganic constituents of the Wheat crop, in the food which is administered to it, occasional dressings of lime would be required; and as regards Middlesex, composts of chalk, London clay and dung, instead of dung alone should be used. The chalk, the farmers of this district well know to be easily obtained by water carriage, and they know that it is good for the heath land. Extensive experience has shown, that upon similar soils to theirs, a mixture of chalk and London clay is preferable to either alone. The London clay lies everywhere, we repeat, within 20 feet of the surface of their fields. Show a Norfolk farmer a bed of such clay, at no greater depth on his own land, and he would make an immediate plunge after it; particularly if you gave him at the same time the same command of dung to "make it work" which the Londoner possesses. If it did not occur on his own land, he would not hesitate to send his carts five or six miles to the *staith* (wharf), where he would get it from the *keel* (barge) burthened with a water-carriage of 20 miles, or an expensive inland navigation from a pit at which *uncallow* (sand and gravel) 50 feet deep had been removed to come at it. Our advice would probably be met with the declaration that chalk, clay, lime, and bones were all very well for the cultivators of remote districts who could get nothing better, but that for those to use them who had plenty of good rotten dung would be the height of absurdity. Chalk, we should be told, did good on the heath-land, but was not required on the old inclosures; there was nothing of a "feeding nature" in any of the substances recommended. The objectors have, however, proof positive before their eyes, that substances not "of a feeding nature" contain something that benefits crops, even on land that has been long under cultivation. Let us instance the "oyster-shell acre" in one of their common fields, on which the tenant had spread the refuse of a brickmaker's *breeze* heaps, containing a great quantity of oyster-shells, and the piece, for more than 20 years afterwards became remarkable for the excellence of its corn crops. Judging from the effects of this, perhaps accidental application, we would recommend the trial of the composts we have named. Try them on a small scale. Do not consider that they are a failure till you have tried them more than once, varying the mode of application in such a manner as your own judgment will readily suggest. But we are confident that they will not fail—that you will find the quality of your corn crops improved, and that of your vegetable crops not deteriorated, for Turnips are one of the crops which are found in Norfolk to benefit most from these composts of clay and chalk with dung.

But the attacks of mildew are often traceable to, or at any rate coincident with, and therefore probably chargeable upon *an irregularity* in the crop. Certain portions, being thinner, ripen later than others, and are peculiarly liable to the disease. To avoid this, less seed, equally distributed over the land, should be used; 6 pecks per acre are amply sufficient, and this drilled at invervals of 9 inches, will be more likely to yield a uniform crop, and, by admitting the free access of air regularly throughout it, a healthy one also. Stiffer, brighter, and more marketable straw, less liable to be lodged, less subject to disease, making up, by increased solidity and weight, what it may lose in bulk, and bearing a larger proportion of well developed ears well filled with plump and heavy grain, would thus be produced. —*E. W.*

ARTIFICIAL MANURES.

YOUR remarks on my communication in your Paper last week call for a reply; and I beg the following observations may appear in continuation of what has there been said by me on the impossibility of the usual dressing of guano affording the elements for a crop of corn, and on the inequality between it and yard manure. The importance of the question is very great; for if my views be correct, much mischief is being done by reliance being placed on guano instead of yard manure, and a service to Agriculture will be rendered by attracting more attention to the subject.

As yet, I have seen no attempt to disprove what I have asserted, that does not bring guano forward as if it were more than dung, and widely differed from every other excrement, and were constituted wholly of inorganic matter; and also, that does not assume vegetation to derive all its elementary matter from the atmosphere, and that the virtue of manure lies wholly in the inorganic portion of its matter. I shall not argue the question as to whether the atmosphere or the soil affords the elementary part of vegetation, or whether organic or inorganic matter be most important to supply the waste by cropping; for I believe few practical men doubt that the principal support comes from the soil, and that ap-

plications of organic matter are most required—at least, the practice of applying animal and vegetable dressings, high feeding stock, liquid manures, and foldings of sheep, seemed based on these opinions; but I shall endeavour to destroy the force of the argument on the other side, simply by showing that guano is only dung, that it contains little inorganic matter, and that that portion of it is constituted principally of minerals which most soils have in excess, and therefore, on their own assumption that in the inorganic portion lies the virtue of manures, that the value of a ton of guano can be no more than a ton of any other excrement when freed from water, and is not to compare with a dressing that supplies ten times the same elements. Pure guano is nothing more than the dung of wild fowls accumulated in a remarkably dry climate on certain islands, where it has undergone little change, save partial decomposition and loss of much of its moisture; this change, however, brings it much quicker into operation as a manure, and so renders its effect sooner apparent, and much stronger for a short time, when applied in this climate, and has caused it to be thought so serviceable to young Turnips, which require to be rapidly forced in their first stage of growth. The best guano consists of $\frac{9}{10}$ths of organic matter, viz. carbon, hydrogen, oxygen, and nitrogen, and only the remaining 10th is inorganic or ash; if the inorganic part be so valuable, only 40 lbs. out of 4 cwt. are furnished by pure guano to the acre, and of this about 30 lbs. are nothing more than carbonate of lime, silex, alumina, and other mineral or metallic matters which abound in most soils, and the remainder are found in all animal excrements. These are facts readily to be ascertained by reference to the Agricultural Chemical works of the day, and I think must at once lead to the conclusion, that 4 cwt. of guano can never supply the food for a crop of corn which takes 4000 lbs. or 5000 lbs. of the same elements that constitute it; or, to meet the arguments brought against me, the 40 lbs. of ash in 4 cwt. of guano will not account for the loss of 608 lbs. taken away by a course of cropping; nor can it be put into competition with the 700 lbs. or 800 lbs. that are found in an ordinary dressing of yard manure; and therefore, to put this dressing in place of the ordinary one of yard manure, must be mischievous in the extreme. The best guano is at this time selling at from 10*l.* to 12*l.* per ton, and the stable manure of large towns at about 5*s.* per ton; of the latter about one-third is water; deprived of this, the remainder can differ but little from guano, except that its organic formation is not equally broken down, and its decomposition is therefore very much slower. The consequence of this is, that whilst the whole effect of guano is felt and gone in a few weeks, the dung is seen to do little in that time, but its beneficial influence is apparent for years after its application.

The site of a dung-hill may frequently be found by the greater luxuriance of the crop after many years; but what trace would an application of guano leave after a winter's exposure? Did I consider the loss of the price of the guano the only mischief done by its use, I should think but little of that loss; but knowing, as I well do, the present carelessness of farmers in their treatment, collection, and preservation of home manures; the want of live stock too generally seen upon farms; and now, from the action of the tariff, the absence of all inducement, except for their manure, to keep flocks and herds, I dread the recourse to these dressings will entail further impoverishment of the land, and ultimate loss to the cultivator.—*Hewitt Davis, Spring Park, near Croydon.* [We shall next week be able to comment at some length on the subject of Mr. Davis's communication.]

GEO-AGRICULTURE OF MIDDLESEX.

The following remarks refer especially to the improvement of the heavy soils lying north of the Uxbridge-road.

I stated, it will be remembered, that from the cold, wet, and untractable nature of the soil, in its present state, it is chiefly kept under Grass for the supply of the London market with hay. The low price of hay is, however, severely felt by the tenants of such land. I lately read an account of the proceedings of a meeting of the hay farmers at Kilburn, in which great complaints were made of the charges of the London salesmen—which were stated to amount to 3*s.* or 4*s.* per acre. If this was felt to be so heavy a charge, it is a proof that the profits of this kind of farming must be at a very low ebb. The remedy proposed was the establishment of salesmen of their own, who should conduct the business on lower terms. I would propose a different remedy, which would strike at the root of the evil, by diminishing the supply of hay. This would consist in the conversion of a large portion of the Grass land to arable culture, with draining and subsoil-ploughing. The change would require a considerable outlay on the part of the landlord, and an increase of farming capital on the part of the tenant, from whom such a system of management would demand no small share of skill, attention, and activity. Under these conditions, however, such an appropriation of the land would be far more profitable than the present system, and it would make ample returns for the additional capital employed, both to landlord and tenant.

I have stated that the surface soil consists not of pure London clay, but of a thin covering of drift to the substance of which that clay has largely contributed, with a mixture of the ruins of other beds of the same formation, which appear in the form of thin seams and irregular patches of sand and gravel. The difference is rendered very evident by excavations only a few feet deep, which penetrate into the London clay itself. Draining would free the land from that surplus moisture which chills the surface, and the rain, percolating the soil, instead of flowing off by open grips or stagnating upon it, would induce fertilising chemical changes, and tend, by its expansion during frosts, to separate the particles of the clay. Subsoil ploughing would break up and mingle together the siliceous and argillaceous portions of the soil, reducing the whole to the state of a clay loam rather than a clay.

I have seen land quite as unpromising, on which these processes have wrought a similar change, and which, from a state of poor pasture, worse than any in the district now under consideration, or of arable fields gathered into four-bout ridges with a little corn on their summits and none in the furrows, is now sufficiently dry and friable to be cultivated in broad and flat lands without water furrows, bearing Wheat every other year, yielding an average produce of 5 quarters an acre, and of Turnips and Wurzel 25 tons. Further degrees of porosity and friability, which these operations failed to effect, might be produced by dressings of burned clay, chalk, and lime, by liberal supplies of animal and vegetable manure, and by deep ploughing. They never can be effected while it remains under Grass. The operations should be commenced by draining with tiles or pipes; the drains to be 12' or, at the most, 15 feet asunder, and 2½ to 3 feet deep, and to be made before the breaking up of the land from Grass. The land should then be ploughed and limed for Oats; to be followed by a fallow for Turnips; during which the operation of subsoiling should take place. Should the season be favourable, this should be performed immediately after the Oat-crop was secured; but it is essential to the success of the process that it should be performed while the land is dry. If, therefore, the autumn should prove wet, it should be deferred to the following spring. For the Turnips, I would dress with burned clay, of which the borders of the fields would afford an ample supply: if they did not, the clay could easily be raised pure from a pit; the object being not so much to obtain vegetable ashes as to add something which should open the soil, that is, increase its porosity. To this burnt clay I would add 20 cubic yards per acre of dung, in 27-inch drills. The Turnips to be drawn and stored early in the autumn in the manner described in one of your last year's *Gazettes*, and to be consumed by cattle in the straw-yard, and sheep fattened on these and the after Grass of the mowing ground with corn or cake. The Turnips would be followed by Wheat, the Wheat by Clover fed off by sheep, and this succeeded by Wheat. Half of the arable land would then annually be under Wheat or Oats, varying the proportions of each with the facilities which the season afforded for sowing the former grain. The rest of the land we would have under green crops—Turnips, Wurzel, Clover, Tares, Beans, 1-5th of each. The Tares, like the Clover, to be consumed by sheep; the Wurzel to be sold to the London Cow-keepers, and to be grown on the land which had been sown with Turnips in the former rotation. In dressing for this, as well as for subsequent crops, I would employ a compost of chalk and dung to the extent of 30 cubic yards per acre, of which 8 or 10 should be chalk, used to bottom and cover the dung-heaps, and ultimately turned up with them. All the crops that have been enumerated are known to grow well on this land in favourable seasons, and when well dunged; the only objection raised against the growing of Turnips and Wurzel, being the difficulty of consuming them on the land, or of getting them off without injury to it by poaching. Early drawing and storing the crop obviates this objection, and the effect of the draining and subsoil-ploughing would be to render all the crops more independent of the weather.—*J. Trimmer.*

ON ALUM AND THE SULPHATES OF POTASH, SODA, AND AMMONIA AS MANURES.

I have found, after repeated experiments, that alum, consisting of 10·76 parts of potash, 9.95 of alumina, 33.74 sulphuric acid, and 45.55 water, is a very powerful manure, as it does not, like gypsum, merely advance vegetation by the sulphuric acid which it contains, but also by its potash and alumina. Alum is very soluble in water, and therefore must not be used except in small quantities; unless, indeed, the soil contains much carbonate of lime, in which case gypsum will be formed. 40 to 50 lbs. is generally sufficient for one Madgeburg acre of land. The high price of pure alum will, however, render its use unprofitable; and we must, therefore, confine ourselves to the use of minerals which contain it in an adulterated condition. Alum will chiefly improve crops belonging to the tribe of Clovers, although it also benefits Oats and Barley. Further experiments will show whether it is advantageous also to other crops, and if analogy be not deceiving, it cannot be doubted that this will be the case. If the soil contains carbonate of lime, alum will decompose its constituent parts, and if much free humic acid is at hand, the alum itself will be decomposed, humate of alumina will be formed, and the sulphuric acid set free. On soils, therefore, very rich in humus, it is to be used with caution; being a substance very easily soluble in water, its effects do not last long. Sulphate of alumina, or the minerals containing it, are used as a top manure, being first well pulverised. Alum may be used as a fixer of ammonia in urine, sulphate of ammonia being formed.

Sulphate of Potash.—This salt consists of 54.1 parts of potash, and 45.9 sulphuric acid; it is a component part of alum, which partly owes to it its fertilising properties, on which account the salt, if used by itself, is also a very useful manure. It surpasses in effects the sulphate of lime or gypsum, as I have found by experiments, and it especially improves the growth of Clover. It is to be had so cheap from chemical manufactories, that it may be used to great advantage on an extensive scale. As it requires but 10 to 12 parts of water for its solution, too great quantities must not be employed; and I have found, by many trials, that 50 lbs. per acre produce a very considerable effect—which, however, (as is the case with all very soluble salts), is but very transient. If the soil contains much carbonate of lime, the sulphate of potash will be decomposed, gypsum and carbonate of potash, and subsequently also humate of potash will be formed. This latter salt is a most powerful manure. Being first well pulverised, it is to be used as a top manure, and may be also added to urine, which will be much improved thereby. It has been before mentioned, that some sorts of peat-ashes owe part of their manuring properties, to this salt.

Sulphate of Soda.—This salt, which is composed of 43.86 parts of soda and 56.14 of sulphuric acid, is to be had very cheap in most chemical manufactories, and it is a very superior manure. It is most probably the sulphur, which it and other sulphate salts contain's, which chiefly nourishes the plants, as they find generally sufficient soda, partly in the common salt, partly in the soda-silicate of the soil, whilst the soil is mostly deficient in sulphuric salts, on account of their great solubility in water. In some places, the sulphate of soda, combined with sulphate of alumina, is to be found in the subsoil in the shape of soda-alum, and it is probable that this salt may be used as beneficially as the potash alum. Although I have already made some successful experiments with sulphate of soda, yet I have never tried it on a large scale; but, judging from analogy, I should say that it will benefit in a superior degree many kinds of crops. If it comes in contact with carbonate of lime, it will undergo a decomposition; in fact, it will act towards the constituent parts of the soil just like sulphate of potash. 40 to 50 or 60 lbs. per acre will be a sufficient manuring, but as it is soluble in 2 to 3 parts of water, its effects will last but two or three years. It has been found particularly useful to fruit trees, which are said to yield after its use a superior crop.

Sulphate of Ammonia.—This salt, which in its solid form consists of 53.1 parts of sulphuric acid, 22.6 ammonia, and 24.3 water, is reckoned one of the most valuable of manures, as it improves, according to my own experiments, the growth of all plants in a striking manner, which can be easily explained, as few of them are able to attract so much nitrogen from the atmosphere as they require for the formation of several of their vegetable substances. To this it must be added, that it supplies plants with that essential ingredient sulphur. As, therefore, plants grow after it so luxuriantly, it follows that it ought to be used wherever possible. We have before seen that it is obtained, if in places where ammonia evaporates, sulphuric acid diluted with water is exposed to its influence, or if sulphate of iron is added to urine. Still in both cases only that ammonia is obtained, which we possess already, but which would otherwise evaporate and waste. Ammonia may be purchased from gas-works, where it is obtained as an accessory production. This salt is very easily soluble in water (1 : 1), and must therefore be used in small quantities, else the plants will outgrow themselves. Using 60 to 80 lbs. per acre I observed a very striking effect; still I would suggest that less should be taken, as it will be easily dissolved by the rain water, being so very soluble. On this account also it is to be used, when the crops have grown a little; the more so if the soil be porous. If much carbonate of lime be found in the soil, the ammonia will be decomposed, and whilst the lime unites with the sulphuric acid, the ammonia will go to the humic acid; whence it follows, that if the ammonia shall not evaporate, the soil must not be deficient in humic acid.

Sulphur alone has been used to advantage as a manure. Not being soluble in water, it cannot pass as such into the plants, still, if it is well pulverised, it will be converted (by attracting the oxygen of the air) into sulphuric acid, which will then unite with any bases of the soil into a sulphuric salt. This process will most probably easiest take place when the soil contains much carbonate of lime, as the lime disposes (by its great affinity for sulphuric acid) the sulphur to unite quicker with the oxygen of the air. It is, however, very doubtful if sulphur could be used as a manure on a large scale.

It is also stated that experiments have proved the utility of sulphurets (combinations of sulphur with the metals of lime, soda, or potash) as manuring substances. It is also stated that they destroy worms and insects, most probably by developing sulphuretted hydrogen gas by their decomposition. We have seen before, that gypsum and ashes often contain sulphuret of calcium and sulphuret of potassium. Further experiments have to prove whether these substances can ever be usefully employed in agriculture on a large scale. I have often used potashes, containing much sulphuret of calcium, as a manure, but the effect seemed neither good nor bad.—*Sprengel.*

Home Correspondence.

Sprengel v. *Liebig.*—Sprengel, when speaking of gypsum, says, "Before gypsum is used it is mostly burnt, because it will be then easier converted into a fine powder. By the burning it loses nothing but the water of crystallisation, or the chemically-bound water, (2½ per cent.) If burnt gypsum be left lying in the air, it will again attract from it as much water as it had previously lost, which becomes again chemically fixed. It is soluble in water; still, 450 lbs. of water will be re-

quired to dissolve 1 lb. of gypsum. The property of being pretty easily soluble in water, and so sinking with it in the subsoil, explains why the manure with gypsum is so often to be repeated; because, if at one time only 80 lbs. be used per acre, they ought to suffice longer than we find to be the case, as one crop will not absorb more than 7 or 8 lbs. of gypsum. It does not cause any decomposition in the soil, nor is it changed itself, except if the soil contains much free humic acid, or if it be strewed (as is now often done) over the fresh dung and ploughed in with it, in which case it will sustain a partial decomposition by the carbonate of ammonia developed from the excrements, so much so, that sulphate of ammonia and carbonate of lime are formed; generally, therefore, it passes (solved in water) in an entire state into the plants." Now, Professor Liebig says:—"The evident influence of gypsum upon the growth of Grasses—the striking fertility and luxuriance of a meadow upon which it is strewed—depends only upon its fixing in the soil the ammonia of the atmosphere." Again, in the article alluded to, Sprengel is represented as saying, that sulphate of iron, when employed in small quantities, acts beneficially on vegetation. And mark, at the foot of one of Sprengel's analyses of soils, set forth by Liebig in his "Chemistry of Agriculture," a certain soil is spoken of thus:—"The soil contains above one per cent. of sulphate of the protoxide of iron (green vitriol of commerce), a salt which exerts a poisonous action upon plants."—See the second edition, page 220. Now, who are we to believe? I should feel obliged if the Editor, or some one of his numerous correspondents, would direct us in this matter.—*R. C. L.* [We apprehend the word "only," in the 14th line above this, is erroneous; and, in reference to the sulphate of iron, the two Doctors may be made to agree by supposing that they referred—the one to a very small and the other to a considerable proportion of it.]

Fences.—In reply to "Saul," concerning his fences on cold land, in a late *Gazette*, I should recommend him to plant Alders, which is the most useful plant for his purpose, and the timber being the most useful of any about a farm-house when cut into boards. He may plant them from the 1st Oct. to the 1st May with success, provided he does not let the roots get frosted, for one hour's sharp frost will kill them entirely. I think it would be very desirable if proprietors of roads, canals, and railways, when planting hedges, put in a small Sweetbriar, about every yard, amongst Thorns, &c. How agreeable in the summer after a shower of rain! And if they became general, they would not be subject to be damaged by breaking the branches.—*F. F.*

Turnip Fly.—In the *Gardeners' Chronicle* of 23d Nov., are two modes for the destruction of the Turnip Fly; a certain one has long been a desideratum to the farmer. Your notion of an infusion of Wormwood reminds me that the infusion of Quassia is a poison to the common fly, and as the Wormwood is to act by its intense bitterness, I very much question whether the Quassia would not do better, being intensely bitter, much less bulky, and cheap; and I fancy the former (Wormwood) would scarcely be procurable (supposing its efficacy be established) in sufficient quantities for the first few years. I advance this theory in the firm belief that it would do good, but as I possess no land, am unable to prove it; half an ounce to a gallon makes a very bitter infusion, and would keep a long time; while the Wormwood, containing a considerable quantity of vegetable matter, would keep but a short time.—*Veritas.*

Rights Respecting Fences and Boundaries. — All owners of land adjoining and exposed to the inroads of the sea, or Commissioners of Sewers acting for a number of land-owners, have a right to erect such works and defences as are necessary for the protection and preservation of their own lands, even although they may be prejudicial to others, by rendering it necessary for them to do the same. See Rex. *v.* Pangham Commissioners, 2d "Manning and Ryland's Reports," page 168; and the 8th "Barnwell and Cresswell's Reports," page 255. —*A Quiet Observer.*

Knapweed.—In answer to several correspondents—"Dodman," "J. B.," &c.—complaining of Knapweed (*Centaurea nigra*), I would observe that, though neither horses nor cows will touch it, sheep select it and devour it greedily. If turned into a field after other cattle they eat up first the heads and afterwards the leaves, nor do they reject even the stem, unless very hard and dry, as it becomes when the seed is ripening. If sheep be pastured on land through the spring, not a head of Knapweed can rise; and this discipline would, probably, do more to suppress it than any measure short of a course of which is, perhaps, the only effectual one—tillage. From my observation it rather indicates strong and fertile soil.—*J. R.*

To Kill Lice in Cattle.—A correspondent advises anointing cattle with mercurial ointment to kill lice. Let your friends beware how they meddle with such dangerous tools, lest, like other doctors, they cure the disorder, and kill the patient. When a young farmer, I dressed, by advice, a score of lousy sheep with mercury. They were salivated, I guess; their heads and jaws swelled, and all my care saved but a few of the lot. Wood-ashes are a safer remedy, and good keep, for lice are the disorder of starvation.—*Experto Crede, Rougham.*

Robinson's Improved Churn.—This churn is an advance in agricultural and domestic economy, which has been effected by Mr. Robinson, Lisburn, county Down, Ireland. The principle of this churn, which was introduced some years ago from France into Ireland by Mr. Blacker, was to regulate the temperature of the cream, by placing the utensil in a tub of water. The great improvement effected by Mr. R. was adding the water-case (which is made of white iron), by which the churn is made complete and self-contained. The churn can be made to any size, with the power of regulating the heat of the cream, thereby insuring the process being perfected in the shortest time possible. From the simplicity of this churn, and the ease with which it can be managed, it has superseded all others in Ireland, one person being able, without fatigue, to churn 20 gallons and upwards in half the time required by any other churn in general use. I have lately been informed by Mr. R., that so great is the demand for his churn, that he has been obliged to employ extra hands to meet the demand. The following are Mr. R.'s directions for making butter with his valuable churn:—"The churn, when not in use, should be cleansed, dried, and exposed to the atmosphere. The cream need not be more than two days old—the best and sweetest butter is then to be made from it. Let the temperature of the cream be from 54° in summer to 64° in frosty weather; the lower the temperature at which the operation can be performed the better the butter will be,

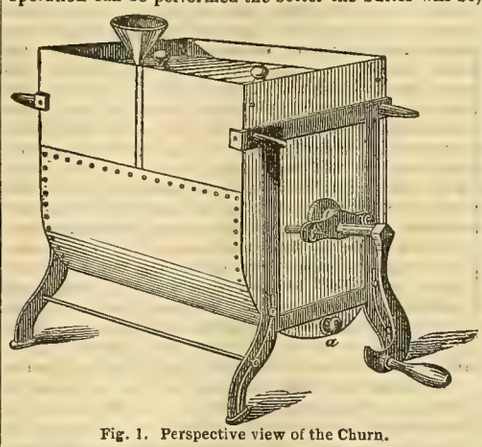


Fig. 1. Perspective view of the Churn.

but it will require more time to complete the process when the heat is low; a rapid process with a high temperature is injurious to both quantity and quality. Butter may be made in 10 or 15 minutes by raising the heat of the cream to 74°, or thereabouts, but the produce will be soft and inferior; except when small quantities are required in haste, this should be avoided. The temperature of the cream may be regulated by putting hot or cold water into the case; whenever hot water is added, turn the handle, so as to spread the heat through the churn; a regular, quick motion, without stopping, should be observed, but not to jerk it. When the cream appears well broken, draw off the hot water (if any has been used) from the case, and, should the butter be soft, fill the case once or twice with the coldest water that can be procured; the motion of the handle should then be slower, to gather the butter." The following mixture is recommended by Mr. R. for preserving butter. To each pound of butter add $\frac{1}{4}$ oz. of saltpetre, $\frac{1}{4}$ oz. best Jamaica sugar, and $\frac{1}{2}$ oz. best salt. Saltpetre in the above proportion will be found valuable to subdue that peculiar flavour arising from the use of Turnips as food.—*J. M'Intosh.*

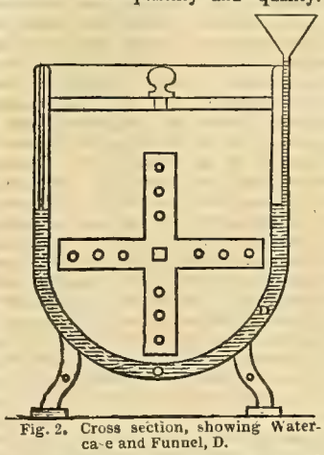


Fig. 2. Cross section, showing Water-case and Funnel, D.

Sea Embankments.—Land just recovered from the sea, might be sown with Salicornia herbacea, Saltwort, or sea Grass—all cattle like it; and it may be burnt for soda. Glaux maritima, sea Milkwort, or Black Saltwort, which cows will eat, may also be sown with advantage. And as salt and lime are known to be excellent as manure, may not a good coat of lime, well stirred in, be an excellent preparation for a crop of Oats? After this, Lucerne, then white Carrots. We have Societies now forming for draining land; it seems odd that there never has been a Society for embanking and recovering land from the sea and rivers. It certainly would answer well, and might be so managed as to pay a most excellent interest. From the place I am now looking, many hundred acres might be gained from the water, and the ship-way rendered deeper and safer, by joining the islands to the land and forming only one tide-way. Again, land between Rottingdean and Brighton is now washing away every winter. This may be prevented by throwing back all the vegetable mould on the surface, and then sloping down the cliffs gradually into the sea; then spread over it the vegetable mould, and beyond the slope drive piles, in lines every 20 feet from line to line, the lines running obliquely out to sea to break the force of the waves and collect the shingle between each row; faggots to be woven in between each stake up the line to catch the shingle. After every storm and spring-tide, men should be employed to throw up the shingle in regular slope against the land. Again, at Cromer the same should be done, adding first of all a good regular draining, to carry off the land-springs beyond low-water mark, to be covered drains, and to discharge under the low-water mark-way 40 feet in length, from one drain running at the foot of the cliff. Beyond these branch drains, the same piles and faggots as before recommended, to be used to break the force of the sea.—*D. D., Chatham.*

Moss.—From what I read in your Paper, I fear that Moss in lawns and Moss in pastures, is a prevailing disease at this time; and I apprehend it may have been caused by the long-continued dry weather of last summer. That, however, is immaterial; the desideratum is the remedy. My lawn and pasture are both choked with Moss. The aspect is full south, and they lie draining the subsoil clay. The pasture is dressed every year with stable manure, and has been sown almost every season the last six or seven years with Grasses or White Suckling, and has always borne a strong plant hitherto. Now, will you make inquiry amongst your acquaintances and of your numerous readers, what treatment has been found successful in such a case?—*An Original Subscriber.* [Moss is obviously like any other weed, in so far as it can be got rid of immediately only by direct extirpation, *i.e.* breaking up the pastures in which it occurs; or gradually, either by rendering the land unnatural to it, *i.e. probably* by draining and claying it, or by favouring the growth of other plants or Grasses to *that* extent that they may overtop it, and as it were suffocate it; and that is *probably* by rich dressings of manure.]

St. Peter's Farmers' Club.—Bromston.—This Club has been in existence many years, and consists entirely of what may be termed practical agriculturists. Their occupations of land are not extensive. Farms in this neighbourhood rarely contain more than 200 acres; and (except in a few instances, where more than one farm is held by the same person) the members of this Club would not generally be termed large farmers. It has been the custom, for from 10 to 20 of them to meet at the Wheatsheaf inn, every Tuesday evening from half-past 6 o'clock till 9, to take their pipes, and talk over, in a free and friendly way, any subject that any one of them may deem it proper to introduce. This plan, however, is dispensed with once a month, and then a chairman, chosen annually, presides, and the secretary, who is also chosen annually, with the co-operation of the chairman, introduces a particular subject for discussion. Minutes are taken, conflicting opinions are balanced, the most general feeling on every point is ascertained; this is recorded in the secretary's minute book, and at the end of the year is published, and is considered to contain the opinions of the Club on the different subjects which are discussed. These monthly meetings are much more numerously attended than those which are held weekly, and they are particularly calculated to interest and improve young farmers. The members of this Club are but little interested in the agricultural literature of the day. Located, as they are, between the towns of Ramsgate and Margate, from either of which places they can generally obtain a ton of good manure for 2*s.* 6*d.*, and the result of its application being to a certain extent highly beneficial, they are not particularly concerned in the chemical analysis of soils, or the peculiar properties of artificial manures, with which almost every book, magazine, and newspaper that touches on agriculture in the present day is filled; and, from their situation and habits, it is more than probable that their Annual Reports, though full of matter important to them, might not by scientific farmers and chemical experimentalists be thought to possess much value. No subjects with which the interests of agriculture are identified are excluded from the discussions of this Club because of their connection with politics; and any member is at liberty to introduce a subject by obtaining the permission of the chairman. Their annual dinner takes place in April. The three topics still remaining to complete the present year are as follows:—1st. The injustice of the legislature in passing the late corn laws and in altering the tariff, without, at the same time, altering to a corresponding extent, the rent-charge on tithe-commutation. And whether, instead of the amount of tithe to be paid annually being settled by the averages of seven former years, without any reduction whatever, there ought not to have been a per-centage taken off equal in amount to the contemplated depreciation in the value of agricultural produce, in consequence of the changes in the laws referred to. 2d. Agricultural economy; including economy in manures, labour, cattle-feeding, &c. 3d. The comparative advantages of farming high, parsimoniously, or of steering between the two extremes.——*James Sneed, Secretary.* [We shall be exceedingly obliged by reports of the discussions and resolutions of this Club. The non-exclusion of political subjects from the discussions of farmers' clubs would, in every case but one, soon result in the breaking of it up—and that one case is just where such discussions would be obviously *useless*, all the members holding *one* opinion.]

Dibbling. — In an article on this subject in your Paper of the 25th inst., great stress is laid on the injury farmers do themselves by sowing Wheat to the extent of 2$\frac{1}{2}$ bushels per acre, not only in the waste of seed but in the consequent inferiority of the crops. Will "H. W." have the goodness to state why it happens, that in some light soils in this part of the country 3 and even 3$\frac{1}{2}$ bushels are considered requisite to be sown to produce a crop by no means too thick? I am aware of a less quantity being used last season, on a piece of ground adjoining that on which the usual one of 3 bushels was sown, and the result was a lighter crop of no better quality. In light soils the seed probably does not tiller to the same extent, and the amount

which vegetates is comparatively small, owing to the effect which frost is said to have of throwing it out, &c., &c.—*R. H., Dundee.*

The Food of Rooks.—Having seen many attacks made in your *Gazette* on the destructiveness of rooks, I have endeavoured to ascertain, from a *post mortem* examination, the real state of the case. I am afraid the result is not in favour of this persecuted race of birds. I ordered one to be shot every fortnight, and I inclose you the result of a careful investigation; in no one instance was a grub or caterpillar found. Do you suppose they are so much more quickly digested that no trace remains? for we have always believed they rooted up the Grass for that species of food. Should you like to insert it in your next Number, it may interest some of your readers, though I fear it may tend to more persevering hostilities against them.

1844.	
April 9. Stomach empty.	Aug. 10. Wheat.
„ 25. Worms and Oats.	„ 27. Barley.
May 2. Worms and Beans	Sept. 10. Worms.
„ 24. Worms.	„ 25. Wheat and Oats.
June 5. Worms.	Oct. 10. Acorns.
„ 20. Worms.	„ 25. Barley.
July 9. Trefoil seed, and Cherry-stones.	Nov. 5. Acorns.
	„ 22. Wheat.
„ 22. Peas.	Dec. 3. Acorns.
	„ 20. Empty.

—*Investigator.*

A Flintshire Dairyman would feel obliged for advice on the following points:—1. *The most effectual means of correcting the bitter taste which Turnips and other roots give to dairy produce.*—The popular remedy in these parts is, to put a small quantity of pounded nitre in the pail before going to milk, which answers well enough so far as the milk is concerned; but its influence can hardly be said to extend to the cheese and butter. The writer has heard it stated that nitre would meet the evil in the cheese and butter, as well as in the milk, if it were only used in sufficient quantity; but then, many are of opinion that the use of nitre to the extent necessary for effectually correcting the evil in cheese, or in butter when kept for some time, would give to the dairy produce medicinal properties, of a kind not altogether agreeable; be that as it may, the point is an important one, and such as might with very great propriety be brought under the notice of some of the leading chemists of the day.—2. *As to the safest and best metal for lining milk-coolers.*—3. *How far the system of house-feeding in the summer months with Clover, Vetches, and other green food, is applicable to dairy management—particularly the manufacture of cheese.*—We are assured that by cutting our Clover and other Grasses, and giving them to the cattle in the house, in a green state, we could keep nearly one-third more stock. Now if the Cheshire and Flintshire dairymen could be brought to reconcile this fact with the notions they entertain on the subject of cheese-making, it would be a matter of great moment; but it so happens that the most experienced in the trade tell us that the house-feeding system is utterly impracticable as regards cheese-making, inasmuch as that the milk got from cows kept and fed in the house (no matter how well they are kept), will not yield nearly so much cheese as it would have done had the cow been pastured. If, as some say, this difference in favour of the pasture system be owing chiefly to the exercise which the cows have when allowed to graze, the writer has an idea that it would answer the same purpose if the cows were turned out for an hour once or twice a day into some small inclosure near the cowhouse; and if it should appear that they did not, of their own accord, take sufficient exercise, they might be driven about gently, for half an hour or so; but I am afraid this increased exercise would create in the animals an increased demand for food, and consequently diminish the profit of the house-feeding.—4. *We find that cheese made from old pasture is far superior in point of flavour to that made from fields newly laid down—a circumstance much to be regretted. Can any one suggest a remedy for this, or any experiment likely to lead to a good result?*—It is plain that dairy management, according to the present state of our knowledge, presents most formidable obstacles to the introduction of good farming. The dairyman will not be persuaded to break up, drain, and properly cultivate his unproductive pasture land, to observe a rotation of cropping, or to adopt a Turnip husbandry until he is provided with remedies for the evils and difficulties above noticed.

Lucerne.—I forward a Lucerne plant, one of the crop respecting which I wrote you a few weeks since. It is a seedling of last year, having been planted during the first week in May last. In some few instances the plants were too close together, that is, they were less than 12 inches apart, and they have, therefore, been thinned during the last week. Passing over the field a few days since, I took up a few of the roots which were lying about, of which this is one. As my instructions were that the larger plants were to be preserved and the smaller ones taken up, the accompanying plant is by no means one of the largest. [It is a very strong-rooted plant with a bulky head.] Still, I think, it will be deemed conclusive as to the best mode of planting Lucerne. Although only put in in May it was, as I before stated, cut three times, and you will at once observe the number of shoots which it has borne. It is conclusive, too, as to the depth to which Lucerne roots penetrate. I read within the last year in the *Gardeners' Chronicle*, that they would only go directly down a few inches. The top root of this has been broken off at 22 inches, and, judging from the very minute points which some of the other roots retain, although of course these have all been broken, I entertain no doubt that the entire length of the root of this plant was not less than 3 feet. When a seedling of a few months has a root of such length, there appears no reason to suspect of exaggeration those persons who have alleged that old Lucerne roots have been found 8 or 10 feet, or even a greater depth, below the surface. It may be right to add, that the field in which my Lucerne plants are growing is level, and has no ditch or pit in or near it; I mention this, knowing that a belief has obtained that the roots of Lucerne or Saintfoin, when they exceed a few inches in depth, have not gone directly down, but following the course of a pit or ditch, have always kept within a short distance of its surface. The plant I send completely explodes that theory.—*Frederic Kelly.*

Carrots.—The Carrots respecting the cultivation of which you requested some information, were grown on a poor clay soil, taken up from permanent Grass eight years since, and drained about 14 inches deep. The preceding crop was Potatoes, manured with eight two-horse cart-loads of cake manure per acre, and well limed. The land being perfectly clean of Couch, it was merely ploughed in the autumn, and ridged up in drills about 20 inches wide, during the month of March; and after running a plough without a mould-board down every furrow, about 4 inches deeper, I sowed in the bottom of the drill at the rate of 6 qrs. of soot, mixed with 6 bushels of salt per acre; on part of the piece, a few rows at the rate of 2 cwt. of guano (Peruvian) per acre, and the rest with pigeon manure, at the rate of 4 qrs. per acre. I drilled 6 lbs. of seed per acre in the first week in April with a common two-row ridge drill, which came up pretty regular for the season, in consequence of the land being so fine when sown. That part dressed with pigeon manure was by far the best; that with guano next; and that with soot and salt, though very good, inferior to the others. I weighed an average part of an acre, which was at the rate of 26 tons, and having counted 20 one-horse cart-loads from half an acre, it seemed to corroborate it.—*Wm. Jno. Nicholson, Spittal.*

Breaking up Grass.—Being a great advocate for bringing a large proportion of our present Grass land into tillage, I cannot avoid noticing the remarks of "L. Somerset" in your last Number, which I consider calculated to mislead those engaged in such operations. Instead of commencing by digging to a considerable depth with the spade, and purchasing guano to get a crop of Turnips, I should advise paring and burning, the ashes from which will, in ordinary seasons, always produce a most abundant crop of roots at a very small expense. Although strongly impressed with the great advantages of deep culture, I consider deep ploughing on fresh broken land injurious; from the subsoil on old Grass land being so completely shut out from the genial action of the atmosphere, it requires great caution in bringing it to the surface. As those who are unaccustomed to the disturbing of Grass land, often find many difficulties in bringing it into tillage, I will shortly relate the system I have found to answer the best. All wet land should be perfectly drained before removing the turf; I then breast-plough to the depth of 1½ inch, and burn, then spread the ashes and cut the land with a sharp implement I have for the purpose, to the depth of 3 inches and 4 inches wide, and then work the same implement across it again at right angles; this operation cuts the land into squares of 4 inches; I then use the horse breast-plough, after which it will readily be got into till by the harrows, and roll, when I drill the seed on the flat. This system will be found much less expensive than ploughing, and it will avoid the very tedious process of getting the under turf to pieces and in a state to receive the seed.—*E. B.*

Earth an Absorbent of Ammonia.—The following experiment, taken from my Note-book of 1830, may probably interest some of your readers. I had taken from a headland which had been summer-fallowed—the subsoil being a tender white clay—a cubic yard of surface earth, which was immediately laid upon a lattice-door, being spread out upon it about a foot thick, in the centre of a dunghill in full fermentation, the earth lying upon about 3 feet of the dung, the space being covered with cross sticks and straw over the whole to retain the heat. It was twice turned over during the month, and after being taken out was exposed to the frost to pulverise it, then put upon a solid bottom of clay, and spread out into the form of a bed 18 feet by 3 feet in width; alongside of this bed was another formed of a similar cube of earth from the same locality, and laid out precisely in the same manner, which, however, had not been put into the dung-heap, my object being to make it a test of the other, by which to decide whether the gases exhaled during fermentation had been retained in the earth. The two beds were dibbled on the 5th of February with an equal number of grains and at equal distance, of the white Tartarian Oat, and netted over as a protection from birds. The result was that the Oats upon the bed which was put over the heating dung appeared above ground some days previous to the other bed not so treated, and distinctly kept the lead throughout the season, growing a foot and a half higher than the other; and upon being threshed and dressed the produce was:—From the earth immersed in the dung-heap, 3 quarts, ½ pint; from the maiden earth, 1 quart, 1½ pint; or, guessing from the general appearance of the crop, we may pronounce that in the first to have averaged from 10 to 11 quarters per acre, the latter at about 6 or 7. This experiment, though perhaps upon too small a scale to draw any positive conclusion, is I think, probably worth attention to those who have time to attend it, and in a manner justifies the practice of the farmers of the light lands of Norfolk and Cambridgeshire in making mixers of maiden earth and dung, and is worth attention where tender marls abound, as indicating the propriety of laying temporary bottoms of them to yards and sheds, to absorb the liquids as well as to retain the ammonia in the dung-heap. It also indicates the propriety of mixing guano with earth previously to sowing it.—*John Rivers, Sawbridgeworth, Herts.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

The Council resumed its sittings after the Christmas recess on the 5th instant, when a Monthly Meeting was held. Present:—His Grace the Duke of Richmond, K.G., President, in the chair; Earl of Hardwicke; Viscount Hill; Hon. Robert H. Clive, M.P.; Thomas Alcock, Esq.; R. W. Baker, Esq.; Thos. Raymond Barker, Esq.; Samuel Bennett, Esq.; W. R. Browne, Esq.; French Burke, Esq.; Col. Challoner; F. C. Cherry, Esq.; John Walbanke Childers, Esq., M.P.; Humphrey Gibbs, Esq.; Brandreth Gibbs, Esq.; W. G. Hayter, Esq., M.P.; W. Fisher Hobbs, Esq.; John Hudson, Esq.; Sir John V. B. Johnstone, Bart., M.P.; John Kinder, Esq.; Fielder King, Esq.; William Miles, Esq., M.P.; Philip Pusey, Esq., M.P.; Francis Pym, Esq.; Jas. Allen Ransome, Esq.; Professor Sewell; Professor Solly; William Shaw, Esq.; J. Villiers Shelley, Esq.; W. R. C. Stansfield, Esq., M.P.; and H. Wilson, Esq.

Sir Watkin Williams Wynne, Bart., of Wynnstay, North Wales; and Richard Milward, Esq., of Thurgarton Priory, Southwell, Notts., were elected Governors, and the following gentlemen Members of the Society:—

Hirst, Godfrey, Longdon Hall, Knowle, Warwickshire.
Gower, John Leveson, Bill Hill, Wokingham, Berks.
Marchant, George, Titsey Court, Godstone, Surrey.
Davidson, Geo., Penningtons-Priest-Gate, Darlington, Durham.
Jeyes, J. W., Uppingham, Rutland.
Conroy, Sir John, K.C.H., Arborfield Hall, Reading, Berks.
Scott, George G., Edenham, Bourne, Lincolnshire.
Thornton, J. L., Market-Rasen, Lincolnshire.
Weekes, Frederick, Hurst-Pierrepoint, Brighton.
Parkinson, John, jun., Hetgreave Park, Southwell, Notts.
Bradshaw, John, Weasle House, Eccles, Manchester.
Warner, Frederick, 28, Cornhill, London.
Meredith, Lewis, Shrewsbury.
Laycock, Joseph, Lintz Hall, Newcastle-on-Tyne.
Wilberforce, the Ven. Archdeacon, Alverstoke, Gosport, Hants.
Snowball, Joseph, Netherwitton, Morpeth, Northumberland.
Huggup, James, Shieldykes, Alnwick, Northumberland.

The names of 65 candidates for election at the next meeting were then read.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, presented to the Council the Report of the Committee, on the state of the funds of the Society; from which it appeared, that on the last day of the month just ended, the amount of permanent capital invested in the names of the Trustees of the Society was 7700*l.*, and the current cash balance in the hands of the bankers, 2014*l.*

Local Societies.—The President called the attention of the Council to the suggestion made by Sir Harry Verney, Bart., at the last December General Meeting, in reference to the formation of a connection between the Royal Agricultural Society of England and the various Local Societies distributed throughout the kingdom; when it was resolved, "That it did not appear desirable that the Royal Agricultural Society of England should take the leadin asking other Societies to be joined with it.

Shrewsbury Meeting.—On the motion of Mr. Bennett, seconded by Mr. Fisher Hobbs, it was resolved, "That one herdsman or shepherd shall be present in the Show-yard, having care of the stock of each exhibitor, except during the time the Judges are making their award: provided they have a Ticket with their name thereon."

On the motion of Mr. Fisher Hobbs, it was resolved:—"That the apportionment of the prizes for Implements be postponed to the next Monthly Council on the 5th of March, and that special notice to that effect be given by letter to each member of the Council."

Mr. Fisher Hobbs gave notice, that he should move at the next Monthly Council, "That the Judges for Implements be appointed in the same manner as the Judges for Stock."

Mr. Ransome gave notice that he should move at the next Monthly Council, "The consideration of the propriety of deferring the award upon the Implements specified on the Society's Prize Sheet, until some period after the Annual Meeting, in order to afford time for fuller trial, under greater variety of circumstances and locality, than is attainable under the circumstances of confining the trials which determine the award to the two days before the Meeting."

Ashes of Plants.—The communications of the Marquis of Northampton, Sir John Johnstone, Bart., Professor Phillips, and Dr. Lyon Playfair, in reference to a suggestion from the Chemical Section of the British Association at their annual meeting held last year at York, that analyses of the ashes of plants grown under various circumstances of locality and soil, should be undertaken by Professor Graham, who had offered his services gratuitously for the superintendence of their execution by his pupils in the Laboratory of University College, London, having been read, it was moved by Sir John Johnstone, seconded by Mr. Pusey, and carried unanimously—"That the sum of 350*l.* be devoted to that important object, and that Sir John Johnstone, Mr. Pusey, and Mr. Miles be requested to form a committee, for the purpose of carrying out the views of the Council, and communicating with Professor Graham on the subject.

Epidemic among Stock.—A letter having been

read from the Rev. H. Dampier Phelps, of Snodland Rectory, near Maidstone, Kent, suggesting "that the Society might do a most essential service to the country, by procuring an Order in Council prohibiting the importation of any live beast from Holland or the north, as long as the infectious malady they now have amongst their horned-cattle exists," it was resolved by the Council that their thanks should be given to the Rev. Mr. Phelps for this communication, and that his Grace the Duke of Richmond, as the President of the Society, should be requested to enter into communication with Her Majesty's Government in reference to this subject.

Letters were read from Mr. Gordon, Mr. Evan David, Mr. Pulini, Mr. Wright, Mr. Stant, Mr. Pannell, Mr. Bullen, and Messrs. Cottam and Hallen; when the numerous communications on topics referring to the discussions of the Weekly Councils were reserved for that purpose, and the Council adjourned to Wednesday, the 12th of February.

AGRICULTURAL CHEMISTRY ASSOCIATION.

At the late Half-yearly Meeting of Subscribers to this Association, held last week, the Secretary, Mr. Coventry, read the Report of the Committee. During the past year much has been done to spread everywhere among our rural population a more enlightened knowledge of the art by which they gain their livelihood. For this end, lectures have been given in almost every district of the country, from Ross-shire to Galloway, where farmers were met together, and these generally on practical topics of their own selection, but not without a reference to the importance of general principles and the value of science. The result of those lectures, 53 in number, has been to stimulate inquiry, to improve practice, to remove prejudices, and generally to raise the character both of our agricultural population, and their mode of culture. It is some indication of the state of public feeling now, that local monthly newspapers, devoted entirely to scientific agriculture, have sprung up everywhere, meeting with much encouragement, and that private lecturers are busy in many places following up the teaching of Professor Johnston to the farmers, or supplying his place in localities which he has not been able as yet to reach. The efficiency of our Association in this and in other ways, has attracted so much notice, even abroad, that an attempt is now making in Jamaica and Demerara to organise an institution on the model of it, and with an adoption of our rules as nearly as the circumstances permit. It having occurred to your committee that advantage might be taken of those occasions that bring farmers together, for the interchange of their knowledge and experience—public breakfasts, with conversation on subjects of interest, have been tried and with much success. At Glasgow, during the Cattle Show, and at one or two other places, the experiment was so satisfactory that it is intended to be repeated at Dumfries in August next, with more care and preparation, and wherever lectures are given it is recommended for adoption. The difficulty is to get practical men to come forward and bear a part in the discussions; but as these are to be kept down to the level of ordinary conversation, and farmers from every quarter will be invited to join in them, the reluctance will probably soon yield to the interest and the excitement. So much for the outfield labours of the Association. At home, in the laboratory, a great deal of work has been overtaken. Not fewer than 384 analyses have been made in the year, with separate reports and practical remarks, or letters of advice, given with each. The subjects of these analyses have been—

Soils	134	Marls and limestones	27
Guanos	122	Potatoes and other vegetable products	9
Ashes of plants	25	Miscellaneous	37
Oil cakes	4		
Waters	26		

These analyses were made for private parties, members of the Association, but the public has likewise profited by them, inasmuch as the venders of manures have been deterred from selling adulterated articles. With one exception, indeed, we have not heard of a single case of adulterated guano in Scotland. But the most important, and by much the most interesting results of the analytical inquiries remain to be mentioned. Without entering on the details, which could not be given here, the following statement must suffice:—1. It will be remembered, that last year the analysis of two samples of Turnips, raised respectively by means of dung and guano, presented remarkable differences in their chemical constitution. In consequence of this, experiments upon their feeding properties have been made, under the direction of Lord Blantyre; and the result has been, that the cattle fed on the dung Turnips increased much more rapidly than when fed on the other. So important a result, in reference to the value of guano, requires that the experiment should be repeated, which is about to be done in several parts of the country. 2. Oats have been found, on special investigation into those ingredients in them which yield muscle in animals, to possess those principles in larger proportion than any other variety of our grains usually employed for food, which will account for their very general use among our hardy peasantry. 3. The quantity of those ingredients in different varieties of Turnips has never been investigated hitherto. It is now, however, under examination, and already it has been ascertained that in this respect they are equal to 1-30th or 1-40th part of the same weight as ordinary Wheat or Barley. 4. By analysing a variety of trap-rocks, from different counties of Scotland, the proportion of lime they contain has been found to be very much greater than was generally supposed, amounting in some cases to as much as one-fifth of what is contained in ordinary lime-stones. This fact has important bearings on the application of lime in districts where those trap-rocks abound, and the soil is formed from them. It also explains the source of the lime in marl-beds in hollows, with no calcareous rocks near them, as in that recently opened beside Holyrood. 5. In connection with this subject, it has been considered of consequence to ascertain the proportion of lime present in other kinds of rocks, and particularly in the clay rocks of Wigtonshire and the neighbouring counties, where improvement is making great progress. Among other results already obtained it has been found that those rocks, from which, in a great measure, the soils there are derived, contain only about 1 per cent. of lime; and hence the beneficial effects which follow the use of lime there, and even the necessity for its application. This fact is the more important, as the clay slates form nearly a 6th part of the entire surface of Scotland, the trap-rocks less than a 10th part. 6. Barley-sprouts and the dregs from distilleries contain so much of the valuable phosphates, that they admit of being most beneficially applied, and the importance of preserving them in all cases can be justified on the soundest principles. 7. The ingredients of the refuse lime of gas-works have been found so to vary as to require great caution in the use of it. Farther, what has been held out to the farmers, in England more especially, of its containing much nitrogen, and, on this account, being a very valuable manure, is not to be depended on. 8. Practical farmers, in dairy districts, having remarked that certain varieties of salt most favoured the storing of their cheese, this subject has been inquired into, and those varieties which contain most of the deliquescent chlorides have been found to be those which, in practice, answered best. This is rather remarkable. 9. It will be recollected that, at the last half-yearly meeting the attention of the chemist was particularly drawn to the prevailing disease in the Potato, with the view, if possible, of throwing some light upon its cause and cure. With this view, soils and Potatoes have been analysed; and for the purpose of collecting information, it was made the subject of discussion at one of the public breakfasts at Glasgow. Materials are thus gradually accumulating, out of which it is to be hoped that something practically useful may at length be extracted. 10. While we select these from among the more easily understood practical results which have been obtained in the laboratory, we ought to mention that numerous investigations of a higher kind have been constantly in progress, by which those scientific principles are to be explained and illustrated, upon which a strictly scientific agriculture is hereafter to be based. The Committee will now mention one or two suggestions, which they have to make for the future, which they think eminently calculated to be of use. They think it would be proper when points of difficulty or interest occur, that they should call the special attention of Professor Johnston to them, and thus be enabled to report on them to the next meeting of subscribers. Among other topics the following have occurred, and they may be taken as specimens of the kind of inquiries intended:—1. From the impossibility, generally speaking, of applying liquid manures to Grass lands at the period of their greatest abundance, or of mixing them with earth profitably—What other substances, it may be asked, foreign to the farm, ought to be used for fixing the ammonia or other fertilising matters, and which would admit of being afterwards kept and used like guano? 2. What are the substances chiefly thrown off as refuse at our manufactories, which might be turned to account, and in what way? 3. Has Professor Johnston anything to suggest in addition to what he has stated in his publications on the advantage of using sulphuric acid with bones or bone-dust, the proper proportions of them, and the nature of their action; or how far a mixture of sulphuric acid and common salt would suit with bones? 4. What is the effect of salve upon wool, and does it really promote the growth either of the fleece or the health of the animal? 5. Are there no articles of home produce, which might be made a substitute for oil-cake, and other foreign productions, for the feeding of sheep or cattle? 6. Is it generally ascertained that a better grain crop is got after Turnips, when the shaws are left on the surface till spring, than when they are ploughed in before winter—and, if so, what is the explanation? With your leave these questions will be submitted now to Professor Johnston, and a similar course be followed in future; and the Committee urgently invite farmers everywhere to suggest topics of inquiry, whether they be of a local or general nature. Another change proposed is, to have local Secretaries in different parts of the country. A difficulty is often felt by the practical man in a remote district as to forwarding articles to the laboratory. He may not know how much he ought to send, what questions he ought to put, or what sum he will have to pay; whereas a person in his neighbourhood might surely be found who could assist him—one known to the farmers round, and wishing them well. Such a person might also interest himself in the Association's success, procuring subscriptions perhaps, and transacting any little matters, such as the preparations for a public breakfast, or the like, and generally lending his aid and advice. With your leave it is proposed that farmers' clubs, and members of the Association, should be invited to suggest the names of such local Secretaries to the Committee. It has not become general as yet for counties contributing 20*l.* yearly to our funds, to avail themselves of the privilege of sending a delegate to the meetings of Committee: but when each district has its local Secretary, he will take means to have the sense of the subscribers as to the choice of the person, and then make it known. The Committee would be happy if they saw Professor Johnston a little more fully remunerated. For the 384 analyses he has made, he has drawn only 170*l.* of fees, whilst their actual cost to him, in rent of laboratory, keeping up of chemical apparatus, salaries to assistants, &c., has amounted to 480*l.*, leaving a difference of 310*l.*—which makes a serious deduction from the share of the Association's receipts that goes to him. It appears that members have analyses at little more than one-third of their actual cost, from which the benefit of membership may be easily seen. Professor Johnston has at present three assistants working ten hours a-day, and the increasing duties of the laboratory will require that he should engage another.

FARMERS' CLUBS.

I SHALL feel obliged by your giving me, through your Paper (or requesting some of your numerous correspondents to do so), information as to the best way of establishing Farmers' Clubs, or rather as to the constitutions and bye-laws of some of the best managed Farmers' Clubs, as we are about to establish a Farmer's Club in this neighbourhood, and wish to obtain every information on the subject; should we be successful, of which I think there is no doubt, I shall take care that, in compliance with your wish, reports of the same shall be forwarded to you for insertion in your Paper.—*J. E., Chawton, near Alton.* [Will the Secretaries of some of our Farmers' Clubs be kind enough to give us such information as will enable us to give a full and satisfactory answer to this important question?]

Botley.—The last subject discussed was The most profitable Food for Sheep, and it was determined by a small majority, that Turnips and hay in winter, alone, was more profitable than with the addition of corn and cake. I find that Mangold Wurzel agrees uncommonly well with my cows; the butter is very excellent, without any unpleasant taste, and superior in quality to that of last year when they had dry food alone. They have half a bushel a-day each, no hay, what oat-straw they choose to eat, and go out to pasture for a few hours in the day. They would eat much more of the Mangold Wurzel, but I take it that the great secret in the use of this root is giving it in moderate aud regular portions. I see very little in your Paper on the subject of subsoiling. My farm is on the London clay, very retentive, but yet with a good deal of sand, particularly in the top soil, which is apparent after rains. A portion I have drained this last year, and I am doubtful whether it would be advantageous to subsoil the drained land next year or not. The evidence on the subject appears to be very contradictory. Are there any well-defined experiments showing the actual profit or loss of giving corn or cake to sheep? Facts on the subject are much wanted.—*W. C. Spooner.* [We have ascertained, in the case in which we tried it, the profitableness of giving Oats or oilcake to sheep—1 pint of the former, or ½ lb. of the latter, daily, to Leicester tegs.]

Reviews.

A New Theory of Agriculture, in which the Nature of Soils, Crops, and Manures, is explained. By W. Grisenthwaite. Wells, 1819. 12mo.

WE are tempted to draw attention to this little book, because though a quarter of a century has elapsed since it was published, and it has long been forgotten, even by those who make Agriculture their study, there is so much that is excellent in its pages, and so many things the author advanced, which have since been established by others, that on the score of justice alone, it is right to pay a tribute to the memory of a highly-talented and ingenious man. It is generally stated, that from the publication of Davy's lectures, till the last few years, no book treating on Agricultural Chemistry has been published in England; those who make this statement are evidently not aware of the existence of Mr. Grisenthwaite's book. The work derives additional interest from the fact that the late Lord Leicester presented the author with a handsome piece of plate, at one of the Holkham meetings, in testimony of the value which he placed on Agricultural Chemistry, and the good opinion which he entertained of Mr. Grisenthwaite's attempt to explain the theory of vegetation. This fact is evident proof that the common belief that Mr. Coke altogether despised the aid of chemical science, is quite incorrect, and may be said to reflect as much honour on Mr. Coke as it does on Mr. Grisenthwaite.

In the first chapter the author examines the conditions requisite for the germination of a seed, explaining the chemical changes which take place during germination, the composition of a seed, and the conditions necessary for its formation, pointing out the necessity of a supply of certain substances during the ripening of seed. Thus, he says, p. 26, "But when the grain is to be formed, there is taken up a considerable quantity of either pure nitrogen, or some substance containing that element, and also a notable portion of phosphate of lime." It would appear, however, that at this time he thought that the nitrogen required was absorbed in the form of soluble animal matter; a conclusion by no means borne out by further experience. The author next treats of the nature and composition of soils, endeavouring to define and explain the true office performed by the soil, showing that it is, as it were, merely the means of supporting plants, and conveying to their roots the requisite food. He also carefully distinguishes between the effects pro-

duced by mechanical texture and those due to chemical composition. "If chalk (carbonate of lime) form part of a soil, and also a part of the vegetables growing in it, then I consider the chalk in such soil to perform two distinct and independent offices—the one, as a part of the soil, modifying its texture; the other as a manure, and contributing a necessary substance to the plants that grow in it." The importance of porosity in admitting air, and allowing a free circulation in the soil, is also strongly insisted on: "There are other advantages also connected with a free circulation of moisture in a soil. Water is known to be a condenser and solvent of carbonic acid gas, which, when the land is open, can be immediately carried to the roots of vegetables, and contribute to their growth; but if the land be close, and the water lie on or near its surface, then the carbonic acid gas, which always exists in the atmosphere, and is carried down by rains, will soon be dissipated." The use of air in assisting in the decay of animal and vegetable manure is also shown, and the manner in which this is retarded by close soils is described.

The third chapter treats of manures, and commences with an attempt to draw an analogy between plants and animals, which, though ingenious, is of little value. The following observations on the nature of manures are very good:—"Every species of matter capable of promoting the growth of vegetables may be considered, as has been already observed, as manure; and we shall find, on examining the constituents of vegetables, that they are composed of oxygen, hydrogen, carbon, and nitrogen, or azote, with a small proportion of saline bodies; it is evident, therefore, that the substances employed as manure should be composed of these elements; for unless they are, there will be a deficiency of some of the elements in the vegetable itself, and it is probable that such deficiency may prevent the formation of those substances within it, for which its peculiar organisation is contrived." A little further on, speaking of the loss of manure by exposure to the air in heaps till fully rotted, he says—"Hence it appears how injudicious is the plan of fermenting manure, if the fermentation resemble that just stated; not only in the absolute loss sustained, but because the carbonic acid gas, if disengaged during the process of vegetation, is peculiarly adapted to aid that process, being soluble, and therefore capable of being absorbed by the roots, being aeriform, and therefore may be taken up by the leaves."—"It hence appears evident, that if this process of fermentation be allowed to proceed uninterruptedly in animal substances as long as it is capable of proceeding, that 60 per cent. of the whole weight will be dissipated, leaving but 40 per cent. as nourishment to vegetation, and every grain of that 40 insoluble; but its being in a minutely divided condition, renders it capable of entering into combination with oxygen gas, &c., to form soluble compounds with greater facility than it would have possessed in a state of aggregation."—"The blackness of well-rotted dung can proceed from nothing else than the evolution of the carbon of the substances contained in the heap, every pound of which indicates the loss of one pound and a half of other substances of the highest importance to vegetation." At the same time that in these, and many other of the author's observations, there are evident mistakes, there are also sound deductions, and excellent conclusions, which have only been confirmed by more recent chemical inquiries.

In the fourth chapter some new and very interesting theories are stated, the principal of which is, that of specific manures. He contends, and we believe he was the first who advanced it, that particular plants require particular substances for their growth and perfection. Thus, for example, he states that those plants which contain gluten must be supplied with nitrogen, in a form which they can absorb; and that if they have not enough nitrogen supplied to them, or are unable to obtain it, they will be defective, and the crop will either be small, or inferior in quality. He even goes further, and points out the value of phosphate of lime as a manure for such plants, and insists on its importance in connection with the absorption of nitrogen, and the formation of gluten. "If we pursue our investigations a step farther than we have done, we shall discover that phosphate of lime is as constant a constituent of Wheat flour as gluten itself. Phosphate of lime, therefore, is as much needed for the production of a crop of Wheat, as the substances which supply the starch and the gluten."—"Hereafter, when a more complete analysis of vegetables shall be made, it is probable that a nomenclature, founded on these specific substances, may at least classify, if not particularise, every kind of plant."—"I do not mean that every particular kind of plant would be found to possess a peculiar kind of saline substance. It is probable that there are classes of plants which are benefited by the same salt."—"It is probable that the change of cropping is rendered necessary from the exhaustion of those specific saline substances which existed in the soil in sufficient quantity for one crop, but not for more."—"If a piece of land, which has just produced a crop of Wheat, could have restored to it all that which the Wheat crop has abstracted from it, there can be no doubt but that the land would grow as good a crop of Wheat the next season as it did the former."

The last chapter consists of observations on the use of certain manures, such as lime, soot, &c. Some of these remarks are entirely wrong, being based on false conclusions, or erroneous experiments; others again are true, and evince considerable penetration. One suggestion of the probable value of ammonia is worth quoting:—"When lime is employed upon land where there is present any quantity of animal matter, it occasions the evolution of a quantity of ammonia, which may perhaps be imbibed by the leaves of plants, and afterwards undergo some change, so as to form gluten, &c." The book concludes with some good observations on the decomposition of carbonic acid by the leaves of plants, and the manner in which the latter are constantly absorbing carbon from the air, under the influence of light. The probable value of solid carbonaceous matter as manure is also indicated, as the author stated his conviction, from the result of his own experiments, that charcoal even at common temperatures is always combining with oxygen, and forming, though slowly, carbonic acid gas. These extracts are sufficient to show that Mr. Grisenthwaite was a man of advanced and enlightened views; and though, as may be well supposed, a good many of his chemical conclusions are now known to be incorrect, his name deserves honourable mention in the history of Agriculture, as being the first to draw attention to a number of important chemical truths, and his book may fairly be stated to have formed a great advance in Agricultural Chemistry.

Miscellaneous.

Drainage of Entailed Lands.—A meeting of landed proprietors, called by advertisement and circular, was held lately, to take into consideration the obstacles which the Scottish system of entails throws in the way of a proprietor thoroughly draining his estate. The Earl of Roseberry took the chair, and shortly introduced the business of the meeting, at the same time expressing his cordial concurrence in the principle of the measure. Mr. Milne, lyr. of Milne Graden, explained the present state of the law upon the subject, and particularly adverted to the defects in the Act 10th Geo. III., c. 51, commonly known as Montgomery's Act, which indeed allowed the heir in possession of an entailed estate to drain his land, laying three-fourths of the expense upon the heirs in succession; but that act was so defective, and encumbered with so many technicalities, that it was rather injurious than beneficial. In the first place, there was no check upon a proprietor constructing a drain of the most temporary nature, which would not last more than 9 or 10 years, instead of 40 or 50, which a well-constructed drain would last, and then laying three-fourths of the expense upon the heir in succession, who reaped no benefit by it. In the next place, the act required compliance with many technical points, and allowed the heir in succession to challenge the claim on him at any period within 40 years after the drainage was made, and when, perhaps, the witnesses were dead; and if the court sustained his challenge, the creditors who had advanced the money at first would be defrauded. To remedy this state of things, he would propose that a new bill should be brought in, giving the sheriff power to see that the drains were executed in a substantial and permanent manner, allowing the next heir to object to the draining, or to the mode of its execution; and making the sheriff's judgment, when once pronounced, final and irrevocable. There were other matters of detail, such as providing for the discharge of the debt within a given time, which would be better considered by a committee. Mr. Murray, of Henderland, Mr. Forbes, of Callender, M.P., Mr. Burnett, of Gadgirth, and others, took part in the proceedings of the meeting; and in the end, resolutions favourable to the object, and appointing a committee to prepare a draft of a bill, were agreed to. Thanks were then voted to the Earl of Rosebery, for his conduct in the chair, after which the meeting adjourned.—*Edinburgh Evening Courant.*

Enlargement of Smithfield Market.—A meeting of the principal graziers and butchers frequenting Smithfield, took place last week at the Ram Inn, for the purpose of procuring an extension of that part of the market allotted for the sale of sheep. The chair was taken by Mr. J. Weall, who pointed out the inconvenience of the present arrangement, observing that as the Corporation of the City of London derived a very large revenue from the tolls, it was only reasonable to expect that they would endeavour to consult the convenience of those resorting to the market. It was ultimately agreed that a memorial should be presented to the Court of Common Council, praying for the proposed enlargements.

Notices to Correspondents.

Rural Chemistry—By E. Solly, Esq., F.R.S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all booksellers, price 4*s.* 6*d.*

Agric. Gazette—*R H*—Pay your subscriptions in advance and you will then be charged only 26*s.* per annum.

Artificial Egg-hatcher—*S W*—What is Mr. Berningham's address?

Barrow Drills—*B B*—They are still in use in some parts of Scotland and elsewhere, for sowing Beans. Apply to some Scotch agricultural machine-maker.

Bones and Sulphuric Acid—*T B Browne*—You may apply it as a powder, *i. e.*, by drying up the liquid as you propose, without losing its efficiency in any degree. There appears to be nothing in the account of your Oat crop to explain its effect on the young seeds.

Books—*A C K*—"Remarks on Thorough Draining and Deep Ploughing," by J. Smith, Esq.

——*F D*—An "Essay on the Growth and Management of Flax in Ireland," by J. Sproule.

Compost—*S*—Your compost would certainly be improved by the addition of bones. It should be applied, if to Grass land, as soon as possible—now.

Cost of Harvesting Potatoes—*Querist*—It will vary, with the crop, from 24*s.* to 30*s.* per acre.

Feeding Sheep—*H Adam*—In the absence of Swedes, feed them on oilcake, 1 lb. each a day, with 3 lbs. hay, and straw chaff *ad. lib.* It will hardly pay, but it appears to be the best thing you can do.

Lameness in Shed-fed Sheep—*J E*—This disease of the feet is one of the drawbacks attending the otherwise advantageous plan of shed-feeding. We experienced its effects in some degree last year, and the sheep being fit for the butcher, they were disposed of earlier than we should otherwise have done, from the fear that the disease would spread; and the pain being great there is little probability of the sheep improving during the existence of the disease. The affected sheep should be separated from the others, kept in a dry, clean place; the horn should be pared off the affected parts, and the diseased surface touched once with a feather dipped in hydrochloric acid, after which the ointment recommended by Mr. Greaves will be sufficient. If the diseased surface is not sufficiently exposed, the application will only sear it up, prevent the matter from escaping, and increase the lameness; but when properly exposed it forms an eschar, under which a new and healthy secretion takes place. The best mode of littering sheep in confined sheds or houses, is a matter worthy of inquiry. We suggest the more frequent removal of the litter, and the covering the surface with a thick layer of absorbent material, such as dry mould, coal ashes, gypsum, or sawdust. If the sheds are open to the sky, and consequently exposed to the weather, the surface should be on a declivity, so that much of the moisture may drain off, and be collected in a proper place. It would assist the cure if the diseased sheep were obliged to walk every day over a surface covered with powdered lime.—*W. C. S.*

Linseed—*W K*—The price of Linseed is about 44*s.* to 46*s.* per qr.

Manure—*M*—We hardly understand your question. Do you ask it as a landlord wishing to know how much in justice to the land a farmer ought to bring back for every ton of straw, &c. taken away? If so, then we think as much as is purchaseable for half the value of the hay, and, perhaps, for three quarters of that of the straw sold. A ton of Clover and a ton of straw will make very different weights of manure, according to the treatment the cattle receive. In general a ton of Clover will make hardly a ton of manure. A ton of straw will make 4 or 5 tons of manure.

Moss—*Amandalian*—Apply, by means of a water-cart, 300 gals. of gas-water of ordinary strength per acre. As regards your other question, see pages 29 and 550 of last year's vol. If you have not got it please to say so, and we will republish extracts.

Mr. Parkes—*M R A S* Should give us his name in confidence.

Old Mortar—*S S*—Break it as small as possible, and make it up in a compost with 6 or 8 times its bulk of ditch scourings, &c., and spread it over meadow land as soon as possible, at the rate of 16 to 20 cubic yards per acre.

Organic Constituents of Beans, &c.—*T P*—

	Water.	Albumen.	Non-azotised Matter.	Ashes.
Beans.....	14	31	51½	3½
Peas	16	29	51½	3½
Linseed.....	10	22.8	27.2 / 36. Fat.	4

Authorities for the first two, Dr. Playfair; for the third, Mr. Gyde, of Painswick.

Productive Surface—*Cwmro*—A field that is ridged up will not, other things being equal, bear more than if it were flat. One on a slope will not bear more than the extent of its ground plan would bear on a horizontal surface.

Sample of Wheat—*C M S*—Some of the grains appear injured by the weevil. The granary should be scoured with strong lime-water, and the floor, a few days afterwards, well washed; the grain afterwards placed in it will probably be freed from the attacks of the insect.

Small Farm—*M E B S*—Next week.

Subsoiling—*W C S*—Any soil which is dry will benefit by the operation. It is understood to be more efficient when performed on land which has been drained for some time. Clay land especially should not be subsoiled till the 3d or 4th year after drainage. The newspaper has been sent to your friend's address.

Tithe—*L W E*—We are obliged to decline answering questions on points of law. Hitherto this department has been in the hands of a gentleman eminently qualified for the duty, as the excellence of his replies has shown. But we find that professional men, both barristers and attorneys, have lately come to the understanding, that newspapers ought not to be made media for conveying professional advice upon such important matters as points of law. We are informed that this is the decision of the majority of the respectable part of the legal profession, and as we cannot consult any authorities, except the best, we must abandon legal answers altogether.

Wild Boar Breed—*T T, Plymouth*—We have a communication for you, but have mislaid your address.

*** As usual, many communications have been received too late

Markets.

HAY.—Per Load of 36 Trusses.

Smithfield, Feb. 6.

Prime old Meadow Hay	100s to 105s	New Hay	—s to —s	Clover	90s to 115s
		Inferior Hay	85 95	Straw	36 40

John Cooper, Salesman.

Cumberland Market, Feb. 6.

Superior Mead. Hay	108s to 114s	Superior Clover	112s to 118s		
Inferior -	88 98	Inferior „	100 107	Straw	36s to 40s
New Hay -	— —	New Clover			

Joshua Baker, Hay Salesman.

Whitechapel, Feb. 7.

Fine Old Hay -	105s to 110s	Old Clover	120s 126s		
New Hay -	90 100	New Clover	100 115	Straw	32s to 38s
		„ Inferior	— —		

POTATOES.—Southware Waterside, Feb. 3.

The arrivals during the past week have been liberal, and the weather being favourable for the consumption of Potatoes, the demand increased, and the best samples were eagerly sought after. At the end of the week there was a slight improvement in the prices of some of the best samples, and the annexed quotations were fully supported.

York Reds - -	60s to 80s			Kent and Essex Whites -	—s to —s
Perth - - -	55 60			— Kidneys	70 —
Fifeshire - - -	50 —			Wisbeach Kidneys - -	60 65s
Early Devons - -	65 —			— Blues - -	55 60
Late Devons - - -	— —			— Whites - -	— —
Cornwall - - -	65 —			Guernsey Blues - -	60 —
Jersey Blues - -	60 —			— Whites - -	— —
— Whites - - -	— —			Prince Regents - -	60 70

HOPS, Friday, Feb. 7.

We continue to have a steady demand for Hops; but, as yet, the spring trade has not commenced to that extent which had been anticipated. The genuine trade we have experienced through the last two months, gives us flattering hopes for the future.

Pattenden & Smith, Hop-Factors.

SMITHFIELD, Monday, Feb 3.—Per stone of 8 lbs

Best Scots, Herefords, &c.	3	8	10	4	0	Best Downs & Half-breds	4	0	4	8
Best Short Horns -	3	6	3	8		Best Long-wools - -	3	8	4	0
Second quality Beasts -	3	0	3	4		Ewes and second quality	3	4	3	8
Calves - - -	4	4	5	4		Pigs - - -	3	6	4	4

Beasts, 3342; Sheep, 27,740; Calves, 96; Pigs, 340.

We have to day a large supply of Beasts, and trade consequently heavy, although the demand is quite as good as could be expected for the quantity; almost all are disposed of at the reduction observable in our quotations; 4*s* is quite the top price of the best Scots, &c., and 3*s* 8*d* the best Short Horns. The supply of Sheep is also rather larger, and trade not quite so good, although we notice but little difference. The Calf trade is still very brisk, and some of the choicest have made rather over our top quotation. Pork trade is about the same.

Friday, Feb. 7.

There is very little business doing to-day, as is usual the first week in Lent. Our prices may be said to be about the same as Monday for Beef, with respect to what little is disposed of. The best Scots, &c. 3*s* 8*d* to 4*s*; Short Horns, 3*s* 6*d* to 3*s* 8*d*; middling qualities are lower, prices ranging from 2*s* 8*d* to 3*s* 2*d*. Sheep are not very plentiful; trade is heavy, but prices no lower, except in the middling qualities; best Downs, &c. 4*s* to 4*s* 4*d*; Long-wools, 3*s* 8*d* to 4*s*; Ewes and Second quality, 3*s* 2*d* to 3*s* 6*d*. Veal trade is exceedingly dull, and there is more alteration in the price of this article than any other description of Stock; nothing can be quoted at more than 5*s*. Pork trade is heavy, at from 3*s* 4*d* to 4*s* 4*d*.

Beasts, 880; Sheep, 3130; Calves, 123; Pigs, 287.

41, West Smithfield.

COVENT GARDEN, Feb. 8.—Little alteration has taken place in the prices during the past week; the supplies have been good, and the demand for some kinds of fruit has been a little brisker. Pine-apples are tolerably well supplied, and Foreign Grapes, of excellent quality, continue to be brought. Good Dessert Pears continue to advance in price. Apples remain nearly the same, in every respect, as last week. A few Cucumbers are still offered at from 3s. to 6s. each. Among vegetables, Asparagus continues to improve in quality; the best bunches fetch about 8s. each. Broccoli is rather on the rise. French Beans have been offered, but in very small quantities. Cabbages, Savoys, Brussels Sprouts, and other winter greens are selling at the same prices as quoted in our last report. Lettuces and Endive are good, and pretty well supplied. Mushrooms are good and plentiful. The display of Cut Flowers has been brilliant throughout the week. Among them we noticed Acacia pubescens, Rondeletia speciosa, Euphorbia jacquiniflora, Abutilon striatum, Gardenias, Lily of the Valley, Chinese Primroses, Azaleas, Camellias, Heaths, Hyacinths, and Roses.

FRUITS.

Pine Apple, per lb., 5s to 7s	Oranges, per 100, 4s to 16s
Grapes, Spanish, per lb., 1s to 1s 3d	— bitter, per 100, 16s
— Portugal, per lb., 1s to 3s	Lemons, per dozen, 1s to 2s
Apples, Dess., per bush., 4s to 9s	— per 100, 5s to 14s
— Kitchen, 3s to 6s	Almonds, per peck, 6s
Pears, Dess., per hf.-sv., 5s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
Pomegranates, per doz., 2s to 4s	Cob Nuts, per 100 lbs., 150s to 160s
Filberts, per 100 lbs., 100s to 120s	Nuts, Barcelona, 24s
Chesnuts, per peck, 3s to 7s	— Brazil, 16s to 20s
Walnuts, shelled, 12s to 20s	— Spanish, 27s
Oranges, per dozen, 9d to 2s	— Cob, 16s

VEGETABLES.

Cabbages, per dozen, 6d to 1s 3d	Spinach, per sieve, 2s 6d to 3s 6d
— red, per doz., 2s to 3s	Scorzonera, per bunch, 1s to 1s 6d
— plants, per 100, 1s to 2s	Salsafy, per bunch, 1s to 2s
Broccoli, per bundle, 1s to 4s	Leeks, per doz., 1s to 1s 6d
Brussels Sprouts, hf.-sv., 1s 6d to 2s	Garlic, per lb., 8d to 10d
French Beans, per 100, 3s to 4s	Onions, per bunch, 2d to 4d
Sorrel, per hf.-sieve, 1s 6d to 2s	— large, per bushel, 2s to 3s
Jerusal. Artichok., p. hf.-sv., 9d to 1s 3d	— Spanish, per doz., 2s to 4s
Potatoes, per ton, 80s to 80s	Shallots, per lb., 8d to 10d
— new, per score, 4s to 4s	Celery, per bunch, 10d to 1s 6d
— bushel, 1s 6d to 2s 6d	— Red, per bunch, 9d to 2s
— Kidney, per bsh., 2s to 2s 6d	Endive, per score, 1s to 3s 6d
— Autumn, per lb., 3d to 6s	Mushrooms, per pottle, 5d to 10d
Turnips, per doz. bch., 2s 6d to 3s 6d	Small Salads, per punnet, 2d to 3d
Red Beet, per doz., 1s to 3s	Watercress, p. 12 sm. bun. 6d to 8d
Carrots, per doz. bchs., 3s to 7s	Parsley, per doz. bunches, 3s to 5s
Basil, per bunch, 2d to 3d	— Roots, per bundle, 9d
Rhubarb, per bundle, 1s to 1s 6d	Tarragon, per bunch, 6d
Seakale, per punnet, 9d to 2s 6d	Mint, per bunch, 6d to 1s
Asparagus, per bundle, 3s to 8s.	Marjoram, per bunch, 2d to 3d
Horse Radish, per bundle, 1s 6d to 5s	Chervil, per punnet, 3d to 4d
Savory, per bunch, 2d to 3d	

MARK-LANE, Monday, Feb. 3.

The arrivals of English Wheat by land carriage samples this morning, was again small, notwithstanding which no progress could be made with sales until a decline of fully 1s. per quarter had been submitted to; a large proportion was left unsold late in the day. Foreign was in moderate demand, and the quantity disposed of rather larger than of late, several parcels being taken for shipment to Ireland; but no improvement could be established in its value. Barley is still a heavy sale at 1s. below the rates of this day se'nnight, but rather more inquired after than on Friday. Beans and Peas sell slowly, and our quotations are barely supported. The Oat trade is heavy, and last Monday's prices with difficulty obtained.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	40	49	Red .	42	47
—— Norfolk, Lincolnshire, and Yorkshire .	—	—	White	—	—
Barley, Malting and distilling 28s to 33s Chevalier	33	35	Grind.	24	27
Oats, Lincolnshire and Yorkshire . . Polands	20	24	Feed	19	23
—— Northumberland and Scotch . . Feed	20	23	Potato	21	24
—— Irish . . . . . Feed	20	23	Potato	21	24
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new	29	33	Tick	29	35
—— Pigeon, Heligoland .	37	to 40	Winds	—	—
Peas, White	34	to 36	Maple	31	33
			Grey	30	32
			Harrow	30	36
			Longpod	—	—

ARRIVALS IN THE RIVER LAST WEEK.

Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English . 9337 Sks. — Brls.	9275	11623	10770	4090	—	1425	1224
Irish . — — ,, — ,,	—	—	11	8793	—	—	
Foreign . — ,, — ,,	24	1942	—	1110	—	—	89

FRIDAY, Feb. 7.

The Market has been thinly attended on Wednesday, as also this morning, and business in all articles was limited. We observe no alteration in Wheat, Beans, or Peas, since Monday. Barley meets a slightly increased inquiry, without improvement in price. The Oat trade is heavy, and where sales are effected the turn is in favour of the buyer.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Dec. 28 per Quarter.	45s 6d	34s 3d	20s 10d	31s 9d	35s 7d	35s 5d
Jan. 4 . . .	45 8	34 2	21 10	33 9	36 3	36 1
— 11 . . .	45 10	34 5	21 7	31 4	35 9	36 0
— 18 . . .	45 7	34 7	21 8	31 4	35 7	35 8
— 25 . . .	45 7	34 2	21 3	32 11	35 4	36 1
Feb. 1 . . .	45 5	33 10	21 6	31 3	35 8	35 4
6 weeks' Aggreg. Aver.	45 7	34 3	21 5	32 1	35 8	35 9
Duties on Foreign Grain	20 0	4 0	6 0	10 6	7 6	7 6

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	4560	5570	5350	4220 Sks
Irish . .	—	—	4210	—
Foreign . .	—	1730	320	—

SEEDS, Feb. 7.

Canary . . per qr	48s to 50s	Linseed Cakes, Foreign, p. ton	8l to 9l 10
Carraway . . per cwt	44 50	Mustard, White - p. bush.	10s 14
Clover, Red, English . . —	—	— Superfine ,, .	12 16
— — Foreign . . —	—	— Brown ,, .	12 16
— White, English . . —	—	Rapeseed, English, per last	22l 25l
— — Foreign . . —	—	Rape Cakes . per ton	— —
Coriander 12	18	Sainfoin	— —
Hempseed . per last	35 36	Tares, Eng. winter p. bush.	5 6
Linseed . . per qr	— —	— Foreign . . .	— —
— Baltic	— —	Trefoil . . per cwt	— —
— Cakes, Eng. per 1000	12l 10 13l	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

WHOLESALE PRICES OF MANURES.

Guano, Peruvian per ton	11l 0s 0d	Carbonate of Soda cwt.	30s to 36s 0d
— Bolivian ,,	—	Nitrate of do. .	14 6
— Ichaboe ,,	8l 0 0	— Potash ,,	26 0
— Porter's ,,	10l 0 0	— Ammonia ,,	1b. 2 0
— — Liquid doz.	12 0	Nitric Acid . .	1b. 9d to 10
Gypsum . . ton	27s 6d to 35 0	Muriatic do. .	,, 1d to 1½
Sulphate of Ammonia cwt.	17s to 18 0	Tartaric do. .	,, 1s 4d to 1 6
— Soda ,,	6 0	Chloride of Lime .	cwt. 24 0
— Potash ,,	16 0	Carbonate of do. .	,, 1s to 1 6
— Copper ,,	38 0	Soda Ash . .	14s to 16 0
— Magnesia ,,	10 0	Agricultural Salt .	ton 5l 10 0
— Iron ton	4l 10 0	Hide do. .	,, 21 0
Sulph. Acid (London made) lb.	0 1½	Rock do. .	,, 60 0
— (country) ,,	0 1½	Petre Salt (Residuum) of Salt	
Bonedust and half-inch gr.	16s to 18 0	Petre . . . ton	70 0
Calcined Bones cwt.	8s to 10 0	Clarke's Dessicated Compost . . . hhd.	3l 12 6
Phosphate of Lime cwt.	7 0	Watson's Compost cwt.	10 0
— Soda ,,	12 0	Humphreys's Compounds ,,	10 0
— Potash ,,	16 0	Dr. Hallet's Manures ,,	10 0
— Magnesia ,,	—	Rape Cake . . ton	5l 10 0
— Ammonia ,,	24s to 30 0	— Dust ,,	5l 15 0
Superph. of Lime . ,,	8 0	Linseed Cake, Foreign ,,	9l 10 0
Graham's Phosphated Turnip Compost . . cwt.	10 0	— English ,,	12l 10 0
Urate . . . ton	5l 0 0	— Meal cwt.	18 0
Muriate of Lime cwt.	5s to 6 0	Whitney's Composition doz	24s to 30 0
— Potash ,,	16 0	Lights and Frames.	
— Ammonia	20s to 24 0	Sulphur . . . cwt.	14 0
Carbonate of do. ,,	65 0	Alum . . . ,,	12 0
Sal Ammoniac . ,,	48 0	Pearlash . . . ,,	36 0

ARRIVALS OF GUANO

During the last month, from 1st January to 1st February.

LONDON.		LIVERPOOL.	
African . .	3460 tons.	African . .	15,985 tons.
10 ships.		33 ships.	
South American . .	2070 ,,	South American . .	1897 ,,
4 ships.		5 ships.	

40, Upper Thames-street.

TO NURSERYMEN, SEEDSMEN, BUILDERS, and OTHERS.

TO BE DISPOSED OF, most desirable NURSERY GROUNDS, situate within half an hour's ride from either of the Bridges, containing about 3 Acres of Land in a very high state of cultivation, and in the midst of a populous and wealthy neighbourhood. There are a Cottage, Greenhouse, Pit, and Seed-shop on the Premises. The above are held under a Lease, of which 31 years are unexpired. The valuation of the stock will not exceed 200*l*. For further particulars apply by letter to C. D., No. 13, St. Martin's-le-Grand, City.

TO AMATEUR FARMERS.—The Advertiser would be glad to let on lease, to an improving Tenant, a SMALL FARM (of about 70 acres), situate in the favourable climate of the Isle of Wight, within four or five hours of London, where all sorts of produce, from the great resort of visitors and the residence of the Court, finds a ready and profitable market. A large Furnished House, with Garden, Paddocks, &c., might be also had, detached from the Farm; or a small Villa would be built by the proprietor, on a beautiful site, upon the Farm itself. The land being at present very much out of order, in want of drainage, &c., great scope for improvement is open to a Tenant possessed of capital and energy; and the Proprietor would do everything in the way of erecting Farm Buildings, or other conveniences, to meet the wishes of an eligible Tenant, on receiving proper security for the outlay. Pipe-tiles are manufactured cheap, near at hand. The best references required. For further particulars, an Advertisement in this Paper, giving an address, will meet with attention.

IN REPLY to the Advertisement inserted January 18th, and headed "TO AMATEUR FARMERS," J. G. will be happy to treat for the Farm, provided the terms are approved of. Respectable references given. Letters addressed J. G., Post-office, Woburn, Beds., will be immediately attended to.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches . . .	11s. 0d.	20 inches . . .	22s. 6d.
15 inches . . .	12 6	22 inches . . .	25 0
16 inches . . .	16 0	24 inches . . .	32 0
18 inches . . .	19 0		

Slate Works, Isleworth, Middlesex.

THE WARDIAN PLANT CASES, which obtained the Medallic Prize at the last Horticultural Fête, Chiswick, will shortly be disposed of by Ticket. The *Gardeners' Chronicle* of next week will (if the Engraving be ready) contain representations of the Cases, and further particulars. Meanwhile they may be viewed daily, on application, at 33, Argyll-street, Regent street.

GOLD PHEASANTS.—To be parted with at a reasonable price, (the party to whom they belong being overstocked). They are fine Birds of an early brood of last year.—For price, &c. apply to Mr. WATSON, Ensham, Witney.

GUANO for SALE, in Bags of 1 cwt. each, just landed, with a succession of cargoes to arrive.—Successive years' experience has unquestionably proved that Genuine Guano is the simplest, cheapest, and best Manure within the reach of the Agriculturist. The only reasonable anxiety which now remains is to procure the Guano unadulterated, and to obtain such practical directions for using the Manure as shall fully develop its productive powers. To secure to buyers these indispensable requisites, with each purchase will be given a warranted chemical analysis of quality, and also a copy of the recently published Pamphlet, "Practical Instructions for using Guano as a Manure, illustrated by Practical Results."

Large parcels will be delivered direct from the ship or waterside premises; smaller quantities may be had at the warehouses, 24 and 25, Billiter-street, or delivered within any reasonable distance at a trifling additional cost. Apply to JAMES CLARK, 24, Billiter-street, Fenchurch-street, London.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Feb. 8.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Fowder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l*. per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s*. 9*d*. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 1*l*. per quarter, including sacks; warranted to stand the most rigorous analysis.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street, Feb. 8.

GYPSUM—A BARGAIN.—A few tons at little more than half the market price. Warranted pure Sulphate of Lime.—Apply, stating quantity wanted, to A. B, Piggott's Library, Kennington Common, near London.

POTTER'S GUANO.
REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.
Sold by all dealers in Manures.

POTTER'S LIQUID GUANO.
FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1*s*. 9*d*. per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OP LIME, 6*s*. 6*d*. per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25*s*. in quantity.
Manufactory, 28, Upper Fore-street, Lambeth.

DRAINING OF LAND.—THE WORKMAN'S LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30*s*.

IMPROVED ROOFING FELT.

McKIBBIN'S PATENT ROOFING FELT

Is particularly applicable as a Substitute for Slate, Zinc, Tiles, Thatch, and other articles used for Roofing, from its Economy, Durability, and Lightness. It is quite impervious to wet and damp, resists the heat of the sun, and is a non-conductor of heat or cold. Besides the economy in repairs, the timber where it is used may be so light as to save its whole expense. It requires no other coping, and by attention to printed directions may be applied by a common labourer. It is free from breakage and contraction, like zinc, and requires neither painting nor coating. It is now in very general use for Roofing Houses, Verandahs, Sheds, Workshops, Ropewalks, Railway Stations, Icehouses, &c. &c., and for protecting Plants, covering Garden Frames, Corn, and Hay Ricks, the top and sides of Sheep-folds; and to Emigrants it provides a cheap, warm, durable, and portable Roof.

This Improved Roofing Felt is much more durable than the common Felt, made in lengths, not being subject, like it or other materials in continuous lengths, to be stripped by storm; and being fastened down at the overlaps only, the wet cannot percolate through the nail-holes.

TESTIMONIAL.

London, Nov. 1, 1844.

H. C. BOWDEN, Esq., Agent for McKIBBIN'S Roofing Felt.

It is with much pleasure I add my humble testimony to the superiority of your Felt over any other preparation of the kind with which I am acquainted. This Testimony I give with the greater cheerfulness from the many reports I have heard in its favour, and from the likelihood of its being used extensively in Agricultural purposes. I shall not fail to notice it in my Lectures when on the subject.

(Signed) JOHN ROBINSON, M.B., Senior Lecturer on Chemistry, &c., as applied to Agriculture and Rural Economy in this Kingdom.

Sold in Sheets 32 inches by 20, at 5*d*. each (being less than 9*s*. 6*d*. per square of 100 feet).

Apply to H. C. BOWDEN,
Agent to the Manufacturers,
No. 18, East India Chambers, Leadenhall-street, London.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles, made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

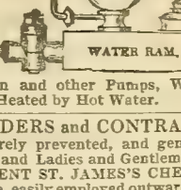
Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps.

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

THRESHING MACHINES.—The late Mr. THOS. WEDLAKE was almost the only maker of that useful Implement the THRESHING MACHINE, so useful, and even indispensable during the last war; and so renowned was he for the perfection to which he had brought that Implement, that the price paid him used to be not less than 140 to 160 guineas. The same, much improved, is still manufactured by his Widow, from the patterns of her late husband, and may be had at from 32 to 55 guineas, warranted not to damage in the slightest degree the straw, at the Fairkyte's original Foundry and Implement Manufactory, Established 40 years, near Romford, Essex, and 118, Fenchurch-street, London, opposite Mark-lane.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c. formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above article in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. Heated by Hot Water.



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COLLEGE OF CHEMISTRY.—At a Meeting of the Provisional Council of the College of Chemistry, held on TUESDAY, the 14th inst.,

The MARQUIS OF DOWNSHIRE in the Chair,

A Committee was appointed to organise the Institution and prepare its Laboratory, and for other purposes connected therewith.

Prospectuses and full particulars may be obtained at the Office, No. 7, St. Martin's-place, Trafalgar Square, London.

Life Subscriptions, 10*l*. 10*s*. Annual Ditto, 1*l*. 1*s*.

A List of Subscriptions will shortly be published.

Feb. 8. JOHN GARDNER, M.D., Provisional Secretary.

NEW AND CHEAPER EDITION.

In a few days, in foolscap 8vo. price 6*s*. cloth. Third Edition.

TALES OF THE COLONIES; or, THE ADVENTURES OF AN EMIGRANT.

By CHARLES ROWCROFT, ESQ. A late Colonial Magistrate.

*** This Work was originally published in 3 vols. post 8vo. at 1*l*. 11*s*. 6*d*., in which size two large editions have been sold.

London: SMITH, ELDER, and Co., 65, Cornhill.

Edinburgh: BELL and BRADFUTE. Dublin: J. CUMMING.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 7.—1845.] SATURDAY, FEBRUARY 15. [Price 6*d*.

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UNDER THE PATRONAGE OF HER MAJESTY.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.—The Exhibitions of the above Society will take place on the following days,

AT THE HORNS TAVERN, KENNINGTON.

On Wednesday, 2nd April, 1845; and at the ROYAL SURREY ZOOLOGICAL GARDENS, on Wednesday 21st of May; Wednesday, 25th of June; Wednesday 23rd of July; and on Wednesday 17th of September.

By order of the Committee, George Jagger,
3, Charles Place, East-st., Walworth. Sec. pro tem.

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New Cora Melon, a very superior green-flesh	,,	2 6
Cassaba and Malta green-flesh	,,	1 0
Cucumbers, the most approved sorts	,,	2 0

Any of the above can be sent by Post, for Money Order or Stamps. Priced List of Flower and Vegetable Seeds and Greenhouse Plants, can be had. See former Advertisement for American Plants and Roses.—Messrs. J. and H. Brown, Albion Nursery, Stoke Newington, London.

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John Gibson and Co., Nurseries, Forres, N.B.

HOYLE'S SPLENDID FIRST-RATE SEEDLING PELARGONIUM, "TITUS," which was considered one of the gems of the season, when it gained the prize at the Chiswick Fete, the only place at which it was exhibited: it is now on sale in strong plants at 3*l*. 3*s*. each; also, Hoyle's "Champion," 2*l*. 2*s*.; Hoyle's "Unique," 21*s*.; Hoyle's "Queen of England," 21*s*.; Hoyle's "Claude," 21*s*.; Hoyle's "Amelia," 21*s*.; Hoyle's "Majestica," 10*s*. 6*d*.; Hoyle's "General Pollock," 10*s*. 6*d*.; Hoyle's "Flora," 10*s*. 6*d*.; Hoyle's "Rosalba," 10*s*. 6*d*; Hoyle's "Sarah Jane," 10*s*. 6*d*.; the last nine sorts for 5*l*. 5*s*.; or the whole of the above, with a plant of Dobece's "Vesuvius," or Miller's "Elegance," for 10*l*., hamper and package included. The plants are very strong.)

P.S.—The following choice hybridised Seeds can be had free by post in sealed packets:—Pelargonium (saved by Mr. Hoyle) 100 seeds, 10*s*.; 50, 6*s*. 100 Fuchsia seeds (saved from W. Miller's extensive collection), 10*s*.; 50 seeds, 6*s*. Petunia seed, from striped and spotted varieties, small packets, 2*s*. 6*d*.; large do., 5*s*. Fine Cineraria seeds, small packets, 2*s*. 6*d*.; large do., 5*s*. If a small packet of each be taken together, 15*s*., or a large packet of each, 25*s*.

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W. M. will have no objection to exchange any of the above for some good large flowering bulbs of Lilium speciosum (*true*), or Punctatum, or good Evergreen Oaks in pots.

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GREAT YARMOUTH NURSERY. NORFOLK, 1845.

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Packages containing 100 canes.	.	£2	0 0
Do. do. 50 do.	.	1	1 0
Do. do. 25 do.	.	0	12 0

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YOUELL & Co. have much pleasure in announcing that they are sending out for the first time the above splendid light-edged purple Picotee, raised by the Rev. J. Burroughes. It is guaranteed to surpass any Purple Picotee that has yet been raised. Without commenting further upon its superiority, Y. and Co. beg to refer to the report in the *Gardeners' Chronicle* of August 10th, 1844, page 542, as follows:—

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,, Lady Alice Peel, Rose Picotee	.	7 6
,, Miss Jane, Purple Picotee	.	7 6
,, Mrs. Bevan, Red Picotee	.	7 6
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25 ditto ditto ditto	5	0	0
12 ditto ditto Show Flowers	1	10	0
25 ditto ditto ditto	3	0	0
12 pairs of extra fine Show Pinks	0	12	0
25 ditto ditto ditto	1	1	0

The selection being left to Y. and Co.

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	s.	*d*.
100 vars. choice Annuals, including the most approved, new, for	15	0
60 do. do. do. for	8	6
30 do. do. do. for	4	6
20 vars. choice Greenhouse Annuals, for . . .	6	0
20 do. Perennials, including fine varieties of Hollyhock, Fuchsia, Heartsease, Cineraria, Petunia, Calceolaria, &c. &c., for	6	0

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MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for Sale, after the present season, is desirous of disposing of his extensive Stock of ROSE TREES and other PLANTS, at LESS THAN HALF THE USUAL PRICES, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.

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Ditto, ditto, 12 varieties, 3*s*. per dozen, without names.

Ditto, ditto, per 100, 3 or 4 of each sort, without names, 16*s*.

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Brenchley, Kent, Feb. 15, 1845.

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LAURELS of various sizes,	from 2 feet to 5 feet.	
PHYLLEREAS	Do.	Do.
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CYPRESS	Do.	Do.
BAYS	Do.	Do.
AUCUBAS	Do.	Do.
PORTUGAL LAURELS	Do.	2 feet to 4 feet.
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MAHONIA AQUIFOLIUM	1	,, to 2 ,,
RHODODENDRON NOBLEANUM	1	,, to 2 ,,
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The nature of the soil in which these are grown insures their safe removal.

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Dwarfs, with names, 9*s*. to 12*s*. per doz.

CAMELLIA "HALLEII."

J. HALLEY, Nurseryman & Florist, Blackheath, begs to inform his Friends and the Public that he has the above splendid CAMELLIA now in bloom. It was figured last July in the "Florists' Journal," and has proved itself again this season quite equal to the figure there given. It is a very large, perfectly-formed flower, with large, round cupped petals, of great substance, and a bright crimson colour. It has been pronounced by those judges who have seen it to be one of the very best formed flowers of the species. Young plants, 3*l*. 3*s*. each, are now ready.

In consequence of numerous applications from the Trade, J. H. has been induced to offer his improved CAMELLIA STOCK (marked XX) called ex-extra, FOR SALE. Its advantages are, it grows with twice the vigour and strength of the common Stock, without occupying more room, as the leaves are moderate sized, but thick and fleshy, strikes root even more freely by cuttings, is of neat, upright habit; and as it is always in a free-growing state, making two or three shoots annually, it is fit for grafting or budding at any time throughout the spring, summer, or autumn. It is, from its free habit, particularly well suited as a stock for Reticulata, and has been very successfully used by the Advertiser for that purpose. Plants, per 100, 10*l*. 10*s*.; 50 do., 6*l*. 6*s*. Strong plants per doz., 42*s*.; Single Plants, 5*s*. each.

An extensive Collection of Camellias, cultivated both for the wholesale and retail trade.

A general assortment of Indian Azaleas, Ericas, Fuchsias, Verbenas, Geraniums, &c., of which Catalogues may be had on application.

The Nursery may be reached by a very pleasant walk of a mile, either from the Greenwich Railway Station or Pier, and coaches from the City and Westminster to the door every hour throughout the day.

SPLENDID NEW CALCEOLARIAS.

R. COOPER begs to offer the following NEW CALCEOLARIAS, which are now ready for sending out.

COOPER'S ROYAL EXCHANGE; gained the Seedling Prize at the Bromley June Show, 1844 . . 15*s*. 6*d*.

,,	MATILDA	10 6
,,	PRINCE ALFRED	10 6
,,	QUEEN OF THE FAIRIES . . .	10 6

The above Seedlings were submitted to the Editor of the *Gardeners' Chronicle*, and obtained the following favourable opinion. See *Gard. Chron.*, No. 21, for May 25th, 1844, p. 340, under the signature "R. C."

"Your three Seedlings are extremely good varieties—good in form and fine in texture, and having the large blotch in front of the flower very decided; they will be very attractive when grown as specimen plants."

Priced CATALOGUE for 1845 of GERANIUMS, FUCHSIAS, HERBACEOUS PLANTS, &c., will be sent by post on application. Also CATALOGUE of choice FLOWER SEEDS.

Sion Nursery, Croydon, Feb. 15.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (removed from Walworth.) By Appointment FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

		£	s.	d.
100 RANUNCULUSES in 100 Superfine sorts, named		2	10	0
Superfine Mixtures	per 100—10s. 6d. to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named		2	10	0
Superfine Mixtures	per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named		3	3	0
25 pair of CARNATIONS, in 25 ditto	ditto	2	10	0
25 pair of PICOTEES, in 25 ditto	ditto	2	10	0
25 GERANIUMS, in 25 Superfine sorts	ditto	3	10	0
Good kinds	per doz., from 12s. to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each		0	3	6
,, ,, PUNCTATUM	,,	0	7	6
,, SPECIOSUM, (true)	,,	2	12	6

H. Groom begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Feb. 15. Foreign Orders executed.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, Landscape Gardeners, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

SUPERB SEEDLING FUCHSIAS.—

AMETHYST . . . . . 7s. 6d.
SAPPHO . . . . . 7s. 6d.
EMPRESS . . . . . 7s. 6d.

For full descriptions, and remarks, of the above beautiful and distinct Fuchsias, see Advertisement in *Gardeners' Chronicle* of Feb. 8th. Plants sent out in April. The three will be charged 20s. The usual allowance to the Trade

Bass and Brown, Seed and Horticultural Establishment, Sudbury, Suffolk.

MAGNIFICENT SEEDLING FUCHSIAS.

W. J. EPPS begs respectfully to announce that his two splendid Seedling Fuchsias, NYMPH and QUEEN OF THE BEAUTIES, will be ready for delivery on the 25th inst., price 10s. 6d. each; the usual discount allowed where 3 of each are taken. For description and particulars see last week's Advertisement. Agents: Messrs. Warner and Warner, Seedsmen, &c., Cornhill; and Messrs. Hurst and McMullen, Seedsmen, &c., Leadenhall-street, London; where drawings of each may be seen.—Bower Nursery, Maidstone, Feb. 15.

IMPORTED ITALIAN RYE-GRASS.

J. AND C. WHALLEY beg to inform their Friends and the Trade that they are now landing, *ex* "Boxdiar," a quantity of the above valuable Grass, to be had in original packages from the quay.

St. George's Crescent, Liverpool, February 15.

STUART'S GROVE NURSERY, FULHAM-ROAD, CHELSEA.

C. M. WESTMACOTT, Seedsman, Florist, &c., respectfully begs leave to inform the Nobility and Gentry that he has opened the above establishment with almost every variety of SEEDS, STOVE, GREENHOUSE, and HARDY PLANTS. His CATALOGUE of FLOWER and VEGETABLE SEEDS is NOW READY, and may be had on application (post paid). It will be found to contain the newest, as well as those already known; and every kind will be warranted new, and true to name and colour. The Catalogue of Stove, Greenhouse, and Hardy Plants will be shortly advertised. In conclusion, C. M. W. can only add that every attention will be paid to those who may honour him with any order or visit.

PRINCE'S LINNÆAN BOTANIC GARDEN and NURSERIES, FLUSHING, NEAR NEW YORK.

WM. R. PRINCE & CO., Proprietors of this Establishment, offer for sale to their European correspondents the following articles:—

AMERICAN FRUITS of all the highly estimable varieties of every class, and suited to the most northern climes—Magnolias, of every species and variety, by the dozen or hundred, and especially the ACUMINATA, the best of all for Stocks, by the 100 or 1000. AMERICAN GRAPES, of 50 estimable varieties, for the table and wine; some as sweet as the Chasselas cost, and all capable of forming Vineyards in the north of Europe far more productive than those of France.

Forest Ornamental Trees and Shrubs of every North American species, including a number from California, Oregon, and Texas; and Seeds in large quantities of the most important Herbaceous Plants of all species, including Cypripediums, Sarracenias, Trilliums, Liliums, Asclepias, Liatris, Erythroniums, Helonias, Gerardias, and all the family of the Orchideæ, &c. Twelve magnificent new double varieties of the Pæonia moutan originated from seed.

Priced Catalogues sent to all applicants, and payments can be made in London, Liverpool, Glasgow, Havre, or Hamburgh, to Agents that will be designated.

Wm. R. Prince & Co., Feb., 1845.

CINERARIA—"GEM."

T. AND J. BACKHOUSE, Nurserymen, &c., York, have pleasure in offering to the public the above new and beautiful variety. It was submitted to the judgment of Dr. Lindley, who gave the following character:—"Your seedling, rich purple, with black eye, is a *fine* and *handsome* variety."—See *Gardeners' Chronicle* for 1844, page 280.

The striking colour, broad petal, and large heads of blossom of this seedling, have attracted the admiration of those who have seen it, and it had a prize awarded at the exhibition of the York Horticultural Society.

Good plants are now ready to be sent out per post, or otherwise, at 5s. each.

T. and J. B. can also supply good plants of—

	each s. d		each s. d.
Thunbergia chrysops,	3 6	Buddlea Lindleyana	2 6
Achimenes picta	2 6	Lisianthus nigrescens 2s 6d to 5s	
Statice Reinwardtii	3 6	,, Russellianus 2s 6d to 5s	

Acacia rotundifolia (a fine new species, and a profuse bloomer), 3s. 6d.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's), old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4s. per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8s. to 25s. each.—N.B. Packed safely, and sent anywhere in the country.

MESSRS. MARNOCK AND MANLEY beg to inform their friends that they have just had consigned to them from the Continent the following choice Melon and other seeds, strongly recommended.

MELONS.

	s.	d.
Black Carmelite, a scarlet flesh, fine flavour . per packet	1	0
Bevaisa, a green flesh, most delicious flavour ,,	1	0
Musk Melon of Cabul, fine musk flavour ,,	1	0
Large Cabul, do., fine flavour when grown in strong heat ,,	1	0
True Beechwood ,,	1	0
Malta green-flesh ,,	1	0
Trentham hybrid, delicious ,,	1	0
PORTUGAL CABBAGE.—A variety which comes in use in the winter, far superior to Savoy . per oz.	1	6
PARSLEY-LEAVED CELERY.—From America, the leaves of which are used for garnishing in winter, equal to Parsley . per packet	1	0
Also true WALCHEREN CAULIFLOWER, with a treatise: to be had fit for table throughout the year . per oz.	4	0
NE PLUS ULTRA BROCOLI.—This may also be had fit for table throughout the year ,,	5	0
VICTORIA CABBAGE.—An early dwarf kind, delicious flavour ,,	2	6

(If the above three varieties were once tried and successfully grown, no garden, however small, would be without them.)

With every choice variety of Vegetable and Flower-seeds in cultivation.—Nursery, Hackney, Feb. 15.

JOSEPH FRYER, in calling the attention of his Friends and the Public to his General Collection of FRUIT and FOREST TREES, EVERGREEN and FLOWERING SHRUBS, AMERICAN PLANTS, GREENHOUSE and HERBACEOUS PLANTS, FLORISTS' FLOWERS, VEGETABLE and FLOWER SEEDS, &c., begs to inform them that in addition to his former Establishment he has recently purchased an old established Nursery and Stock, which enables him to offer many rare species and varieties of the undermentioned Genera, which he can supply to the Trade on advantageous terms:—Magnolia Rhododendron, Azalea, Kalmia, Andromeda, Vaccinium, Ledum, Menziesia, Erica, Daphne, Berberis, Morus, Punica, Arbutus, Pyrus, Smilax, Ilex, Celastrus, Salisburia, Gaultheria, Calophaca, Caragana, Deutzia, Garrya, Thea, Calycanthus, Chimonanthus, Cytisus, Cistus, Genista, Cotoneaster, Benthamea, Juniperus, Cupressus, Pinus, &c. &c.—Clarendon Nursery, Camberwell, London.

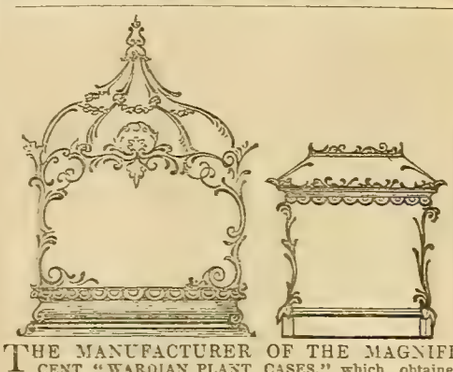
JESSOP'S NURSERY, CHELTENHAM, Established in 1815, from its extensive connection, offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm Bailiffs of established skill and reputation. All communications promptly attended to.

DAHLIAS AND DAHLIA GROWERS.—A description of all the important named Dahlias, including the new ones to be let out this season, is just published in Part II. of the HORTICULTURAL MAGAZINE, price 1s., and is absolutely necessary to all Dahlia Buyers. This Part contains also Treatises on the Culture of the Tropæolum, the Pelargonium, the Melon, and Myatt's Pine Strawberry, with 24 other Articles, and 13 Illustrations.

Thos. Houlston, 154, Strand, London, and all Booksellers.

APONOGETON DISTACHYON.—Three sound flowering bulbs of the above plant will be delivered free in any part of the kingdom, upon the receipt of stamps, or an order, for 4s. 6d., or 15s. per dozen. This beautiful free-flowering, and very fragrant aquatic has been so fully described and recommended in the pages of the *Gardeners' Chronicle* that it will be sufficient here to repeat that it is perfectly hardy, and may be cultivated to perfection by any person who can spare it a corner in the smallest pond.

WILLCOVE BROCCOLI SEED, saved under the inspection of the Advertiser, warranted true, and a most distinct sort, meriting all that has been said in its favour, may still be had 1s. per packet, or (from this date), 3s. 6d. per oz.—Direct to J. Mickle, Gardener, Folkestone, Kent.—Feb. 15.



THE MANUFACTURER OF THE MAGNIFICENT "WARDIAN PLANT CASES," which obtained the Medallic Prize at the Last Horticultural Fête, Chiswick, will dispose of them by subscription. One hundred subscribers at 2 guineas each. The two cases are designed most characteristically, and executed in the best manner of gold coloured metal; polished wood bases lined with metal, and move on castors; are glazed with the finest sheet glass, and both have a door at each end. The above cut indicates their outlines, but can convey no idea of their splendour, which elicited from Dr. Lindley an acknowledgement "that he did not think objects half so beautiful would be produced." Tickets and further particulars can be obtained of the following Seedsmen: viz. Messrs. Warner and Warner, Cornhill; W. and J. Noble, Fleet Street; G. and W. Rollisson, Tooting; Fisher and Holmes, Sheffield; Wm. Potts, Column Nursery, Salop; or at Birmingham; and of Mr. M. Nottingham, 6, St. Benet Place, Gracechurch Street, and 33, Argyll Street, Regent Street, London. At the latter address the cases may be seen. The dimensions of the larger case are 7 feet high, 4 feet 3 inches wide and 2 feet 6 inches in depth. The smaller, 4 feet, 3 feet, and 1 foot 11.

TO MARKET GARDENERS, NURSERYMEN, and FLORISTS.—In consequence of an attempt having been made in some parishes in the vicinity of London, and sanctioned by the Magistrates, to assess all Horticultural Erections for parish rates, the above Trades are requested to meet at the Rainbow Tavern, Covent Garden, at 11 for 12 o'clock precisely, on Saturday, 1st March, to consider what steps if any, shall be taken in the matter.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Baconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

Edward Beck will be happy to answer any inquiries, either personally or by post.

GARDEN POTS AND STANDS, Patent and others, in every variety, at Hunt's Wholesale and Retail Depôt White Biscuit-stone and Wedgwood ware, from 9s. to 7l. 10s. per doz., for Drawing Rooms, &c. Improved and Elegant Hyacinth Pots and Supports, from 1s. 6d. each.—29, Queen's-row, Pimlico, near the Palace.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1*l.* 15s. each. Commission allowed to agents.

These Dibbles may be obtained of Messrs. Cottam and Hallen, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter, to his address, inclosing a Post-office order for the amount.

Richard Smith, Upper Hall, near Droitwich, Worcestershire.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

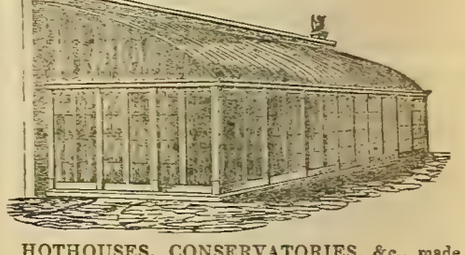
D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

COTTAM AND HALLEN, Engineers, Ironfounders, &c., &c., No. 2, Winsley-street, Oxford-street, London, and at Cornwall Road, Lambeth.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with Cottam's Patent or Rogers's Boilers. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c. &c., and every description of Implement for Agricultural and Horticultural Purposes.

Show Rooms at their Manufactory, 2, Winsley street, Oxford-street, where a large assortment of the above can be seen.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c &c.

WIRE-WORK, HOT-WATER APPARATUS, GREEN HOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

YOUELL AND CO.'S CATALOGUE of the newest and best
FUCHSIAS, VERBENAS, PETUNIAS, CHRYSANTHEMUMS, CINERARIAS,
and other highly-ornamental Plants, will be published in a few days, and may be had on application. It will form an acquisition to those who are desirous of ornamenting the Greenhouse, Conservatory, or Flower-Garden.
Great Yarmouth Nursery, Feb. 15.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 15, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

TUESDAY,	Feb. 18	Horticultural	2 P.M.
		Linnean	8 P.M.
WEDNESDAY	Feb. 19	Society of Arts	8 P.M.
		Microscopical (anniversary)	7 P.M.
SATURDAY,	Feb. 22	Royal Botanic	4 P.M.

ON the morning of Wednesday last, Feb. 12, the THERMOMETER on a post upon the lawn in the Garden of the Horticultural Society had fallen to 3° *below zero*; on a north wall, in the same garden, *to zero*; while the radiating thermometer indicated 9° *below zero*. This was nearly as severe a frost as that of Jan. 19, 1838, when the first-mentioned instrument, in the same place, indicated 4½°, and the latter 12° below zero. We all remember too well the disastrous result of that season; and we fear that injury will have been again sustained by half-hardy plants. There is, however, this important difference, that in 1838 the frost was sudden, and the ground almost naked; while, on the present occasion, a series of dry winds had prepared vegetation for the shock it had to sustain, and the ground was thickly covered with snow. We shall be anxious to learn the extent of mischief, when it shall have been ascertained, which cannot be for some time.

How have the various heating contrivances performed their duty on this occasion?

THE account given by Mr. HANKIN, at p. 851 of our last year's *Chronicle*, of his new method of GROWING MUSHROOMS, appears to us worthy of attention on many grounds, but especially because it is a proof of the favourable results which will always be attained when we take as the fundamental principles of cultivation the indications of Nature. We do not indeed deny the success which has attended the old method, the results of which are so certain and uniform that in the markets of Paris no Mushrooms are allowed to be sold except those which have been produced artificially; and so safe that Professor Richard, than whom none was better acquainted with the distinction of wholesome and noxious species, would never eat any except such as had been raised in beds; but we believe that if the method indicated above be properly followed out, the produce will, in many respects, be improved. The common Mushroom, unlike many of its kindred, is by no means a lover of shade; so far from it, the best and most beautiful Mushrooms are found in exposed fields, where they delight in a rich soil, retentive of a certain portion of moisture, but well drained. The points, then, to secure in their cultivation are circumstances as nearly as possible similar to those which concur in the seasons most favourable to their growth in the natural ground—an even temperature, a well drained and generous, but not a rank soil, kept moist, but by no means wet; a free access to light; and such an exposure to air as is consistent with the retention of a proper degree of humidity in the soil, and of temperature. The seasons in which Mushrooms are most abundant are those in which a warm but showery autumn succeeds a hot summer—a circumstance towards which attention should be paid by those who would experimentally follow out the subject.

We are the more anxious about Mr. Hankin's plan having a fair trial, because we are not only confident that the labour will be well repaid, but because we hope that such experiments may lead to other results; that possibly other useful species may be cultivated, such as Boletus edulis, one of the very best Fungi for the table, but now scarcely at all used in this country, though abundant in many districts, especially in the south of England; the common Morel, the cultivation of which, if successful, would amply repay the cultivator, and, above all, the different species of Truffle, which command so high a price in the market.

Not only may these and other species possibly be cultivated, but it is very probable that by nice discrimination the species themselves may be improved; for as great a difference exists in the varieties of Mushroom as between those of other plants. Mr. DRUMMOND informs us that in the naked soil in the Swan River district of Australia, a variety of the common Mushroom occurs, which frequently attains more than a foot in diameter—of which we have specimens before us—and that it is as far superior to the cultivated variety as the improved Knight's Marrowfat Pea to the old Hotspur. The spawn is easily imported; and, with care, especially if secured in one of Ward's Cases, would probably retain its vegetative powers till its arrival in England; but there would be little chance of succeeding in the cultivation, except—as far as practicable—the natural conditions of climate were imitated. A portion of the spawn of this variety, subjected to the usual mode of treatment by a very successful and able cultivator, has not succeeded; but should a new supply of spawn be sent over, we should by no means despair of its success, following in principle the track traced out by Mr. Hankin.—*B.*

We wish most particularly to call attention to the preceding observations, and to another communication, by Mr. Hankin, in our columns of to-day. Nothing can be more unnatural than the growth of Mushrooms in the dark, and, as might be expected, no result can be more unsatisfactory. It is true that abundant crops are thus obtained, but they are so tasteless and inferior to the meadow Mushroom, that the best merit we can assign them is that of wholesomeness. There is as much difference between the sickly produce of the Catacombs of Paris, where Mushrooms are largely grown, and the rich, racy, succulent specimens from an old meadow, as between the smallest beer and Trinity ale. In short, we grow Mushrooms in the dark for no other apparent reason than because they will submit to it.

It is recorded of Lille, that holes in the fortifications of that city are inhabited by miserable people, who in those dens of darkness and suffocation bring forth children always blind, lame, deaf, or deformed. What those children are to such as are nurtured in daylight and fresh air, are common, forced Mushrooms to the healthy vigorous offspring of an ancient pasture.

Mr. Hankin promises to send to London specimens of his Mushrooms. We trust he will do so. The Exhibitions in the Garden of the Horticultural Society would give him an admirable opportunity of making them known, and they could not fail to be appreciated.

"IF," says a correspondent, with more acrimony than the subject calls for, "you want to find a man to be cheated, look out for a FLORIST." We are very far from saying that. It is, however, true that a good deal of unfair profit is made by designing people, who get a living by practising upon the confidence of the fanciers of florists' flowers.

It is not many weeks since we warned our readers against the lying promises of some foreign trampers, but it would be a great mistake to suppose that such warnings are only required when strangers are in question. We have plenty of wolves among ourselves; there is no doubt of that.

Did no one ever hear of ambulatory gardeners, who travel about the country selling the commonest and trashiest Tulips under the names of the most aristocratic of that race?—who put off the fleshy roots of Water Dropwort for fine double Dahlias; and will sell you, as a prodigious bargain, a lot of Cauliflower seed, which has no other fault than that of being Rape. If there is any one interested in gardens who never did hear of such persons, we beg to congratulate him upon his good fortune. If he is wise, he will not make their acquaintance.

We have lately seen the following advertisement:—

"A.... B.... * * * * *

"Most respectfully announces that he will sell the whole of the following fine plants for One Sovereign:—12 superb Rose-trees, one of a sort; 12 superb Pansies, one of a sort; 12 superb Carnations, one of a sort; 12 superb Pinks, one of a sort; 24 superb Herbaceous Plants, one of a sort; 24 fine sorts of Flower-Seeds, one of a sort; 24 Scarlet Turban Ranunculuses; 24 Yellow ditto; 24 superb mixture ditto; 6 Gladioluses, new sorts; 24 superb mixed Anemones; 12 superb named Auriculas; and 12 ditto ditto Polyanthuses; all of which will be sent, good roots, well packed, and forwarded to any part of the country, *upon receipt of a check or post-office order.*"

When was such benevolence before heard of? Who would not have a garden when such liberal dealers are at hand to stock it? For one sovereign only, the buyer is to have 222 different things! The plants are charged at a penny a-piece, and there is 18*d.* for packing. Was there ever such a bargain, especially when it is remembered that the sorts are "superb?"

Mr. A. B. is, however, not so foolish as to lose sight of the main chance. *He* does not trust his customers. No, no! he expects them to trust *him*. "Send me your sovereigns," he says, "and I will send you the bargain." This is only reasonable, seeing that 200 or 300 miles lie between him and his buyers, with whom, therefore, he cannot be, and perhaps might not like to be, acquainted.

We learn that sundry sovereigns have been forwarded to Mr. A. B. We do not hear that the bargains in return are yet forthcoming. No doubt, however, they will be; and we wish the buyers joy of them.—*W.*

MUSHROOMS.

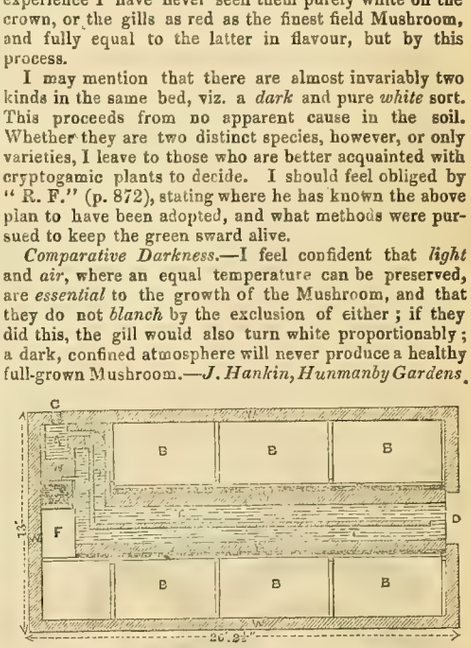
[*See p.* 851, 1844.]

THE following is a section of a Mushroom-house at Hunmanby. The dotted lines at the end section are beds on the ground floor 9 inches below the level of the pathway; they are appropriated solely to the growth of Sea-kale and Rhubarb. The tanks under the pathway are made with common brick, and coated with Roman cement, which answers admirably. An open cast-metal boiler is placed inside of the house, so that by this means cold drafts of air are prevented, and the proper temperature of the house is thus maintained more uniformly. The roof of the house is covered with tiles, except the spaces left for glazed sashes, of which there are three on each side fixed alternately, so that the interior of the house is perfectly light, so much so that visitors are as often found admiring the growth of the Mushroom as that of any plant under my care.

In my former paper I did not mention the shape in which the green sward is best adapted for the free spread of the spawn. I have since discovered that the turf is best after being partially dried in a shed, taking care to preserve the vitality of the Grass, which I consider very essential to the growth of Mushrooms. In all my experience I have never seen them purely white on the crown, or the gills as red as the finest field Mushroom, and fully equal to the latter in flavour, but by this process.

I may mention that there are almost invariably two kinds in the same bed, viz. a *dark* and pure *white* sort. This proceeds from no apparent cause in the soil. Whether they are two distinct species, however, or only varieties, I leave to those who are better acquainted with cryptogamic plants to decide. I should feel obliged by "R. F." (p. 872), stating where he has known the above plan to have been adopted, and what methods were pursued to keep the green sward alive.

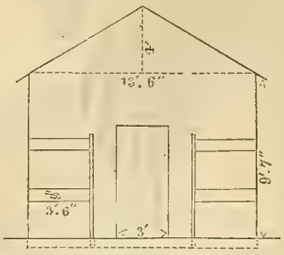
Comparative Darkness.—I feel confident that *light* and *air*, where an equal temperature can be preserved, are *essential* to the growth of the Mushroom, and that they do not *blanch* by the exclusion of either; if they did this, the gill would also turn white proportionably; a dark, confined atmosphere will never produce a healthy full-grown Mushroom.—*J. Hankin, Hunmanby Gardens.*



Section of the Roof.



Trellising over Tanks.



Elevation of the End, and Section of the ends of the Boxes.

References.—A, Boiler, 2 ft. 1½ in. by 1 ft. 9 in.; B, Boxes, 6 ft. 5 in. by 3 ft. 6 in.; C, Chimney; D, Door, 3 ft.; F, Floor; G, Grating; T, Tank, 9½ in.; W, Wall, 9 in.; and S, Open space.

ORCHIDACEÆ.

No. II.—*Moisture to the Air.*—At the Fence all the houses are heated by hot water in pipes of different forms and sizes. In one house they are square and dished about half an inch in depth; but the water in the dished part evaporates so quickly that it requires almost constant labour to keep them supplied; there is also here a large number of shallow cisterns filled with water; in these are introduced empty pots turned upside down, on which plants are placed above the water; this is a good plan to prevent the attacks of wood-lice, crickets, cockroaches, and other destructive vermin, but from the quick evaporation of the water on the pipes, compared with that from the water in the cisterns, the air is not sufficiently

moistened to induce the plants to grow satisfactorily. To save labour on the one hand, and supply the deficiency on the other, so as to sufficiently moisten the air, a small steam boiler was erected about three years since, with a conducting main-pipe carried within 2 inches of the floor all round the houses, having small T pipes inserted 6 inches in height at every 9 feet, so as to let out the steam equally and mildly all over the houses at once: (for a more full account of this see the "Gardeners' Magazine" for April, 1840). This method has answered admirably, especially for the air plants, and those in baskets and on logs. During the growing season steam was admitted for about an hour morning and evening, but in the cooler resting-house it was only admitted occasionally, just to keep the plants from shrinking too much. Since steam has been used, much less water has been required at the roots during the season of rest. Much, however, as I approve of steam, I do not venture to say that Orchidaceæ cannot be grown without it. The success of other cultivators, who do not use it, proves the contrary; but I will say, in its favour, that it answers admirably at the Fence. The plants grow freely and rapidly, making large healthy specimens in a comparatively short time, and flowering strongly and abundantly. The beneficial effect of its application is more especially exhibited on the plants on logs and blocks of wood. Species that previously were sickly, and that scarcely made any roots, soon recovered their health, and put forth fresh roots in abundance.

Water.—To apply this in right quantities, and at proper seasons, is, perhaps, the most difficult point in the culture of Orchises. Suppose a plant just starting into growth in the confined atmosphere of a stove filled with moist air, and watered freely, what would be the consequence? Experience proves that the vessels of the plant would be too much filled, a plethoric habit would be induced, and the young and tender shoot would perish. Water, therefore, in this stage must be given sparingly, only just keeping the compost moderately moist, and not wetting the leaves or pseudo-bulbs at all. As the leaves or shoots advance in growth, more water may be given; and when the new pseudo-bulbs are half grown, and appear solid, water may then be applied abundantly, and the plants gently syringed every clear morning in spring, and during the hot days of summer, in the latter part of the afternoons. The greatest quantity of water should be given between the half-growth of the pseudo-bulbs and their full growth. Watch carefully when they arrive at the latter stage, and cease watering almost entirely, as there is great danger of starting a feeble second growth, and, in consequence, preventing the plant from flowering, if the stimulus to growth is not at once withheld. Such air-plants as Aerides, Renanthera, Phalænopsis, Saccolabium, and



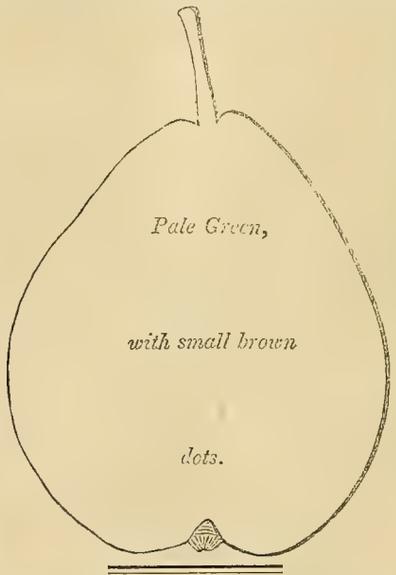
Aerides quinquevulnera.

Vanda, form no pseudo-bulbs; they keep constantly growing, and seldom flower if water and great heat are at all seasons applied. The only way to induce rest is to withhold water and reduce the temperature, both of which may be conveniently accomplished during winter. The question may be asked, Are Orchidaceæ to have no water during the season of rest? The answer is, they must be watched; and if the shoots or leaves appear to shrivel almost to death, a little may be given to keep them alive; where steam is used, or the air kept moderately moist, little water will suffice. The less water that is required during the season of rest, the stronger will be the growth, and the more freely the plants will flower, provided the roots are kept fresh and alive. Plants on logs, especially those without moss, require, as might be expected, more water than those in pots or baskets. I often water them, when growing freely, as much as three times a day, during sunny weather. I find it a good method, when very dry, to take the log down and dip it over head, thus more effectually wetting it. Rain or pond-water is the best to water with, and it is absolutely necessary that it should be nearly as warm as the air of the house in which the plants are kept.

JEAN DE WITTE PEAR.

Synonyms.—Jean Dewitte; Johann Dewitte.

Before the introduction of new Belgian Pears to this country, there were no late varieties fit for being grown as standards, that would now be considered fit for dessert. The Chaumontel was sometimes kept till spring; and the old Colmar must still be accounted one of the best, but it requires a wall, and is, moreover, a precarious bearer. It will therefore be readily admitted that additional varieties of really good melting late Pears, such as are in course of being noticed in our columns, were much wanted. There are, doubtless, many in possession of numerous varieties of Pears, who are nevertheless experiencing a blank in the supply at the present season. To such the Jean de Witte will prove most acceptable; for it well succeeds the Glout Morceau, Passe Colmar, and Winter Nelis, and thus fills up the period between these and the Easter Beurré, Beurré Rance, &c. The Jean de Witte was raised by the late Dr. Van Mons, of Louvain. Two distinct varieties were first introduced to this country under the above name, but both of them proved false and comparatively worthless. Hence the cultivation of the true sort, subsequently obtained, is more limited than would have otherwise been the case. The accompanying outline represents a fruit of medium size from a standard; but in rich soil, and a less dry summer than the past, it may be grown much larger. The flesh is yellowish-white, melting, buttery, and rich; the flavour somewhat resembles that of the Glout Morceau. Its season is generally from the middle of January, till March. The shoots are olive-brown, with short, rather hoary buds. Leaves middle-sized ovate. A good bearer as a standard; and it will be found a most useful variety, owing to its period of ripening.—*R. T.*



PLANT-POTTING.

To understand plant-potting thoroughly, so as to be quite capable of applying the materials used in this common, but too often imperfectly-performed operation, is abstractly the practical solution of plant-growing. Science cannot teach this alone. Practice, founded upon a physiological knowledge of the wants of plants, and a kind of finger-and-thumb mode of supplying those wants, will enable us pretty clearly to comprehend it.

Different kinds of plants require different soils. A Cape Heath, for example, must have peat, whereas a Pelargonium requires loam. Notwithstanding this difference in soil, they must be both potted so that water will pass freely through the whole body of earth in the pot. Hence, if water circulates unobstructedly through the entire mass of earth in which the plant is growing, and the superfluous water escapes with perfect freedom at the bottom of the pot; so air, in like manner, will diffuse itself spontaneously amongst the roots, and a healthy and vigorous action will thus rapidly proceed.

The moment any circumstance arises to prevent the water from filtrating through the soil, that moment air ceases to penetrate the ball, and the death knell of the plant is rung; or, what in first-rate cultivation is tantamount to it, the plant stands between life and death. In potting, therefore, it will be tolerably apparent that water and air must be supplied to every fibre, not only at the outside of the ball of earth, but through every part of it. The first important consideration deducible from the foregoing remarks, which presents itself, will be that plants are either killed with too much water immediately surrounding the roots, or that, in consequence of defective potting, water never penetrates through the ball, so that every rootlet may be regularly supplied. Practice, however limited, will have presented numerous examples of this, and likewise of plants suffering from an over-abundant supply. It may not, however, be so clearly understood that the plant is suffering from a two-fold cause; viz., the over-supply of moisture retained in the ball from defective draining, as well as defective potting. Thus the water which is prevented from passing off freely occupies every crevice, to the almost total exclusion of the natural atmosphere, the great and essential aliment of vegetable structure. Plants, therefore, cannot long exist in health unless these principles are embodied in the practical operation of potting. So necessary and important are they, that the commonest plant under our care is largely influenced by the right application of these simple but all-important considerations, which when rightly understood and closely adhered to, will do much to regenerate the whole system of plant-growing. The unnatural position of a plant in a pot, in the first place—and our complete ignorance, or disregard of this fact, without corresponding efforts to overcome the difficulties which this position naturally creates—has entailed upon the mere machine in the shape of a gardener all those evils which stare him in the face day after day and year after year, to no purpose. Verily, unless it be personal violence, or the loss of his situation, that may rouse his energies or lift his eyelids, nothing else will. Happily, these strictures cannot be applied to a vast number of my brother gardeners, who are fully alive to the importance of this inquiry, and who tarry not by the way-side, but have trimmed their lamps and buckled on their armour, determined to go on conquering and to conquer.—*Duro.* [We recommend these remarks to the particular attention of Mr. William Anderson, of Chelsea, and we hope he will profit by them.]

REMARKS ON FORCING FLOWERS, &c.

The immense accession of new plants of late years, and the increased desire to have winter or forced flowers, has had a tendency to cram to suffocation the shelves of hothouses in many establishments, especially those of second or third-rate character. Hence, the shelves of the Vinery and Peach-house are frequently occupied with things foreign to the original purpose for which they were intended.

One part of my object in making the following remarks is to endeavour to recommend some comparatively inexpensive forcing-pits, to help out the rest of the establishment in common cases, and to obviate, in some degree, the necessity of the cramming system before alluded to. Before describing the pits, however, I will just allude to the vast difference in habitude in some of the things which are at present the subjects of forcing. It is obvious that in one class, the maturative process must be succeeded by a state of rest: such are the Moss and Provins Roses, the Persian Lilac, the deciduous American Azaleas, together with the Vine, the Peach, and the Fig; and amongst herbaceous things, Rhubarb, Chicory, Seakale, Asparagus, the Lily of the Valley, forcing bulbs, &c.

Another class adapted for winter forcing take no rest unless it be forced upon them, but rise progressively through the maturative process into complete development, as the Camellia, the Indian Azaleas, the Cineraria, the Neapolitan Violet, the Chinese Primrose, and, I am induced to add, the Pink; also the various hybrid Roses adapted for winter flowering.

It is plain, then, upon the assumption of these two broad classes, that a very different autumn treatment becomes necessary, to say nothing of that of the spring and summer previous.

Now, one portion of those which require perfect rest, will force as well (through, at least, one portion of their progress), in darkness as in light. Bottom-heat, several degrees in advance of the atmospheric, is the great desideratum.

A line of low brick pits, with their surface about 3 feet above the ground, level at back, and having a rather sharp inclination to the front, from 4 to 5 feet in width, and possessing a steady and permanent bottom-heat of from 75° to 80°, with good roof covering, is, in my opinion, the sort of thing that would be a valuable adjunct to the houses in general.

About the mode of heating it would be superfluous to offer an opinion, whilst the case of Tank *versus* Fermenting Matter is pending. I may, however, say that dung and leaves at bottom (sweated previously), and tan at top, for a plunging material, would, with good management, carry out the purpose. However, if this material is adopted, hot linings or surface piping would be necessary; whereas, with a well-contrived tank bottom-heat such filthy messes would be done away with, and the lady proprietress herself might inspect the processes within with the most perfect ease, as well as immunity from dirt. This line of pits might be divided in the centre—one half to have wooden shutters and the other half to be glazed. The opaque roof would be available for forcing Asparagus, Seakale, Chicory, Mushrooms, the Lily of the Valley, and for plunging some of the deciduous tribes in, through the earlier period of their progress. Amongst other occupants of the dark pits, I would mention the forcing bulbs. It is pretty well known that the best policy with these is to get an advance of root before exciting the leaf: to accomplish this, darkness is necessary, together with a bottom-heat of from 10° to 15° in advance of the atmosphere.

Mr. Beaton has made some remarks in the Calendar bearing on this subject, in the course of which he repudiates the idea of gardeners being driven to the necessity of forcing their flowers in early Vineries and Peach-houses, in all which cases a compromise takes place, which, as he justly observes, when properly analysed, is anything but economy. He advocates the plan of a range of pits in two divisions, specially for flower-forcing.

With regard to that class of plants in which I conceive

the maturative process runs into perfect development of blossom without rest, the other and glazed division would be found of great use; many plants belonging to this class are driven into a state of rest, through the want of proper places, in the autumn. The Azalea indica, by this starving treatment, becomes almost deciduous; whereas if kept in a warm or comfortable atmosphere, it goes on steadily towards blooming, and retains a healthy foliage. The Camellia is similar, no decided rest being required, as I have proved for years, having at the time I write a house of these which is, and will be, a blaze of beauty for some time to come.

The Anne Boleyne Pink is, as I imagine, another instance of this class: its capability of flowering at almost any period is well known, provided it has a powerful action of root; and I do not see why those plants which are "spiring" for bloom in flower-pots, and of great strength, should not be encouraged to proceed when we have the light of autumn to assist us.

The Eranthemum pulchellum also is a lovely thing if well flowered; and, there being few blue flowers through the winter, it becomes doubly desirable. Some persons cannot flower this plant until the spring; and why? because their plants are overpotted, and kept in a state of constant excitement. This plant for autumn flowering should be struck from cuttings in February, or the old plants should be disrooted and their tops reduced about that time; they should be grown freely, and shifted for the last time by midsummer, so as to become pot-bound by the beginning of September; at which period, if they are taken from a warm house and placed in a cooler and dryer one, kept rather dry at root, and exposed to light, they will soon exchange the growing principle for the blossoming one; and the moment the blossom buds peep from the axils of the leaves, they should be introduced to a sweet moist heat, and be fed with liquid manure.

Flower-forcing is capable, in my opinion, of greater extension in point of eligible subjects, than many imagine; and when the tank system is perfectly understood in all its bearings, I have no doubt that flower-forcing will rapidly progress.—*Robert Errington.*

Home Correspondence.

Plant Training.—In addition to the remarks of "Duro" on potting (p. 35), I wish to observe that a thorough knowledge of pruning, training, stopping, &c., is also necessary; and unless this grand requisite is well attended to, with many of our most beautiful hard-wooded greenhouse plants, good potting will be in a great measure useless, and our expectations defeated. It is notorious to see how much this is neglected; nothing more is thought necessary after potting a plant but to give it air and water, and consequently, in a comparatively short space of time, a valuable plant becomes a tall, naked, unsightly object, having a few thinly-scattered flowers on the extremities of its branches. How soon, for instance, will the beautiful Epacris nivalis and impressa, &c., grow unsightly if not carefully pruned! By taking out all the strong shoots and shortening the middle-sized ones, the numerous smaller branches thus gather strength, the plant gradually becomes a handsome shapely bush, and every shoot, even the very smallest, often flowers abundantly down to the very edge of the pot. By this means the beauty of the plants is also prolonged for years, and they always look young and vigorous. There is no tribe of plants that requires or better deserves attention in this respect than Heaths. When a young Heath has become well established in a thumb-pot, and has grown to the height of 2 or 3 inches, it should then be stopped, and the succeeding shoots, when of a certain length, should also be again stopped, and so on continually until the plant becomes handsome and bushy. When arrived at a flowering state some kinds require to be pruned by the knife instead of by stopping: those of an upright habit, such as colorans, Boweii, and mammosa, which throw up strong flowering shoots from amongst numerous smaller ones on the lower part of the plant, should have these strong shoots, when the flowers are decaying, and the plant beginning to grow, cut clean out; this will not only preserve the specimen low and bushy, and increase its diameter, but also cause it to double and even treble the number of flowering shoots every season. Again, other sorts that are shy in producing small shoots near the bottom of the plant, such as Vestita, should be carefully stopped, in order to make the plants produce five or six shoots. When these have reached the length of 7 or 8 inches peg them down horizontally and at regular distances round the stem of the plant, and stop them at the same time. By following up this plan with strong-growing kinds, the plants will form low, spreading, beautiful specimens, and will flower much more profusely than when they are allowed to run to "leg," as is generally the case. The slender-growing kinds will require little pruning or bending—stopping occasionally will be quite sufficient for them. The above observations will give an idea how many other hard-wooded greenhouse plants having a tendency to run up naked may be treated. Bend down shy branching kinds and stop them, or shorten others; if plants are well potted and kept in vigorous health, they will bear almost any sort of pruning, and may be easily brought into any form or shape that may be required; and this, I must again observe, will prolong their health and vigour for at least double the time that they exist under the "let alone" treatment they generally receive.—*R. Reid, Noble Thorpe.*

Forest Tree Pruning.—I have been prevented from thanking your correspondent, a "Norlander," for his definition of "judicious pruning," recommended in your Calendar, in a late Number. It will not surprise your readers that I should entertain a strong jealousy of that expression, considering the use, or rather misuse that has been made of it. The "Norlander's" definition comes very near my views, and would have come nearer had he left out the recommendation to remove the lower tier of branches; in that he will excuse me for thinking he errs. The writers in your Calendar stand to the public in the light of weekly and authorised instructors; consequently the import of the terms they employ should be clearly understood, or they may lead (as some interpretation of "judicious pruning" does) to serious evils. I dare say Mr. Mainwaring's Hop-poles (see *Gard. Chron.*, Feb. 3) are, in his estimation, very "judiciously" pruned; but would any one who wishes to grow timber follow his example? He lives in Western Surrey, a district where I have been also, and no part of the county affords better examples of absurd and ruinous management of growing woods. It would require a little volume to give particulars. All I can say is, let the proprietors look to it. —*Quercus.*

Pruning Forest-trees.—In a late Number there is an article on Pruning Forest-trees, from a gentleman of Farnham, who states that he plants the Larch Fir to a large extent for the purpose of Hop-poles, and that he prunes them after three or four years' growth by cutting off their lateral shoots, leaving only two or three years of the upper lateral shoots. Being also myself a planter of Larch for the same purpose, I pursue a directly opposite plan, and carefully avoid pruning at all; and although I have not yet had sufficient experience to give a decided opinion, still, from the state of my plantations, I think I am right in not pruning at all; as I am now thinning out some of only six, seven, and eight years' growth, which produce me fine Hop-poles—some 14 feet poles, 12 feet do., and 10 feet do.; the largest poles being always produced from plantations that have had the least number planted per acre. If your correspondent would favour me by answering the following questions, it might help to decide which is the best and most profitable plan:—1. What number of I arches he plants per acre, when Larches alone are planted? 2. What number of Larches when planted with other coppice-wood? 3. At what age he cuts the Larch? 4. And whether he clears the ground in one year, or keeps drawing them successive years? 5. And what number of Hop-poles he has cut per acre, distinguishing the different sizes, viz., 16 feet poles, 14 feet do., 12 feet do., and 10 feet do.? Should I be favoured with these answers, I shall readily answer any question that may be put to me.—*W. K.*

Propagation by Leaves.—This interesting subject appears to have been studied more on the Continent than with us, particularly in Germany; and as we are beginning experiments, it would save time and trouble if we were in possession of the facts already ascertained in that country. Would it not, therefore, be desirable to solicit such information from correspondents at Berlin, Vienna, and Munich? The experiments commenced by Mr. Lucas, in the Botanic Garden, Munich, in 1839, must have furnished some useful data, and at Vienna matters have been accomplished with which we are yet puzzled. Lindley's "Theory of Horticulture" was lately translated there into German, and the translator—a scientific gentleman—added some useful notes of his own to many of the paragraphs (vol. iii. p. 398). Under par. 78, which refers to this subject, he writes: "The fine leaflets of a pinnated Rose-leaf yield, under proper cultivation, fine little plants." Now, with this "proper culture" we are not yet acquainted, for from these fine leaflets on a common petiole we have not yet been able to form one plant, as far as I am aware. From experiments which I have made, I conclude that almost all leaves that have sufficient substance in them to allow of their being separated from the parent plant, without withering, will form callosities on their petioles, under the ordinary treatment of tender cuttings. But the degrees of excitability in different plants is such that the callosity of some leaves will furnish buds in a week or two, while others require months to do this. Others again take years before they form buds. I have kept Camellia leaves, having large callosities, during four years, without their forming buds, and I have read of leaves which did not produce buds till the 10th and even 12th year. Orange-leaves with me took from 12 to 18 months, and some even longer, before they formed buds. I have ascertained that old leaves will form buds much sooner than young ones, but young leaves will form a callosity in less time than old leaves. Hence, the latter, if they are healthy, are best in cases that require a long time to make buds; the petioles of old leaves, like all soft parts of a tree, are more charged with the organised matter, which furnishes buds, than those of young leaves, and hence their power of sooner forming buds. The Dean of Manchester, in the "Gardeners' Magazine," proposed a very curious experiment to be tried by gardeners, a few years since, which might easily be tested. He inferred that if the callosities formed by two allied plants could be made to mix with each other when being formed, that a bud from the united mass would partake of the habits of the two plants which formed the callosity. As this is a curious problem in vegetable physiology, and as there is nothing in science to oppose it, it is well worth trying.—*D. Beaton.* [We *particularly* recommend this experiment.]

Food for Pheasants.—Having observed for years that these beautiful birds are very fond of Jerusalem Artichokes, I have often thought that game preservers would do well in cultivating this favourite food to some extent, on headlands and spare corners of fields, &c., near preserves, for winter feeding. Frost does not in the least injure the tubers of the Jerusalem Artichoke, which I have frequently seen lie on the surface of the earth throughout the whole of a frosty winter. I have a quantity of small and refuse now lying on the surface, that have withstood the late frosts with impunity. This root is very productive, and may be grown on almost any soil if the latter has been previously trenched or subsoiled; they may be planted whole, or the large tubers may be cut similar to Potatoes. I prefer the middling-sized tubers planted whole in February or March 2 inches in depth. The rows should be 4 feet apart and the tubers 2 feet from each other in the rows. My system is to cut the dead stalks off in November, and to spread a few leaves, Fern, or other rubbish over the roots; then I lay the stalks over this to keep the wind from blowing it away. This covering greatly facilitates the forking out the tubers in frosty weather, and prevents the pheasants from scratching them out. Trench out at this season what roots remain on the ground, manure the latter and plant it again, leaving the soil in 2 feet ridges, to be hereafter forked over and pulverised; place the tubers between the two spits of every alternate ridge; thus it will be understood that the ground is double dug. Hoard up in sand, or bury the best tubers in earth, that are required for future use, and throw the refuse and small into a plantation where pheasants resort, and they will soon be devoured by them. Where the root is grown for the use of these birds, protect some as above recommended, to fork out occasionally when the ground is locked up by frost, and take some up in November to go to when the ground is covered with snow; others could be left for the pheasants themselves to work at, which they will do very dexterously in open weather. They are fondest of the tubers in January, February, and the two first weeks in March. I have never observed game of any kind touch a leaf or stalk of these plants in the growing season, and they could be grown in many a corner that is now lying waste and almost useless. The fruit of Leycesteria formosa, for two or three months in autumn, and early in winter, is a favourite food of this bird. The plant is also very ornamental during several months in autumn, when loaded with beautiful long racemes of blossoms, succeeded by fruit of various sizes and colours, for which, when ripe, I have often observed pheasants most industriously seeking. This plant, on account of the berries ripening in succession, affords food for a considerable length of time. It is a very suitable plant for underwood in partly shaded and sheltered situations; it grows most luxuriantly amongst leaf-mould or soft porous open earth of any kind—making abundance of shoots as free as a Willow from 5 to 8 feet in length, and throwing out side branches in abundance, all of which produce fruit plentifully; it may be increased either by seeds, cuttings, or layers. If sown or struck early in heat, and potted and turned out in May, after having been gradually hardened off, it will grow freely and bear a considerable portion of fruit in the same autumn. The best system of after management is to head them quite back in spring, similar to the Willows when used for oziers, to two or three eyes, from which they will again put forth abundance of strong shoots that will produce fruit in great abundance in the succeeding autumn; thus in two or three years in favourable situations they form very strong stools.—*James Barnes, Bicton Gardens.*

The Yew.—When I sometime ago ventured to assert what I thought (it appears in my ignorance) everybody knew, namely, "that any animal may eat the Yew without hurt, from the tree green; and that it is only poisonous when withered," I was met by several accounts of death having ensued when the foliage was eaten from the tree. Since that time I have continually observed my trees eaten by horses and sheep, and I now mention it again to call the attention of your readers, and request them to examine those branches which are within reach of cattle: I think they will find that during this frost they have been regularly browsed. A cottager near me told me a few days since, on my observing her tree eaten all round by her cow, "that the Yew never did anything any harm that eat it off themselves, but that she knew the greater part of a dairy killed by the clippings of a hedge being thrown to them." Indeed I can find no one who is not aware of the fact, that when green the Yew is harmless to cattle, when withered—certain death. I much wish some correspondent to explain why this is.—*W. D. F.*

Draining.—If the draining of land was not a subject of considerable importance to the gardening community, I should not consider it necessary to offer an opinion on the remarks made at p. 21; but on the principle that a job well done is twice done, and with the fact before me that it is almost impossible to drain land too well for horticultural purposes, I must contend that, under every circumstance, any system of close drainage must be preferable to distant drains. In the paragraph referred to, Mr. Johnson says he should hesitate in differing from me if he had not other authorities equally good, and repeats his statement, that "drains 24 feet apart having the pipes covered with clay, are sufficient for such soils as are generally chosen for gardens." Now, as it more frequently happens, especially in suburban residences, that we have to make the soil rather than find it made to our hands, Mr. J.'s directions fall short of particularity, as will be evident from the following statement: —The grounds at this place are divided by a lake, which extends from the western to the eastern boundary. On the north side of the lake the subsoil is a loose sand, probably 20 feet in depth, but on the south side we have the London clay in its most adhesive character, with, on an average, not more than 9 inches of soil on the face of it.

On this soil the kitchen garden is situated, which, up to last autumn, had not a single drain, properly so called, in the whole length of it; so that, in winter, the ground was ancle deep in mud, with vegetables rotting upon it, while after a week's dry weather in summer, it was so hard as to require a mattock to break the surface before digging it. Now, although drains at 24 feet apart might be sufficient on the sandy subsoil, it is quite certain that in the kitchen garden they would be comparatively useless; indeed, so certain was I of this, that at the time of leaving the spaces for the drains—14 feet apart when putting in the autumn crops—it was my intention to put in another drain between every two, if I found those already made were insufficient to drain the ground thoroughly; so that, instead of their being 24 feet apart, I should have three drains in that space. Between the hours of 8 P.M. on the 19th February, and 8 P.M. on the 20th, the quantity of rain which fell here was 59-100ths of an inch, and at that time I had rather more than half an acre of ground drained with inch pipes 14 feet apart and 2 feet 6 inches deep—the pipes covered with a thin layer of straw, and with about 4 inches of clean rough gravel over it. For 15 hours after the rain fell, the two main drains, formed of 3-inch pipes, were discharging water at full bore, and for some hours after this they were running slowly, so that, at the lowest computation, this half acre of ground, close drained, discharged 5000 gallons of water in 20 hours. It is fair, I think, to assume that Mr. Johnson's drains, covered with clay on this soil, would have been at least double the time, or 40 hours, in discharging the same quantity of water; so that, in the event of continuous rain, or a heavy fall of snow, Mr. Johnson's method would be little better than no drainage at all. As I am an advocate for "thorough-drainage," in its fullest acceptation, I am sure that a few extra pounds so expended is money well invested, and sure to be returned forty-fold. While on the subject, I may state one or two improvements which we have effected in placing the draining-tiles. The first is, instead of wasting time in clearing and levelling the bottom of the drains with the spoon or clearing tool, the men are directed to remove all the large loose pieces as they take out the last spit, and the bottom of the drain is then rammed with a round piece of ash, 2 inches in diameter and about a foot long, fixed on the end of a strong handle in the form of a T. This tool makes the bottom of the drains perfectly smooth and even, and also forms a channel into which the round pipes fit neatly without moving. Not liking to see the dirty and uncomfortable position in which the men were placed, in putting the pipes into the drains with their hands, I had an L formed piece of iron fixed into a light handle, about four feet long, and with this a man will pick the pipes up and place them in the drain with great ease and rapidity. These two tools are at least sixpence a day in a poor man's pocket in the work performed, and quite as much gain to him in the wear and tear of his clothes, to say nothing of the comfort of being dry throughout the day.—*W. P. Ayres, Brooklands.*

Popular Errors.—In Lewis's "Negro Life in the West Indies" I recently met with the following passage:—"The Shaddock contains generally 32 seeds, two only of which reproduce Shaddocks; and these two it is impossible to distinguish. The rest will yield—some sweet Oranges, others bitter ones, others again forbidden fruit, and, in short, all the varieties of the Orange; but, until the trees are actually in bearing, no one can guess what the fruit is likely to prove." May I venture to request your opinion as to the truth of this statement. Another passage appears to me rather problematical: after speaking of three kinds of Cassava from which tapioca is prepared, he goes on to say that the Cassava poison is procured by fermenting the juice expressed from the roots, until a small worm is generated, the body of which worm constitutes the poison, a very small portion of which proves fatal. He further speaks of an arsenic Bean, as growing in Jamaica, which I am unable to discover.—*C. A. S.* [All these are "travellers' tales," and have no more truth than the revelations of Mumbo Jumbo, or the plum-pudding island of Munchausen. It is probably true that Shaddock seed will not all produce real Shaddocks; it is very likely that the seedlings will differ more or less, and even very much from their parent. But we may find similar examples without travelling for them to the West Indies. If a Swan's-egg Pear is taken from a tree in a Pear-orchard, you will have anything rather than Swan's-egg Pears from its seeds.]

Gardeners' Capes.—The capes, noticed in one of your former Numbers as sold at 3*s.* 6*d.* each, are not to be found. I have purchased one oil-skin cloak (for so I may term it) at 7*s.* 6*d.*; but I prefer the Police oil-skin capes, as thicker and stronger, and more durable; moreover, as extending down below the hips, and fastening in front. I have purchased two of the latter at 8*s.* each, of a person who contracts for supplying such articles to the rural Police. These will last for several years, and may from time to time, as required, have the varnish and paint renewed. I do not think that, in the end, they will be found more expensive than a more flimsy and cheaper article, while the protection they afford to the person of the gardener in rainy or snowy weather is most effectual. I strongly recommend these Police capes, made large and long, to your readers.—*B. D. Greys.*

The Toad not born of Tadpoles.—"R." is, I suspect, mistaken in supposing that toads are tadpoles in their youngest state. The error has probably arisen from Stewart's observation, that "the toad is fond of woody, shady, and obscure situations; in summer of stagnant waters," for I believe that thousands of frogs are taken for toads during the summer months, as frogs, male and female, congregate in large quantities in stagnant waters, having completely changed their colour, and resembling toads at the first glance. The female then deposits her spawn, which soon resembles little black beads on worsted, whilst the male, by a minute observer, may be seen gliding over the spawn as soon as emitted: the spawn eventually becomes tadpoles, and I have often wondered what should induce a crane to visit my father's pond, well knowing that no fishes were to be found there, the pond having been thrown out on the previous year. I satisfied myself, however, beyond a doubt, for on the bird flying away—and it visited the pond daily—I found thousands of tadpoles. The following week I again went to the pond, but only a few of the latter were to be seen, whilst the bank and meadows were covered with little frogs, and there is no mistaking them at that tender age. I have a great partiality for toads; and during the summer, a friend and myself keep them in the Melon and Cucumber-beds, and feed them regularly every day, giving them beetles, and other insects alive (for I believe they never take anything except in the act of moving), and I have been highly amused to see them come, when called, and take the food instantaneously into their mouth by means of their long tongues, on the top of which there is a glutinous substance. My father's pond, already alluded to, is the nearest stagnant water to his house, and situated about 500 yards from a lawn, which is divided from the field by a 7-feet wall; the lawn measures about 60 yards in length, at the top of which there is a large trap-door in the front of the house, which gives light and ventilation to an underground cellar, 5 ft. below. Now, every year, when a boy, I mischievously (with the rest of my brothers) destroyed hundreds of young toads, with jugs of hot water, for they had no chance of escaping from the hole, and I venture to assert they were only a little larger than the tadpoles. Now, admitting that the little toads came from tadpoles (which every one knows are little black things with long tails, and which no one ever saw out of the water, unless taken out), these tadpoles must have travelled (after throwing off their black skin and tail) 500 yards up the field, scaled a 7-feet wall, trudged up a lawn, and jumped down the trap-door of the cellar, which I have calculated would take them a season to do, and yet on their arriving at their destination they were only a little larger than the tadpoles. I may mention that on removing a dung-heap (at the period some writers say toads are at the bottom of ponds), I have found 16 or 17 fine old gentlemen, accompanied by little ones no bigger than the top of my little finger; and on the season advancing, I have found them of a very small size congregated together under the leaves of plants in the garden. If I am in error I should like to be set right, but I must have much stronger proof than I have already had, before I can be convinced that toads and frogs both come from tadpoles.—*B. F.*

List of the more remarkable Coniferæ cultivated in the open air at Bury Hill, near Dorking, Surrey.

Pinus
- apulcensis
- ayacahuite
- Banksiana, 13 feet high, fine specimen
- Brutia
- Coulteri, 15 feet
- excelsa
- filifolia
- Gerardiana
- Hamiltoniana, P. Casertoni, of Tenore
- Hartwegi
- insignis, 14 ft. high, 4 years planted
- Lambertiana
- leiophylla
- Llaveana
- macrophylla
- Montezumæ
- monticola
- oocarpa
- oocarpoides
- patula
- Massoniana
- Pithyusa, the same as P. maritima of Lambert, and only a variety of P. halepensis
- ponderosa, 9 feet
- pyrenaica or hispanica
- pseudostrobus, 4 ft.
- Russelliana
- Sabiniana, 9 feet

Abies
- Smithiana, or Morinda
- Menziesii
- Douglasii, 30 feet, from which we have raised 100 seedlings
- Deodara, 17 ft. high, 14 ft. diameter of the branches
- amabilis
- cephalonica
- grandis
- nobilis
- Pindrow
- Pinsapo
- religiosa
- Webbiana

Cupressus
- Lamberti
- religiosa
- thurifera
- torulosa

Juniperus
- drupacea
- excelsa
- nana
- recurva
- tetragona
- flaccida

Thuja filiformis

—*W. Scott.*

Rabbits.—Surely "W. D. F." does not consider the injury that young fruit-trees sustain by being besmeared with oil, &c., independently of the filthy state in which they would have to be drawn and sent to customers. We made about 200 matches and stuck them, not around single plants, but all around the quarters, &c., where we had suffered most from rabbits. This occupied three persons about 2 hours, and the result was as mentioned at p. 53; this quantity of matches served to protect, and to do so until this hour, something more than 1½ acre of young fruit-trees, quick, &c. from being eaten. Should any one doubt this simple, and, as it has proved to us, certain remedy, let them try it, and communicate the results.—*S. & J. Dillistone, Nurseries, Sturmere.*

Laurel Leaves Injurious to Cows.—The account Mr. Burgess gives us (p. 71) of cows eating Laurel leaves without any inconvenience resulting from it, whereas "J. J. F." (p. 54) says he lost a cow from eating them, makes me wish to ask "J. J. F." whether in that case the leaves were eaten from the tree, or whether they were from branches that had been cut off previously? I believe that it is the same with the Laurel as with the Yew—cows, sheep, or horses will eat them with safety from the tree; but if slightly withered, they cause speedy death.—*W. D. F.*

Foreign Correspondence.

Paris, 1845.—The inconstancy of several kinds of florists' flowers is proverbial, particularly the Dahlia, Carnation, Picotee, Tulip, and Camellia; but none, perhaps, has caused so much vexation both to buyer and seller as the Dahlia; nevertheless, no flower has attained so much popularity or been cultivated with greater enthusiasm and success. In fact, such has been the improvement in this flower, that it would be almost impossible to recognise Antagonist, Cleopatra, Essex Bride, Marchioness of Ormonde, Lady Antrobus, Admiral Stopford, Beauty of England, or Oakley's Surprise, as descendants from the star-shaped Pinnata and Crocea, which were introduced about the year 1800; but although the single purple and yellow Dahlias of that day have been changed into colours far more brilliant, and of almost every tint, and although an ideal form of symmetry has been all but obtained, as in Heyne's Standard of Perfection, yet one thing still remains to be accomplished, viz., the fixing of colour in those usually called "fancy" varieties. This has hitherto baffled the skill of the most experienced cultivators. Why purple flowers with white tips should be inconstant, and white flowers with purple tips remain constant, has alike puzzled the botanist and florist; no two persons agree as to the cause, or have been able to suggest a certain remedy. Some attribute it to richness of soil, but proof is not wanting that it occurs very often upon the poorest lands—even upon sand and gravel; others suppose it to be occasioned by a humid atmosphere; but although these may be, and, no doubt, are accessories, it must, I think, be obvious that they are not the primary cause. Last season was particularly dry in England, yet these varieties were there found in almost every locality out of character. In Paris, where the soil is poor, and the summer and autumn usually dry and hot, there is as great an uncertainty as in the comparatively damp atmosphere of Belgium and England; one season they may be seen true, the next selfs. Sometimes a plant will produce only two or three good flowers, at other times one branch will be found bearing variegated flowers; others will come constant here, but bad elsewhere; in fact, so uncertain is the whole race of tipped flowers, that not one single variety can, with any certainty, be guaranteed to keep its colour. Many of them are said to be constant, but that has only reference to some particular locality. The self-same kind has been found totally different elsewhere; for instance, Oakley's Surprise, Modesta, La Lionne, and Beauty of England are of this number. In 1843, I planted four Oakley's Surprise upon a sandy soil, and very near to each other; one was regularly and beautifully tipped, another partly so; but the two others were entirely purple, and one of them constantly single. I have seen Modesta always good in some gardens; with me it is always of one colour. In the Potager of Versailles were nine plants of La Lionne, without a single false petal; while in other places the flower came a dingy red. A friend of mine bought a grafted Beauty of England at one of the Paris markets, in June, 1843; it was the most beautiful flower of that class that I had ever seen, and continued so throughout the season. To preserve the strain he took several cuttings; three of these he planted last spring, and only one of them produced tipped flowers, and those were very inferior to the grafted plant. But there is yet another circumstance connected with fancy Dahlias, which is quite, if not more singular than variation of colour: I mean the complete difference which is often observable in the size and form of petal of a tipped flower and a self of the same variety, and not unfrequently upon the same plant. I noticed this for the first time about four years since in Modesta, and more latterly with Nihil, Surprise, Striata rosea, Esmeralda, and others; so great was the alteration, that no one could know them to be the same sorts, except from their foliage and habit of growth. Striata rosea, when true, is of a delicate light rose, beautifully pencilled with crimson, and of a tolerably good form. I bloomed two plants last season; one had the true form and ground colour, but was never pencilled, the other was entirely crimson with miserably long petals. Beauty of England, when true, is a compact and well-formed flower; when a self, it has long guttery petals. Nihil, when in character, is one of the most showy of the tribe; but when otherwise, a worse-formed Dahlia cannot be found. I remember seeing another French Dahlia, Le Lion; when a seedling it was all but first-rate in shape, and for regularity of colour could not be surpassed; the second year, out of ten plants one only came true to form and colour, the others were mostly single, with here and there a branch producing tipped flowers. I could, if necessary, give many other instances of their sporting nature, but I trust enough has been said to draw attention to the subject, with the view, if possible, of suggesting a remedy. There is no doubt that the disease may be accelerated by richness of soil and pruning; on the other hand, I believe it is in some degree prevented by planting pieces of old roots instead of yearly cuttings; it is true the flowers will not be so large, but certainly much earlier, very abundant, and more constant: a still better plan is to flower pieces of roots in 12 or 16 sized pots, plunged an inch or two below the surface; but it is best of all (at least such is the opinion

of French florists) to graft all tipped varieties; and certainly no one can walk through the Paris markets in June, July, and August, without being struck with the number and beauty of fancy Dahlias; you may see hundreds of plants, from 18 inches to 2 feet in height, with blooms as regularly tipped as you could possibly desire.

Reviews.

A Treatise on the Culture of the Pine-Apple. By George Mills. 12mo. Smith.

Those who are curious to know how Mr. Mills succeeded in producing those enormous Pine-apples which excited so much sensation in London some months since, have now an opportunity of satisfying themselves; for here we have his own account of his operations. He describes how his pits and houses are constructed, and by what means they are heated; what precautions he observes in watering, steaming, and ventilating; in what soil he grows his plants; and the method pursued for propagating.

There is no mystery here—no preposterous mixtures of all manner of unmentionable substances called a compost—no crotchetty schemes for rendering the buildings dear or unmanageable—no ignorant recommendation of operations to which reason in the first instance, and experience afterwards, are alike opposed. The foundation of the author's success is common sense. He keeps his soil perfectly open and well drained; his roots are preserved by this means in a healthy condition; he does not cramp them in flower-pots, and he takes especial care that they are not paralysed by accidental checks. These are his great rules of conduct. They apply to other plants as much as to Pines, and can never be violated with impunity.

For the details of Mr. Mills's management, we must refer our readers to the work itself.

NEW PLANTS.

Lilium Thomsonianum. Dr. Thomson's Lily (*Half hardy bulb*). Liliaceæ. Hexandria Monogynia.—This opened its sweet-scented flowers with Messrs. Loddiges, in a greenhouse in April, 1844. It is a native of Mussooree, one of the northern provinces of British India. It was first seen by the people employed by Dr. Wallich, who regarded it as a Lily. Professor Royle afterwards referred it to Fritillaria; but its floral leaves have not the honey-pore which is essential to that genus. In fact, it is far too near in structure to the common white Lily, to allow of its being distinguished generically. Its delicate rose-coloured flowers offer, however, a very marked feature of distinction. It requires the same kind of treatment and soil as Tigridias. It flowers in May, and is increased by dividing the bulbs or by seeds. The seeds should be sown when ripe, in pans filled with light sandy loam and leaf-mould, and placed in a cold pit or frame, and kept rather dry at first; afterwards they should be rather freely supplied during the growing season. The young plants should not be removed from the seed pan before the second season, and then in a growing state. Seedling plants grow slowly, and take some years before they bloom. It has thus been raised in the Garden of the Horticultural Society, but it has not yet flowered.—*Botanical Register.*

Luculia Pinciana. Mr. Pince's Luculia. (*Greenhouse shrub*). Cinchonaceæ. Pentandria Monogynia.—This is one of the most lovely and most fragrant plants that it has been our lot to publish. Much deserved praise has been bestowed upon the L. gratissima; but it may be said, without diminishing aught from that species, that the present far excels it, no less in the size and delicacy of its flowers, than in their powerful, yet agreeable fragrance. As a species, too, it is totally distinct from that just mentioned—the only hitherto described one of the genus. In stature and general aspect the two appear to accord; but the present has broader and shorter leaves, with much more compact nerves, and the limb of the corolla has five pairs of prominent tubercles—one pair at the sinus of each lob. It was raised from seed received from Nepal, by Mr. Pince, at his nursery, Exeter, and is cultivated in the greenhouse.—*Botanical Magazine.*

Garden Memoranda.

S. F. Phelps, Esq., Warminster, Wiltshire.—The gardens here are about 4 acres in extent, forming an irregular square. The position of the greenhouses, &c., differs generally from that in similar establishments: they are built to suit the primary objects of cultivation, and to admit almost as much variety, in regard to structure and design, as the character and habits of plants naturally require. The first house which I entered was a stove for miscellaneous plants, 30 feet in length, and 15 in width. It was placed in a line parallel with the mansion (to the right), and was entered by a vestibule. On the back-wall of this house was a remarkably vigorous plant of Passiflora Kermesina, whose branches were trained towards the roof and suspended by supports, and thus the plant was enabled to unfold its rich star-like crimson blossoms in elegant festoons to the ground. Entering the stove, the first object that attracted attention was that prince of climbers, Bignonia venusta: it was planted in a border (on the ground-level) against the back-wall, and was trained towards the roof over a curved trellis, where it covered a space of two lights with its densely-interwoven branches and gorgeous racemes of rich orange blossoms. A tolerably correct idea may be gained of the native grandeur of this magnificent plant, when I state, that the specimen in question at one time occupied the whole of the roof of this house! Amongst the collection, was in bloom Amicia Zygomeris, with racemes of large, yellow, pea-shaped flowers; several specimens of Luculia gratissima, Schweiggeria pauciflora (the Violet-tree), and several other fine plants. The second house occupied a parallel position to the last, on the left of the mansion. It was chiefly used as a conservatory for specimen plants in pots. The pit on the ground-level was occupied with large Camellias and Rhododendrons, in front of which were ranged alternately specimens of Heaths, that were principally of a pyramidal form; amongst these were in flower two noble plants of hyemalis, nearly 9 feet in height; also Bowieana and intermedia, the elegant snow-white blossoms of which contrasted well with the dark foliage of the Camellias. On the back-wall was a specimen of Bignonia jasminoides, extending about 20 feet in length; and here also Bignonia Cherere, the finest of the genus, was covering a space of nearly 24 square yards. On the east side was a specimen of Wistaria sinensis, extending about 40 yards in length, and covering in all 160 square yards. A third house—a greenhouse—was filled with lofty specimens in the centre; it was of a hexagonal form, having a span-roof looking to the west, with a central elevation of nearly 20 feet, and upright lights on the east side 10 feet in height. The plants in the centre stand on the ground-level, and a semicircular platform of stone affords convenience for keeping specimens of intermediate size. In this compartment were Erica Linnæoides, forming a pyramid of uniform and perfect growth, 9 feet in height; Chorozema varium, 10 feet in height, and 15 feet in circumference; Bossiæa linifolia, 10 feet in height; together with fine specimens of Thibaudia setigera, and T. glabrata, Polyspora axillaris, and several Heaths. The front upright lights are 10 feet in height, having a division in the middle; air is admitted by sliding the lower division upwards, and the upper one downwards, thus permitting a free circulation throughout the whole house. A fifth house which I entered was a general greenhouse for select specimen plants: it had a span-roof, with the principal front looking to the east; it was 40 feet in length, and 21 in width, with a central elevation of 16 feet. The centre is occupied with admirably-grown plants ranged upon the ground-level in two divisions, with a path up the middle. Amongst these were Andromeda ovalifolia, said to be the only flowering specimen in the kingdom, 12 feet in height; Epacris pungens, from 12 to 14 feet in circumference; E. grandiflora, 15 feet in circumference, growing in a wooden box 22 inches square; Azalea phœnicea, 12 feet in height; a variety of A. indica, 9 feet in height, and uniform in growth. On the east side, some finely-grown Heaths were placed alternately with other plants; amongst the Heaths, Ewerana superba was 7 feet in height; colorans verna, 9 feet; and nigricans, 7 feet. Upon the front platform, which was stone, 3 feet 6 inches in diameter, were a number of Erica ventricosa superba, trained about 2 feet in height in a pyramidal form; and, amongst others, were vigorous plants of E. Hendersonii, Rollisonii, and magnifica, the latter nearly 5 feet in circumference. The west side of this house is a wall of 9 feet in height; against this are Camellias, which were growing in a border of 20 inches in diameter, and 2½ feet in depth, of which 12 inches, composed of brickbats, forms a bottom-drainage, over which is a sub-drainage of Moss. The Camellias are in the highest possible health. C. papaveracea has matured growths 3 feet in length during last season. Each alternate space between the Camellias is occupied with select greenhouse plants, among which were Hovea Celsi and purpurea, &c., growing very luxuriantly. A fifth house was a lean to Orchidaceous house, having a S.S.E. aspect. The facings of the east end wall, and also the back elevation, are artificial rockwork, between the interstices and cavities of which were grown many species of this interesting tribe; and in this situation they appeared to thrive. I was informed that on the most elevated part of the back wall Renanthera coccinea had successively bloomed. An Æschynanthus was also quite at home in a similar situation. The centre of the house is occupied by an ascending stage of stone steps, on which were many excellently-grown specimens, amongst which were Cattleya crispa in fine flower; Nepenthes distillatoria, 14 feet in height, with pitchers of from 9 to 12 inches in length. A sixth house, a greenhouse and conservatory, was semicircular in form, having a central elevation of from 15 to 18 feet, and measuring 25 feet in diameter; the upright front lights, 3 feet in height, were suspended by hinges on the upper frame-work, and admitted air by being forced outwards. In this house was a miscellaneous collection of well-grown plants. Pines are also successfully cultivated at this place, some Queens attaining 5 lbs. in weight. They are grown in wooden boxes of 18 inches square, placed on fermenting matter of two-year old leaves. The fruiting Pinery, a span-roofed structure, is 40 feet in length, the main roof inclining to the south. The principal advantages favourable to the growth of plants in this establishment are—1st. A more than usual elevation of the front upright lights in each structure, thus admitting a greater intensity of light, heat, &c., as the primary agencies of vegetation, and a corresponding ventilation as a modifying power. 2dly. A due elevation of the platforms, which in no case are lower than the mean access of side lights.—*W. W.*

Clisthydon Rectory, the Residence of the Rev. J. Huyshe.—At this place there is now growing a fine plant of Musa Cavendishii, which is showing fruit. The spike is about 18 inches in length, and not more than 100 fruit are yet visible. It is presumed that, when the spike is fully expanded, it will produce at least twice that number. The extreme height from the top of the leaves to the soil is 9 ft.; the girth of the trunk at the soil is 26 in.; the same at 3 ft. in height is 24 in.; and at the smallest part of the trunk it is 20½ in.; one of the leaves is 5 ft. 3½ in. in length, and 2 ft. 6 in. in breadth; the length of the fan part of the leaf is 4 ft. 6½ inches. It is growing on a tank, a description of which is given at p. 460, 1843. The plant was placed in the stove on the 4th of April last, and its roots occupy a space about 3 ft. square and 18 in. in depth. The only soil employed was decayed tan; it has received an abundance of water (3 or 4 gallons a day), with much guano, besides liquid manure. When first placed in the house, its largest girth did not exceed 11 or 12 inches. It seems very fond of moisture; in fact, during the summer months it was deluged with water, and its growth was very rapid. [Will any one say if they are aware of a larger specimen being grown in England?]

Erratum.—In the notice of Brooklands in the "Garden Memoranda," at p. 87, for *peat* read *tan*.

Miscellaneous.

Dumb Dogs.—In coming from Séchelles hither we touched at Juan de Nova, where I had an opportunity of seeing for the first time an island of purely coral formation. It is of a horse-shoe shape, about twenty-one miles long, and from half to three-quarters of a mile broad, with extensive reefs around it abounding with turtle. Dogs of different kinds have been left there from time to time, and finding abundance of food in the turtle-eggs, young turtle, and sea-fowl, have multiplied prodigiously, so that there are now some thousands of them. I can testify from personal observation that they drink salt water, and they have *entirely lost the faculty of barking.* Some of them which have been in captivity several months had not yet lost their wild looks and habits, nor had they any inclination for the company of other dogs, nor did they acquire their voice. You may perhaps have heard of this before; if so, my notice will confirm your knowledge; if not, I hope the facts, as being of my own ocular demonstration, will prove interesting. On the island the dogs congregate in vast packs, and catch sea-birds with as much address as foxes could display. They dig up the turtle-eggs and frequently quarrel over their booty. The greater part of them droop their tails like wolves, but many carry them curled over their backs. They appear to consist of spaniel, terrier, Newfoundland and hound, in various degrees of mixture, and are of all colours except pure white or brindled.—*Letter dated Port Louis, Mauritius, from G. Clarke, Esq., to Professor Bell, in the Annals of Natural History.*

The Silkworm.—The eggs of the silkworm should be kept during winter and spring in a dry place, but not warm, or they may possibly be hatched too soon. When hatched, the young worms must be fed at first upon young Lettuce leaves, and lifted on them one at a time with a pin. Lettuce leaves are the best substitute for those of the Mulberry; but the latter should soon be given to them, for if they are kept wholly on Lettuce leaves they will never produce much or good silk. They should have fresh leaves three or four times every day; the leaves of the Mulberry may be kept fresh by being laid flat in an earthern jar, and pressed down by some weight; the jar should be kept in a cool cellar or buried in the ground. When silkworms begin to put forth threads of silk from their mouths, put them into a paper cone, about the size of a wine glass, and pin this up to the wall or wainscot, or to a line. About eight days after the worm has spun its ball of silk, when you can hear the chrysalis rattle in the inside by shaking the cone, begin to wind off the silk on a reel having four or more rollers on spokes, and made to turn with a handle. It takes about 10 cocoons to make a thread sufficiently thick for winding; put these all into warm water, 10 at a time, and stir them about until you get hold of an end from each, and so wind the thread from all together, keeping up the same number, 10, always. When you come to the chrysalis, take it out and lay it on paper to dry. In about a month it will transform itself into a moth, lay eggs, and die. It takes 2800 worms to produce a pound of silk.

Bees.

Beehives.—When I mentioned, (p. 872, 1844) that collateral bee-boxes ought to be about 1 ft. square, I meant outside measure. But with regard to their proper size much depends on the district in which they are used. Dr. Bevan recommends boxes to be "10½ inches clear in every way." The Rev. W. C. Cotton says, they "must each be about 11 clear inches on the inside and 9 inches in height," and observes that "in very good honey countries they may be made a little larger." There is little difference in those dimensions, but a good deal between them and what is mentioned in the *Chronicle* of the 4th inst., viz., that "the side boxes may be 7 inches square, outside measure, and 6 inches in depth." Such a size may do for end boxes in some districts, but not of course for centre ones; but boxes are best to be all of an equal height and width, otherwise the three boxes will not fit nicely together. The dimensions which I gave were from Nutt's collateral hive, and if they are adopted the partitions might be moveable, in order to reduce the size of the end boxes according to the strength of the bees and the season. As it requires pretty nearly the same degree of heat to enable bees to construct cells as it does to mature their brood, I expect that it will be found that a thermometer is almost a useless appendage to a beehive. The following, however, is from a writer who follows Nutt:—"Let the middle box be as hot as the bees choose to make it; side boxes should be ventilated when the thermometer is

at 70°, not before." The best bar-hives are made of straw, and according to Bevan should be 13¾ inches in diameter at top, and should taper gradually downwards to 12½ inches. This will admit of eight bars, which should be half-an-inch in thickness, and 1⅛ inch in width. The bars of wood are placed parallel, north and south, on the top of the hive, on which there is a wooden hoop having a rabbet to receive them. A small piece of fresh comb ought to be fixed on two or three of the centre bars, as decoy combs, otherwise the bees may depart from their common rule, and place the combs the reverse way. By the assistance of a lighted candle the combs may be made to stick readily to the bars; on each of which there might be a knob, or something by which to draw them up. The hive should be covered with a lid of straw fitted close to its sides, and there ought to be an exterior band or two on the top for the lid to rest upon, and to give to the whole a more finished appearance. The precise width and the space between the bars must be attended to, especially in the centre ones, and if there is room to spare give it to the side bars, for they are considered to contain honey-combs whose cells are often of an unequal depth. The honey is obtained by removing the bars, to each of which a comb is attached: the middle of a warm day is the best time for the operation. Huish claims the invention of this hive, but it was known to the Greeks, and speaks much for their knowledge of bees, for no other hive can be so readily inspected by the removal of each comb. It is recorded that this Grecian hive is still in common use amongst the monks of Hymettus.—*W.*

Answers.—*Sub.*—Borage affords bees much honey, and likewise Pollen.—W.

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

Solar influence is now beginning to have its effect on many easily excited plants. These must be attended to, either by increasing the size of the pots, or by turning the plants out entirely, reducing the balls, and placing them in bottom-heat. This remark will apply to Gesneras, Gloxinias, &c. It is too early yet to think of general potting.

Geranium-house.—Let the temperature by night be 55°, and even 60° will not be injurious for those specimens that are required to bloom in May. Keep the plants near the glass, let them have plenty of room individually, and give abundance of air during the day on all favourable opportunities, and attend to the training the moment this is required. Plants, like animals, when arrived at maturity, exhibit very strikingly the marks of bad training; therefore, as this is one of the evidences of good gardening, let it be well done, and to do it well you *must* begin *early*. Calceolarias will now be making way; increase the size of the pots, keep the plants close by night, and give air freely by day. See that the green-fly does not make its appearance amongst them; if he does, smoke him out immediately by repeated moderate doses, or your bloom is ruined.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The quantity of snow which has fallen having stopped all out-door work follow the directions given in last week's Calendar: make brooms, break crocks, wash pots, &c., &c., during the time the snow remains; and prepare for other operations after the thaw. *Pits and Frames.*—Uncover every day as early as possible, and give air, if the sun shines on the lights; water, if necessary, in the morning, and shut up early in the afternoon. Continue potting off from store pots, and shift any plants that require it.—*B.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Continue shifting these at favourable opportunities where it is requisite, and in cases where disrooting has been rendered imperative by a sour state of the soil, the plants so treated may have a slight shading for an hour or two on sunny days: in fact, give them the same treatment as cuttings. Be very liberal in the use of water in fire-heated structures, remembering that the more severe the weather, the greater is the necessity for an abundance of moisture in the atmosphere, with a circulation of air to counteract the ill effects of the dry heat. *Peach-house.*—Cleanliness is everything with the Peach; therefore fumigate frequently. Batter the back of the leaves with the syringe every afternoon about 3 o'clock, and raise a genial steam before 8 o'clock each morning. Thin out the fruit progressively, and let all stopping and disbudding be done in a slowly progressive way; in fact, disbud, &c. a little every day. A sudden and heavy disbudding stagnates the vital powers of the tree, and is most injurious. *Vineries.*—Insure a sweet moist atmosphere to those swelling; if abundance of water is thrown about the floors, &c. the moment they become dry, there will be little occasion for the syringe. Avoid cold currents of air, but preserve a free circulation; this may be accomplished by setting the front sashes ajar, and giving no air to the back lights. Keep a warm, lively, and dry atmosphere to those in blossom. *Cherry-house.*—When in blossom keep the temperature at from 60° to 65° by day, with abundance of air, but free from draught. In very bright sunshine shade slightly for a couple of hours in the middle of the day. *Fig-house.*—Increase your heat with increase of light, and proceed as before recommended. Make succession Mushroom beds; continue to introduce successions of Kidney Beans, Strawberries, &c.; the latter want more air than is commonly given, when in blossom; they enjoy 65° max., with a little advance in sunshine.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Whilst severe weather and snow continues little can be done out of doors; and for some time after the thaw takes place little can be done with the ground. Therefore whatever can be done in-doors which would otherwise occupy time in good weather, should be now accomplished. Shreds should never be cut in fine weather; and nails to be used in summer will then be better to handle, if prepared now with linseed-oil, in the manner lately recommended. Keep the walks cleared from snow, as by so doing they will not be so liable to tear up when the thaw comes. *Kitchen Garden.*—Seeds should be arranged so as to be readily taken out when required to be sown; and it may prevent disappointment if a few of each are counted and sown in small pots, placed in heat, to test their goodness. It is important that the same kind of crop should not be grown successively on the same ground, especially where trenching and manuring is defective. The principal shifting crops may be thus arranged:—1. Peas, Beans, and Kidney-Beans; 2, Cabbages, Cauliflowers, Broccoli, Turnips, Radishes; 3. Carrots, Parsnips, Celery; Beet may be also included; 4. Onions, Leeks, Garlick and Shallots; 5. Spinach; 6. Potatoes, Jerusalem Artichokes; 7. Salsafy, Scorzonera, Lettuces. Neither Peas, Beans, nor Kidney-beans, should be sown where either of these crops have occupied the ground in the preceding season; and so of all other crops included under the respective numbers.—*E.*

VI.—ARBORICULTURE.

During the present state of the weather little more can be said than to reiterate the directions before given, as circumstances may occur; but, above all, we would recommend *drainage* as a subject not only fraught with interest to the arboriculturist but to the landed community at large, for there is nothing we are assured can be done at so trivial an expense which will so soon yield a twofold profit upon the outlay.—*F.*

State of the Weather near London for the week ending Feb. 13, 1845, as observed at the Horticultural Garden, Chiswick.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 7	○	29.959	29.950	38	17	27.5	N.	—
Sat. 8	1	30.065	30.053	36	18	26.5	N.E.	—
Sun. 9	2	30.093	29.924	36	27	31.5	S.E.	—
Mon. 10	3	29.757	29.649	35	22	28.5	S.E.	—
Tues. 11	4	30.216	29.880	34	3	15.5	E.	—
Wed. 12	5	30.409	30.400	32	19	22 0	S.W.	—
Thurs. 13	6	30.238	29.755	38	32	35.0	S.W.	.30
Average		30.105	29.946	35.4	17.8	26 6		.30

Feb. 7—Frosty; uniformly overcast; clear and frosty at night
— 8—Calm and frosty; uniformly overcast; frosty
— 9—Remarkably dry air; clear and frosty; fine with sun; overcast; snow
— 10—Overcast; snowing throughout; drifting snow at night
— 11—Sharp frost; snow about 3 inches deep; bright sun; very intense frost at night, the therm. falling towards morning 35° below freezing
— 12—Intense frost, 28° below freezing at 8 A.M.; dry air, with bright sun; clear; frosty
— 13—Overcast; snowing at noon; sleet and rain; slight frost at night

There have been but three instances in the present century of the thermometer falling below zero, in the neighbourhood of London—Feb. 9, 1816, 5°; Jan. 19, 1838, 44°; and the 11th inst., 3°.

Mean temperature of the week 13½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Feb. 22, 1846.

Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 16	46.2	31.7	38.9	3	0.05 in.	2	2	1	2	—	6	5	1
Mon. 17	45.5	31.5	38.5	9	0.33	3	—	1	3	3	1	7	1
Tues. 18	44.1	31.9	38.0	9	0.30	3	1	2	—	5	3	5	1
Wed. 19	45.1	31.5	38.3	9	0.64	4	—	2	4	1	5	2	1
Thur. 20	44.8	32.9	38.9	11	0.51	1	3	2	3	2	2	5	1
Fri. 21	46.4	32.9	39.7	11	0.20	2	5	2	4	—	2	4	—
Sat. 22	45.4	33.8	39.6	8	0.29	3	4	4	—	1	3	4	—

The highest temperature during the above period occurred on the 20th, and 21st, 1841— erm. 56°: and the lowest on 20th 1836 and 1843—therm. 19°.

Notices to Correspondents.

Achimenes — *Salopian* — Keep your roots of these in dry sand, away from frost, until you are ready to plant them. Cotton wool is the worst of all things to keep them in.‡ —— *Andover* — Your bulbs of longiflora should be started in a warm Cucumber frame towards the end of this month. If you have no stove the plants may be removed after they have formed a few leaves to a warm greenhouse.‡

Ash—*E P*—The Weeping Ash will flourish far better in rich, moist, but not wet land, than on a chalky upland, do what you will to assist it. The refuse of your henhouse is guano of the best quality. Mix it with three or four times its bulk of soil, and apply it to anything that wants manure. It will make a capital liquid.

Ash Trees—*D M'L*—Arsenic will kill trees as well as men. In April make a few incisions near the root through the bark down to the wood; introduce some of this agent, bind up the wound, and leave the rest to Nature.

Books—*A R C*—We are unable to answer your inquiries as to the probability of alterations in the works named. The "Second Additional Supplement" is the last we have seen of Loudon's "Hortus Britannicus." You shall have the information on Annuals long before the season for sowing has arrived. We thank you for the hint. There is no periodical worth naming, exclusively on hardy plants. The "Botanical Magazine" and the "Botanical Register" contain plants of all kinds.——*C W C*—You will see that we next week commence a translation of Neumann's work.

Capes—*An Inquirer*—We are unable to answer your inquiry as to where Gardeners' Capes can be bought. The makers of them should advertise them.

Figs—*Ficoculturus*—We are not aware that any separate treatise has been published on the management of the Fig under glass. You will find good directions in last year's "Calendar of Operations."‖

Fountains—*Hibernicus*—As your supply of water is unlimited we would advise the adjutage pipe to be of the same bore as the conducting one, and to terminate with a flange, upon which a conical nozzle should be affixed of about 5 inches in length, tapering from 1½ to ½ inch bore: this would assuredly cause less friction than having a shoulder, as in No. 2. A temporary diameter for the vase should first be tried, but we should calculate upon 4 feet as a likely size to produce a grand effect.*F*

Fruit Trees—*T G*—We agree with you that there would be an advantage in publishing statements respecting the fitness of certain fruits for particular localities, *if we could be certain that the varieties spoken of were correctly named*; but that is so far from being the case that such statements would mislead much more than they would instruct.

Gloxinias—*A L*—These, when they begin to show flower, require to be grown in a moist atmosphere, and in a temperature not lower than 65° by night and 70° by day. The want of heat is probably the cause of failure in your case. A temperature of 46° is too cold for Euphorbia jacquiniflora and Poinsettia pulcherrima. For the treatment of Luculia gratissima see p. 83 §

Grapes—*Young G*—The Fox Grape is so called because of its taste, which resembles a Sweetwater Grape that has been packed up in a fox's skin. It is the Vitis vulpina, a distinct species, and worthless.

Greenhouse climbers—*A B*—The following are handsome, viz., Tecoma jasminoides, blush; Mimosa marginata, pink; Kennedya Marryattæ, scarlet; Mandevilla suavolens, white; and Hardenbergia monophylla, purple. Plants will not succeed well if their roots are paved over with flagstones.§

Guano—*R R*—You should steep 1 lb. of guano in two gallons of soapsuds, and use the clear liquid, after it has settled. The iron will do no harm. Use sulphate of iron (see p. 555, 1844) to sweeten your other mixture. Dahlias next week.

Hardy Plants—*E*—The following will suit your purpose, viz., Andromeda floribunda, Daphne Cneorum, Epigæa repens, Kalmia glauca, Rhododendron ferrugineum, R. davuricum, R. chamæcistus, Berberis empetrifolia, B. glumacea, Polygala chamæbuxus, Menziesia polifolia *alba*, and Erica Mediterranea.¶

Heaths—*J P*—You will find a list at p. 836, 1844. We really cannot repeat such information continually.

Heating—*W S*—We presume that your pipes have air in them. *Something is wrong*, but what, can only be determined by actual examination. Is there no bend in the pipes, so as to form a convexity somewhere?

Insects—*A W G B*—It seems probable, from the twigs transmitted, that there are different insects attacking your plant: and we are sorry that we cannot suggest any better remedies than those already recommended. *R*——*W D*—Your observations upon the Geometric Spiders could not be well discussed in the *Gardeners' Chronicle*; they are better adapted to the Philosophical Magazine. But we may recommend to your perusal the 13th chap. of Kirby and Spence's Int. to Ent., 6th edit., where you will find all that is known regarding their habits, &c., up to the present time. *R.*——*J W T*—Tobacco-water, soft soap, and nux vomica will not injure the stem and branches of your Fig-tree infested with scale; but the brood under the latter is not easily destroyed; and the safest and most certain plan is to displace the scales mechanically with a thin piece of wood or ivory. Then wash; and afterwards keep watch, in case the pest again make its appearance.‖

Lawn—*A Villager*—You cannot have anything better than Crested Dog's-tail, Hard Fescue, Meadow Poa, and White Clover. If they are too expensive you may use Rye-grass as well; but take care it is not mixed with Cock's-foot.

Manure—*A Sub*—All kinds of urine require to be mixed with *some* water, and to undergo the putrid fermentation before they acquire their most powerful action; but eight times the quantity of water is far too much; three times would be ample. If you wish to turn urine to the best account, steep guano in it in the proportion of a handful to a gallon. There is no fluid manure like it. If you over-manure your Pelargoniums, they will run to wood and leaf instead of flowering. ——*A Norlander*— Wood ashes are excellent manure for all plants, Vines included. You are not very likely to apply them too abundantly. But the *state* of the Vine border is of far more importance than the manure it receives.

Measures—*Querist*—The sieve used in Covent-garden contains about 5 gallons, or when heaped, 7 gallons. There is also what is called a bushel sieve. Punnets are of various dimensions; those for Seakale are 8 inches in diameter at top, 7½ at bottom, and 2 inches in depth. For Radishes, to hold 6 hands, or small handfuls, 8 inches in width, and from ½ to 1 inch in depth; and to hold 12 hands the width is 9 inches. Mushroom punnets are about the same depth as the preceding, and 7 inches in width.‖

Melons—*H S*—The seed of your Melon from Affghanistan has the appearance of being that of a Water-Melon, the varieties of which are not esteemed in this country. ‖

Microscopes—*R J*—You had better consult some microscopical friend. It is impossible to *tell* you how to use your instrument, but easy to *show* you. Perhaps it is a bad one. Under all circumstances, much experience is required.

Names of Fruits—*Loughton*—Your Apple is probably a local variety, unnamed.‖——*K L*—Easter Beurré.‖

Names of Plants—*B*—Epidendrum odoratissimum.——*J C C* —1. Onc. Cavendishianum; 2. Not sent; 3. Maxillaria Lyonii; 4. Brasavola venosa.——*G W*—Onc., like bicallosum, but new; Onc., unknown; Epid. chloranthum. These were smashed to pieces by the post-office, so much that we can hardly recognise a feature in them. Thanks.——*W Pass*—Lycaste gigantea——*J Y*—It is true Linum trigynum.—— *R G P*—Populus candicans, or the Ontario Poplar.¶——*Impatiens*—1, Podocarpus macrophylla; 2, Bursaria spinosa?; 3, Myrsine Africana?. Plants out of flower cannot be often named with certainty.—*A B J*—No such parcel has reached us.

Peach-houses—*Sawney*—These should have gutters in front, although rain falling from the sashes on the border would not occasion the death of the trees planted inside the house. You do not state that they are dead; but they cannot exist long, circumstanced as you represent them. The border is perhaps too full of manure, or it may contain some other noxious substance. Extremes of dryness and moisture will occasion gumming.‖

Pears.—The Pear which Van Mons named Beurré Spence, and which he pronounced to be the best of all Pears, is not known to be distinct. Many other good varieties have been received under the above name; but the Ne plus Meuris has not. The Beurré Spence was described as an autumn fruit.‖

Portland Vase—*E M*—Much obliged for your offer, but we have no room. We had forgotten your question; it shall be answered next week.

Railways—So many correspondents have written to us requesting that the prices of the principal railway shares should be given, that we have made the necessary arrangements for commencing the return next week.

Seeds of Evergreens—*C G K*—These are to be purchased of some nurserymen or seedsmen; no one else sells them: apply to the nearest. If you do not succeed you will have to collect them yourself.

Slugs—*Hortensis*—Woollen netting will do you no good. If you will wait till the weather is mild enough to bring the slugs to the surface, and will then give them a sprinkling of weak, clear gas-water about dusk in a moist evening, and at daybreak the following morning, you will probably see nothing more of them. If you do you must repeat the dose. Early and late in the day are the times when they come to the surface. If this is done before the leaves are above-ground no harm will come to the plants. Use a watering-pot with a coarse rose.

Small Birds—*T F*—We have already stated that this discussion is for the present closed.

Stove climbers—*A B*—Procure the following, viz., Passiflora kermesina, crimson; Allamanda cathartica, yellow; Manettia bicolor, scarlet and yellow; Ipomœa Horsfalliæ, red; and Combretum purpureum, scarlet.§

Trellises—*A B*—Iron wires being cheapest are generally used for training Vines and creepers on. If they are well painted they will not rust. Wires in Vineries are fixed to the rafters by iron stays 8 or 9 inches in length, but the position in which they should be placed depends upon the system on which the Vines are to be trained; if spurred, 3 wires will be required for each rafter, at about 6 inches apart; if not, they may be placed horizontally at 18 inches or 2 feet apart. Sashes ought always to move upon castors.§

Wounds—*Waterhouse*.—If you are Mr. *R P K*, we gave a full answer to your inquiry the day we received it. (See p. 24.) If you are not that gentleman, we never received your letter.

Yews—*A B C*—Yes; if the trench is opened now you may remove the trees next November.

Yuccas—*Original S*—Next week.

Misc—*V*—A good dressing of soot mixed with a small quantity of salt—say 1 cwt. an acre of the latter—will be a good dressing for your mossy Grass. There is nothing better than Ivy and China Roses for really covering old brick work, and with a little management they will grow in harmony. ——*R R*—You can have a copy of No. 39; send six Postage Stamps, with your address.——*W M*—The Numbers can be supplied. Send Post Office Labels.——*J H, Reigate*—The charge is 3*s.* each time. Remit by Post Office Order.——*E S* —We believe the Asparagus sold in the Bath market as "French" is Ornithogalum pyrenaicum. Is it good? Burnettizing is steeping in chloride of zinc.——*Phiz*—Dwarf Box *is* a shrub.——*Waterhouse*—The March Bergamot is new; it has no other name. Graft the Chinese Privet on the common kind. We are not acquainted with any practical work on jets d'eau.——*M A*—The Yucca; yes. The Deodar; yes; it is perfectly hardy. Surely you may in many cases connect span-roofed houses with the drawing-room, by a short corridor, or some such plan. Why not? It is undoubtedly true that sometimes no other house than a lean-to can be put up, and that is the best excuse for building them, if intended for greenhouse plants —— *Andover* — Leschenaultia formosa may be purchased of any nurseryman.‡——*A B*— Read's syringe is an exceedingly good one.‡——*M A*—The volume for 1841 is out of print.

SEEDLING FLOWERS.

Camellia—*W S S*—The bloom of your seedling Camellia was evidently past its prime, and had lost some of its colour and freshness; this was evident from the petal of the newly-opened bloom, which is of a fine rosy red. It is a showy flower, large and handsome; the 3 rows of petals are well formed, large, and of considerable substance; the crown or centre, composed of small mottled florets, is full, and gives a richness to the bloom. Though not fulfilling a florist's idea of the flower, it is well worthy of cultivation. The foliage is small and bright.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

GUANO (GENUINE PERUVIAN & BOLIVIAN)
ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street. Feb. 15.

COLLEGE OF CHEMISTRY.—At a Meeting of the Provisional Council of the College of Chemistry, held on TUESDAY, the 14th inst.,

The MARQUIS OF DOWNSHIRE in the Chair,

A Committee was appointed to organise the Institution and prepare its Laboratory, and for other purposes connected therewith.

Prospectuses and full particulars may be obtained at the Office, No. 7, St. Martin's-place, Trafalgar Square, London.

Life Subscriptions, 10*l.* 10*s.* Annual Ditto, 1*l.* 1*s.*

A List of Subscriptions will shortly be published.

Feb. 15. JOHN GARDNER, M.D., Provisional Secretary.

The Agricultural Gazette.

SATURDAY, FEBRUARY 15, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

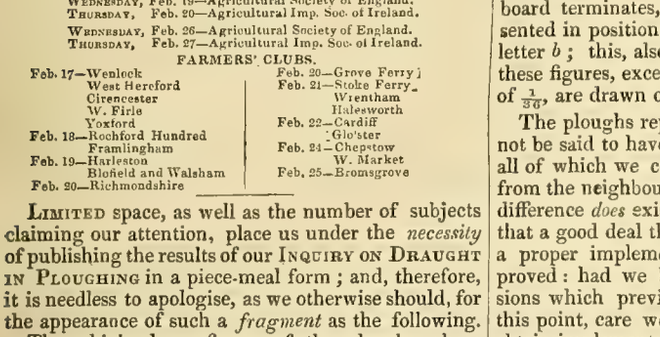
WEDNESDAY, Feb. 19—Agricultural Society of England.
THURSDAY, Feb. 20—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, Feb. 26—Agricultural Society of England.
THURSDAY, Feb. 27—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

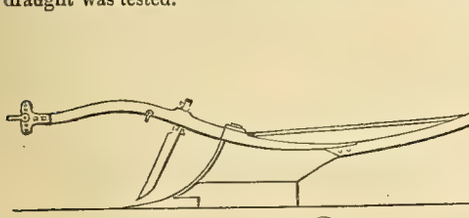
Feb. 17—Wenlock
West Hereford
Cirencester
W. Firle
Yoxford
Feb. 18—Rochford Hundred
Framlingham
Feb. 19—Harleston
Blofield and Walsham
Feb. 20—Richmondshire
Feb. 20—Grove Ferry
Feb. 21—Stoke Ferry
Wrentham
Halesworth
Feb. 22—Cardiff
Gloucester
Feb. 24—Chepstow
W. Market
Feb. 25—Bromsgrove

LIMITED space, as well as the number of subjects claiming our attention, place us under the *necessity* of publishing the results of our INQUIRY ON DRAUGHT IN PLOUGHING in a piece-meal form; and, therefore, it is needless to apologise, as we otherwise should, for the appearance of such a *fragment* as the following.

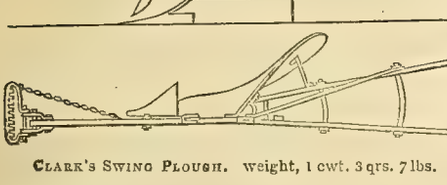
The subjoined are figures of the ploughs whose draught was tested.



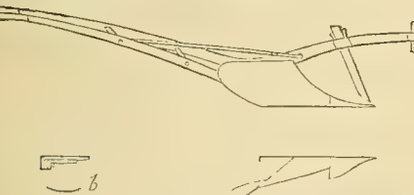
CLARK'S SWING PLOUGH. weight, 1 cwt. 3 qrs. 7 lbs.



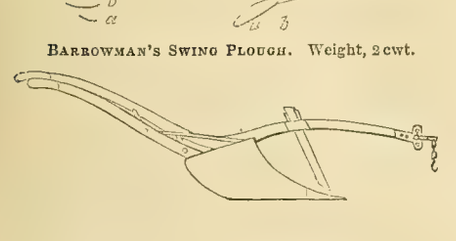
BARROWMAN'S SWING PLOUGH. Weight, 2 cwt.



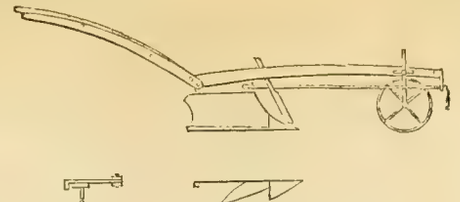
WILKIE'S SWING PLOUGH. Weight, 1 cwt. 21 lbs.



THE BEVERSTON WHEEL PLOUGH. Weight, 1 cwt. 1 qr.



RANSOME'S ONE-HANDLED PATENT H PLOUGH.
Weight, 1 cwt. 2 qrs. 14 lbs.



BARRETT AND EXALL'S PATENT D.P. 1 PLOUGH.
Weight, 1 cwt. 1 qr. 7 lb.

It will be observed that each of these engravings, excepting the first, consists of three parts: the first, a plan, from measurement, of the right side of each plough; the second, a ground plan of the several mouldboards, from which the form of each may be satisfactorily seen; and the third, a vertical transverse section of the plough just before the mouldboard terminates, or rather at that part of it represented in position in two of the above figures by the letter *b*; this, also, is instructive of its form. All these figures, excepting the first, which is on a scale of $\frac{1}{30}$, are drawn on a scale of $\frac{1}{24}$ of the full size.

The ploughs represented in the above figures cannot be said to have been *selected*, for they were just all of which we could conveniently obtain the loan from the neighbouring farms. The fact that a great difference *does* exist in the draught of ploughs, and that a good deal thus depends upon the selection of a proper implement, has already been sufficiently proved: had we been anxious to verify the conclusions which previous observers have arrived at on this point, care would certainly have been taken to obtain implements more accurately representative of the different classes in which varieties of the plough may be arranged; but our inquiries were chiefly directed to the other points of interest in this subject,—the influence of velocity, of the wheel, of the weight of the plough, &c., upon its draught. Notwithstanding this, however, these figures represent a considerable variety in the form of this implement: the first three are drawings of Scotch swing ploughs, each deservedly patronised in its own district; Clark's swing plough—the implement we used was Ferguson's, but they are almost exactly of the same make—is well known in Stirlingshire; Barrowman's, manufactured in the parish of Saline, is well known in Fifeshire—the work of this plough was deemed the best in the field at a late competition between the ploughs, if we remember right, of Linlithgow and Fifeshires; and Wilkie's ploughs are much used in the West of Scotland—the implement figured above is much lighter, we presume, than those, by this maker, for ordinary use. The other three are figures of English wheel ploughs; the Beverston—a wooden plough with wooden mouldboard—is in general use on the Cotswolds of Gloucestershire, a district generally of thin stoney soil; Messrs. Ransome's one-handled plough is, we believe, in general use in the light sandy soils of certain districts in East Norfolk and Suffolk; and Messrs. Barrett and Exall's D.P. plough, manufactured at Reading, is one which has obtained, from the comparative trials of it at Liverpool and by Mr. Pusey, considerable celebrity as an implement of easy draught.

An examination of these implements on the principles laid down by "M. S." (see articles on the plough, in last year's Vol.), and without reference to their weight, led to the opinion that the one-handled plough of Messrs. Ransome would prove the lightest in draught; its mouldboard appears to be the most correct in form—the section of its surface, with a transverse vertical plane, is everywhere a straight line—in the cases of all the other ploughs, excepting that made by Messrs. Barrett and Exall, it is convex—*there* it is concave; all this is seen in the sectional figures connected with the above engravings. The English ploughs, (excepting the Beverston) when compared with the Scotch, appear all to have been made for shallow ploughing: their mouldboards are not high enough to plough 6 inches deep with! The Reading plough, especially, is very small in the mouldboard—it is not only low but short, and, so far as our experience of it goes, it is thus only calculated for shallow ploughing.

We have some further remarks to make on the mechanism of these implements when on the subject of their draught, some of the results of our inquiries into which, we hope to be able to communicate next week.

THOSE who disapprove of the high character which GUANO and other condensed manures bear as fertilisers, have a skilful advocate of their views in Mr. HEWITT DAVIS, whose letters on this subject we have lately published. We entirely agree with this gentleman in his desire to prove that the ordinary farm-yard manure should receive a higher value in the eyes of farmers than, from the wasteful management of it which we often see, it apparently does. We believe him to be quite right in asserting that farmers should look upon *this* as the only mainstay of the fertility of their farms; but if we leave the question—What ought to be? and consider—What is? we shall find that vast quantities of artificial manures as they are termed, *are* used in preference to that which is manufactured in the ordinary course of agriculture, even though the former can only be obtained at prices varying from 5*l.* to 20*l.* per ton while the latter may be had of good quality in any quantity at 5*s.* for the same weight. Indeed, the former are used in quantities so large, that Mr DAVIS is quite right in asserting the importance of correctly ascertaining the real relative values of substances whose market prices vary so much.

Let us, then, endeavour fairly to compare guano and farmyard manure as fertilisers; for, apparently it is to the former, on its individual merits, rather than as one of a class of what may be termed concentrated manures, that Mr. DAVIS directs his remarks. The true *theory* of manuring obviously requires that the land should each year receive precisely the elements which it has just expended in producing the crop which has been grown upon it. Correct *practice*, in this particular, if combined with good management in the other items which together constitute farm management, is indicated by the maintenance, or rather, indeed, the gradual increase of the fertility of the soil, as exhibited in the abundance of the crops grown. Now, even if we put out of consideration the air as a source of vegetable food—and our readers will find in another page an able argument on *its* importance in this respect—it is evident that, in what is generally understood to be good farming, the soil does receive all the elements which it expends each year in the growth of crops excepting, however, those which exist in the beef, mutton, pork, milk, cheese, butter, &c.; and Wheat, Oats, Barley, &c., which have been sold off it; and *provided always*, none of these elements, in the form of manure, have been washed away, as is generally the case, by the neighbouring brooks.

Now, excepting in order to supply this annual drain on the elements of fertility in the soil (we refer to sales of stock and produce)—and many farmers more than counterbalance *this* by their purchase of oilcake, and other food for cattle—no farmer, in the regular course of business, has anything to do with the purchase of manures, artificial or otherwise, let their relative prices be what they may. Our present subject cannot interest *him*; it is only those who wish *immediately* to increase the fertility of their land—who, for instance, having entered on a poor farm, may wish to bring it into condition as soon as possible—these only have any concern in an inquiry into the relative value of the various sorts of manure in the market.

Let us take the case of such a one: he wishes to bring his land into condition. Let us for a while leave all theoretical considerations: besides giving attention to the various processes of cultivation, he must apply manure to the soil; *i. e.*, supposing he enters on the farm at Lady-day, he must provide food of a certain quality for as much stock during the ensuing winter as he intends generally to keep; *their* manure, every year reproducing itself, will always keep the land in heart afterwards. Now, he may adopt one of two ways: he may just take such a crop as he can get *without* purchasing manure, and supply its deficiency by the purchase of Barley, oil-cake, Linseed, &c., as food for his cattle; or he may purchase manure, and thus force a good crop at once—such a one as he hopes generally to have. We by no means assert that the latter alternative is always, or even generally, the more advisable; but let us suppose him to decide on adopting it, then he immediately becomes interested in our present inquiry. He knows his soil is deficient in fertility, but in what particular element this want consists, he does not know; and unless the deficiency be very marked, we are not sure that there are any means by which he may be accurately informed on this point; under these circumstances, he wisely declines the purchase of nitrate of soda, sulphate of ammonia, phosphate of lime, and other manures of that class, for each of them consists of only two of the substances which a fertile soil contains, and neither of these *may* be those which are necessary in his case; his choice is limited to the more compound manures; in point of fact, it is limited to those whose value we are now about to consider—guano and farm-yard manure.

The price is the first point for consideration. Let us suppose he can obtain the one for 10*l.*, and the other for 5*s.* per ton, both of average quality. *These* are not the prices which the purchaser must compare:

he cost of a manure to the farmer is not its price at the place of sale; to *that* must be added the expense of its carriage to the place of its application, so that the relative value of guano and yard manure will more generally be 10*l.* 5*s.* and 10*s.* than 10*l.* and 5*s.* respectively per ton; and in this—its portability—consists one great practical advantage of the former over the latter.

But let us leave the consideration of mere prices for that of the *real* relative values of manures: these may be determined either on purely practical grounds — *i. e.*, by a comparison of the results of their application, or on purely theoretical grounds — *i. e.*, by a comparison of those component parts of them, on which it is understood that their fertilising influence depends. Mr. Davis in his letter has somewhat intermingled these two modes of argument, and thus we think he has, in a measure, mystified the result of his application of them to the question at issue.

Now, considering this matter on practical grounds, and even giving the advocates of farm manures all the advantage of supposing both to be purchased *on the field* at the above prices, 10*l.* and 5*s.* respectively per ton; taking equal values of them, we could, on looking at the results of their application, attested now by very many farmers, have no hesitation whatever in asserting 5 cwt. of guano to be equal—nay, superior—in its effect on the crop to 10 tons of farmyard manure, were it not that sufficient time has hardly yet elapsed to know whether this equality or superiority continues throughout the rotation till that crop comes round again, to which a re-application is required. It is upon the *apparent* probability—by no means certainty—that such an equality will not continue beyond the first year, that Mr. Davis can alone argue, *on practical grounds*, in favour of farmyard manure; but is not probability a weak foundation on which to build so confident a series of assertions as appears in his last Letter, p. 90? Let any one read this letter, and then learn that in the experience of numerous farmers during the past three or or four years, 4 or 5 cwt. of guano *has proved* as efficient in producing large crops of Turnips as 10 to 15 tons of the manure which is there so highly lauded; will he not be struck with the incompatibility of these *facts* with the conclusions at which Mr. Davis arrives? But there is a great source of inaccuracy in reasoning on this subject from the experience of farmers; in practice, the result of the application of manure is not more a consequence of its composition than it is of the condition of the soil. Supposing farm-yard manure to contain a substance (A) which does not exist in guano, and that the latter contains another substance (B) which does not exist in the former; then, supposing them to be otherwise, in certain proporions, of exactly equal value as fertilisers, it is evident that on a soil containing A in abundance, but deficient in B, guano will prove a better manure than that of the farmyard. We do not say that the facts as regard these manures are as we have suggested, but our supposed case will easily explain to the intelligent reader how it is that the experience of the farmer on the subject often tends to mislead rather than instruct.

Let us, therefore, enter upon a theoretical consideration of the subject:—Mr. Davis asserts—at least we gather so from his letter, and it is probable he is right—that the praises which guano receives as a manure, lead people to think that it possesses some mysterious fertilising influence independent of the simple properties of its component parts—an influence not possessed by the ordinary manure of the farmyard. He has seen no attempt to disprove his former assertions (see page 58), "that does not bring guano forward as if it were more than dung, and widely different from every other excrement." Now, in the first place, farmyard manure is not *all* animal excrement—a large portion of it is straw; and, next, animal excrements vary greatly in their value as fertilisers—their value depends greatly on the food from the consumption of which they are derived. Would Mr. Davis not prefer 5 tons of manure made in one yard by cake-fed beasts to 10 made in another by store cattle fed on nothing but straw and Turnip-tops? And, qualitatively, there is nothing more extraordinary in the assertion, or rather in the fact, that as good crops may be raised from 5 *cwt.* of manure as from 10 tons, than there is in the fact that as good crops may be raised from 5 *tons* as from 10. The quality of manure depends greatly on the nature of the food from which it is produced: guano is the dried dung of sea-fowls; farmyard manure is the *wet* dung, *mixed with straw*, of cattle fed on Turnips, Potatoes, Clover, Hay, Straw, Oats, Barleymeal, Oil-cake, &c. If the straw, which is the body and bulk of the latter, be removed, then they are both merely animal excrements; but the one is nearly dry and the other wet: if the water be removed from the latter as well as the straw, then the 10 tons of it—equal in market value to 5 cwt. of the former—will be reduced in weight to 30 cwt;* and we have only to assume that manure from the consumption of fish is likely to be six times as fertilising as that from the consumption of hay and Turnips—no unreasonable assumption, surely—in order to hinder any astonishment at the fact that 10 tons of farm manure are not more fertilising than 5 cwt. of guano.

There is some difficulty in comparing the 30 cwt. of dry farm manure with the 5 cwt. of guano, as regards their actual composition—we know of no full analysis of the inorganic portions of the former—to which, perhaps, *the chief* importance should be attached. Guano, on the other hand, has occupied much of the attention of chemists. Dr. Ure gives the following as the average results of his analyses:—

1. Azotised animal matter, including urate of ammonia, together capable of affording from 8 to 10 per cent. of ammonia by slow decomposition in the soil	50
2. Water	11
3. Phosphate of lime	25
4. Phosphate of ammonia, oxalate of ammonia, phosphate of magnesia, together containing from 5 to 9 parts of ammonia	13
5. Siliceous sand	1
	100

The composition of farmyard manure of average quality, according to Boussingault, is as follows:—

Carbon.	Hydrog.	Oxygen.	Azote.	Salts.	Water.
7·4	0 9	5·3	0·4	6·7	79 3

Now, in the comparison of these data, a curious coincidence occurs between the two manures as regards the quantity of azote—a very important element of vegetable food—which they respectively contain. Of this element, 19 per cent. of ammonia—which is the average quantity Dr. Ure has found in guano—gives very nearly 89 lbs. in 5 cwt. of that manure; and its presence to the extent of 0·4 in ordinary farm manure, gives as nearly as possible 89 lbs. in 10 tons. This curious coincidence in the composition of equal values of guano and yard manure, as regards one of the most important elements of vegetable food, should make Mr. Davis more satisfied than he appears to be with their present relative *market* values.

In the absence of information on the subject, we are unable to compare the two much farther.

According to Boussingault's analysis of farm manure 10 tons of it generally contain 1500 lbs. of what he terms salts. Under the same denomination, rejecting all salts of ammonia and animal matter, we may, according to Dr. Ure's analysis, place about 30 per cent. of guano, a proportion which affords of these substances, in 5 cwt., about 160 lbs.—a quantity very much less than the other—though nearly four times the amount named by Mr. Davis. But, then, one cannot reason from mere quantity; the 160 lbs. of ash in guano consist chiefly of the phosphates of lime and magnesia (Mr. Davis is certainly wrong in his assertions on this point, see p. 90), derived from the substance of the fishy food of the sea-fowl; of the 1500 lbs. of ash in the yard manure, we have no analysis, but it is unreasonable to suppose that, derived as it is from vegetables, it should consist in so large proportion of phosphates, which are among the most useful of inorganic manures.

From the above comparison of these fertilisers, our readers will, we think, gather that their usual market value represents with sufficient accuracy their relative *agricultural* value; and while we hope they will agree with Mr. Davis in his condemnation of "the *carelessness* of farmers in their treatment, collection, and preservation of *home* manures," they will also surely see the absurdity of his fear that these dressings of guano and other concentrated manures will either "entail further impoverishment of the land," or, if gone about judiciously, result in "loss to the cultivator."

* Our calculations are on data afforded by Boussingault, to whose work on "Rural Economy" we shall soon direct the attention of our readers in detail. He fattened his cattle at the rate of *only* 4 to 6 lbs. of straw each per diem.

THOUGHTS ON AGRICULTURE.

That the bad state of cultivation in the United Kingdom arises from two causes—want of knowledge and deficiency of capital:

That there is not at present employed in agriculture a sufficient capital to farm the land properly:

That capital will not flow into agricultural channels whilst farming is so commonly an unprofitable occupation:

That it is unprofitable more frequently from want of knowledge than from deficiency of capital:

That were the necessary capital forthcoming, there is not amongst landlords and farmers generally a sufficient agricultural information to apply such increased capital profitably:

That to employ the present capital of agriculture to the greatest advantage, the existing holdings should be diminished in extent nearly one-half, the labour and cultivation doubled:

That there exists among farmers generally an unprofitable desire for large holdings, with a small employment of labour, capital, and implements:

That the generality of landlords and farmers consider 7*l.* to 8*l.* per acre a sufficient investment; whereas, double that sum is scarcely an adequate profitable capital, affording the means of effective cultivation:

That the non-valuation of tenants' improvements to the succeeding tenants, and the facile appropriation of those improvements by the landlord to his own use, in the shape of an increased rent, blinds him to equity, has a tendency to cause frequent removals, and is a premium to bad cultivation and non-improvement:

That annual tenures, short leases, and a mistaken affection on the part of landlords for ugly worthless pollards and scrubby stunted timber, are important causes of loss in agriculture:

That a morbid desire to retain a political and feudal influence over the conscience of the tenant prevails extensively, is discreditable and demoralising, having no good effect, but creating subserviency and a want of manly independence on one side, and on the other a tendency to injustice or oppression:

That the letting of farms should be treated as a matter of business, in which the obligations and benefits are as mutual as in any other pecuniary transaction of trade or commerce:

That the remedy for these evils is the communication of agricultural knowledge to both landlords and tenants:

That this knowledge will be best promoted and diffused by agricultural schools or colleges, with farms attached, on the principle of that excellent one now establishing at Cirencester:

That there should be one or more such establishments in every county in the United Kingdom:

That there should be agricultural endowed colleges of the first order under authority, where students should qualify by superior practical and theoretic knowledge, passing their examinations, and obtaining their agricultural diplomas, the same as in law or medicine:

That such qualified individuals would thus spread over the country agricultural schools and farms, advantageous alike to themselves and to the rising generation of farmers, who would imbibe sound theoretical and practical instruction:

That such instruction would render farming a more uniform, more profitable, and more gentlemanly occupation:

That in consequence capital would more readily be attracted to farming purposes in ample amounts, the character of our farmers raised, the strength of our nation increased, and ample provision made for years to come, for the employment of our increasing population and capital:

That if knowledge is power, ignorance must be weakness, individually and nationally:

That increased knowledge, capital, and profit in our farmeries, must enhance the value of landed property, increase the comfort and intelligence of the landlord and labourer, and have a beneficial influence on trade, commerce, and manufactures—for we are all links in one great chain, depending on each other for support.—*I. J. Mechi, Feb.* 4.

HOW TO PREVENT MILDEW.

In the Geo-Agricultural Report of Middlesex, published in your Paper of the 25th Jan., you speak of the deterioration of the crops of Wheat in some parts of that county from the prevalence of mildew. It appears to me that this arises from the great excess of ammoniacal salts, owing to the heavy manuring caused by the proximity of the metropolis, and it also appears to me that the remedy is very certain and very economical.

About the end of October you published a letter of mine on the Growth of Wheat, on the same land, in successive years. I refer to it because what enabled me to remedy such an evil will, in all probability, be serviceable to others, if they can be induced to try it. A repetition of some of the facts connected with the experiment will enable me to point out what I think will be found beneficial, and I trust that some one will be induced to try, and publish the results.

In the first year of my experiment (1842), I manured a portion of the field with guano, and another with nitrate of soda; the straw and Wheat were very like what you describe the Middlesex crops to be: the blade was discoloured and brown, and on looking closely at it, it seemed as if the cellular tissue had been ruptured from some cause or other; the straw was poor, and a bad colour, and the sample very indifferent. The year after, I varied the experiment, by mixing silicate of soda with one portion of nitrate of soda, and sulphate of magnesia with another; and still further to vary the experiment, I covered a part of each lot with guano, (the salts were sowed the first week in April, the guano a fortnight after); this entirely prevented mildew, and the straw was as bright and good (particularly in that manured with the silicate of soda) as I ever saw, and very near 2½ tons of it to the statute acre (there were 392 stones of 14 lbs.) In 1844, I mixed the sulphate of magnesia, silicate of soda, nitrate and common salt together, in addition to a sprinkling of quick-lime, and I had not only good straw but an abundant crop of Wheat (50 bushels to the acre); the straw was shorter than in 1843; but I attributed this to the great drought of the season. The quantity of silicate of soda used was 60 lbs.; of sulphate of magnesia 90 lbs. per statute acre.

I do not know whether the use of quick-lime is frequent in Middlesex, nor do I know whether the price of it is such as to enable the agriculturists to use it. I have

been told that the chalk does not make as good lime for either agricultural or building purposes, as our mountain lime-stone does; but is it ever tried for the former? Is not the practice of chalking resorted to instead? If it is, let me strongly recommend some of the Middlesex farmers to apply some to their Wheat now, in portions varying from 1 to 3 tons per acre, and see if the abundance and good quality of the crop does not amply repay them. This is on the supposition that the chalk contains little or no magnesia; and I would also recommend it to be used in conjunction with the salts above mentioned; or rather, I would apply the lime now, and the salts in moist weather, any time between the middle and the end of March. Many people laugh at these homœopathic doses of salts applied to land; and ask what can be the good of sprinkling half a cwt. of anything on an acre of ground. The example of common salt in our domestic economy, appears to me to offer a good illustration. On the average, mankind probably do not each eat more than the twentieth part of an ounce of salt per day; but that little is indispensable to their health. If they say, where a little does good, much will do more good, the absurdity is at once apparent with regard to salt in cookery; but it does not seem to be so manifest in agriculture, where I have seen 5, 6, and even 15 cwt. of salt recommended to be applied to an acre. I must admit that the last-mentioned quantity was proposed by a dealer in salt, who might, perhaps, justify the recommendation with the old proverb, "There is nothing like leather."

Since the above was written, I have seen your Paper of the 1st Feb., in which the writer of the Geo-Agricultural Report recommends the use of lime and chalk to the farmers who use much of the London manure. I am glad to find my ideas strengthened by the opinion of a writer who evidently understands what he writes about, but for reasons previously given, I would always use it in conjunction with soluble silica and magnesia, which I consider the most important gifts which science has bestowed on agriculture.—*T. G., Clitheroe.*

Home Correspondence.

Blowing Sands.—Having observed in the *Gardeners' Chronicle* of 25th January, that "Q.Z.," whose property lies on the west coast of Ireland, is desirous to obtain information relative to the best mode of preventing loose sand-hills from blowing over his land, and thereby destroying it, by covering it with loose, dry, unprofitable sand, I beg to call his attention to the successful method which has been adopted on the shore of the Bay of Biscay, as related by Decandolle, in his "Physiologie Végétale," p. 1253. I annex a translation of the passage referred to, and should like much to know whether a similar method has ever yet been attempted in our own country, and what success has attended the operations:—"Dunes, or those hills of moveable sand which are accumulated by the winds on many shores of the sea, as in Holland, and the Bay of Biscay (*Golfe de Gascogne*), are amongst the most difficult soils to cultivate. The sand having been tossed about for a long time in the sea, is in a great measure reduced to insoluble molecules. By means of capillary attraction it absorbs and retains in its interstices the water from below, or perhaps the sweet portion of the sea-water, and it is, consequently, always damp to a certain extent in the interior; but its surface, always dried up by the sun, cannot sustain any vegetation, and as it is constantly blown away by the wind, it is deposited on the adjoining lands. To obviate this inconvenience, the Dutch have, for a long time, planted on their dunes the Arundo arenaria, which they call Helm, in order that its long running roots may fix the soil; in this way some localities are protected: but it must be noticed, that though the soil is thereby rendered innocuous, it is not otherwise made available for any useful purpose. I pointed out the propriety of using these soils in Holland by planting trees thereon, being at the time ignorant of the attempt which had been made so far back as 1789, by the engineer Bremontier, on the dunes of Gascogne. This operation has since proved eminently successful, and I have myself beheld them with much admiration. The process of Bremontier is remarkable for its simplicity: he causes to be sown in the most arid and moveable sand seeds of common Broom (*Genista scoparia*) mixed with those of the maritime Pine; he causes the ground sown to be covered with branches taken from the nearest Pine-forests; these branches are for the purpose of restraining the mobility of the sand to a certain extent. The seeds of the Broom come up first, and serve to restrain the sand, and to shelter the young Pines. The latter increase in size for 7 or 8 years under the shelter of the Broom, whose foliage falling every year upon the soil, aids in fertilising it. After this period the Pine overtops the Broom, and often destroys it altogether by shading it. When 10 or 12 years old, they begin to thin the forest for the purpose of making pitch, and furnishing branches to cover the ulterior sowings. About the age of 20 years they begin to fell the trees for the purpose of extracting resin. These forests, placed on the dunes along the sea, afford shelter from the continuous west winds to all the tract of country which is situated behind them, and thus, at the same time that they themselves furnish an important product, they secure the crop of the adjoining country." I may remark that the Arundo arenaria is the same plant which you recommend under the name Elymus arenarius, along with Carex arenarius. The Arundo arenaria is the common Grass so prevalent on all the dunes of our sea-coasts, and whose roots bind the sands so completely where they once get established. I fear it is not easily reared from seed, for this, amongst other reasons: that it is a very creeping-rooted Grass, and has ample means of increasing itself by such means, and Nature does not seem to bestow the same pains on bringing its seeds to maturity, as in the case of plants which have to depend on their seeds alone for their further natural increase. I do not speak with confidence upon this point, however, as I have never tested the vitality of the seeds: but I know that Couch-grass (*Triticum repens*), which is very like the Arundo arenaria in habit, does not mature its seeds. I daresay the roots chopped into pieces would succeed very well; and this used to be a common and successful mode of sowing the Fiorin-grass (*Agrostis stoloniferæ*). The maritime Pine alluded to by Decandolle is better known in this country as Pinaster. Seeds may be purchased in large quantities at a very moderate price.—*T. L., Kilmarnock.*

Rooks.—In page 839 of your last year's *Gazette*, are some remarks by "J. G., Clitheroe" on the prejudice felt by many against rooks; and I think that when the mischief they do to crops is so nearly counterbalanced by their utility in other respects, there should not be those wanting (who have benefited by them) to speak a word in their behalf. Although I cannot but fancy that "J. G." has somewhat over-rated their utility when he states that nine-tenths of their food consists of those insects and larvæ so terribly destructive to vegetation, yet the good they do is quite sufficient to entitle them to a favourable verdict from all right-thinking persons, and shield them from the edicts gone forth against them from all parts of the country. I, too, lived adjoining a rookery quite as powerful in numbers as that at Weston, and very few have suffered more from their depredations than I have; such as having Beans to the extent of half-an-acre at a time entirely extracted from the ground in a very short space of time, transplanted Swedes, for acres, pulled up, to say nothing of their frequent foraging visits to the Wheat, Barley, and Potato fields; yet their constant attendance at the plough-tail, also in the Hop-grounds, to extract the wire-worm, that will commit fearful ravages unseen, as well as their subsequent attendance upon the Hops, convinced me I should have been decidedly wrong in condemning them. Many plans have been adopted to scare them from their destructive visits to the crops, but I think very few effectually. Boys are as great a plague to the farmer as the rook. What with their sleepy habits in the morning, whilst the rook is busily engaged in the field, and their great predilection for treading down fences, together with their non-efficiency in every respect, I think we may infer that the boy would be much more profitably employed at his school. The plan I pursue, and which I never knew fail, is to give a boy 6*d.* for the first rook he may catch in a gin to be planted on the scene of their labours, and allow the captive bird to remain in the trap for half-a-day as a terror to all evil-doers. The result will be obvious—the marauders will no more trouble the crop that season.—*Quercus II., Romsey.*

Sawdust as a Manure.—I observe that at the last Meeting of the Highland Agricultural Society a paper had been read, detailing the process, by a Mr. Bishop, of converting sawdust into manure, and dilating on its beneficial effects on different crops. This process consists, it seems, of (as it is said) carbonising the sawdust by burning with lime-shells; and by another method of arriving at the same end, burning it with brushwood; each mode appearing to be both tedious and requiring much attention, if any quantity be required, and liable, as the writer confesses, to be interrupted and marred by wet weather. It may fairly be asked, whether the effect on the crop, by the application of the result of the first process, be not almost solely attributable to the lime, allowing the ashes certainly a little of the merit; and whether the combustion of the sawdust in the second does not so materially decrease the quantity as a fertiliser, that but little land, comparatively, could be manured by a large quantity of sawdust thus prepared. I have myself, for many years, been in the habit of constantly using sawdust as a manure, incurring no other expense than carting it, as made, from my saw-mill to the cow-houses and cattle-sheds, where it soon becomes impregnated by the urine and dung of the cattle, which it readily imbibes, and when removed to the manure-heap it is occasionally saturated by the liquid pumped from the tanks, one of which adjoins each dunghill; a process which materially hastens its decomposition, and I should think [So should we.] renders it, both in quantity and quality, a more efficient manure than that so elaborately described by Mr. Bishop. I, at least, find it most effective on all kinds of soil, but more particularly on stiff clayey ones. I will relate a remarkable instance of this. There is a field in my own farm, that the surface-soil was considered so barren, and resting on so cold and stiff a clay subsoil, that in its then state it was deemed hopeless for a crop. This field was drained and subsoil-ploughed in 1841, and in 1842 it was one part planted with Potatoes, and the other sown with Aberdeen Yellow Turnip-seed. It was certainly not an easy process to pulverise the soil, both from its nature and that the weather was not very favourable, though materially aided by the free use of Morton's Revolving Harrow; however, both crops came up to admiration, and proved excellent. The Turnips remained in the ground till February, standing the severity of the winter without blemish; and when taken up, many of them were in circumference 3 feet 4 inches; and 11 of them, taken at random from a cart, weighed, without tops, exactly 1 cwt. Such was the crop obtained from this field, 600 feet above the level of the sea, which, but a few months previous, it would have been deemed more than folly to think of cultivating for a grain crop. But what manure does the reader suppose was used to attain this result?—simply sawdust! and that from resinous wood, such as Larch, Spruce, and Scotch Fir, which Mr. Bishop reckons inimical to vegetation. When I say simply sawdust, I mean that in this particular case there was nothing else, save that it had lain in the yard four months, over which cows and sheep sometimes passed, and in their passage dunged; and the only preparation it had undergone was being turned over once or twice. In 1843 this field produced 20 Carlisle, or 60 imperial bushels of Black Oats per acre; and, in order to bring it under the same management as two other fields of similar soil, which are now joined to it, and which have been also drained and subsoil-ploughed, it and they were sown with Turnips in 1844, all of which proved exceedingly good. These fields, now in one of upwards of 10 acres, has been lately ploughed, and is in excellent order for spring Wheat, and crop-seeds: such is the effect of drainage.—*J. R. W., Gilferran, Cumberland.*

Swedish Turnips.—I send you the result of an experiment touching the comparative value of wood-ashes, guano, and Boast's inorganic manure, when applied to the growth of Swede Turnips. I divided 1 acre of an old Clover-ley into three equal divisions, upon which I sowed in drills (not on ridges) seed that I had procured direct from Mr. Skirving, at Liverpool. By dint of hard work we got the ground into capital order, with a fine crumb, and sowed rather early in the season, but I did not take any note of the time. The drought was much against them, but nevertheless they grew away, and promised, as I and most of my neighbours thought, to yield a large produce; but after what I have seen stated in your Paper as to the produce in some places, I must hide my diminished head, and confess, whatever our skill may be in the production of Hops, that in this part of Sussex we know little about the cultivation of Turnips. One thing, however, which is somewhat in my favour, must not be omitted, to wit, that the statement of quantity and weight is not a guess, nor an approximation, but the result of actual measurement and weighing of the whole crop, cleared of leaves and roots and dirt. The ground was stirred and weeded several times by hand-hoe, and was quite clear of weeds. The ground on which the ashes were spread was injured to the extent of one-fourth, perhaps, by the roots and boughs of a neighbour's Elm-tree. The best of the Turnips singly only weighed 7 lbs. The distance between the rows 18 inches. The following were the results:—

Quantity of ground.	Quantity and kind of manure.	Cost of manure.	Produce in bshls.	Produce in wght.
				t. c. q.
Acre.				
one-third of	22 bshls. wood-ashes.	7*s.* 4*d.*	161	4 0 2
one third of	1 cwt. Ichaboe guano.	14*s.* 0*d*	225	5 12 2
one-third of	1 cwt. Boast's inorganic manure.	9*s.* 6*d*	211	5 5 2
One.		30*s.* 10*d.*	597	14 18 2

—*Hurst-green.*

Flax-seed.—It may not be uninteresting to some of your readers to know that Flax-seed and Oats may be ground together by the miller in a very efficient manner. The proportion—1 bushel of Flax-seed to 4 bushels of Oats, leaving the miller to mix the one with the other himself. Cost of grinding, 4*d.* a bushel.—*T. Randell, Bradley, Feckenham.*

The Alderney.—I was a little surprised at seeing a paragraph in the *Gazette* of last week, signed "Yeoman," setting forth that an Alderney cow consumed nearly as much as two of the large breed. I have kept Alderneys for some years, as well as Ayrshires, Galloways, and different mixed breeds, and never discovered that Alderneys consumed more than other cattle of similar weights; and the statement being in direct opposition to the result of various well-known experiments, I would particularly wish to see the statement of "Yeoman" either confirmed or disproved by the detail of experiments from some of your experienced correspondents. I certainly think the "calculations" of your correspondent, who is about to commence a dairy of Alderneys in London for the sale of butter, fair enough, yet I have hitherto considered the Alderneys, together with the Ayrshires, to pay better for a butter dairy, for what they consume, than any other breed I have had it in my power to try.—*W., Tyne Side.*

Bones.—The article on Bone-manure, by Mr. Towers, in Number 5, is one of much interest and importance. It is not, however, the occupier of every kind of soil who can avail himself of Mr. Towers's suggestions towards his Turnip crop; bones upon our stiff land, which is under the plough, being found quite inert. We apply them with advantage on our pastures as a top-dressing; and my inquiry, if I may be permitted to make such of Mr. Towers, would beg to refer to the comparative efficaciousness of bones in a state of solution with sulphuric acid, on Grass land, compared with bone-dust (as usually sold under that name) sown broad-cast. When we make use of this manure on old pasture, it is usually to the extent of 4 quarters to the acre, at a cost of about 20*s.* a quarter, and the good effect is visible for several—six or seven years; but its action is not immediate enough, and we have little return from it the first season. If Mr. Towers's leisure should enable him to unfold this subject to us a little further, and he could oblige us with something more than a guess as to the probable duration of the bones in this state, as to their effect on Grass lands—that is, how soon we may expect a decided benefit from the application, and for how many years that benefit would probably continue, the occupiers of strong lands in general will, I am sure, feel themselves under much

obligation to him for the communication. Could Mr. Towers also inform us why bones as a manure on strong lands (adhesive soil) so entirely fail—are quite thrown away?—*A Tenant Farmer, on strong land over the Blue Lias.*

Flax.—Seeing some remarks in your Paper on the profitableness of this crop, I send you the inclosed table referring to the subject, which gives the experience of a correspondent, "Z.," of the *Dublin Farmers' Gazette.*

Acres (Cunningham).	Sold for.	Produce per acre.	Price per 1 lb.	Amount per acre.	Expense per acre, and rent 4l	Net profit.	Loss.	System.
1841	*l. s. d.*	*a. qr. lb.*	*s. d.*	*l. s. d.*	*l. s. d.*	*l. s. d.*	*s. d.*	
6½	104 4 9	5 1 23	7 3 6	19 17 1	10 14 0	9 3 1	..	Irish.
1842								
4½ Bolls	38 7 0 12 10 0	5 3 17	40 0	11 16 0	11 6 6	0 9 6	..	Belgian (bolls rippled).
1843								
4½ Bolls	25 16 9 5 0 0	3 3 2	50 0	6 17 0	10 13 0	..	65 11	Courtrai (milled in 1844).
1844								
2½	45 7 6	6 3 11	53 0	18 3 0	10 19 0	7 4 0	..	Irish.

To be sure, the coincidence of the results of the two years on which the Irish system of management was adopted, would argue the dependence of this variety in the return from the crop on the particular mode of managing it; but altogether, I cannot but think that it justifies the character of the crop as "*a lottery*" given it by Mr. Blacker at the late Markethill meeting.—*M. S.*

On the advantage of reducing the Food of Cattle before giving it.—As I have just concluded the experiments you wished, I hasten to forward you the results, which are as follow:—Two horses in good health, in daily work, and as nearly as possible equal in size and age, were selected for the experiment. They were each allowed 5 lbs. of Oats (42 lbs. per bushel), and a sufficiency of good hay, of which they consumed about 17 lbs. per diem each horse. The only difference in the feeding consisted in one horse having the Oats thoroughly crushed, and the other being allowed the Oats uncrushed. On the fourth day of the above mode of feeding, the solid excrements of each horse were examined. 100 parts of the dung from the horse fed on crushed Oats were found to be deprived of all the nutritious matter contained in the food, and to consist of woody fibre, mixed with the animal secretions and some salts; while 100 parts of the dung from the horse fed on uncrushed Oats were found to contain 1.4 per cent. of nutritive matter, consisting of starch and gluten, which had not been acted on by the stomach, mixed with the ordinary constituents of the solid excrements of the animal—this arising from the inability of the horse to perform perfect mastication, and must vary with circumstances, such as age and rapidity of feeding. The same horses were then fed with cut and uncut food, consisting of hay cut into chaff, and hay uncut. At the expiration of the third day, the excrements were examined, but no chemical difference in their composition was detected; the food in both instances was found to be equally exhausted of its nutritive matter. The shorter period occupied by the horse in filling its stomach, and consequently greater amount of rest obtained, and the means of mixing food and preventing waste by cutting it into chaff, requires no observation from me, but will be material points in this mode of feeding.—*A. Gyde, Painswick.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover Square, on Wednesday last, the 12th of February; present, The Hon. Robert Henry Clive, M.P., in the Chair; D. Barclay, Esq., M.P.; T. R. Barker, Esq.; W. R. Browne, Esq.; F. Burke, Esq.; Dr. Calvert; F. C. Cherry, Esq.; B. Gibbs, Esq.; Sir J. V. B. Johnstone, Bart., M.P.; W. Miles, Esq., M.P.; A. Ogilvie, Esq.; Rev. R. Parker; J. Parkes, Esq., C.E.; J. Scales, Esq.; Prof. Sewell; W. R. C. Stansfield, Esq., M.P.; W. B. Stopford, Esq., and J. L. White, Esq. The following new Members were elected:

Blacker, Murray, Old Abbey House, Saxmundham, Suffolk
Nicholls, George, 17, Hyde Park-street, London
Ainslie, Wood Hill, Ripley, Surrey
Damer, Hon. Dawson, M.P., Tilney-street, Mayfair, London
Wemyss, Major General, Cumberland Lodge, Windsor Park
Wright, Edmond, Udders, Wimborne, Dorset
Burton, Rev. H. T., Atcham Bridge, Shrewsbury
Slaney, William Henry, Hatton Grange, Shiffnall, Salop.
Nightingale John, Faceby Lodge, Stokesley, Yorkshire
Relf, Samuel, Reigate, Surrey
Luxmore, Rev. C. T. C., Guilsfield, Welshpool, Montgom.
Roberts, William, Hemel-Hempsted, Herts.
Higginson, Edmund, Saltmarsh, Bromyard, Heref.
Lord, John, Standish Hall, Wigan, Lanc.
Bros, Thomas, 16, St. James's Place, London
Baugt, W. H., The Cottage, Overton, Flintshire
Hall, William, Ashton, Leominster, Heref.
Marsland, Rev. George Beckingham, Rectory, Newark, Notts
Story, William, Shrewsbury
Parry, Evan, Cwmdei, Crickhowell, Brecon
Carter, Thomas Shaw, Wattlington Park, Tetsworth, Oxon
Henty, Robert Henry, Chichester, Sussex
Stokes, Samuel Calcott, Kinton Hall, Chirbury, Salop
Moore, James, Shrewsbury
Bythell, T. W., Shrewsbury
Middleton, Richard, Broomfield, Shrewsbury
Fowler, Captain Robert Merrick, R.N., Walliscot House, Whitchurch, Reading, Berks
Watson, William Conolly, 4, Albany Terrace, Regent's Park
Hart, Thomas Parker, Housham Hall, Matching, Harlow, Essex
Newman, John, Brandsfee House, High-Wycombe, Bucks.
Jackson, George Vaughan, Carramore, Ballina, Ireland
Beddoe, Thomas Curdale, Cleobury-Mortimer, Salop
Savage, Thomas, Dunsley, Stourbridge, Worcester
Langlands, Charles, Bewick, Alnwick, Northumberland
Benbow, James, Sowdley Park, Market-Drayton, Salop
Langford, George, Henfron, Newtown, Montgomeryshire
Maitland, General Frederic, Hollywick, Hartfield, Sussex
Cornwallis, Earl of, Linton Place, Maidstone, Kent
Downing, John Cole, Leigh Hill, Earl-Sohem, Suffolk
Evans, John, Mayor of Aberystwith, Cardiganshire
Worthington, Archibald, Whitchurch, Salop
Hanmer, Colonel, Bear Place, Maidenhead, Berks
Spencer, John, Wrotham, Kent
Fenwick, Andrew Robert, Morpeth, Northumberland
Dodds, Ralph, Newcastle-on-Tyne, Northumberland
Weeks, Richard, Ryton, Newcastle-on-Tyne, Northumberland
Thompson, James, Kirkhouse, Brampton, Cumberland
Payne, William, Willcott, Salop
Burton, Humfrey C., Hastings, Sussex
Bodenham, Francis Lewis, Hereford
Croose, George, the Burcotts, Hereford
Mally, Thomas Watkins, Sutton-court, Hereford
Cranstow, Thomas, Upper Lyde, Hereford
Morland, William Courtenay, Pickhurst, Bromley, Kent
Reeve, Major-General, Leadenham, Grantham, Linc.
Austruther, J. H. Lloyd, Hintlesham Hall, Ipswich, Suffolk
Walker, George Richard, Heathfield House, Oxford
Arnett, Henry, Ifield, Crawley, Sussex
Goode, Edward, Aston-court, Tenbury, Worc.
Ward, John, 79, Bishopsgate-street-Within, London
Stutfield, William, Hildersham, Cambridge
Dent, William, Brampton, Huntingdon
Jones, Edward, Church-court, Clement's-lane, London.
De Lisle and Dudley, Lord, Penshurst, Kent.

Tussac Grass.—The Marquis of Downshire communicated the following result of Mr. Blacker's attempt to introduce the cultivation of the Tussac Grass into Ireland:—"Armagh, Jan. 14, 1845.—I think it will be interesting to your lordship, and perhaps to others interested in such matters, to know that I have succeeded in getting about 18 or 20 plants of the Tussac Grass from a very small quantity of the seed given me by the Royal Agricultural Improvement Society of Ireland. One might, perhaps, be deceived in regard to the plant, as its appearance is not known; but having given a few seeds to different gardeners, and the same plant having made its appearance in each case, I think it may confidently be considered to have been produced from the seed. I am not botanist enough to describe it accurately, but it seems to me to divide in the stem something like the Grass commonly called Spritt; but when the leaves part, they seem inclined to grow long, narrow, and pointed, in some degree resembling the leaves of a Pink, but in miniature, for none of the plants are above an inch high. Having only ventured a few seeds at the late season I sowed them, I am in hopes to have great success with the remainder.—W. Blacker."

Mr. B. Gibbs presented, on the part of Messrs. Thomas Gibbs and Co., the Seedsmen to the Society, two specimens of Tussac Grass they had themselves imported from the Falkland Islands.

Sheep-Hurdles.—Mr. Glencross of Luxstowe, near Liskeard in Cornwall, transmitted to the Society specimens of the Luxstowe Self-supporting Hurdle, made of wood and strained wire, and which he described as cheap, simple, and convenient, uniting the advantages of great durability with saving of time and labour. Hurdles of this construction 6 feet long and 3 feet 6 inches high, might be made at 2s. 6d., or (if near to woodworks) at 2s. each.

The Chairman, at the request of the Council, expressed his willingness to present to the Society a specimen of fence and crib-hurdle he had seen, made of withy, and so simple in its construction that any carpenter with a gouge, a hammer, and a few nails, could at once prepare it.

Heath-Lands.—Mr. Ormsby Gore, M.P., of Porkington Hall, near Oswestry, Salop, communicated to the Council the following statement of the process he had adopted in the winter of 1816-17 to bring his Heath lands in that county into cultivation:—"Porkington, Jan. 26, 1845.—From the scarcity of employment, the labouring population (more especially from Ireland), were driven to beg through the land. Many parties of them, increasing in number as the season advanced, daily applied at my residence. I soon discovered I was subject to considerable imposition, which determined me on applying a test. With this intention I set out (in addition to other works) a portion of mountain-land, which yielded me, with the remainder of the hill, a rent of about 6d. per acre, used for the depasturing young stock in the summer. Whenever able-bodied men applied for relief on the plea of want of employment, I offered them this resource: thus those who were industrious earned a livelihood, whilst the idle (unless incapacitated by illness or accident) were sent away unrelieved. The result was as follows, taken from my book of daily and weekly payments, commencing Dec. 2, 1816:

Expenditure.	£	s.	d.
Ditching, 110 roods at 1s. 10½d.	10	6	3
Clearing Heather and Gorse, 832 roods, at 3½d	12	2	8
Stocking the same, 15 inches deep, at 7d.	24	5	4
Stocking 122½ roods, at 11d.	5	12	3½
Stocking 58½ roods, at 8d.	1	19	0
Clearing and stocking 67 roods, at 10½d.	2	18	7½
Draining 153 roods in length, at 1s. 4d.	10	10	8
Day-work, 181½ days, at 1s. 4d.	12	2	0
Lime, 120 bushels per acre	43	10	0
Carriage of ditto	10	17	6
15 acres: being nearly 9l. per acre	£134	4	4

N.B.—The rate of wages was calculated 2d. per day under the rate of my regular workmen, which would have added about 10 per cent. per acre.

Result.—1817—Was a wet season, and the work not having been completed until late, the Oats (although a thick crop) never filled well: however, a neighbouring farmer offered 1l. 4s. per acre for it, and to him I let it.
1818—He sowed Oats. Produce, 20 bushels per acre.
1819—Oats and Clover. Oats 35 bushels per acre.
1820, 1821, 1822—Grazed it. Manured in 1822 (the best portion of the field with farm-yard muck—this was a loam); and sowed Wheat.
1823—The remainder, thin stony soil, sowed with Oats. The Wheat a heavy crop; the Oats light.
1824—A very heavy crop of Potatoes off the best side of the field, and moderate Turnips off the remainder.

The tenant continued to hold the land at the same rent till 1834, when he applied for an abatement of 4s. an acre; at which rent he has held it ever since. I have also been furnished with the following Report from a tenant who has commenced reclaiming some mountain-land which he holds under me in Denbighshire, near Llangollen. He commenced operations in the autumn of 1843, upon 17 acres of dry heathy land with a few Fern plants scattered through it, and stony. The produce of the first year was 340 bushels.

(*To be concluded next week.*)

MANCHESTER ATHENÆUM.

[By the kindness of Dr. Playfair we are enabled to lay before our readers the following abridged report of a portion of one of his lectures here, on the Chemistry of Vegetation. It refers to the present state of the theory of vegetable nutrition, as held by Liebig and others, so far as the question is concerned—Whence do plants obtain their carbon? And it has been sent us in answer to a notice on this subject by our correspondent "R. C. L." See page 42.]

There are obviously only two sources whence the matter of the future tree can come—the soil and the air. A large volcanic island, such as that of St. Helena or Ascension, is pushed from beneath the sea; and its crater pours its red-hot lavas for a time over its surface. But, gradually, that volcano becomes extinct; and the frosts, the rain, and the wind, beat on its surface, until the hard lava is softened into a soil. Then the birds, resting on the island during their migratory flights, shake off the seeds of other lands, which had become entangled in their plumage, and the seeds take root on the barren rock. Nature did not forget her usual wisdom, when she coated so many useful seeds with waterproof coverings, and shaped them like canoes, so that they might toss uninjured on the billows, until they are wafted on to this newly-created land, which in time becomes covered, as St. Helena was when first discovered, with large forests and luxuriant vegetation. In this and such cases the carbon could not come out of the soil; hence it must inevitably either come out of the water, or be extracted from the air. From pure water it could not come; for *it* contains only hydrogen and oxygen, without a trace of carbon. In some water, however, carbon must be present, or how would aquatic plants, or seaweed, obtain their carbon? Bonnet was the first to observe, that, if leaves be put in a tumbler containing water, they emit bubbles of air. "Ah! but," said his objectors, "the air was taken down with the leaves;" so Bonnet used water from which the air was completely expelled by long boiling, and he put his leaves into this, but no bubbles of air now escaped. Sennebier proved that it was only from water containing carbonic acid gas that these bubbles of air (oxygen) were evolved—carbonic acid consisting of carbon and oxygen. This was the key to the mystery; it was by the decomposition of the carbonic acid in the water, and the evolution of oxygen, that Bonnet had observed his bubbles of air. No wonder now that he could not get them when he boiled the water, because all the carbonic acid had been expelled. Sennebier's experiment certainly implied that carbonic acid was favourable to growth; but by implication merely, not by direct proof. This honour was reserved for two Manchester men, Dr. Percival and Mr. Henry, who showed that a small amount of carbonic acid in the air was favourable to growth. It was now very easy to conceive how plants obtain their carbon, if they were constantly supplied with carbonic acid, from which to extract its carbon. Now it had been clearly proved, that there is always a certain amount of carbonic acid in the atmosphere. But my auditors may ask, "Is the small quantity of carbonic acid in the air, scarcely amounting to one-thousandth of its weight, sufficient for the wants of all the vegetation on our globe?" Calculate how much charcoal is contained in the atmosphere in the quantity of carbonic acid, which, viewing it only with reference to the limited sphere around us, we term small. Why! more than 3000 billions of pounds of solid carbon exist in it—a quantity very much greater than is in all the coal on the earth's surface, and infinitely greater than the carbon in the growing vegetation. Satisfied as to quantity, they may then justly ask whether plants can absorb sufficient carbonic acid from a medium containing a proportion so small. That they do absorb it, had been proved by Boussingault, who put a Vine branch in a glass globe, and then caused a current of air to pass quickly through it. He analysed the air before it reached the Vine, and the same air after it had passed, and found that three parts out of the four of carbonic acid had been absorbed by the leaves. Liebig made a striking experiment to show how much carbonic acid could be extracted from the air in a given time. Lime readily absorbs this gas from the air. Now Liebig, in whitewashing his laboratory, ascertained by an experiment how much the lime in drying absorbed of carbonic acid; and applying his result to an English acre, supposing the leaves of plants growing on it had the same powers of taking up carbonic acid as lime, they would extract from the air in 200 days no less than 1,800,000 cubic feet of this gas, or upwards of 6000 lbs. of carbon; this being about three times the quantity of carbon actually taken up in the same space of time, and on the same surface, by a growing crop. It is quite certain, then, that there is a sufficiency of carbon in the atmosphere to support a growing vegetation; and equally certain it is, that plants do absorb carbonic acid, retain its carbon, and liberate its oxygen. This carbonic acid is taken up by plants in two ways. *The leaves, and indeed all the green parts of plants, absorb it directly from the air; and it is absorbed also by the roots, dissolved in the rain which has refreshed the ground.* I have already stated, that it is only with the concurrence of light that plants are enabled to break up

the carbonic acid, and assimilate its carbon. In the dark, at night, the leaves cease to act; they no longer absorb carbonic acid, but in fact are found to emit it. Now, for one of those remote analogies, of which I have complained as being so mischievous—Saussure compared the absorption of carbonic acid during the day to the respiration of animals, and its exhalation at night to their expiration. The hunters after analogy saw a splendid chase in this announcement, and went madly enough in pursuit. Professor Burnet soon saw a digestion and respiration in plants; they are *always* respiring, according to Burnet, but only digesting their food during the day: the waste matter of the digestion is oxygen, and is thrown out in the form of a gas; while at night, when digestion ceases, carbonic acid alone is respired and expired. Ellis, in fact, saw in this inspiration and expiration an equilibrium, and denied that the atmosphere was improved by vegetation, for that as much carbonic acid is evolved at night as is decomposed during the day. In this he was undoubtedly wrong, as shown by Daubeny, who proved that he acted upon sickly plants, and that healthy plants always decompose more carbonic acid during the day than they give out at night. But Daubeny was too late to arrest the current of opinion. The hunting horn had been sounded, and away went one philosopher after another, stumbling in most unphilosophic fashion, after this remote analogy of the nutrition of vegetables to that of animals. It was a steeple chase, and absurdities were the hurdles. The first of these was to experiment upon carbonic acid; so they put a plant into pure carbonic acid, and the plant died; but then Saussure had shown that oxygen is necessary to be mixed with carbonic acid before it can be absorbed by the plant; so the next philosopher jumped over the hurdle where it was a little lower, and mixed about five parts of oxygen with the carbonic acid, and yet the plant died. Then they shook their heads in triumph at those who believed in aërial nutrition, and off again went they in their career of error. But what was this boasted experiment worth? If I find a man benumbed with cold, and bring him into a room where a large fire diffuses its grateful warmth, and see the numbing effects of the cold yield to the rays of heat from the fire, have I not a right to say that warmth is favourable to animal life? "Oh!" says my opponent, "I can soon test the truth of your theory;" and he lifts up the benumbed man, and puts him actually upon the top of the blazing fire, where he is soon reduced to ashes; and then he turns to me, and says, "Are you still of opinion that heat is favourable to life?"—the experiment with carbonic acid is quite as absurd. The allegation is not that plants can subsist wholly on carbonic acid, if the other conditions for nutrition are absent; for Saussure has shown, that, as long as the amount of carbonic acid is not more than one-twelfth the amount of the air, plants flourish with greater luxuriance than in common air; but if it be increased beyond that quantity, it is positively injurious. But once jump over such a high hurdle of absurdity as that just described, and the phantom-chasing philosophers find all the rest easy. Plants, according to them, live upon a complex food, such as animals do. This food is a black substance, which they have dignified under the various titles of humus, humin, humic acid, ulmin, ulmic acid, gein, geic acid, crenic acid, apocrenic acid, nitrophlorotenic acid, &c. &c. This black substance dissolves in alkalies, in lime, or in ammonia; and, when thus dissolved, enters the plant, and supplies it with carbon. Now, say the advocates of this mode of nutrition, "All fertile soils contain abundance of this humus. Vegetable mould is in fact this humus, and the rich soils of America contain little else; every rich soil, to which we can point, contains abundance of it." "Admitted," say we, who advocate the opposite theory. "Well, how is your humus formed?" "By the decay of plants, of course—the oxygen of the air acts upon the vegetable matter, and leaves this brown mass, consisting principally of carbon, as the result of the combustion." Then we ask—if this humus be the result of the decay of vegetables alone, how did the first plants in the world obtain their carbon, for humus could not then have existed? "Oh!" said an eminent humus-loving chemist to me, the other day, in London, "that is the question of the egg before the hen, or the hen before the egg: we cannot reason on primeval phenomena." "But," I replied, "it is an every-day phenomenon: islands arise from the sea, and are covered with vegetation, under circumstances where humus never could have existed; Lichens grow on the walls of our houses and on desert rocks, where humus has never been; we can grow plants in burnt sand by making an artificial soil, and the plants thrive and fructify: immense crops are every year taken off meadows manured with ashes, with gypsum, or with guano, without any humus ever being added, and yet fertility is not impaired: clayey lands grow larger crops after paring and burning, when all the humus must be burned out. Where, then, the necessity for this humus to supply carbon? The immense marine forests of giant Seaweed, described by Darwin in his voyage in the Beagle, the stems of some of which, according to Cook, are above 360 feet in length, grow in the sea, where certainly there is no humus, and yet they reach a length unattained by any terrestrial plant. There are whole forests which grow on sands utterly destitute of humus; and the waxy trees of the tropics adhere to the most arid and parched-up soils. The forests of the western continent, we are told by Saussure, contain such an amount of carbon, that it is impossible it could have been derived from the soil. Considerations such as these, by allowing Nature to speak for herself, are to my mind a hundred times more convincing than the attempts to crush great Nature into a glass vessel, and then misinterpret her language as the plain expression of opinion, although it is often that of astonishment at being treated so rudely. But let us ask this simple question of Nature—Does she contain in her soils this humic acid of chemists? Such a substance is certainly known in the chemist's laboratory; but it is obtained by a process which never can be adopted by Nature in her own laboratory. If the humus be the nutritious matter of plants, it must undoubtedly reach them in solution in water; for it has been shown by experiment that the spongioles of the roots are unable to take up the finest powder, if it be merely in suspension in water. Now, if you treat good garden mould with water it remains perfectly colourless, taking up some earthy matter, and a mere trace, if trace indeed there be, of vegetable matter. Our spring and our river water, both of which are formed by the rains which permeate the soil, ought to be coloured black if the humus be soluble in water; but we well know that they contain mere traces of organic impurities. The stalactites found in caves and cellars are formed by the passage of rain through a vegetable soil, containing carbonic acid, which enables it to dissolve the lime-stone which it meets in its course; and, if the humus is in reality soluble in lime, we ought to find abundance of humate of lime in stalactites; but we do not. Then, if humus be not soluble in water, it cannot gain admission into plants. "But," say the advocates of humus, "although our material is not soluble in water, it is so in water containing lime or ammonia." Yes; it is in the laboratory, when strong solutions of these substances are boiled with garden mould; but Nature does not shower down hot water saturated with alkalies. Liebig has calculated how much carbon plants could receive, supposing all the rain that fell to pass through their organism saturated with humate of lime—an extreme, in fact, an impossible case—and yet, admitting its possibility, the crop growing on an English acre could not receive more than 700lbs. of humic acid, which would not be equivalent to the carbon existing on the roots and leaves alone, allowing nothing for the stem. But Mulder, a chemist of great eminence and acknowledged accuracy, has just published some experiments in favour of the use of humic acid in nutrition. There are eleven experiments with humic acid, four of which only succeeded. In two of these, in which he had ulmic acid, or black matter alone, the plants grew exceedingly indifferent—not much better than in ordinary sand and ashes; but in the two in which humate of ammonia was used, the plants grew luxuriantly. But I would say, that these grew on account of the ammonia. The experiments conducted with sand and ashes were not fair, inasmuch as that was not a fair condition for plants to grow in. I do not deny that humus, or vegetable mould, is favourable to vegetation: on the contrary, I recognise its importance. All I argued for is, that it does not act *quasi* humus, but that its action consists in being a stored-up magazine for carbonic acid, to be absorbed by the plants. Saussure showed that, when vegetable mould is exposed to the air, it absorbs oxygen, and becomes carbonic acid. It is by being a source of carbonic acid that humus is favourable to vegetation. This is a much more plausible view than the idea that it is directly absorbed into plants *quasi* humus. Since I first mentioned, in 1840, that charcoal increases the growth and colour of plants, the experiment has been tried; and indeed it is greatly used by gardeners all over the country. The charcoal does not act by giving one atom of its own to the plant, but by absorbing carbonic acid from the air. Now, admit with me that the action of humus is due to the evolution of carbonic acid, and the exhalation of that gas by plants in the dark ceases to be a mystery. The water of plants absorbs it during the day, as well as during the night; but, being carried up by the sap into the leaves, it is there decomposed by the agency of the solar light, its carbon is assimilated, and its oxygen evolved. But at night the carbonic acid, entering by the roots, is carried up into the leaves, where it now no longer meets with the sun, and is therefore evaporated along with the water. This exhalation of carbonic acid at night is a mere mechanical, and not a vital action, and has not the most distant analogy to the expiration of animals.

FARMERS' CLUBS.

Darlington.—At the late Monthly Meeting of this Club, the subject under discussion was, The most advantageous Method of Draining Strong Lands. Mr. Walton, the Vice-Chairman, introduced the subject by reading an essay from the pen of Mr. Davidson, illustrated by plans and sections of the drainage of some fields efficiently drained by him whilst farming in Northumberland. Mr. Walton said that he believed that drains laid with tiles or stones, or with both, that is broken stones upon the tiles in the average of strong or clay lands, should not be less than from 2½ to 3 feet deep. Mr. Pearson thought that in strong lands the drains might do 2 feet deep, but they certainly should not be of less depth than that, for he had found by experience that water was more liable to stand above a shallow drain than a deep one. Mr. Parrington said he had drained a good deal at a considerably less depth than 2 feet; he thought that 18 to 20 inches, where it was not intended to subsoil, was sufficient. He had lately seen a field belonging to an acquaintance, which was two years ago most effectually drained at a depth of 16 in.; in fact, the improvement that had been effected in it was astonishing. Mr. Johnson said that he had for several years been in the habit of draining considerable quantities of land, and had always found it to answer his expectations. He had generally drained from about 20 inches to 2 feet deep, and about 15 feet between the drains. A great portion of the land that he had drained at Cleasby was of a very poor description, and was generally said to be land not worth management; but by draining and management he had grown upon that poor land 80 bushels of Oats per acre. He had at present on a field of that description 10 acres of beautiful Turnips. And this was land on which no one would have ever thought of growing Turnips before it was drained. Notwithstanding this, he was now on one of his farms, near Hornby Castle, draining from 2 to 2½ feet deep, hoping that this depth might answer a still better purpose. The Secretary said that a good deal of difference in opinion prevailed with regard to the propriety of admitting the water directly in at the top of the drains. Some parties were in the habit of putting broken stones upon the tiles in order to admit the water from above; others used furze, underwood, stubble, or straw for the same purpose; whilst, on the contrary, some parties rammed the earth, and others even puddled the tops of the drains, to prevent the water having access from above. The question in this respect at present more particularly affected the drainings of the clay lands of this district; and, considering that it will in some degree increase the expense, it is questionable whether it is desirable in any case, in order that the drains may more readily become effectual, that any porous substance should be laid on the tiles that would admit the water readily from above; or whether it is desirable to endeavour to prevent the water from having any access from above, and by that means prevent any possibility of any sand or sediment being carried down into the drains with the water. Some discussion on this subject then arose, when it was considered by some of the members, that as there is very little (if any) danger of sand washing through the strong clays through furze, straw, or underwood into the drains; and considering at the same time that in land of this description the drainage is longer in taking effect, it might be advantageous to use means to facilitate the effect of the drainage. Others, however, were of a different opinion, and thought the water ought not in any case to be admitted from above. The meeting was, however, nearly unanimous in the opinion that from 15 to 18 feet between the drains was a good width, and that in all lands that are effectually thoroughdrained, the land should be laid perfectly level, high ridges being no longer necessary. The unanimous opinion also was, that efficient thorough-draining can only be done at the expense of the landlord, as no yearly tenant could be expected to drain efficiently unless he were certain of being benefited by his outlay. A question then arose as to the comparative expense between using common draining-tiles or pipe-tiles; and Mr. Pease referred to a table by Mr. Pusey, in the Journal of the Royal Agricultural Society of England, showing that the total expense of draining an acre with two-inch pipe-tiles would be about 3*l*. Mr. Parrington stated that he had been draining with No. 1 tiles, the total expense of which per acre, exclusive of leading tiles, was 3*l*. 5*s*. Mr. Johnson said that his draining generally had cost upwards of 4*l*. per acre. The subject fixed for discussion at the March Monthly Meeting is, The best Rotation of Crops for strong and light Lands. [The question discussed here, as to the propriety of puddling the clay above the drains is very interesting; the accuracy of the opinion on it, arrived at by the majority of this Club, must depend, of course, on the circumstances of soil, &c., which characterise their neighbourhood, of which they alone are competent judges; but so far as these circumstances may be ascertained from the above Report, we are inclined to agree with them. The absolute and unqualified manner in which many insist on the importance of rendering the top of the drains impervious to water, would lead to the belief that such a process is thought to be an advantage—an absolute aid to the efficiency of the drain; that in fact, a tunnel, whose object is to draw off water from any medium, is the better for having one of its sides impervious to water (!) than which nothing can be more obviously absurd. The practice is an evil—there can be no doubt of it; the only question that can arise is, whether or not it is a *necessary* evil, and this, we apprehend, is what in the majority of cases it must be considered. It is an evil, in respect that it diminishes the efficiency of the drain; but it is necessary to the exclusion of sand, &c., &c. which the water would otherwise be apt to bring in with it, and thus fill the pipes. Is there no other way of hindering the entrance of this sand? We cannot but think there is. Lengthened experience can alone determine this point.]

Miscellaneous.

Management of Farm-yard Manure.—It is known that the resinous and aromatic juices contained in the prickly parts of Pines are powerful enemies to putrefaction; but what obstacles are not to be surmounted by reason and vigilance, seconded by industry and labour? Kliyogg subdued them all, by submitting to certain rules in the preparation of litter for his cattle, and in peculiar attention to the different strata of his dunghill. In regard to the first article, he seldom removes the litter under a week, strewing fresh upon the top once a day; by which means it becomes impregnated with animal salts, and acquires a very evident degree of fermentation before it is removed to the dunghill. An objection may arise against this practice, which I could not avoid making myself—that the strong effluvia arising from the fermented litter must be prejudicial to the health; but Kliyogg assured me experience contradicted this, and thanked God that his beasts had been remarkably healthful and vigorous; nor does this method prevent cleanliness, if a constant supply of fresh litter is attended to; the cattle

are, at the same time, more warm and comfortable. This exactitude is equally conspicuous in disposing of the litter when taken away. It is laid in separate heaps upon the dunghill, so methodised that those where the fermentation is already advanced, may accelerate the putrefaction of others where it is more slow. In the beginning of autumn he litters his cattle with straw for two months; the next two months he litters them with brushwood and spines from Fir and Pine-trees; then straw again or rushes and dried leaves; then brushwood, and so on alternately. The regulation of his compost dunghill is as follows:—Lest the fermentation should be totally suppressed, or even checked by drought, he is assiduously attentive to the preservation of a certain degree of moisture. The celebrated M. de Reaumur, in his treatise on batching eggs in ovens or hothouses, observes, that when the heat of the hotbed decreases, it should be watered, to increase fermentation. The sagacity of our philosopher has explained to him that to obtain a manure thoroughly rotten, he has nothing to do but to preserve a constant fermentation by frequent waterings. To facilitate this, he has sunk seven large square pits, which have wooden covers. In these pits he keeps the prolific water, essential to so many operations: first, putting some thoroughly fermented cow-dung at the bottom, he pours in a proper quantity of boiling water, and then fills up the pit with fresh water from a neighbouring pond; this brings on, in three weeks, a state of putrescence, which, without boiling water, could not be attainable in two months. He has thus a perpetual supply of corrupted water, as well for the purposes of vegetation as to keep his dunghill in a constant state of humidity.—"*The Rural Socrates,*" *by M. Hirzel*, 1764.

Feeding Farm-Horses.—The following are the modes of feeding, as well as the cost of the system practised by several farmers on light and heavy soils:—1. Soil with Clover in the early part of the summer, Grass the latter part. In winter long hay, miller's offal corn, or baked Potatoes, according to prices. 2. Soil at summer when practicable, or send out to Grass. In winter, chaff, cut hay, Oats with Carrots, at the rate of six bushels of Oats and seven bushels of Carrots for four horses during the week. 3. Five bushels of Pollard with one cwt. of hay, half cut and half long, per horse. 4. Bruised Barley and bran, with cut hay, and a small quantity of long in the racks at night.

On Light Land Occupations.

	s.	d.
No. 5.		
1 bushel of Oats	3	3
2 stones of Bean meal	2	4
¼ cwt. of cut hay	2	0
Chaff	1	0
Per horse	8	7
No. 6.		
6 bushels of Oats	18	0
2 ditto of Beans	10	0
4 cwt. of hay	16	0
Corn, chaff, and cutting	12	0
Divided by six horses	)56	0
Per horse	9	4
Extra allowance on journey	1	0
	10	4
No. 7.		
5 stones of corn (various)	6	0
75 lbs. of long hay	2	4
Chaff	2	0
Per horse	10	4
No. 8.		
1 bushel of ground Beans	5	3
4 cwt. of hay, cut for six horses, equal each horse to	2	8
Corn, chaff, and a few Swedes	1	0
	8	11
Extra allowance for journeys for six horses, 2 bushels of Oats in the spring, each horse about	1	0
	9	11

On Heavy Land Occupations.

	s.	d.
No. 9.		
5 bushels of Oats	16	10½
2 ditto of Beans	10	0
5 cwt. of hay	17	6
8 bushels of bran	6	8
Cutting	2	6
Divided by five horses	)53	6½
Per horse	10	8½
No. 10.		
5 bushels of Oats	16	10½
1 ditto of Beans	5	0
6 cwt. of hay	21	0
8 bushels of bran	6	8
Cutting, &c.	2	6
Divided by five horses	)52	0½
Per horse	10	4½
No. 11.		
2 bushels of Oats	6	6
1 cwt. of hay	3	6
1 coombe of cut hay	0	10½
Per horse	10	10½

12. I mow for them in the summer, feeding them in the stables and yard with green meat. In November feed them on Swedish Turnips, giving each horse six stones or one bushel and a half daily. About eight acres will carry my horses (16) through the winter months (about 28 weeks), till the end of May. Upon this, with half a bushel of corn per week each horse, they will do well and consume but a small quantity of hay.—*Bacon's Agriculture of Norfolk.*

Furrow Draining in 1760.—Kliyogg has still another method of culture in his arable lands. He beheld with regret, the custom of raising high ridges, or banks, to prevent inundations over the corn, whose steep slope occasioned the roots to be overflowed in the furrows between, which had a very bad effect. To obviate this double injury, he changed these banks into covered trenches, about 2 feet in depth, which he filled half way with large stones covered with Pine branches, and spread over with the earth taken out of the trenches. In this manner he regained so much lost land, which produced as good corn as the rest of the field.—"*The Rural Socrates,*" *by M. Hirzel*, 1764.

Notices to Correspondents.

Correspondents—*T France*—We always publish names and addresses when we can get them: it would give a value to their communications which they do not at present possess were correspondents to permit us, more frequently than they do, to append to them their names. Spittal is somewhere in Lincolnshire.

Garden Farms—*M E B S*—You had better sow Clover this spring on the acre in Wheat; and, instead of sowing 2 acres to Oats, we advise you to sow 1½ only, in order that, taking half an acre of that which has longest been arable, to plant Lucerne on, you may still have 2 acres for green crop this year, viz, 1½ arable, and half an acre which you have "begun to dig" out of pasture. The half acre for Lucerne you must dig very deeply, and manure well, and sow in May 20 lbs. of seed per acre, in rows about 14 inches apart. Your 2 acres had better be sown thus:—Half an acre to Mangold Wurzel, half an acre to Carrots, half an acre to Parsnips, and half an acre to Vetches—to be sown immediately. Transplant Cabbages into the Vetch ground as quickly as it is cleared. You will need to buy food for your cows till the Vetches come in, *i. e.*, till the end of May.

Guano—*M A*—Apply both the manure and the guano as soon as possible. Your proposed mixture of guano with *soil* is, we presume, simply that you may be able to spread the former evenly over the land. Mix 4 cwt. of the guano with three cart-loads of fine earth, for one acre. Buy Bolivian guano; it will cost you more, but we think it is as cheap as the other in point of fact; and apply an equal value per acre of the farm manure, at a fair price per ton. See a Leading Article in another page.

Lucerne—*W. Smith*—Sow 20 lbs. per acre in rows, a foot or more apart, or 30 to 40 lbs. broadcast; the former is the better mode of cultivation. 3 bushels of Sainfoin is the quantity generally sown.

Maize—*P Sable*—Can any of our readers give us an account of their cultivation and experience of Indian corn?

Manures—*Cockney*—It appears to us that the kinds you have selected are well adapted to secure from your experiments useful and interesting results. Instead of digging in *sprats* round your young Apple trees, 12 inches from the stem, you should dig them in in a trench a yard wide, and at least 5 or 6 feet from the stem. They should be mixed with some light earth in a compost, to get rotten before using them.

Permanent Pasture—*Villager*—See an article on this subject in to-day's Paper. Italian Rye Grass will not, so far as our experience of it goes, assist much in making a *permanent pasture.* Greater variety is wanted than you seem to think. Lawson recommends the following mixture per acre for such soil as yours:—Aira cæspitosa lutescens, 2 lbs.; Alopecurus pratensis, 3 lbs.; Anthoxanthum odoratum, ½ lb.; Festuca duriuscula, 3 lbs.; F. heterophylla, 2 lbs.; F. loliacea, 2 lbs.; F. pratensis, 3 lbs.; Lolium Italicum, 3 lbs.; L. perenne, 5 lbs.; Phleum pratense, 3 lbs.; Poa nemoralis, 3 lbs.; P. trivialis, 3 lbs.; Lotus major, ½ lb.; Trifolium pratense perenne, 3 lbs.; T. repens, 5 lbs.: in all 41 lbs. per acre.—*A Recent Subscriber.*—Lawson recommends for a light soil the following mixture of Grass seeds to be sown without a crop. Alopecurus pratensis, 1½ lbs.; Avena flavescens, 1½ lb.; Dactylis glomerata, 2 lbs.; Festuca duriuscula, 3 lbs.; F. heterophylla, 1 lb.; F. rubra, 3 lbs.; Lolium italicum, 3 lbs., and perenne, 5 lbs.; Poa nemoralis, 3 lbs.; P. pratensis, 1 lb.; Medicago lupulina, 1 lb.; Trifolium pratense *perenne*, 4 lbs.; T. repens, 5 lbs.; in all 34 lbs. per acre. Bones dissolved in sulphuric acid, if superior to bones alone for arable land, must be so also for pasture. This superiority consists in their presenting to the plants phosphorus, on which the fertilising influence of both depends, in a form in which it is immediately available as vegetable food, being easily soluble in water, whereas the phosphorus in bones by themselves is very tediously soluble. Apply 6 bushels of the bones, dissolved, per acre, early in March.

Threshing-Machine—*A Constant Sub.* must see that it is impossible for us to recommend machine-makers. In the first place, to do so would subject us to advertisement duty; and next, to do it justly, would require in any one a knowledge which neither we, nor perhaps any one else, possesses—a perfect knowledge of the agricultural machine manufacturers in the kingdom. The machine you allude to was spoken of some time since as having been manufactured somewhere in Cornwall.

Ticks—*Kentish Sub*—Dipping is the most effectual remedy; but mercurial ointment or tobacco-water will destroy these pests. The former must be weakened by mixing with it two parts of lard, and gently rubbed into the wool. The latter may be made by boiling 2 oz. of tobacco, put in a bag, in a gallon of water, for half-an-hour. Whale oil is the safest application, but not so effectual as the above; it may be mixed with one-fourth part of oil of turpentine.—*W C S.*

Turnips, &c—*W C*—It is better to cut the Turnips, but not into large slices. We use Gardener's cutter for cattle as well as sheep, and we have no choking: the pieces are too small. Cross your Alderney cow with a pure-bred short-horn bull.

*** As usual, many communications have been received too late.

Markets.

SMITHFIELD, Monday, Feb. 10.—Per stone of 8 lbs.

	s.	d.	s.	d.		s.	d.	s.	d.
Best Scots, Herefords, &c.	3	10	4	0	Best Downs & Half-breds	4	0	4	4
Best Short Horns	3	4	3	8	Best Long-wools	3	8	3	10
Second quality Beasts	2	8	3	2	Ewes and second quality	3	4	3	8
Calves	4	4	5	4	Pigs	3	8	4	4

Beasts, 3104; Sheep, 30,540; Calves, 61; Pigs, 320.

Our supply of Beasts is large, and the demand decreased; we have consequently great difficulty in obtaining our top quotations for anything, and may be considered as the prices for only the choicest qualities of either description. There were several Foreign Beasts in Market, of very saleable quality. Sheep are in abundant supply, and trade for them exceedingly dull; 4s 4d is quite the extreme price of the choicest old Downs; many of good quality are sold at very little over 4s. Longwooled Sheep are rather lower. Veal trade continues about the same. Pigs are rather a brisk trade at former rates.

Friday, Feb. 14.

We have again a large quantity of Beasts, and very few wanted; trade is exceedingly heavy, at rather lower prices: in some few instances the best Scots make 4s, but the more general price is from 3s 8d to 3s 10d, and Short Horns 3s 4d to 3s 6d; second quality, 2s 8d to 3s 2d. Sheep are not very plentiful, but quite enough for the demand; prices are the same as on Monday. Since Monday the severe frost has caused such a stagnation on the trade at the dead market, that it is exceedingly heavy for all sorts of Meat. Best Calves barely maintain our late quotations, scarcely anything making more than 5s per 8 lbs. Pork remains steady.

Beasts, 828; Sheep, 2840; Calves, 142; Pigs, 188.

41, West Smithfield.

HOPS, Friday, Feb. 14.

The Market is about the same as last week; many are looking forward with a good deal of anxiety as to whether the Premier will do anything in modifying or repealing the Malt tax; there remains no doubt as to the benefit that would be derived in this trade, should the repeal of this tax be taken into consideration by the Ministers.

Pattenden & Smith, Hop-Factors

HAY.—Per Load of 36 Trusses.

Smithfield, Feb. 13.

Prime old Meadow Hay	100s to 107s	New Hay	—s to —s	Clover	100s to 115s
		Inferior Hay	80 95	Straw	36 45

John Cooper, Salesman.

Hay trade very heavy, at lower prices.

Cumberland Market, Feb. 13.

Superior Mead. Hay	100s to 115s	Superior Clover	112s to 120s		
Inferior	90 96	Inferior „	100 108	Straw	36s to 40s
New Hay	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

Whitechapel, Feb. 14

Fine Old Hay	100s to 105s	Old Clover	120s 126s		
New Hay	88 98	New Clover	100 115	Straw	34s to 40s
		„ Inferior	— —		

POTATOES.—Southwark Waterside, Feb. 10.

The supply during the past week has been considerably over the demand, and the weather has been seasonable and suitable for the sale of Potatoes; notwithstanding, this Market was greatly depressed, and there was but little inquiry after the best samples, and all inferior descriptions were a complete drug.

York Reds	60s to 80s	Kent and Essex Whites	45s to 55s
Perth	55 60	— Kidneys	70 —
Fifeshire	50 55	Wisbeach Kidneys	60 65
Early Devons	60 65	— Blues	55 60
Late Devons	— —	— Whites	— —
Cornwall	60 65	Guernsey Blues	60 —
Jersey Blues	60 —	— Whites	— —
— Whites	— —	Prince Regents	60 65
Essex Blues	50 60	Irish Whites	50 —

WOOL.—British, Friday, Feb. 14.

Our English Market continues good, and prices firm. The sales of Colonial and Foreign Wool terminated on Tuesday evening. The attendance throughout was large, and the prices realised an advance of 2d to 3d per lb. on the last October series.

James Perrin, Wool Broker.

COVENT GARDEN, Feb. 15.—In consequence of the severity of the weather during the week, most kinds of Vegetables have considerably advanced in price, and the supply has been very limited. Pine Apples, which chiefly consist of Queens and Montserrats, have made a trifling advance. Foreign Grapes are well supplied; Portugals are a trifle dearer. Good dessert Pears are now becoming scarce; the best fetch about 12*s.* per half sieve. Of Apples, good English grown varieties are scarce, but Foreign sorts are supplied in tolerable abundance; the latter are slightly advanced in price. A few good Cucumbers are offered at from 4*s.* to 12*s.* per brace. Among Vegetables, the best bunches of Asparagus are offered at 10*s.* each; Seakale is on the rise, the best fetching about 3*s.* per punnet. The supply of French Beans is very limited; the price of Broccoli is considerably higher than that quoted in our last Report. Turnips and Carrots are dear, especially the latter, which are selling at from 6*s.* to 10*s.* a dozen bunches. Endive continues good; it has not altered in price. Salading of all kinds is tolerably well supplied. Mushrooms are good, and plentiful; they are much dearer. Rhubarb is plentiful; the best may be obtained for about 1*s.* 6*d.* a bundle. Cut Flowers chiefly consist of Poinsettia pulcherrima, Abutilon striatum, Acacia pubescens, Azaleas, Gardenias, Lily of the Valley, Camellias, Heaths, Hyacinths, Tulips, and Roses.

FRUITS.

Fine Apple, per lb., 6*s* to 8*s*	Oranges, per 100, 4*s* to 16*s*
Grapes, Spanish, per lb., 1*s* to 1*s* 3*d*	— bitter, per 100, 8*s* to 18*s*
— Portugal, per lb., 1*s* to 4*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 6*s* to 12*s*	— per 100, 6*s* to 16*s*
— Kitchen, 4*s* to 6*s* 6*d*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 5*s* to 12*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Pomegranates, per doz., 2*s* to 4*s*	Cob Nuts, per 100 lbs., 150*s* to 160*s*
Filberts, per 100 lbs., 100*s* to 120*s*	Nuts, Barcelona, 24*s*
Chesnuts, per peck, 3*s* to 7*s*	— Brazil, 16*s* to 20*s*
Walnuts, shelled, 16*s* to 20*s*	— Spanish, 2*s*6
Oranges, per dozen, 9*d* to 2*s*	— Cob, 16*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*	

VEGETABLES.

Cabbages, per dozen, 6*d* to 1*s* 6*d*	Spinach, per sieve, 4*s* to 5*s*
— red, per doz., 2*s* to 3*s*	Scorzoners, per bunch, 1*s* to 2*s*
— plants, per doz. bnch., 3*s* to 6*s*	Salsafy, per bunch, 1*s* to 2*s*
Broccoli, per bundle, 1*s* to 6*s*	Leeks, per doz., 1*s* 6*d* to 2*s* 6*d*
Brussels Sprouts, hf-sv., 1*s* 6*d* to 2*s* 6*d*	Garlic, per lb., 8*d* to 10*d*
French Beans, per 100, 4*s* to 5*s*	Onions, per bunch, 3*d* to 4*d*
Sorrel, per hf.-sieve, 1*s* 6*d* to 2*s*	— large, per bushel, 3*s* to 4*s* 6*d*
Jerusal. Artichok, p. hf.-sv., 1*s* to 2*s*	— Spanish, per doz., 2*s* to 4*s*
Potatoes, per ton, 50*s* to 90*s*	Shallots, per lb., 8*d* to 10*d*
— cwt., 3*s* to 4*s* 6*d*	Lettuce, per score, 6*d* to 1*s*
— bushel, 1*s* 6*d* to 2*s* 6*d*	Celery, White, per bunch, 10*d* to 1*s* 6*d*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	— Red, per bunch, 9*d* to 2*s*
— Autumn, per lb., 3*d* to 6*d*	Endive, per score, 1*s* to 3*s* 6*d*
Turnips, per doz. bch., 4*s* to 7*s*	Mushrooms, per pottle, 3*d* to 2*s* 6*d*
Red Beet, per doz., 1*s* to 3*s*	Small Salads, per punnet, 2*d* to 3*d*
Carrots, per doz. bchs, 6*s* to 10*s*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Basil, per bunch, 2*d* to 3*d*	Parsley, per doz. bunches, 4*s* to 6*s*
Rhubarb, per bundle, 1*s* to 1*s* 6*d*	— Roots, per bundle, 9*d*
Seakale, per punnet, 10*d* to 3*s*	Tarragon, per bunch, 6*d*
Asparagus, per bundle, 8*s* to 10*s*.	Mint, per bunch, 6*d* to 8*d*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*	Marjoram, per bunch, 2*d* to 3*d*
Savory, per bunch, 2*d* to 3*d*	Chervil, per punnet, 3*d* to 4*d*

MARK-LANE, Monday, Feb. 10.

The supply of English Wheat from Essex, Kent, and Suffolk, this morning was again very small; best Samples of White were taken off at last week's prices, but Red and ordinary qualities were difficult to dispose of. Foreign was in less demand than this day se'nnight, but its value remains nominally unaltered. The Barley trade was very heavy, and only the finest Malting qualities fully supported our late rates. Beans and Peas remain the same. Oats are a dull sale, but we cannot reduce our quotations.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	40	49	White	40	49
—— Norfolk, Lincolnshire, and Yorkshire	—	—	Red	42	47
Barley, Malting and distilling 28s to 33s	Chevaller	33	35	White	— —
Oats, Lincolnshire and Yorkshire	Polands	20	24	Grind.	24 27
—— Northumberland and Scotch	Feed	20	23	Feed	19 23
—— Irish	Feed	20	23	Potato	21 24
Malt, pale, ship	—	54	60	Potato	21 24
—— Hertford and Essex	—	58	66		
Rye	—	29	32		
Beans, Mazagan, old and new	29 to 33	Tick	29	35	Harrow 30 36
—— Pigeon, Heligoland	37 to 40	Winds	—	—	Longpod — —
Peas, White	34 to 36	Maple	31	33	Grey 30 32

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	6985 Sks. — Brls.	6241	5805	8345	1438	—	1741	857
Irish	50 „ — „	—	—	79	5453	—	—	—
Foreign	— „ 186	500	2980	—	320	—	—	—

Friday, Feb. 14.

Although the arrivals of all descriptions of Corn since Monday have been moderate, trade has been extremely languid. Wheat, Barley, Beans, and Peas, have each proved a dull sale at our quotations, and the late value of Oats is barely supported.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	4240	5020	2360	3210 Sks
Irish	—	—	2970	—
Foreign	200	340	1110	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan. 4	per Quarter.	45s 8d	34s 2d	21s 10d	33s 9d	36s 3d	36s 1d
— 11		45 10	34 5	21 7	31 4	35 9	36 0
— 18		45 7	34 7	21 8	31 4	35 7	35 8
— 25		45 7	34 2	21 8	32 11	35 4	36 1
Feb. 1		45 5	33 10	21 6	31 3	35 8	35 4
— 8		45 5	33 0	21 6	30 1	35 1	35 7
6 weeks' Aggreg. Aver.		45 7	34 0	21 7	31 9	35 8	35 9
Duties on Foreign Grain		20 0	4 0	6 0	10 6	7 6	7 6

SEEDS, Feb. 14.

Canary	per qr	48s to 50s	Linseed Cakes, Foreign, p. ton	2l to 9l 10		
Carraway	per cwt	44 50	Mustard, White - p. bush.	10s 14		
Clover, Red, English	— —	—	— Superfine „	12 16		
— — Foreign	— —	—	— Brown „	12 16		
— White, English	— —	—	Rapeseed, English, per last	23l 25l		
— — Foreign	— —	—	Rape Cakes - per ton	— —		
Coriander	12	18	Sainfoin	— —		
Hempseed	per last	35 36	Tares, Eng. winter p. bush.	5 6		
Linseed	per qr	— —	Foreign	— —		
— Baltic	— —	— —	Trefoil	per cwt	— —	
— Cakes, Eng. per 1000	12l 10	13l	Turnip (too variable for quotation).			

Kingsford and Lay.

Sale by Auction.

NURSERY STOCK.

TO BE SOLD BY AUCTION, on the Ground, at CHELTENHAM, on FRIDAY, the 28th day of FEBRUARY, and the following day, a portion of the very choice and well-known Collection of FRUIT-TREES, SHRUBS, &c., on a part of the Nursery of Mr JESSOP, required for the Great Western Railway.

The Stock consists of about 1100 Plums, Pears, Apricots, Cherries, Peaches, Nectarines, and Mulberries; 400 Grape Vines of sorts; 1500 Standard, Half-standard, and Dwarf Roses, of the best sorts, the Dwarfs chiefly in pots; 600 Italian Cypress; 300 Chinese, Siberian, and American Arbor-vitæ; 500 Alaternus and Phyllereas; 900 Berberis, and numerous Pinus, Laurestinus, Cotoneasters, Broom, Hollies, Heaths, Ribes, Lilac, Bignonias, Arbutus, Daphnes, Pyrus Japonica, Evergreen Oak, Box-edging, &c. &c. The Evergreens mostly in pots.

Catalogues will be ready for delivery on Friday, the 21st of February, and may be had on application to Mr. GRAHAM, Great Western Railway Office, Cheltenham, or at the Railway Stations at Cirencester and Paddington.

The Stock may be viewed on the day before the Sale. The Sale will commence at 11 o'clock precisely on each day.

Farm to Let.

TO FARMERS AND COWKEEPERS.

TO BE LET, on LEASE, a Tithe-free FARM, of 250 Acres, close to a large and increasing town. There are 150 Acres of Meadow, which supply a considerable portion of the town with milk; 80 Acres Arable, good Turnip and Barley land; and about 25 good upland Pasture. An excellent House, with Orchard and Garden, and premises in every way convenient and in good repair. No person need apply who cannot command at least 2000*l.* capital, and will combine industry with the most improved system of husbandry.—Direct to M. K., Reading, Berks.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Feb. 15.

POTTER'S GUANO.

REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.

Sold by all dealers in Manures.

POTTER'S LIQUID GUANO,

FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1*s.* 9*d.* per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OF LIME, 6*s.* 6*d.* per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25*s.* in quantity.

Manufactory, 28, Upper Fore-street, Lambeth.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 1*l.* per quarter, including sacks; warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

IMPROVED ROOFING FELT.

McKIBBIN'S PATENT ROOFING FELT

Is particularly applicable as a Substitute for Slate, Zinc, Tiles, Thatch, and other articles used for Roofing, from its Economy, Durability, and Lightness. It is quite impervious to wet and damp, resists the heat of the sun, and is a non-conductor of heat or cold. Besides the economy in repairs, the timber where it is used may be so light as to save its whole expense. It requires no other coping, and by attention to printed directions may be applied by a common labourer. It is free from breakage and contraction, like zinc, and requires neither painting nor coating. It is now in very general use for Roofing Houses, Verandahs, Sheds, Workshops, Ropewalks, Railway Stations, Icehouses, &c. &c., and for protecting Plants, covering Garden Frames, Corn, and Hay Ricks, the top and sides of Sheep-folds; and to Emigrants it provides a cheap, warm, durable, and portable Roof.

This Improved Roofing Felt is much more durable than the common Felt, made in lengths, not being subject, like it or other materials in continuous lengths, to be stripped by storm; and being fastened down at the overlaps only, the wet cannot percolate through the nail-holes.

TESTIMONIAL.

London, Nov. 1, 1844.

H. C. BOWDEN, Esq., Agent for McKIBBIN'S Roofing Felt.

It is with much pleasure I add my humble testimony to the superiority of your Felt over any other preparation of the kind with which I am acquainted. This Testimony I give with the greater cheerfulness from the many reports I have heard in its favour, and from the likelihood of its being used extensively in Agricultural purposes. I shall not fail to notice it in my Lectures when on the subject.

(Signed) JOHN ROBINSON, M.B., Senior Lecturer on Chemistry, &c., as applied to Agriculture and Rural Economy in this Kingdom.

Sold in Sheets 32 inches by 20, at 5*d.* each (being less than 9*s.* 6*d.* per square of 100 feet).

Apply to H. C. BOWDEN,
Agent to the Manufacturers,
No. 18, East India Chambers, Leadenhall-street, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

TO FARMERS AND MARKET GARDENERS.

GAS LIME MANURE.—This MANURE, recommended for Agricultural purposes by M. LIEBIG and Professor JOHNSTONE, may now be had, with printed directions for using it, at the Stations of the Gas Light and Coke Company, Horseferry-road, Westminster; and Brick-lane, Old-street, London.—Address to the Superintendent of either station.

IMPORTANT TO GARDENERS, NURSERYMEN, SEEDSMEN, &c.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THE ONLY PROTECTION FOR PLANTS, &c. against Frost, Rain, Snow, and Changes of Climate, is CROGGON'S PATENT ASPHALTE FELT, as Improved by the Original Inventor and Patentee, being the only Felt in which hair is used, and the best of Asphalte, without any mixture of pitch, tar, rosin, or other inferior materials.

This Felt is guaranteed to be the Only Patented ASPHALTE FELT, all others being imitations; and is the only one used in THE ROYAL HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK.

The price is ONLY ONE PENNY PER SQUARE FOOT. A liberal discount allowed to the Trade.

THOMAS JOHN CROGGON,
2, Ingram-court, Fenchurch-street, London;
Of whom may be had the best Foreign Bitumen for Paving, Flooring, &c.

The attention of the Agricultural Public is especially directed to WEDLAKE'S SUBSOIL-PLOUGH, experience having proved it to be a most efficient and useful Implement, price 5*l.* 5*s.*; also

WEDLAKE'S CHAFF-CUTTING MACHINES and OAT-BRUISERS, which for many years past have obtained the approbation of the public. The use of WEDLAKE'S Oat-Bruiser especially will be found to effect a great saving in the feeding of horses and other cattle.

Mrs. MARY WEDLAKE, widow of the late Thos. Wedlake, of the Fairkyte's Foundry, Essex; and at the Agricultural Repository, 118, Fenchurch-street, opposite Mark-lane.

THRESHING MACHINES.—The late Mr. THOS. WEDLAKE was almost the only maker of that useful Implement the THRESHING MACHINE, so useful, and even indispensable during the last war; and so renowned was he for the perfection to which he had brought that Implement, that the price paid him used to be not less than 140 to 160 guineas. The same, much improved, is still manufactured by his Widow, from the patterns of her late husband, and may be had at from 32 to 55 guineas, warranted not to damage in the slightest degree the straw, at the Fairkyte's original Foundry and Implement Manufactory, Established 40 years, near Romford Essex: and 118, Fenchurch-street, London, opposite Mark-lane

WHITNEY'S PATENT CLOTH for COVERING GREENHOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street. — Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

LINGHAM, BROTHERS, BIRMINGHAM. — MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flowerpots, &c. In Boxes of One Hundred each.

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Caution—Beware of the words "From Metcalfe's," adopted by some houses.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, Feb. 15, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 8.—1845.] SATURDAY, FEBRUARY 22. [PRICE 6*d.*

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ROYAL BOTANIC SOCIETY OF LONDON.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, at the Gardens, Inner Circle, Regent's Park, Wednesdays, May 7th, June 4th, July 2d, from 2 o'clock until 7. 1845.—The Prizes to be awarded are MEDALS and PLATE, varying in value from 10*s.* to 15*l.*, the total amount being 1000*l.* Open to all competitors.

TERMS OF ADMISSION.—All Fellows, Life Members, and Bearers of Ivory Tickets will be admitted upon entering their names in the Gate-book. Visitors will only be admitted by Tickets to be obtained by orders from Fellows and Members, at the Gardens. Price, on or before Saturday, April 26th, 4*s.*; after that day, 5*s.*, except on the days of Exhibition, when they will be 7*s.* 6*d.* each. The Ticket to admit one person only. Fellows taking 30 Tickets at one time before April 26th will be charged only 5*l.* 5*s.*

Schedules of Prizes, with the Regulations and all other particulars, may be had upon application at the Gardens.

A PROMENADE every Wednesday in May, June, and July, excepting the Exhibition days.

By Order of the Council, J. DE C. SOWERBY, Sec.

STAMFORD HILL HORTICULTURAL SOCIETY.—The Shows of the Society for this year will be held as under, viz.:—

On TUESDAY . . 13 May.
THURSDAY . . 12 June.
THURSDAY . . 24 July.

The above Society is strictly confined to the resident Gentry and Amateurs; but for the general encouragement of Horticulture, prizes are awarded to Nurserymen, who are invited to compete among themselves at each Show.

TO ALL WHO HAVE WASTE LANDS.
TRUE HIGHLAND PINE-TREE.

JAMES GRIGOR, NURSERYMAN, NORWICH, begs to inform the Planters throughout the kingdom, that he is disposing of PLANTS, SEEDS, and CONES of this valuable Timber-tree at the annexed prices. A description of this PINE will be found in J. G.'s Advertisements of Feb. 1, and previous dates.

PLANTS, 2 ft. high, beautifully branched on all sides, with fine leaders	each—	0*s* 6*d*
Ditto, 18 to 20 inches high	per 100—	5 0
Ditto, 15 to 18 ,,	per 1000—	30 0
Ditto, of smaller size, for exposed situations	10*s.* to	20 0
SEEDS, post free, with directions for sowing	per 500—	2 6
Ditto Ditto Ditto	per 1000—	5 0
CONES, selected	per 1000—	25 0

Carriage paid to London or Hull, when plants are taken to the amount of 10*l.*

N.B. Every plant is packed by J. G. himself, or under his immediate superintendence, and in no case whatever is an address allowed to be written or attached to a parcel by any other hand.—Norwich, Feb. 22.

BLOOMS OF THE MAGNIFICENT SEEDLING CAMELLIA, "DUKE OF LANCASTER," may now be seen at Mr. CHARLWOOD'S, Seedsman, Tavistock-row, Covent-garden, London; and plants now ready for delivery, by applying to R. S. YATES, St. Ann's-square, Manchester.

MAGNIFICENT SEEDLING FUCHSIAS.

W. J. EPPS begs respectfully to announce that his two splendid Seedling Fuchsias, NYMPH and QUEEN OF THE BEAUTIES, will be ready for delivery on the 25th inst., price 10*s.* 6*d.* each; the usual discount allowed where 3 of each are taken. For description and particulars see Advertisement of Feb. 8. Agents: Messrs. Warner and Warner, Seedsmen, &c., Cornhill; and Messrs. Hurst and McMullen, Seedsmen, &c., Leadenhall-street, London; where drawings of each may be seen.—Bower Nursery, Maidstone, Feb. 22.

FUCHSIA "ERECTA ELEGANS."—The only Fuchsia that took a Seedling Prize at any of the great Horticultural Meetings at Chiswick this last season, will be let out the first week in April (fine strong plants) along with two other distinct varieties, named "Othello" and "Pillar of Beauty." The three, 15*s.*—A. KENDALL begs to inform the Trade he has no objection to take out in goods, to any amount, the orders they may favour him with for the above.

Queen Elizabeth Walk, Stoke Newington.

SEEDLING FUCHSIAS.

WM. IVERY, NURSERYMAN, FLORIST, &c., PECKHAM, near London, begs to inform his Friends and the Public that he will be able to send out, about the middle of April, SIR H. POTTINGER; the habit is that of Eppsii, quite equal in size, and a very free bloomer; tube and sepals of a delicate light flesh colour slightly veined with pink; sepals well expanding, showing the beautiful dark crimson and purple corolla. W. I. has no hesitation in saying it is the most noble and splendid variety ever offered to the public. Plants 7*s.* 6*d.* each.

"*Brooklands, Blackheath Park, Feb.* 7, 1845.

"DEAR SIR,—In answer to your questions relative to the FUCHSIA "SIR H. POTTINGER," which you purchased from my neighbour, Mr. Cole, I can have no hesitation in saying that it is the largest and best light Fuchsia which I have ever seen, and one which will give satisfaction to every purchaser; it has a fine robust habit, and under proper management will make a large specimen in a very short time. I am, Sir, your obedient servant, "WILLIAM P. AYRES."

SIR W. MAGNAY, bright glossy red, sepals much reflexed, far superior to Stanwelliana, and beautiful habit. Plants 5*s.* each.

TRUE WALCHEREN BROCOLI.

WILLIAM E. RENDLE can, with much confidence, recommend the WALCHEREN BROCOLI, as being a very excellent and superior variety. The stock was saved by Messrs. Myatt, of Deptford, who are well known to grow this sort in the highest perfection. 1*s.* per packet.

TRUE WILLCOVE BROCOLI.

This can be highly recommended, as one of the *largest and most valuable white varieties for Spring use.* Sealed packets, 1*s.* each. The following can also be recommended as superior sorts of Vegetables.

Superior Dark Crimson Beet	Dwarf Small Top and Scarlet Beet
Chappell's Cream Brocoli	Large Paignton ditto
Myatt's Superb Curled Parsley	Wood's Early Frame Radish
Atkins's Early Matchless Cabbage	Hammond's White Cape Brocoli
True Drumhead Lettuce	
Early Cornish Cabbage	

The above at 6d. per packet, or the whole set, including the WALCHEREN and WILLCOVE BROCOLI, will be sent free by post, for a Post-office Order, value 6*s.* All other kinds of Vegetable Seeds warranted new and genuine.

Union Road Nursery, Plymouth, Feb. 22.

APONOGETON DISTACHYON. — Three sound flowering bulbs of the above plant will be delivered free in any part of the kingdom, upon the receipt of stamps, or an order, for 4*s.* 6*d.*, or 15*s.* per dozen. This beautiful free-flowering, and very fragrant aquatic has been so fully described and recommended in the pages of the *Gardeners' Chronicle* that it will be sufficient here to repeat that it is perfectly hardy, and may be cultivated to perfection by any person who can spare it a corner in the smallest pond.

WILLCOVE BROCCOLI SEED, saved under the inspection of the Advertiser, warranted true, and a most distinct sort, meriting all that has been said in its favour, may still be had 1*s.* per packet, or (from this date), 3*s.* 6*d.* per oz.—Direct to J. MICKLE, Gardener, Folkestone, Kent.—Feb. 22.

SUPERB SEEDLING FUCHSIAS.—

AMETHYST	7*s.* 6*d.*
SAPPHO	7*s.* 6*d.*
EMPRESS	7*s.* 6*d.*

For full descriptions, and remarks, of the above beautiful and distinct Fuchsias, see Advertisement in *Gardeners' Chaonicle* of Feb. 8th. Plants sent out in April. The three will be charged 20*s.* The usual allowance to the Trade.

BASS and BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

CAMELLIA "HALLEII."

J. HALLEY, NURSERYMAN & FLORIST, BLACKHEATH, begs to inform his Friends and the Public that he has the above splendid CAMELLIA ready for sale. It was figured last July in the "Florists' Journal," and has proved itself again this season quite equal to the figure there given. It is a very large, perfectly-formed flower, with large, round cupped petals, of great substance, and a bright crimson colour. It has been pronounced by those judges who have seen it to be one of the best formed flowers of the species. Young plants, 3*l.* 3*s.* each.

In consequence of numerous applications from the Trade, J. H. has been induced to offer his improved CAMELLIA STOCK (marked XX) called ex-extra, FOR SALE. Its advantages are, it grows with twice the vigour and strength of the common Stock, without occupying more room, as the leaves are moderate sized, but thick and fleshy, strikes root even more freely by cuttings, is of neat, upright habit; and as it is always in a free-growing state, making two or three shoots annually, it is fit for grafting or budding at any time throughout the spring, summer, or autumn. It is, from its free habit, particularly well suited as a stock for Reticulata, and has been very successfully used by the Advertiser for that purpose. Plants, per 100, 10*l.* 10*s.*; 50 do., 6*l.* 6*s.* Strong plants per doz., 42*s.*; Single Plants, 5*s.* each.

An extensive Collection of Camellias, cultivated both for the wholesale and retail trade.

A general assortment of Indian Azaleas, Ericas, Fuchsias, Verbenas, Geraniums, &c., of which Catalogues may be had on application.

The Nursery may be reached by a very pleasant walk of a mile, either from the Greenwich Railway Station or Pier, and coaches from the City and Westminster to the door every hour throughout the day.

HERTFORD NURSERIES.

E. P. FRANCIS begs to refer the readers of the *Gardeners' Chronicle* to his previous Advertisements, for SNOW'S WINTER WHITE BROCOLI in half-ounce packets, at 1*s.* 6*d.*, and one-ounce packets at 2*s.* 6*d.* each. Snow's Hybrid Prolific Green Flesh MELON, eight seeds for 3*s.* 6*d.* Snow's Horticultural Prize White Spine CUCUMBER, seven seeds for 2*s.* 6*d.*; and Snow's Matchless Black Seed Green Cos LETTUCE, in packets 1*s.* 6*d.* each. Also a few remaining packets of Snow's very fine Fringed White and Purple PRIMULA SINENSIS at 2*s.* each; or the whole will be sent, post-free, on receipt of a Post Office Order for 11*s.*—Feb. 22.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON beg to apprise their Friends that they are now issuing GRATIS a new and DESCRIPTIVE CATALOGUE of their extensive collection of FUCHSIAS and VERBENAS, to which is added Lists of all the newest and best Cinerarias, Petunias, Anagallis, and other plants adapted for bedding; also miscellaneous Greenhouse and Hardy Herbaceous Plants, Shrubs, Climbers, &c. &c.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

	£	*s.*	*d.*
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures . per 100—10*s.* 6*d.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named .	2	10	0
Superfine Mixtures . . . per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named .	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto .	2	10	0
25 pair of PICOTEES, in 25 ditto ditto .	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto .	3	10	0
Good kinds . . per doz., from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	3	6
,, ,, PUNCTATUM . ,, .	0	7	6
,, SPECIOSUM, (true) . . . ,, .	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Feb. 22. Foreign Orders executed.

CONIFERÆ, ROSES, HERBACEOUS PLANTS, &c.

WM. JACKSON AND CO., NURSERYMEN, beg to announce they can supply the following, of the best quality, free to the Railway, at the very low prices quoted, and plants will be presented, to compensate for long carriage.

100 Dwarf ROSES, in 50 named sorts, two each variety, 20*s.*
50 Do. 50 named prize varieties, 25*s.*
20 Beautiful Scotch Roses, by names, 10*s.*
50 Standard Roses, in 25 named varieties, two each, 40*s.*
25 Do. 25 fine prize varieties, named, including the best Hybrid Perpetuals and Mosses, 40*s.*
100 Showy HERBACEOUS PLANTS, in 50 named sorts, 20*s.*
50 Very fine Do. in 50 Do., 20*s.*
100 HOLLYHOCKS, fine plants, for 35*s.*

All descriptions of SEEDS of the most select and genuine quality.

The sizes and prices of CONIFERÆ, also a general Catalogue of Greenhouse Plants and Nursery Stock, may be had, on receipt of two postage stamps. A reference respectfully solicited from unknown correspondents.

Cross Lanes Nursery, Bedale, Yorkshire, Feb. 22.

RANUNCULUSES.—THE PLANTING SEASON.

MESSRS. TYSO AND SON, WALLINGFORD, respectfully inform gentlemen about to plant, that they can supply (by post) strong roots of Superior Named Flowers, at 50*s.* to 5*l.* per 100 sorts; Mixtures, 5*s.* to 20*s.* per 100.

Messrs. TYSO AND SON'S Descriptive Priced CATALOGUE of FLORISTS' FLOWERS will be forwarded free to applicants inclosing two postage labels.

FUCHSIA "MAJESTICA SUPERBA."

J. BARNES, HORTICULTURAL GROUNDS, WARWICK, begs respectfully to call the attention of the public to his Seedling Fuchsia, which is of robust habit, a bold and free-flowering variety, and will be found a great acquisition to that much-admired tribe of plants. It was submitted to Dr. LINDLEY, July 6, 1844; see page 448 *Gardeners' Chronicle.* "B. B.—The seedling is a large and very stout flower; the sepals expand and show the corolla, which is very large and stout, with a slight dash of purple added to the crimson. It is a handsome variety." Strong plants ready to send out after the 25th of March, at 7*s.* 6*d.* each, with the usual discount to the Trade when three or more are taken. Also at Messrs. HURST and M'MULLEN'S, Seedsmen, 6, Leadenhall-street, London.

CAMDEN NURSERY, CAMDEN TOWN.
"BLAIR ATHOL."

T. ANSELL, F.H.S., intends sending out, the first week in May, a SEEDLING DAHLIA of the above name: colour delicate rosy lilac, symmetrical form, with excellent habit; height from 3 to 4 feet. Price, per plant, 10*s.* 6*d.* Being a month earlier than most Dahlias, and constant throughout the season, it will be a great acquisition to any selection. T. A.'s Catalogue of Geraniums, Greenhouse Plants, &c., can be had on application. Also a Catalogue of Dahlias, Fuchsias, Verbenas, and Plants for Bedding out in the season.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

MARNOCK AND MANLEY'S CATALOGUE OF FLOWER-SEEDS are now ready, and may be had on application at the Nursery, Hackney, London.

DANECROFT NURSERY, STOWMARRET, SUFFOLK.

S. GIRLING'S DESCRIPTIVE CATALOGUE of DAHLIAS, FUCHSIAS, GERANIUMS, HEARTSEASE, PETUNIAS, PHLOXES, and VERBENAS, is now ready, and can be had by forwarding two penny stamps inclosed in the letter of application.—Stowmarket, Feb. 22.

SLOUGH NURSERY.—This First-rate and Old-Established Concern, is to be disposed of, the Proprietor being about to retire from business. Any person of adequate capital to carry on an extensive concern, home and foreign, will find here advantages rarely to be met with.—Apply to Thomas Brown, at the Nursery, Slough, near Windsor; or, in London, to John Letts, Esq., No. 8, Bartlett's Buildings, Holborn

SLOUGH NURSERY, NEAR WINDSOR.

CHOICE SELECTION OF DAHLIAS,

For 1845.

THOMAS BROWN, in submitting his ANNUAL CATALOGUE OF DAHLIAS, begs to observe that he has only enumerated those kinds which he considers to be Show Flowers, and essential to all who intend competing for Prizes.

T. B. directs attention to his two beautiful SEEDLINGS, "ARETHUSA" and "ORLANDO," first-rate flowers, which cannot fail to give satisfaction.—Strong and healthy Plants will be ready for delivery early in May.

	feet.	s.	d.
Admiral Stopford (Trenfield), fine dark	4	1	0
Andrew Hofer (Holmes), rosy crimson	4	1	0
Antagonist (Bragg), the finest white	4	1	0
Aurantia (Spary), orange buff, fine form	3	2	0
Brown's Alexander, maroon and crimson mottled	5	1	6
" Arethusa, fine violet purple, of first-rate properties; was placed second by the Judges at the Royal Bazaar Exhibition, in Baker-st., London, Sept. 25, 1844	4 to 5	10	6
" Blue Bonnet, light rosy purple, extra fine	5	1	0
" Delight, cream, veined, tipped with purple	4	1	6
" Desirable, shaded buff	5	1	6
" Lady St. Maur, white, delicately tipped with violet purple, fine	4 to 5	2	6
" Nutwith, bright crimson, fine	4	2	0
" Orlando, peach lilac, deep and full, high centre, forming a beautiful outline, superior petal, of excellent form, and will prove one of the best flowers of the year	4 to 5	10	6
" Perpetual Grand, bright crimson	5	1	0
" Raphael, dark maroon	4	2	6
" Rembrandt, dark purple	3 to 4	2	6
Beauty of Sussex (Mitchell), mottled white and cherry	3 to 4	1	0
Beauty of the Plain (Spary), white and purple	3	1	0
Bedford Surprise (Sheppard), mottled purple	5	1	0
Bauduin (Salter), bright blood colour, full size, high centre, fine cupped petal, and a constant show flower	4	10	6
Beeswing (Drummond), dark red, fine cupped petal, constant, and an excellent show flower	4	10	6
Bathonia (Drummond), fine dark crimson	3	2	6
Bermondsey Bee (Prockter), fine deep purple, excellent form, and constant show flower	3	3	6
Competitor (Hodges), fine rose	3	1	0
Cleopatra (Attwell), fine yellow, excellent form and petal, and one of the most constant flowers in cultivation	4 to 5	10	6
Dowager Lady Cooper (Jackson), light rose	4 to 5	1	0
Duke of York (Langley), light primrose, with fine round cupped petals	4	10	6
Emma Noke (Dowding), blush white	4	1	0
Essex Bride (Turville), delicate peach lilac, of excellent form and petal	5	10	6
Essex Triumph (Turville), the finest dark	4	1	0
Essex Champion (Turville), bright orange, of great depth, and fine show flower	4	2	6
General Sir Robert Sale (Smith), dark crimson, fine form	3 to 4	1	0
Great Mogul (Attwell), mottled crimson	4	1	0
Indispensable (Girling), rosy lilac	4 to 5	1	0
Le Grand Baudine (Low), mottled purple	6	1	0
Lady Antrobus (Spary), white and lilac mottled, a useful show flower	3	2	6
Lady Sale (Smith), bright yellow, edged with deep scarlet, finely cupped petals, of excellent form	4	10	6
Mrs. Shelley (Mitchell), fine rose	4 to 5	1	0
Mrs. J. Richardson (Edwards), white, tipped with rosy purple	4	1	0
Marchioness of Ormonde (Bourne), unquestionably the best light flower of the season, clear white, with a beautiful tip of violet purple, fine form, and very erect habit	3 to 4	10	6
Nonpareil (Prockter), ruby scarlet, of first-rate properties, extra show flower	4	2	6
Northern Beauty (Robinson), white and crimson	5	1	0
Ne Plus Ultra (Widnall), shaded purple	3	1	0
Ophir (Edwards), yellow	4	2	0
Penelope (Headley), light tipped	4	1	0
Phenomenon (Whale), white and rose	5	1	0
President of the West (Whale), dark crimson	5	1	0
Prince of Wales (Dodds), yellow	3	1	0
Princess Royal (Hudson), buff, tipped with rose	4	1	0
Pickwick (Cormack), purple	3	1	0
Prince of Waterloo (Drummond), shaded crimson	4	2	0
Queen (Widnall), fine light rose	4 to 5	1	0
Queen of Roses (Widnall), delicate rosy pink	3	2	6
Rival Yellow (Smith), useful show flower	4	1	0
Reubens (Van Geert), brownish scarlet, the centre petals tipped with yellow, good form, and constant	4	10	6
Springfield Rival (Inwood), rosy crimson	5	1	0
Springfield Purple (Gaines), shaded purple	3 to 4	1	0
Standard of Perfection (Keynes), dark crimson, superior form	4	2	6
Sir J. Stewart Richardson (Union), mottled rose	4	2	0
Twickenham Rival (Gaines), yellow, tipped with amber	4	1	6
Victory of Sussex (Stanford)	4 to 5	1	0
FANCY DAHLIAS.			
Albert (Diedrich), dark crimson and white	5	2	6
Archduke Frederick (Deegen), white and lilac	3	1	6
Belle du Donk (Deelen), lemon and purple	4	1	6
Compte de Paris (Van Houtte), black and red	4	2	0
Etoile de Colmar (Spaedt), carmine and yellow	3	1	6
Garland (Girling), sulphur and bronze	4	1	6
Jack of Newbury (Magee), red and white	4	1	0
La Vogue (Lucoz), orange and white	3	2	0
Louize (Messire), crimson and white, fine	3	1	6
Madame Chauviere (Girling), pink and white, very beautiful	4	2	6
Madame de Schwanenfield (Girling), vermilion and white	3	1	6
Madame le Carpentier (Bleuze), vermilion and white	3	2	0
Madame Miellez (Girling), pink and white	4	2	0
Madame (Keyne), dark lilac and white, good	4	2	0
Madame Rignon (Girling), bright scarlet and pure white, distinct and very showy	4	5	0
Madame Wallner, deep crimson, tipped with pure white, distinct and very beautiful, constant, and of excellent habit	4	7	6
Monsieur Wallner, very dark, with clear white tips, constant and beautiful	4	7	6
Miss Watson (Girling), purple and white	4	1	6
Nihil (Balie), scarlet, red, and white	5	1	6
President Von Leitchemberg (Rinz), red and white	4	1	6
Purpurea Alba Superb (Bates), purple and white	5	1	6
Speedwell (Girling), dark maroon, with a large tip of pure white, every flower good, fine habit	4	5	0
Surprise (Oakley), crimson, purple, and white	4	1	6
Susannah (Girling), scarlet and white	3	1	0

[Thomas Brown's *Catalogue continued.*]

SUPERB PANSIES.

Plants of which can now be had either in or out of pots.

Brown's Arethusa, *w.*, 7*s.* 6*d.*
" Attila, *y.*
" Bella, *w.*, 2*s.*
" Cotherstone, *y.*, 2*s.*
" Cæres, *y. s.*
" Countess of Orkney, *st.*
" Crœsus, *y.*
" Curion, *w.*
" Decision, *y.*
" Elect, *st.*, 2*s.* 6*d.*
" Fancy, *m. y.*, 2*s.* 6*d.*
" Hannibal, *y.*, 3*s.* 6*d.*
" Lucretia, *st.*, 1*s.* 6*d.*
" Morpheus, *m y.*, 1*s* 6*d*
" Orlando, *y.*, 3*s.* 6*d.*
" Phœnix, *y.*
" Premier, *w.*
" Prospero, *y.*
" Satirist, *y.*
" Maid of the Mill, *w. s.*, 2*s.*
" The Prior, *w.*, 3*s.* 6*d.*
" Union, *y.*
" Vivid Superb, *y.*
Alpha (Warne), *w.*, 2*s.*
Alicia (Cook), *w. s.*, 1*s.* 6*d.*
Attila (Cook), *w.*
Actæon (Lane), *y.*, 1*s.* 6*d.*
Beauty of Bucks (Thomson), *st.*
Burgundy (Thomson), *d. s.*, 1*s.* 6*d.*
Black Prince (Pearson), *d. s.*
Bronze (Cook), 2*s.* 6*d.*
Bathonia (Kitley), *m. d.*
Black Bess (Cook), *d. s.*
Charter (Thomson), *w.*
Comet (Mountjoy), *y. s.*
Captain Boldero (Thomson), *m. d.*
Coronation (Thomson), *w.*
Corunna (Thomson), *y.*
Cyclops (Thomson), *y.*
Dark Perfection (Hooper), *m. d.*
Dr. Horner (Forsyth), *d. s.*
Duchess of Richmond (Thomson), *st.*
Desirable (Thomson), *m. l.*
Dark Seedling (Hall), *d. s.*
Duchess of Beaufort (Hooper), *w.*
Exquisite (King), *w.*
Eclipse (Thomson), *y.*
Fanny (Hooper), *l. s.*
Fair Maid (Thomson), *w.*, 2*s.*
Jeanette (Hooper), *m. l.*, 1*s.* 6*d.*
Jewess Superb (Bragg), *d. s.*
Jehu (Thomson), *y.*, 2*s.*
Launcelot (Thomson), *y.*
Mungo Park (Thomson), *w.*
Mary Jane (Hooper), *m. st.*, 2*s.* 6*d.*
Mulberry Superb (Cook), *m. d.*
Middleton, *y.*, 2*s.* 6*d.*
Malibran (Thomson), *w.*, 2*s.* 6*d.*
Miss Stainforth (Thomson), *w.*
Prince Albert (Hooper), *w.*
Pizarro (Thomson), *y.*, 7*s.* 6*d.*
Purple Perfection (Cook), *w.*
Prince Albert (Cook), *w.*
Princess Maud (Mountjoy), *m. y.*, 2*s.* 6*d.*
Princess Royal (Attwell), *w. s.*, 2*s.* 6*d.*
Prince Albert (Silverlock), *y.*
Princess Royal (Carpenter), *m. st.*
Rufus (Thomson), *y.*
Regulator (Thomson), *y.*
Raphael (Thomson), *w.*
Rob Roy (Warne), *st.*
Success (Henchman), *m. d.*
Splendid (Hooper), *y.*
Sulphurea elegans (King), *y. s.*
Surprise (Hooper), *m. d.*, 2*s.*
Triumph (Cook), *w.*
Unrivalled Yellow (Hooper)
Vulcan (Lane), *d. s.*
Victory (Mountjoy), *y.*, 2*s.* 6*d.*
Venus Victrix (Garraway), *w. s.* 2*s.* 6*d.*
Warrior (Thomson), *w.*
William Tell (Earl), *y.*
Yellow Deceiver (Hooper)
Zillica (Pearson), *w. s.*, 1*s.* 6*d.*

y. yellow ground; *w.* white ground; *y. s.* yellow self; *st.* straw-coloured ground; *m. y.* mottled yellow; *w. s.* white self; *d. s.* dark self; *m. d.* mottled dark; *m. l.* mottled light; *l. s.* light self; *m. st.* mottled straw.

Those not priced, at 1*s.* each.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. George Baker, Bagshot Nursery (late Hammond's), Surrey.

ROSE-TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for Sale, after the present season, is desirous of disposing of his extensive Stock of ROSE TREES and other PLANTS, at less than half the usual prices, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.

Mr. Hooker will supply Roses at the following prices, provided the selection of sorts is entirely left to him. Standard Roses, 12 distinct vars., ticketed with their names, 15*s.* per doz.

Ditto, as above, without names, 12*s.* per dozen.

The China, Noisette, Bourbon, and the Thé and other Perpetual flowering Roses, are on stems from 18 inches to 2½ feet, at the same prices.

Dwarf Roses, on their own roots, 12 distinct varieties, with their names, 6*s.* per dozen.

Ditto, ditto, 12 varieties, 3*s.* per dozen, without names.

Ditto, ditto, per 100, 3 or 4 of each sort, without names, 16*s.*

Dwarf China, Noisette, Bourbon, and the Thé Roses, in pots, with names, 9*s.* per dozen.

Climbing Roses, in pots, named, 9*s.* per dozen.

Standard Apple Trees, 50*s.* per 100; Dwarf do., 25*s.* per 100.

Large Ornamental Forest Trees, American Plants, Evergreen and Deciduous Shrubs, equally cheap in proportion.

Brenchley, Kent, Feb. 22, 1845.

PRINCE'S LINNÆAN BOTANIC GARDEN and NURSERIES, FLUSHING, NEAR NEW YORK.

WM. R. PRINCE & CO., Proprietors of this Establishment, offer for sale to their European correspondents the following articles:—

AMERICAN FRUITS of all the highly estimable varieties of every class, and suited to the most northern climes—Magnolias, of every species and variety, by the dozen or hundred, and especially the ACUMINATA, the best of all for Stocks, by the 100 or 1000. AMERICAN GRAPES, of 50 estimable varieties, for the table and wine; some as sweet as the Chasselas class, and all capable of forming Vineyards in the north of Europe far more productive than those of France.

Forest Ornamental Trees and Shrubs of every North American species, including a number from California, Oregon, and Texas; and Seeds in large quantities of the most important Herbaceous Plants of all species, including Cypripediums, Sarracenias, Trilliums, Liliums, Asclepias, Liatris, Erythroniums, Helonias, Gerardias, and all the family of the Orchideæ, &c. Twelve magnificent new double varieties of the Pæonia moutan originated from seed.

Priced Catalogues sent to all applicants, and payments can be made in London, Liverpool, Glasgow, Havre, or Hamburgh, to Agents that will be designated.

Wm. R. Prince & Co., Feb., 1845.

SELECT AND CHOICE FLOWER-SEEDS, with Directions for Sowing, Height, Colour, &c.

	s.	d.
100 vars. choice Annuals, including the most approved, new, for	15	0
60 do. do. do. for	8	6
30 do. do. do. for	4	6
20 vars. choice Greenhouse Annuals, for	6	0
20 do. Perennials, including fine varieties of Hollyhock, Fuchsia, Heartsease, Cineraria, Petunia, Calceolaria, &c. &c., for	6	0

The above can readily be forwarded by post, the 100 packets not exceeding 6 to 7 oz. Remittance in stamps or Post-office order from unknown correspondents.

Bass and Brown, Seed and Horticultural Establishment, Sudbury, Suffolk.

CUCUMBER and MELON BOXES and LIGHTS,—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-lights made, glazed, and painted, from 1*s.* per foot.—Sashes and Frames made, glazed, and hung complete, 1*s.* 8*d.* per foot.—At James Watts' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

NEW SEEDLING AZALEAS AND CINERARIAS.

WM. IVERY, Nurseryman and Florist, Peckham, near London, begs to inform his Friends and the Public that he can now supply good plants of the undernamed, which he can with confidence recommend:—Azalea lateritia formosa, bright red, 21*s.* to 31*s.* 6*d.* each (a Certificate of merit was awarded to Mr. James Ivery, of Betchworth); having large flowers, clean and bright in colour, and expanding freely. Vide Dr. Lindley, in *Gardeners' Chronicle*, May 25th, 1844. Azalea delicata, bright pink, good shape, and abundant bloomer, 15*s.* each. Azalea coccinea superba, bright scarlet, good shape, and free bloomer, 15*s.* each.

CINERARIAS.—Beauty of Wonham, very large, white, beautiful eye, and dwarf habit, 5*s.* Tricolor, white, and pink, brown eye, compact flower, 5*s.* Nosegay, purplish blue, good petal, and noble truss, 5*s.* Captivation, white ground, with beautiful mazarine purple tips; gained first prize at the West Kent June Exhibition, 5*s.* Criterion, mazarine blue, beautiful white centre; gained first prize at Dorking May Exhibition, 7*s.* 6*d.* Red Rover, bright crimson, beautiful prolific bloomer, 5*s.* Fanny Ellsler, white, crimson tips, prolific bloomer, 5*s.* Pickwick, bright purple, large flower, and fine shape, 3*s.* 6*d.* Compacta, small, white, and beautiful round flower, 5*s.* The whole of the above Seedling Cinerarias, 40*s.*

The following Cinerarias can be recommended as good:—Ivery's Beauty of Lyston, bronzy purplish blue, 3*s.* 6*d.*; Emperor, 2*s.*; Pride of Peckham, 2*s.* 6*d.*; Regulata, 2*s.*; Delicata, 1*s.* 6*d.*; Regina Victoria, 2*s.* 6*d.*; Triumph, 2*s.*; Rival King, 1*s*; Imperial Blue, 1*s.*; Royal Blue, 1*s*; Iveryana, 1*s.* 6*d.*; Princess Royal, 1*s.* 6*d.*; Queen Victoria, 1*s.* 6*d.*; Exquisite, 3*s.* 6*d.*; Wee Pet, 3*s.* 6*d.*; Henderson's Azurea, 1*s.* 6*d.*; Pilot, 1*s.* 6*d.*; Unique, 1*s.* 6*d.*; Magnet, 1*s.* 6*d.*; Prince of Oldenburgh, 3*s.* 6*d.*; Sombre Agréable, 3*s.* 6*d.*; Grand Duke, 2*s.* 6*d.*; Eclipse, 1*s.* 6*d.*; Enchantress, 1*s.* 6*d.*; Good's Compacta, 3*s.* 6*d.*; Gaines's True Blue, 1*s.* 6*d.*; Prince Albert, 1*s.* 6*d*; May's Queen of May, 2*s.* 6*d.*; Youngii, 1*s.* 6*d.* Good named varieties, from 9*s.* to 12*s.* per dozen. Fine Cineraria Seed, 2*s.* 6*d.* to 5*s.* per packet.



THE MANUFACTURER OF THE MAGNIFICENT "WARDIAN PLANT CASES," which obtained the Medallic Prize at the last Horticultural Fête, Chiswick, will dispose of them by subscription. One hundred subscribers at 2 guineas each. The two cases are designed most characteristically, and executed in the best manner of gold coloured metal; polished wood bases lined with metal, and move on castors; are glazed with the finest sheet glass, and both have a door at each end. The above cut indicates their outlines, but can convey no idea of their splendour, which elicited from Dr. Lindley an acknowledgment "that he did not think objects half so beautiful would be produced." Tickets and further particulars can be obtained of the following Seedsmen: viz. Messrs. Warner and Warner, Cornhill; W. and J. Noble, Fleet Street; G. and W. Rollisson, Tooting; Fisher and Holmes, Sheffield; W. Potts, Column Nursery, Salop; or at Birmingham; and of Mr. M. Nottingham, 6, St. Benet Place, Gracechurch Street, and 33, Argyll Street, Regent Street, London. At the latter address the cases may be seen.

The dimensions of the Cases are as follows: the larger, 7 feet high, 4 feet 3 inches long, and 2 feet 6 inches in width. The smaller, 4 feet high, 3 feet long, and 1 foot 11 inches in width.

Due notice will be given of the time and place of Ballot, which will be in London; meanwhile the Cases may be seen at 33, Argyll Street, Regent Street, on application.

RANUNCULUSES, &c.—CHEAP.—

	s.	d.
50 choice sorts, by name	12	6
50 do. do., 2 of each	21	0
100 finest sorts, mixed	7	0
100 very good, do.	4	0
ANEMONES.—30 superb new large double, by name	12	6
100 do., mixed	12	6
100 early single, mixed	7	0
TUBEROSES.—Fresh imported double, per dozen	5	0
GLADIOLUSES.—Floribundas and others, per dozen	4	0
FLOWER SEEDS.—The best 50 hardy sorts (very showy)	12	6
The best 30 do. do.	7	6
The best 50 hardy and half-hardy, including splendid Asters, Stocks, Zinneas, Balsams, Portulaccas, Brachycoma, Viscaria, and others	17	6
The best 30 do. do.	10	6
CARNATIONS and PICOTEES.—Choicest show flowers, by name, each	1	9
Do., by name, per dozen	18	0
PANSIES.—First-rate sorts, by name, per dozen	12	0
PERPETUAL ROSES.—The best sorts of Hybrid Perpetuals, Bourbons, &c. (all fragrant) by name, per doz.	21	0

Messrs. Sutton and Sons, Reading Nursery, Berkshire, confidently recommend the above as worthy a place in the most select collections, and the prices are very moderate.

N.B.—Carriage paid to London, Bristol, or any station of the Great Western Railway.

NEW, GOOD, AND CHEAP.

WILLIAM MILLER will commence sending out, the last week in March, in stout tin cases, post free, (or in pots if required), 12 new choice and very distinct Fuchsias, fit for exhibition, for 7*s.* 6*d.*; 12 extra first-rate very distinct varieties, all sent out for the first time last season, such as Vesta, Gigantea, Neptune, Modesty, Expansa, Reflexa, Cornet (Smith's), Cassandra, Prince of Wales, Queen (Pawley's), Prima Donna, Desdemona, Goldfinch (Harrison's), Longiflora, Curiosa, Louis-Philippe, Cyrus, Novelty (Miller's), Marginata, Sanguinaria, King John (Halley's), Augusta (Rickhard's), Oxonian (Day's), Kentish Bride (Epps's), Uttoxeter Rival (Rogers's), Sidmouthii (Bartlett's), Colossus (Standish's), Princess Alice (Bunney's), Norfolk Hero (Barkway's), Princess Sophia (Marnock's) Queen Victoria (Youell's), for 15*s.*; also 12 distinct Verbenas for 3*s.* 6*d.*; 12 extra good, new varieties, such as Blue Queen, Zeuxis, Beauty Supreme, Elegance, Orange Perfection, Poolii, Modesty, Variabilis, Monarch, Brilliant, Array, Excelsa, Striata, Delicata, Defiance, Trésor Parfait, Azure Grandiflora, Queen of the Whites, Compte d'Eu, Alba Lutescens, Giant, Boule de Feu, Amethystina, Fortune-teller, Perfection, for 6*s.*; —Parties ordering are requested to send the names of the sorts they already possess, that W. M. may send other suitable varieties. Printed Lists may be had. Providence Nursery, Ramsgate, Kent.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

YOUELL AND CO.'S CATALOGUE of the newest and best FUCHSIAS, VERBENAS, PETUNIAS, CHRYSANTHEMUMS, CINERARIAS, and other highly-ornamental Plants, is this day published, and may be had on application. It will form an acquisition to those who are desirous of ornamenting the Greenhouse, Conservatory, or Flower-Garden.

Great Yarmouth Nursery, Feb. 22.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 22, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY	Feb. 26	Society of Arts. . . .	8 P.M.
MONDAY,	Mar. 3	Entomological	8 P.M.
TUESDAY,	Mar. 4	Horticultural	3 P.M.
		Linnean	8 P.M.
FRIDAY,	Mar. 7	Botanical	8 P.M.
SATURDAY,	Mar. 8	Royal Botanic . . .	4 P.M.

WHATEVER the opinion of politicians may be respecting SIR ROBERT PEEL'S FINANCIAL MEASURES, there can be no doubt that the Right Hon. Gentleman deserves the hearty thanks of all persons having gardens.

There was not, in the whole list of excisable articles, an impost so oppressive as the glass duty. By the operation of the excise regulations the most important of all things next to food and raiment was the most burthened with fiscal charges. A beautiful substance, manufactured out of the most worthless and valueless of all materials, and costing little except labour and skill, was converted by the British Government into a material which could only be enjoyed, even by those in easy circumstances, on the most indispensable occasions. To men with whom glass was necessary for the purposes of their trade, the excise duty was a most grievous burthen; for, independently of the mere expense thus created, the substance itself was made of the worst possible quality. The duty being levied by weight, and glass in sheets being sold by measure, it became necessary for the manufacturer to blow it to the thinnest possible state; and thus, from the enormous amount of breakage, the cost of repairs was almost as formidable as the first expense. The object of the manufacturer was to increase to the greatest possible degree the brittleness of the most fragile commodity we know of.

Happily this is put an end to. The excise on glass was so thoroughly bad that no palliative could be administered. Had a partial reduction of duty, or a piecemeal alteration in the mode of visiting glasshouses, been made, the consumer would have profited nothing. The benefit would have been principally felt by the manufacturer. SIR ROBERT PEEL has swept away the whole of the barbarous system; all duties on glass are to be extinguished; and every man who has a greenhouse, a Cucumber frame, or even a window, owes him a debt of gratitude for being the author of so great a good.

To market gardeners in particular, the service thus rendered is of the most essential importance. Their early crops cannot be grown without glass; all such forced productions are necessarily raised by its assistance. It was, therefore, impossible for market gardeners, with all their skill—and no men have more —to contend with growers in countries where glass is as cheap as cotton linen and as durable as iron. The free trade in fruit must have ruined them if foreigners had possessed their capital and skill; and as it was, it operated as a severe discouragement to their labour. For how was a market-gardener at Isleworth, encumbered with the endless charges of his brittle-roofed sheds, and occasional hailstones to boot, to say nothing of fuel, to compete with a man who lives on the banks of the Tagus, and can send the early produce of his open ground to Covent Garden as soon as the English gardener can obtain it by forcing at unlimited expense?

We believe that the free trade in fruit has produced very serious losses to the English gardeners. We also believe that the repeal of the glass duties will be much more than a compensation for them.

That the new state of things will produce a most important alteration in the condition of our gardens we entertain no doubt. Glass will be very cheap, and very durable; for what does it now signify to the maker whether his commodity weighs an ounce to the foot square, or half a pound? Flint and soda are cheap enough to enable him to combine strength with superficies, and that is what the consumer wants as much as actual cheapness. Many a man would build a greenhouse, even at the present cost, if it were not for the heavy charge for repairing it.

Every one who has a Peach-tree trained against a wall, or a Vine on the front of his house, may force them now. A few moveable sashes, however roughly put together, may be inclined in front of such trees, and Nature will do the rest. We shall have no more occasion for vitreous cloth, and all those imperfect expedients to which the excise of glass has driven us; and we now may reasonably hope to see every cottager with his hand glass and "one-light box."

FEW things are more surprising than the extreme ignorance respecting the commonest matters of NATURAL HISTORY, and we may add, the want of tact, often exhibited by those who are, *par excellence*, termed literary men. Witness the following note in a recent article of the "Quarterly Review:"—"We are inclined to believe that some of Cennini's blacks would on examination prove to be browns. Pure black should never be admitted on wall or canvas, for the simple reason that it hardly exists in any department of nature, which can come within the sphere of imitation. In Vegetable Nature, we have heard it stated that it is only to be found in the flower of the Kidney Bean. De Candolle, or Mr. Paxton, might perhaps give other instances." The substitution of Kidney Bean for common Bean might have been attributed, possibly, to a slip of the pen, were it not for the sentence which follows, which could only proceed from a person as ignorant of the rudiments of Botanical Literature as he appears to be unobservant of nature.

The preceding observations, however, are doubtless just. A careful examination even of the dark spot in the Bean flower, especially towards the edge, shows it to be a dark shade of brown. It is very doubtful indeed whether black really exists in the vegetable world: if anywhere, it would be found amongst Fungi; but if a small portion of even apparently jet-black species be observed under the microscope, it will be found to exhibit a brown, yellow-olive, or indigo-blue tint. Amongst Algæ, what is black to the naked eye will be found, on close examination, to be a deep tint of rich yellow-brown, or olive-green.—*M. B.*

We know a gentleman who, when he was examined for orders, was surprised by the Bishop's remarking, "Grass, you know, Sir, has a flower, though it is a very small one;" a piece of information which the worthy prelate thought important as a commentary on the passage, "He shall pass away as the flower of Grass." What a high opinion of Cambridge education the Bishop must have entertained!

We have even heard of a man gravely inquiring whether the Daisy was not the flower of Grass.

The writer in the "Quarterly," the learned Bishop, and the Daisyman, may all be placed in the same category.

VINE CULTURE AT TRENTHAM HALL.

IN the Calendar of Operations, p. 836, 1844, I promised to give an account of the treatment of a house of Vines, which were started in September of that year. This promise I now proceed to fulfil. The Vines, up to the present time, have done so much better than in either of the two previous years, when started in November, that I think it may be interesting to some to know the particulars of their treatment, which has been, in some respects, different from that which is generally practised. The border is deep, and by no means dry, and would have been renewed before this, but that the Vines in the other houses were too young to afford a sufficient supply of fruit. In October, 1843, the whole surface of the border was covered with a layer of concrete, 2 inches in thickness, and a drain was made along the front to receive and carry away all the rain that should fall upon the concrete. The Vines, as before stated, were started in November, and ripened a middling crop in April of 1844. By the month of July the wood was matured, and the leaves fading. I then tied the shoots down close to the inside of the front wall of the house, to keep them cool; the border was covered lightly with half decayed litter at the same time, to act as a shade in keeping off the rays of the sun; thus, as far as possible, giving the roots as well as the branches an artificial winter. In September last the covering was removed from the border, leaving the concrete as put on in October, 1843; the border was then covered with fresh stable litter, sufficient to create a heat of from 75° or 80° in the soil. I may here observe that the raising and maintaining a sufficient degree of heat in the border, is by no means so difficult a matter as many people appear to suppose. I found by repeated trials, made at intervals during a period of eight weeks, that after the heat had once reached 80°, it continued so without any material deviation, by merely keeping a covering of strawy litter, in which the heat never exceeded 70° or 75°, except for a few days, once a fortnight, when it was turned and a little fresh litter added, which caused it to heat briskly for a short time, but the increase was never more than 10° or 12°. After the border was covered, the Vines were tied loosely within 2 feet of the glass, and the temperature of the house was kept as low as the weather at that season would admit of, till the buds broke, which they did in a remarkably short space of time. The Vines were still unpruned, but all the buds that would have been removed by pruning had been cut off.

As soon as the young shoots had grown from 4 to 8 inches in length, the Vines were pruned and tied within 14 inches of the glass. The leaving the pruning of the Vines to such a late period, being a departure from the universal practice, may require some explanation. My idea is that by leaving them unpruned till they have begun to grow, at the same time removing the superfluous buds, the whole of the nourishment stored up in the wood of one year for the supply of the buds of the next, is reserved for the buds that are left, instead of being lost, as part of it must be when Vines are pruned at the usual time. Or, in other words, by this method, the wood destined to be cut off is first drained of all the useful matter it contains, and the Vine is deprived of nothing but what is absolutely useless to it. It is for those who are more skilled in vegetable physiology to judge how far I am right. At p. 259 of the "Theory of Horticulture" the following remarks occur:—"During the season of rest (winter) a plant continues to absorb food solely from the earth by its roots, and if its branches are unpruned the sap thus and then introduced into the system will be distributed equally all through it. If late pruning is had recourse to, of course a large portion of the sap that has been accumulating during winter will be thrown away, and the part of the plant remaining will retain no more of it than the exact proportion which that part bore to the part abstracted. When, however, early or autumnal pruning is employed, part of the branches being removed before the sap has accumulated in them, all which the roots are capable of collecting during the period of repose, will be deposited in the remainder, and consequently branches from that part will necessarily push with increased vigour." This quotation may seem to militate against the ideas expressed above, but I would submit whether the capacity of the roots for collecting nourishment must not be in proportion to that of the branches for receiving it? and also, whether the objections to late pruning there stated, are not in this case removed by deferring it to a still later period than is there contemplated.

Keeping the border dry by means of the concrete, and maintaining a bottom-heat of from 75° to 80°, has been greatly in favour of the Vines here. Top-dressing with dung the borders of Vineries intended for early forcing (as frequently done) without taking measures at the same time to keep them dry, I consider to be positively injurious. I presume that the driest Vine borders in this country are too wet in winter, and that the rain being permitted to descend into soil already too wet and cold, carrying with it the rich matter contained in the dung, only tends to glut the roots, and render them unfit for the healthy performance of their functions. I am also of opinion that September is a better time to begin to force Vines than any time between that and the middle of December, as the fruit is set before the middle of November, and has more assistance from the sun than it would have in January, at which time it would be setting if started in November, the usual time for beginning to force for an early crop of Grapes. I stated in the Calendar that it was intended to destroy the Vines here after the crop was cut. They have, however, done so well that they are to be preserved, with a view to starting them again this year as early as possible in September. It is intended to remove the concrete in May, and to top-dress the border. The crop is a good one, and is now fast approaching maturity; and had the bunches been thinned to the number which would have been left, if the Vines at the time had been intended to remain, they would have been quite as large as they have been for the last three years. I consider that I fell into an error in not thinning because the Vines were to be destroyed, and for the future shall treat Vines to the very last as if they were to remain. There are now on nine Vines 120 bunches. The wood is quite as well ripened as can be expected on Vines so very unfavourably situated at the roots as those in question are, the border having apparently been made of very rich materials, being undrained, and not less than 4 feet in depth.—*G. Fleming.*

MOSS A PROTECTIVE MATERIAL FROM FROST.

FOR several years I have used Moss, gathered from the woods, to protect my China, Bourbon, and other Roses, from frost; and, from recent experience, am so firmly convinced of its beneficial effects, that I feel the information cannot be too widely spread. My practice has been to place round each plant a quantity of Moss, in the shape of a cone, averaging 15 to 18 inches in width at its base, 9 inches at its summit, and from 12 to 15 inches in depth. We have had scarcely any snow here, so that, in the night of Tuesday, the 11th inst., the ground was nearly bare of snow; on Wednesday morning, observing that my thermometer, placed on the northern side of a tree, about 6 feet from the ground, in an exposed situation, registered 26° of frost, I felt curious respecting the efficacy of my Moss protectives. To my agreeable surprise I found, that under cones of Moss not more than 9 inches deep, owing to their settlement from the rains of winter, the soil was not frozen in the least degree, and the young shoots and buds of the Roses, at the bases of the plants, fresh and vigorous as in the mildest weather. I have hitherto recommended Moss, when used as a protective for Roses—not to be placed in contact with the branches of the plants, fearing the effects of damp during the humid weather of a great portion of our winters; but, owing to my men not exactly going according to orders, many of my protective cones have been placed closely round the plants: no injury from damp has resulted, and their appearance is highly promising. From having thus so recently experienced

the sure and certain protection from frost that Moss gives, my ideas have taken a wider range, and I feel convinced that Pelargoniums, by having their leaves taken off from the bases of their shoots towards the end of October, and a cone of Moss placed round each plant, may be preserved in our open borders during our severest winters, without injury. Fuchsias, hardy greenhouse plants, half-hardy evergreens, and many other desirable plants, may also be preserved in our open borders. We may thus be able to have them established, and of many years' growth, in our gardens, instead of transplanting them annually, as at present, in May; for by the time their roots are well established, frost comes and obliges us to remove them into winter quarters. By protecting them with Moss, the lower parts of Pelargoniums and Fuchsias will alone be preserved; but these, as is well known, are full of buds, and their roots being perfect, the plants, after being headed down, will shoot most vigorously, far beyond plants only recently transplanted. It is not, perhaps, generally known that many tender evergreens will suffer but little in their branches from severe frost, if their roots are well protected. To such Moss may be applied unsparingly, with the certainty of pleasing results.—*Thos. Rivers.*

ORCHIDACEÆ.

No. III. *Atmospheric Air.*—The internal air of even an Orchidaceous-house will become rank and unfit for the plants to breathe, if kept constantly closed; the effect of which is weak shoots, pale-green leaves, and few flowers. It is true that giving air, as it is termed, will cause the moisture to evaporate more quickly through the openings; but that may be counteracted in a great measure by saturating the walks, walls, and stages with water, during the time when air is given. I have never found ill effects from giving air; on the contrary, the plants have benefited greatly by it; it induced their fibres to become of firmer texture, shortening the joints, and causing them to flower more freely. I give air during hot sunshine in the house in which Dendrobiums, Aerides, Saccolabiums, and other Indian plants are growing, when the thermometer (Fahrenheit's) indicates 85°. In the other houses, in which are the Cattleyas, Lælias, Stanhopeas, when it indicates 75°, one effect of giving air (more than I expected) was the production of a greater number of seed-vessels.

Seasons of Potting.—Some species are in a state of growth during all seasons of the year, so that there can be no particular time for potting; in fact, in large collections, seldom a week passes but some will require a shift into fresh compost. Almost immediately the plants will show that they are not ungrateful for the attention bestowed upon them, for they will begin in a very short time to put out new roots into their fresh material, and the whole plant will seem endued with fresh vigour. The greater part of the collection here receive a potting once a year; but the very large specimens, if they appear healthy and vigorous, making strong shoots or large pseudo-bulbs, are only shifted every other year, or in some cases only once in three years; but these examples are not numerous. The time of potting is a very convenient one for increasing the specimens; and such as are very large and unwieldy, as Gorgoras, Stanhopeas, some Maxillarias, &c., may be divided by a strong knife and careful hand into three or four plants, reserving the best division for a specimen plant. The Oncidiums with large leaves and almost no pseudo-bulbs, may be increased by taking off with a sharp knife such leaves as may be three years old or upwards. Cattleyas and Lælias may be increased by taking off one or more of the back pseudo-bulbs, which generally have an incipient bud at the base. Air plants, such as Saccolabiums, Aerides, and the like, may be increased by either cutting the shoots into lengths, or waiting till side shoots are produced, and have put forth roots of their own, when they may be taken off and tied to logs. Some species of Dendrobium and Epidendrum increase themselves naturally by producing shoots on the old flowering stems. These, when a year old, may be taken off and potted as soon as they begin to grow, and will soon make good plants.

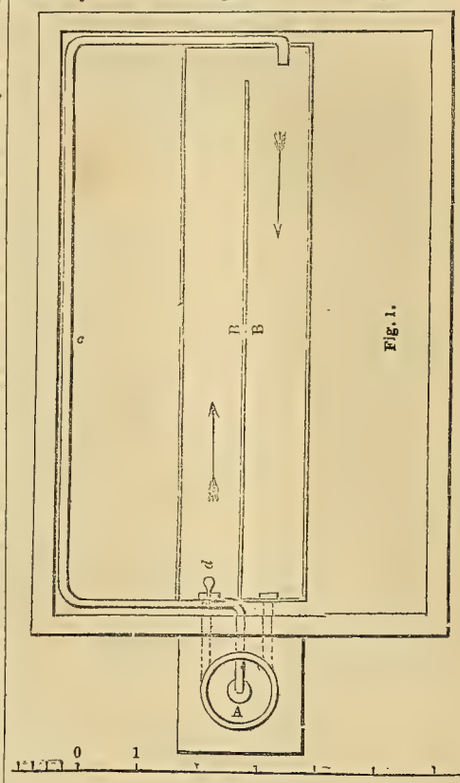
THE TANK SYSTEM OF HEATING.

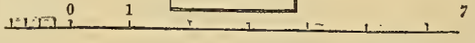
It is well known that by means of a flow and return tank the degree of bottom-heat in pits can be very steadily maintained. Once the mass of soil or other materials composing the bed is heated to the required pitch, very little heat is required to keep it up; and sudden changes of external temperature do not greatly affect it. If the temperature outside be one night at 55°, and the next at 25°, this difference of 30° will only occasion a few degrees lower temperature in the soil of the bed. But the case is very different as regards the air of the pit; for under the above conditions it would certainly be affected to a much greater extent—perhaps as much as 20°.

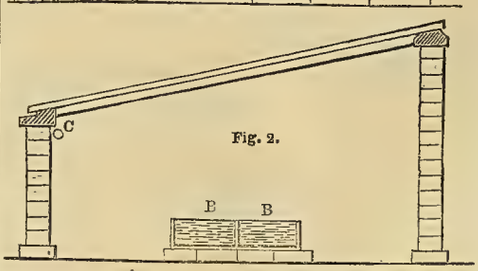
Presuming that the temperature of the bed is exactly what it ought to be, any attempt to counteract the coldness of the air in the pit, in a cold night, will cause an excess of bottom-heat, which by repetition must prove highly injurious. If the communication of heat from the tanks to the surface is only through the mass of soil, the conduction of heat is exceedingly slow; whilst its escape by the glass is rapid. To raise the temperature of the whole mass of soil 10° in as many hours, would require an extraordinary force of fire; notwithstanding which, should a fall of external temperature take place to the extent of 30°—not an unusual circumstance—the top-heat will lose 30°, less 10° counteracted by increase of bottom-heat; or, in other words, the air in the pit will be 20° lower than it ought to be; and, in attempting to prevent this, the bottom-heat will be raised 10° too high. If the tanks are in a chamber communicating with cavities between the walls and soil, the external cold will be much more readily counteracted by the increased heat of the tanks; but if, as premised, the bottom-heat was previously high enough, an excess must be communicated to the soil by any extra heating of the tanks immediately under it.

It is evident that whilst the requisite supply of heat for the bottom is almost uniform, and that for the top is exceedingly variable, both cannot be duly heated in combination. A separate command of heat is necessary for each. A boiler with tanks for bottom-heat, and another with tanks for top-heat, and the whole so constructed as to admit of giving out moist or dry heat according as either may be required, is doubtless the most perfect arrangement; and perhaps it might be found ultimately not the most expensive. It would, however, be considered as such for many small concerns.

In some cases the accompanying plan may be adopted with advantage, as it affords a ready command of top-heat, without materially affecting the degree of bottom-heat. It is simple, and probably much less expensive than any other combining the same advantages.







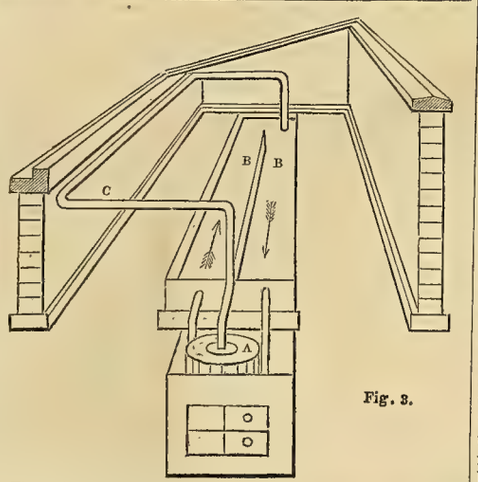


Fig. 1, is the ground plan of a pit, which may be 7 feet wide, having 8 or 10 sashes.

Fig. 2. Section.

Fig. 3. Perspective view; the end wall and rafters being removed for the better showing of the other parts.

In these, A is the boiler. BB, Tanks for bottom-heat. C *c*, Steam-pipe rising from the top of the boiler, proceeding along the front, and turning at the farther end so as to terminate in the return tank. When this requires to be worked, the pipe leading to the flow tank is stopped by a plug, *d*.

The steam-pipe need not be more than 2 inches in diameter. It may be inclosed in a wooden box pierced with holes, that may be opened or shut as circumstances may require. The heat of this pipe, whilst it continues filled with steam, will be greater than that of one conveying hot water; but if the fire should fall low the heat of the steam-pipe will rapidly decline, although it will still give out some so long as the fire keeps in. But if a 4-inch pipe be employed along the front, and laid horizontally, then filled with water so as to leave a space for the steam to pass along, the condensation of the latter, and consequent loss of its latent heat, which will be transferred to the iron and water, will in them constitute a store of heat that will continue to be gradually given out, even if the fire should fail. A tank may be employed in a similar manner.—*R. T.*

HOW TO STRIKE CUTTINGS.*

BY NEUMANN.

No. I. *General Considerations.*—The Creator has willed that plants should multiply themselves by their seeds; but man, still more to increase the riches of the vegetable kingdom, as if he found himself in too narrow a compass, incessantly assists Nature, whether he evokes the mysteries of artificial fecundation, or propagates species by grafts, layers, or cuttings. This last method of propagation has arrived at such importance in our days that I have thought it my duty to state the nature of the proceedings which practice, and a long study of the numerous plants intrusted to my care, have suggested to me. A cutting, properly speaking, is a part of a plant which, being detached, is placed in the ground, where, under the influence of different circumstances, it ought to develope itself, and produce an individual similar to the parent plant. Monocotyledonous plants will only strike by cuttings from their branches; but dicotyledonous plants offer for propagation, so to speak, all the parts which compose them — roots, branches, trunks, or portions of them, herbaceous shoots, and leaves. With but few exceptions plants struck by cuttings demand constant attention; a temperature and moisture proportioned to the nature of the subject are the conditions which ought especially to engage the attention of the operator; for the principal precaution is, to secure the cuttings at the same time from rotting and drying. With this end in view we keep them in media of equal temperature and moisture; we prevent evaporation of the soil, and arrest the perspiration of the cuttings. Plants which are soft-wooded, or have much cellular tissue, such as Malvaceæ, Geraniaceæ, Solanaceæ, and others, take root more easily, and demand less precaution, than the delicate, resinous, milky, hard and dry-wooded species. Cuttings of the greater part of the hardy ornamental plants suited to the climate of Paris will strike in the open air, if they are protected from winds and currents of hot air. Others are struck in pots upon exhausted hotbeds, or in a pit not much raised and ventilated. Finally, cuttings of exotics, able to grow only under the influence of a heat which reminds them of the conditions among which they naturally live, strike root in glass-houses made on purpose, or are placed, agreeably to their nature, either in a hothouse or greenhouse.

No. II. *Soil proper for Cuttings.*—Different sorts of trees do not root equally well in all soils. There are some cuttings which can scarcely be made to succeed in saline earth, while others succeed in it very well. The soils considered the best for striking cuttings in the open air are those which are free, sandy, and soft to the touch; of Fontenay-aux-Roses, for example, of Clamart, or of Massy. Tamarix elegans and T. germanica prosper in a soil rich in saltpetre; but the Gingko and Poplars cannot strike in it; these last succeed at Fontenay-aux-Roses. Cuttings made in glass-houses generally require to be planted in earth mixed with peat in preference to any other, but varied according to the nature of the plant. Whatever composition we use, we must take care not to employ it too dry or too moist; in the first case, the earth not being able to sustain itself in a convenient manner around the cutting, the latter falls or is displaced when we wish to water it; in the second case, the earth being too compact, it hinders the formation of roots; Nature makes vain efforts, and the cutting suffers, decays, and dies, in spite of its disposition to vegetate.

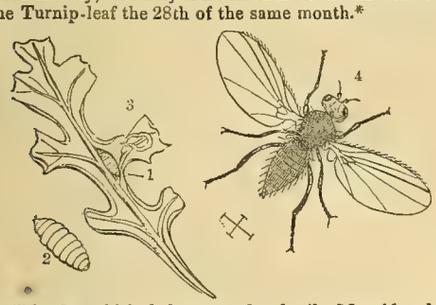
No. III. *Cuttings in the Open Air.*—All our deciduous trees, and many evergreens, may be struck from cuttings in the open air, by the same process as that employed in the Colonies, if requisite care is taken. There in our Colonies, where there are no glass-houses for propagation, nor bell-glasses, I made cuttings entirely in the open air, in a bed shaded with straw; these cuttings were watered at random every day, taking no other precaution than that of not disturbing their roots. This simple method, the only one, it may be said, in use in our Colonies, is far from offering the difficulties which present themselves under the latitude of Paris, to secure the striking of the cuttings of plants foreign to our climate. Here, in order to insure success, we take shoots and branches in full vegetation. In the Colonies, the gardener always chooses in preference the wood which has finished its growth. With us, on the contrary, there are plants whose cuttings in our glass-houses do not root unless they are quite soft, and just before the wood begins to assume its natural colour; such are Semecarpus anacardium, Swietenia mahogani, Euphoria litchi, &c. These cuttings cannot bear exposure to the air, even for a moment. They must be planted the moment they are taken off, and covered by a bell-glass. However, this treatment will not succeed with milky, gummy, or resinous plants, such as Vahea gummifera, Araucaria, Euphorbia, &c., whose cuttings, if placed in the earth

* Mr. Neumann is chief superintendent of the hothouses in the Garden of Plants at Paris. We have occasionally referred to his little work called "*Notions sur l'art de faire les boutures*," and now commence its translation.

as soon as they are taken off, seldom root, but almost always rot. Such cuttings secrete from their wounds a peculiar matter, which must be discharged before they are planted. For this purpose I put them upside down in pots; I then fill the pots with rather moist earth, without pressing it in, leaving the wound alone uncovered. I leave them 24 or 36 hours, and sometimes more, in this position, until the superabundant matter which they contain is thrown off. I then wash the wound with a sponge, and the cutting takes root more or less easily, in proportion as the wound is clean. I know no tree from which we may make cuttings in the open air, with herbaceous shoots, without a bell-glass; but those herbaceous plants which have some appearance of wood, such as the Pelargonium, Geranium, Cineraria, and Calceolaria may be made to strike without heat, and under the shade of a wall. These cuttings are shaded with straw mats during the day; however, they always succeed best in a cool frame. In order to make the plants which I have just named strike by cutting, we commonly take the extremities of the branches after flowering. The soil which suits them best is peat mixed with well rotted animal or vegetable mould. Among Roses, the China, being the hardiest, is propagated by cuttings in peat soil, with wood one year old; the other sorts strike in a hot-house, and under a bell-glass, for which purpose choice should be made of herbaceous shoots, taken from plants which have themselves been kept in a greenhouse. *(To be continued.)*

ENTOMOLOGY.

PHYTOMYZA NIGRICORNIS—(*the Black-horned Leaf-miner*).—There are many species amongst the smaller beetles, moths, and flies, whose larvæ reside between the cuticles of the leaves, which has led to their being denominated "miners." Although they may not occasion much mischief, as regards the health of plants, yet their labours are by no means acceptable to the gardener in the greenhouse or conservatory, for the blighted and sickly aspect they cast over the foliage is certainly very unsightly. I have frequently seen the leaves of Cinerarias thus affected to a great extent, and in November I received a communication, accompanied by specimens, complaining that many plants of the Senecio elegans were greatly injured by these mining larvæ; in some places winding galleries might be traced (Fig. 3); in other instances entire lobes of the leaves were so completely excavated, that nothing but the dried bleached cuticles remained, enveloping the pupæ, and not unfrequently as many as five or six were imbedded in one leaf (Fig. 1). Having placed them in a box I had the satisfaction to find many of the flies hatched the following spring, which enabled me to identify them, and I was rather surprised to find they were the Phytomyza nigricornis, the maggots of which I had previously detected feeding upon the parenchyma of Turnip leaves, in which they formed long irregular galleries on the inside of the lower cuticle, and they were not visible on the upper side of the leaf. One of the maggots changed to a dark-brown pupa the third week in July, and a fly came forth from the underside of the Turnip-leaf the 28th of the same month.*



This fly, which belongs to the family Muscidæ, has been named by Macquart, Phytomyza nigricornis: it is of an ash or slate-colour, and does not shine; the head is hemispherical and ochreous, the base and hinder portion dark slate-colour, with an oval cavity beneath to receive the lip and other portions of the mouth; the antennæ are small and drooping, and inserted in an excavation beneath a triangular projection in front of the face; they are blackish, compressed, and formed of a small basal joint, a second cup-shaped one, and the third is orbicular, from the back of which arises a short pubescent bristle, with a minute joint at the base; there is a dusky patch on the face beneath, and the spot on which the ocelli form a triangle on the crown is blackish; the eyes are remote in both sexes, not large but orbicular and blackish, and there is a line of black bristles down each side of the face; the thorax is somewhat globose-quadrate, and very cinereous, as well as the scutellum, which is subtrigonate-conic and elevated; they both have a few strong bristles scattered over them; the abdomen is short, narrower than the thorax in the male, slightly attenuated to the apex, which is incurved and obtuse; in the female it is broader, ovate and conical at the tip: it is rather bristly, and 7-jointed, the edges of the segments being pale, the penultimate one with a yellow margin, and the apex is furnished with a retractile tubular ovipositor; wings much longer than the body, incumbent in repose, a little dusky, iridescent, ochreous at the base, the costa pubescent, with a short basal nervure, and two others all stout and dark-coloured, but there are three longitudinal ones very faint, uniting near the base, and having no transverse nervures on the disc; halteres clubbed and pale yellow; legs moderately long and black, tips of thighs and base of tibiæ ochreous; tarsi simple and 5-jointed, terminated by small claws. Fig. 4, the female—the cross lines showing the natural size; the male is smaller.

It is uncertain where the female deposits her eggs, but most likely on the underside of the leaf, so that as soon as they hatch they penetrate the cuticle and feed upon the pulp, forming tortuous galleries at first, and large blisters as they increase in size; and having arrived at maturity they change in the same place to oval shining pupæ (Fig. 1) of a brown colour, nearly cylindrical, slightly depressed on the back, composed of 10 segments forming convex rings; the head is rather acuminated, with two divaricating points, and two straight ones beneath; the tail is rounded, with 2 small tubercles (Fig. 2 magnified). From these pupæ I also bred some beautiful little parasitical flies, apparently of the genus Pteromalus,* which no doubt puncture the maggots through the cuticle, and deposit an egg in each: these parasites are nearly as large as the male Phytomyza, of a beautiful green colour, the head and thorax tinged with golden yellow, the abdomen exceedingly glossy, and of a blue-green in the female, more or less bronzed towards the apex in the male; the legs are ochreous; the thighs black, tipped with straw colour.

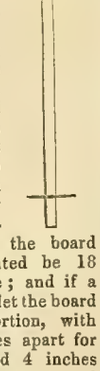
The economy of the Phytomyza varies considerably; for one species, the P. lateralis of Meigen, inhabits the receptacles of the Pyrethrum inodorum, where the maggots and pupæ are sometimes found in almost every flower: it is also recorded that a smaller species lives in the leaves of the Columbine.†—*Ruricola.*

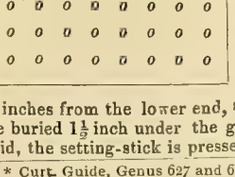
* Journal of Royal Agr. Soc., vol. iii. p. 69.

Home Correspondence.

Sulphur v. Hares and Rabbits.—For years I have suffered by the destruction committed by these vermin among my Apple-trees: unless painted every season with train-oil and hog's-lard, mixed over the fire to the consistence of paste, many thousands of my trees would have been destroyed. The above I have found the only efficient composition, after many trials of others recommended. The oil is injurious to trees, but the lard neutralises its bad effect, and appears to prevent its penetrating the bark; still, the trouble of having 20,000 Apple-trees painted with a brush by boys, was very great; and I felt much pleasure when visiting Mr. Dillistone last autumn, to learn from him that sundry pieces of rags tied to sticks, which I observed in his nursery, and about which I was inquiring, were sulphured rags, which had protected his trees from the hares and rabbits all the preceding winter. I must confess, however, that I felt incredulous, observing at the same time that, surrounded as I am by preserves, if they would protect my trees I should feel perfectly convinced of their efficacy. In November last I purchased a quantity of sulphur, collected sundry pieces of rags, which were cut into slips 9 inches by 6; these were then fixed into cleft sticks (about 2 feet in length), dipped into the melted sulphur, and the sticks with their miniature flags stuck into the earth so as to stand about 18 inches out of the ground, round the quarters of Apple-trees, about 3 yards apart. Now for the result. We have had much sharp weather, in which hares and rabbits are generally very destructive, but not a single tree has been touched in those quarters surrounded by my flags of sulphur. Some straggling unprotected trees have been completely gnawed round, and, in particular, one solitary row of Apple-trees, which was forgotten, has been entirely destroyed. I have therefore strong hopes that I shall never more have occasion to smear my trees with oil and grease, and other compositions, all of which are to a certain degree injurious; for oil, even when mixed with lard, often forms a coat over the buds on the young shoots, and prevents their breaking kindly. I have, in by-gone years, destroyed in my nursery more than 300 hares and rabbits in one season; I have reason to be grateful for such a simple and efficacious mode of protection from their ravages.—*T. Rivers.*

The Ranunculus.—In planting, observe whether the roots are sound or not; if they are damp or mildewed they are of little or no use. Any piece of land that has been rough dug in autumn and left through the winter to receive the benefit of the frost, is just what the Ranunculus delights in. With regard to situation, some spot should be chosen as remote as circumstances will allow from hedges, old box edgings, walls, or anything which might harbour slugs; a level spot is to be preferred. Having fixed on a plan to plant, on the morning of a fine day level the bed, rather roughly but even, with a three-pronged fork, without putting a foot upon it; then let it remain until about two or three o'clock, when it will be dry; then rake it perfectly level. This done, draw a line up the middle; if it be a three-feet bed, let the board here represented be 18 inches square; and if a four-feet bed, let the board be in proportion, with holes 6 inches apart for the rows, and 4 inches apart between root and root; then plant with a setting-stick about 18 in. in length, having a stopper 2 inches from the lower end, so as to allow the root to be buried 1½ inch under the ground. The board being laid, the setting-stick is pressed through the holes up to the stopper; the board is then removed, and so on over all the bed. When the bed is planted, the line and board are removed, and every hole is pressed in, and raked even. By this means all the roots are buried equally deep, and the plants come up regularly. In about a week or ten days the roots will begin to lift the soil above them, and this is the time to pay particular attention, for if the cracks are allowed to remain, should dry weather set in, which often happens, it is almost sure to prevent the plants from blooming. To prevent this I mix, in autumn, some two-year old cow-dung, or old hot-bed manure and rotten turfy loam, in the proportion of three parts of the former to one of the latter, laying it up in a heap, and occasionally turning it; and as soon as the roots begin to heave up the soil, I spread a dressing of this all over the bed, about 1 inch in thickness; this effectually retains moisture, accelerates growth, and assists the plants in blooming. Worms often disturb the surface of the beds, but they may be easily destroyed by mixing quick-lime in a tub with water, according to the quantity required, and applying it on the evening of a warm rainy day, when the worms are near the surface, with a watering-pot and rose. With reference to sorts, I can recommend the following as being worthy of a place in any collection, viz.:—Eliza, Agamemnon, Alexander, P. Wurtemburg, Admiral Keppel, Wallis's Defiance, Timarine, Village Maid, Naxara, Charlemagne, Horatio, Waterloo, and Olive Panaché: these are good, both in point of shape and colour.—*S. Walters.*





* Curt. Guide, Genus 627 and 641.

† Curt. Brit. Ent., fol. and pl. 393, where figures and ample dissections of the genus are given.

The Weather.—The following is the range of a thermometer at Worton Cottage, Isleworth, on the nights of Feb. 11 and 12. The sun went down like a ball of fire.

6 o'clock P.M.,	thermometer at					22°
8	,,	,,				19
10 30	,,	,,				11
11 30	,,	,,				7

The moon now went down; the wind was north; sky quite clear, and stars glistened, presenting every appearance of severe weather.

1 o'clock A.M.,	Feb. 12,	therm. at				2°
2 30	,,	,,	,,			½ below zero.
5	,,	,,	,,			3 ,,
6 30 lowest point						5 ,,

I send this, hoping to hear, through your columns, how the weather has been in various parts of the country; and as so many systems of heating are now in use, the exchange of information upon the subject may be useful. —*John Dobson.*

The Weather.—I send you a table of the weather in Cornwall during the four days when it was so cold in London:—

State of the thermometer hung on a board placed at right angles with the north wall of the house at H., facing the east—

	Max.	Min.
Feb. 10.*Rain	45	37
Feb. 11. Fair	46	37
Feb. 12. Frosty and cold	45	29
Feb. 13. Rain all day	42	35

* That is, between 8, A.M., on the 9th, and 8, A.M., on the 10th; and so in the other cases.—*C. L.*

Timber-measuring. — The most common mode of measuring trees is to take the girth of a regularly tapering tree in its middle, and call that its mean girth throughout; then to call the fourth of this girth or circumference its quarter girth, or side of the square log; it is also customary to allow 1 inch in 12 of this quarter girth for bark, whether the latter is thick or thin. Now, it may be all very well to allow timber-buyers good measure, but both buyer and seller should know what that good measure is: whether it is 6, 8, or 10 per cent., no one seems to know, for it differs much in different kinds of trees, and also in different shaped trees. Suppose I buy a Larch-tree from you, no matter of what length—say =72 feet, tapering regularly from 18 inches quarter girth at its thick end to 6 inches quarter girth at its small end; of course it is just 12 inches in the middle; and you say the tree is just 72 feet in length; then there is an inch to be allowed for bark, which brings the 12 × 12 = 144 feet down to 11 × 11 = 121 feet; and by Hoppus's Tables, or the Slide Rule, its content is only 61 feet instead of 72 feet, or 18 odd per cent., though the bark of such a tree might probably be all stuffed into a 4-bushel bag. Suppose, however, that the tree, when peeled, was really reduced to 11 inches quarter girth, or 44 inches in circumference instead of 48 inches; will the area of such a circle be no more than 121 inches? I know at least of five different ways of finding the area of a circle, and they all come very near the truth. The first is, to multiply half the circumference by half the diameter, thus, 44 ÷ 2 = 22 × 7 = 154 instead of 121. 2d. Multiply the whole circumference by the whole diameter, and divide by 4 for the area =154. 3d. Square the diameter, 14, excluding decimals, and multiply by the decimal 7854 = 153.9384. 4th. Square the circumference, 44, and multiply by the decimal, 07958 = 154.06688. 5th. Divide the circumference by 5, square it, and multiply by 2 = 154.88. It will thus be perceived that these all come sufficiently near the truth for practical purposes. You have given me a rare bargain, 154*l.* instead of 121*l.*! But this is not all; the middle girth was called the mean girth. Now, it is no such thing; for every tapering tree is the frustum of a cone, whether the tree tapers more or less; and if squared, it is the frustum of a pyramid. Now what mathematician would think of taking the middle of the frustum of a cone or pyramid, and of calling that its mean area? The fact is, that in every tree tapering from 3 to 1, or from 18 to 6, by calling the middle girth the mean girth, you give me into the bargain one-twelfth of the whole tree, and the case stands thus: in every 144 feet you give me 23 for bark; by calling ½ of the circumference the quarter girth, you give me 39 feet 4 inches for chips (in the 144 feet), and by calling the middle girth the mean girth, in a tree that tapers

as above, in every 144 feet you allow me 12 feet for saw-dust, I suppose. If all this bark, chips, and saw-dust, are not sufficient outcast, I marvel much, seeing that I buy timber in the woods at less than half its value in the timber-yard; but then as there are expenses in getting the trees out of the woods, in consequence of bad roads, long land-carriage, high toll-gates, &c., it is perhaps all little enough; and, as a timber-merchant, I might possibly not make a fortune after all. These remarks, however, may be useful to some of your readers.—*John Howden.*

Planting.—In reply to "W. K.'s" questions in a late No, I beg to inform him:—1. That formerly I used to plant about 11,000 Larches per acre, but that I now plant only 9000, which I think produces the largest number of Hop-poles in the shortest time. 2. When planted with other Coppice wood, about 6000; this, however, presupposes continual pruning, otherwise the Larches will completely overpower their fellows. 3 and 4. I commence cutting as soon as any of the poles are sufficiently large for my purposes, usually about the 9th year, and continue to thin out the large ones as they become fit; but unless the land be specially genial for the growth of Larch, I seldom clear off in less than from 12 to 15 years, though in some favourable instances from 10 to 12 years will suffice. 5. I cannot accurately report the exact number of different sizes which I obtain per acre, though I think I can safely affirm, that if proper attention be paid to their cultivation from the commencement, at least 8000 poles may be cut, three-fourths of which would be from 14 to 20 feet in length. I mean by proper attention, that the land should be well trenched previous to planting (and if not, carefully freed from water), kept perfectly clear of weeds by hoeing during the first two years, and regularly pruned as stated in my letter, p. 71. I do not often cut any of my Larches for Hop-poles until they attain the length of 14 feet, and they generally average from that length to 20 feet. This season I cut from 30 to 40,000, the greater part of which are from 16 to 20 feet in length. These have all been trimmed from time to time. I would also observe that Larch Hop-poles of 6, 7, or 8 years' growth are of very little value, the wood then being too soft, and, in fact, not much superior to Scotch Fir, as your correspondent "W. K." would discover, if he used them himself. I have spoken positively as to the good effects of systematically trimming Larches for Hop-poles, because I have successfully tried it upon an extensive scale upon many varieties of soil.—*J. M. Paine, Farnham.*

Vine-borders.—I have just read the article in page 85, regarding the bottom-heat necessary for Vine-borders, in which it is argued that a bottom-heat of 70° is indispensable for early forcing. Now I have forced Grapes for many years, producing, I may say, unequalled crops of fruit, and I never put one particle of fermenting material on the border outside the house, until within these last two years, and I have not observed the slightest difference in the fruit; from this, however, I do not infer that a little bottom-heat may not be beneficial for early forcing. I quite agree with "Norlander" as to the superiority of planting Vines outside the house, both with regard to the admission of light to the roots and to the latter being better supplied with nourishment. I do not consider that periodical flooding of hothouses is at all equal to having the Vines planted outside the house, provided that the border has been properly made.—*A Subscriber.*

Propagation by Leaves.—Seeing an article (p. 35) on the raising of the Camellia from leaves, I beg to say that I have plants, from 1 to 2 feet in height, of Lady Hume's Blush, Splendens, Double Red, Warratah, &c., that I have grown from leaves. The last summer shoots are some of them 9 inches in length. I find them so easily increased in this way, that I could insure nine out of ten to grow. My plan is, to fill a pot half-full of cinders; then on these to put a good layer of Moss, and fill the pot within ½ inch of the rim with white sand, covering the cuttings closely with a bell-glass, watering them outside, and placing them in a little heat. I consider this the best time to commence, just before the old plants begin to make wood. With this I send you a leaf.—*Edward Perryman, Gardener to Mrs. Salmon, Chepstow.* [This is the same method as that described at p. 35, by Mr. Markham.]

The Toad not born of Tadpoles.—I have read with great interest "Ruricola's" article on the toad, and I am much pleased to observe, that some people are inclined to take the part of this very inoffensive animal. The toad has often been said to be venomous, but I may venture to contradict this assertion, for I have handled them with impunity for years, and even carried them with me occasionally for many miles, and I could never discover anything but the inoffensiveness of this perfectly harmless, timid creature. Surely no one who observes and admires the wonderful works of Nature can call those poor creatures ugly. Look at their beautiful eye, which seems fixed on you; look at the animal in which way you may, behind, or in front, or on either side, and its eye is fixed on you, through all its slothfully crawling, quiet movements, until it finds a favourite corner. Wherever insects abound, there this beautiful animal fixes itself, and with its long red slender tongue picks up all that comes within its reach, either right, left, or in front, as quick as lightning. People talk of railroad speed, but that has no comparison to the quick movements of a toad's tongue, when it is in a situation where ants, woodlice, beetles, &c. are passing to and fro. Nothing is more interesting than to watch those despised reptiles feeding in an evening, in hothouses, &c.; they know the exact distance their tongue will reach to bring the insect to their mouth. I am truly fond of toads; and always keep and protect a large number. Knowing little of natural history, I hope it will be understood that I am merely about to state my own observations, which are not brought to a hasty conclusion, but are the result of attention to the habits of the toad for years; my object in writing is principally for the sake of gaining information. Toads and frogs are widely distinct from each other. It is generally admitted of frogs, that they breed by depositing spawn in water, or by the laying a quantity of eggs, congealed in large masses in stagnant or shallow dirty water, or round the edges of large ponds or sides of streams. When first hatched they are a black tadpole, with a long slender tail, and pass in droves pretty briskly through the water. Now, may I ask, are those large, dark, croaking, noisy frogs the same as those of a slender form, a bright yellow colour, and of a very active jumping or leaping gait, which are found inside of walled gardens?—they are amphibious I doubt not. From what origin do those large dark-coloured frogs spring, which collect in such abundance at this season in pools to spawn? I have seen bushels of their spawn frozen into ice; it of course turned black and perished. I have also seen numbers of those large animals diving about under the ice in all directions: do they live in the mud collected at bottom all the winter, or do they gather there from the surrounding country to spawn? A frog is never to be seen jumping about on the surface of the earth in winter, except you happen to dig one out, or find them under leaves and rubbish, or keep them confined in hothouses or Mushroom-sheds. With regard to to the toad, it is said by all with whom I have conversed on the subject, that those animals breed by laying up spawn in water, in the same way as frogs; but I never could by any means discover that such is the fact. I have often heard it remarked that the croaking of the frog in pools of water was that of toads at spawning season. I have searched those places very carefully in various parts of the country, but could never find either toad's spawn or young. I do not believe that toads breed in such situations. I have dug out both old and young toads, the latter not larger than my finger-nail, from old dry banks, under trees and shrubs; also from under old rubbish, rotten wood, and from below wood and faggot-stacks, at long distances from any water, except pumps and wells in walled-in situations, where it was impossible they could get without being carried. Since this is so, where did the young toads come from to such situations? I keep a quantity of those animals constantly, and watch their movements and habits almost every night in the year. I have often seen numbers of very pretty little toads in the hothouses and Mushroom-sheds, not larger than a common Horse-bean, where they could not get without being bred or carried there; and it is impossible that they could have been carried into those places without my knowledge. Now, in this case, they had no more intercourse with water than with that made use of in watering the plants. As the doors are always kept locked, how did the young toads come there in so small a form? In forking up the inside borders of two Vineries in January last, we turned out a number of old toads, and also a considerable number of pretty little young toads, about the size of the forefinger-nail. Now, how came the latter there at that season of the year, the door having never been left open? I have never seen either toads or frogs on the move or hop in the winter months. I have seen many toads lying stretched out dead in dry roads and walks in hot weather, in May and June. What is the cause of this? Is it because they cannot shift their jacket, and so have become hide-bound? I should much like to have the opinion of others on this important matter. I observe in a late *Chronicle*, p. 102, that I have one advocate of the same opinion as myself, that toads are not born of tadpoles.—*James Barnes, Bicton Gardens.*

Fleuristes Ambulants. — One of the parties from France, whose arrival at Southampton was noticed a few weeks ago, has located at Nottingham, with a large assortment of Pæonia Moutan of unheard-of colours; he has Ranunculuses too, which bloom three times in a year; Roses of any colour or quality you choose to ask for: and there is found, amongst other novelties in his list, Pinus larix, at 1*s.* each; Ribes sanguineum, 1*s.*; Kalmia angustifolia, 3*s.*; Calycanthus floridus, 4*s.*; Magnolia tripetala, 10*s.* 6*d.*; Pæonia Moutan, 1 foot, 10*s.*; Standard Roses, from 3*s.* 6*d.* to 7*s.* 6*d.*; and Dwarf Roses from 2*s.* to 5*s.*—*W.* [What a nice trade he must drive.]

Pits.—I beg to inform "Dodman" (p. 70), that I had put up, about four years ago, a boiler with full 24 feet of 4-inch iron pipes, and the same to return to the boiler, serving eight lights, under which I have grown Pine-apples (I have had a Queen 2 lbs. 4 oz. in weight), Melons, Cucumbers and plants, cuttings and seeds of every kind that I have wanted. French Beans and Strawberries I have occasionally had. The whole apparatus was put up by Mr. Shewen, of Seven Oaks, himself attending, at a distance of 60 miles from London, for something rather less than 16*l.*, independent of the carriage. It has been constantly at work since it was put up, and it has not cost me a penny. The pit is 26 feet in length and 7 feet in width.—*Hants.*

Gardeners' Benevolent Institution.—The first question that is asked by Mr. Moore, p. 69, is, Why is it that this Institution does not obtain support from the majority of gardeners? I answer, Because the genuine and benevolent character of the Institution is not generally known by that body, for whose sole benefit the Institution is intended; and as a proof of this, the more it is known, the more numerous its supporters become. I would mention as an instance the fact, that at each election which has taken place new members have gone on increasing, and that at the last election a greater number of new members enrolled themselves than on any former occasion, and the majority of these were from distant parts of the kingdom. As regards the smallness of the pension, 16*l.* per annum, I do regret that it is not in our power to increase it without decreasing the number admitted. I imagine, that if we look into this Institution closely, instead of discovering matter for complaint, we will rather find much to admire; and if gardeners, instead of keeping without the pale of its constitution, and thus consequently remaining in ignorance of its elements, would come forward with support, the Institution might be placed in a condition to double both its pension and its pensioners. As to the complaint that the pension, when obtained, is too distant to be benevolent, the fact is, the pensioner dates his pension from the day of his election, and is invariably paid on the Tuesday subsequent to the following quarter-day. Now, surely the poor pensioner's friends—and, be it remembered, he must have some to have become a pensioner—would gladly make him an advance upon the faith of his forthcoming payment from a Society that happily knows nothing of the system of repudiation. The next charge against the Society—the want of preference of subscribers over non-subscribers—is an assumption not based on facts, and may be answered by the fact that Wm. Edwards, who had been proved to have paid five years' subscription, was placed upon the list of pensioners without being subjected to the risk and trouble of going to the poll at the last election. In conclusion, I trust that Mr. Moore, after a careful examination of the constitution of the Society, may be induced to become a subscriber, and thus do more real good than by publishing complaints, which I trust he will be convinced are groundless.—*J. Fairbairn, Nurseries, Clapham.* [We think enough has been said for the present on this matter].

Potatoes.—One of your correspondents, I observe, says that on digging up his Potatoes after the late frost, he found them all spoiled. This is so contrary to all my experience on the subject, that I cannot reconcile the discrepancy except by supposing either that his land was soaked with wet, or that he had dug up his Potatoes before the frost was fairly out of the ground, and exposed them to the light in this state; if he did so, no wonder they were worthless, for it is essential to their preservation that they should be completely thawed in the dark.—*T. G.*

Jerusalem Artichokes.—A. B. will find the Jerusalem Artichoke a most easy plant to grow. Any well dug ground planted with small tubers will produce an excellent crop. If got up when quite ripe after Christmas, they will keep till July or even later. The best way to keep them is to earth them up like Potatoes under the north side of a hedge or wall in a narrow ridge.—*W. D. F.*

To Keep Trees from Wind-waving.—The mode of securing large transplanted trees, described at p. 69, is no doubt that which experience will generally recognise; but there is a defect in it which requires correcting. Instead of nailing the cross-bars of wood to the top of the poles driven into the ground, they should be fastened to the sides. The nails will thus be far less likely to be drawn out by the strain upon them. If, before putting down the cross-bars, some branches of Fir or other wood, from ½ inch to 1 inch in diameter, are freely laid in opposite directions over the ball of the tree, so as to come beneath the cross-bars, the operation will be doubly secure, and the chance of injury to the outside roots will be much diminished. I have lately planted from 300 to 400 trees, 20 to 40 feet high, and fastened them in this manner, near the north-west coast; and during the recent gales they have not swerved so much as a hair's-breadth from their position.—*K.*

Fruit Trees.—As a remedy for blight, and insects attacking fruit and other trees, I beg to offer the following:—Dissolve 1 lb. of soda in a gallon of rain-water; shake this up in a bottle with a pint of spirits of turpentine, when they will amalgamate; then, by adding more water, make up the quantity to 10 gallons. It should be applied with an engine having a fine rose.—*G. L. Smartt, Enfield.*

Erratum.—In "Food for Pheasants," p. 101, col. *c*, line 10, for "tubers planted whole in Feb. or March 2 *inches in depth*," read "2 inches deeper than Potatoes are commonly planted."

Societies.

HORTICULTURAL SOCIETY.

Feb. 18.—Sir C. Lemon, Bart., M.P., in the chair.—Mr. E. Beck and the Rev. C. Pritchard were elected Fellows.—A paper from W. H. Pepys, Esq., was read, containing an account of experiments made by that gentleman with Lupines sown in pure earths and manured with stimulants, in order to ascertain what the facts really are as regards the food of plants. The earths employed were white sand (silex), 75; pipe-clay (alumine), 15; whitening (carbonate of lime), 10. The pots in which the experiments were tried were green wine-bottles, having their bottoms cut off and reversed on a stand made to support them. The plants on showing bloom were taken up and weighed, and the following is the result:—

Pure Earths—Lupines.

1. Watered with distilled water, 1 plant weighed	42·5 grs.
2. Guano	did not grow.
3. Subcarbonate of ammonia	ditto
4. Muriate of ammonia	ditto
5. Guano in the soil, 3 plants weighed	200 grs.
6. Daniel's manure, in do., 1 plant weighed	14 grs.
7. Soot, 3 plants weighed	215 grs.
8. Nitrate of potash	did not grow.
9. Ditto of ammonia	ditto
In peat, loam, and rain-water, 1 plant weighed	192·5 grs.

From the above it appears that the result obtained from

soot was greater than that from guano; that pure earths, without organic matter, are almost sterile, even in the presence of alkaline matters; and that no artificial soil is to be compared with that which Nature herself provides.—With regard to articles exhibited, C. G. Thornton, Esq., sent very good specimens of Walnuts, of last year's growth, which were stated to have been preserved in dry Wheat or Oat-chaff, changing it about once in three or four weeks. A Certificate was awarded for them.—From Mr. Green, gr. to Sir E. Antrobus, were fine specimens of Sion-House Cucumber. This is a short kind, but stated to be of excellent flavour, and is a good bearer. Mr. Green mentioned that he had cut, since the 1st of January, 12 brace from six plants, and that the plants still promise to produce abundantly. He mentioned that the pit is one of his own construction, and is described at p. 35 of our Volume for 1841. He remarks that with it he has never failed either with Cucumbers or Melons, when other growers have lost their plants in other structures.—J. Moorman, Esq., sent a collection of Pears, including Napoleon, in the highest state of preservation. A Certificate was awarded for them.—Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, sent 6 bunches of fine early Grapes, which had been raised in the manner described by him in another column. A Knightian Medal was awarded for these.—From Mr. Fish, gr. to H. H. Oddie, Esq., was a Queen Pine-apple, weighing 2 lbs.; it was produced by a sucker growing on a plant, which ripened a fruit weighing 3 lbs. 12 oz., in August last, making in all 5 lbs. 12 oz., from one plant in 13 months.—From the Royal Gardens at Frogmore was a bundle of Asparagus, containing 100 heads, which weighed 9 lbs. It is scarcely possible to obtain forced Asparagus finer than this; the heads were individually large and succulent, many of them as thick as the thumb. It was cut from a bed made in the usual way; but, instead of being heated by fermenting material, in the alleys, as is sometimes done, hot water was employed, which produces a much more steady heat, and is perfectly under control; the bed was covered by wooden shutters, to prevent the heat from escaping, and to throw off superfluous moisture. A Banksian Medal was awarded for it.—Mr. Beck, of Isleworth, sent fine specimens of the Apple called Ashmead's Kernel. —Of Plants, Mr. Mylam, gr. to S. Rucker, Esq., contributed the most magnificent specimen of Dendrobium speciosum, possibly ever exhibited; although this plant is very difficult to flower, it had on it in this instance, between 20 and 30 large spikes of yellow blossoms, each pseudo-bulb, or little arm, producing 2 and 3 spikes. From the same collection were also three varieties of Lycaste Skinneri, and a plant of Odontoglossum pulchellum, particularly remarkable for its fragrance. A large Silver Medal was awarded for the D. speciosum.—From Mr. Chapman was a large specimen of Euphorbia splendens; and Mr. Hally sent a seedling Camellia named General Tom Thumb.—From Mr. Ayres, gr. to J. Cook, Esq., were two fine plants of the Double White Primula sinensis, about 9 inches in height, and 15 inches in breadth, uniformly covered with bloom and healthy foliage down to the very pot. A Banksian Medal was awarded for them.—Messrs. Henderson, of Pine-apple-place, sent a box of specimens of the tree Violet, which is worthy of a place in every little greenhouse.—From Mr. Pamplin was a large bush of Epacris impressa, about 3 feet in diameter, and the same in height, densely covered with bloom down to the very pot. A Banksian Medal was awarded for it.—Mr. Jack, gr. to R. G. Loraine, Esq., exhibited a Columnea-like plant, called C. zebrina.—From Messrs. Rollisson and Sons, of Tooting, was a collectiou of Orchidaceæ, containing Dendrobium moniliforme, the sweet-scented D. heterocarpum, the curious little Cœlogyne uniflora, Odontoglossum Insleayanum, and Cyrtochilum constrictum, together with specimens of the curious fleshy-stemmed, shrub-like plant called Ceradia furcata, which is sometimes brought from Ichaboe. Its appearance indicates its extreme suitability for enduring a sterile and warm climate. A Banksian Medal was awarded for the D. moniliforme.—J. Allnutt, Esq., sent blooms of seedling Camellias.—And finally, C. B. Warner, Esq., sent Lycaste cruenta, a variety of Lycaste Skinneri, and a species of Lælia, apparently erubescens.—From the garden of the Society were, among other plants, Phycella obtusa, with pretty red and green flowers; Inga pulcherrima, with beautiful upright brush-like blossoms of the most brilliant scarlet; Begonia manicata, a large Corræa Cavendishii, Epidendrum Stamfordianum, two species of Oncidium, and a Bletia, sent by Mr. Fortune from the mountains of Hong-Kong.

LINNEAN SOCIETY.

Feb. 18.—H. Lloyd, Esq., in the chair.—J. Walton, Esq., was elected a Fellow, and Mr. Thomas Hall an Associate.—A paper was read from the Rev. M. J. Berkeley, on some Fungi in the Herbarium of Linnæus. The Fungi in this collection are exceedingly few, but what there are, are in a good state of preservation, and possessing much interest. The Agaricus crinitus (now Lentinus crinitus), had been described inaccurately by Klotsch, who had misled Fries and other systematists. Descriptions were given of L. crinitus, also of L. tener, L. Schomburgkii, L. nigripes, and L. Leveillii. The paper was illustrated by drawings of the various species, by Mr. J. de Carle Sowerby.

MICROSCOPICAL SOCIETY.

ANNIVERSARY MEETING.

Feb. 19*th*.—Professor Bell in the chair.—Mr. J. Quekett read the Report of the Council, from which it appeared that the number of the members had increased, and that although the Society had published the second Part of the first volume of its "Transactions," which were distributed amongst its members gratuitously, there was still a surplus in the hands of the Treasurer. After the Report was read, the President proceeded to read the Annual Address. After noticing the general prosperity of the Society, he adverted to the fact of the beautiful microscopes constructed by Messrs. Ross, Powell, and Smith, being now accessible to members on the Wednesday of every week, in the rooms of the Horticultural Society. The use of the rooms for this purpose had been kindly granted by the Horticultural Society, without any charge, to the Microscopical Society. The President then reviewed the various papers which had been brought before the Society during the past year, and of which Reports have appeared in the *Gardeners' Chronicle*. At the conclusion of the Address he urged upon the members the application of the microscope to the observation of the changes undergone in diseased structures. There was a large attendance of members and men of science. There was also a large number of excellent microscopes at work.—Mr. Edwin Quekett exhibited some interesting specimens of silicified spiral vessels, by which the question of the position of the membrane in these tissues is entirely set at rest, as a perfect mould of the spires was found on the silica from the inside of the vessel.—Mr. John Quekett exhibited some beautiful specimens of injected mucous membranes. —Mr. Bowerbank exhibited some injected capillaries traversing adipose tissue. Many of the specimens from the Museum of the Society were also produced.

LAUNCESTON HORTICULTURAL SOCIETY, VAN DIEMEN'S LAND.

We learn from Launceston papers the following particulars respecting this Society, which held its 14th Exhibition in their gardens, on Oct. 23, 1844. Although these Exhibitions are numerously attended, yet it is stated that the Society is in debt 120*l*. During the year importations had been made to their garden from the Government establishments at Sydney, and from the Horticultural Society of London. The following are the principal articles exhibited at this meeting, viz., Wallflowers, Pansies, and Camellias; a collection of Ranunculuses, Ixias, Sparaxis and Gladioli, together with Calceolarias and some Cacti. Roses comprised the Double Yellow, White Moss, Blush China, and White China. Mimuli, Tulips, and Pæonies were also present. Apples, and several sorts of vegetables were also exhibited, among which were Potatoes, Early Warwick Peas, and several Cucumbers.

Reviews.

Musée Botanique de M. Benjamin Delessert. Par A. Lasègue. 8vo. Paris. Fortin & Co.

This is a most elaborate account of the herbarium of M. Benjamin Delessert, which is probably the largest assemblage of botanical works and specimens ever formed. It also includes short notices of all the other public or private herbaria of which the author has any knowledge, some curious details respecting botanical travellers, and information upon several points belonging to the statistics of the subject.

We think with M. Lasègue, that the following list of the species known to botanists at different periods is not a bad indication of the progress which the science has made.

1546.	Lonicer mentioned	879
1570.	Lobel	2,191
1587.	Dalechamp	2,751
1596.	C. Bauhin	6,000
1694.	Tournefort	10,146
1704.	Ray	18,655

Among these, however, every trifling variety was admitted as a species, so that the number was reduced by more than two thirds when Linnæus applied his comprehensive mind to the examination of the farrago, called species by his predecessors.

1793.	Linnæus	5,938
1807.	Persoon	25,949
1824.	Steudel	50,649
1844.	Do.	95,000

Another calculation will serve to show, in some degree, what the points are to which the study of botanists has been particularly directed. This appears from the following inventory of the botanical works in M. Delessert's library. Their total number amounts to 4350, which may be classified thus:—

Elementary Botany	270
Anatomy, and Vegetable Physiology	290
Descriptions and Figures	940
Floras	640
Monographs	260
Botanical Geography	40
Applied Botany	640
Botanical Literature	180
Works on Cryptogamic Plants	360
—— on Fossil Plants	20
Dictionaries, Journals, Transactions	210
Treatises on Natural History in General	50
Voyages containing Natural History	360
Miscellaneous	90
	4350

These quotations show that M. Lasègue's work is rich in curious investigation of matters to which botanists have paid little special attention.

Of Hooker's *Species Filicum* the third Part has just been issued by Mr. Pamplin. It comprehends the remainder of the genus Trichomanes, and 100 species of Davallia, in which genus Sir W. Hooker includes Wibelia, Microlepia, Saccoloma, Stenolobus, Leucostegia, Odontoloma, Humata, Acrophorus, and Prosaptia. Twenty plates are occupied with carefully-drawn figures of various species. Let us hope that so important a systematic work will meet with the encouragement it so eminently deserves. We observe that Mr. Griffith's complaints as to the unfairness of cancelling, in favour of others of a more recent date, the names given by Roxburgh to Indian Ferns, has not escaped the learned author's notice. At p. 179 will be found some remarks upon this subject, in which we agree. It is quite impossible for botanists now to go back into an investigation of what Dr. Roxburgh may have intended to publish, but left behind him in MSS. All such intentions must share the fate of buried and long-lost treasures; the original owner loses them, and the new finder appropriates them to himself. If there is any blame in the matter, it lies with the authorities of India, who should have taken care that Dr. Roxburgh's labours did not remain buried in their Archives. It is probable that all his species of Ferns have been distributed by Dr. Wallich with names, and having thus been effectually made known for the first time, they must continue to bear those names, whatever injustice, if any, may thus be done to Dr. Roxburgh's merits. The synonymy of plants is already a fearful evil, and it is the first duty of those who stand at the head of the science to use their authority in opposition to the introduction of names which have become obsolete, from whatever cause.

Florists' Journal. No. 67. Feb. 1845. London. Adlard.

The present Number maintains the usual good character of this work, although too much space, we think, is occupied by the Essay on the Culture of Asparagus; this excludes Floricultural matter, which we always look for in this publication. It contains a concise, but excellent paper on the preparation of composts, and the Number is illustrated by the representation of two fine Picotees—Lady Alice Peel and the Duke of Newcastle, raised by the Rev. J. Burroughes.

Bees.

Sholl's Beehives.—"W.," in his account of these in a late Number, gives an incorrect statement of the interior of them; I have a castle-hive in my apiary, also a barrel, which has not yet been used. There is very little metal in either of them, only a small piece of tin perforated with holes as a ventilator, and a short tube through which the bees pass into the hive. The entrance is curiously covered with a piece of zinc, which is so constructed that many of their enemies are entirely prevented from getting in. I cannot yet tell what produce of honey there will be, as it was late in the season when I placed a straw hive in the bottom of the castle, in which the bees made a sufficient supply of honey for their own winter use, and are now in a strong and healthy state. There are no bars, as described by "W.," in the top of the "pavilion." The boxes or bell-glasses are to be used when more room is required in the hive, and are to be placed over the holes, which at other times are covered with a plug; in these the bees are expected to work, and make a supply of honey for house use. These novel hives have not been sufficiently tried either to condemn them or to approve of them; but if "W." will have patience for a few months, the writer of this may supply him with correct information respecting Sholl's beehives.—*D*.

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

As we are now upon the eve of the general shifting season, a return of winter will enable thorough preparation to be made with stakes, potsherds, labels, &c. This will save much time when there is not a moment to spare. Get some loam and peat soils into an open shed: leaf-mould should be always kept dry: have all the pots clean, and in fact, see that everything is ready for coming operations. This is a good time to sow all kinds of exotic seeds, either home-saved or imported: place them in heat, and they will now soon germinate: prick them off into other pots as soon as the cotyledon expands, and you will have plants established in a very short time; the strong fires necessary during the past week to keep up the temperature, and in fact to keep out the frost, will require a vigilant eye cast daily over every house. Keep up as much moisture as possible, without creating positive damp. The extraordinary capacity which heated air has for moisture is well known to gardeners, and if not artificially supplied, the leaves must part with what they contain, and the result is that they will very shortly drop off, plainly convincing us, that the effects of heat are nearly as bad as those of frost.—*A*.

II.—FLOWER-GARDEN AND SHRUBBERIES.

Follow the directions given in last week's Calendar; wash and clean glass that has become green from damp, and attend to other in-door work during severe weather, so as to have all hands that can be spared ready, when the weather breaks, for out-door work. Walks might be turned, raked, and rolled down, in order to prepare them for receiving a thin coat of gravel in spring; turning them after a thaw, the gravel being loose, is a great saving of time and labour. *Pits and Frames.*—Prepare a gentle hotbed to receive fresh potted plants, and to nurse such as are required to be excited for taking cuttings from. Sow tender annuals for early blooming. Give air, water, and re-pot all plants that require it. Pot off all rooted Calceolarias that were put in in autumn to make room for more tender things. Continue to put in cuttings of all kinds of plants that are wanted to decorate the flower-garden.—*B*.

III.—FLORISTS' FLOWERS.

The late severe frosts have been prejudicial to Florists' flowers, unless attended to as directed in previous Calendars. We presume that all Auriculas are now top dressed, and as soon as the severe weather passes away occasional waterings may be given, keeping the lights over them when rough or windy. *Tulips.*—Little else can be done, except screening from cutting winds, and covering from frost. *Carnations.*—The compost for potting ought now to be put under a shed or other convenient place, before it gets too much saturated with mois-

ture. It can then be regularly hand-picked of wireworms, &c. It is ill-judged economy to neglect this important operation. Harden the layers on every favourable opportunity by withdrawing the lights, preparatory to planting out. *Ranunculuses* may be planted as soon as the weather will permit. After the beds are evenly raked, drills should be opened 2 inches deep, and 3 inches from each other; into these the roots should be pressed down, covering them with fine and rich compost, slightly fastening the soil over them by giving it a gentle pressure.—*Polyanthuses.*—Since the snow went those on unsheltered beds have suffered from frost. The first opportunity the surface soil should be stirred with a blunt stick, and top-dressed with 2 or 3 years' night-soil, which has been well turned and sweetened by the action of frosts, &c., mixed with a similar quantity of leaf-soil. This (in spite of its so said poisonous qualities) will have a wonderfully beneficial effect on them.—*C.*

IV.—PINERIES, VINERIES, &c.

Those Pines which are now in the course of arrangement, or shifting, will of course require some attention as to bottom-heat; for instance, water where husky, previous to adding new materials: the tan should be well stirred up and mixed. Do not by any means plunge the pots above half their depth at first; in fact, this is quite sufficient at any time. See that your thermometer does not exceed 90° at the bottom of the pots: they will, after shifting, endure more heat if kept dry, but it is folly to risk it. Keep a sharp eye on your linings as the heat in the dung-pits declines. Attend to heat, air, and atmospheric moisture, as directed in former Calendars, increasing your heat several degrees on sunny afternoons, by shutting up very early, and occasionally freely using the syringe. *Vineries.*—Attend well to the covering over the outside roots, and if in a state of fermentation so much the better. Pursue the principles of slow breaking, bending the rods, and giving atmospheric moisture, as recommended in former Calendars, with Vines recently introduced. Harbour no superfluous shoots on those already "broke." Increase your heat a few degrees on sunny afternoons, in the early house, but adhere resolutely to a moderate night heat, say 65° max. 58° min. *Fig-house.*—Figs that are just swelling their buds should be syringed with soap-suds occasionally, previous to budding, to destroy insects. Pay the utmost attention to the state of the borders: if these are particularly well drained, and rendered pervious to the air, by the introduction of porous materials, the Fig will enjoy frequent waterings. However, it is dangerous to recommend these, where soils are badly constituted. See that the red spider does not begin his operations; sulphur, and a liberal use of the syringe, are the best antagonists to this pest. *Cherry-house.*—As last week; be very cautious of advancing the heat here: give them as much as possible a decidedly natural course of treatment.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

If the weather be in any degree favourable, the operations of planting, pruning, and nailing must be proceeded with. Preparations ought to be made for protecting the blossoms of Apricots. Thin canvas screens are, of course, the most preferable; but where this material cannot be afforded, Spruce branches or Fern may be employed. Under a broad coping, the blossoms of Peaches, Nectarines, and Apricots are rarely injured, unless on an east aspect, where they are apt to suffer from exposure to cold cutting winds, so prevalent from that quarter. *Kitchen Garden.*—As soon as the state of the ground will permit, sow Early York Cabbages, and a few of the fine Dark Red; also the Yellow Savoy, and some of the large Green Savoy, to precede the principal sowing of next month. Sow some of the Walcheren Broccoli or Cauliflower; in hot summers it forms large heads when Cauliflowers only produce *buttons.* If the Portugal or White Spanish Onion be sown on a good border, and afterwards transplanted, the size will be greatly increased. Early Dutch Turnips may be sown in drills somewhat raised. Cormack's Prince Albert, which is somewhat earlier than the Early Charlton, Knight's Dwarf Marrow, and the Auvergne, are varieties of Peas proper to be sown at this time. Round Spinach and Radishes can be sown between the rows of Peas and Beans. Sow Early Dwarf Dutch Kidney Bean where it can be sheltered; and in pans, in very gentle heat, Seymour's Superb White, and Red Solid Celery. Bear in mind, if Celery be too much stimulated when young, it will not succeed so well when finally planted out. Paris Cos Lettuce should be sown; and a portion of those Lettuce plants raised in frames planted out, if frosty nights be not likely to occur. Prick out Cauliflower plants. Plant Potatoes, Horse-radish, Jerusalem Artichokes, Garlic and Shallots—the long-keeping Shallot is the best. Sow Basil and Sweet Marjoram in pots, in gentle heat.—*E.*

VI.—AREORICULTURE.

Forest and Coppice Woods.—Planting in heavy soils and low land, where it has been suspended by the weather, should now be finished as soon as the frost leaves the ground. Faggot up all loppings; cut and stack cordwood, &c. Old Coppice stools may be much improved, where they have become large and unsightly, by cutting them now, near the ground, with a neat slope; but do not cut Sycamore, Birch, or such kinds as bleed excessively in spring, as the stools are thereby much weakened. *Nursery.*—Prepare for sowing hardy deciduous trees and shrubs of such kinds as were not sown in autumn; also some beds of peat for Rhododendrons, Azaleas, &c. as soon as possible; well rooted layers may be removed from the parent stocks, and suckers of most deciduous kinds of trees and shrubs may be removed to rows, as soon as the frost leaves.—*F.*

VII.—COTTAGERS' GARDENS.

Amongst the plants which adorn the cottage window none is more beautiful than the Chinese Primrose, which cheers us with pretty pink flowers during the whole of the dull months of autumn and winter. There are several varieties of this in cultivation, but those having flowers with fringed edges are the most beautiful, and therefore should always be chosen. Cottagers who have this variety should therefore carefully save seed from it, which will generally, though not always, produce young plants having the same character. The seed may be sown in pans filled with light soil about this season, and as soon as the plants are sufficiently large, let them be potted off into 3-inch pots, which should be well drained, and filled with about equal parts of loam, sandy peat, and well-rotted manure or vegetable mould. The plants should never be watered over-head, and great care must be taken that they are not over-watered at the root, or they soon become sickly and die. When the 3-inch pots become filled with roots the plants may be shifted into 5-inch pots, in which, if large plants are not wanted, they should be bloomed; after the blooming season is over, instead of throwing away the plants, let the flower-stems be neatly picked off them, with one or two of the uppermost leaves, and shift them into 6-inch pots, placing them a little deeper in the soil, in order that they may strike out new roots. Managed in this way they will become excellent plants by next autumn, and will flower earlier than those raised from seed in spring. If they exhibit a disposition to bloom during summer, pinch off the flower-stems as they appear, in order that the plants may grow strongly, which will enable them to flower well in autumn, when flowers are most wanted. There are double varieties, but these are increasedby cuttings.—*G.*

State of the Weather near London for the week ending Feb 20, 1845, as observed at the Horticultural Garden, Chiswick.

Feb.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	14	☽	29.693	29.592	45	27	36.0	S.W.	—
Sat.	15	8	29.959	29.876	45	33	39.0	N.W.	.01
Sun.	16	9	29.994	29.851	41	22	31.5	N.E.	—
Mon.	17	10	29.959	29.934	44	23	33.5	E.	—
Tues.	18	11	30.021	30.007	41	21	31.0	S.E.	—
Wed.	19	12	30.139	30.063	35	16	25.5	E.	—
Thurs.	20	13	30.164	30.029	37	22	29.5	S.E.	—
Average			29.975	29.926	32.2	23.4	32.2		.01

Feb. 14—Thawing; clear and fine, with bright sun; uniformly overcast at night
— 15—Clear and frosty; overcast
— 16—Fine with light clouds; densely overcast; frosty at night
— 17—Frosty with fog; fine; clear and frosty
— 18—Foggy; hazy clouds; uniformly overcast; frosty
— 19—Overcast and cold; clear, with severe frost at night
— 20—Severe frost; clear, with bright sun; sharp frost.

Mean temperature of the week 6½ deg. below the average.

Erratum.—In last week's return, p. 104, instead of 3 deg., minimum temperature, on the night of the 11th, read (−3) or 3 deg. below zero.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending March. 1, 1845.

Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 23	46.1	33.0	44.5	7	0.44 in.	2	2	2	1	—	6	2	3
Mon. 24	46.7	34.3	40.5	10	0.29	—	2	4	2	4	—	3	4
Tues. 25	47.6	33.6	40.6	11	0.26	1	3	3	—	4	4	3	1
Wed. 26	47.0	35.0	41.0	12	0.46	1	2	4	1	3	2	5	1
Thur. 27	47.2	34.6	41.0	11	0.40	1	4	2	—	4	4	3	1
Fri. 28	48.6	35.9	42.3	8	0.31	—	5	2	—	2	2	3	5
Mar. Sat. 1	47.9	37.4	42.6	9	0.62	—	4	1	—	4	4	5	1

The highest temperature during the above period occurred on the 27th, 1838—therm. 60°; and the lowest on 23d, 1827—therm. 20°.

Notices to Correspondents.

We have still to apologise to numerous correspondents for delaying to publish their valuable communications. We never before understood the true meaning of the *Embarras des richesses.*

Abies Deodara—*R F*—This may be increased by cuttings taken from the leading points of the branches any time in September; they should be put into pots filled with silver sand, and should be placed in a cold pit; keep them close and well shaded: they should be well watered when first put in. In this situation they may remain, if kept free from frost and damp, until the following spring, when they must be placed in a gentle bottom-heat. Good plants may be raised from cuttings, and if the latter are taken from leading shoots of branches, in a few years you cannot tell the difference between them and plants raised from seed.¶

Annuals—*C G*—The following are suitable for a Ward's Case:—Clintonia pulchella, Sedum azureum, Rhodanthe Manglesii, Portulaca splendens, Oxalis floribunda (*Lindl.*), Phlox Drummondii, Mesembryanthemum tricolor, and Brachycome iberidifolia.¶

Books—*W N*—There is no such book as you inquire for. The small edition of English Botany contains figures of all indigenous plants, but not of exotics of any kind.——*E D*—Solly's "Rural Chemistry."

Bignonia jasminoides - Z—It is unfair to impute improper motives for delay. The promised communication is coming.

Brocoli—*R J; A L, Melville*—The following varieties are amongst the best:—Walcheren, Grange's Early White, Chappell's Cream-coloured Knight's Protecting, Danish or Late Green.‖

Cabbages—*G W G L*—In order to prevent your Cabbages running to seed, you should sow new seed, trench and manure the ground well, and endeavour to keep the plants unchecked in their growth. The same directions apply to Cauliflowers.‖

Camellias—*M W K*—From your statement, there is no doubt that your plants have dropped their flower-buds in consequence of being over-heated at night. Plants ought never to be kept warmer at night than in day.§——*A B*—½ sandy peat, ¼ loam, and ¼ well decomposed cow-dung. Healthy plants do not require cutting back, except when they grow in a straggling manner. Sickly plants may be recovered by shortening their branches, and placing them in a moist atmosphere, at a temperature of 66° by day and about 58° by night. When the young shoots are about 2 inches long, they may be repotted in fresh soil, and the greater part of the old ball shaken away.§

Celery—*G W G L*—This will not be so apt to rot if protected from the first sharp frosts in autumn; and the earthing-up should not be too early commenced.‖

Ceradia—*C R*—This plant requires what is called a dry stove, that is to say a warm greenhouse in which the air is not allowed to become moist. If kept from cold and damp it will grow readily. Its leaves are very small; its flowers smaller; and it is a mere curiosity.

Columnea Schideana—*A Sub*—This plant requires a damp atmosphere, such as orchidaceous plants delight in; it should never be pruned, but allowed to hang down and grow as it likes. You have probably kept it too cold. Encourage its growth by all means, and give it *plenty of light.*

Emigration—*Querist*—You had better apply to the Secretary of the South Australian Company, 4, New Broad-street, City. There is no Emigration Company for Van Diemen's Land; and until the British Government changes its policy as to New Zealand, we cannot advise you to go there; which is a great misfortune.

Game—*Anon*—In the open spaces plant Jerusalem Artichokes; they will grow rapidly, and form a thick covert in summer, while the dead haulm will answer the same purpose in winter, and pheasants will feed on their roots. It is very difficult to make Fern grow, and you will hardly succeed. The Wild Laurel is Daphne Laureola. The best of the coarse Grasses are Festuca sylvatica, Bromus giganteus, and Aira cæspitosa.

Guano—*M W K*—For garden purposes you should not use less than 3 cwt. an acre; it should be mixed with four or five times its bulk of earth, and applied in wet weather, or with water, when crops are beginning to grow. The same strength will do for Geraniums, &c. in pots; it should be applied occasionally, till their rapid growth shows that it is beginning to tell, and then be discontinued. All liquid manure should be used very weak, and applied in the same manner.——This substance proves injurious to the vegetation of kitchen-garden seeds if they come in contact with it unmixed. It is best to mix it well with a quantity of good soil, and then dig it in as if it were common manure, immediately before the crops are sown or planted. For Asparagus it will be best mixed with water, and applied at intervals during the growing season.‖

Insects—*Inquirer*—The worm is a Filaria, which sometimes inhabits the bodies of beetles and other insects. *R*——*J G H*—No. 1 is a Psocus, which will do your plants no harm; and 2 is the Thrips Adonidum, a most mischievous species in the hot-house. *R*

Lawns—*G*—We can add nothing to what has been already said repeatedly on the subject of Moss. The best remedies appear to be a good dressing with soot in the autumn, or with gas-water or sulphate of ammonia in March.

Mandevilla Suaveolens—Z—If this plant is placed in the open border of a conservatory, where it has plenty of room for its roots, it flowers most abundantly. Nor will it refuse to do so in a large pot, provided it is well potted. We never heard of any difficulty about it if it was fairly treated.

Manures—*A Constant r.*—If you wish to decompose your vegetable matter, do not use sulphuric acid. If you wish to act on bones, employ the acid by itself, without water; the mode of doing this has been explained at p. 107, 1844. Gas lime may be mixed with your refuse heap; and you may add it to peat with advantage. Mackintosh's book is a good one. It is the business of booksellers to make known where their publications can be bought—not ours.—— *G N*—Sugar refiners' refuse requires to be kept in a heap for a couple of months before being used; earlier than that it does harm, or at least no good. So little is known of its application, that we would rather not advise you upon the subject. Probably it is as good as farm-yard manure. You must experiment with it cautiously.——*F L*—If you are on decomposed granite, guano will do wonders for you. On slate land it will not be felt. Apply it as a top-dressing to the land, after the Potatoes are planted, at the rate of 2 or 3 cwt. an acre; and manage to put it on in showery weather, mixed with 2 or 3 times its bulk of earth, or thoroughly well scuffled in with the harrow. Fruit trees are not often the better for manure. Good meadow land, or old pasture broken up, suits them best. Manure is apt to make them run to wood or to gum.——*J T*—Always apply liquid manure when plants are beginning, and continuing, to grow, a little at a time, and often. It answers the same purpose as other manures, but has the fault of making soil too compact.

Names of Fruits—*L*—1, Winter Bon Chrétien; 2, Winter Nelis.‖——*R Culberston*—19, Wood and buds resemble those of Knight's Monarch.‖

Names of Plants—*W A M*—The dried plant which a quack has been administering an infusion of to the poor, is Ophelia Chirayta, an Indian plant, allied to Gentian, in whose properties it participates.——*T P*—Peziza coccinea.

Oranges—*A Correspondent* asks how it is that, although the Orange trees at St. Michael's are reported to be dying from the attacks of scale insects, the crop this season is greater than has been known for years? Can any one say whether this is really so, and if so, why?

Pæonies—*Sub*—The following are three of the best Moutans in cultivation, but in some American and Belgian Nursery Lists, more than 40 varieties are recorded, which are said to be very fine; but little is known of them as yet in England.—Pæonia Moutan papaveracea, single; Banksiæ, double; rosea, double. The two first are very hardy, and bloom freely in the open borders; the third is the finest, both in colour and size, when in bloom, but is tender, and requires protection in winter. The following are 12 double herbaceous varieties of great beauty, and they are free bloomers, viz.:—albiflora Whitleyi, white; Humei, pale-red; fragrans, purplish-red; Pottsii, crimson; Reevesii, blush: these flower about the end of June. The following flower about the end of May:—officinalis atrorubens, dark crimson; rubra, red; carnescens, blush; albicans, whitish; tenuifolia double scarlet; anemoneflora, purplish; paradoxa fimbriata, purple. Yuccas, hereafter.¶

Peas—*R J; A L, Melville*—The following varieties will afford a supply throughout the season:—Early Frame, Cormack's Prince Albert, Early Charlton (if the preceding cannot be obtained), Auvergne, Knight's Dwarf Marrow, Dwarf Imperial, Milford Marrow, Blue Prussian, Groom's Superb Dwarf Blue, Knight's Tall Marrow.¶

Pruning—*N*—Always stop your dwarf Apple trees by pinching off one-third of their new wood in the end of August, and remove half the remainder at the winter pruning.

Seasons—*Tandys*—The lowest degree of temperature at Chiswick in the severe winter of 1838 was 4½° below zero.

Shanking of Grapes—*Jas Roberts, Oxford*—"*L J C*" shall, if possible, have insertion next week. We wish to accompany these letters by some observations for which we have not yet had room.

Species—*W M*—The question, Whether it is probable, from what botanists know, that any species of plant has been lost and others created, since the creation? is one that involves geological considerations of high interest, to which botanists can hardly be said to have turned their attention. Before it could be satisfactorily answered, it would be requisite to determine what a species really is; and that is a formidable difficulty *in limine.* Without answering for others, we will however state, that in our own opinion the question is not susceptible of an answer. It is not probable that new species have appeared since the historical era commenced, because if it were so, the ancients would have spoken of species now no longer to be found: and we are not justified in saying that such has been the case. If it must be admitted that we have no absolute certainty that all the plants spoken of by the ancients were identical with those with which we now identify them, it is also to be remembered on the other hand, that the most ancient seeds that have been made to germinate have produced plants in no wise different from what are now cultivated; for example the Raspberries of the time of Hadrian are the same as those naturally produced in the reign of Queen Victoria; and the Wheat of the Pharaohs is identical with that of Mehemet Ali's corn-fields. Another point to settle, before this inquiry could be satisfactorily dealt with is, When did the present order of things commence? Does it include the tertiary formations of Sheppey and Aix? If it does, then we might possibly be justified in saying that species have disappeared: but that is a matter which, so far as we know, geological botanists have failed to prove. In the answer to your other inquiry, as to why a fruit is not deteriorated by the stock on which it grows, we must refer you to Lindley's "Introduction to Botany," 3d ed. p. 320; the answer involves considerations for which we have no space.

Spirits of Tar—*A A*—Apply this in the state in which it is sold. It will do no harm.‡

Vines—*A Constant Reader*—You may apply at least ½ cwt. of guano to the roots of your old Vine. It will be best applied, as soon as the weather will permit, in the form of liquid manure, not on the surface of the border, but let well down with a fork.‖——*M W K*—Your Vines, which have been outside your greenhouse all winter, should be immediately introduced; for by so doing they will have a better chance of ripening their wood before the days get too short.‖

Worms—*M W K*—Saturate water with corrosive sublimate, and add one wine glass to each gallon of water. We have not as yet seen any injury produced by it on plants in pots, such as Roses, Geraniums, &c.; but it is so dangerous a poison that no rash experiments should be made with it. No doubt it is decomposed in the soil before it has time to act on roots.

Misc—*A B*—You cannot have a better plunging material than river-sand. A canvas screen is very useful to a conservatory in hot dry weather, especially when the sun is fierce, and the wind too cold for ventilation, or the external air too dry. You cannot have a better material for holding rain-water than a well-constructed brick tank, well cemented with good fresh burnt cement; but you must take care that it has a very solid foundation, or it will leak, in consequence of the angles giving way at the bottom. Vines intended for very early forcing are best planted inside the house, but your house being employed as a greenhouse, it will be advisable to plant the Vines outside, and protect the roots from cold by covering the border in the early part of the season. N.B. Your letter was *not* postpaid.——*Sub*—Why not crop your spare ground with Potatoes, or, if you have a horse, with Lucerne? Knowing nothing of your wants, we fear it is impossible to advise you.——*C B*—You may obtain Jean de Witte of the nurserymen who are Fellows of the Horticultural Society.‡——*E R* Mr. Appleby's address is 20, Richmond Place, Edgware Road. He is out of place.——*A X*—We must refer you to our advertising columns. With your object in view, the better plan would be to purchase the best plants, fertilise them, and save your own seeds.*——*G M*—For the treatment of Musa Cavendishii, see last week's Paper, p. 103.‡——*C R S S*—Wash the wall with cement water, coloured with soot. You cannot make a better colour so cheaply.——*R F*—Quercus sessiliflora will suit you best. Larch is a very good nurse, if the situation is not a cold and exposed one.¶——*Omikron*—Will you allow us to defer an answer till next week?——*A Subscriber*—Both the reasons you mention influence the price of Tulips, particularly the superiority of the strain.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

NORTH OF DEVON.

TO BE LET, from Lady-Day next, together or separate, a DELIGHTFUL COUNTRY MANSION, and a VILLA RESIDENCE, both southern aspect, remarkably complete, healthy, and well-sheltered—on the same domain, yet distinct; with or without some superior Land and Farm Buildings, and extensive shooting. The neighbourhood abounds in the greatest variety of field sports. The dwellings are well calculated for moderate-sized families; situated about 5 miles from Barnstaple, 7 from Ilfracombe, over turnpike roads; 2 miles from a beautiful sea coast, half a mile from the church, market, and post-office. Rent very moderate, for any term between 7 or 14 years. For further particulars apply (post paid) to Mr. JAMES DAY, Braunton by Barnstaple.—Feb. 22.

The Agricultural Gazette.

SATURDAY, FEBRUARY 22, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Feb. 26—Agricultural Society of England.
THURSDAY, Feb. 27—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, March 5—Agricultural Society of England. Highland and Agricultural Society.
THURSDAY, March 6—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Feb. 24—Chepstow
W. Market
Feb. 25—Bromsgrove
Mar. 1—Cullompton
Mar. 3—Stewponey
Usk
Mar. 4—Abergavenny
Mar. 5—Monmouth

WE are happy to learn that the means which have been taken towards the establishment of an AGRICULTURAL COLLEGE AT CIRENCESTER are rapidly progressing to a successful end.

The Committee of Management have elected Mr. JOHN SCALES to the situation of Head-Master; he is an experienced Norfolk farmer, and possesses other qualifications that appear to adapt him for the important situation. The Committee have also met with a Chemical and Scientific Master, who is likely to prove an acquisition to the College, having been educated under Professor Graham, of the London University; he afterwards was his assistant, and took the higher classes in the University for two years, and he is now engaged with Dr. DAUBENY in Agricultural Analysis.

A good deal in the erection of suitable buildings still remains to be done, which will delay the immediate development of all their plans, but it is understood that the Committee will by midsummer have things so far forwarded as to enable them by that time to take some pupils.

The ultimate success of this scheme is now rendered more than ever probable—the proprietors being now incorporated under Royal Charter. At the Privy Council on Feb. 3d, the Queen approved of the Report of the Board of Trade in favour of this Charter, so that many hindrances to which they were otherwise liable have been removed.

WE have often been asked by correspondents, of late, about the ECONOMY OF FEEDING CATTLE, SHEEP, AND PIGS, on steamed or boiled, instead of on raw food. The only experiments on this subject with the results of which we are acquainted, are those reported in the 10th Vol. of the Highland and Agricultural Society's Transactions. Premiums were offered by that Society in 1833 for the best reports of such experiments—the one on the feeding of *cattle* on raw and prepared food, and the other on the feeding of *pigs*. They were awarded respectively to Mr. Walker, Ferrygate, Haddington, and to Mr. Boswell, of Balmuto; and to the results obtained by these gentlemen we now take the opportunity of directing the attention of our readers.

The first point to be ascertained is the amount of the expense connected with the two modes of feeding; the following is Mr. Walker's statement on this subject:—

COST OF THE KEEP OF CATTLE FOR ONE WEEK.

Three heifers on steamed food	cwt.	qrs.	lbs.	Value.		
Consumed of Swedish Turnips	37	0	16	£0	12	4¾
,, Potatoes	3	3	0	0	4	8
,, Beans	0	2	7	0	3	0
,, Salt				0	0	0¾
Estimate for coal and extra labour				0	2	0
Cost of one week of 3 heifers, or 7*s.* 4½*d.* each per week				£1	2	1½
Three heifers on raw food consumed, of—						
Swedish Turnips	25	1	14	£0	8	6¼
Potatoes	3	3	0	0	4	8
Beans	0	2	7	0	3	0
Salt				0	0	0¾
Cost per week of 3 heifers on raw food, or 5*s.* 5*d.* each per week				0	16	3
				0	16	3
Additional cost of 3 heifers on steamed food				£0	5	10½

This additional expense of the cattle on steamed food is made up of the items of coal, labour, and cost of food; for 30 *per cent. more Swedes were eaten by the cattle on steamed food than by those which ate them raw!* Of course, in order to insure the trustworthiness of the experiment, every care was taken before it was commenced to part the six heifers into two equal lots, so that no exception on that ground can be taken to this singular result; and the probability that it is uniformly the consequence of this mode of feeding cattle is confirmed by the account Mr. Walker gives of his other lots of cattle.

Two oxen on steamed food—	cwt.	qrs.	lbs.	Value.		
Consumed of Swedish Turnips	23	2	0	£0	7	10
,, Potatoes	3	3	0	0	4	8
,, Beans	0	2	7	0	3	0
,, Salt				0	0	0½
Estimate for coal and extra labour				0	1	6
Cost per week of 2 oxen, or 8*s.* 6¼*d.* each per week				0	17	0½
Two oxen on raw food consumed of—						
Swedish Turnips	17	2	0	£0	5	10
Potatoes	3	3	0	0	4	8
Beans	0	2	7	0	3	0
Salt				0	0	0½
Cost per week at 6*s.* 9½*d.* each				0	13	6½
				0	13	6½
Additional cost per week of 2 oxen on steamed food				£0	3	6

The Swedish Turnips are valued in the above at 4*d.*, and the Potatoes at 1*s.* 3*d.* per cwt., and the Beans at 3*s.* per bushel.

The following, then, is the summary of expenses during the continuance of the experiment—12 weeks and 5 days:—

Three heifers on steamed food at 1*l.* 2*s.* 1½*d.* per week	£14	1	3½
,, on raw food at 16*s.* 3*d.* per week	10	6	7½
Additional cost of 3 heifers on steamed food	3	14	8¼
Two oxen on steamed food at 17*s.* 0½*d.* per week	10	16	8
,, on raw food at 13*s.* 6½*d.* per week	8	12	2
Additional cost of 2 oxen on steamed food	£2	4	6

Now for the results of these experiments:—It must be premised that the mode in which the value of the beasts when put up to feed was ascertained, was by putting a certain price (5*s.* 6*d.*) per stone on the carcase in its then condition, and estimating its weight at a certain fraction ($\frac{1}{17.5}$) of the live weight of the animal.

Thus, the value of the 3 heifers on steamed food—			
When first put up to feed was	£34	17	8¼
Add cost of keep as above	14	1	3½
Total cost	48	19	0
Their value when killed—			
152 stone of beef at 6*s.* 6*d.* was	49	8	0
Resulting in a *loss* on the lot of	£0	9	0
The value of the 3 heifers on raw food—			
When first put up to feed was	34	19	3½
Add cost of keep as above	10	6	7¼
Total cost	45	5	10¾
Their value when killed—			
150 stones 3 lbs. of beef at 6*s.* 6*d.* was	48	16	4½
Resulting in a *profit* on the lot of	£3	10	6

This experiment indicates the *non-economy* of feeding cattle with steamed food, and its results are corroborated by those of the next.

Only one of each of the lots of *oxen* put up to feed had been slaughtered when the report of these experiments was drawn up, but, doubling the items of its expenses and returns, we obtain the following account:—

The value of two oxen on steamed food when put up to feed, was	£26	8	0
Add cost of keep, as above	10	16	8
	37	4	8
Their value when killed, 113 stone 8 lbs. of beef at 6*s.* 6*d.*, was	36	17	3
Loss on the lot	£0	7	5
The value of two oxen on raw food when put up to feed, was	28	5	8
Add cost of keep, as above	8	12	2
	36	17	10
Their value when killed, 116 stones 12 lbs. of beef at 6*s.* 6*d.*, was	37	19	6
Gain on the lot	£1	1	8

It will be observed that, in calculating the above statement of profit and loss, the value of the beef when fat is put at 6*s.* 6*d.* per stone; while, before being put up to fat, it was estimated at 5*s.* 6*d.* only per stone, the reporter believing himself to be justified in calculating upon this difference in the quality of the meat at those periods.

In addition to these experiments, reports are given in the work we have alluded to, of others by other observers, the general result of which may be stated in the words of one of them:—"It is not worth the trouble and expense of preparation to feed cattle on boiled or steamed food, as, though there is a saving in food (?) it is counterbalanced by the cost of fuel and labour."

In accordance, however, with general experience, this result does not take place in the feeding of swine; but we have not room to enter into the detail of Mr. Boswell's experiments on this subject. He says that the increase in the live weight of five pigs fed on steamed food during the continuance of the trial was 4 cwt. 2 qrs. 7lbs., and the expense of their keep 6*l.* 19*s.* 4*d.*; while the increase in the live weight of the five on raw food during the same period was only 2 cwt. 2 qrs. 21 lbs., and the expense of their keep 5*l.* 8*s.* 6*d.*—a result which is sufficiently conclusive in favour of the practice of feeding with steamed food, in the case of swine. An attentive perusal of these reports in the 10th vol. of the Highland Society's Transactions, will suggest many other points of interest for consideration, on which, however, we have not at present space to enter.

OWING to the unexpected, but, as it appears, unavoidable length of time required for the preparation of the necessary engravings, we are unable this week to continue the report of EXPERIMENTS on DRAUGHT in PLOUGHING; but we shall resume it as soon as possible.

ON FIXING BLOWING SANDS.

I OBSERVE in your last No. of the *Agricultural Gazette* a letter upon the subject of the Practicability of Fixing Blowing Sands on the Sea Coast, by planting Grasses and Trees upon them. I have had occasion to try experiments of this kind upon a tract of blowing sand of between 500 and 600 acres, on the sea coast, upon my property in the county of Sligo, in Ireland, and with great success; and if you should wish for any detailed information on the subject, you would obtain it by addressing my local managing agent, Mr. Lynch, Rundale Cottage, Cliffony, Sligo.

I found a small quantity of Bent growing upon the sands; and by transplanting annually, for many years past, a sufficient quantity of the younger plants, I have covered with a close coating of Bent the whole surface of the formerly blowing, but now fixed and stationary sand; and the result is, that the Bent affords shelter and food for young cattle, while Trefoil begins to grow spontaneously on the sand between the tussocks of the Bent. I have for the last three or four year sown seeds of the Pinus maritima, from Bordeaux, among the Bent on some portion of the sand, and the young plants are growing well, though hitherto they have been more occupied in striking their roots deep into the sand than in throwing shoots upwards. I have also tried young Oaks in the sand, and they seem as yet to thrive in it even better than the Pine. The sand is the broken down rock of the old or lower sandstone formation.—PALMERSTON, *Carlton Terrace, Feb.* 17.

P.S.—The spot on which these experiments have been tried, is a tract of sand extending from the neck of the Promontory of Mullaghmore southward, to the entrance of Wilk Harbour.

[We shall not fail to avail ourselves of Lord Palmerston's kind permission to address his agent on this subject; and hope shortly to lay before our readers the information we may obtain from him.]

ON DIBBLING SEED.

IF the statements respecting the usual modes of committing seed to the earth (published in your Paper of the 25th January) be admitted to be correct, it comes next in order to inquire how the disadvantages attending those common acts of husbandry are to be removed.

The sum of our argument was, that in the ordinary way of sowing or drilling corn the plants are far too numerous, and that no more ought to be allowed to remain on the ground than it is able to bring to perfection. There are three ways in which this end may be sought. The first is—the crop may be left to thin itself, and this is certainly the most common way of treating it. A large quantity of seed is sown, and upon thin poor soils or light blowing sands the roots are bared by the wind, wet, and frost, and parched by the sun, and the plants perish by hundreds. On richer soils, the plants so crowd each other that they soon get so lodged that part only rise again, or some get ahead of the rest, and thus entirely starve and smother the underlings. In this manner then, the extra seed is disposed of, for if full four bushels to the acre be drilled according to Mr. Cokes's recommendation, it is utterly impossible that all the plants could subsist upon the ground.

The second way in which this thinning may be effected is by the hoe. When the farmer sows Turnips broadcast or otherwise, he sends a hoe among the young plants to thin them out to proper distances; an operation which, though of an unpromising appearance to an unprofessional eye, proves in the sequel to have been undertaken on the soundest experience. Now, it seems extraordinary that under the prevailing methods of seeding, nothing of this kind has been practised among Wheat, Barley, and Oats; for if it was practised, the

hoeing would not, in the majority of instances, be an unnecessary expense, since it would be an outlay which the crop would pay for. It does not seem, however, to have been commonly done.

The third way of regulating the proper number of plants is, to sow only so many seeds as are sufficient to produce the greatest crop the land can bear, taking carefully into consideration that it is the nature of white corn to multiply their spikes according to the encouragement which they receive from the soil.

Now, it is very plain that in all these modes of proceeding the land and the elements are constituted (in a great measure), the judges of what the future crop ought to be. In the first method they either throw out the supernumerary plants or stint them; in the two last methods they increase a small number of plants to as many ears as can be borne upon the space. We leave it to every practical man to say which mode of judgment he would wish to be exercised on his own farm. If a given space of ground is to produce him a ton of Swedes, does he think a ton of bulbs, each about as large as a cricket-ball, is as good as a ton of from 8 to 12 lbs. each? If a given quantity of food is to produce for him 120 scores of beef, does he think that weight contained in seven half-meated Scots is as profitable as the same weight contained in five others well made up? Surely, in these cases he knows that the same quantity of nutriment judiciously applied will lead to gain, while an injudicious application of it may entail even loss; and why should these principles have been acknowledged and acted upon in these points and have never yet been applied to Wheat crops?

It must be allowed, then, that the regulation of the crop by starving is a sign of bad husbandry. There is every probability against the thinning taking place regularly; therefore the crop will generally be either a patchy one, or will consist of a great many stinted instead of a due proportion of well-fed ears. But there are three disadvantages also attending the hoeing system: much seed is wasted; the plants to be cut up rob the soil of that which ought to be economised to nourish the permanent crop; and great difficulty is experienced in finding a sufficient number of labourers capable of setting out the plants to the proper distances before the supernumeraries begin to do damage.

It becomes very worthy the attention of the agriculturist, therefore, to inquire how he can carry the third method of regulating the plants into effect; so that he may, at the same time, save his seed, allow each seed sown sufficient and only sufficient space, and place each plant so regularly that the operation of hoeing may be performed without risk from the incapacity or ignorance of the labourer. Dibbling seems to offer these advantages.—*H. W.* (*To be continued next week.*)

THE REAL VALUE OF GUANO.

I CANNOT let the remarks of your correspondent in a late Number of the *Gazette* pass, without making a few obervations upon them, particularly as he has drawn his conclusions contrary to the experience of agriculturists, and as the calculations from which he founds his arguments are, I believe, by no means accurate. Mr. Davis states that 4 cwt. of guano contain only 40 lb. of ash, 30 lb. of which are nothing more than carbonate of lime, silex, alumina, and other mineral and metallic matter which abound in most soils; and that this 40 lb. cannot supply 608 lb. of ash taken by a crop of corn, together with 4000 lb. or 5000 lb. of organic matter; and that a dressing of dung contains 700 lb. or 800 lb. of ash. Having collected a considerable number of analyses of guano, such as are imported into London, I can state with tolerable certainty that its composition is as follows:—

	Peruvian.	*Ichaboe.*
Water	12 to 15	25 to 30
Organic matter	50 — 60	25 — 30
containing 12 to 15 parts of ammonia.		5 to 9 pts. of am.
Phosphate of lime	15 — 25	25 — 30
Fixed Salts		8 — 10

Dung contains in a Ton.

Water	1568
Organic matter	567
Containing of ammonia	13
Salts containing 6 to 7 per cent. of phosphate of lime	92
	2240

The great difficulty of getting a fair sample of dung, makes the analysis of it rather doubtful—the water here is estimated at 70 per cent.; on referring to the average of a number of analyses by Boussingault, I find that he makes 79 per cent. as the quantity of water. The quantity of water in dung decreases when the straw is in very large proportion, compared with the excrement of the cattle; but for the same reason also the quantity of ammonia and phosphates in the dry manure decreases, which renders the quantity of these two ingredients about equal in the dry dung. Considering 15 tons of dung per acre an average dressing, and 4 cwt. of guano, they will each contain

Guano.	lb.	*Dung.*	lb.
Phosphate of lime	112	Phosphate of lime	100
Ammonia	54	Ammonia	195
Organic matter	171	Organic matter	8505
Potash, soda	30	Potash, soda, and silica	1338

On comparing the guano with the dung it will be perceived that the phosphate of lime is about equal in both, the ammonia in the dung is about 4 times greater, while in organic matter and alkalies, such as potash, soda, silica, the quantity contained in guano may be left out of the calculation. How is it, then, that guano and other substances are capable of being substituted with equal efficiency for 20 or 30 times the weight of dry dung? It is this:—that some plants are capable of deriving the whole of their organic matter from the atmosphere, when supplied with phosphate of lime, while others require in addition to this an ammoniacal substance. Guano may be therefore considered the type of a perfect manure, and while it remains at its present price it is not surprising that farmers are reducing their stock when the loss arising from fatting cattle is considered, oilcake being 10*l.* 10*s.* per ton, and beef 6*d.* per lb. It will be now worth while to inquire whether land is capable of being kept in an average state of fertility by the application of inorganic matter and ammonia, allowing the atmosphere and soil to supply the great bulk of vegetable and mineral matter. In many parts of England a dressing of bone-dust, which consists of phosphate of lime with a highly azotised substance, when placed upon a meadow causes it to yield an increased quantity of hay for many years. I find that I can mow a crop of hay weighing $1\frac{1}{2}$ tons per acre annually from a field which will produce half-a-ton without manure, either by the use of guano, nitrate of soda or potash, or sulphate of ammonia; and this has been continued for 8 years without decrease of produce. In practice the price of these substances should regulate the choice; the low price of guano at present makes it preferable; were guano to advance to 15*s.* per cwt. sulphate of ammonia would compete with it successfully.

The two great writers on Agricultural Chemistry, Liebig and Boussingault, have adopted different views with respect to the value of the various elements of manure; the former placing the whole of the value on the inorganic portion, the latter on the azotised portion. The truth, I believe, lies between the two. Some experiments, which I hope soon to place before the public, prove that upon an exhausted soil it is possible to grow Turnips in large quantities with manure consisting only of mineral matter, but when Wheat is tried with the same manure the produce is very small, and the addition of an ammoniacal salt causes a very marked increase. In growing a crop of Turnips with inorganic matter only, the quantity required to produce a given weight of organic matter may be reduced by the use of a substance containing ammonia, and it may be reduced again by the employment of a substance containing ammonia and carbon, hydrogen and oxygen. If this is strictly correct it would appear that plants consume or return to the soil a quantity of phosphate of lime when condensing their carbon and nitrogen from the air; that when ammonia is added, less phosphate is required; and when a substance containing all the elements of vegetation is employed, a much smaller quantity of phosphate is required.—*J. B. Lawes.*

ON LAYING DOWN LAND TO GRASS.

THE following observations on this subject, which lately appeared in the *York Courant*, are extracted from an Essay, by Mr. Wm. Jackson, of Bedale.

The cultivation of the Grasses of the land is of great national importance, and this country is peculiarly adapted to their growth.

This department of agriculture is now receiving that attention its magnitude well merits; and however simple the converting an arable into a Grass field may appear to some as a whole, it is very different in detail, and requires particular attention to arrive at the object we have in view, viz., a good sward in the shortest space of time. The task is not difficult, but requires method, and failure or imperfect success is solely attributable to an improper mixture of Grass seeds, usually consisting of but three or four sorts (perhaps procured from the hay-loft), without considering whether they would suit the land, or that weeds might be sown, which afterwards would cost much time and expense to eradicate. If the meadow was even known to contain many of the best Grasses, they do not ripen their seeds at the same time, some being ready to gather in June, while many are not ripe until August; and it is possible that when the Grass is cut, only two or three sorts are in perfection, the remainder having fallen, or not sufficiently matured to vegetate when sown.

The absurd practice of laying land away with the common Rye-grass, Rib-grass or Lanceleaved-plantain, and Red and White Clover, I am glad to observe is in its last stage of existence; admitting the excellent qualities of the latter, I cannot recommend the former. The common Rye-grass frequently proves to be Couch, and Rib-grass contains at least one-half less nutriment than most of our natural Grasses, and requires twice the room to grow in; it is surprising that this should ever be sown when others can be had that will produce nearly three times the quantity of nutriment in the same space of ground. Red Clover ought never, in my opinion, to be sown in the best mixtures for permanent pasture, although in its proper place as a perennial, its growth is so rapid that it overtops and destroys all the fine and small Grasses. Condemning this plant here, I do not deny the great benefit the tillage system of this country has derived from it, and when cultivated (as it generally is) as a biennial, it is certainly most invaluable. In fields thus laid away, it is not unusual at the expiration of three years to find little remaining but the White Clover, consequently the land must be comparatively of small value, and will remain so until the operations of Nature proceed to reproduce those species which are indigenous to the soil, which is a work of considerable time. These two methods seldom fail to cause disappointment.

In preparing land which is intended to be converted to permanent Grass, it should be performed in the most complete manner, when we consider that crops will have to be produced for many years without the necessary cultivation required annually in the routine of tillage. Clays should have a thorough summer and winter fallow in order to destroy all perennial weeds, especially Couch-grass and Crowfoot, and be reduced to a good state of pulverisation; land which is much exhausted by long continuance under the plough will certainly require this, especially when we consider that in a course of three years' cropping there is abstracted from one acre about 900 lbs. of the ashes of vegetables, which consist of alkali, silica, lime, and chlorine, and are returned by fallowing and manure. The manure should be applied before the last time of ploughing or laying up of the lands; this being judiciously performed in dry weather, may remain until the spring, when the most obstinate soils will give a fine surface, which will require one harrowing before the seeds are sown. Loams and light soils will invariably produce Turnips, and when the ground can be well and sufficiently cleaned, it is certainly desirable to obtain and consume a crop of those valuable bulbs with sheep; the dressing for them, with good manure, should be ample, and I recommend lime as well, if the land has not previously been accustomed to it. The Turnips should all be consumed by the 1st of March, and the field should be at least twice ploughed, well drag-harrowed, and pulverised, before it is sown; the lands may be from 3 to 6 yards broad, and 6 to 9 inches high in the centre (according to circumstances), neatly levelled, and the furrows merely sufficient to take off a superabundance of water. Very dry gravelly soils should be laid flat.

Every person contemplating converting their fields to permanent pasture and meadow, should collect such Grasses, from the turf near the hedges and the ground immediately adjoining, as appear to thrive the best; from these, with a description of the land, an intelligent seedsman should form an opinion as to the sorts most likely to succeed. It is much easier to supply Grasses to suit the soil, than soil to suit the Grasses.

The composition of all plants of the same species being nearly the same, although grown on land very different in quality, I have made it a rule, after having devoted much attention to this subject for some time, to supply a mixture of from 15 to 20 of the best natural Grasses, including all the most valuable species found in the rich grazing fields in this neighbourhood, adhering as much as is consistent to those which are indigenous to the land to which they are to be supplied.

If we closely examine our best fields we find a great variety in a small space, and rarely two alike growing together, but regularly intermixed, and so closely matted as to appear to subsist upon each other; considering this, then, the law of Nature, we ought not to be surprised when we hear of failures from those who have attempted to form a permanent sward with a few sorts of Grass-seeds not unfrequently totally unsuiting; much labour is required to bring the soil to a proper state to receive them, and however naturally good it may be, the sorts of Grasses on which depends the quality of the field is the most important consideration; and it is certainly dear-bought economy to make the expense of proper seeds an object. Every respectable seed-merchant should supply from 15 to 20 species and varieties, according to the nature of the land, which equally in excessive dry and wet seasons will produce a constant supply by their natural growth at different periods of the year; these should be so mixed that if possible not two plants of the same sort should grow up together, and the skilful sower will observe great regularity in the delivery of the seeds on the ground, choosing a calm morning for the operation, as not an inch of ground should be missed, bearing in mind that poor bad land will require the greatest quantity, more especially if the surface is rather rough.

March and August may be considered the best months for sowing, and if the land is in proper order, and autumn preferred, the seeds may be sown with a little Wheat, Rye, or Rape, which will shelter the young plants, and may be eaten off with sheep. This will scarcely refer to the strong and poor clays, which will require the whole of the summer, autumn, and winter, to form a fine surface; there also, land prepared with Turnips should have a light crop of Barley or Oats sown with the Grass-seeds, preferring the former, the time of sowing being regulated by the weather in March. There are a great variety of opinions as to whether land should be laid away with or without a crop of corn, and some writers on agriculture condemn the former as injurious. I certainly am of opinion that a thin crop of Barley, producing between two and three quarters per acre, is not injurious; the seedling Grasses are well sheltered from all the variations of temperature to which this climate is so liable, and are more certain to vegetate at the proper season, thereby obtaining the great desideratum—a thick crop of seedling plants—the foundation of our future success. Although they do not grow so strong in Barley as they might if sown without, there are many more plants and much more regular; the stubble is of great service in winter, to protect the young plants from frost, and the straw as well as the corn being converted into manure, must be returned to the field. In all districts where manure is scarce this method will be found very advantageous. Rolling with a heavy roller is requisite in April, to break down the stubble and sadden the land, and should it be required for depasturing, no other stock but sheep and calves should be admitted, and those not until the first week in June, or when the Grass has made sufficient growth.

Good pastures have and may be obtained in fine seasons, dispensing with the corn crop; when this method is adopted, and the seedling plants appear thin on the ground, the meadow must be allowed to get fully ripe before it is cut, that all the seeds may be scattered on the ground; and as soon as the hay is off, a light dressing of fresh soil or manure compost should be applied, followed by the roller and bush-harrow.

In both cases the after Grass should be treated in the same manner, and I would recommend, where practicable, to trample it into the ground with all the sheep and young cattle that could be collected together, instead of eating it off, as the best manure that can be applied is the same species in a decomposed state. Whether depastured or mown the first summer, or sown away with or without a crop, a good dressing of farm-yard manure is essentially necessary the following winter.

The after treatment as to mowing or pasturing will be of little consequence, but we should always bear in mind the grand principle of farming, which consists in restoring to the soil what has been abstracted from it.

Home Correspondence.

Allotment System.—Mr. Cowper's Bill.—I should have taken no notice of "J. D.'s" communication (see page 818, 1844) were it not that people are very apt, in order to save themselves the trouble of thinking and inquiring, to take for granted the assertions of others, and the more broad and confident the assertion, the less do they inquire into the soundness of it; and as it is, I presume, probable that Parliament will soon be called upon to discuss the merits of this Bill, I will trouble you with a few observations on its detail, which (being entirely opposed to its principle) I did not then think it necessary to enter upon; and thus your readers will be enabled to judge whether my observations or "J. D.'s" are most deserving the designation of "ill-natured ones." After seven clauses, merely formal, we come to the one of which "J. D." presumes me to have been ignorant, and which contains the power he refers to, enabling field-garden wardens to take land belonging to the parish, the churchwardens, &c., the surplus rent of which, and, as there is no restriction in it, of any other land they may hire, is by the subsequent clause to be paid over in aid of the poor-rates. Now this clause is the one, to the principle of which as the foundation of the other, I consider an insuperable objection exists, though I thought it sufficient before to allude to the effect produced, without adverting to the cause. "J. D." in defence of the provision asks, "to whom I would have the surplus rents paid?" I imagine every one knows that if not universally, at least in 99 cases out of every 100, land belonging to the parish, the churchwardens, or the poor, has its peculiar appropriation, such as fuel, clothing, or other assistance for the poor, or the repairs of the church. One important matter, therefore, for which "J. D." supposes I am to give the Bill credit is that of taking away the rent of such land from its proper appropriation, and giving it in aid of the rates—no mean aid certainly, if 8 acres of land, by the assistance of Mr. "James Dean," can be made to produce 88*l.* per annum! There are six clauses constituting and regulating the new Society of Field-Garden Wardens, the chief burthen of procuring whose appointment is laid upon the unfortunate clergyman, who, at last, is to find himself fifth man, with two wardens elected by the rate-payers above 10*l.* per annum, and two elected by the rate-payers under 10*l.*—that is to say, the hirers of the gardens themselves; which two last persons, if they should ever get elected at all (seeing that persons of that class are not often able to give up their time to attend parish-meetings), will, in all probability, not be able to read or write, and therefore can give but little assistance, and the other two being most likely farmers who have other avocations, the whole of the labour of account-keeping, receiving the rents, making the payments, and passing the accounts (according to another clause), will devolve upon the clergyman, who, in most cases—and certainly in those parishes to which this system, if of any use at all, is best adapted—has quite enough to do without it; a more complicated, and I must say, as regards the clergyman, a more unsatisfactory piece of machinery could not have been devised. Then, there is that important provision, in "J. D.'s" estimation, and for which he says I ought to have given Mr. Cowper's Bill credit, for the recovery of the possession of the land by summary process, when held over after notice. Now, I really cannot enter into the particular merit of this clause, as I believe the power already exists independent of Mr. Cowper's Bill. In a subsequent Number of the *Chronicle*, I observed that "J. D." gives a statement of his agreement, for the breach of which he states that he proceeds against the tenants under the Wilful Trespass Act, which he has generally found successful, except in the cases of his unfortunate eighty-eight 8*l.* per acre men. I presume he intends the 7 & 8 Geo. IV. c. 30, not a single clause in which gives any such power as he imputes to it—of recovering possession; but there is an Act already existing (1 & 2 Victoria, c. 74) under the provisions of which persons occupying at a rental not exceeding 20*l.* per annum, who do not give up possession on receiving due notice, may be ejected after summary process before the magistrates, in the short space of 21 days. The clause in Mr. Cowper's Bill, having the same object, seems to be as nearly as possible a *verbatim* copy of the former enactment, and therefore cannot be estimated at a very high value. The 9th clause seems to intimate that every person in a parish, holding a tenement rated under 10*l.* per annum, may become the occupier of a field-garden. I cannot think that such indiscriminate lettings of field-gardens would be attended with desirable results, as though there is no doubt that well managed they are valuable assistances to the poor, there is as little doubt they are open to serious objections, which, if not carefully guarded against, will ultimately cause the downfal of the system. There are other points in the Bill open to objection, but observation upon all would spin out my communication to an unreasonable length. I will, therefore, conclude it by reiterating my firm conviction—a conviction strengthened by everything I read and see on the subject, that this is not a fit object for legislation—that Mr. Cowper's Bill is not one which ought to pass—and that the less land-surveyors (officially) and Societies have to do with the matter, the better for the system.—*E. J. H.*

["E. J. H." will surely agree with us, that the liberties we have taken with his MS. have rendered his condemnation of this Bill not only more dignified, but more forcible. The object and only *apparent* motive of all controversy in these pages shall be to elicit truth, in the shape of either principle or expediency; and with the acknowledgment that more of it was allowed to appear in "J. D.'s" communication than was right, we announce our resolution for the future to permit the publication of no personality or imputation of unworthy motive. To say the truth, we have not room for matters which, at the most, can interest only two, and perhaps only *one* of our readers. One word more:—before the rental of Mr. Dean's allotment is to be pronounced too high, we must know the value of land of that quality in his neighbourhood.]

Subsoil Ploughing, &c.—In reply to Mr. "W. C. Spooner's" inquiry as to whether it would be advisable to subsoil a very retentive clay with a good deal of sand on the top soil, my answer must be the same as "Punch's" to persons about to marry, *Don't*. Last year I tried the experiment on just such a description of clay, furrow-drained; it was a miserable failure, and a warning to my neighbours. [Will you be kind enough to state the circumstances?] In answer to his other question, I should certainly say that it is profitable at all times to give feeding tegs a little corn with Swedes or Turnips, especially in a season like the present, when both are so scarce, and hay and Clover so valuable. Beans and Peas are considered better than Oats or Barley, but the same must be split before given to the sheep. About half a pint per day to each, split, is sufficient, mixed with a little cut chaff. I am now feeding my draught ewes with cut Swedes and split Beans, and very much recommend the plan, having tried it the last two or three years with very great success. A little corn warms the sheep, firms the meat, and enriches the land on which it is consumed.—*H., Vale of Evesham.*

Mercurial Ointment.—I saw in your Paper of the 25th ult. a recommendation to one of your agricultural correspondents, relating to the use of strong mercurial ointment for the eradication of lice from cattle. I do not deny that in the hands of a skilful and intelligent operator the mercurial ointment is a valuable remedial agent for the above purpose, but if placed in the hands of an ignorant and careless cowherd, or farm servant, it is a very dangerous one; for, in the course of my practice I have seen very dangerous symptoms of salivation brought on by its careless and immoderate use. Of late I have been called upon professionally to attend upon many very bad cases of vermin on the skin of cattle, and I have invariably found the following ointment or liniment to be effectual in their destruction, without the dangerous results that are sometimes seen from the use of mercurial ointment. Take of the prepared fat of geese, 4 oz.; train oil, 4 oz.; sulphur vivum, 2 oz.; mix well. The affected animal must be taken into the house, if out, be well cleaned with a strong brush, and a little of the ointment applied, and well rubbed in wherever the lice can be found on the skin; cleanliness must be rigorously attended to, along with good keep and pure water. I have occasionally used the following decoction of Tobacco:—Take of fine-cut Tobacco, 8 ounces; boiling water, 8 quarts. Let the decoction stand until cold; then strain for use. I will relate a case in point, to show my mode of using it. About two months ago I was professionally called upon to attend a young heifer, the property of one of the most extensive dairy-farming firms in the vicinity of Manchester. She was of the improved short-horn breed, about two years old, in calf, and very fat. She always had been in a good and well-sheltered pasture, and I could not discover by what means she had caught the infection. Upon examination of the beast, I found her to be literally swarming with lice, which I believe to be the Pediculus capitis, but, not being a professed naturalist, I cannot say if I am right. The above was the worst case of the kind that I ever saw or heard of, for these plaguing parasites kept the poor, ill-fated beast in continual torment, and, as Mr. Youatt has it, appeared to be actually devouring her before her time. I ordered the beast to be brought out of the field, and placed in a comfortable and clean loose box. She was then well brushed all over with a whalebone brush, after which she was sponged lightly over with the before-mentioned Tobacco-water; plenty of clean straw was then thrown under her, she was supplied with food, and left for the night. The next day there were myriads of dead lice lying on the hide of the beast—indeed, the hair was completely covered with them. I ordered the brush to be applied again, and to be lightly sponged over as before, and in about two days after she was completely cleared of them, and is now as clean as ever. In using the decoction of Tobacco great care is requisite; for, like the mercurial ointment, I have seen often evil consequences to be the result of its immoderate use, and it ought never to be used, unless under the immediate superintendence of the veterinary surgeon or owner. Proper care is requisite in keeping the beast well sheltered and clean, after using it, and being supplied with good food, pure water, &c. But, as an innocent remedial agent for the destruction of these parasitical animalculæ, an agent that is safe in the hands of the commonest and most ignorant farm servant or labourer, and one that I never knew to fail if properly applied, I would recommend the use of the first-named remedy.—*James H. Shenton, V.S., Pendleton.*

Mangold Wurzel and Salt.—My crop of Mangold Wurzel, in the autumn of 1843, was magnificent; more especially on two-thirds of the field which adjoined a small coppice-wood; which, having been cut during the previous winter, gave life and vigour to all the weeds that had been kept under during the previous ten years. And this part of the field was, consequently, covered with common Groundsel, which, during the wet spring and fine summer, sprang up and flourished surpassingly thick, covering every space between the drills. I ordered my old friend and assistant, common salt, to be strewed over the Groundsel and between the drills, following the hoes, which were at work upon this weed. The result was, their total destruction. The quantity of salt applied was much more than I intended, and I apprehended injury to the Wurzel; they were, however, far advanced in size. But so far from suffering, they increased immensely. The crop—upwards of 100 tons. [How did you ascertain this?] The field is $1\frac{3}{4}$ of an acre. Wheat followed—an excellent crop. Then Turnips after a ploughing; which are, at this moment, flourishing—for sheep by and bye. From the moment the Turnips came up the part of the field salted, has been most conspicuously superior to that not salted; so much so as to be visible from the opposite side of the valley.—*Waterhouse, near Bath.*

Pickling of Meat.—Professor Refiensque denounces the use of saltpetre in brine, intended for the preservation of flesh to be kept for food. That part of the saltpetre which is absorbed by the meat, he says, is nitric acid or aquafortis—a deadly poison. Animal flesh, previous to the addition of pickle, consists of gelatinous and fibrous substances, the former only possessing a nutritious virtue; this gelatine is destroyed by the chemical action of salt and saltpetre, and, as the Professor remarks, the meat becomes as different a substance from what it should be, as leather is from the raw hide before it is subjected to the process of tanning. He ascribed to the pernicious effects of the chemical change all the diseases which are common to mariners and others who subsist principally upon salted meat, such as scurvy, sore gums, decayed teeth, ulcers, &c., and advises a total abandonment of the use of saltpetre in the making of pickle for beef, pork, &c., the best substitute for which is, he says, sugar, a small quantity rendering the meat sweeter, more wholesome, and equally as durable.—*Bath.*

To kill Lice in Cattle.—Your correspondent is quite wrong in deprecating the use of mercurial ointment for lice in sheep (it is the improper dressing); three pounds to the score is quite sufficient. A person unaccustomed to dressing would use three times that quantity. One ounce of Cocculus Indicus (well ground) to one pint of whale oil, will kill lice on all descriptions of cattle without a second application, if properly dressed, and no danger.—*J. O., Mansfield.*

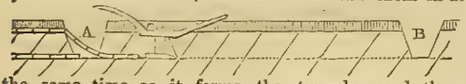
Cottage Accommodation.— The communications of "Tenant Farmer," might be usefully supplemented by a few references as to the mode of carrying out the plans, *i.e.* what is very much wanted, a reference to the best account of labourers' cottages, and to working plans for building them. "Loudon's Encyclop." and "Nicholson," are altogether insufficient. The writer is anxious to erect cottages with a regard to economy; these being the worst paying property if let at a rent suitable to the labourers means, they do not afford a margin for casualties. Country bricklayers and carpenters are quite incompetent, and what is wanted is some book which might be put into their hands to work from, with plans, &c., and, in short, serving as a surveyor or architect in a larger matter, and which would preserve the owner from being wholly at the workman's mercy. [Reference to publishers and prices are advertisements. Your bookseller will easily obtain the "Labourers' Friend" for you: it is a cheap monthly periodical. We are not aware of any other work by Smith of Deanston than his tract on Drainage. A good deal of information on cottage architecture will be found in Professor Low's new work on Landed Property.]

Allotment System — Duke of Bedford.—Will you oblige me by giving me the address of your correspondent, "John Crew?" my attention having been drawn to a communication on Cottage Allotments in the *Agricultural Gazette* of the 1st Feb., wherein "J. C." makes the following statement:—"But I find at his Grace the Duke of Bedford's, and other land proprietor's, the land which is let to the labourer is charged from 50*s.* to 60*s.* per acre, which, when held by the farmer, was but 20*s.* to 30*s.* per acre." Your correspondent's statement as to the Duke of Bedford is incorrect. For your information, and that of your readers, I beg briefly to state that in the years 1831-32, upwards of 800 field gardens on his Grace's estate were let to the labourers in various parishes in the county of Bedford, and the invariable rule in fixing the rent was to put it at the net sum per acre, which the farmer previously paid. The amount of tithes, composition, and parochial rates (which likewise had been paid by the farmer) were added, in order to save the collectors the trouble of collecting such small sums from the occupiers; and those parochial charges have since been paid by the landlord, and the gross rents paid by the labourers run from 20*s.* to 40*s.* per acre, according to the quality of the soil.—*Thomas Bennett, Woburn.* [We have not Mr. Crew's address. We always give the utmost publicity that we can to the authorship of all communications which are sent to us.]

Dairy Management.—"A Flintshire Dairyman," amongst other questions of much importance to dairy-

men, which, I doubt not, will be readily answered by a more practical man than myself, asks how far the system of house-feeding is applicable to dairy management, particularly the manufacture of cheese? I would refer your correspondent to Professor Playfair's lecture in the 4th vol. of the Royal Agricultural Society's "Transactions," where he will find that whilst house-feeding of cows is admirably suited for promoting a great increase of butter, if the animals are properly fed, Grass feeding, or out-of-door feeding, is essentially necessary for the manufacture of cheese. And this reason is assigned for the difference in treatment—that a generous diet, and warmth and quiet are promotive of the oily substance of the milk, from which butter is made; but that exercise, and less rich nourishment, produce that peculiar substance in milk called casein, from which cheese is procured. In fact, it appears that, without exercise, very little casein is obtained from the cow, and that the waste of the tissues which exercise promotes, increases indirectly the amount of casein in the milk. It is, however, a matter of very great importance to the cheese farmers to ascertain whether, by feeding the cows more frequently with leguminous food, which contains a larger proportion of casein than other vegetable food, and giving them regular exercise, as your correspondent suggests, the advantages of house-feeding, which are in many ways of essential benefit, cannot be practised by the dairyman in the manufacture of cheese. The economy of food, the collection of manure both solid and fluid, the general comfort of the animals, the increased number of cows which can be fed on the same land, the facility of milking, &c., all combine to render the house-feeding of cows most desirable; and I hope some experiments will be made with this object in view. As exercise increases the casein in milk, a cow-house could be so constructed that there should be a circular covered walk, where the animals could be daily exercised; or could they not be trained to the yoke, and accustomed to draw light weights? (the manure, for instance, out of the yard). Of course, great care would be required that they should not strain themselves, but merely exercise their muscles. I have seen in Flanders the ploughing of land by cows, but I should consider this much harder labour than is proper.—*An Old Subscriber.*

Mole-plough.—In page 30 it is stated that the mole-plough is much used in Gloucestershire. There is one now working upon the Duke of Hamilton's estates in the neighbourhood of Garstang, and it appears to me that it would be a great improvement if, in the tunnels made by them, pipe-tiles were inserted, which, it appears to me, could be done with the greatest ease by passing a rope or chain, &c. through the pipe tiles, in the same way as the cords are made to pass through the rods of a chimney-sweeping machine; so that the tiles being so secured together in lengths of 30 or 40 yards, and one end being hooked to the end of the mole of the plough, as shown by the annexed sketch, it would then draw them in at



the same time as it forms the tunnels; and there would be no difficulty in drawing out the rope, &c. at A and B; the pipes then being in their proper places in the tunnel, and another set being prepared, the plough would then proceed as before. By so doing the drains might be made to any length, by merely making so many openings as shown by A and B at each length, and which can easily be made up good again: and I think there is another improvement, if, where those drains are to be made with the common plough, a furrow was taken out before the mole-plough was used, to give a greater depth to the drain, as shown by the sketch; the dark shade representing the furrow taken out to give a fall for the water in the drain, and the said furrow would easily be replaced; the tunnels may be made to suit any sized pipe-tiles, by having different sized moles to the plough; and, as Mr. Skilling well observes in page 44, that he would give the man the most credit who could say that he had dried the greatest number of acres for the smallest sum per acre, a simpler and cheaper plan than by the mole-plough, for draining with, I have not yet seen published.—*M. Saul.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

(*Continued from page* 108).

Report of expenses incurred in the cultivation of 17 acres of common land in the township of Trevorucha, in the parish of Llangollen, county of Denbigh, in the year 1844. About 9 acres of the above land is of a black turfy nature, and the other 8 acres gravelly; the surface being nearly covered with tumblers of stones, several hundred loads of which having been removed some distance off, and a large portion thereof having been conveyed to a certain spot, which still remain to be cleared off. The following is a statement of the expenses:—

	£	s.	d.
60 days' work in raising the stones ready for carriage, at 1*s.* 3*d.* per day	5	0	0
25 days for a team of 2 horses in clearing the stones, at 7*s.* per day	8	15	0
17 acres of push-ploughing and burning, at 20*s.*	17	0	0
68 loads of lime, at 5*s.*	17	0	0
Carriage of 68 loads of lime, at 3*s.*	10	4	0
Ploughing, 17 acres, at 10*s.*	8	10	0
Harrowing, do. at 2*s.*	1	14	0
Rolling, do. at 1*s.*	0	17	0
Seed, 68 bushels of Oats, at 3*s.* 3*d.*	11	1	0
Rental, 17 acres, at 2*s.*	1	14	0
Total	£61	15	0
Produce of 17 acres, 340 bushels, at 3*s.*	51	0	0
	£30	15	0

My tenant adds:—"In regard to the cost of lime per load, I beg to state, that we have the opportunity of making our own lime, otherwise it would have amounted to a considerably larger sum.—Wm. Ormsby Gore."

Fork-Husbandry.—Mr. Henry Dixon, of Witham, in Essex, favoured the Council with the following communication, in reference to the employment of agricultural digging-forks:—"Witham, Dec. 12, 1844. My experience in the use of the agricultural forks, which are very much used here, leads me to believe that, if the application of this implement was more generally known, it would become extensively and profitably applied to agricultural purposes; and, as it is a substitution of horse-labour for that of man, it is of no common importance. I am indebted to Mr. Mitchell, of Wymondham, for its introduction here; and last year, as well as this, 50 or 60 of our men have been engaged in the work, who otherwise would have been for the major part unemployed. The fork I send you is intended for the first operation upon the soil: for subsequent forking, and for seeding the land, they may be made lighter and shorter, and used with a proportionate diminution of expense. We use it in two ways, thinking it necessary to preserve the cultivated soil uppermost. Take a Wheat stubble for example: the plough opens the furrow, and the forker follows; and when he has forked up the subsoil (turning it over as in spade work), the plough succeeds, and covers it over—succeeded as begun by the forker. The depth we require under the furrow-slice is from 10 to 12 inches. About 16 men are required to keep a plough in constant use; and they will fork an acre per diem, if it be a tolerably free soil. We give the men from 2½*d.* to 3*d.* per rod for this work. I have this year practised another plan, which I very much prefer, as any number of men may be kept at work without any inconvenience as to the plough. Take the example of my field Wheat stubble, 5 acres. I had the land ploughed tolerably deep into ridges (two furrow-slices meeting each other), about 24 inches wide. I set four men to work in this field, to fork the furrow opened by the plough, and then the plough followed, splitting the ridge, which left the remaining portion ready for the completion of the work. I had not quite finished this field, when the frost set in, and suspended the work. This method is equally efficient with the former, and the labour is easier to the workmen. These four *young* men will earn 12*s.* per week, at 2½*d.* per rod. This labour is severe, and requires strong young men. It may be necessary in all cases to open the soil by the plough; for if the staple be good, to the depth of the fork, it may be done from the surface; at all events, a *second* forking will require no plough. It is not necessary for me to trouble you with the theory which indicates the advantage of deepening soils, nor to state that the land must first (where required) be properly under-drained, as these matters are sufficiently obvious. Our experience during the last four or five years has fully tested the value of the process, especially upon thin soils, resting upon a hard gravel pan; but perhaps not more so than upon one of good deep rich staple, although they were productive before. We commonly begin this character of cultivation for Carrots, Turnips, or other root-crops. In the late dry summer, the Carrot and Turnip crops by Mr. Hutley and Mr. Beadel of this place were doubly remunerative for the extra expense. To return to the 5 acres of my own. The method of farming which I intend to follow is—to harrow down the ridges, use the cultivator to move the soil, and in no way again to use the plough except to form ridges and cover in manure for Mangold Wurzel, Swedes, or Potatoes, as the case may be. The root-crop will be followed by Wheat. For Wheat I shall probably *not plough* the land at all. Our smiths make these forks for 4*s.* 6*d.* to 5*s.* each; and they may be made by any workman having a specimen before him. Should, however, any doubt occur, I shall readily attend to the inquiries of any of our Members who may wish to apply to me on the subject.—Henry Dixon."

Mr. Westbrook Baker, of Cottesmore, Rutlandshire, also presented a fork to the Society, along with the following communication:—"Cottesmore, near Oakham, Feb. 10, 1845. In many districts the agricultural labourer has difficulty in finding employment; therefore it is advisable to attempt many experiments, with a view to ascertain how far that object can be accomplished; and I am of opinion that in some cases digging, *with a proper tool*, can be brought into use so as to afford profitable employment. The fork sent to the Society has been approved for this purpose; and I subjoin the terms of a premium offered in the bill of our Cottesmore Ploughing Meeting; namely, 'A premium of 5 sovereigns will be given for the most approved statement on the comparative merits between ploughing and digging. Experiments to extend over not less than 4 acres of land; 2 acres to be dug and 2 ploughed: competitors being expected to state full particulars as to their mode and cost of management throughout, together with the nature, quantity, and relative value of their crops, and the description of soil.'—Richard Westbrook Baker."

Mr. Dixon's fork was found to weigh 8 lbs. 2 oz., and Mr. Baker's 9 lbs. Mr. Parkes, the consulting Engineer to the Society, favoured the Council with the following observations in reference to the operation of the sub-pulveriser as an implement of tillage. Mr. Parkes concurred with several of the members present in their opinion that the forks exhibited were very heavy, and would require very strong men to use them. He observed, however, that the operation described was one that demanded the use of a strong tool. It appeared to him that the cost of the work, as stated by Mr. Dixon, was fully double that effected by the sub-pulveriser of Mr. Read, of 35, Regent Circus, Piccadilly, to which a prize had been awarded at the Southampton meeting, a decision in favour of that effective implement which had been amply confirmed and justified by subsequent experience. From what he had himself witnessed and heard from farmers who had used it, he considered the quality of the work done by this implement to be fully equal to forking. It was, he observed, so handy and manageable as scarcely to require holding or guiding; and he had recently been informed by a farmer that he had found three horses drawing in line quite able to follow the Kentish turnwrest plough with this implement, subworking each furrow 6 to 8 inches deep (after draining), and completing an acre per diem. The same party had stated to him that far more harm than good would have been done to his land (the Wealden clay) by the trampling of the six horses on it which would be necessary to drag the common subsoil-plough. Mr. Read's plough so effectually shivered and lightened up the subsoil as to elevate the furrow-bottom from 3 to 4 inches; so that when the next slice of 8 inches deep was laid upon it, in the manner peculiar to the Kentish plough, the whole bed lay light and open to atmospheric influence, and without the impress of a horse's foot upon it; while another gentleman who had extensively used the implement in a compact gravelly subsoil, using four horses in line, to avoid surface-poaching, also expressed his entire satisfaction with its performance. Mr. Parkes further stated that in order to obviate the evil arising from the treading of a powerful team of horses in subsoiling clays, and to obtain more complete pulverisation than is effected by the common subsoil-plough, a friend of his, the manager of a large estate in Scotland, near Hamilton, informed him that the practice was in vogue there of digging with the spade 10 inches deep, then following with forks of 14 inches length of tines. The top soil was kept uppermost, the forks merely loosening and breaking up the subsoil. The cost was stated to be 4*l.* per Scotch, or 3*l.* 6*s.* 8*d.* per statute acre. It appeared that Mr. Dixon's plan of forking the furrow after the plough required "16 men in a tolerably free soil to keep the plough going and do an acre per diem," the cost of which was at least 32*s.* per acre. This plan was therefore cheaper than the foregoing, but not nearly so cheap as by using Mr. Read's implement, which enabled the agriculturist to avail himself of horses' power, and without injury from their tread in plastic soils.

Mr. Miles, M.P., confirmed Mr. Parkes's statement of the easy manageableness of Mr. Read's implement, from his own use of it. The only difficulty he had found was to prevent the ploughman from weighing on the handles, and to induce him to leave it alone. Being carried on four wheels, it was subject to very trifling irregularity of action, and but little guidance was required.

The Chairman observed, that in order to use the common subsoil-plough on his land, he had been obliged to apply a pair of wheels to the beam-end, as described in the Journal of the Society. This he found in some measure remedied the defects of that implement, and enabled him to use it.

Drain Level.—Mr. S. H. C. Payne, of Llanelly House, Carmarthenshire, transmitted to the Council a drawing and description of his new drain-level, which excited much interest among the members present. Mr. Parkes, on examining the sketch and ascertaining the principles on which Mr. Payne had been led to the construction of his level, thought it one of the best designed instruments of the kind he had seen for putting into a drainer's hands; he attributed, however, but little practical value to such instruments, excepting under very peculiar and rarely-occurring circumstances. He had always found that a good workman, with a good eye in his head, had no need of a level, when the work was set out for him.

The Council ordered thanks for the various communications laid before them, and adjourned to Wednesday the 19th instant.

A Weekly Council was held at the Society's house in Hanover-square, on Wednesday last, the 19th of February; present: T. R. Barker, Esq., in the chair; the Hon. Robert H. Clive, M.P.; T. Alcock, Esq.; T. W. Bramston, Esq., M.P.; F. Burke, Esq.; E. Buller, Esq., M.P.; Dr. Calvert; F. C. Cherry, Esq.; H. Colman, Esq.; H. Gibbs, Esq.; Brandreth Gibbs, Esq.; J. H. Grieve, Esq.; Col. Hall; E. Holland, Esq.; A. Ogilvie, Esq.; E. Parkins, Esq.; H. Price, Esq.; Prof. Sewell; T. Tweed, Esq.; and G. Wilbraham, Esq., M.P.

The following new Members were elected:—

Dickson, Robert, M.D., 5, Curzon-street, London
Cotton, W. A., Ellesmere, Salop
Pinkard, Thomas, Dderw House, Rhayadu, Radnorshire
Croggon, Thomas J., 2, Ingram-court, Fenchurch-st., London
Morris, George Byng, Skitty Park, Swansea, Glamorganshire
Toswill, James H., Pitt, Chudleigh, Devon
Moore, Rev. William, Brimpsfield, Cirencester, Gloucester
Lea, John, Ellesmere, Salop
Burnham, William Booth, St. Alban's, Herts
Beck, Peter, Shrewsbury
Broadmead, Nicholas, Langport, Somerset
Wells, Charles, Ware, Herts
Bourne, John, Hard-street, Newcastle-on-Tyne
Pulini, Ilario (Civil Engineer and Director-General of Public Works to the Republic of Chili), 39, Brewer-street, Golden-square, London

The names of 17 candidates for election at the next meeting were then read.

Epidemic among Cattle.—The Duke of Richmond transmitted to the Council the following reply, received by his Grace from the Board of Trade, in reference to the application he had made, as President of the Society, to H.M.'s Government, in pursuance of the resolution of the Council at their last monthly meet-

ing on the 5th of February. "Office of Committee of Privy Council for Trade. Whitehall, 14th Feb., 1845.—My Lord Duke—The Lords of the Committee of Privy Council for Trade have had under their consideration your Grace's letter of the 7th instant, requesting, as President of the Royal Agricultural Society, that measures may be taken to prevent the importation of cattle infected with a certain epidemic disease now raging among cattle on the Continent; and I am directed to acquaint you, that the subject on which your Grace has addressed my Lords, is under the consideration of Her Majesty's Government; and that my Lords will communicate to the Royal Agricultural Society any information which may reach them in reply to the instructions which have been sent to Her Majesty's Ministers at several Foreign Courts.—I have the honour to be, my Lord Duke, your Grace's obedient Servant, (Signed) JOHN LEFEVRE. To His Grace, the Duke of Richmond, K.G., &c."

TEXAN GRASSES.—Mr. J. H. GRIEVE favoured the Council with the following communication: "43, King's-road, Feb. 18, 1845.—Having observed in the Report of the proceedings of the Council, at its last meeting, a notice on the subject of the Tussac Grass, I thought it might not be uninteresting for you to know, that in my late rambles at Texas I frequently met with a species of Grass strongly resembling the specimens of Tussac Grass laid before the Council on that occasion. The Grass to which I allude seemed to confine itself to low swampy spots, and where the soil was evidently impregnated with salt. Texas contains a variety of Grasses, as well as other plants, that are, I believe, almost unknown to the world at large; and, amongst others, the Grass that stands highest in the estimation of the natives, and which, from my own experience, I have observed to be most palatable to the different animals, at the same time evincing the most nourishing qualities, is that which the Mexicans have named Musquite Grass. There are said to be three descriptions of Musquite Grass, of which only two have come under my notice; the one is of a diminutive and silky nature, and the other of a more vigorous, but at the same time of a coarse growth. The conformation of the seed of the first description offers an almost insurmountable obstacle to its ever becoming a cultivated plant. Its form is that of a cylinder, of about half an inch long, and $\frac{1}{12}$ of an inch in diameter, firmly adhering to an awn of nearly the same thickness, and of an inch in length, which is furnished at the end with three collateral awns or branches. This appendage being of a tough nature, it is easy to conceive the difficulty there would be in [illegible] disentangling and distributing so light a seed. The second or coarse Grass bears an Oat-shaped seed, containing a considerable portion of farinaceous matter, and is also furnished [illegible] with a spiral awn, of a thick and fragile nature, and susceptible of being detached from the seed. This Grass grows with a thick sward, and rises to the height of about 2 feet. I observed some German emigrants cutting it for hay, which was of an excellent quality. So far as my observation led me to judge, those Grasses are confined to a range of country in Western Texas, bounded on the east by the Guadaloupe river; but as this may be attributed to the fact that this district is of diluvial formation, it may be inferred that these Grasses abound in many parts of the interior of the country. In the extensive prairies where those Grasses are to be found, they almost exclude all other growth; and the numbers of cattle and wild horses that range upon them, and their sleek skins and fine condition, bear ample testimony to the nutritive qualities of the pasture. It may also be observed, that even the deer were fatter, and offered a richer venison than those in the eastern districts of Texas. It will give me much pleasure if these remarks should give the Council satisfaction, and I shall at any time be happy to afford you any further information that may be in my power. (Signed) J. H. GRIEVE."

In reply to inquiries made of Mr. Grieve by the Chairman, after the reading of this communication, he stated, that the temperature of Texas ranged in winter from 35° to 50° of Fahrenheit, and in summer from 75° to 95°; that the soils of that country on which the Grasses referred to, where found most luxuriant, were either a good black alluvial soil termed "mulatto," or the red-loam; that the Grasses preferred low grounds in tracts of land at an elevation of 200 or 300 feet above the level of the sea; and that a strong wind blew during the whole season from the south-west, across the countries to which he had alluded.

The Chairman then returned to Mr. Grieve the best thanks of the Council, for the communications with which he had favoured them, and for his kindness in attending the meeting of that day personally, for the purpose of affording any further information to the members.

SEA-MUD.—Captain F. D. Watkins, late of the Bombay Artillery, having communicated a paper to the Society, on the subject of sea-mud as a fertiliser, at the Southampton Meeting, the consideration of which the pressure of business at that period occasioned to be postponed, it was read to the Council at the present meeting. "37, Maddox Street, July 25, 1844.—Southampton is partially surrounded by the waters of the rivers Itchen and Andur, which uniting in one large sheet or expanse, resembling an immense inland lake, have received from the neighbouring town the name of the Southampton Water. At high tide, the eye is delighted by the beauty and variety of the surrounding scene: when the tide is low, the eye of the spectator beholds with disgust a vast surface of dark, filthy mud, extending for miles in every direction, and exceedingly offensive to the sense of smelling, as the weather increases in heat. In the physical world, the things which most offend the senses are frequently the most beneficial and necessary for the use of man. In the cultivation of the soil, the farmer well knows that the more offensive the manure which he puts into the ground, the larger will be the produce of his crops. The sea-mud, which the tides leave daily in the inlets and estuaries, and tide-rivers of our sea-coast, is a vast deposit of native manure, inexhaustible in quantity, and containing all the elements of fertility, ready prepared by the chemistry of Nature, in the form best adapted for the use of man: nothing is required but mere human labour to render the gift available to the cultivator of the land—labourers, spades, and carts will do the rest. Of all our southern counties Hampshire has been the most favoured in the abundance of this rich tidal deposit. The Southampton Water alone covers an area of nearly 20 square miles, and running inland in the direction of its narrowest part, nearly divides this fine county into two. Its flat shores and numerous wharfs afford unequalled facility for carriage of the dry mud into the interior. Within a few miles of Southampton, we find the whole coast intersected by numerous creeks and inlets, communicating with the large harbours of Portsmouth and Emsworth, each of which terminates in an extensive back-water, well furnished with jetties and landing-places, to which the farmer sends his produce from the interior, and from which he receives in return his annual supplies. The adjacent county of Sussex has an extent of sea-coast of seventy miles, divided into four parts by the rivers Arun, Addur, Ouse, and Cuckmere, which run through the four valleys that separate the chain of the South-down Hills, namely, those of Arundel, Shoreham, Lewes, and Seaford. These rivers have wide estuaries, abounding in deposit of sea-mud, are navigable for many miles, and run through a long tract of alluvial land, extending the entire length between the South Downs and the sea. Mr. Marshall, in his work on the southern counties, (vol. ii. p. 218), estimated the extent of the low and rich tract of land on the sea-coast of Sussex, between Emsworth and Brighton, at not less than 100 square miles. If we add, on one side, the much wider alluvial district extending from Emsworth to the town of Christchurch, in Hampshire, and, in the opposite direction, the low land between Brighton and Seaford, we may calculate the area at another 100 square miles. Hence it appears, that in this long extent of sea-coast, between Christchurch and Seaford, there is a vast area of 200 square miles of low and well-soiled land, which, by the easy and convenient water-carriage, and the great facility of land-carriage, may be enriched and permanently improved by the application of sea-sludge used as a manure. The warping of low, flat lands, which can be flooded by high spring tides, is a description of improvement in agriculture the most certain and valuable. In carrying out this process on a large scale, the county of York has long since set an example to the whole kingdom. For many miles of its course from York to Hull, the river Ouse on one side presents a continued line of embankment, pierced at intervals with cuts or openings, closed by strong flood-gates set in masonry. Through these, the rising tide flows over the flat land; and having left its deposit of mud, the water flows out again, at low-tide. The sea-coast of the southern counties, indented by numerous creeks and tide-ways, presents facilities for warping to a vast exent. At Lewes, in Sussex, the water of the river Ouse has been long used on a small scale to flood the pastures near the town. Being nearer to the chalk hills and to the sea, the sludge of this river is richer in salt and lime—two great elements of fertility—than the Yorkshire Ouse. The late proprietor of Malling Deanery, Lewes, by means of a cut and sluice in the river bank, was enabled to admit the tide-water into a reservoir within his grounds. The mud deposited by the retiring water was then collected on the sloping sides in order to dry. It was afterwards chopped small with spades, and carefully mixed with farm-yard dung. The dry mud cut stiff like marl, and required at least a year before it had become thoroughly rotted in the compost: it was then put upon the land. The following is a statement of his crops:—1. Wheat 5 to 6 quarters the acre; 2. Barley, 6 to 7 quarters the acre, followed by a heavy green crop. The soil, a good loam upon chalk. The number of cart-loads of dressing per acre, not stated. Every farmer who is within 5 or 6 miles of a tide-way or creek, would do well to fetch the dry mud in carts; he would find in its use a powerful aid to his manure, and a permanent benefit to his soil. (Signed) F. D. WATKINS."—The Council ordered their best thanks to be given to Captain Watkins for this communication.

POTATO DISEASE. — Mr. COLMAN, Agricultural Commissioner from the State of Massachusetts, favoured the Council with the following communication he had just received from the United States:—"Boston, Feb. 1, 1845. I believe I wrote to you that I had been making various experiments on the Potato disease, chiefly under the microscope; and that I had come to the conclusion that it was a Fungus, resembling smut on corn; and also that lime, common salt, and various other salts (as arseniate of soda, &c.), were complete remedies; and that I had agitated the subject here in various ways. This has produced much evidence confirming my conclusions; such as, that in fields where Potatoes were planted between rows of Indian corn (a common practice here), wherever there was smut on the corn, there the Potatoes were diseased; but in contiguous places, with the same seed Potato, where there was no smut, there was no disease. Instances of accidental application of salt for other purposes preventing the disease, when adjoining places without salt had it, are rather numerous; and in one case, where a farmer had manured half his field with a compost containing much sea-weed, and had not enough to put on the other half, using therefore other manure, the half with sea-weed was free from disease, while the other half had it badly. (Signed) J. E. TESCHEMACHER." The Council returned to Mr. Colman their best thanks for the favour of this communication.

ITALIAN RYE-GRASS.—Mr. Rodwell, of Alderton Hall, near Woodbridge, Suffolk, presented to the Council a specimen of the growth of his "brown," or dark-coloured Italian Rye-grass, along with a bag containing 10 lbs. of the seed, for distribution among such of the members present as felt an interest in the cultivation of that variety of the Grass in question. Mr. Rodwell called the attention of the Council to the statement he had communicated in the Society's Journal (Vol. v. page 284), of the superiority of the dark over the light-coloured variety of Italian Rye-grass. He had found, from the experience of every successive year, not only the usefulness and productive qualities of the Italian Rye-grass in general, beyond those of any other Rye-grass with which he had been able to compare it; but that, as a preparation for Wheat or any other successive crop, its properties were not liable to the objections that had been so unjustly made against it. Hitherto, Mr. Rodwell observed, no other kind of Italian Rye-grass had been considered genuine, but that which in its growth was pale-coloured, upright in its stem, and the produce of seeds with long awns, or tails: he was, however, furnished with indisputable proofs that such characteristics were not descriptive of the best kind of Italian Rye-grass. He had found, that the most productive and most nutritive plant was that which had a fibrous root, producing a dark-coloured, spreading stem, the result of seed which had a short awn, or tail. He had arrived at that conviction, from very close attention to the growth and application of the Grass in question, during three years, and against his strong predilections, fostered as they had been by the public taste, in favour of the light-coloured and long-awned variety, which had uniformly been considered the only genuine stock, and consequently the only marketable commodity in every seed-market in England. Having observed in the growth of his crop, reported in the Journal for 1841 (Vol. ii. page 214), some plants that were, as he supposed, not genuine, that is, not of the pale colour or producing seed with long awns, he determined upon a fresh importation of seed direct from Italy, and from this he had been enabled to test the properties of the two varieties, both of which he had since cultivated with great care and attention. He was fully convinced, from every comparison he had made, not only of the different kinds of plants in different fields, but of both kinds in the same fields, that the best Grass, namely, that which is the most productive and the most nutritive for all cattle, is the plant which *spreads* upon the ground, is *dark*-coloured, and the produce of seed with *short* awn or tail: a conclusion confirmed by testing the two varieties, both in weight and bulk, and finding as a result, that the dark-coloured plants from the seed of the short-awned Grass exceeded in both those points the pale-coloured plants by more than 30 per cent. He had found, that whether intended as a biennial or perennial Grass, the dark-coloured was much preferable to the pale-coloured variety—the former branching and becoming thicker, while the latter spindled up and became thinner in plant every succeeding year. The following results were furnished to Mr. Rodwell by his farm-bailiff. He selected 10 plants or entire roots of each variety in each of two different fields, and obtained by weight the following comparison:—

	1st field.	2d field.
	lbs. oz.	lbs. oz.
Ten plants of the pale Grass (pulled and dirt beaten out of roots)	0 14	1 8
Ten plants of the brown Grass, (do.)	1 4	2 0
Pale Grass (roots cut off just above ground)	0 10	1 1
Brown Grass (do.)	0 14	1 7

The Bailiff (Mr. Scotchmer) remarks: "The pale Grass is produced by the seed with a long tail: the seed of the brown Grass has but a very short tail, and is much the heaviest seed. I did for some time advocate the pale Grass, but I am brought by experience to become an advocate for the brown, which everything tells me is quite superior. First, I believe that 1 peck of the brown Grass, sown on 1 acre, will produce a bottom equal to 3 pecks of the pale Grass; secondly, in point of quality the cattle will soon decide that, for feed what kind of cattle you choose with it, they will very carefully select the brown from the pale, whether green or in hay: if in hay, the pale is so very coarse, that they will select the brown from it; and if fed on the layer green, the pale is always the last that is eaten; thirdly—and what I think is of great importance—I am persuaded the brown is the best preparation for Wheat, on account of its not growing in such large, rough, hollow bunches. The pale, by growing all in bunches, never forms on the face of the land (what we call) a tough flag; while the brown, on the contrary, by spreading on the surface, forms a face equal, if not superior, to any Grass I have ever seen: and I quite believe—in fact, I am quite sure—that sow what quantity you will of the pale Grass, you cannot get a good bottom without some of the brown with it. There is sufficient evidence in our layers themselves to confirm what I have said on the two points, namely, of the cattle eating them where we have fed, and likewise of the beautiful bottom which the brown Grass

forms, both where we have fed and where we have not fed."—The Council ordered their best thanks to be returned to Mr. Rodwell for the letter, specimen, and supply with which he had favoured the Society. The Council then adjourned to Wednesday, the 26th of Feb.

Reviews.

An Address to Landlords, on the Advantages to be expected from the general establishment of a Spade Tenantry from among the Labouring Classes. By the Rev. J. S. Henslow, M.A., Rector of Hitcham, and Professor of Botany in the University of Cambridge. R. Groombridge and Sons, Paternoster-row. We hope this pamphlet will be widely circulated amongst the class to whom it is addressed: to *their* neglect of the moral duty attaching to the possession of land much of the distress amongst the labouring poor is certainly attributable. This Professor Henslow illustrated fully in the letters, &c. published last year in the Suffolk papers: and in this pamphlet he points out a practicable and efficient method of remedying the effects of past mismanagement in this particular, and of securing the labouring classes from the consequences of such neglect for the future.

The method alluded to is the adoption of the allotment system:—"Let us only keep steadily before our minds the two broad facts, that our labourers (as a class) are not enjoying the hope and comfort they ought to possess in our free, favoured and Christian country; and that this system of spade culture has been shown to be capable of most materially improving their condition; and then I think every landlord who is interested in this cause, and who admits the 'moral obligation' contended for, will feel inclined to examine a little closely into the evidence that has been adduced in favour of their labourers being allowed some more direct interest in the soil than they at present possess." "I would refer any one who wishes for proof of the advantages which this system brings to the poor, to consult the pages of the 'Labourer's Friend.' Let them send to their bookseller for the number of last December (price 3*d.*), and they will find an abstract of an account that has been given of the working of the system at Walsham-le-Willows, in this county, which cannot fail to show them the immense advantages it has afforded, even to an apparently overpopulated and greatly pauperised parish." The history of this system is, indeed, a continuous testimony to its beneficial influence on the labouring poor.

It may be asserted that the author of this pamphlet is not a practical man; that his advocacy of the allotment system is not founded on that intimate acquaintance with agricultural affairs which alone can render any one a safe guide for farmers and landlords to follow. Professor Henslow admits the influence which such a suggestion may have on the minds of readers indisposed to try the system, and accordingly the larger part of his pamphlet consists of an appendix, containing the recorded opinions of a great many experienced authorities. Surely this combined testimony to the value of the allotment system must be influential.

Miscellaneous.

Orchards—Jerusalem Artichokes.—It is an opinion of pretty old and wide standing, that fruit trees are the better for having the ground stirred, to let in the air to their roots. And with this view some farmers have tilled their orchards to Potatoes, but I have not heard of much advantage resulting. There are, indeed, two striking objections to this culture; first, that Potatoes like the light, and will not flourish well under the shade of trees; and second, that being an exhausting crop, they impoverish the soil (as deep as they go), which is, so far, injurious to the Apples both in quantity and quality. But the Jerusalem Artichoke, which is largely grown on the banks of the Rhine, and produces as heavy crops as Potatoes, rather likes the shade, and would therefore grow well under trees; and, so far from exhausting the ground, will, if I was rightly informed by the German farmers, bear well for ten or more years in succession, without manure, even upon poor soils. I was further told that they did not require to be dug out, but only pulled; and that the remaining roots produce the following year's crop, without fresh setting; and so from year to year till they die of old age in 10 or 12 years, and leave the land better for other crops than they found it. All these properties seem to suit them for orchards; the pulling them up will open the ground, while the avoidance of digging, either for drawing or setting them (except the first time and the last, to get out the dead roots), will spare the roots of the trees many a wound. It is there, also, largely used for cattle food, both roots and greens; and I have some recollection that it contains more nitrogen, and should be proportionately more nutritive than the Potato; but as I cannot now find my authority for this, it must not be depended on. It possesses, however, the rare property of absorbing nitrogen largely from the atmosphere, which is probably the reason of its thriving so well without dung, and leaving the land in good condition for other crops. Where there is dung to spare (as it might be much oftener than it is), Jerusalem Artichoke will pay for it, notwithstanding, by a proportionate increase in quantity, if not in quality. It is planted like Potatoes—drills two or three feet apart; and being not now common, must be commenced in the small way, which, is indeed, generally desirable for experiments.—*J. Prideaux, Hampshire Telegraph.*

Mode of Improving Agriculture.—Some there are who flatter themselves with being considered as improvers of agriculture, from the introduction of some unknown species of corn or artificial Grass. There are others who expect fame from the invention of some new implement of tillage, or different method of ploughing and sowing; whilst a third sort hope to acquire it by untried objects of attention, such as the culture of Mulberry-trees, for encouraging the breed of silk-worms, &c. In opposition to these opinions, I apprehend the first principle we ought to set out upon, is a perfect knowledge of the nature of soils, with a competent insight of such methods of manuring as are practised by the most indefatigable and industrious farmers for the attainment of a degree of fertility.—"*The Rural Socrates,*" *by M. Hirzel,* 1764.

Notices to Correspondents.

Rural Chemistry—By E. Solly, Esq., F.R.S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all booksellers, price 4*s.* 6*d.*

Anonymous Writing—*G L* suggests that one reason why names are not given as noticed in our last, is to prevent frivolous inquiries, as many of those inquirers presume upon the cheapness of postage stamps; but when their letters arrive by dozens per week, postage then becomes something more than a trifle; therefore he proposes, that it may be in future a rule, that all inquiries be accompanied with a postage cover and stamp when an answer is requested from our correspondents.

April Wheat—*W S*—We know it has been highly spoken of. Can any one give their *experience* of it?

Beans—*Amicus*—The Mazagan Bean-meal is certainly as good, probably better, than that of the Tick Bean.

Gorse-crusher—*J D Wilson*—C A W, Wexford, would much oblige us by the drawing of his crusher, which he mentioned some weeks ago. A tract on the Culture of Mangold Wurzel was published by King and Garrod, Ipswich, some years ago. The distances recommended in it between the rows and plants are too great; otherwise it is a useful tract.

Guano, &c.—*Sub*—Fresh ashes should not be mixed, either with it or with urine: but old ashes may be usefully employed thus, if you apply the mixture at once. If the guano is dry, and kept so in a close place, it is needless to apply sulphuric acid; otherwise this is a useful addition. At their average composition we should prefer Bolivian guano, at 11*l.*, to African at 7*l.* 10*s.* It will rarely be the case that land 8 miles from the sea will benefit from salt as a manure; but you had better try on ¼ an acre. Apply 1 cwt. on that extent of young seeds now.—*J L T*—We would prefer Bolivian guano, of average quality, at 11*l.* per ton, to that of which you send an analysis at 7*l.* 10*s.* Many thanks for your information about Farmers' Clubs; we will be careful to return the report of the judges.

Joinings of Drains—*Amandalian*—A subordinate drain should deliver its water on to the top of a main—which is 6 inches deeper for this purpose; patching up the junction with bits of broken drains is practically sufficient.

Lucerne—*D P*—You had better transplant early in March. The operation will not injure the vigorous growth of roots as well as foliage, if done carefully.—*H H Williamson* will find his question answered to other correspondents last week. We are sorry we have not Mr. Kelly's address.

Manure—*Phudge*—Turn it out into the yard for the straw to be trodden under, and well sodden in water. The heaps should be turned so that they may be hot and in active fermentation when used.

Oyster Shells—*A Subscriber of 45*—Sea cockleshells, &c.. are useful as a manure: they must be comminuted before application; the best way to do this is to burn them, and then apply 6 or 8 cartloads per acre. For the present year, at any rate, we are unable to insert a calendar of farming operations.

Pasture Land—*Querist*—It will be found more profitable to graze stock on your land than to make hay. The Irish white Apple can be got in the neighbourhood of Bristol. Superphosphate of lime applied now, at the rate of, say 3 or 4 cwt. per acre, is a capital manure for Grass land. The cost of keep, for a milk cow, all the year round, will vary from 5*l.* to 8*l.*

Portable Courvoise—*J F*—We have several inquiries about artificial egg-hatching. Can any one give us the means of answering them? Where is the portable courvoise to be obtained?

Rearing Calves—*Amandalian*—The following is the way in which the best Gloucestershire dairy farmers manage:—The calf is removed from the cow at 8 days old, provided the dam be a cow and not a heifer; if a heifer, the calf is allowed to remain about a fortnight, because a heifer is more difficult to be milked, and the calf assists the milker. No difference is made whether the calf be heifer or bull—they are all reared exactly in the same way. At about a week old, calves are allowed each 2 quarts of best milk twice per day. This is all that is given till 2 months old, except hay, which they generally eat at a very early age, say 3 weeks. After 2 months old they take much hay, and then the milk is reduced to 1 quart, and add 2 quarts of water. At about 10 weeks old they are turned out to Grass, and the milk is gradually discontinued. The longer a calf remains with its mother, the more will it feel the loss when taken away. The age of 16 months is the correct time to put the heifer to the bull.

Top Dressing—*Tyro*—Your land, from your description of it, must surely be full of rich manure; its wants are, probably, owing to a deficiency of inorganic manure. You might, therefore, apply bones with advantage; or, as you want immediate help for your Tares, try 3 cwt. of superphosphate of lime mixed with 2 cwt. of common salt, per acre.

Weeds—*A Sub*—We have always *burnt* weeds; but we believe the making a compost of them with lime to be the better plan, and shall try it this year. We understand, from Mr. Morton, that his opinion, as given in his work on Soils, was founded on a relative experiment of lime and sand, as means of rotting *dry straw.* This is hardly parallel to the case of weed-roots, &c., which are succulent, and contain much moisture.

What is the most effectual way to destroy Hardirons?—*Derbyshire Farmer*—This, we are informed, is a weed prevalent in pasture lands of certain districts in Derbyshire. Can any one answer this question? It may be depended upon that, in 99 cases out of 100, the only way to destroy weeds is simple perseverance in their direct extirpation by hoe, &c.

Wild Boar Breed—*Sesama*—We have forwarded your letter.

*** As usual, many communications have been received too late.

Markets.

SMITHFIELD, Monday, Feb 17.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 0	Best Downs & Half-breds	4s 0 to 4s 4
Best Short Horns	3 6	3 8	Best Long-wools	3 10	4 2
Second quality Beasts	2 10	3 2	Ewes and second quality	3 2	3 8
Calves	4 4	5 4	Pigs	3 4	4 4

Beasts, 2565; Sheep, 26,230; Calves, 69; Pigs, 313.

Our supply of Beasts is shorter, but still the demand is small; however, the decrease in numbers has somewhat improved the trade. Our highest quotations are more freely obtained; indeed, in some few instances, the best Scots have made 4s 2d, and the best Short Horns nearly 3s 10d per 8lbs. We have also fewer Sheep than last week; the trade is a little brisker, but prices remain about the same. We have several shorn Sheep in to day, but the weather being so severe affects them much. Good Calves are still scarce, and maintain their price. Pork trade is brisk.

FRIDAY, Feb. 21.

We have a full average supply of Beasts, and trade is heavy; the best qualities, however, are in demand; Scots, &c., 3s 10d to 4s 2d: Short Horns, 3s 6d to 3s 8d; second quality are a very dull sale, at from 2s 8d to 3s 2d. We have quite as many Sheep as are wanted; prices remain about the same; Downs, &c., 4s to 4s 4d; Longwools, 3s 8d to 4s 2d; Ewes and second quality do not meet a ready sale at from 3s 2d to 3s 8d. Veal trade is not to good; we cannot quote the choicest qualities at more than 5s. Coarse Calves, 4 to 4s 4d. Pork is a little dearer; neat Porkers, 4s to 4s 6d: large pigs, 3s to 3s 8d.

Beasts, 794; Sheep, 3139; Calves, 108; Pigs, 290.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Feb. 20.

Prime old Meadow Hay	105s to 107s	New Hay	—s to —s	Clover	100s to 115s
		Inferior Hay	90 95	Straw	24 40

Jozzy Cooper, Salesman.

CUMBERLAND MARKET, Feb. 20.

Superior Mead. Hay	105s to 112s	Superior Clover	108s to 120s		
Inferior "	83 96	Inferior "	98 108	Straw	37s to 42s
New Hay	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

WHITECHAPEL, Feb. 21.

Fine Old Hay	100s to 105s	Old Clover	—s 120s		
New Hay	88 98	New Clover	108 115	Straw	34s to 42s
		Inferior "	— —		

A large supply, and trade very dull at the above prices.

POTATOES.—Southwark Waterside, Feb. 17.

The supply during the past week has been moderate, compared with former arrivals; yet the supply is greater than the demand, as the quantity from Yorkshire has been of late unusually large. The weather has had a tendency to check vegetation, and increase the consumption of Potatoes, still our Market was considerably depressed, and the annexed quotations were barely ma ntained.

York Reds	— —	60s to 80s	Kent and Essex Whites	45s to 50s
Perth	— —	50 60	— Kidneys	60 70s
Fifeshire	— —	50 —	Wisbeach Kidneys	— 55
Early Devons	— —	60 —	— Blues	— 55
Late Devons	— —	— —	— Whites	50 55
Cornwall	— —	60 —	Guernsey Blues	— 60
Jersey Blues	— —	60 —	— Whites	— —
— Whites	— —	— —	Prince Regents	60 65
Essex Blues	— —	50 60	Irish Whites	45 50

COVENT GARDEN, Feb. 22.—In consequence of the continued severity of the weather, several of the more delicate kinds of Vegetables have advanced in price. Amongst Fruit there has been little alteration. Trade is somewhat brisker. The best Pine Apples are offered at about 8*s.* per lb. Foreign Grapes are selling at the prices mentioned in last week's report. The supply of Dessert Pears is becoming very limited; fair samples of Beurré Rance and Ne plus Meuris fetch from 8*s.* to 12*s.* per half sieve. Amongst Dessert Apples, we noticed good samples of Newtown Pippins and Nonpareils; the latter bringing about 8*s.* per bushel. Kitchen sorts remain the same as quoted in our last report, the sale for them being rather dull. Some good specimens of Cucumbers have been offered during the week, at from 8*s.* to 12*s.* a brace. Among Vegetables, the principal novelty in the Market this week is a quantity of New Potatoes, which are selling at from 2*s.* to 3*s.* 6*d.* per lb. The price of large white Broccoli is from 6*s.* to 12*s.* per dozen. The few French Beans to be met with are offered at about 3*s.* 6*d.* per 100. Celery has not altered in price; it is becoming very inferior in quality. Seakale and Asparagus continue to be tolerably well supplied; the latter is a little cheaper. Turnips and Carrots are also reduced in price. Lettuce and Endive are of good quality. Onions and Leeks are plentiful, and there is a fair supply of Mushrooms, which are a little cheaper. Rhubarb is good and plentiful. Among Cut Flowers, we noticed Poinsettia pulcherrima, Euphorbia jacquiniflora, Azaleas, Acacias, Camellias, Lily of the Valley, Lilacs, Kalmias, Hyacinths, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 8*s*	Oranges, per 100, 4*s* to 16*s*
Grapes, Spanish, per lb., 1*s* to 1*s* 2*d*	— Bitter, per 100, 8*s* to 18*s*
— Portugal, per lb., 1*s* to 4*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 6*s* to 12*s*	— per 100, 6*s* to 16*s*
— Kitchen, 4*s* to 6*s* 6*d*	Almonds, per peck, 6*s*
Pears, Dess., per half-sv., 5*s* to 12*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Pomegranates, per doz., 2*s* to 4*s*	Cob Nuts, per 100 lbs., 150*s* to 160*s*
Filberts, per 100 lbs., 100*s* to 150*s*	Nuts, Barcelona, 24*s*
Chesnuts, per peck, 3*s* to 8*s*	— Brazil, 16*s* to 20*s*
Walnuts, shelled, 6*s*	— Spanish, 2*s* 6
Oranges, per dozen, 9*d* to 2*s*	— Cob, 16*s*
— Baking, per half-sv., 2*s* to 2*s* 6*d*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*	Spinach, per sieve, 4*s* to 5*s*
— red, per doz., 2*s* to 3*s*	Scorzonera, per bunch, 1*s* to 2*s*
— plants, per doz. bunch., 4*s* to 7*s*	Skirrets, per doz., 6*d* to 1*s*
Broccoli, per bundle, 2*s* to 7*s*	Turnips, per doz., 1*s* 6*d* to 2*s* 6*d*
— white, per doz., 6*s* to 12*s*	Leeks, per bundle
Brussels Sprouts, half-sv., 2*s* to 4*s*	Garlic, per lb., 8*d* to
French Beans, per 100, 2*s* 6*d* to 3*s* 6*d*	Onions, per bunch, 3*d* to 4*d*
Sorrel, per half-sieve, 2*s* to 4*s*	— large, per bushel, 2*s* to 4*s* 6*d*
Jerusal. Artichok, per half-sv., 1*s* to 2*s*	— Spanish, per doz., 2*s* to 4*s*
Potatoes, per ton, 80*s* to 90*s*	Shallots, per lb., 6*d* to 10*d*
— cwt., 3*s* to 3*s* 6*d*	Lettuce, per score, 6*d* to 1*s*
— bushel, 1*s* 6*d* to 2*s* 6*d*	Celery, White, per bunch, 10*d* to 1*s* 6*d*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	— Red, per bunch, 3*d* to 2*s*
— Autumn, per lb., 3*d* to 6*d*	Endive, per score, 1*s* to 3*s* 6*d*
Turnips, per doz. bch., 3*s* to 5*s*	Mushrooms, per pottle, 8*d* to 1*s* 6*d*
Red Beet, per doz., 1*s* to 2*s*	Small Salads, per punnet, 2*d* to 6*d*
Carrots, per doz. bchs, 6*d* to 8*s*	Fennel, per bunch, 2*d* to 4*d*
Basil, per bunch, 2*d* to 3*d*	Watercresses, p. 12 sm. bun. 6*d* to 8*d*
Rhubarb, per bundle, 1*s* to 1*s* 6*d*	Parsley, per doz. bunches, 4*s* to 6*s*
Seakale, per punnet, 1*s* to 2*s* 6*d*	— Roots, per bundle, 9*d*
Asparagus, per bundle, 2*s* to 8*s.*	Tarragon, per bunch, 6*d*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*	Mint, per bunch, 6*d* to 8*d*
Savory, per bunch, 2*d* to 3*d*	Marjoram, per bunch, 2*d* to 3*d*
Cucumbers, per brace, 8*s* to 12*s*	Chervil, per punnet, 3*d* to 4*d*

MARK-LANE, Monday, Feb. 17.

The show of Wheat by land carriage samples from Essex this morning was rather larger than of late; that from Kent good; best selected qualities were disposed of at the prices of last week, but great difficulty was experienced in the sale of secondary and ordinary descriptions, of which the great bulk consisted, and remained unsold at a late hour. Foreign was in exceedingly limited demand, but we do not observe any alteration in its value. The supply of Barley was moderate, and late prices maintained. Beans and Peas remain unaltered. The Oat trade continues heavy, and sales at last week's prices were limited; in some instances a reduction of 6*d.* per quarter was submitted to. Canary Seed was a very dull sale at 45*s.* to 50*s.*

BRITISH, PER IMPERIAL QUARTER.

	s.	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	40 49	Red	42	47
— Norfolk, Lincolnshire, and Yorkshire	—	— —	White	—	—
Barley, Malting and distilling 28*s* to 33*s*	Chevalier	33 35	Grind.	24	27
Oats, Lincolnshire and Yorkshire	Potlands	20 24	Feed	19	22
— Northumberland and Scotch	Feed	20 23	Potato	21	24
— Irish	Feed	20 23	Potato	21	24
Malt, pale, ship		54 60			
— Hertford and Essex		58 65			
Rye		29 32			
Beans, Mazagan, old and new	29 to 33	Tick	33 35	Harrow	30 36
— Pigeon, Heligoland	37 to 40	Winds	— —	Longpod	— —
Peas, White	34 to 36	Maple	31 33	Grey	32

FRIDAY, Feb. 21.

The supplies of all Corn since Monday have been good, but business continues languid. Wheat, both English and Foreign, meets a slow limited demand, and barely supports its former value; offers of good Red Baltic continue to come forward at 25*s.* to 27*s.* for 61 at 62 lbs. qualities. In Barley, Beans, and Peas, there is no alteration. The Oat trade is flat, and Irish are in some instances sold on rather lower terms; a few sales of Swedish, 37 at 38 lbs. have been effected at 11*s.* 9*d.* to 12*s. f. o. b.* for spring shipment. In consequence of the belief that the alteration in the tariff will admit Tares free of duty, bonded were more inquired after this morning.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan.	11 per Quarter.	45s 10d	24s 5d	21s 7d	31s 4d	35s 9d	36s 0d
—	18 "	45 7	24 7	21 8	31 4	35 7	35 8
—	25 "	45 7	24 9	21 8	32 11	35 4	36 1
Feb.	1 "	45 5	23 10	21 8	33 8	35 4	35 4
—	8 "	45 5	23 0	21 6	30 1	35 1	35 7
—	15 "	45 4	22 3	21 7	29 6	35 0	35 0
6 weeks' Aggreg. Aver.		45 6	23 9	21 6	31 1	35 5	35 7
Duties on Foreign Grain		20 0	5 0	6 0	10 6	7 6	7 6

SEEDS, Feb. 21.

Canary	per qr	45s to 50s	Linseed Cakes, Foreign, p. ton	8*l* to 9*l* 10
Carraway	per cwt	44 50	Mustard, White - p. bush.	10*s* 14
Clover, Red, English	40 65	— Superfine "	18 16
— — Foreign	50 60	— Brown "	12 16
— White, English	50 80	Rapeseed, English, per last	23*l* 25*l*
— — Foreign	50 80	Rape Cakes - per ton	— —
Coriander	12 18	Saintoin	— —
Hempseed	per last	35 36	Tares, Eng. winter p. bush.	7 8
Linseed	per qr	— —	— Foreign -	5 7
— Baltic	— —	Trefoil - per cwt	— —
— Cakes, Eng. per 1000	12*l* 10	13*l*	Turnip (too variable for quotation).

Kingsford and Lay.

Sales by Auction

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors of the Mortgagee to submit to Public Competition on the premises, the KEY FIELD NURSERY, ST. ALBAN'S, Herts, on WEDNESDAY, 12th March, 1845, at Eleven o'clock (without the least reserve, the premises to be given up to the purchaser at Lady-day), the remaining varied Nursery Stock, consisting of Fruit and Forest Trees, Evergreens, American Plants, 2-year old Seedling Oak and Beech, Crab and Plum Stocks; also the Shop Fixtures and Fittings, Vegetable and Flower Seeds, Hand-glasses, and a few lots of Household Furniture. May be viewed prior to sale. Catalogues may be had on the premises; of Mr. A. A. Dorant, Auctioneer, &c., St. Alban's; of T. Jackson, Esq., 9, Marlborough-road, Kent-road; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition at the Auction Mart, Bartholomew-lane, on FRIDAY, 7th March, and TUESDAY, the 11th, 1845, at 12 o'clock, about 400 DOUBLE CAMELLIAS, from 3 to 4 feet, the whole beautifully furnished with bloom-buds. Also a choice assortment of Standard and Dwarf Roses; the newest varieties of Dahlias (in dry roots); American Plants, consisting of the best varieties of Azaleas, Rhododendrons, Kalmias, Andromedas, Ledums, Magnolias, &c.—May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1l. 15*s.* each. Commission allowed to agents.

These Dibbles may be obtained of Messrs. COTTAM and HALLEN, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter, to his address, inclosing a Post-office order for the amount.

RICHARD SMITH, Upper Hall, near Droitwich, Worcestershire.

IMPORTED ITALIAN RYE-GRASS.

J. AND C. WHALLEY beg to inform their Friends and the Trade that they are now landing, *ex* "Boxidar," a quantity of the above valuable Grass, to be had in original packages from the quay.

St. George's Crescent, Liverpool, February 22.

STUART'S GROVE NURSERY, FULHAM-ROAD, CHELSEA.

C. M. WESTMACOTT, SEEDSMAN, FLORIST, &c., respectfully begs leave to inform the Nobility and Gentry that he has opened the above establishment with almost every sort of SEED, STOVE, GREENHOUSE, and HARDY PLANTS. The Seeds are of the choicest kinds, and were saved with that care which would almost insure their vegetating: for these early orders are solicited, as many are scarce, and C. M. W. would wish to prevent disappointment. The collection of Plants will be found to contain the varieties most sought after: many showing for bloom, and others now flowering are kept for the express purpose of cutting for Bouquets, which may be had on the shortest notice. The Catalogue of Seeds or Plants may be had on application, post paid, and the greatest attention will be paid to those who may honour this Nursery with any order or visit.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches . . .	11*s.* 0*d.*	20 inches . . .	22*s.* 6*d.*
15 inches . . .	12 6	22 inches . . .	25 0
16 inches . . .	16 0	24 inches . . .	32 0
18 inches . . .	19 0		

Slate Works, Isleworth, Middlesex.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

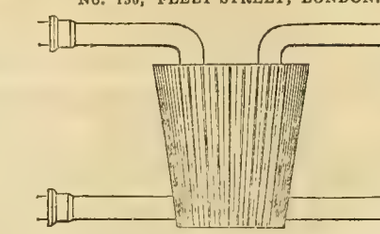
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE AND HEALY'S NEW BOILER and FURNACE for HORTICULTURAL PURPOSES.
Registered under 6 & 7 Vict., Cap. 65.
No. 130, FLEET STREET, LONDON.



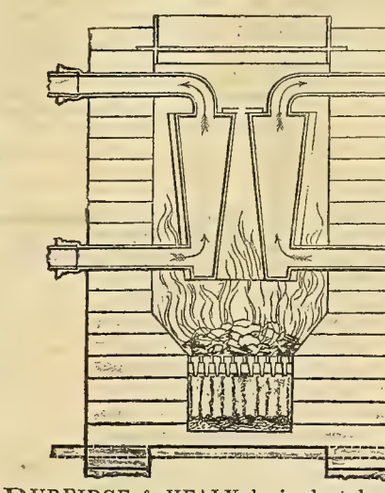
BURBIDGE and HEALY respectfully inform the Horticultural Public that they have constantly on hand an extensive assortment of their new Boiler and Furnace Doors. In very numerous cases where they have been fixed, they have the highest testimonials of their complete success: for the further assurance of those who may require this apparatus, BURBIDGE and HEALY refer them to the Horticultural Society's Gardens, Chiswick; also to Mr. GLENDINNING, Garden Architect, &c. &c., Chiswick Nursery, in the same neighbourhood, where the apparatus may be seen in successful operation, in connection with their new Tanks. The following are the present prices:—

Plain Boiler.		Patent Door and Frames.	Fire-bars & Dead Plate.	Flue Door.		Damper.		Will heat of Pipe.	Forcing Pit, Length by feet.
in.	£ *s.*	*s.*	*s.*	*d.*	*s.*	*d.*			
10	1 5	20	7	6	6	2	6	30 feet.	12 to 20
Ribbed Boiler.									
10	2 2	20	10	6	7	6	2 6	50 to 70 ft. 4 in.	Under 25 to 40
12	2 15	30	12	6	7	6	3 6	80 to 125 feet.	40 to 65
14	3 10	35	17	5	8	6	4 6	150 to 250 feet.	65 to 100
18	5 5	42	25	0	8	6	5 6	300 to 400 feet.	Warm a grapery 35ft. long, and a pit 50ft.
24	8 15	50	35	0	8	6	7 6	600 to 800 feet.	

If 3-inch pipe be used, one-third more. If 2-inch pipe, as much more.

The above quantities are rough estimates, which may be varied by enlarging or contracting the fire, or by regulating the fire door. It is possible to heat a much larger quantity of pipe with the boiler, but it would be done at great loss of fuel. The above proportions can be generally relied on as a near approximation to what is correct.

THE TANK SYSTEM.



BURBIDGE & HEALY, having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent works on the culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE & HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-st., London.

WIRE-WORK, HOT-WATER APPARATUS, GREEN-HOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

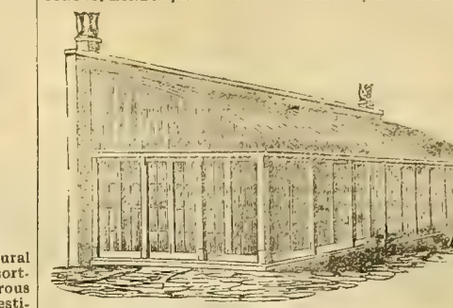
NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co., Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Feb. 22.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

COTTAM AND HALLEN, ENGINEERS, IRON-FOUNDERS, &c., &c., No. 2, WINSLEY-STREET, OXFORD-STREET, LONDON, and at CORNWALL ROAD, LAMBETH.



HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete in any part of the Kingdom, at very low prices.

HOT-WATER APPARATUS for heating Hothouses, Conservatories, and Greenhouses; Churches, Public or Private Buildings, &c., with COTTAM'S PATENT or ROGERS'S BOILERS. After 15 years' experience, and having fixed upwards of 2000 Apparatus for the above-mentioned purposes, and by various improvements which they have made during that time, C. and H. can with confidence undertake the erection of similar Apparatus upon the most extensive scale.

Materials may be had for those who wish to fix their own Apparatus.

THE TANK SYSTEM on an improved principle, that will heat the house at the same time, without pipes.

IRON HURDLES, best Wire for Strained Fencing, Ornamental Iron and Wire-work, Garden Chairs, &c. &c., and every description of Implement for AGRICULTURAL and HORTICULTURAL PURPOSES.

Show Rooms at their Manufactory, 2, Winsley street, Oxford-street, where a large assortment of the above can be seen.

GUANO for SALE, in Bags of 1 cwt. each, just landed, with a succession of cargoes to arrive.—Successive years' experience has unquestionably proved that Genuine Guano is the simplest, cheapest, and best Manure within the reach of the Agriculturist. The only reasonable anxiety which now remains is to procure the Guano unadulterated, and to obtain such practical directions for using the Manure as shall fully develop its productive powers. To secure to buyers these indispensable requisites, with each purchase will be given a warranted chemical analysis of quality, and also a copy of the recently-published Pamphlet, "Practical Instructions for using Guano as a Manure, illustrated by Practical Results."

Large parcels will be delivered direct from the ship or waterside premises; smaller quantities may be had at the warehouses, 24 and 25, Billiter-street, or delivered within any reasonable distance at a trifling additional cost. Apply to JAMES CLARK, 24, Billiter-street, Fenchurch-street, London.

GUANO (GENUINE PERUVIAN & BOLIVIAN, ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street, Feb. 22.

TO FARMERS AND MARKET GARDENERS.

GAS LIME MANURE.—This MANURE, recommended for Agricultural purposes by M. LIEBIG and Professor JOHNSTONE, may now be had, with printed directions for using it, at the Stations of the Gas Light and Coke Company, Horseferry-road, Westminster; and Brick-lane, Old-street, London.—Address to the Superintendent of either station.

POTTER'S GUANO.
REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.

Sold by all dealers in Manures.

POTTER'S LIQUID GUANO,
FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1*s.* 9*d.* per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OF LIME, 6*s.* 6*d.* per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25*s.* in quantity.

Manufactory, 28, Upper Fore-street, Lambeth.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 1*l.* per quarter, including sacks; warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

DRAINING OF LAND.—THE WORKMAN'S A LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30*s.*

PROTECTION AGAINST RAIN.—WATERPROOF CAPES, suitable for GARDENERS and others exposed to the weather, from 5*s.* 6*d.* to 25*s.* each, are made by J. GROSE, 94, Tooley-street, London, where also may be had his approved Patent Waterproof Coats, Trousers, Leggings, Driving Capes, Chaise Aprons, &c.

AGRICULTURAL SEEDS.

W. DRUMMOND AND SONS, SEEDSMEN, &c., of the Agricultural Museums, Stirling and Dublin, beg to announce that their priced LIST of AGRICULTURAL SEEDS may be had free, on application.

*** Separate Lists of Garden Seeds, Nursery Plants, and Farm Implements may also be had free.

Stirling, N.B., Feb. 1845.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

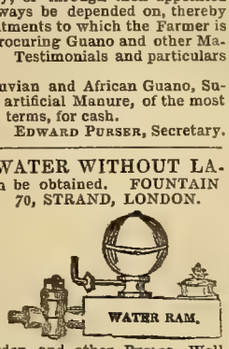
The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c. formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above article in iron which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. Heated by Hot Water.



IMPROVED ROOFING FELT.

McKIBBIN'S PATENT ROOFING FELT

Is particularly applicable as a Substitute for Slate, Zinc, Tiles, Thatch, and other articles used for Roofing, from its Economy, Durability, and Lightness. It is quite impervious to wet and damp, resists the heat of the sun, and is a non-conductor of heat or cold. Besides the economy in repairs, the timber where it is used may be so light as to save its whole expense. It requires no other coping, and by attention to printed directions may be applied by a common labourer. It is free from breakage and contraction, like zinc, and requires neither painting nor coating. It is now in very general use for Roofing Houses, Verandahs, Sheds, Workshops, Ropewalks, Railway Stations, Icehouses, &c. &c., and for protecting Plants, covering Garden Frames, Corn, and Hay Ricks, the top and sides of Sheep-folds; and to Emigrants it provides a cheap, warm, durable, and portable Roof.

This Improved Roofing Felt is much more durable than the common Felt, made in lengths, not being subject, like it or other materials in continuous lengths, to be stripped by storm; and being fastened down at the overlaps only, the wet cannot percolate through the nail-holes.

TESTIMONIAL.

London, Nov. 1, 1844.

H. C. BOWDEN, Esq., Agent for McKIBBIN'S Roofing Felt.

It is with much pleasure I add my humble testimony to the superiority of your Felt over any other preparation of the kind with which I am acquainted. This Testimony I give with the greater cheerfulness from the many reports I have heard in its favour, and from the likelihood of its being used extensively in Agricultural purposes. I shall not fail to notice it in my Lectures when on the subject.

(Signed) JOHN ROBINSON, M.B., Senior Lecturer on Chemistry, &c., as applied to Agriculture and Rural Economy in this Kingdom.

Sold in Sheets 32 inches by 20, at 5*d.* each (being less than 9*s.* 6*d.* per square of 100 feet).

Apply to H. C. BOWDEN,
Agent to the Manufacturers,
No. 18, East India Chambers, Leadenhall-street, London.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles, made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

THE BEST ENGLISH WATCHES. — A. B. SAVORY and SONS, Watchmakers, 9, Cornhill, London, opposite the Bank, request the attention of purchasers to their stock of London-made PATENT LEVER WATCHES, which are manufactured by themselves in their own house. In Silver cases, with the detached escapement and jewelled, the prices are four guineas and a half, six, and eight guineas each; or in gold cases, 10, 12, 14, and 16 guineas each. The very large stock offered for selection includes every description, enabling a customer to select that which is more particularly adapted to his own use.

WHITNEY'S PATENT CLOTH for COVERING GREENHOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street. — Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

LINGHAM, BROTHERS, BIRMINGHAM. — MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.

Sole Agents in London:—George and J. Dean, Horticultural implement Warehouse, 46, King William-street, London-bridge.

SUBSTITUTES FOR GLASS.

GERARD, ARNEY, AND CO.'S COMPOSITION for rendering Paper, Linen, Calico, and other suitable Fabrics transparent and waterproof, forming excellent Substitutes for Glass for Horticultural Purposes, &c., not being so liable to breakage, much warmer, admitting a softer light, and such a genial degree of heat, that the tenderest Plants and Seedlings never burn nor scorch under them; they will be found invaluable for Melons and Cucumbers, as also for making Awnings for covering Beds of Tulips, Hyacinths, Balsams, &c. Market Gardeners will find them invaluable for affording protection to Early Vegetables, Wall-fruits, &c.

PRICES, &c.—Composition in pints, 2*s.*; Quarts, 3*s.* 6*d.* Each pint, when diluted with turpentine, will make about a quart sufficiently fluid for use.

PREPARED TRANSPARENT WATERPROOF FABRICS.—Paper, 23 in. wide, 6*d.* per yard. Calico, 31 in. wide, 1*s.* per yard. Linen, 28 in. wide, 1*s.* 6*d.* per yard, in 6 yard lengths.

Every information, and Samples of the prepared Fabrics, may be had by application, and letter prepaid, to the Proprietors, at the Manufactory, High Hill Ferry, Upper Clapton, Middlesex.

For Agency Appointments apply as above.

WOLLASTON'S PATENT GELATINE, for immediately making Jellies or Blanc Mange, being quickly dissolved in boiling water. It is of equal strength with the finest Russian Isinglass, and perfectly free from any unpleasant taste of smell, being a pure, colourless, and soluble substance.—Manufactured by EDWARD L. WOLLASTON, Dover. Sold wholesale by Barclay and Sons, Farringdon-street; Edwards, 67, St. Paul's churchyard; Evans and Lescher, Bartholomew-close; Baiss and Co., 125, Lower Thames-street; Snelling, 30, Fenchurch-street; Futvoye and Mudge, 58, Smithfield; and by all respectable patent medicine Venders, Druggists, and Italian warehousemen, in packets at 1*s.*, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*

PATENT ELECTRO-PLATED AND GILT ARTICLES in every variety, at the Establishments of the Patentees, ELKINGTON & Co., West End—22, Regent-street, corner of Jermyn-street; City—15, Moorgate-street. The Patent Electro processes being extensively adopted under their licence, the Patentees beg to state that they confine their own Manufacture to goods of a superior and warranted quality only, which invariably bear their mark, "E. & Co.," under a crown. Old articles replated and gilt.

ELECTRO-PLATING AND GILDING.—OLD PLATED GOODS RESTORED and made equal to new by Messrs. ELKINGTON & Co.'s Patent Process. This process being carried on in London *only* by Messrs. ELKINGTON & Co., it is particularly requested that all goods may be forwarded direct to their establishments, 22, Regent-street (corner of Jermyn-street); or 45, Moorgate-street, City. New Goods plated upon White Metal in great variety. Books of Prices and Drawings sent to all parts of the Kingdom and abroad free.

VAUXHALL COMPOSITE CANDLES, 8½*d.* per lb. PRICE'S PATENT CANDLES, 10½*d.* per lb.

These are the London cash prices, but the Country ones vary with the distance from town.

Both sorts burn exactly as well as the finest wax, and are cheaper, allowing for the light, than Tallow Moulds.

Sold wholesale to the trade, by EDWARD PRICE & Co., Belmont, Vauxhall; PALMER & Co., Sutton-street, Clerkenwell; and WM. MARCHANT, 253, Regent-circus, Oxford-street.

Until these Candles become generally sold throughout the country, EDWARD PRICE & Co. will supply any private families unable to obtain them in their own neighbourhood, with a quantity not less than 5*l.* worth, direct from the factory. On a line being addressed to Belmont, Vauxhall, inclosing a Post-office Order for 5*l.*, (payable to Edward Price & Co., not to Edward Price, or Mr. Price), they will forward a box of the Vauxhall Composite, or of the others, or a mixed box, as may be directed, to that exact amount.

IMPORTANT INFORMATION.

DR. ROBERTS'S CELEBRATED MEDICINES. —The excellent OINTMENT called "THE POOR MAN'S FRIEND," is confidently recommended to the Public as an unfailing remedy for Wounds of every description, and is a specific for Eruptions that sometimes follow vaccination. Sold in pots at 1*s.* 1½*d.* and 2*s.* 9*d.* each.—Also his PILULÆ ANTISCROPHULÆ, confirmed by more than 40 years' successful experience as an invaluable remedy, and presents one of the best alteratives ever compounded for purifying the blood, and assisting Nature in all her operations. They are efficacious also in Rheumatism, and form a mild and superior family aperient, and may be taken at all times without confinement or change of diet. Sold in boxes at 1*s.* 1½*d.* and 2*s.* 9*d.* each. By the late Dr. ROBERTS'S will, Messrs. BEACH and BARNICOTT (who have been confidentially intrusted with the preparation of his medicines for many years past), are left joint proprietors of the "Poor Man's Friend" and "Pilulæ Antiscrophulæ," &c. with the exclusive right, power, and authority to prepare and vend the same. The utility of these Medicines is fully testified by thousands of persons who have been benefited by their aid.

Beware of Counterfeits.—No Medicines sold under the above names can possibly be genuine unless "BEACH and BARNICOTT, late Dr. ROBERTS, Bridport," is engraved and printed on the stamp affixed to each package. Sold wholesale by the Proprietors, BEACH and BARNICOTT, at their Dispensary, Bridport; by the London houses; and by most respectable Medicine Venders in the United Kingdom.

STOOPING of the SHOULDERS and CONTRACTION of the CHEST are entirely prevented, and gently and effectually removed in Youth, and Ladies and Gentlemen, by the occasional use of the PATENT ST. JAMES'S CHEST EXPANDER, which is light, simple, easily employed outwardly or invisibly, without bands beneath the arms, uncomfortable constraint, or impediment to exercise. Sent per post, by Mr. A. BINYON, 40, Tavistock-street, Strand, London, or full particulars on receiving a postage stamp.

CONSUMPTION.—AN EXTRAORDINARY CURE BY HOLLOWAY'S PILLS AND OINTMENT.—MARY GILMORE, aged 21, the daughter of Mr. Henry Gilmore, residing in Church-street, Shoreditch, was in the second stage of consumption, and considered past recovery, when, as a last resource, large quantities of Holloway's Ointment were rubbed twice a day into her chest and left side, which was imbibed into the lungs, and there stopped the ravages of this otherwise fatal disease as effectually as though the remedy had been applied to an ulcerated sore, palpable to the eye. The pills were taken as directed, and the young person was perfectly cured in three months. Sold by every medicine vendor, and at the establishment of PROFESSOR HOLLOWAY, 244, Strand, where advice may be had gratis.

PARR'S LIFE PILLS.—The extraordinary success of this Medicine is the wonder of the age; it has been tried by hundreds of thousands as an aperient, and has in every instance done good; it has never in the slightest degree impaired the most delicate constitution. Tens of thousands have testified that perseverance in the use of PARR'S LIFE PILLS will completely cure any disease, and are living witnesses of the benefit received from this invaluable medicine. Sheets of testimonials and the "Life and Times of Old Parr," may be had gratis of every respectable Medicine Vendor throughout the Kingdom.

Beware of spurious imitations of the above medicine. None are genuine unless the words "PARR'S LIFE PILLS" are in WHITE LETTERS ON A RED GROUND, engraved on the Government Stamp, pasted round each box; also the fac-simile of the signature of the Proprietors, "T. ROBERTS and Co.," London, on the directions.

Sold in boxes at 1*s.* 1½*d.*, 2*s.* 9*d.*, and family packets at 11*s.*, by Edwards, 67, St. Paul's; Barclay and Sons, Farringdon-street; Sutton and Co., Bow Church-yard, London: Mottershead and Co., Manchester; and J. and R. Raimes and Co., Edinburgh; and by all respectable Druggists and Patent Medicine Retailers throughout the Kingdom.—Directions are given with each box.

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HARRISON'S FLORICULTURAL CABINET was Published on February 1st by WHITTAKER and Co., Ave Maria Lane, London, and may be had of any Bookseller, price 6*d.*, containing 80 pages of Letter-press and Coloured Figures of Seven New Flowers, in Three Plates.

This day is published, Part I., price 4*s.*, of

THE CHEMISTRY OF VEGETABLE AND ANIMAL PHYSIOLOGY.

By Dr. G. T. MULDER, Professor of Chemistry in the University of Utrecht.

Translated from the Dutch, by Dr. P. F. H. FROMBERG, First Assistant in the Laboratory of the Agricultural Chemistry Association of Scotland.

With an Introduction and Notes, by JAMES F. W. JOHNSTON, F.R.SS. L. and E.

WILLIAM BLACKWOOD & SONS, Edinburgh and London.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 9.—1845.] SATURDAY, MARCH 1. [PRICE 6*d.*

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LIVERPOOL BOTANIC GARDEN. — HORTICULTURAL EXHIBITIONS FOR THE YEAR 1845.

PREMIUMS . 200 GUINEAS.

THURSDAY . . . . . MAY 22, 1845.
THURSDAY . . . . . JUNE 26
THURSDAY . . . . . JULY 24.

MARNOCK AND MANLEY'S CATALOGUE OF FLOWER-SEEDS is now ready, and may be had on application at the Nursery, Hackney, London.

S. GIRLING begs to refer the readers of the *Gardeners' Chronicle* to his Advertisement of DAHLIAS, PETUNIAS, FUCHSIAS, and VERBENAS of the 16th November.
Danecroft Nursery, Stowmarket, Suffolk.

ROSE-TREES AND NURSERY STOCK FOR SALE.

MR. HOOKER having resolved to discontinue the cultivation of Nursery Plants for Sale, after the present season, is desirous of disposing of his extensive Stock of ROSE TREES and other PLANTS, at LESS THAN HALF THE USUAL PRICES, with a view to clearing the grounds as soon as possible. Persons taking large quantities may have them on very advantageous terms.

Mr. HOOKER will supply ROSES at the following prices, provided the selection of sorts is entirely left to him. Standard Roses, 12 distinct vars., ticketed with their names, 15*s.* per doz.

Ditto, as above, without names, 12*s.* per dozen.

The China, Noisette, Bourbon, and the Thé and other Perpetual flowering Roses, are on stems from 18 inches to 2½ feet, at the same prices.

Dwarf Roses, on their own roots, 12 distinct varieties, with their names, 6*s.* per dozen.

Ditto, ditto, 12 varieties, 3*s.* per dozen, without names.

Ditto, ditto, per 100, 3 or 4 of each sort, without names, 16*s.*

Dwarf China, Noisette, Bourbon, and the Thé Roses, in pots, with names, 9*s.* per dozen.

Climbing Roses, in pots, named, 9*s.* per dozen.

STANDARD APPLE TREES, 50*s.* per 100; Dwarf do., 25*s.* per 100.

Large Ornamental Forest Trees, American Plants, Evergreen and Deciduous Shrubs, equally cheap in proportion.
Brenchley, Kent, Mar. 1, 1845.

LISIANTHUS RUSSELLIANUS.—Plants of this Splendid Flower, strong and healthy, at 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*, and 7*s.* per plant. Seed of the same at 2*s.* 6*d.*; also of the beautiful Lisianthus Nigricans, at 5*s.* per packet. Printed Directions will be included for growing the above.

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Best PICOTEE SEED, 5*s.* per packet. CALCEOLARIA ditto, 2*s.* 6*d.* per packet.

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STRAWBERRIES.—Plants of British Queen and Keen's Seedling in pots for forcing.

MELON and CUCUMBER Plants always ready; any or all of the Seeds sent post-free.

J. CUTHILL, Florist, Denmark-hill, Camberwell, London.

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H. SILVERLOCK begs to announce that he has about 12 good plants of each of the above to offer; they are in small 60 size pots, well established, and can be sent by post or otherwise to any part of the United Kingdom.

EMPEROR NICHOLAS is a free grower, with a fine truss of bloom, upper petals very dark, with distinct crimson edge; lower petals lighter crimson. This flower was awarded a prize at the July Exhibition of the Royal Botanic Society, in the Regent's Park, last July. Price 31*s.* 6*d.*

CHANCE is a bright scarlet, with black spot on the upper petals. Price 21*s.*

A coloured Lithograph of both, finely executed by Mr. Holden, of Greenwich, will be sent to applications inclosing 12 postage stamps, or free to purchasers.

H. S. has also to offer Six very fine SEEDLING HEARTSEASE, not yet sent out. Price 30*s.*—Nursery, Chichester, Mar. 1.

GARDEN POTS AND STANDS, Patent and others, in every variety, at HUNT'S Wholesale and Retail Depôt. White Biscuit-stone and Wedgwood ware, from 9*s.* to 7*l.* 10*s.* per doz., for Drawing Rooms, &c. Improved and Elegant Hyacinth Pots and Supports, from 1*s.* 6*d.* each.—29, Queen's-row, Pimlico, near the Palace.

WARNER AND WARNER, SEEDSMEN & FLORISTS, 28, CORNHILL, respectfully inform the Nobility and Gentry their NEW CATALOGUE, comprising all the choice new Flower and Vegetable Seeds is now ready, and can be had post-free upon application.

For particulars refer to "Harrison's Cabinet" for February and March.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY.



NORFOLK, 1845.

YOUELL AND Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state.

Packages containing 100 canes .	.	£2	0 0
Do. do. 50 do.	.	1	1 0
Do. do. 25 do.	.	0	12 0

THE NEW SUPERB SEEDLING PICOTEE,
"BURROUGHES'S DUKE OF NEWCASTLE."

YOUELL & Co. have much pleasure in announcing that they are sending out for the first time the above splendid light-edged purple Picotee, raised by the Rev. J. Burroughes. It is guaranteed to surpass any Purple Picotee that has yet been raised. Without commenting further upon its superiority, Y. and Co. beg to refer to the report in the *Gardeners' Chronicle* of August 10th, 1844, page 542, as follows:—

"The *Duke of Newcastle* is a flower of first-rate properties; it is a light-edged purple; the petals are large and of good form and substance; even on the edge; the colour unbroken; the pod good, and with less disposition to bar than is common." It obtained the first prize, as the best seedling, at the Norfolk and Norwich Horticultural Exhibition. Price 21*s.* per pair. The stock being limited, to prevent disappointment, early orders are respectfully requested. Y. and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee .	.	7*s.* 6*d.*
,, Lady Alice Peel, Rose Picotee	.	7 6
,, Miss Jane, Purple Picotee .	.	7 6
,, Mrs. Bevan, Red Picotee .	.	7 6
,, Enchantress, Scarlet Picotee	.	5 0

CARNATIONS AND PICOTEES.

Y. and Co.'s collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

12 pairs extra fine and very superior first-class Show Flowers .	.	.	.	£ 2	10 0
25 ditto	ditto	ditto		3	0 0
12 ditto	ditto	Show Flowers		1	10 0
25 ditto	ditto	ditto		3	0 0
12 pairs of extra fine Show Pinks .	.	.	.	0	12 0
25 ditto	ditto	ditto		1	1 0

The selection being left to Y. and Co.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety), for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL AND CO. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL AND CO. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL and Co.'s Advertisement of Jan. 11.

CEDRUS DEODARA, 3 *ft.* to 3 ft. 6 in., 10*s.* 6*d.* per plant.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s* 6*d.* and 5*s.* per packet.

Thirty packets of newest and best FLOWER-SEEDS, 6*s*, sent per post, free.

YOUELL AND CO.'S CATALOGUE of the newest and best
FUCHSIAS, VERBENAS, PETUNIAS, CHRYSANTHEMUMS, CINERARIAS,
and other highly-ornamental Plants, is published, and may be had on application, a full copy of which will appear shortly on the Advertising sheet of the *Gardeners' Chronicle*. It will form an acquisition to those who are desirous of ornamenting the Greenhouse, Conservatory, or Flower-Garden.

Great Yarmouth Nursery, March, 1, 1845.

SLOUGH NURSERY.—The Proprietor wishing to retire from business, offers the above first-rate and old-established concern on advantageous terms to any person or persons desirous of embarking in one of the best retail Nursery Seed and Floricultural trades in the kingdom.—Apply to THOMAS BROWN, at the Nursery, Slough, near Windsor; or in London, to J. LETTS, Esq., No. 8, Bartlett's-buildings, Holborn.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (late Hammond's), Surrey.

WOODLANDS NURSERY, Maresfield, near Uckfield, Sussex
VERBENA "HUDSONII."

WM. WOOD AND SON, having purchased the entire stock of the above magnificent VERBENA, raised by Mr. HUDSON, of Horstead, beg leave to offer it to their Friends and the public. Blooms were submitted to the inspection of Dr. LINDLEY, whose opinion will be found recorded in the *Gardeners' Chronicle* of 6th July, 1844, page 448, under the initials "W. W.—Hudsonii is a good variety, bright rosy purple, with a white eye, distinct in colour."

As a Verbena for Bedding it is unsurpassed, while the brilliancy of colour, bold truss, and fine habit of this truly superb variety has elicited admiration from several competent judges; it is therefore with the greatest confidence W. W. and S. offer it to the notice of Amateurs. Strong plants will be ready to send out in tin cases, per post or otherwise, the first week in April, at 3*s.* 6*d.* each, with the usual discount to the Trade when three or more are ordered at once.

WM. WOOD and SON are now issuing GRATIS a new and DESCRIPTIVE CATALOGUE of their extensive Collection of FUCHSIAS and VERBENAS, to which is added Lists of all the newest and best Cinerarias, Petunias, Anagallis, and other plants adapted for bedding; also miscellaneous Greenhouse and Hardy Herbaceous Plants, Shrubs, Climbers, &c.

Woodlands Nursery, March 1.

PLANTS ON SALE, by DICKSON AND TURNBULL, NURSERYMEN, BRECHIN, N.B., comprising—

LARCH, two years transplanted.
ELM, Scotch, from 2 to 5 feet.
OAK, English, from 1½ to 3½ feet.
POPLAR, Ontario, Black Italian, and Lombardy, from 3 to 6 feet.
PRIVET, Evergreen, 1 to 2 feet.
LAUREL, Common, twice transplanted.
,, Portugal, 1½ to 2 feet, twice transplanted.

Will be sold cheap, and put free on board ship at Montrose, from which port there are regular traders to London, Leith, Newcastle, &c.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had on application.—Slough Nursery, March 1.

THE ARBORETUMS, QUEEN'S ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, LANDSCAPE GARDENERS, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

JESSOP'S NURSERY, CHELTENHAM, Established in 1815, from its extensive connection offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Forresters, or Farm Bailiffs of established skill and reputation. All communications promptly attended to.

HURST & McMULLEN beg respectfully to inform their friends that their List of new and Choice VEGETABLE and FLOWER SEEDS for the present season, will appear in Harrison's "Floricultural Cabinet" for March, and will be found to contain an assortment well deserving the interest of the lovers of Horticulture. Catalogues of the above can be forwarded, by post, on application.

6, Leadenhall-street, March, 1, 1845.

MAJOR'S SPLENDID CALCEOLARIAS AND PANSIES.

H. MAJOR'S Descriptive List of New Seedling Shrubby CALCEOLARIAS, Seedling and other select PANSIES is now ready, and may be had on post-paid application. The Calceolarias will be ready to send out in May, with brief directions for their general management throughout the year. The Seedling Pansies, three in number, which are confidently recommended, will be ready by the middle of March, price 15*s.* the set. Also 12 of his best Seedling Calceolarias sent out last year, price, 25*s.* Select Pansy seed 2*s.* 6*d.* per packet.—Knosthorpe, near Leeds.

LAWN GRASSES, mixed for any description of soil, warranted to insure a fine sward, including Clovers, 14*s.* per bushel.

Mangold Wurzel, large long yellow	.	1*s.* 0*d.*	per lb.
Do. do. do. red	.	0 10	,,
Globe Yellow	.	1 0	,,
Do. red, very large	.	1 0	,,

Are each of carefully selected stock. Carriage paid to London.
JOHN RIVERS, Sawbridgeworth, Herts.

SELECTED GRASS SEEDS.

WARNER AND WARNER, SEEDSMEN, 28, CORNHILL, beg to inform the nobility and gentry they have on hand all the BEST GRASS SEEDS required for permanent pastures, consisting of Poas, Fescues, Crested Dogstail, Foxtail, &c. adapted for all soils. Upon application, the quantities required of any particular variety can be had with prices.

FIELD TURNIP, MANGOLD WURZEL, &c. of all the best varieties.

4, *Great Russell-street, Covent Garden, March* 1.

J. KERNAN

BEGS TO OFFER A SELECT LIST FROM HIS

GENERAL CATALOGUE OF VEGETABLE AND FLOWER SEEDS,

Which may be relied on with confidence as the most desirable for cultivation.

PEAS.	per qt.—*s.*	*d.*
Shilling's new Grotto Marrow, a most desirable sort, being as early as the Warwick, and having pods as large as the latest Marrow	2	6
Matchless Marrow	0	8
Knight's dwarf Green Marrow	1	0
Knight's tall do.	1	0
Thompson's Early Dwarf	1	6
Bedman's Improved Imperial	0	9
Groom's Superb Dwarf	1	0
Blue Scimetar	0	8
British Queen	2	6
New Green Marrow	0	8
Victoria Marrow	1	0

The above, if sown every succeeding 10 days, will keep up a constant succession during the season.

BEANS.	per qt.	
Early Mazagan	0	6
Sword Longpod	0	8
Taylor's Windsor	0	8
All the varieties of Dwarf French Beans	1	6
Johnson's Wonderful	0	8
Green Genoa	0	8
Dwarf Fan	0	9
Painted Lady and Scarlet Runners	1	6

	per oz.	
Beet, fine London Red,	0	6
Beet, Silver, or Seakale	0	6
Borecole, dwarf curled	0	6
Brussels' Sprouts (foreign seed, fine)	1	0
Kohl Rabli, per paper	0	6
Borecole, red and white, variegated, for garnishing (very beautiful)	0	6

BROCCOLI.	per oz.	
Myatt's Early Purple Cape	1	0
Miller's Dwarf	1	0
Chappell's Cream	1	0
Bowles's Sulphur	1	0
Somner's Late White	1	0
Grange's Early White,— from the original raiser	1	0
Invisible White	1	0
Purple Sprouting	1	0
Brimstone	1	0
Walcheren	1	6

CABBAGE.	per oz.	
Nonpareil	0	9
Shilling's new Queen, fine	2	6
Atkin's Matchless	1	0
Heart-shaped	0	6
Knight's Early Dwarf	1	0
Early York	0	6
Early Battersea	0	6
Large Drumhead — (for cattle), per lb.	1	6

And all other kinds in cultivation.

CARROT.	per oz.	
Early Scarlet Horn	0	6
Long Orange	0	4
Fine Surrey	0	4
Altringham	0	4
White (for Agriculture), per lb.	1	0

CAULIFLOWER.	per oz.	
Mercer's fine Pearly	1	0
London Particular	1	0
Large Asiatic	1	6
Walcheren	1	0
Fine late	1	0

CELERY.	per paper.	
Seymour's Superb White	0	6
New Rose, solid	0	6
Seymour's Superb Red, per packet	0	6
New Giant	0	6

CRESS.		
Curled per pint	1	0
American per oz.	0	3
Broad-leaved ,,	0	3
Water per paper	0	6

CUCUMBER. per packet.		
Acme of Perfection	1	0
Sion House	0	6
Weedon's Free-bearer	0	6
Early Frame	0	3
Kerrison's	1	0
Walker's Rambler	0	6
Windsor Prize	0	6
Early Handglass	0	3

MELONS.

Lord Montague, Scarlet-flesh
Sion House, Green-flesh
Cabul
Jones's Netted, Green-flesh
Egyptian, Green-flesh
Holland's Ne Plus Ultra
True Cassabar
Netted Cantaloupe
Black Rock
Hoosainee
Knight's Hybrid
Persian
Polignac
Silver-skinned Scarlet
Beechwood
Ispahan
Windsor Prize
Yarmouth Prize
Sir Gore Ouseley
Nutmeg
Wellington Cantaloupe
Mumford's Bath Hybrid
And all the other finest varieties cultivated for this unequalled market.

ENDIVE.		
New Imperial, per packet	0	6
Batavian ,,	0	6
Green Curled per oz.	0	6
White Curled ,,	0	6

LETTUCE.		
Brighton Cos per oz.	1	0
Imperial Cos ,,	1	0
Spotted or Tiger Cabbage (new), per packet	0	6
Artichoke-leaved, a fine new hardy sort	0	6
Fine London White Cos, per oz.	0	9
Drumhead	0	9
D'été Cabbage per pkt.	0	6
Bath Cos. per oz.	1	0

Onion, all the kinds, p. oz.	0	6
Parsley, extra curled, ,,	0	3

RADISH.		
New Scarlet Olive-shaped, a delicious new variety, per packet	0	6
New Rose per packet	0	6
Early Frame per pint	1	0
Long Scarlet ,,	1	0
Red & White Turnip ,,	1	0

SPINACH.		
New Flanders per pint	0	6
Round, or Summer ,,	0	6
Lettuce-leaved (new), per paper	0	6
New Zealand per oz.	0	6

TURNIPS.	per oz.	
Early Snowball	0	3
Teltow, for stewing	0	3
Early Dutch	0	3
Laing's and Skirving's Swede, with all the better kinds for field culture, per lb.	1	0

Furze, per lb., *1s.* 3*d.*; Broom, per lb., *1s.*

Coarse Grasses for Game Covers.

Long Red and Globe Mangold Wurzel, per lb., *1s.*

A fine Collection of all the best Permanent Grasses (hand-picked), separate or mixed; if mixed, per bushel, *10s.*

White and Red Clover, Lucerne, Trefoil, &c., per lb. or cwt.

A few of the very finest Grasses for Lawns, per lb., *1s.* 6*d.*

Ash-leaved and Early Frame Potatoes, per peck, *2s.*

Myatt's fine new Strawberries.

Asparagus plants, according to age, per 100, *2s.* 6*d.* to *5s.*

Seakale do. do. per 100, *5s.* to *10s.*

Dulley's Early Scarlet Admirable Rhubarb, per root, *1s.* 6*d.*

Myatt's Victoria do. (the largest in cultivation), *1s.* 6*d.*

Mushroom Spawn, per bushel, *5s.*

All the fine new Raspberries, *2s.* 6*d.* to *3s.* per dozen.

FLOWER SEEDS.

Asters, 20 distinct German varieties, in sealed packets, suitable for exhibition, the collection, *10s.*

A mixture, including all the colours of the above, per paper, *1s.*

Do., in 12 distinct colours, the collection, *5s.*

Superb German and Prussian Stocks, 25 distinct varieties, for exhibition, the collection, *10s.*

12 varieties of do., distinct in colours, *5s.*

12 autumn flowering do., in distinct colours, *6s.*

12 named varieties of Brompton Stocks, *6s.*

A mixture of all the finest varieties of Ten-week, per paper, *6d.*

A mixture of Brompton do., per packet, *6d.*

per packet—*s.*	*d.*	
Anagalis Phillipsii	0	6
,, Monelli major	0	6
,, Lilacina	0	6
,, superba grandiflora	0	6
,, indica	0	3
,, carnea	0	3
Anomatheca cruenta	0	6
Amethystea cœrulea	0	6
Anthemis arabicus (dwf. yellow)	0	3
Antirrhinum (all the new kinds)	0	3
Argemone grandiflora	0	3
,, Barclayana	0	3
,, speciosa	0	3
Aquilegia Skinnerii, new scarlet	1	0
,, glandulosa	1	0
,, canadensis	0	6
,, siberica	0	3
,, fine mixed German varieties	0	6
Abutilon striatum	0	6
Auricula, from fine named flowers	1	0
,, alpine	0	6
Brachycome iberidifolia	1	0
Balsams, 12 very fine distinct colours, all double	0	6
,, mixture of above	0	6
Blumenbachia insignis	0	6
Browalia, of sorts	0	6
Calceolarias, from a collection of named shrubby kinds	1	0
Calceolarias, from Herbaceous do.	1	0
Calceolaria pinnata	0	6
Calendrina discolor	0	3
,, grandiflora	0	3
Campanula pulcherrima	0	6
,, Loreii	0	6
,, capillaris	0	6
And many other sorts, fine, as a contrast with bedded out Verbenas, &c.		
Cistus guttatus, very dwf.	0	6
Clintonia pulchella	0	6
,, elegans	0	3
Cuphea viscosissima	0	6
,, silenoides	0	6
Cineraria, selected from 36 of the latest new kinds	1	0
Cosmanthus fimbriatus, new and fine annual	0	6
Commelina cœlestis	0	3
Carnation and Picotee, from named flowers	1	0
Cynoglossum, or Forget-me-not	0	6
Clarkias, all the varieties	0	3
Collinsia grandiflora	0	3

CLIMBERS.

Cobæa scandens	0	6
Calampelis scaber	0	6
Lophospermum erubescens	0	6
Loasa aurantiaca	0	6
Maurandya Barclayana	0	6
Tropæolum peregrine	0	6
,, pentaphyllum	0	6

per packet.—*s.*	*d.*	
Ipomœa rubra cærulea	0	6
,, punctata	0	6
,, rosea	0	6
,, striata, & others	0	6
Sycios angulata	0	6
Thunbergia alata	0	6
,, ,, alba	0	6
,, aurantiaca	0	6
,, Chrysops— new, per plant.		

Dahlia scabigera (dwarf lilac)	0	6
Delphinium or Larkspurs, distinct or mixed	0	3
Ditto, biennial and perennial varieties	0	3
Datura, all the varieties	0	3
Digitalis grandiflora	0	3
Dianthus, double white, Indian pink	0	6
Dianthus, Knight's new hybrid	0	6
Dianthus, double Indian	0	3
,, aggregatus	0	6
,, latifolia	0	3
,, alpina	0	3
,, Cherii	0	6
Didiscus cæruleus	0	6
Dahlia, fine mixed	0	6
Eucharidium grandiflora	1	0
Eutoca viscida	0	3
Egg plant, white	0	6
Eschscholtzia, 3 sorts	0	3
Erysimum Perofskianum	0	3
Echimenes, seeds and bulbs of all the varieties.		
Fuchsias of sorts.		
Forget-me-not	0	6
Galardia picta	0	6
,, bicolor	0	3
,, Richardsonii	0	3
Globe Amaranthus, of sorts	0	3
Gentianas, of sorts	0	6
Geum splendens	0	6
,, Wicei	0	6
Geranium, from fine sorts	1	0
Gloxinia speciosa	0	6
,, hybrida	0	6
,, rubra	0	6
,, Priestbyana	0	6
Grahamia aromatica	0	6
Godetia, all the new sorts	0	3
Heartsease, from first-rate prize flowers	1	0
Humea elegans	0	6
Heliotropium Peruvianum	0	6
Hibiscus Richardsonii	0	6
,, Humboldtii	0	6
Heliophila araboides	0	3
Helianthemum (Rock cistus), 6 varieties for rock-work	0	3
Do., all the vars., mixed	0	6
Hollyhocks, 20 German vars., mixed or separate	0	6
Ipomœas of sorts	0	6
Ipomopsis elegans	0	6
,, Berichii, new	1	0
Isotoma axillaris	0	6
Jacobæa, double crimson	0	3
,, ,, purple	0	3

per packet.—*s.*	*d.*	
Jacobæa, new lilac	0	6
Kaulfussia amelloides, for edging	0	3
Lantana Sellowii	0	6

HANDSOME ORNAMENTAL GRASSES.

Lagurus ovatus (Hare's Tail Grass	0	6
Agrostis pulchella	0	6
Briza gracilis	0	6
,, maxima	0	6
Stipa pinnata	0	6
Larkspurs, 12 distinct German vars.	5	0
,, Mixed dwarf		
Rocket	0	3
Leptosiphon densiflores	0	3
,, androsaceus	0	3
Loasas of sorts	0	3
Linum monogynum, fine	0	6
,, verticillatum	0	3
,, album	0	3
Lymnanthus grandiflora (new)	0	6
,, Douglasii	0	3
Lobelia heterophylla major, fine	0	6
,, bicolor	0	6
,, gracilis	0	3
,, ramosus	0	6
,, erinoides	0	3
Lobelia propinqua	0	6
And many other biennial and perennial varieties		
Litherium speciosa, new, fine	1	0
Lisianthus Russellianus, in plants (seed does not vegetate well)		
Lupinus lucidus	0	6
,, Hartwegii	0	3
,, nanus	0	3
,, Cruikshankii	0	3
,, Dicksonii & others	0	3
Lychnis speciosa, new	0	6
,, flos Jovis	0	3
,, cæli rosea	0	3
,, prostata	0	3
Malope grandiflora, and others	0	3
Marvel of Peru, 6 distinct colours	0	3
Marigolds, all the varieties	0	3
Mesembryanthemum tricolor	0	6
Mimosa sensitiva (Sensitive plant.)	0	6
Mimulus, from 12 distinct named varieties	1	0
Martynia fragrans	1	0
Myrtle, double flowering	0	6
Nasturtiums, all the sorts	0	3
Nemesia florabundus	0	6
Nemophila insignis major	0	3
,, discoidalis, new	0	1
,, Cramboides, & others	0	6
Neirembergia splendens	0	6
,, violacea	0	6
,, fine mixed	0	6
,, nyctaginiflora	0	3
Nolana atriplicifolia	0	3
,, paradoxa	0	3
Nuttalia grandiflora	1	0

Ornamental Trees and Shrubs of all descriptions.

Named Double Anemones, and Ranunculuses; Gladiolus ramosus, and florabundus; Tigridia pavonia, and conchiflora; with many other flowering Bulbs and Herbaceous Plants, which may be planted out till the middle of May.

Carnations, Picotees, and Pinks, per pair, from *1s.* to *3s.* 6*d.*

All the better named Heartsease from *6s.* to *30s.* per doz.

Standard, Dwarf, and climbing Roses, *1s.* to *2s.* 6*d.* each.

Rivers's Catalogue of Fruits, with directions for culture by root-pruning.

Rivers's new edition of the "Rose Amateurs' Guide," *6s.*

Paxton's "Cottagers' Calendar," 3*d.*, which ladies and gentlemen should distribute to cottagers.

Seeds for distribution to cottagers, at cost prices.

Potter's Concentrated Essence of Guano, per qt. bottle. *1s.* 9*d.*

A Selection of Seeds best adapted for Ward's Cases may be had on application.

Seeds selected and carefully packed for all climates.

Where a Post-office order accompanies an order for any of the above named seeds, J. KERNAN will allow, as discount, additional articles to the amount of *2s.* in the pound.

per packet.—*s.*	*d.*	
Œnothera Sellowii	0	6
,, Drummondii	0	6
,, Hartmania	0	6
,, densiflores	0	6
,, and others	0	3
Papaver Marcelii	0	6
,, 16 new Prussian varieties, very showy for borders	5	0
Peas, sweet, all the colours separate or mixed	0	3
Phlox Drummondii, various shades	0	6
Phlox, new, scarlet	1	0
Picotee, from named flowers	1	0
Platystemon californica	0	3
Potentilla Garneriana	1	0
,, Russellianus	0	6
,, insignis, fine, new	1	0
Polyanthus, fine, mixed	0	6
Portulacca splendens	0	6
,, Thellusonii	0	6
,, grandiflora	0	6
Primula sinensis (white fringed)	1	0
Primula lilac	1	0
,, cortusoides	0	6
Rhodanthe Manglesii	0	6
Rhododendron ferrugineum	0	6
Rhododendron hirsutum, (for dwarf edging.)	0	6
Rhododendron, fine mixed varieties	1	0
Schizanthus Hookerii	0	6
,, Grahamii	0	6
,, humilis & others	0	3
Schizopetalon Walkerii	0	6
Sphænogyne speciosa	0	3
Streptocarpus Rexii	0	6
Silene speciosa (new)	1	0
Stocks, Buck's Intermediate, 16 out of 20 certain to come double	0	6
Stocks, Chapman's Scarlet, 10-week	0	3
Stocks, Shepherd's White and Purple	0	3
Sedum cærulea, for rock-work	0	6
Sultan, yellow	0	3
,, white and purple	0	3
Thunbergia (see Climbers.)		
Tigridia pavonia	0	6
Tournefortia heletropioides	0	6
Tropæolum tricolorum	0	6
,, pentaphyllum	0	6
,, peregrine	0	6
,, trimaculatum, new	1	0
Tropæolum Shillingii	0	3
Viscaria oculata	0	6
Violet, Russian, (everflowering)	0	6
Verbena, a mixture of six best sorts	0	6
Wahlenbergia grandiflora	0	6
,, capillaris	0	6
Wallflower, blood red	0	3
,, Double German, of sorts	1	0
Wallflower, changeable	0	6
Zinnia, elegans coccinea	0	3
,, purpurea	0	6
,, mixed, from 20 separate varieties	0	6

It may be questioned why I place some Annuals in my present List, under the signification "*hardy*," heretofore considered and placed in other Catalogues under the heading "*half hardy*." I do so from practical observation, seeing those I have so removed to "*hardy*," and treated as such, blooming in much greater perfection than when raised in a hot frame and afterwards transplanted. One plant raised in the open border will generally grow to six times the size of one raised in heat and transplanted. In sowing Annuals that are rather tender in the open border, if the soil be not light and sandy, give a top-dressing of pit sand and rotten manure; smooth this well with the rake, then draw very shallow drills from half an inch to one inch in depth, regulated by the size of the seed; sow and cover in.

Old meadow turf, which will take a considerable time to decompose and charr by the regular or natural means, I have found can be produced by the following simple and short process:—Place four bricks, raised two on two, about 3 feet distant from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine, and allowing your turf to remain until charred, it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot plants of all sorts. If the vermin or the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better) make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other until October.

It is unnecessary to direct attention to the greatly-increased facilities for cultivating the more delicate exotics and the finer fruits, afforded to all classes by the abolition of the Glass Duty.

FRUITS and FLOWERS, which have hitherto been only within the compass of those in easy circumstances, may now be enjoyed by all; and no doubt, as invariably happens, the taste for them will be diffused with the power of possessing them. Advantageous as is the abolition to all classes, it is perhaps more so to none than to the Practical Florist and Horticulturist. The fault will now rest with themselves, if they do not in a great measure find a recompense for the injuries they have sustained by the reduction of duties on Foreign Fruits, as Fruit may now be brought into the Market earlier than they can be ripened, even by the suns of France and Spain.

Indeed, in consequence of the very low price at which Glass will be sold, even the humblest Cotter will be able to procure the hitherto untasted delicacy of fine fruit for his table, the appreciation of which by his friends will add a stimulus, finding it thus enhanced.

J. KERNAN.

HOME-GROWN SEEDS.—In calling attention to the Collections of Seeds Advertised in the 4th page of the *Gardeners' Chronicle* of Dec. 14th, Messrs. SUTTON AND SONS beg to add that they have the privilege of referring to Gardeners and Gentlemen residing at the under-mentioned places, who have in past years availed themselves of this advantageous mode of procuring NEW GARDEN SEEDS of best sorts, and have expressed themselves in the highest degree pleased with the crops:—Glasgow, Aberdeen, Perth, Edinburgh, Castle Douglas, Hull, Newcastle, York, Bristol, Plymouth, Dover, Isle of Wight, Portsmouth, Brighton, Oxford, Cirencester, Newport, Monmouth, Ludlow, Wolverhampton, Gloucester, Margate, Woolwich, Harlow, Carlisle, Carmarthen, Cardigan, and many others.

		£	s.	
Full Collection, for large Establishment	.	3	3	s.
Ditto second-rate Establishment	.	2	2	
Ditto third-rate Establishment	.	1	1	

N.B.—Delivered free to any railway or packet-office in London, or to any station of the Great Western Railway between London and Bristol inclusive. (See Adv. Dec. 14th.) Further particulars by post if required.—Reading, Berks, March 1.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

	£	s.	d.
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures . per 100—10s. 6d. to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named .	2	10	0
Superfine Mixtures . . . per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named .	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto .	2	10	0
25 pair of PICOTEES, in 25 ditto ditto .	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto .	3	10	0
Good kinds . . per doz., from 12s to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	3	6
,, ,, PUNCTATUM . ,, .	0	7	6
,, SPECIOSUM, (true) . . . ,, .	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Mar. 1. Foreign Orders executed.

CINERARIA—"GEM."

T. AND J. BACKHOUSE, NURSERYMEN, &c., YORK, have pleasure in offering to the public the above new and beautiful variety. It was submitted to the judgment of Dr. LINDLEY, who gave the following character:—"Your seedling, rich purple, with black eye, is a *fine* and *handsome* variety."—See *Gardeners' Chronicle* for 1844, page 280.

The striking colour, broad petal, and large heads of blossom of this seedling, have attracted the admiration of those who have seen it, and it had a prize awarded at the exhibition of the York Horticultural Society.

Good plants are now ready to be sent out per post, or otherwise, at 5s. each.

T. and J. B. can also supply good plants of—

	each s.	d.		each s.	d.
Thunbergia chrysops,	3	6	Buddlea Lindleyana	2	6
Achimenes picta	2	6	Lisianthus nigrescens 2s 6d to 5s		
Statice Reinwardtii	3	6	,, Russellianus 2s 6d to 5s		

Acacia rotundifolia (a fine bloomer), 3s. 6d. new species, and a profuse

The Gardeners' Chronicle.

SATURDAY, MARCH 1, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY,	Mar. 3	Entomological . : . .	8 P.M.
TUESDAY,	Mar. 4	Horticultural . . . :	3 P.M.
		Linnean	8 P.M.
WEDNESDAY	Mar. 5	Society of Arts. . . .	8 P.M.
FRIDAY,	Mar. 7	Botanical	8 P.M.
SATURDAY,	Mar. 8	Royal Botanic	4 P.M.

THE admirable SPECIMENS OF PLANTS now grown in the neighbourhood of London, and exhibited at the meetings of the Horticultural Society, have introduced a style of gardening so different from that common in greenhouses but 20 years ago, that persons only accustomed to modern gardening would hardly believe it possible that exotics should ever have been as badly grown as they once were. Wherever we now go, the plants in glasshouses have all the health and often all the vigour of those in the open ground, and a stunted half-starved collection of greenhouse plants is held to be as discreditable as a stunted half-starved shrubbery. So universal, indeed, is good gardening in glasshouses now become, that the difficulty is to find an example of the contrary. There is indeed but one near London to which we could point as a specimen of old-fashioned unskilfulness flourishing with all its original vigour.

What are the causes of this? Of what appliances, which to their predecessors were unknown, do our gardeners now make use? This is one of the most important considerations which can possibly engage attention. For if we can but ascertain the precise line that improvement has already taken, we shall have no difficulty in deciding how to carry it to its utmost limits.

Some may think that chemistry has done it—that new-fashioned manures, salts and acids, nitrates, sulphates and phosphates, bones and charcoal, potash, soda, and ammonia are at the bottom of the mystery. Let us not deceive ourselves. They have nothing to do with it; that is to say, however useful they may be, all that has been done would have happened if they had never been heard of. Guano is a very good thing, and so is charcoal; but home-made manure is, as we have uniformly maintained, quite as good, and in some respects better. But of that another time.

Then it is the potting? To this we answer yes—in part. There can be no doubt that the skill now applied to that most important operation has wrought its full share of good. The knowledge of vegetable physiology which every gardener who would not be set down for a blockhead now possesses, has taught the imperfection of old-fashioned careless potting, and led to ounder views. Even those who cannot enter upon the philosophy of the thing are able to profit by the directions of those who can; and the reiterated and amply detailed advice of the writers of the Calendar—of such men as Mr. AYRES, Mr. W. BARNES, Mr. WOOD, and last, not least, of our new correspondents, "DURO" and "ISAAC TOMKINS," two of the best practical gardeners in the country, have shown so clearly how such work should be done, that if they will but persevere in their excellent lessons, there will not be, in a twelvemonth, an ill-potted plant in a weaver's window in Lancashire. Potting, then, is, we again admit, a most essential point, and one which has had its share in producing the extraordinary revolution in greenhouse gardening which we all have witnessed. But potting can only claim a part of the merit.

It is the good management of the atmosphere of glasshouses that has, more than any other thing, changed the aspect of the plants within them. It is to the careful and diligent application, by clever practical men, of the principles explained in the year 1824* by Professor DANIELL, that we mainly owe our superiority to our predecessors. At the time when that important document was printed there was not one gardener in a hundred who remembered that the atmosphere contained any water at all; not one in a thousand who was aware that the quantity floating in it could be actually measured, and read off, like temperature by a thermometer scale; not one in ten thousand who considered that the healthiness of a plant depended essentially upon the relative amounts of atmospheric moisture, light, and temperature, and the peculiar condition of the plant exposed to them. If plants were flagging, the roots were watered; if some very particular cause appeared to call for it they were syringed; and that was all. We are old enough to remember the surprise that was felt at the results obtained when the practice of steaming plants was first resorted to. The opinion then was that it was the *warmth* of the vapour that produced so beneficial an effect.

But Mr. DANIELL taught the gardening world that the amount of moisture permanently surrounding plants is of the very first importance. He showed them the folly of hoping to keep in health a tropical vegetation naturally accustomed to an atmosphere almost saturated with moisture, by surrounding it with air not holding in suspension half that amount of water. He pointed out the impossibility of obtaining a command of atmospheric moisture by watering the roots; he showed, by the unquestionable evidence of the hygrometer, that what was in those days called a moist air was in truth a very dry one; that our feelings are not to be depended upon in such a matter; and that hygrometrical instruments alone could determine whether the climate provided for plants was suitable or unsuitable to the plants exposed to it.

In those days, when the hygrometer was first brought into use, what was called a damp atmosphere was frequently seen to indicate a degree of moisture falling short of 500, saturation being represented by 1000; and it was found that 120 was not uncommon—a state of things sufficient to impair the vitality of the most vigorous vegetation. These important statements brought into use the practice of abstaining from root-watering and the deluging of pathways, walls, and other evaporating surfaces. To this succeeded evaporating-pans; and lastly, the tank system has been brought into action: each step being in advance of its predecessor.

Besides the circumstances now mentioned, a number of minor questions were discussed by Mr. DANIELL in the paper already referred to. Gardeners of quick apprehension immediately began to act in accordance with the philosophical views therein enunciated; the more ignorant and dull-witted copied them; and thus, by degrees, with the aid of 20 years' experimenting, the English art of managing artificial climate has been established. For that we are indebted to Mr. DANIELL; and we strongly advise all who have the means, to study his paper with much diligence. They will still find it a storehouse of valuable facts and still more valuable suggestions, one of which, as yet but little acted on, we shall take an early opportunity of pressing upon public consideration.

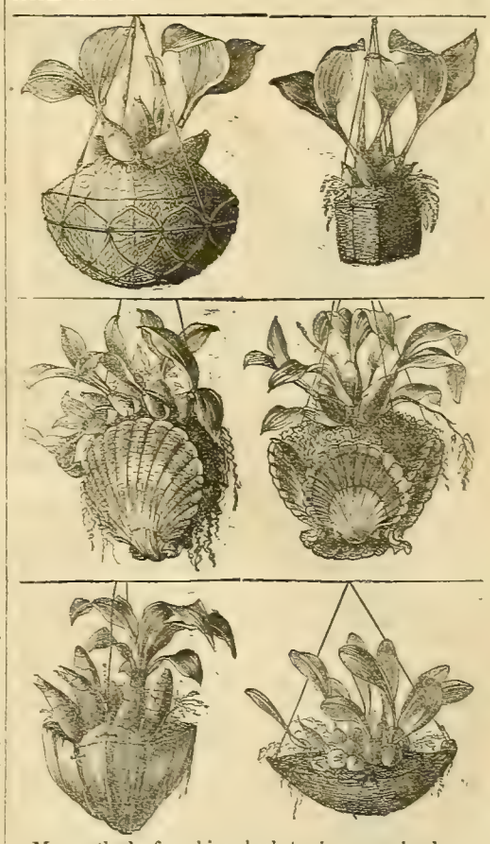
* On Climate, considered with regard to Horticulture; in the "Transactions of the Horticultural Society," vol. vi. p. 1.

ORCHIDACEÆ.

No. IV. *Compost.*—The compost I have used for four years, and in which the plants grow well, is as follows:—One-third turfy peat, roughly broken into pieces of different sizes, the largest about the size of hen-eggs; one-third chopped pieces of Poplar or Willow wood, about the size of garden Beans; and one-third chopped Sphagnum, well mixed together. For the terrestrial species I add one-eighth of coarse white sand; for Cyrtopodiums I add some turfy loam, chopped roughly, some rotten dung, and a few broken bones.

Draining.—All the species require a good drainage; to effect which, in the larger pots, I invert a small one over the hole, and fill up with broken potsherds, slightly covering the small pots. For Cattleyas, Lælias, &c., I use more potsherds, filling the pots nearly half full. I pot generally as soon as new shoots are perceived. As in most cases they will have been a long time without water, the old soil will have become dry and hard; and, as I prefer, where it is possible, to shake it off, I find it necessary to give two or three good waterings some days previously, which soften the lumps of peat, and allow them to part from the roots without breaking them. Some of the free-rooting species will be found with their roots strongly adhering to the sides of the pots. To get them off with as little injury as possible, I use a thin-bladed knife, something like a glazier's putty knife, only that it is three times as long in the blade. This knife is carefully inserted between the roots and the pots, until they are sufficiently loosened to allow the balls and roots to be turned out of the pots; a small portion of the compost is put over the drainage; the plants are held in the pots a little above the rims, and the compost is shaken by the hand amongst the roots, and the plants are finally left above the pots in the centre; but a little hollow is left round the rim, to prevent the compost being washed off by watering. As soon as the potting is finished, the plants are tied up neatly, and when they require it, a gentle watering is given over the compost, but not over the foliage. The reasons for hanging some sorts up are either because they have pendent branches or flowers, or because, being from open glades or from rocks, they require more light than others.

Baskets.—The following are such as Mr. Paxton has recommended:—



My method of making baskets is very simple:—I procure some branches of Oak or Hazel, of different thicknesses, and saw them into such lengths as are suitable for the size of the basket intended to be made. Each piece is bored through with a red-hot iron pin at each end. I use the iron pin to prevent the branches splitting, which they would be apt to do if bored with a gimlet. Four pieces of copper wire are then cut, of equal lengths; one end of each is drawn through the opposite holes of four pieces of wood, so placed as to form a square, two of the pieces being laid upon the other two. The wires are twisted up at the ends underneath, in order to prevent them from slipping through the holes upwards. Other pieces of wood are then put on the wires at each side of the basket alternately, till the latter is of a sufficient depth to hold the plants intended for them. The bottom is formed by putting in between the bottom pieces a sufficient number of similar branches, to hold in the material in which the plants are grown: 1 inch between each will, in most cases, be sufficient. The pieces of wire are then brought together, so as to form the handle of the basket, and are either twisted together with a pair of pliers, or each end is put through the holes of a small brass cup with four holes, and a moveable eyelet to hang it up by upon a hooked piece of strong wire. Each end is twisted back, to prevent it from slipping; the basket is then ready for use. When a plant requires renewal, I line the basket with Sphagnum, to prevent the

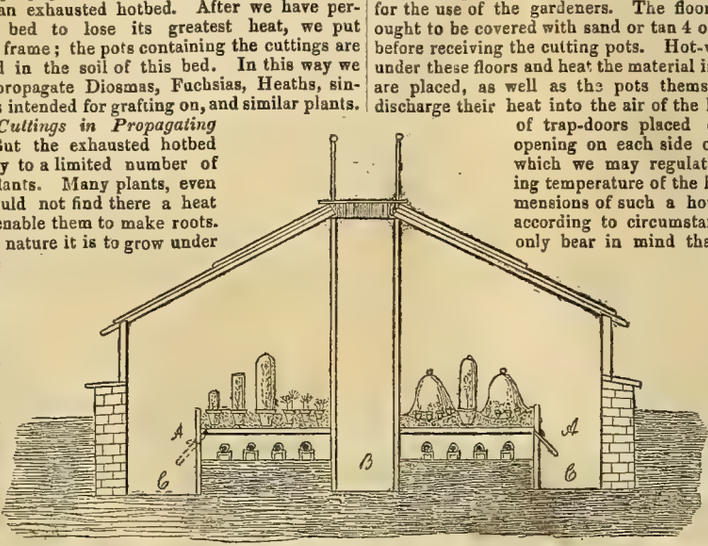
compost falling through the interstices; a proper quantity of compost is then put upon the Moss, the plant is placed upon it, so that the top of the old ball or roots may be level with the edge of the basket, which is then filled up with compost. A little water is given, and the plant is then hung up to the roof in its place. Copper-wire baskets are expensive, but on account of their durability, compared with wooden ones, they are to be preferred. To lessen their cost, I have had made models of wood, in the form of the intended baskets; on these models the wire is stretched in grooves cut in the wood, and is tied together with small wire. The model is formed out of a block, something like an Apple cut in two; it is again divided transversely, and a thin sloping piece is cut off one side of one of the sections; the two pieces are then joined together again, by an iron pin of sufficient length to go through both sides, and is fastened at the end by a screw and nut. Two wedges (one on each side) keep the two sections about ¼ inch asunder. When the basket is made, the wedges are knocked out, the pin drawn out, and the two sides come together, which allows the basket to be easily moved off the model; any little inaccuracies on them adjusted, the three wires to form the handle to hang it by are affixed, and it is ready for use. The making of those baskets forms a job for men on wet days. A basket, 1 foot in diameter and 5 inches in depth, can be made in an hour. I follow the same method in placing the plants in the wire baskets as the wooden ones, with the exception of the genus Stanhopea, the plants composing which are raised considerably above the rim. I may mention that the meshes of those baskets are about 1½ inch in width. If they were wider, the compost would fall through; and if they were closer, the flower-stems of Stanhopeas would not have so free an egress.

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. IV. *Cuttings upon exhausted Hotbeds.* — There are some plants which cannot be multiplied effectually in the open ground, and which require a mild and uniform heat, in a still atmosphere, liking, however, a little light, which should be given them night and morning. The temperature which suits such plants when under propagation, is that which is found under the glass of an exhausted hotbed. After we have permitted this bed to lose its greatest heat, we put over it a low frame; the pots containing the cuttings are then plunged in the soil of this bed. In this way we successfully propagate Diosmas, Fuchsias, Heaths, single Camellias intended for grafting on, and similar plants.

No. V. *Cuttings in Propagating Houses.* — But the exhausted hotbed is suited only to a limited number of species of plants. Many plants, even Oranges, would not find there a heat sufficient to enable them to make roots. Plants whose nature it is to grow under the influence of a high temperature, are struck in propagating houses built on purpose, in which an equal temperature is maintained day and night This indispensable condition, which has always been an object of great care among gardeners, has now become much more easy to fulfil, in consequence of the use of hot-water pipes. The flooring of the frame under which the hot-water pipes pass, is covered to the depth of 4 or 6 inches with sand or tan; the pots for cuttings, which are plunged in it, are subjected to a heat of from 30° to 35° Cent. (87° to 98° Fahr.), for cuttings of such plants as, from the difficulty of striking them, require a high temperature, as for example Xanthochymus, Myristica, Guayacum, Diospyros, Mangifera, &c. Annexed is the section of a glass-house for propagation, such as I should recommend for striking cuttings in. Two pits, AA, are placed on each side of the principal walk B; CC are two walks all round, for the use of the gardeners. The flooring of the pits ought to be covered with sand or tan 4 or 6 inches thick, before receiving the cutting pots. Hot-water pipes pass under these floors and heat the material in which the pots are placed, as well as the pots themselves, and then discharge their heat into the air of the house by means of trap-doors placed on hinges, and opening on each side of the pits; by which we may regulate the surrounding temperature of the house. The dimensions of such a house would vary according to circumstances; we must only bear in mind that the cuttings ought to be as near the glass of the house as possible. The plan of this house, as here figured, represents an interior 4 yards wide, of which 1½ yard is employed for the walks; but if the house to be constructed is to be narrower—3 yards wide, for example—a single walk in the middle might be managed. In a well-constructed propagating house we may strike cuttings all the year round.



[*To be continued.*]

THE MONSTER CACTUS AT KEW.

THE 4th of January No. of the *Illustrated London News* contained a figure and short description of a gigantic Cactus that had been presented, with many others, to the Royal Gardens of Kew, where it has been the admiration of all visitors, by Frederick Staines, Esq., of San Luis, Potosi. It has been named, in compliment to that liberal and public-spirited gentleman, Cactus (*Echinocactus*) Stainesii. Mr. Staines has more recently—together with a great number of other rare and valuable species, and some too of considerable size—sent one that throws his former noble present completely into the background, and which we must, *par excellence*, call the Monster Cactus, or *Viznaga* (its native name). Such is its striking appearance, that an eminent nurseryman expressed his conviction that, if exhibited in the Egyptian Hall, Piccadilly, some hundreds of pounds might be realised by it. Thanks to Mr. Staines, and to the liberality of our Government, this astonishing vegetable production may be now viewed, gratis, amidst a great assemblage of kindred Cactuses, and in a temperature perfectly congenial to them.

Before giving an idea of the size and weight of the *Viznaga*, the readers of the *Gardeners' Chronicle* may feel interested in knowing something of the difficulties that have attended the procuring these huge specimens of the Cactus tribe, and how much the man of science and the public generally are indebted to Mr. Staines for his great exertions, by which this country has come into possession of such curiosities; and this is best told in that gentleman's own words, contained in a letter dated Aug. 20, 1844:—"I have the honour," he writes to the Director of the Royal Gardens at Kew, "to acknowledge the receipt of your valued communication of April last, for which please to accept my thanks, and permit me to say how highly I feel gratified by its contents, which, I fear, are more due to your kindness than to my own merits. You may, however, be assured that I feel more than ever anxious of forwarding your wishes for the cause of science, and shall continue to send you such plants as you may indicate as most desirable. Now that we have been successful in getting the Pink-spined Cactus (*Echinocactus Stainesii*) in safety to England, I am increasingly solicitous to despatch one of the *Monsters* which I mentioned before. But it cannot be *that Monster* which I have so long kept in my possession here, always hoping to send him to Kew; for, I regret to say, the individual in question began to decline near the root last month, probably on account of the great weight, and not being put sufficiently deep into the ground. I much lament this circumstance, after all the labour incurred in bringing it hither. I mean, however, to have another deposited in a strong box, sending the box first to the mountain where the Monsters grow, and placing it on the springs of a carriage which I shall despatch for that purpose, and so forward it to Vera Cruz. My Monster friend cannot travel any other way, from his stupendous size and immense ponderosity, which cannot be adequately calculated for here, where the largest machine for the purpose of conveying weights does not pass 16 arrobes, or 400 lbs. And this enormous plant will require 20 men at least to place it upon the vehicle, with the aid of such levers as our Indians can invent upon the occasion. Should this huge specimen reach Kew, what must be your admiration on seeing it, when you express such delight at receiving the former one! This Cactus grows in the deep ravines of our loftiest mountains, amongst huge stones; the finest plants are inaccessible to wheeled vehicles, and even on horseback it is difficult to reach them. Still I shall use my utmost endeavours to get at a large one, and shall cause the Palm mats (not *Agave*, which are stouter—but such as I sent before,) to be sewed most carefully round his huge and thorny circumference, before applying to his roots the crowbars destined to wrench him from his resting-place of unknown centuries. He will have to travel 300 leagues, and happy shall I be if I hear that the carriage has not broken down between this city and Mexico, through which capital he must pass on his way to Vera Cruz. These monsters are of a dark-green colour, with formidable black spines, 3 inches long. I never expected that the specimen which I had here would give way; but I had observed, some while ago, its change of colour towards the root, becoming first yellowish, then orange, and latterly nearly black, and the injury extending almost 2 feet upwards; when I caused it to be propped on one side with a hand-barrow used for lifting barrels of Orange-trees. Finding that the decay proceeded, so as to make it unfit for sending to you, I caused it to be cut up and carried away on the 31st ult. There are two or three about the same size, and the oldest servant on the Hacienda, remembers them from childhood, and states that they have undergone no alteration. I am sorry to hear that the three Cacti, which travelled in the same box with the large one, were spoiled; though I think we got off cheap with so little damage. I sent yesterday an order that, in a month from this time, enough of Cacti should be ready to pack about 4 bales, and I have directed that they are to be as different as possible from those formerly transmitted. Especially I have charged, that six of the same kind as were destroyed, and which you sketched in your letter, should be packed separately, and when they arrive here in the baskets, I will see to their being put up in such a manner as to secure them, I hope, from injury."

On the 20th Oct., Mr. Staines writes, "The *Monster* would, ere this time, have been on the road to Vera Cruz; but, on sending for it, the answer was returned that it measured 2 *varas* in length (the *vara* is a trifle less than 1 English yard), and, as my descriptions had led you to expect one of larger size, I was concerned to find that the individual in question could not come up to your expectations, and therefore felt myself bound to send far and wide, till I could meet with one of equal size to what I had led you to look for. Fortunately I have succeeded in my quest, and hope to have the pleasure, ere closing this letter, of communicating its safe arrival here, for the specimen has been already seven days on the road to this place, in a large, clumsy, 2-wheeled waggon, drawn by 8 oxen. I should think it must even exceed the first; for my people assure me it measures full 3 varas (2¾ yards), besides the roots! The box must so greatly increase the weight, that I fear there is much danger of an overturn upon the dreadfully rough road between this city and Mexico. You need entertain no apprehension about the security of its packing, for every care shall be bestowed upon it, my chief anxiety being that the specimen shall reach you in a fresh state, and meet with no detention in Mexico. I trust to get it shipped at Vera Cruz, by the packet of the 1st of December. Eight strong mules, if these be found sufficient, will drag it to Mexico and thence to Vera Cruz, and no time shall be lost upon the road, 12 days being allowed for reaching the capital. It is a great pity that the high mountains between this town and Tampico forbid my sending it by that route, which is but half the distance of the way through Mexico."

In a letter to Mr. Parkinson, dated two days later, Mr. Staines says:—"I had trusted to inform you by this mail of the actual arrival of the Giant Viznaga, or Monster Cactus; but my servant, whom I despatched yesterday to meet it, has now returned with the intelligence that the axle of the cart or waggon in which it was coming had given way near this place, and he is to go off to-morrow to replace the damage with a new one. He informs me that two Cacti are on the way; one of them, having dark spines, which I shall still designate as the Monster, is the heaviest, and measures about 3 varas in length; the other, with ruby-coloured spines, is very long, and belongs to the same species as that formerly transmitted to Kew. I possess here an individual Cactus of similar size and appearance to that last mentioned, which I mean to forward, with a lot of small fry, *viâ* Tampico, because of the greater proximity of that port. I shall do everything in my power to place these two immensely large Cacti in Vera Cruz, ready for shipment on the 1st Dec., when the packet always sails for England, and if any mischance or delay occurs it will not be through my fault. There are also some seeds and roots, which I shall send as fresh as possible. Four or five cases will probably contain the whole, and by next post I hope to announce their despatch from Mexico."

And lastly, Mr. Staines writes to the following effect, on the 23d Nov. last:—"I had the pleasure, by the packet Avon, to apprise you of the near arrival of the Monster Cactus; but when I saw it my disappointment was grievous—it was so old, the upper part alone being green and having a healthy appearance. Thus I instantly decided to send for another, although of probably inferior size. The delay thus incurred may possibly prevent the specimen from reaching Vera Cruz in time for shipment on the 1st of Dec., as it only left this city for Mexico twelve days ago. My Mexican correspondent assures me that if the mules are not in too exhausted a condition, he will despatch them with the carriage at once; so that they will arrive at Vera Cruz in ten days from Mexico, and possibly give the Monster a chance of going by the same conveyance as carries this letter. Along with it I sent a box, containing a red-spined Cactus, about 1½ yard long, which is the very long one which the people mentioned having brought for me. It was too heavy for a mule, so I forwarded it also to Vera Cruz. The Monster now sent is quite green and healthy, and though not standing quite so high as that promised, it makes up for what it lacks in length by its great rotundity. Fourteen men were required to place it upon the carriage that was despatched to fetch it, which may afford some notion of its weight. Wood is so scarce here that I could not get any carpenter to construct a box for its reception, and was consequently obliged to pack it like a bale; but this is done in such a way that I entertain no fear of its performing the long journey and voyage unhurt by any external causes, and reaching England in safety."

It was on Saturday, Feb. 15, 1845, that the Cactus last mentioned, together with five large boxes filled with other individuals of the same tribe, and rarities of different kinds, reached the Botanic Gardens in a condition of security and vigour which are quite remarkable, considering their bulk and weight, the vast overland journey mainly performed through a country of high mountains and perilous roads, and their arrival in our island during one of the severest frosts that had been experienced for

many winters. This degree of safety can only be attributed to the extreme care that had been bestowed upon the packing, and the materials with which the specimens were surrounded. The Monster Cactus or Viznaga (for to it we must confine our attention), as Mr. Staines states in his letter, was too large for a box. It was first surrounded with a dense clothing of the Spanish Moss (*Tillandsia usneoides*)—and a better covering could not have been devised—and well corded. Fifteen mats, each as large and as thick as an ordinary door-mat, and composed of the fibres of a Palm sewn together, formed the exterior envelope. Freed from these incumbrances, the Monster Viznaga was seen as perfect, as green, and as uninjured, as if it were that morning removed from its native rocks, the very long flagelliform roots arranged in coils, like the cable of a ship. Ten of our strongest men with difficulty placed it in scales, brought into the garden for the purpose, with a view to ascertain its precise weight, and afterwards, with still greater difficulty, transferred it, perfectly unharmed, to another tub, prepared with suitable soil. There it now stands, surrounded by others of its scarcely less interesting fellow Cacti, the gifts of Mr. Staines and Mr. Parkinson.

The weight of the Viznaga is	713 lbs.
Height from the surface of the earth	4½ ft.
Measured over the top, from the ground on each side	10 ft. 9 in.
Circumference at 1 foot from the ground	8 ft. 7 in.
Number of deep angles or costæ	44

As a species, although belonging to the same genus, or subgenus, *Echinocactus*, as *E. Stainesii*, it is quite distinct, and appears altogether unknown to authors. Its nearest affinity is certainly with a species introduced by Mr. Parkinson, and known in our gardens (on account of its being used in Mexico, boiled down with sugar and eaten as a conserve) under the name of *E. edulis*, which is, probably, the *aulacogonus*, Lem. Specifically, however, it is perfectly distinct, and it seems to be just that its native appellation should be preserved; a name, too, not inappropriate, if we rightly understand the meaning of it, as applied by the Spaniards. *Viznaga*, or *Visnaga*, or *Bisnaga*, is a corruption of *Bisacuta* (twice pointed or sharpened at both ends), and is given by the Spanish to a species of *Daucus* (or *Ammi*) called *Daucus Visnaga*, the rays of whose umbels are employed as picktooths, and in Italy they are handed round the table to the guests. The spines of the Cactus are applied to a similar purpose in the warm parts of America. Upon our plant Mr. John Smith has counted 44 angles, or costæ, and on every angle are 50 fascicles of spines, and 4 spines compose each fascicle. Thus there are 8800 spines or picktooths—enough for the supply of a whole army of even such hungry soldiers as the Trojan followers of Æneas.

We propose, therefore, to designate it *Echinocactus Viznaga;* ingens, oblongo-subcylindraceus, obtusus, multicostatus, vertice pulvinato-tomentosus, costis sub-44 elevatis compressis oblique fasciatis areolatis, areolis oblongis depresso-excavatis approximatis demum in sulcum profundum confluentibus, aculeis 4 cruciatim dispositis omnibus patentibus junioribus flavis transversim fasciatis demum opacis cinereis, superiore 2½ unc. longo, lateralibus subunciam longis, inferiore lateralibus paulo longiore, floribus copiosis mediocribus e vertice pulvinato egredientibus.

Hab. Rocky places in the mountains of San Luis, Potosi. Fred. Staines, Esq.—*W. J. H.*

HARDY ANNUALS.

The following is a short description of 36 of the handsomest and most distinct hardy annuals, the seeds of which may be sown in the open border:—

1. *Leptosiphon densiflorus*, grows from 9 to 12 inches in height, rather branched and spreading; the flowers are pale pink, rather large, and very like those of the common Phlox. It is a very abundant bloomer, and remains long in perfection. It comes from California.

2. *Leptosiphon androsaceus*, grows from 6 to 9 inches in height; it is rather spreading, and much more slender than the preceding. The flowers are rather small, but very neat, and of various shades, from pale straw colour to pink or purple, each shade being on a distinct plant. It is a very free bloomer, and remains long in perfection. It comes from California.

3. *Lupinus nanus*, grows from 6 to 12 inches in height, rather branching and bushy. The flowers are light purple or pale blue, rather small, but very pretty. It blooms very freely, remains long in perfection, is very desirable, and comes from California.

4. *Lupinus Hartwegii*, grows from 2 to 2½ feet in height, branching, and very robust. The flowers are of various shades of blue, but mostly of a light blue and white, very abundant, and the plant continues a long time in bloom. It is from Mexico, and is very desirable.

5. *Nolana atriplicifolia*, spreads wide on the ground, is much branched, and only a few inches in height. The flowers are not numerous, but very large, bright blue, with a white centre, and the plant continues a long time in bloom. It is from Peru, and very desirable.

6. *Malope grandiflora*, grows from 1½ to 2 feet in height, much branched and rather spreading. The flowers are large, bright crimson, very abundant, and continue long in succession. This is very showy, but rather coarse. It is from Barbary.

7. *Phlox Drummondi*, grows from 9 to 15 inches in height, is much branched, and rather straggling. The flowers are very abundant and of various shades, from white to deep crimson. It continues long in perfection, is very desirable, and is a native of Texas.

8. *Nemophila insignis*, grows from 6 to 12 inches in height, is much branched, and rather straggling. The flowers are rather large, azure blue, and produced in abundance. This is one of the finest hardy annuals in cultivation. It is from California.

9. *Nemophila atomaria*, grows from 6 to 9 inches in height, is much branched and straggling. The flowers are white, thickly spotted with dark brown, rather small, but produced in abundance. This is very neat, but not very showy. It is from California.

10. *Hibiscus Africanus*, grows from 1 to 2 feet in height, is rather robust and branching. The flowers are very large, pale straw-coloured, with a dark crimson eye. It flowers freely, and the flowers are produced long in succession, each lasting but one day. It is from Africa, and is very desirable.

11. *Collinsia bicolor*, grows from 9 to 12 inches in height, is much branched, and rather erect. The flowers are pink and white, and are produced in long spikes in great abundance. This very ornamental annual is from California.

12. *C. grandiflora*, grows from 6 to 9 inches in height, is branching and rather erect. The flowers are bright purple, and are produced in spikes; they are rather small, but numerous, and very neat. It blooms abundantly, and is from the north-west coast of America.

13. *Platystemon californicum*, grows about 6 inches in height, is rather slender, and much spreading. The flowers are pale yellow, rather moderate in size, but very pretty and abundant. This remains long in perfection, and is very ornamental. It is from California.

14. *Clintonia pulchella*, grows only a few inches in height, is much spreading and very slender. The flowers are small, light blue, with a yellow and white centre; it is remarkably neat and pretty, blooms abundantly, and remains long in perfection. This is one of the smallest hardy annuals, and one of the prettiest. It is from California.

15. *Sphenogyne speciosa*, grows from 12 to 15 inches in height, is rather bushy and slender. The flowers are bright yellow, with a dark centre, large, and very showy. It blooms freely, remains long in perfection, is very ornamental, and comes from South Africa.

16. *Godetia Lindleyana* (Œnothera Lindleyana), grows from 18 to 20 inches in height, is rather spreading, and much branched. The flowers are large, pale pink, with a large crimson spot on each petal. It blooms freely, is very ornamental, and was obtained from the north-west coast of America.

17. *Godetia* (*Œnothera*) *rubicunda*, grows from 1½ to 2 feet in height, is rather erect and slightly branching. The flowers are large pale blush, becoming deeper in the centre. It blooms very freely, is very handsome, and comes from California.

18. *Godetia* (*Œnothera*) *tenuifolia*, grows from 15 to 18 inches in height, is rather erect, and slightly branching. The flowers are deep purple, rather large, and very pretty. It blooms very freely, and keeps tolerably long in flower. This is the same as Godetia Gayana, and comes from Chili.

19. *Œnothera tetraptera*, grows about 1 foot in height, is rather straggling and branching. The flowers are large, pure white when they first expand, but afterwards change to pale pink. It blooms freely, remains long in perfection, and makes a very good variety. It is from Mexico.

20. *Erysimum Perofskianum*, grows from 15 to 18 inches in height, is rather bushy and erect. The flowers are bright orange, produced in long slender spikes in great abundance. It blooms very freely, remains long in perfection, is very ornamental, and is sweet-scented. It comes from Cabul.

21. *Collomia coccinea*, grows from 1 to 1½ feet in height, is much branched, erect, and bushy. The flowers are bright scarlet, rather small, but very pretty and numerous. It blooms freely, is a little coarse, but still is deserving of cultivation on account of its pleasing colour. It comes from Chili.

22. *Eutoca viscida*, grows from 12 to 18 inches in height, is much branched and bushy. The flowers are deep azure blue, moderate in size, and very handsome. It blooms abundantly, remains long in flower, and comes from California.

23. *Clarkia pulchella*, grows from 12 to 18 inches in height, is rather spreading and branched. The flowers are rather large, of a rose colour, and very neat. It blooms abundantly, is very ornamental, and comes from the north-west coast of America. Of this there is a white variety.

24. *Bartonia aurea*, grows from 1½ to 2 feet in height, is rather straggling, robust, and branching. The flowers are very large, of a golden yellow colour, very showy, and remain long in perfection. It blooms very freely, and comes from California.

25. *Campanula Lorei*, grows about 1 foot in height, is much branched and spreading. The flowers are rather large, deep purple, very showy, and of long duration. It blooms very freely, and comes from Mount Baldo. Of this there is a variety with pure white flowers, which, if kept separate, makes a very good contrast.

26. *Gilia tricolor*, grows from 6 to 12 inches in height, is much branched, spreading, and rather slender. The flowers are rather small, but very neat, and are of various colours, some being nearly white and self-coloured, while others are pink or purple, with a yellow or crimson eye. It blooms abundantly, and remains long in perfection. It is from California.

27. *Schizopetalum Walkeri*, grows from 9 to 12 inches in height, branching and rather erect. The flowers are rather small, pure white, and beautifully fringed. This blooms freely, has a very neat appearance, and comes from Chili.

28. *Kaulfussia* (*Amellus*) *amelloides*, grows from 6 to 8 inches in height, is rather dense and spreading. The flowers are of a bright blue, very pretty, and produced in abundance. It blooms freely, remains rather long in perfection, and comes from the Cape of Good Hope.

29. *Calandrinia discolor*, grows from 1½ to 2 feet in height, with but few side branches. The flowers are large, rosy purple, and very handsome. It blooms rather freely, remains long in perfection, and comes from Chili. It is very desirable.

30. *Calandrinia* (*Talinum*) *speciosa*, grows about 6 inches in height, is much branched, and forms rather a dense mass. The flowers are purplish crimson, rather small, but very pretty. It blooms very freely, remains long in perfection, and comes from California.

31. *Callichroa platyglossa*, grows from 12 to 15 inches in height, spreading and much branched. The flowers are rather large, bright yellow, and very showy; it blooms very abundantly, and remains long in perfection, but the plant has rather a coarse appearance. It comes from California.

32. *Emilia* (*Cacalia*) *coccinea*, grows from 6 to 9 inches in height, is very slender, but rather erect. The flowers are bright scarlet, small, but very pretty. It blooms freely and makes a very gay appearance. It comes from South America.

33. *Viscaria* (*Agrostemma*) *cæli-rosa*, grows from 12 to 15 inches in height, is much branched, slender, and spreading. The flowers are rather large, of a bright rose colour, and very pretty. It blooms freely, and comes from the Levant. Viscaria oculata differs from this, in having a darker eye and rather larger flowers.

34. *Coreopsis* (*Calliopsis*) *atropurpurea*, grows about 2 feet in height, is much branched, spreading, and rather slender. The flowers are rather large, dark crimson, with a yellow edge, and very showy. It blooms very abundantly, remains long in succession, and is from North America.

35. *Chrysanthemum carinatum*, grows from 12 to 15 inches in height, rather branching and erect. The flowers are rather large, pale yellow, having a dark centre. It is very handsome, and blooms freely, remaining long in perfection. It comes from Barbary.

36. *Convolvulus tricolor*, grows about six inches in height, with a trailing habit. The flowers are large, white and blue, variously striped, spotted, and very handsome. It blooms freely, and comes from the South of Europe.

With regard to the heights of the above, however, much depends on the soil and situation in which they are grown. If sown on poor and dry soil, they will be much more dwarf in habit; if it is rich and moist, they will be taller and stronger.—*George Gordon.*

STATICE ARBOREA.

This plant has been for some years in collections, and, we may add, to lamentable purpose; for although an object of extraordinary beauty, under skilful culture, we rarely find it other than a sickly, neglected, miserable-looking plant, and wonder why such a dead-and-alive subject should be permitted to disgrace our conservatories.

No question exists as to its being an object of sterling interest to all plant-lovers, and one capable of making, under good management, a telling plant for exhibition, when plants are cultivated with that object in view. It is scarcely possible to point out in the whole exotic flora in this country, another plant possessing so many claims on our attention as Statice arborea. Twelve months in the year it adorns our conservatories with its large heads of flowers—the brilliancy of whose hue, neither precious stones nor metallic preparations could even approach; and yet, how few are the collections in which we find it! and when we do make this discovery, the miserable plight it usually exhibits, tells us at once that there is something radically wrong in the management, for this, like many other plants, with skilful gardening, can be made to surpass the splendour it presents even when perched on its native rocks. The best time to commence seriously to regenerate the falling name of this standard plant will be March, when the whole season of growth is before us; for with dexterous cultivation we shall in one season assuredly produce specimens second to none whatever in our collections. Supposing a small plant in a 5-inch pot is procured—which will illustrate the subject of our inquiry—for with such plants the writer of this paper produced, last season, specimens 3 feet in height, and 3 feet in diameter, clothed with foliage to the rim of the pot, and studded all over with numerous clusters of flowers. These plants were potted in March, in 9-inch pots, in the following manner, and with the compost herein recommended:—The pots were drained with broken potsherds at least an inch deep, and a little chopped Moss was placed over the drainage, to prevent the soil from mixing with it. Friable loam was then procured, containing abundance of vegetable fibre, and an equal quantity of rough peat; to these was added a like quantity of leaf mould, not too much decomposed; these were mixed together with one-sixth of the whole of silver sand. In this apparently unmanageable state the compost was used—*for with such material it is scarcely possible to perform potting badly.* The plants were then turned out of the 5-inch pots, and the roots carefully moved from the sides of the ball. Some of the coarsest of the compost was then placed over the drainage in the 9-inch pot, and on this the plant was placed, and the surrounding vacuum filled in nearly level with the rim of the pot; a good watering was then given to the whole overhead, until the water escaped at the bottom freely.

The next point to insure success, and which demands our especial attention, is the temperature most suitable to it. We are informed by Dr. Lindley, in the "Botanical Register" for February, 1839, that Statice arborea was introduced by P. B. Webb, Esq. from the Canaries, where it was found on some dislodgments of rock on the Teneriffe coast, and on all sides surrounded by the sea. The temperature of the climate in which it grows is described as varying between 60° and 86° Fahrenheit, the sky being seldom overcast. We may infer from this that the greenhouse, unless it is kept close and rather warm, is scarcely the place to grow, at least in the first instance, this plant successfully: an intermediate house, therefore, is precisely the most suitable for it. It should have a position where the sun's rays fall upon it unobstructedly, and a temperature charged with considerable moisture, varying from 55° to 65°, kept up, which was the case with the plants previously alluded to. In such a situation, which is undoubtedly a favourable one, this plant will make rapid and vigorous progress, so much so, that by the beginning of June it will require to be shifted into a 12-inch pot, and by the end of July it will be ready for removal into a 15-inch pot. The extraordinary development which these propitious circumstances induce will appear quite marvellous, but with such a plant as this, of liberal growth, surrounded by everything which can possibly accelerate the progression of both roots and branches, the result is thus rendered axiomatical, provided no untoward event interferes with the harmony of the system of culture we have thus succinctly endeavoured to propound.

There is one other circumstance we would notice relating to this plant, which may in some measure affect its health unless attended to. Although very simple in itself, still the keen eye of the ardent lover of plants, and the enthusiasm which prompts his proceedings—for without enthusiasm we are little other than mile-stones—allows of no circumstance to escape his observation which may contribute, however remotely, to secure the object of his ambition in all its glory and splendour. Those who have had Statice arborea under their care, may have observed on the leaves a deposition of soda or some similar substance, which doubtless clogs up the pores of respiration, by forming a kind of coating all over the leaves. This plant is found growing in the sea, although not literally so, and nearly on a level with it; hence there can be little question that the foliage gets well washed from the spray, which is constantly thrown off by the waves breaking against the rocks. This fact will at once indicate the necessity of adopting some course to cleanse the plant of these exudations; therefore, during the growing season particularly, the leaves should be well syringed every morning, taking care that the soil in the pot, especially in cloudy weather, does not get too wet. This treatment will be an assimilation, in some degree, to what the plant is naturally accustomed to, and secures by every available means our complete success.

A Thrift is a plant which casual observers may suppose would be rather tenacious of any enriching substance, particularly as they are natives of cliffs which bound the ocean; there can be little doubt, however, that the contrary is the fact, for although they inhabit rocks and other craggy stations, the mere circumstance that there is a landing-place covered with vegetation, attracts swarms of sea-fowl, which are continually depositing strong stimulating manures immediately at the root of these plants. This truth, in itself so apparent, will urge us to investigate the matter a little further, and see whether any of those new manures which absorb public attention so largely cannot aid us; and here we have guano itself, the very thing which feeds it on the rocks and nourishes it in all weathers, and which we can now so easily appropriate to its use under our personal care. We would, therefore, recommend trials of guano in some shape or other in the culture of Statice arborea; a small portion, doubtless, can do no injury, and may possibly do much good, in the hands of a cautious gardener. We say try anything and everything to retrieve this glorious plant from its present condition—no effort can be too great. Success deserves reward and honourable renown, and is sure to obtain it.—*Duro.*

Home Correspondence.

Scale.—There are no insects so annoying to the grower of Orchidaceous plants as the various kinds of scale (Coccidæ); and as these plants are very generally infested with them in their native countries, every importation introduces a fresh stock into our hothouses. Their habits of secreting themselves amongst the sheathing-leaves of the plants, renders the eradication of them at all times difficult, and many fine young growths suffer in our attempts to get at these pests. Mr. Bateman, in his splendid work, suggests the use of a mixture of sulphur, camphor, &c., and directs the plants infected to be dusted with it; but, besides the unpleasant appearance and offensive smell, the constant syringing washes off the powder before it has had the desired effect. Being, therefore, desirous of a substitute which should be readily applied, speedy in its effect, and leave no traces behind, it occurred to me that spirit of wine (so much used for the destruction of Acari in museums) would most likely answer the purpose. My only fear was that it might damage the plant itself, and I therefore made a number of trials on leaves of all descriptions of stove-plants, and in every stage of growth, as a preliminary step. Finding that none of these exhibited any marks of injury, I next applied it to the insects, and with most complete success; for in every instance the first application proved fatal, and I am now entirely rid of these destructive creatures. I apply the spirit with a camel's-hair brush to those parts of the plant where the insects are visible, and the great facility with which it flows over the leaves, &c., renders this an easy operation, and insures that such as are concealed about the bases of the leaves and pseudo-bulbs shall be reached by the fluid, and effectually destroyed. The quantity used is very trifling, as the plant, far from being bathed with it, is merely touched where necessary. No change is made in the plant's treatment, and in a few minutes the spirit having evaporated, no trace of the operation can be discovered, except by the falling off of the dead insects in a day or two. I have also found that the same substance is equally fatal in all its stages to the thrips, which often attacks these plants in the dry, or winter season.—*Pons Œlii.*

The Weather.—It is mentioned (p. 99) that on Feb. the 12th, the thermometer, on a post upon the lawn in the Garden of the Horticultural Society, had fallen to 3° below Zero. Nevertheless, the lowest here on the same morning was 32°. Indeed, this has been the mildest winter here since 1833; and, as an instance of this, I may mention that I have only used artificial heat for our greenhouse five evenings during the season.—*Daniel Ferguson, Botanic Garden, Belfast.*——The frost on the night of the 11th, and the morning of the 12th Feb., seems to have been much more intense in the neighbourhood of London than in these parts (45 miles N.E. of London). At 10 o'clock P.M., 11th Feb., my thermometer was 18°; at 8 o'clock A.M., 12th Feb., it was 13°; and had not fallen in the interval lower than 11°. In your *Chronicle* of the 15th, you say there have been but three instances in the present century of the thermometer falling below Zero, in the neighbourhood of London—

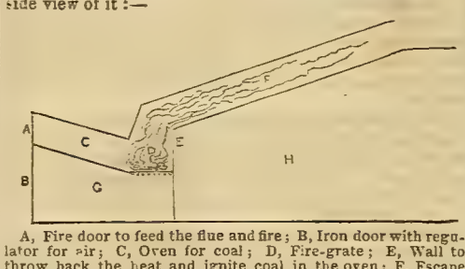
Feb. 9, 1816	—5°
Jan. 10, 1838	—4½
Feb. 11, 1845	—3

Referring to my Journal, I find that my thermometer fell on the morning of—

Jan. 7, 1841, to	—2°
Jan. 8 do.	—1
Jan. 9 do.	—2¼

I mean, of course, at this place. Is this present February colder than February, 1827? I remember there was a frost of three weeks' continuance in that month. The average lowest of Feb., 1843, was 30.214; but I think this month will prove to have been much colder than that.—*C. W. L., Gosfield, Essex.* [We apprehend that your thermometer was out of order in 1841: no such temperature is recorded by others, as far as we know.]

Smoke Burners.—In reply to your correspondent, who recently asked if there is any plan for avoiding the smoke from the fire of a greenhouse, &c., I beg to mention that there is, and I can say from experience, that there is no contrivance more simple for this purpose than that called Witty's. The fire never requires to be made up more than twice a day (24 hours) in the worst weather, if midland coal is used. The following is a side view of it:—



A, Fire door to feed the flue and fire; B, Iron door with regulator for air; C, Oven for coal; D, Fire-grate; E, Wall to throw back the heat and ignite coal in the oven; F, Escape for the flame; G, Side wall supporting the oven; H. Earthwork supporting flue, if used.

If an iron boiler be used, the place for it is directly over D, to receive the full heat of the fire. The *rationale* of the whole is this: on opening the door A, you look down an arched flue or oven about 3 feet in length, 12 inches in width, and the same in height, laid at an angle of about 30°; lighted wood or coal is thrown down this flue to the bars at D, and when this has burnt clear, more coal is passed down the flue to it. The fire in the grate now begins to act like a cokeing apparatus; it draws off the gas in the coal, and consumes it as it escapes at F, E; the wall (about 6 inches high), acting as a check on the flame, throws back the heat on the coal, which thus gradually consumes from the bottom to the top of the flue. This takes many hours to do, and then, when the gas has escaped, there is the mass of hot coke left, and this has to expend itself. Long ere either of these have occurred, the whole of the brick-work is at white heat, and I have known an instance of the fire being lighted for a vinery at 7 in the evening, and forcing-heat kept up, without touching the fire, till 12 the next day. Of course, the size of the fireplace must be regulated by the size of the house, &c. The opening at B is by a door with a regulator in it, so that no more air can have access to the fire than what is required to keep up combustion, and carry the heat to the ascending flue: G, therefore, must be taken as the outside of an arch carried on from B to the wall beyond D, through which the ashes fall. This plan acts as a complete smoke-burner, and no plants can suffer from it, so effectually is the smoke prevented. I once induced a friend who had a very large vinery, the chimney of which he could never cure of smoking while he used the old common firegrate and bars, to have the above plan tried. He sent for his bricklayer; I told him what to get ready, and on a day fixed upon he laid the bricks as I directed him, and by night had nearly completed his task. Every part of the brickwork should be set with fire-bricks, if near the fire, and in Stourbridge clay. There is no difficulty in any part of it, where there is room and depth to gain a proper draught of air, in managing the fire, when the principle is understood; and any bricklayer can construct it who can do ordinary work. Ten minutes' conversation, and a slight sketch on the ground with a few bricks, would show such a person at once all he could want to know. My friend found that he got his Grapes ripened one month in the year earlier by the new plan than he ever could by his old fireplace.—*C., Covent Garden.*

Beans.—I have been frequently asked lately, whether Marshall's Dwarf Prolific Bean is, as is reported in the *Chronicle*, an earlier variety than the Early Mazagan. In answer, I beg to mention that I have found the reverse to be the case. I have grown both with equal care; planted and transplanted them in autumn and spring, by number and measure, for three successive years, and the Mazagan has always produced the first dish; the produce of the same space and number of plants of Marshall's which was gathered at the same time did not yield quite half the quantity of Beans. As a few days in advance in the commencement of the season is a great object, I still grow the Mazagan for the earliest sort. I have observed a variety called Early Hangdown, which is a strong-growing early kind, but I cannot yet say whether it is earlier than the above.—*H. Bowers, Busbridge, Godalming.*

Musa Cavendishii.—In the absence of better information, if Mr. Huishe would take a trip to the great conservatory at Chatsworth, he would then find that his Musa Cavendishii is a mere miniature plant in comparison to those grown at Chatsworth; he will find that they produce fruit there 100 lbs., 150 lbs., and 200 lbs. each. I have also seen fine specimens of the same variety much larger than Mr. Huishe has named, grown by Mr. Dunsford, in the large conservatory at Capesthorne, near Congleton, Cheshire.—*Bakewell.*

Toads produced from Tadpoles.—Your correspondent does not seem to be aware that two kinds of spawn are found in our ponds and ditches in spring, generally confounded under the name of Frog-spawn; one of which, that of frogs, consists of a gelatinous shapeless mass of eggs; the other, that of toads, of long strings of eggs involved in gelatine, which may be drawn out of the water in ropes 20 or 30 feet long. The tadpoles which spring from these eggs change their form when they are far smaller than those of frogs; and it is evidently from this circumstance that the misconception of your correspondent has arisen.—*M. J. B.*

Toads Born from Tadpoles.—Unless toads be viviparous, as well as oviparous, it will be difficult to reconcile the conflicting opinions of your correspondents. I must, however, observe that, so far from being misled by "Stewart's" remarks, as "B. F." supposes, I have the authority of the first zoologists to support my statement. Professor Owen says, "The toad quits the egg as an apodal long-tailed larva, or tadpole, with gills; it acquires first hind feet, then fore feet, loses its tail and gills, and becomes a young toad. The parents are, on that account, obliged to resort to water for the fertilisation and deposition of the ova, which differ from those of the frog, in forming a chaplet or uniserial string instead of a heap." Any one sceptical upon the subject may convince himself by taking the ova from stagnant ponds and ditches, where they are deposited about the middle of March, and hatching them at home in water. I may also refer to Professor Bell's "British Reptiles" for an account of their transformations. I trust these statements will convince "B. F." that the articles contributed by "Ruricola" are not written in the careless way which he seems to imagine; and I should feel obliged by his stating what species of crane it was which used to visit his father's pond, to feed upon tadpoles.—*R.*

The Toad not born of Tadpoles.—Your correspondent, "B. F.," is certainly in error if he thinks toads are not tadpoles in their early stage of growth. The fact is, that the supposed frogs of "B. F.," congregated in the stagnant water in summer, were really toads. The frog spawns the first five days in March, and the spawn may be seen in large masses in most ponds; the toad spawns in May in long strings, as described by "B. F." It is only when thus engaged that the toad frequents the water. The toad hybernates under old dung-heaps, decayed leaves, &c., and not in the water, like the frog. The fact of the small toads being found in the hothouses, &c., as described by Mr. Barnes, in last week's *Chronicle*, is nothing extraordinary; they will squeeze through almost any crevice or hole, however small, and can climb up any rough surface, as I have repeatedly seen; even old toads will climb. I have one in my greenhouse that I have frequently seen on the shelves; to get there he must have climbed up the wall. I certainly admire the toad, but I cannot call them beautiful creatures.—*F. B., Kingsbury.*

The Ranunculus.—The seeing in a late Number a list of Show Ranunculuses, by Dr. Horner, has induced me to give the names of a few that I remarked in successful pans at Exhibitions in London, in June last. In several instances I saw the sorts growing, and I have therefore given the habit of the variety. They are as follows:—* *Naxara* and *Tippoo Saib*, both fine in form, and of a very dark, rich colour—they are moderate growers; *Queen Victoria*, (Kilgour's), ground white, edged with purple—a large, bold, full flower; *Felix*, (Tyso's), delicate lemon-ground, with rosy spot—a strong grower; *No-mistake*, (Lightbody's), cream, with heavy purple edging—strong in habit; *Wonder*, (Aust's), yellow, with coffee-coloured edging, sometimes running into the ground-colour; *Charlotte*, white pink mottling,

large flower, of a good form; *Milo*, straw, with purple edging—of a fine shape, and good habit; *Herbert*, (Tyso's), yellow, with reddish edge—strong in habit; *Horatio*, yellow, with brown edging—a scarce bloomer; *Delectus*, (Tyso's), yellow, delicate red edging, regular in form, and of a free habit; *Henrietta*, fine full crimson self; * *Roi des Renoncules*, *Dictator*, fine yellow selfs; *Eliza Giles*, straw self, fine in form; *Imbert* and *Flaminius*, (Tyso's), fine distinct spotted varieties, on yellow grounds; * *Mélange*, *Orissus*, and * *Le Téméraire*, fine striped varieties, of good habit. Those marked thus * are believed to be of Dutch origin.—*W. B.*

Performance of Heating Apparatus.—I feel anxious to notice the superior manner in which the apparatus, erected by Mr. B. Fowler, of Dorset-street, Fleet-street, answered during the late severe frost. I am using it in a hothouse 36 feet long by 18 wide; I made the fire up at half-past 10 o'clock on Tuesday night, and did not look at it again until half-past 6 the following morning, at which time the thermometer outside the house ranged as low as 2° above zero, and the temperature in the house was as high as 48°. I am also using another furnace, by the same builder, heating nine lights of pits, in the first three of which I am growing Cucumbers, and have the opportunity of turning the hot water on the other six lights, in which I have three of Geraniums, and three of different sorts of flowers; finding that evening it was likely to be very severe I did so (but only allowed the top or hot-pipe to be used, the return pipe not in use), and found in the morning that not a single plant was injured, although most of them was within 2 inches of the glass, and had not even the protection of a mat.—*J. Mason, gardener to T. Keen, Esq., Croydon.*

——My apparatus was put up by Messrs. Weeks and Day, and I cannot speak too highly of it. It heats an extensive range of houses, some of which are wide and lofty, besides about 90 feet of pits. The fire was made up at 1 o'clock with common breeze, and on the morning of the 12th inst. I found all my houses and pits at as a high a temperature as I could wish them. The boiler is a very powerful one, although not particularly large, and requires but little attention. I shall feel great pleasure in showing it to any gentleman or gardener.—*Charles M. Westmacott, Stuart's-Grove Nursery, Fulham Road.* [In giving place to these two notices, we must observe that they are, more or less, deficient in the details required to convey really useful information. In all such statements the following data should be carefully given:—1. External temperature; 2. Internal ditto; 3. Space heated; and 4. *Quantity of fuel* consumed in 12 hours. The latter is a most important fact.]

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Pursuant to notice, the adjourned Annual Meeting was held on Thursday, the 6th inst., James Coppock, Esq., in the Chair. About 50 members were present. The main object of the meeting was to receive from the sub-committee a new code of laws, which were unanimously adopted, and it was ordered that the new rules should be sent to each member. The Chairman announced that the Committee had appointed five Exhibitions for the present season:—The first to take place on Wednesday, the 23d April, at the Horns Tavern, Kennington, and that Mr. Briant had liberally given the free use of his rooms for that occasion; the 2d, 3d, 4th, and 5th to be held at the Royal Surrey Zoological Gardens, on 21st May, 25th June, 23d July, and 17th September. Mr. Tyler, proprietor of the Gardens, has offered the Society 40*l.* for each Show to be holden there, making together 160*l.*

Country Show.

Southall Cucumber Show, Feb. 24.—Eight brace of Fruit were exhibited, of unusual perfection for this season, which has been remarkably unfavourable for Early Cucumbers. *Four brace of Black Spine* were placed for competition; the Prizes were awarded as under:—1st Prize, to Mr. Mills, for his Early Frame, grown in his pit heated by hot water; 2d, to Mr. Weedon, for his Black Spine, grown in dung heat; 3d, to Mr. Hickman, for the same kind, grown on a trellis, as practised by Mr. Weedon; 4th, to Mr. Humber, for ditto.

NEW PLANTS.

Tropæolum Lobbianum. Mr. Lobb's Indian Cress. (*Twining perennial.*) Tropæolaceæ. Octandria Monogynia.—Messrs. Veitch and Sons, of Exeter, have had the pleasure of introducing this charming species of Tropæolum. In the "Plantæ Hartwegianæ" we find Mr. Bentham has given the name T. peltophorum to a species found by Mr. Hartweg in fields near Loxa, the description of which, with the single exception of being called an annual, is perfectly applicable to T. Lobbianum. This species is decidedly a perennial, but it seems likely, nevertheless, that the same plant is intended; and if so, his name, being prior to this—which has been published in the "Botanical Magazine" by Sir W. Hooker—ought to take precedence of it. Seeds gathered by Mr. Lobb, in Colombia, and forwarded to Messrs. Veitch and Sons early in 1843, were sown soon after their arrival, and soon produced healthy plants, which grew vigorously and flowered in the following November. The same plants produced blossoms again early last June, and have continued to flower during the remainder of the summer. It bears considerable resemblance to T. Moritzianum, both in habit, foliage, and flowers; but is, nevertheless, easily distinguished by the less obviously distinct lobes of the leaves, and by the hairiness of all its parts. The flowers, too, are of a brilliant orange-scarlet, and though the petals are not entirely free from the fringes, which are so prominent in T. Moritzianum, they are much shorter and less numerous.—*Paxton's Magazine of Botany.*

Garden Memoranda.

Swinton Park, near Bedale.—The gardens at this place are not so remarkable for novelties as for the high state of perfection and superior cultivation which the plants in general exhibit, and which reflect the greatest credit on the superintendent. The conservatory is a spacious structure, built to correspond with the mansion, in the castellated style, and though not, perhaps, so well adapted for the growth of plants as a lighter building might be, yet it contains specimens which I have seldom seen excelled as regards health, cleanliness, and vigour. I particularly noticed a magnificent plant of Acacia armata, about 7 feet in height, literally one dense mass of beautiful yellow; another of A. saligna, also in fine bloom: the collection of Azaleas is a very good one, and in fine order; the plants are fast coming into bloom. I observed in flower some very good specimens of Gesneras, a lovely plant of Epacris nivalis, and several good specimens of Agapanthus umbellatus. But the gem of this house was a striking specimen of Rhododendron arboreum, about 6 feet in height, with 19 gorgeous heads of bloom fully expanded, and many more about to expand; than this plant, when in flower, for a conservatory or greenhouse at this season, I can scarcely imagine a more striking ornament. There are two very good Peach-houses here, the trees in which are healthy and clean, and promise to produce excellent crops; in the stove I remarked two plants of the Carica papaya (the male and the female), the latter of which was well covered with fruit. A small house, formerly used as a fruiting-house for Pines, has been converted into a Vinery, which will come into bearing next season. I have visited Vineries, both in the north and south, but in none of these did I ever see wood, at the same age, equal to that in these structures. In passing through the tool-house, a place often, comparatively speaking, neglected, I was much struck with its neatness and regularity. Mr. Snow, the gardener, informed me that the latter was enforced by written regulations, which are pasted up in a conspicuous place in the house, and of which the following is a copy:—"In order that the garden tools may be kept clean and in good order, any of the undernamed (here follow the men's names and a space for inserting the fines) leaving a tool out of its place all night, or neglecting to clean the same, shall pay the fine of 1*d.* for spades, shovels, rakes, hoes, shears, dibbers, forks, hammers, nail-bags, trowels, watering-pans, brooms, handcarts, wheelbarrows, ladders, &c. Any person or persons taking any tool not their own, and neglecting to clean or put it in its proper place, shall pay a fine of 2*d.* The men working in the grounds are expected to clean their tools every night, otherwise they will be fined. I insist on the above rules being strictly attended to, and if any person neglects to pay his fines they will be stopped out of his wages at the pay night. (Signed) J. L. Snow." The fund arising from these fines being disposed of amongst the men, causes each to keep a strict check on the other.—Σ.

Miscellaneous.

Hunger in Cold Weather.—In the summer season the air is greatly rarefied by the heat, and the amount of oxygen taken into the lungs is comparatively small;—the carbonaceous matter of the blood, therefore, is slowly burned, and a return of hunger as slowly follows the gratification of the last appetite. In so far we resemble our fires—they burn slowly and feebly, because there is not a sufficiency of oxygen to encourage their blaze. In winter, the air is more dense, especially in clear frosty weather, and every inspiration we make conveys into the lungs a maximum quantity of oxygen, which, acting there, and throughout the capillary system, carries off with remarkable rapidity whatever material it can combine with. The waste being rapid and abundant, it follows that the supply must be proportioned to it, and hence, in healthy and vigorous subjects, hunger is an almost constant claimant in cold weather. If this hunger be not satisfied, the body wastes with fearful rapidity. In fact, the analogy is sufficiently close for us to say, that the body, in respiring this dense pure air, consumes as much faster than in respiring a heated and expanded air, as does a fire on a clear frosty morning burn more brightly and rapidly than in the full sunshine of a hot summer's day. These facts, and their reason, explain to us why there should be such difference, both of appetite and digestive powers, between the inhabitants in the town and the country.—*Medical Times.*

Bees.

Polish Hive.—This being of simple construction, may be made by any carpenter from the root-end of a tree, of 9 feet in length, and about 3 feet 9 inches in circumference. The centre wood is hollowed out, and the planks removed for that purpose are sawn off to within 3 ft. of the bottom. One of these is nailed on again on the front; the other fits in to its place again as a door. The interior, 7 inches square, is separated by a slide into two compartments about 3 feet in depth (perhaps 2½ would be better); the roof of each is provided with four slips of wood, similar to those to which the bees fix their combs in the bar-hive. By reducing the cavity by the slide, the heat inside is increased, which enables the bees to get on faster with their cells; and in winter, they can be kept in one division. In the lower one there are two entrances, one at the bottom and the other at top (made with an auger), and having a slip of wood on the inside to keep out mice; in the upper part there is but one entrance, which is at the top. The bees always choose the lower hole, but those in the upper part are sometimes of use for ventilation; and they ought to be closed, except in hot weather. They are, of course, made opposite to the door; the space out of which the latter was taken being filled up through its whole length with glass fixed into two moveable frames, gives the apiarian ample means of observing the proceedings of his bees; while, when the door is closed over them, the bees are shielded from light and changes of temperature. The block end of the hive is sunk 2½ feet in depth into the earth, in order to keep it firmly upright, and the top is surmounted by a block of wood. The honey is obtained by taking out the glass and cutting out what comb is wanted; it may thus be obtained throughout the season with little annoyance to the bees, and little or none to the brood, for the brood-combs are not disturbed. The hive might be constructed without glass, and successfully; but the condition of the colony could not be so well examined. It will now be perceived that the Polish hive is similar to a hollow tree, in which bees are often found having plenty of honey. A south or east aspect is sufficient for beehives during each period of the year, provided they are shaded a little from very hot sunshine in summer, and shielded from its rays in winter. Where hives are removed to winter quarters, let the operation take place about the 1st Nov., and let them be kept dry, free from draught and much noise, until the 24th of Feb., or when the "Willow puts forth its downy buds."—*W.*

Price of Honey.—Your correspondent "M. J. B." (p. 87) says that I have greatly overrated the value of honey in stating it at 2*s.* a pound. In reply I beg to explain that I did not say that the above price was obtained for it at or in the neighbourhood of Stamford. I have not before, however, heard of honey being sold at 4*d.* a pound, as mentioned by "M. J. B.," in Stamford during the last 30 years. I derived the information respecting the quantity and value of honey obtained by Mr. D. Auld, of Doonbrae Cottage, from an article written by that gentleman in No. 13 of the "Ayrshire Agriculturist" for September last; and in my calculations I stated that the 110 lbs. produced by Mr. Nutt would, at the above price, amount to 11*l.* from a single stock of bees. I have recently been informed, on good authority, that the honey obtained by Mr. Nutt, of Spalding, is of excellent quality, and much sought after, and that he does obtain as much as 2*s.* per lb. for a considerable quantity of it, in glasses, for the purpose of being served at the tables of the nobility and gentry, who purchase it as it is deposited by the bees.—*E. Brigs, Edenham, Stamford.*

Bee Flowers.—In addition to the flowers mentioned by "W." (p. 39) I would recommend the Melilotus leucantha, a flower of which bees are exceedingly fond, and which continues in bloom from June to November. I saved a quantity of seed from it last summer, and shall feel pleasure in presenting a packet of it to any apiarian correspondent who may be inclined to give it a trial.—*E. Brigs, Edenham, Stamford.* [We trust that Mr. B. will not be put to the expense of postage.]

Answers.—*J. Wighton.*—Thanks for your remarks on the Economy of the Toad, corroborative of the views of scientific writers. *R.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

Hothouses, &c.—The temperature may be gradually increased where stove plants are cultivated to 65° by fire heat. Keep a corresponding degree of moisture, and attend to such plants as are in a growing state with water; such as require shifting of the more forward kinds should now be attended to. The condition or fitness for this must be determined by the progress the shoots have made, which will at once point out the state of the roots, which, after all, is the only criterion for repotting plants of any description. The continued frosty weather has of necessity required fires to be kept up in all the more temperate houses; therefore pay particular attention that none of the New Holland plants, Heaths, and such like, which are impatient of every extreme, are not suffering from want of water. Observe that the ball is thoroughly moistened at least once a week. The free-growing kinds of stove plants may now be struck in heat, and flowering specimens produced in the first season. Fuchsias will also now require attention; as soon as the roots have extended to the outside of the ball in all directions, shift them into larger pots, and supply them liberally with water; in other respects attend to former Calendars.—*A.*

II.—FLOWER GARDEN AND SHRUBBERIES.

During open weather, like the present, if there are any shrubs that are to be transplanted, lose no time in completing the operation. All planting should be finished, if possible, before dry weather sets in. Prune shrubs, Roses, &c., in mild weather. Such land as has not been dug should be left until it gets somewhat dry, and in a fit state for the operation. Roll gravel-walks as soon as they will admit of it; sweep and clean lawns, &c.; examine rockwork, and dress up any plants that are showing for bloom; fix any stones that may have become loose. *Pits and Frames.*—Attend strictly to watering, if the weather continues mild and sunny; continue potting off, sowing seeds, and putting in cuttings of all such plants as are most wanted for bedding out; give air early every morning, and shut up in the afternoon with a good sun-heat, if possible; place in gentle heat, Fuchsias, Bouvardias, Salvias, Pelargoniums, Petunias, &c., that have not broken shoots since potted in last autumn. Pot Ferrarias in light, sandy soil, keeping some for planting out in borders in spring.—*B.*

III.—FLORISTS' FLOWERS.

Whoever has seedling Ranunculuses making their appearance, must take great care they do not get caught with frost. As they spring, the seeds will often throw themselves out of the ground, in which case a niche must be made in the soil, with a thin piece of box-wood or ivory, and the young plant carefully put in it and fastened. The pans or boxes should be frequently attended to, and must be equally protected from heavy rain and cutting winds; all air possible must be given on fine sunny days, occasionally watering with an extremely fine rose. The weather has hitherto been so unpropitious that few collections

have been planted; we would advise advantage to be taken of the first favourable opportunity. Those who have not had the means, or who have been indifferent with respet to covering their Tulips, will most likely find that their bulbs have suffered by the late severe frosts. The foliage which has been injured, or which assumes a cankered appearance, must be cut away with a sharp knife. *Carnations* ought also to be examined, and all dead leaves removed, as well as the axils of the leaves thoroughly cleansed from all impurities which may have lodged therein. *Auriculas*, must also be specially guarded from frost, as they now are moving, and when the nights are more than usually cold, an extra mat will be necessary. *Pinks.*—Look over the beds and fasten the plants raised by the frost.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—Follow up and complete all necessary arrangements consequent on the return of spring; such as shifting, top-dressing, &c. Bear in mind, as a general principle, liable only to trifling exceptions, that with those grown in pots, the final shift should take place from nine to twelve months previous to the time at which they are required to show: those successions which do not require shifting should have the old loose soil cleared from the upper part of the ball, receive a good watering (if not previously done) with good manure-water, and then be top-dressed with chopped turf. Insure a moist atmosphere to your early fruiters, and increase the heat very considerably to them on light or sunny days, shutting up on sunny afternoons with a thermometer at 90°, by 2 o'clock, if possible, and syringing freely soon afterwards. Take means to prevent the enlargement of the crown, keep down gills, and remove useless suckers. *Vineries.*—Those who force very early Grapes will do well to pay some attention to the excellent paper by Mr. Fleming in last Number. Vine-borders which are too wet, and cannot be renewed on account of the roots of the Vines, should have pots or large holes opened in every possible situation to which access can be obtained, and the holes filled to within 9 inches of the surface with bricks, stones, charcoal, old mortar, &c.; these will decoy much of the superfluous water, and admit a considerable quantity of atmospheric air. Follow up all former directions as to breaking, disbudding, thinning, tying, &c. The same principles which apply to the earliest house apply to all in succession. Shut up the earliest house at 90° very early on sunny afternoons, and use abundance of water immediately on all floors, tan, &c. Do not be too greedy to obtain what are called heavy crops, by which the Grapes are spoiled and the constitution of the Vines impaired. Increase your heat slightly in the other forcing structures, except where forcing has just commenced; there persist in "breaking" slow. Continue to make new beds in the Mushroom-house, with an eye to succession crops of Kidney Beans, Strawberries, &c. "A Subscriber" (p. 118), who criticises my observations at p. 85, has not given me fair play. By reference to p. 85, he will find that I did not deem a bottom-heat of 70° indispensable for Vine-borders during early forcing.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Vegetation having been so much checked by the late severe weather, planting and pruning of fruit-trees may be carried on with as much propriety as would have been the case with regard to these operations in the end of January in forward seasons. But the rapid development which results from a week or two of fine weather at this advanced period should be kept in mind, and every preparation made for such occurrence. The utility of coping boards for the protection of the blossoms of Peaches, Apricots, &c. on walls, was mentioned in a former Calendar; and in reply to a question on the subject I would mention that only temporary copings were recommended, with the exception of the usual projection of 2 inches, of stone or other material of a permanent nature, for the protection of the wall. Any greater projection is injurious to the trees in summer. But temporary coping boards, about 9 inches wide, afford the blossoms great protection from spring frosts; and when all danger from the latter is over, they should be removed. They should be made to fit close underneath the permanent coping, and should be supported by stays or brackets. If the ground be in good condition, plantations of Strawberries may be made. Presuming the runners of last season were planted out in nursery beds, and the plants now taken up with good balls by means of a hollow trowel, and carefully planted and well mulched, crops will be obtained nearly equal in the first season, and superior in the second to those resulting from an autumn plantation. *Kitchen Garden.*—The state of the weather has retarded most of the operations recommended last week; they should now be attended to. Prepare for sowing full crops of Carrots, Onions, Peas, and Beans. Plant and sow Asparagus. In dry soils, the principal crop of Potatoes may now be planted. Draw a little earth to Early Peas, and stick them immediately afterwards with a view to shelter as well as support.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppices.—The long continuation of frost will necessarily have prevented much out-door work from being completed, especially deciduous planting, which it is important now to finish as early as possible; where the land is likely to suffer from drought later in spring, it is advisable to puddle the roots. The high winds and frost will have loosened most of the plants which are already planted; these should be carefully trodden firm about the stems, and set upright before dry weather sets in. Thinning may still be continued, as before recommended. *Nursery.*—There is much to do here now. Sow Haws in rich soil; the seeds should be rolled in when sown, by which means a more regular covering may be given; the same may be said of other tree seeds sown in beds. Sycamore, Willows, and Beech are sometimes injured by spring frosts; they may therefore be deferred a month. Holly and Yew berries may now be sown, and all which are ready from the rot-heaps. Acorns and Nuts should be sown about half an inch apart. Continue the transplantation of rooted layers and two-year old seedlings.—*F.*

State of the Weather near London for the week ending Feb. 27, 1845, as observed at the Horticultural Garden, Chiswick.

Feb.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	21	14	29.946	29.757	44	20	32.0	S.E.	
Sat.	22	○	29.466	29.437	37	31	34.0	E.	.10
Sun.	23	16	29.467	29.377	44	31	37.5	S.W.	.16
Mon.	24	17	30.018	29.665	48	28	38.0	N.W.	
Tues.	25	18	30.116	29.964	49	37	43.0	S.	.26
Wed.	26	19	29.768	29.624	52	35	43.5	N.W.	
Thurs.	27	20	29.945	29.918	50	35	42.5	S.W.	
Average			29.816	29.669	46.3	31.0	38.6		.52

Feb. 21—Frosty; cloudless and fine; clear and frosty
22—Snowing; snow showers occasionally: overcast; foggy
23—Snow falling in large flakes; sleet and rain; dark clouds
24—Fine; cloudy and cold; overcast
25—Slight frost, with fog; cloudy and fine: constant rain in the evening.
26—Clear; cloudy and fine; densely overcast
27—Overcast throughout.
Mean temperature of the week, 2½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending March 8, 1845.

Mar.		Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun.	2	49.3	29.1	44.2	7	0.45 in.	2	1	3	—	1	6	6	1
Mon.	3	50.0	28.1	43.0	9	0.22	2	2	2	1	2	5	5	1
Tues.	4	49.5	33.8	41.6	8	0.48	2	5	—	3	1	3	4	1
Wed.	5	49.0	33.6	41.3	5	0.22	2	3	3	—	3	3	3	2
Thur.	6	48.2	33.1	40.6	9	0.25	1	4	2	1	2	2	3	4
Fri.	7	49.4	33.8	41.6	8	0.10	2	2	2	1	4	5	1	2
Sat.	8	50.5	33.7	42.1	6	0.17	2	3	1	—	5	3	2	3

The highest temperature during the above period occurred on the 7th, 1834—therm. 60°; and the lowest on 4th, 1843—therm. 18°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ANNUALS—*Bessy*—The following 6 hardy Annuals will make a good variety, viz., Collinsia bicolor, Lupinus nanus, Erysimum Perofskianum, Leptosiphon androsaceum, Clarkia pulchella, and Eutoca viscida.¶

APPLES—*J Walker*—The following are 20 good dessert sorts, viz., Kerry Pippin, Pearson's Plate, Sykehouse Russet, Court of Wick, Court Pendu Plat, Boston Russet, Braddick's Nonpareil, Sturmer Pippin, Claygate Pearmain, Herefordshire Pearmain, Pitmaston Nonpareil, Wormsley Pippin, Early Harvest, Golden Harvey, Summer Golden Pippin, Golden Reinette, Maclean's Favourite, Old Nonpareil, Ribstone Pippin, and Reinette du Canada.‡

ASPHALTE FELT—*Truro*—As far as this has been used in our presence, it answers the purpose better than mats, but it is more expensive. It requires to be nailed on light wooden frames, made on purpose. There are coverings of it in the Horticultural Garden, which have lasted several years.

BOOKS—*Caroline*—There is no such book. The information you seek respecting annuals is always mixed up with other matter in general works on annuals. Will not the list which we now publish answer your purpose?——*Q Z*—Both scientific and English names of British plants are given in Hooker's "British Flora," or Lindley's "Synopsis." You will find nothing capable of holding together sand so well as Carex arenaria and Elymus arenarius. If you can do so, get up belts of Scotch Firs, Furze bushes, or anything of a similar kind, in addition.——*P S*—No work on the subject has yet been published.‡——*G*—Mr. Murray's *performance* will be noticed some day. At present it must give place to matters of more importance.——*TA*—Sweet's "Hortus Britannicus."‡ ——*Anon*—M'Intosh's "Flower Garden."‡

BIRDS—*Furibus Hostis*—Why take offence where none is meant? Surely every one has a right to his own opinion. If we struck out of your letter expressions which we thought ill calculated for quiet discussion, you ought not to blame us. There was nothing in Mr. Bree's letter personal, or in any degree calling for so sharp a reply; and we are convinced that you will not upon reflection consider us wrong. We have expressed ourselves plainly enough on this subject; there is no common sense in asserting that birds *never* do more harm than good. The object is to put an end to the foolish war which ignorant people needlessly keep up upon a very important part of the general system of the Creation, and not to decry all instances where birds are destroyed. No doubt you have suffered as you state, and so have others; and in your case we dare to say we should do as you have done. To catch blackbirds, use a common spring rat-trap; bait it with a Cherry, placed on the platform; the birds will pounce upon the fruit and be caught by the neck; a boy may be employed all day long in taking the birds out and resetting a dozen of such machines. *Probatum est.* You may soon furnish all your neighbours with blackbird pies.

CAMELLIAS—*Constant r*—Your double Camellias, struck from cuttings, will produce double flowers without further trouble.

CHARCOAL—*Enigma*—This substance acts mechanically as a good draining material, and chemically as a condenser of gases, if not as a source of carbonic acid. It never can do harm: should be prepared from soft wood, or small sticks, or other refuse material. It may be bought, or, which is far better, made. Common coal will be more injurious than useful in potting plants? Read Lindley's "Theory of Horticulture," if you wish to understand the nature of plants. Mere routine can only be learned by practice: a man can no more learn to garden by books, than to make shoes by reading a treatise on shoemaking.

CHEATS—*Builth*—Says that he has suffered from his folly in believing lying advertisements, such as that published by us in a Leading Article (February 15). The person victimising him was a man at Bath, who, he says, has played off similar tricks on others. "Builth" sent him a sovereign, as desired, and in return has got nothing except 24 sorts of flower-seeds, for which 8*s.* were charged. The man who committed this fraud calls himself William Parker, Florist. We cannot say that we pity Mr. Builth, any more than we do the dupes of those French trampers, who are passing through the country.

CLIMBERS—*M G S*—You may add to your list of stove-climbers Manettia bicolor, Echites suberecta and atropurpurea, Aristolochia gigas, Thunbergia chrysops, Passiflora kermesina, and Loudoni, Ipomœa rubro-cærulea, and Stephanotus floribunda.‡

CONSERVATORIES—*X Y Z*—We are of opinion that an angle of 30° for the roof is enough to secure houses against drip; if houses are more steep they do not look well. One of the houses at Chiswick, constructed for Pines, is 18° and is almost useless for plants requiring much moisture; another at 30°, containing Orchidaceous plants, works perfectly well.

COTTAGERS—*Omikron*—We find that more space will be required for observations on your plan than we can this week spare room for. If you will favour us with your address, we will write; or we will make the paper the subject of a Leading Article next week.

FAIRCHILD'S LECTURE—*D*—This matter has already been adverted to at pp. 765 and 766 of last year. We are making inquiries, and will apprise you of the result.

GREENHOUSES—*P A*—We agree with you in thinking that the damage experienced by your plants arose more from mismanagement of heat than from frost. Remember what we told you very early this year—that the Fire King is more dangerous than the Ice King. Pelargoniums have stood this winter in a bedroom without a fire, the thermometer being at 3° *below zero* on the outside; and they are as healthy as ever. To stand in a greenhouse without fire, a large proportion of the commoner species may be taken, such as Pelargoniums, Camellias, Acacias, Fuchsias, Heaths, and the commoner kinds of New Holland and Cape plants. You will not be able to keep Rhododendrons or hardy shrubs in a greenhouse with any more success than tenderer species, if you mismanage them. Greenhouse plants should be kept dry, but not be dried up. If you used a Stevenson's stove for heating, you should have had a large pan of water on the top, and have kept a slack fire.

HEATING—*Snowdrop*—Of the many plans which have been given in the *Chronicle* for heating pits, we imagine that that published in last week's paper will perhaps best answer your purpose, and we would therefore advise you to take it as your model.‡——*Nemo*—Your information will prove of no advantage unless you attach your name to it; on the contrary it will do harm; for other persons will be expected to do as much as you have done for *lol.*, and how is that to be done unless they know where and how your apparatus is constructed?

HEATING PITS—*V C*—There can be no objection to your proposed mode of heating, by means of a pipe above and another below the soil, and both laid in water-tight gutters. You will certainly not have too much moisture below in summer: beware, however, of the contrary: the gutter above the soil can be filled or emptied according as a moist or dry heat may be found necessary.‖

HEMLOCK SPRUCE—*Beobackter*—Inquires why this kind of Fir is called Hemlock. We are unable to answer the question. Does any one know?

HYACINTHS—*E W E*—When those grown in water have done blooming, take them out of the glasses, cut off the flower-stems just below the lowest flower, and lay them in by the heels on a north border, with plenty of sand round the bulbs; then give them a good watering, and leave them until the leaves decay, when the roots should be taken up and kept in a cool dry place. Treated in this way, they may be expected to flower in pots next year.‡

INSECTS.—*Ignoramus*—Your insect is the Anthicus fuscus, which is often abundant on hot-beds. If you be sure they attack the leaves of the Cucumber, pray send us a fresh eaten leaf, and see if you can find out the transformations of this little beetle, and we will publish them. You have only to throw some of them into hot water to be convinced it will instantly kill them.*R.*——*R Reid*—Your larva would change to a beetle named Helops caraboides, which I have always found in rotten stumps of trees. I can hardly think one individual could cause the death of your Erica. If you find any more, please to send them in damp Moss that they may arrive alive.*R.*——*E X*—The book you mention will not enable you to name your insects, nor will any other *cheap* work. The most serviceable would be Samouelle's "Useful Compendium," but it is out of print.*R.*——*Peter Salt*—The Rose Aphis can endure a considerable degree of cold, and it is very probable that in severe weather it retires under loose earth; but the eggs are deposited upon the buds.*R.*

MANURES—*A C*—Your mixture of coal-ashes finely sifted, sawdust from Ash and Elm, with a little Fir, charcoal ground fine, and soot, all soaked in urine, will be an active manure, and will suit all sorts of plants, provided the Fir sawdust is left out; but it would be improved if the other sawdust were rotted; as it now stands, the sawdust will only be a vehicle for soaking up the fluid that is mixed with it. Take care that the latter is putrid before use; and it ought to be mixed with two parts of water while it is fermenting.——*Peter Salt*—If we can find anything to the purpose it shall be published.——*J M.*—We to-day give another List of Manures. The price of the articles varies from place to place, and from merchant to merchant. You will now see that gypsum is to be had for 30*s.*; if sold at a lower price it must be adulterated. It is impossible to give any short process which can enable farmers to ascertain the purity of gypsum. The simplest adulteration is chalk; the presence of this is discovered by pouring a little vinegar or any other acid over the gypsum; if there is any effervescence, it indicates the presence of chalk. The best safeguard against adulteration is to purchase only from respectable dealers, and not from those who offer goods below the fair market price; those are generally adulterated.

NAMES OF PLANTS—*D F*—Echeveria gibbiflora——*Stura*—Hardenbergia microphylla; Maxillaria variabilis, the yellow variety.——*J B K L*—Semecarpus anacardium, the Marking Nut.——*E S W*—Hardenbergia Comptoniana.

PEARS—*J Walker*—The following are 20 good dessert varieties: Marie Louise, Beurré Bosc, Hacon's Incomparable, Glout Morceau, Passe Colmar, Thompson's, Winter Nelis, Beurré Rance, Knight's Monarch, Winter Crassane, Dunmore, Ne Plus Meuris, Napoleon, Althorp Crassane, Flemish Beauty, Fondante d'Automne, Louise Bonne (of Jersey), Easter Beurré, Brown Beurré, and Jean de Witte.‡

POTATOES—*J Briggs*—Thanks. You will find an instance similar to yours mentioned at p. 293, 1844.‡

PROPAGATION—*H B*—Your questions require a very detailed answer. Some of the information you seek for will be found in the Articles "How to strike Cuttings." The others will be answered formally by our excellent correspondent "Duro."

PROTECTION—*W S*—We thought we had answered you before. Rhododendron ponticum is perfectly hardy in this country, and we therefore imagine yours to have suffered by other causes than cold. If, however, you wish to take them up annually and pack them on the floor of a cold Vinery, there is no objection to your doing so, provided they are not allowed to become dry. A north shed is a better place. That is what is done with them in Germany. But such trouble is, we repeat, needless in England.

TANKS—*E H*—We are sorry but not surprised to learn that you have experienced the effect of false economy. The sides of a large tank should not be in 4½-inch brickwork, which, as you have found, is useless, but at least in 9-inch. We apprehend, however, that the external puddling has been badly executed. Since you have incurred the expense, it would, perhaps, be as well to examine the puddling, and try to improve it. Was the bottom puddled? If not, the mischief lies there. Should that have been neglected you had better puddle the inside of the bottom, and throw an inch or two of clean small gravel over it, in order to keep the mud from rising.

THERMOMETERS—*Tyso*—A spirit thermometer, with the bulb naked, and projecting beyond the end of the scale, is employed for registering the lowest temperature under general circumstances. It is attached to a small post about a foot above the surface of the ground. But as heat radiates from the earth, thermometers are in consequence more or less so affected; and whilst the low temperature of the air has the effect of lowering the spirit in the thermometer, the radiation of heat from the earth tends to raise it. But by means of a radiating thermometer, radiation from the earth is intercepted, and a lower temperature is indicated, which is, in fact, an approximation to the actual temperature of the air uninfluenced by heat from the earth. In this kind of thermometer, the bulb is placed in the focus of a parabolic metallic mirror, usually made of silver-plated copper; but a basin of planished tin plate, or zinc, about 6 inches in diameter, and 2 inches deep, may be employed. Such an apparatus indicates the slightest degree of frost, when an ordinary thermometer will be several degrees above freezing.‖

THRIPS—*Sub*—We can add nothing to what has been already said respecting the destruction of Thrips on Cucumbers. Try dusting the leaves over with flowers of sulphur; let it remain on them for a few days, and then give them a good washing with the syringe.‡

VINES—*G B*—The white, black, and grizzly Frontignan may be grafted on the blue Frontignan. The black Hamburgh can be forced along with the above varieties, or indeed with any other.‖

WALLS—*B*—The number of bricks required for a 14-inch wall, 160 feet by 10 feet, will be about 26,470. It is not requisite to have piers.—*S.*

MISCELLANEOUS—*Sub*—The quantity of guano to apply per acre, and the mode of application is given in last week's *Chronicle*, p. 120.‡——*Sub*—You may prevent sparrows from destroying your Carnations, by stretching twine ornamented with bright coloured rags over the plants.‡——*Sayr*—White is not a colour, but a combination of all colours.——*M A*—The Numbers you mention are out of print, and it is doubtful if you will succeed in procuring them.——*Sub*—You will find the mode of melting sulphur in which matches may be dipped for the purpose of keeping rabbits from barking trees, given at p. 53, 1845.‡——*Amateur*—Picotees are better grown in pots than in the open border: in this way the white comes purer, and the plants are more easily protected from injury. They are generally grown in 11-inch pots, two plants being placed in each pot; or in 9-inch pots with one plant in each. Read Dr. Horner's excellent paper on the Auricula, vol. i. p. 296, who recommends pots for a full-sized plant not to exceed 4 inches at the top, and 3 at the bottom inside measure, and 5½ inches in depth.——*Clericus*—We quite agree with you, but it is kept a secret.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

Farm to Let.

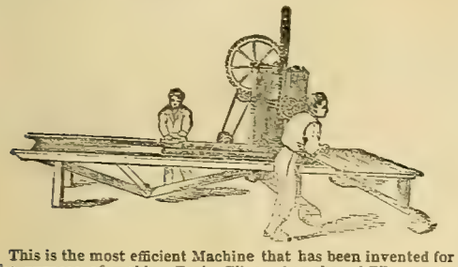
COUNTRY RESIDENCE, with FARM, to be LET ON LEASE, about 18 miles south-east of London. The accommodation is particularly adapted for an amateur farmer and sportsman, who may be seeking a good house with rural occupation and enjoyment. The house is a handsome modern villa, containing drawing-room 18 ft. by 14 ft., dining-room 18 ft. by 13 ft., breakfast-room 14 ft. by 12 ft., 6 good chambers, servants' rooms and offices, coach-house, stabling, barns, yards, and the necessary appendages of a farm, with 136 acres of land, in arable, meadow, and wood, capable of great improvement. The right of shooting is included, and the country is hunted with fox, hare, and stag-hounds. Rent, 115*l.* per annum. Premium, 210*l.* per annum. For further particulars and cards to view apply to Messrs. DAVIS and VIGERS, Estate Agents, 3, Frederick's-place, Old Jewry, London.

The attention of the Agricultural Public is especially directed to WEDLAKE'S SUBSOIL-PLOUGH, experience having proved it to be a most efficient and useful Implement, price 5*l.* 5*s.*; also

WEDLAKE'S CHAFF-CUTTING MACHINES and OAT-BRUISERS, which for many years past have obtained the approbation of the public. The use of WEDLAKE'S Oat-Bruiser especially will be found to effect a great saving in the feeding of horses and other cattle.

Mrs. MARY WEDLAKE, widow of the late Thos. Wedlake, of the Fairkyte's Foundry, Essex; and at the Agricultural Repository, 118, Fenchurch-street, opposite Mark-lane.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COLTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile, 11,000 | 1¾ inches diam. of Tile, 5,800
1¼ ,, ,, 8,000 | 2¼ ,, ,, 3,200

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for nowards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the Machine includes free use of it.

The Agricultural Gazette.

SATURDAY, MARCH 1, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, March 5 { Agricultural Society of England. / Highland and Agricultural Society.
THURSDAY, March 6—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, March 12—Agricultural Society of England.
THURSDAY, March 13—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Mar. 3 { Stewponey / Usk | Mar. 4—Abergavenny / Mar. 5—Monmouth

WE last week published an extract from a German work translated early in the present century by ARTHUR YOUNG, in which M. HIRZEL, the author, expresses the opinion that any *radical* improvement in Agriculture must arise out of a more accurate knowledge of the relations of soil to plants generally, and of the particular relations in which it stands to the several crops grown upon it; or, as it is said in the translation, out of "a perfect knowledge of the nature of soils, with a competent insight of such methods of manuring as are practised by the most indefatigable and industrious farmers for the attainment of a degree of fertility." This was penned in 1764, and, in its full meaning, it will, we apprehend, be admitted as correct by those best qualified to judge, now. The full meaning is this:—That there are certain conditions of soil required by *all plants* cultivated by the farmer in our climate—conditions which are understood to be consequent on the perfect drainage of it, and, possibly, on other modes of permanently improving it; and that there are other conditions of soil required by, and perhaps peculiar to *each crop* that may be grown upon it—conditions dependent, amongst other things, upon the kind of food required by that crop, and upon the abundance of it in the soil; and an improved acquaintance with all these circumstances, it is asserted, lies at the basis of any systematic effort to improve the practice of farming.

All this has been acknowledged by our national Societies; for, in reference to the first branch of the subject, they have offered premiums for the best Essays on Drainage, and on other processes calculated to improve the *staple* of the land; and in reference to the other department of it, premiums have been awarded by them for information on economical modes of *manuring*, and on the influence of specific manures on certain crops; and in Scotland, during past years, much accurate knowledge on the food of plants has been disseminated by means of the Agricultural Chemistry Association; and latterly, the English Agricultural Society has awarded a large sum of money to be spent in obtaining further information on the same subject by chemical analysis

The funds of such Societies, spent thus, are economically invested. All the results of Agriculture, whether animal or vegetable, are of course derived originally from the soil, and an effort to render *them* more profitable can in no way have wider influence than if made upon *it*. The *extent* of the influence, in fact, which efforts at agricultural improvement possess, are just proportioned to the nearness of the point towards which they are directed to this, the foundation of all good farming; if they are made upon our breeds of cattle, sheep, &c., they may be, and have been, most successful; but they terminate there. If upon the plants grown by the farmer, their influence extends beyond their *immediate* object, to the quantity of stock supported on these plants, which may thus be kept upon the farm, and to the manure from them, on which its fertility must depend; if they are made upon the soil, then, as we have said, their influence extends throughout the whole experience of the farmer.

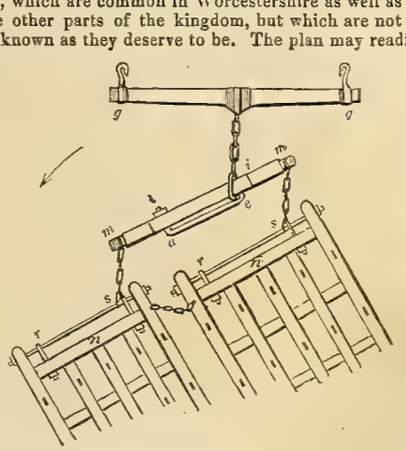
Now, hitherto, the attention of our agricultural Societies, it may be said, has been directed to two only of these subjects: they have praiseworthily, and with much success, endeavoured to determine the most efficient methods of improving and cultivating the soil, and they have offered considerable rewards for improved implements for this purpose; they have munificently patronised the successful efforts of individuals to improve our breeds of cattle, sheep, &c., but no patronage has been offered sufficient to stimulate efforts worthy of the object to improve our agricultural plants. Is it not reasonable to suppose that a portion of that large sum which has hitherto been spent by our national Societies in premiums for cattle, sheep, pigs, &c. at their Annual Exhibitions, might be safely withdrawn, and otherwise applied, now that the object of these annual grants may be said to have been so nearly attained?

Our domestic breeds, in the hands of many distinguished farmers, have been brought so nearly to perfection, that the Agricultural Society of England, for instance, may surely withdraw a portion of that patronage it has hitherto bestowed on this branch of farming, in order to transfer it to that other object, more important, as we think it, to the farmer—the improvement of agricultural plants.

Plants are capable of improvement just as animals are; our present Carrots, Turnips, Cabbages, &c., exhibit even greater differences when compared with the originals from which they have sprung, than those which are presented by our sheep and cattle when compared with the animals in the wild state from which it is supposed that *they* have been derived—and, among the means to which these improvements are due, hybridising has proved, in the vegetable as in the animal kingdom, one of the most important. This process, in its application to plants, is guided, just as in the animal kingdom, by certain rules, in the results which it affords; were it studied and applied as diligently as its importance deserves, it would, doubtless, prove a most efficient means of agricultural improvement; the gardener has already greatly benefited from it, and so may the farmer. Altogether, we cannot but think that this, along with the other means of improving agricultural plants, deserves more attention that it has received from Agricultural Societies. We shall next week consider in what way the patronage of our national Societies may be most usefully bestowed upon this subject.

SLIDING HARROWS.

I SUBJOIN a sketch of a very excellent kind of harrows, which are common in Worcestershire as well as in some other parts of the kingdom, but which are not so well known as they deserve to be. The plan may readily



be adapted to the largest-sized harrows, as well as to those of the smallest dimensions. The horses can be affixed double or single, as may be required; and as harrows so constructed work with more freedom than any other, they are better calculated to shake off weeds or accumulated rubbish. By the position in which they are worked every tooth must cut fresh ground, and from being joined to each other only by a light chain, with a hook and a ring, are continually shaking off obstructions, and adjusting themselves to their work in the manner most to be desired.

Mode of Construction.—With the exception of the wooden bars at *n n*, which form part of the frame-work, and the iron sliding bars, *r s*, which pass through iron eyes at *r r* and *s s*, screwed to the front bar, *n*, these harrows differ but little from any other. It will, however, be necessary to make an additional wooden swingle-tree, as shown at *m m*, of the exact length as the harrows measure from *r* to *r*, or *s* to *s*, when placed in their working position. This swingle-tree, *m m*, must be quite round; it must be ironed from *i* to *i*, to prevent the wood being worn by the friction of the large ring on the draught-chain, as it slides from *a* to *e*; also at both ends, through which iron pins pass, to attach the loops *m m*, and the chains *m s*; the loops allowing great freedom to the lateral working of the harrows. A flat staple, *a e*, 9 inches long, is also firmly attached by screw-pins through the iron part, *i i*. The draught is communicated from the large flat swingle-tree, *g g*, and is confined by the staple *a e* in such a manner that the harrows can only be drawn from the points *a* or *e*, 4 or 5 inches on either side of the centre of the round swingle-tree, *m m*, which of course throws the harrows into their true oblique working position. In turning the horses at the end of the field short back to the left hand, the ring quickly slides from *a* to *e* on the round swingle-tree, *m m*, which causes the two rings at *s s* to pass rapidly across to *r r*; both harrows are by this simple movement half turned round, and consequently are not at all liable to become entangled or to fall over, being turned on their own ground.—*H.*

EXPERIMENTS WITH MANURES ON WHEAT, IN THE YEAR 1844.

QUANTITIES OF MANURE PER ACRE, IN BUSHELS.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Super-phosphate of Lime, 70 lbs. per bushel, made with calcined bone, No. 17 being made with common bone	10																			
Phosphate of Magnesia, with Sulphate of Lime, 84 lbs. per bus.																				
Phosphate of Soda, with Sulphate of Lime, 65 lbs. per bushel																				
Phosphate of Potash, with Sulphate of Lime, 75 lbs. per bushel																				
Sulphate of Ammonia, 60 lbs. per bushel																				
Silicate of Potash, 110 lbs. per bushel																				
Rape Cake, 60 lbs. per bushel																				
Burnt clay ashes, to make each quantity equal to 20 bushels per acre																				
Mixture of equal parts of other 10 lots																				
14 tons of Farm-yard Dung, burnt to ashes																				
Farm-yard Dung		Tons 14		cwt. 32																
Dressed Corn, per acre, in bushels	18	22	16	16	16·8	16·5	16·75	16·25	21·2	16·4	18·8	16·75	17·5	17	17·8	21·25	20·5	22·75	26·25	21
Do. in pounds	1040	1276	923	888	956	964	984	959	1260	1008	1116	1004	1072	1016	1096	1304	1240	1366	1550	1228
Average weight of Dressed Corn per bushel	59	58¼	58¼	56	58¼	60	60¼	59	60	62	62	62¼	62¼	61¾	62	62¼	62¼	62	61¾	58¾
Straw and Chaff per acre, in lbs.	1203	1473	1130	1104	1116	1100	1172	1160	1368	1112	1200	1200	1204	1176	1240	1480	1422	1760	1772	1436
Relation of Corn to Straw (Straw being 1000)	864	864	824	804	856	876	840	845	935	906	930	900	890	864	864	881	872	774	802	855
Proportion of Increase in Corn by Manure (No. 3 being 1000)	1120	1382	1000	962	1036	1044	1066	1061	1387	1092	1209	1088	1161	1100	1187	1413	1343	1482	1712	1282
Proportion of Increase in Straw by Manure (No. 3 being 1000)	1074	1318	1000	966	996	982	1046	1080	1321	953	1071	996	1075	1059	1107	1321	1269	1579	1583	1282

Soil.—Heavy loam, well adapted for Wheat.

Previous Crops.—Barley, Peas, Wheat, Oats, all without manure, drilled in the autumn, 15 inches between

the rows; dung and dung ashes ploughed in, the rest of the manures drilled with the seed, with the exception of sulphate of ammonia, which was sown by hand in the spring. The quantity of land employed for each experiment about two-thirds of an acre. Although the quantity of Wheat grown upon No. 3 is given, it may be considered as being considerably higher than what an acre of ground without manure would yield, as it had evidently borrowed from the dung in the adjoining experiment; and as the length of each space was 400 or 500 yards, the increase must be considerable. The absence of all effect from the application of super-phosphate of lime in No. 5 is very remarkable, as this salt has been used upon the Wheat crop on the same farm for years, with remarkable success; but when used in conjunction with an ammoniacal salt, as in No. 9, the increase in produce is very striking, and proves that the previous crops had exhausted the soil of its ammonia as well as its phosphates, and that the Wheat was incapable of obtaining its necessary supply from the air, although in the ordinary course of cropping sufficient is left in the soil to supply its wants. The effect of sulphate of ammonia in Nos. 16, 17, 18, 19, is equally remarkable; and in No. 19, where a slight increase of the salt is added, the produce of corn is increased some bushels. In Nos. 10 and 14, where the silicate of potash was used in the largest quantities, much of the straw was green and unripe, especially in No. 14. Considering the large proportion of phosphate of potash that exists in Wheat, it is remarkable that this salt produces so little effect, although it may be observed that the weight of corn per bushel is higher when this salt has been used. The season that has just passed has been one not well adapted for experimental purposes, although Wheat is a crop that suffers less from dry weather than any other. It is intended repeating these experiments (with some slight alterations) this year on the same field, and the results will in some measure show whether the conclusions to which these experiments lead, with regard to Wheat, are correct.—*J. B. Lawes, Rothamsted, Feb.* 15.

ON DIBBLING SEED.

As you have already observed, agriculturists have, for many years past, been aware of the benefits which would follow this method of putting the seed into the ground. The delay in reducing this knowledge to practice has arisen only from difficulties in the operation. For a dibble may make a hole of the proper depth, but in coming out it may undo its work by casting the soil in again. Hands, as you have noticed, cannot or will not feel the exact number of grains; wherefore, in planting by hand the farmer is never sure at what depth in the soil the seed may be deposited, nor how many corns he may have in each hole; and yet these two are points which are most important to the welfare of the crop.

It is important that the seed should be placed at a proper depth, because as it appears to us those failures incidental to light lands, viz.—of plants being pulled up by larks or game, of being blown out by the wind, thrown out by the frost, washed out by the rain, scorched up by the sun, or of being otherwise root-fallen, arise almost wholly from the fact that the grain is imperfectly covered by the operation of the drill or harrow. In these cases, then, it is too near the surface, and is thereby wasted. On the other hand, when by ploughing in, or when by any accident belonging to the imperfect operations of drilling or harrowing, the seed is deposited too deeply, the roots are but partially invigorated by the sun and air, and structural diseases of many kinds are engendered, which (as the causes of them are not generally agreed upon), we shall forbear to specify. In these cases also the seed is unfavourably dealt with. And one fact we may notice as affording a very significant hint of the importance of this matter—a fact well known to horticulturists—viz., that a Ranunculus root planted at any other distance within the soil than 1½ inches will throw out its new roots exactly at that particular depth, and that in proportion to the deviation of the root from its proper position, so will be the corresponding weakness in its flower and its offspring. We conclude then that since the laws of plants are generally so very analogous this is a circumstance which ought to render the farmer a little more solicitous respecting the depth at which his seed is committed to the soil. But it is an important consideration also as regards the number of corns which shall be placed in each hole. Many of the disadvantages of a large number are so evident, that they need not be noticed; indeed, it is plain that if many are deposited, the evils of the dibbling system would be nearly as great as those of the other systems; while, at the same time, the chances of a crop would be greatly diminished. Now, theoretically speaking, there is no doubt that one corn in each hole is the only number to be recommended; but, in the present stage of our experience in rural economy, such a practice will not be ventured upon. For the following reasons, however, from two to three ought to suffice:—It is a law of plants, that in proportion to their tops so are their roots. Suppose, then, a space be marked out capable of maturing 15 ears of corn. The farmer is required to say how many corns he will sow on this spot, so that he may rear those 15 ears in the greatest perfection. Now, he knows that 15 grains may produce no more than that number, and he knows also that a single grain may produce as many. Is it, then, a question of the cost of seed only, whether he shall sow one or 15? We say, decidedly not; and this is the ground for our opinion. Say, for the sake of argument, that the space marked out shall be 60 square inches; the bounderies of it may not be passed horizontally, but, vertically, it may be occupied to any extent; so that the cubic contents of the soil are not limited, although the superficies is. Now, which will take most advantage of this indefinite depth—a single plant with 15 stalks, or 15 plants of one stalk each? Surely, if the law of vegetation above mentioned be correct, the single plant will be in the condition to draw most nourishment from the soil. *That*, because of the vigorous state of its upper growth, will be able to send down its roots more strongly, deeply, and numerously, than any one of the 15, or than all of them together; for they, because of the slender nature of their stalks and flags, must have slender roots occupying only a much shallower depth of soil. The ears of the latter will be weak and small, and the grain stinted; while those of the single plant, although as thick together, and occupying no more superficies, may be strong and healthy, and the berry full and plump. And this is exactly analogous to the difference between producing a ton of small Swedes, or a ton of large, upon a given space of ground; and also to the difference between feeding five or seven Scots upon a limited quantity of food. We conclude, therefore, that upon the calculation of the number of corns which each space can bear depends the question whether the farmer will secure much or little food for his crop; and that the smallest quantity he dares to venture upon will put him in possession of the largest resources.

Now, if a dibbling machine could be provided which should combine the operations of infallibly placing the corn at a certain depth within the soil, and of accurately measuring the exact number of corns desired to be sown upon a given space, the farmer would gain the following advantages:—He might profitably reduce his quantity of seed corn in the case of Wheat to one-fifth of that usually sown; in the case of Barley to even less, and so on. He might make the best not only of the surface of his field, but also of all its nourishment to an indefinite depth; he might so regulate his plants that the sun and air should at all stages and from all points affect them beneficially; he might get it hoed and cleaned more perfectly, and by less experienced hands; he would constitute the land the judge of how many good ears it could maintain, and in consequence the crop at harvest would be more economical, and judging from the result of all well-conducted experiments, both larger and finer. Such a machine would not be a panacea for all ills, it is true; but it would go a great way towards removing the despair with which many a hard-driven farmer dives into the depths of a pocket, already emptied to an alarming extent by the numerous drains made from it: and such a machine they may find if they inquire. Is it not desirable that they should take the matter into consideration?—*H. W.*

Home Correspondence.

The Allotment System.—Mr. Cowper's Bill.—I quite agree with you, that personal allusions should, as much as possible, be avoided in newspaper controversy—that the matter and not men is all the public have to do with; but I do think that all writers should take a lesson from Lord Palmerston (see p. 121), and give their names and places of abode. I will now very shortly reply to "E. J. H.'s" letter. I have nowhere said that I had let 8 acres for 8*l.*; an employer had let 11 acres for 8*l.* I never intended that the appropriation of rent from parish lands should go to other parties than those entitled to receive it at the time the Act might pass. I have never yet known a clergyman that would not be happy to assist his poorer parishioners in carrying into effect any safe plan of extending the allotment system: at present no one can do it safely. Under the provisions of Mr. Cowper's Bill they would be quite secure. By means of the Wilful Trespass Act, I have regained the possession of allotments which I could not have done under the 1st & 2d Victoria, cap. 74; the latter Act only facilitates the recovery of possession of tenements after the determination of the tenancy, but gives us power to do so, for breach of any agreement before that time, which I will illustrate by an example. In one of the Midland Counties I let several gardens to labouring men at Christmas; at Midsummer I went to view the gardens. I found a small tradesman in the possession of one of them, which had not been let to him. I found that the poor labourer to whom I had let it, had got into his debt for bread, bacon, and other shop goods, and had made over the ground and crop to his creditor, in satisfaction of the debt. I gave the tradesman notice that if he went upon the ground I should proceed against him as a wilful trespasser: he persisted in going upon the ground; I summoned him, he was fined, and I restored the garden and crops to the original taker. "E. J. H." will at once see that under the 1st and 2d Victoria, I could not have regained the possession at such a time and under such circumstances. Now, under the provisions contained in the 22d and 23d clauses of Mr. Cowper's Bill, the Field Garden Wardens can at any time serve a notice to quit, upon any tenant whose rent shall be four weeks in arrear, or who shall not have duly cultivated his garden, according to the true intent and meaning of the agreement under which the same is held; or if the occupier shall not have duly observed all the conditions and regulations contained in the said agreement, then and in every such case the Field Garden Wardens shall serve a notice to quit upon the occupier of such field-garden; whereupon the occupier shall deliver up possession of the same to the Field Garden Wardens within three weeks after such notice has been duly served upon him. The next clause provides for compelling the occupier to give possession of the garden, and the 24th clause directs in what manner the arrear of rent is to be recovered; so that "E. J. H." will find that the provisions in Mr. Cowper's Bill are more summary, and for different purposes, than those of the 1st & 2d Victoria, cap. 74. That Mr. Cowper's is not a perfect measure I readily admit, but that it is an instalment in the right direction I am quite sure of. To make it perfect, provision should have been made for enabling the trustees of any parochial lands, at the request of the Field Garden Wardens, and with the consent of the ratepayers in vestry, to make exchanges of distant lands for land nearer to the town or village, and for exchanging allotments of commonable lands in like manner. I hope, however, that when the Bill is before the House, Mr. Cowper or Mr. Miles will introduce clauses to the effect above stated. With regard to the price of 8*l.* per acre, clear of all rates, assessments, tithe, rent-charge, for the land in question, I have to observe that its quality is not exceeded by any I ever saw: it was an ancient Grass field; the surface soil a rich vegetable mould upon a mellow loam 2 feet deep, with a stronger loam 2 feet lower down, and then gravel; a never-failing stream of water is on one side of the close, and a large pond on the other; and the gardens are not more than 500 yards from the most populous part of the parish. My object in promoting the inquiry in this instance has been to ascertain the opinions of practical men on this most important subject, because I am satisfied that a temperate discussion in a respectable journal, such as the *Gardeners' Chronicle*, will frequently be found quite as useful towards forming a correct opinion, as the reports of some of the committees appointed by Parliament.—*James Dean, Tottenham.*

Management of Farm Manure.—In order to economise and preserve in the best possible state the manure on my farm, and to perfect a simple practical system for adoption by farmers in general, but more especially by those with whom I have influence, and who may personally inspect my operations, I have carefully extracted from your Paper, and from the best works of the day, what appears to me to bear upon this important object; and I am decidedly of opinion, both practically and theoretically, that the best system of farm-yard manure management is the one I have adopted, thus:—I have excavated the rock underneath my cart-stable to a sufficient depth to give head-room and afford stowage for some 20 or 30 tons of litter, arching it over with brick, and leaving in the arch, on one side, a trap-door in the floor, which is laid with drains to sweep and fall into it. Thus, every day the manure from the horses is easily swept through into the pit below, and the lid kept close. There is a small port-hole outside the stable, through which it is emptied, and I have thrown around it an inclosed area, with a slope into the pit for my store pigs to run under, which, from their treading, routing, &c., greatly benefit the mass. Thus the manure is preserved from the effects of rain, wind, &c.; and I have no difficulty in getting my stable regularly cleaned down into the pit; and I possess my horse-manure in a highly valuable state, full of the salts of ammonia, and so pungent, that the men, when they get underneath to empty it, if it happens to get too full, cannot bear it long; and I begin to be afraid for the safety of the animals that act there as my daily labourers: but, as I have before explained, they have at option fresh air in the adjoining area. Now, one object only is wanting to make my plan complete, and that is, some cheap fixer always at hand, and of easy application, which, by being occasionally strewed over the manure, may tend to rot it more effectually, and whilst it preserves all its essences uninjured, may render it more wholesome for man and beast, and prevent the flying off of the volatile salts, which will more or less escape through the port-hole. Will any of your correspondents advise on this subject? I have had a similar pit made at one end of my cow-house, not arched over, but open up to the roof, into which all the manure and drainage from it runs and is swept, and upon which I keep my fat pigs. It is open only at one side, towards the north, and consequently not exposed to the baneful influence of weather. My pigs do very well upon it: the larger they are, the better, as their weight compresses it; but it is liable, like that under the cart-stable, at a busy time, to remain unemptied too long; and then I think the heat must be injurious to animal life, or at least retard the pigs fattening. Here, then, some fixer of a simple practical nature is also necessary, which, if attainable, is very desirable on every account; but if not, I do not hesitate to pronounce this, in my opinion, to be the best and simplest plan for farmers to adopt to economise both labour and manure; and inasmuch as I believe cattle of all kinds, or at least most of them, are best under cover, it is easy, of course, to multiply the number of pits under or near to the places where the feeding-houses are; and if, when they are emptied, the manure cannot be at once carted and ploughed in, which I think the best way, I would suggest a commodious reservoir in the fold-yard, or a small one in each field, where from time to time, in a frost, or at other leisure periods, the manure may be carted out, and immediately covered up with soil, ashes, or something to prevent evaporation. I have also had a manure-tank constructed under ground, with covered drains laid from the house, fold-yards, water-closets, &c. &c., into which all liquid refuse of every description is conveyed, as well as a sufficiency of rain-water from the buildings to dilute it; and by means of a pump and water-carriage I obtain large quantities of excellent liquid manure for my Grass land, &c. Thus, then, with these conveniences, which of course should be provided by the landlord, the farmer, with a good start to give the whole fair play, I believe need not trouble himself about buying guano, or any other manure; and it will be his own fault if he does

not keep his horses at home, and make manure enough there for every purpose he may require.—*A Gentleman Farmer.* [Sulphate of iron, ground to powder, and well wetted, so as to be half in solution, strewed over your heap, is perhaps the cheapest and most efficient fixer of ammonia you can buy. But if you use it, you must keep your pigs from rooting and working amongst it.]

The Plough.—I take the liberty of suggesting one point to your correspondent "M. S.," which has not been touched upon, and which I think, as far as I can form a conjecture from the preceding articles (which I have carefully read), it does not form any portion of his design to treat of. It is this:—In all works which I have read, and in all ploughing that I have seen, the practice is both recommended and pursued of placing the furrow-slice at an inclination, the favourite angle being 45°, excepting upon the best soils in this county (Kent), where a totally different system is adopted, and very carefully enforced. The system I speak of is that of turning the furrow-slice completely over. I have made inquiry on this matter, both from the most experienced and reflecting of the farmers, and also from intelligent ploughmen, and they all agree that this manner of ploughing is vastly superior to that which is generally recommended, more especially because it completely buries and destroys all weeds, and so more completely cleans the land. And although there is here, as well as elsewhere, a great deal of bad farming, I think that there is also, amongst the more educated and wealthy class of farmers, a great deal which is very good. I am, therefore, (though I am no judge myself) much disposed to think that their sentiments on this point are deserving of serious attention. The manner in which this point of practice influences the investigation now carrying on by your correspondent, is the change that it renders necessary in the form and dimensions of the plough itself. It is plain that, if the inclination be the same, the length of the mould-board must be greater to turn the furrow-slice completely over, than it need be to place it at the usual angle. This increases the length, and consequently, in some degree, the scantling of the other parts of the instrument. For if the length of the beam, &c., be increased without a corresponding enlargement of the depth and breadth, they would be unduly weakened. Consequently, the system here spoken of is necessarily carried on at an expense of increased weight, and the Kentish plough is seldom drawn by less than three horses. If the work be more efficient when done, it probably is worth while to submit to this increased weight of draught, but if the system pursued and recommended elsewhere be only equally efficacious it is an uncompensated loss; whilst if that system be more efficacious it is a double loss. I am extremely anxious to ascertain what is the correct opinion on this point, because it is one which affects the practice of a very large and populous district. The practice prevails, I believe, over the whole of this county, with the exception of the stiff clay lands in the Weald, which are treated differently. And further, if the practice of that district be really beneficial, the settling of the point would become more important still. For in that case it would be a benefit to the whole farming community, that they should be put in possession of the same advantage. One fact is undoubted, namely, that very large crops of corn are produced by the Kentish system. The best-managed farms are certainly very clean; and I am told that the Kentish plough, though generally censured as heavy, is admitted by the best judges to do its work remarkably well.—*An Original Subscriber.*

Farm Buildings.—I have been at some considerable expense in converting my buildings into what the Scotch call hammels, that is, a shed and yard attached for each pair of horses and cows; a mode of keeping, according to Sinclair and others, far preferable to close houses I have slightly deviated from this plan, finding it rare to meet with any two animals so amicably disposed as that one does not in some degree tyrannise over the other. My hammels are made up of a covered shed 12 feet square, with a 4-feet doorway, into an open yard about double the size, for one horse or cow (more room I could not afford), the animal having free ingress and egress both night and day. The complaints from my men are, that a horse, when warm from his work, is apt to stand starving in the yard, instead of eating his meat; that more litter is used (a scarce article with us); and that there is time lost in attending to the animals. One or two of the horses have not looked so full of flesh this winter, and the cows are supposed to have yielded less milk than commonly, though there has been abundance of fodder, with the exception of Turnips. I rather think I fell into an error in feeding from October to February, by cutting my hay into two-inch lengths, and giving it in that form, instead of long hay. I was led to do this from recommendations from all quarters; but my belief is that hay should not be given to them cut, unless grain be mixed with it. It approaches so near the food composed of short cut hay and grain, that grain is expected to be found in it, and the horse blows upon it, and is dissatisfied. I am anxious to know your opinion whether, *cæteris paribus*, the hammel system, or the common stalled stables for working horses and cows are preferable. I have not had sufficient experience of the two plans to decide myself. I wish to do the best for the animals, and would incur the expense of altering back again for this cause, but not to save my men the little additional trouble. —*P. Q.* [The hammels are understood to be preferred in East Lothian to stalls for fatting oxen; and so far as regards the health of the animals, we should prefer them for all kinds of stock. They certainly require more litter; but that on arable land is not an objection.]

Drainage.—I send you the following account of the expenses of draining 9 acres of land, which has provided employment for six men eight weeks. The soil is clay and arable. The highest part of the field is in the centre, which affords the advantage of carrying the drains in two directions. There are five principal drains into which the smaller ones are carried, they being 27 feet apart from each other, none less than 30 inches deep. The material —flint, broken as for roads, and put in clear 10 inches deep, over which, in 7 acres, was laid Heath, procured 4 miles off at 25*s.* per 100 bundles (a waggon load); the other 2 acres had Bean haulm instead, and then the soil—

	£	s.	d.
164 yds. flint, delivered and broke, at 3*s.* 6*d.* per yd.	28	14	0
200 bundles Heath, 2*s.* 10*d.*; Manor, 10*s.* 8*d.*	3	6	8
Bean haulm	1	10	0
Team labour	30	10	0
Labourers' wages	28	8	9
	£92	9	5

The expense is heavy, at which many will be surprised, as I have heard of land which has been drained for only half the amount, but I much doubt effectually, as upon comparing notes with a neighbour who has drained double this quantity with half circular tiles and flats, there has not been a great difference (about 10 per cent.) I have preferred flints to tiles, as I observed in my neighbourhood a field that was drained with tiles (what are called horseshoe), 17 years ago, undergoing again the same operation last year, many cart-loads of broken tiles having been taken up, which were originally not placed deep enough below the surface.—*A. P.*

Influence of Allotments on Pauperism.—Having read with much concern in Sir James Graham's speech, on the 10th of Feb., as reported in the *Gardeners' Chronicle*, that "one-tenth of our population or 1,500,000 persons are receiving parochial relief, and that since 1815, no less a sum than 200,000,000*l.*, or one-fourth of the capital of the national debt had been levied in poor-rates," I hope you will allow me to state the result of my observations in this neighbourhood since 1816, because they point to the cause of this state of things, and an allotment system as its remedy, with benefit to all classes in England. To show that I am not a theorist, I must tell you that when I succeeded to the management of my family property, finding 960 acres on Beachy-head let for less than fair interest on the cost of the great farm-house with three barns, each 100 feet long, and other suitable buildings, which I was at the cost of keeping in repair, and that in that thinly-peopled parish the rates were 5*s.* 3*d.* in the pound, and that the tenant occupying a better farm in the next parish, did not live in East Dean, where there was much distress from want of food and want of work, I advertised this farm with the pasture part and buildings at the usual rent, and the 300 acres of arable land at only 1*s.* an acre, on condition of its being cultivated by the spade only—half annually in grain, and half in root or green crops, to provide manure; when several Norfolk farmers came to see it, w' o refused it saying, they saw no Turnips; on which I took the land in hand, and the second year having 250 cartloads of Turnips more than my stock could consume, three principal farmers sent up their sheep to consume them; and this suggested that instead of selling off all but the stock flock at Michaelmas, I should keep 100 to fat. And finding they much relished the great Belgium Carrots, my bailiff sowed 10 acres last year, of which I subjoin his report:—"The excessive wet of last winter prevented the best farmers under the Downs from preparing their stiff land for Belgium Carrot-seed before the succeeding continued dry weather prevented the seed from vegetating; but as the chalk soil absorbs all the rain which falls on it, I was able to sow 10 acres of White Carrots on Birling, between the middle of March and the middle of April, which got root to stand the dry weather, and swelled into bulbs with the first rains, many of which exceeded 5lbs. weight. This encouraged me to keep 80 sheep, which would, according to custom, have been sold in the autumn to be fatted elsewhere, to be kept and fatted at Birling, on Carrots and other farm produce only; and a pen of these sheep being found the best at Hailsham market, January 22d, I am tempted to beg the favour of your printing this, to invite other farmers on the chalk soil to try early sowing lest dry weather should again check the growth of Turnips on the Downs; but I must add, it was not only early sowing which gave this useful crop of Carrots for sheep and oxen, which they thrive on better than on Turnips, but having the land well dug, two spits deep, one spit under the other, with forks 14 inches long, which was thankfully done at 3*d.* a rod, or 2*l.* an acre, which answered so well that I am now employing six men digging the alluvial deposit in a valley, for Carrots.—*Thos. Shorter, Bailiff of Birling Farm, on Beachy Head.*" I also send a little book, printed in Yorkshire, founded on the letters the Earl of Dartmouth has paid for weekly for 12 months from my tithe tenants, in which you will see that John Harris, who was a pauper in the East Bourn Union-house in 1840, with his wife and seven children, at a cost then, for food and clothing only, of 1*l.* 7*s.* a week, or upwards of 70*l.* annually, which is equal to the rent of 351 acres of sheep-walk, as let by me and others, at 4*s.* an acre—this J. Harris has for the last two years and a half supported in comfort his family of nine on 5 acres of the same land, though certainly a sheltered spot; and, from being a rate-receiver of the interest of 2340*l.*, 3 per cents., is become a rate-payer. This the Earl of Devon and Captain Kennedy witnessed the middle of June last, when they came and slept at my house, that they might inspect this and other 5-acre lots cultivated by the spade—a mode of husbandry which, judging from the old inclosures left, was probably usual when my land was held of the crown on the tenure of military service, and bringing a certain number of men armed into the field, when called on to defend the country. The easiest way of supporting these soldiers was letting them, at quit-rents, by copies of the Knight's Court Roll, enough land for each man's cultivation. This system continued till Cromwell pulled down the castles and exonerated land from military service, since which many small holdings have been put into a few large ones, where, instead of nine persons living in comfort on 5 acres, on some farms not so much as one man is kept all the year round on 100 acres, though it produces usually 4 quarters of Wheat per acre. However, my principal tenant has kept, ever since 1834, 10 men on every 100 acres arable he rents of me, and is the first to pay his rent.—*M. A. Gilbert.*

Steaming Cattle Food.—I felt interested in the two experiments you have noticed in a late *Gazette*, on the steaming of food for cattle; and I have noticed in another part of the *Gazette* a discussion which took place last week at the Hadleigh Farmers' Club, on the Root-crop. Two of the members of that Club are in the habit of steaming their roots, &c., and both appeared to be perfectly satisfied that the practice was useful. One of them, who has continued it for 5 years, always pours the syrup which comes from the roots upon the steamed chaff and hay, and thus loses nothing; whilst the other throws it upon his manure heap, believing it may be injurious to the cattle, and fitted only to re-feed his crops. In the experiments you have noticed, the cattle are stated to have eaten much more of the steamed food than of the raw: but one of the parties to whom I have alluded, assures me that he has always considered the reverse to be the case! Now it does not appear from the experiments, whether any account was taken of the saccharine juice which distils from the roots; and possibly this may have been left out of the calculation. There appears, therefore, to be need of further experiment, before this question can be considered settled. I am informed that 1 ton of Turnips which weighed 70 lbs. after it was steamed, was considered to have gained about 15 lbs. by the process; whilst another quantity which measured 16 bushels before steamed, was supposed to have become condensed down to 14 bushels. If you will suggest the terms under which a course of experiments on this question may be tried, I make no doubt that others, besides the two gentlemen to whom I have alluded, will be very glad to determine, by some incontrovertible results, whether they are really profiting or not by their practice of steaming food or cattle.—*J. S. Henslow.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's house in Hanover-square, on Wednesday last, the 26th of February; present: P. Pusey, Esq., M.P., in the chair; T. R. Barker, Esq.; F. Burke, Esq.; Dr. Calvert; F. C. Cherry, Esq.; J. Croome, Esq.; H. Colman, Esq.; J. Dean, Esq; Dr. Robert Dickson; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; B. Gibbs, Esq.; H. I. Grant, Esq.; W. G. Hayter, Esq., M.P.; E. B. Hippisley, Esq.; T. H. Langston, Esq. M.P.; W. Miles, Esq., M.P.; A. Ogilvie, Esq.; J. Parkes, Esq.; L.E.; E. Parkins, Esq.; E. W. W. Pendarves, Esq., M.P.; F. Pym, Esq.; Prof. Sewell; W. Shaw, Esq.; S. Solly, Esq.; S. R. Solly, Esq.; T. Tweed, Esq.; and G. Wilbraham, Esq., M.P.

The following new Members were elected:—

Denston, William Stephen, Grafton Lodge, Shrewsbury.
Bloxam, Henry, Shrewsbury.
Ward, Thomas Henry, The Lodge, Chirk, Denbighshire.
Oswell, Thomas S., Ellesmere, Salop.
Macdonald, George, Ellesmere, Salop.
Groom, John, Hordley, Ellesmere, Salop.
Cureton, John, Hordley, Ellesmere, Salop.
Steedman, Edward, High Ercal, Wellington, Salop.
Wagstaff, G., Gordon Castle, Fochabars, N.B.
Kempson, John, Birchyfields, Bromyard, Hereford.
Thomas, F. H., Much Cowarne, Hereford.
Denston, Stephen, Stanwardine Hall, Ellesmere, Salop.
Lewis, Robert, Bagley, Ellesmere, Salop.
Hassall, William, Hadley, Whitchurch, Salop.
Wyndham, J. E. Corton, Sherborne, Dorset.
Leir, The Rev. W. M., Ditcheet, Castle Cary, Somerset.
Stammers, J. B., Holywell Cottage, St. Albans, Herts.

The names of 22 candidates for election at the next meeting were then read.

Epidemic among Cattle.—The Duke of Richmond transmitted to the Council seven communications on the subject of the Epidemic among Cattle on the Continent, forwarded to him by the Board of Trade, for the information of the Society. These papers related chiefly to the regulations adopted in this country as well as abroad to prevent the communication and extension of the malady by the transfer or importation of diseased stock. The Treasury, it appeared, had "instructed the Commissioners of Customs to direct their Officers carefully to examine any cattle imported into this country, and in the event of their appearing to be infected with any disorder, not to permit them to be landed without inspection, and report as to their soundness by some competent person, and to report forthwith the circumstances to their Board;" while in Austria and other parts of the Continent, the Authorities were instructed to institute strict examinations into the condition of the stock. The following is the translation of part of a dispatch from Baron O'Hillioun de Grasse, Belgian Envoy at Vienna, dated the 6th of January last:—"The malady termed *Peste Bovine*, made its appearance first in Russia and Bessarabia; then it extended itself successively in Moravia, in Upper and Lower Austria, in Bohemia, in

Poland, and in Gallicia. It has been in these two latter countries that it has committed the greatest ravages; but less, however, than asserted in the public papers. Thus, for example, in Bohemia, not more than 1200 sheep had died of it up to the 20th of December. As soon as the epidemic manifested itself in any province of the Austrian dominions, that province was immediately placed in a state of suspension and quarantine, so that no horned cattle were allowed to be removed from it into any other; nor could sheep, pigs, wool, pigs' bristles, raw hides, hoofs, unpurified lard, be allowed to be exported. In pursuance of this regulation, all communication with other parts of the empire in reference to such commodities, was interdicted in Gallicia, Bohemia, Moravia, and Upper and Lower Austria; but such interdiction no longer remains in force, excepting in the cases of Gallicia and Bohemia. Besides these precautions, the Austrian Government has established a quarantine against Russia, Besarabia, and Moldavia. Notwithstanding the amelioration of the disease in the Austrian States, the Governments of Bavaria, Saxony, and Prussia, have each established a quarantine against the whole of the Austrian provinces in which the epidemic had been declared to prevail. Within these few days, however, these three States have permitted the importation of wool, on the condition that it shall be always packed in bags hermetically closed, and intended for transit, or rather for direct transportation to its destined factory. The suspected articles already mentioned are principally sent into Prussia, Saxony, and Bavaria for the purpose of being forwarded thence into the Rhenish provinces and Belgium, as well as in less quantity into Holland. At present, no means of purification have been employed in reference to the articles of merchandise under suspicion; for if any such means of an efficient nature existed, their employment has been retarded in consequence of the difficulty anticipated in putting them in practice on a great scale; and also because all suspected animals are immediately slaughtered. As soon as a case of epidemic occurs in any part whatever of the Austrian dominions, every animal of the same establishment is required to be immediately killed, and buried whole without being cut up. Before such step, however, is taken, the proprietor of the stock is held bound to communicate the fact of the appearance of the epidemic among them to the knowledge of the Sanitary Commission, which at once delegates a veterinarian, accompanied by the local authority and an appraising commissioner. These delegates divide the stock into three classes. 1st—Diseased animals; 2d—Suspected animals; and 3d—Healthy animals. The appraising commissioner estimates the value of the stock in the two latter classes; and the proprietor of them is indemnified solely on account of the suspected and the healthy animals. For the former of these, the suspected, he receives one-third, one-half, or two-thirds of the estimated value; for the latter, the healthy, he is paid the whole value. It is only after such an inquiry and decision that the whole stock of any given establishment is put to death. This slaughtering takes place without any escape of the blood of the animals. In spite of these positive prescriptions of the government, it is astonishing to find announcements in the public papers of cases of restoration to health in the animals which have been attacked by the disease: circumstances which would lead to the supposition that the regulations were either not general and uniform, or that they were not duly enforced. The greatest possible cleanliness is enjoined by the Sanitary Commission, in the places where the stock is kept; and it has been remarked, that the cold weather has had a favourable influence on the health of the animals. It has been asserted, that in Austria a disease of the same nature as that affecting cattle, had attacked the hares and foxes of that country; the Government denies this circumstance in the most formal manner."

His Excellency Sir George H. Seymour, G.C.H., in his despatch of the 1st inst., from Brussels, to the Earl of Aberdeen, says:—"I beg to transmit copies of the Report of the Committee upon the Bill presented to the Lower Chamber respecting the precautionary measures to which it may be necessary to resort, and of the Bill as amended in its progress through the Chamber, and now about to be submitted to the consideration of the Senate. The Government, as your Lordship will observe, contents itself with demanding of the Legislature such extraordinary powers as may enable it to prescribe by arrêté the sanitary measures which circumstances may call for, in case of a near approach of the disorder. About a month since, considerable apprehension prevailed here with regard to this murrain (Epizootie); since then these feelings have, in great measure, subsided, the disease being understood to advance by slow degrees, and to decrease in intensity in the course of its western progress." The Duke of Richmond informed the Council that he had written to the Belgian Minister to procure for the Society the Report of the Committee of the Chambers at Brussels, referred to in Sir George Seymour's despatch.

Professor Sewell remarked, that the cause of epidemics in any form or in any country attacking animals in the first instance, proceeded from malarious emanations from the ground on which they gathered their food and on which they slept; that at such time it was inhaled undiluted with common atmospheric air, and was also received by cutaneous absorption, especially during the night. He considered that the house stock were more affected by modifications of the symptoms, the disorder in some assuming the character of scarlatina, typhus, and other fevers of the human species, the result of a combination of the gaseous exhalations from the lungs and skin of the animals, the fæces and urine, and the saturated state of the floors of the sheds or houses. It was found that low damp situations were the most productive of these diseases, the vitiated atmosphere being condensed and not so readily dispersed and diluted by currents of air and winds; and it was, therefore, advisable that immediate removal of the diseased animals should take place from the immediate spot, and if possible, to a drier situation; and that if rendered still more so by litter of any kind, the symptoms would be mitigated, and medical treatment more likely to avail. He also considered that a change of diet would be desirable, it being probable that the vegetable food, especially that eaten in the early part of the morning, might retain the terrestrial exhalations, and thus also convey the miasma into the system. With respect to treatment, he had nothing to add to the remarks he had communicated to the members on a former occasion, excepting to recommend more urgently the closest examination of the stock, at least two or three times a day, and the immediate bleeding of the animals on the slightest indication of disease. He added that inflammatory action was so violent and rapid in its progress, and so general in its attack, that disorganisation of some of the most important vital organs speedily ensued; or effusion into the cavities of the chest, abdomen, or brain supervened, and rendered medical treatment then seldom available.

Draining Tools.—Mr. Pusey produced to the Council three different kinds of draining-tools used in different districts for taking out the lowest or narrow portion of drains, on the plan which has prevailed for a hundred years in the Eastern Counties, and nearly as long in the South of England, this plan being suited to the most recent improvement in tile-making, the inch-tile, which Mr. Pusey had laid down in this manner on some very strong clay land. He recommended the lance-headed Suffolk tool for strong clay (Journal, vol, iv. p. 29); and for strong clay, perfectly free from stones or shells, the bitting-tool, described by Mr. Arkell in his Prize Essay on Draining (Journal, vol. iv. p. 327.) Specimens of these two tools were presented by Mr. Pusey to the Society.—Mr. Tweed said there was no doubt of the excellence of the lance-headed Suffolk tool for heavy clays; he could bear his testimony to its value from the experience of a long series of years.—On the motion of Mr. Raymond Barker, the best thanks of the Council were returned to Mr. Pusey for the favour of these presents.

Cabbage and Bean Crop.—Mr. Pusey reported to the Council, that Lord Lovelace's plan of growing the thousand-headed Cabbage as a crop, intermixed with the Bean-crop, which is described in the Journal of last year (vol. v. page 112), had been tried by one of his tenants in Berkshire, Mr. Brooks, of Lyford, and found to answer so well that Mr. Brooks intends to grow five acres in this way in the present year. The Beans are set in close double rows, with wide intervals between each pair of rows, in which the Cabbages are planted in May, and afford a most luxuriant crop of green food upon heavy land during the present month. Mr. Pusey considered this method of Lord Lovelace's one of the best plans which had been devised for enabling the farmer to grow green food on very heavy land.—Mr. Hayter fully concurred in the value of this arrangement, which he had himself adopted with great success, and obtained a magnificent field of Cabbages for his young lambs.

Communications were read from Mr. Munn, of Throwley House, near Feversham, Kent, on the construction of self-supporting hurdles, made of wood and strained wire, which he had had in use with great advantage, both upon pasture and arable land, during the two last seasons; from Mr. Mechi, of Leadenhall-street, London, on the question whether the effect of sulphuric acid and bones, as a manure, is counteracted or weakened in those cases where common salt has been recently applied to the land; from Messrs. Pettitt and Ridgway, of 11, Union-row, New Kent-road, announcing the invention of a cheap and efficient ploughing machine; from Sir Charles Burrell, on the advantages that would arise from the successful growth of the Italian Rye-grass on the clay-land districts of the Weald of Sussex, so well known as being unkind for pastures, and still more so for conversion from arable to Grass land, the want of which on farms generally of that character caused the occupiers to keep an inadequate number of stock for well-manuring their land from the farm-yards; from Mr. Babington, of St. John's College, Cambridge, on the botanical character of the Italian Rye-grass, which he stated was the Lolium Italicum of some botanical systematists, and the Lolium multiflorum of others, but that experiment seemed to show that it was only a variety of the common Rye-grass, and should therefore be denominated by the botanist as the Lolium perenne, variety Italicum; from Dr. Robert Dickson, of Curzon-street, requesting the Society's acceptance of a French work, by M. Boitard, on Ancient and Modern Implements of Tillage, illustrated by numerous engravings; and from Signor Pulini, thanking the Council for his election into the Society, and expressing his intention of forwarding to the Council, from Chili, the most detailed particulars of every fact in that part of the world connected with agricultural improvement; for which the Council ordered their thanks to be returned.

The Council then adjourned to Wednesday, March 5.

HIGHLAND AND AGRICULTURAL SOCIETY.

At the Monthly Meeting of this Society, held on the 15th inst., the first paper was read by Sir G. M. Grant, Bart., on the Scots Fir Plantations of Lammington and Lairg. The account of these plantations was drawn up by Mr. Grigor, solicitor, Invergordon. These plantations cover 1200 imperial acres. They are about 70 years old. The ground on which they stand forms the first and lowest of those hills which extend at from 180 to 410 feet above the level of the sea, three miles from the Moray Frith to the west coast of Scotland, and it also forms a natural bulwark against the northern winds, for the protection of the fertile land between it and the Bay of Cromarty. The hill extends from east to west, and the plantations cover its southern face. From the nature of the soil, its agricultural cultivation could not, 70 years ago, have been undertaken. At the present day, about 200 acres of its lower part might be profitably reclaimed. With the exception of the boggy parts, which are of limited extent though deep, the soil is well adapted for the growth of trees, consisting of about an inch of vegetable matter, 4 inches of sandy peat earth, 18 inches of sandy clay, 3 or 4 feet of red clay resting on clayey gravel, and the whole incumbent on sandstone. Towards the summit of the ground, the clay gradually diminishes into a lighter earth, and the peat-earth becomes deeper until it passes into bog. Owing to the peat-earth, the natural herbage is the common Heath or Ling (*Calluna vulgaris*) and Mosses. The rent of the whole ground may not have exceeded 10*l.* a year. Planting was effected 70 years ago with a sort of footpick, by making a hole in the ground, which was widened into a slit by the planter pushing the handle of the pick to and fro; and the plants were seldom put into the ground under three years old. It is evident that this mode is much more tedious and expensive, and less complete than the use of the hand-iron of the present day. All the fencing the ground had received was a turf-dyke along the lower end and both sides; and the ground never had been drained. After-management there must have been none, as the trees in the remote parts are growing as they had been planted, and without having been thinned, the stronger ones prevailing. In the more accessible parts, the best trees had been cut down as they were required, so that the wood throughout the greater and better part is too thin, and in the inferior too crowded. In the absence of authentic documents, the returns received by the cuttings of the wood when young can only be conjectured by looking at the remains of the wood itself. Taking this criterion as a guide, it is highly probable that the whole forest had been a very close crop; and allowing 4800 plants at the elevated, and 3000 plants per acre in the more sheltered portions, and taking the average number of 260 trees per acre still standing, the following seems a fair estimate of the trees taken from Lammington Park when the plantation was of age:—

From 40 to 50 years, 60 trees per acre, at 1*s.* 6*d.* each	£ 4 10 0
From 50 to 60 years, 80 trees per acre, at 2*s.* 6*d.* each	10 0 0
From 60 to 70 years, 120 trees per acre, at 5*s.* each	30 0 0
Making per acre	£44 10 0
Which, at 500 acres of the best of the wood, gives	£22,250 0 0
Of the inferior parts, the value of the produce stands thus:—	
From 40 to 50 years, 20 trees per acre, at 9*d.*	£0 15 0
From 50 to 60 years, 35 trees per acre, at 1*s.* 6*d.*	2 12 6
From 60 to 70 years, 50 trees per acre, at 3*s.*	7 10 0
Making per acre	£10 17 6
Which, over 400 acres, gives	£4,350 0 0
Making a total of	£26,600 0 0

Without including 150 acres of bog.

For thinnings these prices might be considered too high, but the size of the roots left in the ground rendered it obvious that the best trees had been thinned out, and what should have been thinnings allowed to stand. From similar data, the value of the thinnings of Lairg Plantation had been 22*l.* 12*s.* 10*d.* per acre, which, over 150 acres, gives a gross receipt of 3396*l.* 5*s.* The whole remaining wood, extending over 1200 acres, having lately been exposed to public sale, has realised the sum of 13,630*l.* The plantations were divided into 8 lots, and the trees in each lot were classified into large timber, containing 11 cubic feet each; square timber, containing 4 and under 11 cubic feet; and small timber, containing less than 4 cubic feet. Of large timber, in all the lots, there were 20,459 trees, varying in price from 4*s.* 9½*d.* to 7*s.* 7¼*d.* each, and realising 6726*l.* 5*s.* 5¾*d.*; of square timber there were 32,418 trees, varying in price from 3*s.* 0¾*d.* to 3*s.* 9¾*d.* each, and yielding a value of 5115*l.* 14*s.* 6¼*d.*; and of small timber there were 73,538 trees, at from 4¾*d.* to 7¾*d.* each, realising 1787*l.* 19*s.* 8¼*d.* The total result stands thus:

Lammington Park in thinnings	£26,600 0 0
Lairg wood	3,396 5 0
Value of old timber, as above, in both plantations	13,630 0 0
Making a total value of	£43,626 5 0

Which amount, from 1200 acres, gives a gross return of 35*l.* 10*s.* 5*d.* per acre, and over the period of 70 years, affords a rent of 10*s.* an acre for the land—a result highly calculated to induce proprietors to plant their uplands even with the Scots Fir.—The next paper, On the Improvement of existing Cottages, by Mr. Gorrie, Annet Cottage, near Errol, in the Carse of Gowrie, was read by Sir J. S. Richardson, Bart., of Pitfour, Perthshire. Mr. Gorrie enters very fully into the subject of rendering inconvenient cottages more comfortable within, and more beautiful without. He shows how it is possible to increase the accommodation of two adjoining common two-roomed cottages by additional building, in an easy and cheap way; how to render a small cottage more comfortable and convenient than it was before, without additional building; and how to increase the accommodation and healthiness of a

double cottage by the addition of a second story. As these particulars were necessarily illustrated with drawings and plans, the subject cannot be fully explained here. We shall, therefore, only notice a few general rules wished to be established by Mr. Gorrie for the construction of all cottages to be built anew, or for the improvement of those already in existence. Every cottage ought to stand on a raised platform, and have its floor above the ground by a foot or more, according to the nature of the subsoil. Drainage should always be attended to. The rooms ought to be 8 feet in height at least. The fire-places ought always to be on inside walls, to retain the heat within the dwelling. The door of the room should not open upon the fire-place, but be as near as possible to a corner opposite to it. No door or wall-press should be formed in a wall containing a fire-place, between the fire and the window of the room, as such a place is the most comfortable and best suited for a place to sit in to read. The chimney should be so constructed as to have a fine draught, and free from all tendency to smoke. The windows ought to be large, and reach near the ceiling of the room, to afford fresh air from its upper part. No thoroughfare should be allowed through one sleeping apartment to another, nor should a stair ascend from any of the rooms, but from a passage below to a landing-place above, in order that all the rooms should be independent of each other. No apartment should have its walls so broken by doors, windows, or wall-presses, as to prevent a dresser being placed against the wall, or even a so'a, which is a convenient piece of furniture in a working man's cottage for resting on when fatigued, or being converted into a bed when necessary. A broad chimney-piece should be placed over every fire-place. The walls and ceilings should be well plastered, and the inmates should be taught to paper, colour, or whitewash them. The floors of passages, &c., should be paved, or laid with tiles, and not made with clay or earth. No cottage is complete without certain out-houses, such as a place for fuel, a privy, a tool-house, cellar for roots, &c.; and circumstances may render a cow-house, piggery, and even a poultry-yard, expedient. These may all be placed in a back court or yard, either as a lean-to against the house, or in a separate building.—Professor Trail then read an account of the improvement of waste land, effected by Mr. James Cowie, on the farm of Haulkerton Mains, Kincardineshire. Mr. Cowie entered on a new lease of the farm at Whitsunday, 1843. The farm contains 240 acres, of which 44 were arable, consisting of bog and marshy ground, and which were so soft and spongy as to be impassable to man and beast. About 30 years ago 18 acres of the bog had been attempted to be cultivated, but was again abandoned. The value of the ground, as pasture, was under 10*s.* per acre, and the ground was so wet that the cattle could not derive benefit from it; so that the rough Grass obtained was chiefly used for litter, by which the value was brought up to 12*s.* or 15*s.* per acre. Immediately on the renewal of the lease, the proprietor deepened and straigthened the course of the Luther water which ran through the farm, furnishing outlets to ditches and drains. As soon as this work was accomplished, Mr. Cowie formed main-drains to receive the small ones, part of which were left open, and the rest laid with tiles or filled with stones. It is better to leave main-drains open where iron ore and silt exist, as they are apt to choke up both tiles and stones. The tiles for these drains cost 50*s.* per 100, (!) and the stones, from a quarry on the farm, were built with an eye of 8 inches square. The small drains were formed at 6 yards apart, the first 19 or 12 acres of which were cut from 28 to 30 inches deep, and filled with broken stones rather larger than road metal. The spade work cost 3*d.*, and the quarrying, filling in, and breaking, other 5*d.* per rood of 6 yards. The stones were carted to the ground with so much difficulty, that they were obliged to be carried in boxes by men. Such a drudgery caused Mr. Cowie to adopt tile instead of stones, the drains for which were cut 22 inches deep, at 1½*d.* per rood, and wooden soles and tiles placed on them cost other 4½*d.*, and in this way 15,000 tiles were used; but as the season advanced, Mr. Cowie resorted to the formation of turf drains. These were cut 28 inches deep, and 16 inches wide, with a shoulder confining the width to 7 inches at the bottom. The cutting cost 2½*d.*, and the putting in the turf 1½*d.* per rood. With the exception of a few acres, the soil was 19 inches deep, and consisted of rich alluvial deposit formed by the frequent overflowing of the Luther. After the moisture had been allowed to subside for some weeks, the ground was ploughed with three horses abreast, turning over a furrow of 8 inches in depth; and in effecting this the horses were continually sticking, and were obliged to be taken out with ropes. The ploughing being finished by the middle of March, the ground was sown in the first week of April with one quarter of Oats per Scotch acre, and harrowed along the furrows, as cross-harrowing would have raised the furrows. The seed was not well covered in, but what of the ground wanted seed was afterwards covered by the plants by tillering, and in other places the braird was too thick. The crop was bulky, having a flush of straw, and was much laid, which caused the corn to ripen unequally. The crop was cut principally with the sickle, and was stacked in excellent order. The produce is estimated at five quarters per Scotch acre. The quality of the grain is not good, being dark coloured, and weighing 40 lbs. per bushel. Mr. Cowie intends to take a few crops of Oats until the water Grasses are expelled, and the soil brought into a fit state for green crops. The ground is now quite firm and dry, and Mr. Cowie is sanguine that the labour and outlay of capital, which he has bestowed at his own expense, will be amply repaid him by subsequent cultivation.

FARMERS' CLUBS.

Chepstow.—Our readers already know that the members of this Farmers' Club passed a resolution to present Mr. Arthur Hall, on the occasion of his leaving the neighbourhood, with a service of plate, to mark their estimation of his services as their secretary, and also to attest the esteem he had acquired by his conduct in private life. Sufficient funds were promptly raised, and an elegant silver service provided, the presentation of which took place at a public dinner on the 22d of last month.

Reviews.

On the Beneficial Employment of the Surplus Labouring Classes, more especially the Agricultural portion of them, in the Winter Season of the Year, and on the Garden Allotment System. By James Dean. J. Rogerson, Norfolk-street, London, 1845.

Strictures on the "Reply" of the Poor Law Commissioners, to the Inquiry of the Right Honourable Lord Viscount Althorpe, Chancellor of the Exchequer, &c., on the Subject of Labour Rates, in a Letter addressed to his Lordship. By J. M. Paine. Nicholls and Sons, Borough, Farnham, 1834.

THE former of these tracts has been published with the view of bringing more immediately under the notice of the President and Council of the Agricultural Society of England, to whom it is addressed, certain letters it contains, which have been written by Mr. Dean during the past few months: some of them have already appeared in our columns. The first of the series was written in answer to Lord W. D'Eresby's communication to the *Times* newspaper, in which his Lordship advocated the superiority of a labour, instead of the ordinary money rate, for the employment as well as the mere relief of the poor. A large part of Mr. Dean's letter is occupied with a condemnation, (on which, of course, we can offer no opinion here,) of Lord W. D'Eresby's designation of the present Poor Law, and its workhouses; the rest of it, characterising a labour-rate as a temporary expedient, points out that certain clauses in the General Highway Act confer on the Surveyors of Highways the power of employing as many labourers as they please, in *their improvement* as well as repair, and recommends that a Bill be brought into Parliament to render all these enabling clauses compulsory. The following are the words used:—

"I mean the preparation of a Bill, to be laid before Parliament at the earliest moment in the ensuing session, to be intituled—'A Bill for making all the enabling Clauses of the General Highway Act compulsory, and to compel the Guardians of the poor in the several parishes and unions in England and Wales, in applying the test of destitution to the able-bodied labouring classes, to separate the industrious and well-conducted from the idle and profligate; compelling the Surveyors of the Highways to provide temporary employment on the public roads or elsewhere for the able-bodied industrious labourers—especially during the inclement season of the year—at fair wages for a fair day's work; and for these purposes, to direct that the elected Guardians of each parish shall, ex-officio, be surveyors of the highways, and, with the appointed Surveyors, form a Board in each such parish, giving powers to, and compelling such Boards, as such surveyors, to open, scour, cleanse, deepen, straighten, and widen, all rivulets, brooks, streams, sewers, open sewers, drains, and water-courses, from their sources to their outlets, and to make new outlets where necessary, making compensation for any damage that may be done to the property of individuals.' That such an Act has become imperatively necessary, no business man—indeed, no one—can doubt; the whole community calls aloud for such an Act, and honour and praise await him who has the courage to undertake it.

"Before I conclude, I will claim your lordship's attention to the state of the highways in almost every parish in the kingdom, as effected by railroads made and to be made. The traffic on the turnpike-roads, and consequently the tolls, is diminishing daily; the repair of many of those roads must, of necessity, fall on the parishes through which railways pass, and those roads which lead to railway stations must be rendered more commodious than was necessary before the railways were established, and, consequently, additional labour in their improvement and repair is or will be required. And it will deserve consideration hereafter, whether the Legislature might not, with propriety, authorise the placing of toll-gates upon all roads leading to such stations, as a means of indemnifying parishes for the loss of traffic and travelling on the present turnpike roads."

Now, putting out of consideration the difficulties connected with the machinery to be employed in the working of the two modes of parish taxation, it is obvious that the question of superiority lying between the money-rate and the labour-rate—the surplus labourers in the one case being employed as indicated in the former of the above paragraphs, and in the other being employed in the ordinary farm operations by the occupiers of land—must be determined by a reference to their respective bearings on the rate-payers, on those who are, and those on the point of becoming paupers, and on the nation at large. This last is of course interested, *first* in diminishing pauperism, and *next* in the profitableness, or rather the productiveness, of the employment which is found for the labourers. Nothing can be more important, as affecting drainage and other means of agricultural improvement—and few things, therefore, can be more profitable—than the straightening, cleaning, and deepening of public watercourses, which are among the works Mr. Dean proposes to make compulsory on Surveyors of Highways, in order that employment may be found for surplus labourers; and we mention this because as a labour-rate cannot be considered as a complete substitute for the present mode of parish taxation, but only as an auxiliary to it; whether such a rate be deemed expedient or not, Mr. Dean's suggestions are equally worthy of attention.

With reference to the influence of the labour-rate on rate-payers and paupers, no remarks of our own could put its expediency in a clearer light than the following extracts from the pamphlet by Mr. Paine, named above, which through the kindness of its author we have lately seen for the first time. One satisfactory instance of the *consequences* of the system is worth many long arguments, though founded on its *obvious tendencies.* "The parish of Farnham is both populous and extensive, comprising a variety of complicated interests, so that, at first view, it appeared a very difficult matter to reconcile all parties to the measure; or to devise any plan which would not only prove injurious to none, but would also enable every one, in a greater or less degree, to derive a positive advantage. This has been accomplished." *(To be continued.)*

Miscellaneous.

Experiments on the Potato Crop.—The idea of the following experiments was taken from reading Professor Johnston's "Suggestions for Experiments in Practical Agriculture," pages 28—30 and 63—67. The results and observations there set down are sufficient to excite the attention of every one having his own interest at heart; and that these experiments have failed to add confirmation to those is only another proof of what Johnston again and again holds out, namely, that what may be highly advantageous in one case may be of no use in another. A principal cause of the non-effect of the saline manures of fluid in the present instance, may perhaps be found in the proximity of the situation to the sea (the great source of saline matter), and in the fact that the land had been manured for more than 20 years almost entirely with fish and sea-weed.

Table of Experiments with different Saline Manures, upon Potato crop, 1843, tried at Myres, near Banff, 1½ miles from the sea, and about 200 feet above its level. Twelve drills wide, and 121 feet in length, were measured off in the middle of the field, and each drill manured as under, at the rate of 1½ cwt. per imperial acre.

Description of Manure.	Produce p. 121 ft.	Produce p. imp. acre	Produce in bolls of 3 cwt
	lbs.	tns. cwt lb.	bolls. pecks.
1. Nitrate of soda	109	7 15 80	31 5
2. Sulphate of ammonia	105	7 10 0	30 0
3. Sulphate of soda	113	8 1 48	32 4½
4. Sulphate of magnesia	107	7 12 96	30 9½
5. Nitrate of soda and sulphate of ammonia,—equal parts	95	6 15 80	27 2
6. Sulphate of soda and nitr. of soda,—equal parts	89	6 7 16	25 7½
7. Nitrate of soda and sulphate of magnesia—equal parts	88	6 5 80	25 2
8. Sulphate of soda and sulphate of ammonia—equal parts	105	7 10 0	30 0
9. Sulphate of magnesia and sulphate of ammonia—equal parts	114	8 2 96	32 9½
10. Sulphate of soda and sulphate of magnesia—equal parts	112	8 0 0	32 0
11. Nitrate of soda and sulphates of soda, magnesia, and ammonia	106	7 11 48	30 4½
12. No saline application	107	7 12 96	30 9½

The land on which the above experiments were tried has a northern exposure; soil light but dry, and containing a fair proportion of vegetable matter—in other words, in good heart; subsoil, a clayish till, overlying greywacke slate. It was after carrying a crop of Oats from three-year-old lea, top-dressed with compost of farm-yard dung and earth. In the month of January, 1843, the land got from 30 to 35 loads of farm-yard dung per acre, which was ploughed in, and again cross-ploughed about the middle of April; then drilled about the 1st of May, the sets put in, and, without further trouble, covered up. They brairded well; and after hoeing, the manures mentioned in the Table were sown along the top of the drill with the hand. The length of drill taken was 121 feet, equal to the 1-160th of an imperial acre, the drills being 27 inches wide. The sulphates of soda and magnesia were the common Glauber and Epsom salts of the shops; the sulphate of ammonia was of Aberdeen manufacture, and the nitrate of soda bought from a druggist in Aberdeen. The land had bone-dust for Turnips the time before that it was cleaned, and for more than 20 years before that it was manured solely with fish and Town-dung. The application of the manures produced no perceptible effect on the Potato-tops, neither immediate nor remote, nor was the difference of crop, with the exception of Nos. 5, 6, and 7, more than might have been expected from accidental circumstances. The land was as equal throughout as could be got.—*M. C., in the "Scottish Farmer."*

Agricultural Experiment and Improvement.—It must be a long course of experiments that alone can determine whether this or that corn or Grass may be naturalised with real benefit to a country, or the adoption of a new system of husbandry, with its attendant expense, be an

advantageous compensation for abandoning the old one. Experiments commonly succeed to admiration in a well-cultivated garden or nursery ground; but when extended to large inclosures the luxuriance of the produce is often greatly checked and diminished, and its utility absorbed in the expense of labour. I have also observed that new inventions are very slow in their effects, and can be of no real benefit till they become habitually established customs. It is a work of time to convince a peasant that the alterations you propose are eligible; to persuade him to a renunciation of rooted prejudices, and to desert the course of husbandry instilled into him by his forefathers, in favour of novelty and inexperience.—"*The Rural Socrates*," *by M. Hirzel*, 1764.

Notices to Correspondents.

AGRICULTURAL COLLEGES—*T Yellowlees*—There will, shortly, be one in full action at Cirencester, Gloucestershire; and there is now one at Hoddesdon, Herts. We do not know anything of the terms.

ALLOTMENT—*A S*—What is your object? If it be simply profit, then if you are near a supply of manure you can hardly do better than put one-half to Wheat and the other to Potatoes. If you wish to keep cows you must adopt a suitable rotation of crops. See other answers on this subject this week.

BACON—*A Sub*—Can any one give our correspondent a recipe for curing bacon and hindering rancidity?

BAIT FOR RATS—*J B W*—We have no experience: see pages 70, 140, 245, 277, 335, &c., of last year's Volume.

BEST CROP FOR A WET CLAY FIELD JUST CHALKED—*Y*—Your question is quite too general; had you given us further particulars by which to judge of your situation, we could have been more definite in an answer. Do you mean a green crop? Perhaps the best crop would be Tares, sown as soon as you can get on the land, manuring the land with a good dressing of half rotten manure. Wheat generally succeeds well on clay land after Tares. If you could get the land drained, Mangold Wurzel might succeed well, planted early in April, dibbled 12 inches apart, on ridges 26 inches apart; or Cabbages would, probably, answer your purpose, transplanted in March from a seed-bed, if you can conveniently obtain young plants.

BOOKS—*J M L*—Certainly the most *complete* work of reference on agriculture is Stephen's "Book of the Farm;" but it is expensive. Professor Low's "Elements of Practical Agriculture" is an excellent book.

DRESSING FOR MEADOWS—*George*—Ferruginous soils, which are low and have been wet, are generally benefited by the application of lime. Apply in the form of a compost with ditch-scrapings, &c., about 100 bushels of lime per acre.

DR. YELLOWLEY'S FORKS—*G C*—We do not know where in London they are to be obtained. Is the figure and measurements, given in a late No. of this Paper, of no assistance to you?

GARDEN FARM OF 5 ACRES—*B O S*—The following will be a suitable rotation:—Plant 1 acre to Lucerne; if you have a seed bed of it, transplant the seedlings into rows 15 inches apart, the plants being 10 or 12 inches apart from one another, *i. e.* if your land is in good heart. This leaves you 4 acres, 2 for grain crop, and 2 for roots; on 1 acre in grain sow Clover seeds for next year. Your 2 acres for green crops may be planted thus: half an acre to Carrots, half an acre to Parsnips, half an acre to Mangold Wurzel, and half an acre to Swedes. If you want manure apply guano, 3 cwt. mixed with 2 cwt. of common salt, per acre.

GRASSES—*J D*—Your specimens are—1. Holcus lanatus; 2. Agrostis ——; 3. Anthoxanthum odoratum; 4. Festuca ——. From the very imperfect specimens we cannot name the species of the 2d and 4th. The first is a Grass to which cattle would prefer almost any other that could be named. Can you steam your hay before giving it to the cows? they will be sure to think it much improved if you can; and add a little salt to it. It is a poor, wiry-looking sample, and seems as if it had been left over-ripe before cutting.

GUANO—*Tunbridge Wells*—Apply 3 cwt. of Bolivian or 4 cwt. of African, mixed with 2 or 3 cart loads of earth, per acre, as soon as you can get safely on the land.

LIME—*A Sub*—If your soil is deficient in lime, you will do well to apply 40 or 50 bushels as you propose, but if it be deficient in *manure* you must apply something of more general usefulness as food for plants. If you cannot get farm-yard manure near you, apply 3 or 4 cwt. per acre of guano.

MANURES—*Amicus*—You might with benefit mix 1 load of lime and ¼ cwt. of salt with every 3 loads of your pond mud, and apply 20 loads (cart loads) of the mixture per acre on your Grass land. All manuring of Grass land should now be done as soon as possible. Salt and lime will decompose one another; muriate of lime, a deliquescent salt, and carbonate of soda, being the results. Mix them together and turn over occasionally; they must remain together at least for some weeks. Mix night soil with vegetable earth, or with coal-ashes, provided they are *earthy*, not stony, and *old*. Charcoal dust is one of the best things for drying up the liquid of it. We shall be glad to know the results of your experiments.——*B O S*—As you are only to have the land for one year, you must not go to any expense. Are you inland? If so, common salt may be beneficially applied: mix 1 cwt. with 1 cwt. of super-phosphate of lime, and ¼ cwt. of some ammoniacal manure, as sulphate of ammonia, as a dressing for 1 acre.——*T S*—It is not likely that a mixture of sulphates of manganese and soda will be of much value as manure. The addition of a small quantity of such a mixture to manure may improve it, and cannot do any harm.

PATENT AGENTS—*Vulcan*—You must apply to some gentleman of this profession. A London Directory will inform you of their addresses, &c.; as to selection, we cannot undertake it.

SHED-FEEDING OF SHEEP—*W J Nicholson*—This plan is far more economical of food than that of folding on Turnips. Mr. Morton still continues to feed his sheep under sheds.

TRANSPLANTING LUCERNE—*J F D*—Had you seed-beds of young plants ready for transplanting early this month, you would have an earlier crop than by drilling in the ordinary way.

*** As usual, many communications have been received too late.

Markets.

POTATOES.—SOUTHWARK WATERSIDE, Feb. 24.

THE weather during the past week has been unusually severe for the season, yet the supply of Potatoes to this Market is keeping pace with the demand, and the best samples were eagerly sought for; and the following prices were fully supported.

York Reds	60s to 80s	Kent and Essex Whites	50s to —s
Perth	55 60	— Kidneys	— —
Fifeshire	50 55	Wisbeach Kidneys	65 70
Early Devons	60 —	— Blues	55 60
Late Devons	— —	— Whites	50 55
Cornwall	60 —	Guernsey Blues	55 60
Jersey Blues	55 —	— Whites	— —
— Whites	— —	Prince Regents	60 65

WHOLESALE PRICES OF MANURES.

Alum, per ton	£10 10 0	Muriate of Potash, per ton	£14 0 0
Ammonia, Carbon, per cwt.	2 18 0	Nitrate of Soda, per cwt.	0 15 6
— Sulphate ,,	15s. to 0 17 0	Do. Potash (Saltpt.), ,,	24 6d to 1 7 0
— Muriate ,,	24s. to 1 6 0	Phosphate of Lime (Calcined Bones) per cwt.	0 7 0
— Sal Ammoniac ,,	2 2 0	Rape Cake per ton	5 0 0
— Phosphate, per lb.	0 1 0	Salt (Common) ,,	40s. to 2 10 0
Bones, per ton	5 5 0	Soda (Dry Carbonate) per cwt.	1 1 0
Bone dust per qr.	0 17 0	— (Crystallised) ,,	0 7 0
Guano, Peruvian p. ton	11l to 12 0 0	Sulph. of Mag. (pure) ,,	0 8 0
— Ichaboe ,,	8 0 0	— Potash ,,	0 16 0
— African ,,	6 0 0	— Soda per ton	2 7 6
— Potter's ,,	10 0 0	Sulph. Acid (sp. g. 184) p. lb.	0 0 1
— — Liquid p doz.	1 1 0	— — (sp. g. 174) ,,	0 0 1
Gypsum, per ton	1 10 0	Superphos. of Lime, per cwt.	0 7 0
Muriate of Lime per cwt.	5s. to 0 6 0		

COVENT GARDEN MARCH 1.—The supplies have been tolerably well kept up during the week, and the prices, except in a few instances, remain the same. Pine-apples are pretty numerous; and Foreign Grapes are also abundant. A few forced Strawberries have just made their appearance—they are offered at 3s. per. oz. The supply of dessert Pears is limited, and the best bring high prices. Dessert Apples continue equal to the demand; but good sorts for culinary purposes are scarce. Cucumbers are becoming more plentiful, and they are also improving in quality. Vegetables, generally speaking, have not altered in price since our last report. Good samples of large white Broccoli have been brought to the Market during the week. French Beans are to be met with; but they are by no means plentiful. The supply of Asparagus continues good, and there is a slight decrease in the price of the best bunches. Seakale is of excellent quality, and is tolerably abundant. A small quantity of new spring Potatoes are offered at about the same prices as mentioned last week. Onions are good, and sufficient for the demand. Rhubarb is slightly advanced in price. Lettuces and Endive are pretty plentiful, as are also Mushrooms; the latter are excellent in quality. Cut Flowers consist of Amaryllises, Acacias, Gardenias, Azaleas, Roses, Camel ias, Hyacinths, Tulips, Chinese Primroses, Abutilon striatum, Poinsettia pulcherrima, and Jasminum revolutum.

FRUITS.

Pine Apple, per lb., 6s to 8s	Oranges, per 100, 4s to 16s
Grapes, Spanish, per lb., 1s to 1s 3d	— bitter, per 100, 8s to 18s
— Portugal, per lb., 1s to 4s	Lemons, per dozen, 1s to 2s
Apples, Dess., per bush., 6s to 12s	— per 100, 6s to 16s
— Kitchen, 4s to 6s 6d	Almonds, per peck, 6s
Pears, Dess., per hf.-sv., 6s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
Pomegranates, per doz., 2s to 4s	Cob Nuts, per 100 lbs., 150s to 160s
Filberts, per 100 lbs., 100s to 150s	Nuts, Barcelona, 24s
Chesnuts, per peck, 3s to 8s	— Brazil, 16s to 20s
Walnuts, shelled, 6s	— Spanish, 20s
Oranges, per dozen, 9d to 2s	— Cob, 16s
— Baking, per hf. sv., 2s to 2s 6d	

VEGETABLES.

Cabbages, per dozen, 6d to 1s 6d	Spinach, per sieve, 4s to 5s
— red, per doz., 2s to 3s	Scorzonera, per bunch, 1s to 2s
— plants, per doz. bnch., 4s to 7s	Salsafy, per bunch, 1s to 2s
Broccoli, per bundle, 2s to 7s	Parsnips, per doz., 6d to 1s
— white, per doz., 6s to 12s.	Leeks, per doz., 1s 6d to 2s 6d
Brussels Sprouts, hf.-sv., 2s to 4s	Garlic, per lb., 8d to 10d
French Beans, per 100, 2s 6d to 3s 6d	Onions, per bunch, 3d to 4d
Sorrel, per hf.-sieve, 3s to 4s	— large, per bushel, 3s to 4s 6d
Jerusal. Artichok, p. hf.-sv., 1s to 2s	— Spanish, per doz., 2s to 4s
Potatoes, per ton, 50s to 90s	Shallots, per lb., 8d to 10d
— cwt., 3s to 4s 6d	Lettuce, per score, 8d to 1s
— bushel, 1s 6d to 2s 6d	Celery, White, per bunch, 10d to 1s 6d
— Kidney, per bsh., 2s to 2s 6d	— Red, per bunch, 9d to 2s
— Autumn, per lb., 3d to 6d	Endive, per score, 1s to 2s 6d
Turnips, per doz. bch., 3s to 5s	Mushrooms, per pottle, 8d to 1s 6d
Red Beet, per doz., 1s to 3s	Small Salads, per punnet, 2d to 3d
Carrots, per doz. bchs, 6s to 8s	Fennel, per bunch, 2d to 4d
Basil, per bunch, 2d to 3d	Watercress, p. 12 sm. bun. 6d to 8d
Rhubarb, per bundle, 1s to 2s	Pareley, per doz. bunches, 4s to 6s
Seakale, per punnet, 1s to 2s 6d	— Roots, per bundle, 3d
Asparagus, per bundle, 2s to 7s.	Tarragon, per bunch, 6d
Horse Radish, per bundle, 1s 6d to 5s	Mint, per bunch, 6d to 8d
Savory, per bunch, 2d to 3d	Marjoram, per bunch, 2d to 3d
Cucumbers, per brace, 8s to 12s	Chervil, per punnet, 3d to 4d

SMITHFIELD, MONDAY, Feb 24.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 0	Best Downs & Half-breds	4s 0 to 4s 4
Best Short Horns	3 6 3 8	Best Long-wools	3 10 4 0
Second quality Beasts	2 10 3 4	Ewes and second quality	3 4 3 8
Calves	4 0 5 0	Pigs	3 4 4 4

Beasts, 3003; Sheep, 26,340; Calves, 64; Pigs, 321.

WE have a large supply of Beasts, and a very dull trade; the prices have a downward tendency. The very best qualities cannot be quoted at more than 4s.; and Short Horns with difficulty make 3s. 8d. per 8lbs. Sheep are a full average supply, although we are not overdone with the best qualities, which fully maintain their price. Notwithstanding, trade is heavy, especially amongst middling qualities. Veal and Pork remain a very steady trade.

FRIDAY, Feb. 28.

The supply of Beasts is again large, and the demand very limited. The very best Scots, &c., hardly make 4s.; and Short Horns very little over 3s. 6d.; a great many of second-rate quality cannot be sold—what few of this sort are disposed of, make from 2s. 8d. to 3s. 2d. Sheep are plentiful, and trade is not quite so good; the best Downs, &c., make very little over 4s. 2d.; and best Long-wools, 3s. 8d. to 3s. 10d.; Second quality and Ewes, very dull sale at from 3s. 2d. to 3s. 6d. The best Veal is still scarce, and makes about 5s.; but a great proportion of the supply is of middling quality, and makes from 4s. to 4s. 4d. Pork trade is steady.

Beasts, 903; Sheep, 3030; Calves, 128; Pigs, 310.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Feb. 27.

Prime old Meadow Hay	100s to 107s	New Hay	—s to —s	Clover	105s to 112s
		Inferior Hay	85 95	Straw	35 40

JOHN COOPER, Salesman.

A good supply, with heavy trade.

CUMBERLAND MARKET, Feb. 27.

Superior Mead. Hay	100s to 110s	Superior Clover	110s to 115s		
Inferior ,,	86 94	Inferior ,,	98 105	Straw	36s to 40s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Feb. 28.

Fine Old Hay	105s to 108s	Old Clover	120s —s		
New Hay	90 100	New Clover	105 115	Straw	34s to 40s
		,, Inferior	— —		

HOPS, FRIDAY, Feb. 28.

WE have certainly more doing in the Hop Market this week, and we are expecting a very brisk demand for consumption during next month; and being so few good Hops on hand, it is but reasonable to expect a considerable advance in prices.

PATTENDEN & SMITH, Hop-Factors

MARK-LANE, MONDAY, Feb. 24.

THE supply of Wheat from Essex and Suffolk was small this morning; that from Kent, good; fine samples were taken readily at last week's prices, and the value of other descriptions and Foreign remains the same.—Fine Barley fully supports our late quotations; other qualities are a dull sale.—Beans, also Grey and Maple Peas, are unaltered; White must be written 1s. lower.—Oats sell slowly at a decline of fully 6d. per qr. from this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	40	49	Red	42	47
—— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling	28s to 33s	Chevalier	33	36	Grind.	24	27
Oats, Lincolnshire and Yorkshire	20	23	Polands	20	23	Feed	19	22
—— Northumberland and Scotch	20	22	Feed	20	22	Potato	21	24
—— Irish	20	22	Feed	20	22	Potato	21	23
Malt, pale, ship	54	60						
—— Hertford and Essex	58	65						
Rye	29	32						
Beans, Mazagan, old and new	29 to 33	Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland	27 to 40	Winds	—	—	Longpod	—	—
Peas, White	33 to 35	Maple	31	33	Grey	30	32

FRIDAY, Feb. 28

Trade in all descriptions of Corn since Monday has been exceedingly languid; this morning there were a few samples of Essex Wheat fresh up by land carriage, which realised late prices. Foreign remains the same.—Barley meets a slow sale at our quotations.—Beans and Peas are unaltered.—The Oat trade is heavy, and to effect sales a slight reduction is requisite.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans	Peas.
Jan. 18 per Quarter.	45s 7d	34s 7d	21s 8d	31s 4d	35s 7d	35s 8d
— 25	45 7	34 2	21 8	32 11	35 4	36 1
Feb. 1	45 5	33 10	21 6	31 3	35 3	35 4
— 8	45 5	33 0	21 6	30 1	35 1	35 7
— 15	45 4	32 8	21 7	29 6	35 0	35 0
— 22	45 2	32 4	21 7	30 2	35 0	35 3
6 weeks' Aggreg. Aver.	45 5	33 4	21 6	30 11	35 3	35 6
Duties on Foreign Grain	20 0	5 0	6 0	10 6	7 6	7 6

SEEDS, Feb. 28.

Canary per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	8l to 9l 10
Carraway per cwt	44 50	Mustard, White p. bush.	10s 14
Clover, Red, English	40 65	— Superfine ,,	12 16
— — Foreign	50 60	— Brown ,,	12 16
— White, English	50 80	Rapeseed, English, per last	22l 25l
— — Foreign	50 80	Rape Cakes per ton	— —
Coriander	12 18	Sainfoin	— —
Hempseed per last	35 36	Tares, Eng. winter p. bush.	7 8
Linseed per qr	— —	— Foreign	5 7
— Baltic	— —	Trefoil per cwt	— —
— Cakes, Eng. per 1000	12l 10 12l	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

Sales by Auction

TO MARKET GARDENERS AND OTHERS.

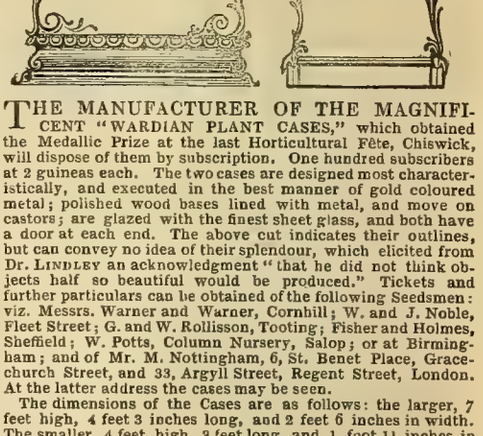
MESSRS. PROTHEROE and MORRIS are instructed to submit to Public Competition, on the Premises, High-street, Deptford (near the Railway-station), on SATURDAY, MARCH 8, 1845, at 1 for 2 o'clock precisely, without reserve, by order of MRS. ROBERTS, about 70 LIGHTS of CAULIFLOWER and LETTUCE PLANTS, in excellent condition. May be viewed prior to the Sale. Catalogues may be had on the Premises, of the principal Seedsmen, and of the AUCTIONEERS, American Nursery, Leytonstone.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors of the Mortgagee to submit to Public Competition on the premises, the KEY FIELD NURSERY, ST. ALBAN'S, Herts, on WEDNESDAY, 12th March, 1845, at Eleven o'clock (without the least reserve, the premises to be given up to the purchaser at Lady-day), the remaining varied Nursery Stock, consisting of Fruit and Forest Trees, Evergreens, American Plants, 2-year old Seedling Oak and Beech, Crab and Plum Stocks; also the Shop Fixtures and Fittings, Vegetable and Flower Seeds, Hand-glasses, and a few lots of Household Furniture. May be viewed prior to sale. Catalogues may be had on the premises; of Mr. A. A. Dorant, Auctioneer, &c., St. Alban's; of T. Jackson, Esq., 9, Marlborough-road, Kent-road; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition at the Auction Mart, Bartholomew-lane, on FRIDAY, 7th March, and TUESDAY, the 11th, 1845, at 12 o'clock, about 400 DOUBLE CAMELLIAS, from 3 to 4 feet, the whole beautifully furnished with bloom-buds. Also a choice assortment of Standard and Dwarf Roses; the newest varieties of Dahlias (in dry roots); American Plants, consisting of the best varieties of Azaleas, Rhododendrons, Kalmias, Andromedas, Ledums, Magnolias, &c.—May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.



THE MANUFACTURER OF THE MAGNIFICENT "WARDIAN PLANT CASES," which obtained the Medallic Prize at the last Horticultural Fête, Chiswick, will dispose of them by subscription. One hundred subscribers at 2 guineas each. The two cases are designed most characteristically, and executed in the best manner of gold coloured metal; polished wood bases lined with metal, and move on castors; are glazed with the finest sheet glass, and both have a door at each end. The above cut indicates their outlines, but can convey no idea of their splendour, which elicited from Dr. LINDLEY an acknowledgment "that he did not think objects half so beautiful would be produced." Tickets and further particulars can be obtained of the following Seedsmen: viz. Messrs. Warner and Warner, Cornhill; W. and J. Noble, Fleet Street; G. and W. Rollisson, Tooting; Fisher and Holmes, Sheffield; W. Potts, Column Nursery, Salop; or at Birmingham; and of Mr. M. Nottingham, 6, St. Benet Place, Gracechurch Street, and 33, Argyll Street, Regent Street, London. At the latter address the cases may be seen.

The dimensions of the Cases are as follows: the larger, 7 feet high, 4 feet 3 inches long, and 2 feet 6 inches in width. The smaller, 4 feet high, 3 feet long, and 1 foot 11 inches in width.

Due notice will be given of the time and place of Ballot, which will be in London; meanwhile the Cases may be seen at 33, Argyll Street, Regent Street, on application.

CUCUMBER and MELON BOXES and LIGHTS,—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-lights made, glazed, and painted, from 1*s.* per foot.—Sashes and Frames made, glazed, and hung complete, 1*s.* 8*d.* per foot.—At JAMES WATTS' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1*l.* 15*s.* each. Commission allowed to agents.

These Dibbles may be obtained of Messrs. COTTAM and HALLEN, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter, to his address, inclosing a Post-office order for the amount.

RICHARD SMITH, Upper Hall, near Droitwich, Worcestershire.

SCREENS for PROTECTING TREES in Blossom and Fruit from injuries by Wasps and Flies, and for Shading Hothouses and Conservatories, Pines and Melons, Tulip-beds, &c. &c.

N. HULME, PARADISE GREEN, KNUTSFORD, CHESHIRE, manufactures the following articles:—Canvas Netting, of three different textures, at 5*d.*; of a stronger quality, at 7*d.*; and of Yarn doubled, at 8*d.* per square yard. Woollen Netting, of different sorts, at 5*d.*, 7*d.*, and 10*d.* per square yard. The above articles are made from one to four yards in width, as may suit the purchasers.—N. H. has for many years had the honour to supply the Nobility, Gentry, and others in various parts of the Kingdom, with the above articles, and has had the happiness to give general satisfaction.

N.B.—Patterns, with the prices annexed, sent (if desired) to any persons wishing to become purchasers. In case of orders to the amount of Five Pounds or upwards, carriage, by canal or railway, will be paid to London, or any place not more distant.

UNDER THE PATRONAGE OF HER MAJESTY.

J. G. WAITE, under the impression that it is advantageous to every one to purchase where low price and quality are combined, thinks it only necessary to publish the prices of a few of the leading articles in SEEDS, to convince the public that at his establishment they will meet with these advantages. Although the prices are so low, every article supplied by J. G. W. may be relied on as genuine.

	s.	d.
Peas—Waite's Queen of Dwarfs, per quart	7	6d.
A splendid new variety, growing only 1 ft. high, producing a larger pod than any of the same habit; the seed is quite distinct from all others, and larger than any Dwarf Pea in cultivation; it has been grown at the Royal Gardens at Frogmore, and approved of as a new variety, and also at Her Majesty's table, for its superior flavour.		
per bush.		
Peas, Prince Albert	24	0
,, Early Frame	9	0
,, Dwarf Blue Victory	10	6
,, Blue Scymetars	8	6
,, Bishop's Dwarf	10	0
,, Knight's Dwarf Marrows	11	0
,, Victoria Marrow	9	0
per quart		
,, New Egyptian Mummy, extra large	2	6
,, New Mammoth	1	6
per bush.		
Beans, Early Long-pod	5	6
,, Large Windsor	6	6
Radish, Wood's Early Frame	30	0
,, Fine Scarlet	27	0
,, White Turnip	27	0
,, Red do., fine	30	0
per lb.		
Onion, White Spanish	1	9
,, Deptford	1	8
,, Brown Globe	1	9
,, Lisbon	1	9
,, Tripoli	4	6
Leek, Broad Flag	1	9
Carrot, Early Scarlet Frame	1	6
,, ,, Horn	1	3
,, Altringham	1	6
,, Surrey ,,	1	6
,, White Belgium p. cwt.	56	0
Parsley, Myatt's new Garnishing per lb.	1	6
Parsnip, Hollow Crowned per cwt.	50	0
Turnip, Yellow Scarisbrook per lb.	1	0
,, Snowball ,,	0	9
Spinach, Round pr. bsh.	8	0
,, Prickly ,,	6	0
Mustard, White ,,	16	0
Lettuce, Improved White p. lb. Cos	5	0
,, Ady's Lare Cos ,,	7	0
,, Bath Cos (black seed)	4	0
,, Egyptian ditto	4	0
,, Paris ditto	5	0
,, Brighton ditto	5	0
,, Large Drumhead	5	0
,, Brown Dutch	2	0
,, Hammersmith Hardy Green	2	0
,, Imperial Brown Cos	6	0
Endive, Green Curled	3	6
,, Batavian	3	6
Cabbage Early Nonpareil	1	9
,, Large York	1	9
,, Early York	1	9
,, Superfine Early Dwf.	2	0
,, Battersea	1	9
,, Atkins's Matchless	2	6
,, Imperial	1	6
,, Sugarloaf	1	9
,, Imported Red Dutch	2	0
,,Shilling's New Queen	10	0
,, East Ham	1	9
,, Scotch, large	1	3
,, Ditto improved	2	6
Brocoli, Early White	4	0
,, Late White	3	6
,, Early Purple	3	0
,, do. do. sprouting	2	0
,, Dwarf Siberian	3	0
,, Early White Malta	4	0
,, White Cape	6	0
,, Purple Cape	4	0
,, Grange's Early	6	0
,, Portsmouth	3	0
,, Large Southampton	4	0
,, Chappel's Cream	7	0
,, Walcheren	12	0
,, Waite's Early London White	10	0
Cauliflower, Early	5	6
,, Late	5	6
,, Walcheren	8	0
Celery, Seymour's Improved White	3	0
,, Red and White Giant	1	9
Cucumber, Long prickly	7	0
,, Short	4	0
,, Fine Ridge	12	0
,, Walker's Prize-fighter, 12 seeds	1	0
,, Man of Kent ,,	1	0
,, Victory of Suffolk, 12 seeds	1	0
,, Cuthill's Black Spine per oz.	12	0
,, Latter's Victory of England, 12 seeds	1	0
,, Waite's Racehorse 12 seeds	2	6
,, all other kinds, 12 seeds	1	0
Pumpkin, saved from one weighing 129 lbs., 6 seeds	1	0
Savoy, Drumhead per lb.	1	6
,, Green curled ,,	1	3
Mangold Wurzel, Long yellow per cwt.	64	0
,, ,, Yellow Globe per cwt.	64	0
,, Long red per cwt.	50	0
Salsafy and Scorzonera, per lb.	4	0
Seakale per qt.	1	0
Asparagus per lb.	1	0
Melons, Windsor Prize, per packet	1	0
,, True Beechwood, per packet	1	0
,, Cabul ,,	1	0
,, Common sorts ,,	0	6
per bush.		
Mushroom spawn	3	0
Grass, Crested Dogstail	18	0
,, Sheep's Fescue	14	0
,, Hard do.	8	0
,, Italian Rye	8	0
,, Mixed Lawn, fine	12	0
,, Do. Pasture	9	0
,, Poa trivialis p. cwt.	70	0
,, ,, pratensis ,,	70	0
Lucerne ,,	80	0
Nasturtium, tall, per qt.	1	0
,, new dark ,,	1	6
per lb.		
Mignonette	1	6
Adonis Flos	3	0
Aster, fine German, mixed	5	0
,, China fine, mixed	4	0
Candytuft, Normandy	2	6
,, White Rocket	2	6
,, Scarlet	2	6
,, Sweet-scented	2	6
Clarkia pulchella	4	0
Convolvulus major	2	6
,, minor	2	0
Gi ia tricolor	3	0
Coreopsis tinctoria	4	0
Erysimum Perofskianum	4	0
Gypsophylla elegans	3	0
Lupinus Cruikshankii	2	0
,, mutabilis	2	0
Marygold, splendid mixed French	5	0
,, African	4	0
Nemophila insignis	5	0
Œnothera rosea alba	4	0
Stocks, fine Scarlet 10-wk.	4	0
,, Purple do.	6	0
,, White do.	8	0
,, Scarlet Brompton	8	0
,, Purple do.	10	0
,, White do.	10	0
Wallflower, Blood, fine	4	0
Sweet William	3	0
Prince's Feather	2	0
Lupines of sorts per qt.	1	0
Sweet Peas, mixed ,,	2	0
Stock, red and white Virginian per lb.	2	0
per oz.		
Phlox Drummondii, splendid mixed	16	0
Stock, double intermediate scarlet	4	0
Ipomœa coccinea	2	6
Zinnia elegans, 24 varieties, mixed	2	6
Lobelia gracilis	3	0
Tropæolum canariensis	2	0
Cockscomb, fine prize	7	0
Eccremocarpus scaber	5	0
Clintonia pulchella	15	0
Pansey, fine mixed, from named flowers (May's)	7	6
Pansey, common mixed	1	6
Primula sinensis	20	0
Papaver Marseilla	1	0
Marvel of Peru, in sorts	1	0
Gaillardia picta	7	6
Pink, from good flowers	2	0
Carnation ,,	2	0
Sweet William, May's new crimson, superb	2	6
Balsam, double camellia, flowered	4	0
,, fine mottled double, in sorts	4	0
Balsam, fine double mixed	2	6
Polyanthus, fine	2	6
Pink, double Indian	1	0
Maurandia Barclayana	5	0
Caccalia coccinea	1	6
Jacobæa, double purple	1	0
,, violet	1	0
,, crimson	1	0
,, white	1	0
Kaulfussia amelloides	1	0
Viscaria oculata	21	0
Alstrœmeria pulchella	5	0
Nemophila discoidalis (black)	20	0
per packet.		
Calceolaria, from all the new spotted varieties	2	6
Petunia, from the best varieties	1	0
Fuchsia, ditto	1	0
Verbena, from all the choice varieties	1	0
Pimelea spectabilis, new per seed	0	3
per packet.		
Thunbergia, of sorts	0	6
GERMAN SEEDS.		
Asters, fine double, 36 varieties	5	0
,, 24 var.	3	6

[J. G. WAITE'S LIST OF PRICES CONTINUED.]

	s.	d.
Balsam, 6 var., Camellia flowered	2	0
,, 20 var., mottled.	3	0
Larkspur, 12 var.	2	0
Hollyhocks, double, 30 var.	4	0
Scabious, 12 var.	2	0
Stocks, 36 var.	6	0
,, 24 var.	3	6
Wallflower, "fine double," 4 var.	3	0
Myatt's British Queen	s.	d.
Strawberry plants, p. 100	2	6
Asparagus, Giant, 2-year old ,,	3	0
Sea Kale, 3 year old ,,	7	0
Myatt's Victoria Rhubarb per doz	10	0
Dalley's Early Scarlet Rhubarb per doz	6	0
Ash-leaved Kidney Potatoes per bshl.	5	0
Early frame do. ,,	6	0
Early prolific (large) ,,	5	0

All other kinds of Horticultural, Floricultural, and Agricultural Seeds (too numerous to insert) at equally low prices.

Not bound to these prices longer than One Month; cash or reference in London.

ORDERS CAREFULLY PACKED FOR EXPORTATION.

1 and 4, Eyre-street Hill, Hatton Garden, London.—Mar. 1.

CUCUMBER SEEDS of the following choice varieties to be had of W. J. NUTTING, SEEDSMAN, 46, CHEAPSIDE, LONDON:—

	s.	d.
Mill's Jewess, per packet of 4 seeds	2	6
Stewart's Ringleader	2	6
Latter's Victory of England	1	0
Elliott's Improved Black-spined	1	0
Manchester Prince	1	0
Superfine Patrick	1	0
Staffordshire Hero	1	0
Barne's Man of Kent	1	0
Sion House	1	0
Cuthill's New Black spined	1	0
Also, Melon seed direct from Cabul	2	6
Beechwood do., in packets	1	0
Queen Ann's early do.	1	0
Pine apple do.	1	0
Windsor Prize, and others	1	0

With all the new good varieties of PEAS (Green's Superb, surpassing all other late kinds, at 2s. 6d. per quart), BEANS, RADISHES, TURNIPS, CARROTS, BROCOLI'S, including the TRUE Walcheren, Hammond's Cape, Chappell's late White, Chappell's late Cream, and new American late white, New Imperial Cos LETTUCE, Snow's compact green Cos, Seymour's superb Celery, Whyte's dark Beet, &c. &c. Also new and choice FLOWER SEEDS; amongst which are collections of imported German Stocks, in 30 varieties; do. Asters, in 24 and 10 varieties; dwarf do., in 18, and pyramidal in 8 varieties.

NEW GARDEN AND FLOWER SEEDS.

CLARKE AND CO., SEEDSMEN AND FLORISTS, beg to call the attention of the Nobility, Gentry, and the Public to their extensive and well-selected assortment of Vegetable and Flower Seeds (supplied from the most approved and experienced growers), amongst which will be found the Improved Thick Windsor Bean; Walcheren, Willcove, and Chappel's Cream Broccoli; Imported Brussels' Sprouts; Man of Kent and Sion House Cucumbers; Atkins's Matchless Cabbage; New Spanish Dwarf Cos Lettuce; Flack's Dwarf Blue Victory, Early Prince Albert, Knight's Marrow, and Waite's Queen of the Dwarfs Pea: and which they are enabled to supply as cheap as any other house in the trade.

65 Papers of *Choice Hardy Annual Flower Seeds* for 10s.
Choice Ranunculuses, mixed colours . 8s. per 100.
Double Anemones ,, ,, . 16s. per lb.
Double Tuberoses . . . 4s. per doz.
Commelina cœlestis (azure blue) . 4s. per doz.
Fine selected Agricultural Seeds.
Catalogues forwarded, post-free, on application.
London: 86, High-street (opposite the Town-hall), Borough.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

WHITNEY'S PATENT CLOTH for COVERING GREENHOUSES, CUCUMBER or MELON PITS, &c. This Cloth is made expressly for the purpose of applying Whitney's Composition upon, and is much more durable than any other material: when coated it is beautifully white and transparent. The perfect success of Whitney's Composition for all Horticultural purposes cannot be more fully established than by stating, that, on the 1st of April last, a Black Hamburgh Vine was set in a border, the stem introduced into a house covered with Calico, and coated with Composition. On the 1st of Sept. a bunch of Grapes was cut weighing 16½ ounces, the fruit was finely coloured, and the flavour pronounced to be excellent. A sample was sent up to the Editor of the *Gardeners' Chronicle* for his inspection. The tree grew very luxuriantly, the foliage very fine, and the wood ripened exceedingly well. As a winter protection it is infinitely warmer than glass.

The PATENT CLOTH and COMPOSITION can be obtained of Messrs. Butler & Muckley, Covent Garden Market; Hurst & M'Mullen, Leadenhall Street; Warner & Warner, Cornhill; Barclay & Sons, Farringdon Street; and Hannay & Co., Oxford street.—Wholesale and Shipping Agent, Mr. Bailey, Wolverhampton.

FOR FRAMES, GREENHOUSES, &c.

JOHN HAYES respectfully offers his Composition for rendering Brown Holland, Calico, and Irish Linen transparent and waterproof. His own greenhouse is covered with cloth prepared with this Composition, and answers admirably; the cloth requiring only a coat of boiled oil once a year to render it as lasting as the wood frames; and the plants, which require only half the usual quantity of water, are more vigorous and healthy than under glass. Specimens of the prepared cloth may be seen at Messrs. BATT and RUTLEY'S, 412, Strand, of whom, or at his Nursery, Farnham, the Composition may be had, at 3s. 6d. per quart (bottle included), which is sufficient for 100 feet of cloth. Among other testimonials the Proprietor is permitted to publish the following, from Messrs. YOUELL, of Yarmouth, and to refer to them for its efficacy:—"We give decided preference to your Composition, with which we are much pleased, and you are at liberty to use our names as a recommendation." It is also applicable to windows, coverings for sheds, tilts for carts and waggons, &c.

VASES AND FIGURES.

AUSTIN & SEELEY beg to inform Nurserymen and others, that in consequence of the renewal of the lease of part of their premises, they are about to make considerable alterations, and intend to sell articles selected from their present Stock at one-third less than the usual prices, during the month of March.—New Road, March 1.

HORIZONTAL WATCHES, very Flat.—A. B. SAVORY and SONS, Watchmakers, 9, Cornhill, London, opposite the Bank, price, in silver cases, three and a half guineas each; or in gold cases, six guineas each. These Watches are accurate and durable, the horizontal escapement being peculiarly suited to combine these important requisites. They are jewelled in four holes, and continue going whilst being wound. A twelvemonth's warranty given with each.

AN ABRIDGED CATALOGUE OF DAHLIAS, SOLD BY W. R. WHALE, ELCOT, near Hungerford and Newbury, Berks. W. R. W. begs leave most respectfully to thank his friends and the public generally for their increased patronage during the last season, and to inform them that he can supply most varieties in cultivation, at moderate prices and true to name.

	s.	d.
Whale's Duchess of St. Alban's, a seedling of 1843, a delicate primrose margined with dark mulberry if not too much bleached, beautifully cupped petals, well set, fine centre, shape and size of Ansel's Unique, took a prize at Salt Hill, &c, &c., height, 3 ft. (Unless six or more plants are ordered.)	10	6
Whale's Admiration, shaded orange margined with scarlet, a beautiful show flower, perfectly constant, never showing an eye the whole season, height, 4 ft. (This variety will be scarce, as the roots are nearly all perished)	10	6
Albion, Sparey, bronzy salmon, finely cupped, an excellent show flower, height, 4 ft.	10	6
Beeswing, Drummond, first-rate show flower, one of the best of the season, crimson red, height, 4 ft.	10	6
Alice Hawthorn, Drummond, white tipped with rose purple, has obtained numerous prizes, height, 4 ft.	10	6
Essex Bride, Turvill, light lilac, a superb show flower, height, 4 ft.	10	6
Lord Denman, Nevill's, dark claret, one of the best show varieties of the season, height, 4 ft.	10	6
Attractor, Teebay, marone shaded crimson, good show flower, height, 4 ft.	10	6
Fancy, Teebay, bright red, height, 3 ft.	10	6
Fulwood Hero, Teebay, purple shaded up the centre of the petal with violet purple, has taken numerous prizes, height, 4 ft.	10	6

W. R. W. will take orders for Mr. Girling's Seedlings, the Union, &c. &c.

W. R. WHALE'S CATALOGUE OF DAHLIAS.

The following varieties at 24s. per dozen, if a dozen plants are taken of different varieties.

Aurantia, Sparey, orange	Standard of Perfection, Keynes, splendid dark
Lady Antrobus, Sparey, white, edged with pink	Espartero, Keynes, crimson
Alexander, Brown, mottled rose	Beauty of Bucks, light edged with rose
Bathonia, Drummond, fine dark	Spitfire, light rose, B
Bermondsey Bee, Girling, purple, superb	Desirable, Brown, buff
Nonpareil, Girling, scarlet, fine	Nutwith, Brown, crimson
Consolation, Windall, fine dark	Paladine, Union, fine crimson
Delight, Brown, light peach	Doctor Primrose, Union, primrose
Emma Noke, blush	Young England, Union, crimson
Essex Champion, Turvill, orange	Alice Maud, light laced lilac, good
King of Sarum, Dodd, shaded orange	Beauty of Birmingham, Harrison, light laced with pink
Opher, Edward, yellow, shaded	Pet Rival, B, maroon
Orange, Superb, Dodd, orange	Oliver Goldsmith, Union, sulphur
Lady St. Maur, Brown, light tipped purple	Beauty of Camden, Ansell, light
Queen of Roses, Widnall, light rose, very unique	Lord Howden, Harrison, bronzy crimson, a superior show flower
Park Mount Rival, yellow	Clara, Ansell, light
Rembrandt, Brown, purple	Lady Gray, Harrison, lilac
Raphael, Brown, shaded purple	Rival, rose, Wood's
Sir I. Stewart Richardson, Union, shaded rose	Queen of Cheltenham, H, white
Trafalgar, King, light rose, fine	Madeline, Daniels, lilac
Vanquisher, Dyson, rose crimson, fine	Prince of Waterloo, Drummond, dark
Vanquisher, Wood, dark	Hampstead Rival, Cowing, dark
Crimson Perfection, Whale, good show flower	Hero of Maida, Syred, orange
Preceptor, Whale, crimson scarlet	Talma, Girling, rose
Charlemagne, Mobring, large red	Sir H. Pottinger, dark

All the good old varieties at 12s. per dozen.

FRENCH, OR FANCY VARIETIES.

WHALE'S Madam Villebois seedlings of 43, never before sent out, light edged with pink, a very pretty striking variety, 7s. 6d.
Madam Hansard, carmine, tipped with white, 7s. 6d.
Miss Dundas, carmine, striped with white, fine bold petal, 7s. 6d.
Bicolor, crimson, tipped with white, height 3 ft. each, 7s. 6d.

The following fancy varieties 12s. per dozen.

Madam Meillez, Dodd	Garland, G
Ditto, Girling	Admirable Bauduin
Oakley's Surprise	Madam Bavais
Nihille	Bicolor
Village Maid, G	Beauty Supreme
Jack of Newbury, G	Beauty of England
La Vogue, G	Butterfly
Oudine, G	Lady Rae Reid
Assuerus, G	Don Ferdinand
Quadricolor, G	Madame de Schwanfield
Noir et Blanc	Colonel de Schwanfield
Madame Le Carpenter, G	

W. R. W. is not in the habit of publishing long Catalogues of useless varieties, though his Collection is inferior to none!

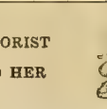
BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices to 130, Fleet-street.

LINGHAM, BROTHERS, BIRMINGHAM.—MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.

Sole Agents in London:—George and J. Dean, Horticultural implement Warehouse, 46, King William-street, London-bridge.

ANOTHER EXTRAORDINARY CURE OF ASTHMA by HOLLOWAY'S PILLS.—Patrick Casey, residing at Compton-place, Brunswick-square, had suffered from a chronic asthma for more than three years. This poor man was so great a sufferer that he did not dare to go to bed for fear of the phlegm choking him; indeed, he could not even lay his head upon a table for half an hour lest he should be suffocated. Nevertheless, this person is now labouring from morning to night, sleeps as well as ever he did in his life, and, in fact, is completely cured, by the use of HOLLOWAY'S PILLS. Sold (also HOLLOWAY'S OINTMENT), at Professor HOLLOWAY'S Establishment, 244, Strand, where advice may be had Gratis, and by almost all respectable Venders of Medicine throughout the Civilised World.

FLORIST TO HER  MAJESTY, THE QUEEN.

WILLIAM MILLER, Providence Nursery, Ramsgate, Kent, begs to [illegible] many friends for the kind patronage they have [illegible], and at the same time to inform them that [illegible] contains nothing but what is really good, for w[illegible]y orders, viz.:—

FUCHSIAS, VERBENAS, PELARGONIUMS, PETUNIAS, ANTIRRHINUMS, &c. &c., for the Spring of 1845.

SUPERB SEEDLING FUCHSIAS.

DUKE OF YORK.—This variety is of a very robust habit; flowers very large and magnificent; tube and sepals carmine, with a large purple corolla, and an abundant bloomer. This Fuchsia is the largest that has yet been offered to the public. Noticed by Dr. Lindley in No. 34 *Gardeners' Chronicle*; "W. M. —Your Fuchsia, No. 227, is very large." Also by Mr. Glenny, in *Gardeners' Gazette*, No. 35; "Mr. MILLER.—Your Fuchsia, No. 227, is the largest we have seen."—Price per plant, 10*s.* 6*d.*

UNIQUE.—This is a beautiful variety; tube glossy crimson; corolla dark purple, equal to that of Formosa elegans. Dr. Lindley describes it in the same week's *Chronicle*; "W. M.—In your Fuchsia, No. 219, the colours are very distinct, and the form of the flower elegant." Mr. G. Glenny speaks of it as having a "good contrast."—Price 10*s.* 6*d.*

QUEEN VICTORIA.—This is one of the best light ones coming out this season, being very large; colour light flesh, with crimson-purple corolla; good habit, like Eppsii, and an abundant bloomer.—Price 10*s.* 6*d.*

CHUBBY BOY.—This is a very bright scarlet-red; tube very stout; habit just like Smith's Robusta; extra free bloomer. Mr. Glenny speaks of 238 as being a "curiosity."—Price 7*s.* 6*d.*

BALLOONII SUPERB.—Of a fine rich red, colour of Meteor. —Price 5*s.*

CAPTIVATION.—Colour of sepals pink, corolla rose; very free bloomer, and novel.—Price 5*s.*

BRUTUS.—This is a truly beautiful variety; the flowers large and very stout, being by far the stoutest tube, and altogether the largest light Fuchsia yet known; colour light pink, corolla crimson; habit like Brockmanii. This is a first-rate flower.—Price 7*s.* 6*d.*

AURANTIA.—This is similar to Eclipse, but with more gloss. —Price 3*s.* 6*d.*

SPLENDISSIMA.—Tube very long; colour crimson, corolla crimson-purple. Dr. Lindley speaks of this variety as being "very large."—Price 3*s.* 6*d.*

EXPANSIA.—This is one of the most conspicuous, being just like Gigantea, with much larger corolla; sepals rose, corolla crimson. Mr. Glenny speaks of this as being "nearly as large as No. 227."—Price 5*s.*

ENCHANTRESS.—This is of very beautiful growth; sepals crimson, corolla purple.—Price 3*s.* 6*d.*

JEHU.—This is a large globe, like Candidate, but much finer, with purple corolla.—Price 3*s.* 6*d.*

The entire set of these 12 beautiful Seedlings, 3*l.*, with the usual allowance to the Trade.

	2*s.* 6*d*
Antagonist, Standish's	
Aurora, Bell's	1 6
,, Miller's	3 6
Albion, Smith's	2 6
,, Miller's	3 6
Attractor, Standish's	3 6
Adonis, Croft's	1 6
Augusta, Rickard's	2 0
Alata, Smith's	1 6
Aurantia, do.	1 0
Arborea grandiflora	1 0
Alice Maud Mary	2 0
Arayss [illegible]	1 0
Bridegroom, Epps'	1 6
Beauty, Standish's	1 0
Britannia, Smith's	1 6
Brewsterii	1 0
Brockmanii	1 0
Balloonii, May's	1 0
Cassandra, Pawley's	5 0
Champion, Smith's	2 0
Candidate, Girling's	2 0
Cormackii, Cormack's	1 6
Chevalerii, Sa ter's	2 6
Colossus, Standish's	2 6
Coccinea verna, Smith's	2 6
Coronet do.	2 0
Cylindrica superb, do.	1 6
Cyrus, Miller's	3 6
Chandlerii	1 0
Coccinea	1 0
Conspicua arborea, Catleugh's	1 0
Curtisii	1 0
Compacta, Standish's	1 0
Carnea, Smith's	1 0
Clintonia	1 0
Conspicua, Smith's	1 0
Duke of Wellington	2 6
Decora, Smith's	2 6
Dickens, Ingram's	2 6
Desdemona, Harrison's	2 6
Decora, Bell's	1 0
Dalstonia, Smith's	1 0
Devonia	1 0
Dennisiana, Dennis's	1 6
Deansii, Dean's	1 6
Defiance, Smith's	2 6
Eclipse, do.	1 6
Erectum, Day's	2 0
Espartero, Miller's	3 6
,, Epps'	1 6
,, Bell's	2 6
,, Knight's	1 6
Emperor of China, Epps'	1 6
Expansia, Miller's	2 6
Edwardsii	2 6
Eppsii, Epps'	1 0
Enchantress, Harrison	1 0
Exoniensis, Pince's	1 6
*Erecta elegans, Kendall's	5 0
Frostii, Lane's	1 6
Florabunda, May's	1 6
,, Standish's	1 0
,, Day's	2 6
,, magna, May's	1 0
Florada, May's	1 0
Formosa, Harrison's	1 6
Flora, do.	1 0
Flash, Bell's	2 6
Florence, Epps'	2 6
Fulgens superb, Miller's	1 0
,, longiflora, do.	1 0
Fairy, Harrison's	0 0
Formosa elegans	1 6
Fairy Queen, Bell's	1 6

	3*s.* 6*d*
Gigantea, Smith's	
Goliah, Day's	2 6
Globosa coccinea, Smith's	1 6
Globosa purpurea, Miller's	3 6
Gem, Ivery's	1 6
,, Harrison's	1 0
Grenvillii, Lane's	1 0
Hercules, Stedman's	2 6
Hector, Smith's	3 6
[illegible]ro of Suffolk, Girling	2 0
[illegible]e, Standish's	1 0
Incarnata, Smith's	2 0
Ivery ana	1 6
Isabella	1 0
*Junius, Smith's	10 6
Jehu, Miller's	3 6
King, Youell's	1 0
Kentish Bride, Epps'	1 6
King John, Halley's	1 6
Louis-Philippe, Miller's	2 6
London Rival, G. Smith	1 0
Lady Sale, Bell's	2 0
Lancii, Lane's	1 0
Longiflora, Miller's	0 6
Lowryii, Hancock's	1 6
La Chinois, Salter's	2 6
Magician, Bell's	1 6
Magnificent, do.	1 0
Multiflora coccinea	1 0
Majestica, Smith's	1 6
Magnifica, do.	1 0
Meteor	1 0
Marginata, Halley's	2 6
Maria, Epps'	1 6
Magnet, Pawley's	2 6
Modesta, Smith's	2 6
Medora, Harrison's	2 0
Madonna, do.	2 6
Macnabiana	1 6
Miss Talfourd	1 6
Norfolk Hero, Barkway	3 6
Nobilissima, Smith's	1 6
Nobilis, Miller's	2 0
,, Dean's	1 0
*Nymph, Epps'	5 0
*Othello, Kendall's	5 0
Ovid, Miller's	2 6
Oxonian, Day's	2 6
Princess Alice, Bunney	3 6
Paragon, Smith's	1 6
Pondii	2 6
Princess Sophia, Marnock's	1 6
Princess Royal, Bell's	1 6
Pr. of Wales, Pawley's	3 6
,, Bell's	1 6
Prima Donna, Harrison	2 6
Pride of Peckham	2 6
Prince Albert, Brown's	1 6
,, Bell's	1 6
Pulcherrima	1 6
*Pillar of Beauty, Kendall's	5 0
*Queen Victoria, G. Smith's	10 6
*Ditto, J. Smith's	21 0
*Ditto, Miller's	10 6
Qn. Adelaide, Holmes'	2 6
,, Pawley's	3 6
Qn. of Beauties, Epps'	5 0
Racemosa, Smith's	1 0
Rosea alba	1 6
Recurva, Dean's	1 6
Rodolphus, Bell's	1 6
Rogersiana, Rogers'	1 0
Reflexa, Bell's	2 6

LIST OF FUCHSIAS—*continued.*

	2*s.* 6*d*
Salterii, Salter's	
Sir R. Sale, Bell's	1 6
Sidmouthii, Bartlett's	2 6
Sanguinea, Halley's	2 0
Stanwelliana	1 6
Splendens, Smith's	1 0
Salmonia, do.	1 0
Seratifolia	1 0
Speciosa	1 6
Triumphant, Smith's	1 0
Toddiana, Cripps'	1 6
Transparens, Youell's	1 0
Tricolor	1 6
Tolloris, or Curiosa	5 0

	3*s.* 6*d*
Uttoxeter Beauty, Rogers'	
Uttoxeter Rival, do.	2 6
Unique, Bell's	1 6
,, Croft's	1 6
Victory, Smith's	1 0
Venus Victrix, Cripps'	1 0
Variegata	1 0
Victory, Day's	2 6
Vesta, Smith's	3 6
Woodsii, May's	1 0
Youellii	0 6
Zebrina, Miller's	2 0

Plants of the above to be sent out in April, at the following prices, post free, to any part of the United Kingdom. (Warranted correct to name.)

12 Fine Varieties .. 7*s.* 6*d.*	} the Selection left to Mr. Miller.
12 Extra fine do. .. 15*s.*	
12 Extra fine do. .. 21*s.*	the Selection left to the Purchaser.
50 Fine Varieties .. 40*s.*	the Selection left to Mr. Miller.
50 Extra fine do. .. 60*s.*	the Selection left to the Purchaser.
100 Fine Varieties .. 80*s.*	the Selection left to Mr. Miller.
100 Extra fine do. .. 100*s.*	the Selection left to the Purchaser.

Except those marked thus.*

*FUCHSIA CONSTELLATION. W. M. regrets that the smallness of the stock of this beautiful Fuchsia prevented its being sent out the past season, but it will positively be sent out the approaching one, at 12*s.* 6*d.* per plant, as far as the stock will go. The former orders are carefully preserved.

SUPERB SEEDLING VERBENAS.

ATTRACTOR.—This is one of the finest varieties ever offered, being very superior to Atrosanguinea, of which it is a Seedling. Colour velvety dark crimson; flowers very large and smooth; the truss compact and well formed, rising in the centre symmetrically.—Price per plant, 5*s.*

THE FAVOURITE.—This is a very beautiful variety: colour bright rose, with a large dark eye. Dr. Lindley thus describes it in *Gardeners' Chronicle*, page 624; "W. M.—Your variety, 140, is of a beautiful tint, clear and lively."—Price 5*s.*

ENCHANTRESS.—Large round flesh-colour flower, with dark eye. This flower is very distinct.—Price 5*s.*

JEWESS.—Of a brilliant dark rose, with large red eye. This is also very novel.—Price 3*s.* 6*d.*

The usual allowance to the Trade when three or more are ordered at once.

	2*s.* 0*d*
Alba lutescens, Girling	
,, magna, do.	2 0
,, rosea, Harrison's	1 0
Azurea grandiflora, Stewart's	1 0
Array, Smith's	1 0
Adonis, Croft's	1 0
Atrosanguinea, Chandler's	1 0
Aurora, Henderson's	0 6
Ami Jane, Girling's	1 0
Amethistina, do.	1 6
*Beauty, Smith's	3 6
Blue Queen, Miller's	2 6
Brilliant, Youell's	1 6
Beauty Supreme	2 0
Boule de Feu, Girling's	1 6
Bridesmaid, do.	1 0
Beauty, do.	1 6
Bride, Knight's	0 6
Barkerii	1 6
Celestina, Pearson's	2 0
Carnea superb, Stewart	1 0
Celestine, Henderson's	1 6
Conspicua, Knight's	1 0
Chalmerii, do.	0 6
Cœrulea, Harrison's	1 6
Carnea, Stewart's	0 6
Childe Harold, Henderson's	2 0
Defiance	2 0
Delicate, Smith's	1 6
,, Girling's	0 6
Duke of Cornwall, Knight's	1 6
Davisonia, do.	0 6
Excita	1 6
Elegans	1 6
Enchantress, Alexander	2 6
Eximia	1 0
French White, Harrison's	1 0
Fair Maid, do.	1 0
Formosa	1 0
,, elegans, Croft's	1 6
Formosissima	1 6
Fortune Teller, Girling	1 6
Howardii	1 0
Hendersonia	0 6
Incisa coccinea	1 0
Ignea	0 6
Joan of Arc	0 6
King	1 0
Lovely Rambler	1 6
Laconii	0 6
Longiflora	0 6
Lilacina	0 9
Minerva	1 6
Medora, Henderson's	1 6

	1*s.* 6*d*
Maid of Athens, Henderson's	
Messenger	1 6
Modesta	1 0
Monarch	1 6
Mortlock's Superb, Stewart's	0 6
Minstrel Boy, Girling's	1 6
Ne Plus Ultra, Lane's	0 6
Orange Perfection	2 6
Ovid, Knight's	0 6
Odorata, Miller's	0 6
,, alba, do.	1 6
Purple Queen, Ivery's	1 0
Purpurea	1 0
Ponteyii, Pontey's	1 0
Prince of Wales, Wood's	1 0
Pallida	0 6
Prince of Wales, Knight	3 6
Perfection, Girling's	1 6
Princess Royal, Youell's	1 0
,, Alice	1 6
Queen, Ivery's	0 6
Queen of the Whites, Stewart's	1 6
*Queen of England, Smith's	5 0
Ruby, Henderson's	0 6
Rosy Queen, Harrison's	1 0
Rosea alba, Halley's	0 6
Rosa rubra, Harrison's	1 6
Rose d'Amour, Girling's	2 6
Renown	1 0
Stewartii	0 6
Striata, Miller's	1 0
* ,, formosissima	3 6
Surprise, Youell's	1 6
Splendens, Kyle's	1 0
Speciosissima, Pearson	1 6
The Giant, Girling's	3 0
Trésor Parfait, do.	1 6
Teucroides rosea	1 0
,, carnea, Girling	0 6
Tweediana picta, Miller	1 6
,, magnifiora	1 0
,, superb	1 0
,, multiflora, Smith's	0 6
Turchianna, Duffio's	0 6
*Vesta, Smith's	5 0
Vaugendii	0 6
Variegata	0 6
Variabilis	0 6
Violacea, Girling's	0 6
Wonder, White's	1 0
White Perfection, Girling's	1 6
Westonii, Knight's	0 6
Zeuxis, Miller's	1 6

12 Fine Vars., fit for showing, 3*s.* 6*d.* the Selection left to W. M.
12 Extra fine ditto, ditto, (all new kinds). 6*s.* 0*d.* the Selection left to W. M.
12 Extra fine and very superior, 10*s.* 6*d.* the Selection left to the Purchaser. Except those marked thus.*

SEEDLING PETUNIAS.

UNIQUE SUPERB.—This is one of the most beautiful Petunias ever raised; colour novel-rose with white throat; habit very small and compact. Spoken thus of in *Gardeners' Chronicle*, page 448, "W. M.—'UNIQUE SUPERB' is a remarkably rich and fine-coloured variety."—Price 5*s.*

EXACTUM.—Large rosy-lavender strong flower. Dr. Lindley also speaks of this in the same Number, as being a fine flower.—Price 2*s.* 6*d.*

ILLUMINATA.—Vivid rosy crimson; the most beautiful of all Petunias for strong and close growth; very suitable for bedding.—Price 3*s.* 6*d.*

VARIEGATA, purple and blue, a fine shape.—Price 3*s.* 6*d.*

MAGNET.—Is one of fine form, of a fine rose colour, in the way of Conspicua.—Price 2*s.* 6*d.*

GIGANTEA.—A very large purple-crimson flower, like Beauty, but much thicker and better.—Price 3*s.* 6*d.*

	1*s.* 0*d*
Arethusa	
Alice Grey	1 0
Bicolor	1 0
Bumous de Willi, Van Houtte's	1 6
Beauty	0 6
Beauty Superb	2 6
Constance, Henderson's	1 6
Caryophylloides	2 6
Delicata	1 0
Dwarf Pencilled	1 0

	1*s.* 6*d*
Enchantress	
The Pet, Ivery's	1 6
Ovid	1 6
Prince Albert	1 0
Ne plus Ultra, Pearson's	1 6
Nixenii, Harrison's	5 0
Gem	0 6
Grandis	1 0
Hiclare	0 6
Hildida	0 6
Lady Sale	1 6

LIST OF PETUNIAS—*continued.*

	0*s.* 6*d*
Hope, Smith's	
Magna rosea	1 0
Medora	0 6
Magician	0 6
Masseyii	1 6
Magna Charta	1 6
Reliance	1 0
Ornalissima	1 6
Othello	1 0
Punctata, Miller's	1 6
Picta	1 0
Rook's Nest	0 6
Rosea alba	0 6
Psyche	0 6
Splutherii	2 6
Conspicua	1 0
Picta grandiflora	1 6
Striata superb	1 6
Unique	1 0
Kentish Bride	0 6
,, Beauty	1 6

12 Fine sorts . 4*s.* 0*d.* the Selection left to Mr. Miller.
12 Extra fine do. . 6*s.* 0*d.* the Selection left to Mr. Miller.
12 Ex. very superior, 10*s.* 6*d.* the Selection left to the Purchaser.

MAGNIFICENT SEEDLING ANTIRRHINUMS.

MONARCH—purple crimson, with large yellow throat, very superb	5*s.* 0*d*
ROBUSTUM—orange red, large lemon throat	3 6
FAVOURITE—white, veined with crimson, large lemon throat, very novel and fine	5 0
CARYOPHYLLOIDES SUPERB—very fine, large, white, striped with crimson, very beautiful and always constant	3 6
STRIATA FORMOSISSIMA—white, veined with dark crimson	2 0
MOGUL—large, dark crimson purple	1*s.* 6*d*
SPLENDENS—very beautiful gold colour	2 6
SUPREME—the largest and brightest yellow known	5 0
MAGNET—rosy lilac, yellow throat	1 6
GIGANTEA—flowers of an extraordinary size, of a beautiful colour, with yellow throat	3 6
PURITY—large and clear white	1 6
LILACINA—fine rosy lilac	1 6

The whole Collection for 1*l.* 11*s.* 6*d.* Will be sent in a stout case, post free, warranted to go safe. The usual allowance to the Trade.

Note.—The above beautiful Seedlings have been carefully selected from a great mass of fine flowers, and several of them were twice submitted to Dr. LINDLEY, whose opinion will be found in *Gardeners' Chronicle*, pages 448—508: "Their distinct bright colours and large flowers, with their compact dwarf habits (differing from this class generally) render them alike desirable for the flower-garden as for the shrubbery."* Their continuance in bloom throughout all the summer is too well known to need further comment.

Achimenes grandiflora, 1*s.*; longiflora, 6*d.*; rosea, 6*d.*; pedunculata, 6*d.*; coccinea, 6*d.*; picta, 3*s.* 6*d.* Anagallis Brewerii, carnea, grandiflora, cœrulea grandiflora, and Parksii, 6*d.* each, or 4*s.* per dozen. Gesnera zebrina, 1*s.* 6*d.* Gloxinia rubra, 1*s.* Lilium lancifolium, 2*s.* 6*d.* each.

W. M. can supply all the New Varieties of Fuchsias, Verbenas, Pelargoniums, Petunias, &c., to be sent out by other raisers, at their advertised prices.

N.B.—Hybrid Pelargonium Seeds, from choice sorts, 50 seeds 5*s.*, 100 seeds 10*s.* Hoyle's Hybrid choice Seeds, 50 seeds, 6*s.*, 100 seeds 10*s.* Fine Hybridised Fuchsia Seed, from their very extensive stock, 50 seeds 5*s.*, 100 seeds 10*s.* Select Hybridised Petunia Seed, from striped and spotted flowers, small packets, 2*s.* 6*d.*, large ditto, 5*s.* Fine Cineraria Seeds, packets, 1*s.* 6*d.* each. All sealed and sent post free.

*** All orders will be packed in strong tin cases and sent post free, where practicable to go by post; or by railway, in boxes, to London, and plants put to compensate for carriage. A remittance from unknown correspondents.

A large stock of good strong plants of the choicest sorts of Geranium to sell by the dozen, very cheap, of which printed Catalogues can be had on application.

* W. M. would just say he perfectly coincides with Dr. LINDLEY that this class of flowers deserve to be more cultivated.

CAMELLIA "HALLEII."

J. HALLEY, NURSERYMAN & FLORIST, BLACKHEATH, begs to inform his Friends and the Public that he has the above splendid CAMELLIA ready for sale. It was figured last July in the "Florists' Journal," and has proved itself again this season quite equal to the figure there given. It is a very large, perfectly-formed flower, with large, round cupped petals, of great substance, and a bright crimson colour. It has been pronounced by those judges who have seen it to be one of the best formed flowers of the species. Young plants, 3*l.* 3*s.* each.

In consequence of numerous applications from the Trade, J. H. has been induced to offer his improved CAMELLIA STOCK (marked XX) called ex-extra, FOR SALE. Its advantages are, it grows with twice the vigour and strength of the common Stock, without occupying more room, as the leaves are moderate sized, but thick and fleshy, strikes root even more freely by cuttings, is of neat, upright habit; and as it is always in a free-growing state, making two or three shoots annually, it is fit for grafting or budding at any time throughout the spring, summer, or autumn. It is, from its free habit, particularly well suited as a stock for Reticulata, and has been very successfully used by the Advertiser for that purpose. Plants, per 100, 10*l.* 10*s.*; 50 do., 6*l.* 6*s.* Strong plants per doz., 42*s.*; Single Plants, 5*s.* each.

An extensive Collection of Camellias, cultivated both for the wholesale and retail trade.

A general assortment of Indian Azaleas, Ericas, Fuchsias, Verbenas, Geraniums, &c., of which Catalogues may be had on application.

The Nursery may be reached by a very pleasant walk of a mile, either from the Greenwich Railway Station or Pier, and coaches from the City and Westminster to the door every hour throughout the day.

BLOOMS OF THE MAGNIFICENT SEEDLING CAMELLIA, "DUKE OF LANCASTER," may now be seen at Mr. CHARLWOOD'S, Seedsman, Tavistock-row, Covent-garden, London; and plants now ready for delivery, by applying to R. S. YATES, St. Ann's-square, Manchester.

AGRICULTURAL SEEDS.

W. DRUMMOND AND SONS, SEEDSMEN, &c., of the Agricultural Museums, Stirling and Dublin, beg to announce that their priced LIST of AGRICULTURAL SEEDS may be had free, on application.

*** Separate Lists of Garden Seeds, Nursery Plants, and Farm Implements may also be had free.

Stirling, N.B., Mar. 1845.

C. M'INTOSH, SEEDSMAN and FLORIST, 21, SAVILE-STREET, HULL, begs to offer his Friends and the Public the following choice kinds of GARDEN and FLOWER-Seeds:—

True Walcheren Cauliflower	per oz.	4*s.* 0*d.*
Shilling's Queen Cabbage		2 6
Lindsay's superior Blood-red Beet		2 0
Fuller's New Hybrid Radish		2 0
Brachycome iberidifolia	per packet	1 0
Calceolaria, from most superior varieties		5 0
Cineraria, the finest varieties		1 0
Marigold, African sorts		0 6
Do. French		0 6
Phlox Drummondii (dark variety)		1 0
Primula sinensis (fringed)		1 0

A general Catalogue of Garden and Flower-seeds will be sent on application, post paid.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, March 1, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 10.—1845.] SATURDAY, MARCH 8. [PRICE 6*d.*

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The ROYAL AGRICULTURAL SOCIETY OF ENGLAND is desirous of receiving Tenders from Innkeepers, or others, to contract for either or both of the following Supplies at the ensuing Annual Country Meeting of the Society to be held at Shrewsbury, in July next:—

1. A Hot Dinner for 400 Persons, with Dessert, and a bottle of Port, Sherry, or Bucellas, to each person, at Shrewsbury, on Wednesday, the 16th of July, 1845.

2. A Cold Dinner for 1200 persons, with a pint of Port, Sherry, or Bucellas, to each person, in the Pavilion of the Society, at Shrewsbury, on Thursday, the 17th of July, 1845.

Printed forms of Tender will be forwarded to parties applying to the Secretary, and must be returned to him, filled up on or before Monday, the 31st inst., to the Office of the Society No. 12, Hanover Square, London; the Society not binding itself to take the lowest tender. By Order of the Council,

(Signed) JAMES HUDSON, Secretary.

London, March 5.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The ROYAL AGRICULTURAL SOCIETY OF ENGLAND is desirous of receiving Tenders on or before the 31st inst., for the Hiring of HURDLES for making Pens at the Shrewsbury Meeting in July next, to be made either of iron or wood. 1700 will be wanted, 6 feet long each; of which 1200 are to be 2 feet 9 inches high above the ground, and 500, 3 feet. The persons who send in tenders are requested to give a specification and drawing of the Hurdles they propose to let. The Hurdles to be delivered on the Show-ground at Shrewsbury. Security will be required for the performance of the contract. The Society does not bind itself to take the lowest tender. Any further inquiries may be made at No. 12, Hanover-square, London, of the Secretary of the Society. By order of the Council. (Signed) JAMES HUDSON, Secretary.

London, March 5.

GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given, that an ELECTION for Four Pensioners on the Funds of this Institution will take place on WEDNESDAY, 4th June next. All Persons desirous of becoming Candidates are requested to send in their testimonials to the Committee on or before Friday, the 28th inst., after which time they will not be received. By Order,

EDWARD R. CUTLER, Sec., 97, Farringdon-st.

The necessary printed form may be obtained on application to the Secretary as above.

A CUCUMBER SHOW, open to all England, will be held at the house of Mr. Matthew Howarth, the George and Dragon Inn, Cheadle, Cheshire, seven miles from Manchester, and three miles from Stockport, on Saturday the 13th of April, 1845. Subscription 5*s.* must be paid on or before March 22d. Ipswich standard strictly adhered to.—Further particulars on application to Mr. HOWARTH, George and Dragon Inn, Cheadle, Cheshire.

FUCHSIA "MAJESTICA SUPERBA."

J. BARNES, HORTICULTURAL GROUNDS, WARWICK, begs respectfully to call the attention of the public to his Seedling Fuchsia, which is of robust habit, a bold and free-flowering variety, and will be found a great acquisition to that much-admired tribe of plants. It was submitted to Dr. LINDLEY, July 6, 1844; see page 448 *Gardeners' Chronicle*. "B. B.—The seedling is a large and very stout flower; the sepals expand and show the corolla, which is very large and stout, with a slight dash of purple added to the crimson. It is a handsome variety." Strong plants ready to send out after the 25th of March, at 7*s.* 6*d.* each, with the usual discount to the Trade when three or more are taken. Also at Messrs. HURST and M'MULLEN'S, Seedsmen, 6, Leadenhall-street, London.

BLOOMS OF THE MAGNIFICENT SEEDLING CAMELLIA, "DUKE OF LANCASTER," may now be seen at Mr. CHARLWOOD'S, Seedsman, Tavistock-row, Covent-garden, London; and plants now ready for delivery, by applying to R. S. YATES, St. Ann's-square, Manchester.

TO ALL WHO HAVE WASTE LANDS.
TRUE HIGHLAND PINE-TREE.

JAMES GRIGOR, NURSERYMAN, NORWICH, begs to inform the Planters throughout the kingdom, that he is disposing of PLANTS, SEEDS, and CONES of this valuable Timber-tree at the annexed prices. A description of this PINE will be found in J. G.'s Advertisements of Feb. 1, and previous dates.

PLANTS, 2 ft. high, beautifully branched on all sides, with fine leaders	each—	0*s* 6*d*
Ditto, 18 to 20 inches high	per 100—	5 0
Ditto, 15 to 18 "	per 1000—30	0
Ditto, of smaller size, for exposed situations	10*s.* to	20 0
SEEDS, post free, with directions for sowing	per 500—	2 6
Ditto Ditto Ditto	per 1000—	5 0
CONES, selected	per 1000—25	0

Carriage paid to London or Hull, when plants are taken to the amount of 10*l.*

N.B. Every plant is packed by J. G. himself, or under his immediate superintendence, and in no case whatever is an address allowed to be written or attached to a parcel by any other hand.—Norwich, March 8.

TRUE WALCHEREN BROCOLI.

WILLIAM E. RENDLE can, with much confidence, recommend the WALCHEREN BROCOLI, as being a very excellent and superior variety. The stock was saved by Messrs. Myatt, of Deptford, who are well known to grow this sort in the highest perfection. 1*s.* per packet.

TRUE WILLCOVE BROCOLI.

This can be highly recommended, as one of the *largest and most valuable white varieties for Spring use.* Sealed packets, 1*s.* each. The following can also be recommended as superior sorts of Vegetables.

Superior Dark Crimson Beet	Dwarf Small Top and Scarlet Beet
Chappell's Cream Brocoli	Large Paignton ditto
Myatt's Superb Curled Parsley	Wood's Early Frame Radish
Atkins's Early Matchless Cabbage	Hammond's White Cape Brocoli
True Drumhead Lettuce	
Early Cornish Cabbage	

The above at 6d. per packet, or the whole set, including the WALCHEREN and WILLCOVE BROCOLI, will be sent free by post, for a Post-office Order, value 6*s.* All other kinds of Vegetable Seeds warranted new and genuine.

Union Road Nursery, Plymouth, March 8.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

	£	*s.*	*d.*
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures . per 100—10*s.* 6*d.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named .	2	10	0
Superfine Mixtures . . . per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named .	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto .	2	10	0
25 pair of PICOTEES, in 25 ditto ditto .	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto .	3	10	0
Good kinds . . per doz., from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	3	6
" " PUNCTATUM . " .	0	7	6
" SPECIOSUM, (true) . . . " .	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Mar. 8. Foreign Orders executed.

WOODLANDS NURSERY, Maresfield, near Uckfield, Sussex.
VERBENA "HUDSONII."

WM. WOOD AND SON, having purchased the entire stock of the above magnificent VERBENA, raised by Mr. HUDSON, of Horstead, beg leave to offer it to their Friends and the public. Blooms were submitted to the inspection of Dr. LINDLEY, whose opinion will be found recorded in the *Gardeners' Chronicle* of 6th July, 1844, page 448, under the initials "W. W.—Hudsonii is a good variety, bright rosy purple, with a white eye, distinct in colour."

As a Verbena for Bedding it is unsurpassed, while the brilliancy of colour, bold truss, and fine habit of this truly superb variety has elicited admiration from several competent judges; it is therefore with the greatest confidence W. W. and S. offer it to the notice of Amateurs. Strong plants will be ready to send out in tin cases, per post or otherwise, the first week in April, at 3*s.* 6*d.* each, with the usual discount to the Trade when three or more are ordered at once.

WM. WOOD and SON are now issuing GRATIS a new and DESCRIPTIVE CATALOGUE of their extensive Collection of FUCHSIAS and VERBENAS, to which is added Lists of all the newest and best Cinerarias, Petunias, Anagallis, and other plants adapted for bedding; also miscellaneous Greenhouse and Hardy Herbaceous Plants, Shrubs, Climbers, &c.

Woodlands Nursery, March 8.

THE BUFFALO BERRY.

T. RIVERS has some newly-imported Plants of this interesting hardy Fruit-bearing Shrub to offer, at 2*s.* 6*d.* each.

"Its fruit, which is much relished in North America, is about the size of the red Currant, much richer to the taste, and forms one continued cluster on every branch and twig."—*Loudon, in "Encyclopædia of Trees and Shrubs,"* page 700.

T. RIVERS also begs to call the attention of his Friends to the PERSIAN YELLOW ROSE; colour bright golden yellow, quite hardy; of which he has the largest stock in Europe. This Rose, if left unpruned, blooms freely. T. R. has plants in pots, forced, only 1 foot high, full of bloom buds. The plants offered are adapted for potting, being worked on clean 4-inch stems; 7*s.* 6*d.* each. The wholesale price per dozen or per 100 will be given to the trade on application.—Sawbridgeworth, Herts.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (late Hammond's), Surrey.

WARNER AND WARNER, SEEDSMEN & FLORISTS, 28, CORNHILL, respectfully inform the Nobility and Gentry their NEW CATALOGUE, comprising all the choice new Flower and Vegetable Seeds is now ready, and can be had post-free upon application.

For particulars refer to "Harrison's Cabinet" for February and March.

SELECTED GRASS SEEDS.

WARNER AND WARNER, SEEDSMEN, 28, CORNHILL, beg to inform the nobility and gentry they have on hand all the BEST GRASS SEEDS required for permanent pastures, consisting of Poas, Fescues, Crested Dogstail, Foxtail, &c. adapted for all soils. Upon application, the quantities required of any particular variety can be had with prices.

FIELD TURNIP, MANGOLD WURZEL, &c. of all the best varieties.

DANECROFT NURSERY, STOWMARKET, SUFFOLK.

S. GIRLING'S DESCRIPTIVE CATALOGUE of DAHLIAS, FUCHSIAS, GERANIUMS, HEARTSEASE, PETUNIAS, PHLOXES, and VERBENAS, is now ready, and can be had by forwarding two penny stamps inclosed in the letter of application.—Stowmarket, March 8.

HURST & M'MULLEN beg to inform their friends and the public, that their List of NEW AND CHOICE VEGETABLE AND FLOWER SEEDS for the Spring of 1845 is now ready, and may be had on application. A selection from their List of Flower-seeds will be found in the last page of this Number.—6, Leadenhall-street, March 8.

NAPOLEONA IMPERIALIS, GARDENIA STANLEYANA, and other most remarkable Plants recently introduced by Mr. Whitefield.—R. GLENDINNING begs to state that he has purchased this extraordinary Collection of beautiful Plants, descriptions and figures of which will shortly appear. Napoleona imperialis, 2*l.* 2*s.* The stock being limited, early application alone can secure plants.—Chiswick Nursery, Mar. 8.

NEW, GOOD, AND CHEAP.

WILLIAM MILLER will commence sending out, the last week in March, in stout tin cases, post-free (or in pots, if required), 12 new choice and very distinct FUCHSIAS, fit for exhibition, for 7*s.* 6*d.*; 12 extra first-rate very distinct varieties, all sent out for the first time last season, such as Vesta, Gigantea, Neptune, Modesty, Expansa, Reflexa, Cornet (Smith's), Cassandra, Prince of Wales, Queen (Pawley's), Prima Donna, Desdemona, Goldfinch (Harrison's), Longiflora, Curiosa, Louis-Philippe, Cyrus, Novelty (Miller's), Marginata, Sanguinea, King John (Halley's), Augusta (Rickhard's), Oxonian (Day's), Kentish Bride (Epps's), Uttoxeter Rival (Rogers's), Sidmouthii (Bartlett's), Colossus (Standish's), Princess Alice (Bunney's), Norfolk Hero (Barkway's), Princess Sophia (Marnock's), Queen Victoria (Youell's), for 15*s.*; also 12 distinct VERBENAS for 3*s.* 6*d.*; 12 extra good, new varieties, such as Blue Queen, Zeuxis, Beauty Supreme, Elegance, Orange Perfection, Poolii, Modesty, Variabilis, Monarch, Brilliant, Array, Excelsa, Striata, Delicata, Defiance, Trésor Parfait, Azure Grandiflora, Queen of the Whites, Compte d'Eu, Alba Lutescens, Giant, Boule de Feu, Amethystina, Fortune-teller, Perfection, for 6*s.* —Parties ordering are requested to send the names of the sorts they already possess, that W. M. may send other suitable varieties. Printed Lists may be had.

Providence Nursery, Ramsgate, Kent.

MAJOR'S SPLENDID CALCEOLARIAS AND PANSIES.

H. MAJOR'S Descriptive List of New Seedling Shrubby CALCEOLARIAS, Seedling and other select PANSIES is now ready, and may be had on post-paid application. The Calceolarias will be ready to send out in May, with brief directions for their general management throughout the year. The Seedling Pansies, three in number, which are confidently recommended, will be ready by the middle of March, price 15*s.* the set. Also 12 of his best Seedling Calceolarias sent out last year, price, 25*s.* Select Pansy seed 2*s.* 6*d.* per packet.—Knosthorpe, near Leeds.

PLANTS ON SALE, by DICKSON AND TURNBULL, NURSERYMEN, BERCHIN, N.B., comprising—

LARCH, two years transplanted.
ELM, Scotch, from 2 to 5 feet.
OAK, English, from 1½ to 3½ feet.
POPLAR, Ontario, Black Italian, and Lombardy, from 3 to 6 feet.
PRIVET, Evergreen, 1 to 2 feet.
LAUREL, Common, twice transplanted.
" Portugal, 1½ to 2 feet, twice transplanted.

Will be sold cheap, and put free on board ship at Montrose from which port there are regular traders to London, Leith Newcastle, &c.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, from 5*s.* per 100, with printed particulars for cultivation, may be had of WARNER AND WARNER, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 3*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

GREAT YARMOUTH NURSERY, MARCH, 1845.

A CATALOGUE

OF THE NEWEST AND VERY BEST VARIETIES OF

FUCHSIAS, VERBENAS, PETUNIAS, PANSIES, CINERARIAS, CHRYSANTHEMUMS,

AND OTHER HIGHLY ORNAMENTAL PLANTS, OFFERED BY

YOUELL AND CO.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN; HIS MAJESTY THE KING OF THE BELGIANS; Nurserymen and Florists by Special Appointment to HER MAJESTY THE QUEEN DOWAGER.

YOUELL and Co., in submitting their Catalogue of Fuchsias, &c. for 1845, take the present opportunity of drawing the attention of admirers of the above elegant tribe of plants to their superb Collection. They have spared no expense in forming a selection of such as are really good, to the exclusion of many that are mere nominal varieties; and they would refer to the numerous testimonials of success which attended their mode of selecting last season, collections for Amateurs, for competition at the various Horticultural Exhibitions throughout the Kingdom.

Their Catalogue of Fuchsias this season will be found arranged in two divisions, namely, light and dark coloured varieties of various shades, and they flatter themselves that the care observed by excluding very many varieties now out of date, and others that do not possess sufficient merit, that any disappointment on the part of the purchaser will be prevented.

YOUELL and Co. beg to call particular attention to their Seedling Fuchsias and Verbenas, which they now offer for the first time. In doing so, they beg to refer to the report of their Establishment in the *Gardeners' Chronicle* of August the 10th, page 542, as follows:—

"The Fuchsias here are numerous and well grown. To a collection of the finest sorts in general cultivation are added many Seedlings of great merit, of Messrs. Y. and Co.'s own raising, and from Seedlings of the present year three have been selected, which are handsome and distinct varieties—named Laconii, Elegans, and Alicia; the last-mentioned variety has a very faint pink tube, sepals tipped with green, corolla deep blood-colour, and the flowers are of a good size."

YOUELL and Co., being the first who sent out per post, with safety, these tribes of plants, are desirous of calling attention to their advantageous method of executing orders, namely, that they will deliver them free of postage to any part of the United Kingdom, upon the following terms:—

12 Extra Fine Varieties . . .	12*s.*	the Selection left to Youell and Co.
12 Ditto ditto . . .	21*s.*	the Selection left to the Purchaser or ditto.
50 Fine Varieties	40*s.*	the Selection left to Youell and Co.
50 Extra Fine ditto	60*s.*	the Selection left to the Purchaser or ditto.

} With the exception of those marked thus*.

The Plants are strong and healthy, and will be ready for delivery the latter part of March, thus insuring to the Purchaser fine Plants for competition in the ensuing season. Many of the varieties can be supplied now.

NEW AND SPLENDID SEEDLING FUCHSIAS.

* ALICIA.—The tube and sepals of this beautiful and distinct Fuchsia approach more to the true character of a really White Fuchsia than any yet raised. The flower is about three inches in length, of fine form and great substance, and is finely contrasted by a corolla of deep blood colour; a most profuse bloomer, and will prove one of the best light varieties yet out.—Price 7*s.* 6*d.* per plant.

* LACONII.—Tube and sepals of rich vermilion, the latter expanding well and exhibiting a corolla of deep rosy purple; the flower of immense size, profuse bloomer, and will be found a decided acquisition as a first-rate Show Flower.—Price 7*s.* 6*d.* per plant.

* ELEGANS.—This Fuchsia possesses more the character of its parent (Formosa elegans), with the exception of the flowers being considerably larger and of brilliant scarlet; corolla of dark vermilion, a profuse bloomer, and one of the most elegant of its class.—Price 5*s.* per plant.

* IRENE.—Tube and sepals of a delicate rosy transparent pink, slightly tipped with green; corolla violet purple; great bloomer, and a very distinct and desirable variety.—Price 5*s.* p. plant.

* GLOBOSA SPLENDENS.—A fine large globose-shaped flower, tube and sepals of bright vermilion, possessing a corolla of the richest purple; a profuse bloomer, and the largest of its class yet out.—Price 5*s.* per plant.

* PRINCESS LOUISE.—Tube and sepals of fine salmon, tipped with green; corolla of dark carmine, tinged with rosy purple; free bloomer, and a first-rate show flower.—Price 5*s.* p. plant.

* MEDORA.—Tube and sepals of a delicate and very light pink, with long purple corolla; free bloomer, and a decided acquisition.—Price 5*s.* per plant.

* HERO.—This is an exceedingly large and fine flower; tube and sepals of bright vermilion, the latter much reflexed, and showing a fine rosy purple corolla; great bloomer, and a first-rate Show flower.—Price 5*s.* per plant.

The above eight varieties have been selected from upwards of 4000 Seedlings; and as YOUELL and Co. possess every known Fuchsia worthy of cultivation, and having bloomed all the varieties sent out by various parties last season, they can confidently recommend the foregoing, as being decided improvements upon this elegant tribe.

They will be ready for sending out per post, or otherwise, in the early part of April next, and when the set is taken they will be charged Two Guineas.

Fuchsia Seed saved from the newest and best varieties, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.

Light Coloured Varieties of Various Shades, per plant—	*s.*	*d.*
* Alicia (Youell's) .	7	6
Belliana	1	0
*Conservative (Foxton's)	5	0
Conspicua arborea .	1	0
Coronet (Smith's) .	2	0
Chandlerii . . .	1	0
Delicata	1	0
Enchantress (Harrison's)	1	0
Fair Helen (Hally's)	2	0
Incarnata (Smith's) .	2	0
*Incomparabilis (Foxton's)	5	0
*Irene (Youell's) .	5	0
King John (Hally's) .	1	6
*Medora (Youell's) .	5	0
Modesta (Smith's) .	2	0
*Princess Louise (Youell's)	5	0
*Queen (Bell's) .	5	0
*Queen Superb (Foxton's)	5	0
*Queen Victoria (Smith's)	2	0
Sanguinivea (Hally's)	2	6
Salmonii	1	0
*Thalaba (Foxton's)	5	0
Transparens . . .	1	0
Tricolor (Pontey's) .	1	0
Venus Victrix (Cripps')	1	0
Vesta (Smith's) . .	3	0

Dark Coloured Varieties of Various Shades.		
Affinis	1	0
Alata (Smith's) .	1	6
Albion (Smith's) .	2	6
Antagonist (Standish's)	2	0
Attractor (Standish's)	3	0
Balloni (May's) .	1	0
Beauty (Youell's) .	1	6
Boydii (Hally's) .	2	0
Bridesroom (Epps')	1	6
Britannia (Smith's) .	1	0
Brockmanii . . .	1	0
Bruceana	1	0
Candidate (Standish's)	2	6
Champion (Smith's) .	1	6
Coccinea vera (Smith's)	2	6
Colossus (Standish's)	2	6
Conductor (Standish's)	2	6
Conservative (Youell's)	1	6
Cormackii . . .	1	6
Corymbiflora . . .	1	0
Countess of Tyrconnell (Youell's) . . .	1	6
Countess of Zetland (Youell's) . . .	1	6
Cylindrica superba (Smith's) . . .	1	6
Decora Smith's) . .	2	6
Defiance (Smith's) .	2	0

per plant—	*s.*	*d.*
*Diomede (Youell's) fine)	3	6
Duke of Wellington (Epps')	2	0
*Elegans (Youell's) extra fine	5	0
Emperor of China (Epps')	1	6
Eppsii	1	0
Espartero (Epps') .	1	6
Excelsa (Smith's) .	1	0
Exoniensis (Pince's)	1	6
Expansa (Smith's) .	3	6
Exquisite (Youell's)	1	6
Florabunda magna .	1	0
Florence (Epps') .	2	0
Formosa elegans .	1	0
Fulgens multiflora .	1	0
Gem (Ivery's) . .	1	0
Gigantea (Smith's) .	3	0
*Globosa splendens (Youell's) extra fine	5	0
Globosa variegata .	1	0
Hector (Smith's) .	3	0
*Hero (Youell's) ex. fine	5	0
Insignis (Smith's) .	1	0
Iveryana (Ivery's) .	1	6
Kentish Bride (Epps')	1	0
Kentish Hero (Epps')	1	6
*Laconii (Youell's) extra fine	7	6
*Lady De Vere (Youell's) fine	3	6
*Lady Sale (Youell's) fine	3	6
Lady Alice Peel (Youell's) fine	2	6
Lady Sondes (Youell's)	1	6
Lady Rae Reid (Youell's)	1	6
Lady Walsingham (Youell's) fine	2	6
Lanceii (Lane's) . .	1	6
Lindleyana (Youell's) fine	2	6
*Louisa (Youell's) fine	3	6
Madonna (Youell's) .	1	6
Magnifica (Smith's) .	1	0
Magnet (Pawley's) .	2	6
Marchioness of Ormonde (Youell's) . . .	1	6
Marchioness of Normanby Youell's fine . .	2	6
Majestica	1	6
Marginata (Hally's)	2	6
Marie (Epps') . .	1	6
Mars (Youell's) fine	3	6
Monarch (Epps') .	2	0
Moneypennii . .	1	0
Nobilissima (Smith's)	1	6
Neptune (Smith's) .	3	0
Paragon (Smith's) .	1	6
*President (Youell's) fine	3	6
President (Standish's)	2	6

per plant—	*s.*	*d.*
Prince Albert (Brown's)	1	6
Prince Albert (Youell's)	1	6
Prince of Wales (Youell's) fine	2	6
Prince of Wales (Epps')	2	6
Prince of Wales (Pawley's)	3	6
Princess Royal (Youell's) fine	2	6
Princess Sophia (Marnock's) . . .	1	6
Queen (Pawley's) .	3	0
Queen Victoria (Youell's) extra fine . .	3	6
Racemiflora . . .	1	0
„ elegans .	1	0
Reflexa (Smith's) .	2	6
Ricartonii . . .	1	0
Robusta (Smith's) .	1	6
Rogersiana (Rogers')	1	0
Sanguinea (Smith's)	1	0
*Sapphire (Youell's)	3	6
Splendida . . .	1	0

per plant—	*s.*	*d.*
Splendens (Kyle's) .	1	0
St. Clare	1	6
Stanwelliana . . .	1	6
Stylosa maxima .	1	0
*Surprise (Youell's) fine	3	6
Sylph (Youell's) .	1	6
Taglioni (Youell's) .	1	6
*Timandra (Youell's) fine	3	6
Toddiana (Todd's) .	1	0
Towardii	1	0
Uttoxeter Beauty (Rogers')	2	6
Uttoxeter Rival (Rogers')	2	6
Victory (Smith's) .	1	6
*Washington (Youell's) fine	3	6
Wat Tyler (Hally's)	2	6
Winsorii	2	6
Youelliii	1	0

With every other variety worthy of cultivation, that may be sent out after the publication of this List.

SELECT VERBENAS.

YOUELL and Co., in offering the following new and beautiful Seedling Verbenas, beg to refer to the Report of them in the *Gardeners' Chronicle* of August the 10th, page 542, as follows:—

"Amongst the Seedling Verbenas here, a few distinct varieties have appeared. One named LEONORA, a rich lilac purple with a light eye, is a very bright and beautiful flower.

"ROSE CHARMANTE.—A brilliant rose pink of a peculiar tint.

BRITISH QUEEN.—A large, handsome, lilac and Hebe, a delicate grey."

Since that period, several other Seedlings appeared, possessing equally valuable properties, the tubes of flowers being of immense size, novelty, and brilliancy of colour, as well as the acquisition of fragrance. In the general list will be found the best of the older varieties, as well as some Seedlings of great merit, raised by YOUELL and Co.

SEEDLINGS RAISED IN 1844.

LEONORA (Youell's).—A large and rich lilac purple, with a light eye; an extremely bright and beautiful flower, the tufts of bloom large and very fragrant.—Price 5*s.* per plant.

ROSE CHARMANTE (Youell's).—A most brilliant rose pink of a peculiar tint, the tufts of bloom large and very fragrant.—Price 3*s.* 6*d.* per plant.

BRITISH QUEEN (Youell's).—A large handsome lilac, the tufts of bloom measuring from 4 to 5 inches in diameter; expands well. This is an extremely beautiful flower, and the largest flowering Verbena yet raised; it is also delightfully fragrant.—Price 5*s.* per plant.

SPECIOSISSIMA (Youell's).—This Verbena will be found the largest and best of the scarlet varieties, the colour being a fine scarlet and ruby, with a yellow eye, the tufts of bloom measuring 4 inches in diameter; expands well, and sweet scented.—Price 5*s.* per plant.

HEBE (Youell's).—A delicate grey with sulphur tinge, the edges tipped with pink, large tufts of bloom; expands well, and delightfully fragrant.—Price 3*s.* 6*d.* per plant. (The flowers of this Verbena are of the most perfect form, and will be found a very attractive variety.)

MAGNIFICA (Youell's).—A beautiful puce, with very large dense heads, measuring from 4 to 5 inches in diameter; expands well, and sweet scented.—Price 3*s.* 6*d.* per plant. (A very fine variety.)

TIMANDRA (Youell's).—The colour of this fine variety is a decided pink, contrasted with a deep crimson eye; it is a large and well-formed flower, expands well, and sweet-scented.—Price 3*s.* 6*d.* per plant.

DUKE OF YORK (Youell's).—This is also a novel and fine variety, the colour being a very dark maroon, the tufts of bloom large and sweet-scented; expands well, and will form a fine contrast with the light-coloured varieties.—Price 3*s.* 6*d.* p. plant.

The above will be ready for delivery, per post, free, or otherwise, in the first week of April, at 1*l.* 5*s.* the set, or at the prices affixed.

GENERAL LIST OF VERBENAS.

per plant—	*s.*	*d.*
*Adelaide (Youell's) extra fine	2	6
Amethystina (Girling's)	1	0
Arraniana superba (Youell's) . . .	1	0
* Azurea grandiflora (Youell's) . . .	2	6
Barkerii	1	0
Beauty (Girling's) .	1	0
Blue Queen (Miller's)	1	0
Boule de Feu (Girling's)	1	0
Bridesmaid (Girling's)	1	0
*British Queen (Youell's) ex. extra fine .	5	0
Brilliant (Youell's) fine	1	6
Barleyana . . .	1	0
Charlwoodiana . .	0	6
*Chaos (Youell's) very dark and fine . .	2	6
Defiance (Girling's) .	1	6
Delicata (Youell's) .	1	0
*Duke of York (Youell's) ex. extra fine . .	3	6
Edmondii	1	0
Elegans (Youell's) fine	1	6
Emperor	1	0
Excelsa	2	6
Favourite (Youell's)	1	0
Formosa (Youell's)	1	0
„ elegans (Croft's)	1	0
Fortune Teller (Girling's)	1	0
Grandis (Youell's) fine	1	0
*Hebe (Youell's) ex. extra fine	3	6
Howardii	1	0
Ignea	0	6
Incisa major (Youell's)	1	0
Ingramii	1	0
Laconii	1	0
*Leonora (Youell's) ex. extra fine . . .	5	0

per plant—	*s.*	*d.*
*Lilac Perfection (Youell's) extra fine	2	6
Lilacina (Girling's) .	1	0
Longiflora (Girling's)	0	6
*Magnifica (Youell's) ex. extra fine . . .	3	6
*Mars (Youell's) extra fine	2	6
Medora (Youell's) ex. fine	2	6
Melindris major . .	0	6
Minstrel Boy (Girling's)	1	0
Monarch (Youell's) fine	1	6
*Penelope (Youell's) ex. fine	2	6
Princess Royal (Youell's) the best white out	1	0
*Ramona (Youell's) extra fine	2	6
Renown (Girling's) .	1	0
*RoseCharmante (Youell's) ex. extra fine . .	3	6
Rosy Queen (Hally's)	1	0
*Speciosissima (Youell's) ex. extra fine . .	5	0
Splendens . . .	1	0
Stewartii	0	6
Striata coccinea . .	1	0
Superba (Mortlock's)	2	0
Surprise (Youell's) .	1	6
Taglioni (Youell's) .	1	0
Teucroides rosea (Youell's) fine	1	6
*Timandra (Youell's) ex. fine	3	6
Trésor Parfait (Girling's)	1	6
Variegata . . .	0	6
Vivid (Youell's) . .	1	0
*Vulcan (Youell's) ex. fine very distinct . .	2	6
White Perfection (Girling's)	1	0
Zeuxes (Miller's) .	1	0

The above will be ready for sending per post free, or otherwise, in the first week of April, at the following prices, viz.:—12 Extra fine Varieties 6*s.*, the selection left to Youell and Co.; 12 Ditto, ditto, 10*s.*; the selection left to the purchaser. With the exception of those marked thus*. Any other Variety worthy of cultivation that may appear after the Publication of this Catalogue, can be supplied at the advertised prices.

The continuation of YOUELL'S CATALOGUE, containing "New and Select Plants," Pansies, Chrysanthemums, Petunias, Cinerarias, Antirrhinums, &c. &c., will appear on the Advertising Sheet of next week's *Gardeners' Chronicle*.

HORTICULTURAL SOCIETY OF LONDON.—NOTICE is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the ensuing season, will take place on the following SATURDAYS—viz., May 24th, June 21st, and July 12th; and that Tuesday, April 15th, is the last day on which Tickets are issuedto Fellows of the Society, at 3*s*. 6*d*. each.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE. MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, MARCH 8, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY	Mar. 12	Society of Arts.	8 P.M.
TUESDAY,	Mar. 13	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	Mar. 19	Microscopical	8 P.M.

Now that the season for forming new COTTAGERS' EXHIBITION SOCIETIES has arrived, it is worth while to occupy a short space with some account of what seem likely to be useful rules for their management. For this purpose we print a set of Regulations proposed by a correspondent signing himself "Omikron," to be adopted by a Society whose funds at starting will not exceed 15*l*. or 16*l*. To each Regulation which calls for comment, we have added our remarks in a smaller type.

PROSPECTUS.

1. As a means towards promoting and rewarding industrious habits among the class of cottagers and labourers, it is proposed to form a Society, which shall have for its object to establish an annual "Cottagers' Flower and Fruit Show" for the parishes of ——

2. The Society to be composed of two classes, viz:—Honorary Members or Subscribers, and Members or Exhibitors. The latter class to be exclusively confined to cottagers and labourers, whose rent shall not exceed 8*l*. per annum.

[Care must be taken that small tradesmen are not allowed to creep in under this regulation. 8*l*. a year seems a high rent for the cottage of a labourer, who cannot well earn more than 30 guineas a year at the utmost. We would limit the class to day-labourers, without adding the word Cottagers.]

3. The funds to be raised by donations from the Honorary Members, and annual payments from the Members.

4. A "Flower and Fruit Show" to be held once a year, at some convenient spot within one or other of the above parishes, in turns.

[As vegetables are to be introduced, the name of the Exhibition cannot well be Flower and Fruit Show, because Cabbages, &c., are neither flowers nor fruit. It would be better to call it "The Show."]

5. Prizes to be there awarded for the best cultivated and neatest cottager's garden, and also for the best productions of flowers, fruits, and vegetables, according to specified rules.

6. None but Members to be allowed to exhibit or compete for such prizes.

7. Cottagers and labourers, whether male or female, may become Members on payment of 6*d*. yearly, on or before the 1st April in each year.

8. The specimens sent for show must be the exclusive property of the Member intending to exhibit them, and must have been produced entirely on the ground or garden of such Member.

9. Each Member will be furnished with a ticket, entitling him (and if a married man, his wife also) to free admission to the Show.

10. Honorary Members subscribing not less than 5*s*. also to have free admission to the Show.

[Of the year in which such subscription shall have been paid.]

11. Persons not being Honorary Members or Members to be furnished with tickets of admission to the Show on payment as follows:—Cottagers and labourers, 1*d*. each; school children, half that sum; all other persons, 6*d*. each.

12. The management of the affairs of the Society to be entrusted to a Committee of three, to be selected from among the Honorary Members.

13. For the assistance of the Committee in adjudging the prizes for the neatest and best cultivated garden, it will be desirable that each parish should have an Inspector (if the clergyman of the parish the better), who would make it his business to visit frequently the gardens of such Members of his parish as shall notify their intention to compete for that description of prize. The Inspector to take notes from time to time of the state of the gardens entered for competition, and to report to the Committee the names of those Members best entitled, in his judgment, to the award of a prize; but the final award of the several prizes is to rest on the decision of the Committee.

[We do not see how this is to be worked. Nothing but actual inspection can decide the relative merits of the candidates. The Committee does not inspect, and therefore the Committee can have no judgment in the matter. It would be better to receive the reports of the Inspectors, and to act upon them as a matter of course, assigning separate prizes to each district which an Inspector visits; unless, indeed, the Inspectors could be induced to form themselves into a general body, for the purpose of re-examining all the gardens in the whole district to which the prizes of the —— Society extends. We do not, however, recommend this, because we doubt whether the Inspectors would agree. We would therefore give separate and equal prizes under this head to every parish; and these prizes should be awarded by the Inspectors absolutely.]

14. In any case of doubt or dispute, the decision of the Committee to be conclusive.

[Permit no dispute. Let the awards be without appeal. If the awards are notoriously bad, change the awarders before another year. It is true that some injustice *may* be committed in that manner, but it will lead to far less evil than a power, on the part of exhibitors, of impugning the authority of the Judges.]

15. The Committee to have the power of withholding any one or more of the prizes, if in their opinion the state of the cottager's garden or the specimens sent for show are not considered to merit the prize; or they may award an extra prize where thought to be merited.

[This should be made dependent on the Inspectors, and not on the Committee, whose duty should be merely to receive the reports of the Inspectors, and to give effect to them.]

16. The Committee to have the power of rejecting or expelling a member for breach of rules, misconduct, or on other good and sufficient grounds, according to its discretion.

PROPOSED RULES.

1. Every cottager or labourer, wishing to become a Member of the Society, must pay to the Inspector of the parish 6*d*.; the same to be paid on or before 1st April, in each year. For this a ticket will be given, entitling such Member to compete for the prizes, and also to free admission, together with his wife, if the Member be a married man, to the Show.

2. Members intending to compete for the first class of prizes, must give special notice of such intention to the Inspector of the parish at the time of paying their subscriptions.

[This is, we think, wrong. The man may not know at that time—that is, before the 1st of April, that he will be in a condition to compete. A notice given one clear week before the meeting is quite soon enough. We, however, doubt the policy of requiring notice at all. If the Horticultural Society of London was to *require* notices, the best exhibitors would be excluded.]

3. The specimens sent for show must be the exclusive property of the Member intending to exhibit them, and must have been produced on the garden or ground of such Member. A declaration is to be made to this effect, and also that they have been cultivated or produced solely by such Member, and his or her family.

4. Each specimen or collection is to bear a private mark, by which it may be claimed by its owner.

5. The specimens to be sent to the place of Show between the hours of 9 and 11, *not later*, of the morning on which the Show is to be held. Specimens presented after the last named hour cannot be allowed to compete for prizes.

[This is too late. They ought to be delivered by 10 o'clock at the latest. The exclusion, after a fixed hour, ought to be peremptory, and not excused upon any pretence whatever. One second after the appointed time should cause exclusion. Experience has shown the indispensable necessity of this rule.]

6. Admittance at the Show to Honorary Members and Members at 1, and to others at 2 o'clock.

7. Honorary Members subscribing 1*l*. to be entitled to four tickets; 10*s*. to two, and 5*s*. to one ticket of admission to the Show.

8. Admission to the Show to persons not being Honorary Members or Members to be by ticket as under:

Cottagers and Labourers, 1*d*. each; School Children, half that sum; all other persons, 6*d*. each.

Mem.—The Show to be held in the month of June or July, according to circumstances.

PRIZES—CLASS I.

For the neatest and best cultivated garden, 3 prizes of 12*s*. 6*d*., 7*s*. 6*d*., and 5*s*.

PRIZES—CLASS II.

Vegetables.

Potatoes.
Onions—Spring.
,, Autumn.
Cabbages.
Scarlet Runners.
[These are not well suited for competition. The samples will be too much alike; besides, June is too early for them.]

Fruit.

Gooseberries, red.
,, white.
Currants, red.
,, white.
Raspberries.
Cherries.
Plums.
[Why not take Strawberries rather than Plums, which are not well adapted to Cottage competition, and for which July is too early?]
7 Prizes, 4*s*., best.
,, 2*s*. 6*d*., 2d best.

Flowers.

Nosegay of garden flowers.
Peas.
Carrots.
Broad Beans.
Lettuces.
Turnips.
Cucumbers.
Best basket of Vegetables.
12 Prizes of 4*s*., best.
,, 2*s*. 6*d*., 2d best.

Nosegay of wild flowers
Device of garden flowers.
,, wild.
[There being no object in offering prizes for both nosegays and devices, one is enough.]
Roses.
Carnations or Picotees.
Pinks.
Double Stocks.
Hollyhocks.
Dahlias.
[July is too early for Dahlias.]
10 Prizes, 4*s*., best.
,, 2*s*. 6*d*., 2d best.

Schemes of this sort are admirable adjuncts to allotments, and infuse a spirit of emulation into the labourers, which will no doubt produce considerable advantage, and tend to increase the interest which the cottager will take in his garden.

We would, however, like to see more than one annually. A Show late in the autumn, which would include the winter produce, would be even more useful than a summer Show.

We would also direct the attention of our readers to an excellent letter on this subject by the Rev. ABNER BROWN, which will be found in another column.

WE have great pleasure in announcing that the COUNCIL OF THE HORTICULTURAL SOCIETY have determined upon a new expedition for the purpose of collecting seeds and plants. Mr. HARTWEG is under orders for California and the North West Coast of North America, and will leave England as soon as the necessary arrangements can be made.

We cannot but congratulate the Fellows of the Society upon this arrangement. The beautiful vegetation of California is still but little known in our gardens. Mr. DOUGLAS's discoveries, interesting as they were, are only an indication of what may still be done, and his collections arrived in bad condition. When the details of this mission are further advanced we shall allude to it again.

WE are glad that the observations of our correspondent "RURICOLA" have drawn so much attention to the TOAD; for whatever people may think about birds, there can be only one opinion as to the great value to gardeners of this reptile—a value too without a drawback, for the toad eats no corn, steals no Cherries, picks no buds out of Gooseberry-bushes. To be sure, it has the misfortune to endure the dislike of some folks, because they think it ugly; but not a few of those who manifest an aversion to it on that ground would sometimes do well to consider whether there may not be more opinions than one in the world as to their own beauty. It is not many months since we chanced to hear a dirty, chocolate-skinned, leaden-eyed, flat-nosed man exclaim "'Drat the thing: I hate the very sight o' th' ugly baste." Now, we really could not avoid thinking, on that occasion at least, that the toad was the better looking of the two.

Others fancy it to be poisonous, and shrink in terror from its approach. But the poor thing has really no harm in it. On the contrary, it may be tamed and petted as easily as a lap-dog, and is very often more deserving of kind treatment. Let us hope, then, that hereafter well-informed persons will shake off their prejudices, and cease to persecute so defenceless and useful a creature.

We also trust that the little discussion which has arisen out of the statements made by "RURICOLA" will enlighten our readers upon the true habits of the toad. It is very plain that a common belief exists that this reptile is not a tadpole in its first state, after being hatched. The letters which we have published establish that point, and we have others now before us on the same subject. Instead of printing them—for which indeed we cannot find space—we shall now set the question at rest by the following letter from Professor BELL, one of the most learned of the naturalists who have studied the habits of reptiles.*

"Toads *do* come from tadpoles; and the following are some particulars on this subject, which, as they are the result of my own observations, you may rely upon as being correct, as far as they go.

"The reproduction of the toad is, in all essential points, similar to that of the frog; the ova are fertilised in like manner, and their immersion in water is equally necessary for the development of the embryo, and for the existence of the young during their tad pole state. But these ova, instead of forming a mass, as in the case of the frog, are arranged in a double series, placed alternately, and with perfect regularity. The tenacious jelly-like substance in which the eggs

* All libraries in the country should possess this gentleman's "History of British Reptiles," a most instructive and interesting little book.

are enveloped forms a continuous line, about the eighth or sixth of an inch in thickness, and extending to the length of 3 or 4 feet. The eggs are deposited in the spring, about a fortnight later than those of the frog; the tadpoles are smaller than those of the frog, and the tail is more nearly the size of the body; they are also quite black, but in other respects they are very similar. I have kept them in the tadpole state for a long time, retarding their change by stinting them of food, and keeping them in a low temperature, in order to continue my microscopic observations of them.

"It is not until the approach of autumn that the young ones, having cast off their tadpole form, come to seek their food on land. They may then be seen in myriads, advancing in all directions from the pond or pool which gave them birth, and making their way often to a great distance, with more despatch than could have been expected. I have seen them in such numbers that it was impossible to step without treading on many of them—all quite perfect little toads, creeping, running, and even clumsily jumping, with an absurd attempt at activity, but making their way steadily and perseveringly as long as the earth is damp. If it become dry, they retire to holes, or under herbage, and remain there until a shower or dew enables them again to make their way, and all the time feeding on the numerous minute insects which swarm around them. Now, in this state they will pass through marvellously small apertures, and lie ensconced in spaces that would scarcely contain a good sized Pea, reminding one of Tasso's description of love:—

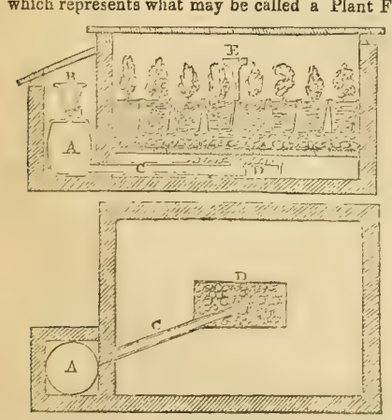
'Che in ogni breve spazio entra e s'asconde
In ogni breve spazio.'

This will, as you perceive, at once explain many of the wonderful accounts of your correspondents in the *Chronicle*, and I can vouch for the accuracy of my detail. The toad is a great favourite with me; and I assure you there are many points in his history that are very interesting. He is certainly one of the greatest friends to the gardener."

Can anything be more conclusive in favour of Mr. and Mrs. Toad? It is clear that they come from tadpoles, and it is clear that they are invaluable natural agents. Mr. Malthus, perhaps, would not call them productive labourers, because their labour is not "so directly productive of wealth as to be capable of estimation in the quantity or value of the products obtained." But they undoubtedly enable he labou r of others to be productive. This knotty question may, however, be safely left for solution to political economists, to whose consideration we, in all humility, submit it.

MODE OF SUPPLYING MOISTURE TO CUTTINGS.

IN the Leading Article (p. 67) is an interesting account of striking the leaves of plants. It is evident from what is there said, that the operation must be a difficult one, and will require a skilful hand to effect it in a successful manner. One of the difficulties appears to be, the supplying moisture in such a way as to render it uniform in quantity and temperature during the whole of the time that the root is forming; in fact, to assimilate the process to the operation of nature: I mean, that the leaf should be placed as nearly as possible under the same circumstances as if planted in the ground, where the earth is the storehouse of moisture, from which the plant abstracts it in such portions as its growth requires, without being subject to sudden alternations of temperature, which must be the case when watered artificially. In order to obviate these injurious effects of artificial watering in the ordinary manner, I would suggest the adoption of some such apparatus as is shown by the accompanying woodcut, which represents what may be called a Plant Foun-



tain, constructed on the principle of those attached to bird-cages. This may be of any size, from a small Ward's case to a pit 6 feet in length, and 4 feet in width, which is the size of the one here represented. A is the reservoir, (a 9-gallon cask), furnished with a stop-cock and funnel B, for filling it with water. The tube C, at the bottom of the vessel, conveys the water into a shallow trough, D, placed in the centre of the floor of the pit containing the plants; this should be filled with sponge, or very porous stones—perhaps cinders, in large honeycomb pieces, would answer the purpose; they should fill it above the edges, so as to increase the surface for the spontaneous evaporation of moisture under the soil, upon which the pots are placed. The tube connecting the reservoir with the trough is fitted at its extremity (the centre of the trough), with a brass socket and plug, the handle of the latter coming up through the pots in the pit, as shown at E; the socket is just below the edge of the trough. The use of this plug is to regulate the supply of water in such quantities as the habits and state of growth of the plants may require. The reservoir can be replenished with water, by shutting the plug and pouring in water through the funnel, until it rises *above* the water-way of the tap; this is necessary in order to expel the air in the reservoir; then, if the plug is withdrawn, the communication is again complete between the reservoir and trough. The only difficulty in the construction of the fountain will be the adjustment of the tube, so as to allow of the passage of the air into the barrel, to supply the place of the water abstracted from it by the spontaneous evaporation going on in the pit; perhaps an open spout—say an inch in width, and as deep as the trough, with the socket and plug close to the reservoir—will be the best arrangement. However, the difficulty may be got over by a few experiments. The pit, as shown in the plan, is provided with a false bottom (covered with stones, &c., and upon that a bed of Moss), leaving a space of about 3 inches between it and the floor, so as to allow of the diffusion of the moisture, in large pits, throughout the open materials under the pots. Now, if pots are plunged in soil laid upon the Moss, the glass put on, and the fountain set to work, by withdrawing the plug, spontaneous evaporation would commence, and increase or diminish according to the temperature of the pit, and the quantity of water admitted into the trough, gradually diffusing itself through the materials upon the false bottom, and ultimately into the soil of the pots, and so continue any length of time, without producing those alternations of temperature so prejudicial to the health of plants.—*Henry Liddell, Beverley-road, Hull.*

ORCHIDACEÆ.

No. V. *Conclusion.*—In closing these remarks, I may mention that I am satisfied, after repeated trials, that many sorts of Orchidaceæ do best upon naked logs. Oncidium crispum and its varieties would not grow at all in pots or baskets, but as soon as they were placed upon naked blocks they began to put out healtby young roots, and fine young shoots soon afterwards began to make their appearance. Oncidium Forbesii has been in my opinion almost lost in this country, by growing it in pots or on logs covered with Moss. A small plant which I unknowingly purchased at Mr. Harrison's sale, was fastened to a naked log, on which it grew and flowered freely. Lælia autumnalis, though it grew with me pretty well in a pot, did not flower freely (only once in four years), but when put on a log it made large pseudo-bulbs, and produced two fine spikes of flowers; it is a fine species. That difficult plant to grow (at all), Lælia majalis, succeeds well on logs without Moss. I have been informed that charred logs have been found to answer still better than common blocks for many of those plants, and my own experience corroborates the truth of the statement. I have now given what I consider the essential points of Orchidaceous culture, with the exception of shading the plants during hot sunshine; and I do not think that this is at all necessary in this climate, as the brightest light we obtain here is nothing like the flood of light to which the plants are subjected in their native habitats. It is true, if there are specks in the glass, they will act as burning-glasses upon the leaves, as will also drops of water; but these must be carefully guarded against by having the house glazed with good glass, and keeping the leaves quite dry during bright sunny days. The injury shading does is, that it prevents that accumulation of sap which is necessary to induce flowering. I, however, cultivate on the rafter creepers, which partially shade the plants, but by no means so effectually as is done by a regular shade of canvas or other material. —*T. Appleby.*

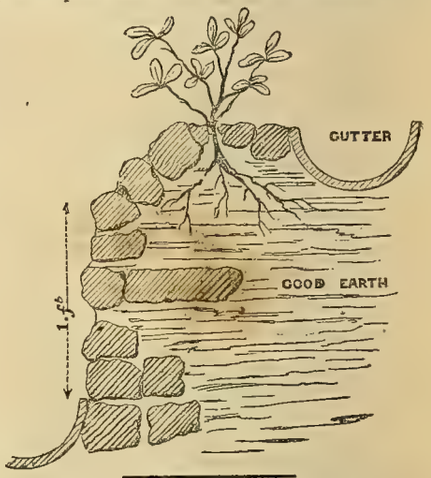
STRAWBERRY BANKS.

MUCH improvement may be readily effected in forming Strawberry banks. The representation of the one annexed may be an improvement on that already given in the *Chronicle* at page 24. The bank should run east and west, presenting a north and south aspect. Upon the north side I would plant the latest kinds of Strawberries, and the earliest kinds on the south side; thus producing a very early and a very late supply, so that an unusually long Strawberry season may be advantageously and economically effected. Strawberry plants growing on steep banks, unless they are well and regularly supplied with water in dry weather, are sure to suffer, and that frequently to the extent of the entire loss of the crop. The usual mode of supplying these banks with water is by the watering-pot, when it runs off nearly as fast as it is poured on. The improvement I suggest in erecting these beds will be understood from the annexed sketch. Draining-tiles, in the form represented at D, can be readily procured at a low price, and the more porous the better, thus permitting the water to filter gradually through them to the earth in which the plants are growing. In forming these beds, a ridge of stones or flints may be thrown up as at A, and then covered over with good rich loam, as shown at B. The bed then should be covered over with brickbats, stones, or flints, as represented at C, and the hollow tiles, D, laid in level as the work proceeds; some of the compost in which the plants are intended to be grown should be used in carrying up the covering; the



A. Ridge of stones, forming Drainage; B. Soil; C. Casing of Stones or Brickbats; D. Hollow Tiles, by which the bed is irrigated.

plants will, from the moisture which is at command, root vigorously amongst the stones. There is, therefore, no reason why the Strawberry may not arrive at as great, if not greater perfection than in beds in the open garden; the stones will keep the fruit clean, and assist in radiating the heat, and thus accomplish the desired object—earliness. By placing these beds near a pump, the water may at once be pumped into the gutters by attaching a small wooden shoot, thus saving the expense of carrying water, and the tiles may be jointed together with cement. The following cut shows, in detail, the method of building up the steps of such a bank.—*An Old Gardener.*



THE GENUS KALOSANTHES.

IT is singular that this, the most gaudy of all the beautiful tribes of plants from the Cape of Good Hope, should have been so much neglected by plant-growers; for certainly, when properly managed, several of the species are the most brilliant things that can be introduced into a collection in July; and yet, with the exception of the specimens shown by Messrs. Frazer and Mrs. Lawrence, I do not recollect to have ever seen any plants exhibited at Chiswick, except the two specimens in July last, from Mr. Bailey, gardener to the Archbishop of York. Now, the fault of all these was, that they had been too well managed—that is, they had been so solicitously attended to, with the object of producing fine specimens, that the flower-stems were extended to the length of 2 feet, when they ought not to have exceeded 6 inches; another is, the flowers were removed so far from the mass of the foliage as to make the plants have what gardeners term a "gawky" appearance. To prevent this, it is necessary that the plants should be grown in a low pit, with the points of the shoots touching the glass, or nearly so, from the time that the flower-buds are perceptible, and with a dry rather than a moist and stimulating atmosphere, so that they may not be in a condition to grow too rampantly. Treated in this manner, it is perfectly possible to produce globular plants of not more than 18 inches in height when in bloom, with from 20 to 50 heads of flower upon each; and I think I may venture to ask, Where have we a plant that would produce such a noble appearance as K. coccinea so managed? Even Ixora coccinea would have to yield to it in brilliancy, though not in merit of cultivation.

The genus Kasolanthes will probably be better known to the generality of gardeners under its old name, Crassula, to which the plants constituting it belonged until separated some years back by the late Mr. Haworth. The plants, as has been before intimated, are natives of the Cape of Good Hope, where, judging from their structure and power of enduring heat and drought, they occupy high and dry situations, probably unshaded by taller vegetation, and therefore exposed to an amount of light and heat which it is impossible to imitate in this country. It is, however, a fact worth knowing in connection with the management of Cape plants, that though they are exposed to intense light under a perpendicular sun, they are also provided with a corresponding amount of moisture in the atmosphere, the periodical currents being from the sea to the land in the growing season, and consequently loaded with moisture, and from the land to the sea in the dormant season, and, being comparatively dry, are alike favourable to the maturation of the tissue and the production of flowers. It is for this reason that plants from the Cape require so much air under our artificial management at all seasons; but it would be well if more attention was paid to supplying the atmosphere of the structures in which they are cultivated with moisture in

the growing season. Having now pointed out the natural advantages which the plants enjoy in their native country, I will proceed to detail their management as practised with much success for years past.

Presuming that small plants of not more than 6 inches in height can be procured in 3 or 5-inch pots, with 4, 6, or more strong shoots upon each, the latter must be stopped by pinching off their points about the end of February. To facilitate the production of side shoots, and also to accelerate their development, remove carefully three or four pair of leaves from the top part of each branch, and in about a fortnight the young branches will be perceptible. I may here remark that in future, when I refer to the stopping of the plants, I also wish the leaves to be removed from where branches are expected, as it will be found that by this means shoots are much more certainly and quickly produced than if the leaves are allowed to remain. At this time the plants are in a fit state to be potted, and here it must be determined at what size they are to produce flowers: if plants in a state of superlative grandeur are desired, they must not be permitted to produce flowers until the third year from this potting; but if plants with from 12 to 20 heads of bloom are sufficient for the cultivator's purposes, they may be allowed to produce flowers in the second season of their growth. The best compost for these plants consists of three parts very turfy peat, and one part of turfy loam, to which may be added a small portion of bone-dust and charcoal, and a liberal supply of gritty sand, potsherds, and small stones. These should be intimately mixed before they are used, and should be as rough as possible. The compost being ready, take a 9-inch pot, and having carefully and thoroughly drained it, fill it three parts full of the compost, and make it firm or solid where the plant is to stand; then turn the small plant out of its pot, and with a pointed stick loosen the matted roots round the ball, place it in its new situation and fill up with the prepared soil, taking care to make the latter solid, and to give a soaking of water to settle it round the ball. This completes the potting, after which the plants must be placed in a temperature of 50° during the night, but rising to 70° or 80° with sunshine, and plenty of moisture in the day, and they should be kept as near the glass as possible. It must, however, be remarked, that anything approaching a close moist atmosphere must be avoided, as nothing appears to injure this tribe so much as too much heat, combined with a saturated atmosphere. Under such circumstances, it is impossible to induce the plants to grow healthily.

When they are thoroughly established in the new soil, which will be about May, they may be removed to a warm airy part of the greenhouse, taking care to expose them to as much light as possible, and to keep them near the glass. In this situation they will grow vigorously, and may be assisted once or twice a week with a little weak manure water, and through the hottest part of the day a temporary shade may be thrown over the glass. On mild and dewy nights it will be found advantageous through July to place the plants in the open air, first of course taking the precaution to have the shoots secured to small sticks to prevent their being broken. By the first week in August the plants will have made as much growth as can be matured during the first season, and therefore from this time the ripening or maturing process must be commenced by gradually exposing the plants to all the sun and light possible, until, at last, the young wood is thoroughly ripened, at the foot of a south wall.

I may here remark that it will be as well for the amateur to bear in mind, that the flowering of plants results from the accumulation of sap in a highly elaborated state, and that this complete elaboration can only be secured by exposing plants, and more especially those that are of a succulent nature, to the full influence of an unclouded sun. While, however, plants are fully exposed and supplied with necessary moisture to the roots, it will be as well to guard against the soil being soddened by exposure to heavy rains, and for this reason it will be necessary to have a weather boarding at hand in case of heavy showers. For wintering the plants a dry cold pit, where they can be fully exposed at all favourable times, and kept close to the glass at others, is the best situation, but care must be taken that the pit is at all times thoroughly dry, or the plants will be better in the greenhouse. Give them sufficient water to keep them from flagging, and cover them securely in case of frost. If these directions are properly attended to, the result will be plants with from ten to twenty or more trusses of flowers upon each, which will well repay the cultivator for his trouble, and be a gorgeous sight in the greenhouse or open air from July until September. No attempt must, however, be made to force the plants, or the result will be a few flowers at the expense of compact plants.—*Isaac Tomkins, Walton-le-Grand.*

MOSS ON LAWNS.

Why is the growth of Moss on lawns and other Grass lands considered an evil? and why are so many inquiries made after preventives or eradicators of these beautiful plants from such localities? Do the inquirers not observe that Moss springs up in the winter after the growth of the Grass blade is suspended—is most luxuriant at this time, viz., early spring—and declines and disappears to give place to the proper Grasses of the soil, when there is warmth enough in the ground and in the air to advance them into growth? So far from Moss being injurious, it is the safe-guard of the perennial Grasses during the hard frosts of winter, and the more trying alternations of sunshine and frost in early spring, and the nursing-mother of the verdant carpet of summer, the growth of which it is supposed to postpone or to prevent; it is truly the *decus et tutamen* of the Grass plot and the pasture-field. I have a small lawn which is at this moment thick with Moss of the most delicate yellow-green tint, and it treads like a Turkey carpet. Without it the surface would be hard and meagre, with a few sprouts only of sickly Grass struggling for existence through this season of frost and cutting winds, and giving place everywhere to Daisies, and Dandelions, and other coarse herbs. In a month or two this Moss will give place to the summer sward; and in its decline, who can doubt of its affording nutriment to the herb it now shelters and defends? In its turn the Moss will again be fed by the decaying Grass, and thus the admirable reciprocity of Nature is maintained.

I have, also, some good upland cow-pasture, which is thickly-covered with Moss. Some years ago, before I was aware of the true relations of these herbs of two seasons, I was persuaded to harrow up the Moss, under the idea that it choked and impeded the growth of the better Grass. The consequence was a sensible deterioration of that part of the field in which it was tried—a backward and scanty growth of Grass, with a larger proportion of the coarser kinds of plants—Scabious, Rumex, Plantago—and such, in the place of the Grasses and Trefoils with which the field usually abounds. I say, therefore, make the most of the Moss on your lawns and Grass lands at this season. Let the scythe repress only the coarse blades and obtrusive foliage of weeds, if there be any such; and by and bye you will find that the growth of the coveted Grassy turf of summer has been by no means impeded by the velvet-like cushion which now challenges your hardihood to brave a little cold to tread and to admire it.—*P. P.*

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. VI.—*Pots for Cuttings.*—The pots which we choose for cuttings are about $3\frac{3}{4}$ inches wide at the top; we prefer pots with small bottoms, so that when we turn them up to ascertain if the cutting has rooted, there is nothing to stop the ball from coming out. I submitted to the Horticultural Society of Paris, some time ago, a model of a cutting-pot which has since been common. I am glad to have made it known, because it has contributed to the success of this part of horticultural science, which is now so generally appreciated. Fig. 2 will enable this simple proceeding to be understood: A is an earthen pot, $2\frac{1}{4}$—$3\frac{1}{2}$ in. broad, and $2\frac{1}{4}$—$2\frac{1}{2}$ in. high; in the bottom there is a hole as in a common pot; this opening must not be obstructed by a crock, as is the custom, but we invert inside a little pot, whose bottom ought to be level with the earth in the pot, as in the cut. This little pot is to receive the heat. The hot effluvium of the tan, or the heat developed by the hot-water pipes, enters the hole of the earthen pot, lodges in the pot which is inverted, and keeps the cuttings, which are planted circularly around it, in the condition most favourable to their vegetation; this arrangement presents also a real advantage, viz., that the roots of cuttings do not force themselves one on the other, as in the old methods: they may easily be separated afterwards.

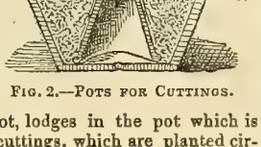
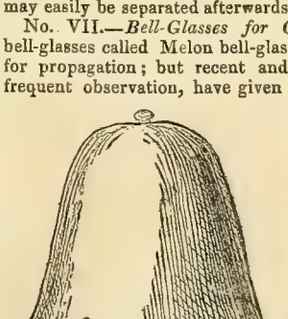
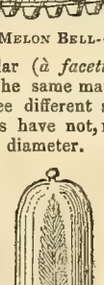
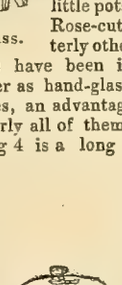


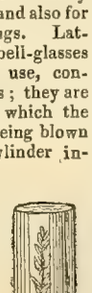
Fig. 2.—Pots for Cuttings.

No. VII.—*Bell-Glasses for Cuttings.*—The green bell-glasses called Melon bell-glasses are generally used for propagation; but recent and repeated trials, and frequent observation, have given the preference to the use of blue and violet-coloured glasses, as being more favourable for the striking of cuttings. I give here the forms of the glasses used in the greenhouses of the Museum of Natural History. Fig. 3 is a Melon bell-glass; it is useful, inasmuch as it serves to cover a good many little pots, and also for Rose-cuttings. Latterly other bell-glasses called angular (*à facettes*) have been in use, constructed in the same manner as hand-glasses; they are made of three different sizes, an advantage which the Melon-glasses have not, nearly all of them being blown of the same diameter. Fig 4 is a long cylinder intended to receive cuttings of large size. Fig. 5 is a wide but low cylinder, under which you place cuttings of small size, such as Heaths, Leschenaultias, Epacris, &c.


Fig. 3.—A Melon Bell-glass.


Fig. 4.


Fig. 5.


Fig. 6.

When it is required to propagate a delicate and valuable plant, the striking of the cuttings will be more certain, if we place each separately under a single glass with a flat head, as in Fig. 6, and which corresponds in height to the length of the cutting. This glass should be placed upon the pot in such a manner that it excludes all communication with the exterior air; this may be done by not leaving any empty space between the glass and the edge of the pot.

It is to be remembered, that when we propagate under bell-glasses, we must always proportion the size of the cylinders to the quantity of the cuttings, and their strength: thus, a small cutting should not be covered by a large glass; and in this last it will not grow so well alone as when there are many others. The process of striking cuttings seems to be certain in proportion to the smallness of the space in which they are to grow.

COMPOSTS.

This being the period at which folks examine their composts and lay down plans for the year, I beg to offer a few remarks on the preparation and storing up of soils for the purposes of general potting; and as a preliminary step I will give a description of the contents of my potting-shed and compost-yard. The great improvement in the cultivation of choice plants is undoubtedly owing, in a great degree, to superior knowledge of both the chemical and mechanical powers of composts, more especially the latter, which in former days was not sufficiently appreciated. The riddle was a most redoubtable foe to choice plants; by it those valuable masses of vegetable fibre, which are now justly considered the very life of the compost, were carefully separated for the rubbish yard. Improved modes of drainage, too, come in for their share of the merit, and no mean share either; I have tried numberless small experiments on this head, and they have been amply sufficient to point out the necessity of an increased attention to the above principles.

My potting-shed is fitted up with binns, of which the following are the contents:—

1. Strong tenacious loam
2. Half-rotten leaf-mould
3. Heath soil
4. Horse-manure
5. Cow-manure
6. Charcoal & wood-ashes
7. Fine bone-manure
8. Sharp sand
9. Burnt turf of No. 1.
10. Sphagnum well scalded
11. Heath-soil of No. 3, in squares
12. Loam of No. 1, in sqrs.
13. 1-inch Mixed drainage
14. 2-inch Mixed drainage
15. Mixed drainage 'small'
16. 1-inch Bottom-crocks
17. 2-inch Bottom-crocks
18. 3-inch Bottom-crocks
19. Charcoal, large lumps
20. 1-inch Boiled Bone, for bottoms

Binn 1. (*Strong tenacious Loam*).—This sound loam is obtained from very old rest land, on a clayey or marly subsoil; the more Rushes and old coarse Grass it contains the better it is for the potting-shed—this is piled up in a sharp ridge out of doors, so as to exclude rain; it should be used for general purposes, when from 6 to 12 months old: I house a smaller portion in the compost-shed after being dried in the sun, and this I use for very particular purposes, such in fact as require, according to my estimation, lumps of turf in its native state; and for these purposes it is chopped into squares for Binn 12. This loam is chopped down from a perpendicular facing (like cutting hay), when wanted for Binn 1, and being somewhat mellow, a considerable portion of the mere soil falls out loose in the act of chopping. This is rejected, and the masses of chopped turf alone fill Binn 1.

Binn 2. (*Half rotten Leaf-mould*).—This leaf-mould is generally slightly mixed with rotten dung, inasmuch as it is the worn-out pit linings, which have generally a little dung blended with the hot leaves. By lying in the compost yard for a few months, the outside becomes mellowed down, and after shaking some of the finest out through a $\frac{1}{4}$ inch riddle, it is passed through a sieve of at least 1 inch in the mesh, and what comes through this is put into Binn 2.

Binn 3. (*Heath-soil*).—As there has been much confusion arising from the indiscriminate use of the terms Heath-soil, bog, and peat, I here state that mine is indeed Heath-soil, as it is obtained from Delamere Forest, in parts where the Heather is cut for making besoms. Portions of this forest are burnt at intervals for agricultural purposes, and I endeavour to follow in the wake of the burners, some six months afterwards. The upper surface of this Heath-soil is of course composed of Heath leaves and Moss, in a raw or half decomposed state, and too fresh for the purposes of potting; but beneath this, and in contact with the gray sand, lies a flake of vegetable matter full of the roots of Heather, possessing little sand, and compressed by the weight of centuries. This, when divested of the dirty sand under it, and of the mossy and raw matter on the surface, is put in Binn 3, in flakes, after being half dried. I make little doubt, however, that it would be much better so to increase the burning on the surface, that the whole of the undecomposed matter should be reduced to vegetable ashes.

Binn 4. (*Horse-manure*). — Much as old Cucumber linings &c. have been recommended, as being the best for the purpose of potting, I prefer horse-droppings with a little age, and for two reasons: first, they are, if obtained before high fermentation, and kept from a high degree of it, tougher, and preserve their elasticity longer in the compost; and secondly, because they possess more powers of nutrition. To insure these principles, I obtain them before high fermentation takes place, and ridge them up in the compost-yard, 3 feet in width, 3 feet in height, and instantly roof them over (to shut in the gases), with double turves, each overlapping the other: in this way a slight fermentation takes place,

which being arrested is, I imagine, beneficial. Rain is at all times excluded from this in the compost-yard, by the sound roofing.

Binn 5. (*Cow-manure*). — This is cow-droppings, collected, placed in a ridge, and roofed similarly to the horse-dung, but allowed to remain to a much greater age; in fact when placed in Binn No. 5, it has the appearance of rich peat, being at least two years old.

Binn 6. (*Wood-ashes and Charcoal*).—This, though a modern sort of article, at least in its application, is by no means the least important item in the compost-yard. Although our continental neighbours perhaps were the first to draw attention to this, in a scientific point of view, yet Mr. Barnes has the merit of calling public attention to its importance in composts in general. I make mine according to Mr. Barnes's plan, viz., Brush-wood at bottom, covered with all sorts of garden refuse, viz., Cabbage stalks, Potato haulm, hedge clippings, and in fact weeds and rubbish of all kinds, which when about half-burned are closed up with soils of any kind, and kept smouldering for days: this, by the way, would be a capital opportunity for turf-roasting. When the combustion is complete, it is subjected to a riddle of an inch mesh, and what comes through is housed in a dry state in this Binn—the rest belongs to Binn 19.

Binn 7. (*Fine Bone-manure*).—This is so well known that it scarcely needs description: the kind I use is from unboiled bone, and is known here by the name of bone sawings—being in fact the sawings obtained in cutting out button moulds, and other things manufactured from bone: it is as fine as oatmeal, or nearly so.

Binn 8. (*Sharp Sand*).—The sort I use is coarse river sand, but every potting-shed should be furnished with two kinds—the one very coarse, and the other very fine, both as sharp as they can be obtained; the London propagating sand is an invaluable article.

Binn 9. (*Burnt Turf of No.* 1).—This is roasted on a plan similar to that of Mr. Rivers, and described by him in the *Chronicle* (p. 4, 1844). I have tried some few experiments with it, more especially with Roses, for which it seems well adapted, and appears to deserve farther trial; I can, however, say nothing conclusive about it: I use it chopped up roughly.

Binn 10. (*Sphagnum well scalded*).—This is chiefly for Orchidaceous plants, and requires to be steeped in boiling water, for some hours previous to being transferred to this binn, in order to destroy insects. I find it, however, a useful thing with which to cover fresh sown seeds where it is desirable to insure a permanent moisture, without frequent watering; it also produces a darkness, favourable to germination.

Binn 11. (*Heath Soil of No.* 3, *in squares*).—This is the same article as Binn 3, but is cut in squares for tender plants, to facilitate drainage, and the access of atmospheric air, &c. The squares are cut in three sizes —viz. No. 1, 1 inch; No. 2, 2 inch; No. 3, 3 inch. The latter being very large lumps, I use in very large shifts, scattering some lumps here and there throughout the mass.

Binn 12. (*Loam of No.* 1, *in squares*).—This is done on the same principle as the Heath-soil of Binn 11, used in the same manner, and for similar reasons.

Binn 13. (1-*inch Drainage, termed No.* 1.)—This is composed of about equal parts of boiled bone, charcoal, and pounded crocks, in lumps, averaging an inch square, and intended to cover the rough crock placed over the hole of pots, from No. 32 to No. 16 of the London sizes inclusive.

Binn 14. (2-*inch Drainage, termed No.* 2.)—This is the same in principle as No. 13, only it averages double the size, and is intended to cover the crock, or crocks, in large fruiting Pine-pots, ornamental climbers, or specimen plants potted on the large shift system.

Binn 15. (*General Drainage, termed "Small."*)—This is the same in principle as Nos. 13 and 14, and in fact it is the small riddlings from them, which is used for covering the crock in very small-sized pots.

Binn 16. (*Crocks termed No.* 1, *averaging* 1 *inch.*)—In the pounding of crocks, I select this and the two following sizes, to cover the holes of pots before receiving the mixed drainage; these are used for the London 3 and 5-inch pots.

Binn 17. (*Crocks termed No.* 2, *averaging* 2 *inches.*)—These are used as No. 16, for crocking 6, 8, and 9-inch pots.

Binn 18. (*Crocks termed No.* 3, *averaging* 3 *inches.*)—These are used for the largest shifts; at least three, overlapping each other, and placed very hollow previous to receiving the mixed drainage of No. 14.

Binn 19. (*Charcoal in large Lumps.*)—This is used to mix with the potsherds for Orchidaceous plants, and when large masses are wanted for very large shifts.

Binn 20. (1-*inch Boiled Bone.*)—This is used after the manner of No. 19, when considered requisite.

To the above may be added old tan, riddled particularly clean, which I use for common purposes, intermixed with or placed over the drainage: for such it answers exceedingly well, notwithstanding the prejudice against it. It is very well adapted for annuals in pots; a single crock, with a handful or two of old tan over it, provides a safe drainage for a season, and withal a rooting medium, for I have seldom observed any antipathy to it in plants of quick growth and of short duration. Moreover, it saves the better kinds of drainage.

As a part of the economy of the compost-yard, I may add that as the preparation of such excellent draining materials as the bone, charcoal, pounded crocks, &c., is rather tedious, I make it a rule to have all pots having this drainage, and which require to be emptied, discharged in a heap in the shed where, after becoming dry, it is riddled, and the drainage above alluded to restored to its respective binns, for the general purposes of drainage.

This potsherd refuse is afterwards collected in a heap in the compost-yard, where it is augmented by the paring of the soil heaps, the shovellings of the yard, together with any soils which have lost their texture through age; and this, when turned over, becomes a very good mixture for repairing the beds in the flower-garden.—*Robert Errington.*

Home Correspondence.

Toads and Slow-worms.—I rejoice to see such advocates as your correspondent Mr. Barnes (p. 124), stepping forward to vindicate the claims of that useful reptile the toad to our admiration. I do not quite agree with him in considering its personal appearance to be really "beautiful," though I certainly can see no sufficient reason for the prevalence of that almost universal disgust with which it is regarded, and which must, I think, be ascribed to foolish prejudices instilled into our minds whilst we were children. My own children have certainly never possessed these fanciful dislikings, possibly from seeing that I entertained none of them myself. On the contrary, I have seen them amuse themselves with feeding and handling newts or snakes without any disgust, and I well remember a particularly fine toad being noticed (in a way which would have rejoiced Mr. Barnes), as a "beautiful creature." Popular prejudices against our harmless reptiles are very strange, when we consider how easily they may be refuted. When I first came to reside here, I was carefully cautioned against allowing my children to walk upon the lawn when the Grass should be cut for hay, as the slow-worm was particularly abundant at that time. This caution had hardly escaped the lips of my informant when I noticed one of these reptiles at our feet, and taking it up showed him, to his great surprise, that it was perfectly innocent of the evil charged against it. I found the prejudice equally strong among all classes in the neighbourhood—educated or not; so that whenever this poor animal was seen it was immediately destroyed, under the false idea that it was as venomous as a viper. As it feeds on slugs it ought to be much cherished. In order to diffuse more wholesome notions respecting our reptiles, I gave my parishioners a lecture on them, at which my children handed round a score of slow-worms, a few toads, &c., and I believe the prejudice has considerably abated! Indeed, I have since heard of slow-worms being entertained as pets by some persons in the village. It may be questionable, however, whether it is quite wise to suppress the fear of snakes among children, unless we have opportunity also of teaching them accurately to discriminate the viper. A little knowledge may be dangerous sometimes. One of our village lads who had been present at my lecture, shortly afterwards met with a young viper; and having first with due caution inquired whether it were not a slow-worm, he was misinformed that it was so, and accordingly took it up without hesitation, and was immediately stung by it. May I advise Mr. Barnes to refer to Bell's "British Reptiles," and he will there find the economy of the toad faithfully detailed, and all his doubts about their tadpole state solved. Prominent facts of this kind, he may be well assured, have long since been determined by skilful naturalists, and no longer admit of questioning. The change of colour in frogs (also noticed by Mr. Bell) is here considered as an indication of a change in the weather—these reptiles becoming bright before rain. Whether this be really a good prognostic or a popular prejudice merely, I cannot say. Has Mr. B. ever seen the Natter Jack toad? It appears to be much more common than was supposed to be the case a few years ago. I find it plentiful on the coast of Suffolk, among the cliffs of Red Crag. I have generally brought a few from Gamlingay annually, and turned them out in my garden; but they soon disappear, the soil, I presume, not being sufficiently dry for them.—*J. S. Henslow, Hitcham, Feb.* 25, 1844.

Potatoes.—The following is my system of raising early Potatoes:—In October I procure some tubers of the medium size (of the Ash-leaved Kidney) from tubers planted in June; for, if from those that have been earlier planted, they are apt to form young Potatoes instead of sprouts on the tubers: these should be laid thinly in a dry room, which is well lighted but secure from frost. A granary, or the loft over a stable, is a good place, the latter receiving some heat from the horses beneath. In this situation they will form strong green sprouts, while those kept in pits or dark cellars will be white and very weak, and consequently liable to be broken in planting, by which the tuber loses a portion of its vegetative power, and consequently never comes up so strong as those with their first shoots entire. I have often seen people pulling the young shoots from Potatoes (perhaps 2 or 3 times) before the planting season: this exhausts the tuber of that food intended for the nourishment of the young plant before it forms roots. Potatoes intended for a very early crop should never have their first shoots broken off if it can be possibly avoided: shoots from these well-organised buds have a tendency to form tubers earlier than the others. In March, select a piece of ground well drained, and of rather a light soil; mark this out into beds 5 feet in width, on which wheel some good rotten dung: horse manure, or that from pigstyes, is the best. Spread this and dig the beds, keeping them high in the middle: a foot alley should be left in order to get the beds earthed up when the Potatoes have come up. Beds are drier than drills, and more exposed to sun and air, and by the sets not being planted in the dung (as is the case with drills) exuberant foliage is prevented. Tubers will thus be formed a fortnight earlier, and they will be of a much better quality. The ground being all dug about the last week in March, or first in April, plant the Potatoes in holes made in rows, 1 foot apart, and 8 inches from plant to plant. These holes should be made by a dibber in the form of the letter T, worked from the top of the bed, going backwards. Care should be taken in cutting the sets; choose only those with highly-developed end-buds; lay them in a basket, and do not remove them again till they are planted by the hand in the holes made for their reception. The beds should be then raked finely, and the work is done till the young shoots appear above ground, when they should have a slight sprinkling of earth from the alleys thrown over them; when they have got through this soil they should be looked over, and where several shoots have come up from one set, only the strongest should be allowed to grow. Care should be exercised in doing this (as in cutting the weeds) not to allow the hoe to go deeply into the soil; it should hardly penetrate; for the young tubers having such an inclination to approach the surface, are liable to be injured. I have planted Potatoes in February and March, but never saw them succeed so well as when planted the first week in April. Frost will not injure the sets so long as they are excluded from air, and in soil; although the earth may be frozen above and below them, they will remain in a dormant state, and will have made little progress in growth by the end of March; in fact, they will be in a much more backward state than when kept in a warm room. If early Potatoes are injured by frost they rarely come to much; for on account of their producing a number of luxuriant lateral shoots, they form very few tubers. I have taken Potatoes to Manchester Market in eight weeks from the time of planting, which had no artificial protection.—*T. Sidley.*

The late Frost.—The following are extracts from the Thermometer Registers at Owston and Llwynegru. I think that the thermometer at Llwynegru must be set too high, as according to it, we have not had it lower than 23 degrees, whereas it has been to 19 in the neighbourhood, in a decidedly warmer situation.

Range of Thermometer at Owston Park, near Doncaster, from February 7th to February 13th inclusive.

	Max.	Min.
FRIDAY, Feb. 7 . .	36	24
SATURDAY, „ 8 . .	36	24
SUNDAY, „ 9 . .	31	21
MONDAY, „ 10 . .	34	28
TUESDAY, „ 11 . .	36	19
WEDNESDAY, „ 12 . .	32	18
THURSDAY, „ 13 . .	39	29

The maximum is the temperature observed at 1 P.M.

Elevation above sea about 50 feet; soil, limestone; latitude, 53½.

Range of Thermometer at Llwynegru, near Mold, Flintshire, from February 6 to February 13, inclusive.

February.	Extremes. Cold.	Heat. 1 o'clock.	Remarks.
6 T	24	30	Fine.
7 F	24	31	Fine.
8 S	23	30	Cloudy.
9 S	24	29	Snow.
10 M	32	40	Sleets of Snow.
11 T	28	33	Cloudy.
12 W	26	34	Sleets of Snow.
13 T	29	37	Sleets of Snow.

Latitude, 53¼; elevation above the sea about 350 feet; soil, sandy loam; elevation above valley about 50 feet. —*P. D. C.*

The late Frost.—The following is my record of the state of the temperature at this place on the 11th, 12th, and 13th ult.—a period which appears to have been marked by more intense frost in the neighbourhood of the metropolis than in the provinces. The situation of my house is on the lowest range of the Cotswold, and the place where my thermometer hangs has an open south-east aspect. The minimum is taken at 8 o'clock in the morning; and therefore indicates the lowest degree of cold of the past night:—

	Min.	Max.
Feb. 11	29	57
„ 12	19	37
„ 13	25	41

—*C. B. H.*

Weather in 1841.—In the *Chronicle* of January 16 and 23d of the above year, I perceive a notice of the extreme frost on the 7th, 8th, and 9th of that month. At Camberwell the mercury fell 1½° below zero; 8th, at Stowe, 4° do.; 7th, at Welbeck, 2° do.; 9th, at Bury St. Edmund's, 7° do.; 7th, at Chatsworth, 2° do. These facts tend to confirm my statement to you of last week, that at this place the thermometer fell on the 7th Jan. to —2°; 8th, —1°; 9th, —2¼. But at the same time, I am certain that my record of the temperature of those days is true, as all my thermometers agreed, and my observations are taken with great care.—*C. W. L., Gosfield.*

The Weather.—I cannot recollect of black frosts ever being of so long continuance as they have been near Inverness this winter. We have not been able to perform digging for these three months past. Shrubs, however, in general, have not been injured by them; the frosts came on gradually, and plants became so hardened as to endure them with impunity. A Laurel hedge, which used to be in former years at this season brown, this year looks beautifully green. Luxuriantly growing solid

Celery has, however, been destroyed, and vigorous Cabbage-plants have also suffered more than usual; but Cauliflower plants near walls still look healthy and unhurt. Lettuce and young Parsley have suffered severely, although they commonly survive our winters here when growing on sloping beds facing the sun, in front of a south wall. The frost has also completely destroyed plantations of Broccoli. Hybrid China Roses, growing as standards have perished, while low bushes of the same sorts are uninjured. Pentstemons and other plants which stand moderately severe winters, have been killed. I cannot, however, give a correct estimate of the injury done by the frost until the season is further advanced.—*Snow-Drop.*

Gardeners' Benevolent Institution.—"A Subscriber," in his reply (page 86) to Mr. Moore's letter (page 69), has apparently committed some mistakes. If a 15 or a 5 years' subscriber are candidates for relief, they would decidedly stand upon equal terms at an election, both having an equal right. No preference could be shown, and the 15 years' subscriber has not a better chance of being elected than the 5 years' subscriber; the one who could secure most interest with the subscribers would be the fortunate candidate, no matter whether he had subscribed 40 or 5 years. Again, "A Subscriber" tries to refute T. Moore's objection, by stating that on the 22d January W. Edwards was, without election, admitted a pensioner, of 16*l.* yearly, in right of his 5 years' subscription. This is not the fact. In the list of candidates, published in the polling papers, and distributed by the secretary last December, W. Edwards is there described to have been a subscriber to the charity for 4 years, and the 7th rule declares that none but subscribers of 5 years shall be considered eligible (preferable). Will "A Subscriber" explain, in the face of these facts, how and by what authority W. Edwards was placed as a pensioner on the funds of the charity? Is there any private bye-law sanctioning such a proceeding? W. Edwards's interest with the subscribers secured him the very large amount of 27 votes out of 1307; and the four candidates elected to the charity were declared in the room, by Messrs. Sangster, to be John Blaylock, Robert Cracknell, Charles Gray, and Ann Suttle. If W. Edwards had been elected a pensioner, how was it that he was not announced as such at the time? Have the committee power at an election to place on the funds as pensioners others besides those voted in by subscribers? Mr. Fairburn, at page 118, also states that Mr. Moore's complaint, that subscribers have no preference over non-subscribers, is not based on facts, and he cites W. Edwards's case as a proof. Will Mr. F. be kind enough to show, against the evidence of the election and the rules of the Institution, how, with the assistance of 27 votes, W. Edwards was entitled to a pension of 16*l.* yearly? The result of this election I know was not satisfactory to several members present at the time. I have conversed with many of the members of the Institution, and their opinion is that the pensions are too small; and as Rules 10 and 11 cut them off from receiving other charitable relief, they ought to receive sufficient to exist upon. The relief is too distant, in cases of immediate and urgent distress. I would ask "A Subscriber" to point out how a destitute person could provide a home, firing, clothing, and provisions, at 10½*d. per diem?* This sum is not sufficient to place a man above want; and as the destitute are the objects relieved by this charity, they ought to be furnished with the means that will place them above want, and beyond the pale of pauperism. If the Institution is to be placed in the position its present subscribers and all gardeners wish to see it attain, there must be an equitable preference, at the elections, in favour of those members that had subscribed the greatest number of years. There would then be an inducement to subscribe in youth; and relief, to be given in sickness, would be a further inducement to join the Institution. I am persuaded if the pensions were more liberal, and a few of the restrictive rules removed, the funds of the Institution would soon be placed in a condition to afford ample relief to all needy members. These remarks are not offered in captious opposition to any man, but in the hope that they may meet the eye of those gentlemen composing the Committee, and may lead to beneficial changes in the Rules of the Institution.—*T. Z.* [Although we cannot possibly spare room for a discussion of this matter, we are willing to publish an *official* explanation of the circumstances alluded to by the very respectable person who signs himself "T. Z.," provided the officers of the Institution wish to give it. There can be no doubt about the indispensable necessity of securing to the subscribers to the Institution a substantial advantage over those who do not subscribe. For example: if there were five candidates, of whom one was a subscriber and the others not, that one should be elected to the vacant pension, *without canvas.* No one, however, should be regarded as a subscriber entitled to this benefit, unless he had contributed a sum of, say 10*l.* to the funds. In cases where several subscribers to the charity might become candidates for pensions, then the person who has subscribed the most should be elected in preference to others who had subscribed less. If this is not done, it is easy to foresee that the Institution, notwithstanding the good intention of the members of the Committee, will be deserted by its supporters, who already find the "canvas" a troublesome operation.]

Timber Measuring.—Being a buyer and seller of timber to some amount, I was much surprised to read (p. 117) a paragraph condemning Hoppus's useful little book of timber measurements. The writer says, a tree that measures 72 feet in length is made, by Hoppus's rule, to measure only 61 feet. Now, I imagine if your correspondent would look at plate 3, pp. 21, 22, and 23, he will find he has made a statement which is not correct. At the same time, I am ready to admit that he is quite right in saying that it is an error to girth a tapering tree in the middle for mean girth. About this time last year, I bought a small quantity of Oak-trees, and by the woodman's blunders in measuring, I gained above 200*l.*, having also two trees given me for waste.—*W. Elco, Bridgnorth.*

Cottagers' Societies.—From your frequent and earnest advocacy of the subject, I feel sure you will allow your columns to be once more made the medium of suggesting to all who are interested in promoting the comfort, enjoyment, and moral welfare of villagers of all ranks, the value and practicability of Village Horticultural Societies; and also that this is the season for preparing to establish them. Rules such as are usual in the Horticultural Societies of towns, will probably not answer for villages; they would neither work well, nor be very efficient for raising the tone of the cottage population, and drawing the various classes together, which is the desideratum of the present day. In order to make such Societies efficient for that kind of good, it seems essential that the cottagers should feel themselves to be contributors to the fund whence the prizes are drawn; and yet that there should be two sets of prizes, lest they should be dispirited from competing with those who have greater advantages for horticulture. It seems also important to increase the number of prizes, even by greatly diminishing their individual amount, in order that most of the cottage members may be able to gain some prize—to accept only parishoners as exhibitors, and of these, none but such as have started fair along with the rest of that year—to restrict specimens to those grown in the parish, and by the exhibitor himself—to allow village children an opportunity, by a trifling subscription, to gain prizes for wildflower nosegays—and lastly, to secure confidence in the judges, by preventing them from being exhibitors, and from knowing the owners of the specimens on which they decide. Few villages are without a school-house or some other room where the little Shows might take place; or without some active young persons who would feel pleasure in promoting such a holiday, twice or thrice a year. The yearly expense is trifling, after a little sum shall have been obtained for the first purchase of benches, plates, &c. In this village, a Society of the kind has been in operation since 1837. The yearly subscription has varied from 2*l.* 15*s.* to 4*l.* 10*s.* 6*d.*, which, with the trifling sum received for admission of strangers to the Shows, and the few shillings gained by sale of vegetables and fruits voluntarily left by their exhibitors for that purpose, has always amply sufficed for the prizes and expenses. The number of specimens shown in a year has gradually risen from 150 to 700; the number of prizes given, from 110 to 272, half the number having been usually cottage specimens and cottage prizes. The history, rules, and details of the Pytchley Horticultural Society will be found in a little pamphlet (published by Parker, in London), which may be procured through any local bookseller, and which will probably afford such hints as may be needed by those who wish to attempt something of the kind in their own village.—*Abner W. Brown, Pytchley Vicarage.*

Peas.—In order to keep mice from Beans and Peas, I sifted some coal ashes with a fine garden riddle, and covered my Beans about an inch in depth with the ashes; the Beans were never afterwards touched by mice. I applied the same remedy to Peas, and I find it to answer equally well with them. My Peas and Beans are coming up finely, and without rust or disease of any kind.—*W. N., Kilmore.*

Cottages.—I am, as a small landholder, in a part of the country where labourers' cottages are both bad and scarce, about to build a few cottages. I mean to spend about 100*l.* on each, and to add 1 rood, or rather less, as a garden. Can your readers inform me where I shall find the best plans? and what is the best and most economical grate, including boiler and oven? As water is scarce, I want a filter for each cottage on rather a large scale, and a tank. Probably others who have attended to these matters have some useful hints on these subjects, which are of real importance to the poor.—*Dodman.*

The Robin.—As the robin appears to be a great favourite with Mr. Kidd, perhaps the following fact may not be altogether uninteresting. Under my window a robin, in the spring, thought proper to build its nest, and there to securely perform the office of incubation; but in the mean time that "beauteous stranger of the grove"—that "messenger of spring"—clandestinely conveyed an egg to this abode of peace. The exact circumstances which attended the deposition of the egg by the cuckoo I cannot relate, and it is, I believe, a subject of controversy among naturalists, as to the identical mode it adopts for the completion of its purpose. Certain it is, however, that the egg was deposited, and that the depositor was a cuckoo. I never remember having seen a larger bird than the robin near the window, and I certainly did not hear the well-known cry. I recollect having once imagined that I heard the cry in the night, and remembering that beautiful passage in the "Pleasures of Hope"—

> "And when the sun's last splendour lights the deep,
> The woods, and waves, and murmuring winds asleep;
> When fairy harps th' Hesperian planet hail,
> And the lone Cuckoo sighs along the vale;"

I thought it was very possible, that I was not deceived. It seems certain, that in many instances the Cuckoo does dislodge and destroy, or take away the eggs which she finds in the nest where she deposits her own; but it is not so clear that she eats them, notwithstanding the common supposition that she does in this country, as appears from the popular nursery rhyme—

> "The Cuckoo's a fine bird,
> He sings as he flies;
> He brings us good tidings,
> He tells us no lies.
> He sucks little birds' eggs
> To make his voice clear;
> And when he sings 'Cuckoo'!
> The summer is near."

I found that in my case the eggs were held sacred, but that the hatching of the young cuckoo was fatal to the legitimate brood of the foster-mother, as the young cuckoo had very unceremoniously ejected them from the nest; a feat which I should imagine was readily performed on account of his superior size and strength; and so far from resenting this conduct, the mother directed her whole attention to her merciless foster-child, and showed, in the care she took of him and the zeal with which she fed him, all the regard which she could have displayed towards her own offspring. The cuckoo, when strong enough to fly easily, would not assist by picking in the least degree, but would perch upon a neighbouring branch, and await with open mouth the expected morsel. The assiduity shown by the foster-mother in attending to all the wants of the usurper of its nest was truly astonishing; the disparity of size in the two birds rendered this display of maternal affection ludicrous, particularly as the robin followed its gigantic foster-child from tree to tree to administer to its wants. M. Vaillant, the African traveller, tells us that the cuckoo in Africa always selects as a cradle for its progeny the nests of birds which feed in the same way, never those of birds which feed on grain, as knowing, by an unerring instinct, that the former were best adapted for supplying the young with proper food, inasmuch as the cuckoo almost exclusively feeds on insects and larvæ; but there is reason to suppose that the bird is not so nice in its selection in England; and even should it select a granivorous foster-mother, that bird will change its habits and assimilate them to those of the young cuckoo.—*Quercus II.*

Moss a Protecting Material.—To improve the appearance merely of an artificial clump of Pelargoniums in our garden, which is situated in the midst of a provincial town, and of course surrounded by chimneys and smoke, we had placed Moss from a neighbouring park all over the mould in the pots, which were inserted in holes made in a circular piece of wood, and surrounded by wire-work; this forms a pretty clump. The Pelargoniums grew, and looked always fresh and beautiful; while those without Moss, in a much more advantageous situation, looked shrivelled and poor, although placed in a verandah, more remote from smoke and trees, with decidedly more sun and air. When observed by my friends, I always attributed it to the effects of the Moss, without however having any certain grounds for my opinion. I feel now assured and encouraged by the communication from Mr. Rivers (p. 115), and I trust this hasty note on the subject may afford a hint to other lovers of flowers rearing them under the same disadvantageous circumstances.—*Flora, Reading.*

Brazilian Beet.—Some plants of this, which were transplanted in the early part of December, have survived all the frost, and are looking very well; not one has died. This appears well worthy of cultivation. At what time shall I be able to use it? [We do not know.]

Rooks.—I remember often hearing my father say that he had found the following the most successful method of scaring rooks from sown land:—He killed a rook, plucked all the feathers from the breast, laid the bird on the ground in a conspicuous place, with the naked breast uppermost, and scattered the feathers around it. He always found that it proved a better "scare-rook" than any other.—*B.*

Transplanting Shrubs.—In moving some large Portugal Laurels last summer, I proceeded as follows:—Two months before moving them, I had a trench dug out round them, leaving as large a ball as I thought my men could move. I left the trench open in order to keep the young roots in the inside of the ball. When we moved them the ball was a mass of young roots. In moving, the surface of the ball was not interfered with, only the soil at the bottom of the hole was removed. This plan can only be practised in a large shrubbery, or in some out of the way place. The shrubs are now looking very well.—*A. Threlkeld, Headingly House.*

Destroying Worms.—Having often seen in the *Chronicle* inquiries after a remedy for destroying worms in lawns, &c., I am induced to send you the following extract from "Selby's History of British Forest Trees," p. 144, article on the common Walnut:—"An infusion of the leaves, when poured upon the ground, brings the earth-worm immediately to the surface."—*E. F. L.*

Vine Forcing.—The reading of Mr. Fleming's article on the Culture of the Vine, brought to my recollection what was written in 1827 by Mr. Acon, gardener to the Earl of Surrey, and published in the 7th vol. of the Horticultural Society's "Transactions," and also in "Loudon's Magazine" for September of that year. Mr. Acon supplied his employer's table with Grapes in a perfect state throughout the year. He always commenced forcing on the 1st of September, and the fruit began to ripen in the first week in March. Mr. Fleming's plan of leaving the wood on the Vine without the eyes, and of covering the border with concrete, are to me new features in Grape-growing, and will require further trials before they are generally adopted. The leaving concrete on the border for nearly two years must certainly exclude sun and air, as well as rain, which is contrary to preconceived notions of keeping the border in a

healthy state. Mr. F. is against covering Vine-borders with dung, on account of its making the border wet. If long litter from the stable is laid on instead of dung in sufficient thickness, no rain will penetrate it to do the border any injury; at least, I have always found this to be the case. I should, however, like to know the opinion of others on the subject.—*Vinitor.*

Vine Pruning.—In the *Chronicle* of Feb. 22d, page 115, Mr. Fleming, describing his treatment of the Vines at Trentham Hall, assigning his reasons for departing from the "universal practice" as regards pruning, speaks thus:—"My idea is, that by leaving them unpruned till they have begun to grow, at the same time removing the superfluous buds, the whole of the nourishment stored up in the wood of one year for the supply of the buds of the next is reserved for the buds that are left, instead of being lost, as part of it must be when Vines are pruned at the usual time; or in other words, by this method the wood destined to be cut off is first drained of all the useful matter it contains, and the Vine is deprived of nothing but what is absolutely useless to it." Thus Mr. F. assumes a new principle, and attempts a practical explanation, modestly leaving it to those who are more skilled in Vegetable Physiology to confirm or deny it; and as you, Mr. Editor, have made no comment whatever on the above Article, I take it for granted you concur in Mr. F.'s opinion. If your respected correspondent were an Irishman, no doubt it would be said he had made a horticultural bull. However, being perfectly unacquainted with Mr. Fleming, I would merely say he has used a most illogical horticultural argument to establish his principle of pruning. He quotes from the "Theory of Horticulture" (very truly), that when a plant is enjoying a season of rest, it continues to absorb (from the earth only,) food through the medium of its roots, which food is distributed through the branches equally. If therefore late pruning is resorted to, just so much of the sap so communicated as the parts cut off contained, is thrown away and no more; neither could that sap (so lost) have in any way assisted its neighbouring branches, without a retrograde circulation, which he must well know is repugnant to the laws of Vegetable Physiology. "But instead of," as he says, "the useless parts being drained of all their useful matter," the whole tends to drain the general reservoir of that food which, if early pruning had been adopted, would have been given to the useful parts only; because it is contrary to the fact to assume that the same sap can traverse from one branch of a tree to another branch. How then can the sap which one branch contained assist the general development of another branch, if left upon the tree? Mr. F.'s principle assumes the descent and ascent of the sap, in the first stage of active life, to be simultaneous; whilst the simplest observer must at once perceive that the contrary is the fact. The rapid ascent of sap in a Vine is easily ascertained by cutting a branch off when the buds are just breaking. I fear many of Mr. F.'s brethren may justly think his theory a backward movement in the science of Horticulture.—*J. C. Humphreys, Bray, March* 1.

[As we offered no opinion whatever upon Mr. Fleming's theory, we do not understand the right which Mr. Humphreys claims of assuming that we adopted it. But without either admitting or denying the legitimacy of Mr. F.'s arguments, we must at once say that a "retrograde circulation" is *not* unknown, and that the same sap *can* traverse (pass) from one branch of a tree to another branch. The reason why we offered no comment upon Mr. Fleming's theory was, that it does not materially affect his practice, and that we could not spare room for the necessary arguments.]

Jerusalem Artichokes.—In Mr. Barnes's communication respecting the Jerusalem Artichoke as food for pheasants, he remarks:—"I have never observed game of any kind touch a leaf or stalk of these plants in the growing season." Now I beg to mention that I have seen the young stems, as soon as they made their appearance above ground, so eaten by hares and rabbits that not a single plant ever attained the height of six inches; and when taken up in autumn, there was scarcely the same quantity of tubers as had been planted, and what were produced were very small. People should, therefore, be careful in selecting a place for the cultivation of this root.—*Annotator.*

Societies.

HORTICULTURAL SOCIETY.

Mar. 4.—Dr. HENDERSON in the Chair. Capt. S. J. Widdrington, R.N., R. Harvey, J. Huskisson, A. Warde, S. Hancock, Esqs., and Mr. W. J. Epps, were elected Fellows. The most interesting object exhibited on this occasion was from Kew, in the shape of Gardenia Stanleyana, which was obtained from Sierra Leone by Mr. Whitfield, Collector to the Earl of Derby. The flowers of this perfectly new species are in form something like those of an Amaryllis; the inside of the tube being of a warm chocolate brown, mottled over a pure white ground. These blossoms were, however, rather past perfection, and instead of being erect, which they should have been, were drooping, the white being much faded. It was stated that when in their more perfect state the corolla is 7 or 8 inches in length, with a large spreading limb; that the tube is of a rich brown and the limb white, mottled with dark purple, and tinged at the apices of the segments with deep blush. The plant, on the present occasion, had somewhat the appearance of an umbrella. From an upright stem spread out, at and near the top, several horizontal branches, forming a nearly level top, and from the upper side of these branches the sessile flowers appear singly, one from almost every pair of leaves. It was mentioned that the whole stock of this beautiful stove shrub, along with Napoleona imperialis, and other interesting plants from the same colony, had been purchased by Mr. Glendinning, of Turnham-green, from whose nursery was a specimen of Franciscea latifolia.—Mr. Insleay, gr. to G. Barker, Esq., sent Miltonia cuneata, a beautiful species of recent introduction, whose fine rich brown petals show off to much advantage the pure white lip, which near the base is delicately tinged with pink. From the same quarter was also a fine plant of the rare Chysis bractescens, on which were 9 fully expanded blossoms, the firm snow-white petals of which surround a lip of bright yellow. A Banksian Medal was awarded for the latter.—From Mr. Robertson, gr. to Mrs. Lawrence, was an immense plant of the showy Dendrobium nobile, covered with bloom, and proving a worthy rival of the large D. speciosum, shown at the last meeting by Mr. Rucker, with this exception, that this species is not so difficult to flower as speciosum. From the same collection was also the curious, though not showy, Maxillaria ochroleuca, with pale-yellow flowers; Franciscea hydrangeiformis, which was present at a former meeting; and a plant of Heliconia Braziliensis, remarkable for its bright-red sheathing bracts and pure white flowers, the latter contrasting well with the former. A Knightian Medal was awarded for this and the D. nobile. —Mr. Mills, of Gunnersbury Park, sent a Cucumber called Browston Hybrid, measuring upwards of 20 inches in length, and having the bloom still on the end. It was a fine specimen of good cultivation, and was grown in the pit of Mr. Mills's contrivance, heated by fermenting material. A Certificate was awarded for it. —From the Garden of the Society was Hovea pungens, a fine Swan River species, with beautiful violet blossoms; two Epacrises, Centradenia rosea, the double-flowering purple Chinese Primula, Cyrtochilum maculatum, and Mussænda frondosa, which was sent from Hong-Kong by Mr. Fortune. The small tube-shaped flowers of this, which are formed several together on the ends of the branches, are of a fine yellow, but the most remarkable feature in the species is the large greenish-veined white bracts into which one of the five small bristle-like sepals composing the calyx is transformed. The plant is not new to gardens, but has for some years been seldom seen in collections. Now, however, that plant-culture has become so peculiarly the study of the gardener, it is to be hoped this apparently-forgotten species will claim the share of attention which it merits, and that it will yet form an interesting object on our Exhibition-tables.—It was announced that, along with those seeds usually given away to Fellows at this season, nine sorts of agricultural seeds, from Paris, were also in the meeting-room, for such Fellows as wished to receive them.

LINNEAN SOCIETY.

March 4.—R. BROWN, Esq., in the chair.—J. S. Bowerbank, Esq., Dr. F. Plomley, and D. Price, Esq., were elected fellows.—A portion of a paper was read by the Secretary, On the Botany of the Gallapagos Islands, by Dr. J. D. Hooker. The plants described were collected by C. Darwin, Esq., and had been placed in the hands of Professor Henslow, who had commenced their description. The plants of the Gallapagos Islands not only differ from those of the rest of the world, but the different islands of the group exhibited representative species. The collection of Mr. Darwin consisted of about 150 species, of which 50 were new.—A paper was read from G. Newport, Esq., On the Lithobiidæ. The genus Lithobius is distinguished by many anatomical characters from Scolopendra. The latter is a vegetable feeder, but Lithobius is entirely carnivorous, and never eats plants, as some entomologists have supposed: its principal food is soft larvæ and earth-worms. The author had seen a Lithobius attack an earth-worm twice as large as itself; when frightened, it ran away, but soon returned to the attack. They do not attack each other, nor their allied species, as the Geophili. The cooked flesh of vertebrate animals acts as a poison upon them. They seem to poison the animal they feed upon —a parallel instance to the glowworm killing its food, the garden-snail. The Lithobii reproduce their lost parts in the same manner as the Crustacea. The specific characters were best given from the dorsal plates—the ocelli, the labial teeth, and colour and markings of the body. In a former paper the author had placed the Scolopendrilla with the Geophilidæ, but he now regarded it as a higher type, and proposed for it a new family, the Scolopendrillidæ. A new microscope, the property of the Society, constructed by Smith, was exhibited.

ROYAL INSTITUTION.

Feb. 14.—W. R. HAMILTON, Esq., V.P. in the chair. A numerous audience attended this evening to hear a lecture from Professor Edward Forbes, On the Analogies between the Animal and Vegetable Kingdom. In his introductory remarks the lecturer observed, that the subject to which he wished to draw attention was somewhat less practical than those which were usually brought before them. It was one, however, which had often engaged the minds of the most profound investigators of Nature, and he trusted needed no further apology. His object was to view the vegetable and animal kingdom through the idea of analogy, which as it embraced some abstract propositions with regard to the objects composing these kingdoms, might be said to be a branch of the metaphysics of natural history. The animal and vegetable kingdom are said by transcendental naturalists to have two kinds of relation with each other; the first of *analogy*, dependent on the correspondence of their divisions, and of the laws regulating the beings they respectively include; the second of *polarity*, which depends on the opposition or divergence of the two great series of beings composing the animal and vegetable kingdoms. This last he would explain:—If we were to represent the animal and vegetable kingdom by two spheres, placed one above another, and draw a line through them, one end of the line would form one pole and the other another, and the most highly organised of each kingdom would be placed at the extremity of the poles, whilst the lowest forms would meet together in the centre between the two poles. Now, what took place on the large scale of the organic kingdoms, took place also in each kingdom, in each class of each kingdom, and so on down to the smallest combinations in the series of beings of which they were composed. Thus, with the animal kingdom, the vertebrate and invertebrate, or articulate animals formed two spheres, which exhibited the same general differences as was exhibited between the animal and vegetable kingdoms. His object was to exemplify the first relations; and in the first place he would speak of the analogies which existed in the laws of their combination; and, second, the analogies they presented through a law of mutual representation: the first series of analogies was the most practical. It was now a fact of common knowledge, that plants must not be regarded as individuals, but as congeries or combinations of individuals. These individuals were respectively represented by the leaves and the flowers of the plant. The leaf was an individual, and the parts of the flowers were individuals. The leaf and the flower performed different functions in the commonwealth to which they belonged. To the leaf was committed the function of sucking up, preparing, and distributing the nutriment or food of the whole plant; whilst to the flower was given the office of performing the important function of reproducing the species. It was now known that those organs were only modifications the one of the other, and that the flower was nothing more than a metamorphosed branch, its petals, sepals, and pistils, being modified leaves. This fact was first pointed out by Linnæus, but not applied in the science of botany. It was again brought to light by Wolfe, but forgotten; and it was left for the genius and fancy of the poet Goethe to see its importance in the science of botany, and to draw the attention of the world to the fact. Although the idea of the morphosis, or change of one organ into another, had so long been recognised by botanists, it had not till within a recent period been applied to explain the structure of animals. He (Professor Forbes) had, however, been enabled to apply the theory to the lower forms of animals. Amongst the Zoophytes were a group of plant-like animals, the Sertulariadæ, which had branches something like the branches of a plant. On these branches there were two kinds of individuals just as in plants; a certain number of nutritive individuals, whose office it was to elaborate food for the whole community; and a certain number of other individuals constituting collectively capsules, whose office it was to produce eggs and thus continue the species. Now, on looking over the various genera and species of these Sertulariadæ, he had found that the nutritive individuals were converted into reproductive individuals by a process of metamorphosis exactly comparable to that which took place in the conversion of the leaves of plants into the flowers. He illustrated this position by a series of diagrams, in which he pointed out that the form and position of the various capsules, or ovigerous bodies, was exactly that which we should have anticipated from a knowledge of the fact of their conversion. He had first made this series of facts known at the meeting of the British Association for the Advancement of Science, and he had since heard that Mr. R. Couch, of Polpero, Cornwall, had been examining the Zoophytes of the coast of Cornwall, and had found the most satisfactory evidence of the applicability of this theory to the structure and organisation of the Sertulariadæ. He would now draw their attention to the second and more speculative part of his subject—the Analogy of Mutual Representation in Parallel Groups in the Animal and Vegetable Kingdom. If we regard the animal and vegetable kingdoms as consisting of two spheres or groups, we should find there was a parallelism existing between these groups, in their subordinate members. One singular fact he would remark with regard to the representation of numbers in certain parallel groups of animals. It was well known that the Jelly-fishes (Acalephæ) had their parts arranged upon the number four, whilst the Star-fishes (Echinodermata) assumed the number five; but whenever any abnormal forms of these animals were met with, then it was found that the Jelly-fishes assumed the number five, and the Star-fishes the number four. The two spheres or groups of the animal and vegetable kingdom he called *concentrate* and *articulate*. The concentrate was characterised by a tendency to concentration, to the formation of an internal skeleton, and a unity of combination. The articulate was characterised by its tendency to elongation, the formation of an external skeleton and articulation. In the application of this theory to the highest groups of the animal kingdom, the Vertebrata belonged to the concentrate sphere, and the Invertebrata to the articulate sphere; and it would at once be seen that the members of these series, when compared with each other, represented the qualities of the spheres. In the vegetable kingdom, the Exogens represented the concentrate sphere, and the Endogens the articulate sphere. In descending to groups of less value, the same opposition of the spheres in parallel groups might be observed as in the Amorphozoa, which represented the concentrate sphere, and the Echinodermata the articulate sphere in the animal kingdom. In groups of ordinal value, the

two great Orders of fishes might be given—the osseous fishes representing the concentrate, and the cartilaginous fishes the articulate spheres. As an illustration from the vegetable kingdom, the Rosaceæ and Leguminosæ might be taken. The former exhibited the concentration and other properties of the concentrate sphere, as seen in their fruit; whilst the latter exhibited a tendency to elongation, the formation of an external skeleton and articulation, as in the articulate sphere. This representation of the spheres was also evident in genera and even species. In conclusion, he stated that the first set of analogies had been adopted by botanists, and had now been demonstrated, thanks to Mr. Couch, to zoologists. The second, he continued, being little more than an indication I cannot expect to see so soon adopted; yet, independent of its being on my part a matured opinion, tested almost daily for several years, I have firm faith that sooner or later it will be adopted, and for this reason:—Because, in one form or another, it may be traced, sometimes dimly, sometimes clearly, in the systems and essays of a great number of the philosophical naturalists of all ages, as it were gradually developing itself. For great leading ideas have an existence independent of men's minds, though they cannot become manifest except through them. They may grow up for a moment, but if the time is not ripe for their development they fade away and perish, but being perennial, are sure to grow up again. They seem ever floating through the atmosphere of thought, falling ever and anon on inquiring minds, now, as it were in form of snow-flakes, melting away as fast as they fall; now as ice-crystals exciting momentary admiration, and then forgotten almost before they dissolve; but when the right place and moment for their development comes, assuming the fixity and lustre of the diamond, and giving forth a light which leads to farther discovery. That time and place the great idea of morphology met in the mind of Goethe. A century may pass away before the idea of the harmonious duality of Nature shall have met with its true habitat. In the meantime, let us not neglect it altogether, but test its truth or falsity rigidly and without prejudice.

BOTANICAL SOCIETY OF EDINBURGH.

Feb. 13.—Dr. H. Hoffman, Giessen, was elected a Foreign Member of the Society.—Dr. Seller read a paper entitled Examination of the Views adopted by Liebig on the Nutrition of Plants. He contrasted Liebig's view of the mineral nature of the food of plants with that which represents their food as organic. He traced out the consequences deducible from this last hypothesis as affecting not merely the vegetable, but the animal kingdom also, the latter being ultimately sustained solely by vegetable substances. He showed that, whereas the view adopted by Liebig nowise restricts the duration of the organised kingdoms, as long as they remain exempt from the influence of destructive agencies from without, the opposite view involves the conclusion that the whole of organic nature is hastening rapidly to dissolution from inherent causes; and he affirmed that, were certain data somewhat more carefully considered, the period of the final extinction of plants and animals, in accordance with this hypothesis, might be pretty nearly determined. He regarded this question as one not merely of high interest in itself, but as bearing expressly on the solution of the problem, whether the food of plants be organic or mineral. Dr. S. calculates the annual conversion of the carbon of organic matter into inorganic carbonic acid at not less than 600,000,000 tons; and infers, on the most favourable aspect of the amount of soil over the earth's surface, that such an annual loss could not be withstood beyond 6000 years; and, on a less exaggerated assumption of its amount, probably very near the truth, that the waste would absorb the whole of the existing organic matter of the soil in about 740 years. Dr. S. contends that the truth of these conclusions remains unaltered, even if it be conceded that much of the carbon of plants is drawn, not from the organic matter of the soil, but from the inorganic carbonic acid of the atmosphere, unless some inorganic source of their hydrogen and oxygen be at the same time admitted. He therefore regards Liebig's view of the inorganic nature of the food of plants as supported, not merely by many special facts—for example, by the increase of the organic matter of the soil, often observed during the growth of plants—but also by the general view of the earth's surface just taken, because there is nothing in its aspect to warrant the idea that its means of maintaining the organic kingdoms are declining with the rapidity indicated in the statements just made. Dr. Seller next examined Liebig's views of ammonia. 1st. As the sole source of the nitrogen of plants, and thereby of animals. 2d. As having its exclusive origin from the interior of the earth, and never from the nitrogen of the atmosphere. In regard to these statements he made it appear, as there is no evidence of ammonia being thrown forth from the bowels of the earth at all times, in quantity proportioned to the waste of it necessarily sustained at the surface by decomposition into uncombined hydrogen and nitrogen, that Liebig's view of ammonia infers the same limitation of the existence of the organic kingdoms to a few thousand years, as is deduced from the hypothesis of organic matter being the food of plants. Here, therefore, he dissented from Liebig, contending that ammonia must be produced from the nitrogen of the atmosphere, and showing the probability of what is taught by Professor Johnson, namely that the nitrogen of nitrates, formed from the atmosphere, is fixed by plants, as well as the nitrogen of ammonia. In conclusion he reviewed the evidence of potassa, the phosphates, and the other saline matters, of both organic kingdoms, being derived originally from the crumbling of rocks, and dwelt on the retardation of vegetable physiology, by the long scepticism of botanists on this head, owing, as he believed, to their distrust in the conclusions of chemistry, and went on to show that chemistry must be the ground-work of vegetable physiology in its present stage, and that the frequent changes in the aspect and nomenclature of chemistry did not materially affect the facts which it daily affords for the elucidation of the vegetable economy.—A paper, by Mr. Ralfs, Penzance, on the genus *Closterium*, was read. This paper will shortly appear in the "Annals and Magazine of Natural History."

[*To be concluded in our next.*]

Ipswich Cucumber Society, Feb. 27.—The following is the Judges' Description of the Prize Specimens exhibited on this occasion:—

No.	Exhibitors.	Prize.	Sort.	Mode of Growth.	Length.	Form.	Size.	Colour.	Neck.	Spine.	Rib.	Bloom.	Blossom.	General Appearance.
26	Mr. T. Latter, gr. to Capt. Aplin, Melton Lodge, Suffolk.	£ s. d. 25 0 0 First	Weedon's Improved	Hot-water pit	13½ in.	Straight	Diam. 1½ in.	Dark Green	Short	Black	Slight	Covered well	Perfect	Very handsome
22	Mr. J. Green, gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey.	20 0 2nd.	Improved Sion House	Hot-water pit	14 & 13	Ditto	1⅞ in.	Light Green	Small	None	Smooth	Glossy	Do.	Good specimens of Sion House
10	E. Leathes, Esq., Normanston, Lowestoft, Suffolk.	15 0 3d	Browston Hybrid	Mills' improved pit.	17 & 12½	Not quite straight	1¾ and 1¾ in.	Dark Green	Short	Black	Slight	Covered well	Do.	One handsome fruit, the other 4 days too young.

The Judges were, Mr. R. Milburn, Mr. T. Clarke, and Mr. G. Cooper.—T. Wild, Hon. Sec.

NEW PLANTS.

Syringa Emodi. Himalayan Lilac. (*Hardy Shrub.*) Oleaceæ. Diandria Monogynia.—Dr. Royle informs us that "the Himalayan Lilac is found in Kemaon and in Sirmore, on the Suen range, and on the banks of the Giree and Jumna rivers." It is not, however, quite certain that the plant intended by this eminent botanist is the same as that of Dr. Wallich's distributions, for the leaves have, in Dr. Royle's Indian figure, a very different form, tapering much to the foot-stalk, and the flowers are lilac, not white, in a long leafy panicle. One thing which is peculiar to this plant, and readily distinguishes it, is the property of producing pale pustule-like callosities on the branches, which gives them a singular appearance. Otherwise it is known from all the Lilacs except Josikæa, by its leaves being very pale on the under side; and from that by the acuminate, hooked lobes of its corolla, to say nothing of the more lucid flat and wide foliage. This plant flowers in the month of April, in the open ground. Its blossoms have much the look of Privet, and are wholly destitute of the sweet perfume of other Lilacs, instead of which they have a heavy, unpleasant smell. It forms a fine hardy dwarf shrub, attaining the height of from 3 to 5 feet, and growing freely in any good garden soil in May and June. It is easily increased by seeds, or by cutting off the smaller side-shoots when half-ripe; the latter should be put in sand, and covered with a bell-glass, and kept in a cold pit or frame. It has been raised in the garden of the Horticultural Society, from seeds received from Dr. Royle at different times, under the names of Syringa Emodi and Syringa indica.—*Botanical Register.*

Bees.

Feeding Bees.—We ought scarcely to be surprised that our beehives should sometimes be found tenantless in spring, if we remember that the honey-bee is originally a native of a warm climate, in which it passes the whole year in unceasing bustle and labour. Indeed, it is to be wondered at that bees survive our variable winters so well as they do, in a state frequently of idleness and half animation, which is worse than the actual torpidity into which they fall in Russia, only to awake with the opening flowers at the call of a genial summer. But our uncertain winters and backward springs rouse them into activity, and create a demand for food, which, when deficient, must be supplied to save them from starvation. In winter it is not advisable to offer them food, except in very mild weather. Honey being the natural aliment of bees, is the best supply that can be given, and is, perhaps, in the end cheaper than any other saccharine matter. Various methods are adopted to introduce food into hives. Of common plans, the best perhaps is the old one of putting it in a plate, with a little short straw or litter for the bees to alight on, placed under the hive, the precaution being taken to put an "eke" below it in order to afford room for the plate. Under some hives there are feeding-drawers, which are found handy; but they are often out of order, and afford a refuge to insects. In sharp weather the food is best supplied at the top of the hive, as the bees are not so liable then to be injured by cold, as when they have to descend. This can be done with common hives having openings at the top, near which the food is placed, and covered with empty hives, &c. Metal feeding-pans are objectionable, their coldness being apt to congeal the food and benumb the bees. Those of wood are preferable; that invented by Dr. Dunbar is probably the best; Dr. Bevan gives a good drawing of it in the "Honey-Bee." I cannot exactly describe it, but it is not unlike a common room candlestick inverted; the shank, stuck in the top of the hive, serves as a funnel by which the bees may ascend to their food, which is contained in the wide part and is covered by a lid. The pipe or funnel ought to be about three inches in length, and should rise a little above the bottom of the pan or bowl, to prevent the food from dropping through. There are grooves in the bottom of the pan for the bees to alight on, and to prevent them from smothering in the food. Such feeding-pans are certainly very useful; but I prefer letting bees have their natural dish, namely, a piece of honeycomb laid flat, which can be used either within the hives, or if required during the autumn or spring, outside of them. The best time to feed bees is in the morning of a warm day; the quantity depends on the state of the hive; 15 lbs. of honey has been named to keep one hive in good order during winter, but 20 lbs. are better; if the store is short of the former amount, it must be made good by feeding in autumn. If the spring is backward, and a hive short of store, 3 or 4 lbs. given at successive times will suffice, provided the hive is kept close and warm, to insure an early brood of bees.—*W.*

Mode of Managing the Honey-Bee in the North of China.—I observe in the *Gardeners' Chronicle and Agricultural Gazette*—for your Paper finds its way even to the Yang-tse-Kiang and Yellow Sea—that your correspondents are much interested in the success of this little insect. Let me tell them something about the Chinese mode of management. During my travels in the northern provinces, I have frequently come upon Chinese hives; and although there is perhaps nothing in their management to improve the English mode, yet the Chinese seem to have paid some little attention to the habits of these insects. Their hive is sometimes a rough made barrel, with bad fitting ends, intended for the bees to go out and in to the hive; at other times I have observed rough square boxes placed one above another, evidently used in the same way as our small hives and glasses are at home. In both instances, however, the Chinese place their hives up under the eaves of the house, and thus comply with the natural habits of the insect. I was always fond of managing bees, and have often followed a swarm for miles, when, discontented with its quarters, it took the liberty of flying to some other place, doubtless more congenial to its taste. These places were generally the walls of some ruined tower, or the eaves of some old house, through which they passed under the roof; and this is doubtless the reason why the Chinese keep their hives in the situations just noticed. There is abundance of honey in the northern Chinese towns, where it sells at the rate of 200 cash (9*d.*) for our quart bottle full. It is not considered very fine, but the Chinese spoil it themselves by the addition of sugar and flower to thicken it. The Chinese honey-bee is a little smaller than ours, but seemingly only a variety of our species.—*R. Fortune, Chusan.*

Answers.—*E. M. W.*—Your bees died from the effects of damp, but their combs were discoloured by age, or by the traffic of the bees. It i susual to deprive bees of honey as long as they are prosperous.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

The continued severity of the weather has caused a suspension of our usual spring work; our whole attention, therefore, should be sedulously directed to ward off the effects which of necessity result from such a prolonged winter. The usual manifestations of continued fires are daily becoming more apparent, especially amongst Heaths and greenhouse plants.

Endeavour as much as possible to dispense with fires, and protect with coverings as extensively as you can. Keep down the temperature in every department to the very lowest point admissible without risk. Continue to expose your composts to the frost, by daily removing the incrustations until the whole has been frozen. Leave nothing unprepared for the busy season, and attend to what has formerly been said on this head.—*A.*

II.—FLOWER GARDEN AND SHRUBBERIES.

Owing to the inclemency of the weather, little can be done in the way of digging, &c.; therefore embrace the present opportunity to wheel manures to all unoccupied borders, beds, &c., to be ready when the weather becomes more favourable, which is the chief guide to all out-door operations. Continue to prune Roses, excepting the more tender Chinese varieties, and others of a similar nature, which must be left till all danger of severe weather is over. Attend strictly to lawns; sweep and clean them, where such is necessary, and prepare for digging, &c., when practicable. Flower-beds not filled with bulbs should now be got ready for spring and summer planting. Turn gravel walks when they are loose after thaw comes. *Pits and Frames.*—Pot off Lobelias, and place them in a growing heat; the compost should be light and rich for the first potting. Sow Stocks and other choice annuals, and pot off all kinds of cuttings as soon as they are ready, filling the pots again with sorts that are wanted. As soon as the borders are in a proper state, sow hardy annuals in patches, but not too deeply; a slight covering for the seed will be sufficient. Mark the places with small sticks, or make a small ring, which will prevent any other thing being planted over them. Prick off Clintonias, Portulacas, and other choice and tender annuals that are fit for the operation, and keep them in a gentle heat until they are rooted, then remove them to a colder temperature, excepting the most tender kinds, which should be nursed until milder weather.—*B.*

IV.—PINERIES, VINERIES, &c.

The stock of Pines, considered in three classes, viz., fruiters, those required to show shortly, and successions in general, will require three distinct modes of treatment, at this period especially. In getting forward those in fruit, take every advantage of sunshine; give what air is necessary early in the day, so as to be enabled to shut up very early in the afternoon with a thermometer at 90°. Keep lively fires early in the morning, letting them sink towards 10 or 11 o'clock, so as to inclose a pure atmosphere. At shutting up throw plenty of water over all available surfaces, to produce moisture in the air, in preference to a sudden gush of steam. Do not syringe too heavily, or too frequently, for fear of moisture hanging too long about the stems. Those required to show in April, May, and June, for autumn and winter fruit, should be kept rather short of water, with a comfortable bottom-heat of 85°, and a drier atmosphere. Repotted and disrooted successions may be kept rather close till they begin to grow; shading the latter on sunny days. *Vineries.*—Follow up last Calendar; however you may increase your day-heat, do not be tempted to increase that of the night. See that your Vines out-of-doors do not begin to bleed; it is a good plan to go over them now, and apply thick paint to all the pruned ends. Keep the West's St. Peters and Hamburghs which produced very late Grapes, covered up, to soften the old desiccated bark. *Figs.*—Continue stopping successional wood, on principles formerly laid down. Shift those cramped in pots, where necessary; and use abundance of dung-water to the latter, taking care that those in borders do not become dry. *Peaches.*—Shut up warm early in the afternoon, and let your glass sink to 50° or 55° maximum at night. Nothing is more injurious to Peaches than a high night temperature. Strengthen Kidney Beans by stopping the young shoots; syringe often.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Although the season is far advanced, vegetation is yet, as in the depth of winter, almost completely arrested by frost and snow. Few out-door operations can therefore be carried on with advantage. As soon as good weather sets in, Plum and Cherry trees should be grafted; and, for various reasons, the mode called whip-grafting is by far the preferable one. In cleft-grafting the divided portions of old wood never reunite; in saddle-grafting the flow of sap is limited to two tapering strips of alburnum; and rind-grafting leaves cavities on each side of the inserted portion of the scion. In grafting, it should be kept in mind that sections of wood already formed never unite; they are seen, if divested of all subsequent formations, in mere mechanical contact after a lapse of many years; and the scion and stock will then readily fall asunder. Nor do the outer barks form a vital union. But when newly-formed tissues of both stock and scion come in contact, they coalesce, and an organised growth immediately takes place. This organisable tissue protrudes from between the wood and inner bark. The inner barks of the scion and stock should therefore be made to coincide as far as possible, and without the least regard being paid to the positions of the outer barks, the nicely fitting of which has been too long recommended. For fruit-trees, grafting clay is better than any pitchy composition. *Kitchen Garden.*—The severe frost having killed most of the Broccoli crops, the quarters they occupied may be prepared for the reception of Potatoes or Peas. In trenching ground for Carrots let the portion 6 or 8 inches below the surface be made rich, loose, and fine; but give no manure to the surface. Onions, on the contrary, require their food at top.—*E.*

VI.—ARBORICULTURE.

Woods and Coppice.—In consequence of the unfavourable state of the weather for out-door work, planting of most kinds, both here and in the nursery, will be much retarded; and many other operations before recommended will be still unaccomplished; increased exertion will, therefore, be necessary to bring up arrears, as soon as the frost leaves the ground. *Nursery.*—See last week's Calendar, and especially attend to making young plants and newly-planted trees firm about the roots after frost, and before the drying winds in spring.—*F.*

State of the Weather near London for the week ending Mar. 6, 1845, as observed at the Horticultural Garden, Chiswick.

Feb.		Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid.	28	21	29.513	29.517	45	29	37.0	E.	
Sat.	1	0	29.529	29.501	42	28	35.0	E.	
Sun.	2	24	29.558	29.852	42	33	37.5	N.	.10
Mon.	3	24	29.841	29.543	44	25	34.5	E.	.28
Tues.	4	25	29.9 3	29.900	45	19	32.0	N.E.	
Wed.	5	26	29.675	29.949	34	13	23.5	N.E.	
Thurs.	6	27	30.249	30.265	31	23	27.0	N.E.	
Average			29.9+7	29.894	40.4	24.3	32.3		.38

Feb. 28—Overcast; cloudy and cold, with dry easterly wind; uniformly overcast

Mar. 1—Hazy; dry air, with slight haze; partially overcast
2—Fine, cloudy; slightly overcast; rain
3—Rain; exceedingly cold, with frost at night
4—Sharp frost, with some snow-flakes; cloudy and cold; frosty
5—Snowing; dusky white clouds, and cold; intense frost at night
6—Severe frost, dense clouds; frosty throughout; slightly clouded.

Mean temperature of the week 10 deg. below the average. The temperature was lower on the night of the 6th than it has been in March for the last 40 years at least.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending March 15, 1845.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 9	51.1	32.1	42.1	4	0.47 in.	1	2	1	2	2	6	2	3
Mon. 10	51.6	31.6	42.6	8	0.63	2	2	—	3	3	4	3	2
Tues. 11	52.1	33.0	43.5	3	0.39	—	2	1	4	3	7	1	1
Wed. 12	52.2	32.0	42.1	9	0.42	1	1	2	2	1	7	4	—
Thur. 13	52.7	32.1	44.9	9	0.30	—	2	2	3	1	5	1	2
Fri. 14	51.2	32.9	41.6	9	0.48	—	2	2	—	4	5	4	2
Sat. 15	51.3	33.1	40.0	11	0.40	2	5	1	—	2	4	4	1

The highest temperature during the above period occurred on the 9th, 1835—therm. 68°; and the lowest on 14th, 1838—therm. 21°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ARBORICULTURAL SOCIETY—*St Clair*—We cannot advocate any plan for establishing an association of this kind, for the very simple reason that it cannot lead to any practical good. Such objects as it would have to embrace, if any serious attempt were made to carry it out, could not be effected with anything like so much advantage as they might by the separate experiments of clever gardeners and sensible country gentlemen. You will find, at p. 51 of this year, some remarks upon this subject, which has been occasionally pressed upon our attention by two zealous correspondents, and by *only two.*

BOOKS—*W B*—Sweet's "Botanical Cultivator."‡

BOTANICAL SERMONS—Fairchild, the eminent nurseryman, who died in 1729, left funds for a Botanical Sermon to be preached annually, on Whit-Tuesday, at St. Leonard's, Shoreditch, "On the wonderful Works of God in the Creation, or on the Certainty of the Resurrection of the Dead, proved by the certain Changes of the Animal and Vegetable Parts of the Creation;" and it is shown in Pelton's "Portraits of the Authors on Gardening," that these sermons continued to be delivered at the beginning of the present century. Why have they been discontinued, and how is the fund provided by Mr. Fairchild now applied?—*D.* [This should be seen to by the parishioners of Shoreditch, some one of whom can perhaps throw some light upon the inquiry.]

BOTTOM-HEAT.—*C L*—70° to 80° is not too high a temperature for the soil of Brazilian Amaryllids. Plunge them as soon as they begin to grow; water them plentifully while growing fast, and give them abundance of light. Full directions as to the management of these plants would require a good deal of space. Some day we may make room for them. In the meanwhile you will find useful information in "Herbert on Amaryllidaceæ," and in Sweet's "Hothouse and Greenhouse Cultivator."

BROWALLIAS—*Beginner*—Sow seeds of these in the end of March, and place them in a brisk moist heat. When they become sufficiently large, pot them off singly in very small pots, shifting afterwards into larger as they require it. Keep them constantly in a close, moist heat; towards the time you wish to remove them into the greenhouse, admit air rather freely, to harden them. When you wish to flower them in a small state, and early, confine them in small pots; but when you wish them to attain a large size, give them larger pots, and take care they are never allowed to get pot-bound. Add to your Browallias, Martynia fragrans, Portulaca splendens and Thellussoni, and Globe Amaranthus.¶

BULLFINCHES—*C C C*—We have nothing to say in favour of these birds, which have the bad reputation of destroying buds to an enormous extent, and doing us no service in return. We therefore cannot recommend them to be included in the suspension of hostilities.

CHARCOAL—*S A W*—For gardening purposes, this may be prepared from any kind of refuse wood, even from Bean-stalks and similar materials. We can find nothing so good for an external covering of the clamp as sods, which may be easily made air-tight, and easily removed where necessary. We have had a charcoal furnace constructed, but we cannot make it answer. The softer the wood the better. It would take a *long time* to determine the question about the feathers, and we cannot spare it just now.

CLIMBERS—*Sub*—You may train, against the sides and pillars of your summer-house, Clematis azurea grandiflora, Bignonia radicans, Jasminum officinale, De L'isle and Bougainville Roses, Caprifolium gratum and sempervirens, Clematis Hendersonii, and Ampelopsis quinquefolia.‡——*Glasguensis*—The following are handsome hardy climbers, which grow rapidly under favourable circumstances:—Clematis montana, flowers in May, white: C. Sieboldi, flowers in June, purple and white; C. fragrans, August and September, white; Caprifolium gratum, May and September; C. sempervirens, September, scarlet; Jasminum officinale, in July, white; with Glycine sinensis, Solanum crispum, and Bignonia radicans To these add some good climbing Noisette and other Roses that bloom in October.‡

CLERODENDRON SPLENDENS—*W F C*—This will bear cutting down tolerably well when in a state of rest; but you had better train it to a wire trellis, or round sticks painted green, as it is a half climbing plant. It requires a rich, light, sandy loam, and should be grown in a damp-stove.¶

FRENCH TRAMPERS.—*H Y W*—Much obliged; but we are weary of exposing these people. If buyers are so simple as to believe in the existence of white Roses edged with blue, why then they must pay for their credulity. We say of these French lists that "What is true is not new, and what is new is not true." We should not, however, think that Yorkshiremen are exactly the people to be taken in.

FUCHSIAS—*Sub*—The following 12 sorts are good, viz., Exoniensis, Formosa elegans, Epps's Kentish Bride, Smith's Vesta, Robusta, Bell's Queen, Conspicua arborea, Pride of Peckham, Youell's Queen Victoria and Countess Tyrconnell, Halley's Sanguinea, and Standish's Candidate.‡

GARDENERS' CHRONICLE.—It is a gratifying fact that we have again to announce, as we have had to do every year since the establishment of the Paper, that it is necessary to reprint the first Number for the present year, the demand having been so much larger than we had anticipated. The reprint, less the Newspaper part and the Advertisements, which we have not thought it necessary to set up again, will be ready in a few days.——*Cirencester.*—You can have the volume for 1844; none of the other years, and but a very few sets of 1844 remain, so you must be quick if you are anxious for it.

GRAPES—*J T W K*—Grapes grown in Spain or Portugal in the open air are probably better flavoured than those grown in British hothouses, but we doubt whether upon the whole they are superior in quality for the dessert, where large bunches and juiciness are also required. The latter will not produce as good wine as the former.

HEATING—*P A*—Some kinds of slate stand heat; others do not. No tank will enable you to withstand such frosts as these, unless its *sides are freely exposed to the air* of the house. If that is done, and your house is only a greenhouse, then you may trust to a tank 10 feet by 4 feet; but we would not recommend a smaller one, unless you can draw curtains over your roof at night. In that case the size you yourself mention will do.

ICE-HOUSES—*Pseudo Ruricola*—The season is over for this discussion. It is certain that salt ought *not* to be used. The reason why has been fully given by Professor Henslow at p. 86, 1842.

INSECTS—*Conan*—Without seeing your Apple and Cherry-flowers it is impossible to give you any advice; all we can do is to refer you to articles in vol. i. p. 812, and vol. iv. p. 555, where you will find the histories of two insects, which may be the pests you allude to. The best means of arresting their ravages are also promulgated. *R.*—*T Davis*—You will find the history of the Musselscale, affecting your Pear-trees, in vol. iii. p. 735, and vol. iv. pp. 437 and 499, with the best mode of freeing fruit-trees from that and similar species. Scraping off the scales, and afterwards brushing with spirits of tar will be found the most efficient. *R.*

LAWNS.—*Sylvanus*—Dress your Grass with sulphate of ammonia, in wet weather, at the rate of 4 cwt. to the acre. It will apparently kill the Grass, and will certainly destroy the Moss. If the Grass revives you will probably not need to do anything more; but if no sufficient effect is produced, then you must dig it up and relay it. Is it thoroughly underdrained? We say this because you wish to destroy the Moss. But are you right?

MANURE—*C T*—There is nothing like good farmyard manure. Put on as much as you can afford. But it will be thrown away unless your stiff land is thoroughly under-drained. Whatever the expense of securing that may be at first, it will be cheap in the long-run. We believe the article in question to be speculative rather than practical.

MUSHROOM GROWING—*X, R F*, and others. We shall resume this subject at the earliest possible opportunity.

NAMES OF FRUITS—*J M K*—1, White Paradise; 2, Reinette du Canada; 3, Kirke's Lord Nelson; 5, is worthless and unknown; 6, Turk's Cap; 7, Minchal Crab. The seedling from No. 1 is only fit for kitchen use.‖——*W B*—1, Scarlet Crofton; 2, Blenheim Pippin; 3, King of the Pippins; 4, Easter Beurré.‖

NAMES OF PLANTS—*Juponicus, W K*—We cannot undertake to name florists' flowers.‡——*A Constant S*—Araucaria excelsa, and what appears to be a young specimen of Brunia ericoides. ——*Sub*—Rhodanthe Manglesii, tender annual; Xeranthemum annuum, hardy annual.

PEACH-TREE BLIGHT—*S S S*—Take sulphur vivum, sifted lime, and Scotch snuff, equal quantities of each; lamp-black, half the quantity; mix them to the thickness of paint, with stale brine and soap-suds. With this mixture paint the wall and trees, and over all the buds, just as they begin to show colour. We doubt not that this is a serviceable wash, and if the lamp-black causes an unsightly appearance, clay or some other substance must be substituted, to dilute and increase the bulk of the mixture, which otherwise may be too strong for the trees. *R.*

PLANTING—*L M*—It is worth trying the experiment recommended by Mr. Forsyth, at p. 36; but only as an experiment. Young plants, 6 inches, would be the best to use; but they must be kept clean, and well trod down when planted. November is the season for that. Suppose you try the experiment of seed-planting this spring. It is of little use to plant such land otherwise, except in the autumn. Mr. Charlwood, Seedsman, Covent-garden.

PORTUGAL CABBAGE—*Denton*—This is the Couve tronchuda, the best of autumn Cabbages, though it does not heart much; but useless for winter. It is tender, and suffers by the first frosts.

PROTECTIONS—*Hortulanus* begs to ask X X, who preserves his frame plants by means of a candle's end, at what time it is placed in the frame, where it remains till it is burnt out—what is meant by placing it in "the bottom and middle of the frame,"—and what the asphalte covering is to which he refers? He would also be glad to know whether the plan has answered up to this time, as well as it had up to the 10th of December?

ROSES—*T H L C*—We perfectly agree with you, that if you wish to cover ground with Roses, it is best done by pegging down the shoots. We practise the plan ourselves, and successfully. But the branches pegged down should be tongued like layers—an operation which, since you are a gardener, you will of course understand.

VINCAS—*A Sub*—The keeping these in a temperature of 40° in winter will induce them to flower early in spring; but under this treatment they will not flower so well when put out of doors in summer as if they had received their due season of rest.§

MISC—*Sub*—The injury done by worms to plants in pots is that they stop up the drainage, interrupting the free circulation of air and water through the soil, and the plant in consequence becomes unhealthy.‡——*C J P*—It is not advisable to keep bulbs of Tigridias dry through winter, as they seldom get sufficiently ripened in this country; and to dry a bulb that is not fully ripe is injurious to it. If placed under a greenhouse stage you will find that they will winter better than when they are kept perfectly dry.‡——*Sub*—The practice of placing small pieces of charcoal on the surface of the soil in pots will not do away with the necessity of using silver sand mixed with the soil. Plants, such as Pelargoniums, may be grown either with or without charcoal, and with very little sand in the soil; but in the cases of Heaths, and many other hard-wooded plants, it is indispensable to have sand mixed in the soil. Some persons recommend charcoal to be placed on the surface. Pelargoniums stopped now, under proper management, will flower in the end of May.‡——*A Seedling Gardener*—Iron wire will do your trees no harm, but it will soon rust through.——*Rural Chemistry*—Raise Australian seeds in a little bottom-heat, and keep them in a cool well-ventilated greenhouse. We know no such plant as you mention. The wild Orange always has thorns, and seedlings often partake of the habit of the wilding. The Sloe is spiny: the plum, its descendant, is not.——*C A B*—We are unable to ascertain from what plants the Rachabout des Arabes is prepared. ——*A Literary Labourer* will find Torquay the place he wants. *U V Z*—We do not know what Botanical Meetings you mean. ——*C E*—Any of the materials you mention will do for water-pipes. The cheapest is the best, for there will be no pressure on the pipes, if we understand your question rightly.—— *E R*—Thanks. Your list of Camellias shall, if possible, be inserted next week——*Denton*—The repeal of the Excise of glass ought to enable dealers to sell for 4*d.* what now costs 1*s.*, and will, we doubt not, do so eventually; of course we mean window-glass. It is impossible to give you the information you want; all depends on the plan and mode of construction. Such a pit here would cost perhaps 40*l.* with the old glass charges.——*W B*—Any sort of wire will do. Copper is the best. We cannot give correspondents' addresses without permission, for when we do, they are overwhelmed with letters, which it is not reasonable that they should occupy their time in answering.——*A M S*—Graft the Cotoneaster on the Whitethorn as soon as these endless frosts are gone. Your Magnolia is scorched by the severe frost; it will be well if it is not killed. Do not, however, be in a hurry to dig it up, but leave it to the chance of a revival. It is generally the custom to cut back Standard Roses to two or three eyes, if very fine flowers are desired.——*W F C*—Your Daphne will not succeed well if cut close down; encourage the young plants, top the tender shoots freely when in a growing state, and tie the stronger shoots down.¶——*Sub*—You will find a method of labelling Rose-trees given at, p. 372 1844.‡——*Sub*—The Spanish Artichoke is the Spanish Cardoon.‡——*Abbotsbury*—Your Hellebore is not the genuine odorus, which is green; it is rather H. atrorubens, which Koch regards as a variety of it. We do not remember to have seen any narrative of the decline and going off of Golden Pippins since 1800; the variety becomes healthy when transferred to Madeira. Pinus pungens may be had. De Candolle considers Ilex Perado and balearica to be distinct species; they are very near each other. Couch, Squitch, Quitch, or Quicks, is the common name of Triticum repens; it is only to Agrostis stolonifera that Fiorin applies. The former is a troublesome weed, without one redeeming quality; Fiorin is eaten by cattle while young and tender.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

SEEDLING FLOWERS.

AZALEAS—*W R*—No. 6 is a large and showy specimen, combined with a slight degree of coarseness; the flower is deficient in its general form, the divisions in the corolla being too deep and narrow. No. 10 has the same defects in form, and is inferior to No. 6 in colour, and is too faintly spotted.*

WIRE-WORK, HOT-WATER APPARATUS, GREEN HOUSES, &c.

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Ward's Cases, or Domestic Greenhouses.

The Agricultural Gazette.

SATURDAY, MARCH 8, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, March 12—Agricultural Society of England.
THURSDAY, March 13—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, March 19—Agricultural Society of England.
THURSDAY, March 20—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Mar. 10—Darlington
Mar. 17—Wenlock, W. Hereford, Cirencester
Mar. 18—Rochford Hundred, Framlingham
Mar. 19—Harleston
Mar. 20—Grove Ferry, Richmondshire
Mar. 20—Debenham, East Thanet, Binfield and Walsham, Stoke Ferry
Mar. 21—Wrentham, Hilesworth
Mar. 22—Gloucester, Cardiff, Swansea

AMIDST the various projects suggested for the benefit of the rural population, we hail with satisfaction the announcement from THE ZOOLOGICAL SOCIETY OF LONDON, of the intention of the Council to encourage an EXHIBITION OF DOMESTIC POULTRY at the Gardens in the Regent's Park, in the course of the ensuing summer. The little attention at present paid to the rearing of poultry in England is too plainly shown by the fact that more than *two hundred and fifty millions of eggs* were imported from the Continent in 1841, 2 and 3; and, moreover, that in the two latter years duty was paid on the importation of *live and dead poultry* to the value of 600,000*l.*!

Surely this ought to stimulate us to be stirring, and if possible to promote the rearing of poultry, one of the modes of doing which may be anticipated to be the improvement of their breeds. Thirty years ago six sorts of fowls only were esteemed, namely, 1, the game; 2, the white or English; 3, the black or Poland; 4, the Dorking; 5, the large or shake-bag; and 6, the Malay breed. The case is now altered.

Our space does not at present permit our enlarging on this subject farther than to quote one instance of farm-management, as regards poultry, mentioned by MR. ARTHUR YOUNG as practised by Mr. Boys, of Kent: "The labourers' wives and families who live on Mr. Boys' farm do the whole; he supplies them with what offal corn is necessary, and they return Mrs. Boys' the grown fowls ready for market at 3*d.* each; 6*d.* for turkeys and geese; and 3*d.* for ducks; and the account, well kept, states a profit of 20*l.* a-year after all the expenses are paid, and the family well supplied; and she has likewise all the eggs without any payment. This is a system equally beneficial to the people who undertake it, and to the farmer." This plan is still followed in some parts of England where circumstances render it practicable.

It is in the belief that it will tend to promote such and similar arrangements that we augur well of the proposed measure, and anticipate that part at least of the four or five hundred thousand pounds at present paid every year to our neighbours may be usefully employed at home to the benefit of the farmer, and the employment and profit of the family of the cottager.

Two animals—sheep, for instance—may be fed upon precisely the same food, and they may alike digest it thoroughly, rejecting only those portions of it which are useless; but, while the one thus nourished may grow in those parts of it which are comparatively worthless, the other may increase in weight where its meat is most valuable. They may increase *equally* in weight; but while the increase is butcher-meat in the one, it may be offal in the other. The meat of these animals, though they be fed alike, may also differ in *quality*. And so with plants; two varieties of the Turnip, for instance, may in an equal degree exhaust the soil of those elements which have been supplied to it in the manure; they may be equally able to avail themselves of all the means of growth with which they have been naturally or artificially provided; but while one grows to leaf, neck, and roots, the other, with a suitable extent of leaf, may produce a large and well-formed bulb; and the bulbs of these plants may not only differ in form and weight, but in quality also; for though, as is more probable in the vegetable than in the animal, the composition of these, their more valuable parts, should be similar—yet the texture of them—their taste and durability—may differ so much as greatly to alter their value to the farmer; thus, without exhausting the soil in a greater degree, or even, it may be, producing a greater acreable weight of vegetable matter, the one plant may yield a crop much more valuable to the farmer than the other.

It thus appears that, in reference to any of our agricultural plants, its existing varieties differ from one another in points very similar to those which constitute the differences between the varieties of our sheep, cattle, &c. Now—thanks to the skill and industry of BAKEWELL, the COLLINGS, and many others, their cotemporaries and successors—our domestic breeds of sheep and cattle have been improved, one would think nearly to their utmost, in all the properties of early maturity, proportional smallness of offal, and quality of meat; and doubtless the same talent and perseverance directed to the improvement of our plants would be followed by the same success; probably, indeed, also, in the application of similar means.

To the importance of directing general attention to this subject we referred last week; and, in order to this, our national Agricultural Societies ought, we think, to bestow their patronage upon it. On looking over the Prize List of the English Agricultural Society we find premiums offered for the best samples of Wheat, Barley, and Oats; but these are the only instances in which any interest in this subject has been exhibited; and even here a great want of consideration is indicated. From among the samples exhibited a certain number are to be selected by appointed judges, to be tried and reported upon by four farmers, before the prizes are awarded; to the latter part of this process of adjudication no objection can be made, but the former is certainly faulty. The object of the Society doubtless is to point out the best varieties of grain *for seed*—it is not the best sample of Wheat that they want, but a sample of the best Wheat—and, certainly, the only way of selecting *that* from amongst a number is to try them *all*. No one can judge of the quality of a sample of grain *as seed*, by mere external examination of it and without trying it, any more than he could determine the quality of a breed of fowls from a specimen of the egg; this observation we heard made by one who has paid much attention to the selection and trial of various agricultural seeds. Certainly, also, some alteration ought to be made in the terms in which these premiums are offered, as well as in the mode in which they are adjudged. At present, all that a candidate for any of them does, provided he has managed to harvest in good order a crop of any good sort of grain, is carefully to clean it and dress it for exhibition. Such efforts, unless they should accidentally publish the excellence of a comparatively unknown variety, can rarely be useful.

But, even if these premiums be allowed to remain as they are, might not a sum of money be usefully applied by the English Agricultural Society as the reward of endeavours to introduce *new* varieties, not only of grain but of other agricultural plants also? The processes of artificial hybridising have been eminently successful in horticulture, and though they can hardly be said, in their precise application, hitherto to have benefited the farmer in any great degree, yet those results which have been obtained from them encourage further efforts. The following is an extract from the fourth vol. of the "Quarterly Journal of Agriculture," written by Mr. LAWSON, of Edinburgh:—

"Two years ago, my attention was particularly attracted to the produce of the sample of a hybrid Turnip or doubly-impregnated sort, the seed of which I received from Mr. DALE, a very intelligent farmer at Libberton West Mains, near Edinburgh. It attracted my attention, first, on account of its early growth and maturation; secondly, its fine shape; thirdly, by the great size to which it attained, in comparison with any sort under similar treatment; and, lastly, by its standing the winter equally well with any other Turnip except the Swedish.

"And conceiving that the great desideratum in the selection of a proper variety of the Turnip, is to obtain the greatest possible weight on a given space and at a given expense of manure, this variety seems to be more adapted to this end than any other sort hitherto introduced.

"The manner in which it was obtained by Mr. DALE, was the following: In the year 1822 or 1823, he got a few ounces of seed of a new hybrid Turnip from JAS. SHIREFF, Esq., of Bastleridge in Berwickshire. This Mr. DALE sowed, and he found the produce to resemble the Swedish in shape, but it had too few of the superior properties of that variety. He, therefore, picked out such as had most of the yellow appearance, and planted them along with some of the best Swedish which he could find. This he continued doing for four successive years; and, since that period, he has selected the best roots of the doubly impregnated kind which he could find for raising seed, till they have attained the quality which they now possess.

"The manner in which this variety has been obtained, I am aware, is not according to the nice rules which horticulturists would have recommended to be adopted, because, as the hybrids were always planted along with the Swedish for producing seed, and the seed collected promiscuously, that part of the seed which was produced from the Swedish would be much more nearly allied to that variety than the seed of the hybrids. But in this, as in many other instances of improving plants, the point is often attained more from accidental causes than from the adoption of the rules laid down by scientific cultivators. And, although all the hybrids may not stand in the same relation to the primitive root, the circumstance of the raising the seed being now performed solely by the hybrids themselves, without the assistance, as formerly, of the Swedish, will always have the tendency to assist in modifying and correcting any irregularity that may exist. Indeed, judging from the appearance of the present stock, there is nothing which indicates any important consequences of this irregularity in the manner of obtaining the hybrids."

This instance, with the many cases of new varieties which are only explicable on the supposition of a natural process of hybridising being in frequent operation, is sufficient to encourage further attention to this subject; and we humbly submit that it ought to be sufficient to induce the Council of the Agricultural Society of England to hold out its rewards for new varieties of agricultural plants *artificially produced*. Such varieties could hardly be exhibited till the years 1848 or 1849, but if premiums for them were offered now, we doubt not specimens would be forthcoming then. *All* the varieties exhibited, whether of grain, roots, or grasses, should be tested by a comparative trial, under similar circumstances, along with standard and well-known sorts, and premiums should be awarded to all which should prove superior to *these*, or which, in the estimation of competent judges, might possess any valuable peculiarities. The only qualification to entitle any sample of seed to compete should be the written declaration of the exhibitor, that it was seed of a new variety—*i. e.* of a hybrid—obtained by him; each specimen of seed should be accompanied by a statement of the process by which it was obtained, and along with it a specimen should also be exhibited of its straw and ear, or root, tuber, grass, &c., as the case might be.

If the process of vegetable hybridising were deemed worthy of the patronage of our Agricultural Societies—and we believe it to be as much so as that which has been so productive of improvement in our domestic breeds of sheep and cattle—a little consideration would soon determine the most effective mode of bestowing it. We have several communications from correspondents on this subject, which we shall take an early opportunity of publishing; and we recommend the subject as one on which discussion is likely to do good.

THERE is nothing in the history of farming so extraordinary as the consumption of GUANO, which is steadily and rapidly increasing in spite of all the frauds and tricks that have tended to bring it into disrepute.

Our readers will, we think, be surprised when we state—as we do upon the best authority—that the great houses of Gibbs, Myers & Bright have actually sold 18,000 tons of Peruvian guano within the last five weeks; and that there will be in this country, ready for delivery, in the course of a month or six weeks, at least 200,000 tons of Peruvian and African guano!

KOHL RABI.—IMPORTANT TO FARMERS.

SUCH was the heading of the following letter, addressed a few weeks since to the Editor of the *Gloucester Chronicle*:—

"Everything which in the slightest degree tends to the improvement of agriculture is in the present day of so much importance that I need not apologise to you for troubling you with a few lines on a subject so interesting to the cultivator of the soil. The deficiency of the Turnip and Swede crop, in consequence of the extraordinary drought of the last summer, and the innumerable destructive insects, fly, grub, &c., produced by the dry and warm weather, has been a lamentable blow to the farmers of the county, and should lead agriculturists to endeavour either to eradicate those enemies to their hopes, or to introduce a root equally valuable with the Turnip, while it is less obnoxious to the attacks of those vermin. The Kohl Rabi appears likely to supply this desideratum, and I wish, by giving you an account of my experience of it, to induce the farmers of this county to try it on a larger scale. If we can obtain a root—if I may use the Iricism of calling that a root which grows above ground—producing an amount of food, 1st, equal in bulk to the largest crop of Swedish Turnips; 2dly, of equal or more nutritive qualities; 3dly, not obnoxious to the attack of grub or fly; 4thly, better adapted for keeping through the winter; 5thly, capable of being planted at any season of the year; 6thly, enduring the frosts of winter; we shall have obtained one of the most useful and valuable plants which the Giver of all good has bestowed upon man. Perhaps I may be considered too sanguine if I attribute all these qualities to the Kohl Rabi, but I feel convinced that it deserves the greatest part if not all the praise which I ascribe to it. I obtained a small quantity of seed in Germany last year; and in the

month of March I sowed, thickly, a patch in a sunny bed in my kitchen garden; the plants soon came up as thickly as possible, much resembling young Broccoli plants. The dry weather set in, and I despaired of being able to plant them out in the ground, which I had prepared for them. After waiting several weeks, and fearing that the plants had become too old to transplant, I ventured to do so lest the season should go by. I made a good strong compost with cow-dung and water from a muddy pond, and another sort of diluted pig's urine; and in planting each plant, about 18 inches apart, I made a good puddle about the roots; in less than a week the plants held up their heads and began to grow vigorously. In October I gathered in my crop, and the result is as follows:—On a plot of ground, as nearly as I can reckon containing 18 perches, I had 27 baskets-full, weighing on the average 80 lbs. each, or deducting 5 lbs. for the basket, 75 lbs. each. Thus I had 2025 lbs. on this small piece of ground, besides 4 or 5 cwt. of Mangold Wurzel and self-set Potatoes. This, however, was the produce of the driest season in the memory of man. I have no doubt that more than double the amount might be expected in any other season. Several of the bulbs weighed 6 or 7 lbs. I purpose sending a few specimens to the Gloucestershire Agricultural Show.—*Samuel Lysons, Hempsted Court, Nov.* 11, 1844."

According to the above promise, Mr. Lysons sent to the Agricultural Show at Gloucester some fine specimens of the Kohl Rabi, which attracted considerable attention, and elicited many inquiries from those persons seeking information respecting the new root, which—by the bye, has been for many years known in England—whilst others freely passed their opinion on its merits or demerits. Some shook their heads, and thought it would not answer; others confidently asserted that it never could be introduced as a field crop; a third party inquired what Mr. Lysons knew of feeding cattle, seeing that he was no practical farmer; whilst a fourth thought it might succeed, but it required to be tried as food, and to have its merits and defects made known, before the practical farmer would place confidence in it. The expression of these various opinions by persons to whom the Kohl Rabi was evidently new, led me to make application for, and to obtain a specimen for analysis, the results of which I promised to publish in the *Agricultural Gazette*, and which I now beg leave to forward for insertion, together with the analysis of the Swede, Orange Globe, Mangold, and White Turnip. The latter three plants were grown on the estate of W. H. Hyett, Esq., at Painswick, in a light calcareous soil, resting on the lower oolite, whilst the Kohl Rabi was produced under circumstances with which I am unacquainted, except from Mr. Lysons's letter. The specimen submitted to analysis was a fair sample of those exhibited at Gloucester; it weighed about 5 lbs., was globular in form, green on the outside, and when cut into was firm, solid, and had the appearance and taste of the stem of a cabbage.

On submitting 1000 parts of the Kohl Rabi, together with the same quantity of the Swede, Orange Globe, and Turnip to the temperature of 230° F. until perfectly dry, the amount of solid matter contained in these bulbs respectively, together with the water they contained, was ascertained to be as follows, viz. :—

	Kohl Rabi	Swede.	Orange Globe.	Turnip.
Water . .	897	891	853	936
Solid Matter	103	109	147	64

Thus far, at least, we ascertain, that of the weight of solid matter contained in these bulbs, the Kohl Rabi has the advantage of the White Turnip, and this in the ratio of 103 to 64, or, that it would require 1609 lbs. of the white Turnip to yield as much food by weight, as 1000 lbs. of Kohl Rabi; at the same time it will be seen that the Kohl Rabi in this respect is inferior to the Swede, or Orange Globe Mangold. The amount of inorganic matter contained in these several bulbs was found to be largest in the Kohl Rabi, and least in the Swede. 1000 parts of each of these bulbs was found to contain inorganic matter in the following proportions, viz. :—

Kohl Rabi.	Swede.	Orange Globe.	Turnip.
11	6	10	8

The inorganic constituents of crops being obtained directly from the soil in which the plants are grown, becomes a direct indication of their exhausting power, as far as the mineral constituents are concerned. Hence, we find that the Kohl Rabi would remove from the soil a larger amount of inorganic matter than either of the other bulbs, if taken in their ordinary state; but when compared with that contained in a given weight of the dried bulbs, the white Turnip contains the largest quantity of earthy and saline matter, *i. e.* for the weight of dry food it would yield.

The proximate principles of which these four bulbs were composed, as ascertained by careful analysis, were found to be as follow, viz :—

ORGANIC.	Kohl Rabi	Swede	Orange Globe	Turnip
Non-nitrogenous.				
Water . .	897	891	853	936
Fibre . . .	27	33	32	30
Pectin and Sugar . .	62	65	101	23
Nitrogenous.				
Gluten .				
Albumen & Casein .	3	5	4	3
Inorganic.				
Ash . . .	11	6	10	8
	1000	1000	1000	1000

From the above analysis I think we are justified in assigning to the Kohl Rabi a place amongst the bulbs (at least as far as its feeding properties are concerned), far above the white Turnip, although not quite equal to the Swede; and if, as stated by Mr. Lysons, it can be cultivated as to produce an amount of food equal in bulk to the largest crop of Swedes; if it be not liable to the attacks of grub or fly; better adapted for keeping through the winter; capable of being planted at any season of the year, and enduring the frosts of winter; the Kohl Rabi is worth the attention of those English farmers who occupy lands on which the Cabbage arrives at perfection, since it is nearly equal to the Swede Turnip as food, and appears to be possessed of some advantages over it. At the same time I would suggest that it be harvested before the stem becomes too woody, or this circumstance may become a source of objection to a plant otherwise possessed of advantages to the practical agriculturist.—*Alfred Gyde, Painswick.*

ON DIBBLING SEED.

So many of the arguments in our former papers on Dibbling are liable to be misunderstood, unless we have the opportunity of meeting some of the objections which occur, that we must trouble you a little farther on this subject.

It may be supposed that, like many quacks, we are inclined to prescribe one nostrum for all evils whatsoever. We wish to disclaim this *in limine*. And yet we do not say that dibbling is not everywhere desirable; we only affirm that it ought to be somewhat differently conducted on different kinds of soil. For instance, we should not positively recommend "R. H.," of Dundee, who probably occupies a thin, or poor, or hollow soil, to sow as few seeds as an occupier of a deep rich clay might be satisfied with. For him the dibbling engine might be so constructed as to admit of depositing the seeds nearer together; because it cannot be expected that a poor soil shall cause the plants to tiller so luxuriantly as a richer one will; on such soils nutriment would be supplied to them much more slowly; neither their upper growth nor their roots would throw out sufficient shoots to fill up the intermediate spaces; therefore the whole of the soil would not be occupied, which would entail waste. But though, for these reasons, we should plant at shorter intervals, care must nevertheless be taken not to overtax the soil; for it must be borne in mind that there cannot be a greater error than trying to make poor land carry as many ears as rich; wherefore it is still our opinion that "R.H." might save four-fifths of his seed advantageously.

But upon further examination it will be perceived that accommodating the quantity of seed to the state of the land ought only to be looked upon as a palliative measure; it ought never to be considered the legitimate *cure* of any existing evil. The reduced seeding is unquestionably the proper one, and the object of the farmer ought to be so to alter the constitution of the land, by rendering the staple deeper and sufficiently tenacious, and the subsoil more congenial to vegetation, that the proper method of seeding may be practised. This must be done by subsoil-ploughing, thorough-draining, and the admixture of suitable manures and composts; with the particularisation of these, however, we have at present nothing to do, nor with the impediments which lie in the way of their being resorted to.

Now, so far from this being allowed to be the mode in which a remedy is to be sought, the only specific commonly in vogue is this—the sowing more seed. Thus: Are there many slugs on the ground? more seed must be sown. Are there many wireworms in it? more seed must be employed. Are the crops commonly affected with blight or mildew? again, more seed is the remedy. Is it a light blowing sand? or a hollow heathy mould? or a shallow tilth, with a hard pan? are the birds troublesome? or is the climate severe? still, more seed, more seed is the cry with numbers; as if they thought that the slugs or the wireworms, the blight, the mildew, the birds, the climate, the soil itself, were creatures endowed with highly discriminating powers, and a great sensibility of conscience, and would therefore only amuse themselves with the plants which were strictly supernumerary, while, most philanthropically, they left untouched those which were necessary to the insuring a good crop. This, we say, is a hap-hazard kind of farming, which, in an age of Agricultural Societies, Chemical Associations, and Implement-improvement Clubs ought to be on the wane. Surely there may be other ways of ridding ourselves of such evils as slugs, wireworms, &c., besides bribing them to leave us a plant at the rate of four-fifths of the seed.

It will not be supposed that we can enter fully into all the remedies which might be mentioned for such casualties as these; but a few may be noticed, just to show that there is some reason in the statement that a more bountiful seeding is a very unscientific way of getting rid of them. Suppose, then, a farmer's field is very much infested with slugs; he compounds for the expense of killing them by allowing them the lion's share of the seed, for which bounty they gratefully make him proprietor of a tenfold larger stock of slugs the next year. The composition with these harpies, therefore, has to be carried on the next season also; and unless Providence interferes by sending them some bitterly sharp frost, or other weather equally fatal, he would in the end sow but never reap. Now, bearing in mind that these slugs are not conscientious animals, and that they would perhaps prefer devastating one square yard utterly, to the thinning five scientifically, would it not be far better to lay out the price of the two bushels of corn in a little caustic lime, which, applied morning and evening for a few days, and at intervals, would in the end make slugs as rare game as partridges and pheasants are likely to be, or as wolves are? This would not be a continual expense like the extra seed, nor nearly so great; the most minute and almost invisible portion of lime falling upon the moist back of the slug burns a hole in his jacket, and ends his Wheat-devouring propensities for ever. A man on a light breezy morning can dust an acre in a very little time; it would not require many times walking over to finish a field of 10 acres; and if the farmer always keeps his eyes open early and late, he may soon be rid of this pest, and put money into his pocket for his corn, instead of feeding a hostile pack of slugs with it.

A similar method of treatment ought to be adopted with respect to wireworms. Every farmer who has broken up heath-land knows what a nuisance they are. He is perfectly aware that he might sow even two quarters of seed to the acre and yet never have a new corn for an old one, unless he burned the soil and incorporated the ashes. But when he adopts this measure, the wireworm spares his crop, being either destroyed by the burning or scared by the ashes. Wherever, then, this insect prevails, is it not very unscientific to bribe it to leave a crop, by sowing extra seed, when it might either be killed or rendered harmless (at the same time the soil was permanently improved) by paring and burning, or by introducing lime-ashes or road-dirt, or some other pungent mixture, which getting under its armour would render the house too hot to hold it? And is not such a mode of proceeding more especially advisable when we reflect that this insect is not likely to be either more well-disposed or more discriminating than the slug?

Birds, too, ought to be prevented from taking the seed; for we fear they are not to be exempted from all suspicion of being careless about leaving plants at proper distances. This prevention will be easily performed by insuring the deposition of the grain at a proper depth—a point which must necessarily be attended to for other very important reasons.

Now, it may be less trouble to increase the quantity of seed than to attend to these particulars; this we admit. There may not be a great deal of saving in the first experiment; this we admit also. But we resolutely affirm that the preventive system will soon prove itself the most advantageous, as far as outlay from the pocket, draught from the resources of the land, and the general profit of the crop are concerned. We are very far from presuming to censure every farmer who sows three bushels per acre; but we may be allowed to observe, that if our land was of such a nature that we could not get a remunerating crep unless we sowed that quantity, we should attempt a cure of the evil by endeavouring to remedy its faults mechanically and chemically, rather than tamely suffer them to continue, adopting only the palliative measure of sowing more seed, which, it must be allowed, can never remove the disabilities as long as the world lasts. We think it only tends to increase them.

But we must proceed to notice a few other objections which will be made to the practice of dibbling a small quantity of seed. One we have heard is, that every grain sown cannot be expected to grow. This we allow; but if the sample of seed is a good one, how many will fail? Not more than one in 50 will be found bad. Besides, if the sample should be an inferior one, let the farmer first dress his Wheat, then take out 100 grains and sow them; a few days will give him a just estimate how many faulty corns there will be in a peck, and then he can act accordingly.

Another objection is, that on land where the plant is apt to be thrown out, or become root-fallen, it will be perilling a year's rent, taxes, and cost of cultivation upon a very few seeds; and that if many of them fail, the loss will be very great. We have already partially met this objection in our last paper. We there stated, that if the seed is deposited at a proper depth, it will be a safeguard against all these casualties. We now add, that larks or partridges will rarely pull up a Wheat plant which has been cleanly deposited at a sufficient depth; that frost, wind, and wet, will not be so likely to render it root-fallen; neither will the sun be able to wither up its roots. Let any one pull at a plant which has been thus properly inserted, and he will at once be convinced that this is true. This operation alone, then, would go a great way towards overcoming the disadvantages belonging to such soils—proper tillage would do the rest; but, to render the process more beneficial, the seed should not only be deposited at a given depth, but it should also, at the same time, be gently settled into the soil. We have seen an engine which combines all these powers. Now, if "R. H." were to contrive that all the seeds contained in his 3 bushels should be thus dealt with, would he have to complain that many were cast out? Would he not, on the contrary, have a luxuriant crop in spring, which would devour all the fertilising power of his poor soil, while the plant was in its infancy, leaving none to perfect the full corn in the ear? We submit to him that such a result would be very likely; and therefore he must excuse our not being convinced of the faultiness of our propositions by the bad crop of his neighbour, unless he can assure us that precautions like those we have mentioned accompanied the commission of his smaller portion of seed to the soil. We consider, then, that in the case of light and poor soils the sowing more seed is a very uncertain measure—of a palliative nature only—accumulating no permanent benefits to the land; and it must be remembered also, that these soils cannot be depended upon to cast out the supernumerary plants with judgment—they are far more likely to leave thick or bare patches according as the staple may be thicker or thinner.

We are aware that other objections may be raised

besides those we have already touched upon. It may be supposed dangerous to encourage the roots to enter the subsoil extensively; it may be considered a hazardous diminution of the chances of a good crop, to depend on one grain to produce a certain number of ears, instead of devolving that duty upon five; it may be thought that an insufficient provision is made against the evils which may arise in the shape of disease; and, in short, many other doubts will present themselves to the mind of every one who first begins to think upon the subject. These questions, however, we must now pass over, having already monopolised too much of your space; and we believe that all who are desirous of entering upon an investigation of the merits of the practice before us, will see quite as clearly as ourselves whether these objections ought to have much weight. We must content ourselves with having helped to draw the attention of agriculturists to the fact, that a very large portion of the seed is wasted by being improperly committed to the soil. Having concluded from this fact that any operation which could put the seed in properly would both save this superfluous seed, and also deal more favourably with the remainder; having suggested that the points most essential in such an operation are the measuring out equal quantities of seed, the depositing them at proper distances and at a proper depth, and the settling them down at the bottom of the hole. We now leave it to the judgment of the farmer to weigh all other *pros* and *cons* upon the subject, we merely say, that if he can insure this disposition of his seed-corn, there may be golden advantages in store for him.—*H. W.*

ON COMMON SALT AS MANURE.

This salt has been used as a manure since the remotest antiquity; and although its value as a fertiliser has been generally put too high (especially in England), it is nevertheless true that it merits attention, producing, on some soils, a most beneficial effect. This would be still greater if the rain-water did not annually carry off a good quantity from the soil, as it will not act but in cases where the soil is deficient in it.

Common salt (once erroneously called chlorate of soda) consists of 60.3 parts of chlorine and 39.7 of sodium, and belongs to the class of substances called chlorides. It is soluble in two parts of water, and thus is easily taken up by plants. On account of its great solubility, it also soon disappears from the soil, being either absorbed by the plants or dissolved by rain-water. We have before said that it is one of the component parts of dung; it is to be found in all plants and in every spring-water; but the common salt afforded by the dung is not sufficient in quantity for plants, and therefore an application of it by itself is very beneficial. The effects, however, are seldom very striking, because it neither forces the plants, nor do they obtain after its use a dark-green colour, as is the case after the use of several other salts. Common salt will merely invigorate them, and (which is of the greatest importance) the plants manured with it are good food for cattle. In the soil it is only liable to decomposition if it remains long in contact with carbonate of lime, in which case carbonate of soda and chloride of calcium will be formed; both salts, however, will be again decomposed by the humic acid. It would, by-the-bye, be worth while to make a series of experiments on the repeated exchange which takes place in the soil between acids and bases, as thereby many interesting results would be ascertained. On the humus or humic acid salt exercises no direct influence. A substance which, like common salt, consists only of two elements, does not so easily undergo any change, and as these are neither an oxide as base, nor an acid, it will not easily combine chemically either with an acid or a base of the soil, and consequently passes unchanged and undecomposed into the plants. In these, however, it is partly decomposed, because whilst the leaves evaporate the chlorine, we find the sodium changed into soda, in their sap; truly a remarkable process, showing that often what is beyond the reach of chemical powers, is at once accomplished by vital process. Those who do not consider mineral substances as food of plants, ascribe to common salt merely excitative properties.

To the manuring with common salt, many things are ascribed which do not really take place; still, it affords many advantages, which are so important that it ought to be resorted to oftener than is the case. We shall now state some experiments on that score, and consider what has been said in favour of this mineral manure.

It is said that the crops, after a manuring with common salt, are less liable to disease. This I have not found to be the case, because, although I often applied this manure both in small and large doses, I still saw that the plants were not free from smut or blight. It is also said that plants grown with common salt are more relished by the cattle. I can assert that this is really the case. I had often occasion to see pastures where there were spots the herbage of which was not touched by the cattle except when in the greatest need, but as soon as they were manured with common salt the cattle preferred the very same plants which had previously been rejected. If Potatoes, Cabbages, &c., are manured with common salt, they will have a far better taste.

Common salt makes plants more wholesome for the cattle. That this is really the case may be learnt from the fact that spoilt fodder will injure cattle much less if much common salt is given to them at the same time. On the sea-coast the half-putrid hay of the marshes (*Poa maritima*), which contains much common salt, is given to the cattle without the least injury; and sheep will never over-eat themselves on pastures where many salt plants are to be met with. Plants grown after common salt are also more nutritious, the reason of which has been already stated.

It is farther stated that the crops grown after common salt, suffer less from cold. I have not had any experience on that subject, and can, therefore, not decide it; as, however, cattle which get much common salt can better support cold than without it, we may suppose the same to be the case with plants.

Again, it is said that salt will destroy worms, insects, and other vermin. This, also, I have not experimented upon, but I believe, judging from the small quantity used per acre, that it cannot produce this effect. It requires a good quantity of common salt to kill one snail.

Another assertion is, that certain cultivated plants will succeed best, only if manured with common salt. To these, it is said, belong Flax, Rape, Hops, Clover, Peas, Beans, Carrots, Potatoes, Celery, Horse-radish, Mustard, and Cabbage. I can vouch for this, partly from my own experience, and partly from the fact that much chlorine and sodium are required for the chemical constitution of these plants. Finally, fruit-trees are much benefited by a manure of common salt. If only part of these statements were true, it would suffice to induce us to use common salt as a manure. The price, however, in many countries, is so high, that its use can only be very limited. [No such excuse is admissible in England]. The quantity of common salt to be employed on one Magdeburg acre of land is differently stated. It partly depends, as it is all manures (especially those easily soluble in water), on the quality of the soil; the clayey soil can bear, and in fact requires more than the loamy, and this again more than the sandy. The late worthy Mr. Schübler has found that Barley ought to receive, on loamy soils, only 75 lbs. per Magdeburg acre, as 5 lbs. more or less did not produce such a good result. It is to be regretted that Mr. Schübler did not ascertain how much salt the soil contained originally, as this necessarily determines the quantity to be used. It is easy to take too much; and I once manured (for the sake of experiment) an acre of heath soil with 60 lbs. of common salt, it was, even after two years, still so sterile as to neither produce Oats nor Potatoes. In England, where the manuring with common salt has been most resorted to, a much larger quantity per acre is used, which may be ascribed to the rains in that country, which will soon extract a great part of the easily soluble salts.

In England it is strewed, some weeks previous to the sowing of the corn, over the fields; and this is a good plan, as it will thus gradually spread through the furrow-slice, and then be easier taken up by the roots. Generally speaking, it is well to sow it in the early spring over the fields, as it will then be carried by the water in the soil, and better avail the plants during the summer.

In some countries the common salt intended for manure is strewed from time to time over the dung-sink, which must have been usual in antiquity, as we find it mentioned in the Scripture. It is asserted that the common salt brings the dung to speedier decomposition; but this is not probable. That, however, dung will act more powerfully if mixed with common salt is easier to be believed, especially if the plants given for fodder, as well as those given to the cattle as litter, be deficient in this salt.

If the crops are manured with common salt, the feeding of the cattle with common salt (otherwise useful) will be superfluous, as they will then receive it in their food. If plants which are rich in common salt, are given to the cattle, we shall always see that they will reject the salt given to them in its natural state, as the want of this substance is otherwise satisfied. It may be also that food saturated with a vegetable acid, which has been formed by the decomposition of the common salt, is more advantageous to cattle; on which account experiments with acetate of soda might be made. If I mistake not, even carbonate of soda (soda) has been of late years mixed with the fodder of cattle with advantage. —*Sprengel.*

Home Correspondence.

Bones as Manure—Answer to a Tenant Farmer, (*p.* 107).—I shall be happy to notice every particular of the inquiries suggested by this kind writer, to the best of my information. The first and last points to which he refers will claim the earliest attention, since they both include what is considered the failure of bones upon stiff lands. And hereupon I am sorry to say that I possess the least practical information; for, although I have resided nearly 15 years on one spot, it has been impossible to obtain an extensively-observed fact, as I am not aware that any farmer, within a circle of many miles, has employed a single bushel of bones, crushed, or ground to the condition of what is called dust. I have made the inquiry, and received for answer—"Bones were tried many years ago, but we did not like them." Now, the soil about me rests upon gravel, or gravel over a deep bed of chalk, and its texture is a rather binding, gritty loam (not clay) often approaching to the character of reddish brick-earth. It differs and varies much, but it produces, naturally, Gorse, Fern, and other plants, which tend to prove (what it really is) a staple susceptible of high cultivation. Some writer—I cannot remember his name—lately observed that crushed, *i. e.* half-inch bones, when placed in clayed land, became encased, locked up, by the adhering clods of the earth, and thus rendered unapproachable by the roots of any crop; and so it may be. We do not justice to bone-manure by applying it in large pieces; and upon that account I would recommend bone-dust, chemically acted upon or partially decomposed by an acid. However, in the absence of more extensive experiments and fa every reader who can procure a sight of the Journa the Royal Agricultural Society, will derive much formation from the careful perusal of Mr. John H nam's paper on Dissolved Bones, vol. v., part ii., ult., pp. 452 et seq., and 594-6. The "Tenant Farm partly answers his own query concerning the c parative efficacy of bones in a state of solution, by sta that he derives much benefit by the top-dressing of tures. Now, if from bone-dust applied to pasture grow upon heavy land, he reaped great advantage for six seven years, it is more than probable that he would tain immediate results by treating the bones with a somewhat in the following manner:—I presume, fi that 4 quarters per acre, *i. e.* 32 bushels, are sup fluous. Let half the quantity be taken, or e 20 bushels of really good bone-dust, prepared from bo that have not been burnt, and therefore are replete w their full equivalent (50 per cent.) of animal decompose constituents; let him dress his land, as usual, with thr fourths of this bone-dust, to remain therein as a p spective fertiliser, and subject the remaining fourth p to the action of diluted sulphuric acid in this proporti estimating the weight of good bone-dust at 40 lbs. bushel, 5 bushels would be 200 lbs.; to decompose phosphate and carbonate it would require 100 lbs. strong acid; but I would employ only 65 lbs., hav previously covered the bones with water as before direct After being stirred occasionally, the acid would h exerted its full influence in 3 or 4 days, and the resu would be the extrication of a great portion of the aci lous phosphate of lime, and the formation of much g sum or sulphate of lime, leaving about one-third part the bones softened, though not chemically decompos Finally, let the mass be thoroughly mixed with good s earth or decaying saw-dust, in quantity sufficient to ma it equally applicable as a full top-dress to the acre. T inquirer, by this experiment, would acquire practi knowledge of the full effect of bones as an immediate a remote top-dress, and be enabled to state the results his brother farmers. I wrote as a chemist versed in t practice of the manufacturing laboratory, with a view elucidate the processes of the decomposition of bones, a now I am gratified by being able to cite, on the author of Mr. Hannam, the practice of one whom he describ as "the proprietor of the largest chemical manufacto in the world"—Mr. Tenant, of St. Rollox, Glasgo and who also has announced "his intention to prepa and dispense to the public, the bones in a state of sol tion." Mr. Hannam further gives a cursory view Mr. Tenant's own practice, thus:—"I put," says h "25 bushels into three old boilers (of which every far has a supply), and next pour in about 340 lbs. strong sulphuric acid and 36 Scotch pints (18 imper gallons) of boiling water into each boiler. It boils aw at a great rate for some time" (of this there can be question, and I should say at a rate that would start the unpractised man, and not unattended with danger "and in a day or two we empty the boilers into tw carts of light mould, and turn the mixture over. At th stage the bones are only partially dissolved," (dissolv means broken up; the term should be discontinued the phosphoric acid being disengaged, while the sol bases are transferred to the sulphuric acid); "but the heat and decompose in the heap after being turned ov three or four times; and in the course of seven or eig weeks the compost becomes dry, and breaks down wi a shovel." Mr. Tenant, we are told—"to 12 acres Grass land applied about 2 bushels of acidulated bones p acre with good effects, especially upon Clover." Th gypsum so acquired is a prime adjunct for Clovers ar leguminous plants; the phosphoric acid liberated wi doubtless act gradually upon the calcareous substance it may meet with in the pasture land; but the exper menter should avoid any application of lime or chalk soil to the digested bones, prior to dressing the surfac with the compost. As to the duration of bones s treated, experience as yet has not furnished a reply therefore I indicate the foregoing combined trial. Th "Tenant Farmer" observes that he already has proved th durable advantages of bone-dress. Well then, let hi try our plan, in hope of immediate result; content per haps to sacrifice one or two years at the end, for th sake of obtaining his primary object. I have, however no right to pledge any authority, because I have n reason to believe that the practice I recommend has eve yet been fairly tried.—*J. Towers, Berkshire.*

Experiments with Manure on Grass, in 1841.—Space of each Experiment, 88 yds., by 13 yds., 2 ft., 4 in.; Ma nure sown by hand, Mar. 4; Hay weighed when made, June 1

Weight of Manure.	Weight of Hay
1—56 lb. Bone-dust	449 lb.
2—56 lb. Bone-dust, 10 lb. Sulphuric Acid	415
3—Ditto Ditto 20 lb. Ditto	377
4—No Manure	378
5—56 lb. Bone-dust; Hydrochloric Acid, 25 lb.	449
6—Ditto Do.; Hyd. Acid, 5 lb.; Sulph. Acid, 15 lb.	489
7—Ditto Ditto, 15 lb.; Ditto, 15 lb.	483
8—No Manure	424
9—Bones, 56 lb.; Hyd. Acid, 15 lb.; Sulph. A. 5 lb	434

Soil, heavy. *Bone-dust*, when applied to Grass, useless.

The difference in these weights may be considered as no more than would arise from errors of weighing, and the results may be considered as unfavourable to the use of bone-dust. Further experiments on this soil have shown that an ammoniacal substance is required to grow large crops of Grass.—*J. B. Lawes.*

Cultivation of Indian Corn.—Some years since, I planted a small quantity of Cobbett's corn; following the directions in his book, I succeeded in raising two good crops in two successive years (I think 1835-6). The seasons were warm and dry. The next year, the crop did not come to perfection owing to the season being

wet and cold. In the best year, I grew at the rate of 40 bushels per acre of well-ripened corn, besides a considerable quantity of refuse. I think that the crop in this climate must be uncertain, though I intend to try it again this year on a small scale.—*J. C. C., Watford.*

Shed-feeding of Sheep.—I am an approver of Mr. Childers's plan of keeping sheep under sheds during the winter season, when fatting, and in bad weather generally. I observe you note in your *Gazette*, of the 8th inst., that the best mode of littering sheep in confined sheds or houses is a matter worthy of inquiry. I beg to suggest that there should not be any litter whatever used, but that the stone-pavement of the sheds and yards ought to be jointed, cemented, and formed with a declivity of half an inch per foot, from the walls towards the centre of the yard, where should be made two tanks, into which all the urine would then readily drain, and into which all their dung could be easily swept every morning or evening, in order to keep the sheep as clean and dry as possible, and thus there would not be any moisture to occasion foot-rot. I give you herein a sketch of my plan for a 200-sheep shed, and also for a 400-sheep shed, which I hope you will understand; if not, I will have much pleasure to explain more fully my meaning. I consider the wool on their backs quite sufficient to keep the creatures warm, and the use of any litter very deteriorating to the quality and condition of the wool when for sale, to the wool-stapler or manufacturer. The dung being mixed, and dissolved in the tanks with the urine and a proportion of water, and the ammonia properly fixed with gypsum, will make the finest liquid manure—particularly applicable to pasture land, or indeed to Turnip-plants, or even to the seed, to cause a quick growth to the rough leaf. If the expense be objected to, I ask, Who will not be glad to effect such a desideratum as the preserving of their flock from foot-rot? and nothing near perfection can be obtained without expense.—*W. H. J., Barbican-terrace, Barnstaple.* [The sheds, of which plans were sent, consist of a paved or stone-platform, 100 feet long by 20 wide, sloping 10 inches in the width of it, and covered by a suitable roof, supported on one side by a wall, and on the other by iron pillars 10 feet asunder. This stone-platform is along the side of a somewhat basin-shaped yard, in the centre of which is a tank to receive the drainings from it.]

Hardirons.—The plant called Hardirons is Centaurea nigra, a weed too common in pastures everywhere There can be no doubt that the only way of destroying it is by constant extirpation by hand, which would, perhaps, be as hopeless a task as the destruction of meadow Buttercups, which has been so earnestly inculcated by a gentleman well known to the visitors of Margate, and as vainly attempted by many of his admirers.—*M. J. B.*

Hardirons.—In answer to "Derbyshire Farmer," on destroying Hardirons (*Centaurea nigra*), which is very prevalent in some fields, to the great detriment of the Grass and hay, he will find an effectual remedy in eating his field one season with sheep, stocking it pretty hard, I have seen ground overrun with Hardirons, treated in this way, nearly freed from the plant, and continue so for years after. If it is inconvenient to depasture the field all the season with sheep, great benefit would result from turning them on during the greater part of May, as it is an early plant, and sheep then prefer it to almost any other, and would eat the leaves off to the crown of the root, and so destroy many plants.—*T. Allestree, Ambaston.*

Effete Lime.—In breaking up a piece of hill pasture-land, of limestone soil, several heaps of lime were dug up which had lain there for nearly a century, being covered over by a thin layer of turf. This effete lime will, of course, be mixed with the under-soil, and Potatoes are intended to be planted therein. It has been doubted whether it may not be injurious.—*B. S.* [There is no fear of injury from this cause.]

Mole Plough.—It strikes me that "M. Saul," who writes on the Mole Plough, in page 124, has never used that implement himself; or, if he has, that he has had an opportunity of applying steam-power to it, which I have not. I have used the mole-plough very extensively for eight or ten years, on strong Middlesex yellow clay Grass land, and with very great success. I have worked it with—1st. One horse and a windlass, which I consider a very bad plan. I have worked it—2d. With a team of horses (from 7 to 13), drawing straight ahead; and 3d. I have worked with a hand-windlass (like a crab), turned by four men, and which does not require to bring a horse on the land at all. This last plan I most approve of, though it is slow, but not slower than the horse-windlass. The drains are more perfect, made by windlass, than by the rapid movement of a team. But when the mole-drains are made 18 inches deep, with a 3½ inch bore, the draught is so severe upon 11 horses (to say nothing of the way in which 11 horses at hard work cut up the ground in its then soft state), that there is no need to attach a string of pipe-tiles to the heel of the mole, even if it be practicable to put them in—which I humbly think it is not. Besides, the level of the mole-drain should be disturbed as little as possible; whereas, in "M. Saul's" plan, the mole would be continually broken, and the ends of the pipes could not be brought to coincide, or to remain so, at every 40 yards, as he suggests. I have also turned out, as "M. Saul" suggests, a furrow with the swing-plough, previous to entering the mole-plough, which is doubtless a very good plan; but it has this objection, that it is difficult to keep the mole-plough in any very exact line. I have what I consider a better plan—viz., a share attached to the beam of the mole-plough, just in front of the mole-coulter, which lifts up the sod, 3½ inches thick, without turning it quite over; the mole-coulter then comes, and the man or boy at the plough-tail treads down the sod again as he follows. I have drained between 200 and 300 acres of Grass land with the mole-plough, and consider it excellent in comparison to its cost, which I estimate (but I cannot speak very accurately) under 20*s.* per acre, including the main drains and outlets. Still, if we could get a mole of 6 inches diameter drawn by a locomotive steam-power, and running 30 inches under the surface, we should effect a very great improvement upon any system I am aware of.—*I. E. G.* P.S. My mole-drains, made seven or eight years ago, were working well yesterday in the thaw.

Permanent Pasture.—In the list of Grasses from Lawson, given in reply to the inquiry of "Villager," there are two or three which I think objectionable—Aira cæspitosa lutescens for one. The Airas are mostly coarse rough Grasses, such as I should much rather see elsewhere than in my pastures. Poa nemoralis is a weak spiry Grass, affording very little herbage, as the leaves are much upon the stalks; it is, moreover, a wood Grass, and would probably soon die away. He had much better take Poa trivialis instead, which is a far more valuable Grass, and likely to remain in the land.—*Lusor.*

Moss.—In the *Gardeners' Chronicle* of Feb. 8, p. 91, I observe that it is recommended to plough or clay lawns or pastures that are given to Moss. I have seen clay tried, and found that it has destroyed the Grass. I have also seen both the following plans destroy the Moss without injury to the Grass, viz.:—1st. Harrowing with rough harrows. I have seen it harrowed until it looked as if the Grass was much injured; the result has been, the Moss killed, and the Grass much improved. The best time for doing this is when the land is moist. 2d. I have observed the Moss effectually destroyed by folding upon it either sheep or cattle, but it must be well trodden.—*J. C., Wymondham.*

Maize.—You wish to know the results of attempting to grow Maize;.I will give you mine, which was tried on a limited scale. The year before last I steeped the seeds for 24 hours, and sowed in May, 1 foot apart, in rows 2 feet wide. The plants were hoed, and several times manured with diluted liquid from the tank; and in September they were from 9 to 10 feet high, large in size, full of rich succulent juice, and bearing from two to three fine pods each, some weighing nearly a pound in weight. I exhibited them at the annual meeting of the Monmouth Farmers' Club. As green food for cattle, I have the highest opinion of this Indian corn; which should be cut up with a chaff-cutter. In case of cold summers, perhaps it would be well to bring the seed forward at first in hotbeds, and thus save a fortnight in the young growth.—*T. Dyke, Croft-y-Bulla, near Monmouth.* [With regard to the dibble—which do you use? Newberry's Machine has an efficient contrivance for removing the adhesive soil, of which you complain.]

Artificial Egg-hatching.—Observing at page 126 that you request information on this subject, allow me to state that I have seen eggs hatched in France in the following manner:—Having procured the requisite quantity of eggs, they are placed in a basket or box lined with some soft material, as wool, &c.; the basket or box containing the eggs is then placed in an oven, and turned every day. The temperature of the oven at the commencement ranges from 55° to 60°, which is continued for a day or two; it is then afterwards gradually raised every day till it rises to 110° or 150°, and sometimes higher. As soon as the young chick has broken the shell, it is taken out and gradually brought into the temperature which it afterwards has to endure. In the south of France, I am informed, it is a common practice to hatch eggs by placing them in small baskets lined with wool, &c.; the baskets are then suspended in a stove heated by mineral water: the eggs are turned every day as above. This plan, I am informed, is attended with the greatest success. *J. M'Intosh.*

Conversion of Pasture Land.—In the autumn of 1843 I obtained permission of my landlord to convert into tillage a piece of old pasture (meadow perfectly dry), 28 acres. I accordingly broke up about half the same autumn; the following spring I sowed it to White Oats, when I expected to have had an abundant crop, but to my astonishment it proved a failure; the wireworm destroyed the greater portion of the plants in the spring, and the remainder were nearly destroyed before harvest. In September I sowed the same portion of the field to Tares, and they are also suffering from the wire-worm. I intended to have sown the portion broken to Wheat after Oats, but being afraid of these vermin, I deferred doing so until next autumn, thinking they may be destroyed by feeding the Tares and Turnips that follow. The other portion of the field yet remains in its original state. I would wish to know the opinion of those who have had more experience in these matters than myself, if it would be advisable to pare and burn the remainder before sowing it, or the best mode of destroying this destructive worm.—*A Dorsetshire Young Farmer.* [Certainly pare and burn; we can speak from considerable experience on this as the best mode of breaking up Grass land. With regard to your other inquiry—we are unable to answer legal questions.]

Report in the late Volume of the English Agricultural Society's Journal.—Does it not seem absurd that the engineer of the Royal Agricultural Society of England should go out of his way to state the "faculties" of a machine which is being tried every day, and found to be capable of no such extraordinary capabilities as he so authoritatively proclaims? The writer of these lines hereby challenges Mr. Parkes to prove that Clayton's machine has, in the yard of any tile-maker, made for a month together (24 days) 15,000 per diem (360,000 per month). He thinks it likely that Messrs. Squire may have made as many as 4000 a day of 2-inch pipes 1 foot long, but he ventures to say that this is the outside of what they regularly make. Still, Mr. Clayton's machine is a very excellent one, and needs no such extravagant praises from one who, in his official report, should state those "facts" only which may be corroborated by general practice, let his zeal in the cause of pipes be ever so great, and, in his own opinion, ever so well deserved.—*M. R. A. S.*

Potato Cropping.—At a meeting of the Hadleigh Farmers' Club last week, our subject for discussion was the Root-crop; and in order to be a little prepared for the occasion, I had previously run my eye through the various articles that have appeared in the *Gardeners' Chronicle*, during the last four years, on the treatment of Potatoes. I see that you are intending to give some sort of summary of what has been reported in your pages, and to propose certain experiments, for the purpose of deciding disputed questions. It really seems to be high time that such an inquiry should be systematically and determinately followed up. I had imagined that Mr. Knight's experiments, and some others, had satisfactorily settled certain important points connected with the culture of this most valuable plant; but I now find that former conclusions have lately been flatly contradicted by more recent experiments. I will notice particularly the rejection of an opinion prevalent in many quarters, that pulling off the flowers tends materially to increase the weight of the tubers. Mr. Knight's statement is rather more conjectural than I had fancied it had been; and some recent experiments have tended to show that the crop is diminished by as much per acre as he had calculated it ought to have been increased. May it not have happened that the persons employed to pick off the flowers had carelessly trodden on the stems whilst they were doing this? Any injury of this sort would necessarily check the return of the prepared sap towards the tubers. Among your projected experiments, may I suggest one that shall show us the difference that will result between carefully and carelessly conducting the process? The physiological fact contended for may be true enough, and yet it may happen that the practical inexpediency of the scheme proposed may never render it worth while for a farmer to have recourse to it. A practice may even be useful on a small scale (in cottage-gardens) which would be unadvisable in large fields. But, after all, is the *à priori* argument sufficiently cogent to lead us to suppose that so much of the prepared sap as was destined for the development of the flower and fruit will necessarily take a direction downwards, when the flower shall have been abstracted? May not the stimulus (whatever it be) which inclines this sap to take a course upwards be increased in propelling the sap in that direction, rather than in a reversed direction, by such mutilations? If you will draw up your experiments, I believe I can find a few persons in this neighbourhood who will willingly co-operate in undertaking some of them. Certainly, the subject is of sufficient importance to awaken the attention of all practical men.—*J. S. Henslow, Hitcham.*

Small Farm.—Will any of your well-informed agricultural readers give me a hint or two as to what had better be done under the following circumstances?—I am farming a small freehold, as well as I can, of just about 30 acres, situate rather too near the borders of Dartmoor to be very prime, still not to be despised. I am thankful that I have got it, for I am now an old man, and this is my principal dependence. I have one little strip of between 5 and 6 acres of fertile meadow, and but one, lying along the edge of one of the mountain streams, which ultimately falls into the mouth of the celebrated Plym. Now my difficulty is this; and here I want advice:—This one strip of meadow land, hitherto the sheet-anchor of my little farm, is claimed by our good friend Brunel, for one of his railway lines. I do not complain of this; for, in the exercise of an impartial judgment, I do not see how he can do without it: but can I? The entire residue of my little estate is upland; bears anything else, with a little encouragement, pretty well, but not a perch of it either is, or can be, converted into meadow permanently. Can I get on without a patch of meadow ground? and can you, or any of your readers tell me where to look for a substitute?—*Belliver.* [A system of stall-feeding will enable our correspondent to make use of a very good substitute for his meadow. If an acre or 1½ acre be planted to Lucerne, that of itself, on land suited to it, would replace the loss of summer grazing on several acres of good meadow. A sufficiency may be mown each day for the cattle in the stalls, and it may be cut several times in the season. An acre of Rye and Vetches for the early part of the season; the land to be dug each day as the crop is cut, and half of it planted with Cabbages from a seed-bed; and half more to early Turnips for the later part of the season will, with the above, on good land with good cultivation, replace the 4 or 5 acres of meadow land.]

Blowing Sands.—Your correspondent "Q. Z." inquires for the best method of preventing the encroachment of the drifting sands of the coast on his land. Along the coast of Swansea Bay the loose sand-hills extend for several miles; and I have been informed that on the Margam estate, the property of C. R. M. Talbot, Esq., M.P., the sands are kept in check by plantations of the Arundo arenaria. I believe it was (and perhaps still is), the custom on that estate, for the tenants to assemble

on a particular day and give one day's work to the planting such parts of the sand-hills as most require it, with the Arundo arenaria: I believe it is done by dividing the stools; for I have seen the sand-hills planted with great regularity, to considerable extent, with this Arundo. I cannot tell whether the custom still continues, nor how far it has had the desired effect. Probably "Q. Z." may obtain further information from Griffith Llewellyn, Esq., of Baglan Hall, near Neath, who is the agent for the Margam estate. "T. L.." of Kilmarnock, is incorrect in calling the Arundo arenaria and Elymus arenarius the same plant; for although they are so much alike as to be mistaken one for the other by the casual observer, they are very distinct species; but whichever "Q. Z." can get will answer his purpose.—*Lusor.*

Rotation of Crops.—While there is now great attention paid to draining, subsoiling, and the application of artificial manures to the improvement of agriculture, there has not been that attention paid to the necessity of a judicious rotation of crops as the subject requires. Let the land be supplied with all the chemical elements of vegetation in abundance, if the same crop is sown two or three years in succession, it will be found deficient; also when crops nearly allied succeed each other. For instance in strong land, if one part is sown with Oats and another with Beans, afterwards fallowed and treated exactly alike and sown with Wheat, the crop will be better on the Bean part. Although the cause has not been satisfactorily accounted for on chemical principles, it would appear that the excretions of the roots of one culmiferous plant was injurious to those of another of the same family, or that the one abstracts some peculiar principle from the soil essential to its vigorous growth. In like manner, Red Clover in the four-course system, after a number of years is found to fail, not as has been stated from a deficiency of gypsum (sulphate of lime) in the soil; for the application of that substance, although attended with beneficial results in some cases, has not altogether cured the evil, and in others (an instance of which occurred in this neighbourhood) entirely failed. In land that was sick of Clover, instead of sowing it every time of fallow, I have missed it once in a course, so that the interval between the crop was 7 or 8 years; this plan, as far as I have observed, is attended by a complete restoration of the crop, and is the best to adopt in the present state of our knowledge.—*Ambaston, T. A.*

Knapweed.—As I have cleared two meadows of this pernicious weed, it may not be unacceptable to you to be informed how it was done. All your correspondents agree in the difficulty of eradicating it, and in the necessity of effecting so desirable an object, from their recommending various plans. Sheep and cows will eat the seed-shoot when young and tender, but not when tough and woody; besides, nipping the top off will not destroy the plant, but will rather have the effect of causing it to spread wider at the root—the general tendency inherent in all herbaceous and woody plants when the head is lopped off. I have seen, before one of these meadows came into my occupation, men employed with hoes in the spring to cut up the baneful weed just as the seed-shoot peered above the rest of the Grass, yet to no purpose; the first seed-shoot was cut up, but in its place there sprang up three or four more. Taking advantage of this knowledge, I pursued a different means to extirpate a plant that was neither Grass nor would make hay. After a heavy rain, when the seed-shoot was approaching to ripeness and afforded a firm hold, I employed women to pull up the whole plant by the roots. If the ground is well soaked root and stalk will all come up together without leaving so much as a portion of the crown for reappearance another season. This is the plan I have pursued, and can show the meadows to attest its efficacy.—*J. S., Epsom.*

On Fattening Pigs.—Having tried an experiment on fattening pigs with Rice and Potatoes, I send you some of the results, though, unfortunately, I cannot give you a correct calculation of the expense, which I am aware is the most important part of the information required. Two store pigs were put up when about 5 stone weight each, and were fed with boiled Rice and Potatoes mixed together. At first they moved slowly, and their dung was loose, and of an almost black colour; but they soon improved, and being killed when weighing together 30 stone, their flesh was found to be of a first-rate quality, the lean very white, and the fat remarkably firm. Equal quantities in bulk of Rice and Potatoes, when boiled, were mixed together. I intend to repeat the experiment to ascertain exactly the expense.—*Henry Burgess, the Bury, Luton.*

Maturation of Corn.—It is remarkable that the further north corn can be made to grow, the shorter is the period of time in which it comes to maturity; it has also been observed, that corn grown in the extreme north, when used as seed in a southern country, gives its first produce more speedily, ripening in a much shorter time, although at a second sowing it loses this quality. This fact has been taken advantage of in Sweden, corn being annually brought for seed from Torneo (in the north of the Gulf of Bothnia, and almost within the arctic circle), and planted in lands so much exposed, that the corn could only be sown so late that it had no time to ripen. These formerly, on this account, utterly barren lands, are thus rendered fruitful.—*Revelations of Russia.* The foregoing extract is curious, but as there is nothing new under the sun, I suppose the subject is known to most of your readers. Would it not be curious to try some experiments with garden-seeds or Potatoes got from the north?—*Dodman.*

Without going to law, what remedy have I, where the adjoining farmer refuses to clear out his watercourse, and does me a manifest injury by the water being thrown back upon my land? and also where a row of Apple-trees hang over my headland for many yards from the hedge, so as to prevent me from drawing off my crop without carting across the lands, which are in high ridges? Can I lop them if he refuses to do so?—*Beta.* [You must consult your lawyer: we can no longer give legal advice (see page 94). With regard to the ditch, if your neighbour refuses to clean it out, perhaps, if he will allow you, it may be your interest to do it for him, rather than litigate].

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's house in Hanover-square, on Wednesday last, the 5th of March; present: His Grace the Duke of Richmond, K.G., President, in the chair; Earl Spencer; Viscount Hill; Lord Camoys; Hon. Robert H. Clive, M.P.; T. Alcock, Esq.; D. Barclay, Esq., M.P.; T. R. Barker, Esq.; S. Bennett, Esq.; T. W. Bramston, Esq., M.P.; F. Burke, Esq.; Col. Challoner; C. F. Cherry, Esq.; J. E. Denison, Esq., M.P.; C. G. Du Pré, Esq., M.P.; A. E. Fuller, Esq., M.P.; B. Gibbs, Esq.; H. Gibbs, Esq.; W. Ormsby Gore, Esq., M.P.; W. Fisher Hobbs, Esq.; W. H. Hyett, Esq.; J. Kinder, Esq.; Sir C. Lemon, Bart., M.P.; J. Parkes, Esq., C.E.; Sir R. Price, Bart.; P. Pusey, Esq., M.P.; F. Pym, Esq.; J. A. Ransome, Esq.; Prof. Sewell; W. Shaw, Esq.; J. V. Shelley, Esq.; Prof. Spooner; and T. H. S. Estcourt Sotheron, Esq., M.P.

The following new Members were elected:—
Stant, Joseph, Shrewsbury
Boughton, Sir William Rouse, Bart., Downton Hall, Salop.
Guthrie, Rev. John, Vicarage, Calne, Wilts
Legh, Samuel, Ellesmere, Salop
Minor, John, Bishton, Astley House, Shrewsbury
Lowe, William, The Lea, Cleobury-Mortimer, Salop
Pitt, George, Stocks House, Wellington, Herefordshire
Lee, Charles, Ellington-Masham, Bedale, Yorkshire
Henning, W. Lewis, Frome House, Dorchester, Dorset
Jones, Richard Parry, The Hermitage, Waitchurch, Salop
Rentow, John, Orchard Cottage, Shotley, Newcastle-on-Tyne
Philipps, Courtenay, Swansea, Glamorganshire
Wace, Thomas Henry, College Hill, Shrewsbury
Phillips, John, Winsley Hall, Westbury, Salop
Cureton, George, Westbury, Salop
Atcherley, Thomas Cureton, The Hurst, Westbury, Salop
Woodward, Robert, Wortham, Shrewsbury
Eddowes, John, Grimmer, Shrewsbury
Smith, John Samuel, Stockton, Shiffnall, Salop
Gordon, Alexander, Linley Hall, Broseley, Salop
Pitt, Thomas, Posenall, Broseley, Salop
Instone, Thomas, Calaughton, Wenlock, Salop

The names of fifteen candidates for election at the next Meeting were then read.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, presented to the Council the monthly report on the state of the funds of the society, from which it appeared that on the last day of the month just ended, the amount of invested capital was 7700*l.*, and the current cash-balance in the hands of the bankers 1,296*l.* On the recommendation of the committee, the council ordered that a further investment of capital should be made by the purchase of 500*l.* stock in the public funds.

Collection of Subscriptions.—Mr. Pym, Chairman of the Collection of Subscriptions' Committee, laid before the Council the first Report of the proceedings of that Committee, in which were detailed the progress of their inquiries into the circumstances and amount of the arrears, and their statistical occurrence in those central counties to which at present the Committee were confining their operations. The Committee had agreed that district collectors would be preferable to county ones, and they accordingly proposed that, in order to try the experiment of this systematic collection fairly, the following counties, in the first instance, should be divided into districts:—Bedfordshire, Buckinghamshire, Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, and Northamptonshire: 5 per cent. being the rate at which it was suggested that the collectors to be appointed should be paid on the amount of subscriptions actually collected by them, and remitted to the Society's office. The Council gave leave to the Committee to proceed in their operations agreeably with the arrangements proposed.

Prize Essays.—Mr. Pusey, M.P., Chairman of the Journal Committee, reported to the Council the number of Essays received by the first of March, in competition for the various prizes offered by the Society, for the best County Reports of the Farming of Nottinghamshire, Cornwall, and Kent; and the best Essays, respectively, on reclaiming heath-lands, the advantages of one-horse carts, the formation of catch-meadows, the maintenance of fences, the fattening of cattle, the establishment of tile-yards, the curing of butter, and the successful prosecution of new and important experiments in agriculture: for which Prizes the Society had appropriated the sum of 320*l.*, independently of the 20*l.* offered personally by Lord Kenyon for the best Essay on Gorse, to be sent in by the first of May, and announced at the Shrewsbury Meeting. Mr. Pusey concluded by congratulating the Society on the satisfactory receipt of the Essays of this year, written on every subject proposed in the prize-sheet, and amounting to no less than 85 in number.

Veterinary Science.—Mr. Evelyn Denison, M.P. having called the attention of the Council to the circumstances under which one of the chartered objects of the Society was likely to be frustrated, should no alteration take place in the restrictions affecting the course of education to be followed out by pupils for examination under the powers granted recently by charter to the Veterinary Surgeons, by which their proficiency in a knowledge of cattle pathology and practice was not sufficiently provided for, the Duke of Richmond was requested by the Council to communicate with Her Majesty's Principal Secretary of State for the Home Department on the subject, and represent the importance of a due regard being had, in any arrangements affecting the course of study prescribed for Veterinary Pupils, to their instruction and examination in the treatment of diseases affecting cattle, sheep, and domestic animals.

Prizes for Implements.—Mr. Pusey, at the request of the President, having taken the Chair, the Council proceeded to the special business of deciding finally on the particular Prizes for Implements to be offered for the Shrewsbury Meeting, when the following arrangements were made:—

	£.
I.—Prizes renewed.	
For the Plough best adapted to heavy land	10
For the Plough best adapted to light land	10
For the best Drill for general purposes	15
For the best Turnip-drill on the flat	10
For the best Turnip-drill on the ridge	10
For the best Scarifier	10
For the best Chaff-cutter	10
For the best Tile-machine	20
For the best Harrow	5
For the best Drill-presser depositing manure and seed	10
For the best Churn	5
II.—New Prizes.	
For the best Weighing-machine, for live cattle, and farm produce generally	10
For the best Steaming-apparatus for roots	5
For the best One-way Plough	5
For the best Skim or Paring Plough	5
For the best Subsoil Pulverizer	10
For the best Clod-crusher	10
For the best Horse-seed Dibbler	15
For the best Hand-seed Dibbler	5
For the best Linseed Crusher	10
For the best Moveable Sheep-fold	10
III.—*Residuary amount*, left at the disposal of the Judges	100
	£300

The Council then gave special instructions respecting the terms, conditions, and regulations under which the Prizes should be drawn out and published by advertisement and prize-sheet in the usual manner.

Judges.—On the motion of Mr. Fisher Hobbs, it was resolved, that in future the judges for implements shall be appointed in the same manner as the judges for stock.

Trial of Implements.—Mr. Ransome postponed his motion on the period at which the trial of implements should take place, to the next monthly Council.

Communications were received from Mr. Pannell, Mr. Rigg, and Mr. Fraser.

The Council then adjourned to Wednesday next, the 12th of March.

Reviews.

Strictures on the Reply of the Poor Law Commissioners to the Inquiry of the Right Honourable Lord Viscount Althorp, Chancellor of the Exchequer, &c., on the subject of Labour-Rates, in a Letter addressed to his Lordship. By T. M. Paine. Nicholls and Sons, Borough, Farnham. 1834.

(*Continued from page* 141).

With reference to the influence of the labour-rate on ratepayers and paupers, no remarks of our own could put its expediency in a clearer light than the following extracts from the pamphlet by Mr. Paine, named above, which, through the kindness of its author, we have lately seen, for the first time. One satisfactory instance of the *consequences* of the system is worth many long arguments, though founded on its *obvious tendencies.*

"The parish of Farnham is both populous and extensive, comprising a variety of complicated interests, so that, at first view, it appeared a very difficult matter to reconcile all parties to the measure, or to devise any plan which would not only prove injurious to none, but would also enable every one, in a greater or less degree, to derive a positive advantage. This has been accomplished."

The following are extracts from the Farnham Agreement:—"It is agreed by and between us the undersigned, being three-fourths of the rate-payers of the parish, as follows:—

"1. That a rate of 1*s.* 6*d.* in the pound shall be forthwith assessed by the churchwardens and overseers, on all persons rateable to the relief of the poor in this parish.

"2. That for every 30 acres of pasture, wood, or arable land, and for every 6 acres of Hop-ground, the occupier shall find constant employ for one man before he will be permitted to work out his portion of the above rate; and that every individual who intends to avail himself of this privilege must send to the Guardian on Monday, the 11th of November, a written statement of the quantity of land in his occupation, specifying the number of acres of Hop-ground separately; and also the names (and ages if under 21 or above 65) of the labourers belonging to the parish whom he employs on the said land.—He must afterwards give a weekly return of his labourers by name. And any person making a return of less land than he occupies, or who shall continue to neglect sending to the Guardian a regular weekly return of his labourers, shall forfeit his claim to exemption from this rate.

"3. That landholders who occupy less than 30 acres of arable &c., or 6 acres of Hop-ground, shall be required to find employment for a labourer during a period of the time proportionable to the quantity of land which they hold.

"4. That all persons who are assessed to this rate, and are

not occupiers of land, may participate in the benefit of the rate, by making terms with any landholder who has previously complied with the conditions of this agreement, to work out their rate for them; and they must then notify to the Guardian the name of the landholder by whom their rate is to be worked out, in order that it may be placed to the said landholder's account.

"5. Those individuals shall be exempted from this rate, who having the number of labourers apportioned to them agreeably to the before-mentioned scale, in regular employ during the time for which this rate is made, shall also give further employ to such a number as their proportion of the rate will maintain; and though they may not have occasion for so many labourers as will work out their whole rate, yet they will be exonerated from the payment of so much of it, as the additional labourers they employ may entitle them to. And that for each additional labourer the landholder will be allowed as follows:—for boys from 12 to 15 years of age, 2*s.* 6*d.* per week; from 15 to 18, 5*s.*; from 18 to 21, 7*s.* 6*d.*; for men, 10*s.*; but from the age of 65 to 75, 7*s.* 6*d.*; and if above 75, 5*s.* a week. The quota of labourers to be kept in constant employ will be reckoned by this scale of prices."

Then follows a paragraph, appointing a committee to carry the resolutions into effect, *i.e.* to act as arbitrators in any case of difficulty.

The following notes are explanatory of this agreement:

"1. The average cost for the maintenance of the *surplus or unemployed* labourers during the corresponding months of the three preceding years, for which the labour-rate was to continue in force, was first ascertained, and a rate *not exceeding* that amount was then levied. 2. For the purpose of making an equitable distribution of the labourers upon the land, our data were derived from the actual state of the parish during the said three years, and in like manner as the amount of rate was determined by the average cost of surplus labourers during that period, so the number of men generally at work upon the land was fixed on as the gross amount of labourers to be kept in constant employ amongst the landholders; and it was thus ascertained that one labourer for every 30 acres of arable &c., and one for every 6 acres of Hop-ground employed throughout the parish would be about equal to that number. All above this number were accounted extra labourers, as in fact, they had hitherto been a complete burden to the parish—to find employment for whom had long been a *desideratum*. The whole of the labourers must be employed strictly for agricultural purposes, that there may be no undue interference with the tradesmen. Gardeners, grooms, or assessed servants of any description are not allowed. 3. Small farmers are equally comprehended by this clause, and their families, if really employed as labourers, are returnable. 4. Ratepayers having no land are allowed to transfer the working-out of their labour-rate to any landholder with whom they may agree. The sum usually given by them is half the rate, thereby effecting a saving of the remainder, which they must otherwise have paid in the shape of poor-rate had there been no agreement of this kind. Almost every rate-payer has availed himself of this advantage. 5. After the farmer has the stipulated number of labourers in his constant employ, by taking on an adequate number of extra hands, he is permitted to work out, first, his own rate, and afterwards that of any other ratepayer (not having land) with whom he has agreed. It is here to be particularly observed, that there is no interference between the farmer and his man."

Now, we stated that the merits of any mode of parish taxation, putting out of sight the nature of the employment found for the labourers, must depend, first, upon how it affects the ratepayers, and next, upon its influence on the continuance of pauperism.

With reference to the first of these considerations—

"Let us consider in what manner the Farnham Agreement specially affects the interests, first, of the tithe-owner, and we shall find that so far from being at all injured by the plan, no person in the parish is so materially benefited, since it operates to his advantage in a two-fold degree, first, directly (in common with the gentleman and shopkeeper), by his making terms with some landholder to work out his rate for him, say, for half the amount; and secondly, in an indirect manner, because his tithes cannot fail to become more valuable through the better cultivation of the land.

"As respects the occupiers of Grass land, they would not be required to find work for so many constant labourers, as the occupiers of other descriptions of land, the allotment of labourers being expressly regulated by the mode of cultivation. Neither can the small farmers be in the least injured, their sons being reckoned and returned as labourers when they truly perform their work, and take their place.

"To confirm, by an appeal to facts, my assertion that the whole body of ratepayers in the parish of Farnham have been benefited by the introduction of the labour-rate, I insert an abstract of the number of able men and the sums paid to them per month, when employed in worse than useless parish labour, during a portion of the last three years, distinguishing the time that the labour-rate was in operation:—

Previous to the Labour Rate.

	Average No. of Parish Labourers.	£ s. d.		Average No. of Parish Labourers.	£ s. d.
1831—Oct.	93	157 1 11	1832	44	79 3 6
Nov.	149	324 18 11	..	75	172 12 1
Dec.	179	411 0 1			
1832—Jan.	187	336 19 1			
Feb.	144	256 9 5			
Mar.	100	179 7 10			
April	80	179 7 7			
May	70	134 0 9			
June	59	111 6 11			

During the operation of the Labour Rate.

	Average No. of Parish Labourers.	£ s. d.		Average No. of Parish Labourers.	£ s. d.
1832—Oct.	..	..	1833	29	51 10 8
Nov.	..	..	..	48	107 2 3
Dec.	82	181 4 5	..	47	106 2 0
1833—Jan.	63	108 8 8	1834	61	101 12 0
Feb.	40	65 9 4	..	28	49 13 0
Mar.	21	37 8 0	..	4	6 14 10
April	31	66 13 4			
May	21	31 12 3			
June	18	25 2 3			

And next with reference to pauperism generally, Mr. Paine states that the labour-rate,

"Instead of destroying, tends to widen the distinction between pauperism and independence. I have already explained that the landholder who places himself under its provisions is simply bound to employ a stipulated number of labourers, but there is no restriction as to whom he must employ, and he naturally engages with those whom he considers to be the best workmen, provided that they also are willing to engage with him. Thus there is a complete reciprocity in the freedom of choice on the part both of the master and his men. In the weekly returns, likewise, no distinction is required to be made between his constant and extra labourers. In short, none of these labourers need know anything about a labour-rate, as it does not in the least affect the relation in which they stand to their employer. All these labourers, therefore, must cease to be regarded as paupers; since, when they are hired by the farmer, it is a simple matter of contract between the parties, no reference being made to any other subject.

"Although in our Agreement we have a scale of wages by which to regulate the amount which each landholder is allowed to deduct from the payment of his labour-rate, yet he is not confined to any specific sum in remunerating his labourers; it is, indeed, expected that he will not pay them less, but in many instances, particularly when employed in task-work, they receive much higher wages."

The labour-rate can hardly be what Mr. Dean terms it—a *temporary* expedient. If there be one point in farming clearly determined, it is that land would pay a larger return to the cultivator, under the circumstances in which most districts of this country are placed, if it were more highly and thoroughly cultivated. And the result of a labour-rate, which, in a manner, renders the employment of more labour on the land *compulsory*, will be, by the consequent profitableness of such employment, ultimately to render it *voluntary* on the part of the employers.

The tendencies of the labour-rate thus appear to us to be beneficial in two ways—first, in diminishing pauperism—and second, in promoting good farming.

Miscellaneous.

Mineral Ingredients per Acre of Average Agricultural Crops—

Potash at 4*d.* per lb	Salt, 2*d.* per stone.	Lime, 6*d.* per bushel.	Gypsum, ¾*d.* per lb.	Bones, ½*d.* per lb.	Total.
	lbs. s. d	lbs. d.	bshl. d.	lbs. s. d.	lbs. s. d.	s. d.
Wheat	6,, 2 0	14 ,, 2	1 ,, 6	6,,0 2	34,,1 5	4 3
Barley	14,, 4 8	17 ,, 2½	1 ,, 6	12,,0 4	48,,2 0	7 8½
Oats	42,,14 0	7 ,, 1	1 ,, 6	9,,0 3	8,,0 4	15 2
Rye	9,, 3 0	10 ,, 1½	1 ,, 6	16,,0 5½	13,,0 6½	4 7
Beans	88,,27 8	44 ,, 6½	1½ ,, 9	8,,0 3	70,,2 11	52 1
Peas	28½,, 9 6	36 ,, 5	2 ,,12	32,,0 11	60,,2 6	14 4
Swedes	106 ,,35 4	100 ,,14	1½ ,, 9	70,,1 11	66,,2 9	41 11

If the analysis be correct, and the foregoing hypotheses also based on proper principles, it follows that Wheat can be grown at less expense per acre than any other crop; and it may be equally deduced that it is less exhausting to the land. It also follows that such land as contains the greatest portion of potash and phosphoric acid can be cultivated the most economically.—*On the Possibility of Growing Wheat successively on the same Land, by H. Briggs, Wakefield.*

Chemical Analysis.—Red Rust.—As an instance of the benefit of analysis, I may here briefly mention, that on a recent chemical examination of the soil of several of our fields at Flockton, Mr. Haywood, the analytic chemist whom we employed, discovered in it an appreciable quantity of phosphate of iron, and traced this substance to be the cause of the Red Rust (?) which so frequently attacks the Wheat. To satisfy himself that the presence of this substance was the cause of that disease, he collected a quantity of this rust, which he minutely analysed, and he satisfactorily proved that it was composed of phosphoric acid and iron, a combination which, it appears, is injurious; but to ascertain a mode of correcting or decomposing this injurious compound, he subjected it to the action of quick lime, when he discovered that two fertilising substances were immediately formed, namely, phosphate of lime, which is the chief ingredient of bones, and peroxide of iron, which also is a substance possessing fertilising properties, both from its being an ingredient in many cultivated plants, and from its having the power of fixing ammonia. The known fertility of many of the red soils is owing to the presence of this latter compound, and the efficacy of burnt clay, as a tillage, is, in a great measure, due to the conversion of the protoxide into the peroxide of iron, by the operation of burning. On afterwards examining fields of Wheat which had been lately limed, and others which had not been so treated for many years, in the former we did not discover the rust, but in the latter it was very prevalent.—*On the Possibility of Growing Wheat successively on the same Land; by H. Briggs, Wakefield.*

Notices to Correspondents.

CARROTS—*A Sub*—Perhaps the best mode of sowing it is in ridges, thus:—Drill up the field in ridges one yard wide—this should be done in autumn; towards the end of March harrow them lengthwise, so as somewhat to flatten them; and then sow two rows of Carrots 1 foot apart on the top of each. You will thus have your field sown with a series of couples of rows, each 2 feet from the other, consisting of rows 12 inches apart; the wider interval must be cultivated with the horse-hoe, the narrower with the hand-hoe. Lucerne is best sown by itself.

ESTIMATION OF AMMONIA—*R G*—Mix some powdered quick lime with your gypsum paste—the intensity of the smell will indicate the quantity of sulphate of ammonia which it may have contained. An accurate measurement of the quantity is obtained by distillation of the mixture with quicklime, the ammonia which comes over being received in a vessel containing dilute muriatic acid. This is afterwards evaporated to dryness in a water-bath, and the muriate of ammonia weighed.

INSECTS—*B M*—The little white animals infesting the roots of your Wheat are the young of a Polydesmus, or Julus, I believe. See "Jour. of Royal Agri. Soc.," vol. v. p. 228. *R.*

LIQUID MANURE—*Z P*—A large portion of guano is not immediately soluble in water. Use about a gallon of water to 1 lb. of guano. Gypsum may be applied at the rate of 4 or 5 cwt. per acre; mix this with the quantity—say 2 or 3 cwt.—of guano which you intend to apply on the same extent.

NEWSPAPER CONTROVERSY—*EGH*—You misunderstood us. The allotment system, and the expediency of Mr. Cowper's Bill, are doubtless and justly interesting to many. What we said was, that *personal allusions* in controversy could, at most, interest only two—the disputants; and perhaps only one, viz., the writer.

POULTRY—*C A B* says, "Is it true that feeding on acorns will cause the yolk of duck and hen eggs to become black? We have had many eggs lately with dark yolks, and the country people say it is from the above cause."

POTATOES, ASPARAGUS, &c.—*R*—With regard to the latter, manure them now; salt them where they are beginning to grow, at the rate of 1 lb. to a rod, twice repeated, at intervals of a fortnight, *i. e.*, 2 lbs. in all. Apply liquid manure to your Raspberries. Are you about to grow Potatoes on the same land as last year? If so then, as it proved over-luxuriant last year, we would not manure it at all; if not, then, as on similar land liquid manure proved injurious last year, you had better not use it this, but apply an ordinary dressing of good manure to the land as soon as possible, ploughing it in, and mixing well with the soil before planting. Guano, 4 cwt. per acre, will do as well.——*Kettering*—We are acquainted with varieties which, in our neighbourhood, go under the name of Purples, Red Kidneys, No-Blows; any of which are good-eating Potatoes, and prolific kinds. As pig Potatoes, the Irish White-apple and the Ox-noble are good sorts. Certain foreign varieties, amongst which was the Hamburgh White, have proved in Scotland last year to be very prolific pig Potatoes. The mealiness of Potatoes depends—does it not?—more upon the dryness of the soil and season, and the absence of *over-fertility* (if there be such a thing), rather than upon anything which may be controlled by an application of manure. Yard-manure, for Potatoes, may be applied in a more strawy condition than is advisable for Turnips and other root crops.

SOIL—*T B*—It is impossible, without seeing it, or without any geological guide, to judge from a mere chemical analysis of the texture of a soil: on this, advice as to its cultivation must in great measure be founded. If the soil be situate in the S. E. of England, it cannot be on the mountain limestone. We should judge the soil to be sufficiently fertile. 10 per per cent. of alumina, peroxide of iron, &c.—provided the latter item does not absorb the greater portion of this share—should make the soil rather stiff. We cannot be wrong in advising you to drain it if it be wet, and to attempt the cultivation of roots such as Swede, Mangold Wurzel, Carrot, &c. Force a crop of them by the use of suitable manures, and consume them on the farm, giving the beasts oil-cake at the same time; you will soon get a stock of good manure sufficient to insure good crops for the future.

SOOT AND SALT—*Alpha*—We are often asked what are the proper proportions for a mixture of substances as manure, that have no reciprocal action, and in fact no necessary relation the one with the other. Each of these is good in itself as a manure to land which is deficient in substances that they are able to supply. Mix 2 cwt. of salt with 30 bushels of soot, to be applied as soon as possible, per acre, as a top-dressing for your Wheat. This, like many other answers we give, is a purely arbitrary direction: it cannot be otherwise in our ignorance of your circumstances. See an Article next week on Agricultural Guide plots. In practice, on certain soils, 2 cwt. of salt per acre has been found useful; 30 bushels of soot is a common application; their value depends upon altogether distinct actions.——*Beta*—You may safely employ from 30 to 40 bushels of soot per acre; 30 bushels is a very common application.

WILD-BOAR BREED—*X Y Z*—If you will give us your address, we will forward to you a letter from "T. T., Plymouth."

*** As usual, many communications have been received too late

Markets.

SMITHFIELD, MONDAY, Mar. 3.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 0	Best Downs & Half-breds	4s 0 to 4s 4
Best Short Horns	3 4 3 8	Best Long-wools	3 10 4 0
Second quality Beasts	2 8 3 2	Ewes and second quality	3 2 3 8
Calves	4 0 4 10	Pigs	3 4 4 4

Beasts, 3137; Sheep, 24,610; Calves, 62; Pigs, 333.

We have a large supply of Beasts to day, and trade very heavy; the stormy weather is much against us. Our top quotations are only realised for the very choicest of each description. Several of second rate quality remain unsold. Sheep are not very plentiful to day, yet the supply is equal to the demand. We cannot observe any advance in price; there is a dullness in the trade attributable to the state of the weather; notwithstanding, a good clearance is affected. Veal and Pork trade very dull.

FRIDAY, Mar. 7.

Our supply of fresh Beasts is not very great; still we have more than sufficient for the trade. It is with much difficulty that any thing very choice makes 4s.; and the best Short Horns cannot be quoted at more than 3s. 6d.; middling qualities are very unsaleable. The supply of Sheep is short, there being several Lambs included in our Report of numbers, although this latter article is hardly come into regular trade. Good Mutton is rather dearer—best Downs, 4s. 2d. to 4s. 6d.; best Long-wools, 3s. 10d. to 4s. 2d.; Ewes, &c., 3s. 4d. to 3s. 8d. Veal trade is better; a choice calf makes fully 5s. Pork trade is also brisk, and nice Porkers are worth from 4s. to 4s. 8d.; large Hogs, 3s. 4d. to 3s. 8d.

Beasts, 789; Sheep, 2380; Calves, 109; Pigs, 314.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Mar. 6.

Prime old Meadow Hay	100s to 107s	New Hay	—s to —s	Clover	100s to 115s
		Inferior Hay	84 95	Straw	36 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Mar. 6.

Superior Mead. Hay	105s to 110s	Superior Clover	110s to 115s		
Inferior	86 96	Inferior ,,	98 105	Straw	36s to 42s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Mar. 7.

Fine Old Hay	100s to 105s	Old Clover	120s 126s		
New Hay	80 100	New Clover	105 115	Straw	34s to 38s
		,, Inferior	— —		

HOPS, FRIDAY, Mar. 7.

THE Hop Market remains very firm, and holders expect higher prices; the brewers, up to this time, have bought only for immediate consumption. It has been pretty correctly ascertained that 17-18ths of the Sussex growth have already been sold. The diminished state of the stock on hand begins to show itself so clearly, that the consumers will find themselves in a very awkward position should we have the speculative demand increase, which, during the last few days, has shown itself to some extent.

FATTENDEN & SMITH, Hop-Factors.

POTATOES.—SOUTHWARK WATERSIDE, Mar. 3.

This supplies during the past week have been liberal, especially from York ire; and there have been some arrivals from France. The weather becoming ore genial, lessened the consumption, which caused a considerable depres- n. The best samples sold heavily, and the second and third-rate of every scription were a complete drug.

ork Reds	-	-	50s to 80s	Kent and Essex Kidneys		60s to 65s	
orth	-	-	50	55	Wisbeach Kidneys	-	65	—
ldshire	-	-	45	50	— Blues	-	55	60
arly Devons	-	-	55	60	— Whites	-	50	55
ate Devons	-	-	—	—	— Regents	-	60	—
ornwall	-	-	55	60	Guernsey Blues	-	55	—
ersey Blues	-	-	55	—	— Whites	-	—	—
— Whites	-	-	—	—	York—Prince Regents	-	60	65
ent and Essex Whites	-	-	50	—	French	-	50	55

WOOL.—BRITISH, FRIDAY, Mar. 7.

Since our last Report the Wool Market has been quieter. Manufacturers ave evinced great caution in their purchases, only supplying their imme ate wants. Prices have not varied materially. Our advices from Bristol epresent the Fleece having fully borne out by the above statement; on the whole, ings were flat, but on Thursday a considerable quantity of Wool was sold at ates rather easier to the purchaser.

JAMES PERRIN, Wool Broker.

COVENT GARDEN, MARCH 8.—The weather still continuing very cold and frosty, the market has not been well supplied with the more tender kinds of vegetables; fruit is also scarce. Pine-apples are small in size, and not very abundant. The supply of foreign Grapes is tolerably well kept up; those we noticed were good in quality. Fine specimens of dessert Pears are scarce; the varieties at present in the market are Beurré Rance, Ne Plus Meuris, Glout Morceau, and Easter Beurré. Apples are sufficient for the demand, which is not great. Oranges have not altered in price since our last report; the best bring about 16s. per 100. Lemons are slightly reduced in price. Chesnuts are nearly the same as last week. Strawberries continue to fetch about 3s. an ounce. Among vegetables, Asparagus is a little dearer, the best bundles bringing about 9s. Broccoli is very scarce, large fields of it having been completely destroyed by the late frost. Good samples of the brown variety may be obtained for 3s. 6d. per dozen heads; while the same quantity of white fetches 14s. Seakale is excellent in quality; it has slightly advanced in price. The price of French Beans has not altered since last week: a few only are offered. Cucumbers are somewhat cheaper. Celery is scarce, and inferior in quality. Lettuces and Endive are also scarce. Mushrooms have risen considerably in price since our last report. New Potatoes may be obtained for about 3s. 6d. per lb. Carrots and Turnips are sufficient for the demand. Cut Flowers chiefly consist of Abutilon striatum, Jasminum revolutum, Gardenias, Heaths, Epacrises, Camellias, Azaleas, Pelargoniums, Amaryllises, Chinese Primroses, Acacias and Roses.

FRUITS.

Pine Apple, per lb., 6s to 8s	Oranges, per 100, 4s to 16s
Grapes, Spanish, per lb., 1s to 1s 3d	—bitter, per 100, 8s to 20s
— Portugal, per lb., 1s to 4s	Lemons, per dozen, 1s to 2s
Apples, Dess., per bush., 6s to 12s	— per 100, 6s to 14s
— Kitchen, 4s to 5s 6d	Almonds, per peck, 6s
Pears, Dess., per half-sv., 2s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
— Baking, per half-sv., 2s to 3s 6d	Cob Nuts, per 100 lbs., 150s to 160s
Pomegranates, per doz., 2s to 4s	Nuts, Barcelona, 24s
Filberts, per 100 lbs., 100s to 150s	— Brazil, 16s to 20s
Chesnuts, per peck, 3s to 8s	— Spanish, 2s
Walnuts, shelled, 6s	— Cob, 16s
Oranges, per dozen, 9d to 2s	

VEGETABLES.

Cabbages, per dozen, 6d to 1s 6d	Spinach, per sieve, 4s to 5s
— Red, per doz., 2s to 3s	Scorzonera, per bunch, 2s to 2s 6d
— Sprats, per doz. bunches, 2s to 6s	Salsafy, per bunch, 2s to 2s 6d
Broccoli, per doz., 2s 6d to 3s 6d	Parsnips, per doz., 6d to 1s
— white, per doz., 8s to 14s	Leeks, per doz., 1s 6d to 2s 6d
Brussels Sprouts, half-sv., 2s to 4s	Garlic, per lb., 3d to 10d
French Beans, per 100, 2s 6d to 3s 6d	Onions, per bunch, 3d to 4d
Sorrel, per half-sieve, 3s to 4s	— large, per bushel, 3s to 4s 6d
Jerusalem Artichoke, per half-sv., 1s to 2s	— Spanish, per doz., 2s to 4s
Potatoes, per ton, 80s to 90s	Shallots, per lb., 3d to 10d
— cwt., 3s to 4s 6d	Lettuce, per score, 2d to 1s
— bushel, 1s 6d to 2s 6d	Celery, White, per bunch, 10d to 1s 6d
— Kidney, per bush., 2s to 2s 6d	— Red, per bunch, 9d to 2s
— Autumn, per lb., 3d to 6d	Endive, per score, 1s to 3s 6d
— New, per lb., 3s 6d	Mushrooms, per pottle, 1s 6d to 4s
Turnips, per doz. bch., 3s to 5s	small Salads, per punnet, 2d to 3d
Red Beet, per doz., 1s to 3s	Fennel, per bunch, 2d to 4d
Carrots, per doz. bchs., 6s to 8s	Watercress, p. 12 sm. bun. 6d to 8d
Basil, per bunch, 2d to 3d	Parsley, per doz. bunches, 4s to 6s
Rhubarb, per bundle, 1s to 2s	— Roots, per bundle, 3d
Seakale, per punnet, 1s 3d to 3s	Tarragon, per bunch, 6d
Asparagus, per bundle, 2s to 9s	Mint, per bunch, 6d to 8d
Horse Radish, per bundle, 1s 6d to 5s	Marjoram, per bunch, 2s to 3d
Savory, per bunch, 2d to 3d	Chervil, per punnet, 3s to 4d
Cucumbers, per brace, 4s to 8s	

MARK-LANE, MONDAY, Mar. 3.

THE supply of Wheat by land-carriage samples this morning was again small; nevertheless, no improvement could be realised even for the best descriptions, whilst Red and inferior qualities were difficult to dispose of at our quotations. Foreign continues to be taken in retail quantities at late prices. Barley meets a slow heavy sale on the terms of last week. Mazagan Beans sell freely: other kinds, and Peas are unaltered. The arrivals of Oats exceed the demand, and must be written 6d. to 1s. lower than this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	40	49	Red	43	47
— Norfolk, Lincolnshire, and Yorkshire	—	—	—	White	—	—
Barley, Malting and distilling 32s to 33s	Chevalier	33	35	Grind.	24	27
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19	22
— Northumberland and Scotch	Feed	20	22	Potato	21	24
— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
— Hertford and Essex		58	65			
Rye		30	32			
Beans, Mazagan, old and new	29 to 33	Tick	29	35	Harrow	30	36
— Pigeon, Heligoland	37 to 40	Winds	—	—	Longpod	—	—
Peas, White	33 to 35	Maple	31	33	Grey	30	32

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	7632 Sks.	— Bls.	8755	5138	7127	4155	—	1254 554
Irish	— „	— „	—	—	82	2256	—	— —
Foreign	— „	— „	—	—	—	870	—	207 —

FRIDAY, Mar. 7.

The arrivals of Wheat and Flour during the week have been good, but trade has remained in the same inanimate state we have so constantly of late had occasion to report; we observe no alteration in the value either of English or Foreign Wheat; in Baltic we believe a small cargo of good 61 lbs. Dantzic has realised 31s. f.o.b., and Rostock 62 at 63 lbs. 30s., including freight. The last accounts from the lower ports represent a trifling decline to have taken place there. Barley, Beans, and Peas remain unaltered. The Oat trade continues very heavy as Monday's prices.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	7310	4260	6880	7680 Sks
Irish	—	—	1430	—
Foreign	—	—	—	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan. 25 per Quarter.	45s 7d	34s 2d.	21s 3d	32s 11d	35s 4d	36s 1d
Feb. 1	45 5	33 10	21 6	31 3	35 8	35 4
— 8	45 5	33 6	21 6	30 1	35 1	35 7
— 15	45 4	32 3	21 7	29 6	35 0	35 0
— 22	45 2	32 4	21 7	30 2	35 0	35 3
Mar 1	45 0	32 3	21 7	32 6	34 9	35 7
7 weeks' Aggreg. Aver.	45 4	33 0	21 6	31 1	35 2	35 6
Duties on Foreign Grain	20 0	5 0	6 0	10 6	7 6	7 6

SEEDS, Mar. 7.

Canary - - per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	7l to 9l		
Carraway - - per cwt	44	50	Mustard, White - p. bush.	10s	14
Clover, Red, English -	40	65	— Superfine „ -	12	16
— Foreign -	50	60	— Brown „ -	12	16
— White, English -	50	80	Rapeseed, English, per last	28l	27l
— — Foreign -	54	80	Rape Cakes - per ton	—	—
Coriander - - - -	12	18	Saintoin - - - -	—	—
Flaxseed - per last	36	38	Tares, Eng. winter p. bush.	7	8
Linseed - - per qr	—	—	— Foreign - - -	5	7
— Baltic - - -	—	—	Trefoil - - per cwt	—	—
— Cakes, Eng. per 1000	11l 10	12l	Turnip (the variable & uncertain)		

Sale by Auction

TO GENTLEMEN, FLORISTS, AND OTHERS.

TO BE SOLD BY AUCTION, by Mr. J. ELLIOTT, in Mr. FINCHE'S Grand Stand, Lower Richmond-road, Putney, on WEDNESDAY, the 12th of MARCH, 1845, at 11 o'clock, a choice Collection of CARNATIONS and PICOTEES, the surplus stock of an Amateur; also fine Standard, Half-standard, Pillar, and Dwarf ROSES, by name; all the new sorts of GOOSEBERRIES, Flowering and other SHRUBS. To be viewed the morning of sale; Catalogues three days previous, of Mr. GAINS, Covent Garden; Mr. CLARK, Seedsman, Bishopsgate-street; and of the Auctioneer, Putney, Surrey.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

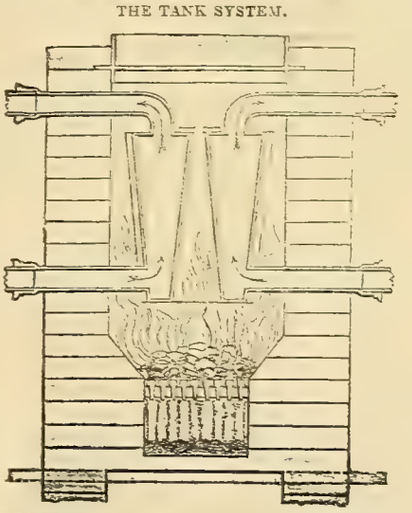
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery: they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY, having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent works on the culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places: Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—139, Fleet-street, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD FORSTER, Secretary.

GUANO (GENUINE PERUVIAN & BOLIVIAN, ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTESWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.

47, Lime-street. Mar. 8.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

GUANO.—For SALE, in bags of 1 cwt. each, PERUVIAN and AFRICAN just landed, with a succession of cargoes to arrive.—Successive years' experience has unquestionably proved that genuine Guano is the simplest, cheapest, and best manure within the reach of the agriculturist. The only reasonable anxiety which now remains is to procure the Guano unadulterated, and to obtain such practical directions for using the manure as shall fully develop its productive powers. To secure to buyers these indispensable requisites, with each purchase will be given a warranted chemical analysis of quality, and also a copy of the recently published pamphlet, "PRACTICAL INSTRUCTIONS for USING GUANO as a MANURE, ILLUSTRATED BY PRACTICAL RESULTS." Large parcels will be delivered direct from the ship or waterside premises, smaller quantities may be had at the warehouses, 24 and 25, Billiter-street, or delivered within any reasonable distance at a trifling additional cost.—Apply to JAMES CLARK, 24, Billiter-street.

ICHABOE GUANO—Warranted Genuine, and selected from the best pits on the Island, can now be had direct from the Bonded Warehouses, at the following ports:—London, Liverpool, Hull, Southampton, Great Yarmouth, Glasgow, Leith, Dundee, and Aberdeen, on application to the Subscribers or their Agents at the above places.—JOHN BOYD & CO., Importers, London-bridge, Borough, London.

GUANO, of the best quality, in bags.—PERUVIAN 11l. to 12l. per ton; ICHABOE 7l. 10s. to 8l. per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Mar. 8.

POTTER'S GUANO.

REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.

Sold by all dealers in Manures.

POTTER'S LIQUID GUANO,

FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1s. 9d. per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OF LIME, 6s. 6d. per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25s. in quantity.

Manufactory, 28, Upper Fore-street, Lambeth.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9l. per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1s. 9d. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 11. per quarter, including sacks; warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23s. per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE Attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap-boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

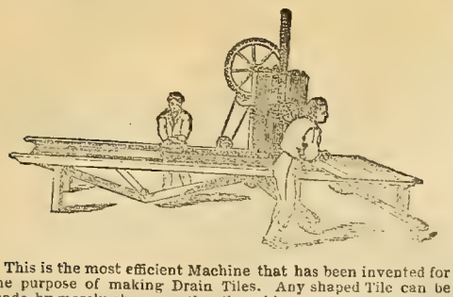
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c. formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above article in iron which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. Heated by Hot Water.



HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¾ " "	8,000	2½ " "	3,200

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the Machine includes free use of it.

TO COLONISTS, EMIGRANTS, &c.—Mrs MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles, made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

DRAINING OF LAND.—THE WORKMAN'S A LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30s.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1*l.* 15*s.* each. Commission allowed to agents.

These Dibbles may be obtained of Messrs. COTTAM and HALLEN, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter, to his address, inclosing a Post-office order for the amount.

RICHARD SMITH, Upper Hall, near Droitwich, Worcestershire.

STOOPING of the SHOULDERS and CONTRACTION of the CHEST are entirely prevented, and gently and effectually removed in Youth, and Ladies and Gentlemen, by the occasional use of the PATENT ST. JAMES'S CHEST EXPANDER, which is light, simple, easily employed outwardly or invisibly, without bands beneath the arms, uncomfortable constraint, or impediment to exercise. Sent per post, by Mr. A. BINYON, 40, Tavistock-street, Strand, London, or full particulars on receiving a postage stamp.

LINGHAM, BROTHERS, BIRMINGHAM.—MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.

Sole Agents in London:—George and J. Dean, Horticultural Implement Warehouse, 46, King William-street, London-bridge.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—*s.* An improved Clothes Brush, that cleans in a third part of he usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130*B*, Oxford-street, one door from Hoiles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

VAUXHALL COMPOSITE CANDLES, 8½*d.* per lb. PRICE'S PATENT CANDLES, 10½*d.* per lb.

These are the London cash prices, but the Country ones vary with the distance from town.

Both sorts burn exactly as well as the finest wax, and are cheaper, allowing for the light, than Tallow Moulds.

Sold wholesale to the trade, by EDWARD PRICE & Co., Belmont, Vauxhall; PALMER & Co., Sutton-street, Clerkenwell; and WM. MARCHANT, 253, Regent-circus, Oxford-street.

Until these Candles become generally sold throughout the country, EDWARD PRICE & Co. will supply any private families unable to obtain them in their own neighbourhood, with a quantity not less than 5*l.* worth, direct from the factory. On a line being addressed to Belmont, Vauxhall, inclosing a Post-office Order for 5*l.*, (payable to Edward Price & Co., not to Edward Price, or Mr. Price), they will forward a box of the Vauxhall Composite, or of the others, or a mixed box, as may be directed, to that exact amount.

DR. YELLOLY'S FORK.



C. WILSON, IRONMONGER, High-street, WITHAM, Essex, having received numerous applications from different parts of the kingdom for DR. YELLOLY'S DIGGING FORK, takes this mode of informing Agriculturists, &c., that he makes the improved Forks agreeably to the direction of H. DIXON, Esq., and will be happy to forward them to any part of the kingdom, on receipt of a post-office order. If two or more be required, carriage free to London, or any market town in Essex. Price 5*s.* each.

HEAL AND SON'S LIST OF BEDDING.—Containing a full description of weights, sizes, and prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London exclusively for the manufacture and sale of Bedding (no Bedsteads or other furniture being kept). HEAL AND SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court Road.

HORTICULTURAL IMPROVEMENT.—As Spring approaches, the larvæ of destructive insects are propagated in infinite multitudes, and often destroy the leaf, blossom, and young shoots of Peach and Nectarine trees.—I. READ begs to inform Ladies, Amateur and Practical Gardeners, that he has made improvements in the action of his ENGINES, MACHINES, and SYRINGES, for subduing these destructive insects, which make such deadly havoc on all choice trees and plants at this season of the year (the month of March) even before they are in the least suspected. These Machines, for power and portability, surpass anything of the kind ever offered to the public, inasmuch as the valvular action cannot get out of repair, which the patentee, from 31 years' experience in the science of horticulture, and 24 years' practice in manufacturing and improving machines, can safely warrant. The above may be seen and proved at 35, Regent-circus, Piccadilly. N.B.—None are genuine except stamped Read's Patent.

MECHI'S ELEGANCIES for PRESENTS and USE, manufactured on the Premises, 4, Leadenhall-street, near the India House, London, wholesale and retail, and for export:—Ladies' and gentlemen's dressing-cases, in leather, wood, and papier maché, from 100 guineas each down to 25*s.* Writing desks, 25 guineas down to 12*s.* Work boxes, 20 guineas to 10*s.* Ladies' cabinet and jewel cases assorted. Tea caddies, of the most elegant description in the world, 12*l.* to 6*l.* each, down to 7*s.* 6*d.* Ladies' papier maché work boxes, 10*l.* each down to 3*l.* Netting boxes, 30*s.* to 23*s.* Card boxes, 5*l.* 5*s.* to 11*s.* Set of tea trays, 20 guineas to 5*l.* Bottle cases, 30*s.* each. Companions, 2*l.* 10*s.* to 10*s.* 6*d.* each. Pole screens, 9*l.* the pair. Hand screens, 50*s.* to 20*s.* the pair. Card racks, 40*s.* to 25*s.* per pair. Note and cake baskets, 50*s.* to 20*s.* each. Bagatelle tables, 10*l.* 10*s.* to 3*l.* 10*s.* each. Leather writing cases, containing a complete dressing apparatus, 15*l.* 10*s.* to 5*l.* 10*s.* Pearl and fancy card cases, 3*l.* 10*s.* to 10*s.* each. Ivory hair brushes, 4*l.* to 2*l.* 10*s.* per pair. Splendid cases of seven day razors, 10*l.* to 2*l.* 10*s.* the set. Ivory handle and other highly-finished strops, from 25*s.* to 3*s.* each. Wharncliffe penknives, sporting knives, and fancy scissors, 3*l.* to 5*s.* each. Splendid case of agate, pearl, and ivory dessert knives and table knives, 42*l.* to 4*l.* 4*s.* the case. A rich variety of plate, bronze, gilt, and papier maché and table inkstands, from 6*l.* to 7*s.* 6*d.* each. The quality generally of MECHI'S manufactures, the elegance of their display, and the rare combination of excellence and economy, with a very extensive choice of stock, will amply repay the trouble of visiting his depôt, 4, Leadenhall-street.

SILVER-PLATED DISH-COVERS.—A. B. SAVORY and SONS, MANUFACTURING SILVERSMITHS, 14, Cornhill, London, opposite the Bank of England, submit for choice in their plate-rooms many patterns of SILVER PLATED DISH COVERS, of Sheffield Manufacture, from 15 to 20 Guineas the set, viz.:—

Double Dome Pattern.	Size.	£	s.	d.	The Melon Pattern.	Size.	£	s.	d.
Plated Dish Cover,	20 in.	5	13	6	1 Pltd. Dish Cover,	20 in.	5	17	0
" Dish Cover,	18 in.	4	7	6	1 " Dish Cover,	16 in.	4	14	6
" Dish Cover,	16 in.	5	12	6	2 " Dish Covers,	14 in.	6	6	0
Per set . .		£15	13	6	Per set . .		£16	17	6

The above have silver handles and mountings, and silver shields for engraving the crest or coat of arms. A Price Current, illustrated by drawings, and containing every information relative to the purchase of silver or Sheffield plate, may be had on application, or will be sent into the country, free of postage, in answer to a paid letter.

BLOOD TO THE HEAD—IMPURITY OF BLOOD—DERANGEMENT OF HEALTH.—AN EXTRAORDINARY CURE BY HOLLOWAY'S PILLS!—Mr. Willis, a retired publican, living in Penton-street, Pentonville, suffered continually from a dangerous determination of blood to the head, with benumbed feelings in his limbs, health much impaired, the blood in a very bad state, often heavy and drowsy, with swimmings in the head, the stomach generally out of order, with little appetite. Every means had failed to restore him to health; but at last he, like thousands of others, has been completely invigorated and restored to the highest state of health by HOLLOWAY'S PILLS.—Sold (also Holloway's Ointment) at PROFESSOR HOLLOWAY'S Establishment, 244, Strand (where advice may be had gratis), and by all Medicine Venders.

PARR'S LIFE PILLS—The extraordinary success of this Medicine is the wonder of the age; it has been tried by hundreds of thousands as an aperient, and has in every instance done good; it has never in the slightest degree impaired the most delicate constitution. Tens of thousands have testified that perseverance in the use of PARR'S LIFE PILLS will completely cure any disease, and are living witnesses of the benefit received from this invaluable medicine. Sheets of testimonials and the "Life and Times of Old Parr," may be had gratis of every respectable Medicine Vendor throughout the Kingdom.

Beware of spurious imitations of the above medicine. None are genuine unless the words "PARR'S LIFE PILLS" are in WHITE LETTERS ON A RED GROUND, engraved on the Government Stamp, pasted round each box; also the fac-simile of the signature of the Proprietors, "T. ROBERTS and Co.," London, on the directions.

Sold in boxes at 1*s.* 1½*d.*, 2*s.* 9*d.*, and family packets at 11*s.*, by Edwards, 67, St. Paul's; Barclay and Sons, Farringdon-street; Sutton and Co., Bow Church-yard, London: Mottershead and Co., Manchester; and J. and R. Raimes and Co., Edinburgh; and by all respectable Druggists and Patent Medicine Retailers throughout the Kingdom.—Directions are given with each box.

ELECTRO-PLATING AND GILDING.—OLD PLATED GOODS RESTORED and made equal to new by Messrs. ELKINGTON and Co.'s Patent Process. This process being carried on in London *only* by Messrs. ELKINGTON & Co., it is particularly requested that all goods may be forwarded direct to their Establishments, 22, Regent-street (corner of Jermyn-street); or 45, Moorgate-street, City. New Goods plated upon White Metal in great variety. Books of Prices and Drawings sent to all parts of the kingdom and abroad free.

MESSRS. J. AND H. BROWN'S PRICED CATALOGUE of FLOWER-SEEDS, GREENHOUSE PLANTS, &c., can be had by post, on application. The New Dwarf Scarlet GERANIUM, "GENERAL TOM THUMB," 2*s.* 6*d.* each, or 24*s.* per dozen; Large Blue ANAGALLIS, 12*s.* per dozen; BUDDLEA LINDLEYANA (new blue), 2*s.* 6*d.* each, or 24*s.* per doz.; ACHIMENES PICTA, GESNERA TUBIFLORA (new white), and INGA PULCHERRIMA, 2*s.* 6*d.* each. Wanted, a few thousand Spanish Chesnut, from 3 to 4 feet. Apply, per post, immediately, stating the lowest price, delivered in London. Albion Nursery, Stoke Newington.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches . . .	11*s.* 0*d.*	20 inches . . .	22*s.* 6*d.*
15 inches . . .	12 6	22 inches . . .	25 0
16 inches . . .	16 0	24 inches . . .	32 0
18 inches . . .	19 0		

Slate Works, Isleworth, Middlesex.

FUCHSIAS AND VERBENA.

J. HALLY, NURSERYMAN AND FLORIST, Blackheath, begs to offer the following varieties, which will be ready to send out by the 25th of March:—

FUCHSIAS.—A. HIGHLAND CHIEF.—This Seedling gained the 1st Prize at the Royal Botanic Society's July Show, 1844, (see *Gardeners' Chronicle*, July 6). It has been considered by good judges to be the best Fuchsia (as to the properties of a Florists' Flower) exhibited last year. It has a smooth waxy coral coloured tube, and sepals very thick and fleshy; large purple corolla. Length of tube, corolla, and stamens beyond corolla equal—7*s.* 6*d.* "J. Y. The colour, form, and substance of your Seedling makes a handsome variety."—*Gardeners' Chronicle*, Jan. 29, 1844.

G. THE ADMIRAL.—Tube crimson, very large and long; sepals crimson, with darker tips, expanding well; corolla large and deep purple; flowers near 5 inches in length. A most abundant bloomer, and fine habit—7*s.* 6*d.* "J. Y.—The Seedling marked G. is the best of your flowers; its great length must render it very showy on the plant."—*Gardeners' Chronicle*, July 20.

L. ROSABELL.—Tube, sepals, and corolla bright purple rose; flower of good shape, and remarkable substance: this is quite distinct in colour from anything yet out, and will be necessary in all collections—7*s.* 6*d.*

N. SNOW-BALL.—Tube white, striped with rose, very thick; sepals pure white, very large and globular, much larger than any light Fuchsia yet out—7*s.* 6*d.* "J. L. 3 blooms of a large stout and showy Fuchsia; this is one of the largest of the light varieties we have seen. The tube and sepals are rather coarse, and contain a little too much colour, as the corolla is light, though of a beautiful crimson."—*Gardeners' Chronicle*, November 2, 1844.

N.B. The letters refer to the marks last year, and are inserted for the guidance of those who saw them in bloom, as they are selected from a house full of Seedlings.

UNIQUE.—A large light Flower, with violet crimson corolla; size of flower and habit of plant like Eppsii, but tube and sepals nearly white; was exhibited at the Horticultural Society's Rooms, in Sept. last. A fine showy variety—5*s.*

The whole Collection may be had for 30*s.*

VERBENA.—TRICOLOR ALBA.—This is a large Flower, of thick substance, and fine trusser; tube blush; corolla white, with pink stamens, and large yellow eye—3*s.* 6*d.* "J. Y. Your Seedling is a very good variety, opening of a delicate blush, tinge changing to white, but bearing a little colour at the tube."—*Gardeners' Chronicle*, July 20, 1844.

GENERAL TOM THUMB SCARLET PELARGONIUM.

PHILIP CONWAY has still for sale PLANTS of the above, which has been described in former Advertisements of this paper, and in No. 9 of the *Gardeners' and Land Stewards' Journal*, 3*s.* 6*d.* each, or 18*s.* the half dozen. For both pot culture and bedding out this plant is unequalled. He can also supply the following splendid scarlets, viz., Mrs. Mayler, 2*s.* 6*d.*; Frost's Superb, 2*s.* 6*d.*; Shrubland, 1*s.* to 2*1s.*; Compactum, 1*s.* 6*d.* to 3*s.* 6*d.*; King, 1*s.* 6*d.*; Queen, 1*s.* 6*d.*; Cooperii, 1*s.* 6*d.*; Huntsman, 1*s.* 6*d.*; Frogmore, 1*s.* 6*d.*

CALCEOLARIA AURANTIA MULTIFLORA.

P. C. also offers the above desirable shrubby variety, raised between C. viscocissima and a dark hybrid variety. It blooms with the greatest profusion throughout the season, throwing its long spikes of beautiful orange-coloured flowers well up above its ample foliage, and is considered by Mr. Ayres and others who have seen it growing to be unquestionably the best variety yet raised for grouping. It will also make an excellent market plant, being so very attractive, and blooming so freely in a small pot. Plants, 3*s.* 6*d.* each, 15*s.* the half dozen, 24*s.* the dozen; also C. viscocissima, the next best for grouping (very scarce), 1*s.* 6*d.* each, or 15*s.* the dozen. Veronica speciosa, 3*s.* 6*d.*, (strong plants). Pentas carnea, 2*s.* 6*d.* Thunbergia chrysops, 2*s.* 6*d.* Achimenes multiflora (scarce), 5*s.* A. hirsuta, 2*s.* A. picta, 2*s.* 6*d.* A. rosea coccinea, 3*s.* 6*d.* Conway's Lancii Pelargonium for forcing, now in full bloom, 1*s.* 6*d.* Conway's Giant Cactus, 3*s.* 6*d.* to 10*s.* 6*d.*

TO THE ADMIRERS OF ROSES.

T. AND C. LOCKHART, FLORISTS AND SEEDSMEN, 156, Cheapside, London, offer at the following prices:—

Standard Roses	per dozen.	24*s.*
Climbing do., quick-growing and profuse flowering	"	18*s.*
Dwarf Summer do.	"	6*s.*
Perpetual or autumnal do.	"	18*s.*
China, in varieties, do.	"	24*s.*

A List of Seeds and Plants sent post-free on application.

STUART'S GROVE NURSERY, FULHAM-ROAD, CHELSEA.

C. M. WESTMACOTT respectfully begs to advertise the following Seeds, which he warrants to have been carefully saved from the best sorts grown:—

Aster, mixed from 20 German varieties	Nemophyla discoidalis, black, white border
Auricula, mixed, extra	Ranunculus, mixed from Scotch vars.
Balsam mixed	Stocks, mixed from 24 German varieties
Calceolaria, mixed	Stocks, 24 German vars.
Cineraria, mixed	Do. do. small packets.
Larkspur, 12 German vars.	
Polyanthus, mixed	

With many other kinds, of which a List may be had (post-paid) on application. All orders will be carefully packed, and sent to any part of the kingdom by Post or otherwise.

EXHIBITIONS AT THE GARDEN
OF THE
HORTICULTURAL SOCIETY OF LONDON,
FOR THE YEAR 1845.

THE DAYS OF EXHIBITION will be the three following SATURDAYS, viz.: [MAY 24th, JUNE 21st, and JULY 12.

EXHIBITORS.—All Persons, whether Fellows of the Society or not, will be at liberty to send subjects for exhibition.

FLOWER-STANDS.—Exhibitors of Cut Flowers must SUPPLY THEIR OWN BOXES OR STANDS. No box or stand should exceed eight inches in height at the back, or 18 inches in depth from front to back. The lids of all boxes MUST either be loose or made to unhinge.

MEDALS AND REWARDS.—The Society distributes the following Medals and Rewards,—namely,

C. The Certificate . . . . value—£0 10 0	SG. Large Silver Gilt Do. . . value—£4 0 0
SB. Silver Banksian Medal 1 0 0	GB. Gold Banksian Do. 7 0 0
SK. Silver Knightian Do. 1 5 0	GK. Gold Knightian Do. 10 0 0
LS. Large Silver Do. 1 15 0	LG. Large Gold Do. 20 0 0

Exhibitors to whom any of these shall be awarded can exchange them one for another, or may receive their value in money, or in plate. *If within one month after the third Exhibition of the year* no intimation shall have been received from an Exhibitor of the manner in which he desires his Medals to be disposed of, all the Medals due to him may be prepared and *transmitted to him through the usual public conveyances, without further notice.* In case an Exhibitor shall receive a First Prize in any one letter, he shall not be entitled to receive any other Medal in the same letter, except in *K K*, *M M*, and *N N*.

IT IS, HOWEVER, TO BE PARTICULARLY OBSERVED that if any Exhibitor shall obtain the award of a Medal, and it shall be afterwards ascertained that he has gained it by exhibiting plants not *bona fide* his own property, or that of his master, such award shall be cancelled, in favour of the Exhibitor next below him, whose Medal shall in like manner be transferred to he person immediately following him in the award, and so on.

SUBJECTS OF EXHIBITION.—These will be divided into Classes, as explained further on. No articles not of Horticultural produce will be allowed to be placed upon the tables. Exhibitors will do well to make themselves acquainted with the arrangements described in the following List, as they will in ALL CASES BE REQUIRED TO SIGN A PRINTED FORM OF DECLARATION TO BE FURNISHED TO THEM IN THE GARDEN, stating under what letter their plants are to be shown; and they are particularly requested to TAKE NOTICE, that if errors in the awards of the Judges should occur, in consequence of mistakes on the part of Exhibitors in filling up such Declarations, the Society cannot undertake to rectify the errors afterwards.

Names fairly written are to be attached by Exhibitors to all Florists' Flowers; and the Judges are restrained from awarding any Medal to such Exhibitions, whatever their merit may be, if this regulation is not complied with. By Florists' Flowers are meant not only flowers usually so named, but also Fuchsias, Pelargoniums, Roses, and Calceolarias. It is also hoped that all other subjects of Exhibition will be neatly and legibly labelled with their names.

(CORRECTED LIST OF MEDALS, &c.)

CLASS I.—FLOWERS; for which Nurserymen and Private Growers exhibit independently of each other.

A. Pelargoniums; in collections of 12 new and first-rate varieties, cultivated with superior skill, in pots of 24 to a cast. GB—SG—LS.

B. Pelargoniums; in collections of 12 varieties, in pots of 24 to a cast. GB—SG—LS.

C. Pelargoniums; in collections of six varieties, in pots of 8 to a cast. LS—SK—SB.

D. Roses, in pots; Amateurs to show in collections of 12, Nurserymen in collections of 25 distinct vars. GB—SG—LS.
N.B. It is the wish of the Society, in a future season, to require Roses to be shown exclusively in pots, and not to allow cut specimens to be exhibited at all.

E. Roses, in pots; single specimens displaying superior cultivation. SK—SB—C.

F. Moss Roses, in loose bunches, each consisting of three trusses, as they are gathered, so as to exhibit, as far as possible, the habit of the variety; in 12 varieties. SK—SB—C.

G. Other Roses, exhibited as in the last letter, and in 50 varieties. LS—SK—SB.
N.B. No one who exhibits in this letter can also compete in the following.

H. Other Roses, exhibited as in the letter F, and in 25 varieties. SK—SB—C.
N.B. Higher Medals than those here offered for Roses cannot be given by the Judges. And if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I. Cape Heaths; in collections of 20 entirely distinct varieties. GK—SG—LS.
N.B. It is expected that the same plant shall not be exhibited on more than one occasion.

K. Cape Heaths; in collections of 12 entirely distinct varieties. GB—SG—LS.

L. Cape Heaths; in collections of 6 entirely distinct varieties. SG—LS—SK.
N.B. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M. Cape Heaths; single specimens displaying very superior cultivation. LS—SK—SB.

N. Calceolarias, in sixes; in pots of 24 to the cast. LS—SK—SB.

O. Carnations, in pans of 24 distinct varieties. LS—SK—SB.

P. Picotees, in pans of 24 distinct varieties. LS—SK—SB.

Q. Pinks, in pans of 24 distinct varieties. SK—SB.

R. Ranunculuses, excluding Turbans; in stands of 12 distinct varieties for Private Growers, and 24 for Nurserymen. LS—SK—SB.

CLASS II.—FLOWERS; for which all persons are admitted to equal competition.

S. Stove or Greenhouse Plants; in collections of 40 plants. LG—GK—GB.
N.B. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums to be excluded from *S*, *T*, *V*, and *W*.

T. Stove or Greenhouse Plants; in collections of 20 plants. GK—GB—SG.
N.B. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*.

V. Stove or Greenhouse Plants; in collections of 12 plants. GB—SG—LS.

W. Stove or Greenhouse Plants; in collections of 6 distinct species. SG—LS—SK.

X. Greenhouse Azaleas; in 12 distinct varieties. GB—SG—LS.

Y. Greenhouse Azaleas; in 6 distinct varieties. SG—LS—SK.
N.B. No one can show in both classes of Azaleas.

Z. Stove or Greenhouse Climbers; in collections of 6 species. SG—SK—SB.

AA. Exotic Orchidaceæ; in collections of not fewer than 20 species. LG—GK—GB.
N.B. Exhibitors cannot show in more than one of the classes *AA*, *BB*, and *CC*.

BB. Exotic Orchidaceæ; in collections of 12 species. GK—GB—SG.

CC. Exotic Orchidaceæ; in collections of 6 species. GB—SG—LS.

DD. Scarlet Pelargoniums; in 6 distinct vars. LS—SK—SB.

EE. Pelargoniums; in 6 DISTINCT SPECIES. SG—LS—SK.
N.B. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden crossbreds.

FF. Achimenes; in collections of 6 species, grown in pans not less than a foot in diameter. LS—SK—SB.

GG. Distinct varieties of Tall Cacti in flower. GB—SG—LS.
N.B. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH. Fuchsias; in collections of 12 VERY DISTINCT varieties, of which one-half shall have a light calyx. LS—SK—SB.

II. Cinerarias; in pots, in collections of 12 distinct varieties. SK—SB—C.

KK. New or extremely rare ornamental Plants. SG—LS—SK.
NB. These Medals will be awarded by the Society's Officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare plants can be exhibited under this letter. *Nothing will be regarded as new which has been exhibited in the Garden in a previous season.*

LL. Single specimens of very superior cultivation. SG—LS—SK.

MM. Miscellaneous subjects. SK—SB—C.
N.B. Exhibitors under *MM* will not be thereby *entitled* to a pass-ticket. Cockscombs, Heartsease, Hydrangeas, and bouquets are altogether excluded from exhibition.

NN. Seedling Florists' Flowers. SK—SB—C.
N.B. Every seedling must be shown singly, and marked with the name it is to bear. The same seedling cannot gain a prize more than once in the season. Pelargoniums are to be shown in pots, and not in a cut state. No person will be allowed to exhibit more than 6 seedlings at each meeting. Exhibitors under this head will not be thereby *entitled* to a pass-ticket. For seedling Pelargoniums exhibited the first year no higher prize shall be given than a Certificate, and this is to be awarded to flowers of decided merit. Seedling Pelargoniums of the second year must be shown in pots not smaller than 32s, and each exhibitor may produce six of them, but not a larger number.
IN ADDITION to any Medals assigned to the classes *I*, *S*, *T*, and *AA*, the SK, SB, and C are offered for the collections in those classes which shall be best named by the Exhibitor.
N.B. The Society's Officers, who will make this award, will be guided in their judgment by a consideration not only of the correctness of the names, but of the accuracy of the spelling, and the neatness of the writing.

CLASS III.—FRUIT; for which Market Gardeners, Fruiterers, or persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY RIPE and WELL-COLOURED and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary it will be disqualified.

OO. Miscellaneous Collections of Fruit, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS.

N.B.—Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter.

PP. Grapes. SG—LS—SK—SB.

QQ. Pine Apples. SG—LS—SK—SB.

RR. Peaches or Nectarines, in dishes of six specimens. SK—SB.

SS. Other kinds of Fruit. SK—SB—C.

JUDGES.—The Judges have the power of *increasing* or *diminishing* the number and value of the Silver Medals offered by the Society for particular objects, and also of *conferring* Silver Medals or Certificates in cases not contemplated in these regulations, if they think it necessary to do so.

The Judges are also required to bear in mind that the Society's Medals are offered less for new and curious objects than for fine specimens of Horticultural skill, the design of the Council in instituting these meetings being not so much to encourage the Collector as to reward the skilful Gardener. They are also not to make any award in cases where the objects exhibited do not appear worthy of a Medal; otherwise a bad single exhibition might obtain a prize, merely because there is no better exhibition of the same class to oppose it.

By order of the Exhibition Committee, Aug. 31, 1844. JOHN LINDLEY, Vice Secretary.

*** Copies of these Regulations can be procured upon application at the Society's Office, 21, Regent-street.

THE THIRTY-SIX SORTS of HARDY ANNUALS described in the *Chronicle* of March 1st, as being the most splendid selection in cultivation, may be had genuine and post-free of the Advertiser by forwarding to him an order for 10*s*. 6*d*. Those possessing any of the sorts included in the 36 described may select from the following, to avoid duplicates: Browallia elata, Calceolaria pinnata, Coreopsis, mixed, Clarkia elegans, Cobæa scandens, Dianthus barbatus, splendid mixed; Chrysis crocea, Godetia rosea alba, Loasa, mixed, Lobelia inflata, L. gracilis, Lupinus mutabilis, Malope trifida, New purple Candytuft, Mesembryanthemum tricolor, Tropæolum canariense. Willcove Broccoli, and Martynia fragfans, 1*s*. per packet. Direct, J. MICKLE, Folkestone, Kent.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had on application.—Slough Nursery, March 8.

DANECROFT NURSERY, STOWMARKET, SUFFOLK.—PETUNIAS, SEEDLING VERBENAS, DAHLIAS, &c.

S. GIRLING has much pleasure in announcing to his Friends and the Public generally, that he has been successful in adding to his already extensive collection of Verbenas, some splendid Seedlings of the present year, which, for colour, form, and size, far surpass any Verbenas yet produced; in confirmation of which S. G. begs to refer the public to the following awards they have received, and reports that have been made of them,—viz., an Extra Prize at the Ipswich Show in June, Stowmarket in July, Ipswich in September, Bury St. Edmund's, do., Stowmarket, do., and Chelmsford open Show; and favourably noticed by DR. LINDLEY in the *Gardeners' Chronicle*, August 31, and in the *Gardeners' Gazette* by Mr. GLENNY, August 31. Mr. Ayres also speaks of them in flattering terms in the *Gardeners' Chronicle*, Oct. 5, page 671; and in addition to the above testimonials they have been seen growing by many eminent Horticulturists and Amateurs, all of whom have considered them as very superior.

S. G. therefore offers them with full confidence of their giving general satisfaction.

	s.	*d*.
Alba Lutescens, sulphur-yellow, large, and sweet-scented	2	6
Alba Magna, the largest and best white out . . .	2	6
*Gladiator, orange-scarlet, with deep yellow eye, fine	3	6
Lovely Rambler, grey-lilac, very large	2	6
Messenger, bright-purple, of fine shape	2	6
*Mulberry, bright mulberry, quite new in colour and fine	3	6
Rose de Amour, bright-pink, with beautiful yellow eye, quite distinct, and the most attractive Verbena ever raised	3	6
*Rubescens, bright-ruby, large and well-formed . .	3	6
The Giant, silvery-lilac, the largest trussing Verbena known, some of the trusses measuring from 10 to 12 inches in circumference—the heads of this Verbena resemble in appearance a blue Hydrangea	2	6

N.B.—Those marked with an * will not be sent out till early in May; the others can be had after the 25th of October, and can be forwarded in tin boxes by post. The usual allowance to the Trade.

PETUNIAS.—S. GIRLING has likewise been successful in raising some Petunias of superior excellence. Twelve varieties, selected from about 1500 hundred seedlings, will be sent out as early as possible in the spring, far surpassing anything in that fine and beautiful class of plants. The usual allowance to the Trade. Advertisements with names and prices will shortly appear.

DAHLIAS.—S. GIRLING having purchased the entire stock of that beautiful Dahlia, Bourne's Marchioness of Ormond, the best light-tipped Dahlia of the season, similar but far superior to Bridesmaid in every respect, plants will be sent out early in May next, at 10*s*. 6*d*. each. A few roots would be parted with, on the warranty of the party purchasing, for exportation only, and the party to whom sent giving a pledge not to send plants to England for sale. Nurserymen and dealers wishing to place this Dahlia in catalogue next season, will have their names published in good time before sending out, and the usual Trade allowance, where 12 Plants are ordered, and extra Plants to compensate for long carriage.

DAHLIA NONPAREIL.—S. G. has a few large and small ground roots of that beautiful and popular Dahlia to dispose of; the former at 30*s*., the latter at 20*s*. each. From the limited number sent out in England last season of this Dahlia, it will be more in demand than any other Dahlia sent out last May. Parties wishing for roots had better send their orders early, as the stock, which is limited, will be sent out in rotation, as the orders are received; almost every other kind of Dahlia in cultivation, embracing nearly all the favourite varieties of this and former years, can be had in dry roots at moderate prices, warranted correct to name.

S. GIRLING will be prepared to send out, on the 1st of April, his Superb Striped SEEDLING PETUNIAS, FUCHSIAS, VERBENAS, and PHLOXES. The appointed Agents at present are as follow. Parties wishing them to be sent by post had better write and repeat the order, otherwise they will be sent in pots:—

Appleby, Florist, York; Brown, Nurseryman, Slough; Backhouse and Co., Nurserymen, York; Bridford and Co., Florists, Dublin; Bull, Nurseryman, Taunton; Bunyard, Nurseryman, Maidstone; Brewer, London Road, Cambridge; Barker Boynards, near Guildford, Surrey; Bass and Brown, Seedsmen, Sudbury; Bell, Florist, Bracondale, Norwich; Campbell, Model Gardens, Dublin; Drummond, Nurseryman, Bath; Dickson and Co., Edinburgh; Drysdale and Co., Florists, Glasgow; Dillistones, Sturmer, Essex; Edward, Nurseryman, York; Epps, Bower Nursery, Maidstone; Flanagan & Co., Mansion-house-st., London; Francis, Nurseryman, Hertford; Furley & Fraser, Lea-bridge-road; Fairbairns & Co., Clapham Surrey; Fryer, Florist, Camberwell; Gaines, Florist, Battersea; Mr. H. Groom, Clapham; Messrs. Lancock and Son, Durham; Handasyde and Co., Musselburgh, Scotland; Henderson and Co., Pine-apple Place, Paddington; Harrison, Nurseryman, York; Harrison, Downham, Norfolk; Hansard, 30, Beaufoy Terrace, Maida Vale, London; Hurst and Co., Leadenhall Street, London; Imms, Nurseryman, Woolwich; Ivery, Florist, Peckham; Janson and Finney, Gateshead, Scotland; Lane and Son, Great Berkhampstead; Low and Co., Clapton, Middlesex; Mr. J. Meldrum, Kendal; Miller, Florist, &c., Ramsgate; Marnock and Manley, Hackney; Noys, Pendleton, near Manchester; Noble and Co., Seedsmen, &c., Fleet Street, London; Otty, Blenheim Hotel Grounds, Peckham; Parsons, Nurseryman, Brighton; Paul and Son, Cheshunt; Pettit, Bury St. Edmund's; Rednall, Holton Nursery, Suffolk; Rogers, Uttoxter, Staffordshire; Mr. Rendle, Plymouth; Ronalds and Son, Brentford; Spary, Densford, near Hungerford; Salter, Nurseryman, Bath; Smith, Florist, Hornsey; Silverlock and Son, Cirencester; Smith, Dalston, Middlesex; Turner, Florist, Chalvey, Bucks; Messrs. Veitch and Son, Exeter; Wood and Son, Maresfield, Sussex; Walters, Nurseryman, Hilperton; Wood, Florist, Plymouth; Wittey and Osborn, Fulham. Foreign:—Monsieurs Chauviere, Florists, Paris; Miellez, Lille; Salter, Versailles, France; Schemidt, Erfurt, Prussia; Thorban, New York, America; Winslow, Boston, America; Barnes, Boston, America; Van Geert, Antwerp; Van Houtte, Ghent.

N.B. A respectable reference or ready money will be required from unknown correspondents.

Foreign Orders faithfully executed.

Danecroft Nursery, Stowmarket, Suffolk, March 8.

HURST AND M'MULLEN, SEEDSMEN AND FLORISTS, 6, LEADENHALL-STREET, LONDON.

Beg to present to the notice of their Friends and the Public, the following List of NEW AND CHOICE FLOWER SEEDS for the Spring of 1845.

	per collection—s.	d.
Imported German Stocks in 36 splendid varieties	6	0
Ditto Ditto in 20 ditto	3	6
Ditto Ditto Asters, in 24 ditto	5	0
Ditto Ditto ditto in 15 ditto	3	6
Hollyhocks (very choice) in 12 named varieties	3	0
Larkspurs (German) in 12 splendid ditto	3	6
Balsams, 12 beautiful double varieties	5	0
Imported Zinnia elegans, 8 fine varieties	3	6
Cockscombs, 6 choice kinds	2	6
Verbenas, 8 ditto	3	0
Wallflowers, 8 imported varieties, double	3	0
Scabious, German, 8 ditto	2	0
Poppies, 16 splendid ditto	3	6
Mimulus, 10 ditto	3	0

The following may be had at 6d. per packet, except those marked 1s.

Acacia armata
Achimenes coccinea, 1s.
" grandiflora, 1s.
" hirsuta, 1s.
" longiflora
" rosea superba, 1s.
" splendens, 1s.
Ærophyllum venosum, 1s.
Alonsoa incisa
Alstrœmeria aurea
" bicolor
" flava
" pelegrina
" pulchella
" tricolor
Amsinkia intermedia
Anagallis azurea grandiflora, 1s
Anchusa capensis, 1s.
Anemone, new Russian
Anomatheca cruenta
Antirrhinum (splendid mixed)
Anthemis purpurescens
Aquilegia arctica
" canadensis
" glandulosa
" new spotted
Ardisia paniculata, 1s.
Argemone grandiflora
Aster, German (fine mixed imported)
Aster, Nosegay
" Anemone flowered
" globosus dwarf
Auricula, from a choice collection, 1s.
Balsam
" Camellia flowered superb
" new spotted
Begonia nitida
Blumenbachia insignis
Bois-duvallia Douglassi, 1s.
Bossiæa cordifolia
Brachycome iberidifolia
Briza gracilis
Browallia grandiflora
Caccalia aurea
Cactus (from choice kinds), 1s.
Calandrinia elegans
Calceolaria, from finest shrubby varieties
Calceolaria, herbaceous (very choice) [brid
Calceolaria, splendid new hy-
Calempelis scaber, 1s.
" punicea, new dark, 1s.
Caliproa lateracea
Calliopsis Drummondii
" purpurea elegans
Campanula lactiflora
" stricta
" trachelioides
Cantua picta
Carnation (from finest stage flowers), 1s.
Catananche bicolor
Centaurea Americana
Characias Neesii
Chorozema Dicksonii, 1s.
" Rhombii, 1s.
" cordata illicifolia, 1s.
" spectabile, 1s.
Chryseis compacta
Chrysocoma aurea
Cineraria (very splendid mix-
Cladanthus Arabicus [ture)
Clarkia alba fimbriata
Clematis azurea grandiflora, 1s
Cleome (choicest kinds)
Clerodendron speciosum, 1s.
" squamatum, 1s.
Clintonia pulchella
Cobæa scandens
Cockscomb, crimson Giant
Convolvulus minor (new dark
" scarlet [variety
Cosmanthus grandiflorus
Cuphea silenioides
Dahlia, very choice (saved from Brown's splendid collection at Slough), 1s.
Dahlia scapigera
Datura (of sorts)
Daviesia saligna
Delphinium Barlowii, 1s.
" splendid mixed
Dillwinea speciosa, 1s.
Dianthus chinensis, fine mixtr.
" japonicus (scarlet)
" splendens
Didiscus cæruleus
Digitalis, new spotted
Diptolœna Dampeni
Dracocephalum pelegrinum
Eccremocarpus scaber
Egg-plant (new long white, from China)
Elichrysum album grandiflorum
" macranthum roseum
" monstrosum
" new superb pink
Erica from the Cape
Eucharidium grandiflorum
Euphorbia cyathophera, 1s.
Fedia cornucopiæ
Forget-me-Not (large variety)
Fuchsia, fine mixed, 1s.
Galardia coccinea
" Wellsiana
Genista monospermum (sweet-scented)
Gentiana asclepiadea
" septemfida
Geranium (saved from a superb collection), 1s.
" splendid new scarlet, 1s.
Gesnera splendens, 1s.
Geum splendens
" grandiflorum
Gilia (new large variety)
Gloxinia (fine mixed), 1s.
Godetia Lansfordii
" Lehmannii
Heartsease, carefully selected from the best varieties in cultivation, 1s.
Hebenstreitia tenuifolia
Heliotropium (varieties)
Hibiscus Manihot
" Humboldtii
" Richardsonii
Hollyhocks, superb mixed
" rose camellia
Hovea Celsi, 1s.
Hypericum elegans, 1s.
Iberis lagascanica
" superba
Impatiens tricormis
" glanduligerus
Ipomœa rubro cærulea, 1s.
" cærulea splendens
" coccinea
" Dilleniana, new rose-coloured, 1s.
" Horsfalli, 1s.
" splendid mixture of dark varieties
Ipomopsis picta and elegans
" Beyrichii (new), 1s.
Kaulfussia tracheloides
Kennedya grandiflora
" Comptoniana, 1s.
Larkspur, German mixed (very splendid)
Lathyrus latifolius rubro and alba
Leptosiphon albiflorum (new)
Leucaria senecioides
Limnanthus grandifolius
Linaria Perezii
Linum quadrifolium, 1s.
" multicaule alba and monoginum
Lisianthus Russellianus, 1s. 6d. (with Cuthill's Treatise)
Loasa ambrosæfolia
" Placeii
Lobelia erinus
" heterophylla
" propinqua
" ramosus (splendid)
Lophospermum erubescens
" Hendersonii
Lotus Jacobæus
Lupinus elegans
" ornatus (splendid)
" German, mixed
" ramosus
Lusiana calycina
Lythrum speciosum (new, very showy), 1s.
Lychnis fulgens, 1s.
Malope grandiflora purpurea (new)
Marianthus cæruleus
Martynia fragrans, 1s.
Maurandya Barclayana
Mesembryanthemum tricolor and alba
Mimosa sensitiva and elegans
Mimulus Hudsonii, and choice varieties
" moschatus (musk)
Mirbelia reticulata, 1s.
Nemesia floribunda
Nemophila discoidalis
Nierembergia (fine mixed)
Nonea rosea
Œnothera Drummondii
" macrocarpa
" Sellowii
Oxalis rosea, floribunda, and carnea
Oxyura chrysanthemoides
Papaver Armæria
" coccinea
" fimbriata
" floribunda
Pæonia papaveracea, 1s.
Passiflora incarnata
Pentstemon campanulatum
" gentianoides splendens
" Murrayanum, 1s.
" ovalifolium
" pallidum novum
" Schoulerii
Petunia violacea grandiflora
" mixed, from splendid varieties
Phlox Drummondii, in many beautiful shades of colour
" " new scarlet, 1s.
Picotee, imported German (fine), 1s.

[HURST AND M'MULLEN'S LIST—*continued.*]

Picotee, imported French, 1s.
" " Yellow, 1s.
" English, saved from stage flowers, 1s.
Physolobium gracilis, 1s.
Pimelea elegans and others
" spectabilis, 1s.
Pink, saved from a splendid collection (Hodges', of Cheltenham), 1s.
" new white Chinese
" " intermediate (fine)
Platylobium formosum, 1s.
" Murrayanum, 1s.
" triangulare, 1s.
Platystemon californicum
Podolepis chrysantha
Podolobium (new variety)
Podospermum angustifolium
Polyanthus, from named flowers, saved by a celebrated grower, 1s.
Poppy, splendid new variety from the Himalayan mountains
Portulacca Thellusonii
" splendens
Potentilla (6 beautiful vars.)
Primula cortusoides
" sinensis
" " alba (fringed)
" " " 8 beautiful shades of colour, mxd., 1s.
Ranunculus, saved from a superb collection
Rhodanthe Manglesii
Rhododendron, fine varieties
Rudbeckia Drummondii
Salpiglossis (splendid variety, mixed)
" in 6 separate vars.
Salvia patens, bicolor, &c., 1s.
Sanvitalia procumbens
Scabiosa, mixed, German (fine)
Schizanthus albus
" Grahamli, crimson
" Hookerii, scarlet
Schizopetalon Walkerii
Schypanthus elegans, 1s.
Sedum cæruleum
Shortia Californica
Silene speciosa
" new scarlet
Spiræa arctica and Lindleyana
Sphænogyne grandiflora
Statice sinuata
Stocks, imported German, mxd.
" New Emperor, scarlet and purple, 1s.
" Scarlet Intermediate (true)
" Purple do. (new)
" imported Prussian, in varieties
" Prince of Wales [ton
" splendid Giant Bromp-
Sweet William (new double dark variety)
Tagites signata
Thunbergia alata
" alba
" aurantiaca
" Fryerii, 1s.
Tournefortia heliotropioides
Trachymene cærulea
Trachelium cæruleum
Tropæolum tricolorum, 1s.
" Jarrattii, 1s.
" trimaculatum, 1s.
" Moritzianum, 1s.
" pentaphyllum
" hexæmanum, 1s.
Verbena (fine mixed)
Vesicaria utriculata
Veronica speciosa (new and splendid), 1s.
Viscaria oculata
Violet, Russian
Wahlenbergia cappilaris
Wallflower, new lilac
" French striped
" dwarf blood red
" German varieties, by name
" new double black brown [flora
Zinnia elegans coccinea grandi-
" splendid varieties, mixed

All the common varieties of Flower [Seeds not named in the above list may be had in 3d. packets.

Collections of 24 best Hardy Annuals at 5s. per collection.

To prevent mistakes in treatment, the packets can be labelled, if requested, as hardy, half-hardy, or tender.

Grayson's Giant Asparagus, 3s. per 100.

Fine Seakale Plants, 8s. per 100.

A choice selection of Pot Roots of all the best varieties of Dahlias in cultivation, from 1s. to 2s. 6d. each.

Double Italian Tuberoses, 4s. per dozen.

Tigridia pavonia, 3s. per dozen.

Fine Double Anemones, 8s. per lb.

Single ditto 4s. per lb.

Splendid mixed Ranunculus, 5s. to 8s. per 100.

Myatt's Victoria Rhubarbs (true from the raiser), 1s. 3d. each.

Marshall's Early Scarlet Rhubarbs, earliest known, 9d. each.

Mixed Grasses for Lawns, of the very finest quality, 1s. 6d. per lb. Ditto ditto, for Pastures, 1s. per lb.

Selections of Seeds carefully assorted and packed for all climates.

Carnations and [illegible] the most beautiful varieties 1s. 6d. to 2s. 6d. per [illegible]

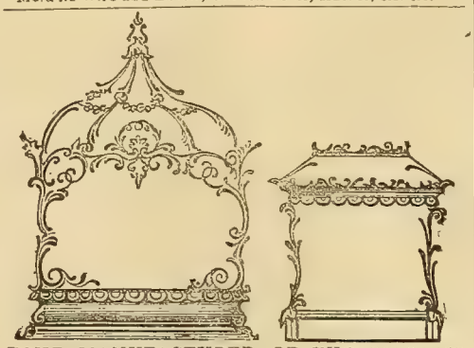
Yellow Picotees, 3s. per pair.

A constant supply of all the choicest kinds of Phlox, Pentstemons, Œnotheras, Delphiniums, and other favourite Herbaceous Plants will be kept during March and April.

Orders taken for Silverlock's much-admired Seedling Geraniums, "Chance" and "Emperor Nicholas." Drawings may be seen at No. 6, Leadenhall-street.

Humphreys's Compound and Potter's Guano, in bottles, 1s. 9d. each. Orders taken for Clarke's Guano per the cwt. or ton.

Metallic Wire and Labels, Garden Tools, Knives, &c. &c.



THE MANUFACTURER OF THE MAGNIFICENT "WARDIAN PLANT CASES," which obtained the Medallic Prize at the last Horticultural Fête, Chiswick, will dispose of them by subscription. One hundred subscribers at 2 guineas each. The two cases are designed most characteristically, and executed in the best manner of gold coloured metal; polished wood bases lined with metal, and move on castors; are glazed with the finest sheet glass, and both have a door at each end. The above cut indicates their outlines, but can convey no idea of their splendour, which elicited from Dr. LINDLEY an acknowledgment "that he did not think objects half so beautiful would be produced." Tickets and further particulars can be obtained of the following Seedsmen: viz. Messrs. Warner and Warner, Cornhill; W. and J. Noble, Fleet Street; G. and W. Rollisson, Tooting; Fisher and Holmes, Sheffield; W. Potts, Column Nursery, Salop; or at Birmingham; and of Mr. M. Nottingham, 6, St. Benet Place, Gracechurch Street, and 33, Argyll Street, Regent Street, London. At the latter address the cases may be seen.

The dimensions of the Cases are as follows: the larger, 7 feet high, 4 feet 3 inches long, and 2 feet 6 inches in width. The smaller, 4 feet high, 3 feet long, and 1 foot 11 inches in width.

Due notice will be given of the time and place of Ballot, which will be in London; meanwhile the Cases may be seen at 33, Argyll Street, Regent Street, on application.

CUCUMBER and MELON BOXES and LIGHTS,—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1l. 8s. Garden-lights made, glazed, and painted, from 1s. per foot.—Sashes and Frames made, glazed, and hung complete, 1s. 8d. per foot.—At JAMES WATTS' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

SELECT AND CHOICE FLOWER-SEEDS, with Directions for Sowing, Height, Colour, &c.

		s.	d.
100 vars. choice Annuals, including the most approved, new, for		15	0
60 do. do.	for	8	6
30 do. do.	do. for	4	6
20 vars. choice Greenhouse Annuals, for		6	0
20 do. Perennials, including fine varieties of Hollyhock, Fuchsia, Heartsease, Cineraria, Petunia, Calceolaria, &c. &c., for		6	0

The above can readily be forwarded by post, the 100 packets not exceeding 6 to 7 oz. Remittance in stamps or Post-office order from unknown correspondents.

BASS and BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

A Liberal Commission to Solicitors and Agents.

SPLENDID NEW CALCEOLARIAS.

R. COOPER begs to offer the following NEW CALCEOLARIAS, which are now ready for sending out.

COOPER'S ROYAL EXCHANGE; gained the Seedling Prize at the Bromley June Show, 1844 . 15s. 6d.
" MATILDA 10 6
" PRINCE ALFRED 10 6
" QUEEN OF THE FAIRIES . . 10 6

The above Seedlings were submitted to the Editor of the *Gardeners' Chronicle*, and obtained the following favourable opinion. See *Gard. Chron.*, No. 21, for May 25th, 1844, p. 340, under the signature "R. C."

"Your three Seedlings are extremely good varieties—good in form and fine in texture, and having the large blotch in front of the flower very decided; they will be very attractive when grown as specimen plants."

Priced CATALOGUE for 1845 of GERANIUMS, FUCHSIAS, HERBACEOUS PLANTS, &c., will be sent by post on application. Also CATALOGUE of choice FLOWER SEEDS.

Sion Nursery, Croydon, March 8.

PILTDOWN NURSERIES, MARESFIELD, UCKFIELD, SUSSEX.

MITCHELL'S SUPERB SEEDLING DAHLIAS.

Lady Charleville, beautiful glossy peach, 4 feet	10s. 6d.
Miss Harrington, white, slightly tipped with purple, 3 ft.	10 6
Prince Albert, superb orange, 4 feet	10 6
The Earl of Liverpool, fine crimson, 5 feet	10 6

JAMES MITCHELL begs respectfully to announce to his friends and the public, that he purposes sending out early in May the above Seedling Dahlias, in good plants, which he can recommend to the most limited grower. J. M. has a large stock of all the best varieties in cultivation, can supply fine plants early, and at moderate prices.

BEESWING DAHLIA.

W. C. DRUMMOND, having purchased the Entire Stock of the above greatly-admired and splendid Flower, raised by Chas. Sainsbury, Esq., Swainswick, near Bath, for 100 Guineas, W. C. D. begs to announce to Ladies, Gentlemen, and the Trade, that he will be ready to supply strong healthy plants by the 1st of May, at 10s. 6d. each; height, 4 feet. It is quite new in colour, being a very dark-shaded red, a large size, and well up in the centre; of great depth of petals, beautifully cupped; very constant, and second to no Dahlia in the world. Wherever a stand of three or six blooms are shown, BEESWING must be one of them. It has obtained 11 First Class Seedling Prizes, and First Self at Stonehenge Grand Open Show, and in six winning stands. As a proof of its superiority, the following 64 Nurserymen have kindly ordered it already:—Antwerp, Mr. C. Van Greet; Bath, Messrs. Salter, Smith, Scammell, and Tilly; Berkhampstead, Messrs. Lane and Son; Bristol, Messrs. Garraway and Company, Maule and Company, Sealey, and Gready and Company; Chalvey, Mr. Turner; Cambridge, Mr. Widwell; Cheltenham, Mr. Hodges; Chelmsford, Messrs. Sorrel; Cork, Mr. Haycroft: Coventry, Mr. Kimberley; Derbyshire, Mr. Holmes; Devizes, Messrs. Heale; Downham, Mr. F. Harrison; Edinburgh, Messrs. James Dickson and Son, Cunningham, and Fraser; Elcot, Mr. Whale; Hull, Mr. Daniel; Hungerford, Mr. Spary; Hilperton, Mr. Walters; Kingston, Messrs. Jackson; London, Messrs. Low and Co., Messrs. Henderson, Pineapple-place; Smith, Hackney; Conway, Syred, Metropolitan Union; Leeds, Mr. Schofield; Lewisham, Mr. Mead; Manchester, Mr. Lodge; Musselburgh, Messrs. Handayside; Knaphill, Mr. Waterer; Oxford, Mr. Bates; Plymouth, Mr. Rendle; Preston, Mr. Teeby; Piltdown, Mr. Mitchell; Ramsgate, Mr. Miller; Slough, Messrs. Brown, and Bragg; Summerton, Mr. Hore; Salisbury, Messrs. Keynes, and Dent; Swansea, Mr. White; Staffordshire, Messrs. Rogers, and Lawson and Sons; Salthill, Mr. Stewart; Southampton, Messrs. Oakley, and Taylor; Stroud, Mr. Foster; Swindon, Mr. M'Donald; Stowmarket, Mr. Girling; Trowbridge, Mr. Stroud; Uxbridge, Messrs. Brown and Atwell; Warminster, Mr. Wheeler; Yarmouth, Messrs. Youell; York, Mr. Appleby, Messrs. Edwards and Harrison.

"ALICE HAWTHORN" (Drummond's), a beautiful clear white, with rosy purple tip, which has obtained four Seedling Prizes, in seven winning stands; a most perfect form, well up in the centre, cupped, and good Show flower. Plants in May, 10s. 6d. each, 4 feet. Nurserymen who have not yet given orders, will oblige by their favours, and their names will be added in the next Advertisement.

N.B.—A select Catalogue of Dahlias, Geraniums, and Fuchsias, &c. &c., can be had on application.—Weston Road Nursery, Bath, March 8, 1845.

PRINCE ALBERT FUCHSIA, warranted one of the best coming out this season (a superior habit to Magnifica); blooming from 20 to 30 flowers on each joint; a large size and beautiful colour, pale waxy; rose tube; deep crimson purple corolla—all exposed; it forms a great contrast from all others, the pistil being very large, and pure white. Plants, 7s. 6d. each.

Mr. Glenny's opinion (July last) of "Prince Albert" (or F., No. 11).—"Sepals pale waxy, rose reflexed, corolla crimson purple, very large, and all exposed, tube well-proportioned. The variety is good among the large kinds. Obtained the first Prize at the Bath Royal Horticultural Show, July 18th, 1844, where it was much admired."

ÆRIAL—a beautiful cream-coloured tube, very large, corolla ruby rose, very distinct, and a very handsome foliage. Plants, 7s. 6d. each.

LA POLKA—a very fine carmine tube, with crimson purple corolla, and a very superb habit. Plants, 7s. 6d. each.

The above are all warranted first-rate, and second to none yet out; they will be sent out the last week in April, with the usual allowance to the Trade when 6 or more are ordered. The names of those Nurserymen who have already ordered them, with forthcoming orders, will appear in this Paper the 20th of April next.

N.B.—A remittance is expected from unknown correspondents.

E. TILEY, Florist, 16, Pulteney-bridge, Bath.—March 8.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 6, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, March 8, 1845.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 11.—1845.] SATURDAY, MARCH 15. [PRICE 6*d.*

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ROYAL SOUTH LONDON FLORICULTURAL SOCIETY, under the Patronage of Her Most Gracious Majesty.—The FIRST EXHIBITION of the above Society will take place at the HORNS TAVERN, KENNINGTON, on WEDNESDAY, APRIL 23d, 1845. Open to all Exhibitors.

In addition to the Prizes offered by the Society, the Royal Adelaide Cup, presented by Her Majesty the Queen Dowager, will be given for the best Collection of Miscellaneous Plants; also a Silver Cup, value 5*l* 5*s*, by Mr. James Dickson, will be awarded for the best Four Auriculas, viz., green, grey, white-edged, and self-coloured.

Admission, from 1 o'clock till 6, 1*s*. each. List of Prizes, and the Rules of the Society, may be obtained from Ebenezer House, Peckham. JOHN TAYLOR NEVILLE, Sec.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.

Patrons.—The Right Hon. the Earl of Stamford and Warrington; Sir Thomas de Trafford, Bart.

President.—The Right Hon. Lord Francis Egerton, M.P.

The first Exhibition of Plants, Flowers, Fruits, and Vegetables, for the current year, will take place at the Society's Gardens, Old Trafford, on Wednesday, the 7th day of May next, when Prizes will be awarded for the best specimens exhibited.

The Schedule of Prizes and Regulation for Admission and Exhibiting, may be had on application at the Secretary's Office, 29, Brazennose-street, Manchester.

By Order of the Council,
S. E. COTTAM, Secretary.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

		£	s.	d.
100	RANUNCULUSES in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures . per 100—10*s*. 6*d*. to	1	1	0
100	ANEMONES, in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures . . per 100	0	10	6
25	AURICULAS, in 25 Superfine sorts, named	3	3	0
25	pair of CARNATIONS, in 25 ditto ditto	2	10	0
25	pair of PICOTEES, in 25 ditto ditto	2	10	0
25	GERANIUMS, in 25 Superfine sorts	3	10	0
	Good kinds . . per doz., from 12*s* to	0	18	0
	LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	3	6
	" " PUNCTATUM . " .	0	7	6
	" SPECIOSUM, (true) . . . " .	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Mar. 15. Foreign Orders executed.

FUCHSIA "MAJESTICA SUPERBA."

J. BARNES, HORTICULTURAL GROUNDS, WARWICK, begs respectfully to call the attention of the public to his Seedling Fuchsia, which is of robust habit, a bold and free-flowering variety, and will be found a great acquisition to that much-admired tribe of plants. It was submitted to Dr. LINDLEY, July 6, 1844; see page 448 *Gardeners' Chronicle*. "B. B.—The seedling is a large and very stout flower; the sepals expand and show the corolla, which is very large and stout, with a slight dash of purple added to the crimson. It is a handsome variety." Strong plants ready to send out after the 25th of March, at 7*s*. 6*d*. each, with the usual discount to the Trade when three or more are taken. Also at Messrs. HURST and M'MULLEN'S, Seedsmen, 6, Leadenhall-street, London.

SELECTED GRASS SEEDS.

WARNER AND WARNER, SEEDSMEN, 28, CORNHILL, beg to inform the nobility and gentry they have on hand all the BEST GRASS SEEDS required for permanent pastures, consisting of Poas, Fescues, Crested Dogstail, Foxtail, &c. adapted for all soils. Upon application, the quantities required of any particular variety can be had with prices.

FIELD TURNIP, MANGOLD WURZEL, &c. of all the best varieties.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL AND Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state.

Packages containing 100 canes	.	£2	0	0
Do. do. 50 do.	.	1	1	0
Do. do. 25 do.	.	0	12	0

THE NEW SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

YOUELL & Co. have much pleasure in announcing that they are sending out for the first time the above splendid light-edged purple Picotee, raised by the Rev. J. Burroughes. It is guaranteed to surpass any Purple Picotee that has yet been raised. Without commenting further upon its superiority, Y. and Co. beg to refer to the report in the *Gardeners' Chronicle* of August 10th, 1844, page 542, as follows:—

"The *Duke of Newcastle* is a flower of first-rate properties; it is a light-edged purple; the petals are large and of good form and substance; even on the edge; the colour unbroken; the pod good, and with less disposition to bar than is common." It obtained the first prize, as the best seedling, at the Norfolk and Norwich Horticultural Exhibition. Price 21*s*. per pair. The stock being limited, to prevent disappointment, early orders are respectfully requested. Y. and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee	.	7*s*.	6*d*.	
" Lady Alice Peel, Rose Picotee	.	7	6	
" Miss Jane, Purple Picotee	.	7	6	
" Mrs. Bevan, Red Picotee	.	7	6	
" Enchantress, Scarlet Picotee	.	5	0	

CARNATIONS AND PICOTEES.

Y. and Co.'s collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

				£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto	1	1	0

The selection being left to Y. and Co.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety), for 6*s*.

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL AND CO. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL AND CO. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l*. per 100, or 30*s*. per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s*. per dozen.

For further particulars see YOUELL and Co.'s Advertisement of Jan. 11.

CEDRUS DEODARA, 3 ft. to 3 ft. 6 in., 10*s*. 6*d*. per plant.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s*. 6*d*. and 5*s*. per packet.

Great Yarmouth Nursery, March, 15, 1845.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s*. per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s*. to 25*s*. each.—N.B. Packed safely, and sent anywhere in the country.

CINERARIA—"GEM."

T. AND J. BACKHOUSE, NURSERYMEN, &c., YORK, have pleasure in offering to the public the above new and beautiful variety. It was submitted to the judgment of Dr. LINDLEY, who gave the following character:—"Your seedling, rich purple, with black eye, is a *fine* and *handsome* variety."—See *Gardeners' Chronicle* for 1844, page 280.

The striking colour, broad petal, and large heads of blossom of this seedling, have attracted the admiration of those who have seen it, and it had a prize awarded at the exhibition of the York Horticultural Society.

Good plants are now ready to be sent out per post, or otherwise, at 5*s*. each.

T. and J. B. can also supply good plants of—

	each *s*.	*d*		each *s*.	*d*.
Thunbergia chrysops,	3	6	Buddlea Lindleyana	2	6
Achimenes picta	2	6	Lisianthus nigrescens	2*s*6*d* to	5*s*
Statice Reinwardtii	3	6	" Russellianus	2*s*6*d* to	5*s*

Acacia rotundifolia (a fine new species, and a profuse bloomer), 3*s*. 6*d*.

NAPOLEONA IMPERIALIS, GARDENIA STANLEYANA, and other most remarkable Plants recently introduced by Mr. Whitefield.—R. GLENDINNING begs to state that he has purchased this extraordinary Collection of beautiful Plants, descriptions and figures of which will shortly appear. Napoleona imperialis, 2*l*. 2*s*. The stock being limited, early application alone can secure plants. Chiswick Nursery, Mar. 15.

TO THE ADMIRERS OF ROSES.

T. AND C. LOCKHART, FLORISTS AND SEEDSMEN, 156, Cheapside, London, offer at the following prices:—

Standard Roses	per dozen	21*s*.	
Climbing do., quick-growing and profuse flowering	"	18*s*.	
Dwarf Summer do.	"	6*s*.	
Perpetual or autumnal do.	"	18*s*.	
China, in varieties, do.	"	24*s*.	

A List of Seeds and Plants sent post-free on application.

PRINCE ALBERT FUCHSIA, warranted one of the best coming out this season (a superior habit to Magnifica): blooming from 20 to 30 flowers on each joint; a large size and beautiful colour, pale waxy; rose tube; deep crimson purple corolla—all exposed; it forms a great contrast from all others, the pistil being very large, and pure white. Plants, 7*s*. 6*d*. each.

Mr. Glenny's opinion (July last) of "Prince Albert" (or F., No. 11).—"Sepals pale waxy, rose reflexed, corolla crimson purple, very large, and all exposed, tube well-proportioned. The variety is good among the large kinds. Obtained the first Prize at the Bath Royal Horticultural Show, July 18th, 1844, where it was much admired."

ÆRIAL—a beautiful cream-coloured tube, very large, corolla ruby rose, very distinct, and a very handsome foliage. Plants, 7*s*. 6*d*. each.

LA POLKA—a very fine carmine tube, with crimson purple corolla, and a very superb habit. Plants, 7*s*. 6*d*. each.

The above are all warranted first-rate, and second to none yet out; they will be sent out the last week in April, with the usual allowance to the Trade when 6 or more are ordered. The names of those Nurserymen who have already ordered them, with forthcoming orders, will appear in this Paper the 20th of April next.

N.B.—A remittance is expected from unknown correspondents.
E. TILEY, Florist, 16, Pulteney-bridge, Bath.—March 15.

FUCHSIAS AND VERBENA.

J. HALLY, NURSERYMAN AND FLORIST, Blackheath, begs to offer the following varieties, which will be ready to send out by the 25th of March:—

FUCHSIAS.—A. HIGHLAND CHIEF.—This Seedling gained the 1st Prize at the Royal Botanic Society's July Show, 1844, (see *Gardeners' Chronicle*, July 6). It has been considered by good judges to be the best Fuchsia (as to the properties of a Florists' Flower) exhibited last year. It has a smooth waxy coral coloured tube, and sepals very thick and fleshy; large purple corolla. Length of tube, corolla, and stamens beyond corolla equal—7*s*. 6*d*. "J. Y. The colour, form, and substance of your Seedling makes a handsome variety."—*Gardeners' Chronicle*, Jan. 29, 1844.

G. THE ADMIRAL.—Tube crimson, very large and long; sepals crimson, with darker tips, expanding well; corolla large and deep purple; flowers near 5 inches in length. A most abundant bloomer, and fine habit—7*s*. 6*d*. "J. Y.—The Seedling marked G. is the best of your flowers; its great length must render it very showy on the plant."—*Gardeners' Chronicle*, July 20.

L. ROSABELL.—Tube, sepals, and corolla bright purple rose; flower of good shape, and remarkable substance: this is quite distinct in colour from anything yet out, and will be necessary in all collections—7*s*. 6*d*.

N. SNOW-BALL.—Tube white, striped with rose, very thick; sepals pure white, very large and globular, much larger than any light Fuchsia yet out—7*s*. 6*d*. "J. L. 3 blooms of a large stout and showy Fuchsia; this is one of the largest of the light varieties we have seen. The tube and sepals are rather coarse, and contain a little too much colour, as the corolla is light, though of a beautiful crimson."—*Gardeners' Chronicle*, November 2, 1844.

N.B. The letters refer to the marks last year, and are inserted for the guidance of those who saw them in bloom, as they are selected from a house full of Seedlings.

UNIQUE.—A large light Flower, with violet crimson corolla; size of flower and habit of plant like Eppsii, but tube and sepals nearly white; was exhibited at the Horticultural Society's Rooms, in Sept. last. A fine showy variety—5*s*.

The whole Collection may be had for 30*s*.

VERBENA.—TRICOLOR ALBA.—This is a large Flower, of thick substance, and fine trusser; tube blush; corolla white, with pink stamens, and large yellow eye—3*s*. 6*d*. "J. Y. Your Seedling is a very good variety, opening of a delicate blush, tinge changing to white, but bearing a little colour at the tube."—*Gardeners' Chronicle*, July 20, 1844.

RHODODENDRON JACKSONII.

WM. JACKSON AND Co., NURSERYMEN, beg to announce to the Nobility, Gentry, and Public that they are now prepared to send out the above new and splendid Rhododendron, at 10*s*. 6*d*. each. See Dr. LINDLEY'S opinion in the *Chronicle* of the 12th October last; also the List of their new Hybrid Rhododendrons. For Roses, &c., see *Chronicle* of the 1st March, 1845. Their Descriptive Catalogue of new Calceolarias, &c. is now ready, and will be forwarded on the receipt of a postage stamp.

Cross Lanes Nursery, Bedale, Yorkshire, March 15.

WARNER AND WARNER, SEEDSMEN & FLORISTS, 28, CORNHILL, respectfully inform the Nobility and Gentry their NEW CATALOGUE, comprising all the choice new Flower and Vegetable Seeds is now ready, and can be had post-free upon application.

For particulars refer to "Harrison's Cabinet" for February and March.

YOUELL AND CO.'S CATALOGUE.

Continued from p. 146 of last week's *Gardeners' Chronicle*.

A FEW SELECT PLANTS.

[*Abridged from* YOUELL & Co.'s *General Collection.*]

	per plant—*s.*	*d.*
Achimenes hirsuta	1	6
,, grandiflora	1	6
,, coccinea	1	0
,, longiflora	1	6
,, pedunculata	1	6
,, multiflora	1	6
,, picta	2	6
,, rosea	1	6
Abutilon striatum	1	6
Aphelandra cristata	2	6
Allamandra cathartica	2	6
Amiera zygomeris	5	0
Acrophyllum venosum	5	0
Acacia lopantha	2	6
,, armata	1	0
,, verticillata	1	6
Buddlea Lindleyana	2	6
Bouvardia strigosa	2	6
Boronia anemonefolia	3	6
,, serrulata	1	6
,, pinnata	2	6
Begonia nitida	3	6
Chorozema ericoides	3	6
,, cordata	1	6
,, varium, true	2	6
Combretum purpureum	3	6
Corræa speciosa	1	6
,, Cooperii	5	0
Clianthus puniceus	1	6
Callostemon speciosa	1	6
Cytissus filipes	1	6
Clerodendron lavifolium	3	6
Diosma purpurea	1	6
,, fragrans	1	6
,, ericoides	1	6
Daphne odora	1	6
Dicrydium cupressinum	21	0
Epacris impressa	1	0
,, nivalis	1	0
,, variabilis	1	6
,, campanulata	1	6
Euphorbia splendens	1	6
Eutaxia myrtifolia	1	6
Eschynanthus Horsfieldii	3	6
,, grandiflora	1	6
Ficus elastica	2	6
Fagus fusca	42	0

	per plant—*s.*	*d.*
Fabiana imbricata	1	6
Genista attiliana	1	6
Gardenia radicans	1	0
,, florida	1	0
Gnidia pinifolia	1	6
Gesneria zebrina	1	6
Gloxinia rubra	2	6
,, maxima	2	6
Hohesia populina	5	0
Helichrysum proliferum	2	6
,, retortum	1	6
Habrothamnus cyaneus	21	0
,, fasciculata	1	6
Hindsia longiflora	3	6
Hydrangea japonica	2	6
Ilex latifolia	7	6
Ipomœa ficifolia	1	6
,, Learii	1	0
Ixora stricta	2	6
Kennedya monophylla	1	6
Leschenaultia formosa	1	0
,, Drummondii	1	6
,, biloba multiflora	1	6
Manettia cordifolia	1	6
Myoporum parvifolium	1	0
Oldenlandia Deppii	1	6
Pentas carnea	2	6
Pultenæa stricta	1	6
,, subumbellata	1	6
Podocarpus dicrydioides	21	0
,, ferruginea	15	0
,, totara	15	0
Phlox Van Houttii	1	6
Paulownia imperialis	2	6
Primula sinensis, double white	10	6
Do. double purple	7	6
Rondeletia speciosa	2	6
Siphocamphylos betulifo.	1	6
Stephanotis florabunda	3	6
Statice arborea	7	0
,, puberula	1	6
Schweggeria paucifolia	5	0
Thunbergia chrysops	2	6
,, alata superba	1	6
,, aurantiaca superba	1	6
Templetonia retusa	1	6

PANSIES.

YOUELL & CO., in submitting the following List of PANSIES, beg to observe that they have selected such varieties only as will be found a desideratum to any Collection, and will prove valuable additions to those who exhibit at the various Horticultural Exhibitions; the Blooms possessing fine size, form, substance, good eyes, and belting, and can be sent per post, free, to any part of the United Kingdom, at the following prices:—

12 Fine Show Varieties	10*s.*
24 Ditto	18
12 Extra Extra Fine	18*
24 Ditto	35*

* Including most of the new varieties. The selection left to Youell & Co.

	s.	*d.*
Alicia	1	0
,, (Major's)	2	6
Anacreon	1	0
Ann (Youell's) extra fine	5	0
Argo	1	0
Azurea	1	0
Beauty (Youell's)	2	6
Black Bess	2	3
,, Prince (Pearson's)	2	0
,, Eyed Susan	1	0
Blucher	1	0
Bride (Youell's)	2	0
Bridegroom (Major's)	3	6
Bronze (Youell's)	2	0
Captain Reynolds	1	0
Caractacus	1	0
Ceres	1	0
Chancellor Young (Youell's)	1	6
Claudia	1	0
Compacta	1	0
Columbine	1	0
Conqueror (Hurst's)	2	0
,, (Howard's)	2	0
Conservative (Major's)	2	0
Corporal	1	0
Corunna	1	0
Countess of Sandwich	1	6
Curion (Brown's)	1	6
Cyclops	1	0
Cyrus	1	0
Defiance	1	6
Diogenes	1	0
Drusilla	1	0
Duchess of St. Alban's	1	6
Duchess of St. Alban's (Youell's)	1	6
Duchess de Berri	1	6
Duke of Norfolk (Youell's)	2	0
Ealing Hero	1	0
Eclipse (Youell's)	2	6
,, (Thompson's)	1	6
Enterprise	1	6
Epaminondas	1	0
Everton (O'Grady's)	2	6
Fanny	1	0
General Nott	2	0
,, Tapp	1	6
Goldfind	1	0
Grace Darling	1	0
Grand Duke (Youell's)	2	0
Grandis	1	0
Harriett	1	0
Harry (Youell's)	2	0
Hebe	2	6
Hector (Wood's) fine	3	0
Helen (Youell's) extra fine	5	0
Hero (Archer's)	1	0
Hero	1	6
Hinda	1	6
Huntsman	1	0
Insignis	1	0
Invincible	1	0
Isis	1	0
Jack	1	0
Jewess (Hunt's)	1	6
Josephine	1	6
Julia Grisi (Youell's) fine	3	0
Juliet	1	0
Lady Alice Peel (Youell's) extra fine	2	6
Lady de Vere (Youell's)	1	6
Lady Flora Hastings, (Youell's) ex. extra fine	5	0
Lady of the Lake	1	0
Lord Bloomfield	1	0
Louisa	1	6
Maid of Bath	1	6
Major	1	0
Marchioness of Thomond, (Youell's) ex. extra fine	3	0
Marcus	1	0
Marshal Soult	1	0
Mars, (Youell's)	2	0
Masterpiece (Thompson's)	1	0
Miracle	1	0
Miss Chaplin (Forsyth's)	1	0
Miss Hunt (Hunt's)	1	0
Mrs. Taylor	1	6
Mulberry Superb	1	6
,, splendens (Major's)	2	6
Navarino	1	0
Ne Plus Ultra	1	0
Neptune	1	0
Nymph	1	6
Paul Pry	1	0
Pelop's (O'Grady's)	3	0
Peter	1	0
Peter Dick	1	0
Patroclus	2	0
Pizarro	1	0
Prince of Wales (Youell's) fine	2	0
Princess Royal (Youell's) fine	2	6
Princess Royal (Hunt's)	1	0
Princess Alice (Youell's) extra fine	3	6
Prince Albert (Cook's)	2	0
Phyllis	1	6
Queen (Hunt's)	1	0
Rainbow	1	0
Rising Sun	1	0
Rival Yellow (Hunt's)	1	0
Robert	1	6
Sulphurea elegans	1	6
,, superba	1	0
Taglioni	1	0
Thunderer	1	0
Timandra	1	0
Tippoo Saib	1	0
Titian (Youell's) fine	2	0
Una		
Unique (Scholefield)	1	6
Venus	1	0
Vesuvius	1	0
Village Maid	1	0
White Perfection	1	6
William Tell (Major's)	1	6
Will Watch	1	0
Wizard	1	0

[YOUELL and Co.'s Catalogue—*continued.*]

CHRYSANTHEMUMS.

Achmet Bey, lilac
Arago, buff and red
Beauty, pale lilac
Belladonna, pink
Bethula, lilac
Campestroni, purple
CassimerPerrier, small, crimson
Chancellor, white and pink
Changeable, yellow
Christopher Colombe, lilac
Col. Combes', salmon
Conspicuum
Defiance, white
Duc de Conighano, crimson
Duchess de Montebello
Duke, extra fine
Elegans, rose
Expanded, purple
Empress, lilac
Flechier, dark rose
Formosum, white and yellow
Golden Lotus, flowered yellow
Gem, pink and white
Goliath, white
Gouvain St. Cyr, orange
Hero
Incurved, pink
Insigne, pink and red
Imperial, pale lilac
King, pale rose
Louis-Philippe
Lucidum, white
Marchioness, white
Madame Pompadour, dark rose
Maréchale Messina, yellow and red
Marie, red
Marie Antoinette
Magnet, yellow
Memnon, pink
Minerva, pink and white
Mirabile, white and buff
Peter, creamy
Perspicuum, pink
Princess Marie, light pink
Pulcherrimum, rose
Queen, deep rose
Quilled, yellow
Rosalind, pinked
Salters, white
Sulphurea
Sultana, rose
Superb, clustered yellow
Surprise, white
Starry, purple
Tasselled, lilac
,, yellow
Triumphant, pink and buff
Two-coloured Incurved, yellow and brown
Vesta, white
Wheeleriana.

Sent post free to any part of the United Kingdom, at 12*s.* per dozen.

PETUNIAS.

Attraction (Girling's)	5	0	Membranacea (Girling's)	3	6
Beauté du Jour (Girling's)	5	0	Perfection (Girling's)	5	0
,, Parfait (Girling's)	5	0	Portrait (Girling's)	3	6
Beauty	1	0	Perfection (Wood's)	2	0
Bicolor	1	0	Princess Alice (Wood's)	2	0
Cerulea striata (Girling's)	3	6	,, Royal (Wood's)	2	0
Forget me Not (Girling's)	3	0	Punctata (Miller's)	1	6
Grandis	1	0	Queen of May	5	0
Lady Peel	1	6	Rosea alba	1	0
Louis Gullino	5	0	Sans Pareil (Girling's)	5	0
Magnea Rosea	1	0	Striata delicatissima (Girling's)	3	6
Magniflora	2	6	West Briton (Wood's)	2	0
Medora	1	0			

Sent per post free, at 12*s.* per doz., the selection left to Youell and Co. With every other variety worthy of cultivation, that may be advertised by other Parties after the Publication of this List.

ANAGALLIS.

Anagallis carnea grandifl.	1	0	Anagallis multiflora	1	0
,, Brewerii	1	6	,, speciosa	1	9
,, Cærulea grandifl.	1	0			

The above can be sent free of Postage to any part of the United Kingdom.

ANTIRRHINUMS.

Atrostriatum	3	6	Lutea	3	6
Brightii	3	6	Maculatum	3	6
Fowleii	3	6	Venosa	3	6

CINERARIAS.

Azurea grandiflora	1	6	Perfection (Youell's) extra fine, the largest and best tipped variety out	5	0
Compact Blue	1	6			
Emperor	2	6			
Grandesse	1	6	Prince Albert (Gaines's)	1	6
Greenii	1	6	Princess Royal (Short's), the best blue out	3	6
King	1	0			
Madonna	1	6	Unique	1	6
Magnet	1	6	Waterhouseana	1	0

FLOWER SEEDS.

30 Packets of the choicest and newest kinds, sent per post free, for 6*s.*

Catalogues of their extensive collection of Carnations, Picotees, and Pinks, comprising upwards of 900 *of the finest varieties, may be had on application.*

☞ All orders above 2*l.* are delivered carriage free to London or Hull, or Plants added to compensate for the same.

N.B.—FOREIGN ORDERS PROMPTLY EXECUTED AND PACKED SECURELY, BY PARTIES OF MANY YEARS' EXPERIENCE, THUS INSURING THEIR SECURE TRANSMISSION.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, from 5*s.* per 100, with printed particulars for cultivation, may be had of WARNER and WARNER, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

LISIANTHUS RUSSELLIANUS.—Plants of this Splendid Flower, strong and healthy, at 3*s.* 6*d.*, 5*s.*, and 7*s.* per plant; seed of the same at 2*s.* 6*d.*; also the Beautiful Lianthus nigricans, 5*s.* per packet; a printed treatise will be included for growing the above; Cuthill's Prince of Denmark clove-scented Carnation, a nosegay in itself, 12*s.* per dozen; good collections of Picotees and Carnations, at 12*s.* per dozen; a beautiful Petunia ornatissima, (Van Houtte) 1*s.* 6*d.* each; best Picotee Seed, 5*s.* per packet; Calceolaria ditto, 2*s.* 6*d.*; Melon and Cucumber Seeds, and healthy Plants ready at all times. A large packet of Chicory Seed, with 10 years' successful directions for forcing the same, by J. C. Price, 1*s* 6*d.*—the best of all winter salads.

N.B.—A strong active lad, aged 18, wanted; board and lodging, with 2*s.* per week.—A Small Premium required.

Direct to J. CUTHILL, Florist, Denmark Hill, Camberwell, London.

BLOOMS OF THE MAGNIFICENT SEEDLING CAMELLIA, "DUKE OF LANCASTER," may now be seen at Mr. CHARLWOOD'S, Seedsman, Tavistock-row, Covent-garden, London; and plants now ready for delivery, by applying to R. S. YATES, St. Ann's-square, Manchester.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, LANDSCAPE GARDENERS, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (late Hammond's), Surrey.

DILLISTONE'S APPLE, the STURMER PIPPIN, a Drawing of which, and its History, appears in Maund's "Botanic Garden and Fruitist" for the present month.

The above Apple has proved itself unequalled for its combined qualities; it keeps firm and fine-flavoured until July or August, is fit for Dessert or Kitchen, is very hardy, bears well in all soils and situations; as a proof of this we have gathered from dwarf standard trees, planted in heavy clay, in the three last seasons, 320 bushels, the greater portion of which were sold in London, and realised higher prices by far than any other Apple in the market. Scions may be had, as usual, upon the receipt of 3*s.* 6*d.* in stamps, or post-office order, payable either at Halstead, Essex, or Clare, Suffolk. Please address, S. and J. DILLISTONE, Nurseries, Sturmer, Haverhill.

CARNATIONS, PICOTEES, &c.

JOHN HOLLAND, FLORIST, MARKET-PLACE, MIDDLETON, near Manchester, Lancashire, respectfully informs Amateurs, &c. &c., that this is the best season for planting out the above flowers, and that he can supply choice varieties on early application. Catalogues on application.

AURICULAS, ALPINES, POLYANTHUSES, &c.

T. AND J. BACKHOUSE, NURSERYMEN, &c., YORK, beg to offer to the public their fine New DAHLIA, "GEM;" colour bright sulphur, shading into pale primrose, occasionally tipped with bronze; flowers very large, blooming on long footstalks; form and petal fine; a good acquisition to a stand: plant 3 to 4 feet high. Strong plants of the above at 7*s.* 6*d.* each, will be ready for delivery the first week in 5th month (May). The usual allowance to the Trade.

T. and J. B.'s General Catalogue of Dahlias, Pansies, &c., for 1845, together with that of Greenhouse and Stove Plants, may be had on application.

RARE AND BEAUTIFUL COLUMBINE, &c.—The Subscribers beg to intimate that they have saved Seeds, of a superb variety, of AQUILEGIA GLANDULOSA. This splendid Columbine is a hardy perennial, and forms one of the most gay Border Plants in cultivation; it grows to the height of from 12 to 18 inches, abounding in two-coloured blossoms (Blue and White), of the size and shape of the common Passion-flower. Packages of about 150 seeds are sent free at 1*s.*, or for stamps of that value. Packages of the Seeds of the TRUE NATIVE HIGHLAND FIR, or RED-WOODED PINE OF SCOTLAND, at the same rate. The Trade can be well supplied with Native Fir and Larch plants.

JOHN GRIGOR and Co., Nurseries, Forres, N.B.

WILLIAM MILLER begs to call the attention of the readers of the *Chronicle* to his CATALOGUE of New SEEDLING FUCHSIAS, VERBENAS, PETUNIAS, ANTIRRHINUMS, &c., which appeared on the 1st of March in this Paper.—Providence Nursery, Ramsgate, Kent.

RENE LANGELIER, NURSERYMAN AND FLORIST, Clarendon Nursery, St. Helier's, Jersey, takes this opportunity to thank his friends and the public for their liberal support in purchasing so great a number of the trees of his New BEURRE PEAR; and at the same time to inform them that there are still a few left. It will prove, as before stated, to be one of the best Pears for January; trees, 1*l.* 1*s.* Also, a few EVERGREEN OAKS, two years old, about 18 inches to 2 feet high, price 1*l.* per 100. All letters to be post paid; reference or remittance from unknown correspondents.—Jersey, March 15.

PILTDOWN NURSERIES, MARESFIELD, UCKFIELD, SUSSEX.

MITCHELL'S SUPERB SEEDLING DAHLIAS.

Lady Charleville, beautiful glossy peach, 4 feet	10*s.* 6*d.*
Miss Harrington, white, slightly tipped with purple, 3 ft.	10 6
Prince Albert, superb orange, 4 feet	10 6
The Earl of Liverpool, fine crimson, 5 feet	10 6

JAMES MITCHELL begs respectfully to announce to his friends and the public, that he purposes sending out early in May the above Seedling Dahlias, in good plants, which he can recommend to the most limited grower. J. M. has a large stock of all the best varieties in cultivation, can supply fine plants early, and at moderate prices.

THE THIRTY-SIX SORTS of HARDY ANNUALS described in the *Chronicle* of March 1st, as being the most splendid selection in cultivation, may be had genuine and post-free of the Advertiser by forwarding to him an order for 10*s.* 6*d.*; large packets, 15*s.* Those possessing any of the sorts included in the 36 described may select from the following, to avoid duplicates: Browallia elata, Calceolaria pinnata, Coreopsis, mixed, Clarkia elegans, Cobæa scandens, Dianthus barbatus, splendid mixed; Chrysis crocea, Godetia rosea alba, Loasa, mixed, Lobelia inflata, L. gracilis, Lupinus mutabilis, Malope trifida, New purple Candytuft, Mesembryanthemum tricolor, Tropæolum canariense. Willcove Broccoli, and Martynia fragrans, 1*s.* per packet. Direct, J. MICKLE, Folkestone, Kent.

R. COOPER, Sion Nursery, Croydon, begs to offer the following choice Flower-Seeds, &c.:—

Per Packet.—*s.*	*d.*		Per Packet—*s.*	*d.*
Calceolaria, finest mixed	1	0	Nemophila discoidalis	0	6
Cineraria, finest mixed	1	0	Portulaca splendens	1	0
Eucharidium grandifl.	0	6	,, Thellusonii	1	0
Fuchsia, finest mixed	1	0	Petunia, finest mixed	1	0
Geranium, finest mixed	1	0	Potentilla insiguis	0	6
,, splendid scarlet	1	0	Sedum cæruleum	0	6
Hollyhocks, fine double—			Silene speciosa	0	6
10 sorts	2	6	Statice pseudo-armeria	0	6
Humea elegans	0	6	Tropæolum tricolorum		
Leycesteria formosa	0	6	grandiflorum	1	0
Limanthes grandiflorus	0	6			

Collection of 24 best Hardy Annuals . . 5*s.*
Do. 50 do. do. do. . . . 10*s.*

Priced Catalogue of Flower-seeds, also of Geraniums, Fuchsias, Verbenas, &c., will be sent by post on application.

NEW PANSIES.

J. SCHOFIELD, SEEDSMAN, &c., begs to inform his Friends and the growers of the PANSY, that he has on Sale four beautiful SEEDLINGS, which were last year selected from among thousands, viz.:—BRILLIANT, 5*s.*; DUKE OF LEEDS, 5*s.* 6*d.*; TOPAZ, the finest yellow, 5*s.*; and SURPASS ECLIPSE, 5*s.* 6*d.*, or the four for 15*s.* Also a large and well-selected stock of the most approved old varieties, strong plants, from 6*s.* to 12*s.* per doz. The best Dahlias and Fuchsias in May, at the same price, many of them new last year. A Catalogue of the above, also Carnations, Verbenas, &c. &c. may be had free on application.

N.B.—A few packets of Pansy and Fuchsia Seed, from the best show flowers, 2*s.* 6*d.*, 5*s.*, and 10*s.* per packet. The Seedlings and Seed sent free by post.

Knosthrop, near Leeds, Yorkshire, March 15.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

THE BUFFALO BERRY.

T. RIVERS has some newly-imported Plants of this interesting hardy Fruit-bearing Shrub to offer, at 2*s.* 6*d.* each.

"Its fruit, which is much relished in North America, is about the size of the red Currant, much richer to the taste, and forms one continued cluster on every branch and twig."—*Loudon, in "Encyclopædia of Trees and Shrubs,"* page 700.

T. RIVERS also begs to call the attention of his Friends to the PERSIAN YELLOW ROSE; colour bright golden yellow, quite hardy; of which he has the largest stock in Europe. This Rose, if left unpruned, blooms freely. T. R. has plants in pots, forced, only 1 foot high, full of bloom buds. The plants offered are not in pots, but adapted for potting, being worked on clean 4-inch stems; 7*s.* 6*d.* each. The wholesale price per dozen or per 100 will be given to the trade on application.

*** Stout Plants of Paulownia imperialis, 5 feet in height, with well-ripened wood, 5*s.* each.

Sawbridgeworth, Herts.

The Gardeners' Chronicle.

SATURDAY, MARCH 15, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	Mar. 18	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	Mar. 19	Microscopical	8 P.M.
		Society of Arts	8 P.M.
SATURDAY,	Mar. 22	Royal Botanic	4 P.M.

WE have to announce that the TRUSTEES of the BOTANIC GARDEN, CAMBRIDGE, have decided upon pensioning Mr. ARTHUR BIGGS, the present aged gardener in that establishment, and of appointing a successor. Candidates for the appointment must send in their Testimonials before the 7th of April, under cover to the Vice Chancellor. These Testimonials must relate to the Candidate's capacity of arranging *a new garden*, according to a given plan, and to his *practical* and *scientific* qualifications. As soon as the Testimonials of the several Candidates shall have been considered, notice will be given to such as are most approved of to repair to Cambridge on a day then to be named, in order that they may undergo an examination by the Rev. PROFESSOR HENSLOW.

The value of this appointment is 121*l.* per annum, with an allowance of fuel, and a house free of rent, taxes, and repairs.

THE slowly advancing season warns us to bring our remarks on the POTATO to a close; we therefore to-day assemble all the notes of any importance that remain among our papers touching this subject.

Firstly, as to manures, their nature and application. Gypsum has been used by "A. F." whenever sets are employed instead of small whole Potatoes, which he prefers. He lays the sets in his greenhouse or any out-building secure from frost, and sprinkles gypsum over them, spreading them out singly on the floor. He is always, by this means, sure of a plant. The following is the result of an experiment:

Planted April 28, 1843.		Taken up Nov. 11, 1843.	
1st 5 sets no gypsum	= 6 lbs. 0 oz.		The soil
„ 5 do. with	= 6	7	light loam.
2d 6 do. without	= 5½	0	Very stiff
„ 6 do. with	= 5¾	0	soil.

In cooking, preference is given to the Potatoes manured with gypsum.

Guano has been the subject of several experiments. The Rev. GEO. ROUS, of Laverton, used it with the following result:

The Potatoes were planted in rows 45 feet long, and 2 feet apart—the sort red Kidneys. To every four rows the following manures were applied in the quantities specified, being previously well mixed with five or six times their bulk of soil, with the exception of the super-phosphate of lime, which was pounded but not mixed:—1. 8 lbs. of Peruvian guano; 2. do. of Potter's guano; 3. 16 lbs. of super-phosphate of lime, (Lawes's); 4. soot and salt in the proportion of four parts of soot to one of salt. The Potatoes were planted whole on the 12th of April, 6 inches deep, and covered with about an inch of earth, the manure then added, and covered with earth to the surface. The crop was dug on the 19th of October, and the produce of two of each of the four rows carefully weighed—Two rows of No. 1, 90½ lbs.; do. No. 2, 85½ lbs.; do. No. 3, 87 lbs.; do. No. 4, 80 lbs. My second experiment was made with another variety of Potatoes called here the Prince William, planted in the same way on the 13th of April, and dug on the 18th of October. The manures used precisely in the same manner, but the rows only 40 feet long:—1. 8 lbs. of Peruvian guano; 2. do. of Potter's; 3. 5 lbs. of sulphate of ammonia. The whole four rows of each of these were weighed, and the result as follows:—1. 120 lbs.; 2. 96 lbs.; 3. 90 lbs. The Prince Williams are always much less productive than the red Kidneys. I will also mention a small experiment which I made with Potter's guano in 1843. To 2 perches of very poor stony ground I applied 4 lbs. of that guano, which was forked in lightly, and then planted with red Kidney Potatoes. The produce was 2 sacks minus 1 peck, or 23 pecks Potato measure.

Mr. GOODIFF, of Granard, found guano and stable dung equal in effect, the former applied at the rate of between 3 and 4 cwt. to the acre.

A small, but not uninteresting experiment with guano is mentioned in the following note from "E. W. M.," a Berkshire gentleman:—

A labourer brought me a remarkably fine Potato in the spring; I was much struck with it, and had it cut into eight sets, and planted them in a good loam well manured—each set a foot apart. When the vine was about a foot above ground, I poured about a gallon of water (in which two or three handfuls of guano were dissolved), on four of the sets—the whole grew throughout the summer most luxuriantly. I had them taken up the other day, and had the very remarkable produce of 61 lbs.—considerably more than a bushel from one Potato; but the most interesting feature of the experiment is the difference between the produce of the sets manured with the guano.

The four sets which were not manured with guano, produced	21 lbs.
The four sets that were, produced	40 „
	61 lbs.

The latter being nearly all large and fine, whilst the former were chiefly small, and in comparison inferior.

In another instance, "D. G.," residing near Stanmore, tried guano against farm-yard manure thus:—Forty poles of light gravelly land in a high situation were taken for experiment. The sets were dibbled in 2-feet rows, and 8 or 9 inches apart. A little guano was dropped upon the sets in the holes, the remainder, in all 3 cwt. an acre, was scattered broadcast over the land previous to the holes being covered in. Another part of the field was planted in the same manner, but manured with a mixture of farm-yard dung and decayed leaves which had formed the bottom of a pigstye. Little rain fell during the first 6 weeks. In this instance no advantage was apparently derived from the use of guano, the crop in both cases being nearly alike. We must, however, observe, that a worse plan than that of dropping the guano into the holes containing the sets could not well have been devised; for this concentrated manure is apt to injure the young and delicate roots of plants when they are first sprouting; on which account it should always be used as a top-dressing, or if brought into contact with the young roots it should be previously much weakened by mixing it with 5 or 6 times its bulk of soil.

Now that the subject of manure is before us, it will be as well to observe that all our letters show the advantage of placing the manure either upon the ground as a top-dressing, or *above* the sets. Unfortunately our correspondents do not give their results with the accuracy that is to be desired, and therefore we cannot make that use of their communications which we could have wished. A specimen or two will, however, put this in a sufficiently striking point of view. Mr. GOODIFF, of Granard, writes thus:—

One of the heaviest crops of Potatoes I ever had was from a patch of ground on which the manure (short stable dung) had been left uncovered. I have before stated in the *Agricultural Gazette* several instances in which manuring on the top has been considered advantageous; and a friend of mine in Donegal who has this year applied a little additional manure on the top, considers his crop much improved by it.

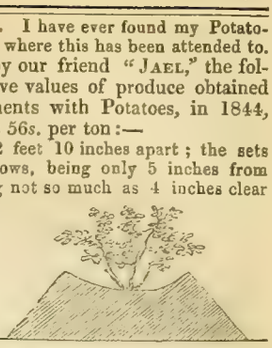
Mr. A., living near Birmingham, found his crop, which was manured by placing manure *over* the sets, infinitely better than any in his neighbourhood, and quite free from the attacks of what is called the "smother-fly." He, however, gave the ground a top-dressing of sulphate of soda (5 cwt. to the acre), about a fortnight after planting. Finally, Mr. WHITE, of Uxbridge, is clearly of opinion that if dung was always used moist, and placed on the sets, covering them with a tolerably deep furrow, we should hear little of the failures now experienced.

Earthing up, or the contrary, have each their advocates, and we are not placed by our correspondence in a position to settle the question. The evidence, however, seems to turn in favour of earthing up, because of the loosening the soil between the rows. Our intelligent correspondent "FALCON" is clearly in favour of that operation; and so is Mr. GOODIFF, of Granard. The latter says:—

I have had several very heavy crops of Potatoes, *even 20 tons to the acre*, by deeply planting Potatoes in rows 2 feet asunder—the drills were opened by the spade, digging them a foot or 15 inches deep, throwing up what the spade (a narrow one, 6 inches wide) brought up, but not cleaning out the drills; this left about half the earth in them, sets and manure were put in each drill as it was opened, the earth of the one drill filling up the one previously formed. When the Potatoes were about 6 inches high the ground was dug between the rows with the same narrow spades, and broken among the plants, the ground between the rows being generally hoed with a Dutch hoe from the first appearance of the Potatoes; there was no clay drawn up to the stalks, as all my experience leads me to think this unnecessary. *All that I think is required is a frequent moving of the ground*, so as to afford a continuous and regular supply of gases to the leaves of the plants. I have ever found my Potato-crops highly productive where this has been attended to.

In an experiment by our friend "JAEL," the following were the relative values of produce obtained per acre from experiments with Potatoes, in 1844, reckoning the price at 56*s.* per ton:—

A. Planted in rows 2 feet 10 inches apart; the sets placed thickly in the rows, being only 5 inches from centre to centre, leaving not so much as 4 inches clear between the sets; earthed up so as to form broad-shouldered ridges, highest at the outsides, as shown in the annexed woodcut, leaving a depression on the top for the reception of rain. Value per acre, 27*l.* 17*s.*



B. Planted in rows 2 feet 3 inches apart; sets, 6 inches deep, and 7 inches asunder in the rows:—

Not earthed up	£23 6*s.*
Earthed up	18 0

C. Planted in single sets 2 feet 10 inches apart each way:—

Not earthed up	£6 5*s.*
Earthed up	5 1

From this it appears that B, *not earthed up*, exceeded B *earthed up*, at the rate of 5*l.* 6*s.* per acre. In the experiment C, where the sets were planted very widely apart, the value of the crop *not earthed up* exceeded that *earthed up* by 1*l.* 4*s.* It was probably owing to the excessively dry season that the earthed up portions gave a result the reverse of that obtained in ordinary seasons. The crop throughout was greatly affected by the drought, but that in the ridges to the greatest extent. In such a season, however, *broad-shouldered* ridges, as those in experiment A are termed, have an advantage over those that are narrower.

Finally, in order to bring to a close that which we fear has been regarded as a tedious discussion, let us point to the *immense importance* of renewing the vigour of Potatoes by raising new varieties from seeds. This has been tried over and over again, and always with some advantage, sometimes with a great deal. It is certain that the productive quality of a given variety of the Potato is in proportion to its youth, and that all varieties cease, after a few years, to be as productive as they once were. When Mr. KNIGHT's seedlings were originally tried, they yielded, in one case, at the rates of 68 and 70 for one. No such crops can now be obtained from them.

Mr. GUTHRIE, of Tay Banks, by Dundee, raised some seedlings from a variety cultivated near Lake Ontario; and some of the varieties so procured yielded as many as 120 Potatoes from one stem. In one of "JAEL's" cases, a seedling, raised by Dr. MACLEAN, of Colchester, planted in *single eyes*, produced at the rate of nearly 14 tons per acre of fine Potatoes, on land which suffered so much from the drought of the season, that no other kind, although treated in the same way, except that common sets were used, would bring more than 10 tons per acre.

COUNTRY WALKS.

GENTLE READERS—Under the above title we propose giving weekly a series of articles illustrative of the animate and inanimate objects which we so frequently meet with in our country rambles, and which we too frequently pass by unnoticed and unheeded. It is, perhaps, this frequency of their occurrence which causes us to pay them so little regard and attention; day after day we pursue our walks surrounded by objects capable of exciting in us the greatest interest, and day after day we return home, if not unamused, at least uninstructed. Our object will be to awaken in your minds an interest in the various works of Nature which lie so thickly scattered around you; to direct your attention to the birds which build their nests and sing their varied songs of love and joy in the hedge-rows; to the flowers which deck with their thousand hues the sunny bank and the fertile meadows, the parched heath and the rippling water-course; and above all, to teach your thoughts to ascend from the admiration of the creature to the contemplation of the Creator, and in all your observations of the works of Nature "to look through Nature up to Nature's God.

Let us address a few words to those fair dames, for whom this series of articles is more especially intended. The speedy approach of Spring will soon change the whole face of Nature; that which is now wrapped in the gloom and sleep of winter will soon awake to renewed life and vigour, and all this will take place at first slowly and gradually. *Now*, then, is the time to commence your observations, before the multiplicity of objects distracts your attention and bewilders your ideas. You must acquire a habit of observing—not merely of looking and of seeing, but of intimately, narrowly *observing*; for be assured that an observant Polyphemus, with his solitary eye, obtains far more information in one day than an unobservant Argus with his hundred eyes in a whole month. It is surprising how your interest in your daily walks will be increased, when you have gained an insight into the history, the uses, and the beauties of the various objects which you meet with. No walk, at least no country walk, can be devoid of interest to a mind desirous of

acquiring information; you will ever be meeting with something new to excite your admiration, ever falling in with something fresh, to impart instruction and to afford amusement. These country walks will give vigour to the mind, and health to the body; that which before was too frequently looked upon as a toil will now be regarded as a pleasure; you will often be induced to take exercise in the open air, and the result will be a buoyancy of spirits, a lightness of heart, and a cheerfulness of temper, which all your in-door amusements and all your previous formal walks had failed to produce.

How delightful are the feelings on a fine morning, at the close of winter! The sun shines brightly in the azure firmament, and his warm and enlivening rays impart fresh life, activity, and joy, not only to the world of Nature without, but to the mental world within; our capability of enjoyment seems increased, our spirits become buoyant, and our hearts seem ready to burst with happiness. On such a sunny morning let us set out on our first country walk. On account of the unusual severity and long continuance of the winter, we shall find as yet but few evidences of the approach of spring. In the garden we see the drooping flowers of the modest Snowdrop, and clusters of the lowly yellow Aconite, in some parts of the country appropriately called New-Year's Gifts; but the plant which more especially wins our regard is the Crocus—its golden, blue, and delicately-striped flowers are among the first to expand under the influence of the returning rays of the newly-risen sun, and the first to close when clouds obscure his face. The Crocus is essentially a "child of the Sun"—a true harbinger of spring, and therefore it is that it enlists all our sympathies in its favour. But let us leave the garden, and go through the lane, in order to take a walk across the fields. The buds of the trees and bushes are still in a dormant and inactive state, with the exception of the Elder, the Honeysuckle, and the Dogrose, which are already bursting forth into life, and anticipating, as it were, the returning spring. The catkins of the Hazel (by children termed lambs'-tails) are now in full perfection; they are not, as many perhaps suppose, the flowers from which the nuts proceed; that they are flowers is true, but then, they are the stamen-bearing or male flowers. Let us pick a branch, and try if we can find the female flowers, or those which produce the nuts. Do you see those short red threads proceeding from the tops of those buds? Well, they are the styles or prolongations of the pistil of the Hazel, at the base of which are the embryo nuts. If you are at all acquainted with Botany, you know that in general the stamens and pistil are inclosed within the same flower, as in the Crocus, Snowdrop, &c., whilst in some plants, as the Hazel, Oak, Cucumber, &c., the stamens and pistils are found in separate flowers. Hark! what bird is that singing so gaily and so sweetly? It is a lark; but where is it? it is surely out of sight, for I cannot discover it anywhere. Ah! there it is, just a little spot in the sky above our heads; how long he remains up there! Now he is coming down; he sinks lower and lower, his song is losing its character; now that he is about to alight on the ground, it is a mere cheruping or twittering; he pitches, and is silent. What is that fluttering and bustle in the hedge? Let us see; two robins fighting! How pugnacious they are! They scarcely heed our approach, so eagerly, so earnestly, are they engaged in deadly conflict. It is an affair of honour; like two chivalrous knights of old, they are fighting for some fair ladie-love, some Queen of Beauty, who will bestow her heart and hand upon the triumphant victor. And here let us correct an error, which we have really heard some ladies most positively maintain, viz., that Sir Red-breast's ladie-love is no less a personage than Mistress Jenny Wren! We should not advert to such an improbable error, had we not had hard matter to convince some individuals that there were hen robins and cock wrens! So true is it that early impressions are always the least easily effaced; and therefore how careful ought those to be who are intrusted with the bringing up of young children, to store their minds with truth, instead of cramming them with the silly trash and nonsense contained in the foolish nursery-tales of bygone years!—*Boughton Kingdon, Teignmouth.*

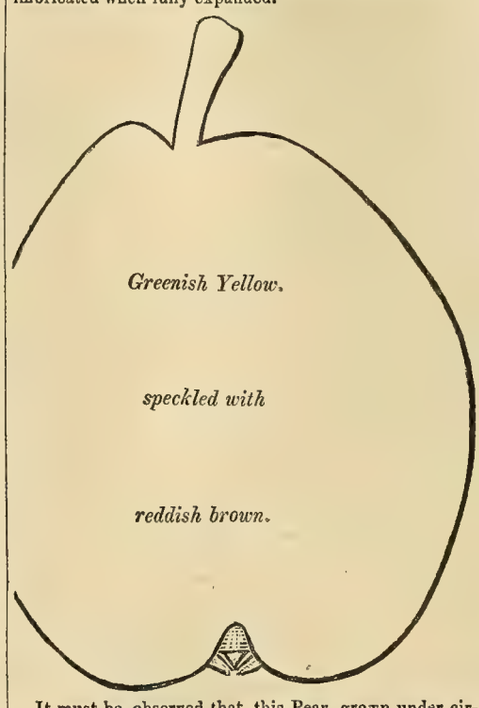
EASTER BEURRÉ PEAR.

Synonyms.—Bergamotte de la Pentecôte, Beurré de la Pentecôte, Beurré de Pâques, Beurré d'Hiver de Bruxelles, Doyenné d'Hiver, Doyenné d'Hiver Nouveau, Doyenné du Printemps, Doyenné de Pâques, Seigneur d'Hiver, Bezi Chaumontel très gros, Chaumontel très gros, Beurré Roupé, Du Pâtre, Pastorale, (not of the French), Philippe de Pâques, Beurré Anglais, Canning, Bergamotte d'Hiver, Grüne Winterherrnbirne, Bergamotte d'Hiver, (of some).

THE origin of this valuable late Pear is unknown. Some ascribe it to Dr. Van Mons; but the latter did not raise it; for in 1818 he wrote as follows, in mentioning it as an instance of the great confusion which prevailed in Belgium with regard to the nomenclature of fruits:—In addition to Doyenné du Printemps, it [the Easter Beurré] is called at Brussells, Bergamotte de la Pentecôte; at Antwerp, Beurré Anglais; at Jodogne, Poire Canning; at Termonde, Seigneur d'Hiver; at Ghent, Bergamotte Tardive; at Malines, Philippe de Pâques; and here, at Louvain, Poire du Pâtre." He adds, "These two names, Beurré Anglaise, and Poire Canning, seem to denote an English origin, unless they have been conferred as a mark of respect for one of the celebrated men of that country, or for the country itself, which has always been the object of our veneration, and will always remain so, in spite of the clamours of foreigners, who have got into their hands the editing of our political journals, and who find it more easy to meddle with men than things."* It appears from the above that Dr. Van Mons did not know its origin. It was certainly not known in this country before it was introduced by the Horticultural Society from Belgium, where it must have previously obtained extensive cultivation, as is evident from the numerous synonyms it had acquired in different localities.

This Pear is of first-rate excellence when obtained in its perfection; and no selection of late varieties can be deemed complete without it, if the situation be at all suitable.

The accompanying representation is that of a moderate sized specimen; but fruit of much larger size may be produced even on standards. It is easily distinguished by its short thick stalk, and more especially by the segments of the calyx, which are invariably incurved, their points approaching each other. In these respects the resemblance between this and the white Doyenné, is so obvious, as to render the synonyms of Doyenné d'Hiver, Doyenné du Printemps, &c., easily accounted for. The flesh is white, buttery, rich, and sugary. It usually ripens in January, February, and March, but it may be kept till May. The tree bears at an early age, and very abundantly, either as a standard or against a wall; but the fruit is usually best flavoured from the former. The shoots are moderately strong, clear reddish-brown, sprinkled with distinct pale brown dots. Buds prominent. Leaves oblong or elliptic, slightly folded, and somewhat recurved. The flowers open rather early; they are middle-sized; petals oval, not imbricated when fully expanded.



It must be observed that this Pear, grown under circumstances of unfavourable soil and climate, will fall short of the high character it deserves, as above given, when obtained in perfection. On an east or west aspect it is sometimes insipid, although of large size; and on a south aspect it is occasionally mealy. From a standard or espalier it is usually good; but it is not adapted for tall standards, being, from its size, apt to be blown down. If trained against an east or west aspect, the branches should be at least a foot apart, in order that more heat may be absorbed by the wall than would be the case if less of its surface were exposed to the sun's rays. Those who esteem a rich Beurré, ripening so late in the season, will try various methods to obtain this in full perfection. Specimens grown in Yorkshire have been found good. Let proper borders be made in the meantime, regardless of climate; for if the latter should prove ungenial, the cheapness of glass will soon render it a secondary consideration. By means of this substance, at a trifling expense better Pears will probably be produced on high and airy situations, than there are at present in those that are low, damp, and warm.—*R. T.*

PLANT POTTING.

HAVING pointed out, in former articles, the condition in which too many of the plants designed, alas! for ornamenting our greenhouses, &c. are found in a vast number of our largest establishments, and having also entered at some length into an explanation of the principles of potting, we shall now approach the subject more closely, and at the same time answer the inquiries of numerous correspondents, by detailing the actual mode of proceeding, and showing that which should never be omitted in the potting of every plant, provided that plant is meant for any other purpose than merely existing, which we candidly confess would be difficult to determine in numerous cases which daily come under our notice. Is it possible for plants to exhibit their natural character, or develop their beauty, unless cultivation forms a cardinal element in their management? We think not. In former times, which may be termed the dark ages of horticulture, a botanic garden was looked upon as a kind of museum of plants; if plants did but exist the end was served: times are different now; they must not only exist, but grow. Look, for example, at the Royal Botanic Garden, at Kew, under the glorious olden days of darkness, and observe it now—a credit to our country. The plants in every department have not only bones but flesh and clothing upon them; they scarcely know themselves, or, rather, we scarcely know them. All public establishments, we take it, are meant as examples for our guidance, as schools of instruction for gardeners as well as for the public; their unlimited resources place them in this position, and in future we trust that they will prove to be such.

The first point to be attended to in the process of potting is to put a crock over the hole in the bottom of the pot, and to do this in the proper way requires attention. An oyster-shell answers well for large pots, keeping the concave side downwards. Pieces of broken pots answer equally well, provided they have a concave and a convex side, otherwise a very small portion of the soil, which might perchance get washed down to the bottom through the drainage, would clog up the crevices, and prevent the escape of water. This, simple as it may be, is the first important step in potting; and let it never be forgotten that a house owes much of its stability to a good foundation-stone; and this, be it remembered, is the foundation-stone in potting. The next particular demanding attention is drainage, which should be of broken pots, varying in size according to the dimensions of the pot. In ordinary cases the depth of drainage should be from an inch to an inch and a half. The potsherds which constitute the drainage should be nearly of one size, which will render the object more perfect. The broken pots can be easily separated, so as to suit the different-sized pots, by means of sieves having large and small meshes, using the larger shreds for the large-sized pots, and the reverse for the smaller ones. In order that the soil may be prevented from intermixing with the drainage, a little chopped Moss should be sprinkled carefully over the shreds; this will effectually keep the soil and drainage apart; a considerable portion of moisture is at the same time retained by the Moss, to which roots cling with singular obstinacy, because they rest on a healthy, well-drained bed. This condition secures to every plant healthy and vigorous action, whether it be in the tiny pot in a Ward's case, or over the thousand acres which minister largely to the wealth of nations in every hemisphere. Drainage is the soul of gardening; it is, in fact, life itself to every green leaf under the cultivator's care. No plant can be productive, either in the garden or in the field, unless this is secured in a positive degree. Plants in pots therefore require the greatest care in this respect, because they are in every way artificially circumstanced; and this extraordinary deviation from Nature requires on the gardener's part all his energies and all his talents to overcome. Perfect drainage secures to the superincumbent soil, under every circumstance, the means by which vigorous action is induced, or can be maintained for any length of time. Imperfect drainage destroys this action, by producing a glut of watery matter, and places the plant in a puddle of soured soil, when nothing but the very worst effects are produced.

In former days the kind of soil used in potting was of a very fine description; in these latter times, when cultivation is attended to, this kind of soil is entirely discarded, and rough turfy material, full of fibre, is now sought after, whether it is peat or loam; the reasons for this preference are obvious; the fine screened soil soon becomes a compactly-close body, which neither air nor water can pass through; and we have already shown that unless both these elements have free access, we are swimming against the stream. It may be said that potting loosely, and not pressing the soil too firmly in the pot, would neutralise the effects of fine sifted soil; so it would in the first instance, but the continued applications from the watering-pot would soon bring about all the evils we have been describing. On the contrary, if coarse lumpy material, full of vegetable fibre, is employed, it will require to be firmly pressed into the pot; notwithstanding this the water will percolate through the whole without interruption; and in the absence of water, air fills up the crevices, as it should do, thus securing a rapid and healthy action. Some of the very coarsest of the soil should be placed immediately on the Moss, in order to render the drainage more complete. These observations, with those which have preceded them relating to the same subject, will be some guide to the amateur in a pleasing avocation; they will enable him to proceed on clear and definite ground. To the gardener in the higher walks of his profession—he that neither slumbereth nor sleepeth on the road to knowledge—they may be in some measure uncalled for; but to many we trust they will prove useful; and if plants in future are badly potted, blame not—*Duro.*

TWELVE GREENHOUSE ANNUALS.

THESE flower in greatest perfection when grown in the greenhouse, during their blooming season in summer. The seeds should be raised in a warm pit, or on a moderate hotbed, about the middle of March.

1. *Rhodanthe Manglesii*, grows from 12 to 15 inches in height; is much branched, rather erect, and very slender. The flowers are small, of a bright rose, and very neat. It blooms abundantly, remains long in perfection, and is very ornamental. It comes from Swan River.

2. *Brachycome iberidifolia*, grows from 9 to 12 inches in height; is much branched, dense, and spreading; the flowers are rather large, of a deep blue in some; in

* In the original it runs—"and who in consonance with the inveterate and undying custom of Frenchmen, find it more easy," &c.

others nearly white, or light blue. It is very desirable, flowers freely, remains long in perfection, and comes from Swan River.

3. *Portulaca splendens*, grows from 9 to 12 inches in height; is rather succulent, much branched, and spreading. The flowers are large, of a deep rosy purple, very showy, but not numerous. It remains long in perfection, is very ornamental, and comes from Chili.

4. *Portulaca Thellussoni*, grows from 9 to 12 inches in height; like the preceding, it is rather robust and spreading. The flowers are large, of an orange red, conspicuous, but not abundant. It is very desirable, on account of its fine colour; and is a native of Chili.

5. *Lobelia ramosa*, grows from 12 to 15 inches in height; is much branched, spreading, and very slender. The flowers are rather small, of a deep azure blue, produced in great abundance, and continue long in perfection. It is very desirable, and comes from Swan River.

6. *Mesembryanthemum* (*tricolor*) *pyropæum*, grows compactly in patches, spreading over the ground, and not more than 2 inches in height. The flowers are rather large, of a deep rosy pink, with a white centre. They are produced in abundance, and continue long in perfection. It is very handsome, and comes from the Cape of Good Hope; there is a white variety, but it is inferior in point of beauty to this.

7. *Salpiglossis atropurpurea*, grows from 18 to 24 inches in height, is rather spreading, much branched, and slender. The flowers are large and showy, varying from a dark purple to yellowish white, much veined and variegated. It is very desirable, and comes from Chili.

8. *Thunbergia* (*alata*) *aurantiaca*, grows from 2½ to 3 feet in height; is a slender climber, requiring a trellis. The flowers are large, of a deep orange, with a dark eye; they are very handsome, and are produced in abundance. It is very desirable, and remains long in bloom.

9. *Thunbergia* (*alata*) *albiflora*, is another slender climber, growing about 3 feet in height, and requiring small twigs to support it. The flowers are rather large, white, with a dark eye; it is very ornamental, and comes, like the last, from the Mauritius.

10. *Sedum cæruleum*, grows but a few inches in height; is rather spreading, and very slender. The flowers are of an azure blue, very small and numerous; it is one of the prettiest of miniature annuals, and is very suitable for growing in pots. It comes from Tunis.

11. *Martynia fragrans*, grows from 2 to 2½ feet in height; is very robust, slightly branched, rather inclining to spread. The flowers are large, of a rosy purple, with a yellowish centre: they are not very abundant. It is sweet-scented and showy, but rather naked in appearance. It comes from America.

12. *Trachymene* (*Didiscus*) *cærulea*, grows from 18 to 24 inches in height; is slightly branched, and erect. The flowers are small, of a bright blue, and are produced in flat umbels. It is very pretty, but the stems are rather naked in appearance. It comes from New South Wales.

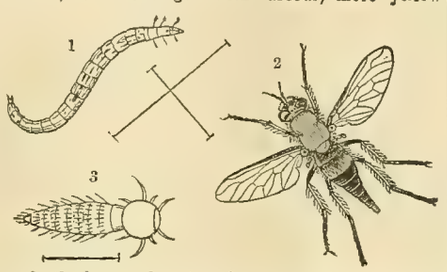
Some of these, if planted in a warm sheltered situation out of doors in June, will bloom freely, and produce abundance of seed.—*George Gordon.*

ENTOMOLOGY.

THEREVA PLEBEIA (*the common Thereva.*)—I am constantly receiving curious worms or larvæ from gardeners, with inquiries regarding their economy, which it is not always in my power to answer satisfactorily at the time; and I have now the pleasure of illustrating the history of one which I received last August, that had been taken from the roots of a Turnip. It is about 1 inch long, perfectly cylindrical, tapering to both ends, very smooth and shining, with a single bristle on each side of the 3 thoracic segments; it is of a pearly white, the extremities more ochreous, but, what is most remarkable, it appears to be composed of 20 segments instead of 12, the typical number exclusive of the head, which is small and bright brown; that peculiarity, however, must arise from transverse lines dividing seven of the abdominal segments, to give them a freer action; they are variegated with ochreous and brown dots and lines, many of which are the viscera shining through the transparent skin; on the first thoracic and the antepenultimate caudal segments are brown spiracles, but I could discover no others, and the tip of the tail is furnished with two appendages or respiratory tubes, with which the vermiform larva adheres to objects and jerks itself about, for it is very active when disturbed, and if laid upon its back it recovers itself in an instant: it progresses somewhat in the manner of a snake, by an imperfect serpentine motion, not being able to contract and expand its segments like the soft maggots of flies generally.

Bouché says, these larvæ are found throughout autumn and winter living in vegetable garden mould, on which they feed. I detected one in a puddle of water in November, in Hants, several years since, and I have a faint recollection that I have met with them in the dung of horses or cows, where, probably, they may live upon the grubs of the Aphodii, &c., which abound in such localities; for the larvæ represented (fig. 1), which was the largest I had seen, on being inclosed in a box with some rotten wood and two larvæ of the Helops caraboides,* the third week in April, very soon perforated their horny skins and sucked out the entire contents of their bodies; I therefore conclude they are rather useful than prejudicial in the soil. On the 17th of May I put some earth and soft decaying wood into a pot with this worm, and on the 15th of June I had the satisfaction to find a female Thereva under the gauze. I had observed the pupa lying on the surface of the earth for a week or ten days previously, but unfortunately made no drawing of it; I am, therefore, obliged to rely upon M. Bouché, whose figure I have copied (fig. 3), and he states that by means of the transverse series of bristles on the abdominal segments, the larvæ are able to work themselves out of the earth at the period in May when the flies are ready to emerge from their tombs. They inhabit Grass and herbage in woods, meadows, commons, grassy wastes by road-sides, and banks of ponds and ditches, generally preferring, I think, damp situations. They live upon the sweets of flowers principally, and sometimes congregate in swarms in the breeding season, after which the females deposit their eggs in the earth.

The species before us—for there are several which are indigenous*—was first named by Linnæus Musca plebeia; and Latreille gave it the appellation of Thereva plebeia. The sexes vary in size, the *male* being the smaller; it is black, and densely clothed with fine dark hairs above, but is generally more yellow beneath; the head is hemispherical, the eyes dark and contiguous on the crown, with three minute ocelli behind them; the mouth is composed of a horny upper lip, a long acute tongue, similarly formed maxillæ, with long capitate hairy palpi, and a large fleshy lip; it is concealed in a cavity beneath the head, and covered with hairs; the antennæ are porrected from the front of the head, and approximate; the basal joint is cylindric and elongated, the second small and globose; the third is longer and attenuated, the base ochreous, the apex producing a minute pear-shaped joint, terminating in a bristle; the thorax is globose, the scutel semi-orbicular; the abdomen is elongated, oval at the base, attenuated to the apex; the sides are beautifully fringed with bright fulvous and blackish hairs, and five of the velvety-black segments are edged with ochre, the apex being obtuse and bright ferruginous; the wings divaricate, and are neither long nor ample; they are iridescent, a little tinged with fuscous, more yellow



towards the base and costa; the numerous nervures are piceous, the apical one being bisinuated; poisers distinct, tawny; the base of the club pitchy; six longish and slender legs, clear ochreous; the thighs ashy-black, and very hairy; the tibiæ with black bristles, and dusky at the tips; tarsi brown at their extremities; the claws sharp, pulvilli ochreous. *Female*, clothed with short, depressed, shining, yellow hairs; the head is smaller than in the male; the eyes are remote, with two oval black polished spots on the forehead; the abdomen is longer, and more attenuated; the two basal segments are clothed with silky yellow hairs; the four or five last are black, shining, and telescopiform, the apex being capable of considerable protrusion when depositing the eggs; the wings are a little lighter than those of the male. Fig. 2, the female, the cross lines exhibiting the natural dimensions.—*Ruricola.*

* Curtis's Brit. Ent., fol. 298.

Home Correspondence.

Moss a Protecting Material.—I have never found Moss to fail in protecting tender plants, in any case wherein it was properly applied. Roses, Fuchsias, Lobelias, Salvia patens, and many other plants, may be protected from frost by it in the most effectual manner. My method is to pack the Moss closely over the roots, in the shape of a small mound, and to bend a few pliable Willows over it, with each end stuck in the ground. This keeps it in a compact state. This method, however, more particularly refers to herbaceous plants, and such as may be cut down, as Fuchsias, &c. My Fuchsias in borders, protected in this manner, make large stools, and grow very luxuriantly, some of them reaching 6 feet in height, and nearly as many in circumference, and flowering in the greatest profusion. I have covered beds of Roses with Moss, laid closely over the surface, and packed in about the bases of the shoots 6 inches in thickness; and I have never perceived the slightest injury arise from its being applied in close contact with the branches: all remained fresh and well. At the return of spring, when the Moss was removed, the buds at the bases of the shoots appeared full of life and vigour; the beds were then dressed, the plants were pruned, and as the season advanced they again assumed their wonted beauty. Aloysia citriodora, planted against a wall and treated like a Fuchsia, may be preserved in this way for years, and will grow beautifully. I have had it throw up shoots 6 feet in height, in one season, and flower well. By means of Moss I have also preserved the roots of half-hardy climbers and other plants trained on walls. In order to protect the branches and laterals, I nailed over them flat branches cut from the Beech, with the dead foliage still remaining on them. These form a very good protection; they admit plenty of light and air, and keep off a considerable portion of frost and cold. Many plants might be preserved over winter in this way. I have no doubt that Pelargoniums may be preserved by the cone method, mentioned by Mr. Rivers, and I agree with him that tender evergreens will sustain but little injury, if well protected at the roots.—*Henry Wood, Statfold Hall.*

* Curtis's Guide Gen. 1191.

Chicory.—This has been long in use on the Continent as a salad, and none make finer salads than the French and Belgians. I have grown Chicory for these 10 years, and the families with whom I have lived were all particularly fond of its beautiful cream colour, of which it formed the chief ingredient in their winter salads. In a season like the present, Chicory becomes very valuable, as the greater part of Endive and Lettuce plants are destroyed by the severity of the weather. Sow in rows one foot apart, in deep, well-prepared ground, about the middle of May, not sooner, as it is apt to run to seed; thin out the plants to a foot apart in the row, and keep the ground clean. Take up a few when wanted, cutting off the green tops; as winter approaches, place four or five roots in a large pot, filling it up with mould, and with a smaller-sized pot cover it up closely to prevent air from getting in, and place the pot in heat if you have it at command; but if not, a warm cellar will do. Place a small quantity of mould in a corner, and plant according to what you may require. It will afford many cuttings without any trouble whatever.—*James Cuthill, Denmark Hill, Camberwell.* [The roots are the best known substitute for coffee.]

Heating.—I beg to inform "Dodman" (p. 70), that I have heated a house 50 feet in length and 14 feet in width, with a boiler which contains 5 gallons of water, the price of which was 32*s.* The house can be kept at 60° in severe weather. The boiler and gutters when completed did not exceed 10*l.* I can use any sort of coal or wood, and have had the apparatus in use above a year. I may mention that the boiler is quite my own plan, and the gutters are 1 inch thick, and are covered with slate; the consumption of fuel is small compared with that burned in many of the pipe and other boilers. The flue winds round the boiler and over the top, and is regulated by a damper.—*Nemo.* [We have received 2 models of "Nemo's" boilers, which it appears are executed in copper: we do not, however, find any novelty in their plan.]

Performance of Heating Apparatus.—An error has crept into the account respecting the working of my hot-water apparatus (erected by Messrs. Weeks and Day). On the night of Feb. 11, the fire was made up at 10 o'clock instead of 1 o'clock, as is mentioned at p. 135. As you wish further particulars, I may mention that the external temperature was 26° below the freezing point, and that the heat inside the houses at half-past 6 o'clock in the morning of the 12th Feb., was in the greenhouses and pits, from 40° to 62°, and in the stove 71°. The space heated was 22,000 cubic feet=3500 superficial feet of glass; and the quantity of fuel consumed in 12 hours was from 4 to 5 bushels of cinders. The average consumption has been about 60 bushels a week since Christmas; two chaldrons only being coke out of that quantity.—*C. M. Westmacott.*

Vine-Borders.—The following is my method of covering these, which I have found from long experience to answer remarkably well. On the commencement of winter, I cover the entire border of my Vinery with fresh stable-dung, about a foot in thickness. This border contains 90 superficial yards, and lies inclined about 20 degrees from the wall of the house. On warm, sunny days the dung is sometimes moved, so as to allow the influence of the sun and air to penetrate the ground. Towards evening the litter is again replaced, whilst the earth is yet warm. On the approach of June, the long litter is removed altogether, and the remaining dung carefully forked into the bed. The soil is slightly forked during the summer months, and nothing is permitted to vegetate on the surface during that time. I beg to add, that I have not seen the produce of my Grapery surpassed.—*A Subscriber, Maidstone.*

Frames.—In reply to "Hortulanus" (p. 154), respecting the management of my frame, I beg to mention that I am guided by the state of the weather as to the hour of placing the rushlight end in it. If the weather be frosty or damp, in December, January, and February, I put it in early—say between 11 and 1; but at whatever hour I do this, I immediately cover up for that day. This is essential, as all the heat is then husbanded. At the present time I put it in about 3 o'clock. With respect to the placing of the candle, I put the lantern on the ashes at the bottom of the frame, immediately under the piece of wood which separates and supports the two lights. I am happy to say that this plan answers admirably. While the frost has destroyed dozens of plants in my neighbours' greenhouses, those in my little frame have not only passed through the late severe weather unscathed, but are flourishing as well as I can wish. My Pansies, Auriculas, and Polyanthuses, are showing for bloom, and the rest of my collection are healthy and strong. I have two large bast mats; these are so placed that one end just clears the earth in front, and the other hangs down at the back of the frame; they just meet in the middle. I have four strong iron skewers, and with them I secure the four corners, so that there is always a space filled with warmer air between the wood-work and the atmosphere. In moderate weather I use the asphalte covers only over these mats, but if it be severe, I then put on any old pieces of matting I may have, before covering with the asphalte. Before I had asphalte, I used an old moreen curtain, painted on both sides, and I found it very useful during the frequent falls of snow we have had, as I was enabled to remove the snow without uncovering my plants. I do not doubt that the candle and covering have been of use in preserving the plants; but I think that care in exposing them to the action of light, while every part was in a state of con-

gestion from the effects of cold, is, after all, the great secret. Now the weather is so severe, I never uncover all at once, especially if the sun shines. I take off the covers, and about an hour afterwards remove the mats; but if the cold be very intense, I do not uncover at all, except to put in a fresh candle. In summer I shade with a cover of very thin glazed lining, with a loop at each corner. I now keep a small garden-saucer, filled with water, near the lantern. The candle is put on a save-all. When very damp, I turn the lights.—*X. X.*

Cottages.— Three correspondents have favoured us with a reply to "Dodman's" inquiry about the plans of cottages. Mr. Donaldson states that Mr. G. Johnstone, land-steward for Baroness Le Despencer, Mereworth Castle, near Maidstone, is at present engaged in erecting cottages of that description and cost, and would be happy to communicate with "Dodman" on the subject of plans, &c. Prof. Donaldson saw lately at East Malling, in Kent, some very neat cottages in the plain old English style, which might suit "Dodmen's" purpose.——*A Constant Reader* states that there is a work, which received the Highland Society's prize, on cottages, by George Smith, which contains working plans from 30*l.* to 300*l.*, and some useful hints. It is published at 4*s.* in Glasgow, but may be had of the architectural booksellers.——Finally, *Agrestis* refers him to the report on the sanatory condition of the poor, published in 1843, where he will find admirable plans of cottages on the estates of the late Earl of Leicester, in Norfolk, and of Mr. Benyon De Beauvoir, in Suffolk, and if required to be of a more ornamental character, he will observe others, which have been erected in the beautiful village of Harlaxton, near Grantham, in Lincolnshire, by Mr. Gregory Gregory. For the sum named by "Dodman" (100*l.*), he will build excellent 4-roomed cottages, with the requisite sheds and out-offices. If the cottages are built in a row, he will find one large tank made circular, of brick, cemented within, sufficient to supply several houses with water. The cottages should be spouted with cast-iron spouting, kept well painted within and without every three years; it is far preferable to tin or zinc, though the first cost is greater. For filtration, he cannot use a better implement than a pump recently invented by a clever mechanic, Mr. Cheavin, of Donington, near Spalding, in Lincolnshire, which draws the water from a tank through a filtering apparatus attached to it, and has also a metallic valve floating on the surface of the water, by means of which it is drawn without disturbing the sediment always to be found in rain-water tanks. It will also purify the water, if a square frame, about 2 feet square, is fixed on the roof of the tank, and filled with washed gravel or charcoal, and the water passed through it into the tank. "Dodman" will find it advisable to provide the grates for the houses, that no disturbance may occur to the fixtures on change of tenancy. The range for the living-room, consisting of a grate, with oven and boiler attached, may be had at any ironmonger's, at a price from 2*l.* 10*s.* to 3*l.* 10*s.*, according to size. One of the sleeping-chambers should at least be furnished with a fireplace; and indeed it is better for ventilation that all the rooms should have chimneys, and the windows of cottages should be made to open with casements, or otherwise. The cost must depend on locality and the nature of the materials employed; but "Dodman" will find that labouring men can scarcely be expected to pay a rent out of their earnings which will return good interest; 1*s.* per week is quite enough for his means; and if a rood of garden-land is attached, about 10*s.* more per annum is a fair rent for a labourer; although, no doubt, far higher rents are often exacted by small owners of cottage property, to the great distress of poor persons.

The Weather.—I have been talking to a merchant just come from Marseilles, where he lives. He says that all his Orange trees have been killed by the late frost, and that when he cut one down he found that the wood itself had turned black. The thermometer at Turin has been three degrees below Zero of Fahrenheit; yet there has been so little frost in Cornwall, that at Carclew it has only damaged the blossoms of the Nepal Rhododendrons, flowering in the open ground, and apparently done no other harm.—*X.*——The frost of last week, though less intense here than in the neighbourhood of London, was for this part of the kingdom unusually severe. On the 3d, 4th, 5th, and 6th, the *minimum* temperature was 26°, 27°, 22°, and 24°. Since then the frost has gradually disappeared, and the air, though dry and cold, has become more seasonable. On our large plant of Rhododendron arboreum there were several thousand flowers open during the preceding week, nearly all of which were frozen, and have since withered and dropped; but the buds on other plants, which were fortunately not so far advanced, do not seem to be injured. —*W. B. Booth, Carclew, Cornwall.*——The frosts here have killed, certainly all the main branches, if not stems, of my Acacias from St. Helena, which have been in the open ground for the three preceding winters; but two varieties of the Eucalyptus and a Casuarina—the She Oak, as Mr. Curtis calls it—do not appear to have suffered much. The Metrosideros, Sida picta, Escallonias, and my hedge of 70 varieties of Fuchsia, some 8 feet high, are all beginning to start. My thermometer, on a north wall, was only down to 20°, varying from that to 24° for between two and three days.—*T. Ingle, M.D., Jersey.* Since the above was in type, the following returns have come in: *Millon Hill near Abingdon.*—Thursday, at 8 P.M., therm. 11° against a north wall.—*R. H. Betteridge.*——*Witchingham, Norfolk.* —Tuesday, March 11, therm. 17°; Wednesday, March 12, therm. 16°, snow 9 inches deep, with a cutting wind. —*L. Short.*——*Horticultural Garden, Chiswick.*—Friday, Mar. 14, therm. 13°(the radiator 7°).—*R. Thompson.*

Statice arborea.—"Duro" remarks that he has rarely met with well-grown specimens of this. I have never found any difficulty in cultivating it, and I have now a specimen 4 feet in height in perfect health and vigour, with three large heads and flower-spikes already up, and many more showing. My treatment differs from that recommended by "Duro;" the composition in which it is potted consists of peat, leaf-mould, silver-sand, and charcoal, and I never keep it in a higher temperature than from 40° to 44°: in regard to light, air, and moisture, I entirely coincide with "Duro," but it may be grown in a much lower temperature than that which he recommends.—*J. L. Snow, Swinton Gardens.*

Potatoes.—Planting in autumn is strongly recommended by some, and I have no doubt that this is right theoretically, but I am afraid that it would not do in practice. I imagine that if Potatoes were planted in autumn at the usual depth, our ordinary winters would kill them, unless they were covered with mulch, leaves, or some such material, sufficiently thick to exclude frost, and the exclusion of which would, I think, be injurious to the land. The following is the course I would recommend. Prepare the ground in autumn by manuring and deep digging. On no account touch the land, or tread upon it, during winter or spring, unless it is quite dry upon the surface, which, in ordinary seasons, will be found to be so about the end of February, or in March. As soon as the soil is so dry that it will not stick, or paste, plant even as early as the 1st of February, if the weather is open and mild, and a good crop will in all probability be the result, if the land under any circumstances would produce a good crop. I have succeeded in growing good crops for 22 years, in Sussex, Worcestershire, and Somersetshire, by adopting this course. The plants invariably grew well in spring, and were not in the least affected by dry-rot, which, as regards the Potato, is synonymous with starvation, or the result of late planting in land digged or badly prepared in a wet state late in spring, the soil at the time of planting being a mass of dry, hard clods, impervious to air and moisture; and hence in a dry season, such as that of 1844, the sets, or tubers, die from want of nourishment, which would not be the case if the sets or tubers were planted in friable soil, as they would there root freely, and consequently would be much less injured by drought. Dry-rot is the effect of late planting produced by another cause. If Potatoes are not planted until late in spring, it is obvious that the tubers, or sets, are kept out of the ground long after the time which Nature has pointed out as the best season for planting them, namely, when they first show signs of growth. The work of destruction now commences. The tubers have their young shoots frequently rubbed off, which cannot be done, even once, without doing great injury to the tuber, and weakening its powers of reproduction. When the planting is deferred to the end of April, or beginning of May, which is too often the case, this disbudding or rubbing off the young shoots will have been done so many times, that there will be scarcely sufficient strength left in the tubers to produce another shoot. Hence dry-rot ensues. With reference to whole tubers experience has taught me to employ whole tubers of the more delicate kinds of Potatoes—the Ash-leaved kidney, for instance—and cut sets of the strong-growing or coarser kinds. "What has been done can be done again," says an old adage. I have grown Potatoes (the bread-fruit) at the rate of 580 bushels to an acre from single eyes; therefore to insure a good crop it is not necessary to plant whole tubers of strong-growing kinds.—*W. T.*——I have read the notices with reference to autumn and winter planting of Potatoes, and have been induced to give the latter a fair trial. On the 23d of January, I planted 10 roods, (64 yards to the rood), of deep dry sandy soil, with Kidneys, set whole, and Fox's Seedlings partly whole, and part cut into large sets, covering the whole with about 5 inches of soil. I should at all times prefer, whether in autumn or in winter, to plant before germination takes place, in order that the plant may commence and grow in its natural way. But there are reasons why I prefer the former time to the latter, and also why I may expect a failure by winter planting: the principal one is this:—The rains in October and November close up the pores of the soil, and form it into a more compact body, whereby the set is defended from sudden changes of temperature, which destroy it, and which I should expect would not be the case in loose or fresh digged soil; for although air is a good non-conductor of heat, still, by the well known law of the diffusion of gases, that surrounding the Potato would soon be of the same temperature as that upon the surface of the soil. Again, I am informed that if a frozen Potato is placed in water to thaw, it will remain uninjured; if so, the first frost we had, as it was unattended by snow or rain, would be infinitely more liable to injure Potatoes in the land, than the last would, when we had both. Might not this account for "A Kentish Subscriber's" tubers having perished, as stated in the Agricultural part of your Paper lately? I name these circumstances, in order to show parties conducting experiments of this description, the necessity of paying strict attention to the minutiæ attendant upon them, and in particular to the kind and nature of the soil, and whether well under-drained or not, as it appears plainly we must consult meteorology, when deciding upon results in autumn and winter planting of the Potato.—*John Thomas, Wem, Salop.*—— I planted in November some rows of Potatoes, at different depths, for experiment. A few which I had to spare were thrown upon the bed, and soil thrown over them; they would be covered from 4 to 12 ins. I examined them a fortnight ago, and found them sound, the lowermost ones vegetating. The frost has penetrated 4 inches in some parts of my garden. (Jan. 31.)—*O.*

Effect of Frost on Roots.—Having observed for the last two or three winters that my Dahlias, which had been casually left in the ground, had survived the winter, and having been unsuccessful in my attempts to preserve from great loss those I took up, I came to the conclusion that the safest plan would be to leave my Dahlias in the ground, only taking care to earth them well up, and cover them at least a foot deep with soil. This I accordingly did the last autumn, feeling anxious about the result of my experiment. I tried several of the roots during the few days' thaw that occurred at Christmas; I found them very little injured; a few of the small roots near the surface were touched, but the crowns were all sound. They were covered carefully up again and not opened until last week. I am sorry to say not a plant has survived; they are most completely decayed; not a vestige of a sound root. In a garden near me, I found a former tenant had left a patch of Potatoes untouched. They had been set with a dibble, and have been hoed since setting, consequently they could not have been, at the utmost, more than three inches under ground. These I had taken up at the same time that I examined my Dahlias, but not more than one-sixth had escaped the effects of the frost. The others were utterly destroyed.—*H.*

Vine-culture at Trentham.—At p. 115 Mr. Fleming broaches a theory on the subject of Vine-pruning, which not meeting Mr. Humphreys's ideas, the latter modestly accuses Mr. F. of having made a horticultural bull. Now, what is generally understood by the term bull, is a blunder so palpable as to carry with it its own confutation; and I, for one, can see nothing in Mr. F.'s theory that can legitimately come under that definition. Before making such a charge, Mr. H. should have considered whether a retrograde motion of the sap, even to the extent of passing from one branch to another, be so impossible a thing as he imagines. He should also have seen that whether such a motion exists or not, Mr. F. makes no such assertion, but merely presumes that the juices elaborated in the autumn, and stored up in the last year's spurs, are, in the absence of other outlet, attracted by the buds at the bases of the same shoots. If I understand Mr. F. aright, he does not assert his opinion dogmatically as a thing proved, but merely throws it out as a hypothesis deserving of further consideration. Whatever opinions may be held respecting the tenability of Mr. F.'s theory, there appears to me to be nothing unreasonable on the face of it; nor can either the theory in question, or the having produced a full crop of well-coloured and well-flavoured Grapes by the middle of February, be fairly called a retrograde movement in horticulture. Neither is such a charge likely to be made by any one who, like myself, has been conducted by Mr. F. through his houses within the last 3 weeks.—*Staffordiensis.* [We have a letter from Mr. Fleming on this subject, and shall find room for it next week.]

Camellias.—The following is a list of 36 varieties, which I know, from experience, to be good, distinct, and in every way worthy of cultivation, viz.:—

Alba pleno	Imbricata alba	Chandlerii
Aurora	King	Fredk. le Grand
Colvillii	Myrtifolia	Concinna
Conspicua	Palmer's Perfection	Latifolia
Coronata		Sweetii
Celestina	Pæoniflora	Serratifolia
Donckelarii	Press' Eclipse	Sieboldii
Elegans	Reticulata	Elata
Eximia	Sasanqua	Ochroleuca
Florida	Sabiniana	* Queen Victoria
Fimbriata	Tricolor	* Prince Albert
Francofurtensis	Triumphans	*Laurenceana and
Hume's Blush	Warratah	* Marchioness of
Imbricata	Willbonstriana	Exeter.

The last four marked thus *, are said to be first-rate, but I have not given them a fair trial.—*E. R., Halifax.*

Mealy-bug.—My gardener having now had the advantage of using "Hereman's Liquid" five months, I can say positively that it is invaluable in the stove, and has disarmed the mealy-bug of all its terrors. My houses were thoroughly infested by it, and it is now nearly extirpated. Mr. Hereman deserves from horticulturists the highest compliment they can award him. No gardener with Hereman's Liquid will be troubled by the mealy-bug in his houses, unless by neglect.—*W. Herbert, Spofforth.*

The late Frost.—Mr. Chater, of Saffron Walden, writes that his thermometer, hanging on a post in the open ground, about 3 feet from the surface, on the night of the 11th Feb., fell 7° below freezing, and that at Audley End it fell 12°. He mentions that the coldest night, in that quarter, was the 6th March, when his thermometer fell nearly 1° below zero. In some gardens, in that neighbourhood, the thermometer fell 8° below freezing, and in others, 5°; the thermometers being fully exposed.

BOTANICAL SOCIETY OF EDINBURGH.

(*Continued from p.* 153.)

Feb. 13.—Mr. M'Nab read a continuation of his journal of a tour through part of the United States and the Canadas. The last portion read before the Society gave an account of the journey from Montreal to Kingston, and concluded with an account of a botanical excursion to the eastward of the latter place:—The woods to the westward of Kingston appeared very dense, chiefly consisting of stately Beeches, growing in rich vegetable

soil. Several very remarkable plants were observed, and among others the Monotropa uniflora and Hypopitys: the former, which is abundant in shady Beech woods throughout the country, and always growing from amongst leaves, is known to the inhabitants by the name of Indian pipe or birds' nest: the latter is not so plentiful, but found in similar situations. Here, also, Corallorhiza multiflora, and Orobanche virginica were found, and at one place in a dense thicket the rare and curious Pterospora Andromedea. Near the confines of the woods, in drier situations, the white and pink varieties of Phryma leptostachya occurred; and on the dry limestone ridges, which prevail in this neighbourhood, large quantities of Triosteum perfoliatum, Gnaphalium margaritaceum, and Botrychium obliquum were found; along the margin of Lake Ontario, Serpicula verticillata was noticed, its delicate flowers floating on the surface. The Beech, Sugar Maple, and White Pine, from their quantity and local situation, seem to have been the original inhabitants of this district; and mixed with them, but not so much in groups, were noble specimens of Oaks, Elms, and Walnuts. The Sugar Maples bore evident marks of having been often pierced for their juices. Fringing the edges of some meadow-land in this district, the Stag's Horn Sumachs, *Rhus elegans*, presented a most magnificent appearance from the quantity of scarlet fruit which they carried. He was agreeably surprised to see such a variety of native Hawthorns, being convinced of their fitness for forming hedges, so very much wanted in this country, and which many of the inhabitants expressed a great desire to have, instead of the unsightly snake fences which at present separate the fields. But apparently they never thought that the indigenous Thorns would answer for this purpose, as they talked of importing haws and white Thorns from Britain. Mr. M'Nab gave instructions to those individuals with whom he had an opportunity of conversing upon the subject, so that they may raise Thorns for themselves, as an abundant supply of seeds may be annually procured at no great distance from each settlement. As these instructions may be interesting to others, we here repeat them:—"The fruit should be gathered about the end of October, care being taken to keep the seeds of the luxuriant growing sorts separate from those of the dwarfer kinds. A pit should be prepared about 1½ ft. deep, into which the fruit is to be put with a mixture of earth or sand. It should be turned several times during the season, and if dry, a little water may be added; 1 or 2 ins. of soil being a sufficient covering to insure the decomposition of the pulp. During the following October a piece of good ground should be prepared, and the seed sown as it is taken from the pit, pretty thick in drills about 1 ft. distant from each other, or in beds 3 ft. wide. In the succeeding spring the plants will begin to appear; at which time, and throughout the season, they must be kept clear of weeds. If properly attended to the seedlings will attain a height of from 6 ins. to 12 ins. the first year. The following spring the strongest plants may be either transplanted into drills, or placed where they are intended to remain as a permanent fence. The smaller ones, should be left in the seed-drills or beds for another year, when they may be treated in the same manner. In forming a live fence, the ground ought to be prepared as soon as the snow disappears, by making a trench about 2 ft. broad, and a spade in depth. Along the centre of this trench the young plants should be put about 6 or 8 inches apart, and afterwards well watered and firmly trodden in. Care should be taken to protect the young plants from cattle, and to keep them clear of weeds. The second year after planting, the thorns should be headed down to within 6 or 10 inches of the ground, and each year afterwards switched up on both sides to a centre ridge, so as to produce the shape generally termed sow-backed; hedges trained in this form, being less liable to be destroyed by snow resting upon them than when cut flat at the top." If the method here recommended be properly attended to, Mr. M'Nab has not the least hesitation in saying that an excellent hedge of native Thorns may be acquired five or six years after planting. At several places he saw the indigenous Thorns employed as a fence; at least, they had been planted with that intention, and had attained a considerable height, but from want of proper attention to pruning and weeding, they were so slender that easy access might be obtained between each stem. From such instances of mismanagement, an erroneous opinion seems generally to prevail that hedges will not succeed in America. "But," he very properly remarked, "if newly-planted hedges in Britain were equally neglected, there can be no doubt that they would soon degenerate, and become no better than those which I observed in the United States and Canada."

Reviews.

The Geologist's Text-Book. By D. T. Ansted, M.A. Van Voorst.

A few weeks since we gave a favourable notice of Professor Ansted's "Geology," and we can conscientiously do the same for his Text-Book. This little volume is intended as an outline of the larger one, and contains also a condensed analytical index, which can be used for either work. We had anticipated, from the size of the volume, that this Text-Book would be somewhat obscure and unintelligible to those who had not read the "Geology." But in this we have been mistaken. The style of the present volume, though condensed is perspicuous, and we apprehend will be found a valuable introduction not only to Mr. Ansted's larger work, but to the study of geology generally. It was evidently not written for the beginner in geology; yet we question if, in our language, there be a better introduction to the science.

Elements of Physics. By C. F. Peschel. Translated by G. West. Longmans.

A good introduction to natural philosophy, with mathematical formulæ of the more obvious principles, has been long wanted in our language. Such a desideratum is, however, well supplied by the translation of the present volume. This book is neatly got up, is illustrated with diagrams and woodcuts, and is the most complete elementary treatise on physics that has hitherto been published. The principles of natural philosophy lie so much at the foundation of every man's pursuit, that we need not recommend it further to the readers of the *Gardeners' Chronicle*.

NEW PLANTS.

Aphelandra Aurantiaca. Orange Aphelandra. (*Stove Shrub.*) Acanthaceæ. Didynamia Angiospermia.—This is the handsomest stove shrub that has been introduced for a long time, and in the estimation of cultivators must class with Ixora coccinea, Aphelandra cristata, the Hindsias, Jacquinia aurantiaca, and other front-rank species. It was exhibited at a late meeting of the Horticultural Society, by Mr. Henderson, of Pine-apple Place, under the title of Hesemasandra aurantiaca, a name not to be found in any botanical books in our possession. It is probably some error, and the word may have been Hemiandra (half anther), in allusion to each anther having but one lobe; but Hemiandra is really a totally different plant. Can it be Schrader's Synandra amœna, the Aphelandra ignea of Nees von Esenbeck? concerning which we find nothing beyond a notice in Dietrich's Synopsis Plantarum. We have only seen it on the occasion just alluded to, but we could not then perceive anything to separate it from the well-known genus Aphelandra, and thither it is accordingly now referred. Colourers are quite unable to give the soft and brilliant glow of the rich orange-coloured flowers, which may perhaps be compared with that of the ripest side of a Brussels Apricot when coated by varnish. We presume that some part of South America is the origin of the plant, but upon that point we have no information.—*Botanical Register.*

Garden Memoranda.

Mr. Booth's, Flottbeck Nursery, Hamburgh.—A new span-roofed Orchidaceous house has lately been erected here, which, judging from the vigour and health which its inmates exhibit, is well calculated for the growth of plants of that description. It measures 103 feet in length, and 21 in width, standing north and south, and is heated by one of Messrs. Weeks and Day's boilers, which is found to answer admirably. Among the many Orchidaceous plants here, several were in full bloom. I particularly remarked a fine specimen of Maxillaria Macleei, and two other recently imported species which were not named. The flowers on one of these were nearly black. Of Dendrobiums I observed handsome specimens of Ruckeri, macrophyllum, Macleinii, and Cambridgeanum. The rare Chysis bractescens was also flowering freely here in company with aurea, another scarce species. Here was also Franciscea hydrangeiformis, producing 3 fine heads of bloom, and a very large bush of Centradenia rosea; but the most interesting plant was an immense specimen of Begonia manicata, measuring 12 feet in circumference, and 6 feet in height; it was covered with delicate pink flowers, forming an object in point of beauty rarely to be seen at this season of the year. In the same collection was also an enormous plant of Puya Altensteinii, whose gracefully-bending branches were covered with pure white blossoms, issuing from a rich crimson sheath, which showed off the flowers to great advantage. In the same house was a magnificent specimen of Saurauja spectabilis, measuring 5 feet in height. The Heath-house, which is very extensive, contains many hundreds of fine specimens; but I shall leave a description of them to another time, when I can better see them, for the house is now closely covered up both top and sides, so intense has been the cold here; at present the thermometer marks 15° Reaumur = 0° Fah. In many cases, the one-shift system of potting is adopted here, and, judging from the results, with success; indeed, the whole collection reflects credit on Mr. Goode, who has the care of the plants in this establishment.—*P. S.*

Bees.

Answers.—*Philomela.*—Various methods have been adopted to obtain the produce of bees, and in some seasons and in certain districts all may be adopted with success. However different hives are in name and appearance, there are only four ways of getting honey from them, viz., by destroying the bees, and taking the honey either from the top, bottom, or sides of the hives. In the storyfying system, honey is got from caps, glasses, or boxes put upon the top of established hives, having openings at top to permit the bees to ascend. This method is in general use, and is strongly recommended for cottagers, by Mr. Payne, of Bury. According to that apiarian, the hives ought to be rather under the common size, viz., 9 inches in depth, and 12 in diameter, straight at the sides and flat at the top, for the capes to rest on. When this plan fails, it is from the capes being placed on weak stocks, or from strong stocks being weakened afterwards by swarming, which is much against the depriving system of bee-keeping. In general, honey from the top of hives is very pure, it being less liable to be discoloured by the traffic of the bees, than that obtained from ekes at the bottom of hives, which is called the nadiring plan, being just the reverse of the other. Though bees are more likely to work in an additional space below, than above, still when they do ascend their cells are not so apt to be empty as those below. Strictly speaking, the one plan is merely cutting a large slice from the top of a hive, the other from the bottom, leaving a part of the honey and brood combs in the heart of the hive, being the reverse of the way of taking honey from the sides of hives, called the collateral method. It is recorded that in 1675 J. Gedde, Esq., invented this hive, but that "his information was derived from Dr. Wilkins, bishop of Chester." The best collateral hives in these days are three boxes, about 10 or 11 inches square in the clear, nicely fitted together. The bees enter the side boxes, through openings in the partitions from the centre one. The honey is obtained from the end boxes, while that in the centre, containing a part of the honey and brood combs, is not disturbed. This plan may be likened to that of cutting a large hive downwards into three parts, taking two parts of honey and brood combs away. I am aware of what has been said respecting no brood being in the end boxes, but I have had ample experience to the contrary. I may mention that the principle of the bar and Polish hives is similar to that of the collateral hives; though the combs are extracted at the top of the former, still they are the side, or honey combs, which are the only ones also that are cut from the sides of the Polish hive. By that means the brood is not injured, and a great object is gained; for how could a colony of bees well exist through the winter, without young bees to fill up the places of those dying off? I know nothing of the herb you mention, nor of any other likely to suit your purpose. Smoke from a short tobacco pipe is used by some while they are amongst bees; but I make use of nothing, still I would not trust myself uncovered amongst angry bees. Grove's American bee-palace is similar to the collateral hive, being divided into three equal parts, having openings for the bees to pass from one chamber to another. On the top of each chamber is a bell-glass, from which the honey is taken; and in the sides and at each end are glass windows for observing the bees. The entrance is the whole length of the part underneath: this is considered beneficial, by reason of its allowing the bees to enter any part they choose; and it likewise affords them better means of clearing filth from the floor, which I imagine is sloped a little towards the doorway. Milton considers that the "peculiar shape and entrance of this hive will effect changes for the better in our English hives." The entrance is, however, objectionable, except in hot weather, because it admits too much air to the bees. This Bee-palace may be compared to three humble cottage hives placed close together, each having a cap at top for the bees to ascend into, raised a little from the floors in hot weather by small wedges, to allow more air, and the bees freer access to the hives.—*W.*——*D.*—If you will look over my statement respecting Prince Albert's bee-hives, you will find that my remarks applied to what appeared in the public prints concerning them. I was not the first to find fault with their metal door-ways. Will you mention what sort of enemies they keep out? The greatest enemies of bees are small in size; and if the curious zinc door-ways exclude them, they would likewise exclude the bees. I shall wait with patience "correct information respecting Sholl's bee-hives." In the mean time, I am warranted in saying that they are a departure from that simplicity which should ever be kept in view.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

Very little growth has yet been made by plants under glass. The continuance of winter, and an almost totally obscured sun, has had alarming effects on valuable plants. Inefficient hot-water apparatuses must have entailed great expense, as well as much anxiety and attention to gardeners, but the effects of flues for such a length of time must have been ruinous in the extreme. We trust the lessons which have been taught this winter will not be lost upon plant growers, and that every improvement that can be suggested on so important a subject will be liberally contributed. Annuals intended to decorate the greenhouses, &c. should now be sown in heat, such as Balsams, Cockscombs, Browallias, Martynias, &c.; as soon as they have expanded their seed-leaves, pot them off into 3 inch pots, and keep them in a warm frame or pit near the glass. Orchidaceous plants will now require a regular looking over. Those on blocks of wood, with Moss, should have the Moss renewed and fresh turf should be applied to those in pots in a growing state. Read carefully Mr. Appleby's papers on this subject. Numerous plants in the stoves and greenhouses which give evidence of spring must have due attention, both as regards potting and training, but we should rather have spring to do it in. At present, the weather baffles our efforts and prostrates our hopes.—*A.*

II.—FLOWER GARDEN AND SHRUBBERIES.

As the weather has now taken a more favourable change, proceed at once to finish all digging of borders, &c. If Briars are wanted for budding Roses on, they should now be collected, trimmed, and planted in a reserve garden, or where they are wanted to stand for summer budding. All turfing, &c. should now be finished as soon as possible. Continue the pruning of Shrubs, Roses, &c. Where bulbs are making their appearance, the surface should be carefully loosened, if the weather continues dry and free from frost. *Pits and Frames.*—Much is now required here; put in cuttings of everything that is likely to be wanted for spring planting; a mild frame heat is the most suitable place for striking them in. Bell-glasses are not required at this season of the year, but shade them slightly during the middle of the day. Pot off struck cuttings as fast as room can be made by removing the more hardy kinds to colder situations, to harden off for the first planting. Pot off ten-week Stocks and other hardy annuals as soon as they are ready, and continue to sow seeds of all kinds of annuals that are most wanted; the more hardy kinds in beds or borders, under hand-glasses.—*B.*

III.—FLORISTS' FLOWERS.

The late unpropitious weather has completely brought all Floricultural operations to a stand-still, except that of protection. As soon as fine, open, and sunny days arrive, there wil

be an accumulation of work, which must, perforce, be attended to. *Auriculas* may be regularly watered, as the trusses are now beginning to move, and great attention must be paid to keeping them well covered at night, though all air possible must be given during the day, to prevent them from being drawn. *Polyanthuses* in beds have suffered more this spring than in any similar period during these last 20 years. If possible they ought to be kept from the sun's rays, when frozen, by mats or other covering. *Tulips*, considering the severe weather, are looking well; still every precaution ought to be taken, in order to insure a good bloom. Cover at night, as usual; and if rain falls during the day, the wet which lodges in the leaves must be removed, for, should it get frozen, the mass of ice has a very prejudicial effect on the embryo flower. *Ranunculuses*.—Those who did not take advantage of the fine day or two about the 25th of February, have of course yet got their collections out. No time, however, ought to be lost, if they are to be exhibited at the usual time. *Carnations*.—Plant out, if the plants are hardy, if not, defer it a fortnight later. *Dahlias* ought now to be at work; and where stock is wanted, the cuttings should be struck in a brisk heat.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Now that the sun has gained much power, keep a sharp eye on your bottom-heat that has been disturbed and renewed. Perhaps of all the injuries to which Pines are subjected, none is of so frequent occurrence as injury by bottom-heat. There can be little doubt that although the Pine (under certain circumstances) will bear, aye, and enjoy, 90°, yet those who make 85° their maximum, will not in the long-run be far behind those who are fond of such a powerful, and, I may add, unnatural stimulus—unnatural, I mean, in the relation it bears to the intensity of light compared with tropical climes. Little can be added to last week's Calendar at present: secure a moist atmosphere by various means, before detailed, and still proceed with, and complete as soon as possible, such spring arrangements as have been determined on. *Vineries*.—Those successional Vineries, which are now breaking, or not yet in bloom, should have their roots (if outside) covered with a coating of unfermented litter. There is no occasion to promote fermentation here; only bestow as much pains on it as folks do with their Radish beds, it will suffice, viz., uncover to admit the sun's rays, and cover up whilst the greatest amount of solar heat exists in the border. By this means, persisted in, an important amount of bottom-heat may be obtained in a week or two. Adhere to the last Calendar in other respects—an increasing warmth, corresponding to the amount of light, should be kept up, with a moderate night heat, and a moist atmosphere. *Peach-house*.—See that your borders do not get too dry: they will be much benefited by a little warm manure water; for instance, a handful of guano, and a quart of stale cows' urine, to a large garden-can full of clean warm water, heated to 75° or 80°. Observe cleanliness, and keep a sweet moist atmosphere. *Figs*.—Bathe freely with the syringe daily, and follow in other respects former Calendars. Take care that the swelling Strawberries have abundance of manure water: forced Strawberries suffer more than many persons are aware, by being suffered to flag only for an hour, more especially if swelling.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

As regards fruit-trees, operations recommended a month ago may yet be performed without being deemed out of season, for the buds are still next to dormant. Proceed with the grafting of Plums, Cherries, Pears, and Apple-trees, unless frosts are so severe as to cause the loosening of the clay. The latter will rarely drop off if the matting or bandage be well smeared over with a little grafting-clay before the ball of this substance be applied. *Kitchen Garden*.—Where any late spring Broccoli has escaped the general destruction, a portion may be taken up and forced in frames, in order that an occasional supply may be at least obtained during the long period of deficiency which must otherwise ensue. Every means must be likewise adopted to forward Cauliflowers; those planted under hand-lights will derive some advantage from the protection of a mat in frosty nights. Where hand-lights cannot be afforded, flower-pots should be inverted over the plants at night. Let the soil be frequently stirred between the rows of young Cabbages, and plant out from those sown in autumn. If the ground be in a fit state, sow the principal crops of Carrots and Onions; and these are best in drills, not only as regards their growth, but also on account of the facility of hoeing and weeding. Transplant Onions, taking care that no part of their stem is below the surface. Sow Asparagus, and plant if new beds are required; the beds should run east and west, for more heat will be thrown into the beds by the full exposure of one side to the noonday sun than would otherwise be the case. Make plantations of Rhubarb and Seakale; examine previous sowings of Peas, in case of injury from frost, for there is a particular period of their germination in which they are easily injured, as is the case with many plants in other respects sufficiently hardy. Successional sowings will require to be made; sow also a few Brussels Sprouts for early use; Cabbages, Cauliflowers, for a late crop; Kidney Beans, Lettuces, Spinach, Celery and Celeriac, Parsley, Radishes, and Leeks, for transplanting.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppices.—Thinning where necessary may still be continued; prepare for burning charcoal, this being a good season; cut rods and poles; fell Birch, Spanish Chesnut, Willow, &c., where the bark is saleable; clear out watercourses, and repair fences. *Nursery*.—Prepare for grafting, commencing with such plants as are of earliest growth; continue the sowing of deciduous seeds, and guard against the depredations of mice; layer deciduous trees and shrubs; sow Cedar, Pinus, Juniper, Holly, &c.; the rarer kinds had better be sown in boxes well drained, and filled with light loam.—*F.*

State of the Weather near London, for the week ending Mar. 13, 1845, as observed at the Horticultural Garden, Chiswick.

Mar.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	7	28	30.232	30.210	39	26	32.5	N.E.	
Sat.	8	○	30.161	30.102	41	30	35.5	E.	
Sun.	9	1	30.162	30.144	45	32	38.5	N E.	
Mon.	10	2	30 1.9	30.0.8	45	32	38.5	N.E.	.025
Tues.	11	3	29.973	29.936	40	24	32.0	N.	
Wed.	12	4	29.815	29.781	43	21	32 0	N.	
Thurs.	13	■	29.793	29.740	25	13	19 0	E.	
Average			30.034	29.996	39 7	25.4	32.5		.02

Mar. 7—Cloudy and cold; sunshine; slightly overcast, frosty
8—Slight sprinkling of snow; uniformly overcast; dusky clouds; clear and frosty
9—Clear, windy, cold, and dry; clear and frosty at night
10—Overcast throughout
11—A few snowflakes falling; white clouds, with very clear intervals; frosty
12—Overcast and cold; partially clouded; clear and frosty
13—Sharp frost, with brisk east wind throughout the day; clear, with intense frost at night.
Mean temperature of the week 10 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Mar. 22, 1845.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 16	59.6	36.8	48.2	7	0.25 In.	—	2	4	—	3	6	3	1
Mon. 17	50.7	36.7	43.7	4	0.36	1	3	2	—	1	5	5	2
Tues. 18	50.5	35.5	43.0	4	0.06	1	5	—	—	1	5	5	2
Wed. 19	51.5	35.4	43.4	4	0.02	—	3	3	—	1	5	5	2
Thur. 20	52.8	36.8	44.8	8	0.13	1	—	3	—	0	2	5	
Fri. 21	52.1	38.2	45.2	9	0.21	4	1	1	2	3	4	3	1
Sat. 22	50.5	36.1	43.3	11	0.18	3	1	1	1	4	2	4	2

The highest temperature during the above period occurred on the 19th and 20th, 1836—therm. 69°; and the lowest on the 20th, 1844, and 2d, 1837—therm. 23°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d*. each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s*.

BIRCH COPPICE—*Romsey*—We think Mr. Billington right, and that Birch stools should be cut down when in young growth; in our opinion, however, the period when the leaves are fully expanded is better than when the buds are breaking. In the former case there will be no danger from bleeding. If they are lopped in the spring, when the buds are swelling, injury must be produced.

BOOKS—*B M*—James's "Gardening" is full of parterre patterns, and some are very good. It is an old 4to., full of plates, and should be in all horticultural libraries. Switzer's book is also worth consulting. Some plans of kitchen gardens are given in our volume for 1841; others may be found in many of Mr. Loudon's books. In all cases, however, the gardener will have to adapt such things to his own particular case.——*J C*—We have nothing favourable to say of Main's "Vegetable Physiology," or Rennie's "Alphabet of Gardening."——*Expectans*—A new edition of Lindley's "School Botany," filled with woodcuts, will be ready before there are any flowers to examine.——*Anon*—Either Moore or Mills on the Cucumber.‡——*R S*—Macintosh's "Flower Garden."‡

COTTAGERS' SOCIETIES—We are obliged to our correspondents for a mass of information on this subject. It shall be digested as soon as we can find time to get through the papers; and if we see anything that requires comment, we will return to the subject.

FLORISTS' FLOWERS—*One whom a garden makes happy* will never succeed with any certainty in getting seed of the finest florists' flowers. Those who procure it generally keep it for themselves. The best way is to obtain very fine roots, and to save the seed from them. A very few Anemone roots will give you plenty of seed.

FRUITS—*Clericus*—We have the best disposition to meet your wishes; but you have no idea of the difficulty of dealing with such matters *well*; and it is worse than useless to do them ill. We had made arrangements for a weekly supply, but they have broken down in some measure.

GALVANIC RINGS—Medical answers are quite beyond the purpose of our Journal. However, we have no objection to give our opinion on this subject. Galvanic rings are not of any more ascertained efficacy than metallic tractors, horse-shoe magnets, and the thousand and one humbugs that profess to afford relief to suffering humanity. The galvanic rings consist merely of a copper and zinc plate, formed into a ring. The galvanic action of these metals, when the circle is completed by means of the moist skin, must be exceedingly small, and certainly not enough to produce an effect upon the diseased tissues of the body. In some cases they may have afforded relief, by diverting the attention of the patient from his disease to the remedy. It is, however, most probable when persons get well after wearing them, that like the king's touch for the evil, the cure was rather a coincidence than a consequence. The sellers of them assert that they can do no harm if they do no good. This is not altogether true. A medical friend of ours was called in the other day to a poor man who had worn one of these rings for rheumatism, and the consequence was, that his finger became swelled and inflamed, and *much* unnecessary pain was the consequence. *L E*

GARDENERS' BENEVOLENT INSTITUTION—We have already stated that we are ready to insert an official reply to "T. Z.'s" letter. We cannot admit any other.

GARDENER'S CAPES—*J L*—Thanks. Will you be so kind as inform us on what material you apply the composition? we will then publish your letter.‡

GLAZED CALICO—*Norfolk*—Of the materials you have sent one is tough and brown, the other white and tender. Either is transparent enough for some purposes; but what is *now* the use of such contrivances? The price of window-glass will fall 60 or 70 per cent.; why, therefore, waste money upon substitutes which at best are very inferior to glass itself?

GRASS-SEEDS—*Sub*—The month of March is the best season for sowing Grass; but almost any season that is not dry will do between March and September. The best kinds of Grass for a lawn are Crested Dogstail, Meadow Poa and Meadow Fescue, with a little white Clover. Poa annua is only fit for growing under trees, and it requires to be sown frequently during the season.¶

HEATHS—*Ignoramus*—Build your house upon the plan of that at Kew, the plan of which we gave a few weeks since. In moderate winters Heaths may be kept without a heating apparatus; but in severe weather they would perish; unless, indeed, you could cover your house with a thick moveable thatch, and never remove it during very hard frost. We, however, do not recommend you to trust to that, if you are in a cold part of the country.

HEATING—*A Sub*—Your plan is good, but the application of the heating not. As it stands, you cannot obtain bottom-heat without top-heat; and you ought to be able to cut off the latter at pleasure. The former you always want. We cannot very well describe the manner of altering your plan, because there are no references in it; but you had better consider how it may be done, keeping this important point in view. By all means allow the steam to find its way among the brick-rubbish: that is indispensable. We fear that you will not get *much* heat from a hot-water gutter for a tank 12 feet off it; but you will have some. Three quarters of an inch are, however, insufficient for a water-way, unless you have two such pipes, one for flow and the other for return.

INSECTS—*R Walker*—Thanks for the specimens. The maggots from the excrescences on the Turnips will change to a weevil called Curculio pleurostigma. If you breed them, pray send us a specimen. The flies are a Molobrus: what was the size and appearance of the maggots from which you imagine these were bred? for the flies have nothing to do with the larvæ you sent. *R*.——*A Subscriber*—Your plants are infested with aphides, which will be killed by fumigation; but the insects you sent in a quill are the larvæ of a Cimex or bug, which live upon the aphides, I expect; and fortunately are more tenacious of life. Will you send Mr. Curtis, Hayes, near Uxbridge, a few of the leaves, with the froth upon them, in a pill-box, that he may examine the contents? *R*.

IRON FLUES—*E S*—The simplest method of preventing injury to plants from the bad odour which arises from your iron flues will be to empty the house, scrape the flues as clean as you can, and then heat them pretty strongly till you no longer perceive the smell, and not bring back the plants till this is the case. There is no other remedy. *E*.

LIQUID MANURES—*E B*—You can easily obtain a supply of liquid manure for your Asparagus-beds, &c., by getting a large cask nearly filled with water; throw in a few shovelfuls of your poultry-dung; stir it well next day, and you may then apply it immediately.¶

MANURES—*N*—Guano, liquid manure from cow-dung, and soap-suds, are good fertilisers, and can all be applied with advantage to kitchen-garden crops in their season of growth. They may also be applied with good results to a Vine border.‡

NAMES OF FRUITS—*A B*—1, Yorkshire Greening; 2, Easter Pippin; 3, Easter Bergamot.¶

NAMES OF PLANTS—*Mary*—Ceratonia siliqua, the Carob tree, commonly called Locust, or St. John's Bread.——*A B D*—A Cœlogyne, and apparently C. prolifera.——*A B*—Bletia verecunda——*Youell and Co*—Pinus Gerardiana: the cone sent is small and imperfect.¶——*F C B*—It is really quite out of our power to consume time in puzzling out the names of plants not in flower.——*C E G*—Grevillea punicea.

PANSIES—*W Query*—If these had been nursed in a frame they are probably killed by this inclement weather. We should replant. We have resolved upon giving no legal opinion in future, for reasons already stated; there can be no *impropriety* in your taking away shrubs you do not like, and replacing them by better kinds. Your landlord ought to be much obliged to you. Still, as the world goes, it would perhaps be as well to mention the matter to him, for there is no knowing what straw a litigious fellow may catch hold of in order to annoy you. It is of no practical importance what colour you paint your pipes; but black is the best looking and most common. The rougher the surface the less heat they will give off, and *vice versâ*. For stands, dark colours are in better taste than light ones; to the plants the colour is of no moment; to the eye it is of much.

PEACH-HOUSES.—*J J G*—In these, trees should be planted in front, and trained on a trellis made to extend nearly as far as the back path; and others should be planted to cover the back wall.‖

ROTATION OF CROPS—*Sub*.—The principal shifting crops may be thus arranged:—1. Peas, Beans, and Kidney Beans; 2. Cabbages, Broccoli, Cauliflowers, Turnips, Radishes; 3. Carrots, Parsnips, Celery; Beet may be also included; 4. Onions, Leeks, Garlick, and Shallots; 5. Spinach; 6. Potatoes, Jerusalem Artichokes; 7. Salsafy, Scorzonera, and Lettuces. Neither Peas, Beans, nor Kidney Beans, should be sown where either of these crops have occupied the ground in the preceding season; and so of all other crops included under the respective numbers.‡

SEEDLINGS—*F C B*—We presume your Epacris to be a cross between E. grandiflora and impressa. It is much the handsomest variety we have seen.

SMALL BIRDS—*Furibus Hostis*—The trap has answered perfectly in a garden surrounded by woods on all sides, and swarming with blackbirds: as to a Cherry orchard—why that is another thing, and we have nothing to suggest. With regard to the other matters, you know the old distich—

"The man convinced against his will,
Is of the same opinion still."

That is our case.

STRAWBERRIES—*D D D*—You must be a very bad gardener if year after year your Strawberry-blooms go blind, and the leaves are eaten up with red spider. We hardly know how to advise you. No doubt the air of your house is much too dry. Probably the blossom is killed before the plants are put into the house: possibly the plants are not near the light; perhaps twenty other things; certainly Strawberry-forcing is of all things the very easiest. What was the stamp for?

THE WEATHER—*J A*.—You will see that your observations are anticipated, the matter having been corrected.

VERBENAS, &c.—*H B*—The loss which you have sustained is in common with almost every grower of such things as Verbenas, Petunias, Anagallises, Calceolarias, &c. You should lose not a moment in placing those you have saved in heat, and in taking cuttings from them as soon as they have made growths from 2 to 3 inches in length; put the cuttings in well-drained pots filled with white sand, and place them in a frame or pit with a brisk bottom-heat of 90° or 100°. They will root in a fortnight, when they should be potted off into 3-inch pots, and kept in heat, say 70°, until they are well established, when they should be gradually hardened until they can stand a cold frame. Any quantity may be raised in this way before the time of bedding out, although last year's struck cuttings are better for the purpose. The cuttings when in the frame will require to be shaded from the sun, and covered by night. They should have little water after having a good watering overhead before being placed in the cutting frame, and very little air should be admitted unless steam arises in the bed. In fine mild mornings, the lights may be thrown off for 20 minutes or so, and the cuttings gently sprinkled overhead with tepid water, which will strengthen them. The kind of soil for such things is a friable loam, with a small portion of peat and sand intermixed with it. *Duro*.

VINES—*J J G*—For a small Vinery, Royal Muscadine, Black Hamburgh, Black Prince, White Frontignan.‖

VINE-PRUNING—*J C H*—The information that sap is one thing and cambium another, is not *quite* new to us. There is no occasion to *assume* anything in this matter, for all the facts that have any practical bearing upon the motion of the fluids in plants are well ascertained. We may possibly revert to the question in another form. We do not see the very great difference between adopting a man's opinions and concurring in them. We have said nothing either one way or the other.

MISC—*T Jeffreson*—We cannot help your friend. If gardeners will risk their money upon unwise speculations, they must submit to the loss, like other people. We have nothing to do with it.——*Howick*—Be so good as tell us what plant you mean by Allspice, and your question shall be answered. The West Indian Myrtus Pimento, a stove plant, produces the Allspice of the shops. Is that what you mean? We will see what can be done about dwarfing.——*A Subscriber* must really excuse our interfering with procuring a place in the Excise-office. What next?——*North Earle*—The Nile is supposed to draw its fertile mud principally from the highlands of Abyssinia, through the Blue River and the mountain-streams which fall into it. There is no satisfactory evidence to show that matter disposed in favouring circumstances *has* the power to produce spontaneously animal and vegetable life, and science is not called upon to prove negatives. We are no believers in the so-called experiments of Mr. Crosse and Mr. Weekes. If galvanic action can form a mite out of silica, we must suppose that it would form a man out of something else—which is rather too absurd.——*G Lloyd*—Thanks. As soon as we can possibly find room.——*A P*—No one in this country can tell to what plants the Spanish names you have sent belong. Numbers 1, 2, 12, 20, and 29, are not worth sowing.——*J C*—The Numbers you mention can be supplied.——*C E*—We do not know where to procure the information you require.——*G W*—A select list of Gooseberries has been given at p. 88, 1845.‡——*G Waddington* is answered at p. 133 of this year's volume.‡——*D A*—The mixture you mention is that commonly employed for destroying the scale on Peach-trees. Its adhering to the stem for several months will not impair the health of the tree.‡——*Sub*—Since you cannot avoid it, you may form a walk over your Vine-border, almost close to the front of the house, without its being of much disadvantage to the Vines. It should, however, be used as little as possible till the roots get beyond it.‡——*L M*—Mr. Forsyth's mode of planting in pellets is worth trying, but only as an experiment on a small scale. The plan is best adapted to land that has not been dug over, as, on sloping ground, the loose soil might slip down, and cover the seeds too deeply.‡——*Sub*—You will find a select list of Apples and Pears given at p. 136 of this year.‡——*R R, B Kingdon*—We are sorry that we cannot assist you in selecting the best of the new Dahlias; they were not sufficiently exhibited near London for us to form a fair opinion of their constancy, nor can we learn of there being much improvement upon the older sorts.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

Nearly ready, the Second Edition of Dr. LINDLEY'S SCHOOL BOTANY; or, the RUDIMENTS of BOTANICAL SCIENCE," adapted to the use of Schools; illustrated with a large quantity of Woodcuts by the most eminent English and French Botanical Artists.

WARWICKSHIRE.—TO BE SOLD, THE NEXT PRESENTATION TO THE VICARAGE OF BURTON DASSETT, situate in one of the most healthy and romantic parts of the County, opposite to Edgehill, the Road from Banbury to Warwick running in the Valley between. The present Incumbent is 86 years old, or thereabouts. The total income, derived principally from 100 acres of Glebe Land, is about 150*l.* besides the customary Fees. The House, Garden, and Paddock, are pleasantly situate. The population is small and the duty light. This Presentation was purchased about 4 years ago, and is now offered for sale in consequence of the gentleman for whom it was intended having been presented to another Living.—Apply to Messrs. HESTER & HAZELL, Solicitors, Town Hall, Oxford.

The Agricultural Gazette.

SATURDAY, MARCH 15, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, March 19—Agricultural Society of England.
THURSDAY, March 20—Agricultural Imp. Soc. of Ireland.

WEDNESDAY, March 26—Agricultural Society of England.
THURSDAY, March 27—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Mar. 17 { Wenlock / W. Hereford / Cirencester
Mar. 18 { Rochford Hundred / Framlingham
Mar. 19 Harleston
Mar. 20 { Grove Ferry / Richmondshire
Mar. 20 { Debenham / Isle of Thanet / Blofield and Walsham
Mar. 20 Burton-on-Trent
Mar. 21 { Stoke Ferry / Wrentham / Hulesworth
Mar. 22 { Gloucester / Cardiff / Swansea
Mar. 24 { W. Market / Yoxford
Mar. 25 { Bromsgrove / Swansea

IT seems strange that there should be any indisposition on the part of farmers to admit THE ADVANTAGE OF DEEP CULTIVATION. A disinterested observer would deem it *self-evident* that the deeper the cultivation the more luxuriant would be the growth of the crop. Yet there *is* a dislike to deep ploughing in many districts, even where it cannot be accounted for by the quality of the subsoil. Some people carry this so far as to contend for a mere paring of the ground, as a preparation for various crops, in preference to ploughing. Such an opinion —obviously erroneous, we must think it—must have arisen out of experience acquired on undrained land, where there are not only difficulties in the way of deep cultivation, but circumstances which neutralise the advantages generally derived from it.

If the general experience of gardeners, allotment tenants, and those farmers who have cultivated their land deeply be not considered conclusive as to the expediency of the practice, perhaps the strongest argument in its favour may be derived from the extraordinary development of the roots of plants which always takes place under favourable circumstances.

On well-cultivated Turnip fields, where the manure has been well mixed with the soil, and where the land is dry, after the plants have got so far advanced as to cover the ground, not a handful of earth can be taken up which is not full of the fibres of their roots. We have ascertained the existence of these fibres at a depth of 5 feet from the surface, and at less depths the land is full of them—they can always be recognised by their taste, though their connection with the plant may not be traceable the whole way. The roots of the Wheat plant have been traced to a depth of 6 feet (see page 709, 1844) by Mr. BADCOCK, of Watlington; and it is probable that those of our other grain crops extend equally far. These roots must certainly be considered as mouths through which the plant receives nourishment, and their occurrence at these depths, even were there no other evidence on the subject, must be considered conclusive as to the existence of food for plants in the subsoils where they are found. Indeed, considering that all matters, before they can be absorbed by plants, must be dissolved in water, we cannot be surprised at finding much fertilising matter washed down to a greater depth than that at which it was originally deposited.

It thus becomes a question of some importance, how we are to induce plants to avail themselves of these deep-seated stores of food? Mr. M'ARTHUR, of Randalstown, in Ireland, who has lately published a pamphlet* on this subject, endeavours to answer this question. He has published the results of a good many observations on the form and development of the roots of various agricultural plants, under various circumstances; and though the contents of his pamphlet, as they are somewhat of a heterogeneous character, are not altogether fairly indicated by its title, yet there can be no doubt of the value of some of the author's observations, or of the justness of his conclusions.

The proper way to induce plants to extend their roots throughout the soil and subsoil—downwards as well as horizontally—certainly is to lay the land dry. This development of root is one of the consequences, and perhaps one of the most beneficial consequences, of thorough drainage.

Mr. M'ARTHUR says, p. 15—"The depths to which the roots of Beans, Flax, and Clover grow, convey an important lesson on the necessity of draining and subsoiling to a greater depth than is generally practised or thought necessary. If draining be an indispensable operation on all cold wet lands, the soil should be dried, if possible, to the full depth the roots penetrate. By many, 20 inches is the stated depth for drains; others propose 2 feet; and a large number adopt the Deanston standard of 30 inches. I have observed in some isolated places drains made 14 or 15 inches deep, and the stones (being put in like flagged pipes) lie within 6 to 9 inches of the surface. Preposterous as the latter plan is, yet making drains even 2 feet deep is but a degree better; 30 inches may do, and does effect much good; but from a combination of many reasons and causes, I would not recommend in any soil or situation where a fall can be obtained less than *a depth of 3 feet for all minor drains*, discharging ones being at least 6 inches deeper. I would prefer making them deeper even than this, but in no case less. At the ordinary depths of draining, the surface only is dried. The subsoil, or that portion containing the lower extremities of the roots, is allowed to retain *nearly* its original chilled and soured character, in which the roots cannot penetrate freely."

The consequences to the plant of meeting this cold wet subsoil is well illustrated by a case described by Mr. M'ARTHUR in another part of his book, p. 13—"In recently-reclaimed bog I have found tap or deep-rooted plants, on growing through the improved surface to the cold unbroken peat, in place of growing into it, turn and grow along between it and the surface, and being, when pulled, of the form of a *J*."

This satisfactorily proves the necessity of drainage to the usefulness of the subsoil as a store of vegetable food.

WE have received from correspondents the following communications on HYBRIDISING OF AGRICULTURAL PLANTS. One says:—

"Hybridising, in the proper sense of the term, by intermixture of *different species*, is scarcely applicable to agriculture, the general crops being dependent upon seeds, of which true hybrids or mules are infertile in most cases. A few years ago we made an experiment by cutting the anthers from the blossoms of a very fine Swede Turnip (species Brassica campestris), and introducing those of a selected yellow Turnip (species Brassica rapa), and from the seeds thus obtained we had several very distinct hybrids, the most promising of which we planted for seed, but had to abandon them on account of the defect above stated. The progeny obtained by intermixture of different *varieties* of the same species, called crossing, have, however, their reproductive powers unimpaired and often increased, and this kind of artificial impregnation might no doubt be prosecuted with good success. Probably we owe some of our best varieties to natural or accidental crossing."—*D.*

The advantages of the process referred to in the last two sentences is all we contend for—the improvements in our sheep and cattle have not been obtained by true hybridising either—there has been no intermixture of distinct species; yet the means which *have* been employed have been eminently successful in enduing them with valuable properties, and removing those which are not desirable; and we believe that in vegetables also great improvements may be obtained by crossing well selected individuals of different *varieties*.

In employing the term "hybridising" we certainly did not use it in its exact sense, but in its popular acceptation. The proper word is CROSS-BREEDING.

Another correspondent writes as follows:—

"We have repeatedly tried the artificial hybridising of Turnips and other agricultural plants, but such experiments have never been attended with really beneficial results; arising from the circumstance that *true hybridisation*, or crossing of *species*, renders the products comparatively barren of seed, by which alone most agricultural plants are propagated. In the case of Turnips, however, we may observe that hybrids between the two species *Brassica rapa* and *B. campestris rutabaga* are very frequently found to possess the highly desirable properties of great size and solidity, in a greater degree than either of the originals. Instances of natural hybridisation very frequently occur, especially in the case of Swedish and other Turnips, when seeded in the vicinity of each other; but practically the same objections hold as in artificial hybridising, with this exception, that several crosses approaching nearer to the one parent than the other, have been found more productive of seed than intermediate hybrids—such as Dale's yellow and the purple-top white hybrids, as well as many others, the culture of which has never been extended beyond the experimental grounds. As far as our experience goes, however, we may mention that even these become more productive of seed by repeated culture; this we have especially found in the early growth of the Dale's hybrid. Of late years we have noticed evident marks of hybridising in the Italian Rye-grass (introduced by us in 1831), having collected numerous varieties possessing all the variations of form between *Lolium italicum* and the common species *Lolium perenne;* of these some appear equally productive of seed with the originals, while others are much less prolific."—*L.*

In corroboration of the last paragraph in this letter, we may refer our readers to an article in a late Number of the "English Agricultural Society's Journal," where it will be seen that what have hitherto been considered characteristic features of the Italian Rye-grass are changing.

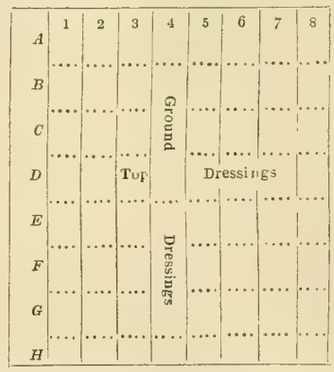
AGRICULTURAL GUIDE PLOTS.

[WE extract the following useful suggestions from a letter by Mr. J. Prideaux in the *Farmers' Journal.*]

In Mexico, where, from the scarcity of fuel, they work the silver ores by cold amalgamation, in vast heaps of thousands of tons, wherein any mistake might produce a terrible loss, and any improvement an enormous profit, they make also a smaller heap, of a few tons, called the guide-heap, which they keep some days in advance of the great one, to watch the progress of the fermentation, and prove their remedies for the casualties and defects, before the large one comes round. In this way they secure themselves against error and failure; and have thus gradually brought their rude process to a high degree of perfection.

Such a medium, between science and practice is what I earnestly recommend to the farmer. Let him compare the numerous experiments, now so often reported in agricultural periodicals, with his own experience and such other information as he can obtain: select the most successful of those which appear suitable to his own soil and circumstances, and set them out, with any improvements he may judge proper to make, in a guide-plot one season, for the improvement of his practice the next.

For this, let an acre be marked out, not in every field, but upon every variety of his soil, and in each shift of his rotation. Let it be divided into 8 stripes, distinguished by Nos. 1 to 8, for so many kinds of ground dressing, as compost, &c.; or of drill dressings or even varieties of seed.



One stripe, of course, for each manure proposed to be tried; which should be laid in *accurately by weight or measure*, before sowing; or the drill dressings, with the seed. If varieties of seed are to be tried, each will have, of course, its own stripe. The numbers must be well fixed, to prevent mistakes; and a corresponding plan laid out in a book, to record observations.

For top dressings the plot may be divided *across;* and the divisions lettered, a to h; each stripe for its particular top dressing: by which means the effect of each, upon each one of the ground or drill dressings, will be proved. The top dressings should be equally laid on, by accurate weight or measure; taking care that every division has its fair chance. Leaving the middle stripe blank each way, but crossed with the other class of manures like the rest, we see the effect of each ground dressing, without top dressings, and of each top dressing without ground dressings; and the whole may be compared with the customary dressing of the field, by taking an equal portion of it upon one or both sides. The growth and appearances of each division should be attentively observed; and everything worth notice recorded in the book. Looking along the numbered stripes, the general effects of the ground dressings, &c., will be distinguished: looking along the lettered ones, you distinguish the general effects of the top dressings; which, being chiefly mineral, will show the inorganic wants of the soil, those which produce great effect appearing to be wanted, whilst those which show but little difference are probably enough already in the soil; the squares, where they cross, will show the effect of one upon the others. At harvest the produce of each will, of course, be accurately weighed and measured; and the best squares, allowing for weather and casualties, may be the guides for the same shift of the rotation next season; repeating the guide-plots, however, every year with such improvements as appear suitable to the place, until the land is brought to the utmost bearing that can be attained with profit to the farmer. Such experiments are subject to little risk or expense; for being founded on those which have been already successful elsewhere, and on a small scale, 64 to an acre, they will cost little, and in all probability pay a good, profit; and they will be of great value, as proving what answers best on the farmer's own soil and circumstances. —*J. Prideaux.*

* The Roots of Plants: their Natural Tendencies and Requirements; or, an Investigation of the Growth of Agricultural Plants, as displayed by their Roots in different Soils, and under different modes of Cultivation. By John M'Arthur. J. Ridgway, London.

LEY OF SOAP-BOILERS &c., AS MANURES.

If, in making soap, vegetable ashes, lime, and common salt be used, a ley will be obtained containing much chloride of potassium, some gypsum, sulphate of potash, common salt, and 3 to 4 per cent. of a brownish soap. In some soils, and for some crops, it is a very good manure; thus it will show itself useful wherever the soil is deficient in chlorine and potash, and where plants are grown which require those substances to a considerable amount. The soap-boilers let the ley run off as a useless fluid, so that it may be always had very cheap.

It is commonly used for the manuring of meadows overgrown with Moss; but we must take care not to use too much, else it will destroy not only the Moss, but also the useful meadow herbs; in order to avoid which, it must be diluted with water, and used in autumn or early in spring. It would be very well to slake burnt lime with the ley, as it would thereby be dried off. Professor Lampadius has used this mixture to advantage for the manuring of Rye. I manured with ley for Barley, which was improved thereby strikingly, but the effect was not very visible till the second year.

Chloride of Lime.—Several years back the French recommended that salt (composed of 36.7 parts of calcium, and 63.3 of chlorine), as an extraordinary manure, nay, it was asserted, that plants of an unheard-of size had been reared by its aid. Several experiments which I made, did not confirm this assertion; so that, I believe, the chloride of lime used had been mixed with some other substance of great fertilising power. Still, I do not wish to detract from the manuring properties of that salt, and believe they will be confirmed wherever the soil is deficient in chloride.

Chloride of Alumina.—It is to be presumed that this salt will always prove to be a good manure if the soil does not contain any salt of alumina soluble in water, and if plants be grown which require for their chemical constitution much alumina and chlorine. I have made with that salt many comparative trials on a loamy sand soil, which turned out well beyond expectation; Vetches, Oats and Barley, grew much higher, but they had a light-green colour. Repeated experiments are therefore desirable, especially for determining whether the expense of this manure will be commensurate with its results. I used 50 to 60 lb. on the Magdeburg acre, which I placed in the soil along with the seed. The effects were visible even at the germination of the plant.

Sea-Salt.—The salt which is obtained on the sea-coast, in ditches, by evaporation of salt water (as manifold experience has proved), is amongst the best manures, which is explained by its consisting of all the salts contained in a state of solution in the sea-water, for instance, common salt, chloride of lime and magnesia, gypsum, carbonate of lime and magnesia, potash and sulphate of soda. As, therefore, the sea-salt consists of salts, of which we have seen before, that even used singly they improve vegetation to a considerable degree, it is natural that, being united in the sea-salt, it will be a valuable manure. It is said that in Liefland and Courland the sea-salt, which is conveyed there from France, is used to great advantage for the manuring of Flax; and in England it has been long used for the cultivation of this plant. The Flax obtains by its use very fine seeds, and a very durable fibre. Still large quantities must not be used on account of its being so easily soluble — 70 to 80 lbs. per Magdeburg acre will be sufficient; and perhaps even less. As it contains some salts which attract much humidity from the air, it will be useful on dry soils.

The manuring properties of the salts contained in the sea-water have been recognised in many countries, because it is used in that manner in the Grecian islands, the East Indies, China, Georgia, the Crimea, &c. In some places the tide is allowed to flow over the meadows, but only for a short time. The hay will then be much relished by the cattle. It has been remarked in England, that as far as the spray of the sea during a gale of wind reaches on the land, the crops will grow better than elsewhere. The sea-salt contains, beyond the above-named substances, also two others in very small quantities, which are not found in other manures, viz., bromine and iodine; but as these substances have not yet been found amongst the constituents of cultivated plants, it is to be supposed that they do not influence the fertilising properties of sea-salt.—*Sprengel.*

Home Correspondence.

The Plough.—I am much obliged to an "Original Subscriber" for directing my attention to the Kentish practice of ploughing the land flat. The position of the furrow-slice is a necessary consequence of the relation between its width and its depth. A little consideration will convince any one, that if these be fixed, the ploughman can have no control over the angle at which the sods will rest on one another. In Kent, a county which I have never seen, it is probably deemed advisable, or at any rate it is probably customary, to plough shallow; at all events, as they are said to plough very *flat*, their furrows must be very wide in *proportion* to their depth. For some purposes, such as that alluded to by "An Original Subscriber," the effectual burying of anything laid on the surface of the land, shallow is preferable to deeper ploughing. When, however, the land is well drained, and has been so for some years, in reference to the farmer who continues to plough land 3 or 4 inches deep while there is no *physical* hindrance to his ploughing it 8 or 9 inches deep, I should consider him very neglectful of an abundant source of its fertility. In Kent, just as in Scotland, there are probably circumstances affecting the determination of the farmer on this point, independently of the consideration of quantity of surface exposed and of earth raised in ribs, which are the chief grounds on which the angle of 45° is defended as the proper inclination for the sods of a ploughed field; and it is possible, as the practice of the two districts differs so much, that the influence of these circumstances tends to a different result in Kent from that which it favours in Scotland. I am not acquainted with Kent, but with regard to certain districts in Scotland, as one circumstance which induces the farmer to plough so that he may have a *ribbed*, not a *flat* surface, I may mention the want of corn-drilling machines. The advantages of drilling corn are many and obvious; and they are acknowledged by the Scotch farmer in his anxiety that the seed-furrow should leave a ribbed surface, so that the grain scattered broadcast upon it may, when harrowed in, arrange itself in the furrow lines, and thus spring up in rows 9 or 10 inches apart.—*M. S.*

Paring and Burning.—In answer to "A Dorsetshire Young Farmer," I would advise him not only to pare and burn his old pasture, but to get a crop of roots and feed them off with sheep. Nothing so effectually destroys wireworms as treading the land with sheep. This and next month is the proper time to pare and burn; and if he will adopt the system I mentioned in your Paper some weeks since, I have little doubt he will get a crop of Turnips; and after they are singled out with the hoe, I would caution him not to suffer them to be destroyed by rooks, which I have sometimes known to be the case on land abounding with wireworm—the rooks pulling up the Turnips to get at the insect underneath. The latter will no doubt injure the root if not removed by the former; but they will not prevent his getting a very fair crop. I am not surprised at the fate of his Oat crop, from the course he adopted.—*E. B.*

Spade Husbandry.—Every one who contemplates the future must feel a conviction that manual labour must be increased in a ratio with the increase of our population, or idleness, which corrupts our nature, will require the prisons to be annually increased, if punishment is to follow crime. The practice lately set on foot, in which the fork is substituted for the plough, appears calculated to do its part towards relieving our rural parishes in particular. In these there is a redundancy of agricultural labourers, who, from the inadequacy of their wages, are unable to provide against such a visitation of Providence as that just now experienced, and who, consequently, fill our workhouses, where the vicious, with whom they unavoidably mix, prepare them for the jails. To promote the practice of forking, and to bring it into general use, the employer must be convinced that it will insure a reciprocal benefit; that compensation will as assuredly be received by the employer as the employed—the farmer by a compensation for the advance of his capital and judgment, and the latter by an advance in the reward of his labour. Independently of a larger produce, if the principle of forking is carried out to the extent it has been suggested, the farmer will be enabled to dispense with a proportion of his horses. The saving in maintenance in that case alone will be considerable, and the food so consumed will be available for other animals, as appears by the comparison of cost given in your two last *Gazettes*. Besides, there is to be taken into consideration the first purchase of the horse, his wear and tear, the hazard of his life, and expense of keeping him in good health—all important items in the farmer's account book. I will not at present venture any further, but leave these suggestions in the hands of some of your correspondents, who, I hope, will take up the subject where I leave it, and lay down more clearly the advantages sure to spring from the encouragement of the system of forking, and of thus making a better provision for human society by dispensing with a portion of the brute creation.—*A Farmer of the Olden Time, Writtle, Essex.*

Auchterarder.—Capt. Hunter, of Auchterarder House, Perthshire, has presented an agricultural set of chemical apparatus to the Parochial School of Auchterarder, with a sum of money to purchase books for the use of those pupils who may turn their attention to the now important study of agricultural chemistry and geology. This is most encouraging to Mr. Findlay, the intelligent schoolmaster, in whose hands it will be the means of disseminating correct knowledge and information upon the principles of agriculture, through the juvenile agricultural population of that parish. We are sorry to find, however, that there is a deep-rooted prejudice in the mind of many farmers (the lairds partake of it too), against the rudiments of this science being taught in schools. With such encouragement, however, in this praiseworthy undertaking, from such gentlemen, the schoolmasters of Scotland will, in a short time, overcome these prejudices, and will become no mean coadjutors with Professor Johnston and others, in spreading correct principles upon the cultivation of the soil, and in making the land to "yield an increase."—*K.*

Dairy Management.—Under this head I read in your *Gazette* of 22d Feb., a query as to how the system of house-feeding cows is applicable to the manufacture of cheese? Last year I attempted to elicit the experience of some one on this head, by requesting to know why Dutch cheese had always been so invariably of an inferior quality to English, as well as American? the latter of which having lately, by its superiority in goodness, driven the former out of the markets. Dr. Playfair in his lecture (4th vol. Royal Agricultural Society's Journal), which embraced this very subject, gives as a cause, that to the effectual forming of casein in milk, exercise is necessary to the cow. My experience has shown me the same results, having had at one time, and for several years, as many as 20 cows house-fed, or soiled as it is termed. And it amounts to this:—That if cows are properly managed, *i. e.* kept clean in an airy house, good fresh water at their command, plenty of food cut green and fresh as long as available, and hay and Carrots, Parsnips and Mangold Wurzel, &c. at other periods, with salt strewed over it; currycombed and brushed often, they can be kept all through the year quite as well as if they were in a meadow. And I believe they eat much more food thus cut for them than when grazing, for they are saved the labour of collecting and biting it off themselves. That for milk only this system is superior to any other, as by the occasional addition of grains to their food, the milk is increased. But for butter or cheese I cannot recommend it; the former, although as good as much which is sold in cities, yet it seldom has as fine a flavour as that from a cow grazing in a meadow. It is winter butter at all seasons. Now, as to cheese, it resembled the Dutch in flavour—in fact was always of an inferior kind, and sold accordingly. I adopted the soiling system for the purpose of accumulating manure, both liquid and solid, in which I succeeded astonishingly, having formed tanks adjoining the cow-house for the liquid part; and, as long as there was a ready sale for the milk to the retail vendors of it in the city near my farm, it paid well. But the vexatious and dishonest conduct of these people gave my bailiff so much trouble and loss of time, that I directed him to make all the milk into butter and cheese. The cheese proved a failure, as I have before stated. The butter fluctuated so much in price, from the great competition in a neighbourhood surrounded for miles with dairy-farms, that the receipts amounted to little more than to balance the expenditure, so that the manure was the principal profit. My farm becoming in a high state of fruitfulness through this abundance of manure, I gradually cleared off my number of cows as they became dry, and fatted them for the butcher. I now keep two only for my own use, which with my horses and a flock of sheep, and some artificial manure, suffice for the farm to keep it in good heart. I however consider the principle as superior to all others, for any farm situated in the neighbourhood of a city not surrounded for miles by meadows and little dairy farms. My cows were always in perfect health. I have one of them now which is 10 years old, and milks as well as ever. The only inconvenience attending cows by confinement is an extension of the horn of their feet, which, when found troublesome, is pared off by the cow-herd. To carry out this soiling system to any extent, requires constant attention to the beasts, which must have all their food brought to them, requiring, therefore, much labour; and crops must be raised expressly for it. Meadows, when irrigated by liquid manure, will answer the purpose, by frequently mowing the Grass; but then they must be well situated for it, and few farms are so adapted. The labour of the Flemish farmers would be little relished by English farmers—it is without respite. As to milk-coolers, there is no material equal to slate for the construction of them; it surpasses everything else. It is also the cheapest. The correct construction of the house for the habitation of the cows is a principal point to the carrying out this system—their health depends upon it. I have made myself intimately acquainted with it in all its bearings, and from every source; and I shall be most happy in giving any one all the information I possess, and permit plans to be taken of my cowhouse, which, by experienced persons, is considered a most perfect one.—*Waterhouse, near Bath.*

Mangold Wurzel and Salt.—You wish to know how I ascertained the weight of the crop. I am glad you have drawn my attention to this, as I perceive I have written "upwards," instead of "about." It was thus:—The crop filled 17 feet of one end of my cowhouse up to the ceiling (8 feet); the width of it is 23 feet, which amounts to 116 square yards. I weighed 1 square yard of the Wurzel, accurately put together; consequently, the stored crop amounted to 87 tons, without any of the green tops, the most part of which were left on the field, and ploughed in; the other part had been eaten by the cows, sheep, and pigs, in the cutting of which the bulbs had been lifted, and immediately stored, to save them from the sharp frosts of the night, the bulbs being very susceptible of its effects through their wounded heads. For some time previous to the final taking in the crop, between 10 and 11 tons had been at different times taken for the use of the pigs and horses, and for supplying some neighbours who requested to have 6 tons. The total was, therefore, between 97 and 98 tons. The weight of the tops was never taken, which must have been very great, being very luxuriant.—*Bath.*

Newberry's Dibbling Machine.—You have been pleased to notice my implement for dibbling grain or seed, and some excellent remarks have been made on dibbling in your valuable *Gazette*, which have excited some interest amongst your readers. The machine has planted five seasons, four have been harvested, and the result corroborates every word of your correspondent, who has so ably shown why dibbled corn must be better than that which is drilled or sown. In one instance, the produce of the dibbled was 15 bushels of Wheat per acre more than the drilled, in the same ground, and with the same seed—only half the quantity being used by the dibbler. The increase has been from 3 to 4 bushels per acre, and in no instance have I heard that it has been inferior in quantity or quality, when used in competition with the drill. In consequence of this superiority, most of the farmers who had seen it were very desirous to use the machine; and though I could not meet the demand which was made upon me, a great

breadth of country is planted with it; several having been purchased to let out for hire, farmers who all their lives drilled and sowed from 2½ to 3 bushels of Wheat per acre, very willingly using only 1 bushel, or 5 pecks, for dibbling. The plants look very healthy, and their appearance at this time is superior to the drilled. The machines, previous to this frost, were very busily employed planting Beans, and will, I have no doubt, find full employment in dibbling spring corn. I am often amused with the question—"Pray, sir, how much seed would you have us put on per acre?" My answer now is—"Look into the hole, and if there is enough to satisfy you, never mind what it is per acre."—*J. W. Newberry.*

Analysis of Oilcake, Buckwheat, &c.—I have inclosed the analysis of the Buckwheat sent for examination. The nitrogenous portion of the seed is vegetable casein. I have just now found the analysis of Buckwheat as given by Zennick: it is as follows:—

Husk	26.9
Gluten (Casein?)	10.7
Starch	52.3
Sugar and Gum	8.3
Fatty matter	0.4
	93 6

The following is my analysis of the sample you sent:—

Water	18.0
Woody fibre (husk)	18.7
Casein	10.2
Starch and Gum	48.2
Oil and Fat	2 6
Ash	2.3
	100.0

The amount of husk given by Zennick is large, but this is materially influenced by the time of collecting the seed, as the husk of all seeds continues to increase after the seed has arrived at a certain state of ripeness until it is shed from the parent plant; indeed, the composition of grain of all sorts is influenced by soil, season, manure, and time of cutting; hence the difference in the analyses made by different chemists of the same sort of grain. The amount of oil given by Zennick is very much below the truth, but it is possible his analysis was made before the present mode of estimating the amount of oil was adopted. The seed used by him must have been artificially dried, hence his proportions will be somewhat higher than mine. The following is the analysis of specimens of oil-cake. The cakes were sent to me under number; they afterwards proved to be English, No. 1, Dutch, No. 2, Belgian, No. 3. The prices were, English, 10*l.* 12*s.*; Dutch, 8*l.* 10*s.* (when applied for would not sell under 9*l.*); Belgian, 8*l.* 10*s.*

	No. 1.	No. 2.	No. 3.*
Water	18.	13.	15.
Organic matter exclusive of fat	63.	69.5	71.
Ash	6.6	7.	6.
Fat	12.4	10.5	8.
	100.0	100.0	100.0

* Nos. 2 and 3 evidently mixed with seeds after the first crushing, to increase the bulk.
—*A. Gyde.*

Churning.—In page 91, you have given Robinson's Improved Churn; now, near Garstang, Lancashire, the common churns will do just the same thing, by merely having a tin tube, about 20 inches long, and about 3½ inches in diameter, which is filled with boiling water, and then inserted into the churn amongst the cream, and moved up and down in different parts for about four or five minutes; and then take it out of the churn, and set to work in churning; and in about 15 or 20 minutes the operation will be completed. And it is found, if this tube was not applied to the churn, as here described, it would take from 60 to 70 minutes to churn the same quantity of cream in the same churns. The price of of these tubes is 1*s.* 6*d.*; they may be made by any tinman, being of so simple a construction, having only a small handle on one end, and a moving lid, the other end being closed.—*M. Saul, Garstang, Feb.* 15.

Thick sowing.—Although much has been written in favour of thin sowing of Wheat, Barley and spring corn of all sorts have been little touched upon. It is the practice in Yorkshire at the present time, where the old system of broadcast sowing is adhered to, to sow 4 bushels per acre. My own practice is to drill 3 bushels per acre, at a distance of 6 inches between the rows. I should like to know the experience of some of your numerous correspondents, whether a less quantity of seed per acre is sufficient? Also, what distance between the rows is the best or most approved?—*Banks of the Dearn.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House, in Hanover-square, on Wednesday last, the 12th of March; present, P. Pusey, Esq., M.P., in the Chair; Hon. R. H. Clive, M.P.; J. I. Briscoe, Esq.; F. Burke, Esq.; Dr. Calvert; H. Colman, Esq.; C. Cure, Esq.; J. Dean, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; B. Gibbs, Esq.; W. O. Gore, Esq., M.P.; W. L. Gower, Esq.; W. H. Hyett, Esq.; Sir J. V. B. Johnstone, Bart., M.P.; Rev. C. E. Keene; J. H. Langston, Esq., M.P.; A. Ogilvie, Esq.; Prof. Sewell; W. Shaw, Esq.; S. Solly, Esq.; T. Turner, Esq.; T. Tweed, Esq.; and H. Wilson, Esq.

The following new members were elected:—
Cartwright, John, Shrewsbury
Paine, John Mainwaring, Farnham, Surrey
Baker, Thomas, Rock House, Newtown, Montgomeryshire
Pearce, William, 10, Whitehall-place, London
Brown, William, New Court, Ross, Herefordshire
Garbett, Richard, Lawley, Wellington, Salop
Baddeley, Thomas, Wellington, Salop
Leech, John, Wall Hill, Leek, Staffs.
Maybery, Walter, Brecon
Hilder, John, Sandhurst, Kent
Redhead, John, Walker, Newcastle-on-Tyne
Trotter, Thomas, Bywell, Newcastle-on-Tyne
Newill, Thomas, Spring Bank, Welshpool, Montgom.
Gibb, John, Old Weston Grange, Huntingdon
Tancred, Sir Thomas, Bart., Belford, Northumberland

The names of 11 candidates for election at the next Council were then read.

Prize Essays.—Mr. Pusey reported from the Journal Committee the decision of the Judges of Essays in three of the classes; and the sealed motto-papers of these essays being opened in the presence of the Council, the following result was announced:—

I. The Prize of 50 sovereigns for the best Report on the Farming of Cornwall, awarded to Mr. W. F. Karkeek, veterinary surgeon, and Secretary of the Cornwall Agricultural Association, Truro.

II. The Prize of 50 sovereigns for the best Report on the Farming of Kent, awarded to Mr. George Buckland, Ramsden Farm, Benenden, near Cranbrook, Kent.

III. The Prize of 20 sovereigns for an account of the best experiment in Agriculture, awarded to Mr. John Hannam, of North Deighton, near Wetherby, Yorkshire, for his Essay entitled, "An Experimental Inquiry into the Theory of the Action and the Practical Application of Bones as a manure for the Turnip crop."

Fertility of Land.—Mr. G. S. Barber, Secretary of the Stalham Farmers' Club, in Norfolk, having at a former meeting of the Council transmitted a statement of the extraordinary crop of Wheat obtained from a field in that county, communicated on the present occasion, a reply to the various inquiries made of him by the Council in reference to the circumstance of this heavy yield. In his first letter, Dec. 28, 1844, Mr. Barber gives the following account of this crop, and concludes with proposals on the part of the Stalham Farmers' Club:—"A field, belonging to a gentleman not a member of our Club, by its luxuriant appearance before the last harvest, attracted the attention of many persons in its neighbourhood, and several bets were made respecting the amount of its produce, which at harvest was cut and placed in a barn by itself. This amount, when threshed, was ascertained to be a fraction over 22 combs, or 11 quarters per acre, of Wheat; and, in order that this might be placed beyond a doubt, the field has been twice measured since harvest. The same field is said to have produced, some years since, 17 coombs per acre of Wheat, and another field in its neighbourhood 20 coombs per acre. The Stalham Farmers' Club, believing that a thorough examination into all the circumstances connected with the growth of so large a crop, may prove of national benefit, proposes to make such examination, and to furnish the Royal Agricultural Society with the result. It also proposes to send, at its own cost, a portion of the soil (and if required, of the subsoil) of the field, to the Royal Agricultural Society, to be analysed by the Society at its own cost, provided the Society will kindly furnish the Club with such analysis, either by private communication, or by publishing it in their Journal, which is always read by the Club." The Council decided, that it should be recommended to the next monthly Council, that an analysis of 12 inches of the soil, and 12 inches of the subsoil of the field in question, should be made by Dr. Playfair at the expense of the Society; and that Mr. Barber, in the mean time, should be requested to furnish an estimate of the amount of the produce, under the different heads of clean corn, seconds, and tail.

Benenden Tile-Works.—Mr. Law Hodges informed the Council, that since the publication of his paper in the Society's Journal, the death of Mr. John Hatcher, the ingenious inventor of the cheap earthen kiln and tile-machine mentioned in that communication, had taken place—a circumstance which deprived the agricultural community of that personal progress it was his intention to have made this year through many of the counties of England, Scotland, and Ireland, for the purpose of explaining in detail to parties interested in the subject the method of erecting the kilns and working the machine, as well as of giving information on the subject of draining-tile manufacture on that system. Mr. Hodges remarked that such information could now only be obtained by the trouble of a personal visit to the Benenden Brick and Tile Yard, under the management of Mr. John Hatcher, the son and successor of the inventor, and where the earthen kiln and the tile-making machine would be in full work from the middle of April next until November, 8 miles from the Staplehurst station of the Dover railway.—Mr. Pusey thought it right to mention that, as he understood, the earth-kiln was suited only for the use of faggots, and that coals, according to Mr. Parkes, would require an additional charge of 25*l.* for iron work and fire-bricks. Mr. Parkes, however, was prepared to form a more permanent tile-yard for 165*l.*, exclusive of timber, but including a pipe-machine. Mr. Pusey had gone into the estimates with Mr. Parkes for draining a large property, which was now being drained on the modern system of broken stones, at an expense, including cartage, of 6*l.* an acre. If the draining were done on the old plan of Essex, Suffolk, and the southern counties—that is, with a deep narrow slit, as in bush, wedge, or turf-draining, Mr. Pusey had found that a solid clay could be thus drained permanently by placing in the bottom of the drain an inch-pipe, which Mr. Parkes would supply from the proprietor's yard at a prime cost of 6*s.* per thousand, exclusive of the cost of the tile-yard. Mr. Parkes had undertaken thus to drain two properties permanently at the very low prices of 30*s.*, 2 guineas, or 40*s.* per acre, according to the variation of soils.

White Belgian Carrot.—Sir Charles Burrell, Bart., M.P., of Knepp Castle, near Horsham, Sussex, informed the Council that he attributed his growth of 1600 bushels of White Carrots per acre last season (without including the green tops previously to carting away being severed from the Carrots, for feeding cows, &c.) principally in so dry a season as last year, to the effect of previous Pearson-plough drainage, as recommended by Mr. Hodges, and to the circumstance of the ground having been well prepared by spade husbandry. Sir Charles had always found the latter practice preferable to double-ploughing or subsoiling on heavy soils; for, in addition to an increase of crop, amounting by estimate to 300 bushels per acre, great benefit arose, in his opinion, to subsequent crops, by the good effect produced by that operation on the land.

Nature of Warp.—Mr. Charnock, of Holmefield House, near Ferrybridge, Yorkshire, communicated to the Council the result of his inquiries into the nature of the deposit of rivers, by means of the microscope, and his deductions from these investigations as to the cause of the great fertility of warped land, which he conceived to arise from the presence of those infusorial animalcules and their remains, so well known to exist in the deposit of all rivers whose course is long and slow, through flat, alluvial districts, and whose character, through the labours of Dr. Ehrenberg, of Berlin, has been so distinctly traced, and made known to the scientific world.

Bean and Turnip Crops.—Lord St. John, of Melchbourne, near Kimbolton, favoured the Council with the following communication:—"In consequence of the remarks made to the Council at their last weekly meeting, on the subject of growing Beans and Cabbages together, I beg to inform you that for the last four years I have grown the double-crop of Beans and Swede Turnips on clay-land with the most complete success. The Turnips last season were particularly good, in many instances measuring 26 inches round; the Beans, for the season, were also a good crop; and not wishing to see the ground idle, as they were ripe rather early, I sowed alternate rows of Coleseed and white Turnips where the Beans had been. If rain had come on in time I have no doubt I should have succeeded in this experiment also, for when it did come the plants grew famously. I am so satisfied of the advantage of this system of cropping, that I intend adopting it again this year; and am now dibbling the Beans in close double rows, leaving a yard at least between these rows for the Turnips. The field (14 acres) has been worked with forks to the depth of 12 inches, and has not had a plough upon it, neither do I intend to let a horse go on it this season." The Council having ordered their thanks for this communication, directed inquiry to be made of Lord St. John as to the details of weight and measure of Lord St. John's crops. The chairman remarked, that however advantageous the proposed arrangement might prove, the peculiar value of Lord Lovelace's plan consisted in the growth which it enabled a farmer to have of a winter green crop, namely, of the thousand-headed Cabbage, on strong land which would not grow Turnips.

Ashes of Plants.—Mr. W. P. Taunton, of Ashley, near Stockbridge, Hampshire, suggested to the Council, that in the proposed analysis of the ashes of corn and roots, those of the different Grasses should also be included.

Norman Clover. — Mr. Hyett informed the Council that Messrs. Thomas, Gibbs, and Co., the Seedsmen to the Society, had undertaken to supply him with such seed of the Norman Clovers as they might think proper to select and import for him for the purpose of some trials he intended to make in reference to the value generally of those Clovers, as well as in proof of their identity or difference in comparison with the different varieties of Clover at present cultivated in England; the result of which he hoped at a future time to be enabled to report to the Council.

Agricultural Fork.—Mr. R. S. Graburn, of Walton-in-Gordano, near Bristol, transmitted to the Council a spade-fork, which he had found superior to any other implement of the kind he had yet met with for the digging of Grass as well as of cultivated land; a superiority arising both from its judicious formation generally, and its spade-cutting edges inserted below the transverse upper portion of the fork and between the prongs. Mr. Hyett bore testimony to the excellence of the fork then presented by Mr. Graburn, which was brought under his notice by Mr. Law Hodges, and was, he believed, known as the Kentish fork. He had found it an excellent implement for working in plantations and forking below hard rocky soil.

Destruction of Moss.—The Chairman read a letter he had received from Mr. Newberry, of Hook Norton, Oxfordshire, the inventor of the dibbling machine described in the Society's Journal, on the subject of preventing the growth of Moss in Grass land by dibbling Vetches by means of his machine, and afterwards feeding them off on the ground.—Mr. Langston stated that he had first dibbled the sward, and then (as suggested to him by Mr. Pusey) closed the holes by means of the clod-crusher.—Mr. Ogilvie had never found any difficulty in preventing the accumulation of Moss: he gave the land, every 3 or 4 years, a 2-inch scarifying, followed by a bush-harrowing; and in the case of imperfect success from a single trial, he repeated the operation in a cross direction, and then never found it fail.

Trial of Barley.—Mr. B. Gibbs informed the Council that the time was then come when it would be necessary to place the Barley selected for trial at the Southampton Meeting into the hands of such parties as

it was intended should cultivate it in comparison with other varieties grown in their respective neighbourhoods; when the Council decided that Lord Spencer, Mr. Pusey, and other Members of the Society, should be requested to undertake the trial.

Mr. W. POLE THORNHILL, of Stanton, near Bakewell, Derbyshire, favoured the Council with original documents connected with the fatal distemper among cattle in 1746, and the precautions then taken to arrest its progress.—Mr. KIMBERLEY, of Virginia Water, Egham, transmitted specimens of soils from Kent and Surrey, indicative of the importance of employing the signs furnished by external vegetation, for ascertaining the nature of soils as well as their adaptation to particular purposes of cultivation;—from Mr. G. E. FRERE, and Mr. APSLEY PELLATT, on the manufacture of transparent flint-glass milk-pans, which Mr. Pellatt stated he should be enabled, after the 5th of April, to manufacture (at the Falcon Glass-works, Holland-street, Blackfriars) at a charge reduced from 7*s.* 6*d.*, as stated by Mr. Frere, to 4*s.* each, under the new regulation which would come into operation at that date.—Mr. MECHI, of Leadenhall-street, submitted to the notice of the Council a painting of the trench-plough made for him in the neighbourhood of his farm in Essex for 30*s.*, and which he had found to answer remarkably well.—Mr. JOYNER, of Aveley Hall, near Romford, Essex, announced the invention of a chaff-cutter; and Sir T. D. ACLAND, Bart., communicated the request made by the Agricultural Society of Munich, through General Washington, for an exchange of their transactions for a copy of the Society's Journal, which was acceded to by the Council;—for all which communications the Council ordered their thanks to be returned.—Mr. MAYER, of Newcastle, Staffordshire, addressed a letter to the Council on the subject of the course of study enjoined by the Royal College of Veterinary Surgeons in reference to cattle pathology and practice.

The following presents were laid on the table:—

The Duke of RICHMOND: Mr. Griffith's Further Report on the King William's Town Improvements in Ireland.

The EAST INDIA COMPANY: Supply of Seeds of the Pinus deodora and Cupressus torulosa, as both calculated, in the opinion of Dr. Royle, to produce valuable timber trees in England.

Mr. NICHOLLS: Complete set of the Poor-Law Reports, with an intimation that the future Reports would be forwarded to the Society in like manner, as published.

Mr. NICHOLLS: Reports of the Royal Agricultural Improvement Society of Ireland, and of the Ballinasloe, Roscommon, Portarlington, and Naas Societies, with lists of their premiums.

Mr. BAILLIERE, (219, Regent Street): Boussingault's Rural Economy, translated from the French, by George Law, and dedicated by permission to Earl Spencer.

Mr. E. MURPHY, (Dublin): Irish Farmers' Almanac for 1845; and a Treatise on the Agricultural Grasses.

Mr. G. COX, (Newgate Street): Manual of Agricultural Chemistry.

SOCIETY OF ARTS: Transactions, vol. 55.

STATISTICAL SOCIETY: Journal, Dec. 1844.

YORKSHIRE AGRICULTURAL SOCIETY: Transactions for 1844, and Prize-Sheet for 1845.

MR. FOLEY: Regulations, Prizes, &c., of the Stewponey Agricultural Society; Report of the Stewponey Becher Club; and Rules, Subjects for Discussion, &c., of the Stewponey Farmers' Club.

NORTH STAFFORDSHIRE AGRICULTURAL SOCIETY: Report of Regulations, Prizes, &c.

FRAMLINGHAM FARMERS' CLUB: Report, 1844.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND: Quarterly Journal, in continuation.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND: Annual Report, 1843.

WESTMEATH FARMING SOCIETY: Annual Report, 1844.

Mr. DALGAIRNS: Annual Report of the Guernsey Royal Society of Agriculture, 1844.

ROYAL AGRICULTURAL SOCIETY OF JAMAICA: Half-yearly Volumes of Report of Proceedings, 1844, with a copy of the Act of Incorporation and Bye-laws.

MR. SHAW: Farmers' Magazine, in continuation.

MR. SCRIPPS: Agricultural Magazine, March, 1845.

Mr. YOUATT: Veterinarian, in continuation.

Mr. DEAN: On the Beneficial Employment of the Surplus Labouring Classes; and on the Garden Allotment System.

Mr. NOWELL (Farnley-wood, Huddersfield): Manual of Field-gardening; or, Belgian Agriculture made Easy. [The writer, in presenting it to the Society, describes it as a "little publication written with a view to assist the small farmer and allotment tenant. It describes the routine of field-garden operations upon the estates of Mrs. Davies Gilbert, and there is also an attempt made to introduce deductions of science with as little as possible of its technicality."]

Mr. HUME: Lithographic Portrait of "Sally," the winner of the yearling heifer prize in the class of the Channel Islands' breed at Southampton, 1844.

Mr. JABEZ HARE: Copy of the Illustrated Engineers' Almanac, 1845.

Mr. CROSSKILL: Catalogue of Implements.

Mr. BENCRAFT: A set of his Improved Patent Hames.

Mr. ORMSBY GORE, M.P.: Average Specimen of a field of Oats (upwards of 6 feet in height), grown on land in Shropshire, that had been peat-pared and burned, and the ashes spread.

Mr. H. SAUNDERS (Cork), Letters on Rural Affairs.

Mr. C. M. WILLICH, Annual Supplement to his Tithe Commutation Tables, 1845; with the Canadian Agricultural Journal, American Agriculturist, Albany Cultivator, Reports of the Agricultural Society of Caen, and the various periodical Papers presented by their respective Editors.

The Council ordered their thanks to be returned to the respective correspondents and donors of these several communications and presents.

Mr. SHAW took that opportunity of submitting to the Council a model (of 3-8ths of an inch to the foot) of the double-cottage for labourers, built on the estate of Col. Palliser, of Comragh, Co. Waterford, in Ireland, and by him presented to the Society for Improving the Condition of the Labouring Classes. It was intended to show by this model in what manner a numerous family may be separately lodged.

The Council then adjourned over the Easter Recess to the first Wednesday in April.

FARMERS' CLUBS.

Cardiff.—On Thursday fortnight a Public Meeting of landed proprietors and tenant-farmers of this district was held in the Town Hall, Cardiff, pursuant to a requisition forwarded to the President of the Farmers' Club, for the purpose of taking measures "for carrying into practical effect an economical and efficient system of draining on such farms and lands as the owners and occupiers thereof may desire to have drained." The meeting was highly respectably and numerously attended. J. Pryce, Esq., High Sheriff for the county, in the chair. Mr. David said, that the committee named by the Club having requested he would write to several gentlemen on the subject of draining, he had written to Mr. Fothergill, Mr. Dods, to Mr. Smith, of Deanston, and to the Secretary of the Royal Agricultural Society. Mr. Fothergill's letter contained an estimate of the expense incurred by him in the erection of his works, for the purpose of manufacturing draining-tiles.

The sheds, which will contain 11,000 tiles, cost	£105	0	0
The kiln, which will hold about 12,000 tiles, cost	85	0	0
A cast iron mill	13	0	0
A Tweeddale patent tile-machine	40	0	0
Licence	2	12	6
Incidentals	10	0	0
	£255	12	6

The cost of making tiles averaged about 12*s.* per 1000. The flats cost exactly half, or 6*s.* per 1000. Mr. F. added—"When the clay is more favourable, and the quantity made much greater than I have required, the cost per 1000 will, no doubt, be proportionably lower." Mr. Dods says—"The Cardiff Farmers' Club cannot take up anything so good as the draining of wet land. We have done a great deal in that way, and have made our own pipes. We have put in upwards of 100,000 since last June. Our machine is Clayton's. It is very simple, being merely a cylinder placed above a plate, with any size die not exceeding 3 inches. * * The sizes are 3 in., 2 in., 1½ in. and 1¼ in. The 3-inch pipes are used for the main drains only. They are all made 13 inches long. * * * The expense of making the three smaller sizes is 7*s.*, 9*s.* 6*d.*, and 12*s.* per 1000 respectively. * * * I have every reason to believe our pipes will answer the purpose very well, but still I would give the preference to the socket pipes. * * * I think our pipes could be sold at 1*s.* per 1000."—Mr. Bradley read a letter which he had received from Mr. Parkes, Consulting Engineer of the Royal Agricultural Society, and from which letter we extract the following:—"It must be almost needless to state that on the structure and quality of the matter in which trenches have to be opened, and conduits to be laid, the cost of drainage will in a great measure depend; and I conceive that no one, experienced in the art of effecting a complete agricultural drainage at the present day, could be found bold enough to assign—until after a careful personal inspection of the different soils—the distances from each other at which drains will act, either immediately or ultimately, and with full effect. If such a datum could be decided on in the closet, one universal rule might be laid down for the whole kingdom, and no exercise of the judgment would be requisite as regards the determination of this important part of the problem of drainage. * * * The fact, too, is recognised and established that increased depth permits of drains being placed much further apart than a shallower system; hence arises the economy of deep drainage, for the cost of the materials forming the conduits necessarily suffers a diminution proportionate to that of the number of drains required in a given area, whilst the cost of digging or excavating and filling in the drains, does not increase in the ratio of their depth. I could cite instances of drains laid in the same estate, varying in distance from 30 to 80, and even to 100 feet asunder, according to the quality of the soil, yet all performing equally well in relieving their respective soils of water. * * * I regret to have to express an opinion that a very considerable proportion of the drainage now going on in Britain will, hereafter, be executed over again, from the future perception that the permanent level of the subterranean water has been generally retained too near the surface. * * * Small cylindric earthen pipes are, in every respect, preferable to every other form of conduit. Inch-bore pipes are proved to be quite large enough for the parallel drains; and I consider them in point of economy, durability, and certainty of action, to excel every other form of tile, and every other material yet used in agricultural drainage. The selling price of these pipes varies, at present, from 12*s.* to 20*s.* per thousand feet, according to the greater or less advantageous position and circumstances of a tilery," &c.—Mr. David read the following Report, prepared by the Committee which was appointed at the last Monthly Meeting of the Club:—They regret to find that the system of "thorough-draining" has hitherto been but very partially adopted in this county, notwithstanding the benefits arising from it are so universally admitted. This Committee is of opinion that the main obstacle is the heavy expense, which averages about 8*l.* per acre, arising, as this Committee believe, from the limited experience of our labourers in the execution of the work, unaided by a person of sufficient practical knowledge; and also, the increased cost of pipes and tiles as compared with the prices in other places. The present price of tiles and pipes 13 inches long, exclusive of carriage, is 30*s.* per thousand, and of soles 20*s.* per thousand; while, it appears from information obtained by the Committee that, with a proper tile-yard, having a kiln, sheds, and tile and pipe-machines erected upon the most approved principle, these articles may be manufactured at less than half the above rates. The Committee regret that, notwithstanding the very large extent of wet land throughout the vale of this county, no tile or pipe-work has been established near this town upon the best principle, to supply the public at a moderate rate. The Committee therefore recommend that such a work be now erected by subscription, in such a locality as shall be considered most convenient to those districts where the greatest supply of pipes and tiles are likely to be required, and that the price be limited to the lowest sum for which they can be manufactured. The Committee also recommend that a person of practical experience be procured, who would give directions and assistance in the execution of the work to such parties as may require them. With regard to the system of draining best adapted for the wet soils in this county, this Committee strongly recommends the Deanston, or frequent drain system, &c. Various resolutions were then passed, resulting in the formation of a Company for manufacturing tiles.

North Walsham.—At the late monthly meeting of this Association, the subject for discussion was, the Advantages or Disadvantages of Growing Flax, to the Norfolk Farmers. Mr. Brown said—Flax was either a good or bad crop for the farmer, and depended considerably upon the management. The land for which it was intended should be ploughed in the autumn, and should be well pulverised before the seed was sown, which should be in the last week in March. This he considered was a fair time to sow the seed, and he himself preferred the drill system, putting it in as "fleet" as possible, and lightly harrowing or bushing it. Two bushels per acre was a fair quantity. The drills should be 3 inches apart, and the weeding would be the same as spring corn. The pulling time commences in the latter part of July, and it should be drawn when the bolls were getting brown. The cost of pulling should not exceed 10*s.* an acre, and the roots should be carefully laid level, or there would be a great waste. It should then be tied up and placed in hales till it was convenient to remove it. As to the samples now present on the table, one was drawn the year before last, and had produced 5 coombs per acre of seed, of good quality, which was worth 40*s.* per coomb, and the Flax he now held in his hand was that which had been produced from it. The value of it was 7*s.* or 8*s.* per stone. He had sold a little of it. There was nearly a ton and a half of straw per acre, before steeping. There was another sample from Mr. Daniels, whom he was glad to see here to explain his experience with reference to it.—Mr. Daniels said he had been offered 14*l.* an acre, and had found that an acre and a half of Flax was equal to five acres of Peas.—The Chairman asked Mr. Brown if he would give them the full particulars of the profits of an acre of Flax, taking into consideration all the expenses, and showing the profits in a clear balance?—Mr. Brown refused to do so, saying he came there as a merchant, and not as a grower. Others will tell you what they make of the Flax, the seed, and the straw, so that you can easily arrive at what you desire.—The Chairman had hoped that somebody would have given them the result of his experience; but as no one had done so, he had no objection to place the result of his experience, as far as it went, before the meeting, especially as he was not a merchant, and neither a buyer nor seller. When it was first proposed to grow Flax he was anxious that the thing should have a fair trial, and wished to ascertain whether it could be grown with advantage to the farmer. After three years' experience, during which time he had exercised what skill he possessed (and he acknowledged a great deal depended on its management), he had himself no very favourable report to make. His first year was a failure, but that he attributed to his own ignorance; the results of his second year's experience had been published in the newspapers, and they had all heard them before, when, as it was known, he had realised a profit of 9*l.* an acre; but he must tell both sides of the question. He had selected land that he considered good, a strip in the middle of the field—it might be somewhat too hilly, but a fair sample of the rest and the last year this, with the rest of the field, was sown with Barley. That part where the Flax had grown produced but 6 coombs an acre, while the rest of the field yielded 9 coombs per acre. He did not say on all soils Flax was an exhausting crop, but certainly it had been so on his. This year had been the worst; he had sown an acre and 30 roods; the expenses altogether 7*l.* 2*s.*, but the crop was so bad in consequence of the season, that he had, after selecting

the longest out for scutching, taken the rest for thatching and purposes of that sort. He had not 9 cwt. fit to be scutched, and the whole produced only about 18lbs. of Flax. Taking everything into consideration there was a positive loss upon the acre and 30 roods, of 1*l.* 10*s.*; but had the season been a favourable one, very different results might, in all probability, have been experienced. With regard to the seed, he did not think Flax could be grown for that and the fibre also, and he concluded that it was an exhausting crop for the farmer. —Mr. Burcham had grown Flax for the last three years; his had proved a good crop, and had produced 4 or 5 coombs per acre of seed. It was sown on a Wheat stubble under the 6 years' shift. He had sold 2½ tons at 3*l.* 10*s.* a ton, and the straw for 7*l.* 10*s.* It paid better than a Barley crop did, and he was determined to persevere in growing it. He had found that he had paid too much for the pulling, and several other things might be done at a less expense. He had paid 40*s.* an acre for labour that he found could be done at 10*s.* In these things they might alter a good deal. Certainly a farmer would be wrong if he supposed his Flax crop would be equal to Wheat. Flax-growing was a good thing, if it only made employment for the labourer; if it were not for that it must probably go out of cultivation. He wished his had been spun out, but it was not, and he was unable to give more information.—Mr. Warnes said his opinion still was that the cultivation of Flax was one of the best boons that late years had given to society, because it would find employment for the weaker portion of the people. Nothing had ever given him so much pleasure as to hear from the chairman a confession that Flax might be grown at a clear profit of 4*l.* per acre to the farmer, after paying all expenses. Then what were these expenses? The money was distributed—amongst whom? why, the weaker classes. They wanted not the stronger or more athletic from the cultivation of the soil, but the natural distribution of labour, viz., that the stronger should till the land for food, and the weaker prepare the raiment. He admitted the last season had been much against Flax—all found that; but common sense said that they should not look upon it as a sample of the results of Flax-growing. They might just as well say, because there was a season unfavourable for Turnips, therefore Turnips were not a paying crop, and should be discontinued. Mr. Warnes alluded to Mr. Marsham's Flax, which he had sold at 5*s.* On 2 acres he had 76 stone, and 4 coombs 2 bushels of seed at 30*s.* a coomb; but taking that at 25*s.* would make the proceeds 16*l.* an acre. There was a fact which showed that Flax was worthy of being cultivated. It was now clear that 50 stone or 60 stone an acre might be produced. Mr. Warnes concluded with a feeling appeal to his audience, on the philanthropy of growing Flax for the employment of the suffering poor, and sat down warmly applauded.—The Chairman did not understand Mr. Warnes when he talked about his confession; it was his statement, not confession. He made no confession, he had nothing to keep back, his object was truth only, and to ascertain if Flax could be grown to advantage for the farmer, before they, who perhaps could ill afford to make any experiments, were induced to embark in the speculation. Notwithstanding the unfavourable season last year, he now thought it might. It was far from his wish to over-state the thing either one way or the other; he had given the result of his experience; he had stated nothing against it, and he was anxious that it might be found satisfactory to the farmer (without which he did not think it would be grown to any extent) and beneficial to the country; it was so, as far as his own opinion went. —Mr. Warnes contended that the seed might be preserved and fibre also, which would bring it to the amount. With regard to the notion of growing Flax for both fibre and seed, he acknowledged that the discovery was new, but said it was now being done in Flax-growing districts to a great extent. On this subject a long discussion took place; Mr. Rous and Mr. Gower differing from Mr. Warnes. It was ultimately agreed that the growth of Flax should be persevered in.

Reviews.

Manual of Field Gardening; or, Belgian Agriculture made Easy. Containing the routine of certain Field Garden Operations in Sussex and Yorkshire. By John Nowell. T. Kemp, Huddersfield.

By an attentive reading and comparison of the entries in this diary, one may ascertain the system of garden-farming which has been found to answer very well on the estates of Mrs. Davies Gilbert, in Sussex, as well as elsewhere. This little book, made up of 52 leaves, contains on the one side of them the weekly reports of operations at the allotments belonging to the self-supporting schools at Willingdon and East Dean, and on the other a series of "notes and observations" upon agriculture generally, which have been very ably compiled from well-selected materials. The following are one or two of the paragraphs, with their accompanying mottoes :—

"It is only by imitating the rural economy of foreign countries —by obtaining a quick succession of green crops—and by losing no opportunity to intercalate Tares, Rye, Turnips, scarlet Trefoil, Belgian Carrots, and above all, by landlords making homesteads in a condition capable of collecting and preserving every atom of manure, that the agriculture of Great Britain will be able to keep pace with her steadily-increasing population."—*Rev. W. Thorpe.*

"*Advantages of Soiling Cattle.*—Sir John Sinclair states them to be seven :—1. Saving of land: as reported to the Board of Agriculture, 33 head of cattle were, from the 20th of May to the 1st of October, 1815, kept on 17⅔ statute acres, when it would have required 50 acres to have *pastured* them. 2. Saving of fences. 3. Saving of food. 4. Improvement within doors. 5. The greater product in milk. 6. Increasing the quantity and improving the quality of manure. 7. Obtaining a higher value for the produce of the soil. To which the Rev. W. Thorpe adds, 'The making as much manure in the summer months as in the winter.' Mr. Howard, the worthy secretary to the Yorkshire Agricultural Society, has practised this upon a large scale for a number of years. A field of 14 acres is divided by him into seven parts, and sown with Barley, Red Clover, Mangold Wurzel, Winter Tares, Swedish Turnips, Spring Tares, and Turnips; affording seven acres of winter food and seven acres of summer food for the cattle in the farm-yard. He says, 'There is no doubt that one acre of these Turnips, carted green to the farm-yard, and given to horses and cattle in a cool stable, will go further than four acres of the best Grass land; and by the practice of soiling an arable farm may be made to support as much stock as a grazing one.'—*Farming at Scoreby*, p. 26."

"Try all new plans on a small scale;
Some may succeed should others fail.

"*Artificial Guano.*—Always strive to make these useful things of home produce, if you can do so. At the same time chemistry teaches us, in a very admirable way, how to imitate the natural guano by mixing together artificial ingredients. The following composition is recommended by Professor Johnstone, as a substitute for guano, which, I think, you will not rest satisfied without trying to fabricate. It has been proved by experiment to approximate, in value, in a considerable degree, to that excellent manure.

A mixture intended to equal, in effect, 1 cwt. of guano.

		Value.
78¾ lbs.	of bone-dust, at 2*s.* 6*d.* per bushel	4*s.* 4½*d.*
25 ,,	of sulphate of ammonia . .	3 9
1¼ ,,	of pearl-ash	0 2½
25 ,,	of common salt	0 6
2½ ,,	of dry sulphate of soda . .	0 2⅓
132½ lbs.	At a cost of	9 0½

All which substances, except the first, any druggist will supply."

'There is not an atom of matter in creation but has its uses.

"*Earth and Animal Matter Compost.*—Do not lose a scrap of decayed animal substance of any kind; blood, old rags, cropper's flocks, engine-waste, willy-dust, gather up all such things as may be offensive in their decay, and when divided work them up together with mould into a heap. Let it remain for a year, to be fully decomposed, turning it over several times. The watering of a mass of this kind with soap-suds, or scourings from the cloth mill, will much increase its value. Very striking and long-continued effects from the application of such a compost upon meadow-land, are frequently witnessed in a manufacturing district."

"As a dog fed on jelly alone will die, so may plants fed on the richest manure, if the specific ingredients they require be not present.

"*Top-dressing of Soot and Salt.*—Soot containing salts of ammonia must act beneficially. Salt is ever required both by animal and vegetable; it may so happen, however, that the soil contains it in sufficient abundance; when cattle are well supplied with this condiment, it is received into the soil where they tramp over; or near the sea coast, the salt-water spray may saturate the soil to some distance with salt. In applying these dressings, or indeed any kind of fertilising agent, you must estimate, from observation and inquiry, whether the soil may not already contain a sufficiency of it."

Remarks on the Inclosures of Commons and Wastes, &c. By Thomas Alcock, Kingswood, Surrey. J. Ridgway.

A TRACT illustrative, by reference to a particular instance, of the difficulties in the way of *a majority* of landed proprietors, in any parish, who may be disposed to inclose its waste lands. Mr. Alcock exhibits the necessity of legislation on this subject. "An Act," he says, "to facilitate the inclosure of commons, and a Board to refer to for the adjustment of questionable rights, and for providing compensation for all the privileges of the poorer classes, with power to assist or prevent inclosures, as in different cases may seem to them desirable, would be a simple, inexpensive, and effectual means of rendering a material and immediate benefit."

Miscellaneous.

The Irish Model Farm.—The agricultural experiments which have been made on this farm (on the Crown estate of King William's-town, county of Cork) within the last eight years have created considerable interest throughout the south of Ireland; and, judging from the number of persons from all parts of Great Britain and Ireland who have visited our works, I might say the interest has extended throughout the United Kingdom. Being situated in a western climate, exposed to all the rain and tempests of the Atlantic Ocean, at elevations varying from 600 to 800 feet above the level of the sea, agriculture must labour under great difficulties. In such a situation crops of all kinds are unusually liable to injury from the vicissitudes of season, and hence, during the years 1840, 1841, and 1842, in all of which the summer and autumn were unusually wet, the crops were much injured, though not destroyed, as was the case in many of the surrounding mountain farms, their preservation with us being attributable solely to the system of thorough-draining which has been practised from the commencement in reclaiming the lands of the Model Farm. Owing to elevation and exposure, no crops are grown beyond what are required for the use of the farm; they consist of Oats and Rye, Turnips and Potatoes, which usually succeed well; but our main object is good pasture and meadow, as dairy farming and rearing young stock are best suited to the circumstances of the farm. In several of my former reports I mentioned that much pains had been taken to introduce good breeds of cattle into the country, by importing from Ayrshire, Galloway-shire, and the West Highlands. Endeavours have also been made to procure a few of the small breed of cattle peculiar to the county of Kerry, which have been crossed with an Ayrshire bull, and the cattle produced are well formed, and appear to be well suited to an exposed climate. Our stock of cattle at present consists of the Ayrshire, Gallowayshire, and West Highland breeds, and several half-bred between the native and Ayrshire breeds. The West Highlands are a small hardy breed, well shaped, and protected from the cold by a coat of fine soft hair. They appear to be suited to a cold mountain climate. I have therefore recommended the tenants on the Crown estate to breed from the West Highland bull kept for their use, the cross of which with the native breed will be superior in many respects, and equal in others, to the ordinary cattle of the district. I have no proof at present of the dairy qualities of the West Highland breed, but their fattening qualities are long known to be next, if not equal to the Galloway breed. The amount for milk and butter sold in the Model Farm dairy during the year ending 31st March, 1842, is 142*l.* 15*s.* 9*d.*; do. in the year ending 31st March, 1843, is 143*l.* 2*s.* 8½*d.*; do. in the year ending 31st March, 1844, is 131*l.* 6*s.* 4*d.* The number of cattle on the farm at present, including 25 young calves, is 138, which, together with the horses, &c., are valued at 639*l.* 11*s.* The total amount received and expended in the three years ending 31st March, 1844, gives a balance against the farm of 23*l.* 11*s.* 9½*d.*; This balance accrued partly on account of the low price of butter during the last two years, and partly on account of the expenses attending the particular circumstances of this farm. The Model Farm must be compared to a large store, for the use and benefit, not only of the tenants of the estate, but also of the district; all the implements of husbandry used on the farm are occasionally lent to the tenants on the Crown estate, and to the farmers of the surrounding district; and bulls of the best breeds are supported for the use of the Crown estate and the neighbourhood; and as the farm was set down at the full value at which it could be let, so as to enable a working farmer possessed of capital to pay his rent, it cannot be expected, farmed as it is in a great degree for the benefit of others, that it would fully cover all its expenses; and I think, under the circumstances, it is creditable to Mr. Boyan, the manager, that, including the expense of thorough-draining and improving one or more fields each year, and paying its rent, amounting to 135*l.* per annum, it has been so far able to keep its head above water as to return a deficit in three years amounting only to the small sum of 23*l.* 11*s.* 9½*d.* The cultivation of the Model Farm has given constant employment to a considerable number of men, boys, and girls; upwards of 200*l.* has been paid to labourers in each year during the last three years; fair crops of Potatoes and Turnips have been raised; and this circumstance has induced some of the landlords of this neighbourhood to follow our example, who have commenced the improvement of their farms according to our system, not only in draining and cultivation, but in the construction of farm-roads and suitable houses and farm-buildings for their tenants. Hence it may fairly be concluded that the objects for the attainment of which the Crown land improvements were undertaken have been effected, and, the impulse having been given, that the future progress of improvement throughout the mountain district will be rapid and successful.—*From Mr. Griffiths' Report to Parliament.*

To sweeten Rancid Butter.—The *Echo du Monde Savant* says, "An agriculturist in the neighbourhood of Brussels having succeeded in removing the bad smell and disagreeable taste of some butter by beating or mixing it in fresh water with chloride of lime, he was encouraged by this happy result to continue his experiments, by trying them upon butter so rancid as to be past use; and he has restored to butter, whose odour and taste were insupportable, all the sweetness of fresh. This operation is extremely simple and practicable for all; it consists in beating the butter in a sufficient quantity of water, in which put 25 or 30 drops of chloride of lime to two pounds of butter. After having mixed it till all its parts are in contact with the water, it may be left in it for an hour or two, afterwards withdrawn, and washed anew in fresh water. The chloride of lime having nothing injurious in it, can with safety be augmented; but after having verified the experiment, it was found that 12 or 14 drops to a pound of butter were sufficient. —*Farmers' Gazette.*

Drummond's Agricultural Museum.—The specimens of this year's crop, which are being sent into this Repository, are numerous and uncommonly fine. This might have been anticipated from the favourable season, and the increased impetus given, year after year, to everything connected with the soil. The following notes are appended to specimens in the Potato department, showing important results of experiments exceedingly favourable to that invaluable article, guano:—*From John Stirling, Esq., of Kippenross.*—1. Forty folds, from 50 yards of drill, planted with stable-yard manure and guano—the guano at the rate of 4 cwt. per Scotch acre. Produce of the 50 yards being 6 bushels, or 3 cwt. 1 qr. 14 lbs., or 900 bushels per Scotch acre. 2. Forty folds, from 50 yards of drill, planted with stable-yard manure alone. Produce of the 50 yards being 5½ bushels, or 3 cwt. 21½ lbs., or 787½ bushels, thus showing a surplus

in favour of that having the addition of guano, at the rate of 112½ bushels per Scotch acre. *From. A. G. Spiers, Esq., of Culcreuch.*—1. Early Ross American, from a drill 17 yards long, watered with 2 English quarts of a weak mixture of guano and water. Soil—light sandy loam. The produce 122 lbs. imperial. 2. Early Ross American, from the adjoining drill of same length, without the guano mixture. Produce 80 lbs. In the Culcreuch district a Stirlingshire boll is considered to be a fair crop for a drill 100 yards long, of field Potatoes, but the above is nearly double this estimate. At Culcreuch, Turnips are raised with half farm-yard manure, and 2 cwt. guano per Scotch acre, and found to answer remarkably well.—*Stirling Journal.*

Dung-heaps.—When it is found necessary to empty the dung-yards early in the season, I recommend that preparations should be made in the usual way for the reception of the dung-heaps in the intended Turnip-fields, by collecting large heaps of clay, marl, or other such materials. The bottoms for the heaps should not, however, be laid above 6 or 8 inches thick of the earthy material, and a good quantity of it should be placed in rows on each side of the bottoms marked out; the dung should then be drawn out of the yards, and placed upon the bottoms, but not in the usual way of throwing it up loosely to cause fermentation; on the contrary, by drawing the carts with their loads upon the heaps for the purpose of compressing the dung, and thereby retarding fermentation. One or two men should remain constantly at the heaps while the teams are at work, on purpose to spread and level the dung regularly, so as to render the ascent easy for the succeeding teams as they come with their loads. If the dung has not been previously mixed in the yards, it should be so in drawing to the heaps, by taking up a few loads from one yard, and then a few from another alternately; and even from the same yard the loads of dung should be taken from different parts alternately, for the dung is not of equal quality, nor made with the same regularity in all parts of the yard. The coal-ashes, road-scrapings, and all other collections of manure about the farm-house, should also be carried to these dung-heaps, and when the heaps are raised as high as convenient for the horses to draw up, several loads should be shot up at the ends of the heaps for the purpose of making them up to the square of the centre; the whole heaps should then be completely covered with the marl and clay, or soil previously collected in rows by the sides of the heaps, so as effectually to inclose the dung-heaps in crusts, and they are thenceforth denominated pies.—*W. Blackie.*

Notices to Correspondents.

GARDENERS' CHRONICLE.—It is a gratifying fact that we have again to announce, as we have had to do every year since the establishment of the Paper, that it is necessary to reprint the first Number for the present year, the demand having been so much larger than we had anticipated. The reprint, less the Newspaper part and the Advertisements, which we have not thought it necessary to set up again, is now ready. The volume for 1844 can be had; none of the other years, and but a very few sets of 1844 remain, so those who are anxious to have them must order at once.

BEANS—*A Constant Reader*—The common tick Bean will probably suit you best.

BOOKS—*H T T*—Hillyard's "Practical Farmer and Grazier."

CARROTS, &c.—*A Sub*—Sow 3 cwt. of guano broadcast per acre; harrow it well in. About sowing the seed, see answer to question last week. The Belgian Carrot is preferable to any other we know—for *the farmer*.

CATTLE—*A Welshman*—It is not likely that the earth they ate should produce the symptoms you describe. Their poor condition is a more likely cause.

CHALK—*J Anderson*—The reduction of it must be left to the weather. It may be broken into lumps and then scattered over the field: the frost will reduce it; only it is now late for that. When applied in the chalk districts, 100 cubic yards are generally spread per acre; 30 or 40 cart-loads per acre will probably answer your purpose. It is not good policy to lime newly manured land, or to apply lime and manure together; the former ought to be applied in the autumn, the latter in the spring.

CROSSKILL'S CLOD CRUSHER—*A Constant Reader*—We have never used it over our Wheat, but it is highly spoken of for this purpose. You should wait, at any rate, till your land is dry enough to get on it with perfect safety, and then the younger your Wheat is, the better. We should prefer sowing seeds with the corn—or, at any rate, *immediately* after it—to waiting till the corn was up, provided always the land was clean enough not to require hoeing. We do not know the usual charge per acre for the use of the clod-crusher.

DRAIN-WATER—*A Young Farmer*—We know of no analyses. They would be interesting, especially after showers immediately succeeding a manuring with soluble manures.

DR. YELLOLY'S FORK—*R G*—The measurements given were those of a fork which weighed 8 lbs.; so that there must be some mistake on the part of your tool maker. He will surely be able to reduce its weight for you in those parts of it where it can be weakened with safety.

FARM CAPITAL—*W G*—The sum required depends exceedingly upon very variable circumstances. The most profitable mode of farming would require the use of from 8*l.* to 12*l.* per acre. This it would manifestly be very unreasonable to invest without ample security for it for a series of years from the landlord. The farmer ought, on an average, to obtain 10 to 15 per cent. annual return from his active capital. Your question cannot be answered fully here, but if you will forward your address we shall be happy to write to you on the subject.

GARDEN FARM—*B O S*—Carrots and Parsnips may be sown in rows 12 inches apart, at the rate of 4 or 5 lbs. per acre; when old enough the plants should be singled out to 8 inches apart in the rows. Mangold Wurzel should be sown in rows 2 feet apart, the seed being dibbled about half an inch deep at intervals of 12 inches. Swedes are sown like Carrots, only in rows 2 feet apart instead of one, and 3 or 4 lbs. of seed are sufficient. Apply guano and salt for green crops a week before sowing; mix them well with the soil. If you have land to the extent of 20 or 30 acres, such a small drilling machine as you mention may be advisable. No farmer occupying more than 50 acres of arable land ought to be without a threshing-machine. We do not know Messrs. Barrett and Co.'s drill.

GRASSES—*Country Sub*—Lawson recommends for your circumstances the following Grasses to be sown without a crop:—Aira cæspitosa lutescens, 2 lbs.; Alopecurus pratensis, 2 lbs.; Anthoxanthum odoratum, ½ lb.; Avena flavescens, 1 lb.; Festuca duriuscula, 3 lbs.; F. heterophylla, 2 lbs.; F. pratеum, 2 lbs.; F. rubra, 1 lb.; Lolium italicum, 3 lbs.; L. perenne, 5 lbs.; Phleum pratense, 1½ lb.; Poa nemoralis, 4 lbs.; P. trivialis, 2 lbs.; Lotus corniculatus, ½ lb.; L. major, ½ lb.; Trifolium pretensis perenne, 3 lbs.; T. repens, 5 lbs.; in all, 37½ lbs. per acre. If you can get a tilth in the way you propose, all that you need do is to sow the above mixture broadcast; harrow and roll.

GUANO FOR POTATOES—*R Cooper*—The quantities you name are sufficient in ordinary circumstances. Open your drills for Potatoes, then sow the guano in the furrows; and, after mixing it well with the soil by means of the horse-hoe, plant the sets above it. This is as good a way of applying it as any.

KOHL KABI—*A Sub*—An application to any good seedsman will probably be successful.

LUCERNE—*Mist-fliegi*—Fork between the rows as soon as the land is dry enough, and spread over the ground before doing so, say 3 cwt. of Peruvian guano. It is not necessary to mix mould with it if you sow it carefully and dig it in at once. It should be applied now as soon as possible. If you mow and carry off the crop each year you must manure every year too.

NIGHT SOIL—*W T P*—12 or 13 cwt. per acre, mixed with 6 bushels of *earthy* coal-ashes per cwt., would probably prove a sufficient dressing.

PERMANENT PASTURE—*Constant Reader*—Lawson recommends in your case the following mixture without a crop:—Aira cæspitosa lutescens, 1 lb.; Alopecurus pratense, 2 lbs.; Arrhenatherum avenaceum, 1½ lbs.; Avena flavescens, 1 lb.; Dactylis glomerata, 2 lbs.; Festuca duriuscula, 3 lbs.; F. heterophylla, 1 lb.; F. loliacea, 1 lb.; F. pratensis, 2 lbs.; Lolium italicum, 3 lbs.; L. perenne, 5 lbs.; Phleum pratense, 1½ lbs.; Poa nemoralis, 4 lbs.; P. trivialis, 1½ lbs.; Trifolium pratense perenne, 4 lbs.; T. repens, 5 lbs.; in all 38½ lbs. per acre.

PIGEONS—*A B C*—Asks for the best method to domicile pigeons. He has hitherto been unsuccessful in inducing them to stay with him.

POULTRY—*F H* complains that his fowls do not lay like those of his neighbours; they seem to be very comfortably provided for, and are in good condition, and he cannot account for their idleness. Have they liberty in a yard to pick up gravel, and lime, &c.? If they have not, this is perhaps the reason of their not laying: try feeding them on Buckwheat instead of Barley——*—Is it probable that the eggs of fowls feeding on musty barley will taste strawy and bad? We should think not.

PRICKING CALF—*T C*—Distention of the stomach with a vast quantity of indigestible food or Grass eaten whilst the hoar-frost is on the ground; drinking mineral waters, particularly if impregnated with iron; high feeding and want of exercise, are amongst the causes of abortion, in addition to the well-known agents which appear to operate on the imagination or the nervous system of the animal, such as fright, over-exertion, blows or other violent usage, and sympathy with other cows in the same state, or whilst calving. We advise you to examine and re-examine the matter, and ascertain if any of the above causes have been put in operation in your case. If so, probably with the removal of the cause the effect will cease. It must, however, be confessed that abortion has occurred to a great extent when none of the causes above enumerated have been in operation. Sometimes it has appeared, as it were, as an epidemic, and might probably be ascribed with some propriety to atmospheric causes; at others it has been endemical, attacking the cattle of particular localities; and more frequently still it has appeared for successive years amongst the cattle of a particular farm; and in this case the disposition may be considered to be rooted in the breed, and can only be eradicated by an entire change of the dairy. We advise you, therefore, in the absence of any of those causes, which can be discovered and prevented, to establish a sort of quarantine amongst your stock, and never permit a cow that has aborted to return to her companions or remain a portion of the dairy; and if the evil continues of sufficient magnitude to induce you to incur the sacrifice, even to change your stock altogether. This radical cure has succeeded when the disease has prevailed on a farm for the space of 30 years.—*W C S*—We must request our correspondents to employ provincial terms as little as possible.

TAXES—*R T*—Some lands are land-tax free and tithe-free: if yours is so, you would only be liable to the other parochial taxes, poor-rate, church-rate, &c. We shall be very willing to give all the information in our power on subjects connected with the practice of agriculture; but we can no longer give legal advice. The botanical name of the real Shamrock is Oxalis acetosella, but white Clover is often so called.

WARTS IN BULLOCKS—*An Old Sub*—The best method of removing warts is decidedly by operation either with the knife, or, what is still better, a hot iron with a sharp edge, and this can be done most conveniently with the assistance of the iron clams used for castrating. In the former plan the iron should also be applied to the part after the knife. If the warts are small and numerous, occupying a large extent of skin, white arsenic, powdered, may be applied, the warts being raw, or rendered so first. *WCS.*

⁂ As usual, many communications have been received too late.

ERRATUM—*E F L*—For the word *loss* (page 121, middle column, at the 36th line from the bottom) read *gain*. [Thanks.]

Markets.

SMITHFIELD, MONDAY, Mar. 10.—Per stone of 8 lbs.

Our supply of Beef is rather less, and we are making a little more money; our top quotation, however, is the extreme price, and only realised in very few instances. Sheep are short, and prices have advanced a little; everything is readily disposed of at the above quotations. Veal-trade is dull, although the best Calves still maintain their price. Trade is rather brisk for nice Porkers.

Best Scots, Herefords, &c.	3 10	to 4	2	Best Downs & Half-breds	4	2 to	4 6
Best Short Horns	3 6	3	8	Best Long-wools	3	10	4 2
Second quality Beasts	2 10	3	2	Ewes and second quality	3	4	3 8
Calves	4 4	5	0	Pigs	3	6	4 6

Beasts, 29 5; Sheep, 22,450; Calves, 63; Pigs, 330.

FRIDAY, Mar. 14.

The extreme coldness of the weather this week has had an unfavourable effect upon our trade for Beef; and although numbers are not large, the demand is small, and there is much difficulty in effecting a clearance. The very best beots, in some instances, still make 4s. 2d.; but the more general price is 4s., and Short Horns about 3s. 8d. We have rather more Sheep, but there is a trade for them at fully former rates. Some of the most selling Downs have made 4s. 8d.; Long-wools, 4s. to 4s. 4d.; Ewes and second quality, 3s. 6d. to 3s. 10d. Veal-trade is not quite so good; it is difficult to make 5s. of any thing. Pork-trade continues steady.

Beasts, 607; Sheep, 3500; Calves, 116; Pigs, 285.

cl. West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Mar. 13.

Prime old Meadow Hay	100s to 109s	New Hay —s to —s		Clover	105s to 115s
		Inferior Hay 80	95	Straw	36 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Mar. 13.

Superior Mead. Hay	108s to 112s	Superior Clover	110s to 116s		
Inferior	86 93	Inferior ,,	100 106	Straw	36s to 42s
New Hay	— —	New Clover	— —		

JOSHUA BARBER, Hay Salesman.

HOPS, FRIDAY, Mar. 14.

THE Market continues firm for all descriptions of Hops. The reports from the Plantations state that the severe weather retards the digging and dressing, which by many is thought will prove injurious to the coming crop.

PATTENDEN & SMITH, Hop-Factors.

ENGLISH TIMBER AND BARK.—Mar. 11.

Round Timber, per load.				Plank, per foot cube.		Inch board, p. ft. sup.	
Oak	5*l* 0s	to 8*l* 0s		2s 0d	to 5s 6d	4½d	to 6d
Ash	5 0	8 0		3 0	5 6	4½	6
Elm	2 15	3 3		1 8	2 0	1½	2½
Beech	2 5	2 15		1 6	1 8	2	2½
Lime	3 10	4 0		1 9	2 3	3½	5

Oak Bark (per load of 45 cwt.), 15*l.* to 18*l.* J. S.

COVENT-GARDEN, MARCH 15.—In consequence of the continued severity of the weather during the week, the supplies have been very limited and prices continue to advance. Among Fruit, Pine-apples are equal to the demand; they are small in size, but tolerably good in quality. The supply of Foreign Grapes has been pretty well kept up; Spanish sorts have slightly advanced in price; Portugals remain the same. Dessert Pears of good quality are very scarce, and realise high prices. Apples are also far from being plentiful. Oranges are good in quality, and tolerably abundant; the best bitter Oranges bringing about 20s. per 100. Strawberries and Cucumbers are still scarce, the latter slightly advancing in price.—Of Vegetables the supply is hardly sufficient to meet the demand. Large White Broccoli, which has been supplied in considerable quantity from Cornwall, has within the last few nights been nearly all killed by the frosts; the brown sort is also very scarce. Seakale, Rhubarb, and Asparagus, are excellent in quality; the latter is somewhat dearer. French Beans are improving in quality, and are becoming more plentiful. Celery is scarce, and rather on the rise. Lettuce and Endive are very scarce; the latter has considerably advanced in price. Mushrooms have also risen since our last report. New Potatoes may be obtained for about the same price as last week. Carrots and Turnips are sufficient for the demand; they are inferior in quality. Notwithstanding the extreme coldness of the weather, the display of Cut Flowers has been more than usually brilliant throughout the week. Among them we noticed Burchellia capensis, Abutilon striatum, Euphorbia jacquiniflora, Neapolitan Violets, Pelargoniums, Epacrises, Heaths, Cinerarias, Camellias, Azaleas, Acacias, Moss, Provins and other Roses.

FRUITS.

Pine Apple, per lb.,	6s to 8s	Oranges, per 100,	5s to 16s
Grapes, Spanish, per lb.,	1s to 1s 6d	— bitter, per 100,	6s to 20s
— Portugal, per lb.,	1s to 4s	Lemons, per dozen,	1s to 2s
Apples, Dess., per bush.,	6s to 12s	— per 100,	6s to 14s
— Kitchen,	4s to 6s 6d	Almonds, per peck,	6s
Pears, Dess., per hf.-sv.,	5s to 12s	Sweet Almonds, per lb.,	2s 6d to 3s
— Baking, per hf.-sv.,	2s to 2s 6d	Cob Nuts, per 100 lbs.,	120s to 150s
Pomegranates, per doz.,	2s to 4s	Nuts, Barcelona,	24s
Filberts, per 100 lbs.,	100s to 120s	— Brazil,	16s to 20s
Chesnuts, per peck,	3s to 8s	— Spanish,	2Cs
Walnuts, shelled,	6s	— Cob,	16s
Oranges, per dozen,	9d to 2s		

VEGETABLES.

Cabbages, per dozen,	1s to 2s	Spinach, per sieve,	5s to 8s
— red, per doz.,	2s to 3s	Scorzonera, per bunch,	2s to 2s 6d
— plants, per doz. bnch.,	5s to 8s	Salsafy, per bunch,	2s to 2s 6d
Broccoli, per doz.,	2s 6d to 3s 6d	Parsnips, per doz.,	6d to 1s
— white, per doz.,	6s to 12s	Leeks, per doz.,	2s to 3s
Brussels Sprouts, hf.-sv.,	2s to 4s	Garlic, per lb.,	6d to 10d
French Beans, per 100,	2s to 2s 6d	Onions, per bunch,	3d to 4d
Sorrel, per hf.-sieve,	3s to 4s	— large, per bushel,	3s to 4s 6d
Jerusal. Artichok, p. hf.-sv.,	1s to 2s	— Spanish, per doz.,	2s to 4s
Potatoes, per ton,	60s to 100s	Shallots, per lb.,	8d to 10d
— cwt.,	8s to 5s	Lettuce, per score,	9d to 1s 6d
— bushel,	2s to 3s	Celery, White, per bunch,	1s to 1s 6d
— Kidney, per bsh.,	2s to 3s	— Red, per bunch,	1s to 2s
— Autumn, per lb.,	8d to 6d	Endive, per score,	1s 6d to 5s
— New, per lb.,	3s 6d	Mushrooms, per pottle,	2s 6d to 4s
Turnips, per doz. bch.,	3s to 5s	Small Salads, per punnet,	2d to 3d
Red Beet, per doz.,	1s to 3s	Fennel, per bunch,	2d to 4d
Carrots, per doz. bchs.,	6s to 8s	Watercress, p. 12 sm. bun.	6d to 8d
Basil, per bunch,	2d to 3d	Parsley, per half sieve,	3s to 4s
Rhubarb, per bundle,	1s to 2s	— Roots, per bundle,	9d
Seakale, per punnet,	1s 3d to 4s	Tarragon, per bunch,	4d
Asparagus, per bundle,	3s to 12s.	Mint, per bunch,	6d to 8d
Horse Radish, per bundle,	1s 6d to 5s	Marjoram, per bunch,	2d to 3d
Savory, per bunch,	2d to 3d	Chervil, per punnet,	3d to 4d
Cucumbers, per brace,	6s to 10s		

POTATOES.—SOUTHWARK WATERSIDE, Mar. 10.

NOTWITHSTANDING the severity of the weather during the past week, this Market has been unusually depressed. The supply continues to be greater than the demand; and there is a sufficient number of good samples for the present consumption, and inferior samples are not wanted in the Trade. Many rough lots have been sold to the cow keepers and for other purposes, at very low prices.

York Reds	50s	to	80s	Kent and Essex Kidneys	65s	to	70
Perth	50		60	Wisbeach Kidneys	65		70
Fifeshire	50		55	— Blues	55		—
Early Devons	55		60	— Regents	60		65
Late Devons	—		—	— Whites	50		55
Cornwall	55		60	Guernsey Blues	55		—
Jersey Blues	55		—	— Whites	—		—
— Whites	—		—	York—Prince Regents	60		65
Kent and Essex Whites	50		—	French	—		—

MARK-LANE, MONDAY, Mar. 10.

THE show of English Wheat at this Morning's market was again moderate; fine samples sold readily at last week's prices, whilst the grown and secondary qualities were difficult of disposal. There was rather more inquiry for free Foreign, in retail quantities, at fully its late value; fine Danzig is still offered at 31s. f.o.b.; Rostock can be had at 25s. 6d. to 26s.; and Pommeranian 24s. 6d. to 25s. f.o.b.; the two latter are in demand for France.—The supply of Barley was very small and sold at our quotations. Rostock 52 to 53 lbs. can be bought at 18s. f.o.b., and Saal at 24s. to 26s. f.o.b. freight included.—We observe no alteration in Beans or Peas.—Oats sells slowly, and are the turn cheaper.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	40	49	Red	42 47
—— Norfolk, Lincolnshire, and Yorkshire	—	—	—	White	— —
Barley, Malting and distilling	28s to 33s	Chevaller	33	35	Grind. 24 27
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19 22
—— Northumberland and Scotch	Feed	20	22	Potato	21 24
—— Irish	Feed	20	22	Potato	21 23
Malt, pale, ship		54	60		
—— Hertford and Essex		58	65		
Rye		29	32		
Beans, Mazagan, old and new	29 to 33	Tick	29	35	Harrow 30 36
—— Pigeon, Heligoland	37 to 40	Winds	—	—	Longpod — —
Peas, White	33 to 35	Maple	31	33	Grey 30 32

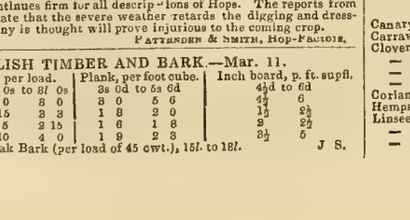
FRIDAY, Mar. 14.

The Market has been barely supplied with English Wheat during the week; and its value may be considered nominally the same as on Monday. In free Foreign the transactions have been limited on late terms, but there appears rather an increasing demand for offers f.o.b. in the Baltic, and sales of Pommeranian, Uckermark, and Rostock, have been made at 25s. 6d. per qr. f.o.b. to 30s. freight included.—Barley continues to meet a slow sale, but obtains late prices.—Beans and Peas realise our quotations.—Irish Oats are a dull sale, and Scotch must be written 6d. lower than Monday.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Feb. 1 per Quarter.	45s 5d	32s 10d	21s 6d	31s 3d	35s 8d	35s 4d
— 8	45 5	33 0	21 6	30 1	35 1	35 7
— 15	45 4	32 3	21 7	29 6	35 0	35 0
— 22	45 2	32 4	21 7	30 2	35 0	35 3
Mar 1	45 0	32 3	21 7	32 6	34 9	35 7
— 8	45 0	32 2	21 7	30 5	34 8	35 5
6 weeks' Aggreg. Aver.	45 3	32 8	21 7	30 3	35 0	35 4
Duties on Foreign Grain	20 0	6 0	6 0	10 6	7 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, March 8.



SEEDS, Mar. 14.

Canary	per qr	42s to 46s		Linseed Cakes, Foreign, p. ton	7*l* to	9*l*
Carraway	per cwt	44	50	Mustard, White	p. bush.	10s 14
Clover, Red, English		40	65	— Superfine	,,	12 16
— — Foreign		50	60	— Brown	,,	12 16
— White, English		50	80	Rapeseed, English, per last		26*l* 27*l*
— — Foreign		50	80	Rape Cakes	per ton	— —
Coriander		12	18	Saintoin		— —
Hempseed	per last	35	36	Tares, Eng. winter	p. bush.	7 8
Linseed	per qr	—	—	— Foreign		7
— Baltic		—	—	Trefoil	per cwt	— —
— Cakes, Eng. per 1000		11*l* 10	12*l* 10	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

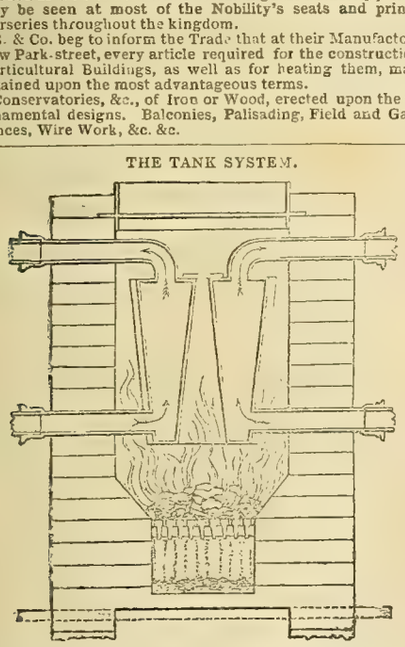
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY, having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent works on the culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places: Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

ICHABOE GUANO—Warranted Genuine, and selected from the best pits on the Island, can now be had direct from the Bonded Warehouses, at the following ports:—London, Liverpool, Hull, Southampton, Great Yarmouth, Glasgow, Leith, Dundee, and Aberdeen, on application to the Subscribers or their Agents at the above places.—JOHN BOYD & Co., Importers, London-bridge, Borough, London.

POTTER'S GUANO.
REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.

Sold by all dealers in Manures.

POTTER'S LIQUID GUANO,
FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1*s.* 9*d.* per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OF LIME, 6*s.* 6*d.* per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25*s.* in quantity.

Manufactory, 28, Upper Fore-street, Lambeth.

GUANO (GENUINE PERUVIAN & BOLIVIAN,
ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTESWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL.
47, Lime-street, Mar. 15.

GUANO, of the best quality, in bags.—PERUVIAN 11*l.* to 12*l.* per ton; ICHABOE 7*l.* 10*s.* to 8*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—

Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co, Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.

London, Mar. 15.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 1*l.* per quarter, including sacks; warranted to stand the most rigorous analysis.

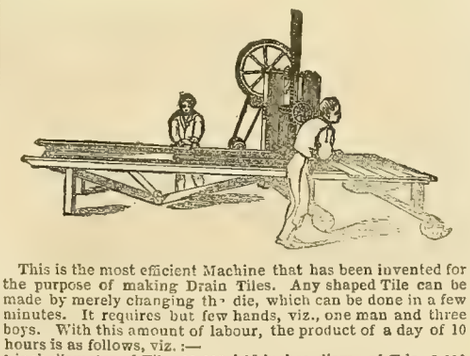
Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

TO FARMERS AND MARKET-GARDENERS.

GAS-LIME MANURE.—This MANURE, recommended for Agricultural purposes by M. LIEBIG and Professor JOHNSTONE, may now be had, with printed directions for using it, at the Stations of the Gas Light and Coke Company, Horseferry-road, Westminster; and Brick-lane, Old-street, London.—Address to the Superintendent of either station.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COLTAM and HALLEN Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ ,,	8,000	2½ ,,	3,200

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the Machine includes free use of it.

The attention of the Agricultural Public is especially directed to WEDLAKE'S SUBSOIL-PLOUGH, experience having proved it to be a most efficient and useful Implement, price 5*l.* 5*s.*; also

WEDLAKE'S CHAFF-CUTTING MACHINES and OAT-BRUISERS, which for many years past have obtained the approbation of the public. The use of WEDLAKE'S Oat-Bruiser especially will be found to effect a great saving in the feeding of horses and other cattle.

Mrs. MARY WEDLAKE, widow of the late Thos. Wedlake, of the Fairkyte's Foundry, Essex; and at the Agricultural Repository, 118, Fenchurch-street, opposite Mark-lane.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices to 130, Fleet street.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN USES.

BY HER MAJESTY'S ROYAL LETTERS PATENT

TO GARDENERS, NURSERYMEN, AND OTHERS.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of IMPROVED PATENT ASPHALTED FELT, for Roofing Houses, Sheds, Verandahs, &c.; and particularly for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.* It has been tested in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference can be made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN, (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET.) NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

Samples, with directions for laying on, and testimonials and references of seven years' experience as to its merits, sent free to any part of the town or country.

PATENT FELT MANUFACTORY (THE ONLY FACTORY IN GREAT BRITAIN WHERE THE ABOVE DESCRIPTION OF ROOFING IS MADE), LAMB'S BUILDINGS, BUNHILL-ROW, LONDON.

A Specimen Roof and Frame to be seen at the Factory, and a Discount allowed to the Trade.

WILLIAM CROSSKILL, BEVERLEY IRON WORKS,
NEAR HULL, YORKSHIRE.



By inclosing four postage stamps, W. C. will send a List, just published, of the names of upwards of 300 Purchasers of "Patent Clod Crushers" in 1844, with a book of Testimonials, proving that by rolling growing crops of Wheats, Oats, Barley, &c., early in the Spring by his PATENT ROLLER, more healthy plants are produced, and an increase in the yield of One to Two Sacks per Acre; and that whole crops of Corn, Turnips, Beet, &c., are annually grown upon Land which could not be cultivated without it. By trial it has proved itself to be the "Farmers' Friend," in saving his crops from the destructive ravages of the Wireworm and Grub.

CAUTION.—Ten Pounds Reward is offered to any person who will give the Patentee such information as shall lead to the conviction of any person making, selling, or using the PATENT CLOD CRUSHER without licence from the Patentee. A model of the Roller is exhibited at the Royal Polytechnic Institution, London.

Cash Price, with Travelling Wheels complete, delivered in Hull, 6 ft. 6 in., 21*l.*; 6 ft., 19*l.* 10*s.*; 5 ft. 5 in, 18*l.* Should the advanced price of Iron continue until June 1, the price of Clod Crushers will be 24*l.*, 22*l.*, and 20*l.* for the above sizes.

CROSSKILL'S AGRICULTURAL MACHINE SHOW-ROOM,
42, QUEEN STREET, HULL.

Improved One-horse CARTS, with Patent Wheels and Iron Axletrees, price 10*l.* 19*s.* and 12*l.* 12*s.*, and every other Implement known in Agriculture may be had at this Manufactory.

LINGHAM, BROTHERS, BIRMINGHAM.—MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.

Sole Agents in London:—George and J. Dean, Horticultural implement Warehouse, 46, King William-street, London-bridge.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1*s.* An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian oristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130*s*, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

PATENT ELECTRO-PLATED AND GILT ARTICLES in every variety, at the Establishments of the Patentees, ELKINGTON & Co., West End—22, Regent-street, corner of Jermyn-street; City—15, Moorgate-street. The Patent Electro processes being extensively adopted under their licence, the Patentees beg to state that they confine their own Manufacture to goods of a superior and warranted quality only, which invariably bear their mark, "E. & Co." under a crown. Old articles replated and gilt.

S. GIRLING'S NEW DAHLIAS, PETUNIAS, FUCHSIAS, AND VERBENAS, FOR 1845.

S. GIRLING has the pleasure of offering to his numerous Friends and Patrons, both English and Foreign, the following Plants, in new and beautiful varieties; this he does with the greatest confidence, as they have been carefully selected, and highly approved by the most eminent cultivators, as well as amateur growers, and will be found to answer the full description given of them. S. G. returns thanks for past, and solicits future favours, which will be faithfully executed, carefully packed, and forwarded to order. Six of the Verbenas can be had immediately; those marked with an asterisk in April, with the Petunias and Fuchsias, or with the Dahlias, which will be sent out early in May.

	s.	d.
NEW FANCY DAHLIAS.		
MONS. JEAN WALLNER, nearly black, clear white tips, full and constant; one if not the best, fancy Dahlia. Prizes at Chelmsford and Baker-street Shows; hgt., 4 ft.	7	6
MADAME WALLNER, crimson purple, tipped with clear white, very fine full flower, well up in the centre, and constant, height, 5 feet	7	6
MADAME RIGNON, bright scarlet and white, of good shape and habit; height, 4 feet	5	0
SPEEDWELL, dark and clear, white tip; good for showing; full centre, and well up in the eye; height, 4 feet	5	0
CURIOSA, primrose, shaded or edged with deep rose; a novel and singular fancy variety; height, 5 feet	3	6
SELF AND TIPPED OR SHADED DAHLIAS.		
MARCHIONESS OF ORMONDE (Bourn's), the best light-tipped Dahlia; to be sent out next May. No discount unless 12 plants are ordered; colour clear white, short cupped petals, tipped with rosy purple; habit and form of the first order. Has taken prizes wherever shown; very superior show variety; height, 4 feet	10	6
QUEEN OF THE GIPSIES, dark crimson, shaded or striped with bright purple, cupped and well up in the centre; warranted a constant and good show flower; height 4 feet	10	6
LADY LEICESTER, pale buff, a new colour; cupped petals, good outline; a well arranged and beautiful show flower, of fine habit and constant; hgt., 4 to 5 ft.	10	6
MRS. CHARLES KEAN, nearly black, petals well formed and of fine substance, deep and symmetrical; show flower; height, 4 to 5 feet	7	6
MARY, THE ROSE OF KEYDEL, dark rose, tipped with ruby, very constant, of good general habit, and fine show flower; height, 4 to 5 feet	7	6
VANGUARD, crimson scarlet, of fine form and excellent habit, producing none but constant good show flowers through the entire blooming season; height, 3 feet.	7	6
BEAUTY OF STOW, light lilac, of fine form and excellent habit, good depth of petal; a useful show flower when grown weak; height, 4 feet	7	6
MONSIEUR RIGNON, deep crimson, of good form; a fine and useful back-row flower, when grown weak; height, 3 feet	7	6
GLORIA MUNDI (Gebbard), inside the petal a clear orange buff, outside mottled carmine, presenting an orange appearance, by a reflection of colours; hgt., 5 ft.	10	6
BEAUTY OF CHELMSFORD (Wicks'), white tipped with purple, like Holmes' Exquisite; a good show flower; height, 4 feet	10	6
ESSEX PRIMROSE (Wicks'), fine light primrose; requires to be grown weak; fine show flower; hgt., 4 ft.	10	6
ESSEX SCARLET (Wicks'), dark scarlet, a very compact and desirable show flower; height, 4 feet	10	6

S. G. holds half the stock of those Dahlias, and can supply the rest of the Union Seedlings at the Catalogue Prices, with the usual discount to the Trade.

VERBENAS.		
ALBA LUTESCENS, sulphur-yellow, large and sweet-scented	2	6
ALBA MAGNA, the largest and best white out	2	6
*GLADIATOR, orange scarlet, with bright yellow eye, fine	3	6
LOVELY RAMBLER, gray lilac, large and fine	2	6
MESSENGER, bright purple, of fine shape	2	6
*MULBERRY, new in colour, distinct and fine	3	6
ROSE D'AMOUR, bright pink, with beautiful yellow eye, quite distinct; the most beautiful and attractive Verbena ever raised	3	6
*RUBESCENS, bright ruby, large and well formed	3	6
THE GIANT, silvery lilac; the largest trussing Verbena S. G. has ever seen, some of the trusses measuring from 10 to 12 inches round, resembling in appearance a blue Hydrangea	2	6
SEEDLING PETUNIAS.		
ATTRACTION, ground colour bright peach, with an immense throat of deep vermilion, beautifully veined, very large, flat, and circular; extra fine	5	0
BEAUTE DU JOUR, ground colour light blue, striped and veined, with rich dark purple; extra	5	0
BEAUTE PARFAIT, bright rosy pink, veined and striped with the deepest blood-red imaginable; extra fine	5	0
CERULEA STRIATA, white, beautifully striped with bright blue, large, round, and flat	3	6
FORGET-ME-NOT, ground colour and throat of a beautiful blue, but towards the margin a pure white	3	6
LOUIS GULDINO, dark rose, veined all over with dark mulberry, with an immense throat of the same rich colour, large, round, and flat	5	0
MEMBRANACEA, ground colour bright lilac, thickly intersected with veins of the richest purple, immense throat of the same	3	6
PERFECTION, ground colour pale rose, regularly and beautifully striped with rich crimson; in shape, size, and form quite perfect	5	0
PORTRAIT, rosy pink, veined with deep carmine	3	6
QUEEN OF MAY, lavender, very distinctly veined with dark purple, and regularly blotched with pure white, large, round, and flat; extra fine	5	0
SANS PAREIL, ground colour slate, with a large blotch of pure white in each of the segments, perfectly round, and very flat; a decided and beautiful variety; ex. fine	5	0
STRIATA DELICATISSIMA, white spotted and striped with rosy pink; very delicate and pretty	3	6
SEEDLING PHLOXES.		
ALBA CERULESCENS, beautiful pure white, with blue tube	3	6
ALBA GLOMERATA, white, with an immense head of bloom, very distinct	3	6
SEEDLING FUCHSIAS.		
ROSA MUNDI, bright pink sepals, green tips, corolla bright scarlet	3	6
FORMOSISSIMA, flesh-coloured tube, and sepals rather globose, green tips, long tube, corolla purple, goes off to orange crimson	5	0
EXIMIA, bright pink tube and sepals, violet crimson corolla	3	6
GLOBOSA PALLIDA, light globe kind, flesh-coloured sepals, green tips, deep chocolate corolla	5	0
PULCHELLA CARNEA, bold sepals, stout short tube, pale flesh-coloured, purple crimson corolla	3	6
DELICATISSIMA, pale short tube, and sepals tipped with green, open purple crimson corolla	5	0

N.B.—The above are all of good habit; the set can be had for 20s. Selected Plants at Catalogue Price.

The Verbenas and Petunias have been submitted to the Editors of the *Gardeners' Chronicle* and *Gardeners' Gazette*, from time to time for decision, and pronounced to be fine; the former to Mr. Ayres, who speaks of them most favourably. Mr. Glenny says—"The Fuchsias are not what I could wish, but certainly a considerable advance on the varieties yet out." The Dahlia, "Marchioness of Ormonde," cannot help pleasing every Dahlia grower, and has taken prizes wherever exhibited; the others S. G. sends out on his own warranty, not doubting they will give entire satisfaction; should any one prove contrary to the description, it will not be charged for. S. G. is convinced that those only charged 7s. 6d. will be found useful show Dahlias; but where the least doubt exists, he would rather have the credit of sending out a good Dahlia at that price than charge 10s. 6d. if in any case short of first-rate varieties. Parties desirous of placing any of the above in Catalogue will be liberally treated.

P.S.—The set of 12 Petunias can be had for 2l. 2s. Selected Plants at the Catalogue Price.

S. G. has on sale ground or pot-roots of nearly all the popular Dahlias of last and former years at moderate prices, lists of which can be had on prepaid application.

Foreign orders carefully executed; a reference or prompt payment from unknown correspondents.

LIST OF AGENTS.

Appleby, Florist, York; Brown, Nurseryman, Slough, Backhouse and Co., Nurserymen, York; Bridford and Co., Florists, Dublin; Ball, Nurseryman, Taunton; Bunyard, Nurseryman, Maidstone; Brewer, London Road, Cambridge; Barker Boynards, near Guildford, Surrey; Bass and Brown, Seedsmen, Sudbury; Bell, Florist, Bracondale, Norwich; Campbell, Model Gardens, Dublin; Drummond, Nurseryman, Bath; Dickson and Co., Edinburgh; Drysdale and Co., Florists, Glasgow; Dillistones, Sturmer, Essex; Edward, Nurseryman, York; Epps, Bower Nursery, Maidstone; Flanagan & Co., Mansion-house-st., London; Francis, Nurseryman, Hertford; Furley & Fraser, Lea-bridge-road; Fairbairns & Co., Clapham, Surrey; Fryer, Florist, Camberwell; Gaines, Florist, Battersea; Mr. H. Groom, Clapham; Messrs. Hancock and Son, Durham; Handasyde and Co., Musselburgh, Scotland; Henderson and Co., Pine-apple Place, Paddington; Harrison, Nurseryman, York; Harrison, Downham, Norfolk; Hansard, 30, Beaufoy Terrace, Maida Vale, London; Hurst and Co., Leadenhall-st., London; Imms, Nurseryman, Woolwich; Ivery, Florist, Peckham; Janson and Finney, Gateshead, Scotland; Kirk, Coventry; Lane & Son, Great Berkhampstead; Low & Co., Clapton, Middlesex; Mr. J. Meldrum, Kendal; Miller, Florist, &c., Ramsgate; Marnock and Manley, Hackney; Noys, Pendleton, near Manchester; Noble and Co., Seedsmen, &c., Fleet Street, London; Otty, Blenheim Hotel Grounds, Peckham; Parsons, Nurseryman, Brighton; Paul and Son, Cheshunt; Pettit, Bury St. Edmund's; Rednall, Holton Nursery, Suffolk; Rogers, Uttoxter, Staffordshire; Mr. Rendle, Plymouth; Ronalds and Son, Brentford; Spary, Densford, near Hungerford; Salter, Nurseryman, Bath; Smith, Florist, Hornsey; Silverlock and Son, Cirencester; Smith, Dalston, Middlesex; Thyue, Glasgow; Turner, Florist, Chalvey, Bucks; Messrs. Veitch and Son, Exeter; Watkinson, Manchester; Wood and Son, Maresfield, Sussex; Walters, Nurseryman, Hilperton; Wood, Florist, Plymouth; Wittey and Osborn, Fulham. Foreign:—Monsieurs Chauviere, Florists, Paris; Miellez, Lille; Salter, Versailles, France; Schemidt, Erfurt, Prussia; Thorban, New York, America; Winslow, Boston, America; Barnes, Boston, America; Van Geert, Antwerp; Van Houtte, Ghent.

WOOD'S FINE LONG RIDGE CUCUMBER.—This excellent CUCUMBER grows from 12 to 15 inches in length, is of a handsome shape, perfectly hardy, and a most prolific bearer, frequently producing 20 fruit in the space of a square yard.

Packets containing 18 seeds sent post free on receipt of 1s. or 12 postage stamps.—Address, S. Wood, Nursery, Huntingdon.

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FLOWER-SEEDS, 18 packets, 5s.; 36 packets, 10s., of the most approved sorts, sent postage-free to any part. Apply to Messrs. BROWN, Albion Nursery, Stoke Newington, London. Any preferred species may be named in the order. Payment by post order or stamps. List of Plants for Bedding, &c. can be had.

PRESTOE'S IMPROVED MUSHROOM SPAWN, Patronised by the Earl of Auckland, the London Horticultural Society, &c. &c.—This superior Mushroom Spawn is made up in cakes of a proper size to plant whole. Sold in baskets, a sufficient quantity to plant 50 feet of bed, 5s., with printed instructions for cultivating Mushrooms in the Shed, the cellar, the garden, or the field.
Shirley Nursery, near Southampton.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.
1l. 15s. each. Commission allowed to agents.
These Dibbles may be obtained of Messrs. COTTAM and HALLEN, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter, to his address, inclosing a Post-office order for the amount.
RICHARD SMITH, Upper Hall, near Droitwich, Worcestershire.

SLATE WORKS, ISLEWORTH, MIDDLESEX.
THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

GARDEN POTS AND STANDS, Patent and others, in every variety, at HUNT'S Wholesale and Retail Depôt. White Biscuit-stone and Wedgwood ware, from 9s. to 7l. 10s. per doz., for Drawing Rooms, &c. Improved and Elegant Hyacinth Pots and Supports, from 1s. 6d. each.—29, Queen's-row, Pimlico, near the Palace.

FLOWER-POTS AND GARDEN SEATS.
JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

ALSIKE HYBRID CLOVER.—This valuable variety partakes of the properties of the red and white Clover; it is a lasting plant, and an abundant cropper. Price of seed, 2s. 6d. per lb.

Meadow and Pasture Grass Seeds in mixtures suitable to all the purposes of forming rich and abundant permanent layers, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre; directions for sowing and treatment will accompany the seeds. Mixed sorts for improving old Grass Land, 1s. 3d. per lb.; fine sorts for lawns, &c., 1s. 4d. per lb.; Le Couteur's Talavera Wheat, 11s. per bushel; Potter's Prolific Barley, 6s. 6d. do.—GEORGE GIBBS and Co., Seedsmen, &c., to the Agricultural Society, 26, Down-street, Piccadilly.

N.B. Priced Lists of Agricultural and Garden Seeds are ready for delivery.

TO GARDENERS.—To be LET, a good KITCHEN GARDEN, partially walled, in extent about 2 acres, situate between Hammersmith and Shepherd's-bush, in a good state of cultivation, and well stocked with young fruit-trees in a bearing state. The crops to be taken at a valuation. For terms, &c., inquire at D. SYRED's, Nurseryman, Blomfield-road, Maida-hill; or at Mr. GOMMES, Hammersmith.

WORSTED GARDEN NETS, 2½d. per yard, recommended as an effectual protection to blossom from frost, blight, &c.; Hemp Garden Net, new, 1½d. per yard; ditto old mended Fishing Nets, ¾d. per yard.—ROBERT RICHARDSON, maker of all kinds of garden, fishing, and sheep-folding Nets, 21, Tonbridge-place, corner of Judd-street, New-road, London.

SHEEP NETS, RABBIT NETS, FISHING NETS.—Sheep Net of strong tarred cord, or cocoa nut fibre, nearly 4 feet high, 4½d. per yard; long nets, for catching rabbits, 50, 80, and 100 yards long; net as fences against poultry, rabbits, &c., 2d. per yard; net to cover pheasantries, &c.; fishing nets of every kind.—ROBERT RICHARDSON, Net and tent maker, 21, Tonbridge-place, New Road, London.

RICK CLOTHS, Tents for Cricket Clubs, &c.—Rick Cloths, dressed with a pliable composition of tar and boiled oil, which never mildew, or are touched by vermin, for 30 tons of hay, 5l., 40 tons 6l. 10s., 50 tons 7l. 10s., or on hire at a very moderate charge; Tents for Cricket Clubs, Lawns, &c., on very reasonable terms.—ROBERT RICHARDSON, Maker of Nets, Tents, Rick Cloths, and Tarpaulings, 21, Tonbridge-place, corn er of Judd-street, New-road, London.

ROWLAND'S ODONTO, OR PEARL DENTIFRICE, patronised by "Her MAJESTY," H.R.H. Prince ALBERT, the Royal Family, and the several Courts of Europe. A FRAGRANT WHITE POWDER, prepared from Oriental Herbs of inestimable virtue, for strengthening, preserving, and cleansing the teeth. It eradicates the factitious formation of tartar, and by the removal of that extraneous substance lends a salutary growth and freshness to the gums. It removes from the surface of the teeth the spots of incipient decay, polishes and preserves the enamel, substituting for discolour and the aspect of impurity, the most pure and pearl-like whiteness; while, from its salubrious and disinfecting qualities, it gives a sweetness and perfume to the breath, bestowing at once cleanliness, and the appearance and reality of health. Price 2s. 9d. per box, duty included.

CAUTION.—To protect the public from fraud, the Hon. Commissioners of Her Majesty's Stamps have authorised the Proprietors' Signature to be engraved on the Government Stamp thus,—A. ROWLAND and SON, 20, Hatton Garden, which is affixed to each Box. Ask for ROWLAND'S ODONTO. Sold by them, and by Perfumers and Chemists.

*** All others are SPURIOUS IMITATIONS.

ELECTRO-PLATING AND GILDING.—OLD PLATED GOODS RESTORED and made equal to new by Messrs. ELKINGTON and Co.'s Patent Process. This process being carried on in London *only* by Messrs. ELKINGTON & Co., it is particularly requested that all goods may be forwarded direct to their Establishments, 22, Regent-street (corner of Jermyn-street); or 45, Moorgate-street, City. New Goods plated upon White Metal in great variety. Books of Prices and Drawings sent to all parts of the kingdom and abroad free.

HEAL AND SON'S LIST OF BEDDING.—Containing a full description of weights, sizes, and prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London exclusively for the manufacture and sale of Bedding (no Bedsteads or other furniture being kept). HEAL AND SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court Road.

VAUXHALL COMPOSITE CANDLES, 8½d. per lb. PRICE'S PATENT CANDLES, 10½d. per lb.
These are the London cash prices, but the Country ones vary with the distance from town.
Both sorts burn exactly as well as the finest wax, and are cheaper, allowing for the light, than Tallow Moulds.
Sold wholesale to the trade, by EDWARD PRICE & Co., Belmont, Vauxhall; PALMER & Co., Sutton-street, Clerkenwell; and WM. MARCHANT, 253, Regent-circus, Oxford-street.
Until these Candles become generally sold throughout the country, EDWARD PRICE & Co. will supply any private families unable to obtain them in their own neighbourhood, with a quantity not less than 5l. worth, direct from the factory. On a line being addressed to Belmont, Vauxhall, inclosing a Post-office Order for 5l., (payable to Edward Price & Co., not to Edward Price, or Mr. Price), they will forward a box of the Vauxhall Composite, or of the others, or a mixed box, as may be directed, to that exact amount.

CORNS AND BUNIONS.
Patronised by the Royal Family, Nobility, Clergy, &c.
PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances, without causing the least pain or inconvenience.
Unlike all other remedies for corns, its operation is such as to render the cutting of the corns altogether unnecessary: (indeed, we may say, the practice of cutting corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth;) it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate corns and bunions.
Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.
Prepared by JOHN FOX, in boxes, at 1s. 1½d., or three in one for 2s 9d., and to be had of C. KING, Napier-street, near the Albert Saloon, Hoxton, London; and all wholesale and retail medicine vendors in town and country. The genuine has the name of JOHN FOX on the stamp.
A 2s. 9d. box cures the most obdurate corns.
Ask for "PAUL'S Every Man's Friend."

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, March 15, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 12.—1845.] SATURDAY, MARCH 22. [Price 6d.

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GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given, that an ELECTION for Four Pensioners on the Funds of this Institution will take place on Wednesday, 4th June next. All persons desirous of becoming Candidates are requested to send in their testimonials to the Committee on or before Friday, the 28th inst., after which time they will not be received. By Order,

Edward R. Cutler, Sec., 97, Farringdon-st.

The necessary printed form may be obtained on application to the Secretary as above.

HURST & M'MULLEN, Seedsmen, 6, Leadenhall-street, London, beg to inform their friends and the public, that their List of NEW AND CHOICE VEGETABLE AND FLOWER SEEDS for the Spring of 1845 is now ready, and may be had on application. A selection from their List of Flower-seeds will be found in the last page of the *Gardeners' Chronicle* of March 8th.

CHOICE FLOWER SEEDS, IN COLLECTIONS.

	per collection—*s.*	*d.*
Imported German Stocks In 36 splendid varieties	6	0
Ditto Ditto in 20 ditto	3	6
Ditto Ditto Asters, in 24 ditto	5	0
Ditto Ditto ditto in 15 ditto	3	6
Hollyhocks (very choice) in 12 named varieties	3	0
Larkspurs (German) in 12 splendid ditto	3	6
Balsams, 12 beautiful double varieties	5	0
Imported Zinnia elegans, 8 fine varieties	3	6
Cockscombs, 6 choice kinds	2	6
Verbenas, 8 ditto	3	0
Wallflowers, 8 imported varieties	3	0
Scabious, German, 8 ditto	2	0
Poppies, 16 splendid ditto	3	6
Mimulus, 10 ditto	3	0

The choice assortment of 36 kinds of leading Annuals, as mentioned in the *Gardeners' Chronicle* of March 1st, can be had for 12*s.*; and the 12 beautiful varieties of Tender Annuals recommended last week for 6*s.*

Grayson's Giant Asparagus Plant, 2 years old, 3*s.* per 100.

A choice selection of pot roots of all the best varieties of Dahlias in cultivation, from 1*s.* to 2*s.* 6*d.* each,

All the most approved varieties of Field Turnips and other Agricultural Seeds, selected from the finest stocks.

Mixed Grasses, for Lawns, of the very finest quality, 1*s.* 6*d.* per lb.; Do. do., for Pastures, 1*s.* per lb.

6, Leadenhall-street, March 22, 1845.

SELECT AND CHOICE FLOWER-SEEDS, with Directions for Sowing, Height, Colour, &c.

	s.	*d.*
100 vars. choice Annuals, including the most approved, new, for	15	0
60 do. do. do. for	8	6
30 do. do. do. for	4	6
20 vars. choice Greenhouse Annuals, for	6	0
20 do. Perennials, including fine varieties of Hollyhock, Fuchsia, Heartsease, Cineraria, Petunia, Calceolaria, &c. &c., for	6	0

The above can readily be forwarded by post, the 100 packets not exceeding 6 to 7 oz. Remittance in stamps or Post-office order from unknown correspondents.

Bass and Brown, Seed and Horticultural Establishment, Sudbury, Suffolk.

SELECTED GRASS SEEDS.

WARNER and WARNER, Seedsmen, 28, Cornhill, beg to inform the nobility and gentry they have on hand all the BEST GRASS SEEDS required for permanent pastures, consisting of Poas, Fescues, Crested Dogstail, Foxtail, &c. adapted for all soils. Upon application, the quantities required of any particular variety can be had with prices.

FIELD TURNIP, MANGOLD WURZEL, &c. of all the best varieties.

FLOWER-SEEDS, 18 packets, 5*s.*; 36 packets, 10*s.* of the most approved sorts, sent postage-free to any part. Apply to Messrs. Brown, Albion Nursery, Stoke Newington, London. Any preferred species may be named in the order. Payment by post order or stamps. List of Plants for Bedding, &c. can be had.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL and Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state.

Packages containing 100 canes			£2	0 0
Do.	do.	50 do.	1	1 0
Do.	do.	25 do.	0	12 0

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see Youell and Co.'s Advertisement of March 15, 1845.

YOUELL and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee		7*s.* 6*d.*
,,	Lady Alice Peel, Rose Picotee	7 6
,,	Miss Jane, Purple Picotee	7 6
,,	Mrs. Bevan, Red Picotee	7 6
,,	Enchantress, Scarlet Picotee	5 0

CARNATIONS AND PICOTEES.

Y. and Co.'s collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

				£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto	1	1	0

The selection being left to Y. and Co.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety), for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL and CO. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL and CO. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see Youell and Co.'s Advertisement of Jan. 11.

CEDRUS DEODARA, 3 ft. to 3 ft. 6 in., 10*s.* 6*d.* per plant.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

For particulars of Youell & Co.'s splendid Seedling Fuchsias, Verbenas, Pansies, Chrysanthemums, Petunias, and other highly ornamental plants, see their Advertisements of March 8 and 15.

Great Yarmouth Nursery, March, 22, 1845.

WARNER and WARNER, Seedsmen & Florists, 28, Cornhill, respectfully inform the Nobility and Gentry their NEW CATALOGUE, comprising all the choice new Flower and Vegetable Seeds is now ready, and can be had post-free upon application.

For particulars refer to "Harrison's Cabinet" for February and March.

PILTDOWN NURSERIES, MARESFIELD, UCKFIELD, SUSSEX.

MITCHELL'S SUPERB SEEDLING DAHLIAS.

Lady Charleville, beautiful glossy peach, 4 feet	10*s.* 6*d.*
Miss Harrington, white, slightly tipped with purple, 3 ft.	10 6
Prince Albert, superb orange, 4 feet	10 6
The Earl of Liverpool, fine crimson, 5 feet	10 6

JAMES MITCHELL begs respectfully to announce to his friends and the public, that he purposes sending out early in May the above Seedling Dahlias, in good plants, which he can recommend to the most limited grower. J. M. has a large stock of all the best varieties in cultivation, can supply fine plants early, and at moderate prices.

WILLIAM MILLER begs to call the attention of the readers of the *Chronicle* to his CATALOGUE of New SEEDLING FUCHSIAS, VERBENAS, PETUNIAS, ANTIRRHINUMS, &c., which appeared on the 1st of March in this Paper.—Providence Nursery, Ramsgate, Kent.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. George Baker, Bagshot Nursery (late Hammond's), Surrey.

USHER'S TWENTY SORTS OF SPLENDID DOUBLE MARIGOLDS, &c.—Seeds of the above superb selection of popular Annuals are for the first time about to be sent out to the public. The Collection comprises 18 sorts of French and 2 sorts of African; are all double, perfectly distinct, and very beautiful, which Mr. Usher has been selecting and improving for the last 12 years; and wherever he has exhibited them they have never failed to take the prizes. The full collection of 20 varieties may be had for 10*s.*, or half the collection for 5*s.* To be had of William May, Hope Nursery, Bedale, Yorkshire, who has also a few packets of his new Eucharidium grandiflorum, at 1*s.*; Hollyhock, all warranted gathered from double flowers, of more than 100 varieties, 200 seeds for 2*s.* 6*d.*, 500 seeds, 5*s.*; Pansy, from the best named sorts of 1844, 2*s.* 6*d.* and 5*s.*; Calceolarias, from his splendid varieties of 1844, at 5*s.*; Imperial Crimson Dwarf Beet, 1*s.*; Fuller's Hybrid Winter Radish, 1*s.*—post free.

Yorkshire made strong WOOLLEN NET, for protecting Fruit-trees, &c., 9*d.* per square yard.

W. M. can also supply the following highly-recommended Plants, viz.:—Gloxinia Cartonii, G. rosea alba, G. magniflora, G. Snowcana, G. bicolor, G. atrata, at 2*s.* 6*d.* each; Thunbergia chrysops, 2*s.* 6*d.*; Achimenes picta, 2*s.* 6*d*; Pentas carnea, 2*s.* 6*d.*; Habrothamnus fascicularis, 1*s.* 6*d.*; Habrothamnus cyaneus, 7*s.* 6*d.*; Centradenia rosea, 1*s.* 6*d.*; Lisianthus Russellianus, 2*s.* 6*d.*; Lythrum roseum superbum, 2*s.* 6*d.*; Hypericum ægypticum, 1*s.* 6*d.*; Hibiscus splendens, 2*s.* 6*d.*; Rhododendron Chamæcistus, 2*s.* 6*d.*; Scutellaria splendens, 1*s.* 6*d.*; Cyripedium insigne, 2*s.* 6*d.*; Gesnera longifolia, 2*s.* 6*d.*; Gesnera, new sp., "Columbia," 5*s.*; Pentlandia miniata, 2*s.* 6*d.*; Coburgia incarnata, 5*s.*; Ismene pedunculata, 2*s.* 6*d.*; Azalea indica Jenneri, 2*s* 6*d.*; Angelonia grandiflora, 1*s.* 6*d.*; Lychnis, sp. "China," 3*s.* 6*d.*; Drymonia punctata, 2*s.* 6*d.*; Jasminum bignoniacea, 2*s.* 6*d.*; Columnea grandiflora, 2*s.* 6*d.*; Fuchsia, "Foxton's Incomparable;" this is a splendid and distinct light-coloured variety, 5*s.*; Fuchsia, "General Tom Thumb;" this is a fac-simile of F. formosa elegans, in miniature, being the same shape, and precisely the same colour, growing about six inches high, very abundant in bloom, and of beautiful neat habit, very appropriate for forming edgings for Fuchsia beds, or for growing as specimens in pots, 2*s.* 6*d.* each, or 21*s.* per dozen; 100 distinct sorts named showy Hardy Herbaceous Perennial Plants for 42*s.*, 50 do., 25*s.* 100 Double Hollyhocks, various, for 42*s.*, 50 do. for 25*s.*; fine tubers of Achimenes grandiflora, longiflora, rosea, and pedunculata, 6*s.* per dozen; bulbs of Tigridia pavonia, 10*s.* per 100; 20 sorts fine Verbenas, named, for 10*s.*; 30 distinct named hybrid Fuchsias for 20*s.*; 20 very fine named Calceolarias for 30*s.*; 4 of Kinghorn's brilliant Calceolarias of 1844 (the first selected), for 42*s.* With every other approved article, either Trees, Shrubs, Plants, Seeds, &c.

TO THE ADMIRERS OF ROSES.

T. and C. LOCKHART, Florists and Seedsmen, 156, Cheapside, London, offer at the following prices:—

Standard Roses	per dozen	24*s.*
Climbing do., quick-growing and profuse flowering	,,	18*s.*
Dwarf Summer do.	,,	6*s.*
Perpetual or autumnal do.	,,	18*s.*
China, in varieties, do.	,,	24*s.*

A List of Seeds and Plants sent post-free on application.

RHODODENDRON JACKSONII.

WM. JACKSON and Co., Nurserymen, beg to announce to the Nobility, Gentry, and Public that they are now prepared to send out the above new and splendid Rhododendron, at 10*s.* 6*d.* each. See Dr. Lindley's opinion in the *Chronicle* of the 12th October last; also the List of their new Hybrid Rhododendrons. For Roses, &c., see *Chronicle* of the 1st March, 1845. Their Descriptive Catalogue of new Calceolarias, &c. is now ready, and will be forwarded on the receipt of a postage stamp.

Cross Lanes Nursery, Bedale, Yorkshire, March 22.

ALSIKE HYBRID CLOVER.—This valuable variety partakes of the properties of the red and white Clover; it is a lasting plant, and an abundant cropper. Price of seed, 2*s.* 6*d.* per lb.

Meadow and Pasture Grass Seeds in mixtures suitable to all the purposes of forming rich and abundant permanent layers, at 32*s.* per acre, allowing 2 bushels and 12 lbs. to each acre; directions for sowing and treatment will accompany the seeds. Mixed sorts for improving old Grass Land, 1*s.* 3*d.* per lb.; fine sorts for lawns, &c., 1*s.* 4*d.* per lb.; Le Couteur's Talavera Wheat, 11*s.* per bushel; Potter's Prolific Barley, 6*s.* 6*d.* do.—George Gibbs and Co., Seedsmen, &c., to the Agricultural Society, 26, Down-street, Piccadilly.

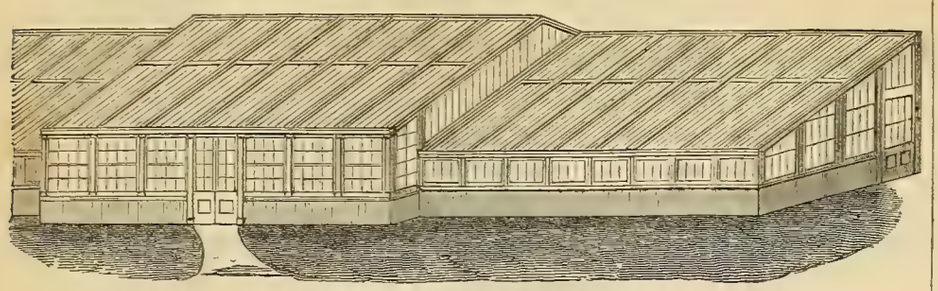
N.B. Priced Lists of Agricultural and Garden Seeds are ready for delivery.

NEW, GOOD, AND CHEAP.

WILLIAM MILLER will commence sending out, the last week in March, in stout tin cases, post-free (or in pots, if required), 12 new choice and very distinct Fuchsias, fit for exhibition, for 7*s.* 6*d.*; 12 extra first-rate very distinct varieties, all sent out for the first time last season, such as Vesta, Gigantea, Neptune, Modesty, Expansa, Reflexa, Cornet (Smith's), Cassandra, Prince of Wales, Queen (Pawley's), Prima Donna, Desdemona, Goldfinch (Harrison's), Longiflora, Curiosa, Louis-Philippe, Cyrus, Novelty (Miller's), Marginata, Sanguineria, King John (Halley's), Augusta (Rickhard's), Oxonian (Day's), Kentish Bride (Epps's), Uttoxeter Rival (Rogers's), Sidmouthii (Bartlett's), Colossus (Standish's), Princess Alice (Bunney's), Norfolk Hero (Barkway's), Princess Sophia (Marnock's), Queen Victoria (Youell's), for 15*s.*; also 12 distinct Verbenas for 3*s.* 6*d.*; 12 extra good, new varieties, such as Blue Queen, Zeuxis, Beauty Supreme, Elegance, Orange Perfection, Poolii, Modesty, Variabilis, Monarch, Brilliant, Array, Excelsa, Striata, Delicata, Defiance, Trésor Parfait, Azure Grandiflora, Queen of the Whites, Compte d'Eu, Alba Lutescens, Giant, Boule de Feu, Amethystina, Fortune-teller, Perfection, for 6*s.*—Parties ordering are requested to send the names of the sorts they already possess, that W. M. may send other suitable varieties. Printed Lists may be had.

Providence Nursery, Ramsgate, Kent.

THE DUTY OFF GLASS.—ECONOMISING HORTICULTURAL BUILDING.



J. WEEKS AND R. DAY,

ARCHITECTS, &c., GLOUCESTER-PLACE, KING'S-ROAD, CHELSEA,

HORTICULTURAL BUILDERS AND HOT WATER APPARATUS MANUFACTURERS,

Beg to inform the Nobility, Gentry, and Horticulturists, that in consequence of the Duty being taken off Glass, they are able to considerably reduce the price of HORTICULTURAL BUILDING: and the extensive practice they have been honoured with in designing and erecting HOTHOUSES, GREENHOUSES, CONSERVATORIES, &c., of every description, Useful and Ornamental, enables them to offer peculiar advantages.

J. WEEKS and R. DAY can with confidence recommend their HOT-WATER BOILERS as the most efficient; the largest they warrant to heat a range of Forcing-houses 300 feet in length, with a comparatively small quantity of fuel. They invite attention to their HOT-WATER APPARATUS generally, which, they flatter themselves, has arrived to the greatest state of perfection.

References may be had, and their works seen, at most of the Nobility and Gentlemen's seats in the country, nearly the whole of the London Nurseries; and a great variety of Horticultural Erections, Hot-water Apparatus, Boilers, Pipes, Gutters, Tanks, Models, Plans, Estimates, &c., at their Horticultural Manufactory, Gloucester-place, near Sloane-square, Chelsea.

FUCHSIA—"ERECTA ELEGANS."—The only Fuchsia that took a Seedling Prize at any of the great Horticultural meetings at Chiswick this last season is now ready to send out; also two other good and distinct varieties, named "OTHELLO" and "PILLAR OF BEAUTY," 5*s.* each. These were the only three picked out of upwards of 400 seedlings, all of which were good.

A. KENDALL begs to inform the Trade he has no objection to take out in goods, to any amount, the orders they may favour him with for the above.

Queen Elizabeth Walk, Stoke Newington, London.

PETUNIA MAGNIFLORA.

WILLIAM GREGORY most respectfully informs the Public that the above Plant is a seedling of his growing last year; the flowers of which are exceedingly large, white, shaded with lavender-colour, of a robust habit, a most profuse bloomer, and highly deserving of cultivation. It was seen, and plants were ordered by many highly respectable parties during the summer. Plants will be sent out in rotation as the orders are received, on and after the 18th of April next, at 5*s.* each, with the usual allowance to the trade when three or more plants are ordered.—Nurseries, Cirencester, March 19.

NEW HARDY DWARF BROCCOLI.

J. JENNINGS can, with confidence, recommend his New Hardy Dwarf BROCCOLI as a very superior variety, producing large white heads at the end of April and the beginning of May; they having withstood the present severe weather. A Nobleman's gardener writing to the proprietor on 14th inst., says, "The weather has destroyed nearly all the Broccoli I planted, except those I had of you." Sold in Packets, One Shilling each. Post-free on the receipt of 13 postage stamps. Furze-hill Nursery, Shipston-on-Stour.

SLOUGH NURSERY.—The Proprietor wishing to retire from business, offers the above first-rate and old-established concern on advantageous terms to any person or persons desirous of embarking in one of the best retail Nursery Seed and Floricultural trades in the kingdom.—Apply to THOMAS BROWN, at the Nursery, Slough, near Windsor; or in London, to J. LETTS, Esq., No. 8, Bartlett's-buildings, Holborn.

DOUBLE ITALIAN TUBEROSE ROOTS.—The Bulbs of this beautiful and fragrant Flower have just been received from Italy, at A. COBBETT'S (late Mr. Barron's) old-established ITALIAN WAREHOUSE, 18, Pall-Mall, and are warranted Double, at 4*s.* per dozen. Also, a choice collection of Orange and Lemon Trees, Catalonian and Arabian Jessamine Plants, &c. The trees are from 2 to 6 feet high in the stem, with strong grafts, and full of foliage; from 8*s.* to 25*s.* each.—N.B. Packed safely, and sent anywhere in the country.

DILLISTONE'S APPLE, the STURMER PIPPIN, a Drawing of which, and its History, appears in Maund's "Botanic Garden and Fruitist" for the present month.

The above Apple has proved itself unequalled for its combined qualities: it keeps firm and fine-flavoured until July or August, is fit for Dessert or Kitchen, is very hardy, bears well in all soils and situations; as a proof of this we have gathered from dwarf standard trees, planted in heavy clay, in the three last seasons, 320 bushels, the greater portion of which were sold in London, and realised higher prices by far than any other Apple in the market. Scions may be had, as usual, upon the receipt of 3*s.* 6*d.* in stamps, or post-office order, payable either at Halstead, Essex, or Clare, Suffolk. Please address, S. and J. DILLISTONE, Nurseries, Sturmer, Haverhill.

WOOD'S FINE LONG RIDGE CUCUMBER.—This excellent CUCUMBER grows from 12 to 15 inches in length, is of a handsome shape, perfectly hardy, and a most prolific bearer, frequently producing 20 fruit in the space of a square yard.

Packets containing 18 seeds sent post free on receipt of 1*s.* or 12 postage stamps.—Address, S. WOOD, Nursery, Huntingdon.

Agents in London, Messrs. NOBLE, Fleet-street; WARNER and WARNER, Cornhill; FLANAGAN and SON, Mansion House-street; NUTTING, Cheapside; HURST and MCMULLEN Leadenhall-street.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, from 5*s.* per 100, with printed particulars for cultivation, may be had of WARNER and WARNER, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

PINE PLANTS.—A Collection is to be disposed of, consisting of FRUITING and SUCCESSION PLANTS, in first-rate, very superior condition, strong, healthy, and clean. The stock consists chiefly of Queen, with a number of Providences, Enviles, Montserrats, Smooth Havannahs, and Black Jamaicas. They will be found well worthy the attention of those wishing such an article. For further particulars, apply to Mr. BROWN, Bedford Nursery, Hampstead-road, London.

DANECROFT NURSERY, STOWMARKET.

S. GIRLING begs leave to refer the Readers of the *Chronicle* to his choice collection of new DAHLIAS, VERBENAS, PETUNIAS, FUCHSIAS, and PHLOXES, as printed in the *Gardeners' Chronicle* of March 15, 1845. General Catalogues can be had on application, by sending two postage stamps in the letter of application.

TO ALL WHO HAVE WASTE LANDS.
TRUE HIGHLAND PINE-TREE.

JAMES GRIGOR, NURSERYMAN, NORWICH, begs to inform the Planters throughout the kingdom, that he is disposing of PLANTS, SEEDS, and CONES, of this valuable Timber-tree at the annexed prices. A description of this PINE will be found in J. G.'s Advertisements of Feb. 1, and previous dates.

PLANTS, 2 ft. high, beautifully branched on all sides, with fine leaders	each—	0*s* 6*d*
Ditto, 18 to 20 inches high	per 100—	5 0
Ditto, 15 to 18 ,, ...	per 1000—	30 0
Ditto, of smaller size, for exposed situations .	10*s.* to	20 0
SEEDS, post free, with directions for sowing .	per 500—	2 6
Ditto Ditto Ditto .	per 1000—	5 0
CONES, selected	per 1000—	25 0

Carriage paid to London or Hull, when plants are taken to the amount of 10*l.*

N.B. Every plant is packed by J. G. himself, or under his immediate superintendence, and in no case whatever is an address allowed to be written or attached to a parcel by any other hand.—Norwich, March 22.

NEW SCARLET GERANIUM—"ECLIPSE."

JOHN SMITH, NURSERYMAN, DALSTON, begs to announce that he is now sending out this SPLENDID GERANIUM, which is far superior to "Emperor" or "Superb;" it is of a dwarf habit, brighter in colour, and a much freer bloomer than either of the above varieties; was exhibited at the Royal Botanic Gardens in June last, and obtained the 1st prize. Price 10*s.* 6*d.* The usual discount to the trade, when three plants are ordered at once.—March 22, 1845.

HUGH LOW AND Co., beg to inform their Friends and the Public, that their List of DAHLIAS for the present year, comprising all the leading Sorts, is now ready, and may be had on application.—Clapton Nursery, London, March 22.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches . . .	11*s.* 0*d.*	20 inches . . .	22*s.* 6*d.*
15 inches . . .	12 6	22 inches . . .	25 0
16 inches . . .	16 0	24 inches . . .	32 0
18 inches . . .	19 0		

Slate Works, Isleworth, Middlesex.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1*l.* 15*s.* each. Commission allowed to agents.

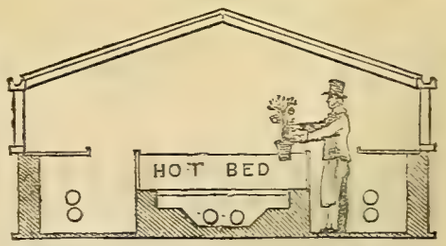
These Dibbles may be obtained of Messrs. COTTAM and HALLEN, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter to his address, inclosing a Post-office order for the amount.

RICHARD SMITH, Upper Hall, near Droitwich, Worcestershire.

TO HORTICULTURISTS, FLORISTS, &c.

GEORGE AND JOHN DEAN'S Stock of GARDENING, AND PRUNING IMPLEMENTS, combining all the latest improvements, is at once extensive and select; their sets of tools adapted for ladies and youths are universally approved of for their lightness, portability, and finish. G. & J. DEANE'S Conservatory Pumps, Garden Engines, Syringes, and Mowing Machines, are all manufactured of the best materials, and on the most correct principles. Their cast-iron Garden Seats and Chairs, and their Ornamental Wire Work for Lawns, &c., exhibit the most graceful devices. G. & J. DEANE are sole London Agents for Lingham's Menograph, and their illustrated Catalogue of Horticultural Tools may be obtained at their Warehouse, or will be forwarded by Post.—GEORGE AND JOHN DEANE, 46, King William-street, London-bridge.

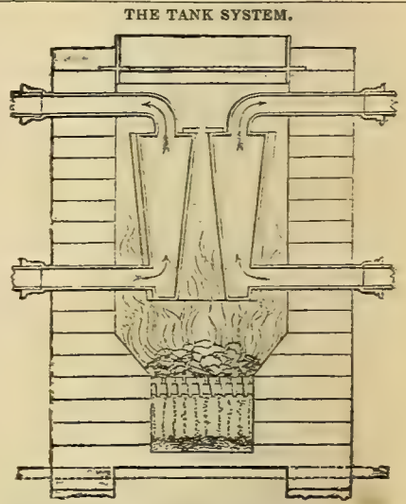
HOT WATER FOR BOTTOM-HEAT.



J. WEEKS AND DAY, ARCHITECTS, &c., Gloucester Place, King's Road, Chelsea, HORTICULTURAL BUILDERS, and Hot-water Apparatus Manufacturers, invite the attention of Horticulturists to their Improved Plan of Bottom-Heat, now becoming so universally adopted.

From the extensive Practice they have been honoured with for 20 years in designing and building CONSERVATORIES, GREENHOUSES, HOTHOUSES, PITS, &c. &c., and erecting their HOT-WATER APPARATUS to every description of Buildings to which heat is applicable, J. WEEKS and DAY have the greatest confidence in recommending their BOILERS as the most efficient of any yet invented, their largest being capable of heating a range of Forcing Houses 300 feet in length, with a comparatively small quantity of fuel, and only requiring attention once in 10 hours. To be seen in use at most of the London Nurseries, also at their Manufactory; and a variety of Horticultural Erections, Models, Plans, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY, having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent works on the culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places: Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

LANDSCAPE GARDENING AND GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, MARCH 22, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

TUESDAY,	April 1	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	April 2	Society of Arts	8 P.M.
FRIDAY,	April 4	Botanical	8 P.M.

THE FELLOWS of the HORTICULTURAL SOCIETY will be glad to know that letters have been received from Mr. FORTUNE, dated the 16th Dec. He was then at Hong-Kong, arranging for the shipment of his collections to Europe. They occupied many chests, and were about to be despatched as fast as opportunity occurred. We are happy to add, that the indefatigable exertions of this zealous young traveller are likely to be crowned with great success.

Mr. FORTUNE had met with many very beautiful shrubs, and it is hoped that a large part of them will prove hardy, or nearly so. Viburnums, with heads of large flowers, like a Hydrangea; Moutans in great variety; Peaches, Apricots, Roses, handsome Creepers, Azaleas, Daphnes, both sorts of the curious hexangular Camellia—a great desideratum, for it must be the most beautiful of the varieties; others from Fokien: Hydrangeas, a very fine double white Gardenia, with flowers as large as a Camellia; a curious Chrysanthemum, named as a perfect gem; new Pines, Honeysuckles, and Plums, are among the rarities mentioned as being actually on their way to England.

We learn from other sources that Mr. FORTUNE has been consulted by the Governor of Hong-Kong as to the practicability of planting the bare hills of that island, which at present consist more of buildings than vegetation. In the former respect, the place was making extraordinary progress, a large town having already started up. The panic as to unhealthiness was wearing off; good hospitals and barracks for the troops were rapidly erecting; the rest of the inhabitants were already well provided for, and the ships in the harbour were perfectly healthy.

It is rumoured in this country that Mr. FORTUNE had proceeded to Formosa; but his own letters do not mention such an intention.

THERE has lately appeared a capital translation of a beautiful tale by ZSCHOKKE,* which, in the present state of men's minds in this country, demands something more than a passing notice; for it is impossible that it should be read without profit by any one whose thoughts are occupied in the improvement of our agricultural population. The tale is simple, and pleasingly told; and the hero's exertions for reclaiming his native village from an immoral and pauperised condition are all crowned with those superlatively happy results which it is the enviable privilege of the authors of fiction to secure at will.

No one disputes the fact that an influence either for good or evil is always extended around every centre of active exertion. Although the world is usually more ready to acknowledge this truth with respect to evil intentions, it is as unquestionably true with respect to such as have an opposite aim. Oswald, the hero of this tale, is supposed to have been actuated by motives of self-sacrificing Christian philanthropy, and the energy with which he carries his schemes into practice is directed by an untiring zeal for the moral and social improvement of his neighbours. This sustains him through a short trial of unpopularity, roused by his uncompromising attack upon the inveterate bad habits and deep prejudices of the ignorant and misguided villagers; until having finally convinced them of the advantages to be derived from attention to his plans, the village of Goldenthal, after seven years' perseverance in reform, becomes the admiration and envy of the whole country. The tale concludes with this most just remark—"Truly may we say that the good seed which is sown in faith and hope will, sooner or later, yield a rich harvest; for a merciful God watches over us—a Father full of love and pity." p. 177.

The differences that exist between the social habits and political regulations of Germany and England are too great indeed for ourselves to accept, in all cases, Oswald's plans as a precise model for home improvement; but the steadfast adoption of those principles by which his conduct is supposed to have been directed, would most infallibly procure to any village in this country blessings of the highest order, social, intellectual, and moral. As advocates for the allotment system, we most cordially subscribe our assent to the suggestions of the Goldmaker, and can see no reason why our own agricultural labourers should not be made sensible of the advantages of some system of mutual co-operation, such as that of which so pleasing an illustration is afforded in this tale.

Oswald, the hero, most forcibly insists upon the necessity of educating the labourer, if we would hope to secure a permanency in the improvement of his condition. We are persuaded that the public are not well acquainted with the amount of prejudice that still exists in many parts of rural England against educating the agricultural labourer. We often see it asserted that the time is gone by when the education of the working classes was looked upon with suspicion; but, in truth, the time is not gone by. Direct opposition may not be so openly manifested, but something worse than indifference to this cause is still prevalent in our rural districts. Of late even the scanty opportunities afforded by our village schools have not been of that service to the children of the poor which they were a few years back, the necessities of their parents compelling them to command their services in the fields as soon as they can possibly earn a trifle. In many places it is rare to see a child at school after he is 8 or 9 years old. The employers of these children set them to keep pigs and scare birds, caring nothing for their education; and frequently much averse to their being sent to school at all. And yet, how easy it would be to provide for some general arrangement, by which one section of these infant scarecrows might be required to attend school in the forenoon, and the rest of them in the afternoon; by which means their employers might be served, and themselves still sufficiently instructed.

As Oswald has remarked, "A rational and conscientious government that cared for the prosperity of the people, would show far more care and anxiety in providing proper country schoolmasters, than in the choice of professors for Colleges and Universities. But that is not the way of the world: all strive to flatter the great and proud, and neglect the poor and humble; and so it happens that the life of some is too hard, and of others too easy." p. 32. His experience as a traveller, recorded in the following observation, will be substantiated by every one who has had the opportunity of witnessing the effects produced by our own beer-shops:—

"I have travelled much, and in all the towns and villages I have visited, I have remarked that, wherever there were many public-houses there was much poverty; and where there was only an inn for travellers, there was far greater comfort to be found in the cottages. It is not without reason that landlords generally paint some bird or beast of prey upon their signs—a lion or an eagle, a bear or a falcon—for truly they prey upon the whole community. They hang out a golden cross, because *they* will have gold, and leave *you* crosses and grief; they exhibit a golden angel, but in fact it is an angel of darkness that only serves to fill the prison and the workhouse. Although there is but one alehouse, we have still too many; without it, how much more comfortable would your homes become! He who does not spend his money at cards and dice can afford to buy himself a Bible and Prayerbook; he who does not get a headache by drinking and carousing will make his own fireside cheerful and happy: he will always have money in his purse; and it is better to drink one jug of home-brewed ale than a whole hogshead at a public-house!"

We doubt not that the motive was good which prompted to the establishment of beer-shops; but the event has proved that our uninstructed population cannot as yet be safely trusted within the limits of their pestiferous influences. How often are schemes, theoretically good, marred by the neglect of some one influence which had not been taken into account, and which, in the working of them, sets the whole machinery out of gear! That our present workhouse system is good as a check to vice few will dispute; that it is an imperfect instrument for securing employment to the diligent and honest is still more evident. The intense dislike which the poor have to enter the workhouse, and the advantage taken of that dislike by some of their employers, is the moral bane which more affects the advantageous working of the system than anything else.

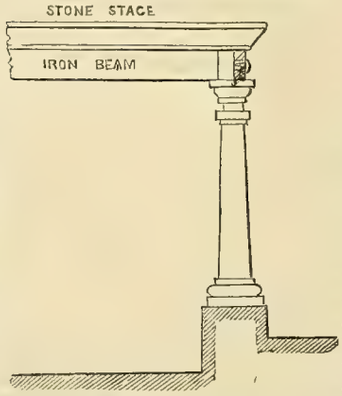
We trust that these remarks may not be considered as introducing what some fancy to be *politics* into our Paper; but the subject of the poor is at this moment engrossing so much attention, that a slight reference to facts, which are so palpably clear to all who have had practical experience of the working of the Poor Law, may not be ill-timed in noticing a work like the present, in which this subject is treated of. We cannot say that we have our doubts, for we have no doubt, of what the consequence will be to the poor man, should the law of settlement, now under consideration, remove his claim, as at present, on a single parish, to a charge upon an entire Union. This would speedily throw hundreds and thousands of our labouring poor out of employ. As our pages are read by so many who have the opportunity of thoroughly understanding the various influences which bear upon this question, we merely wish to suggest our own convictions on this important question to their consideration, without comment, and without the least intention of admitting or entering upon any sort of political discussion, from which it is our purpose as well as our wish most cautiously to abstain.

But to return to Mr. ZSCHOKKE, whose reformer's efforts are not limited to improving the condition of the labourers only, but are extended to that of their employers also. He finds in his German village the same bad arrangements that have been sometimes noticed in those of England, and that not unfrequently, where "some have too much land, others too little; and few know how to cultivate and improve it," p. 16.

We have no room for detailing the various plans suggested, but for them must refer our readers to the book itself, which appears to us admirably adapted for loan libraries, village school-prizes, and general distribution among our rural population, all the principles inculcated having a tendency to awaken kind feelings, and rouse a sense of moral responsibility both in employers and employed.

* "The Goldmaker's Village." Translated from the German of H. Zschokke. 12mo. Burns. 1845. pp. 177.

AMONG the accessories in the greenhouse at Kew, the plans of which were published a few weeks since, there is a particularly neat design for supporting the stone shelves. The following section will explain its nature. Stone slabs, whose front edges are wrought with a moulding, are placed on iron cross bearing-bars, which are carried at one end by the wall of the house, and at the other by cast-iron columns resting on little stone plinths. This gives them a very neat appearance, and costs little more than the ugliest device which would answer the same purpose.



COUNTRY WALKS.

How full of mirth, and joy, and gladness, does everything appear at this happy season! The blackbird, perched aloft on yonder tree, animates the shrubbery with his rich melodious whistle; while the thrush, in its immediate neighbourhood, pours forth equally-pleasing strains; the greater titmouse utters his short but sprightly song, as he flies from tree to tree, and flits among the branches; the hedge-sparrow, and that universal favourite the robin, join in the joyful chorus; whilst least in size, though by no means last in strength of voice, the little wren, with tail erect, surprises us with his strikingly-powerful notes, which he sends forth with such sprightliness and vivacity as he creeps amongst the Ivy, or in the thick bushes of the hedge-bank. The hoarse cawing of the rooks, though less musical, is, however, scarcely less pleasing; they are now beginning in earnest to prepare for the reception of their future progeny; some more fortunate than the rest, have been enabled, after much disputing, and many a severe contest, to secure a last year's nest, which with some little repairs, and the addition of a fresh lining, serves all the purposes of a new one; other couples, after much labour and trouble, succeed in laying the foundation of their future abode, when some oppressive and more powerful neighbours come, and most unceremoniously ejecting the rightful owners, raise the superstructure for their own use; the poor defrauded pair are thus again compelled to choose a suitable spot, and recommence their labours, again perhaps to yield up the fruits of their toil to some who have might, but not right, upon their side. At length, however, after many a quarrel and conflict, the wished-for object is attained, the nest is completed, and the first egg is deposited in it; now then all is safe; henceforth it is sacred in the eyes even of the most daring and audacious plunderer. There are few sights more amusing and entertaining than to watch through a small telescope the various operations, pillagings, manœuvres, and battlings of this busy, bustling, noisy township.

The meadows are now beginning to put on that peculiarly verdant and bright-green appearance which forms so pleasing an object in the landscape at this season; they, too, are animated and joyful; for here the playful and skittish lambs are seen frollicking, frisking, and gambolling in all the excess of joy and exuberance o

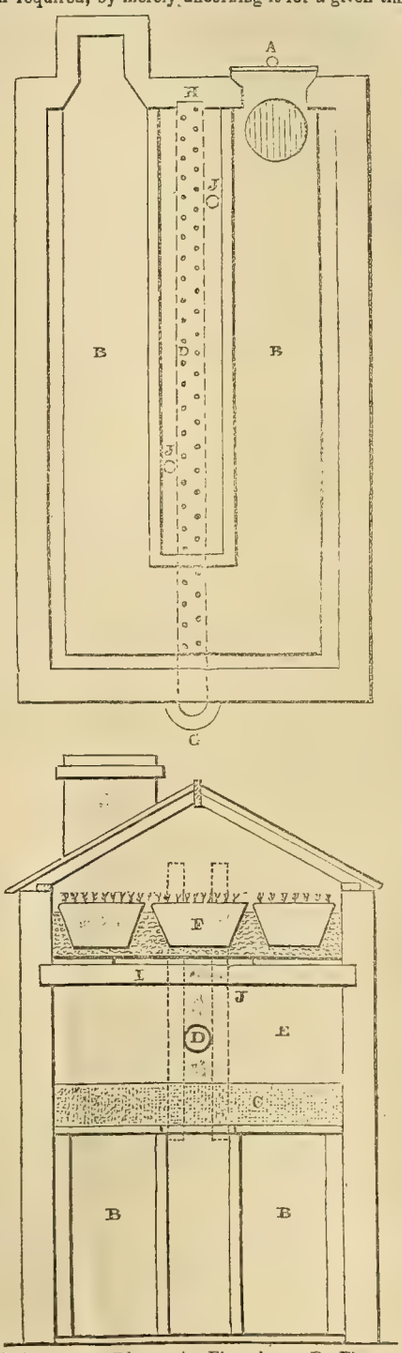
animal spirits beside their staid and sober dams; it is not, however, till the yare about two or three weeks old that they put on their interesting appearance; before that age their thick and clumsy legs, their seemingly half-starved bodies, and their silly expression of face, combined with their ludicrous and awkward attempts to frisk, and jump, render them anything but graceful.

In the Floral World there is as yet but little to attract attention, except in some of the milder parts of the country; a Groundsel, a Primrose, and a few Daisies, are perhaps all that are to be seen; but when once the spring has fairly commenced, the progress of vegetation will be particularly rapid after the long and severe winter which we have experienced; during that period the vital power of plants is more or less in abeyance; without a season of rest, plants could no more exist than animals without sleep; repose is as needful to the one as to the other; without it their vital energies would soon become exhausted, and they would consequently pine, and languish, and die. What the night is in most instances to the animal world, winter is to the vegetable—the period of rest; and the more, within certain limits, this period is prolonged, the greater will be the excitability of the plant, and the more active its vegetative power, when the invigorating influence of the genial spring calls it again into life and activity. The reason that so many of the inhabitants of our hothouses refuse to flower is, that this fundamental law of Nature is too frequently neglected. Were a rational course of treatment pursued, were the temperature lessened, and water, more or less, withheld during the winter, they would sink into their natural state of repose, their vital powers would be recruited, and when the period of growth again returned, they would most probably reward the cultivator with an abundant display of flowers, which he had previously sought for in vain. In all your gardening operations, study to imitate Nature as far as artificial circumstances will permit, and you can hardly fail of success; pursue a contrary course, and you cannot avoid disappointment. If it were left to our own choice, many of us perhaps would thoughtlessly say, "Let us have spring and summer, but give us no winter," little considering that were it not for the precedence of winter, the spring would lose half its delights, and be robbed of most of its pleasures. The constant succession of seasons, the regular recurrence of summer and winter, of seed time and harvest, has been wisely ordained by a bountiful Providence, as most conducive to the happiness and well-being of His creatures; the variety and change is fraught with the most beneficial results. That picture which is composed only of light and brilliant colours, wearies the eye with its sameness and want of contrast, whilst that in which light and shade are judiciously blended, and in which dark and sombre tints are used to throw out and give effect to the more bright and brilliant ones, affords most gratification. So it is with life; were our days passed in one continued round of happiness, and pleasure, and joy, unchequered with sorrow, unvaried with care, we should soon be satiated with the monotony. Now, on the other hand, there is constant variety, and ceaseless change—here a night of care, and there a day of rejoicing; now a chilling winter of wretchedness and grief, which is anon followed by a budding spring of hope, and a blossoming summer of joy.—*Boughton Kingdon, Teignmouth.*

NEW PLAN OF HEATING.

The tank system of procuring bottom-heat being now generally adopted, and occasionally seeing inquiries relative to the cheap application of that principle, I am induced to forward a description of a contrivance which has now been in operation with me two years; and which effects to my entire satisfaction the object I had in view, namely, superseding the tank; and permits—what the tank system does not—the complete adaptation of either dry or moist heat to cuttings, &c., at the will of the operator. To prove with what ease my system of heating may be applied to any building, I may observe that my little propagating-pit was formerly a dog-kennel. The length is 9 feet by 4 in width, the wall rising 5 feet to the lights. Round the inside of this, I had a flue, B, built, 2 feet 6 inches in height, and 1 foot across, inside measure, which, when covered over with tiles (allowing 4 inches for the width of the bricks), formed between the flues a hot-air chamber of about 8 inches in width, the whole length of the pit. The flues and central cavity being covered with tiles set in mortar, a layer of sand, C, about 6 inches thick, is spread over the whole surface; and at about a foot above the sand, rafters of Oak are placed across the pit, and built into the walls on each side; on these rafters, again, tiles are laid, and set in cement, thus making a floor, on which the cutting-pots, F, are plunged in sawdust. It will be evident that when a fire is made, the flues, as well as the air confined between them in the chamber before alluded to, become heated, together with the sand immediately above them, which heat must necessarily be given out very slowly.

I thus have command of as much dry heat as I choose; but, in order to obtain a sufficiently moist bottom-heat for carrying on my operations, I introduced into the chamber E a 4-inch zinc pipe, D, perforated with small holes, reaching from the outside at G to the other end of the pit at H, about half way between the floor which supported the pots and the bed of sand. This pipe has a large head on the outside at G, into which water is poured; and the pit itself has a small span roof consisting of four lights attached by hinges to the ridge. Having thus far endeavoured to describe the thing itself, I now proceed to the working, &c. When the cutting-pots, F, are plunged in sawdust, and I am desirous of obtaining that genial moisture so necessary in bottom-heat, I pour water, about four gallons at a time, into the head connected with the zinc pipe at G; this is immediately projected through the small holes the whole length of the pipe over the surface of the warm sand, which it saturates as regularly as if done with the rose of a watering-pot; a moist vapour immediately arises, equal to that proceeding from the surface of a tank (and with me has been equally efficacious, as I certainly do not lose one cutting in 500), and the floor, on which the pots are plunged in the sawdust, &c., appears to retain that gentle and steady heat on which so much of the success of striking cuttings depends. Should I at any time perceive that I have too much moisture, I withhold the supply of water for a day, which has the desired effect. In this pit I strike Dahlias, Roses, Pelargoniums, &c., as well as Polygalas, Leschenaultias, Genistas, Lilacs, Platylobiums, Acacias, &c.; and I venture to recommend it as at once simple and cheap in its construction. The expense of boilers and tanks is avoided; a grate, costing 2*s.* 6*d.*, supplying the place of the former, and a zinc pipe, costing 5*s.*, doing the work of the latter. Larger pits might have two or more pipes communicating with the head; and a pipe brought from the dry-air chamber, J, through the sand and top floor into the frame of cuttings, would at all times give top dry-heat when required, by merely uncorking it for a given time.



Reference to Plan.—A, Fire-place; B, Flue going round the pit; C, Stratum of sand over the surface of flues and cavity in the centre; D, Perforated zinc pipe; E, Chamber immediately beneath the pots of cuttings, heated by the flues and vapour arising from the damp sand; F, Cutting-pots, &c.; G, Head of zinc pipe into which water is poured; H, End of zinc pipe, which reaches the whole length of the pit; I, Oak rafters, built into the wall, supporting the floor on which the pots are placed; J, Pipes from the dry-air chamber between the flues, communicating with the upper frame, and which may be opened at the pleasure of the operator.—*J. F. Wood, The Coppice, Nottingham.*

SHOW PELARGONIUMS.

In offering these remarks, I have the following objects in view:—To show how much the exhibitions of the favourite flower have advanced in quality since the season of 1841; to call attention to the fact that this advancement is owing to the regulations and prizes of the Horticultural Society, the object of which is to promote a progressive improvement in all things connected with horticulture; and lastly, in speaking of seedlings, to remind the public of the new regulations fixed for their exhibition, by which folks will be able to judge for themselves of the merits of the numerous varieties offered through the advertising columns of weekly periodicals.

I shall in the outset say a few words respecting the value of the Pelargonium, as I have heard it observed that the encouragement offered to growers of this flower is immoderate, and that its cultivation has reached perfection. In point of beauty the Pelargonium among flowers has no rival; and it can be cultivated with equal ease by the humblest cottager and the wealthiest peer—indeed it is often seen in greater perfection in the window of the former than in the conservatory of the latter. If it has not the fragrance of the Rose, it excels the "Queen of Flowers," in this respect, that its blooms may be preserved in perfection for many days, when required to ornament our tables, &c. I have known them last in beauty for a fortnight in a cool shady room, when cut immediately after they had expanded. I fully expect that the coming season will show a decided advance both in combination of colours, and in the quality of our favourite.

With the termination of the year 1842, closed the Exhibition for the gold medal, of those large specimens with which Mr. Cock's fame had become so connected; and well did such specimens as he had produced for years, deserve the rewards they had obtained. In order to induce exhibitors to grow the improved varieties which each successive season produced, it was necessary to offer the Gold Medal for 12 plants in 24s, or 8-inch pots, in which the merit of the flowers was to form the principal feature. Up to that time abundance of bloom alone was sought for, in selecting plants for specimens, in consequence of which flowers of the most worthless character appeared on the Exhibition tables. In the season (1843) this was corrected, and in the amateurs' class, the winning 12 of the May Exhibition displayed 8 seedlings of 1842, thus giving the public an opportunity of determining the merits of the new varieties, which were to be sent out in the autumn of that year. Thus it has continued through 1844; new varieties, and a few old ones, which cannot be surpassed in their colours, have appeared with great success, and to the satisfaction of both florists and amateurs, who have been able to judge for themselves of the several merits of the flowers, which is a great advantage. Many, nurserymen in particular, expressed their gratification at the opportunity thus afforded them of doing this. For the season 1845, both the Horticultural and Botanic Societies offer handsome prizes for 12 new, first-rate, and distinct varieties in 8-inch pots, as well as for 12 specimens exhibiting good cultivation in the same sized pots. This ought to produce a very fine exhibition. The nurserymen ought to exhibit largely, for they must naturally expect that buyers will look to these Shows as a guide for them in their purchases; and the best of all advertisements will be the appearance of the plants on the tables. Puffing will no longer do. "Matchless," "Indispensable," "Magnificent," and so forth, must yield to accurate descriptions, and those who court the favour of purchasers through the medium of plates in floricultural works will do well to direct the artists to be more faithful in their representations of shape and colour, as they will be subjected to comparison with the plants themselves.

If, by the arrangements alluded to, much improvement has been effected in the exhibition of specimen plants, a much greater advance has been made in the seedling class. By the early regulations, cut blooms were exhibited, the petals upheld with cotton wool if they required it. A better regulation succeeded. The blooms were to stand free from any support. Then followed, that the plants themselves were to be placed upon the table, which was still better; and now, best of all, seedlings of 1845 are to be shown for a Certificate only, whilst those of 1844 are to receive such Medals as the judges may award. I therefore hope that a handsome display of the latter will adorn the seedling tents.

Let us glance over the several modes of exhibition I have just alluded to, and we shall see at once the advance in the right direction. When cut blooms were exhibited with no prohibitory clause, a flower whose petals reflexed, needed only some wadding judiciously placed, and it assumed a beautiful cupped form. When they were shown without this the evil remained, that a truss could be cut and exhibited, which was by no means a fair representation of the flower, as the imperfect ones could be removed. Neither could the habit of the plant be ascertained, which is of great importance, forming as it does a material point of excellence. When seedlings of the current season were exhibited, great disadvantage was the consequence, for it often happens that in the following year they prove quite worthless: take for instance Foster's Duke of Devonshire, and Beck's British Queen, both beautiful flowers when first exhibited, and both bad in the season following. Now, when a flower has won the Certificate in one season, and a Medal in the next, there will be no room to doubt its claim to superiority; and both florists and amateurs will have a guarantee in obtaining it, in which they will not be disappointed, in regard to their expectations of its beauty.

The following is a correct list of the Pelargoniums which have received prizes at the Horticultural and Botanic Societies' Exhibitions, from May, 1841, to July, 1844. It will show how few obtain distinction out of the thousands annually raised, and of that few how many disappear altogether. Any one who will copy this will have a text-book for the Exhibitions of 1845. I have omitted a box of cut blooms exhibited by Lucombe and Pince at the Botanic Society last year, half of which were Thurtell's, and half Beck's.

In May, 1841, at the Horticultural Society, were Gaines's Rising Sun, Catleugh's Prince of Waterloo; in June, Foster's Favourite, Garth's Queen of Fairies; in July, Wilson's Enchantress. In May, 1842, were Garth's Symmetry, Gaines's Amulet; in June, Foster's Sultana, Sir Robert Peel, Nestor, and Sunshine, Beck's Leonora and Meteor, Basset's Model of Perfection; in July, Foster's Lord Chancellor and Actæon, Pamplin's Count D'Orsay and Prince of Wales, Garth's Constellation, and Gaines's Duchess of Sutherland.

There was at this time a seedling-testing Society, whose prizes were awarded during this month as follows, viz., to Foster's Sultana, Actæon, Flambeau, Milo and Eros, Garth's Constellation, Pamplin's Prince of Wales and Sir Isaac Newton.

To this date trusses only were shown. The following were exhibited as plants:—

In May, 1843, at the Horticultural Society, were Beck's Zanzummim and Susanna; at the Botanic, the above two, and Theresa, Foster's Zanzummim and Hybla; in June, at the Horticultural, Foster's Phaeon, Duke of Devonshire, and Robustum, Lyne's Princess Alice, Ingram's Corinthian; in July, at the Horticultural, were Foster's Psyche, and at the Botanic, Pamplin's Lord Nelson. In May, 1844, at the Horticultural, were Foster's Dr. Lindley; at the Botanic, Beck's Master Peel, Lurida, and Chastity; in June, at the Horticultural, Foster's Sir J. Broughton and Exactum, Hoyle's Titus, Beck's Desdemona; at the Botanic, Foster's Orion and Miss Peel, Cock's Hector; in July, at the Horticultural, Gaines's Duchess of Leinster; at the Botanic, Beck's Aurora, Silverlock's Emperor Nicholas, and Staine's La Polka.—*Veritas.*

HOW TO STRIKE CUTTINGS.

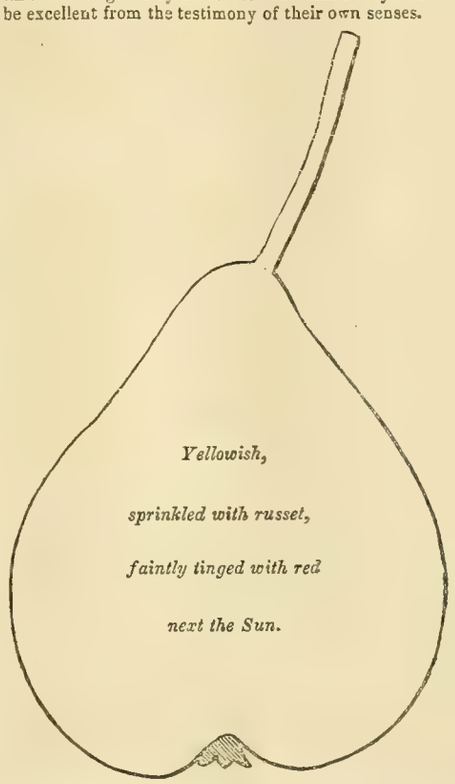
BY NEUMANN.

No. VIII. *Management of Cuttings.*—When cuttings of trees or shrubs growing in the open air have been made in a hothouse, and when they have taken root, we first permit the air of the house to enter under the bell-glass for four or five days; then we remove the glass altogether. The cuttings thus remain from four to six days exposed to the free air of the house; we then put them in another house, where they receive more light and air, and where for three or four days we accustom them to the sun-light; at the end of this time we may take them into the open air in the shade, until we judge it convenient to put them in their places. When we have a cold frame, we may easily make the cuttings pass through these different degrees of temperature, because then we can give them shade and air at pleasure. It must be understood that this can only be done for cuttings made in the spring; later, the frames are too hot, and we cannot maintain a suitable temperature and moisture, unless we give them a great deal of shade, which is not suited to plants intended for the open air. If we have to make herbaceous cuttings of greenhouse plants early in the spring, it is necessary to carry the parent plant into a hotter house, in order to excite vegetation; when the shoots have acquired a certain strength, we take off the cuttings and carry the parent plant back to its place. When the young cuttings have taken root, they may be gradually inured to a colder temperature, until they are strong enough to take their place by the side of their parent. Whatever may be the species of plant multiplied by cuttings, we ought always to avoid sudden changes from heat to cold, and *vice versâ*; these rapid changes cannot be otherwise than injurious; it is only gradually that we can accustom these plants to the atmosphere in which they are afterwards to pass their existence. Herbaceous shoots, taken from hardy trees in the open ground, do not serve for making cuttings. But when the shoots are produced in a greenhouse, it is almost certain that they will prosper. Physiologists have not yet been able to discover the cause of this remarkable phenomenon. We have tried many ways of striking cuttings taken from plants in the open air; but the result has never been favourable. Let us take, for example, an old branch of Paulownia imperialis, in the month of March. Let us put it in either earth or tan, or even in water, in a house at a high temperature; the dormant buds will not be slow in appearing, and if they are taken off to make cuttings, will strike easily. But if we take them from a plant exposed to the open air, they will never root.

PASSE COLMAR PEAR.

Synonyms.—Passe Colmar E'pineux, Colmar E'pinenx, Colmar Gris, Passe Colmar Gris, Passé Colmar Gris dit Précel, Précel, Fondante de Parisel, Fondante de Mons, Colmar Hardenpont, D'Ananas, Present de Malines, Marotte Sucré Jaune, Souveraine, Colmar Souverain, Gambier, Cellite, Colmar Preul, Colmar Doré, Beurré d'Argenson, Regentin, König von Baiern, Chapman's, Chapman's Passe Colmar.

This excellent variety is said to have been found near St. Ghislain, in the province of Hainault. Having obtained so many names it must have been extensively cultivated in Belgium long before its introduction to this country, which took place soon after the termination of the war. A package of Belgian varieties of Pear-trees was then imported by the late Roger Wilbraham, Esq.; and amongst them the one in question, with specimens of its fruit. From this gentleman Mr. Chapman, a fruit-grower near Brentford, obtained some cuttings, which he grafted on an old wall-tree, and by this means fruit was soon obtained. It was so different in flavour from any Pear then known, that the high price of 5*s.* each was given for the first produce. The variety was propagated as quickly as possible by Mr. Chapman, and the plants met with a ready sale at a guinea each, under the name of Chapman's Pear, a name by which the fruit is still known in the London market. The promptitude displayed by Mr. Chapman in getting the variety into a fruiting state, afforded gentlemen an opportunity of judging of the quality; and the consequence was that several hundred trees were sold at the above price, before amateurs, in travelling over its native country, found it could be procured at a cheap rate under the name of Passe Colmar. Still, in fear that the latter name might designate an inferior variety, the high price continued to be given by some for that which they knew to be excellent from the testimony of their own senses.



The fruit here represented is of medium size. Sometimes it is more pyramidal; but when it assumes the latter form it is scarcely so rich; and this is likewise the case when it is grown to a much larger size. Occasionally the surface is somewhat uneven, and slight longitudinal furrows running from the stalk end may be distinguished. The flesh is yellowish-white, melting, exceedingly sugary and rich, with a very slight cinnamon flavour. A more sugary fruit cannot be desired; in fact, some think it approaches too nearly the taste of sugar. In perfection in December and January; but may be kept longer. The tree is free from canker, moderately vigorous, adapted for either walls, espaliers, or standards. It is a great bearer. The shoots are of a clear olive yellow; leaves rather small, elliptic.

Grown as a standard, the shoots are apt to grow too long and slender, becoming pendulous in consequence; and when they bear heavy crops they become too weak; whilst stronger shoots burst from the summit of the tree in a vertical direction, thus placing the others at still greater disadvantage as regards the flow of sap. This irregularity of growth must be prevented by judicious pruning. The shoots require to be shortened; and this is likewise necessary to prevent overbearing. It is, therefore, particularly adapted for dwarf-training, where shortening must be practised at any rate to give the required form. It succeeds well on the Quince stock. —*R. T.*

TENDER ANNUALS.

These must be raised in a warm pit, and transferred to the open border when all danger from late spring frosts is over. They should be sown in March.

1. *Datura ceratocaulon* grows about 2½ feet in height, very robust and rather spreading. The *flowers* are very large, white stained with pink: they are not numerous, but very showy. It is a strong-growing plant, and should be placed towards the back part of the border, where it will be very ornamental. It comes from Cuba.

2. *Coreopsis* (*Calliopsis*) *Drummondii* grows from 12 to 15 inches in height; it is rather slender, slightly branched and spreading. The *flowers* are large, of a bright orange-yellow, and are produced in abundance. It is very pretty, and comes from Texas.

3. *Viscaria oculata* grows from 12 to 15 inches in height; it is very slender, much branched and spreading. The *flowers* are rather large, of a rosy pink, with a dark centre, and numerous. Very showy; from Algiers.

4 *Podolepis gracilis* grows from 6 to 9 inches in height; very slender, much branched, and rather spreading. The *flowers* are of a blush white, small, bearing some resemblance to those of a Rhodanthe. It is a profuse bloomer, pretty, and comes from New Holland.

5. *Lobelia azurea* grows only a few inches in height; it is very slender, much branched, and creeping. The *flowers* are of a bright blue, small, but abundant. It is very neat, and, remaining long in perfection, is well suited for growing in pots during summer. It comes from the Cape of Good Hope.

6. *Argemone grandiflora* grows from 15 to 18 inches in height; is rather spreading, robust, and branching. The *flowers* are large, of a pure white, but not very numerous. It is very showy, and comes from Mexico.

7. *Centaurea Americana*, 2 to 2½ feet high, erect, robust, and slightly branched. The *flowers* are large, rosy pink, produced singly on the ends of the branches. It is very showy, but rather tall and naked in appearance. It comes from the Arkansas.

8. *Schizanthus pinnatus* grows about 2 feet in height; much branched, rather erect and slender. The *flowers* are abundant, moderate in size, of a pale pink, variegated with white and yellow in the centre. It is remarkably neat, and comes from Chili. S. porrigens is a variety, only differing from this in its deeper colour.

9. *Zinnia coccinea* grows about 18 inches in height; rather erect, robust, and branching; the *flowers* are of a vivid scarlet, large, terminal, and rather abundantly produced. It is very handsome, and comes from Mexico.

10. *Elichrysum macranthum* grows from 18 to 24 inches in height, rather erect, and much branched; the *flowers* are terminal, rather large in size, white tinged with pink, and numerous. It is very showy, remains long in bloom, and comes from New Holland.

11. *Verbena Aubletia* grows from 9 to 12 inches in height, with few branches, rather spreading; the *flowers* are small and numerous, produced in close heads, of a rosy pink colour. It is pretty, continues long in perfection, but has rather a coarse appearance: it comes from North America.

12. *Senecio elegans* grows from 15 to 18 inches in height, rather dense, much branched, and straggling; the *flowers* are small, of various shades from deep purple to white. It is very showy, remains long in perfection, and varies from single to double flowers: it comes from the Cape of Good Hope.

The following are 6 handsome Climbing Annuals, some of which require to be sown in a warm pit or frame in March, and to be afterwards transferred to the open borders, while others may be sown in the open border at once; but it is much better to raise them all in a warm pit or frame, and to plant them out when the late spring frosts are passed, as then they will bloom much earlier.

1. *Tropæolum peregrinum* grows from 6 to 10 feet in height, when trained to a wall or to stakes. The flowers are not very large, of a bright yellow, very abundant, and fringed. It is very ornamental, and remains long in bloom.

2. *Tropæolum atrosanguineum* grows, when trained to stakes or otherwise supported, from 10 to 12 feet in height. The flowers are tolerably large, of a dark crimson, very showy, and rather numerous. It is a very fine variety of the common Nasturtium; like the former, it comes from Peru, and the seeds of both may be sown in the open border.

3. *Cobæa scandens* is of rapid growth, and if trained to a wall or other fence will extend from 20 to 30 feet in a short time. The flowers are very large, solitary, of a dull purplish brown, and not very abundant or conspicuous. It is well suited for covering a large space in summer.

4. *Lophospermum scandens* grows from 5 to 7 feet in height when trained to a wall or other fence with a south exposure. The flowers are large, of a rosy purple, very showy, and rather numerous. It is very ornamental, but does not grow rapidly like the former: it comes from Mexico.

5. *Loasa aurantiaca* is rather coarse, and grows about 6 feet in height, when trained to a wall or to stakes: it is rather branched and slender. The flowers are small, of an orange-red, and numerous. It is very ornamental, and grows rapidly; it is, however, dangerous, every part of the plant stinging as badly as the common Nettle: it is from Tucuman.

6. *Pharbitis* (*Ipomœa*) *hispida* grows about 6 feet in height, if allowed to scramble over stakes or other supports. The flowers are large, and of various colours, as purple, white, blue, striped, &c. It is very handsome, and comes from America. The seeds may be sown in the open border.—*George Gordon.*

FALLACIES OF CARNATION GROWING.

It is at all times an invidious task to write disparagingly of the performances of other people; but when I see works issuing from the press which mislead instead of instructing, I consider it a duty to warn people of these floricultural will-o'-the-wisps. As lately as 1843, I find a work, "Popular Flowers," making its appearance, purporting to treat of the cultivation of the Carnation, its propagation, &c.; and how the writer could contrive to perpetrate so many errors in so small a compass I am at a loss to conceive. I shall take the fallacies as they occur, quoting literally:—

1. "The Picotee, so named from the French participle *piquettée*—pencilled, has a white or yellow ground, the edges of the petals being fringed with some shade of red or purple; it is more hardy than the other two (Bizarres and Flakes.)" Now I admit that Picotees are very free in their growth, but I do not find them con-

stitutionally hardier than the Carnation, and most certainly nine out of ten of the Yellow Picotees in cultivation are much tenderer.

2. Alluding to the properties of a first-rate flower, we are informed, amongst other things, that "the edges (of the petals) should be perfectly entire, free from notches, fringe, or indenture." So far so good; but in the next paragraph the writer sadly commits himself, for in the face of all acknowledged rules of judging, he says, "The Picotee is excepted from this last rule!" Now, I maintain that any amateur having read the above assertion, who should visit an exhibition of Picotees, and who, on the strength of this authority, should profess his admiration of serrated petals in preference to the Roseleaf, and who would stoutly declare that it was not necessary that the Picotee should have smooth petals like the Carnation, I maintain that such person would be considered by the florists assembled as a sort of Picotee-growing Rip Van Winkle, or a being who had just awoke from a nap of a century's duration.

3. By the next fallacy I am led to infer that the writer never was a grower of Carnations, else he could not by any possible chance have made such a blunder. I give his own words:—"However fine a seedling may be, it never arrives at its best estate until it has been cultivated for some time. Those which are of one colour at first, termed selfs, afterwards *break*, as it is called, into various tints, more or less beautiful!" Now, I do not hesitate for a moment to deny this *in toto*, as being completely opposed to fact, and at variance with every florist's experience. Were this correct, how many thousand noble-shaped flowers have been destroyed root and branch, through the inconsiderate haste and ignorance of our best florists. Is it in the 19th century that we are told that Carnations and Picotees break, or change from self-colours to their beautiful stripes and delicate edging? I really believe that, in the manufacture of the Treatise, the compiler, by a most unlucky chance, had inserted a wrong paragraph; for what I have quoted will, to a certain extent, apply to seedling Tulips when in a breeder state; and every one who knows anything about Carnations and Picotees must come either to this conclusion, or admit that the writer knew nothing whatever of what he was endeavouring to teach. In fact, if intended as written, the idea is too absurd to be entertained for a moment by practical men.

4. I proceed with directions for layering, and we are told, "That the stem of the Carnation is jointed, and observation and experience have taught the florist that roots are more readily formed from these parts of the stem; and not only so, but that they are emitted by the second joint from the point of the shoot more freely than from any other." As far as my experience goes, I find that roots enough, in all conscience, are emitted from either the third or fourth joint from the top. The grower has only to perform the operation at the proper time, which knowledge will be attained by practice.

5. At p. 29, line 13, occurs the following:—"It (the layer) will never yield blossoms so fine as in the second year of its existence." If the old stool is sound, with proper top-dressing, and reducing the stems to one, I can positively aver that I have had as splendid flowers as from the finest layers. I do not doubt that the experience of other florists will bear me out. I have a slight recollection also that Messrs. Grigor, of the Forres Nurseries, N. B., cultivate their Carnations in a great measure from old roots, getting crops of layers year after year from the same plants; thus proving that, whilst free from disease, they do perform their functions as vigorously as young plants.

6. In layering a shoot, we are informed, "That we must begin cutting at about a quarter of an inch below the second joint, sloping the edge of your penknife inwards and upwards, so as to divide the joint and shoot up the middle, and nearly as far as the joint above! The tongue should not be less than an inch in length," &c. &c. On the contrary, the knife should not pass more than a quarter of an inch beyond the joint, leaving the tongue about a quarter, instead of an inch in length. When the layer is removed from the parent plant, the portion of stem must be cut back to the severed joint, which will occasionally emit roots in the manner of a cutting.—*W.*

CULTIVATION OF ACACIA KERMESINA.

(Calliandra Houstoni).

In the remarks on the suitability of this plant for conservatory culture, at p. 829 (1844), nothing is said about the treatment by which it may be most successfully bloomed. Its adaptation for the conservatory is unquestionable, and as the result of personal experience I may be permitted to offer a few remarks on its management in pots, for this, no doubt, will be the way in which it will be generally grown. Calliandra Houstoni then, being strictly a hard-wooded plant, is comparatively slow in its circulation of sap until fully established, whether in pots or otherwise. It blooms on the ends of the current year's growth, and its beauty is in proportion to the unchecked luxuriance of the latter, thus forming a striking exception to a numerous group of plants, among which may be classed Cuphea Melvilla, Gesnera elongata, and some Eranthemums, &c., the fertility of which depends upon their multiform or branching habit. The following will illustrate the management of this and of similarly habited plants. In the last week in December, 1841, a plant about 3 feet in height, in common with others, was cut back to within the two last buds of the same season's growth, and placed upon an inverted pot on the east side of a stove platform, where it had the benefit of intense light during its growth. In this position it remained about six weeks, being but occasionally watered, and now and then syringed. The plant was extremely slow in the development of its buds; when the young shoots were a few inches in length, it was shifted from a 9 to a 12-inch pot, partially reducing the old ball, and substituting a mixture of equal portions of sandy loam and heath-mould, with portions of coarse dried peat for sub-drainage. The following will serve to show the extra care required in the management of plants whose circulation of sap is slow during their first stage of growth, especially when placed in such sized pots as are intended to dispense with any further shift during the season.

The plant in question, for some time after being potted, continued to make suitable growth, but suddenly assuming a sickly habit, refused to expand its elegantly-winged leaves. As it had been well potted by the writer, it was at first difficult to account for the change, from which there seemed little chance of recovery, but relying on the proper proportions, and arrangement, &c., of the soil, for maintaining a uniform circulation of water (other conditions being equal), the only assignable cause was, that of the plant having been placed, in common with others, upon a level pit, where the agencies essential to growth, as light, air, heat, &c. were unequal to the amount of moisture in the soil. It was then placed on inverted pots upon a trellised platform, admitting an increased circulation of air, and exposing it to intense light; watering at the root was suspended for nearly a week, and copious syringings substituted, when requisite. By this treatment the plant soon assumed its wonted vigour, expanding its leaves and producing healthy young stems, which, by the autumn of the same season (apart from any alteration whatever in the soil) attained 4 ft. in length, on the ends of which were formed the tassels of graceful flowers, upwards of 12 inches in length. Independently of other evidence, the foregoing instance appears to confirm the truth of a remark elsewhere given—that most plants are capable of maintaining a healthy condition, so long as a balance is maintained between the atmosphere in which they are placed, and the absorbing power of the material in which they are grown.

From the foregoing remarks it will be seen that the writer includes the general treatment of Calliandra Houstoni with a class of plants whose highest culture depends upon the unchecked luxuriance of their annual growth, and on the exposure of the terminal shoots to intense light. For example, the beautiful species of Aphelandra, Clerodendron, Costus, Dichorisandra, Poinciana, Jacaranda, Justicia, Erythrina, Poinsettia, Hibiscus, and Gesnera, &c. are well-known instances, in which a mode of growth favourable to the production of side-branches would be fatal to a fine display of bloom. It is possible to obtain fertility by such a mode, but the comparatively meagre results are extremely unsatisfactory. I lately saw a specimen of Calliandra Houstoni in the collection of a good cultivator, from which several inches of the strong leading shoot had been taken off, for the purpose of inducing the lateral growth to bloom; thus defeating the intended object, by removing (at such a season) the only growth that had sufficient strength to produce flowers. The best possible way of obtaining bloom from side-branches in plants remarkable for their spare and luxuriant habit, is to fore-shorten the young and vigorous stems when they have attained about 6 or 9 inches in length, for by this practice the lateral branches will attain a strong growth by blooming-time.

Those who wish to secure extra vigour in C. Houstoni in removing it to the conservatory border, will do well to regard the conditions insisted upon in the first Leading Article of the present year, viz., the importance of a dry bottom, drainage, &c., not, however, forgetting, that where ample exposure to light, &c., is essential to the formation of bloom in summer, the same agencies are much more essential during the slow but progressive development of growth in spring.

In conclusion, where high culture depends upon a reaccumulated vigour from the base of plants, as in the instances just mentioned, all premature growth, previous to such plants being cut back, is a loss which no after treatment can restore; those, therefore, who expect ornament early in summer, must attend to Calliandra Houstoni, and all similarly habited plants, for some weeks must elapse, after the heading down, ere they are ready for a safe and prudent shift, whilst the artificial heat during the late frost, and subsequent mild weather, will have moved others by setting their vital forces in action. When the work of heading down begins, an increase of temperature becomes necessary; and, as most of the plants in a house must feel the genial excitement of an artificial spring, all, as far as possible, should work together. Good advice has been recently given from various quarters, as to the benefit of repose in the stove. Repose is as requisite for an over-excited plant, as for a wearied man; but if I am not mistaken, a partial excitement amongst stove-tubers, &c., has given the watch-word, "Sleep no more to all the house;" and where such is the case with Gloxinias, Gesneras, &c., for want of better convenience whilst dormant, those who have the care of them may be respectfully reminded of the advice which Napoleon gave to the school-boys at play: "My lads, every lost half-hour, is a chance for future misfortune." Three years ago the writer tried an experiment upon some Gloxinias, by stopping the fore shoots, with a view of retarding them, but the blooms of such as were stopped, were meagre compared with those of others, wherein the fore shoots were allowed to remain, but strengthened by exposure to intense light; therefore, where a premature growth has got the start, an elevated position on the platform, or shelf, will prove beneficial.—*W. Wood, Pine Apple Place.*

REMARKS ON THE WEATHER.

The mean temperature of last December was 33°.11, being nearly 7° below the average, and was lower than the mean of any corresponding month in the present century, with the exceptions of Dec. 1829 and 1840. The extreme lowest, 14°, occurred as early in the month as the 5th and 6th. This degree of low temperature in December was only exceeded, in the corresponding month, in 1819 and 1830.

In January, 1845, the mean temperature was 38°.69, being 2½ degrees above the average of a number of years. The extreme lowest was 19° on the 28th.

In February the mean temperature was 33°.12, or 8° below the average; and the extreme lowest was 3 degrees below zero, or 35° below the freezing point. The mean of the month was lower than that of any February in the present century; and during the same period the thermometer has not fallen so much below zero in any corresponding month.

The present month, so far as it has gone, exhibits a lower mean than any corresponding portion of March since 1797 at least. Up to the 16th inclusive the mean is little above 31°; whilst the extreme lowest, 13°, on the nights of the 5th and 13th inst., has not been equalled in the neighbourhood of London during the last 48 years at least.

Taking the period altogether, from the 1st of last December to the present time, the mean temperature is found to be 34°, which is lower than that of any similar period in the present century, with the exception of that of 1813-14, when it was 1⅓ deg. lower, and 1829-30, about $\frac{1}{10}$ deg. lower. In these periods the frost was more continuous in January and February, but not so protracted as in the present season—when the winter may be said to have set in with severity early in December, and is still continuing.

THE WEATHER.

Maximum and Minimum Temperature from Dec. 1, 1844, to March 16th, 1845, inclusive.

	December.		January.		February.		March.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	42	33	45	34	38	27	42	28
2	40	27	44	24	40	21	42	33
3	39	33	40	29	43	34	44	25
4	40	22	45	36	43	25	45	19
5	35	14	53	42	48	31	34	13
6	50	14	54	43	43	19	31	23
7	34	20	54	32	38	17	39	26
8	32	26	35	31	35	18	41	30
9	32	28	35	28	36	27	45	32
10	32	28	49	30	35	22	45	32
11	30	22	51	44	34	–3	40	24
12	31	24	47	32	32	12	43	21
13	32	25	51	30	38	32	25	13
14	32	28	50	35	45	27	36	18
15	40	34	50	39	45	33	36	27
16	43	35	48	32	41	22	34	19
17	44	35	42	37	44	23		
18	44	40	46	33	41	21		
19	42	29	45	32	35	16		
20	38	28	45	24	37	22		
21	37	30	45	21	44	20		
22	35	27	48	38	37	31		
23	34	28	48	39	44	31		
24	34	31	46	25	48	28		
25	35	31	51	42	49	37		
26	39	30	52	33	52	35		
27	38	30	45	23	50	35		
28	48	42	45	19	45	29		
29	49	38	45	20				
30	42	32	34	27				
31	44	32	35	22				
Aver. Max. and Min.	37.32	28.90	45.90	31.48	41.43	24.82	38.37	23.87
Means.	33.11		38.69		33.12		31.37	

—*R. Thompson, Horticultural Gardens, Chiswick.*

At Little Glemham, near Wickham Market, the state of the Thermometer, at 4½ feet from the ground, against a S.E. wall, was as follows:—

March	9 A.M.	10 P.M.
4	28	24
5	27	22 at 11 P.M.
6	26	26
7	26	26
8	34[1]	29
9	*	*
10	37	32
11	50	28
12	36	*
13	20—18 at 9 P.M.	14
14	24[1]	23
15	26	24
16	26	26

* Not observed; [1] partially exposed to the sun.

The following is the state of the Thermometer at Brewood, near Wolverhampton.—The observations were taken at night:—

March 11	19°	March 15	20°
12	18	16	18
13	5½	17	16
14	18		

The cold on the night of Thursday the 13th, was 11½° more intense than on the coldest night of January, the situation being the same.—*H. B. M.*

Home Correspondence.

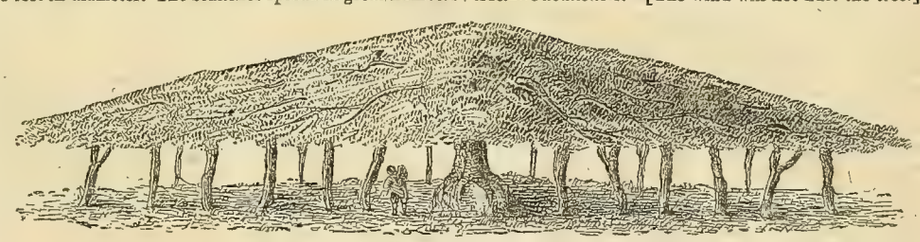
Vine-Culture at Trentham Hall.—As my remarks on Vine culture seem not to have been understood by some of your correspondents, I wish to offer some explanation. For the information of "E. F. L.," who asks, "if he understood me right, whether a heat of from 75° to 80° had been obtained in the border by merely putting a foot or two of litter over it," I answer, yes; and I beg further to add, that on the 8th of this month, by means of a crow-bar and twine, I sank a thermometer into the border to the depth of 3 feet 6 inches, and filling the hole with cold sand, it was left for four hours; when it was drawn up, the mercury was found to stand at 72°. Another thermometer, at 1 foot 6 inches below the surface, stood at 76°. The litter over the concrete was then, and had been for two or three days previous, almost cold. "Venitor" is in error in supposing that I recommend keeping concrete on the border two summers; I merely stated what had been done in the case in question. I may here state that the reason the concrete was not removed last summer was, that it was intended to form the new Vine border upon it, it being sufficiently deep to admit of this without having the new border too high for the front of the house. It is not my general practice to keep a covering upon Vine borders during summer, except in the way of shade, in the case of Vines to be forced early in September; and which, it must be remembered, have their summer during our winter. Few would appreciate more than myself a method of warming Vine borders without obstructing sun and air; but until we heat from below by means of hot air, and cover the borders with glass, I cannot see how sun and air can be admitted to the surface of borders where forcing is going on during severe weather; and until some better plan is adopted than that of heating by means of stable litter, I consider the allowing the rains to penetrate to the roots during the forcing season, a greater evil than the exclusion of both sun and air, which, after all, are scarcely more effectually excluded by concrete than by "Venitor's" covering of straw, if, as he states, it is sufficiently compact to keep out rain. Hoare, in his Treatise, recommends paving the borders; and if heat is supplied to the roots during the growing season, is it not a question whether the exclusion of air is of so much importance as we have supposed? Another fact which seems to prove the admission of air to be of less importance than the keeping the borders dry and warm, is that the Vines of which I wrote have improved since the concrete has been put on, and heat supplied to the roots while forcing; but I am of opinion that no one point in Horticulture requires to be more discussed than our present imperfect modes of managing Vine roots. With regard to Mr. Humphrey's remarks, I am happy in having the Editor's testimony, that there is nothing contrary to reason or to acknowledged principles in supposing a retrograde movement of the sap even to a greater extent than I have presumed. In summer pruning I count it good practice to let all the young wood grow, the foliage of which can be fully exposed to the rays of the sun; and this, with the view to obtaining as great a quantity of elaborated sap as possible, and to add vigour to the whole plant. In the case of a Vine treated during summer on the above principle, and pruned as soon as the leaves fade, on the close spur system, the wood to be cut off must bear a considerable proportion to the whole plant, and will probably contain a greater proportional quantity of the highly elaborated sap than any other part of it. In such a case the annual loss of sap by pruning must be great, unless it can be abstracted previous to this. That this can be done, I have what I think will appear sufficient evidence. On the 1st of January last, a large Vine filling a house 30 feet in length and 14 in width, was started, having been disbudded in September instead of being pruned. During the swelling of the buds, I observed the disbudded shoots to be full of sap, so much so, that on receiving the slightest wound with a knife or the thumb nail they bled; but by the time the young shoots had grown so much as to require stopping, the disbudded shoots had become dry, and presented much the appearance of a Vine shoot that had lain exposed to hot sunshine till it had all its moisture extracted; which fact I see no way of accounting for, but by supposing that the growing shoots had abstracted the sap. [No doubt.] If others draw inferences from these facts, different from what I have done, I trust I am open to conviction; and it is a subject on which I invite discussion, if conducted in a friendly spirit, with a view to eliciting truth.—*G. Fleming.*

Vines at Trentham.—My attention has been attracted to the statement in the *Chronicle* respecting the cultivation of Vines at Trentham, and the various criticisms in reference to that statement. The points involved seem to be an increased temperature and dryness for the roots, preparatory to and during the season of forcing or growth. A means of effecting these objects has, it appears, been tried with success at Trentham, viz., covering the border with concrete, to keep out the rain, and fermenting dung superincumbent upon it, to increase the temperature; and an observation is added, that dung placed upon the border, unless rain was at the same time excluded, would be positively injurious. I venture to suggest a method by which it would seem that every desirable object might be effected—viz., that previously to the time (whatever the season may be) at which it is desired that the growth of the Vines should be started, the border should be covered with recent fermenting dung, to the depth, perhaps, of 12 inches. This coating of dung would exclude all ungenial temperature, and at the same time send down into the border and roots more or less of a moderate heat. The defect would remain, that the dung would by no means exclude rain, and that much the greater portion of the heat of the dung would be lost in the atmosphere. But why not correct these evils, by covering the border and dung with a strong waterproof tarpaulin? Thus the whole heat would be preserved, and sent downwards into the border, and all wet would be excluded. Thus, if warmth and dryness are desirable in a Vine-border, they would be attained in some measure and degree by the means proposed—with this advantage over the concrete and dung, that the tarpaulin and dung can be applied or removed at pleasure; the concrete being necessarily destroyed each time it is removed. To exclude light and air may be disadvantageous, but that equally applies to the concrete. There may be other disadvantages; and, no doubt, it would be very useful that your opinion should be made known on the whole subject, and that your correspondents should make their observations.—*Ignotus.*

Statice arborea.—I am glad to find Mr. Snow successful with this my favourite plant. A good specimen of this plant will scarcely be found about London; indeed, I know not where to find one. I apprehend Mr. S. must be mistaken about the temperature, or it may be an error of the press. It reads thus—"I never keep it in a higher temperature than from 40° to 44°." I should think it difficult to keep it in a lower, unless it may be in such weather as we have been lately experiencing. In a greenhouse we rarely find the thermometer fall so low as this; and from the time of commencing the course of culture I recommended, when the plant is making growth, the thermometer in the open air will scarcely ever fall to 40°, and in a greenhouse 50° to 55° will be the usual indication. I have had Statice arborea die frequently in the temperature of a common conservatory.—*Duro.*

To Preserve Wall-nails from Rusting.—Heat them quite hot on a fire-shovel (they must not be red-hot), and then drop them into a glazed flower-pot saucer half-filled with train-oil. Thus prepared, they never rust, will last for many years, and it is said the effluvium from the oil keeps insects from the trees. The nails should remain some hours in the oil.—*X. X.*

Ancient Yew.—At Crom Castle the seat of the Earl of Erne, in the county of Fermanagh, Ireland, in the garden of the old castle which was burnt down about a century ago, stands the most celebrated Yew-tree in Ireland. I have not been able to arrive at anything like certainty as to its age. Old men of 80 years remember it in their boyhood as the old Yew-tree of Crom. I conjecture it to be from 200 to 250 years old at the least. The appearance of the tree is that of an enormous green Mushroom. The stem rises from a small mound, and is not above 8 feet in height and about 3 feet in diameter. The branches spread in great numbers horizontally from the trunk, and are supported on a number of wooden pillars, with gravel walks between them. These branches extend over a space about 75 feet in diameter; the height of the tree is about 21 feet. Its appearance is much spoiled by a Yew-hedge, originally placed as a protection when the tree was much smaller. But now the diameter of the circle described by the hedge is much smaller than that of the tree. The noble proprietor is afraid to remove the hedge, lest by allowing the cold wind off Lough Erne to blow on the tree, it might be injured. A party of 200 have often dined under this tree.—*Cavanensis.* [The wind will not hurt the tree.]



Yew-tree of Crom.

Potting Carnations.—Last spring I had prepared a compost very weak in manure, for several sorts of them, wishing to keep the flowers from becoming too double, but I feared that a dry season would be very trying to the plants. In potting, I generally have swept off some dry littery manure from the borders, where it had lain all winter, and seen that it is sufficiently dried by sun and wind to exclude worms. This I put over the crocks, first covering the hole with an oyster-shell, which is propped by a bit of potsherd. Were I to place my pots on the walk, I should not prop the shell, but they are set on stands a yard high. Instead of manure, however, I now use either half-decayed rags, or dried leaves, or the haulm of Potatoes, Beans, &c., or decaying stems of Ribbon-Grass, Phloxes, and other Perennials, which had been gathered for the purpose in severe frost, when no slugs could well be stirring, and placed until required in a dry shed. When I had turned the ball into the large pot, I placed alongside of it a stick, where I intended the stake to be. In filling up with compost, I dropped in junks of decayed spray from Ash and Alder trees, Beanhaulm, bits of Moss, half-rotten turf, and pieces of sandstone, pieces of half-rotten rag, and the stalks of dried Fern. When potted, I left them to the care of a servant, who had then only to water them when required, to withdraw the short, and put in the long sticks at the proper time, tie up the flower-stalks, and look after green-fly. For two months I saw no more of them. At the end of this period I found they had suffered very little from the drought, nor much from green-fly. I then began to water them weekly with guano-water. They did very well. On turning them out of the blooming-pots in autumn, I found some of the sticks, leaves, &c. still undecayed; others had gone to a soil. I riddled out the crocks, and put the compost under cover, thinking that it may possibly be now quite as good, or better than it was at first. I shall try it again: if I add anything to it I will give it some fibrous loam. If I had used charcoal instead of the sticks, Beanstalks, &c., would it have been better or worse? I lost two pairs, which had been potted for experiment, in a mixture of dried clay and sand. It has been said that some very fertile soils consist of such a mixture, but a flower-pot is not a field.—*O.*

Lord Brougham on Instinct.—As many of your readers may not have read Lord Brougham's "Dialogues on Instinct," and many also may have read them, but without finding out what his lordship's opinion really is with respect to instinct, I send you what I conceive to be his opinion. Mr. Bree, from his remark in a late Number, certainly has not understood the work aright. The style, however, is very difficult, the objections to each proposition are so numerous, and the answers to such objections are frequently made by way of further objection, that a reader may easily conclude the volume without arriving at any conclusion on the subject at all. His lordship divides his subject into two parts, viz. animal instinct, and animal intelligence, and of each of these he treats separately the facts and theory. With respect to animal instinct, his lordship first notices Descartes's theory; but what that is—whether that brutes have no reason or mind like ours—a power of ratiocination—or that they are mere machines, and act from a principle solely corporeal and mechanical, and have no thinking soul—his lordship leaves his readers in the dark. His lordship then states Sir Isaac Newton's theory, viz., that the whole actions of brutes are the constant, direct, and immediate operation of the Deity himself. This is evidently his lordship's opinion, and he argues it against the theory that the actions of brutes are the effect of an original and general design or law, primarily impressed both on matter and mind, by which animals have a desire to do such and such things. In other words, that instinct is the operation of the Deity acting on each animal, at each moment of time, rather than the result of certain desires originally implanted in such animal. His lordship's chief arguments in favour of Newton's theory, and against the other, appear to be, first, that "we cannot conceive the Deity acting originally through a future and non-existing animal; although we can easily enough imagine him acting through an existing animal at the time," (p. 85). And secondly, that in the case where instinct is interfered with by obstacles interposed, and that instinct then ceases and intelligence begins to act, his lordship "can barely conceive the possibility of a law to do a certain thing, to obey the impulse of the desire, until certain events shall happen, and then and in that case to cease following the impulse of the desire and to follow another guide, or rather to use a faculty, namely reason, and act according as it should direct, allow, or recommend in the circumstances." (p. 89). With regard to animal intelligence his lordship "on the whole conceives that a rational mind cannot be denied to animals, however inferior in degree their faculties may be to our own," (p. 158); but that even then they are acting under the immediate operation of the Deity, (p. 163). Mr. Bree will therefore perceive that no new edition will be necessary for the solution of the problem of the tomtit knocking at the hive to call the bees out, but that it resolves itself into the head of animal intelligence, and, in fact, it corroborates this part of his lordship's theory.—*R. J.*

Scotch Fir Timber.—The reason commonly given for the notorious superiority of the Scotch Fir timber imported from the Baltic, over that grown in Britain is, that the tree found in the northern forests abroad, is a variety of the Pinus sylvestris, distinct from that which is grown at home. The real reason, I am very much inclined to suspect, is simply, that the timber grown in Britain is commonly of rapid growth, whereas that from the Baltic is of extremely slow growth—as any one, who takes the trouble of counting the annual rings in a few foreign boards, may easily convince himself. On examining a piece of Fir timber, by the aid of a knife, (or even of the thumb-nail), it is apparent that it consists of soft spongy layers of white wood, alternating with hard dark-coloured ribs or septa; the white layer is wide or narrow, accordingly as the growth of the tree has been quick or slow, while there is little perceptible difference in the width of the hard rib. Hence it seems to be an undeniable conclusion, that the slow-grown timber (as containing the smaller proportion of soft wood), must be stronger, more durable, and less subject

to the worm than quick-grown timber. In foreign Fir timber, one may often count as many as 20 or 30 annual ribs in the space of an inch, while in home-grown there are commonly much less than half that number. I am afraid therefore that it is a vain expectation that our home growth will ever be equal in quality to that imported, which often takes 200 years to attain a diameter of 10 inches. My view might easily be put to the test of experiment. Every one knows that the side branches of a Fir tree increase in diameter far more slowly than the main stem. Hence, if my notions are correct, we should find in every quick-grown Fir tree, the main stem consisting of timber of the usual bad quality, while the timber of the side branches should be equal in durability to the foreign. A few stakes of each kind thrust into the ground, would be a sufficient experiment to test the truth of the above opinion. I must observe, that I do not at all touch on the subject of the comparative durability of quick or slow-grown timber in deciduous trees, which perhaps may be governed by different rules. I ought to explain, however, that in speaking of quick or slow growth, I mean only to refer to the rate of increase in diameter, and not in height, which are not always coincident; for instance, a tree in a crowded wood will have little foliage, consequently will increase slowly in diameter, though often increasing rapidly in height.—*Beobachter.*

True Highland Pine.—If I could conscientiously subscribe to Mr. Loudon's opinion respecting this tree, I should not be less delighted than "An Arborist" to hear of its being extensively introduced into England and Wales; but as I am rather unfavourable to that opinion, I take the liberty of making a few remarks on the subject. That several forests in the Highlands of Scotland have long been famous for timber-trees of Scotch Pine, of a very durable character, is a fact indisputable; but that plants raised from Highland seeds will produce timber-trees, equal in quality to those from which the seeds are collected, is doubtful. Gentlemen of England and Wales, possessing large tracts of waste land, will do well to plant but sparingly of this variety of Pine, until something more than mere assertions shall have been advanced to prove its superiority over that which they already possess. Those fond of trying experiments should plant a few of the true and a few of the false, under equal circumstances: this would afford them an opportunity of testing the difference; for my part, I am perfectly satisfied on this head already. I am aware that plants from Highland seeds have been, for some time past, greatly employed in forming plantations in the north of Scotland, but this, I am credibly informed, has been owing to the lowness of their price, rather than any particular faith the purchasers have in being rewarded by very superior timber. If seeds of the Highland Pine produce timber-trees equal in quality to those from which they are taken, and even surpass the Cedar of Lebanon, how does it come to pass that timber throughout England and Scotland, of the Scotch Pine, is so inferior, when it is clear that all the plantations of the common Pine, as it is called, owe their parentage to the Highland forests? All the Pines which have been introduced into Britain, either as Pines or varieties, have some striking features by which they are distinguishable by persons possessing ordinary powers of discrimination; but in regard to the Pine in question, no marks of distinction exist, either in its young or old state. I have carefully compared some plants of what have been introduced this season into England as the true Highland, with an equal number of those of common plantations, and I find it impossible to tell horizontalis from sylvestris. Surely if this variety has a better ramification than the Oak, and surpasses the Cedar of Lebanon as a timber and ornamental tree, such would not be the case.—*Pinus Sylvestris.*

Highland Pine.—With regard to this, "An Arborist" seems to doubt Mr. Forsyth's statement respecting the rooks in Scotland distributing its seeds. No doubt the winds act their part in scattering seeds, but in regard to the seeds of this Pine, I would imagine Mr. F. to have the best side of the question. It is well known to many that some members of the Corvidæ family are greatly addicted to thievish habits, and the rook among the rest, and that they will lay their strong curvirostral bill upon articles they can have no earthly use for. We are informed by Mr. Kendall, when crossing the height of land which divides the waters that flow towards Hudson's Bay from those that fall into the Arctic sea, he saw a raven flying off with something in his claws, pursued by a number of his clamorous companions. The bird being fired at dropped the object of contention, which proved to be the lock of a chest. Mr. F. says that the rooks steal away the cones to some lonely place, and leave them with any seeds that remain in them to be pressed down close to the ground by the first fall of snow. Some of them do even more than that—they not only convey the cones to some lonely place, but take advantage of the workings of an under-ground quadruped as black as themselves, to secure their booty, and the rooks may be seen sometimes as actively employed in securing cones and burying them in mole-hills as a person under mesmeric influence when the organ of acquisitiveness is played upon. Some of the cones may never be disturbed, and the seed, although not in the best position for vegetation, may grow and afterwards become stately trees. If the squirrel bury an acorn that may become a mainmast to a future Victoria of 120 guns, so a Pine cone buried by a rook in a molehill, may in time produce such a tree that some future "Clan-Alpine may exult in her shade."—*Peter Mackenzie.*

Effect of Frost on Vine-roots.—In consequence of the severity of the weather in this quarter (the thermometer on the 13th inst. registering 18° below freezing) the frost penetrated my Vine-border, which was not covered by litter, and so affected the roots as to cause the shoots of the Vines in an early Vinery to droop, and the young leaves to become shrivelled and dried up. This was not seen by me for some time after it had happened; and in order to recover them, if possible, I immediately covered the border with hot dung, and deluged the whole with pailfuls of hot water. So effectual was this remedy, that in six or eight hours afterwards the shoots began to raise their points; and I am happy to mention that the Vines are now as vigorous as ever, presenting no appearance of injury, except in the sides of the leaves being brown and dead.—*M. P. M. Helstone.*

The Uprooting of Plants by Frost.—Almost every one who has either traversed fields or visited a garden in early spring, must have observed that many plants had been thrown out during winter, and lay with their roots either wholly or partially exposed. Wheat, Grass, Strawberry, and other plants, are particularly liable to this summary ejectment, and considerable loss and disappointment are often sustained in farms and gardens from this cause. Almost every one, also, to whom you put the question, will be able to tell you that it is the frost which has done this; but if you request an explanation of the process by which this uprooting is effected, very likely every one will not be able to give an answer. Water in the act of freezing enlarges very considerably in bulk, and with very great energy; so much is this the case, that the strongest cannon filled with water, properly secured by screwing up its muzzle, will be rent to shivers when exposed to frost, by the expansive power of the water within it. All soils, particularly during winter, contain water, and the first act of frost is to solidify the surface layer; in doing this, the plants growing thereon are firmly caught and secured by the neck; if the frost continue, its next performance will be to freeze the subjacent stratum of soil, but in doing this, that stratum, by virtue of the water it contains, must enlarge, that is, thicken, and consequently bear up on its shoulders the surface layer; those plants which were secured to the surface more strongly than their roots adhered to the unfrozen soil below, will thus be raised up, and to a certain extent eradicated; if the frost continue uninterruptedly till it finally yields to the freshness of spring, little or no mischief will have taken place from this cause; it is only when frost and fresh follow each other many times in succession, that the complete uprooting of plants is effected; one freezing can only raise a plant one step, as it were, upwards, and that to so very minute an extent as barely to be perceptible. When a thaw succeeds, the soil settles down again into its original thickness, and the next frost seizes hold of the plant a little lower down and gives it another lift up, so that when many of these minute upliftings are added together, the plant at last finds itself lying as an outcast on the surface of the ground. It is clear from this, that some plants will be more susceptible of eradication by frost than others; for example, those with filiform roots, like the recently planted Strawberry, will be more readily ejected than densely fibrous-rooted plants, like perennial Grasses; also such as possess a slender neck and expanding head, such as Wheat begun to tiller, will be more securely seized hold of and upraised by the frozen soil than those which cannot thus be grasped, as Wheat in the sprout-blade. It is also evident that the wetter a soil is, the more readily will plants growing therein be thrown out by frost, as water is the sole agent in the process; hence it is that land well drained, or dry in bottom, is not nearly so liable to miscarriage of crops from this cause as that in an opposite condition. Crops on the southern slopes of hills, or on level ground, often suffer severely from the operation of the cause during frosts in early spring; while similar crops on northern declivities are comparatively uninjured; in the former case every day's sun thaws the soil, which is again frozen every night, and there is thus a diurnal reiteration of the uplifting process, while in the latter case the soil keeps continuously frozen, and the plants comparatively safe.—*Vidimus.*

Garden Walls.—I would recommend "B." (p. 136) to build an 18-inch *hollow* wall, (see p. 389, 1844,) as this is better adapted for fruit-trees, and is stronger and *drier* than a 14-inch solid wall; it is also much cheaper; and in a hollow wall fewer bricks will be required. The coping should be of stone, and should project three or four inches over each side, with a drip cut under each edge. The extra bricks required for a solid 14-inch wall would pay the cost of building an 18-inch hollow wall of the same height.—*James Roberts, 35, St. Paul's-street North, Cheltenham.*

Trout and Gold-fish.—Some of my gold-fish were observed to fly out of the water as minnows will when pursued by a trout. I did not know, however, that any other fish existed in the same pond; but, some months after, a trout about 13 inches in length was seen. There were then (March, 1844), 17 gold-fish, and to them were added a score of small carp. There are now only 10 (of the largest) gold-fish remaining. One of the carp was found dead in the pond, at the bottom, this week. It had what appeared a punctured wound near the ventral fin, and the tail was slightly injured, but the scales were not ruffled, nor the back crushed, as is generally the case with small fish that have been seized by a trout. The carp may have been driven by the trout among some thorns which were thrown in last spring for a protection, and so injured. Certainly a trout, when hungry, will attack any very small fish. In fly-fishing in Scotland, if a par or small trout be hooked, it will, on drawing it across the stream, be taken not unfrequently by a large trout. After floods trout may be taken with smaller trout, minnows, and bullheads sticking in their throats, the tails out, while the heads are partially digested. They will also be found with large earth-worms hanging from their mouths, and crammed to the throat-gates with black beetles, larvæ, &c.—*O.*

Laurel Leaves not injurious to Cows.—Your correspondent "J.J.F." says he lost a cow from eating them; and is asked by "W.D.F.," whether, in that case, the leaves were eaten from the tree, or whether they were from branches that had been cut previously? as he believes that it is the same with the Laurel as with the Yew—cows, sheep, or horses will eat them from the tree with safety, but if slightly withered they cause speedy death. This will prove, as Mr. Burgess asserts, not always to be the case, for a neighbour of mine this last summer cut about 30 or 40 faggots; and after two or three days they were placed in a situation where his two cows (one with calf) and a few sheep had free access to them, and in a few days reduced them to skeletons, scarcely a leaf remaining, and none of them received the slightest injury from eating them in their withered state.—*James Woods, Harwich.*——Your correspondent "W.D.F." believes that both Laurel and Yew may be eaten fresh from the tree with safety by cows, sheep, or horses, but if the leaves are slightly withered, they cause speedy death. Unfortunately for "W.D.F.'s" belief, the fact, in the case of my cow, is exactly the reverse of this: the leaves were gathered by her fresh from a hedge, and the most tender shoots were taken first. It seems not unreasonable to suppose that there is a larger quantity of sap in the leaves in this state, than there would be in leaves a little withered, consequently they would contain a larger quantity of prussic acid. I do not wish to controvert this point with your correspondent, but I confess it would be agreeable to me to know in what precise way cattle are affected, and how it is some are poisoned, while others, under similar circumstances, escape. Some of my neighbours have mentioned to me that their cattle have eaten leaves with impunity. Some one acquainted with chemistry and physiology will probably decide this matter.—*J.J.F., Devizes.*——*W. W. C.* remarks that eight heifers, the property of a farmer in Worcestershire, by accident got to a Yew hedge, from which they ate a considerable quantity of green Yew. The result was, that two died on the spot, and the rest lingered until next morning, when they also died. The same correspondent mentions that he has frequently known cattle die from the same cause. [It is inconceivable how any one can deny the poisonous qualities of Yew *leaves.*]——I would just mention that a belt of shrubbery, chiefly Laurels, surrounding the cow-park here, was kept closely cropped in by the cows, which seemed very fond of Common Laurels in particular, and of which they ate in abundance with impunity. In course of time it happened, however, that this shrubbery was uprooted, the Laurels were thrown over into the park, and as the work continued through several winters, many cart-loads were often accumulated, and lay for a considerable time before they were removed; and the cows, which were turned into the park for a few hours every day, would stand round the heap and eat *ad libitum*, washing their meal down with a good drink of water. I have watched them do this repeatedly, and without any bad effect; it was, however, said that the butter was ill-flavoured in consequence, but this was, I conceive merely conjecture. I have seen them eat the Laurels after the latter had been cut three weeks.—*J. N. Tyro.*

Pyrus (Cydonia) japonica.—Among hardy shrubs which flower in spring, this is particularly worthy of attention, especially when planted in the open border, and trained as a standard. If the plant you fix on for this purpose is one composed of a number of stems or branches rising from the base, clear them all away, except the one which you select for the future plant. This should be fastened to a stake, say 6 or 8 ft. in height, according to the strength of the stem. Managed thus, the plant being of a pendent habit, will acquire a pyramidal form, which gives it a neat appearance. With respect to its propagation, if a few roots, say from ¼ of an inch to ½ an inch in circumference (or less will do), can be separated from the plant, let them be cut into short lengths of from 3 to 4 inches. Insert these round a pot, and cover them with a hand-glass; or lay them in a border under a south wall, in rows 4 inches apart, covering them slightly over with mould. Here they will make a short shoot in the first season. Where a great quantity of plants is wanted, this system is better than that of increasing by suckers, as is generally done; and in the case of the plant being over-luxuriant, the taking some of the roots from it will cause it to bloom more freely.—*W. Swale.*

Quick Method of Killing Insects.—The season will soon be at hand when the lover of Entomology will begin his labours, and I would recommend the following method of putting insects to death to his notice. The insect, when fixed on a cork, should be placed under a jar or vessel with a little ether, the latter being placed on a bit of tin or plate. The vessel should fit closely, so that the vapour of the ether may not escape, and the air within be prevented from changing its place. In this ethereal atmosphere the insect will soon die, without having time to hurt its form or appearance.—*J. M'I.* [This is too expensive a process. Spirits of turpentine will do just as well. After pinning the insect, touch the wound at which the pin is inserted with a pointed stick dipped in spirits of turpentine, and the insect is released from its suffering].

Charcoal.—Two years ago the one-shift system, and

the importance of the use of charcoal as a manure, threatened to revolutionise two-thirds of the then existing practices of gardening, as far as the pot culture of plants was concerned. It is undoubtedly owing to the fair descriptions which have taken place from time to time in the *Chronicle*, that the good which has been done by the one-shift plan of potting has arisen, and that every intelligent gardener is convinced of the superiority of this mode of potting, when brought into practice. However, in my opinion the importance of carbon or charcoal, when mixed with earths, has been far over-rated. Indeed, I have tried the effects of it, I may say 50 times, mixed with soils, and I have seen no perceptible difference between plants grown in soils in which there was no charcoal, and plants of the same kinds and under the same circumstances, reared in soils mixed with charcoal; and practice has taught me that to use charcoal with a view to stimulate growth is an error; but charcoal has a powerful and beneficial effect upon vegetation, when used in a powdered state, and when the atmosphere is allowed to become impregnated with it, either in plant-houses or out of doors; for I believe that under such circumstances carbonic acid is readily formed. Otherwise why should plants in a house assume so suddenly a dark-green foliage (not saying anything about rapid growth), when powdered charcoal is strewed in the house, while not one grain is mixed with the soil in which they grow. It is shown by those who are versed in the minutiæ of the laws of matter that plants imbibe carbonic acid through the water that is supplied to their roots; but in my opinion, carbon is of no avail applied to roots of plants, either in a gaseous or solid form, and its sole agency is through the leaves. Let a vessel containing water be kept in a house charged with carbonic acid derived from charcoal, and afterwards let the water be applied to roots, and no difference will be visible in the plants to which this was applied. Again, let cuttings having leaves be struck in material under a hand-light, and let the surface be merely sprinkled with powdered charcoal, and the leaves of the cuttings will, for a few days, become of a much greener colour. Now in this case, carbonic acid, obtained through the medium of the root, can have nothing to do in producing this greenness. [Why not?] If plants in pots are put under a hand-light the same effect will be produced, but to no greater extent than in the case of the cuttings. For these last few years I have been in the habit of sprinkling my Onion-beds with soot and powdered charcoal, after the Onions were through the ground, and about 2 inches in length, and I have observed them take immediately to rapid growth, and to present a dark-green appearance; and so striking was the effect the year before last, that I determined to try its power again last season, in order to satisfy myself fully whether it really was the soot which produced such a beneficial change in the preceding years. Last year I grew eight long beds of Onions, and after the plants had attained about two inches in height, I applied soot to four of the beds only, and in 10 or twelve days the effect, both in size and colour, over those which had none was astonishing. They not only assumed a dark-green colour and outstripped their neighbours in size, but they kept in advance of them to the end, and to many gardeners I pointed out and explained the cause of the difference. As spring is at hand, I therefore earnestly invite gardeners to try the experiment. What was curious, one-half of the bed next those on which soot had been applied, partook of the dark-green colour. I may remark that the weather, at the time when I used the soot, was very dry and warm, and continued so for many weeks afterwards, and at first I expected little benefit would have resulted from the application before rain; but in this I was, however, mistaken.—*Orford.* [Our correspondent forgets that soot is mixed with salts of ammonia, and that it *may be* to their action that the results he speaks of are ascribable.]

Plants that will Bear the Spray of the Sea.—A list of trees, shrubs, and flowering plants, which may be cultivated within reach of occasional slight showers of spray from the sea is, I think, much needed, and, as far as I have sought, is not to be found in any work. Amongst them are some species of Pinus, probably most of the genera Tamarix, Cheiranthus, Malcolmia, Statice, some species of Crinum, Pancratium, and other bulbs, Soldanella, Mesembryanthemum, Cytisus, Cistus, &c.—*W. C. Trevelyan, Nettlecomb, Taunton.*

Migration of Birds.—During the last few days frequent flights of sea-gulls have been observed in this neighbourhood, where we are about 40 miles from the sea. Their course has been uniformly the same, about E.N.E. On Sunday they were making way with difficulty against a violent gale from N.E., and seemed much fatigued. This morning a flight passed over in more blithesome mood, wheeling round and round in the form of an inverted truncated cone, with a precision and regularity which I never before witnessed. After a series of revolutions they started on their onward way in a more business-like manner. They are a large but not a very large species; in the gale on Sunday they kept near the ground, and were often within shot. Is this a wonted or unusual migration?—*J. R., Seven Oaks.*

Cow-hair Netting.—This is lower (a little) in price than woollen; but will it prove equally durable? I wintered some well-established Carnations in a temporary frame, open at the sides, round which doubled netting was strained, to a certain height, but not to the top, which was of oiled calico; thus they had always air and light, and never any drip. As a covering to delicate plants against walls, woollen netting is excellent. Skeleton hand-lights covered with it are useful.—*O.*

Mice.—Among the many plans for destroying mice, which attack Peas in gardens, mentioned in the *Chronicle*, I do not recollect to have seen the following most simple and efficacious one, which I practise. My enemies are the short-tailed field-mouse, whose holes it is not difficult to find. Having found them, take your cat in one hand and a pot of water in the other; pour the water into the mouse-hole, and the inhabitants, if at home, must come out, and be disposed of by the cat. It is very amusing to see how soon the cat learns, and enjoys the business.—*A Subscriber.*

The Atmosphere of Hothouses.—I am astonished that so great a portion of the horticultural world should still be content with the capricious and uncertain degree of atmospheric humidity in the great majority of hothouses of the present day. We hear of nice little flanges or covers, of about an inch in depth, being cast, it may be with the piping; and which the hot-water man, of course, deems perfection, but which I consider play-things; and we sometimes hear of sudden deluges of steam being shot, as it were from a 48-pounder, into the atmosphere of the house, which, for the space of half an hour, casts a London fog completely into the shade; and this is what is called following Nature, whilst both are equally unnatural. What is wanted for vegetation in general, is an immunity from excessive humidity, as well as from fitful drought. I am quite of opinion that no invention will ever excel, for simplicity and efficiency, a cemented brick trench, with the bottom pipe resting on it, and a permanent source of water in a cistern overhead, with a tap to run into the trench. The bottom, or return pipe, is seldom more than from 90° to 110° in most hot-water apparatus, and this imbedded in water, or partially so, will produce humidity sufficient for any orchidaceous or other hothouse. Houses supplied in this way possess an atmosphere exactly resembling a genial evening in May, and the only hygrometer wanted to prove this is the nose of a thorough practical man. In addition to this, I am of opinion that there should be apertures in the front wall, open night and day, and capable of graduation; this was long since recommended by the late Mr. Knight. By means of these the air will be in constant circulation, preventing stagnation on the one hand, and preserving a due proportion of the constituent and vivifying gases of the natural atmosphere on the other. Red-spider and such like pests will be seldom seen in such structures, provided a clever system of potting (founded on the permeability of the soil to the atmosphere, by means of thorough drainage, and the free use of undecomposed turf, with its native texture,) be conjoined with it. These front wall apertures, or ventilators, should enter just over the piping, if possible; the effect of which would be to carry the artificially moistened atmosphere through the whole body of the house. By the flange or other mode (in which sudden deluges of piping hot steam is produced) the furious steam is carried immediately to the roof of the house, where, of course, it is condensed, and descends in drip; and the greater the difference between the outer and inner atmospheres the greater is the amount of drip, and consequently the greater is the dryness of the atmosphere below, especially if the fitful cause of steam become suddenly short of supply. Although I advocate a constant source of pure air from the front, I would have the glass roof, if possible, as close as a Ward's Case; and now that the duty is to be removed from glass, I make no doubt we shall soon be enabled to bid defiance to both leakage and hailstones. Of course, I would have ample ventilators at the back, to be used in cases of necessity; these, however, in general are mere wasters of heat and moisture. Very different is the office of the front apertures.—*R. Errington.*

Labels.—The following is the way in which I prepare my labels, to preserve the part inserted in the ground from decaying and breaking off:—I heat some common tar, into which I dip the labels as high as they are to be buried in the soil, and then put them away to get perfectly dry before using them. I find this plan to answer perfectly, and the labels endure for many years. I would recommend this to agriculturists as a preservative for gate-posts, &c., or for any sort of wood that is required to stand long in the ground, the trouble being small and the cost trifling.—*J. L. Snow, Swinton Gardens.* [An experiment of this kind with stakes failed in the Garden of the Horticultural Society. It is true that the tarred part was preserved: but the wood above the tar rotted rapidly.]

Vegetable Instinct.—Your correspondent, "Walter Wakefield," in his communication on Vegetable Instinct (see p. 854, 1844), says, it has often been to him a frequent source of thought and observation in the animal kingdom, where to draw the line of separation between instinct and reason. Similar thoughts have often occurred to me, without my being able to arrive at any satisfactory conclusion respecting them. The meaning of the words reason, instinct, and adaptation, as applied by modern naturalists to man, animals, and vegetables, is, I think, scarcely intelligible enough, inasmuch as the distinction meant to be implied by these words draws too wide a line of separation between the three kingdoms of animated nature; for, as your correspondent observes, we often find among those tribes of animals, insects, &c., which generally come under the denomination of the lowest in the animal kingdom, a kind of reason (or instinct) superior to that of animals of a higher grade in the scale of animated beings. To come shortly to the point, viz., to the instinct of vegetables:—No one who has paid the slightest attention to the various modes in which vegetables seek the food proper for their nourishment, can for a moment doubt that some intelligent cause must be at work to point out to them that which is beneficial and that also which is hurtful. If we go into any Grass-field in the summer time, and select a piece of ground, say a yard square, we will find in that space a variety of plants of different kinds, each kind selecting from the same soil that sort of food most proper for its own nourishment; and it is proved by those who have made the chemistry of vegetation their particular study, that different tribes of plants require different kinds of food for their healthy development, as is proved by the analysis of their roots, stems, and fruits. Now, by what name is this process by which they are enabled to extract from the soil that particular substance which contributes to their healthy development called? Is it reason, instinct, or adaptation that we are to call it? To say that plants reasoned in the choice of their food would at present be going perhaps a step too far; still, how are we to get away from the original question? Smith, in his "Introduction to Botany," says, that "the spontaneous movements of plants are almost as readily to be observed as their living principle; for instance, the general direction of their branches, and especially of the upper surface of their leaves, though repeatedly disturbed, to light, the unfolding and closing of their flowers to the light at stated times," &c. And further on he says, "Hence arises a question, whether vegetables are endowed with sensation, as they possess life, irritability, and motion, spontaneously directing their organs to what is natural and beneficial to them, and flourishing according to their success in satisfying their wants? May not the exercise of their vital functions be attended with some degree of sensation, however low, and some consequent share of happiness? Such a supposition accords with all the best ideas we can form of the Divine Creator." The above has always appeared to me to be a most interesting question in the economy of plants. Looking at the many curious contrivances employed by many flowers in bringing their stamens and pistils together, one cannot help thinking that there must be something more than mere adaptation of means to an end. Perhaps some one who has made this interesting part of vegetable physiology his particular study, will favour me with his opinion on the subject.—*W. M., Kensington.*

Stewed Pears.—My cook was in despair some time since that she could not get her stewed Pears of a good colour. After several failures, using a stewpan lined with a sort of enamel, an old-fashioned tinned stewpan was substituted with brilliant success. This is very readily accounted for, but, perhaps, not generally known in the kitchen.—*A Subscriber.*

Gooseberry Caterpillar.—In some places the cottagers make a decoction of Foxglove, dashing it over the trees with a white-washing brush. What caterpillars fall off are collected with a coal-rake. Road-dust will answer, but is apt to adhere to the fruit. The first is the cleanest plan, and I saw several cottage gardens, last year, where it had been practised. An excellent crop was the result.—*O.*

Societies.

HORTICULTURAL SOCIETY.

Mar. 18.—R. W. Barchard, Esq., in the chair.—Miss Sharpe, and R. Gosling, W. S. Grey, and R. A. F. Kingscote, Esqs., were elected Fellows.—Notwithstanding the severity of the weather, several fine things were produced.—Mr. Robertson, gr. to Mrs. Lawrence, sent handsome specimens of Phaius Wallichii, and Dendrobium Pierardi, whose gracefully pendent branches were closely covered with pale lilac blossoms; several plants of Hippeastrum, nearly related to H. aulicum; and two most beautiful small specimens of the variety of Azalea indica, called Smithii coccinea, covered with bloom, and exhibiting what can be done with such things under skilful management, even in a small state. From the same collection was Illicium religiosum, a handsome evergreen shrub from Japan, with shining leaves, and yellowish-green flowers; the fruit of this is burned by the Japanese as a perfume, at their religious services, and from this circumstance it derives the specific name. A Knightian Medal was awarded for these.—A Cineraria called the Pet, was exhibited by Mr. Ivery, of Peckham.—Messrs. Henderson, of Pine-apple Place, sent a Cyclamen called Persicum rubrum; it had certainly, however, nothing to do with Persicum, but was a hardy European species, possessing a very agreeable perfume. Along with this were two Acacias, viz., prostrata and oxycedrus; the latter having a spiny foliage, and long tail-like yellow blossoms. A Certificate was awarded for the Cyclamen.—Messrs. Rollisson and Sons, of Tooting, sent Dendrobium moniliforme, one of the most handsome of that showy genus; D. Cambridgeanum, a beautiful Indian species, which is found in its native country attaching itself to and ornamenting rocks and trees with its rich yellow blossoms. In colour it has considerable resemblance to Chrysanthum, and, like that species, it has a deep purple stain in the middle of the lip. Along with these was a variety of Cyrtochilum maculatum; the very rare Burlingtonia rigida, a fine species inhabiting the woods of Brazil, where it is found clinging, by means of its stiff wire-like roots, to branches of trees, and displaying its airy, gracefully-drooping racemes of pale lilac blossoms in abundance. From the same collection was Rhododendron Rollissonii, a beautiful Ceylon species, producing compact balls of bright crimson flowers. It is supposed to be the same as R. nobile. Along with it was a cut specimen of R. Zeylanicum, of a rich rosy pink colour, approaching to white in the throat. A Knightian Medal was awarded for the Burlingtonia rigida.—From Messrs. Veitch and Son, of Exeter, were

three seedling Epacrises, the best of which was ardentissima. This was of a bright glowing red, the finest we have seen of the colour, showing what can be effected by judicious hybridisation of good sorts. If, however, (as has been already attempted) impressa were crossed by grandiflora, something better might yet be expected. A Certificate was awarded for this one.—Of FRUIT, J. Moorman, Esq., sent 9 sorts of Pears in the highest state of preservation, including Passe Colmar, Winter Nelis, and Glout Morceau.—C. S. Dickens, Esq., sent from Mr. Allman, a nurseryman, highly coloured specimens of Uvedale's St. Germain, a stewing Pear.—Specimens of Keen's seedling Strawberry were sent by Mr. Fish, gr. to H. H. Oddie, Esq.; and by Mr. Toy, gr. to Colonel Challoner. Finally, various Cucumbers were present.—Mr. Doran, gr. to T. Hawes, Esq., sent two specimens of Victory of England, the longest of which measured 19 inches. From E. Leathes, Esq., was the Browston hybrid of the same length; and Mr. Mills, of Gunnersbury Park, contributed some good samples of the Early Frame variety grown in his pit heated by hot water, and a hybrid grown in the pit of his contrivance, heated by fermenting material.—Mr. Beck, of Isleworth sent a neat slate pan for the growth of Orchidaceous plants. That this material is in no way unfavourable to the growth of plants was proved by the fact that the most beautiful Achimenes picta possibly ever shown was exhibited by Mr. Beck in one of them on this occasion. This is one of the latest plants which Mr. Hartweg collected in South America, and proves to be one of the best of the genus, possessing beautiful rich brown and yellow flowers, and a fine variegated foliage. A Banksian Medal was awarded for it.—Among Miscellaneous articles Mr. Lawrence sent a glass globe, similar to those in which gold fishes are kept, with a piece of glass fitted neatly over the top; in this Ferns have been kept since August last in good condition, without the lid ever being removed. Also an improved zinc watering-pot, for watering plants without changing the position of the hands: it has a close top with a small aperture near the handle; this is closed in by a cap, which is moved by the thumb, up and down as required, thus causing the water to flow or to be withheld, according as air is admitted or shut out. Along with this were two Wardian Cases, having a small chamber of 3 or 4 inches in depth, underneath the material in which the plants are, and so contrived, that hot water can be introduced when required and drawn off by means of a plug when not wanted; warm dry air can also be carried to the top of the case through pipes. In such cases cuttings may be struck in the drawing room, with almost as much certainty and facility as in the propagating house.—From the Garden of the Society was the larger variety of Oncidium sphacelatum, Epidendrum Stamfordianum, a species of comparatively recent introduction; the handsome E. aurantiacum, with rich orange blossoms; the rare Cypripedium barbatum, Hippeastrum Johnsoni, Begonia ulmifolia, with pure white flowers; two Epacrises; a handsome white variety of Rhododendron arboreum; and finally, a cut specimen of the new Mexican shrub Habrothamnus fasciculatus, which was figured in their Transactions as a plant of great beauty. In consequence, however, of something else (probably Cestrum roseum) having been introduced into collections for this, some doubts were apprehended as to its ever realising the expectations formed of it; but this the true H. fasciculatus, now blooming in the Society's Garden, fully equals all that has been said of it. In its native country it forms a noble shrub, about 5 feet in height, covered with multitudes of beautiful red blossoms, which are produced in clusters on the ends of the short flower-stems. In this country it should be grown slowly in as cool a situation as it will admit of without injury; and as it has a disposition to grow straggling, over-luxuriance should be checked as much as possible. It was also mentioned that cuttings of fruit-trees, having been laid in the ground as usual, were so frozen in, that it was found impossible to separate the soil from them without injuring the bark; for this reason, none could be sent for distribution. The soil was (March 18th) frozen to the depth of 5 inches in recently dug ground in the Kitchen Garden of the Society; and as much as 7 or 8 inches where it had not been recently dug.

LINNEAN SOCIETY.

Mar. 18.—E. FORSTER, Esq., in the Chair.—E. Doubleday, Esq., surgeon, was elected a Fellow.—Mr. Bowerbank presented to the Society a collection of fruits, amongst which were that of the Madagascar Sago Palm (*Sagus Ruffia*), Borassus flabelliformis, the Talipot Palm (*Corypha umbraculifera*), the Cohoon, three or four species of Cocos, Synedrys ossea, and several species of Mucuna.—Mr. Gough presented a collection of insects.—Dr. Lankester presented a specimen of the trunk of the Aspidospermum excelsum, brought from Guiana by Sir Robert Schomburgk, and remarkable for the eccentric development of the zones of wood: he also exhibited specimens of the Snake-nut (*Ophiocaryon paradoxum*) of British Guiana.—A paper was read by Mr. Edwin Quekett, On the Structure of the Tissues of Plants as exhibited in siliceous casts of tissue from fossil wood. The casts confirmed by their form the general view that the spire of vascular tissue is formed inside the membrane. Casts of the dotted and glandular tissue proved that the dots were cavities, whose concavity was presented to the interior of the vessel in which they occurred.—A paper was read by Mr. Edward Doubleday, of the British Museum, on the Nervules of the Wings of Lepidoptera as a means of Classification. By this mode the old genera of Argynnis and Melitæa were thrown into groups, whose geographical distribution agreed with their anatomical division.—A paper was read from Mr. Walker, On the Eurytomidæ, a family of hymenopterous insects.

CALEDONIAN HORTICULTURAL SOCIETY.

March 6.—This, the Spring General Meeting, was held in the Hall, in the Experimental Garden, W. Craufurd, Esq., in the chair. Notwithstanding the great inclemency of the weather, the show of fine flowering plants was respectable, and the display of Hyacinths was particularly brilliant—the interior of the Hall thus forming a striking contrast with the snow-covered garden without. Numerous premiums were awarded. For producing the six finest varieties of Camellia japonica, the Silver Medal, as first prize, was voted to Mr. Addison, gr. to the Earl of Wemyss, the kinds being double white, Chandlerii, double striped, Landreathii, Imbricata, and Press's Eclipse.—A second Premium was assigned to Mr. M'Nie, gr. to Professor Dunbar, for Thomsonia superba, Colvillii, Elegans, Eclipse, a seedling named Eliza, and King; and a third Premium to Mr. Crocket, gr. to Col. Ferguson, for Imbricata, Donkelaerii, Elegans, Chandler's Elegans, Fimbriata, and Speciosa.—For the three finest varieties of Epacris, the Silver Medal was voted to Mr. Reid, gr. to Prof. Syme, for E. onosmæflora, impressa hybrida, and splendens; and a second Premium was awarded to Mr. Young, gr. to T. Oliver, Esq., for E. impressa, onosmæflora, and nivalis.—For exhibiting seven varieties of Double Primroses in flower, the Bronze Medal was voted to Mr. Thomson, gr. to William Keith, Esq.; the sorts being lilac, bronze, buff, violet, red, white, yellow, and purple.—For the six finest Hyacinths the competitors were numerous, all of them producing well-grown, beautiful flowers, and all in pots (none in flower-glasses).—The Silver Medal, as first Prize, was found due to Mr. Young, for Prince Albert, Grande Vidette, Laurens Coster, Grand Vainqueur, Tubiflora, and Rosina, the bulbs being grown in hypnum-moss, with a little sand on the surface.—A second Prize was voted to Mr. Thomson, for William the First, Victoria Regina, Goethe, Richelieu, Grande Vidette, and Triomphe Blandina; and the Committee voted a third Prize to Mr. Oswald, gr. at the Orphan Hospital, Dean, for La Cour d'Auvergne, L'Ami du Cœur, Anna Maria, Grande Vidette, Mars, and Grand Vainqueur.—A number of articles of great interest were brought forward for exhibition, and for several of these extra honorary awards were made. In particular, the Society's Silver Medal was assigned to Mrs. Haig, who exhibited beautiful flowering specimens of Dendrobium cœrulescens and D. Pierardi, a magnificent specimen of Epacris impressa, Æschynanthus parasiticus, Erica hyemalis, and a Cineraria called Princess Royal.—The Silver Medal was also voted to J. Gray, Esq., for a specimen of the rare Laplacea speciosa in bloom; a healthy plant, showing flower-buds, of the curious, coral-looking vegetable, Ceradia furcata, from the African shore opposite to Ichaboe; Echinocactus Scoparosea, and a small Cactus from Lima, densely clothed with fine silky hair, and popularly called the Muff Cactus.—Still another Medal was awarded to Mr. Addison, for a seedling Cineraria, raised from seed of the M'Nabiana, and named Triumph, the purple flowers being of intense brilliancy.—Messrs. J. Dickson and Sons sent for exhibition five plants of Erica Lamberti rosea and E. aristata, and a very large specimen of Centradenia rosea, in full flower.—Messrs. Carstairs, Kelly, and Company, exhibited very large and richly-flowered plants of Andromeda floribunda, with Camellia ochroleuca and C. elata.—Professor Syme exhibited four handsome seedling Epacrises.—Mr. Purdie produced a well-marked seedling Epacris.—Mr. Oliver sent a very fine flowering specimen of the highly fragrant Illicium floridanum, evincing excellent culture.—Mr. Thyne sent specimens of the rare Hungarian plant Helleborus atrorubens.—A pot of the large-flowered variety of Saxifraga oppositifolia, completely covered with flowers, from the garden of Dr. Neill, Canonmills, was much admired. Besides the many fine plants sent either by competitors or exhibitors, the Hall was adorned with some highly ornamental and interesting specimens from the Society's own collection; particularly, several scarlet hybrid Rhododendrons, and also a Rhododendron campanulatum, in full flower (the plants having been lifted from the open border, and placed in pots about six weeks previously); a Strelitzia Reginæ, cultivated and flowered in a ball of hypnum-moss, moistened by means of a water-syphon; and a remarkably rich Epacris nivalis, with its branches tied back, so as to give the plant a balloon form.—At this meeting several communications were read by the Secretary; and the practical gardeners present were requested to give their opinions, which several of them did, thus adding much to the interest of the meeting. The first paper was on the Cultivation of the Potato, and on the Effects of Guano, by Mr. Lothian, gr. at Ormsary. In the culture of the Potato he inculcates the retarding of the vegetation of the sets, by lifting the seed-tubers out of the pits in January, and keeping them spread out in a cool airy loft till the time of planting; and he does not find repeated earthing-up to be necessary or at all advantageous. In his hands guano did not prove very successful, either when applied in a liquid form or in powder; but his experience of this powerful fertiliser was very limited. The next paper was a report by Mr. James M'Nab, regarding seeds of Himalayan trees, shrubs, and herbaceous plants, received by overland carriage from W. Jameson, Esq., of the Saharunpore Botanic Garden. Many have germinated, and are now forming good plants. Among the trees are several Coniferæ, particularly Abies Pindrow and Morinda, Pinus Gerardiana and excelsa, with Cupressus torulosa. The shrubs belong chiefly to the genera Berberis, Myrsine, Gardenia, Benthamia, Cratægus, Cotoneaster, Spiræa, Rosa, Viburnum, Deutzia, Philadelphus, and Rhus; and among the herbaceous plants may be noticed Morina longiflora, Astilbe rivularis, Datisca nepalensis, with Arum cornutum and cordatum. Other reports by the Superintendent were then read, regarding the alteration and enlargement of the Promenade Lawn (which will prove of great advantage on public days), and describing the disastrous effects of the late severe frosts.

SOCIETY OF ARTS.

Mar. 19.—W. H. HUGHES, Esq., V.P., in the Chair. The following were elected Members:—H. D. Davenport, J. Philp, V. Ternie, G. Wilson, and C. Meeking, Esquires. The Secretary described the substance called Gutta Percha, which was first introduced to the notice of the Society in 1843, by Dr. Montgomerie. It is the concrete juice of a large indigenous forest tree in the Island of Singapore, and is obtained by cutting notches through the bark, when it exudes in the form of a milky juice which soon curdles. In its chemical properties it somewhat resembles Caoutchouc, but is much less elastic. It, however, possesses qualities which that substance does not, which will render it of considerable value as a substitute for bougies, catheters, and similar instruments required especially in hot climates. The Gutta Percha, dipped in water nearly at the boiling point, can readily be united, and becomes quite plastic so as to be formed (before it cools below 130° to 140° Fahr.) into any required shape, and which it retains at any temperature below 110°. In this state it is very rigid and tough, and is used in Singapore for chopper-handles, &c., in preference to buffalo-horn, and does not appear to undergo any change in the hot damp climate of the Straits of Malacca; whereas, bougies and catheters, made of caoutchouc, become quite useless in a very short time, from the substance becoming soft and adhesive. The Secretary produced excellent casts from Medals—a rough lathe-band, a short pipe, &c., which he had formed for the occasion. A soda-water bottle, containing the juice as collected from the tree, had been entirely inclosed by a covering of the Gutta Percha, which was as tough as leather; but, by immersion in hot water for two or three minutes, was removed, and formed again into a solid lump. The trees containing this valuable product are very numerous in the island of Singapore.—Dr. J. G. Hewlett read a paper On Atmospheric Railways, giving a history of the invention from 1810, in which year Mr. Medhurst published a pamphlet on the subject, to the present time, dwelling especially on Pilbrow's plan, by which the longitudinal valve is entirely dispensed with. A model to illustrate this new system of atmospheric propulsion was shown in action, which differs from that submitted to the Society of the 8th of January, by having some of the small horizontal wheels plain and some threaded, instead of being cogged, which had formed a principal objection to the invention. The carriage, when the tube had been exhausted, seemed to shoot as an arrow from the lower to the upper end of the model railway, and which experiment was satisfactorily repeated.

Reviews.

I. *Economie rurale, considérée dans ses rapports avec la Chimie, la Physique, et la Météorologie.* Par J. E. Boussingault. Paris: Béchet. 2 vols. 8vo. 1843-4.

II. *Rural Economy, in its relations with Chemistry, Physics, and Meteorology, &c.* Translated, with an Introduction and Notes, by Geo. Law, Agriculturist. London: Baillière. 8vo. 1845.

THIS is the most important and really valuable book for farmers which the chemists of the present century have produced. It is not, indeed, so attractive as the clever paragraphs of Professor Liebig, but it much more than compensates for want of brilliancy by solid worth. The position which the author occupies in the scientific world, his known accuracy as a chemist, and the reputation which he enjoys as a careful experimenter and cautious reasoner, give a high interest to everything that he writes. We shall therefore lay before our readers at some length an account of the nature and contents of the book, together with strictures on those statements or views which appear to be founded on doubtful or uncertain evidence.

But before we can notice M. Boussingault himself, we must dispose of the English translation, of which we know not how to speak in terms of dispraise sufficiently strong. We regret this very much, for we should have been delighted to tell the English farmer that the important discussions and experiments of the learned French philosopher were laid before him so faithfully that he could dispense with reference to the original work. An inelegant translation should have been allowed to pass without criticism, for facts are what practical men want, more than well-turned periods. Even a careless translation might have retained utility enough to deserve circulation; but an ignorant one, it is justice to M. Boussingault, and our duty to the public, to expose; and that task, unpleasant as it is, we shall proceed to execute, in the hope not only that we may be the humble means of preventing incompetent persons from meddling again with foreign scientific translations, but also that some one who understands agricultural chemistry may yet be found to put M. Boussingault's views into a respectable English dress.

P. 8, Mr. Law says that, "buried branches acquire a fibrous *capillary* structure;" which is nonsense. M. Boussingault's statement is, that buried branches assume a fibrous *shaggy* structure; the term used is *chevelue*, or, composed of long hairs, and expresses well enough the matted appearance assumed by the numerous fibrous roots of a branch layered in the ground. P. 61, "Sir Humphrey Davy found silica in the epidermis of the Indian Rush." Mr. B.'s words are, Sir H. D. found as much as 0.9 of silica in the epidermis, &c. The first translation indicates nothing, for silica to some amount or other is not unfrequent; the important fact is that there was nine-tenths of it. And what does the reader suppose this Indian Rush, or Jonc des Indes, to be? Why, it is the common Cane. P. 79, The milk had been sent to us *in guaduas*, instead of from Guaduas. Mr. Law seems to suppose that Guaduas is some sort of bottle; a very little learning might have taught him that it is a town. P. 82, in giving Faraday's analysis of the juice of Hevea (not hœvea) the most important fact connected with it, viz., the presence of *animal matter*, is altogether omitted. The *deciduous* Cypress, a tree as common in this country as the Magnolia, Mr. L. calls the *bald* Cypress; and at p. 121 he ventures beyond the bounds of translation: in a remark of Boussingault, who says what is true, that he believes trees growing in marshy land to be more sought after for their height than for their strength and durability; firstly, Mr. Law interpolates, after height, the words "and lightness," which do not exist in the original, and then remarks that he believes "that the Live Oak, of which the American navy is constructed, and which supplies one of the most imperishable kinds of timber known, *grows exclusively in swamps*. The Live Oak, on the contrary, is a coast tree, inhabiting sandy tracts of land, where, in fact, the sand is held together by its roots.

What more need we say? That the text is perverted is clear; and we are weary of noting down instances of this sort. Passing by, then, endless misprints, some of which are of no small importance, such as muneration (p. 44) for incineration, grain (p. 46) for gain in, 1.000 (p. 44) for 100.0; saying nothing of translating *teintures végétales* vegetable tinctures, instead of colours! *trèfle* Trefoil, instead of Clover; not noticing the ignorant adoption of all typographical errors that occur in the French original, such, for instance, as verticas (p. 78) for urticas; Lodicea cocus nucifera (p. 12) for Lodoicea, Cocos nucifera; Arica oleacera (p. 114) for Areca oleracea——we proceed to other matters. If there is any one thing about which it is most important to be accurate, it is numbers; especially in chemistry, whose value depends so essentially upon the exactness of numerical results, on which, indeed, chemical reasoning very often entirely turns. But we find that in this translation the conversion of French weights and measures is executed in such a manner as to render M. Boussingault's researches not merely useless, but perfectly absurd. Among a heap of similar instances, we beg particular attention to the following:—P. 508, Mr. L. writes thus: The loss of carbon, &c. amounts to nearly 12½ lbs.—The animals produced, in the course of 24 hours, upwards of 13 cubic feet of carbonic acid gas—A cow, it appears, will vitiate 66 cubic feet of air in a day. But M. Boussingault says no such things; what he says is: The loss of carbon, &c., amounts to nearly 4 lbs. 7 oz. (2 kil.)—The animals produced, in the course of 24 hours, 141.24 cubic feet (4 m. c.) of carbonic acid gas—A cow may vitiate in a day 706.20 cubic feet of air (20 m. c.) And let it be observed that all these enormous errors occur in *one single page*. Of what possible use, then, can such a book be, except to the trunk-maker?

These facts, picked at random from the mass, will serve to warn the reader against Mr. Law's translation! Next week we shall proceed to a more agreeable subject—the examination of M. Boussingault's valuable work, as it is in the original.

NEW PLANTS.

Disocactus Biformis. Two-shaped Torch-thistle. (*Stove Shrub.*) Cactaceæ. Polyandria Monogynia.—The following account of this plant is from the pen of Mr. Booth, of Carclew:—It formed part of a collection transmitted by G. U. Skinner, Esq., from Honduras, in 1839, to Sir C. Lemon, Bart., M.P. It forms a graceful bush, from 2 to 3 feet high, but will, no doubt, attain a much larger size if trained against a trellis, and sufficient room allowed for it to spread. The stems are smooth, round, woody, and branching, about the size of a large quill. The flowers are solitary, drooping, of a deep pink colour, and usually produced at the extremity of the 2 years-old leaves. They are of short duration, but open in succession for a considerable time. The plant delights in a rich loamy soil mixed with charcoal, and is easily multiplied by means of its leaves, or bits of its stem. Like most others of its tribe it requires a warm temperature, and plenty of light. In the beginning of September it produces an abundance of beautiful little berries, which are shaped like a very small egg—the largest of them scarcely averaging the size of the common Sloe—with the dried remains of the flowers attached to the point of each. The skin is smooth and glossy, semi-transparent, and of a deep purplish-crimson, with several minute scales, but without any of those small spines which render the fruit of the prickly Pear and other cacti so troublesome. The inside consists of a soft mucilaginous pulp, somewhat paler than the skin, having numerous small dark-brown seeds irregularly imbedded in it, and possesses a sweetish, with something of a sub-acid flavour, by no means unpleasant to the taste. Where novelty is an object, it would almost be worth while to cultivate this plant for the sake of its fruit,—not that I think that it will ever become of sufficient importance to rank as an auxiliary to the dessert, but for the purpose of ornamenting the varied productions of the cook and confectioner. The plant is of the easiest culture, and sets its fruit more readily than any other species I know. On the one at this place I counted nearly 8 dozen ripe fruit, although the plant does not much exceed 2 feet in height. It had a very pretty appearance and was quite as ornamental in its fruiting state, as it was when in blossom in the spring.—*Botanical Register.*

Garden Memoranda.

H. Mac Kellar, Esq., Wandsworth Lodge, Tooting.—The grounds at this place extend over upwards of four acres, about half of which is laid out in pleasure-ground and the remainder devoted to kitchen-garden purposes. The lawn in front of the house is bordered with shrubberies, principally of Rhododendrons, amongst which the hybrid varieties of arboreum have been dispersed freely. Many of the shrubs have sustained considerable damage from the severe frosts of last month, and perhaps none more than the hybrid Rhododendrons just mentioned; their leaves are everywhere discoloured, and in several instances the blossoms are totally destroyed; it is also remarkable, and may be interesting, as exhibiting the relative hardiness of the two plants, that Camellias equally exposed, and indeed growing side by side with them, seem to have escaped unharmed. A shrubbery walk leads from the principal lawn to a small piece of water, with an island in the midst, begirt with rockwork, and approached by a wooden bridge. On the island a rustic arbour has been erected, which commands an extensive view over Wimbledon and the neighbouring country. Attached to the mansion is a span-roofed conservatory, with a semi-hexagonal front, chiefly occupied by Camellias, which at the present time make a magnificent show; besides these, it contains a few Orange trees, several good specimens of Acacias, Hardenbergias, and Indian Azaleas in bloom; and in particular, a vigorous plant of Azalea sinensis, with numerous heads of yellow blossoms. A large plant of Kennedya prostrata covers a portion of the back wall, and is a good example of the benefit derivable from permitting the shoots of this kind of plant to hang loosely. The kitchen garden contains a range of houses about 130 feet in length, divided into four compartments, two of which are Vineries, and two plant-stoves. In one of the Vineries Figs and a few Peach and Nectarine-trees are also cultivated, and have set a fair crop of fruit; the other is filled with large specimens of Indian Azaleas and other greenhouse plants. A small collection of Orchidaceæ, and a few good winter-flowering plants, evincing excellent management, are grown in the stoves. Amongst these there is a plant of Begonia manicata, about 4 feet in height, which has at present about 30 spikes of pink flowers upon it, and several more just appearing; a few flowering specimens of Euphorbia jacquiniflora and E. fulgens, the latter about 7 feet in height, and as much across, forming a well-filled bush; also a good-sized plant of the curious Testudinaria elephantipes (Elephant's foot). Behind this range there are about 300 feet of excellent brick pits, heated with hot water, and chiefly used for Pines, Melons, Cucumbers, &c. The kind of boiler employed is that made by Mr. Spiller, of Battersea; and a self-regulating apparatus has been applied to one of them, which the gardener, Mr. Clark, informs me effects a considerable saving of fuel, and preserves greater uniformity in the degree of heat supplied; at any rate, the contrivance is ingenious—cutting off or admitting a draught to the fire, by means of a lever, one end of which rests on a metal tube in connection with the flow and return-pipes of the boiler. As the heat of the water increases, the metal tube expands so sensibly as to depress the other end of the lever, from which a damper is suspended that then cuts off the admission of air. The contrary result of course attends a decrease of heat in the boiler. There is also a provision for keeping the draught more or less open with a strong heat, if required. The fruiting Pines (principally Queens) are planted out in the tan-bed, without any soil, and are very healthy, some of them swelling fine fruit.—*Q.* [This was written before March 8.]

Miscellaneous.

Double Ribes Sanguineum.—We have lately seen, in the nursery of Mr. Glendinning, of Turnham Green, a very pretty variety of this plant, with semi-double flowers much larger than usual. They have somewhat the appearance of the Double Dwarf Almond, and are not very different in colour. They were, however, produced in a greenhouse, and we understand are much darker coloured when in the open air. The variety seems well adapted to forcing.

Colours of Flowers.—Mr. Hinds has lately published the following curious statement respecting the prevailing colours observed in the plants of different latitudes. He finds the following proportions in the countries he visited, 50 being taken for his whole number.

		Cyanic.	Xanthic.	White.
Central America	Jan.	12	30	8
Sandwich Islands	Mar.	12	31	7
Alashka . .	July	26	13	11
California .	Nov.	25	19	6
New Guinea .	Aug.	12	23	15
Hong Kong .	Feb.	13	27	10

In a practical view these colours may be regarded under the three heads of cyanic, xanthic, and white, or blanched. The last will be found to bear an unusual proportion in New Guinea, even among its autumn flora, and at a season when the xanthic series is predominant; and this is also important at Hong Kong, but there the month of the year must be taken into consideration. In the high latitude of Alashka, as might be expected, the blanched flowers are numerous, and the cyanic series prevails, though in the midst of summer. In California the superiority of the cyanic series over the xanthic is worthy of remark, considering the time of the year, the brilliancy of the atmosphere, its general dryness, and the exposed character of the vegetation; and still more, as some limited observations made two degrees to the south gave an excess to the xanthic series. In Central America January is a month of the dry season, and the xanthic colours prevail; and the same occurs at the Sandwich Islands, notwithstanding the general tameness of the flowers of their flora.—*Annals of Nat. Hist.*

Bees.

Feeding of Bees.—The following is an addition to "W.'s" remarks, p. 153, on this subject. During last swarming season, I hived four swarms, which came off June 2, 1844, just as a change of the weather took place: these I supplied with food the day after they were hived; they have all survived the winter, and are now in a strong state. In autumn, finding that I had three poor and weakly stocks, I fed them in what is termed general feeding, that is, I filled some empty combs in a hive, and placed it in the garden at a distance from the other hives; the bees helped themselves, and they did this without fighting. For single stocks I use the self-flowing or fountain-feeder, the same as described in "Milton's Practical Bee-keeper." The food I give my bees is water and sugar, that is, if I am scarce of honey. All those who keep bees should be on the alert at the change of this severe weather, to feed them; it will be the means of saving many stocks.—*M.*

Produce of Bees.—At p. 55, mention is made of an immense produce from two hives, one belonging to Mr. Nutt, the other to Mr. Auld of Doonbrae Cottage, Ayrshire. I wrote to the latter, who kindly replied as follows:—"The statement respecting the honey obtained by me from one hive is incorrect; the following are the facts of the case:—

"*Honey produced by one hive of bees.*	lbs.	oz.
"July 1844.—One box from main hive yielded	28	8
"Sept. 12th.—Another ditto	28	0
"Left for winter provisions, including bees and wax	33	5
	89	13
"Allowance for bees 4 lbs., for wax 1 lb. 13 oz.	5	13
Total	84	0

	£	s.	d.
"Honeycomb in first box, very pure, worth 3s. per lb.	4	5	6
"In 2d do., not quite so pure, worth 2s. 3d.	3	3	0
"Do., left for winter provision, worth 1s. 8d.	2	13	4
Total	10	1	10"

Though this statement differs from that at p. 55, which is 108 lbs., still 56 lbs. of honey from one hive was a great deal, and shows how the produce from bees differs according to the pasturage and the seasons. The 33 lbs. 5 oz. of honey left in the hive ought however not to have been included, but should have been left as an equivalent for the honey that happened to be in the hive when purchased. Besides, that quantity is doubtful, for the hive being prosperous, perhaps the weight of brood and pollen might exceed the half of it. And 2*l.* 13*s.* 4*d.* is a great price for a deprived hive of bees, containing an unequal proportion of pollen and brood to that of honey; whilst an undisturbed good stock can be had for 1*l.* Moreover, the prices for the honey are too high, indeed above the London retail prices; for instance, Minorca honey, which is considered the best, is usually sold at 2*s.* 6*d.* per lb., and Narbonne at 2*s.* per lb. I have heard of the latter being offered for pure native honey in the comb, but in general 1*s.* per lb. is the market price for such, and 8*d.* for mix honey. But let us say 1*s.* 8*d.*, which is the lowest price in Mr. Auld's statement, the amount is 4*l.* 13*s.* 4*d.*, instead of 10*l.* 1*s.* 10*d.* Those remarks are made with the view that bee-keepers may not be led away by over-rated statements of produce from hives.—*W.*

Answers.—*J. Woolley.*—Without knowing the age and condition of a hive whose weight is 20 lbs. avoirdupoise, it would be difficult to ascertain in what proportions that should be divided between honey, comb, and hive. Pollen is a heavy item, especially in old hives. The following, however, is a safe rule:—Choose a new hive which has been filled with a strong early swarm in the previous season, and in which the combs reach the floor, well crowded with bees. Before disturbing the hive, place your ear close to it and give it a tap; if the bees make a short sudden buzz all is right, but if it be a languid hum they are weak. Another test is to wait till the middle of a warm day, and observe from which hive the bees fly away, most quickly returning with pollen on their legs. This is a symptom of prosperity in the colony. Respecting the value of bees, 1*l.* for a good stock, and 10*s.* for a strong swarm, is a pretty general price all over the country. Wasps are great enemies to bees, for while pillaging their hives they sometimes carry off the young bees in the larva state. Queen wasps ought to be destroyed as soon as they appear in spring, and the destruction continued till working wasps appear, which is in general about the 1st of June; then the

queens cease to quit the colonies they have established, all of which ought to be broken up to prevent the increase of wasps, and likewise of their young hatched queens for the following season. It may be worthy of remark that wasps rear no brood in autumn except queens and drones, which amount to several hundreds or thousands, according to the strength of the colonies.—*W.*

CALENDAR OF OPERATIONS
For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

ALTHOUGH there may be indications of a change in the weather, that change has not yet decidedly arrived; it will therefore be imprudent to leave too much work until mild weather occurs; as the backwardness of all kinds of garden operations is matter requiring the deepest reflection by all practical gardeners, every means should be had recourse to, to overcome the difficulties of this position, and to retrieve by all possible expedients the damages consequent on such an unprecedented season. Therefore be up and doing. If the potting shed is situated so as injury is likely to result from carrying the plants to and fro, erect under the stages, or in some other convenient place, a temporary potting bench; get in soil, and allow it to participate of the warmth of the house before using. Look over every plant carefully, and let the potting be performed agreeably to the directions of "Duro." After potting keep the houses rather close and warm, that is, warmer and closer than usual, for a week or so; and at any rate, increase the temperature of all plant structures a few degrees, and slightly shade the newly-potted plants, should the sun be bright and warm.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The unfavourable state of the weather having put a stop to nearly all out-door operations, soils should be removed to sheds for potting. Stakes for Dahlias might also be got ready for use when required, and rods with which to tie up plants in summer. Labels should likewise be prepared before the more busy season has arrived. Leaves might also be collected, to be used in pits and frames. Climbers and plants against walls might be nailed when the weather has become milder, and if necessary, protected again when the nailing is finished. *Pits and Frames.*—This being the season for the importation of the Tuberose, they should be got at once, and potted in a mixture of sandy loam mixed with a small portion of very rotten sheep or cow-dung; they should then be placed in a hotbed or forcing-house; they do not require any water for many days after potting, and but little until they begin to grow, when manure water should occasionally be used. As the plants advance in growth they might be removed to a warm conservatory for blooming, or they might be planted out after being hardened a little, into a clump, if the season is warm. Look over your pits and frames, and attend strictly to watering any plants that are dry. If any plants require a shift before bedding out time, it should now be given them. Continue potting off from cutting-pots, &c. Attend to the shifting of Lobelias as they advance in growth. Bouvardias should be shaken out and repotted in light sandy soil, and placed in a growing heat of about 65°. Sow Annuals, &c. &c.—*B.*

III.—FLORISTS' FLOWERS,

The present is one of those severe seasons which occasionally occur, in which care and attention to the directions we have from time to time given will, we trust, have proved highly serviceable to those who have adopted them; and the extra trouble given by attending to these minutiæ will be amply repaid by finding that the general stock of florists' flowers will, in these cases, have sustained comparatively little injury, despite of the fearfully severe weather we have experienced. Should the weather continue unfavourable another week, of course very little can be done; still, as the sun's rays begin to break out warmly in the middle of the day, it will be well to protect the frames containing Carnations, Auriculas, &c. from them while the frost continues, by mats or any other light covering; at the same time giving air whenever possible. Seedling Ranunculuses also, if not well protected, will be in considerable danger. Fresh sowings of seed may still be made. Attend to directions previously given for other florists' flowers, and let no operations be delayed or omitted that can possibly be done under cover, such as preparing crocks for drainage, casting little leaden hooks for Carnation layers, mending and repainting shades, &c. &c.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Forward fruiters, especially if potted in lumpy or turfy soil, and with abundance of drainage, will now require water rather freely; use it at 85°, and add guano, cows' urine (stale), and clear soot-water to it, if at hand. Take care, however, to withhold it in time for ripening. The ball should be nearly dry at that period. Those succession crowns, or suckers, in dung pits, which have as yet had no shift, may be syringed freely on sunny afternoons, twice a week at present. Maintain a steady bottom-heat of 85° to your fruiters, and forward successions; but do not be tempted many degrees beyond that pitch; rather depend on a powerful action of root, induced by the use of mellow turfy soils, with a considerable amount of drainage. Fresh-potted successions may be allowed to reach 90° bottom-heat for the first fortnight, but withhold water entirely from newly-potted stock, until the soil has become dry. As to atmospheric management, little now can be added to former Calendars. *Vineries.*—This is a good time to commence a house of autumn Grapes, and if any attention is required as to improving the drainage of the borders, it should be done forthwith. Proceed regularly with stopping, tying, and thinning berries in forward houses, and see that liquid manure is administered when requisite to those planted inside. *Peach-House.*—In the case of luxuriant shoots or "robbers" appearing, let them be invariably stopped when they have made about four leaves. This will do more towards equalising the sap than any mode of winter pruning. Be moderate in advancing your heat; what is gained in this way should be on sunny afternoons, between 2 o'clock and 6; above all, avoid great night heat. *Cherries.*—These may now want thinning, if too thickly set; do this in proportion to the energies of the trees and the action of the root; endeavour to keep the atmosphere like fine mild weather in May. *Figs* as last week. Remember that in all the above structures fumigation should be performed the instant one green-fly is perceived, especially in the Peach-houses.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Another week of winterly weather has elapsed, during which frost has held firm possession of the ground, to the exclusion of every crop usually sown or planted in the present month. If the weather prove clear, the sun will have great power on fruit-trees against south walls. The days being so long, blossoms of Apricots and Peaches will expand; and more than usual protection ought to be provided for them, as severe nights frequently recur for some time after so much frost leaves the ground. *Kitchen-gardens.*—Even those well managed were surely never known to be so little under crop as they are at the present time, or to contain so little either on or in the ground. Scarcely anything is to be seen except mere vestiges of some of the hardier greens. Such being the case, Cauliflowers will require to be forwarded by every possible expedient—by hand-lights, or other modes of protection, and their growth promoted by stirring the soil, and the application of liquid manure. The latter means should also be adopted with regard to the young Cabbage crops. As cropping has been thrown out of its usual course, it will be necessary to make additional sowings of various things. Sow Early Hope, or Early Sugar loaf Cabbages, as such will be, probably early in demand; also the yellow Savoy, and some German Greens. Kidney Beans had best be sown in pots in a cool frame, for planting out when the ground is sufficiently warm. Peas that are being forwarded under glass should be planted out as soon as the weather will permit, in rows running east and west; and let them be sticked on the north side only. Plant a full succession of Windsor Beans. Forward some more early Potatoes by sprouting them in a warm place. Sow Onions, Leeks, Carrots, Parsnips, Spinach, Turnips, Lettuces, and in a little heat the large red Tomato.—*E.*

VI.—ARBORICULTURE.

Woods and Coppice.—The continuance of frost having rendered it impossible to accomplish what has been before advised, we beg to refer to arrears rather than speak of matters which, in consequence of extraordinary weather, cannot be executed; therefore, the last three Calendars must be consulted for the forthcoming week.—*F.*

State of the Weather near London, for the week ending Mar. 20, 1845, as observed at the Horticultural Garden, Chiswick.

Mar.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	14	6	29.631	29.644	36	18	27.0	E.	
Sat.	15	7	29 745	29.705	36	27	31.5	E.	
Sun.	16	)	29.572	29.500	34	19	26.5	N.E.	
Mon.	17	9	29.770	29.746	42	16	29.0	N.W.	.035
Tues.	18	10	29.726	29.674	43	27	35.0	N.	—
Wed.	19	11	29.856	29.691	44	25	34.5	N.	
Thurs.	20	12	29.274	30.021	40	16	28.0	N.E.	
Average			29.804	29.720	80.3	21.1	30.2		.03

Mar. 14—Exceedingly clear, with severe frost; cold and dry; clear and frosty
15—Dry and frosty; cold dry haze; heavy clouds; boisterous at night
16—Frosty; snow falling in small granular particles; drifting
17—Clear and frosty; bright sun; clear, with severe frost at night
18—Frosty; fine, with bright sun; slightly overcast; frosty
19—Overcast; bright sun; partially overcast; frosty
20—Clear, very dry air and frosty; bright sun; exceedingly clear, with sharp frost at night.
Mean temperature of the week 13½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Mar. 29, 1845.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 23	50.1	35.0	42.5	9	0.33 in.	4	2	2	1	2	3	3	2
Mon. 24	49.4	33.3	41.6	7	0.11	2	4	2	—	3	2	5	1
Tues. 25	45.4	32.6	39.0	7	0.50	2	4	5	—	1	1	5	1
Wed. 26	52.5	33.5	43.0	7	0.12	—	2	4	2	4	1	2	3
Thur. 27	53.7	35.1	44.4	7	0.37	1	6	3	1	1	2	6	—
Fri. 28	53.6	34.4	44.0	6	0.68	2	5	4	1	2	1	2	1
Sat. 29	53.5	34.9	44.2	4	0.12	1	3	4	2	1	4	2	2

The highest temperature during the above period occurred on the 27th, 1830—therm. 75°; and the lowest on the 24th, 1839—therm. 22°.

Notices to Correspondents.

GARDENERS' CHRONICLE—The reprint of No. I. of this year, less the Advertisements and Newspaper part, is ready.

APRICOT-TREES—*Mist fliege*—Periods of great heat and drought, and sun-burning of the naked branches and stems, occasion premature decay in these trees.‖

BOOKS—*G L*—We received the paper on timber, but it has as yet been impossible to find room for it. Your question was probably mixed up with other matter, in which case it was sure to be overlooked. In order to acquire a knowledge of the Natural System of Botany, begin by the rudiments, which you will find in the "School Botany," of which the second edition is now nearly ready for publication. Then take "The Vegetable Kingdom," a third edition of which, filled with woodcuts, will be ready in two or three months——*J J C*—We believe that Loudon's "Encyclopædia of Trees and Shrubs" cannot be purchased in Parts or Numbers.‡

FUCHSIAS—*Peter Schlemihl*—Fuchsia corymbiflora not handsome! Your gardener cannot grow it then. Let it be 8 feet high, and pruned as in this cut. Is it not handsome then? with the brilliant scarlet blossoms above the eye, or level with it. Surely, or we know not what beauty consists in.



GRAFTING—*Tolla*—Rely upon it you are mistaken. Under no circumstances whatever can dead wood unite to living wood. The old dead surface is easily concealed, especially if small, but union between it and the living matter is physically impossible. At the same time, we agree with you that the wounds made in judicious pruning are of no practical importance, however destructive to timber may be the wounds left by lopping.

HEATING—*Old Sub*—It is impossible to answer your question without a personal examination of the houses in question. The quantity of fuel you speak of seems large; but when the air outside is very cold, and there is a high wind into the bargain, there must necessarily be a considerable expenditure of heat.——*J C*—Don't you think it would be right to try how lead, when used for a boiler, will stand fire before you put up an apparatus constructed of that metal? A small experiment will cost little, and may save you from some loss. Suppose you put a lead saucepan into a fierce fire, such as is formed in the furnace of a hothouse.

HOUSES—*A Subscr*—You will hardly find a better plan for a house of any kind than that given some weeks since, from the Royal Botanic Garden, Kew. You may force Seakale under the central stage. It is not worth building it less than 15 feet in length; but you must determine that point by deciding how much you choose to spend on the house. Use hot water in some shape or other. If it is a greenhouse that you want, then take two 4-inch hot-water pipes along the ends and front wall. If you have the upper of these pipes cast with pans on the surface, that will give you moisture enough, when you want it; or you may adopt a plan mentioned by Mr. Errington in another part of to-day's Paper. As to the squares of glass, why, the larger they are the better it will be for the appearance of the house and for the plants. Be not in haste to buy glass, but wait till its real value, under the new system, shall have been ascertained.

LABOUR—*Querist*—It is impossible to say how much land can be cultivated by one man, without knowing the nature of the soil and the description of crops required, &c.‖

MOSS—*A A R*—We have great confidence in "P. P.'s" opinion, but we cannot answer for the justice of his views on this occasion. To lawns we should say that Moss is often no disadvantage; on the contrary, it makes it green and elastic; but we are doubtful about its merit in pastures. Observe for yourself whether the Grass overcomes the Moss or not, when spring returns. Grass is often apparently killed by Moss, when other causes are in fault, as under trees for instance, where the Grass is killed by the trees, and Moss merely takes its place.

NAMES OF FRUITS—*J H*—1, Alfriston; 2, Blenheim Pippin; 3, Margil; 4, American Sops of Wine; 5, Beauty of Kent.‖

NAMES OF PLANTS—*A B*—Some composite plant, allied to Cacalia, not worth the trouble of determining.——*Rodon*—Physalis Alkekengi, the Winter Cherry. Raise the seed in a Cucumber-frame; pot the seedlings; turn out the plants in a warm part of the garden, when all frosts are gone——*An Early Sub*—1. Some sort of Clover or Medick; 2. Ditto; 3. Ditto; 4. Probably some sort of Lathyrus or Lupine. It is impracticable to name seeds with exactness, if at all.——*R. Patterson*—Gelseminum nitidum, an uncommon plant.——*J C L*—Oncidium stramineum.

PEARS—*Anon*—A northern aspect is not proper for late Pears, except such as are for stewing. Better graft Marie Louise and Hacon's Incomparable, and on the east aspect, Ne plus Meuris, Standard, the Easter Beurré ‖——*Querist*—In order to form dwarf standards, maiden plants should be cut back to within 15 inches from the surface of the ground. With regard to those that have been planted 6 or 7 years, you must either cut them back to within 3 feet of the ground, or reduce the tops considerably, and bud the naked portions of stems at the proper season.‖

PELARGONIUMS—*J C W*—The following are fine varieties for showing:—Matilda, Oberon, Luna, Pulchellum, Symmetry, Cyrus Superb, Garth's Constellation, Foster's Sir R. Peel, Duke of Cornwall, Erectum, Lord Chancellor, Rising Sun, Hodge's Commodore, Leila, Nestor, Unit, Beck's Susanna, Priory King, Annette, Queen of the Fairies.*

PLANS—*L A E*—No one can advise you properly without seeing the ground. The best hint we can give you is to divide the area into some regular figure, not attempting variety where variety is impossible. You will find in James's "Gardening," and many of Mr. Loudon's works, ingenious parterre plans, which would, we imagine, give you some useful hints.

PONDS—*A Subscr*—Certainly. Willows and Alders may be planted under water without risk. Of the former, cuttings as thick as the thumb will strike freely. You also might try the Guelder Rose, which naturally inhabits bogs. We do not remember any other plants suitable for such a place.

POTATOES—*Querist*—Lime is good for these. Rooks intent on digging up the sets do not like it.‖

SEEDLING APPLES—*J Huyshe*—Hundreds of Seedling Apples, fondlings of the raisers, have been sent for examination, and have proved wholly unworthy of the trouble. Such, however, is not the case with those forwarded by the Rev. John Huyshe; several of them appear highly deserving of cultivation, and all of them of further trial. 1, Size and form of the Nonpareil—eye close; flesh brisk-flavoured, very rich, and sugary; keeps till March; excellent. 2, Nonpareil appearance, having a tinge of brownish red next the sun, with some ferruginous specks, and such generally indicate a rich fruit, which this proves to be. The flesh is greenish-white, juicy, rather brisk, but with its briskness there is enough of a sugary quality to render it highly deserving of recommendation; keeps till March or longer. 3 and 4 would require to be seen in another season. 5, bears much resemblance to No. 2, to which, although good, it is scarcely equal. 6, departs much from the Nonpareil character so evident in the other seedlings from the same parentage. It is middle-sized, ovate; skin smooth, with a blush of red next the sun. Flesh granular; only fit for kitchen use.‖

VINES—*A B*—Your Vines being planted outside, and opposite the centre of the arches, a shoot may be trained to the right and another to the left; for they will break better from the horizontal portion than from that which is upright. There is no necessity for taking the shoots outside during winter, unless you require to keep the house warm for other things. It can be easily done by removing a few panes of glass.‖——*Querist*—You cannot now prune these with safety till they break into leaf; you may then shorten to 6 feet.‖

MISC—*J F S*—Your inquiry is sent to Chatsworth——*D O*—The advertisements of garden net at 1½*d.* a yard *practically* mean 2½*d.* or 3*d.*, as you will find if you buy it. Can you not procure it at that price in your own neighbourhood?——*A Constant Subscr*—The leaves are attacked by a minute fungus. Careful washing with lime-water is the most probable remedy.——*A H B*—We have nothing to do with Country Agents. You had better send a post-office order here, and we will direct our own agent to supply you.——*A B C*—In your 12 beds on a lawn plant of Verbenas, Youell's Princess Royal, white, Catleugh's Ne plus ultra, pink, and Hendersonii, crimson; together with Œnothera macrocarpa, Heliotrope, Nierembergia gracilis, Fuchsia Riccartonii, Penstemon Gentianoides coccineum, Scarlet Pelargonium (Frogmore scarlet), Petunia (Medora), Penstemon azureum, or Lobelia azurea.*——*J F*—A list of hardy border Fuchsias is given at p. 8, 1845.*——*J C W*—will find lists of the best Fuchsias at pp. 24 and 154 of the present volume.*——*J C W*—A list of 12 of the best Cinerarias is given at p. 624 of last year's *Chronicle*.*——*J C W*—A list of Calceolarias is given at p. 856 of the *Chronicle* for 1844.*——We are obliged to Capt. — for his suggestion, but there are practical difficulties.——*W D*—The old flowering stems of Phaius albus should not be cut off while they are in a green state. The secretions stored up in them serve to nourish the young shoots. The stems of Dendrobium nobile also fulfil the same purposes, therefore they should not be removed until they are withered.§

SEEDLING FLOWERS.

CINERARIAS—*Hopwood*—Your seedling very much resembles *Goodei*, but is very superior to that variety, in the rich crimson purple colour of the petals; it is defective in form, the petals being rather irregular in length, and in position also.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE Attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap-boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms. by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, MARCH 22, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, March 27—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, April 2—Highland and Agricultural Society.
THURSDAY, April 3—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

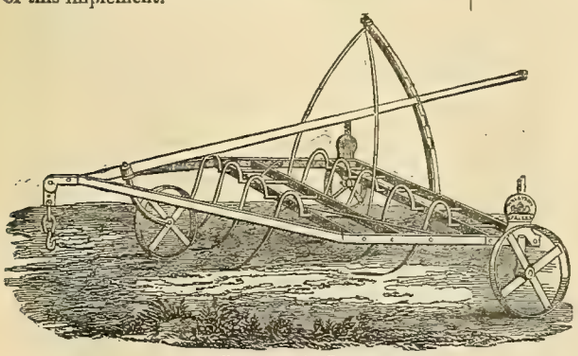
Mar. 21 { W. Market / Yoxford
Mar. 25—Bromsgrove
Mar. 25—Swansea
April 5—Collumpton

THE SCARIFIER, GRUBBER, or CULTIVATOR—for it receives all these names—is a most efficient agricultural implement. It combines, to a considerable extent, the action of the plough with that of the harrow. It is thus exceedingly useful as a fallow implement: no other so effectually cleans the land. Perhaps, however, the best mode of using it is *after* the land has been ploughed; a cultivator being then worked across the furrows most effectually breaks up the whole of the soil, leaving upon the surface all the rubbish, couch, and other weeds which may have been growing in it. The land is thus cleaned more effectually than it could be by successive ploughings and harrowings; and not only is the operation more effectual—it is much more speedy: a pair of good horses will get over 4 or 5 acres in a day.

Land is frequently worked with this implement without the use of the plough at all; and this perhaps is the most efficient way of cultivating land off which Turnips have been eaten, and preparing it for the Barley-seed. The manure left on the ground by the sheep thus still remains near the surface; it is not buried at the depth to which it would be turned over, had the land been cultivated by the plough as deep as it is by the grubber. There is no implement whose action leaves the ground in such a healthy state as this. The teeth tend to clear off weeds, and at the same time to lift and loosen the soil in the most perfect manner.

The first grubber of any note, though before that there had been many an implement of the kind employed, was Finlayson's. It consists of a frame-work supported by three wheels, one in front and two behind. In this frame-work there are two rows of teeth; the hindmost row has one more than that in front; and the front teeth are placed opposite the centres of the spaces between those behind them. The consequence of this is, that, while the distance between two teeth in any one of the rows is 1 foot, yet the distance between any two adjacent paths of the teeth through the ground is only 6 inches. The frame is raised or lowered by means of a lever, which acts on the projecting bar or crank by which the front wheel is attached to the frame, and gives it a less or a greater degree of inclination; thus letting the machine into the ground or raising it out. This lever is managed by the driver behind the machine. There is, however, no simple method of raising the back part of this machine. It is necessary to fix on the depth you are to work it before you commence work in the day, and set the implement accordingly. The means of doing this consist of pierced vertical bars which connect the frame-work with each of the wheels. If it be too high, the supporting pin must be lowered; and *vice versâ*.

The annexed figure gives the general appearance of this implement.



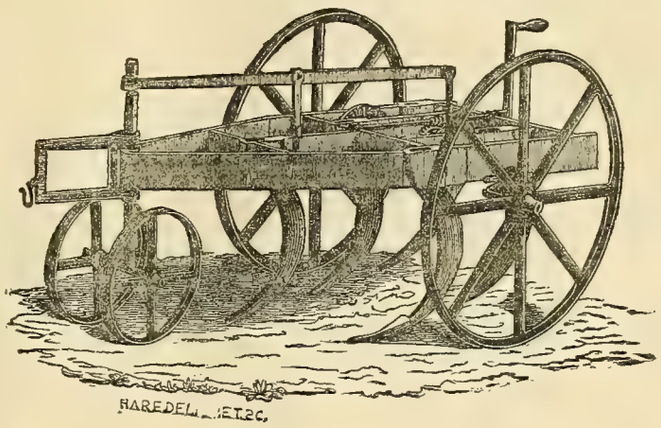
FINLAYSON'S GRUBBER.

Its characteristic feature is the form of its teeth, which, as may be seen in the above figure, is calculated to hinder clogging. Earth full of couch or other weeds coming against it will not stop there, but will rise over the tooth, and fall down on either side—the earth below and the weeds above—on the surface of the land.

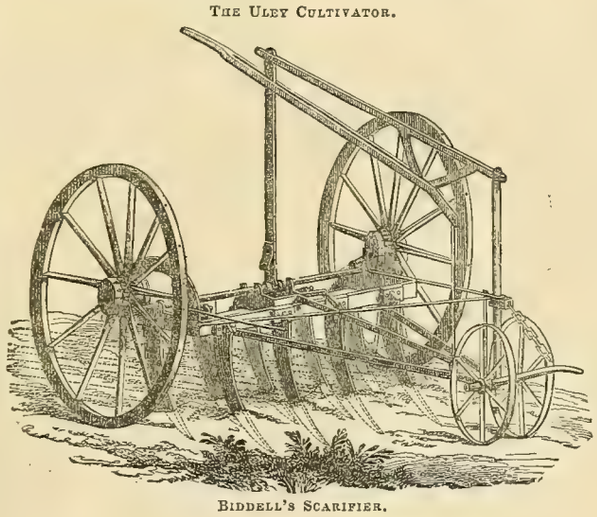
The chief fault of this implement, as it is generally constructed, is its want of sufficient height to allow the passage of rubbish and lumps of earth when it is at work on rough and foul land. In its original form, as here represented, it was also, as we have said, in want of a simple means of being lifted wholly out of the land. As it is now constructed by SCOULAR, of Haddington, this latter fault is entirely remedied. Another fault—or, at any rate, a point open to improvement—consists in the relative position of the teeth. They are placed in two rows directly across the direction in which the implement works; the consequence of this is, that the utmost distance between any two teeth, between which couch, &c. *must* pass, or the implement will be clogged, is just double the distance between the paths of the teeth. If the rows in which the teeth are placed lay *obliquely*, instead of directly across the length of the implement, it is obvious that, the *fineness* of the comb, so to speak, being fixed, the distance between the teeth of which it is composed might be increased to any amount, according to the smallness of the angle made by the direction of these rows with that in which the implement moves.



WILKIE'S PARALLEL ADJUSTING BRAKE.

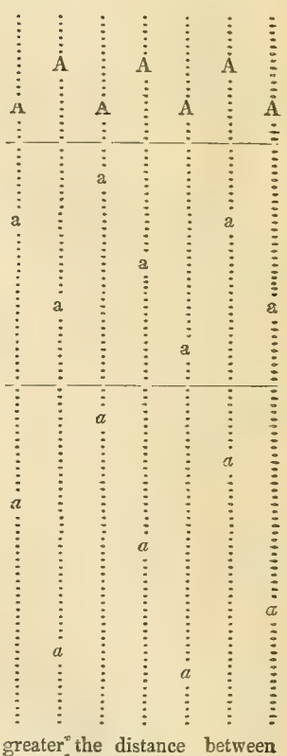


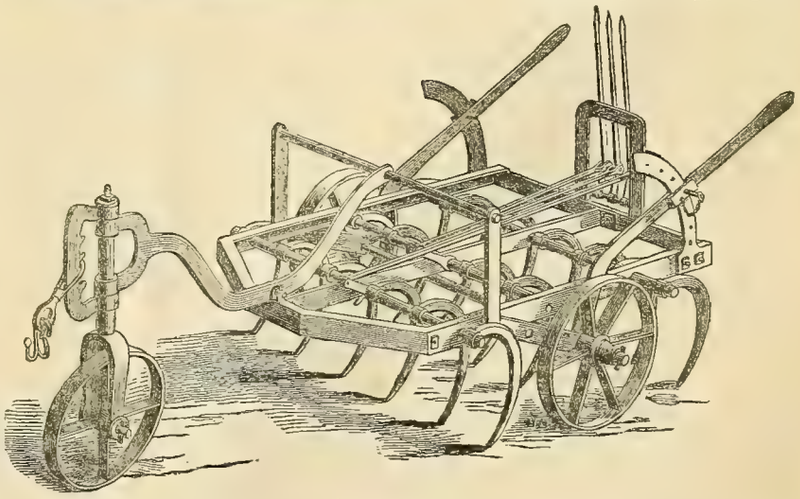
THE ULEY CULTIVATOR.



BIDDELL'S SCARIFIER.

Of course, the greater the distance between the teeth, the less liable will the implement be to clog; and the only limit to this distance, *i. e.*, the only limit to the obliqueness with which the rows of teeth shall cross the implement, is one imposed by the necessity of its having a convenient length. Supposing the





THE CATSCLAW DRAG.

width of the above diagram to be that of the implement, the influence which the arrangement of the teeth A, A, &c.; a, a, &c.; or *a*, *a*, &c. has upon the distance between them, though the distance between their *paths* in the ground remains in all cases the same, is exhibited by the diagram.

The first mode of arrangement here exhibited is that of the teeth of Finlayson's harrow—the other two exhibit the effect of placing the rows of teeth at different degrees of obliquity to the direction of the length of the implement.

Finlayson's harrow was, we believe, the original of the powerful implement figured in p. 193. It is an improvement on Finlayson's harrow, both in the arrangement of its tines or teeth, and in the means which it possesses of being lifted *wholly* and parallelly out of the ground.

Finlayson's, Scoular's, and Wilkie's implements of this kind are much in use in many districts of Scotland, though not to such an extent as in any important degree to supersede the use of the plough, nor indeed to such an extent as in a well-arranged plan of cultivation we think the use of these implements is advisable. In addition to these, Kirkwood's grubber is much in use. It is a great improvement on Finlayson's, not only in the arrangement of its teeth, but also in the means which it possesses of being let into or lifted out of the ground. A full description of it is to be found in Stephen's "Book of the Farm."

The other implements of this kind here figured, viz., BIDDELL's Scarifier, the Uley Cultivator, and BARRETT and EXALL's Catsclaw Drag, are perhaps more generally known in England than in Scotland.

The principal features of implements of this kind—those on which their efficiency chiefly depends—are the length of the teeth, which involves the height of the framework above the ground when the machine is at work, the arrangement of the teeth, their form, and the means the workman possesses in them of regulating the depth at which they shall be worked. On these points we shall probably have some remarks to make next week.

ON THE CULTIVATION OF FLAX.

PRESS of business has prevented me until this moment from noticing your observations on my letter, on the cultivation of Flax, which you thought proper to *divide*, and insert in your paper of the 11th and 18th of January last. And I feel I have much cause to complain of the nature of your remarks, made as they were before the readers of your paper had an opportunity of seeing the whole of my letter, *without omissions*, which I also complain of. However, my object is now to place before the readers of your paper what will convince practical men, that my statements are supported by facts, and that I have not had recourse to *theoretical observations* to prove them.

The impression conveyed to the readers of your paper, that I wished to make it appear the owners of 112,200 acres in Ireland had each 21*l.* per acre profit, is *very unjust;* and as it has called forth a letter from Mr. John Sproule, who joins you in trying to make the readers of your paper believe, "my statements" "are erroneous," I am anxious to say that I am prepared to meet the charge, and not only set myself right in the eyes of those who read your paper, *and have been misled*, but also to show that Mr. Sproule, if *ever he grew Flax*, or *has seen Flax growing*, should endeavour to keep pace with the times, and not continue to tread the footsteps of his father and grandfather; and as his system of Flax-growing could only produce "40 *stone to the acre*," and realise 4*l.* 10*s.* *for the seed*, I would advise him, instead of commenting on letters sent to the *Gardeners' Chronicle, previous to publication*, to spend a few weeks in Farningham, Norfolk, with Mr. Warnes, Mr. Farrow, (secretary to the Ipswich Flax Society,) and others in that quarter, men of the present day, unfettered by prejudice in favour of *the no improvement*, and *let well alone* system. Mr. Negus, of Cumplisham, Norfolk, and the Rev. J. C. B. Warren, of Horksley Hall, can teach him how to grow Flax to produce from 50 to 70 stone to the acre, and 29 to 32 bushels of seed *into the bargain*, which seed is equal to the best Dutch, and better than Riga that sold at 12*s.* 6*d.* last spring in Ireland; or, if perchance Mr. Sproule should visit Ireland, I would recommend him to call on the Rev. G. H. Ash, Glebe Ballaghy, and in particular on Messrs. Herdman and Co., flax-spinners, Strabane; and as a proof of their ability to enlighten his understanding, not only on *the growing of the plant, but the management when grown*, I shall give a statement taken from the Reports of the Belfast Flax Society, on the 14th ult.

Mr. Ash, in writing to the Secretary of the Society, to tell him of the success of his first experiment, says: "I sowed 53 pecks of seed on 3 acres 3 roods of ground, *Irish measure*, and I have had 236 stone of 16lb., or in Armagh Market stones, 266½; I have 2 sacks grown from the same seed saved for my own sowing, and I have *two tons of Linseed meal*, which saves me purchasing bran," &c.

Now, how will Mr. Sproule reconcile this with his observations and statement of 4*l.* 10*s.* for seed, and 40 stone to the acre, being "over the mark?" Here is the first experiment: a gentleman unacquainted with Flax-growing sows 13¼ bushels on about 5 acres English, or 3 acres 3 roods Irish measure, and has 266½ stone, or 53½ stone to the acre, 2 sacks of seed, and 2 *tons of meal*. However, this is not all: I have a little more for Mr. S., in order that he may know that all is not done *in growing the plant*.

Mr. Henderson stated at the meeting, that a farmer near Strabane sold Messrs. Herdman and Co. a field of Flax, keeping a portion to himself, which he managed in *his usual way*, and sold the produce at 35*l.* per ton; but Messrs. H. and Co. having managed what they had from the same field, *on the improved method*, had Flax worth 70*l.* *per ton*. Here is a puzzle that some may say "requires serious consideration." However, I feel satisfied that practical men will see no difficulty in the way of their (doing like Mr. Ash) trying experiments, nor will they be frightened by parties attempting to make *mole-hills* into *mountains* by saying, "that the growing of Flax in this country requires more serious consideration" than any other seed we commit to the soil.

You will observe by the written addition now sent to my letter formerly published, that I have given the names of practical gentlemen who can corroborate my statements, on *expense, produce*, and *profit;* and as I never said or intended to convey to the readers of your Paper, that every man who grew Flax on the 112,200 acres had 21*l.* or 50*l.* per acre profit (as, unfortunately for Ireland there are too many like Mr. Sproule, ignorant of the proper way to acquire more than 10*l.* to 15*l.* per acre), on the contrary, I only wished to prove *what had been done*, and *what might be done*, by following the Belgian mode of cultivation, rotation, and management of the plant; therefore I hope you will do me the justice to publish this letter, and also insert *the whole of the one now sent*, instead of omitting some of the best and strongest arguments I have in favour of Flax-growing in this country.

Mr. Sproule says, "From the prices I quote, Flax is either a highly valuable or a ruinous crop." I think the absurdity of this remark will be seen by his own calculation; for as he chooses to say, 40 stone of Flax per acre is *an average crop*, and shows by his statement, that a profit of 15*l.* 5*s.* 3*d.* per acre is certain, I think farmers, who know right well the profit on an acre of Wheat, Oats, or Barley, can *too well* tell *the ruin that they would have to fear*, from 15*l.* 5*s.* 3*d.* per acre profit by sowing Flax; and as he affects to consider "my papers afford unquestionable evidence of my not being practically acquainted with the subject," I beg to observe, he has with this my address, and if he has *no objection* to furnish me or the public with his, I will tell him where to find *every field*, of *four farms I had*, in the counties of Down and Armagh, Ireland, on which my father and myself reared Flax, that brought, in the city of Dublin market, 22*s.* 9*d.* per stone; and on one farm I reared Flax, in 1826 and 1827, for which I only got 10*s.* 6*d.* per stone, and on that farm I had a scutch mill.

Mr. Sproule admits "his ignorance of this country, and his inability to say what sum should be assumed for rent," but hesitates not to find me in error *in this also*. Before I wrote a letter on the subject, I selected from a table I have, which shows the average price of land in forty counties in England and Wales; and out of those, I selected *three to name*, Leicester 26*s.* 9*d.*, Worcester 26*s.* 2*d.*, and Somerset 25*s.* 10*d.* per acre, and I allowed the highest of the whole to be my guide; therefore I think with such proof before him he has no excuse, *because of his ignorance*, to assume *his being right*, and *I wrong*, in this item; and as to his remarks on what he is pleased to term "the unpardonable omission of the seed," I beg to observe, there was so little of it saved during my residence in Ireland, the farmers being then nearly all of the old school, and prejudiced against taking it off the Flax stalks, fancying it injured the fibre, I allowed the little benefit derived from what might be saved in seed, against such extras as poor rates, cess, and other small taxes, *unnoticed in my statement*—my object being then to prove that Flax was profitable to cultivate for the fibre alone. However, as this has been questioned by Mr. Sproule, and may be considered doubtful by those who have compared his statements with mine, I shall now take advantage of his observations, and inform those who have seen the amount (4*l.* 10*s.*) which he allows for seed on one acre, that the Norfolk growers had last year from 9*l.* to 10*l.* worth on an acre.

I beg to hand, with this letter, a Report from the Ipswich Flax Improvement Society, and a letter taken from the Belfast *Northern Whig*, which was wrote by Mr. Warnes, and dated Trimingham, Jan. 15, 1845, addressed to E. Bullen, Esq., Secretary to the Royal Agricultural Society of Ireland; those documents will prove the ignorance of Mr. Sproule's ideas on Flax and seed (without any reference whatever to my letters), as to the quantity of *both* that can be grown in this country on one acre; and I beg of those gentlemen, landed proprietors, and farmers, who may have read your remarks, and Mr. Sproule's letter in your Paper of the 11th and 18th Jan., to compare the proof I now bring forward in corroboration of my statements, and judge for themselves.—*J. H. Dickson*, 29, *Broad-st. Buildings, London; March* 15.

The following is the postcript to Mr. Dickson's letter, published at pages 27 and 44, referred to above:—

P.S.—As some parties have publicly expressed their opinions on the correctness of my statement that I and others have grown Flax, by which we had, after paying all expenses, 20*l.* per acre profit, without including the seed, which the Irish farmers viewed as of little value until lately, when their error is proved by Mr. Warnes, and Mr. Farrow, secretary to the Ipswich Flax Society, in whose Reports will be found several instances of their members, gentlemen in Norfolk, having had last year 22, 29, and 32 bushels of seed to the acre, which they value for feeding at 6*s.* 3*d.* per bushel, although foreign seed sold in Ireland last year at 12*s.* 6*d.*, and the English is equally good, my object is now to prove "that my statements are not erroneous," as some of the old-school farmers would wish to make appear; therefore, in justice to myself and the subject, I shall add in proof *such facts* as I hope will not fail to produce such a spirit of inquiry as will prevent the practical farmers of the present day "from shutting up their ears" to farther statements "from me and others on the subject."

I was favoured last winter by Capt. Skinner, Secretary to the Belfast Flax Improvement Society, with copies of their Annual Reports; and on requesting that my letter on the Cultivation of Flax should appear in the *Agricultural Gazette*, I forwarded the Reports to the Editor, being anxious to convince him that others agreed with me in opinion, and that by following up the Belgian system of cultivation, &c., as recommended by the Belfast Society, a much larger profit than 20*l.* per acre was possible to be obtained; and, in proof of this, I referred to a Mr. Demann, who grew Flax near Armagh, for which he got 140*l.* per ton; I also informed him that I took my statements as to the value and quantity grown in Ireland in 1843, on 112,200 acres, from a circular sent me by Mr. John Cramsie, Flax-market, Belfast, who averages that year's production at 56 stone per acre, as stated in this letter.

Now, as it always happens that the finer the quality is, the greater the produce per acre, from 60 to 70 stone, and sometimes more, it is not unreasonable to suppose that Mr. Demann (judging from Mr. Cramsie's average of 56 stone per acre), has had 60 stone; if so, his expense and profit is, viz.:—

	£	s.	d.
60 stone of Flax produced on 1 acre, and sold at 17*s.* 6*d.* per stone	52	10	0
According to reports of members of the Ipswich Flax Society Mr. D. should have had on such superior Flax 29 bushels of seed, at feeding price, 6*s.* 3*d.* . .	9	1	3
Deduct expenses:—	61	11	3
Added to my own experience, I have the authority of an Irish Flax-grower and Flax merchant, Mr. Acheson, Tanderagee, for the items of expenses incurred growing an acre	10	0	0
Mr. Demann's profit appears to be .	£51	11	3

Being requested last spring by several gentlemen in Norfolk, Essex, Suffolk, and Scotland, to favour them with such instructions on the cultivation of the plant as I should recommend, I had much pleasure in answering their communications; and I have still more in stating *the result of their experiments*. I have now before me samples of their Flax, that is so like, in colour and quality, to the best Flemish, Dutch, and Courtrai, that it would puzzle the most experienced spinner to tell but that it is foreign Flax; and it is well worth from 80*l.* to 120*l.* per ton. Added to this, some of the growers—among others Mr. Warnes, of Trimingham—assured me they had nearly 70 stone of Flax, and from 29 to 32 bushels of seed to the acre.

To those who are of opinion "that my statements are deserving of serious consideration," and would wish to make appear "that Flax is either a highly valuable crop, or a ruinous one," the readers of the *Gardeners' Chronicle* may answer, "Excuse our saying that opinion is of *no value against experiment;* others may be right, but *if so*, give us the evidence of experiment to refute that which experiments, now published, *seem to establish.*"—*J. H. D.* [Mr. Dickson objects to our having divided his letter, making our observations on a *portion* only, before our readers had seen the whole. If they will refer to page 27, they will see that what we then said refers simply to the balance of expense and returns from the Flax-crop, the accuracy of which is not at all affected by Mr. Dickson's subsequent observations at page 44. The division of a long communication on one topic is necessary, in order that a sufficient variety of subjects may be discussed in our limited space. The shortening of communications is very often necessary for the same reason. Many of the omissions of which Mr. D. complains were not essential to his argument, or were repetitions of previous statements. The following is one observation, however, which we formerly omitted, but which may, perhaps, to some appear to be worthy of publication:—"Another reason why I calculate on the support and co-operation of the English Flax-spinners is, the French and others are now getting over our latest improved machinery *free of duty*, and will, no doubt, soon spin and manufacture sufficient for themselves, and meet us in the American and other markets; therefore it is but reasonable to expect that English spinners will prefer to take Flax of home growing, rather than give *their cash* to parties who lay on so large a duty on their yarns and linens as makes it almost prohibitory. Therefore I am of opinion that the object I have in view could be well carried out by the plans I now propose; and I think if the landed proprietors in Norfolk and Suffolk, who have lately turned their attention to the cultivation of Flax, were consulted, you will find in them a support that must do much to carry out all I represent equal to our most sanguine wishes and expectations; and there is a probability that an increase in the quantity of Flax, caused by English home growing, would stimulate many of the Manchester spinners to follow the example of the Belfast cotton-spinners, who, as their old cotton machinery wore out, replaced it with Flax machinery; and as to the good results from such a branch of trade in the town of Belfast the many newly-erected noble factories, and additional streets that have been built since the first mill was erected in 1828; the increased population; the comforts enjoyed by the working people, who appear to appreciate good and kind employers; and, above all, their good and peaceable conduct at all times, is additional proof, if such be

wanted, that we should, when we can, grow what we spin and manufacture. Such home production would draw from the ranks of agitation and discontent many that are only employed spinning cotton in this country—an article that we cannot grow as we can Flax, *if we wish*, in our own gardens."]

ON SALTPETRE AS MANURE.

There are four sorts of Saltpetre, all of which are valuable manures, viz., potash, ammonia, soda, and lime-saltpetres. The cheapest of these is the soda-saltpetre, which has been lately found in large strata in Peru and Chili, and which is now largely imported into Europe.

As I have found, by many comparative experiments, that the saltpetres act by the nitric acid, or the nitrogen they contain, it would be a pregnant and important discovery, were some simple means found of uniting the oxygen and nitrogen of the atmosphere into nitric acid.

Potash-Saltpetre consists of 46·64 parts of potash and 53·36 of nitric acid; the nitric acid consisting of 73·85 parts of oxygen and 26·15 of nitrogen. Although it has long been known that potash-saltpetre is one of the best manures, it is not used on a large scale on account of its high price. We can make saltpetre ourselves, if turf, good earth, straw, excrements of cattle, urine, and wood-ashes, are mixed together, and so-called saltpetre walls formed, and left standing for one year, potash-saltpetre will be therein formed. But it is to be questioned whether this be useful, as we are thus deprived of the dung for a long time, and after all, nothing is won, as the nitrogen of the saltpetre is already contained in the excrements. We shall see hereafter that saltpetre is also formed in the making of composts, and that it is to it that old building rubbish owes a great part of its manuring properties. How powerfully it acts may be guessed from the fact, that if from 100 to 150 lbs. be used per acre, the corn will be laid. It avails, however, leguminous plants much less than the Gramineæ and Cruciferæ, and from this we may judge that the plants of the former family must have the power to attract much nitrogen from the atmosphere. If 80 lbs. of this manure be applied to the acre, the soil will receive thereby only 14 lbs. nitrogen, which, however, will very soon come into action, as the saltpetre is solubie in 7 parts of water. The effect, therefore, lasts but one year. If potash-saltpetre cannot be used by itself as a manure on a large scale, it may still be used to great advantage for the soaking and swelling of seed-corn, as we shall see hereafter.

Soda-Saltpetre.—Soda-saltpetre consists of 36·7 parts of soda and 63·3 of nitric acid, and consequently contains a little more nitrogen than the potash-saltpetre, and requiring, moreover, only 2 parts of water for its solution, the same amount acts somewhat more powerfully. Its effects last only one year, but the results of the ordinary dressing are extraordinary. It is also to be considered, that as soda-saltpetre will produce plants containing more nitrogen, it will influence the quality of the manure obtained from their consumption. Plants, moreover, containing more nitrogen, have, as we know already, a greater value as fodder. Nothing of these sorts of saltpetre cause any decomposition in the soil, and they are not affected chemically by the component parts of the soil; they pass, therefore, into the plants in an entire state, and serve them as an immediate nutriment. In its action upon different families of plants, soda is similar to potash-saltpetre, viz., in being most useful for Cerealia, and less so for Leguminosæ and Clovers. In order that nothing might be extracted by water, I have strewed it mostly over the crops already grown to a considerable height.

Ammonia-Saltpetre consists of 21·143 parts of ammonia, 67·625 of nitric acid, and 11·232 of water; and, consequently, 100 lbs. contain 36 lbs. nitrogen. From this great proportion of nitrogen, as well as from its great solubility in water (= 2 : 1), it is easy to explain why it is a more powerful manure than either potash or soda-saltpetres. This salt is very probably the most active of all mineral manures, and it is therefore a pity that, on account of its high price, it cannot be used by itself on a large scale. It is formed in the compost used for making saltpetre walls, by the putrefaction and decomposition of those organic substances which are very rich in nitrogen. It can be made artificially by the mixture of ammonia with nitric acid. I have used it in experimenting on several plants, and have always found that, like potash and soda-saltpetres, it is more useful to the Cerealia, and less to the Leguminosæ. It needs scarcely be observed that ammonia-saltpetre (like all other saltpetres) will then only most improve the growth of plants, if the soil be not deficient in the other substances needed for their nourishment. Some believe that it requires nothing but ammonia-saltpetre for producing the most luxuriant crops; however, let them just try it!

Lime-Saltpetre.—Lime-saltpetre consists of 34·6 parts of lime, and 65·4 of nitric acid; and, consequently, is but a little more rich in nitrogen than soda-saltpetre. Equal amounts of either will produce (as I know from several comparative manuring experiments) equal results; as in this salt also, it is the nitrogen which forms the chief fertilising constituent. For using the lime-saltpetre by itself on a large scale, its price is too high; but as it is one of the most superior manuring agencies, all substances in which it is to be found must be used with the greatest care. Amongst these are old building-rubbish, earth from stables, and, as we know already, some sorts of marl. It is formed, as we shall see presently, in the compost, if substances rich in lime and nitrogen are brought into contact under the influence of the open air, as its oxygen will be induced by the lime to unite with the nitrogen and form nitric acid; whence the utility of loosening the compost by working it up from time to time, becomes evident. I know from experiment that 80 to 90 lbs. lime-saltpetre per acre will suffice to produce a most luxuriant vegetation, but its effect will last only one year, as it is very soluble in water. Like the other sorts of saltpetre, it avails Cerealia more than leguminous plants. It attracts water from the air, and therefore supplies the soil with some moisture; still, the amount of the salt, if it be used in compost, marl, &c., is so very small, that it can scarcely be taken into any account.—*Sprengel.*

AGRICULTURAL STATISTICS OF SOUTH GLOUCESTERSHIRE.

The following statement has been drawn up in a manner, perhaps more likely to insure accuracy, than the way in which such Tables are generally prepared. As it has been seen (in articles on the subject published in last year's volume,) that the agricultural character of each geological formation in this district is distinct, both in the nature of its soil and in the nature of the practice on that soil, it was thought better to prepare a separate statement of each formation than to draw up a general estimate of the whole. Throughout the following Tables, therefore, it will be seen that each of the formations has been kept by itself.

Table I.—Columns 1, 2, 3, 4, and 5 state, first, the names of the formations; Secondly, the character of the subsoil on each; Thirdly, the character of the soil on each; Fourthly, the kind of wood, whether in hedgerows or woods, growing naturally on each; and Fifthly, the state of the commons and waste lands occurring on each. This last, it has been said, affords a fair criterion of the unassisted fertility of the geological formation specified. Column 6 gives the extent in square miles of each of these formations. It was obtained by measurement from the Ordnance Map after having been coloured geologically. The total of this column gives 330 square miles as the extent of the district. Columns 7, 8, 9, and 10, give the extent respectively of wood, waste, pasture, and arable land occurring on each of the formations. The total extent of each, as given in column 6, has been subdivided among these four columns according to estimates made during numerous rides I have taken over the surface of each. The sum of the two latter columns gives the total amount of cultivated land in square miles on each of the formations. This is reduced to acres in column 12.

TABLE I.—EXTENT AND GENERAL CHARACTER OF THE DIFFERENT GEOLOGICAL FORMATIONS.

Formations.	Character of Subsoil.	Character of Soil.	Natural Wood.	State of Common.	Total extent. Square miles.	Wood.	Waste.	Pasture.	Arable.	Total inclosed. Square Miles.	Acres.
Alluvium Gravel Bathstone	Calcareous gravel " Limestone with narrow beds of clay	Calcareous clay loam " loam, adhesive, and brashy—variable	Elm Do. Beech and Ash	Rich Grass Short sweet Grass	30 4 65			29 2 9	1 2 56	30 4 65	19,200 2,560 41,600
Lower oolite	Oolitic limestone and sand	Thin brashy and sandy loam	Beech	Withered Grass of not much value	35	6	6	11	10	24	15,360
Marl stone Lower lias	Indurated sand and marl Clay and occasional beds of Calcareous rock	Sandy loam Stiff clay	Elm Oak	Worthless; overrun with bramble	10 72		1	7 62	3	10 65	6,400 41,600
New red sandstone marl Magnesian limestone Coal; clay	Ferruginous sandstone Red marl Limestone Stiff clays and loose sands	Deep red sandy soil Clayey red soil Light; sandy; shallow Thin clays and sands	Elm and Oak Elm Oak	Worthless; heath, bramble, &c.	2 28 6 4			2 24 3 2½	2 4 3 1½	2 28 6 4	1,280 17,920 3,840 2,560
Pennant stone Millstone grit Mountain limestone Old red sandstone, &c.	Sandstone Siliceous sandstone Limestone Siliceous sandstone and clay	Red clayey sands Light sands Thin calcareous brash Deep sands and clay	Elm Beech and Elm Elm and Oak	Dry sweet pasture Good pasture	37 6 10 20			18½ 3 6 16½	18½ 3 4 3½	37 6 10 20	23,680 3,840 6,400 12,800
Total					330	8	11	194	116½	311	199,040

Table II. shows the manner in which the arable land (Table I. col. 10,) occurring on each of the formations has been divided out among the several crops cultivated on it. It is here that the advantage of drawing up statements of this kind on a principle dependent on the geology of the district displays itself. Knowing the rotation of crops adopted on each of the formations; or, if there be no rotation, knowing the general practice on each, it is a very easy matter to say how many acres out of a given number are each year in one crop, and how many in another. The explanations attached to this Table state the rotation of crops adopted on each of the sub-districts, and show the principle on which the whole arable land on each has been divided out among the several crops specified in columns 1 to 12. In columns 14, 15, and 16 of this Table are given:—1st. the total extent of the pasture land on each of the formations, (see Table I. column 9): 2dn. the portion of this which is mown each year: and 3d. the portion of it depastured.

TABLE II.—SHOWING THE PRINCIPLE ON WHICH THE ARABLE LAND IS DIVIDED AMONG THE CROPS SPECIFIED, &c.

Formations.	Statement of the Crops grown and Rotation followed on each Formation on which the annexed Division is founded.	13	Extent of Pasture. Sq. Miles.	14	Mown.	15	Depast.	16
Alluvium Gravel Bathstone	Potatoes and Wheat for the farmer's own consumption. Beans also grown Rot.—1st, Wheat; 2d, Turnips; 3d, Barley; 4th, seeds. Potatoes frequently grown " 1st, Wheat; 2d, Oats; 3d, Turnips; 4th, Barley; 5th and 6th, seeds. ⅓ of farm Sainfoin.		29 2 9		20 1 5		9 1 4	
Lower Oolite Marlstone Lower lias New red Sandstone " " Marl Coal: clay " " Dolom. Congl. " Pennant stone Millstone grit Mountain Limestone Old red Sandstone, &c.	This rotation sometimes altered, see page 561, 1844. " 1st, Wheat; 2d, Potatoes; 3d, Barley; 4th, fallow. Turnips occasionally grown " 1st, Wheat; 2d, Potatoes; 3d, Barley; 4th, Beans " 1st, Wheat; 2d, Potatoes; 3d, Barley; 4th, Beans " 1st, Wheat; 2d, Beans, 3d, fallow. Oats, Potatoes, and Teasles are also grown " 1st, Wheat; 2d, Turnips; 3d, Barley; 4th, seeds. Barley more grown than Wheat " do. do. Wheat more grown than Barley. Fallow " 1st, Wheat; 2d, Barley; 3d, seeds; 4th, Potatoes. Wheat and Potatoes chiefly grown " Wheat, Oats, and Teasles grown here; few Turnips, also. Fallow required " Wheat, Potatoes or Barley, and seeds. Turnips also grown. Wheat is the chief crop " Wheat, Barley, Potatoes, or seeds, or Turnips. Wheat the chief crop. Fallow needed " Wheat, Barley, seeds, Turnips or Potatoes. Sainfoin in small quantities Wheat, Beans, and Potatoes, on clays. Wheat, Barley, seeds, Potatoes, on sandstone, &c.		14 7 62 ... 24 3 2½ 18½ 3 4 16½		8 4 40 ... 14 2 2 10 2 2 10		6 3 22 ... 10 1 1 8½ 1 2 6½	
Total			194½		120		74½	

TABLE III.—SHOWING THE NATURE AND QUANTITY OF THE AGRICULTURAL PRODUCE OF EACH OF THE GEOLOGICAL FORMATIONS.

Formations.	1. Extent of Arable. Square miles.	2. Wheat. No. of Acres.	2. Wheat. Bush. p. acre.	2. Wheat. No. of Bushels.	3. Oats. No. of Acres.	3. Oats. Bush. p. acre.	3. Oats. No. of Bushels.	4. Turnips. No. of Acres.	4. Turnips. Tons per acre.	4. Turnips. No. of Tons.	5. Barley. No. of Acres.	5. Barley. Bush. p. acre.	5. Barley. No. of Bushels.	6. Seeds: Mown. 1st year: No. of Acres.	6. Seeds: Mown. Cwt. p. acre.	6. Seeds: Mown. No. of Tons.	7. Seeds: Depast. 2d year: No. of Acres.	7. Seeds: Depast. Value p. acre.	7. Seeds: Depast. Total Value.	8. Sainfoin. No. of Acres.	8. Sainfoin. Cwt. per acre.	8. Sainfoin. No. of Tons.	9. Potatoes. No. of Acres.	9. Potatoes. Sacks p. acre.	9. Potatoes. No. of Sacks.	10. Beans. No. of Acres.	10. Beans. Bush. p. acre.	10. Beans. No. of Bush.	11. Teasels. No. of Acres.	11. Teasels. Packs p. acre.	11. Teasels. No. of Packs.	12. Fallow. No. of Acres.	13. Extent of Pasture. Square miles.	14. Mown. No. of Acres.	14. Mown. Cwt. per acre.	14. Mown. No. of Tons.	15. Aftermath. Value p. acre.	15. Aftermath. Total Value.	16. Depastured. No. of Acres.	16. Depastured. Value p. acre.	16. Depastured. Total Value.
																			£																					£		£
Alluvium	1	240	26	6,400	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12,960
Gravel	2	320	24	7,680	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	832
Bathstone	50	5,280	20	105,600	5,120	36	184,320	5,280	12	63,360	1,920	24	47,080	320	15	240	320	20	320	..	..	..	80	60	4,800	80	60	4,800	..	..	..	..	..	..	..	..	..	..	..	..	..	2,560
Lower Oolite	10	1,920	18	34,560	..	..	..	320	8	2,560	480	32	15,360	..	..	..	480	7	168	..	..	..	320	50	16,000	320	50	16,000	..	..	..	1,280	14	7	1,536	10,240	1,920	36	3,456
Marlstone	3	480	26	12,480	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18,304
Lower Lias	3	640	18	11,520	..	..	..	320	12	3,840	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Red Sandstone	3	160	22	3,520	..	..	..	320	12	3,840	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" Marl	4	960	24	23,040	..	..	..	320	10	3,200	320	28	8,960	320	15	240	320	20	320	..	..	..	80	60	4,800	80	60	4,800	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Magnesia Limestone	3	640	23	14,660	..	..	..	..	..	..	320	30	9,600	320	15	240	320	20	320	..	..	..	80	60	4,800	80	60	4,800	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coal: Clay	1½	480	20	9,600	..	..	..	..	..	..	320	30	9,600	320	15	240	320	20	320	..	..	..	80	60	4,800	80	60	4,800	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" Permant stone	10½	5,120	24	122,880	..	..	..	960	10	9,600	1,920	32	61,240	320	15	240	320	20	320	..	..	..	160	60	9,600	160	60	9,600	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Millstone Grit	3	480	24	11,520	..	..	..	960	10	9,600	960	28	26,880	320	15	240	320	20	320	..	..	..	160	60	9,600	160	60	9,600	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mountain Limestone	6	1,200	22	26,400	..	..	..	1,600	10	16,000	960	30	28,800	320	15	240	320	20	320	..	..	..	160	60	9,600	160	60	9,600	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Old Red Sandstone	34	960	20	19,200	80	32	2,560	400	10	4,000	240	30	7,200	240	15	180	160	20	160	..	..	..	160	60	9,600	160	60	9,600	..	..	..	320	4	3	384	3,840	1,280	18	1,152	6	384	640	20	640
	76,800	12,800	25	16,000	14	5	8,960	5,760	45	12,960																																	
		640	15	480	10	8	1,280	640	36	1,152																																	
		3,200	12	1,920	12	6	1,152	2,560	20	2,560																																	
		5,120	20	5,120	10	10	2,560	1,920	36	3,456																																	
		25,600	15	19,200	8	10	1,536	10,240	18	9,216																																	
		2,560	20	2,560	12	10	1,536	14,080	26	18,304																																	
		8,960	20	8,960	12	10	5,376	6,400	36	11,520																																	
		1,280	20	1,280	12	6	768	640	36	1,152																																	
		1,280	15	960	8	6	384	320	26	416																																	
	71,594	6,400	20	6,400	10	10	3,200	5,440	36	9,792																																	
		1,152	18	1,152	8	10	576	640	32	1,024																																	
		1,280	18	1,152	8	10	612	1,280	32	2,048																																	
		6,400	20	6,400	10	10	3,200	4,160	36	7,488																																	

make it grow thicker and stronger than before; when harvested it produced 16 bshls., or at the rate of 128 bshls. to the acre, giving to the owner, according to the calculation of Mr. L. Hommedieu, at the rate of about 85 dollars to the acre of clear profit." He gives this as an instance of what might be done in a better cultivated country than America.

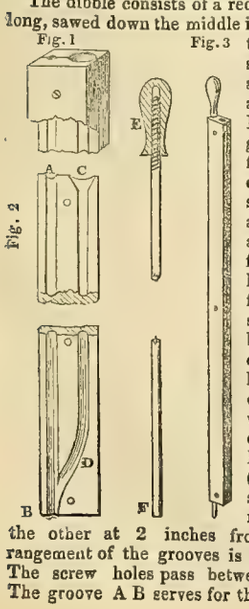
Rye may be sown in autumn to great advantage as green fodder for cattle and sheep, particularly the latter in spring; ewes and lambs will derive much benefit from it, at a time when little or no other green food can be procured. When it is meant for this purpose, it should be sown early in autumn, and much thicker than when it is intended to stand for a crop of seed. Some writers have recommended it to be mowed two or three times during the summer for hay. This kind of husbandry will answer well for those farmers whose lands are mostly dry or unsuitable for Grass. According to Mr. Milburn, in the "Journal of the Royal Agricultural Society," the cultivation of Rye is pursued extensively upon the chalk lands in Berkshire, for the purpose of manuring the land for a crop of Turnips. The advantages of cultivating Rye, according to the above writer, are seven. "1. Provision of excellent green food at a season when of all others it is most wanted. 2. It is produced without sacrificing any portion of the usual rotation pursued on the farm, and with little labour. 3. It will grow on any soil, but especially on poor loose land, where any other esculent is more or less uncertain. 4. It will bear any degree of frost or cold. 5. It is less expensive than Grass or leguminous crops. 6. It is readily consumed by stock. 7. It improves rather than deteriorates the soil." The quantity of seed sown on an acre must vary according to the soil, the time of sowing, and the purpose for which it is intended. If it is intended to be eaten down by sheep, August is a good time for sowing, and the quantity of seed used should be 3 bushels; for when haulm is wanted, a greater quantity of seed will be requisite than when it is intended for seed. I would particularly call the attention of farmers to a more general cultivation of Rye as a green fodder for their cattle during the short days, when all other esculent herbage is mostly consumed.

In conclusion, I should remark that the seed should be sown immediately after the land is ploughed; the soil being then more moist causes the seed to spring immediately, and gives a forwardness and vigour to the plant which it ever after retains.—*John McIntosh.*

ON DIBBLING SEED.

Observing in a late Number of your Paper an article on Dibbling Seed, in which it is stated that if a dibbling-machine could be provided which should infallibly place the seed at a certain depth, and measure the exact number of seeds planted on a given space, much benefit would accrue, I beg to describe an exceedingly simple, cheap, and effectual hand-dibble, with which I have myself planted a great many thousands of Fir and other seeds on a tract of waste land, which I occupied for some years in the Cape Colony, and the greater part of which I had the pleasure of seeing in vigorous vegetation before leaving. Though used on that occasion for seeds of a rather large size, there is nothing which prevents its application to corn or any other sort of grain; nor, supposing the mechanical difficulty of separating seed from seed individually got over, any reason why 10 or 20 such dibbles should not be set in a frame and worked by a movement connected with the wheel serving for progressive motion over the soil. At all events, for dibbling Beans, Acorns, or other seed which are usually planted singly—for Peas in rows—*et hoc genus omne*, I can confidently recommend it. The work is performed with perfect certainty, and the distress to the loins by the stooping position entirely avoided—a great source of rheumatism and lumbago, as I am convinced, to those who make it a part of their field labour. Another recommendation is the simplicity of its construction, which anybody may execute for himself, or by the aid of a village carpenter, at an exceedingly trifling cost.

The dibble consists of a rectangular piece of deal, 3 ft. long, sawed down the middle into two halves, and screwed together again by three screws, one in the middle, and one at top and bottom, as represented in fig. 1. Each of these halves is grooved on its inner surface with two parallel, semi-cylindrical grooves corresponding to each other, so as when laid face to face, and screwed together, to form cylindrical channels large enough to admit the free passage of the greatest sized seed it is intended to be used for. One of these channels runs the whole length of the dibble, the other runs parallel to it to within 4 inches of the lower end, when it declines obliquely with a curved slope (carefully avoiding any sudden angle), till it meets and unites with the other at 2 inches from the bottom. The arrangement of the grooves is shown at A B, CD, fig. 2. The screw holes pass between them, as there shown. The groove A B serves for the up and down passage of the dibbling-rod E F, which consists of a straight cylindrical rod of iron, blunt at the lower end F, and terminating at the handle end E in a screw, which enters the handle end E (made hollow to receive it), through a tapped piece of iron, by which the projection of the end F to the required distance below the lower extremity B of the shaft may be regulated at pleasure by screwing in or out. The other groove C D serves to convey the seed to the hole made by the dibbling-rod, if that be first depressed and then raised above the junction of the grooves; or to place the seed on the ground ready to be driven down to the required depth by the subsequent action of the rod. To receive the seed easily, the upper orifice of the groove is opened out conically or funnel-fashion. The seed must be introduced singly with the thumb and finger. The instrument in its state for use is represented in fig. 3.—*Capensis.*



Home Correspondence.

Spade Husbandry.—As the public mind appears at present to be directed to the improvement of the condition of the industrious labourer, and to the wonderful effect on the soil produced by spade labour, it has occurred to me that the plough may be more frequently set aside by farmers than the present system permits. I believe it is now generally allowed that the work performed by the spade is far superior to that accomplished by the plough, and many practical men are convinced that the increased produce of the soil from spade labour renders the labour of the spade (or fork) quite as cheap as the plough. The great objection, now, to the former relates to the quantity of work to be done, and to the impossibility of having a large field properly prepared to meet the seasons for sowing, &c., by spade husbandry. A man can only dig an acre in 20 days, whilst a pair of horses can plough an acre in a day; so that by such a mode it is very clear the plough will always supersede the spade; but if the wide-drill system is adopted, which is now preferred by scientific agriculturists, the spade may frequently be substituted for the plough. Instead, therefore, of requiring the whole surface of the field to be turned up at once, dig only narrow straight lines, at wide intervals. In these lines, so dug up, drill in the seed, which only requires at first a very small space to germinate in. All, therefore, which is immediately necessary, is to have a very small breadth of soil prepared to receive the seed and the small rootlets of the young plants, and as far as their health is concerned, they may be safely left in this state during the whole winter. It is evident that by this plan a large quantity of land may thus be fitted for the early growth of the young plants, in a short space of time. The intervals between the drill may afterwards be dug up at leisure, and if this operation continues the whole winter, it cannot affect the young plants. Of course such a system can be adopted for root-crops in spring and summer. This mode of spade culture also admits of a more scientific and economical mode of administering to plants their food, or, in plainer language, of manuring; and your remarks on the mildew in Wheat, in your Papers of the 1st and 8th of last month, have confirmed me in my theory. Vegetable disease you attribute, at least in part, to over-luxuriance, caused by an unequal supply of the necessary elements of its food. Our present practice of manuring is to place in the soil the whole quantity which the plant may require throughout the whole progress of its growth, without considering that at different stages of the plant's existence the elements of its food should be varied. The Wheat, for instance, scarcely requires during the winter months any other food than what the fertilising rain gives it; during the spring months, until the blossoming season, its grassy condition will be improved by the food which appears to invigorate all Grass crops, namely, nitrate of soda; then after the blossom falls comes the tug of war, and its food must contain the elements of gluten, in addition to this, phosphates, &c.; and in this stage, when the extended roots of the plant are seeking in every direction strong food, there can be no danger of an over supply. The animal requires this arrangement in his diet; if we were to load the stomach of a young infant with strong beef-tea, disease would be the consequence; the young calf would be destroyed by food of a highly stimulating nature, and it appears to be the same law for plants, whose health and vigour will be best promoted by a proper distribution of proper food at the various stages of their growth. In the wide drill culture, therefore, the strong manure can easily be forked in at the proper period; when, for instance, the ears of corn are just breaking through the sheath, the food will then be in readiness to afford due nourishment, when it is required, and not till then; for previous to this the strong manure will have been too stimulating, and over luxuriance will be the consequence, and mildew may follow. Could not Lord Lovelace's plan of transplanting Cabbages between the drills of Beans in May be likewise followed in such a system of Wheat culture? The shade of the Wheat would be serviceable to the Cabbage-plants, as well as the stirring up the intervals between the rows; and until the Wheat was harvested, they would not make much growth, so as to rob the Wheat of its manure. These roots of the Cabbage-plants would have taken firm hold of the soil, and after the Wheat was cut, the land could be dug up which the Wheat occupied, and the plants would then grow luxuriantly, and much time would be gained.—*An Old Subscriber, Banwell.*

Waste of Manure.—It is probable, in our great desire to introduce various manures, and experiment upon them, that we are overlooking the most useful and valuable of all, viz.: the scourings of our towns, villages, and private houses, which are now lost to the present inhabitants of the globe—whether they may be, some thousands of years hence, thrown up again to the surface by some convulsion of nature, is not for us to inquire about; it would be wise to endeavour to convert it to the purposes of our own immediate wants. It is an acknowledged fact that the soil of Great Britain is not half cultivated, chiefly from the want of manure and drainage—the latter seems coming into very general practice; and the system of stall-feeding may, in some measure, compensate for the diminished quantity of stable-dung, caused by the introduction of railroads. There is still, however, a paucity of food for the growth of vegetation, and it is extraordinary that no exertions have been made to save the invaluable refuse of large towns, &c. &c., calculated to be worth many millions of pounds per annum. The attention of capitalists and corporations has been called to this subject in a former letter, and the following startling assertion, which is no less true from its creating surprise, may induce the guardians of the poor to take the matter into serious consideration:—The value of manure now allowed to waste, exceeds the amount of the poor's-rates! The *Chronicle* would do well to take up this important subject.—*Falcon.*

Bone-crushing.—I have got one of Fry's bone-pounding machines, and I shall be very glad if Mr. Fry, or anybody else who has used it, would inform me how much they have been in the habit of giving for having them pounded through the widest bars. I wish to give to my men 3*s.* per quarter for doing it, but they want 6*s.* per quarter, and say that under that price they shall not earn 1*s.* 6*d.* per day.—*A Farmer.* [Watch them do a given quantity, and calculate the proper price to be paid from the time they take, the quantity done, and a sufficient wage for day-labour.]

Potatoes, &c.—One of your correspondents expresses an interest in my communication respecting the freezing of Potatoes in the ground, the consequences of which I described some weeks ago. In the case in question, the Potatoes were found spoiled when dug up, after the thaw had reached them in the ground; the field was high and dry on the chalk. These Potatoes were late planted, after the failure of a Barley-sowing, and the tubers may not have had time to attain a firmness of tissue sufficient to withstand the intense frost of December last in an exposed situation. It is surely too much to believe that a few inches of soil are a sufficient protection to the Potato from any degree of cold. An intense frost will break up the cellular tissue of much firmer substances than the Potato, and that once ruptured, no after care can restore. In cases of ordinary frost, when the Potato is frozen beneath the soil, the tissue is not broken; the juices only are frozen in the minute cells, and if allowed to thaw gently, no destruction follows. A cottager in the neighbourhood found his Potatoes in like manner spoiled on digging them after the thaw. The soil of his garden is an adhesive clay, a rapid conductor of heat, and therefore an insufficient protection from frost. Some inquiries having been made respecting the best method of converting pasture-land to tillage, so as to avoid the attacks of the wireworm, I think it worth while to mention a plan which has been tried successfully in the Isle of Sheppy and elsewhere in East Kent. The land is sown with Beans or Peas the first year, and with Peas or Beans the second—taking care to keep the land quite free from weeds, for these, if allowed to grow at all, will furnish food for the wireworm. After the Peas and Beans, Wheat may be safely sown. I have lately noticed the experience of a neighbouring farmer: a pasture-field was broken up and sown with Peas; these came safely off. The land was well dressed through the autumn, and sown with Wheat; the blade scarce made its appearance, so soon was it seized by the hungry wireworm. The field was ploughed, and the following season (1844) put in with Beans; these came well off, and there is now upon it a thick and healthy plant of Wheat.—*A Kentish Subscriber.*

Rats.—We read of sums given for destroying the most useful of the farmers' friends, the hedgehog, and of Sparrow Clubs, &c., but never of any attempt to keep down the greatest of all his enemies, the rat. From the mild winter of 1843-44, and the dry, warm summer of 1844, we are overrun with rats. They migrate, and travel through the country by hundreds, yet no step is taken to defend ourselves from their attacks. Let me recommend your proposing, not a Sparrow Club, but that a Rat Club be formed by voluntary subscription in every parish in England. There are about 12,000 or 14,000 parishes in England; now, if 5*l.* per annum be paid for rats, at the rate of 1*d.* each, only see what numbers would be swept off annually. There would be 1200 in every parish; and if this were continued for some years, rats would soon be as scarce as buzzards. Something of this kind must be done, or we shall be eaten up alive, since gentlemen suffer their gamekeepers to shoot every owl and hawk, those great enemies of rats, instead of encouraging those useful birds. It ought to be made the forfeiture of his place for any gamekeeper to destroy either of these birds.—*Ferret.*

Grass Farm.—Thanks to "Lusor." "Villager" is particularly desirous not to admit coarse Grasses into her small paddock; but to have a very thick and close covering to the soil, which is of a rich sticky nature. She intends sowing the seeds in beds this year, and collecting them in the autumn to sow next spring. Any further information as to the most proper varieties of Grasses will oblige. The number of sorts in Lawson's list seems small.

Tussocks.—The dense and unsightly tufts of Grass

called Tussocks or Hassocks, referred to by a Leicestershire farmer, are formed by the Aira cæspitosa; but, as the roots are fibrous, not creeping, they may easily be extirpated by cutting them up with a mattock.—*Lusor.*

Curing Bacon.—I beg to forward, for the benefit of your correspondent who wishes for a receipt for curing bacon, the following one, which I have found to answer exceedingly well:—¾ lb. of bay salt, ½ lb. of saltpetre, 1 lb. of coarse sugar, and about 1 lb. of common salt. This is sufficient for the bacon and faces of a hog of 10 or 11 score. Pickle all together, and let it remain in the pickle a month, turning and rubbing it all every day. I would remind your correspondent that the flavour of bacon depends quite as much upon its being properly smoked and kept after it is made as it does upon the curing.—*H. I. M.*

Pigeons.—In answer to "A.B.C.'s" inquiry, in a late Number of your Paper, I beg to say that I have settled a great number of Pigeons in the following manner:—I kept them up in the cote, feeding them on corn, &c., and giving them plenty of water; and I also gave them a cake made of Potatoes, milk, and a great quantity of salt, not letting them go out till they had hatched, or at least got eggs; and I have great pleasure in telling "A.B.C." that my pigeons now are never anxious to leave home.—*A Derbyshire Schoolboy.*

Indian Corn.—I was about to inquire the best mode of cultivating Indian corn when I read the remarks of your correspondent, "J. C. C." I tried some last year; the seeds were raised in a hot-bed in April, and planted out in May, in a border under a south wall. Although the plants grew strong and as high as 10 feet, the seed was imperfectly formed, and did not ripen. This was in a situation where Myrtles, &c., live out of doors during the winter. As I wish to try the experiment again this year, and have not Cobbett's book, I shall be obliged to your correspondent to give some short instructions on the subject.—*H. W.*

Poultry.—In your Paper of the 8th inst., you notice the intended Exhibition of domestic poultry by the Zoological Society, which will, no doubt, be of use in improving the breed; but what is almost of more importance, to induce cottagers and others (who have not a barn-door for the fowls to resort to) to keep poultry, is to show them that they can do so at such a charge as will enable them to make a profit by selling their produce, and at such a price as will enable them to compete with importers. With this view it may be of use, if any of your correspondents can give information as to the best and cheapest mode of feeding poultry, where there is no farm or stableyard for them to run in. For the last six months I have fed my poultry on Barley and boiled rice, giving them the Barley in the morning and the Rice in the evening. They eat the Rice very readily, but I am not sure that it is so good a food as Barley for the production of eggs, though it goes further in filling their crops. Two lbs. of Rice at 15*s.* the cwt. is nearly equal in value to a quarter of a peck of Barley, but when swelled by boiling is more than double its bulk. I have given my fowls (fourteen in number) nearly a peck of Barley and 7 lbs. of Rice per week; they would eat more of the Barley but not of the Rice. Upon this food they have laid, for the last ten weeks, on an average 2 dozen of eggs per week; at this rate they will not pay for their keep, without calculating anything for the two or three preceding months, when they scarcely produce any eggs. I tried the experiment of fatting some fowls separately, upon Barley and boiled Rice, giving them as much as they would eat; they consumed nearly the same amount of each in value; they increased in weight nearly in the same proportion. At the end of a fortnight they were killed, and proved equally good when cooked. I should add that they were not confined in coops, but had sufficient space to move about. In this trial nothing appears to be gained by Rice, unless it could be procured at a less cost than 15*s.* the cwt. I believe it is usual to feed poultry on Rice on board India ships, but it is given to them in a raw state, not boiled. Since writing the above I have read the complaint of your correspondent, "F. H." I suspect that his poultry have not been so well fed as mine. Some of my neighbours have made the same complaint, and I have traced it to that cause.—*H. W.*

Guano.—Messrs. Boyd and Co., importers, in reference to the probable demand for this manure say, "Last year the actual consumption of the United Kingdom was upwards of 50,000 tons, being ten times more than that of the preceding. Now estimating this year's consumption only at a quadruple ratio above that of last season, it would amount to 200,000 tons; but this, in our opinion, will be found much under the mark, for besides the home consumption, a demand has sprung up elsewhere, we having ourselves several vessels now loading engaged for the Continent, and we know of many others destined for the Colonies. The French Government appreciates the value of Guano so much, that within the last six months an act was passed, expressly allowing its importation into France, in British vessels, free of duty. As to the supply, it is calculated from the quantity already imported, (including South American,) there is not more than 140,000 tons in the country, and from letters which we have received, (dated as late as 26th December last) we cannot depend upon a further supply from Ichaboe of more than 50,000 tons, being a full estimate of all that then remained, the greater part of which cannot arrive before the season is over."

Artificial Egg Hatching.—Mr. Munn, of Feversham, has sent us a printed paper descriptive of Messrs Cottam and Hallen's portable Courvoise; he believes the apparatus to have been much improved since he received the description. He has heard of a gentleman near Maidstone who has attempted to raise pheasants, &c., by the machine, but without success. The inventor, this paper states, has met with great success in his experiments with the apparatus, having brought to life, by its means, pheasants and partridges, both red-legged and common, chickens, and ducks; and there are now being exhibited in the gardens of the Zoological Society of London, two ducks, hatched and reared by means of this apparatus. The heat is generated by a small lamp, which will burn for 15 hours at one time, and consumes about one gallon of oil in three weeks, as nearly as can be estimated. The heat is perfectly controlled by a self-acting regulator of a most simple construction. The management of the apparatus is so simple and easy, that it may be entrusted to any one, and it occasions but little trouble. The apparatus exhibited will contain at one time, with ease, 80 hens' eggs, but a larger quantity of pheasants', or partridges'.

Rooks.—At page 107, your correspondent "Quercus II." thinks that I have over-estimated the services of the rook in supposing that nine-tenths of their food consists of worms, insects, and their larvæ; and no doubt, if his conclusions were drawn from the observations of last year, he would have great reason to think so; for the drought was so intense all through the spring of 1844, that the poor rooks could find no insects with which to feed their young, and hundreds of the latter perished with hunger. No wonder that in such a case they dug up Beans, Oats, and Potatoes; but this ought no more to be alleged against them than the fact that a number of famishing men having attacked a baker's shop ought to be alleged as a proof of the thieving propensities of the generality of mankind. The poor rooks were so "hard up" last breeding season that I had them close to my kitchen door, a place where I never before saw them in the severest winter; and doubtless in all seasons they destroy a deal of seed corn, the husks of which they cast, as a hawk does the bones and fur and feathers of the mice and birds it devours. Large quantities of Oat seeds may be found under the trees in March and April; but still, after a careful consideration, I do not think I over-stated their services: even in seed time a large portion of their food consists of worms and insects.—*T. G.*

Societies.

HIGHLAND SOCIETY.

A Monthly Meeting of this Society was held on the 5th inst. Sir George G. Suttie, Bart., of Prestongrange, in the chair. The first paper read was one which had been postponed from the previous meeting, and containing a description of a subsoil-plough used in Austrian Silesia, a model of which had been sent to the Society's Museum. Mr. Slight, Curator of Models, described the construction of the plough. Its working part simply consists of a pointed broad share, of a hollow semi-ellipsoid form—a construction, as Mr. Slight observed, only adapted to one particular class of subsoils—the uniform alluvial clays and deep vegetable soils which abound in the continental plains, in reclaimed fens, and in our own more limited carses, in most of which few if any stones or boulders exist to obstruct the operation of such a form of share; but it is quite unsuited to the subsoils of our dry-field lands, or of lands where the moorland pan exists, inasmuch as it could not by any means be kept in the ground in these circumstances. Mr. Slight then read a few remarks on the effects produced on the subsoil by a thorough system of subsoil-ploughing, such as were effected by the original inventor of the Miner, as the plough was then appropriately named, and is now effected by the introduction of the subsoil-plough, half a century afterwards, by Mr. Smith, of Deanston, and which has also been brought by him into its present high position as an improver of the soil. The objects obtained by these two inventors in the application of their ploughs were precisely the same—namely, the breaking up and stirring or moving the subsoil to a small extent laterally, detaching horizontally a prism of subsoil from its immediate substratum, without bringing it to the surface, and of intersecting at the same time, the prism in its longitudinal direction. To effect all these results by a simultaneous action, must, of necessity, require very considerable force, and the resistance to which is increased by the armature of the plough required to separate and break up, as well as move, the prism of subsoil; and though the lateral movement may not exceed the extent of one or two inches, yet this being performed under the ordinary soil, already turned over by the common plough, it will readily appear that this process can only be produced in an effective manner by a commanding force of horse-power, and a strong implement. On account of this, its great efficacy, Mr. Slight considers the Deanstone subsoil-plough as the most perfect of its class; and as he conceives it really secures all the objects attainable by thorough subsoil-ploughing which are above enumerated, it appears to him to be too important an implement, to be sacrificed to less efficient ones, merely on the plea of any immediate saving, either in first cost or in manual or horse-labour. In consequence of some remarks being made on the great weight of the Deanston subsoil-plough, Mr. Slight explained that it was made at first as heavy as 4 cwt.; but that provided the working part be kept at its original size and form, the weight of the upper part or beam might be reduced as much as 1½ cwt., without impairing the efficacy of the implement, which reduction of weight would have the effect of reducing the price from 2*l.* to 3*l.* The next paper, On a method of preparing Potatoes for Seed, by Mr. Joseph Smeal, gardener to the Earl of Morton, at Dalmahoy, was read by Mr. J. H. Maxwell, younger, of Dargavel. The Potatoes intended for seed are taken out of the ground by Mr. Smeal in the beginning of September, or earlier if the crop is sufficiently matured, and spread upon the surface of the ground, where they remain exposed to the sun and weather till such time as they become quite green in colour, and of a soft spongy consistence. This will be effected in the course of a month or six weeks, during which they must be turned at least once, and which can easily be done with a wooden rake. The greening process is much forwarded by sunshine, but it is desirable in all cases to have the Potatoes lifted in sufficient time to allow the process to be completed before the frost sets in; though Mr. Smeal has observed, that Potatoes so treated are less liable to be affected by frost than the others, or to be attacked by vermin and insects when stored, on account of the bitter, disagreeable taste they contract. The prepared Potatoes may be stored in pits or houses in the usual way. The great advantage of this method of preparing seed Potatoes, according to Mr. Smeal, is the certainty of a good and early crop. The Potatoes may be planted whole, and the small ones selected to save expense; but, if the latter are preferred, they had better be prepared by cutting a piece off one end in the autumn, to afford time for the wound to heal, and to avoid a redundancy of stems in the crop; and even outsets should be made green in spring before being planted. Mr. Finnie, of Swanston, remarked that, however well Mr. Smeal's recommendation might suit the culture of the garden, he apprehended it was inapplicable to the field culture of the Potato: as in the field, the crop was seldom fit to be raised till the latter end of October, when the risk of frost rendered the exposure of Potatoes for a month or six weeks, before they could become sufficiently green, an imminently dangerous experiment. Independently of frost, the large quantity of seed Potato required to plant from 20 to 40 acres of land, could not be exposed on a field at that late season of the year, without risking the inability to carry them off the field in wet weather, should it set in. And, besides, the occupation of the land by the seed under the proposed process of preparation would prevent its being seed-furrowed for Wheat. The greening of seed Potato may be an effectual remedy against failure; but he did not perceive how the farmer could avail himself of the proposal. Dr. Mercer then stated, in reference to the proposed greening process, that having formerly perused Mr. Smeal's paper, and considering the statements of the author as interesting, he had submitted Potato tubers, under circumstances similar to what had been described, to a microscopic examination, with a view to find out whether or not any deviation from their normal structure had been induced. He found in those tubers which were completely greened by exposure to the combined influence of the sun and air, the colouring matter very generally diffused throughout the parenchyma of the tubers, and it was comparatively dense towards the surface, and around the different germs from the surface to the centre. The fecula vescicles are fewer in number, though they are much increased in size, and instead of presenting a tissual and entire transparency, they exhibit towards their larger extremity several aggregated granular particles of a greenish colour, and apparently only slightly attached to the inner surface of the wall of their corresponding cell. Many of these cells are found ruptured and empty, and with their contents, especially their pigmentary granules, are scattered throughout the intercellular spaces. The development of these intercellular pigment granules are not found in the Potato that has been either blanched or been brought to maturity in well set up drills; and being unquestionably an adventitious structure, their development, under such circumstances, is only an illustration of the well-known law that prevails elsewhere, that exposure to solar influence and atmospheric agencies is always attended with the development of pigmentary matter. One peculiar circumstance was observed on the application of a pure watery solution of iodine. When a thin section was placed in the field of the microscope, and a drop of solution of iodine was put over it, the coagulation of the liquid contents of the fecula vesicles did not take place, and no blue appearance was produced; but on the addition of a drop of diluted acetic or nitric acids, both of these immediately resulted; and the same effects were produced without the addition of any acid, provided the cut surface was exposed for a short period to the air. From this it might be inferred, as Dr. Mercer conceives, that the fecula vesicles, besides forming the usual organic constituents of fecula, also produce at least those of one other substance, on which apparently the coloration depends, and which from its negative influence with iodine, possesses the reaction of an alkaline or alkaloid substance. From the shortness of the time since these investigations were instituted, Dr. Mercer has been unable to obtain any chemical analyses of these matters.—The next paper was read by Sir James Ramsay, Bart, of Bamff, On the saving of Liquid Manure, by Mr. Gyde, of Painswick, in Gloucestershire, for which the Society had awarded to him the Silver Medal and three sovereigns. As this is a long and elaborated essay, and will no doubt appear hereafter in the Society's Transactions, and, as our space is nearly exhausted, we can only take a short notice of it. Liquid manure does not require to be extolled at this time of day, as every farmer is already impressed with the beneficial effects of its application to certain states of crop. It would appear, from the statements of Mr. Gyde, made from Boussingault, that the quantity of urine voided annually by man is 1000 lbs., by the horse also 1000 lbs, and by the cow 13,000 lbs. It may seem

strange that man should void as much urine in a year as a horse, since the horse consumes 35 lbs. of water every twenty-four hours, and man only 3½ lbs. of liquid; but the explanation of the cause of this difference of function though similarity of results is to be found in the extent of the skin and lungs in the horse, which are capable of giving off large quantities of water in insensible perspiration. The cow consumes 132 lbs. of water in the same time, and throwing off less perspiration, yields a much larger quantity of urine. The quantity of solid matter, organic and inorganic, in human urine, is 366 parts in every 10,000; that of the cow 700 parts; that of the horse 600 parts; and that of the pig 740 parts; the urine of sheep not being taken into consideration, as they are a species of stock which are not confined in fold yards, from which a supply of liquid manure can alone be obtained. By much the larger quantity of organic matter obtained from urine is urea, 100 parts of which ought to yield by their decomposition 56½ parts of ammonia; and if it be true what Liebig states, that "with every pound of urine a pound of Wheat might be produced, and with every pound of ammonia, which evaporates, a loss of 60 lbs. of corn is sustained," an estimate of the value of urine as a fertiliser of land may be formed. Besides the organic, urine contains a large proportion of inorganic matter, such as potash, soda, phosphoric acid, &c. It is those substances which render the urine of animals as valuable a manure as guano. In order to put the value of liquid manure in a striking point of view, Mr. Gyde takes the supposition of a farm which contains 50 head of cattle, 20 horses, and 60 pigs, and calculates that their urine would annually yield 22 tons 11 cwt. of dry fertilising matter, which, at 10*l.* a ton, the value of the best guano, would make a sum of 225*l.* 10*s.* Now, if it is assumed that three-fourths of liquid manure is wasted every year by bad management, 16 tons of dry fertilising matter will be lost from that number of animals, and if 3 cwt. of guano is sufficient to keep an acre of land in a state of fertility, it follows, according to this statement of Mr. Gyde, that the farmer loses the means of manuring no less than 105 acres of land on a farm that will support that number of stock. Without pursuing the statistical part of the subject farther, and omitting the proofs which Mr. Gyde adduces of the fertilising properties of urine on different sorts of crops, we shall only give some idea of his mode of constructing tanks for the collection and distribution of liquid manure. Let a site be fixed for the manure-tank on the north side, if convenient, and behind the buildings of the yard, the tank being made of brick, set in cement, or hydraulic mortar, and covered—the size to be regulated by the number of the stock usually kept in the sheds, byres, and stables. Into this tank all the urine from the stables, byres, and houses should be conveyed by drains. A channel should be made round the manure-heap, which should be close to the tank to collect the drainage from it to the tank. All the farm-buildings should have spouts so arranged that the water from them may be conveyed away by a drain, or allowed to run into the yard at will, and ultimately find its way into the tank. This may be accomplished by using a shifting spout over the drain; by so doing, the liquid manure will be diluted to any extent necessary before its application to the land. Let a pump be fixed over the tank, by which its contents can at any time be transferred to a liquid manure cart, or discharged by the use of a hose over the manure-heap. By such a contrivance, liquid manure may be collected and used at pleasure.—Mr. Aitchison, of Drummore, then read an account of Experiments with Trench-ploughing, made by Mr. John Proudfoot, Pinkie-hill, near Musselburgh. Mr. Proudfoot has been in the practice, for several years past, of trench-ploughing a considerable quantity of land every year for green crops, and last year he trench-ploughed 20 acres. The trenching consists of one plough going before and taking a furrow of 6 inches in depth, and another following in the same furrow and taking 8 or 9 inches more, so that together they reach a depth of 14 or 15 inches, and which is accomplished in just double the time required for common ploughing. The trench-ploughed land requires no working in spring except harrowing or rolling before the planting of the Potatoes, and it is this non-stirring of the soil in spring which, in Mr. Proudfoot's opinion, has been the cause of keeping the drought out of his ground, which is a light soil resting on a gravelly subsoil, and preventing the Potato failure in it for upwards of 20 years. Last year he planted 6 acres of Potatoes on the trench-soil, and 6 acres on land worked in the ordinary manner in spring, the entire 12 acres being equally well manured; and though the trenched land was eight days later in being planted, the Potato stems were as early above ground, were much stronger in the stem, and yielded 14 bolls, of 4 cwt. each, per Scotch acre more. The trenched ground yielded 62 bolls, and the other 41 bolls, per acre Scotch, and both were a good crop of good quality.—Sir George Suttie, having alluded to the practice of manuring land in autumn for the Turnip crop, Mr. Aitchison mentioned that his Turnips, which were raised on manure that had been applied in autumn, rotted much more readily by the month of January, when stored, than those which were manured at the usual time.

FARMERS' CLUBS.

Wakefield.—At the late Annual Meeting of this Club their Annual Report was read, from which we make the following extracts:—At the Meeting held Jan. 5, Mr. Charnock read a Paper On Draining and its immediate Results to the Agricultural Interest, as well as its Effects on the general Condition of the People, which was highly approved of, and it was resolved that 100 copies be printed at the expense of the Club, and one distributed to each member. It was also resolved, "That viewing the formation of the Yorkshire Land Draining Association as an undertaking pregnant with the most important results to the agricultural interests, and to the community in general, the Wakefield Farmers' Club do highly approve of the principles and objects of that Association." April 26.—Mr. Briggs then read a Paper on the Use of Gypsum, Acids, and other Auxiliaries in producing fertility in Land, which he illustrated by several experiments, showing that gypsum, acids, and burnt refuse of pit-hills, have the effect of fixing ammonia; and showed specimens of sulphate of ammonia produced by treating common stable manure and urine with sulphuric acid and with gypsum, and proved the presence of the same acid in the burnt pit-hill refuse, as well as in water oozing from stacks of coal. He also exhibited and tested a salt of ammonia, being a sublimation or condensation of the fumes arising from burning pit-hills, which on being submitted to quick-lime gave forth a potent smell of ammonia. May 31.—Mr. Briggs volunteered a paper On the best Mode of managing Fences. He gave it as his opinion that the common Thorn formed the most effectual and economical fence; and recommended that the Thorn plants should be at least five years old before being planted; that a trench should be first dug, about 18 inches deep, and the width of a common garden spade, in which 4 inches thick of good rotten manure should be laid and covered with the top soil. Then cut the plants and set them 4 inches apart in a single row, leaving about 3 inches of the stem out of the ground. Afterwards cut or clip the shoots made in the first year, both at the sides and within 10 inches from the ground, and perform the same operation each succeeding year, in the winter or early in the spring, leaving the fence 6 inches higher at each dipping, by which means, in about eight years, a thick and impervious fence of upwards of 4 feet in height, will be obtained. With regard to reclaiming or renovating old struggling Thorn-hedges, Mr. Briggs recommended that old stems should be nicked and laid in a trench dug along the line of the fence, and in parts covered with soil; by which means the old buried stems will take root, and put up vigorous young shoots, in a continuous line, and in a few years will form a good hedge, by adopting the same process of annual clipping as recommended with respect to the young fences. Mr. B. also recommended that no living stems should be left as stakes, but that all, not wanted for laying, should be cut down to the ground, by which means a thick bottom would be obtained. June 28.—Mr. Brakenridge read a paper On the Causes of Failure in Clover Crops. These causes, he suggested, might arise—1st. From the exhaustion in the soil of the food upon which Clovers chiefly depend; and this may, in some degree, arise from Clover being too frequently sown upon the same land; or on old going land, frequently fallowed, it may arise from the working out of the soil, or down into the substrata those constituents, the combined action of which is to disengage and volatilise those gases which are the chief food of Clover. 2d. It may be attributed to the careless manner in which Clover seeds are too frequently sown upon fallow Wheats, without any previous preparation; by which much of the seed is lost in the deep fissures, or destroyed by the heat of the sun, or by cold and wet. 3d. From turning in young beasts or sheep to depasture upon the young Clovers in the autumn of the first year, by which plants are so weakened as to be unable to stand the frost, wet, and cold of the succeeding winter. 4th. From the luxuriance of the Corn crops under which the Clover has been sown, by which the plants of young Clover are drawn up and weakened, and left with slight root-hold. Remedies suggested—First cause:—Application of lime or gypsum in the calcined state, potash, and sulphuric acid; ploughing deep every time the land is fallowed, so as to bring up a portion of the subsoil, to be pulverised and incorporated with the surface soil by atmospheric action and culture; laying clay upon, or drilling clay ashes into, very light soils. 2d cause:—Harrowing before sowing the Clover seed, so as to fill up the fissures, and prepare a bed of fresh mould in which the seeds can vegetate. Rolling after sowing, except in open Barley moulds, which should be also rolled before sowing. 3rd and 4th causes:—Abstaining from turning in stock upon the Clovers in the autumn; and rolling with a sharp roller, that is, a heavy roller of small diameter. Subsequently a variety of opinions were expressed by the members present; all agreeing that rolling is one great means of preserving the young Clover plant during winter: in confirmation of which it was stated that on those parts of the field over which the carts, in leading the corn crop, have most frequently passed, there the Clover has afterwards been observed to be the best. The majority of the members seemed to incline to the opinion, that Clover could not be grown to advantage more frequently than once in eight years; but some others, amongst whom were Mr. Charnock and Mr. Briggs, maintained that by the application of potash, lime, salt, and gypsum, (which contain the chief mineral constituents of Clover, and therefore yield the necessary food for the plant) in addition to the means recommended by Mr. Brakenridge, its successful growth might be obtained every four years. Aug. 23.—Mr. Charnock then proceeded to read his paper On Irrigation and its Benefits, in which he brought forward various instances of the wonderful results of irrigation, when properly and scientifically conducted, especially in producing a luxuriant and rapid growth of Grass, which might by this means be cut three or four times during the year. Amongst those he mentioned the Edinburgh Pleasance Water Meadows, General Hamilton's Meadows, near Hamilton, in Lanarkshire, and the Duke of Portland's Water Meadows, in Nottinghamshire;—and suggested that the same good results might easily be obtained on the Ings below the fair ground, Wakefield, by making use of the water in the Balne Beck, which contains much fertilising matter, derived from the sewers, dye-houses, &c. above. In the course of the ensuing discussion, it was unanimously agreed that irrigation is a very desirable proceeding, when and where practicable; but that in all cases when the land is in any degree retentive of water, it must be absolutely necessary to drain it thoroughly, previous to adopting the process. Oct. 25th—Mr. Johnson verbally introduced the subject for discussion:—On the best Mode of sowing Wheat, and the Quantity per Acre. He recommended drilling wherever it is practicable; and stated that he generally ploughs his Clover leys only 3 or 4 inches deep, then rolls with a heavy roller, and harrows lightly, and afterwards drills from 2 to 3 bushels of seed per acre, varying the quantity according to the quality of soil and other circumstances, but never sowing less than 2 bushels. He recommended this mode of sowing Clover leys, (to which his observations were chiefly confined) in preference to pressing and sowing broadcast. Mr. Charlesworth maintained that never less than 3 bushels ought to be sown; that he had found it answer on his farm, and had much rather find it necessary to harrow up part of his crop in spring if too thick, than have too thin a crop. That he should much prefer a crop that *he* could smile at, than one which the world would laugh at.—Mr. Moore was of opinion, that on good land, 1½ bushel of seed is sufficient, as he had found on his own farm; and that even less seed will answer in favourable seasons and under favourable circumstances. He drills all his Wheat, and is now sowing 12 inches apart.—Mr. T. Wood much recommended ploughing in the Wheat, or what is commonly called ribbing, and applying about 2½ bushels of seed per acre.—The result of the discussion was a resolution to the effect, "That in the opinion of the meeting, generally from 1½ to 2½ bushels of Wheat, according to the quality of land, is the most advisable quantity to be sown per acre." Dec. 20th—Mr. Briggs gave his ideas On the strongest and most economical construction of Field-gates, and on the best form of broad Cart-wheels. On the former of these subjects Mr. B. illustrated his ideas by exhibiting a drawing and a small model which showed the much greater strength attained in a gate, when a diagonal bar is attached from the top of the heart-tree, descending from the bottom of the clapping-tree or upright, than when the diagonal is reversed as is generally the case; that is, from the bottom of the heart-tree to the top of the clapping-tree. In the former case the model supported a weight of 2¼ lbs. without any symptoms of giving way, while the latter broke with even ¾ lb. With reference to the construction of broad cart-wheels, Mr. Briggs remarked, that in proportion as a wheel is dished (the lower spikes at the same time standing perpendicular), it must necessarily be made conical; and therefore, if at liberty, would naturally run in a curved line. To give some idea of the effect of this conical form, he supposed the case of a pair of broad wheels which are conical, 1 inch on each side, that is, supposing the diameter to be 5 feet or 60 inches, on the side next to the cart body, the outside would be 58 inches. In every revolution, therefore, one part of the tire would be going through a space of 188½ inches, while the other would progress only 182¼ inches, being a difference of 6¼ inches. Now, there must consequently be a friction or dragging of 6¼ inches along the road in every revolution of such a wheel, making 60 yards in every mile travelled over; one side being retarded, or the other accelerated that space. This, Mr. Briggs maintained, must require more power than when the wheels are perfectly cylindrical, as every part of the tire must in that case travel over the same space, the action being that of a roller, without any grinding or dragging tendency, and which must also be less injurious to the road. There are no doubt some advantages attending the use of dished or conical wheels, but Mr. B. imagined that they might be purchased at too great a sacrifice, and not by any means adequate to the saving of friction, both on the shoulder of the axle, and on the road, by the adoption of cylindrical wheels.

In the course of the evening, Mr. Charnock gave the following illustration of the usefulness of science in the improvement of art: mere practice, without sound theory as its guide, never attained anything worth notice. Disregard not then entirely as theoretical and impracticable what you may hear or read. And by way of illustrating what I mean, permit me to give you one of the most remarkable instances (and that too in the manufacturing world) of how far the opinions of practical men, when opposed to science, are to be relied on. So recently as about 15 years ago, in the spinning of linen yarn it was considered very fine if it reached to about 5 lbs. for the 20,000 yards; and consequently all the yarns from which the finer linen fabrics were made, both in this kingdom and on the Continent, were spun by hand, at a cost of course commensurate with the labour and time required. Some of our more scientific spinners, however, got an idea that it was practicable to spin this fine yarn by machinery, and after some consideration they set to work—partly succeeding and partly not;—science and perseverance, however, daily overcame the obstacles; and the result is, that at this day, and for some years past, the whole of the fine yarns used in this kingdom, and nearly the whole of those manu-

factured on the Continent into cambrics, &c., are spun in this country by machinery, and the amount exported has risen, within the period I have named, from nothing to something like a million sterling; and it is now an every-day process to spin linen yarn, by machinery, as fine as ½lb. for the 20,000 yards. Now all the ordinary spinners of that day, and who prided themselves on being practical men, declared that it was utterly impracticable ever to accomplish such an end; for, said they (and the reason was plausible and practical enough), so fine a thread will never hang together with the speed and vibration of machinery: the result, however, has shown how very far they were mistaken. So much for practical men and improvements. But, gentlemen, do not let me be misunderstood; far be it from me to despise practice—"practice with science;"—it is the abuse, and not the use of it, which I would guard you against; we may all live and learn, and the man who thinks himself perfect, depend upon it, is the greatest of fools.

The following interesting observations were made by Mr. Briggs, the hon. secretary of the Club. He said, that in his opinion much less capital and labour are generally expended upon the land than ought to be—that nothing is more grateful than land when well treated—and that the agricultural resources of the country might be vastly increased were more labour expended upon the soil. He said that a great mischief was farmers occupying more land than their amount of capital entitled them to hold, by which means the country generally suffered by its best resources not being so fully developed as they might otherwise be; and he instanced the tenant on a farm which his brother has lately purchased in Monmouthshire, who, with nearly 200 acres of chiefly arable land, employs regularly only himself, his two sons, and three horses; the consequence is, that though the soil is excellent and very productive when properly cultivated, the crops are miserable, and the tenant in distress. Such mismanagement may truly be said to be a national misfortune. Mr. Briggs afterwards reverted to a paper which he read some months ago before the Club, on growing Wheat successively on the same land; and said that no doubt many experienced farmers had smiled at and ridiculed the idea, but the more he thought on the subject, the more he felt convinced of its feasibility. To show that he was supported in the idea by high authority, he mentioned that a friend of his, who attended the late meeting of the British Association, held at York, and had obtained an introduction to Liebig, had mentioned to him what Mr. B. and his partner were attempting—that is, in successively growing Wheat: "Oh," said he, "they will certainly manage it, if they restore to the land what they extract." Mr. B. also read a letter from the celebrated chemist, Professor Brande, in reference to the same subject, from which the following is an extract: — "I am glad to find you setting the useful example of combining theoretical and experimental with common practical agriculture. I am quite certain that if you persevere in the plan you have suggested you must ultimately arrive at very important results. It appears to me absurd to say that it is impossible to cultivate the same crop upon the same soil for a succession of years. I have not the least doubt that it can be done, and will be done; and although I am not so sanguine as some upon the subject of chemical agriculture, and do not expect that its apparent progress will be so rapid as some have anticipated, I am convinced that much has been done, and that much is now doing, towards collecting materials for the foundation of gigantic improvements in the most ancient and most important of all the arts, and one, the scientific bearings of which have been so unaccountably misunderstood and neglected. It may require many years before great things are achieved, but I think that the march of science in that direction has now seriously been begun, and I cannot help surmising that the rotation of crops will bye and bye give way to systems of the kind you are now speculating upon, and take their place among the vulgar errors of the present age." As a corroboration of the practicability of the plan, Mr. Briggs mentioned that Mr. Holt, of Horbury, had grown Wheat on the same land for 23 out of a series of 25 years, and had obtained crops yielding never less than 39 bushels per acre.

Great Oakley.—At the late Annual Meeting of this Society, the Chairman made the following observations:—Great benefits would be conferred upon the labourer by the extension of the allotment system. He did not advocate large allotments—certainly not more than a quarter of an acre each; but to that extent he considered it of great benefit to the poor man. Wherever the system had yet been introduced it had worked well. One of the chief objections urged against it was, that it would interfere with the labour of the man. Some time since he let a quarter of an acre each to three of his men, and it had never been the occasion of their losing two days in the course of the year; their cultivation was carried on after the labour of the day had ended: and he for one could not agree in the opinion that the energies of a man were exhausted by 12 hours' work upon the land; if so, he thought they tasked them more than they ought. The Chairman concluded by introducing the following experiments. An experiment made in 1844, of the effects of one and two bushels per acre of seed—the two bushels drilled 6 inches apart; the bushel 12 inches apart:—

Produce of 2 bushels of seed on the 7th part of an acre.

Straw.	Chaff.	Caving.	Offal.	Weight of Wheat.	Measure.
500lbs.	——	31lbs.	14lbs.	25st. 12½lbs.	5b. 2p. 0q. 1p.

Produce of 1 bushel per acre of seed.

Straw.	Chaff.	Caving.	Offal.	Weight of Wheat.	Measure.
450lbs.	——	22lbs.	11lbs.	25st. 13½lbs.	5b. 2p. 0q. 1p.

An experiment made in 1844, of Beans cut in a green state and ripe:—

The 6th part of an acre cut green produced . . . 5b. 0p. 0q.
The 6th part of an acre cut ripe produced . . . 5b. 3p. 6q.

The Beans cut green weighed 42lbs. per sack the heaviest.

Mr. Hobbs, after speaking in high terms of the report which had been read, went on to say, that with regard to timber, he had for a long time held the opinion that nothing was more injurious and obnoxious to good farming; and he was pleased to find that the subject, which he believed he was the first to allude to two years ago, had been taken up by many practical farmers throughout the county, and lately by Mr. Pusey, at the Saffron Walden meeting, and was now exciting much interest throughout the kingdom. He had always considered Pollard trees as worse than useless, paying nothing for their growth, and destroying everything around them. Upon his own little property he should carry out his hostility to them to the utmost extent, and he calculated that during the ensuing winter he should remove somewhere about 2000. With regard to timber in general, there was in this county, as well as in many other parts of England, a great superfluity; and his own opinion was, that in good arable districts no more timber ought to be grown than was necessary for the repair of the buildings upon the respective farms. Nothing beyond this ought to be grown at the tenant's expense. If gentlemen wished to grow timber they ought to set apart a portion of their estates for the purpose; but if they let their land for a man to get his living upon, they ought not to encumber it with anything so injurious. Without dwelling longer upon this subject, he would now allude to what was said in their report with regard to pastures. There were many pastures in different parts of England which might, with benefit to the community, be broken up; and if the remainder were well managed it would produce more than the whole breadth under present circumstances. In his opinion pastures paid as much or more for manuring than any other description of land they cultivated. They must be treated according to the soil; and upon his own, of which a great quantity was of a very inferior description, he had tried various experiments, with a view to satisfy himself as to the best course to be pursued. The foundation for all improvements he considered to be getting rid of the water; and after that he had found unfermented manure, put on very early in the winter, in wet weather, and raked off in the spring, productive of great benefit. He also considered folding very beneficial. With regard to Mangold Wurzel and other roots, he stated to them last year his conviction that by autumnal cultivation they might sow their seed a month earlier, and take up their Mangold a month earlier, and thereby find the advantage of it. He thought that those who did so must find themselves in a much better position than their neighbours who adhered to the old practice; and if he understood right, the gentleman who had gained the prize for the best two acres of Mangold cultivated it upon the new plan. He last year suggested the plan of scarifying or harrowing the land in the spring instead of ploughing it. With regard to leases, he agreed with Mr. Barker, that unless a tenant had a lease he could not do justice to his land; and that, with present prospects, it was a mere lottery for a tenant to take a lease, or a landlord to give one upon a fixed rent. What the tenant wanted was fixity of tenure, and what the landlord required was a fair and equitable price for his land; therefore he thought some system of rent, regulated by the price of corn, might be devised which would be found much more advantageous than the present plan of fixed rents. In his opinion every Farmer's Club and Agricultural Society throughout the kingdom ought to do their utmost to recommend a better system of leases. They had of late heard much of the corn grown in Lincolnshire; but when, some years since, he stated his belief that it was the best cultivated county in England, he was looked upon with surprise and disbelief. It was his firm opinion that it was so; and why was it? Because they had pursued the system recommended by the late Lord Leicester, of selecting skilful men for their tenantry—men of sufficient capital to occupy their land, and then giving them long and liberal leases. With respect to restrictive clauses in leases, he thought the fewer they had the better: as a practical farmer he considered that there were few soils that ought to grow two white-straw crops, but with that exception he would have scarcely any restrictive clauses. All that the landlord ought to require was that his land should be left in a fair state of cultivation; and the plan he should recommend would be that the tenant should have the option of renewing his lease four years before its expiration, if he could come to terms with his landlord. As to liquid manure, he had spent some considerable time in testing the result of its application; and he was pleased to find that the result had been highly beneficial. He thought that more attention ought to be paid to this matter than was generally done; and any one who had travelled at all during the late wet season could not but lament the waste of liquid manure from many of our farm-yards. If landlords would assist in the formation of tanks, and also in the troughing of farm buildings, they would be conferring a great benefit to their own property. There was one subject, under the head of liquid manure, to which he felt called upon to advert. They had suffered much of late from excessive rains washing their soils, and their ditches had been filled up with thick muddy water, carrying away with it a considerable portion of the manure, and the finest properties of their land; but any one who had been induced to drain his land, and had gone round his fields during the late weather for the purpose of observing the difference in the water running from their drains after it had percolated through the soil, to that which was running from the surface, must at once be convinced of the advantages of the system. In once case the water would be muddy and thick, but in the other, clear enough in most cases to drink. That alone ought to be a sufficient reason to induce every landlord to assist in draining his land; and, on the other hand, it was the duty of every good practical tenant to apply drainage to the best advantage.—*Essex Standard.*

Wingerworth.—The monthly meeting of this Society was held on Tuesday week. *The Turnip Experiments.*—The Secretary reported that on the 9th Dec. the Vice-President and Secretary, with some other members, attended at the experimental field, and tested the result of the various experiments, by weighing the crops. The following is the result on each of the 16 experimental sections:—No. 1, *nil.*—No. 2, 1 rood 2.97 perches, to which were applied 3 tons 12 cwt. yard manure; 4 square yards, which had no lime applied, produced at the rate per acre of 20 tons 15 cwt. 3 qrs. 21 lbs.; while 4 square yards, with broken lime applied, produced at the rate per acre of 15 tons 18 cwt. 2 qrs. 23 lbs. Cost per acre, 5*l.* 5*s.* No. 3, 1 rood 2.44 p., to which were applied 2 tons 9 cwt. farm-yard manure, and 1 qr. 14 cwt. guano; without lime, produced per acre, 15 tons 7 cwt. 3 qrs. 17 lbs.; with broken lime, 15 tons 10 cwt. 2 qrs. 11¾ lbs. Cost per acre, 4*l.* 5*s.* No. 4, 1 rood 2 p., 1 ton 16 cwt. 2 qrs. yard manure, and 1 qr. 14 lbs. guano; without lime, per acre, 18 tons 12 cwt. 2 qrs. 25 lbs.; with broken lime, 14 tons 3 cwt. 2 qrs. 10½ lbs. Cost per acre, 3*l.* 7*s.* 6*d.* No. 5, 1 rood 1.53 p., 2 tons 9 cwt. 1 qr. yard manure and 3 bushels small bones; without lime, per acre, 13 tons 4 cwt. 2 qrs. 21 lbs.; with broken lime, 14 tons 14 cwt. 1 qr. 16½ lbs. Cost per acre, 4*l.* 17*s.* No. 6, 1 rood 1 p., 1 ton 17 cwt. 2 qrs. yard manure, and 3 bushels small bones; without lime, per acre, 14 tons, 3 qrs. 16 lbs.; with broken lime, 16 tons 4 cwt. 12 lbs. Cost per acre, 3*l.* 17*s.* No. 7, 1 rood 0.57 p., 10 bushels small bones; without lime, per acre, 6 tons 12 cwt. 1 qr. 12½ lbs.; with broken lime, 8 tons 18 cwt. 1 qr. 1 lb. Cost per acre, 4*l.* 10*s.* No. 8, 1 rood 0.14 perches, 8 bushels 1 peck small bones; without lime, per acre, 8 tons 18 cwt. 1 qr. 1 lb.; with broken lime, 10 tons 2 cwt. 2 qrs. 7½ lbs. Cost per acre, 2*l.* 14*s.* No. 9, 39.66 p., 6 bushels 1 peck small bones; without lime, per acre, 10 tons 5 cwt. 1 qr. 2 lbs.; with broken lime, 8 tons 12 cwt. 3 qrs. 12 lbs. Cost per acre, 2*l.* 14*s.* No. 10, 39.18 p., 1 cwt. guano; without lime, per acre, 12 tons 8 cwt. 1 qr. 26 lbs.; with broken lime, 14 tons 19 cwt. 3 qrs. 5½ lbs. Cost per acre, 2*l.* No. 11, 38.65 p., 3 qrs. guano; without lime, per acre, 12 tons 13 cwt. 3 qrs. 15 lbs.; with broken lime, 13 tons 10 cwt. 10 lbs. Cost per acre, 1*l.* 10*s.* No. 12, 38.12 p., 2 qrs. 14½ lbs. of guano; without lime, per acre, 11 tons 1 cwt. 1 qr. 25 lbs.: with broken lime, 12 tons 19 cwt. 1 qr. 4 lbs. Cost per acre, 1*l.* 5*s.* No. 13, 37.64 p., 3 tons 3 qrs. night-soil and ashes, without lime, per acre, 15 tons 7 cwt. 3 qrs. 17 lbs.; with broken lime, 14 tons 6 cwt. 1 qr. 5 lbs. Cost per acre, 3*l.* No. 14, 37.21 p., 1 ton 11 cwt. 3 qrs. yard manure, and the same quantity of night-soil and ashes; without lime, per acre, 21 tons 12 cwt. 16 lbs.; with broken lime, 17 tons 5 cwt. 2 qrs. 24 lbs. Cost per acre, 3*l.* 13*s.* No. 15, 36.82 p. 2 tons 3 cwt. yard manure and 2 qrs. 4½ lbs. rape-dust; without lime, per acre, 17 tons 1 qr. 7 lbs.; with broken lime, 16 tons 6 cwt. 3 qrs. 6½ lbs. Cost per acre, 3*l.* 8*s.* No. 16, 36.44 p., 6 bus. 2 pecks small bones and 6 quarts 1 pint sulphuric acid; without lime, per acre, 8 tons, 18 cwt. 1 qr. 1 lb.; with broken lime, 13 tons 10 cwt. 10 lbs. Cost per acre, 4*l.* 4*s.* The average produce per acre of the land without lime was 13 tons 16 cwt. 3¼ lbs., and of that where broken lime was applied, 13 tons 16 cwt. 23⅝ lbs. It was observed that the bones showed the smallest produce, at nearly the greatest expense. Guano with broken lime had been most productive, in proportion to the expense. The greatest quantity of Turnips, however, was produced by equal quantities of night-soil and farm-yard manure. The latter manure was of better quality than ordinary, having been produced from cattle to which a great deal of cake had been given. The season had been peculiarly unfavourable to all hand-tillages. Some of the members anticipated that those parts of the field to which bone had been applied would be in better condition next year, while the parts most productive this year would then require fresh supplies. Taking into account the dryness of the season, the result of the experiment was looked upon as quite favourable to artificial manures, and as showing that in average seasons they were to be preferred. A member remarked that in one case, on Nottingham Forest, where the land is sandy, guano had produced the best crop of Turnips in the district.

Botley, Jan. 20.—The subject for debate, introduced by Mr. Eckles, was the Best Mode of Improving the Condition of the Agricultural Labourer. It was resolved that the following were the most likely methods to accomplish the object:—1st. By the employment of more capital in agricultural improvements, particularly draining, the landlord advancing the capital, and the tenant paying a per centage on it. 2d. By the cultivation of such waste lands as would pay for breaking up. 3d. By the erection of a greater number of cottages, and improving the state of the old ones. 4th. By the general establishment of garden allotments at moderate rents—the allotment not to exceed a quarter of an acre, and to be as near the cottage as possible. 5th. By the introduction amongst the labouring classes, of the knowledge of a more advantageous method of expending their weekly wages, and cooking their provisions.

Feb. 17.—The subject for the evening was the Principles and Practice of the Application of Manures, by Mr. W. C. Spooner, who with a view to introduce and elucidate his subject, first explained the elementary constituents of plants, pointing out the difference between the organic and inorganic elements, illustrating the properties of the former by various experiments, and showing the different sources from whence plants derived their support, and for what they were severally indebted to the atmosphere, to the soil, and to the manure. He then proceeded to the subject of farm-yard dung, bones, and guano, and other artificial manures; showing their comparative merits by means of analysis on the one hand, and the results of actual experiment on the other: and explained the reason why the effects guano and bones, particularly when combined with sulphuric acid, were so superior to dung in proportion to the amount of nutritious elements each dressing contained: and concluded by proposing the following resolution, which was carried unanimously:—"That while it is desirable to increase the quantity, and improve the quality of farm-yard dung by all available means, it is yet much more advantageous to expend any additional capital in the purchase of bones, guano, or other land tillages, than in the obtainment of dung from foreign sources." In the course of the debate much useful information was afforded by Mr. Blundell, on the best method of economising and increasing farm-yard manure; and by Mr. Appleby, who bore testimony to the remarkable effects of bones and sulphuric acid. The next subject is the Best Method of Feeding Sheep (March 31st.)

Burton-on-Trent.—The monthly meeting was well attended. Mr. Landor read a paper on the Rearing of Neat Cattle, from which we make the following extracts:—"It may not be improper, first, to consider what is the kind and quality of animal intended to be reared. The breeder will bear in mind what he particularly requires, whether hardihood, size, early maturity, an aptitude to feed, or a fitness for the dairy: it may be that some of these qualities, by judicious selection, will be combined. I am satisfied that, as a man is placed regarding climate, soil, and elevation of his farm, he may select from several breeds such beasts as will suit his purpose. In cold and mountainous districts, Scotch or Welsh cattle might be chosen, very good milkers, with fine skins, and feeding propensities; so might Herefords, and long-horns of the improved breed; but none with quite the early maturity of the short-horned, or Durham breed of cattle—though these last will not bear, with advantage, the severe treatment and coarse food upon which some other breeds will exist. As a general rule I have found, after much observation, that if you want size, as well as symmetry, the calf which is dropped a large one more frequently makes a fine beast than the animal which at its birth is diminutive and small-boned. Unless the demand for milk be imperative, it is always best to let a young calf have the mother's milk for ten days or a fortnight. After that time I have found boiled Linseed and hay-tea, with skimmed milk, for a few weeks to answer the purpose, or the milk may be made into porridge with Wheat-flour, or, better still, with Bean-meal; the Linseed-tea and hay-tea may be increased, and the milk reduced in quantity at discretion, or whey may be substituted for milk. The hay-tea is made by pouring boiling water upon a pan, tub, or barrel full of hay, covered up and left to stand for 24 hours (12 may do); if you like, you may afterwards dry the spent hay, and cut it up with other food for older cattle. When the calves are a month or six weeks old, they will begin to taste hay in the rack; or cut a few Turnips, which the older part of them soon entice the young to eat, and the prepared liquids may be diminished. Much depends upon the time of the year, how long it may be necessary to prepare food for calves. In warm weather, and at the beginning of summer, a calf will get its own living at two months old; sometimes it is better to feed for three months. I have, within the last few months, fed a calf from a little Alderney cow with one pennyworth of oil-cake a-day, and milk more than one-half of it skimmed; it was very fat, and at a day or two over six weeks old was sold for 3*l*. Calves intended for the butcher should be tied up in a dark place; those for rearing, after the first fortnight, should be loose, with light, in a roomy place, which though it may occasion the consumption of more food, is most conducive to health, and to the increase of muscle or fibre, which constitutes the lean of all animal meat, and for which reason it is found that with their wild scrambling life, hardy breeds and mountain cattle contain more of this flesh than those which are passively and rapidly made fat. Little care of young cattle is necessary during the warm summer months, if they have food, shade, and water in abundance; but it is of the first importance not to let calves sink in condition by leaving them out too long unprotected in the autumn. At the end of October, or sooner, if the weather be wet and cold, they should have a yard and shed for the night, and such food as will keep up their condition, for which nothing is better or more convenient than the tops of Turnips, with such cut food, hay, or straw, or both mixed, as may be had. As the season advances, common Turnips and a longer daily shelter will be wanted. During the first winter, there is one disease, called the black quarter, which is much to be dreaded; it is, I believe, much promoted by a quick transition of condition. I have been generally very fortunate in escaping this infliction. It was my usual practice, when rearing calves, during the first winter, to administer half a pint of strong salt and water once a fortnight to each calf; and when that was not neglected, I never had a loss. Salt is a condiment, and not a food; and if so used judiciously, but not constantly, with cut food, or crushed corn, or oil-cake, I doubt not it would materially contribute to the health of young animals. There is another complaint to which young stock is subject, most generally in the second summer and autumn, though often in the first; and at the latter time, in my early farming days, I lost several calves by it. I allude to the disease commonly called the hoast—a complaint caused by the larvæ of an insect. I imagine the larvæ are deposited in the nose, where they grow and flourish until they go into and fill the windpipe, forming a white ball, like a skein of entangled thread, or very thin white worms; these I have often found after death. The only remedy I know as successful is, to pour about a good tea-spoonful of spirits of turpentine into one of the nostrils, holding the head up for a minute, or a little more, if calves; but for the older beasts, a dessert spoonful of the spirit. After the first winter has past, I believe you will not think further advice necessary in the care of stock; but as to the after treatment of cattle, dairy cows especially, permit me to add, that I have had long experience in partial soiling of them, and have found that a good foddering of green Clover, or Vetches, night and morning, with field-room during a good part of the day, will produce more milk than either entirely stall-feeding or none at all, and enable you to keep a larger stock on the same extent of ground than by pasturing only. And I believe, though I cannot say this has been proved, that if the soiling were not of Clover, but entirely of Vetches, green Beans, Peas, Lucerne, or any Pulse crop, the amount of casein, or cheese, in the milk, would more than equal that obtained by entire pasturage in the field. For winter feeding, Cabbages, or meal from Pulse, are necessary to keep up the formation of cheese.—Mr. G. Greaves: I think calves should have milk longer than a fortnight. The natural formation of the calves' stomachs proves that it was intended that they should live on milk for some time, and if any other food be substituted it should resemble milk as nearly as is practicable; but I do not know that hay-tea will furnish any of the required substances for the sustenance of the calf.—Mr. Landor: I agree with Mr. Greaves in his theory, but I have found the practice of using hay-tea so uniformly successful, that I will rely on my experience that it does form an excellent food for calves.—Mr. Ward: With regard to blackleg in calves, a very excellent and large breeder in this county assures me that he effectually prevents the disease by cutting down to the veins of the foot and dividing them just before they separate and branch off to each hoof; he divides the vein in every foot of the calf.—Mr. H. Meakin: I approve of Mr. Lander's plan of rearing. I noticed in the Transactions of the Highland Society that the use of oil-cake was the best preventive of blackleg.—Mr. Lathbury: I give my calves milk for six weeks. I lost several calves last year with blackleg; but I have reason to believe that with proper precaution the disease may always be prevented. I have this season put a rowel in each of my calves, and I give to each an ounce of salt-petre once in three weeks. I have not lost a calf since. I am keeping my calves on steamed straw and hay, and they were doing remarkably well on eight parts straw to two of hay: since Christmas I have added a few grains and Swede Turnips: some of my calves were in the market to-day, and I believe you would remark that they were in good condition.—Mr. J. Greaves: I rear but few calves, but I have had enough experience to convince me that young stock should always be well kept. I am in favour of carrying the principle of good keep even further than Mr. Landor has advised. I give my calves milk six weeks or two months, and wean them from it gradually. This year I have soiled them in sheds with Vetches, on which they have thriven remarkably well. A neighbour of mine, too, put two of his calves on pasture, and other two he soiled on Vetches; the last were very superior indeed to the pastured ones. I am now keeping them on steamed Rye and Vetch hay, with grains. I like to keep them well throughout the year, and I think they pay well for the extra keep; they come to maturity earlier: you can get a two-year-old as large as an ordinary heifer, and can bring them to the pail a year sooner; besides, the quality of the beast for fattening, or for milk, is much improved by good feeding in its early growth.—Thanks were voted to Mr. Landor for his paper. The next meeting will be held on Thursday, March 20th, when The best Mode of employing profitably the largest amount of Manual Labour on the Farm will be proposed as the subject of discussion, by Mr. Bass."

Miscellaneous.

On the Mismanagement of Stable-Dung Manure, especially as regards Exposure to Rain.—Whilst, at a vast expense, the farmer is importing bones from the shores of the Black Sea, nitrate of soda from South America, guano from the coast of Peru and from the African coast, he is, in too many instances, negligent of the manure that his stable and stalls supply. This negligence has been pointed out, and emphatically dwelt on, by every recent writer of authority on Agriculture. As regards exposure to rain, and the injurious effects of it on the kind of manure just alluded to, examples of it, in this part of England (Westmoreland), where an unusual quantity of rain falls, are of every-day occurrence, and almost everywhere to be met with: the instances of neglect constitute the rule; of care and attention, the rare exception to the rule. The farm-steadings here are commonly on declivities; the dung-heap is usually placed on a declivity, often by the side of a road, and, in consequence, after every shower of rain, the water that runs off, percolating through the manure, robs it of some of its most valuable ingredients, especially its soluble salts, and soluble animal and vegetable matter, tending to starve the fields and pollute the roads. I have had the curiosity to collect portions of such drainage, and subject them to examination; and I now propose to give the results, as they show, in a very marked manner, the injurious effect, and how great is the loss to the farmer in consequence. The first portion collected was from a heap of stable-dung, fresh from the stable just before a heavy fall of rain, the accompaniment of a thunder-storm, nearly an inch falling in three hours. The water which ran from the dung-heap was of the colour of a weak infusion of coffee, of sp. gr. 1002, to pure water as 1000. With the peculiar smell of stable-dung, it had a just perceptible smell of ammonia, which was rendered more distinct by the addition of lime. Under the microscope, it was found to contain, besides a fine granular matter, and many minute vegetable fibres and scales, particles resembling grains of pollen, and two or three different kinds of animalcules. Evaporated to dryness, it yielded 2.6 per 1000 of brown matter, which partially deliquesced on exposure to a moist atmosphere; emitted a very faint smell of ammonia when mixed with lime, indicating that, in the process of evaporation, most of the ammoniacal salt had been expelled, and was therefore carbonate of ammonia; and when incinerated afforded as much as 51.6 per cent. of grey ash—48.4 per cent. of the extract having been destroyed by the fire, which may be considered as animal and vegetable matter. The ash was found to contain the sulphuric, phosphoric, and carbonic acids, and chlorine, with potash, soda, lime, and magnesia, chiefly in the form, it may be inferred, of carbonate of potash, phosphate of lime, sulphate of lime, sulphate of magnesia, and common salt. The proportional quantity of the sulphate of lime was large, as was also that of the fixed alkaline salts, whilst that of the phosphate of lime and the magnesian salt was small. The next specimen examined was from a much larger and older dung-heap, after a fall of 1.12 inch of rain in about 12 hours. The fluid was of a darker brown than the preceding, very similar in its appearance under the microscope, of higher sp. gr., viz., 1008, and yet less rich in ammoniacal salts, for when mixed with lime, it gave only a very faint smell of ammonia; and its extract obtained by evaporation, when mixed with lime, had no smell of the volatile alkali. It yielded, on evaporation, 10.4 per 1000 solid matter, similar generally to that obtained from the first portion in its qualities, abounding, in like manner, in salts, and those of the same description. The third specimen collected for examination was from the same dung-heap, after a fall of 2.79 inches of rain in 24 hours. It differed so little from the preceding, that it is not necessary to describe it particularly. As might have been expected, it was more dilute, its sp. gr. being 1004. The last specimen I shall notice was one procured from the same dung-heap, after four days of dry weather following the heavy rain last mentioned. It was oozing out slowly in small quantity; was of a dark-brown hue, nearly transparent, and almost destitute of smell. Under the microscope, it exhibited a few particles and fibres, a very few minute crystals, without any animalcules. I had expected to have found it a concentrated infusion of the dung-heap, and, as such, of high specific gravity; but it was otherwise: its specific gravity exceeded very little that of the preceding, and was less than that of the second portion, being only 1005, leading to the conclusion that the manure was nearly exhausted of its soluble matter. The weather during the four days without rain, was comparatively cold for the season (it was in September), with a northerly wind—the thermometer, even by day, below 58°, and at night once or twice approaching the freezing point. This low temperature must have checked or put a stop to fermentation, which, in its turn, might have prevented the farther formation of soluble matter. The infusion mixed with lime indicated the presence of ammoniacal salts; it emitted a pretty strong smell of ammonia; and, judging from the effects of other re-agents, its composition was very similar to that of the preceding portions; it probably contained a larger proportion of vegetable matter, humus and humic acid, than the earlier drainings; it gave a very copious precipitate with the acetate of lead. The bearing and application of these results hardly require to be pointed out. As the drainage of the dung-heap exposed to rain contains some of the best—the chief ingredients of active manure (excepting always the insoluble phosphates), it follows, that the more the dung is exposed—the more it is subjected to the washing and percolation of rain-water—the greater must be its loss, the poorer and more exhausted it must become; and that shelter from rain is essential as a prevention; such a shelter as can only be well secured by a shed, under which the manure, if too dry, may be watered with the liquid that may have run from it, received into a tank; and be subjected to such treatment, from admixture or otherwise, as has been found by experience likely to render it more efficient. These results, moreover, I need hardly remark, are perfectly in accordance with the experience of intelligent farmers, in many instances on record, of the extraordinary fertilising effects of irrigation with waters—the washings and drainage of the farm-yard and dung-heap. —*John Davy, M.D., in the Edin. Phil. Journal.*—*The Oaks, Ambleside, Oct.* 12, 1844.

Manufacture of Manure.—I think I may affirm, from what I frequently witness in the mode of making and managing manure, that many do not sufficiently consider the great difference between strong and weak manure, in its fructifying quality and durable effects in invigorating the land to which it is applied; and this is an important thing for every farmer to well understand.

If straw and hay only, without cake or corn, compose the manure that is taken to the land (and many, to my knowledge, even of those who could well afford to buy them, continue this bad practice), comparatively it is as sour small beer to a man who has an extraordinary task of labour to perform, and needs the aid of a powerful stimulant to enable him to accomplish it. As the man would fall short under such treatment, so does the land fail in like manner. Now if I can show that the corn given to stock upon a farm, is all returned in extra produce, besides manifold advantages, which your sagacious readers will readily discover, surely all that have the means of entering upon this system will do so. I will take my own business for an example. I shall this winter use 100 quarters of corn upon my stock, exclusive of horses. I calculate the manure I shall make with which this corn is incorporated will manure well 36 acres, and as my system of farming is three crops and a fallow, three crops will be gathered before the same land will be manured again. I will ask any practical farmer, may I not reasonably calculate upon a quarter of corn per acre more upon each of the three crops, than I might have expected had I put on the same land the same quantity of manure of the weak kind, made from hay and straw alone? Assuming, then, that I get one quarter of corn more in each of the three crops by using the corn, the 36 acres in the three years return 108 quarters extra produce for the 100 expended. Of course it will be obvious to every practical man, that rich manures should not lie in the yard, exposed to the washing of heavy rains, but made principally under cover, and frequently collected into a heap, and well secured until taken to the land, and especial care taken that the fermentation does not become too rapid; to prevent which anything may be mixed when it is put together that is likely to check and cool it. I use sand when I cannot obtain anything better for that purpose, and to cover the heap over to prevent it being weakened by evaporation. A farmer does not require a philosopher or a chemist to inform him wherein the strength of manure consists; he has only to refer to his cattle-stalls, his pig-sty, and dove-cote; it is there seen that the manure that contains the most corn in proportion to other matter composing it, is invariably found to be the strongest and best.—*A Farmer, in Bell's Weekly Messenger.*

Notices to Correspondents.

BOOKS—*J L*—The horse, sheep, &c. Probably the works which will most perfectly suit you are those published by the Society for the Diffusion of Useful Knowledge.

CABBAGE—*M D*—Sow the Drum-head Cabbage now for consumption, or harvest in autumn. You cannot grow Beans between your rows of Lucerne without injuring the latter.

COMMON SALT—*N*—You are not likely to injure your land—a light soil—by applying 3 cwt. of salt per acre. It will be a beneficial application. The most effectual remedy for strawy crops would be claying or marling your land. Apply the salt in wet weather a little before seed time.

GROWING WHEAT DURING SUCCESSIVE YEARS ON THE SAME GROUND—*A Sub*—Mr. Brigg's pamphlet was published in Yorkshire by the Wakefield Farmers' Club, if we mistake not.

GUANO—*A Sub*—We should not suppose it liable to injury by mixture with chalk.

GYPSUM—*Esk*—It would act beneficially though the land were recently limed; but the lime, if it be still caustic, will injure the fertilising properties you have conferred on it by "saturating" it with urine.

HAY-MAKING MACHINE: JERSEY—*Anon*—We cannot find the paragraph you allude to. Perhaps the gentleman who favoured us with it, some months ago, may be kind enough to meet your wishes by giving a fuller description of the implement it referred to.

HOPS—*J M Paine*—We know of no analysis of their inorganic constituents. Lupulin, the yellow powder of Hops, contains volatile oil, 2; bitter principle, 12.5; resin, 52.5; silica, 4; diacetate of ammopia, gum, bimalate of lime, &c., in unascertained proportions.

MOLES—*M D* asks the speediest means of extirpating moles. He should arrange with a professional mole-catcher—a bargain of the kind may be made for 10s. per 100 acres.

PHOSPHORIC ACID—*D S*—There is rather more than 10 per cent. in guano, and double that quantity in bone-dust—both being of average quality.

PIG-FEEDING—*A B C*—Your best plan will be to plant an additional extent of ground to Potatoes: sell the produce and buy Barley and Pea-meal and Pollards, &c., if you intend to feed pigs in the summer. Parsnips are excellent food for pigs.

SAINFOIN—*G W*—It requires a calcareous subsoil: if your soil is sandy you should plant Lucerne in preference. Your horses will like it just as well.

SEA-WEED—*C E*—Their ashes will probably benefit you. Apply, say 2 cwt. of them per acre: the best mode of doing so will be to incorporate them now with the farm-yard or other manures which you may intend to apply this spring.

SEED AND MANURE—*Clericus*—Dibble 5 lbs. of Mangold Wurzel, 4 lbs. of Carrot seed, and 3 lbs. of Swedes, per acre. You may sow guano broadcast over the growing plants, if in wet weather. Use the Belgian Carrot.

SPADE HUSBANDRY—*A Sub*—Dr. Yelloly is the best writer on the subject.

TOP-DRESSING FOR CLOVER—*Pourquoi*—Perhaps the most beneficial dressing you can apply is 2 cwt. of guano per acre, mixed with the same weight of gypsum. Guano and soot would, probably, either of them improve your Oats. The benefit derived from the latter depends on the ammoniacal salt which it contains, and partly also on the finely divided carbon in it. The benefits derived from wood-ashes depend on the salts of potash, and on the gypsum, &c., which they contain.—*A. H. Johnson.* See above.

TRIFOLIUM INCARNATUM—*R S*—It may be sown in autumn, and will then be ready to cut in June. It should be sown now as soon as possible. 20 lbs. per acre is the proper quantity of seed. A light sandy soil is hardly suited to it; a loamy stiffish soil suits it best. You had better mix your leaves with ditch-scrapings, or something of that sort, to give them more weight before applying them to the land.

WIREWORM—*Leicestershire Gardener*—Pare and burn your Grass land. You will not be able this season to get it ready for Carrots; but if you can get everything done by the end of May, you may be sure of a good crop of Swedes. Robi Rabi should be cultivated just as Swedes are, and for the same purpose.

*** As usual, many communications have been received too late.

Markets.

WOOL.—BRITISH, THURSDAY, Mar. 20.

Our Market continues flat. Consumers only buy to supply their immediate wants. We can quote no alteration in prices since our last.

JAMES PERRIN, Wool Broker.

COVENT GARDEN, MARCH 22.—Although the severity of the weather is now somewhat modified, the market is far from being well supplied, especially with the more tender vegetables. Prices have not altered much since last week. Pine-apples, though small, are sufficient for the demand; and Grapes continue to be supplied at nearly the same prices as mentioned in our last report. Good Pears are scarce; the best samples of Beurré Rance, which is the principal dessert variety at present in the market, are selling at about 12s. per half sieve. A few of the Easter Beurré and Ne Plus Meuris may also be met with; but these are very scarce. Among Apples, good specimens of Newtown Pippin and Nonpareils may be obtained at last week's prices. Little alteration has taken place in the price of Oranges, which are pretty plentiful; Lemons are also sufficient for the demand. Chesnuts bring the same prices as last week. The supply of Vegetables is scarcely sufficient to meet the demand. Broccoli is very scarce; it may be had for the same price as mentioned in last week's report. Savoys are scarce, as are also Brussels Sprouts; the latter are slightly on the rise. Asparagus, Seakale, and Rhubarb are tolerably well supplied, and are excellent in quality; they bring the same prices as last week. French Beans continue to improve in quality, and to become more plentiful. Some good samples of Celery are in the market. Lettuces and Endive are very scarce, and the latter is very dear. Mushrooms may be obtained at the same prices as last week. Carrots and Turnips are sufficient for the demand. Among Cut Flowers we noticed Abutilon striatum, Euphorbia jacquiniflora, Burcheilia capensis, Heaths, Epacrises, Neapolitan Violets, Pelargoniums, Azaleas, Camellias, Cinerarias, Moss, Provins and other Roses.

FRUITS.

Pine Apple, per lb., 6s to 3s	Oranges, per 100, 5s to 16s
Grapes, Spanish, per lb., 1s to 1s 6d	—bitter, per 100, 6s to 20s
— Portugal, per lb., 1s to 2s	Lemons, per dozen, 1s to 2s
Apples, Dess, per bush., 6s to 12s	— per 100, 6s to 14s
— Baking, per bush., 4s to 6s 6d	Almonds, per peck, 6s
Pears, Dess, per hf.-sv., 5s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
— Baking, per hf.-sv., 2s to 2s 6d	Cob Nuts, per 100 lbs., 120s to 160s
Pomegranates, per doz., 2s to 4s	Nuts, Barcelona, 24s
Filberts, per 100 lbs., 100s to 120s	— Brazil, 16s to 20s
Chesnuts, per peck, 3s to 6s	— Spanish, 20s
Walnuts, shelled, 6s	— Cob, 10s
Oranges, per dozen, 9d to 2s	

VEGETABLES.

Cabbages, per dozen, 1s to 2s	Spinach, per sieve, 5s to 8s
— Red, per doz., 2s to 3s	Scorzonera, per bunch, 2s to 2s 6d
— plants, per doz. bnch. 5s to 8s	Salsafy, per bunch, 2s to 2s 6d
Broccoli, per doz., 2s 6d to 3s 6d	Parsnips, per doz., 6d to 1s
— white, per doz., 6s to 12s	Leeks, per doz., 2s to 3s
Brussels Sprouts, hf.-sv., 2s to 3s	Garlic, per lb., 8d to 10d
French Beans, per 100, 2s to 2s 6d	Onions, per bunch, 3d to 4d
Sorrel, per hf.-sieve, 3s to 4s	— large, per bushel, 3s to 4s 6d
Jeru-al-Artichoke, p. hf.-sv., 1s to 2s	— Spanish, per doz., 2s to 4s
Potatoes, per ton, 60s to 100s	Shallots, per lb., 8d to 10d
— cwt., 3s to 5s	Lettuce, per score, 9d to 1s 6d
— bushel, 2s to 3s	Celery, White, per bunch, 1s to 1s 6d
— Kidney, per bsh., 2s to 3s	— Red, per bunch, 1s to 2s
— Autumn, per bsh., 2s to 6d	Endive, per score, 1s 6d to 3s
— New, per lb., 2s 6d	Mushrooms, per pottle, 2s 6d to 4s
Turnips, per doz. bch., 2s to 3s	Small Salads, per punnet, 2d to 3d
Red Beet, per doz., 1s to 2s	Fennel, per bunch, 2d to 4d
Carrots, per doz. bchs, 6s to 8s	Watercress, p. 12 sm. bun. 6d to 8d
Basil, per bunch, 2d to 3d	Parsley, per half sieve, 3s to 4s
Rhubarb, per bundle, 1s to 2s	— Roots, per bundle, 9d
Seakale, per punnet, 1s 3d to 4s	Tarragon, per bunch, 4d
Asparagus, per bundle, 3s to 12s.	Mint, per bunch, 6d to 8d
Horse Radish, per bundle, 1s 6d to 5s	Marjoram, per bunch, 2d to 3d
Savory, per bunch, 2d to 3d	Chervil, per punnet, 3d to 4d
Cucumbers, per brace, 6s to 10s	

POTATOES.—SOUTHWARK WATERSIDE, Mar. 17.

ALL parties connected with the shipping of Potatoes have been much disappointed, as the season's expectations have not been realised. As the weather continued to be extraordinarily severe for the season, Vegetables are very scarce, bad, and dear, yet our Market has scarcely improved. A few of the best samples were in better demand, but the inferior samples are still a drug. The supply during the past week has been more than the demand, and the annexed quotations were barely maintained.

York Reds	50s to 80s	Kent and Essex Kidneys	70s to —s
Perth	50 60	Wisbeach Kidneys	65 70
Fifeshire	45 55	— Blues	50 55
Early Devons	55 60	— Regents	55 60
Late Devons	— —	— Whites	50 —
Cornwall	55 60	Guernsey Blues	55 —
Jersey Blues	55 —	— Whites	— —
— Whites	— —	York—Prince Regents	60 65
Kent and Essex Whites	45 50	French	— —

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Mar. 20.

Prime old Meadow Hay	100s to 108s	New Hay	—s to —s	Clover	105s to 115s
		Inferior Hay	85 95	Straw	36 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Mar. 20.

Superior Mead. Hay	105s to 112s	Superior Clover	108s to 116s		
Inferior	90 95	Inferior	100 105	Straw	32s to 42s
New Hay	— —	New Clover	— —		

Trade very brisk for good Hay.

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Mar. 21

Fine Old Hay	105s to 110s	Old Clover	110s 120s		
New Hay	90 100	New Clover	— —	Straw	32s to 40s
		Inferior	— —		

HOPS, FRIDAY, Mar. 21.

THE Market continues firm at full prices. Consumers only buy for present use, which so far has prevented a sudden advance, but when it is considered that it will be 6 months before the new crop comes to Market, and that already three-fourths of the last growth at least are consumed, or in the hands of consumers, we feel satisfied a considerable advance must shortly take place under any circumstances. Many old and experienced Planters state they never remember a crop of Hops after a severe winter.

PATTENDEN & SMITH, Hop-Factors.

SMITHFIELD, MONDAY, Mar. 17.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3	10	4	2	Best Downs & Half-breds	4	2 to 4 6
Best Short Horns	3	6	3	8	Best Long-wools	3	10 4 2
Second quality Beasts	2	10	3	4	Ewes and second quality	3	6 3 10
Calves	4	0	5	0	Pigs	3	8 4 6

Beasts, 3695; Sheep, 21,840; Calves 64; Pigs, 320.

We have a large quantity of Beasts to day; trade is consequently heavy although the best qualities are in demand; 4s 2d. is quite an extreme quotation for the choicest—4s. being the more general price realised for the best Scots, &c. In some few instances the best Short Horns have made a little over 3s. 8d. Sheep are very short, and making rather more money; some of the best Downs have made 4s. 8d., and Long-wools 4s. 4d. Veal trade continues about the same. Pork trade is brisk.

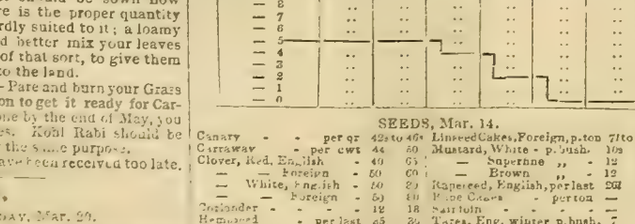
FRIDAY, Mar. 21.

There is very little doing amongst the Beef this morning, it being Good Friday. We have very few fresh Beasts in market, and the best qualities fully maintain their price. Best Scots, &c., 3s. 10d. to 4s. 2d.; Short Horns, 3s. 6d. to 3s. 8d. Mutton is not plentiful, but trade is heavy, and Monday's prices are with difficulty supported Best Downs, &c., 4s. 2d. to 4s. 6d.; Long-wools, 3s. 10d. to 4s. 2d.; Ewes and middling Sheep, 3s. 4d. to 3s. 8d. To day is the commencement of the Lamb season, but owing to the continued severe weather, trade for this article is exceedingly bad. Our supply is not so large, nor is the general quality so good as we are accustomed to see on Good Friday. The best qualities make very little over 6s. per 8 lbs.; and many that are rather out of size are sold at about 5s.4d. Veal trade is heavier, yet a very choice Calf makes 5s. Pork trade continues steady.

Beasts, 700; Sheep and Lambs, 8100; Calves, 176; Pigs, 315.

41, West Smithfield.

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, March 8.



SEEDS, Mar. 14.

Canary	per qr	42s to 46s	Linseed Cakes, Foreign, p. ton	7l to 9l			
Carraway	per cwt	44 50	Mustard, White	p. bush.	10s 14		
Clover, Red, English	49 63	— Superfine	,,	12 16			
— Foreign	50 60	— Brown	,,	12 16			
— White, English	50 80	Rapeseed, English, per last	20l 27				
— Foreign	50 70	Rape Cakes	per ton	— —			
Coriander	12 18	Saintfoin	— —				
Hempseed	per last	25 30	Tares, Eng. winter	p. bush.	7 8		
Linseed	per qr	—	— Foreign	5 7			
— Cattle	— —	— Trefoil	per cwt	— —			

— Cake, Eng. per 1000 11l 10 12l 10, Turnip (too variable for quotation).

KINGSFORD AND LAY.

Sales by Auction.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietors to sell by Public Auction, on the premises, Ponder's End (near the Railway station), on MONDAY, March 31, 1845, at 11 o'clock, by order of the Proprietors, in consequence of the Lease having expired, the whole of the STOCK, consisting of fine varieties of Erica, Epacris, Chorizema, Azalea Indica, Fuchsias, Heliotropes; about 1000 Standard and Dwarf Roses; a quantity of Evergreens, Herbaceous Plants, Box-edging, &c. Also two excellent Greenhouses, Stages, &c. May be viewed three days previous to sale. Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

BAGSHOT PARK, SURREY.—TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AGRICULTURISTS, & OTHERS.

MR. TEBBOT most respectfully informs the Public that he will have the distinguished honour to sell by Auction, on the Premises, on MONDAY, April 7, 1845, and following days, each day at 11 for 12 o'clock precisely, the Property of Her Royal Highness the DUCHESS OF GLOUCESTER, the whole of the superior FARMING STOCK, the rare Productions of the Forcing-pits, Conservatory, Hothouses, and Greenhouses, the Decorations of the Pleasure-grounds, the Appendages of the Kitchen-gardens, and other useful and valuable Effects. N.B.—The whole of the above valuable Property will be more particularised in next week's Paper.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

GUANO, of the best quality, in bags.—PERUVIAN 11l. to 12l. per ton; ICHABOE 7l. 10s. to 8l. per ton, according to quality; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL; And by their Agents, COTESWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, & CO., LIVERPOOL AND BRISTOL. 47, Lime-street, Mar. 22.

NOTICE.—GUANO.—It having come to the knowledge of the undersigned that on various occasions this article has been offered for sale under the name of, and purporting to be, either PERUVIAN or BOLIVIAN, without any title to be so called, they deem it necessary, as well for the protection of the British Public, as in defence of the interests of the Governments they respectively represent, to give notice, that NO PERUVIAN or BOLIVIAN GUANO can be IMPORTED, or authenticated as such, by any other than the ONLY AGENTS in this Country appointed for its Sale, viz.:—
Messrs. ANTONY GIBBS and SONS, London,
Messrs. WM. JOS. MYERS and Co., Liverpool.
HENRY KENDALL, Consul for Peru.
ANTONIO ACOSTA, Consul-general de Bolivia.
London, Mar. 22.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the Farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial Manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9l. per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1s. 9d. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 11. per quarter, including sacks; warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23s. per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

POTTER'S GUANO.
REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.

Sold by all dealers in Manures.

POTTER'S LIQUID GUANO,
FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1s. 9d. per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OF LIME, 6s. 6d. per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25s. in quantity.

Manufactory, 28, Upper Fore-street, Lambeth.

ICHABOE GUANO—Warranted Genuine, and selected from the best pits on the Island, can now be had direct from the Bonded Warehouses, at the following ports:—London, Liverpool, Hull, Southampton, Great Yarmouth, Glasgow, Leith, Dundee, and Aberdeen, on application to the Subscribers or their Agents at the above places.—JOHN BOYD & Co., Importers, London-bridge, Borough, London.

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LINGHAM, BROTHERS, BIRMINGHAM. — MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.

Sole Agents in London:—George and J. Dean, Horticultural implement Warehouse, 46, King William-street, London-bridge.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles, made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c. formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above article in iron which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. Heated by Hot Water.



DRAINING OF LAND.—THE WORKMAN'S LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30s.

ORNAMENTAL WIRE WORK.

G. B. THOMPSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 390, Oxford-street, their large stock of ORNAMENTAL FLOWER STANDS, TRAINERS, ARCHES, and fancy Wirework, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural implements. Also their improved WATER POT, with finely perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

THE EARL OF ALDBOROUGH AND HOLLOWAY'S PILLS!—An Astounding Cure by this miraculous Medicine, after every other means had failed! See extract of his Lordship's Letter, dated Villa Messina, Leghorn, the 21st of February, 1845. "To Professor Holloway. Sir,—I beg to acquaint you that your Pills have effected a Cure of a disorder in my Liver and Stomach, which all the most eminent of the faculty at home, and all over the Continent, had not been able to effect. Nay, not even the Waters of Carlsbad or Mamanbad. (Signed) ALDBOROUGH." These wonderful Pills will cure any disease of the Liver or Stomach.—Sold (also Holloway's Ointment) at PROFESSOR HOLLOWAY'S Establishment, 244, Strand (where advice may be had gratis), and by all Medicine Vendors throughout the civilised world.

STOOPING of the SHOULDERS and CONTRACTION of the CHEST are entirely prevented, and gently and effectually removed in Youth, and Ladies and Gentlemen, by the occasional use of the PATENT ST. JAMES'S CHEST EXPANDER, which is light, simple, easily employed outwardly or invisibly, without bands beneath the arms, uncomfortable constraint, or impediment to exercise. Sent per post, by Mr. A. BINYON, 40, Tavistock-street, Strand, London, or full particulars on receiving a postage stamp.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

CORNS AND BUNIONS.

Patronised by the Royal Family, Nobility, Clergy, &c.

PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances, without causing the least pain or inconvenience.

Unlike all other remedies for corns, its operation is such as to render the cutting of the corns altogether unnecessary: (indeed, we may say, the practice of cutting corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth;) it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate corns and bunions.

Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.

Prepared by JOHN FOX, in boxes, at 1s. 1½d., or three in one for 2s. 9d., and to be had of C. KING, Napier-street, near the Albert Saloon, Hoxton, London; and all wholesale and retail medicine vendors in town and country. The genuine has the name of JOHN FOX on the stamp.

A 2s. 9d. box cures the most obdurate corns.

Ask for "PAUL'S Every Man's Friend."

THOMAS GOODE, late of No. 15, Mill-street, Hanover-square, begs to return his grateful thanks to the noble and other Members of the Horticultural Society, for the liberal support he has received at their hands since the period of resigning the office he held in that Society, and also to inform them that he has removed his business to more convenient premises, No. 19, South Audley-street, Grosvenor-square, where they may depend on the strictest attention being paid to their favours, and on being supplied with CHINA, GLASS, EARTHENWARE, &c., at moderate prices.

China and Glass Warehouse, 19, South Audley-street, Grosvenor-square.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent-Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, March 22, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1845.] SATURDAY, MARCH 29. [Price 6*d*.

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UNIVERSITY COLLEGE, LONDON.—ELEMENTARY COURSE OF BOTANY.

Professor Lindley will commence a COURSE OF LECTURES ON BOTANY, to a Junior Class, on Monday, April 7.

Subject.—The Distinctions between the Principal Natural Classes and Orders of Plants belonging to the Flora of Europe.

The Course is adapted for persons commencing the study of Botany. Fee 2*l*.

The Course to the Senior Class will commence on the 1st of May.

Further particulars may be obtained at the Office of the College.

C. J. B. Williams, M.D., Dean of the Faculty of Medicine.

Richard Potter, A.M., Dean of the Faculty of Arts.

Chas. C. Atkinson, Secretary to the Council. March 26, 1845.

EXHIBITION of CAMELLIA JAPONICA, or JAPAN ROSES.—A Collection of these beautiful Exotics is now in bloom at Chandler and Sons' Nursery, Vauxhall. Admittance Gratis.

FLOWER-SEEDS, 18 packets, 5*s*.; 36 packets, 10*s*. of the most approved sorts, sent postage-free to any part. Apply to Messrs. Brown, Albion Nursery, Stoke Newington, London. Any preferred species may be named in the order. Payment by post order or stamps. List of Plants for Bedding, &c., can be had.

HUGH LOW and Co., beg to inform their Friends and the Public, that their List of DAHLIAS for the present year, comprising all the leading Sorts, is now ready, and may be had on application.—Clapton Nursery, London, March 29.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, from 5*s*. per 100, with printed particulars for cultivation, may be had of Warner and Warner, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

WARNER & WARNER, Seedsmen & Florists, 28, Cornhill, respectfully inform the Nobility and Gentry their NEW CATALOGUE, comprising all the choice new Flower and Vegetable Seeds is now ready, and can be had post-free upon application.

For particulars refer to "Harrison's Cabinet" for February and March.

WILLIAM MILLER begs to call the attention of the readers of the *Chronicle* to his CATALOGUE of New SEEDLING FUCHSIAS, VERBENAS, PETUNIAS, ANTIRRHINUMS, &c., which appeared on the 1st of March in this Paper.—Providence Nursery, Ramsgate, Kent.

CHOICE FLOWER SEEDS.

W. E. RENDLE has succeeded in obtaining a few hundred seeds of that rare and richly-perfumed Annual named by Professor Lindley

MARTYNIA FRAGRANS,

Sold in packets at 2*s*. 6*d*. each. As well as a choice selected stock of the following new and beautiful Flower-Seeds:—

Imported German Stocks
" " Asters
" " Larkspurs
Clematis montana
Clintonia pulchella
Lobelia ramosa
Mesembryanthemum tricolor
Phlox Drummondii
Rhodanthe Manglesii
Trachimene cærulea
Finest mixed Zinnias
Schizanthus Hookerii

The above at 6*d*. per packet, or the whole set, including Martynia fragrans, free by post, for 6*s*.

35 leading varieties of Annuals, as recommended in the *Chronicle* of March 1st, for 12*s*., free by post; 12 choice tender Annuals, as recommended March 15th, for 6*s*., free by post.

A General Catalogue of Flower Seeds has just been published, and can be had on application.

Union-road Nursery, Plymouth, March 29.

PINE PLANTS of any Size or Sort, perfectly clean and healthy, may be had on application to Mr. Davis, Green-street, Marlboro'-road, Chelsea. A small Greenhouse, &c., 21 feet long, for sale by commission. Apply as above.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had on application.—Slough Nursery, March 29.

GREAT YARMOUTH NURSERY, NORFOLK, 1845.

YOUELL and CO.,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN; HIS MAJESTY THE KING OF THE BELGIANS; NURSERYMEN AND FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN DOWAGER.

YOUELL and CO.'S CATALOGUE of the newest and very best

FUCHSIAS, VERBENAS, PETUNIAS, PANSIES, CINERARIAS, CHRYSANTHEMUMS,

and other highly-ornamental Plants, appeared upon the Advertising sheet of the *Gardeners' Chronicle* of March the 8th and March the 15th, to which they beg to call the attention of cultivators of the above elegant tribes of plants.

YOUELL and CO.'S Eight New Splendid SEEDLING FUCHSIAS, price 42*s*. the set, and their Eight New SEEDLING VERBENAS, price 25*s*. the set, they can confidently recommend, and they will prove an acquisition to any collection. For particulars and colour of these see their Advertisement of the above dates.

Youell and Co. being the first who sent out per post, with safety, these tribes of plants, are desirous of calling attention to their advantageous method of executing orders, namely, that they will deliver them free of postage to any part of the United Kingdom, upon the following terms:—

12 Extra Fine Vars. of Fuchsia, 12*s*. Selection left to Y. & Co.
12 Ditto ditto 21*s*. Selection left to the Purchaser or ditto.
50 Fine Varieties . . . 40*s*. Selection left to Y. & Co.
50 Extra Fine ditto . . . 60*s*. Selection left to the Purchaser or ditto.

With the exception of those marked thus*.

The Plants are strong and healthy, and will be ready for delivery the latter part of March, thus insuring to the purchaser fine plants for competition the ensuing season. Many of the varieties can be supplied now.

VERBENAS.

12 Extra Fine Varieties, 6*s*, the Selection left to Youell and Co.
12 Ditto 10*s*., the Selection left to the Purchaser.

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . 10*s*. per dozen.
12 Extra Fine do. do. . . . 18*s*. "

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12*s*. per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12*s*. per dozen.

FLOWER-SEEDS—30 packets of the choicest and newest kinds sent per post, free, for 6*s*.

THE TRUE FASTOLFF RASPBERRY.

Youell and Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state.

Packages containing 100 canes			£2	0 0
Do.	do.	50 do.	1	1 0
Do.	do.	25 do.	0	12 0

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see Youell and Co.'s Advertisement of the March 15, 1845.

Youell and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee	7*s*.	6*d*.
" Lady Alice Peel, Rose Picotee	7	6
" Miss Jane, Purple Picotee	7	6
" Mrs. Bevan, Red Picotee	7	6
" Enchantress, Scarlet Picotee	5	0

CARNATIONS AND PICOTEES.

Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

				£	*s*.	*d*.
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto	1	1	0

The Selection being left to Y. & Co.

FINE ERICAS, 12*s*. per dozen.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see Youell and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety) for 6*s*.

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by Youell and Co. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

Youell and Co. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l*. per 100, or 30*s*. per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s*. per dozen.

For further particulars see Youell and Co.'s Advertisement of Jan. 11.

CEDRUS DEODARA, 3 ft., 10*s*. 6*d*. per plant.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s*. 6*d*. and 5*s*. per packet.

Great Yarmouth Nursery, March 29, 1845.

WOODLANDS NURSERY, Maresfield, near Uckfield, Susse

VERBENA "HUDSONII."

WM. WOOD and SON, having purchased the entire stock of the above magnificent VERBENA, raised by Mr. Hudson, of Horstead, beg leave to offer it to their friends and the public. Blooms were submitted to the inspection of Dr. Lindley, whose opinion will be found recorded in the *Gardeners' Chronicle* of 6th July, 1844, page 448, under the initials "W. W.—Hudsonii is a good variety, bright rosy purple, with a white eye, distinct in colour."

As a Verbena for Bedding it is unsurpassed, while the brilliancy of colour, bold truss, and fine habit of this truly superb variety has elicited admiration from several competent judges; it is therefore with the greatest confidence W. W. and S. offer it to the notice of Amateurs. Strong plants will be ready to send out in tin cases, per post or otherwise, the first week in April, at 3*s*. 6*d*. each, with the usual discount to the Trade when three or more are ordered at once.

Wm. Wood and Son are now issuing, GRATIS, a new and DESCRIPTIVE CATALOGUE of their extensive Collection of FUCHSIAS and VERBENAS, to which is added Lists of all the newest and best Cinerarias, Petunias, Anagallis, and other plants adapted for bedding; also miscellaneous Greenhouse and Hardy Herbaceous Plants, Shrubs, Climbers, &c.

Woodlands Nursery, March 29.

SELECT AND CHOICE FLOWER-SEEDS, with Directions for Sowing, Height, Colour, &c.

				s.	*d*.
100 vars. choice Annuals, including the most approved, new, for				15	0
60	do.	do.	for	8	6
30	do.	do.	for	4	6
20 vars. choice Greenhouse Annuals, for				6	0
20	do.	Perennials, including fine varieties of Hollyhock, Fuchsia, Heartsease, Cineraria, Petunia, Calceolaria, &c. &c., for		6	0

The above can readily be forwarded by post, the 100 packets not exceeding 6 to 7 oz. Remittance in stamps or Post-office order from unknown correspondents.

Bass and Brown, Seed and Horticultural Establishment, Sudbury, Suffolk.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, and LILIUM LANCIFOLIUM.

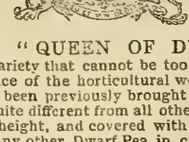
H. GROOM, Clapham Rise, near London, (removed from Walworth.) By Appointment

FLORIST TO HER MAJESTY THE QUEEN, and TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

		£	*s*.	*d*.
100	RANUNCULUSES in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures . per 100—10*s*. 6*d*. to	1	1	0
100	ANEMONES, in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures . . . per 100	0	10	6
25	AURICULAS, in 25 Superfine sorts, named	3	3	0
25	pair of CARNATIONS, in 25 ditto ditto	2	10	0
25	pair of PICOTEES, in 25 ditto ditto	2	10	0
25	GERANIUMS, in 25 Superfine sorts ditto	3	10	0
	Good kinds . . per doz., from 12*s*. to	0	18	0
	LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	3	6
	" " PUNCTATUM . " .	0	7	6
	" SPECIOSUM, (true) . . . " .	2	12	6

H. Groom begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Mar. 29. Foreign Orders executed.



WAITE'S "QUEEN OF DWARF" PEA.

This is a variety that cannot be too extensively introduced to the notice of the horticultural world, being distinct from any that has been previously brought before the public. In its habit it is quite different from all others, being not more than one foot in height, and covered with Pods. The Pea is twice the size of any other Dwarf Pea in cultivation, and excelling by threefold in produce. It has been grown at the Royal Gardens, Frogmore, and approved of there as a new variety; and also at Her Majesty's table for its superior flavour. None genuine unless bearing the seal of J. G. Waite.—Price 7*s*. 6*d*. per quart.

J. G. W. begs to inform the Nobility and Gentry that he has spared neither time nor expense to make his collection of seeds equal, if not superior to any other house in the kingdom. In the Grass seed department will be found some of the finest sorts in cultivation, which he has selected from the best sources at home and on the continent. In the Horticultural and Floricultural branch will be found all the approved and newest varieties. Also the Turnip seed department will be found complete, and he can offer the following new varieties at the low prices stated:—New Zealand Golden Melon Swede, a very delicious flavour, 2*s*. 6*d*. per lb. New White Decanter, very large and fine sheep feeder, 2*s*. 6*d*. per lb.

All other kinds of seeds 30 per cent. lower than any other house in London. Catalogues to be had on application.

4, Eyre-street Hill, Hatton Garden, March 29.

T. and J. BACKHOUSE, Nurserymen, &c., York, beg to offer to the public their fine New DAHLIA, "GEM;" colour bright sulphur, shading into pale primrose, occasionally tipped with bronze; flowers very large, blooming on long footstalks; form and petal fine; a good acquisition to a stand: plant 3 to 4 feet high. Strong plants of the above at 7*s*. 6*d*. each, will be ready for delivery the first week in this month (May). The usual allowance to the Trade.

T. and J. B.'s General Catalogue of Dahlias, Pansies, &c., for 1845, together with that of Greenhouse and Stove Plants, may be had on application.

GREENHOUSE AND STOVE PLANTS.

WM. JACKSON & CO., Nurserymen, possessing a large Stock of GREENHOUSE PLANTS, &c. of all the rarest in cultivation, and in the finest possible condition, beg to offer them in Collections on the following very reasonable terms, including baskets, mats, and package.

50 CHOICE GREENHOUSE PLANTS for 2*l.* 2*s.*

Babingtonia camphorosmæ	Genista Attleyana, G. rodophnæa
Boronia serrulata	Gompholobium tenella
Chorozema cricoides, C. Henchmanii, C. macrophylla, C. mucronata, C. ovata, C. rotundifolia, C. varium nana, C. varium nana, var.	Helichrysum humile, H. prolifera, H. rupestris, H. superbum
Correæ bicolor	Hydrangea japonica
Crowea saligna	Kennedya inophylla, K. nigricans
Cytisus racemosus	Leschenaultia biloba nana
Dillwynia cinerascens, D. glycinifolia, D. microphylla, D. rudis	Mirbelia reticulata, M. rubæfolia
Epacris campanulata alba, E. campanulata rubra, E. carnea, E. ceriflora, E. coccinea, E. cœruscans, E. elegantissima, E. impressa, E. nivalis, E. pulchella, E. variabilis	Oxylobium capitatum, O. pultenia
	Podolobium berberifolia
	Polygala cordifolia
	Pultenia biloba, P. subumbulata
	Sollya linearis
	Sutherlandia species.

25 VERY SELECT GREENHOUSE PLANTS for 3*l.* 3*s.*

Habrothamnus fasciculatus	Grevillia acanthæfolia
Boronia anemonæfolia, B. pinnata	Hovea Manglesii, H. pungens major
Chorozema Dicksonii	Labichea bipunctata
Daviesia latifolia nova	Mirbelia grandiflora
Dillwynia coccinea, D. rudis grandiflora	Oxylobium acutum, O. capitatum
Epacris Coplandii, E. impressa alba, E. Willmrea	Pimelea spectabile
Eriostemon buxifolium	Podostylis spherica
Gastrolobium spinosum	Styphelia tubiflora
Gompholobium polymorphum luteum	Veronica speciosa
	Zanthosia rotundifolia.

25 VERY SELECT STOVE PLANTS for 2*l.* 2*s.*, including

Achimenes picta	Epiphyllum, Conway's Giant, E. Russellianum
Begonia coccinea	Gesnera Cooperii major
Centradenia rosea	Thunbergia chrysops, &c. &c.
Clerodendron lævifolia	
Columnia grandiflora	

Cross Lane Nursery, Bedale, Yorkshire, March 24, 1845.

DAHLIAS, FUCHSIAS, VERBENAS, PHLOXES, &c.

JOSEPH HARRISON, Nurseryman, Downham, in Norfolk, respectfully announces that his Catalogue of an immense Stock of all the newest and best kinds of the above may be had on application. Plants, almost to any extent, can be supplied either to continental or this country orders. A very liberal allowance to compensate for cost of carriage. He particularly mentions he has an abundance of all the last year's Seedling Dahlias and Fuchsias.

DILLISTONE'S APPLE, the STURMER PIPPIN, a Drawing of which, and its History, appears in Maund's "Botanic Garden and Fruitist" for the present month.

The above Apple has proved itself unequalled for its combined qualities; it keeps firm and fine-flavoured until July or August, is fit for Dessert or Kitchen, is very hardy, bears well in all soils and situations; as a proof of this we have gathered from dwarf standard trees, planted in heavy clay, in the three last seasons, 320 bushels, the greater portion of which were sold in London, and realised higher prices by far than any other Apple in the market. Scions may be had per post, free, upon the receipt of 3*s.* 6*d.* in stamps, or Post-office order, payable either at Helstead, Essex, or Clare, Suffolk. Please address, S. and J. Dillistone, Nurseries, Sturmer, Haverhill.

CHOICE HYBRIDISED SEEDS.

Small Packet of Fuchsia,	2*s.* 6*d* ;	Large Packet,	5*s.*
Do. Petunia,	2*s.* 6*d.* ;	Do.	5*s.*
Do. Cineraria,	2*s.* 6*d.* ;	Do.	5*s.*
25 Geranium Seeds,	3*s.* 0*d.* ;	50 Seeds,	5*s.*
The whole together	9*s.* 0*d.*	or	17*s.*

The above may be had immediately, with full directions for sowing and raising the plants, by forwarding a Post Office Order for the amount to William Miller, Nurseryman, Ramsgate.

SEEDLING FUCHSIAS, "JUNIUS" AND "HAMLET."

JUNIUS.—This splendid large and handsome variety is warranted to be one of the greatest acquisitions of the season. The tube and sepals light blush, the latter expanding with a remarkably bright tip of green, showing a most beautiful orange-scarlet corolla to great advantage, and has merited the highest opinion of Mr. Glenny and Dr. Lindley. (See Mr. G.'s opinion in the *Gardeners' Gazette* of Nov. 9th, 1844)—"Mr. Smith's Seedling Fuchsia, 'Junius,' pale outside, and scarlet corolla, much like Smith's Queen Victoria, not yet out, habit good, and much better than the mass of indistinct things already out, although not exactly what we want." (Dr. Lindley's opinion in the *Gardeners' Chronicle*, Oct. 26th, 1844)—"Your seedling Fuchsia, 'Junius' appears to much greater advantage on the plant, the leaf of which is handsome and habit good; the flower is stout and handsome." Strong plants will be ready for delivery on the 24th of April, at 10*s.* 6*d.* per pant, with the usual discount to the Trade where six or more are taken at once.

HAMLET.—This will also be found a splendid variety, of strong growth, and prolific bloomer. Tube and sepals bright crimson, corolla purple. It was submitted to Dr. Lindley, July 27th, 1844, whose opinion is as follows:—"W. S.—No. 10 is an excellent variety; it appears to be a robust grower, and is the most prolific bloomer we have seen, bearing several flowers at every joint; the flowers are large, rich in colour, and measure from the base of the footstalk to the end of the pistil nearly six inches." 5*s.* per plant, with the usual discount as above.

The following three first-rate Seedling Verbenas G. S. can send out with as much confidence as he did Excelsa and Delicata, viz.:—

Queen of England, rosy pink, yellow eye, occasionally beautifully shaded, of fine form and habit, and described by Dr. Lindley as a large and handsome variety; warranted to be the best light flower of the season. 5*s.*

Vesta, peach blossom, yellow eye, very large, of fine habit, and a superior show flower. 5*s.*

Beauty, brilliant rose, of fine form. 3*s.* 6*d.*

*** The usual discount to the Trade when three or more plants are taken at once. To be sent out the 24th of April.

N.B.—Descriptive Catalogue of all the leading Verbenas, Fuchsias, Dahlias, Petunias, &c., will be forwarded on application.

The Verbenas have been shown at the following Exhibitions, at each of which the first prize has been awarded them, viz., the Royal Botanic Gardens, Regent's Park; Royal South London, Surrey Gardens; South Essex, Wanstead Park; Hampstead; Newington; Highgate, &c.; and were pronounced by those vast assemblages to be far superior to any they had ever before seen.—George Smith, Tollington Nursery, Hornsey-road, Islington, near London.

JOHN RIVERS, Agricultural Seedsman, Sawbridgeworth, Herts, begs to inform the Nobility and Gentry he has on hand selected Varieties of GRASSES for Lawns and Permanent Pasture. For Lawns (warranted to insure a fine Turf), including Clovers, 14*s.* per bushel; mixed for Pasture, 10*s.* J. R. requests those who favour him with orders to describe the soil. Directions will be given for sowing, &c. Russian Yellow SWEDISH TURNIP, 2*s.* per lb. Very select Long Yellow and Purple MANGOLD WURZEL, each 1*s.* per lb. Carriage paid to London.

SELECTED GRASS SEEDS.

WARNER AND WARNER, Seedsmen, 28, Cornhill, beg to inform the Nobility and Gentry they have on hand all the BEST GRASS SEEDS required for permanent Pastures, consisting of Poas, Fescues, Crested Dogstail, Foxtail, &c., adapted for all soils. Upon application, the quantities required of any particular variety can be had with prices.

FIELD TURNIP, MANGOLD WURZEL, &c., of all the best varieties.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade and to the public in general, on very reasonable terms. Apply to Mr. George Baker, Bagshot Nursery (late Hammond's), Surrey.

TO GROWERS OF PANSIES.

WILLIAM CLARK, 25, Bishopsgate-Street Within, has for Sale a first-rate Stock of PANSIES, comprising all the best Flowers in Cultivation, including some valuable SEEDLINGS not in other hands, together with a great number not yet bloomed; also 4 BOXES of different sizes, the entire Stock of a most successful Amateur declining their further culture; the Plants are all in small pots, and the Seedlings pricked out in boxes, to be had, a bargain. Pansy-seed from the best flowers grown, 2*s.* 6*d.* per paper; Imported German Stocks, splendid mixture, 1*s.*; do. Hollyhocks, mixed, 1*s.*; do. Balsams, 1*s.*; do. Zinnias, 1*s.*; do. Cockscomb, 1*s.*; do. Wallflower, from 10 varieties, 1*s.*; Portulaccas, in variety, 1*s.*; Splendid Dark William, 1*s.*; Thunbergia, in sorts, 1*s.*; Martynia fragrans, 1*s.*; Phlox Drummondii, fine variety, 1*s.*; Scarlet Convolvulus, 6*d.*; splendid mixed Geraniums, 1*s.*; do. Calceolaria, 1*s.*; do. Cineraria, 1*s.*; — Cox, Esq.'s Superb Picotee, 5*s.*; Fuchsia, 2*s.*; Mangold Wurzel, from the best stock; the finest mixed Grasses for Lawns, 1*s.* 6*d.* per lb.; do. for Pastures, 1*s.* per lb., with every other variety of Seed worth notice.

PAULOWNIA IMPERIALIS.

MESSRS. H. LANE and SON, Great Berkhampstead, have a large Stock of FINE STRONG PLANTS, of the above-named Hardy Ornamental Tree, at from 2*s.* 6*d.* to 5*s.* each.

Messrs. L. and Son's extensive assortment of ROSES IN POTS for Green-house culture are now in first-rate condition for sending out.

Messrs. Lane and Son's Spring Catalogue of GERANIUMS, FUCHSIAS, DAHLIAS, PANSIES, &c. &c., is now ready, and may be had on a pre-paid application.—Nurseries, Great Berkhamstead, March 29, 1845.

THE ARBORETUMS, QUEEN'S-ELMS, BROMPTON, NEAR LONDON, AND EAST COWES PARK, ISLE OF WIGHT.

RAMSAY BROTHERS, Landscape Gardeners, Contractors for Planting, Earthwork, Road-making, Forming Ornamental Waters, and Improvers in general of Landed Property.

Plans and Estimates submitted, and works contracted for in any part of the kingdom.

Messrs. R. invite Noblemen and Gentlemen to an inspection of their choice stock of Ornamental Plants, which have been selected for the Lawn, the Parterre, and the Shrubbery, and now growing at Queen's-Elms, one mile from Hyde Park Corner.

SLOUGH NURSERY.—The Proprietor wishing to retire from business, offers the above first-rate and old-established concern on advantageous terms to any person or persons desirous of embarking in one of the best retail Nursery Seed and Floricultural trades in the kingdom.—Apply to Thomas Brown, at the Nursery, Slough, near Windsor; or in London, to J. Letts, Esq., No. 8, Bartlett's-buildings, Holborn.

PETUNIA MAGNIFLORA.

WILLIAM GREGORY most respectfully informs the Public that the above Plant is a seedling of his growing last year; the flowers of which are exceedingly large, white, shaded with lavender-colour, of a robust habit, a most profuse bloomer, and highly deserving of cultivation. It was seen, and plants were ordered by many highly respectable parties during the summer. Plants will be sent out in rotation as the orders are received, on and after the 18th of April next, at 5*s.* each, with the usual allowance to the trade when three or more plants are ordered.—Nurseries, Cirencester, March 29.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1*l.* 15*s.* each. Commission allowed to agents.

These Dibbles may be obtained of Messrs. Cottam and Hallen, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter to his address, inclosing a Post-office order for the amount.

Richard Smith, Upper Hall, near Droitwich, Worcestershire.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c

Edward Beck will be happy to answer any inquiries, either personally or by post.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS have obtained the approval of Thirty Metropolitan and Provincial Horticultural Societies. Numerous Testimonials, and a most elegant assortment on show at the Wholesale and Retail Depot, China and Glass Warehouse, 29, Queen's Row, Pimlico. Extracted opinions of Ten Horticultural and Scientific Works sent free on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

GARDEN POTS AND STANDS, Patent and others, in every variety, at Hunt's Wholesale and Retail Depôt. White Biscuit-stone and Wedgwood ware, from 9*s.* to 7*l.* 10*s.* per doz., for Drawing Rooms, &c. Improved and Elegant Hyacinth Pots and Supports, from 1*s.* 6*d.* each.—29, Queen's-row, Pimlico, near the Palace.

TO HORTICULTURISTS, FLORISTS, &c.

GEORGE & JOHN DEANE'S Stock of GARDENING, AND PRUNING IMPLEMENTS, combining all the latest improvements, is at once extensive and select; their sets of tools adapted for ladies and youths are universally approved of for their lightness, portability, and finish. G. & J. Deane's Conservatory Pumps, Garden Engines, Syringes, and Mowing Machines, are all manufactured of the best materials, and on the most correct principles. Their cast-iron Garden Seats and Chairs, and their Ornamental Wire Work for Lawns, &c., exhibit the most graceful devices. G. & J. Deane are sole London Agents for Lingham's Menograph, and their illustrated Catalogue of Horticultural Tools may be obtained at their Warehouse, or will be forwarded by Post.—George and John Deane, 46, King William street, London-bridge.

BEES, BEE-HIVES, AND HONEY.

J. MILTON has an extensive assortment of FOREIGN AND ENGLISH HONEY; likewise a great variety of BEE-HIVES, both in straw and wood. He has just completed a newly-constructed Hive—"The Royal Alfred"—by which the Apiarian can safely examine the Bees at work, and, with great facility, take the Honey without killing the Bees. A Sheet List is published, price 1*s.*, being the Plates of the Hives, and other useful apparatus in Bee management, as described in "The Practical Bee-keeper," by John Milton; may be had of Messrs. Parker, West-strand, and at J. Milton's, Foreign Warehouse, 10, Great Mary-le-bone Street.

CUCUMBER and MELON BOXES and LIGHTS.—For Sale, one, two, and three-light BOXES and LIGHTS, of all sizes, ready for immediate use, warranted of the best materials, packed and sent to all parts of the kingdom: two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-lights made, glazed, and painted, from 1*s.* per foot.—Sahes and Frames made, glazed, and hung complete, 1*s.* 8*d.* per foot.—At James Watts' Sash Manufactory, 8, Claremont-place, Old Kent-road. *** References given.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey-Bee—are respectfully informed by G. Neighbour & Son, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box-Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a post-age stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

Nutt on Bees (5th Edition), now published.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

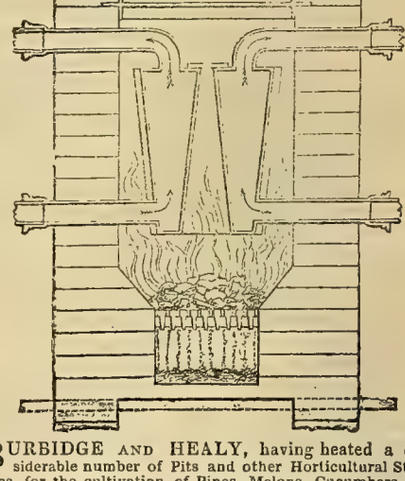
D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY, having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. Mills's recent works on the culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by Burbidge and Healy's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places: Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

HORTICULTURAL SOCIETY OF LONDON.—NOTICE is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the ensuing season, will take place on the following SATURDAYS—viz., May 24th, June 21st, and July 12th; and that Tuesday, April 15th, is the last day on which Tickets are issued to Fellows of the Society, at 3s. 6d. each.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE. MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

The Gardeners' Chronicle.

SATURDAY, MARCH 29, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

TUESDAY,	April 1	{Horticultural Linnean	3 P.M. 8 P.M.
WEDNESDAY,	April 2	Society of Arts	8 P.M.
FRIDAY,	April 4	Botanical	8 P.M.
MONDAY,	April 7	Entomological	7 P.M.

FEW persons in this country know much about TRUFFLES, except the very rich or the very extravagant; and of those who do eat them, not one in twenty obtains them of fine quality, or perfectly fresh, in which state alone they merit the praises that have been lavished on them from the days of Roman epicures.

....Tibi habe frumentum, Alledius inquit,
O Libye! disjunge boves, dùm tubera mittis.

"Keep your corn, good Africa, and unharness all our oxen, so that you do but send us Truffles," was the exclamation of Juvenal; and the same sentiment, we doubt not, has been often silently expressed by the lovers of good living, even in sober England.

As to the French, in whose cookery fresh Truffles are an indispensable ingredient, there is something deliciously enthusiastic in their manner of speaking of them. "The Truffle improves all that it touches," is a fundamental axiom of *high caste* French cooks; and the dishes of which Truffles constitute the principal part have taxed the skill of our ingenious neighbours in finding names for them. The *Ragout de Truffes*, and *Truffes à l'Italienne*, *Truffes au vin de Collioure*, *Truffes en croustade*, *Coulis de Truffes*, the famous *Truite saumonée aux Truffes*, and we know not how many more are spoken of with rapture by that most zealous of Traumaphiles, as he calls himself, Monsieur JOSEPH ROQUES, of Versailles. As to the effect of Truffles upon those pleasurable sensations which the lovers of good eating so well know how to estimate, we altogether despair of translating that ingenious author's description of it, and therefore give it in the original French: "Quand je mange des Truffes," says a friend of M. ROQUES', described as a middle-aged man, clever and good-natured, "as all true gastronomes always are;" "Quand je mange des Truffes, je me crois d'abord transporté dans un autre monde; bientôt je deviens plus vif, plus gai, plus dispos; j'éprouve intérieurement, surtout dans mes veines, une chaleur douce, voluptueuse, qui ne tarde pas à se communiquer à ma tête. Mes idées sont plus nettes, plus promptes, plus faciles. Je fais sur-le-champ, si cela me convient, des vers pour des poètes devenus riches; je compose même des discours pour des économistes, des savants, des députés paresseux; puis je m'endors, et voilà tout."

It is no wonder, then, that the cultivation of Truffles has been an object of the greatest interest ever since the days when it was found possible to get Mushrooms from Mushroom-spawn. What is wonderful is, that nobody should have as yet succeeded in making them universally come-at-able. That they may be grown as easily as the common Agaric we are quite convinced: the difficulty is to say how. 25 years ago nobody could grow Orchidaceous Epiphytes; people are now puzzled to know where the difficulty lay. So with Truffles. We fully expect in one twelvemonth from this date to see a dish of fresh Truffles, raised artificially, produced for exhibition in London. Gardeners have only to make up their minds to it, to be told of what has already been found out, and to be taught the true nature of the plant, and the thing is done. We should not be at all surprised at seeing in a couple of years Truffle-spawn advertised for sale by the bushel.

We have, therefore, determined to take the matter up; and with the assistance of our kind correspondent, the Rev. M. J. BERKLEY, to bring it thoroughly before the gardening world.

That gentleman will next week proceed to give some information respecting what has already been done, and to point out the direction in which it seems *probable* that experiments should be pointed. We, on our parts, invite such of our readers as possess any experience upon the subject to communicate it for the common good, and we promise them immediate admission into our columns.

OUR former disquisitions on the popular delusions of METEOROLOGY (Sept. 28, 1844), have had but little effect in repressing the ardour of weather-wisdom—the spirit of vaticination is still abroad, and whether a MURPHY or a MOORE take the lead, we are as far from rationality as ever. Such follies may excite the smiles of men of science, but whilst they hardly deserve the gravity of refutation, they may not fall below the aim of the "paper pellet" of a newspaper article; especially as the daily press has become the great organ of their propagation.

It is very hard, whilst the SABINES and BEAUFORTS and KATERS are at work in all parts of the world, in laying the foundation of a Meteorology of just scientific principles—whilst such men as WHEWELL and WHETSTONE, and a host of foreign and domestic philosophers are improving the means as well as the methods of observation—we should be eternally elbowed by speculations as wild as the fancies of Lucretius, who thought that strong winds squeezed the lightning out of the clouds; or of the simple peasants of the Hartz, who imagine that the clouds are bags of water, which being driven against the hills, burst, and let fall their burthens.

The past winter has been of a character to call forth all the lovers of the marvellous—not only those who trust in signs and tokens, but also those who argue of the effects they see apparent, from causes they do not see. When the unusual cold weather of December set in, the augury of the flight of birds was revived—more potential than the augury of ancient Rome. Unfortunately this indication of a hard winter was neutralised by the absence of that other infallible sign—a copious supply of Hips and Haws to the garner of the feathered race. This was puzzling.

But then the sun was full of spots, and ARAGO had predicted a season of more than usual severity; and did not a shop-window in the Strand exhibit a mass of American ice, as obstinate and impracticable as the people of that Continent—a republican ice, which refuses to thaw before the aristocratic sun of Europe! It was evident that this lump of ice was (like the patches of snow so long seen on the South Downs) "waiting for more." But that ARAGO should say anything so absurd! We must suppose that because the illustrious philosopher sometimes ventures on the sea of politics, it was thought possible also that he would now and then push his bark into the ocean of prophecy; or, in the extreme of a Baconian philosophy, reason from the known of the unknown. If ARAGO did not condescend to contradict a report so industriously propagated, will any of his calumniators tell us whence he got his premises for such a conclusion?

The fable of the sun-spots had also an unfortunate antagonism. It was found that we are in the midst of a shower of comets; and comets often produce very hot autumns. But then some naturalists will have it that the tails of comets do not partake of the elements of fire; on the contrary, they are watery and cold. Nay, it is not unlikely that a comet was once used to drown the world, and it may do so again, or bind it up in a Scandinavian purgatory of "thick-ribbed ice." Glaciers, we are told, once covered over the Welsh and Scotch Highlands, whose coal-fields and trap-rocks bespeak an earlier season of tropical luxuriance: so that comets, like the hypotheses of geologists, blow hot and cold; and we see so many of both, that we grow familiar with their vagaries, and the world remains where it was, ignorant of its future destinies; and mild and hard winters alternate, and none but the weather-wise know why.

But to continue the history of the winter. The weather, which up to Christmas had been certainly unusually severe, suddenly became mild, notwithstanding that "H. P.," of the *Times*, had just told us that the wind was in the east, and we must expect a continuance of cold. It may be recollected too that the thaw came with a prevalence of easterly currents. Then the whole of January was pre-eminently mild, notwithstanding its vicissitudes of wind and its scantiness of downfall. Thrown a little aback by the failure of former predictions, nobody ventured to prophesy the unexampled severity of the next six weeks. But Fahrenheit's zero is heard of in the middle of February, and the first fortnight of March brings back the recollections of all the signs of a hard winter which beset us in October and November. It is now very clear that Nature intended that the past should be a hard winter; but a chance which did not enter into the calculations of the weather-prophets broke it up with a mild January, of which we may say, as Lord BYRON says of the visionary intruders at his wedding—

What business had it there at such a time?

Well—the winter has been an early and a late one, though not particularly severe, to take it as a whole; and now we are told that the sun is brighter than ever—or as *Punch* will have it, has turned tee-totaller, and cured his face of its blotches—and that we shall certainly have a very hot summer. The comets will doubtless this time be propitious; and Saturn and Herschell (whose unhappy influences we may venture to leave for some other occasion,) will withdraw their cold shade for the present, and we shall escape from the "winter of our discontent," and bask in the sunshine of a glorious Maytide.

But when will the weather-wise have the wisdom to keep to generalities, and not venture to be too particular? Our friend "H. P.," of Bermondsey-square, who speaks by the card, and as one having authority, and is evidently capable of better things if he will but rein in his wits, record facts, and speculate less, and with less love of the marvellous, ventured on the following prediction in the *Times* of 19th instant:—"The weather indicates a continuance of cold easterly winds, which may be expected to be very severe as the sun approaches the line." The letter was copied into other papers. What shall we think of this, when on the 20th (next day) the wind was north, and on the following day blowing a brisk gale, with rain, from the south-west; and now, five days after this prediction, westerly currents are still prevailing? One would wonder, also, how much nearer the line the sun would be than he is on the 19th of March. And will "H. P." tell us why easterly winds should be very "severe as the sun approaches the line?" The truth is, that the weather of this present March has been quite normal, and the winds such as usually prevail at this season, but colder; apparently for the simple reason, that they have come down from the polar regions with more than usual rapidity, and so have been less mitigated *in transitu* over the north of Europe, and the seas that begird it:—and if this be a vaticination, it has the merit at least of coming after the fact.—*P. P.*

A REPORT of the first meeting of a Society formed under the name of the HEALTH OF TOWNS ASSOCIATION has recently been published.* It contains much matter worthy of serious consideration, and relating to subjects having the deepest influence on the health, happiness, and moral condition of the working population of this country.

Within the last few years some philanthropical individuals have drawn public attention to the condition of the lower classes, and exposed the system of heartless indifference with which everything connected with their health and comfort has been so constantly managed by those who do not scruple to sacrifice the well-being of their fellow-creatures to their own pecuniary advantage or convenience. One-tenth part of what was thus brought to light was quite enough to satisfy every reasonable inquirer that there is much in the internal regulations of this country requiring immediate and energetic reform. Accordingly, a Government Commission was appointed to inquire into the matter, and to ascertain the truth of that which was already known to be but too true. The result was a report containing a large amount of statistical and medical information on the sanatory condition of the larger towns.

The formation of a Health of Towns Association appears, however, to show that in the opinion of some persons, the Government Commission is either unable to introduce the requisite measures of reform, or else indifferent as to the time when that reform is to be commenced. We are ourselves of opinion that a National Association, if conducted by sensible and practical men, who can distinguish what is possible from the crotchets by which possibilities are often surrounded, would have great power in ameliorating the condition of the poor; and that a general reform is less likely to be effected by Act of Parliament than by demonstrating to the parties concerned, that it is as much their interest as their duty to attend to the well-being of those poorer than themselves. It is beginning at the wrong end to endeavour to convince the poor that they will be benefited by attention to this or that suggestion. The true method is to show those who have the construction of the dwellings of the poor, that it is their own interest to attend to drainage, ventilation, supply of water, &c. This is, we understand, the object of the new Association; and to such an object we heartily wish all possible success.

ENTOMOLOGY.

CYNIPS QUERCUS-FOLII, *The Oak-leaf Gall-fly.*—Amongst the numerous insects which inhabit the sturdy Oak, are the gall-flies; some forming excrescences at the roots, others Apples upon the young twigs; one we have described affects the racemes of flowers, and several puncture the foliage; one of these forms globular galls on the underside of the leaves, as represented at Fig. 1,

* Proceedings of the first meeting of the Health of Towns Association, held at Exeter Hall, Dec. 11, 1844.—C. Knight.

where it is attached to the midrib. I never saw such multitudes of this kind as there were in the plantations at Heron Court, in Nov. 1840: many of them were as round and large as marbles, and of a rosy colour, which made them look like fruit tempting to the taste; others were smaller and greener, and at that late period a great number had fallen to the ground with the Oak-leaves to which they adhered.

On cutting open a gall transversely in August, I found a globular cavity in the centre, containing a small fat whitish maggot curled up (fig. 2); this was no doubt the young larva of the gall-fly; but on dividing another late in the autumn I observed six empty cavities or cells, in which larvæ had lived, changed to pupæ and hatched, escaping through an aperture visible on the outside; and there was also a smaller hole, connected with the economy of some parasite. On examining the interior of the gall more minutely, I detected some pure white maggots and pupæ of another Cynips, which, from their smaller size, I took to be the males of Cynips Quercus-folii; but six or seven of them hatched the following May, when they proved to be a small species very like C. Quercus-gemmæ; but the ochreous antennæ and legs distinguish it from that species, and it has been described in Curtis's "British Entomology," under the name of "Pallidicornis."* On the 20th of June I also bred from the same galls a parasitic fly, named Decatoma Cooperi. From the galls found in November I obtained specimens of the C. Quercus-folii the following March, and likewise three males of a beautiful species of Callimome, another parasite; there were at that time other pupæ of the same insect in the galls, which produced two female Callimomes the middle of May, at least six weeks after the males had hatched.



C. Quercus-folii is one of the largest British species, and received its name from Linnæus; the *males* are so far less abundant than the females that they have hitherto evaded my search; indeed, this is a remarkable feature in the economy of the gall-flies, for there are several of the most common species of which I have not yet been able to obtain the males. The *female* of C. Quercus-folii is generally black, and clothed with coarse, short, grizzly hairs, excepting the abdomen: the antennæ are longer than the thorax, slender, filiform, and composed of 13 joints; the basal one is stout, the second minute, third the longest, the following decreasing in length until they become very short towards the apex: the head is rough or granulated, and often red round the eyes; there are three minute ocelli on the crown: the thorax, which is very gibbose, has two longitudinal sutures, which divide it into three convex portions; these are intensely black and shining down the centre, the sides being grizzly, with pale hairs, and often of a reddish colour, of which tint the prominent semi-ovate scutellum partakes: the abdomen is equal in size to the head and thorax, and is like polished ebony; it is ovate-conic, the apex being pointed, and beneath is an oblique sheath, which receives the slender acute oviduct: the superior wings are very ample, pubescent, transparent, and iridescent; the nervures are pitchy, uniting on the disc, where they are strongly marked with a minute triangular cell adjoining; the inferior wings are small, with only a few faint nervures at the base: the legs are stoutish and variegated with rust colour, especially at the joints, the hinder pair being the longest; the tarsi are five-jointed and terminated by minute claws. Fig. 3, the cross-lines exhibiting the natural dimensions.

The females perforate the central or some other fibre on the underside of the leaf, where they are most prominent, by means of their horny acute ovipositor, and deposit an egg in the wound; the sap continues to flow, and the gall gradually increases in bulk, whilst the egg hatches, and the little maggot lives upon the cellular tissue, which often keeps hardening around it until it is full grown, when it changes to a pupa, and finally the fly makes its exit by eating a way through the gall, unless it has been stung by a parasite. One of these, the Decatoma Cooperi,† is black, with brown antennæ and yellow legs, the thighs and tibiæ striped with black, the hinder black, except at their base and tips; the wings appear nerveless, with a large pitchy spot on the disc; it is sometimes equal to the Cynips in stature, but the Callimome‡ is much smaller, of a most brilliant polished green; antennæ black, legs straw colour, thighs green, and hinder tibiæ black in the males, except at the base and tips; oviduct longer than the rest of the animal.—*Ruricola.*

ON HEATING AND VENTILATING HOT-HOUSES AND CONSERVATORIES.

MUCH as has been written on heating and ventilating horticultural buildings, that important subject cannot be said to be quite exhausted; for we have scarcely attained that degree of eminence in the arrangement of large structures especially, so desirable and necessary for the perfect well-being of plants. The object of these remarks is to direct attention to, and, if possible, to elicit information on these matters, which concern all practical gardeners to a great extent, particularly those who have the charge of large hothouses and conservatories; and as these immense structures are, in consequence of the remission of duty upon glass, likely to become more general throughout the country, every gardener should lend a hand in the solution of one or two problems relating to this interesting inquiry; for, after all, mysteries of this kind are much more likely to be cleared up by practical men than by philosophers. It has, doubtless, been the lot of those who have had the charge of large glass-houses, to have experienced great trouble and much difficulty in keeping down the temperature during clear sunshine; and the effect of this in spring is to wither the young shoots and foliage, just as they make their first appearance. This effect, once or twice repeated on many kinds of tender-leaved plants, is not only ruinous for the time being, but is frequently the cause of death. These effects are soonest produced in houses constructed with metallic roofs, and glazed with sheet-glass, thus rendering what is considered elegant and beautiful in these ornamental structures fatal in the application, as vegetation thrives ten times more luxuriantly under the huge wooden beams and rafters, with green glass and leaden laps. Shading of different kinds has been extensively adopted to counteract the scorching influences of a warm sun; but this at best is a nuisance, and in some cases it is impossible to remove it with sufficient ease and rapidity to reap the advantages resulting from lightly constructed edifices with clear and spotless glass. Take, for example, a conservatory similarly built to the large building in the Horticultural Society's Garden at Chiswick; and it will be found in all such erections utterly impossible to produce or maintain luxuriant foliation in a general collection of plants, even although considerable command may be had in blinding the sun's rays. The spring leaves being so excessively tender, with every care they are almost sure to get scorched. Plants growing in tropical countries do not suffer in this way, because the heat of the sun, although great, is not increased by artificial means as in glass-houses, where the tension of the atmosphere becomes immense; the young juicy foliage is in consequence compelled to part with its moisture, and it withers in an hour. The admission of air to lower the temperature, or rather to prevent the temperature from rising so very rapidly, is a point too often overlooked, because it has not been so clearly understood by those who build houses for plants, as by those who grow plants in them. Almost all the great plant-structures with which I am acquainted are notoriously deficient in this respect. Plate-glass and metallic sash-bars offer little obstruction to the admission of light and heat transmitted from the sun, and on this account, anomalous as it may appear, their value in horticulture is estimated, and so it should be; because the watery juices of plants are elaborated just in proportion to the presence of them; but then they should be present naturally and relatively.



In tropical countries, where vegetation is daily subjected to a vertical sun, plants are differently circumstanced at the roots from those in our conservatories. The soil in which they grow becomes heated to an extent scarcely credible in this country; so much so, that at several inches beneath the surface, 80° and 90° is no uncommon indication of the temperature. How different is the case in our large conservatories. Place, for example, a thermometer on the points of the branches in the wood cut, and bury another in the soil about the roots, and this disparity will prove quite startling. The solar calorific transmissions in the tropics have a very different influence on the earth from what the temperature of a hothouse ever can have, even supposing the heat in the latter case to be much higher, and making every allowance for the natural tendency of bodies to assume an equilibrium of temperature when placed in contact with each other. No plant, therefore, it is quite clear, can long continue in health under such circumstances; it is, in fact, like a person with his feet in an icehouse and his head in an oven.

It has been held a high attainment in the art of gardening, to command completely at all times bottom-heat corresponding with the elasticity of the air in which the plant breathes; that is, if the branches are in a temperate climate, the roots should be so likewise; but if the branches of plants are exposed to powerful calorific influences, no truth can be more palpably clear, than that the media through which they derive their nutriment should participate in and approximate nearly to a similar temperature, or we act in opposition to the laws which spread vitality over the whole surface of the globe.—*R. Glendinning.*

(To be continued.)

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. IX.—*Cuttings of Monocotyledons.* — We have thought till now that cuttings of Monocotyledons were very difficult, if not impossible, to strike. I am convinced, from observations and repeated trials, that plants of this numerous class are among the most easy to multiply by cuttings of the branches. Experience has taught me that these branches of Monocotyledonous plants should be taken from wood of one year old or less, and that they root as well when they are 5 or 6 years old; but herbaceous cuttings, as well as cuttings of roots, never succeed; which is the more remarkable, because in Dicotyledons the contrary is the case. I successfully multiply from cuttings of branches, Dracæna, Freycinetia, Vanilla, and many others.

Cuttings of Monocotyledons should be made with all their leaves, for it takes some time to replace these if they are cut off; however, there are some species whose long leaves are difficult to place under glasses. We may remedy this inconvenience by turning the leaves back along the stalk, a position which we maintain by tying them as may be requisite, as is shown in Fig. 7. Cuttings disposed in this manner seldom rot.

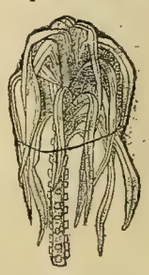


Fig. 7. Branch of Dracæna umbraculifera prepared for a cutting.

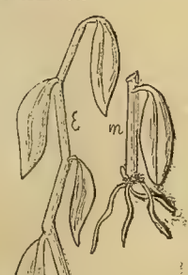


Fig. 8.

The operation consists in cutting away, for about 1-5th of an inch from their point of attachment, the leaves at the bottom of the cutting, all the length of the portion which is to be buried. It is not always necessary to take the extremities of branches for cuttings of this sort. If cut into pieces they succeed nearly equally well; it is thus that I multiply the Vanilla, in cutting the branch into pieces having two eyes each, as would be the case if the accompanying branch were divided at E, Fig. 8, keeping as near as possible to the point of attachment of the leaf, and taking care not to hurt the shoot in its axil. Fig. 8, *m* shows the lower end of a stalk from which the leaf has been cut, and the appearance of such a cutting when it is rooting.

THE ACCUMULATIVE SYSTEM OF CULTIVATION.

IN May, 1842, twelve greenhouse climbers, in 3 and 5-inch pots, including Kennedya inophylla floribunda K. villosa, K. coccinea, Brachysema latifolium, Physolobium carinatum, P. gracile, &c., were potted in a similar manner to that described at p. 693, vol. 1843, and in "Paxton's Magazine of Botany," for May, 1843, which is as follows:—Large portions of compact turf or heath-mould (Wimbledon), off the surface, from two to four inches thick, were piled upon a temperate stove-flue, and adjoining the hot-water pipes, for the purpose of reducing its power of retaining moisture beyond a suitable period, after which they were cut into portions, from one to four inches square, and slightly sprinkled so as to moisten the whole.

A quantity of heath-mould, previously broken up for ordinary potting, was then passed through a sieve of two eighths of an inch square in the wire, and after making the sifted remains as uniform as possible, by rejecting all coarse fibre and extraneous matter, they were mixed with nearly one-half of reduced potsherds, about the size of small Beans, adding one-sixth of coarse white sand.

Eleven and twelve-inch pots were then prepared by placing two inches of coarse crocks as bottom drainage, upon which were placed the largest of the square portions, which were gradually built up with the lesser ones, filling the interstices between with the siftings of peat and crocks, the latter being firmly placed. Each pot was thus filled so as to allow the ball of the plant to remain quite level with the rim of the pot,—but previously to being permanently placed, each plant was examined as to the depth of soil on the old ball above the axis of the stem with the roots, or as it is commonly called the neck of the plant; and where it was requisite the surface soil of each ball was reduced, so as to admit of an immediate action of the atmosphere; the thinnest covering of soil upon the upper roots is sufficient, but in many instances, where the first or leading roots had started a little above the main mass, they were left slightly exposed.

Various opinions have been offered as to the alleged

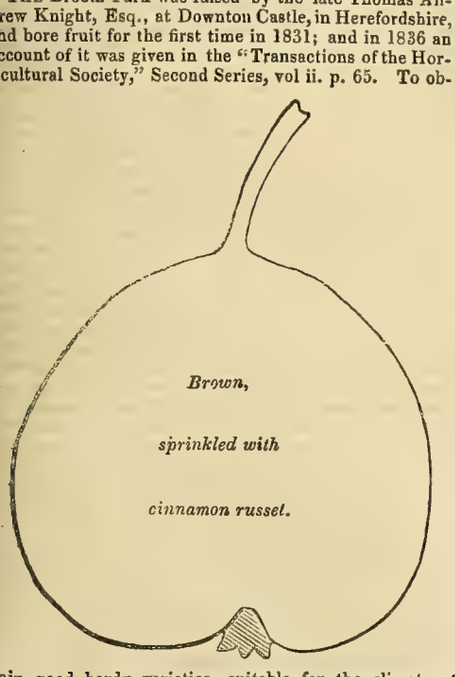
* Fol. 688. Guide Gen., 664, 12.
† Curt. Brit. Ent., pl. and fol. 345. ‡ Ib., pl. and fol. 552.

benefits arising from a partial elevation of the ball of roots above the common level of the surrounding soil, but I imagine that the *rationale* of the practice may be thus given:—A partial elevation of the roots of plants in an artificial state of growth, is intended to act as a remedy against excess of moisture, arising either from a defective arrangement of soil, or from injury sustained by exposure to situations where the agencies essential to growth, as light, air, &c., act imperfectly upon them; or finally, as a preservative from the fluctuations of treatment, which plants often experience when committed to the care of persons possessing inadequate skill. Most plants are capable of maintaining a healthy condition, (other points being equal), so long as a balance is kept up between the atmosphere in which they are placed, and the absorbing power of the material in which they are grown; but from whatever cause such a condition is interfered with, the natural result is, an impeded circulation of the fluids by which they are sustained, and, apart from a corrective or remedial process in potting, their organs are rendered incapable of assimilating food from the soil; disease gradually saps their vitality, and death finally ensues. Those who admit the attainment of perfect growth in plants, may be reminded that however slight the suspension of the reciprocal action between the organs of plants and the agencies which surround them, however partial the loss, that which is lost no future agency can restore.

If the foregoing remarks are admitted as correct, being founded upon an admitted principle of Horticulture, that "a certain quantity of atmospheric air appears indispensable to the healthy execution of the functions of plants," * then it may be assumed that a partial elevation of the roots under artificial culture, is the only true test of their due exposure to atmospheric and solar agency. The application of this rule will depend upon a correct knowledge of the mechanical properties and arrangement of soils, and also upon a knowledge of the physiological structure of plants—their power to assimilate food and secrete sap from vegetable matter—their circulation of sap within a given period—their capability of withstanding extreme fluctuations of temperature, &c.;—these conditions, in connection with the situation in which they are grown, will determine the medium of elevation for the roots of plants. The most comprehensive and natural distinction respecting the importance of their roots being uniformly exposed to the influence of the atmosphere, however, is that founded upon their physiological structure. By this it will appear that a partial elevation of the roots is essential, exactly in proportion to their slow and uniform secretion of sap, and *vice versâ*. Thus, the natural orders, Ericaceæ, Epacridaceæ, Proteaceæ, Thymelaceæ, Leguminosæ (of New Holland), are prominent instances of plants which are well known to be benefited by having their roots elevated; whilst the extensive orders of Labiatæ, Compositæ, Cruciferæ, Malvaceæ, &c. &c., include plants whose habits of growth are also well known to dispense with any special attention to the elevation of their roots. With regard to the importance of the action of the atmosphere upon roots, it may be remarked, that every method of potting is imperfect which does not admit of a uniform and immediate circulation of moisture equal to its whole amount of soil.—*W. Wood, Pine Apple Place.*

BROOM PARK PEAR.

The Broom Park was raised by the late Thomas Andrew Knight, Esq., at Downton Castle, in Herefordshire, and bore fruit for the first time in 1831; and in 1836 an account of it was given in the "Transactions of the Horticultural Society," Second Series, vol ii. p. 65. To obtain good hardy varieties, suitable for the climate of Britain, was the principal object which Mr. Knight had in view in raising seedlings; and accordingly such as proved tender he destroyed; and hence it is found that all his varieties, now beginning to obtain cultivation throughout the country, prove to be hardy—a quality possessed by the Broom Park in a superlative degree. This will be best inferred from the following note by Mr. Knight:—"The influence of the season of 1832 upon the different varieties of seedling Pears sent to the Horticultural Society has been widely different, though in all cases injurious, probably, I think, owing to the cold and unfavourable weather in May having checked and deranged the flow of the sap of the trees. The Althorp Crassane Pears attained their usual size and flavour, but were a fortnight later in ripening than in the comparatively wet season of 1830. The Broom Park Pears were also good; but none of the others possessed so great a share of their previous merits."



The flesh is yellowish, melting, juicy, and rich, with something of a Melon flavour; or rather its very peculiar flavour may be said to partake of those of the Melon and Pine-apple. This singular admixture of flavour, Mr. Knight observed, was noticed at Downton Castle as well as in London. Season, January. The tree is a good bearer, vigorous, requiring not the protection of a wall. Shoots olive yellow, as yet prickly; but thorns, so common on recent seedlings, intended for their protection, generally disappear with age, and fruit-spurs are seen instead. Epineux is not now a distinguishing affix in the case of the Passe Colmar. The Broom Park succeeds on the Quince stock. Some grafts of this variety, which a gentleman had worked on the common Hawthorn, produced fruit of excellent flavour in the past season.—*R. T.*

* Lindley's "Principles of Horticulture," p. 48.

Home Correspondence.

Dendrobium speciosum.—Having been very successful in the cultivation of this, on a very different plan to what I have generally seen pursued, an account of my method may prove of service to those who fail in flowering it. I have had the plant perhaps 10 years; and when it has flowered, I noticed that it was when it had been kept very cool during the winter previous, which had been done accidentally. Last spring, I determined to treat it as a greenhouse plant, and kept it in a Vinery, with so little fire-heat that Muscat Grapes would but just ripen. The plant made three bulbs about 9 inches in length and 6 inches in circumference; the leaves were 9 inches in length, and 3½ inches in width, and are larger than the plant had ever made before. The plant has remained the whole year in this house, along with Pelargoniums, Cinerarias, &c., and has now put up 13 flower-spikes, several of them on bulbs four or five years old, and I think not one on last summer's bulbs. One season, when the plant was in the Orchidaceous house, the bulbs were long and very thin, so that I cut them off from the plant, as they quite disfigured it. By cultivators pursuing the above system, I hope to hear of this beautiful and sweet-scented species being flowered more frequently.—*George Walker, Eastwood, Notts.*

Galvanic Protectors.—Dr. Horner's interesting article respecting galvanic protectors not being in general use, will be read by some with interest. Their not being generally used may, as he states, possibly be owing to the indolence of gardeners not bestowing the least care in brightening up those articles with brickdust and leather, in the same way, possibly, as metal teapots are cleaned. Some gardeners, however, had no knowledge that those machines required brightening up, to be useful. Never having seen one of those galvanic plant protectors myself, I am quite ignorant of their utility, and I am therefore induced to ask Dr. Horner the following questions respecting them:—1st. Are those galvanic protectors necessary appendages to a garden? 2d. Are there no better or more natural contrivances for destroying or expelling the slug, snail, and other vermin, than galvanising them? 3d. Do those protectors, when in proper condition, that is, brightened with brickdust and leather, effectually kill, destroy, alarm, or only galvanise those vermin? If only acted on by the galvanism I should imagine in some cases it would be likely to act beneficially on those that are old and afflicted, in the same way as it is said to act on some bipeds. The above are all-important matters for people, ignorant like myself, to know; and having long considered that it is want of industry which allows slugs and snails to harbour in gardens, and thinking previously that I had a more simple and inexpensive method of expelling those vermin, is the reason that I never once thought of putting my employer to the expense of introducing galvanic protectors, which are considered by some almost useless in gardens, in certain changes of weather. Any information, therefore, on the subject would be very thankfully received; and afterwards, if it should be considered worth while, I will be most happy to make known my method of expelling those vermin.—*J. Barnes, Bicton Gardens.*

Propagating Roses.—The following is a method that I have practised with success in propagating different kinds of Roses. At the autumn pruning I collect shoots that are well ripened of the various sorts that I wish to increase, and of these I select the middle part, rejecting both the base and termination, the former of which is in general too hard, while the latter is not sufficiently matured for the purpose. I then cut the parts selected into about 8-inch lengths, and prepare them in the same manner as Gooseberry cuttings, by divesting them of all their eyes except the three uppermost; they are then cut through at the base of the lowest eye; after which they are planted in rows, 4 inches apart, and about 2 inches between each cutting in the rows, on a warm south border. If the soil is naturally light it receives no other preparation than what is absolutely necessary for the reception of the cuttings; they are planted about half their length in the ground. After planting I cover the ground with old tan, up to the lowest eye of the cutting, and at the approach of frost I stick small branches of Furze thickly into the bed, which I find quite a sufficient protection, and at the same time they admit sufficient light during the dormant state of the cutting: the Furze is removed when danger from sharp frost is to be no longer dreaded; and early in spring most of their buds will break strongly, according to the kinds. By the following autumn they will have made strong shoots, and will be well rooted, at which time they will be fit for removal to any situation which they may be permanently required to fill. In the manner described above I have succeeded in striking Gallicas, Albas, Bourbons, Noisettes, Provins, with their hybrids, but I have never been able to strike any Moss Roses in this way.—*C. Judd.*

Pelargoniums.—Whilst it is absolutely necessary that rules should be laid down by which seedling Pelargoniums are to be judged, and that a standard of excellence should be raised, which growers must endeavour to attain, it does not follow that there may not be many flowers well deserving a place upon the stage of the amateur, which will not bear too critical an examination. For instance, we may have novel and extraordinary colour without shape, or beautiful combinations of colour with the same defect. Such flowers the judges must pass over, but the general admirer will do well to possess them, because, by judiciously placing them on the stand, he will greatly heighten the general effect of his collection. This leads me to remark that it is worth the attention of gardeners to study well the arrangement of flowering plants in greenhouses, that by contrasts of colour, &c., they may produce the greatest effect. I have often noticed a plant with some glaring defect placed close to the eye, whilst another of great beauty has stood at the top of the stage; or a rose-coloured Pelargonium placed beside a scarlet. I need not multiply instances, for they must be familiar to every one who has studied the subject. We have as much need to cultivate taste in these particulars as have ladies in the arrangement of colours in their dress; and it is unpardonable in those who attend the Exhibitions at Chiswick, and have such opportunities of study, not to profit by them.—*Veritas.*

Migration of Birds.—In reply to "J. R." (p. 189), I would mention that I believe it is the wonted custom of sea-gulls to make a journey inland at this season; they may be seen every spring on Salisbury Plain—a distance of from 20 to 30 miles from the sea. Hundreds congregate on the Downs, and spend the day there, returning to the "watery element" at night. The object of their periodical visits is, I believe, not clearly ascertained. Some suppose they are in search of worms and insects, which come to the surface of the earth at the breaking up of winter; while others are of opinion that they resort to such places for the sake of pairing. They are never observed to visit the Downs in these parts, except just before the breeding season sets in.—*J. J. F., Devizes.*

Verbena.—I am a great lover of the Verbena, and to no flower are our gardens more indebted for gaiety and brilliancy of colour than to this little favourite. The sorts already in cultivation are numerous and beautiful, and judging from a specimen that came under my notice last autumn, in a bouquet from Covent Garden, it is more than probable that variations will occur that will greatly increase the interest of this flower. The variety I allude to differed from any I had previously seen; it was a variety of *Melindres*, being of the same intense colour, with yellow tube, surrounded by a ring of scarlet, and in each division of the corolla there was a white spot, as represented in the woodcut; the rest of the flower was scarlet, precisely like *Melindres;* it was like a gem, gay and sparkling in appearance. Not being able to gain any information respecting this variety, and looking in vain through the advertising columns for its appearance, I trust that this notice may meet the eye of the possessor, who will learn that this flower is an object of interest. Should it unfortunately, however, be lost, it will be interesting to florists to know that such a variety has been raised.—*C.*



Cheap Glass.—I agree with you that cheap and good glass will quite change our system of gardening; and we should lose no time in considering all, and the best ways of availing ourselves of this benefit. It is too late this spring to make glass screens for our walls, but not too soon to begin to think of and devise the best modes of making them, to have them for September, October, and November, to ripen the wood of Peaches, Pears, and Nectarines; and to keep the borders free from the autumnal rains, so prejudicial in this country as regards the ripening of wood. I propose a good stout sill fixed in the ground, and ledge fixed to the top of the wall, to which the lights may be fastened in spring and autumn (whether, however, there should be a perpendicular rail, to which each light should be fixed with a hinge, so as to open each light, for the purpose of giving air, may be a question); the bottom sill to be about 6 feet from the base of the wall. This will, probably, insure a constant crop, or nearly so; first, by reason of complete protection from east winds and spring frosts, and next, by insuring the ripening the wood in the autumn. Having got cheap glass, the next matter is to consider how best to use it; (I assume that size will no longer be an object in the price, and that there will not be the inducement to buy the little scraps now used; and, instead of the slight frames and narrow bars, which cause the glass to break in the moving the lights, we may now have the woodwork stronger;) and the best and the cheapest mode of making common sashes, as regards the storing them away when not wanted. These glass screens will at once save coping, and all netting, or other imperfect

protections in the spring. Again, I think much may be done in this way, of forcing dwarf-trees, Cherries, Figs, Peaches, &c., in low wooden houses, with glass roofs, which may be removed after the fruit is safe. Thus, make a light framework of wood—say 40 feet by 10 feet; board it up 3 feet all round, and put a span roof of glass sashes, which may be taken off when the fruit is safe; and plant Dwarf Peaches, Cherries, and Figs, in the ground inside—the object being not to force, which requires time and knowledge, but mere protection. Perhaps, however, the having boarded, or turf-pits and trained trees, and covering with lights, will be the simplest, especially for Peaches and Grapes. I believe most of the Dutch Grapes are so grown. All these are points to be now considered, but especially the cheapest and best kind of sash, and the best mode of managing trees under such circumstances. At present, I believe, we have little experience as to these matters. It is either common walls, or regular early forcing that is practised here. Some years ago, in the public gardens at Frankfort, there was a large moveable greenhouse, and in the inclosed space were planted many fine specimens, as in a parterre, and the frame and sashes were taken away in summer, and the plants appeared as if they were growing in the open ground.—*Dodman.*

Peaches.—Can any of your correspondents give me their experience as to growing Peaches, Nectarines and Apricots on pales? I have little wall, but much common deal paling, with south, east, and west aspect. The border well drained, will this do for Peaches, &c., and what are the hardiest sorts?—*Dodman.*

Early Peaches.—Notwithstanding the many serious drawbacks occasioned by unfavourable weather, I have succeeded in gathering a ripe Peach this day (22d of March). This is 16 days earlier than I had them last year, having then gathered the first one on the 7th of April. Had the season been more congenial, it is reasonable to suppose that I would have been several days earlier. Thus, I have fulfilled my prediction of last year, that I had no doubt of yet being able to produce ripe Peaches in March.—*William Hutchison, Gardener to E. J. Shirley, Esq., M.P., Eatington Park.*

Tulips from Seed.—An article has been inserted in the *Gardener and Practical Florist*, respecting raising Tulips from seed, which is calculated to mislead the amateur who follows out the plan recommended. The article in question recommends the seeds to be sown in September or October, and as they come up to throw over them a little soil. I tried this plan about 12 years ago, and for several years I sowed the seed in October, but I never raised a single bulb from such sowings; and many folks, whom I could name, have experienced similar results. I then tried sowing in the first week in January, and was more successful, for I raised a small quantity of plants. I afterwards sowed the seed in February, and was still more successful, and have since continued to sow in that month. In the year 1843, I neglected to sow some seeds at the proper time, and did not sow them until the month of April, and upon examining them I was so much struck with their size, that I weighed several of the largest, which weighed four grains, and upon weighing those sown in February, the largest weighed only two grains; but, notwithstanding this result, I would rather sow in February, as in the following year they did not take up as well as those which were much smaller when planted, although in the same compost. Again, the writer in the above-mentioned work surely could not have written from actual experience, or he never would have recommended soil to be thrown over the seeds to cover them deeper. In the first place the seed comes up at the top of the foliage like an Onion, and makes but little progress downwards for a few days. It then naturally sinks to the depth of from 3 to 4 inches, and then at the end of the shoot there is a small knotty appearance, similar to excrescences on a Potato, and which is called knitting, which increases in size till it attains maturity. The Tulip bulb, or rather the germ, does not make the smallest fibre in the first year, and, I do not doubt, derives all the nourishment for the formation and increase of the bulb from the foliage; but when planted in the second year they throw out fibres, and make, in some instances, two small offsets; and by good management a few may bloom in the fifth year, but probably many will make so little progress that eight or nine years may elapse before they show their class and character. In some instances, as I keep as well as I can the increase of each separately, I have bloomed a broken flower, and the breeder at the same time.—*John Slater, Florist, Cheetham Hill, near Manchester.*

Fuchsia corymbiflora.—I had last year a splendid specimen of this; the plant had attained to the height of 10 feet. By constantly picking out the flower-shoots in spring I succeeded in obtaining an immense head, and a great profusion of bloom in the autumn. The plant was altogether a splendid spectacle, and I imagine that if "P. Schlemihl" could have seen it, he would have reversed his opinion respecting the beauty of this variety. —*Quercus II.*

Snow Soap.—The following is a receipt for making soap, that has succeeded well with me:—Slice 2 lbs. of yellow soap, put it with 7 lbs. of snow in a brass kettle; when dissolved, add 2 table-spoonfuls of salt. Let it simmer for three hours without stirring; then boil it fast half an hour, stirring it frequently. Take it off the fire and add sixpennyworth of oil of lavender, ditto ambergris, half a drachm of cassia, and six grains of musk; stir it well together, and pour it into dishes. After remaining in them for a few days turn it out and cut it into pieces; dry them gradually, wrapped in papers. I made 7¼ lbs. from the 2 lbs. of soap. Can you give a chemical explanation?—*Experto Crede.*—[We do not think this soap mystery inexplicable. When soap is so treated (setting aside the brass kettle and snow, which we suspect are of no use), it merely becomes puffed up, and contains much water and vapour of volatile oil. When first put into water the salt is required to prevent it wholly melting, or rather dissolving, in the water, as soap is insoluble in brine; hence the soap softens, absorbs water, and greatly increases in bulk. The useful qualities of the soap are not at all increased; it is so much solid froth, or soap full of water and vapour.]

True Highland Pine.—Your correspondent "Pinus Sylvestris" seems to doubt whether the tree known as the Highland Pine be a distinct variety of Scotch Fir, and goes on to state that he has been "credibly informed that plants from Highland seeds have been for some time past greatly employed in forming plantations in the north of Scotland; but that this has been owing to the lowness of their price rather than to any particular faith the purchasers have in being rewarded by very superior timber." A little more inquiry on the subject will however prove that in the North prices for the Highland Pine plants are invariably higher than those for the common tree, and the Highland and Agricultural Society of Scotland have for the last 10 years offered premiums to the person who should rear the greatest quantity of Highland Pine plants, being persuaded of its great superiority over the common soft-wooded tree. Still further inquiry will elicit the fact that the attention of the Commissioners of Her Majesty's Woods and Forests has for years been directed to this Pine, and that they have a stock now ready to be planted out, they also being convinced of its claims as a timber-tree over the P. sylvestris. Your correspondent asks, "If seeds of the Highland Pine produce timber-trees equal in quality to those from which they are taken, and even surpass the Cedar of Lebanon, how does it come to pass that timber throughout England and Scotland of the Scotch Pine is so inferior, when it is clear that all the plantations of the Common Pine, as it is called, owe their parentage to the Highland forests?" 1st. Trees raised from seeds of the Highland Pine do produce timber equal in quality to those from which they were taken, and it consequently follows that all the "timber throughout England and Scotland of the Scotch Pine" is not of inferior quality, as he represents it to be. A very little inquiry enabled me to find trees of the true sort growing in England, and I walked 50 miles to see them. They were growing in Beeston Park, Norfolk, one of the seats of N. Micklethwaite, Esq., along with a few of the common tree. With one exception, those trees have since been cut down, and specimens of the wood of both sorts presented to me by the proprietor: that of the Highland Pine being almost all heart-wood, of a reddish colour, as if painted, full of turpentine, and apparently as durable as the wood of the Oak. The other was of the usual description, white and soft. The trees were of the same age, and grew together on the same soil. A few miles distant, is Stratton Strawless, the seat of R. Marsham, Esq., where there are trees of the same character, the wood of one of the sorts "being found white throughout, while the heart-wood of the other is red." Are such statements to be considered as mere assertions? I have no doubt Highland Pines are to be found in many other places, viz. at Muswell-hill, Syon, Whitton, Keswick, Blickling, Horsford, Basilsleigh, Thirkleby, Hamhouse, and Claremont. In the lowlands of Scotland, they are to be found at Pluscarden, Gordon Castle, Duffhouse, and Dalmeny Park. 2d. It is not by any means "clear that all the plantations of the common Pine owe their parentage to the Highland forests:" for it is certain that some of them have been raised from seeds collected in the forests of Poland, Russia, Sweden, Norway, and Germany. In the "Quarterly Review" for Oct. 1828, Sir Walter Scott asserts that the white-wooded Scotch Fir, so prevalent in England and the lowlands of Scotland, "is an inferior variety, brought from Canada not more than half a century since;" but without subscribing to this idea, which I believe to be incorrect, it is enough for me to establish the fact, as already done, that the Highland Pine maintains its superiority wherever planted, and produces red and durable wood. And 3dly, I maintain that the ramification of the true Highland Pine is unquestionably superior to that of the Cedar of Lebanon; and the remaining tree at Beeston I beg to instance as my proof.—*A Highlander.*

Performance of Boilers.—The comparative merits of the different boilers would be easily and satisfactorily determined, if such returns as this were generally made.

PERFORMANCE OF HEATING APPARATUS.

1845. Mar.	External Temperature.	Internal Temperature. Fruiting House, 25 by 14, 140 feet of 3 inch piping.	Internal Temperature. Succession Pits, 26 by 14, 186 ft. of 3-in. piping.	Internal Temperature. Pits, 51 by 12, 110 feet of 3-inch piping.	Fuel consumed in 12 hrs., 2d Moira coal.
9	33	67	57	56	1½ bus.
10	32	67	56	55	1½
11	26	66	56	56	1½
12	24	67	60	55	1½
13	12	61	50	55	2
14	23	63	50	55	1¼
15	24	67	57	57	1¼

I use the tubular boiler, with Burbidge and Healy's furnace and ash pit doors (Sylvester's patent), without which, or some other equally effective means of checking the rapid draught, I found the boiler in question extremely wasteful of fuel. To a considerable extent this objection has been removed, by the addition of the patent doors; but, in order to judge of the comparative merits of this and other boilers, I must await the returns from other correspondents.—*J. K. H., Castle House, Wallingford.*

Vines.—I have at present, in my fruiting-house, a single cane of the Sweetwater Vine 15 feet in length, with no less than 44 well set and large sized bunches. The parent stem, (an old plant), grows against an outer wall, and the cane is brought under a path into the back of the house, and down the rafter; and to this downward training, and the check the sap has consequently sustained, I attribute the crop, which appears to afford an instance of extraordinary bearing.—*J. K. H., Castle House, Wallingford.*

Seedling Epacrises.—In the Report of the Meeting of the Horticultural Society, of the 18th inst., it is suggested that, if E. impressa were crossed by grandiflora, something good might be expected. The seedling in question (ardentissima) is descended from those two varieties. In the early part of 1842 I bloomed between 200 and 300 seedlings, the produce of grandiflora on impressa, and *vice versâ*; the whole, with very few exceptions, were long flowers, much resembling each other in colour and form, with a habit more like that of grandiflora than impressa. They were rather too dull in colour. Not despairing, however, of obtaining something good in another generation, I crossed these upon grandiflora, and *vice versâ*; and my expectations, in this instance, were fully realised, for many beautiful and distinct varieties have been the result. This cross produced flowers brilliant in colour, and various in character: grandifloras with beautifully white and well reflexed lips; impressas as long as grandiflora, with trumpet-shaped tubes; while others, again, showed an evident disposition to be striped; and one plant has nearly a white tube with a pale rosy lip. Such is the character of the grandchildren of grandiflora and impressa, and from their tendency, I have no hesitation in predicting that another cross, aided by miniata, will open such a field for the hybridist, as will bring this somewhat neglected, but beautiful tribe of flowers, more into general cultivation and public favour.—*W. H. Story.*

Labels.—In reference to the paragraph, p. 189, I may mention that stakes failed with me when the untarred part of the stakes or labels came in contact with the moist earth, but never when they were tarred sufficiently high to be above the reach of moisture from the soil.—*J. L. Snow.*

The Weather.—We have received reports from various parts of the country, concerning the severity of the late frost. Mr. Drummond, Blair Drummond Gardens, near Stirling, gives the following account of the state of a thermometer, on a north aspect, 10 feet from the ground, for the seven days ending March 20:—

Friday, 14th	10½° min.	Tuesday, 18th	26° min.
Saturday, 15th	20 ,,	Wednesday, 19th	23 ,,
Sunday, 16th	21 ,,	Thursday, 20th	19 ,,
Monday, 17th	21 ,,		

On the afternoon of the 14th, probably about 9 inches in depth of snow fell in 4 hours, and about 3 inches on the night of the 15th. The lowest point to which the thermometer has fallen in that part of Perthshire is 4° below zero, Fahr. This occurred on the night of the 30th January. On four nights between that date and the present time (March 20), the minimum temperature was 14°, 15°, 17°, and 18° respectively.—Mr. Betteridge furnishes the following account of the state of the thermometer, on a north aspect, at Milton Hill, from the 13th to the 20th inst., inclusive.

Thursday, 13th	8° min.	Monday, 17th	20° min.
Friday, 14th	18 ,,	Tuesday, 18th	28 ,,
Saturday, 15th	21 ,,	Wednesday, 19th	28 ,,
Sunday, 16th	18 ,,	Thursday, 20th	24 ,,

Mr. B. mentions that he has only lost about 1 in 10 of his Broccoli plants, and a few tender Roses; but that in a field of Beans planted in January, 2 out of every 3 are brown, and apparently dead. — Mr. Webster, Eartham, Sussex, remarks that the coldest night in that quarter occurred on the 13th and 14th inst.; on the former the thermometer fell to 8° at ½ past 3 o'clock, P.M., and to 12° on the morning of the 14th. The situation is distant from the sea about 8 miles.—Mr. Brown, Rockingham Castle, mentions that on the 12th, snow fell, covering the ground, on an average, about 6 inches in depth. In the evening of the 13th a thermometer, in an exposed situation, fell to 18°, and at 11 o'clock on the same night it fell 4° below zero. At 6 o'clock on the morning of the 14th, it was 2° below zero; and even at 7 o'clock, although the sun shone brightly, it still stood at the same point.—Finally, Mr. Abell, writing from Limerick, states that on the night of the 13th, a thermometer on a N.N.W. aspect fell to 18°, although in a sheltered situation. On the night of the 15th it fell to 21°, and on being laid on a bed in the garden in the hot sun next day, it rose to 80° at a quarter before 3 o'clock, P.M., and in about two hours afterwards, when the sun had ceased to shine on it, it fell below 40°! thus showing a remarkable variation in the temperature in a very short time; at half-past 6 it had fallen again to the freezing point, and during the night it fell to 25½°; since that time the weather had gradually become warmer.

Statice arborea.—I beg to assure "Duro" that my plant of this has stood in the conservatory, summer and winter, for the last three years; and that the maximum temperature by fire-heat is 44° Fahrenheit. The house being large, the general range of temperature in it has been from 40° to 44°, excepting when assisted by sun-heat. During very severe frosts I have frequently seen

the thermometer as low as 38°, and sometimes even 36°. The plant has been kept very dry until it began to show flower; receiving no moisture whatever, excepting occasional damping over head.—*J. L. Snow.*

Erratum.—In No. 11, p. 170, col. c, in Camellias, for "Wellbonstriana," read "Wellbankiana."

Societies.

MICROSCOPICAL SOCIETY.

March 19.—Professor Bell in the chair.—Professor Ansted, S. Pratt, Esq., the Rev. T. Spicer, C. Brind, Esq., and Dr. Gull, were elected members.—A paper was read from Mr. Smee, on the Minute Anatomy of Fat. The author pointed out a series of vessels, which he had succeeded in injecting by means of carmine and liquid ammonia, which ran parallel with the sides of the cells, and formed a perfectly regular network around the edges of the cells in which the fat was contained. Mr. Bowerbank stated that these vessels were precisely similar to those he had demonstrated in the structure of the shells of several species of Mollusca, and gave his reason for regarding them as vessels. Dr. Lankester believed that Mr. Smee and Mr. Bowerbank had confounded the cut edges of the cells with vessels; the same appearance was seen in the cellular tissue of vegetables, where there could be no vessels. Mr. John Quekett had seen Mr. Smee's vessels, and believed them to be capillaries.—Dr. Lankester read a paper on some Abnormal Forms of Fungi, with remarks on their morphology. The author first gave an account of a microscopical examination of a specimen of Agaricus personatus, in which a second hymenium was developed, with the gills presented uppermost. He then referred to several forms of monstrous Fungi, which had been observed by Schœffer, Berkeley, and others. He gave a morphological explanation of these irregularities. He regarded the stipes and pileus as the representative of the leaves or nutritive organs of higher plants, and pointed out the relations of these parts to the hymenium or reproductive organs, in the several families of cryptogamic plants. The hymenium he regarded as the analogue of the stamens and pistils, or flower of the higher plants; and the occurrence of the hymenium on the pileus in the Agaricus personatus as a metamorphosis of a similar kind to that which occurs in the conversion of leaves into the parts of the flower in the higher forms of plants. There were forms of Fungi in which the hymenium was developed on the stipes, as in Secotium melanospermum of Berkeley, a Swan River Fungus. In the Pezizas and clavate forms of Fungi, the reproductive organs were presented towards the light, and this was also the case with the Lichens. In the case of one perfect Fungus growing on the top of another, as had been figured by Schœffer, he offered the same explanation as that for proliferous flowers, in which a second flower-bud was abnormally developed in the tissue of the first. After the papers were read, several objects were exhibited in the Society's microscopes, and the attention of the members was drawn to a new microscope of microscopic dimensions, to which were fitted glasses that would magnify 600 diameters, which secured perfect steadiness, and the whole could be carried in the waistcoat pocket.

Reviews.

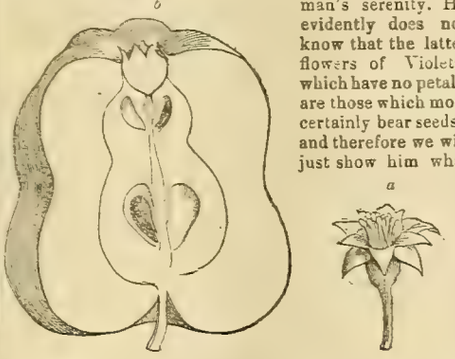
Strictures on Morphology; its Unwarrantable Assumptions and Atheistical Tendency. By John Murray, M.A., Ph.D. Hamilton.

This is a pamphlet of 25 pages, the purpose of which is sufficiently indicated by its title. The author states it to be his firm conviction (reasoning from inductive principles), that the legitimate tendency of Morphology is atheistical, wherefore he has considered it a sound duty to denounce it. We quarrel with no man for doing what he fancies to be his duty; but we would humbly submit that there is another kind of duty which people who write books owe to their readers; and that is, to make themselves acquainted, at least in some small degree, with the subject which employs their pen. Dr. John Murray has not done that; he is contented with what *he* is pleased to call induction; and if we are to judge from his pages, he treats observation with disdain. He takes for his motto the schoolboy quotation—"Monstrum horrendum, informe, ingens, *cui lumen ademptum*;" but he metamorphoses it into "Monstrum horrendum ingens, mirabile dictu." Did he think that the true words would bear too obvious an application to himself?

Dr. John Murray's production abounds in such epithets as impious, atheistical, hideous, horror, lunatics, unintelligible bombast, madness of folly, consummate nonsense, infamous dogmas, and similar expressions; but argument it has none. Yet the views of Morphologists are founded on direct observation, and on what they believe to be unquestionable facts; and in order to meet their arguments it should be shown that their observations are erroneous, or their reasoning false. That Dr. Murray does not do.

He says, indeed, that it passes his comprehension how the leaf of a Fig-tree can ever become its fruit, which nobody says that it does; and we can easily believe that very simple things *are* beyond his comprehension. But that is no reason why they should not be true. We are not aware that truth is to be measured by the power of Dr. John Murray's intellect; if, indeed, it were so, truth would be an object of much pity. Let us give a specimen of what the learned man calls reasoning! Morphologists say that *in the beginning* the part which becomes a leaf is identical with one of the parts which, under different circumstances becomes a portion of a flower; the force of development being excessive in the former case, and feeble in the latter: this is not a matter of opinion, but a simple fact. What is Dr. John Murray's answer to this? We quote his words. "How a leaf of vast dimensions can *contract* itself into a blossom, in many cases comparatively microscopic, is not easily intelligible." (p. 11). Is this what he calls his Induction?

But if Dr. John Murray, in his eagerness to become a martyr to the impious, atheistical, hideous, repulsive, and so forth doctrines of Morphology, has rummaged his commonplace-book in vain for quotations or arguments, we cannot deny that he does sometimes appeal to facts. Here is a specimen of them: "As I am fond of facts, it may suffice here to say, once for all, in flat contradiction to our author's impious assumption, that there is an Apple-tree at Burlington, which bears the sexual parts of the flower in the most perfect condition, but entirely denuded of petals; the consequence is, that the fruit swells and ripens like other Apples, *but these Apples are entirely seedless.*" Surely there is no state so happy as that of ignorance; it is quite a misfortune that we should have the ungracious task of disturbing this good man's serenity. He evidently does not know that the latter flowers of Violets, which have no petals, are those which most certainly bear seeds; and therefore we will just show him what



sort of fruit an Apple without petals *does* bear—*a*, in the accompanying cut, being the flower, and *b* the fruit. If our senses do not deceive us, there are seeds enough here.

We have said that we can find nothing deserving the name of an argument in Dr. John Murray's pamphlet. Let us then inquire who he is, and whether his well-known botanical eminence gives his opinions any weight. For, be it remembered, this is a purely botanical question, of considerable importance, indeed, to horticulture, but still one of pure botany, with which none but botanists are capable of dealing. We must declare, then, that although we know, either personally or by their writings, every living botanist having any kind of scientific reputation, we do not know such a person as Dr. John Murray; we never heard of him as a botanist, and we cannot find anybody who ever did. We cannot, then, accept him as a person of any authority *per se*.

But perhaps Dr. John Murray is the mouthpiece of some eminent botanist who does not like to mix himself up with controversial questions. If so, we do not ask him to betray his trust, but we invite him to name any vegetable physiologist of the present day who does not recognise the truths of Morphology. *We* know no such person; and it is to be feared that the nerves of our zealous Doctor will be seriously shocked at learning that Linnæus was one of the fathers of the wicked heresy. We beg to refer him to the well known "Prolepsis Plantarum."

Dr. John Murray (we are particular in mentioning the learned gentleman's exact name, from fear that there should be any other Dr. Murray), complacently assures the Morphologists that he believes them not to be aware of the ultimate tendency of their own doctrines. Kind man! He might have spared himself the trouble, for he may be assured that they know what they are about rather better than he does. Wrong or right, *they* are not ridiculous.

"*Non* equidem invideo, miror magis," as our learned author has it. We, too, have no envy for the position in which he has placed himself; we have not the least desire to become a laughing-stock; and we leave to him the pleasant office of being the mirror of absurdity.

And now, Dr. John Murray, we offer you a piece of advice. The next time you occupy yourself with Morphology be cool, and do not sputter like a bit of potassium in a basin of water. Compose yourself a little. Sit down and examine the works of Linnæus, Wolff, Goethe, De Candolle, Robert Brown, Auguste de St. Hilaire, Engelman, Nees v. Esenbeck, Dunal, Martius, Moquin Tandon, Turpin, Mohl, Schleiden, and a hundred others. Investigate their facts, and when you have done that, show them to be erroneous if you can. Such is the kind of criticism which is expected of men of science. Invective is the unerring indication of a charlatan.

NEW PLANTS.

Maxillaria Triangularis. (*Stove Epiphyte*). Orchidaceæ. Gynandria Monandria.—This is nearly related to the beautiful Maxillaria tenuifolia, and like it is a discovery of Mr. Hartweg's, who found it in the village of Quezaltenango in Guatemala. Its leaves are very much larger than in that species (10 by 1½ inches); the flowers are formed singly in the axils of the imperfect leaves, which precede the appearance of the perfect leaves and terminal pseudo-bulbs of such plants; they are of a rich cinnamon brown gaily mottled with crimson flecks. The sepals, which spread widely apart, are folded back at their edges into a triangular form. It flowered in the garden of the Horticultural Society in December, 1844.—*Botanical Register.*

Miscellaneous.

Rose Gardens of Ghazeepoor.—Ghazeepoor is celebrated throughout India for the wholesomeness of its air, and the beauty and extent of its Rose-gardens. Perhaps these in a good degree arise from the same cause,—the elevated level on which it stands, and the dryness of its soil, which never retains the moisture, and after the heaviest showers is, in a very few hours, fit to walk on with comfort. That this must contribute to health is evident; and I suppose, from all which I have observed, that it must be favourable to the growth of flowers. It is also another auspicious circumstance in the situation of the city and cantonment, that it has a noble reach of the river to the south-west, from which quarter the hot winds generally blow. Be this as it may, the English regiments removed hither from the other stations, have always found their number of deaths diminish from the Indian to the European ratio; and the apparent health of the inhabitants, both English and natives, really struck me as doing justice to the favourable reports of the air. The country round is as flat as India generally is, and the Roses were not in bloom. There was, however, a very brilliant display of flowers and flowering shrubs of other kinds in the different lanes and hedges, as well as in the pleasure-grounds of the European residents. The Rose-fields, which occupy many hundred acres in the neighbourhood, are described as, at the proper season, extremely beautiful. They are cultivated for distillation, and for making "attar." Rose-water is both good and cheap here; the price of a seer, or weight of two pounds (a large quart) of the best being eight anas, or a shilling. The attar is obtained after the rose-water is made, by setting it out during the night and till sun-rise in the morning in large open vessels exposed to the air, and then skimming off the essential oil which floats at the top. The rose-water which is thus skimmed bears a lower price than that which is warranted with its cream entire; but Mr. Bayley said there is very little perceptible difference. To produce one rupee's weight of attar, two hundred thousand well-grown Roses are required. The price, even on the spot, is extravagant, a rupee's weight being sold in the bazaar (where it is often adulterated with sandal-wood) for 80 s. r., and at the English warehouse, where it is warranted genuine, at 100 s. r. or 10*l.*! Mr. Melville, who made some for himself one year, said he calculated that the rent of the land, and price of utensils, really cost him at the rate of 5*l.* for the above trifling quantity, without reckoning risk, labour of servants, &c.—*Bishop Heber's Indian Journal.*

Professorship of Botany, Edinburgh.—We learn that Dr. Joseph Hooker has undertaken to deliver the Academical Course of Botany in this University, the state of Dr. Graham's health being unfortunately such as to prevent his doing so himself.

Bees.

Answers.—*Anon.*—My views of ventilating hives nearly agree with those of Mr. Smartt. The "end of March, or early in April," is not the proper time to remove bees, especially in forward springs; for they will then have commenced their labours in the fields, and will be apt to stray to their former station, and there perish, not knowing their way back to their new home. Few apiarians have been so successful as Mr. S, whose "bees never leave his glasses until the latter are filled." His hives, however, may be full of moths, although a woollen rag hangs on each, just above the doorways; and the large tomtit is not to be scared away by coloured strings. It is only severe weather that urges him, through the force of hunger, to kidnap bees, by rapping slily at their doors, and snapping them up when they appear outside. But as has been sagaciously observed, that may be prevented by keeping the door shut. The current opinion that the brood-cells are diminished in size by the cocoons from the larvæ, is open to objection; but Mr. S. says, "If the comb is at first constructed of the proper dimensions, a continual decrease from that size proves the necessity of occasionally—say once in four or five years—removing two or three brood combs, which are soon restored. The best time for the operation is when the comb is known to be unoccupied by eggs and larvæ." If the cells are not cleared out by the bees, they must soon get small indeed, even before they are four or five years old. Supposing they were occupied by brood only thrice during the season, the cells in a hive four years old would, of course, contain 12 coatings—a stratum of considerable thickness. At this rate, the cells must be very small in a prosperous hive, nine years old, which is in my possession; and what must they have been in a hive that has stood 40 or 50 years, as some have been recorded to have done? Such, however, are of rare occurrence. Still, I may safely say that, in general, the combs last out the bees. But, according to Mr. S., "the combs must be removed in winter; for, at no other time are the cells unoccupied by brood; and perhaps even then it is only in weak hives that they are so." But, surely, he cannot mean in winter; for he observes that "the combs will soon be restored." Besides, winter is a very improper time to disturb bees thus; they could not renew their lost comb before April; therefore, the colony would be weak during the summer, by loss of early brood. At p. 70, I mentioned that about midsummer was the best season for the operation. By that time the early brood would be saved, and the fresh combs would contain a generation of bees likely

to survive the winter. In some districts "hundreds of hives might be kept where there are only ten," but in other parts, where hardly a single bank of Thyme escapes the plough, the food of bees is, of course, more limited. "M. J. B." observes at p. 87, that "the black spots on the leaves of the Oak and Plum are, in the first instance, produced by honey-dews, which it is highly improbable that bees should collect." In reply to this, I may mention that I have seen bees collecting that saccharine fluid when it was dropping from the leaves of trees as dark as treacle, and what they carried home was of the same brown hue.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

THE long-looked-for change of weather has come at last, and with it its thousand demands upon the gardener; we can scarcely tell him which plant most requires his assistance; let, therefore, every plant that inhabits a pot be brought at once under review, and put in proper condition for the growing season. No fear need now be apprehended from potting; therefore let all your strength be brought into action forthwith, in order that spring growth may be accelerated in every possible way. *Achimenes* which have been established in four-inch pots may now be removed into the flowering pans, putting six plants into a pan. *Geranium house.*—This is now the proper time to regulate the branches of those intended for early flowering. Let the shoots be brought into their exact position, and carefully tied to short stakes; increase the temperature by night, and apply manure-water occasionally. Those intended for late flowering should be potted immediately into the blooming pots, and kept cool, to promote the production of wood rather than flowers at this time. *Orchidaceous house.*—Increase the temperature, and ply the syringe, as the plants will now grow rapidly. Be careful in not throwing too much water over those sending out succulent flower-stalks, for they may damp off. Ferret out the cockroaches and woodlice, and see that the little gentlemen who carry their houses on their backs are completely kept down.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The delightful change in the weather will, of course, make gardeners busy. The planting of shrubs, laying of Box, &c., if not already finished, must now be brought to a close as quickly as possible, before dry weather sets in. Finish digging, if not already done; turn gravel, edge and clean walks, &c. Examine half-hardy plants, such as have been protected through this severe winter, and remove the covering, unless an unfavourable change in the weather takes place. Do not yet prune tender Roses, they might be much injured by so doing until they begin to grow, which will soon be the case if fine weather continues. Sow Sweet Peas in borders, pots, &c.; also hardy annuals. Plant out from the reserve-garden Phloxes, Pentstemons, &c. *Pits and Frames.*—Follow the directions given in last week's Calendar. Look over bedding out stock, and if you are short of any kinds now is the time to remedy the evil, by putting in cuttings or seeds. Some of the more hardy plants might be removed to colder situations, to harden, but by no means expose them to the mercy of the weather yet. Brompton and Ten-week Stocks that have been kept in pots, in frames, through winter, might be prepared, by exposure to the air for a short time, for planting out. Shut up early every fine day, to forward the growth of any sickly plants, or such as are most wanted to be increased, and prick off tender annuals as fast as room can be made for them. Water them sparingly until they begin to grow freely, for fear of damp, &c.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—These beautiful spring flowers will now require very great attention. They may have occasional warm and genial showers any time previous to the development of the flowers. The pots must be kept free from weeds, giving the plants all the air possible, avoiding rough windy weather; and covering well with mats during the night. *Polyanthuses.*—Look the beds carefully over, and any plants loosened by the frosts should immediately be secured. Where grown in pots, the same attention as that recommended for the Auricula will be required. *Tulips,* in spite of the past severe weather, are looking well. Keep the wet from lodging in the hearts of the plants, it is apt at this season to be frozen, and the mass of ice has a pernicious effect on the rising bud. *Carnations.*—Plant these in their blooming-pots as soon as possible, putting about 2 inches of broken pots at the bottom, on which place a little Moss to prevent the soil running amongst the drainage; fill up with compost, which ought, if our directions have been attended to, to be perfectly free from all noxious insects. *Pansy and Pink Beds* must be carefully dressed with some decayed vegetable matter, omitting the rich compost till later in the spring. *Dahlias.*—Pot off cuttings, and place them in a very gentle heat.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Keep down useless suckers, gills, &c., and take care that the crown does not grow disproportionately large. Keep a high and moist atmosphere to those swelling fruit, and give much less air than to free-growing successions. Syringe every day now that the season has advanced and the weather improved, and even twice a day in fine weather will be highly beneficial to the plants, provided a powerful atmospheric heat be maintained—say from 85° to 95° degrees in the day, and from 70° to 75° at night. Early-potted successions will now require a little water: however, frequent syringings will obviate the necessity of this in a great degree, taking care that they are slight, and accompanied with a lively heat and a wholesome circulation of air. *Vineries.*—Proceed as before in the routine of disbudding Vines: those turned out about Christmas, or through January, and intended for very late crops, should be covered up with litter, both to prevent too early excitement, and to soften the desiccated bark. *Peach-house.*—When the fruit is set and swelling off, go over the trees at intervals, thinning out a few at a time, and reserving the final thinning until they have done stoning, or nearly so. Syringe frequently, at least twice a day, and batter sharply with the syringe, right and left. *Figs.*—As the forced Figs will now have fruit advancing in some stage or other, beware of checks of any kind, which would assuredly cause them to cast their fruit: to this end, examine carefully the state of the borders, and if you can rely on your drainage, rather over-water than suffer it to be under-done. Pots of Figs can hardly receive too much of tepid manure water at all times, except in the ripening period. Make very free with the syringe. *Cherries* as last week. The red spider may now begin to make his appearance. Remember that the frequent use of sulphur, and a moist and high atmosphere, are the best preventives.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Peach and Nectarine trees on walls are now getting into full bloom, and may require slight protection at night, especially where coping boards have not been put up. Gauze, of cotton material, may be obtained for little more than 1*d.* a yard; and if only two breadths of such be placed judiciously along the front of the wall, a sufficient protection will be afforded against such frosts as usually occur after this period of the season. The substance being light is not so apt to be torn by wind as are some thicker fabrics. Of course very thin canvass is preferable where it can be afforded. Grafting of Plums and Cherries should be concluded as soon as possible; and that of Pears and Apples proceeded with. In grafting old trees of these last mentioned, 2, or even 3-year old wood may be used, if very strong young shoots cannot be obtained. *Kitchen Garden.*—Dress Asparagus beds; let the surface be carefully forked over so as not to injure the crowns of the plants. The soil should be finely broken so that no compact portions remain to obstruct the progress of the shoots. A few beds may be forwarded by filling the trenches with fermenting stable dung. Dress Artichokes. Sow a few Cardoons. Keep up successions of Peas—of these, Groom's Superb Dwarf, Blue Prussian, Auvergne, Knight's Dwarf, and Tall Marrows, may now be sown; the latter should not be less than 5 feet between the rows. Plant Oxalis Deppei in rich light soil in rows 9 inches apart, taking care to protect it from frost. Finish planting Potatoes; the frost having made a premature clearance of Broccoli and other crops usually succeeded by Potatoes, the latter will derive advantage from an earlier possession of the ground than would have otherwise been the case. Sow Parsnips, Beet, Turnips, Radishes, Paris Cos Lettuce, Summer Savoy, Borage, Marygold, Nasturtium, Sweet Basil. Prick out Celery.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—No hard-wooded timber should be felled after this; clear away loppings of all kinds, according to their suitable uses. Commence to burn for charcoal, if not done before. Where absolutely necessary, planting may be still continued, although we think much valuable time might be saved, as well as gained, by deferring it till November. See that all water-courses are in good repair before the growing season. *Nursery.*—As it has been impossible to get the ground in proper condition for the reception of forest-seeds until the last few days, no time must now be lost in performing this as before recommended. Finish layering deciduous trees. As soon as possible commence grafting, and cut back those grafted last year. Mulch and water any valuable fresh planted trees; and finish transplanting of all kinds as soon as possible, except evergreens. Plash hedges, and repair fences of all kinds.—*F.*

VII.—COTTAGERS' GARDENS.

As the weather has now taken a favourable change, operations which should have been performed a month ago may now be proceeded with in good earnest. Ground that has been winter-dug, and duly exposed to the mellowing influence of the late frosts will now be in excellent condition for receiving seeds; therefore embrace an early opportunity of getting in the principal crops of Carrots and Onions. Of the latter, perhaps the most useful sorts for a cottager are the Strasburgh and James's Keeping; a small patch of the Silver-skinned may also be sown for pickling. Sow in 4 ft. beds, in rows 9 ins. apart, taking care not to cover too deeply. Examine previous sowings of Peas in case of injury from frost, drawing a little earth to them if they require it, and make a successional sowing of Knight's Dwarf Marrow, or of the Auvergne; the latter is very prolific, and well suited for succeeding the early crops, coming into use only a little later than the Early Frame or Charlton. Sow in rows 3½ ft. apart, with Spinach between them. Prepare for planting Potatoes; also get in seeds of Turnips, Parsley, Radishes, and Leeks; the latter for transplanting. Let the soil be frequently stirred between the rows of young Cabbages, and plant out from those sown in autumn.—*G.*

State of the Weather near London, for the week ending Mar. 27, 1845, as observed at the Horticultural Garden, Chiswick.

Mar.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	21	13	30.495	30.479	49	31	40.0	W.	.08
Sat.	22	14	30.381	30.308	51	43	47.0	S.W.	.08
Sun.	23	○	30.197	29.957	51	42	46.5	S.W.	.60
Mon.	24	16	30.121	30.022	58	29	43.5	N.W.	
Tues.	25	17	30.032	29.808	58	43	50.5	S.	.03
Wed.	26	18	29.899	29.803	58	42	50 0	N W.	
Thurs.	27	19	29.874	29.803	60	47	53.5	W.	
Average			30.143	30.025	55·0	39.5	47.3		.79

Mar. 21—Clear and frosty; fine; overcast
22—Overcast; rain; hazy; rain at night
23—Constant rain; cloudy; rain
24—Cloudy; clear and fine throughout
25—Overcast; cloudy and fine; densely overcast
26—Cloudy and fine throughout; boisterous at night
27—Cloudy and windy; very boisterous at night.
Mean temperature of the week 5 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending April 5, 1845.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 30	53.5	35.6	44.5	5	0.50 in.	3	4	2	—	3	2	0	2
Mon. 31	54.3	36.5	45.4	9	0.26	2	5	2	2	1	2	4	1
April													
Tues. 1	53.6	35.7	44.7	10	0.76	3	2	2	2	2	1	1	4
Wed. 2	54.3	37.3	45.8	9	1.19	3	2	1	1	2	5	2	3
Thur. 3	55.4	34.6	45.0	2	0.07	4	3	2	—	—	4	4	2
Fri. 4	54.9	36.4	45.6	7	0.14	3	5	1	—	5	2	1	2
Sat. 5	56.0	37.3	46.6	9	0.56	—	3	2	1	2	3	6	2

The highest temperature during the above period occurred on the 5th, 1832—therm 74°; and the lowest on the 5th, 1842—therm. 23°.

Nearly ready, the Second Edition of Dr. LINDLEY'S
SCHOOL BOTANY; or, the RUDIMENTS of BOTANICAL SCIENCE, adapted to the Use of Schools; illustrated with a large quantity of Woodcuts by the most eminent English and French Botanical Artists.

Notices to Correspondents.

AZALEAS—*Katherine*—The following are 12 handsome hardy varieties, viz., eximia, lutea rubicunda, coccinea nobilis, Gloria mundi, incarnata maxima, regalis, amabilis, Govenia, thyrsiflora, Aurora, Dulcedo, and Blandina.‡

BEER—*C R R* inquires if any one can give him a remedy for the mustiness of beer put into a foul cask?

BOOKS—*Investigator*—If you are a gardener, take the "Theory of Horticulture" for Vegetable Physiology, and "School Botany" for the study of Botanical Classification. When you have mastered them we will advise you further. British Botany can only be prosecuted with advantage, when you have learned all that the latter book contains. Don's Dictionary is waste paper. Mr. Loudon's books are not yet published. ——*Sub*—The best book to consult for writing an essay on the advantages and pleasures derived from the study of botany is the Book of Nature.——*P J*—Harrison's "Floricultural Cabinet.‡

BRACHYCOME IBERIDIFOLIA—*X X*—The seeds of this shou'd be sown early in March in pots filled with a mixture of equal parts of sandy peat and leaf-mould, to which a small portion of loam should be added, and the pots should be plunged in a moderate hot-bed. When large enough, transplant the plants singly into very small pots, shifting them afterwards into a larger size, as they require it, still keeping them warm and close, and rather moist. Finally, when they begin to show flower, harden them off by admitting air more freely. It must be kept in the greenhouse all the season. It seldom produces perfect seeds, except when planted in a very warm situation out of doors; but then the plants are unsightly. Bad seed is the cause of your failure.¶

CELERY—*H W*—Your late plantation, which has withstood the frost, will yet grow to be in some way useful.‖

FRUIT TREES—*E H*—If you keep the blossoms of your Plum and Pear-trees against walls from being injured by frost; the foliage clear of insects; the trees watered and mulched when they require it; and reduce, by little at a time, the superabundant summer-shoots; the trees will become fruitful.‖

GARDEN POTS.—In accordance with the suggestion of a friend, we have reprinted for *gratis* distribution our article on the sizes of pots, and the necessity for rechristening them. It has been done in a small form, that it may be stuck up in the potting or tool-house, as the case may be. Any party inclosing to the publisher his address and a postage-stamp, shall have a couple sent him;—more, if a greater number would be of use to him.

GOLD FISH—*E H*—You shall be fully answered next week.

GREENHOUSES—*M P*—The best covering you could have would be moveable thatch, such as is used in some of the small houses at Chatsworth. But as you will probably find it inconvenient to apply that, you had better have light frames of wood covered with asphalte felt. But your heating apparatus must be a very bad one if it will not exclude frost. Had you not better improve *that?*

HERBARIA—*F J*—The colours of dried plants cannot be preserved; it is the dandyism of botany to attach importance to it. What should be attended to are form, a skilful selection, and the preservation of the plant very flat, without being crushed. Paste them down with carpenter's glue. Never put them in books; but fix each on a separate half-sheet of paper. The kind of paper to be used is of little consequence; let it be white, tolerably stiff, and as good as you can afford.

INSECTS—*Quæreus*—Sprinkle the floors at night with spirits of turpentine, and take a small tin oil-can with a long bent spout, which is a convenient utensil to pour some of the same spirit into the holes and crevices from whence the black beetles issue. By repeating this two or three times you will clear the infested premises. Care, however, must be taken that the inflammable spirit does not ignite. The fire in the grate ought to be extinguished an hour or two before the application, and the candle must be placed in a safe place, or a bull's eye lantern may be used—*R.*——*J S*—Your chrysalis will change to the small white, or Turnip butterfly, called Pontia rapæ—*R.*

INSTINCT—Will *Mr. Bree* allow us a little time before his memorandum is inserted? We are about to change our type, and are anxious to use up all "standing matter," if we can.

MUSHROOMS—We hope to resume this matter very soon.

NAMES OF FRUITS—*B B*—1, 2, Easter Beurré; 3, Buchanan's Spring Beurré.‖——*R*—Your seedling Apples, from the Golden Harvey, are both good, though scarcely equal to their parent; but they may prove better bearers, and, in order to ascertain this, it will be advisable to give them further trial.‖

NAMES OF PLANTS—*A M*—1, Epidendrum selligerum; 2, Soldanella alpina.

ORANGE-TREES—*Sub*—You may repot these now with advantage. Use a rough soil, consisting of two thirds good light loam, and one of fibrous peat. Drain the pots well, for on this greatly depends the health of the plants; and mix freely with the soil lumps of charcoal. Orange-trees like the very strongest manure.‡

PELARGONIUMS—*Constant*—No leaf was inclosed.

RHODODENDRONS—*Katherine*—The following are tolerably hardy, and may be grown either out-of-doors or in a greenhouse, but when grown in the latter the flowers come much more perfect. They are free bloomers. Russellianum, scarlet; Lowei, pale straw, with brown; tigrinum, pale rose, with dark brown; Nobleanum, dark red; splendidum, white; altaclerense, scarlet; arboreum roseum, bright rose; Victoria, deep red; venustum, pink; Augustum, pale flesh, spotted; pulcherrimum, scarlet; and macranthum, rose ‡

ROSES—The articles on the Cultivation of Roses are reprinting in the form of a small volume, price 5*s.* 6*d.*, under the title of the "Tree Rose;" it will be ready in a few days, and may be ordered of any bookseller.——*J F S*—We do not know whether Rosa indica Barclayana can be obtained of the trade, but should suppose some of the extensive Rose growers near London must possess the kind, as it originated, we believe, at Bury Hill, near Dorking, the seat of R. Barclay, Esq. We preserve it from the inclemency of the weather by mulching the stems a few inches deep with dry Fern, down to which point they are usually killed; but this does not prevent its flowering most profusely during the autumn months. Without some such precaution it would no doubt be killed in such winters as the last.—*J. P.*

SCINDE—*E R*—Pray oblige us; we shall be very grateful.

SPORTS—*S T P*—We never before saw a Hyacinth bearing on the same truss a perfectly pink and a perfectly blue flower. Such circumstances are called "sports" by gardeners, and are analogous to the production on the same branch of a Peach and Nectarine, or a buff and a purple Chrysanthemum.

VINES—*Helix*—Of those you enumerate, you may plant 4 Black Hamburgh, 2 Sweetwater, 2 Wilmot's Early Muscat, 1 West's St. Peter's, 1 Black Gibraltar, 1 Muscat of Alexandria.‖

VINE BORDERS—*A constant r.* needs little advice. He could hardly have acted better than he has done; unless, instead of replanting his old rootless Vines, he had replaced them with healthy well-rooted young plants. We agree with him in opinion that one cause of the Vine roots running downwards is the bad system of constantly cropping the border with coarse annuals. It is not possible to have Grapes, if flowers are permitted to grow all over their roots.

VINE-PRUNING—*JCH*—Too late for this week. We cannot insert articles that come late in the week.

MISC—*Dogberry*—The marks are private, and relate to little secrets of our own. The gum comes from Ceradia furcata, of which there is an account at p. 87 of this volume. It is said to be similar in nature to Olibanum, but it has not hitherto been applied to any useful purpose. The bird is the Landrail. You would oblige us by some particulars about Polly. Tedious! Very far from that.—— *Captain*—Your suggestion shall be borne in mind.——*E A S*—Bract is the correct botanical term for the red leaves of the Poinsettia pulcherrima.——*A B C*—Much obliged, but we have no present use for the Numbers.——*Iota*—A remedy for destroying Ants is given at p. 477, 1844.‡——*J C*—We cannot give you any information respecting the culture of the Sunflower on a large scale, beyond what has been published at p. 255, 1842. ——*Tweedside*—Guano may be applied for every purpose for which other manures are employed; but not to the Pine tribe, all of which are destroyed by manure.‡——*J C W* will find a select list of Cape Heaths given at p. 508, 1844.‡—— *J P*—We cannot assist you, but probably you will gain the information you require by writing to Mr. Miller, Nurseryman, Ramsgate.*——*Dianthus*—Make your Carnation-bed to consist of four rows, alternately for Carnations and Picotees. In the rows for Carnations, plant a bizarre and a flake throughout, and arrange a heavy and light edged flower in the rows appropriated to Picotees; this arrangement will give you the greatest variety possible.*——*Sub*—We cannot recommend dealers.‡——*A Sub*—Your Potato does not appear to be the Ash-leaved Kidney.‖

SEEDLING FLOWERS.

CINERARIAS—*J M F*—A large and bright crimson purple self, having broad and well-formed petals. Your specimen was injured by the manner in which it was packed, and it is also necessary, in a flower of this description, to see more than a single bloom, in order to form a correct opinion of its merits. It promises well*——*W J C*—No. 1. White, with a purple disk, a pretty flower; rather small, and the white wants purity. 2. White with crimson tip, is surpassed by others in cultivation. 17. Light centre with mazarine tips; beautiful in colour, but the petals want breadth. 14. Light crimson self, rather small, of fine form, the circle being filled up by broad well-formed petals. *

RHODODENDRONS—*C Kings*—Your seedling is a pretty variety, like the white R. arboreum; but with a delicate shade of pink on the outside of the corolla.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

NORTH OF DEVON.

TO BE LET, from Lady-Day next, together or separate, a DELIGHTFUL COUNTRY MANSION, and a VILLA RESIDENCE, both southern aspect, remarkably complete, healthy, and well-sheltered—on the same domain, yet distinct: with or without some superior Land and Farm Buildings, and extensive shooting. The neighbourhood abounds in the greatest variety of field sports. The dwellings are well calculated for moderate-sized families; situated about 3 miles from Barnstaple, 7 from Ilfracombe, over turnpike roads; 2 miles from a beautiful sea coast; half a mile from the church, market, and post-office. Rent very moderate; for any term between 7 or 14 years. For further particulars apply (post paid) to Mr. JAMES DAY, Braunton by Barnstaple.—Mar. 29.

The Agricultural Gazette.

SATURDAY, MARCH 29, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, April 2—Highland and Agricultural Society.
THURSDAY, April 3—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, April 7—Agricultural Society of England.
THURSDAY, April 8—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

April 5—Collumpton | April 7—{Stewponey / Darlington
April 7—London

If there is one country in which, more than another, A UNIVERSAL KNOWLEDGE OF CHEMISTRY is wanted, it is in England, where everybody's capital is more or less affected by operations connected with chemical science; and yet there is no country in Europe, with any pretension to intelligence, in which there is so little general acquaintance with this important subject.

This prevailing ignorance of the science has obviously arisen from the want of efficient practical schools of it. The British Government apparently will not patronise such establishments; and it is demonstrable, by reference to those on the Continent, that they cannot exist self-supported—*i. e.*, by the fees of students. In the absence, therefore, of any extrinsic source from which funds may be obtained, they must fall to the ground.

An appeal has lately been made to the public on this subject. It is proposed* to establish a College of Chemistry, for promoting the science, and its application to agriculture, the arts, manufactures, and medicine. The success of the scheme, so much to be desired, will depend on the support it may receive from the public. It is not to be supposed, however, that subscriptions to it will be mere acts of benevolence.

"Subscribers of one guinea and upwards annually, and donors of 10*l.* 10*s.* will be entitled to a definite number of analyses, to be made in the school at a mere nominal price (the number for each guinea subscribed, and the charge to be hereafter determined by the Council), and also to a copy of all printed papers, reports, &c. issued from the school, which will embrace much information respecting the progress of the science and its economic applications to agriculture, arts, and manufactures. Subscribers of 10*l.* 10*s.* and upwards annually, and donors of 50*l.* or upwards, will be entitled to nominate a student, who will be received at a reduced charge for the whole course of study, in proportion to the amount of the contribution. This Institution is intended to embrace—1st. 'A Laboratory' (as designed by Sir H. DAVY) for original investigations, and for extending the boundaries of this most important national science, on the model of the Giessen Laboratory. 2d. 'A College' for the instruction of students in analysis and scientific research, upon such terms as to encourage young men of talent and scientific taste to apply themselves to Chemistry, and for qualifying public lecturers and teachers. 3d. Departments for the application of Chemistry to especial purposes, as Agriculture, Geology, Mineralogy, and Metallurgy, by the analysis of soils, rocks, &c.; to Medicine, Physiology, the Arts, and Manufactures. 4th. The employment of such means as may appear expedient to the Council for encouraging and facilitating the pursuit of scientific Chemistry throughout the country, and for making it a branch of general education."

Such an Institution has a strong claim for assistance and support upon those interested in the cultivation of the soil. What, indeed, is Agriculture, properly understood, but a chemical manufacture?—an art whose object it is to re-arrange the elements of substances useless as food, and convert them into Wheat, Barley, Oats, beef, mutton, pork, milk, cheese, wool, and other farm products. The processes of this manufacture are indeed more liable to derangement—they are influenced by a greater variety of circumstances than those which regulate the results of other chemical manufactures; a greater number of agents, natural and artificial, are brought into play. But even disregarding the fact, that of the nature of one of these agents, vital force, we are altogether ignorant, we need not be surprised at the variety—or, indeed, apparent incongruity—of the results obtained by the agriculturist; for *organic* Chemistry, that branch of the science on which his art depends, is but in its infancy, while the chemistry of inorganic bodies, which regulates the processes of other chemical manufactures, has long been established.

At every chemical manufactory, however, using the words as they are generally applied, experienced chemists are employed, who carefully watch the processes of the art, and note every extension of the science that can possibly be used to improve them: surely the greater complexity and comparative uncertainty of the processes of agriculture, for which we also claim the designation—a chemical manufacture—should constitute an *à fortiori* argument in favour of similar anxiety and watchfulness on the part of the farmer. We may hereafter attempt to draw a parallel in greater detail between *his* art and that of the chemical manufacturer; in the meantime we may safely assert the existence of such a similarity between their professions as renders them equally interested in the success of the proposed College of Chemistry.

We earnestly recommend to landowners and farmers the favourable perusal of the supplement to the "Proposal" alluded to above, which is addressed to agriculturists.

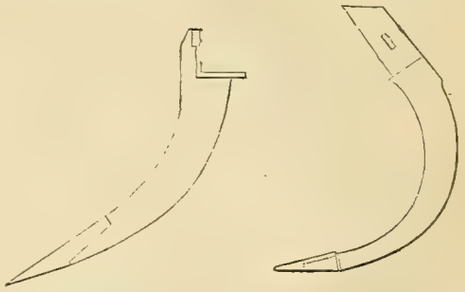
* Proposal of establishing a College of Chemistry, &c.; London Agent, Mr. W. Johnson; Office, 7, St. Martin's-place, Trafalgar-square.

WE continue our remarks on implements of the cultivator and scarifier kind. BIDDELL'S SCARIFIER, figured at page 193, is thus described by Mr. RANSOME in his work on the Implements of Agriculture:—"It consists of a strong cast-iron frame upon which the teeth, nine in number, are arranged in two rows, and so disposed at intervals of 16½ inches from each other, as that those in the hinder row should form a path midway in the intervals left by the passing of those in the front. It is suspended on a cranked axle between two wheels 50 inches in height behind, and on an upright shaft carried on two small wheels running close together in front. It will be seen that the machine is thus suspended on three points; and by means of two levers, the one to direct the position of the front teeth, and the other to regulate the depth of its hinder ones, it may be balanced between these points in any direction that may be required. It may thus be used either with the fore tines parallel with the hinder ones, or at a greater or less depression; this arrangement allows it to penetrate very strong or hard land, and to retain its hold where scarcely any other implement would produce any effect, and even where the plough could not work to advantage. By a simple contrivance to shift the bearing of the frame upon the axle either side of the machine may be depressed so that the tines shall penetrate the land to a uniform depth, even where, from the circumstance of one wheel having its path along the furrow, the bottom of the wheels may not be parallel with the general level of the land. The tines are prepared to fit case-hardened cast-iron points, of 1, 2, or 3 ins. width, or cast-iron or steel hoes of 9 inches width; with these latter every part of the land will be cut."

THE ULEY CULTIVATOR, also figured at page 193, is made of two sizes, with five and seven teeth respectively, and to be worked by two or four horses. Its teeth are not placed in rows *across* the length of the implement, but obliquely to it; just, indeed, as in the second of the modes of arrangement figured in page 193; the space between adjacent teeth is thus 2 feet, while the distance between their paths is only 6 inches. This implement rests on four wheels, the front ones being 18 inches and the hinder ones 3 feet 4 inches in diameter. From the front wheels a vertical iron rod rises, which passes through the point or nose of the frame-work; the hindmost ones rest on cranks on an axle, passing directly under and across the frame-work, which is thus 20 inches off the ground. The mode in which it is raised out of the ground, and the plan by which its depth is regulated, is an invention of Mr. CLYBURN, of Uley Works. The hinder part of the machine is raised by increasing the inclination of the cranks which attach the hind wheels to the frame. The front part of it is not raised in the same way, by a crank on the front wheel, but it slips up and down the vertical pole attached to them, and its position is regulated thus; at about the middle of the axle, to the terminal cranks on which the hind wheels are affixed, a toothed wheel is placed, which is worked by an endless screw on a shaft working in the frame of the machine, and parallel to the length of it. Turning this shaft round, in one direction, by means of the crank-handle attached to it, it is evident that the axle on which the toothed wheel is fixed will be turned round, and the cranks of the hind wheels raised; and thus the frame will be brought nearer the surface of the ground, the teeth let deeper into it; by turning the handle the other way the hind part of the machine is raised. In order to get the front part of the machine raised and lowered exactly as the hinder part of it, the following simple method is adopted: on the axle of the hinder wheels there is a crank attached for greater simplicity to the pinion before mentioned; it is of the same length as the crank of the hind wheels; when, therefore, the pinion is turned round, these wheels being by this crank raised, that is, the frame being lowered, say 2 inches, the extremity of this crank is lowered 4 inches—2 inches by the action of the crank, and other 2 inches by the lowering of the frame to which the crank is attached. From the crank a vertical rod rises, which is attached to one end of a lever resting at the other end on the vertical rod at the front of the machine, and attached exactly at the middle by means of a rod of iron to the frame-work of the implement. When, therefore, the point of the crank is lowered 4 inches, the hindmost extremity of the lever is also lowered 4 inches, and, as it rests on the top of the vertical rod at the other end, it depresses the rod in the middle *and the frame-work attached to it* exactly 2 inches, the same as the hind part of it. The perfect parallelism of its motion is thus insured. The cost of the 5-tined Uley Cultivator is 10*l.*

THE CATSCLAW DRAG, invented and manufactured by Messrs. BARRETT and EXALL, of Reading, possesses a greater resemblance to FINLAYSON'S Grubber, or at any rate to that modification of it manufactured by SCOULAR, of Haddington, than either of those we have just described. Its frame-work is raised and lowered parallelly by levers extending behind the machine. The mode in which this is effected may be gathered from the figure of the implement at page 193. It will there also be seen that in addition to the levers just alluded to there are other three, each of which is attached to a crank on one of the cross bars to which the teeth of the instrument are fixed. The position of the teeth of each bar is thus entirely under control; and this is doubtless useful in so far, as it will enable the workman, without putting all of it out of work, to free the machine from impediments which may be in the way of a part of it. We have no experience of the working of this implement, and therefore cannot speak so fully of it as of the others we have alluded to. The present price of the Catsclaw Drag is 13*l.*

We stated last week that the points on which the merits of these implements must be determined are the form, length, and arrangement of the teeth, and the means afforded to the workman of regulating the depth at which they shall be worked. It is of importance that the tooth should be so formed as that it may overcome the resistance to its action in the easiest manner, and at the same time preserve its hold of the ground in which it is working. The annexed are figures of the teeth of two of the implements just described:—



BIDDELL'S TINE. THE ULEY TINE.

The length of the teeth as involving the height of the framework, and their arrangement in the framework, are of importance as affecting the ability of the instrument to work in foul land. We referred at some length to the latter of these points last week, and showed that the distance between the teeth had no necessary relation to the closeness of their paths in the ground. The height of the ULEY Cultivator—about the same as that of BIDDELL'S Scarifier, from 16 to 20 inches above the surface of the land when at work—is in practice found sufficient and convenient. Regarding the *arrangement* of the teeth, for reasons already insisted on, we prefer that adopted in the former of these implements to that of the latter.

In reference to the method of regulating the depth at which these implements shall work, if we refer the matter to the workman—and he is, perhaps, the best judge—he will decide in favour of the lever as the best means that can be employed. SCOULAR'S Improved FINLAYSON Grubber is, in this respect, the best of those implements we have referred to, and it is in a measure imitated by Messrs. BARRETT and EXALL. In BIDDELL'S Scarifier two levers are used, one for the front and the other for the hind part of the machine. In the Uley Cultivator the movement of the framework is obtained, as

we have already shown, by a slower and more gradual agency. In the above remarks it will be observed that no reference has been made to the weight or draught of these implements. These are, however, doubtless important points, and may hereafter furnish matter for comment.

Before concluding, we must just refer once more to the action of this implement as an implement of cultivation. Nothing can be better than the condition in which land, after being subsoiled, is left by the cultivator or the scarifier. It is then throughout in a friable, *healthful* condition, and admirably fitted as a vehicle of vegetable nutriment to the roots of the plants growing in it.

This implement is also, we have said, well suited for preparing a seed-bed for grain. Its use for this purpose is certainly opposed to the practice which prevails in many districts. It is generally customary to trample, roll, and by every means firm the land after Wheat-sowing, for instance, to hinder the frost from throwing the young plants out. The Norfolk farmers are very careful, in ploughing for Wheat, to break the furrow-slice as little as possible, and to firm the land as much as possible before sowing their Wheat. They find that this tends to hinder the frost from throwing out the plant. May not this throwing out by the frost, upon wet land at least, be explained in this way? The rain falls on such land, and sinks in till it comes to an impervious bottom, at no great depth, where the land has never been stirred by the plough or otherwise. It remains there; and, on freezing in winter, it of course forces open the land, and the plants are thrown out and killed. There are two ways of hindering this: one is to trample and roll the land, and make a hard surface, so that the rain, on falling, flows over the surface, and is carried away by the open furrows. It thus does not sink in. This is the plan generally followed, but it often fails, as the experience of many would testify. Would not the better plan be to drain the land, and put in the subsoil-plough and work it with the scarifier? The rain, on falling, will certainly sink in, but it will sink far beyond the reach of the frost, and will be carried away by the drains, the plants at the same time deriving all the advantages of a free and open soil.

ON THE AGRICULTURAL GRASSES.

As corn is of the utmost importance as the food of man, so are Grasses the principal maintenance of herbivorous animals. It is thus of importance that the farmer should be acquainted with the different species, that he may be able to choose those which are most conducive to profit. There are, however, a considerable portion of our lands which are unsuitable to the system of alternate husbandry—that is, to an alternation of grain and Grass crops. Of this description are stiff clays and bog land, also those which are difficult of tillage. These soils might be advantageously improved by spade husbandry. To describe minutely all the different Grasses which are or might be advantageously cultivated in Great Britain would require much larger space than I could reasonably demand here; therefore I shall confine myself to giving a few brief remarks on some of them. I shall divide them into two heads, viz. Grasses suitable for pastures and meadows, and Grasses suitable for marshy and sandy places, and conclude with a few observations on the proper time for sowing and selecting Grasses.

MEADOW AND PASTURE GRASSES.

Dactylis glomerata (*Rough Cocks'-foot Grass.*)—This is a coarse Grass, but rapid and early in growth, is an excellent pasture Grass on dry soils, from the quantity of herbage it affords. It generally comes in from the time Turnips are over till the meadows are fit for grazing. When dry, and made into hay, cattle are not fond of it: therefore, to reap the full benefit of its merits, it should be frequently and closely cropped with the scythe, or cattle; it does well in shady places; grows from 1 to 3 ft. high, and is common everywhere.

Anthoxanthum Odoratum, (*Sweet-scented Vernal Grass*).—This is also a valuable Grass, on account of its affording an early and quick growth after being cropped; it grows freely on all soils and situations, in woods, rich meadows, bogs, and dry pastures. This Grass yields an agreeable smell in the process of drying, like that of Woodruff. The agreeable scent of newly-made hay entirely arises from this Grass. Even the green leaves when bruised between the fingers impart to them the perfume, by which means it can be readily distinguished from all other Grasses. Cattle and sheep are fond of it. Grows 1 to 2 feet high.

Alopecurus Pratensis, (*Meadow Foxtail Grass*).—This is one of the very best meadow Grasses, possessing the three great requisites of quantity, quality, and earliness, in a superior degree to any other. It is often fit for mowing by the middle of May; it flowers twice in the year, and gives more bulk and weight of hay than any other Grass. It does best on moist soils. Generally from 1½ to 3 feet high.

Phleum Pratense, (*Timothy or Cat's-tail Grass*).—Named after Timothy Hanson, who brought it from New York in 1780. This is one of the most valuable Grasses in cultivation. It affords more than double the nutriment when cut in the seed to what it does in the flower stage. It prefers a strong moist soil more so than any other Grass. Another consideration which renders it particularly worthy of attention is the seed which it affords, and which may be saved without diminishing the hay crop. We have seen 20 bushels taken from an acre of this Grass. It varies much in height, according to soil and situation. On very dry soils the roots of this Grass are often tuberous. There is another grand quality in this Grass which should not be overlooked, that is, it may be cropped by cattle and sheep till an advanced period of the season without injury to the hay crop. It grows from 2 to 3 feet high.

Festuca ovina (*Sheep's Fescue Grass*).—This Grass is not good for hay, but is an excellent one for sheep, affording fine short sweet foliage early in the season, and is said to produce delicate mutton. It is an excellent Grass for lawns, requiring but little mowing, and forming a very thick sward. It is very common on the mountains of Scotland and Wales: 4 to 8 inches high.

Festuca duriuscula (*Hard Fescue Grass*).—This is a good Grass for hay or permanent pasture; its produce in spring is not great, but the quality is fine. It should be mown when in flower, as it then affords the greatest quantity of nutriment; it is common in waste grounds and pastures; hares are particularly fond of it: 1 to 2 feet high.

Festuca pratensis (*Meadow Fescue Grass*).—According to G. Sinclair, the value of this Grass cut at the time the seed is ripe, is to that of the Grass cut at the time of flowering, as 6 to 18. This is a proof of the advantage of cutting almost all Grasses when in flower, rather than later; it is an excellent Grass for laying down pastures on moist or moderately dry soils: common in most meadows.

Poa pratensis (*Smooth-stalked Meadow Grass*).—In early spring this Grass assumes a beautiful verdure; it is better adapted for pasture than hay; when cultivated by itself, it becomes so much matted by its creeping roots as to be unproductive, unless in water meadows, for which it is one of the very best Grasses. There are several varieties of this Grass common in meadows and pastures.

Poa trivialis (*Rough Meadow Grass*).—This is considered one of the best meadow Grasses, especially for moist soils, and sheltered situations on dry soils; it generally dies off in the course of a year or two; this Grass is of most value when the seed is ripe, which is contrary to the generality of Grasses: an excellent hay-Grass, from 1 to 2 feet high.

Poa annua (*Annual Meadow Grass*).—This is the most common of all our native Grasses, being found on the richest as well as the poorest soils; it affords an excellent herbage early in the season for sheep and cattle; it flourishes in all manner of situations, and grows from 6 to 10 inches high.

Cynosurus cristatus (*Crested Dog's-tail Grass*).—This Grass grows naturally in dry situations, and will not thrive in meadows that are very wet; common in sheep pastures, and those animals are particularly fond of it, but other cattle are not fond of it; it does not produce much foliage.

Agrostis stolonifera (*Creeping Bent Grass*).—There is no soil, poor or dry, or no situation so secluded from the sun and air, but this Grass will flourish in; most of the *Agrostis* family afford excellent herbage, and are deserving of cultivation.

Aira cæspitosa.—This is a very common Grass in moist shady places, but requires to be frequently grazed or mown to reap its full merits: 2 ft. to 4 ft. high, much tufted; sheep are fond of it.

Holcus mollis and lanatus.—These two Grasses resemble each other very much in growth and situations, and are common in most meadows, growing in tufts; cattle have no relish for it. It grows from 1 ft. to 1½ ft. high: flowers generally in June, at which time it should be mown.

Arena flavescens (*Yellow Oat Grass*).—This is a common Grass in dry meadows and pastures, and is deserving of a more general cultivation: grows from 1 ft to 2 ft. high.

Lolium perenne (*Perennial Rye Grass.*—This appears to have been the first Grass cultivated in Britain. There are two varieties of it—the Annual and Perennial. The Perennial is of a stronger growth and earlier than the Annual, and on dry rich soils will last four or five years. The Perennial is the best Grass for sowing down with Clover, to afford three or more years' good pasture. Other Grasses may afford a greater bulk on poor soils, but are far inferior to the Rye-grass in nutritive qualities.

GRASSES SUITABLE FOR MARSHY AND SHADY PLACES.

The following list will be found to contain Grasses suitable for marshy and sandy ground, particularly along the sea-coast. Some of them are of the greatest service in preventing the winds and waves from drifting the loose sand inland.

Alopecurus geniculatus (*Floating Foxtail Grass*).—Common in pools and wet places; it is sometimes found on dry land: a good Grass for marshy places.

Phalaris arundenacea (*Reed Canary Grass*).—The roots of this Grass are creeping, and here and there tufted: should be cultivated on the banks of rivers and on the sea-coast, to prevent the sands from being blown about.

Ammophila arundenacea (*Common Sea Reed*).—This Grass is extensively employed in Norfolk and Holland, for preserving the banks of sand which protect those countries from the inroads of the sea; it has creeping roots: common on the sea-shores.

Phleum arenarium (*Sea Cat's-tail Grass*).—Common on the loose sands near the sea.

Calamagrostis lanceolata (*Purple-flowered small Reed*).—This Grass should be extensively cultivated in all marshy places; cattle are fond of it cut in the green state, but reject it when made into hay.

Agrostis canina (*Brown Bent Grass*).—Sheep are particularly fond of this Grass: common in moist heaths and moory places; grows in tufts.

Catabrosa aquatica (*Water Whorl Grass*).—Common on the banks of rivers and pools of water; cattle are fond of it.

Aira Canescens, (*Grey Hair Grass*).—Common on the sea-coast, particularly in Norfolk and Suffolk.

Poa Maritima, (*Creeping Sea Meadow Grass*).—This is also a common Grass on the sea-coast: from 8 to 12 inches high: rather a coarse grass.

Poa Aquatica (*Reed Meadow Grass*).—This is an excellent Grass, for the sides of rivers, ponds, &c.: from 4 to 6 feet high, rather coarse, but cattle are fond of it in its young state, therefore it should be mown during the summer for them.

Poa Fluitans, (*Floating Meadow Grass*).—Common in all marshy places, with its long narrow leaves floating upon the surface. Horses, cattle, and pigs, are fond of this Grass in its young state. It produces an abundance of seeds, which are greedily devoured by ducks, geese, &c. The seeds are very nourishing, and are collected in some parts of Germany and Poland, and constitute the manna of our shops. This Grass is the *Festuca fluitans* of Linnæus: 1 to 3 feet high, thick and succulent.

Arundo Phragmites (*Common Reed*).—This is the tallest of all our Grasses, and forms immense patches, called Reed-sands, on the margins of lakes and rivers. The culms are extensively used for thatching, for walls and floors, which are afterwards covered with clay: 6 feet and upwards in height; cattle will not eat it.

Elymus Arenarius, (Linn.) (*Sea Lyme-Grass.*)—This is a strong rough glaucous Grass, on sandy shores, and by its matted roots prevents the shifting of loose sand thrown up by the tides; it is not eaten by any of our domestic animals. The seeds are said to be made into bread in Iceland.

In selecting the different varieties of Grasses for laying down meadows and pastures, one grand object ought to be kept in mind: that is, to obtain those which yield the greatest bulk of good hay, and to mix those which may be cut at the same time; for a greater quantity of food can be procured by a variety of Grasses on a given space, than by any one sort alone. But the great difficulty is to prevent the deterioration of meadows and pastures. This takes place from the better Grasses running out, and giving place to coarser kinds, and often aided by a neglect to keep them well drained. The finer and most nutritious Grasses thrive best in moist, rather than in wet soils; hence it is of the utmost importance to keep the soil free from surface-water by sufficient drains. It is in most cases advisable on a flat surface to lay the land in ridges, at right angles with the drains. Harrowing in autumn is very beneficial to meadows and pastures, as it destroys the Mosses, and covers the seeds of the Grasses which have fallen, or may have been sown. All meadows and pastures should be annually top-dressed with some rich manure, if it can be spared from the tillage crops: top-dressing is of the utmost advantage to the Grass. When the means above described fail to insure a good crop of hay, it is time to set the plough at work, and have a course of green crops, and then it may be relaid.

A diversity of opinion exists relative to the proper time of sowing Grass seeds. Some prefer autumn, but the majority recommend sowing in spring. In my opinion Grass seeds should be sown in August or September, especially on strong, wet, and heavy soils, and well rolled in spring when the land is in good order, for, should a dry spring set in, the young plants will suffer much from being heaved up by the frost. Among the many uses to which the roller may be applied, none would be more valuable than to roll all Grass lands in spring, as the plants are apt to suffer from wind, heat, &c.; and this is often the case in our uncertain climate. Premature decay is thus brought on, which the yearly use of the roller at that season would prevent. There are also a great many different opinions respecting the quantity of seed to be sown. When land is to be laid down to Grass, it is a great error to sow an insufficient quantity. I have observed in many places, where the farmer fails in his Grass crop, by not allowing seed enough, and what is worse, the little he does give is suffered to take its chance under the bush-harrow, which not only drags stones and other matters into heaps, but does not cover the seed deep enough. No doubt much depends upon quality and richness of the soil: the poorer the soil is, the greater quantity of seed will be required.—*J. M'Intosh.*

HOW TO MAKE STILTON CHEESE.

The utensils required in its manufacture are the same as those in ordinary use, excepting the cheese-vat, which in this case is a tin-plate cylinder, 10 inches high, 25 round it on the outside, without top or bottom, having the sides pierced with holes, to let out the whey. The runnet is made in the same way as usual, only, instead of calves' stomach, that of the lamb is used; and in addition to the ordinary quantity of salt, a Lemon, stuck full of Cloves, is put into the jar amongst it: the Lemon adds to the efficacy of the runnet. About 9 gallons of new milk, and the cream off 2 or 3 gallons of milk (the cream to be warmed before put to the milk), are used in the manufacture of one cheese. If sufficient new milk cannot be obtained, the night's milk and cream are to be used with the morning's milk, as well as the

extra cream. The runnet is to be put in, when it is new milk, warm; when it has become curd, it is not broken as in Gloucestershire and elsewhere, but a strainer is laid in a cheese-basket, and the curd put into it, breaking it as little as possible, the cross corners are drawn together, and it remains in this way some hours, until sufficiently firm to slice. It is laid in the vat in slices, a layer of curd and a sprinkling of salt alternately; this is continued until the vat is full, then a flat square piece of board is placed at the top of the vat, one having been previously laid at the bottom, placing one hand at the top, and the other underneath. The cheese is then to be turned over very quickly: its own weight is a sufficient pressure; keep turning it every two or three hours, and two or three times the next day. It is to be kept in the vat three or four days, according to the firmness of it. When taken out, a thin piece of calico is to be dipped in boiling water, and wrung out, and then to be pinned tightly round the cheese. This cloth remains on it until it is thoroughly dry. The cheese should be turned twice a day: it does not require any more salt than that which is put in with the curd. There is a great deal of trouble with this kind of cheese; from the constant dampness of the skin it is apt to get fly-blown—maggots are the result—and the cheese is destroyed.

The object of cutting the cheese into thin slices, and placing these in alternate layers crossing each other, is that it may more readily get mouldy, and acquire the peculiar characteristic of good Stilton—brittleness with softness, richness and mouldiness. In Rutland and Leicestershire, where the Stilton cheeses are made, the plan adopted by the Dorset farmer, in making their poor green Dorset cheeses is too frequently used; that is, by inoculating the curd with some old mouldy cheese, and thus hastening the ripening process. But this is only done when the cheese is of a poorer character, made of half creamed milk. This cheese takes 18 months at least before it is fit for the table.—*W.*

AGRICULTURAL STATISTICS OF SOUTH GLOUCESTERSHIRE.

(*Continued from page* 195)

Table IV. contains an abstract of the results of Tables I., II., and III. It consists of seven columns. The 1st contains the names of the crops cultivated. The 2d states the extent in acres of each throughout the district, as obtained by adding up the columns in Table III. The third gives the total amount of the respective crops in bushels, tons, sacks, as the case may be. The 4th gives an average price per bushel, sack, ton, &c. The 5th gives the total value of the produce of each crop cultivated in the district. The 6th gives the total value of the produce of the arable land, and the total value of the produce of the pasture land. The sum of this is the total value of agricultural produce within the district.—*M. S.*

TABLE IV.—SHOWING THE NATURE AND QUANTITY OF THE AGRICULTURAL PRODUCE OF THE DISTRICT.

1. Crop.	2. Extent. Acres.		3. Amount and Value.	4. Total Value.	5. Total Value.		6. Reference to Tab. III.
Wheat	18,880		405,120 bush., at	7s. 0d.	£ 141,792		Col. 3
Oats	6,320		190,560 ,,	2 9	26,292		,, 3
Turnips	8,000		90,240 tons,	5 0	23,560		,, 4
Barley	12,721		352,640 bush.,	4 0	70,528		,, 5
Seeds, mown	9,680		7,666 tons,	50 0	19,165		,, 6
Aftermath	..		9,680 ,,	7 0	3,388		,, 7
Seeds, pastured	4,880		4,880 acres	20 0	4,880		,, 8
Sainfoin	5,280		4,472 tons,	50 0	11,180		,, 9
Potatoes	5,360		345,200 sacks,	5 0	86,800		,, 10
Beans	1,410		41,020 bush.,	5 0	10,489		,, 11
Teasles	300		1,800 packs,	60 0	5,400		
Fallow	2,640		71,584 tons,	50 0	178,960	£ 401,975	,, 12
Pasture, mown	76,800		76,800 acres		38,848		,, 14
,, aftermath	47,680		47,680		78,464		,, 15
,, fed off							,, 16
	199,041					296,279	
						697,617	

[We shall shortly have some remarks to make upon the inferences which may be drawn from a further consideration of the information our correspondent has here collated.]

HUMIC SALTS AS MANURES.

Although humic salts do not belong to the purely mineral substances, being composed of humic acid, which, in some degree, is an organic acid, and might as well have been treated afterwards under the head of organic mineral manures, it may, nevertheless, be best to dilate, on the present occasion, on the manner of preparing them, as manuring substances.

The humic salts, as humates of alumina, lime and magnesia, humates of potash, soda and ammonia, prepared on purpose, have been used as manures, only for a short time; still, comparative experiments have shown sufficiently that they are amongst the most valuable hitherto known. This is what might have been expected, as the plants receive from them not only much carbon, but also several mineral substances in that very proportion in which they can best assimilate them according to their wants. Humic salts, moreover, have been long ago used as manures, without our being aware of it; as they are formed by making compost, they are contained in every sort of slime and mould, which is used for manure, and they occur also (as we have seen before) in dung, which has arrived at a proper state of maturity.

The humic salts, whose base is an earth or an oxide, are but slightly soluble in water (humate of magnesia excepted), so much so that the soil must possess a considerable amount thereof, for the plants to obtain the required quantity of earth and oxides. The humates of potash, soda, and ammonia, on the other hand, are easily soluble in water, on which account the plants might easily obtain too much, if the soil were to contain large quantities of them. Thus it follows, that if the manuring with humic salts shall be beneficial, the former are to be employed in large, the latter in small quantities. We shall now investigate somewhat narrowly those humic salts, which are prepared most commonly for the purpose of manure.

Humate of Lime consists of 31.1 parts of lime, and 86.9 of humic acid. It is soluble in 2000 parts of water. It is made by burnt lime being slaked with so much water as will make it fall to pieces; then it is mixed as intimately as possible with very humic earth or peat; the whole is placed in a heap, at times wetted with water, and worked up once or twice during the summer. The quantity of lime and humus to be used, depends (it is true) on the proportion in which humic acid and lime combine chemically; still it is always better to take a little more humus than in the ratio of 86.9 13.1, as all the humus will thus be changed in humic acid. It will not be till after a year, or indeed till after two summers and a winter, that the lime will be converted into humate of lime, and can be then used, conjointly with the other earths and oxides contained in the mixture either as a top manure, or to be harrowed in with the seed. The quantity to be brought on the land can scarcely be too great, especially if the soil be very deficient in humus; a ton weight in a dry state produces a very good effect on a Magdeburg acre of land, because the soil will then obtain 262 lbs. lime combined with 1738 lbs. of humic acid, provided that all the lime has been duly saturated. But as this may not always be the case, it will be better to take at least 30 cwt. per acre. Besides, that in this way humate of lime is generated in the heap, those substances also are converted into manures, which are contained in the coal of humus and the vegetable matters. The humate of lime has the property of being easily soluble in carbonate of ammonia. If, therefore, the land is afterwards manured with urine or dung, which contains or developes the latter substance, a far greater quantity of humate of lime will be conveyed to the plants. The dung and the animal excrements act, therefore, in this way even better in the nourishing process of the plants, than in the modes which I had occasion to state before.

The manuring with humate of lime is the more beneficial, the more *free* alumina and oxide of iron the soil contains; because if the dung, &c. also yield humic acid it will be taken up by the iron and the alumina till they are quite saturated, and thus the plants will lose the humic acid, as these combinations are nearly insoluble. When the iron and alumina are finally saturated, the humic acid will combine with the carbonate of lime (if any be present), but, as we already know very slowly, as the carbonic acid will, while the lime is united, tend to prevent it. Thus, as the humate of lime, so essential to plants, is either not formed in the soil at all, or with great difficulty, the making of it on purpose and the manuring therewith, will be very beneficial.

b. Humate of Potash.—This salt consists of 20·97 parts of potash and 79·03 humic acid. It can be prepared in a few hours by mixing hot potash ley with humic earth, and instead of potash, wood-ashes containing much potash may be taken; nay, the latter deserve even a preference on account of the other manuring substances which they contain. For that purpose, the humic earth is either placed in the hot ley, or the latter is poured gradually on the earth collected in a heap. If we do not wish to take hot ley, cold water, containing the potash or wood-ashes, is poured over the earth; or wood-ashes are mixed intimately with humic earth put in heaps, and subsequently water is poured over them several times, and they are worked up repeatedly. In six or eight weeks all carbonate of potash will have been converted into humate of potash. The forming of this salt takes place so rapidly, on account of the carbonate of potash being easily soluble in water, being moreover a more powerful base than the lime.

Humate of potash is always used as a top-dressing, because as it is soluble in half its weight of water, it will reach the lower soil sooner than is desirable. 150 to 200 lbs. will suffice at one time, and its effects will last for 3 or 4 years. It is, consequently, a cheap manure, which, moreover, will never miss its aim, if the soil be not deficient in the other substances required for the nourishment of the crops. Buck-wheat is much improved by it.

If it comes in contact with gypsum in the soil, a reciprocal decomposition of the two salts will take place, viz., sulphate of potash and humate of lime will be formed, which may be hurtful to the plants only so far as they will not receive so much humic acid as before. This, however, is not of much importance, as the humic salts avail plants most by their bases.

c. Humate of Soda consists of 14.96 parts of soda, and 85.4 of humic acid. It is made in the same manner as humate of potash, by mixing *soda* with humic earth. 100 to 200 lbs. are to be put on the acre, and spread on the surface; its effects last 3 or 4 years. I found it produce always very fine Buck-wheat. It is possible, that humate of potash, as well as humate of soda, may become an article of some commercial importance in moory and marshy countries.—*Sprengel.*

ON FIXING BLOWING SANDS.

It has been observed by me elsewhere, and it will be partially seen on the coast here, that ridges formed of sand-hills, even if covered with Bent, are ever changing their form; that sometimes a gap is made across them, which may be filled up, but which often continues widening for years; that the Bent does not effectually prevent the sand from drifting; and that the neighbouring ground is always liable to be inundated by it. I have also observed that when a flat slope or plain of drift sand is produced, and its continuity remains unbroken for a few years, it becomes covered with various plants, which at length form a green sward; but should a gap be made in this plain, and no accession of sand take place, the rent will widen, and the sands will drift, until sometimes the whole is blown away, or new hillocks are formed.

Now, the ridge of hillocks on the coast here is too large to be removed by labour, and therefore the object is to render it stationary and permanent. To effect this, the more prominent parts should be removed to fill up the hollows; and the face of the ridge next the sea should be rendered as nearly uniform as possible, with a general declivity of not more than 30°; the summit of the ridge should be rounded, and its landward declivity extended at an angle of about 20°, which I think is that at which the vegetation becomes permanent under ordinary circumstances. To secure the permanency of this long prism of sand, its seaward face should be planted with those Grasses which are observed to thrive naturally in such situations. These are the Seabent, *Arundo arenaria*, called also *Ammophila arundinacea;* the Sea Lime-grass, *Elymus arenarius*, which is a much larger and coarser, but less efficacious plant; the Sea-Wheat, *Triticum junceum;* and the common Fescue, *Festuca duriuscula;* together with the Sand Sedge, *Carex arenaria*. I have seen it recommended by various botanists, to collect the seeds of these plants, and sow them in the sand. To this there are two objections: first, seeds sown on drift sand would have no chance of germinating, because they would be liable to be blown away, or covered too deeply, or dried up; and, secondly, the seeds of the Sand-bent are scarcely ever matured with us, at least I have often searched for them, but never found any. But all the plants mentioned propagate naturally by their very long, slender roots, which extend beneath the surface, and send up shoots at their knots. These long creeping roots, if gathered and cut at intervals, leaving a knot on each cutting, might be planted probably with success. A better method, which I have seen practised, is this:—It will be found in a tuft of Sea-bent, that the root divides at the top into a great number of shoots, each with a tuft of leaves. One of these large tufts may therefore be divided into a considerable number, each having a small bit of the root attached. A person, provided with a bundle of these, and a small spade or trowel, plants them in the same manner as Cabbages, putting them in deeply, and tramping the sand about them, the sets being placed at the distance of a foot from each other. If the weather be wet, they soon take root and grow; but if dry, they may be partially overwhelmed or blown away. When tufts of this plant are at considerable intervals, they increase to a great size; but the sand between them drifts, and leaves them forming little hillocks. When they are closely and uniformly planted, little drifting takes place, and the seeds of many other plants finding shelter among them, germinate, so that ultimately a sward is formed, which in time usurps their place almost entirely, and they decay and disappear. Elymus arenarius is too coarse to form a sward; and thus, in all places where I have seen it, although it in some degree binds the sand, it can never be depended upon for preventing drift. Carex arenaria, which is very vivacious, and has running roots often from ten to 20 feet long, as I have ascertained by pulling them up (which is easily done, as they pass horizontally at no great depth, and can be traced by their annual tufts), might with advantage be planted here and there among the bent, which, however, is the Grass to be most depended upon. The proper place for Triticum junceum is at the base of the seaward slope, just above the highest tide-line; but it does not generally thrive at a distance from the sea. In this manner the outer slope, and the rounded summit of the ridge, are to be clothed with the plants mentioned.

The inner slope requires nearly equal attention, although it is not so liable to be drifted, and it even will soon be covered with Grass and Herbage; but yet it must not be left to nature in our case. Its upper half should be planted with Whins, which may be reared for the purpose, or taken up from among the old bushes; or the seed may be sown, although of this practice I cannot predict a certain result, as I have not seen it employed. But it is of importance to obtain a belt of Whin, among which some Broom might be tried, although I apprehend it will not thrive well in such a situation. To secure the lower part of the inner slope, the best method, I think, is one which I have seen answer completely in the outer Hebrides. Square turfs are cut from the neighbouring pastures, and laid upon the sand at the distance of a foot or more from each other. These turfs must not be merely of a sandy soil, otherwise they may dry up or be blown to pieces; if it be possible to procure such as have Agrostis stolonifera or alba in them, that plant is sure to succeed, and send out shoots into the intervening spaces. Long drought may destroy or greatly injure

the turfs; but in a wet season they are sure to answer; and I have known large tracts completely secured by this practice in a few years.—*Professor M'Gillveray in the Scottish Farmer.*

Home Correspondence.

Deep Cultivation.—The advantages of deep cultivation are, as you express in your last Number, so self-evident to those who bestow due consideration upon the subject, that it seems almost a waste of time to advocate its practice. Nevertheless, in agriculture, as well as in those other arts, the *rationale* of which are now more generally understood, it is absolutely necessary to reiterate the same truths again and again before the popular mind can appreciate and apply them. An illustration, by way of example, frequently makes a more durable impression than the clearest demonstration of abstract truth; and having experienced, in the most marked manner, the benefits of deep cultivation upon my Turnip-crop during the dry season of last year, I am induced to communicate the fact to your readers. In the winter of 1843 I subsoiled a field of 12 acres to the depth of about 18 in.; its geological position is on the upper part of the lower green-sand, and its texture a light loamy gravel. The manures which I applied to different parts of the field were night-soil, the refuse of a horse-hair manufactory, and superphosphate of lime, together with a general coating of ashes. There was little, if any, perceptible difference in the crop of Swedes, when the several manures were respectively used; but the whole, without exception, notwithstanding the extreme drought which we experienced in this neighbourhood, was one of the finest I ever grew. I attribute its excellence almost entirely to the subsoiling, which enabled me to obtain a good tilth (in fact when the Swedes were sown the ground resembled an ash-heap), and thus to retain a sufficient moisture for the plants, in spite of the dry weather. Similar beneficial effects were also as palpable upon another dry gravelly field of 20 acres, sown with Peas, which had been subsoiled during the preceding winter. Both these fields were subsoiled for the first time, having previously been in the occupation of tenants who never ploughed deeply. With regard to draining, too, I am decidedly of opinion that the drains should be deep. I never dig them less than 3 feet, and frequently, according to circumstances, from that to 4 and even 5 feet. And, although the original outlay be a heavy expense (too great, indeed, to be expected from a tenant), I am convinced that wherever the land requires draining, it is the best investment of capital that can be bestowed upon its improvement.—*J. M. Paine, Farnham.*

Management of Calves.—In Suffolk, which has been a large dairy county, they never suffer their fatting calves to suck but twice a day, and thus they keep them 8 or 9 weeks, when they are only moderately fat, with a good cow. May I ask what is the plan in Essex, whence so many are sent to the London market, that we may suppose they not only pursue what is likely to produce fine veal, but also what is most profitable to the farmer? Would not sucking a full meal three times a day be more likely to promote their growth?—*Laitière.* [The practice of milking cows three times day is not common; nor is it advisable.]

Thick Sowing.—An inquirer from the Banks of the Dearn asks, whether less than three bushels of Barley-seed an acre is sufficient, and what is the best distance for the rows? I have before stated in the *Agricultural Gazette* an experiment tried more than 20 years ago to ascertain these matters, but as the Number of the *Agricultural Gazette* may not be on the Banks of the Dearn to refer to, if there be no objection to occupy its columns with a repetition, I will again state it; and I do so the more readily; as the spring seeding time is now at hand I may draw attention to it from other parts of England besides the Banks of the Dearn. I divided a patch of ground into five parts, each part 7½ feet wide; this admitted in each part 3 rows of Barley at 30 inches asunder, 4 rows at 22½ in., 6 rows at 15in., and 12 rows at 7½ in.; the fifth part was sown broadcast: a row at 22½ inches yielded a weight of grain and straw equal to a row at the 30, and to two rows at 15 inches distance, the 7½ rows were still inferior, and the least produce was in the broadcast. Other experiments since have satisfied me that, at somewhere about 20 inches, both Wheat and spring-sown corn will be most productive, and that the quantity of seed may be about a bushel to the statute acre; but I must remark that the ground has been continually hoed between the rows—upon which operations, I reckon, very much depends. The ground, by being so kept open, absorbs the ammonia brought down by every shower, (which, falling on hard ground, would evaporate with the first sunny hour) retains it for a time, and suffers it to be carried up by the evaporation of moisture from the soil to the leaves of the plants; and a regular and constant supply is also assisted by the regular and constant hoeing or stirring of the soil. The plan of operation I would indicate is this:—Plough the land with a light one-horse plough, and a furrow-slice, 7 inches wide and 3 deep; sow the seed of any spring corn in every third furrow, harrow and roll. When the corn is in Grass, work the intervals with a Dutch hoe; shortly previous to its tillering draw earth to the plants with a garden hoe so as to cover the lower joints, to encourage the tillering. Continue to stir repeatedly the intervals with anything you please, a long-tooth rake or a hoe, with Dr. Yellowly's forks, with a long and narrow spade, or with a single-horse furrow plough; break the soil as deep as you can in the centre of each interval. The last time you can go among the rows, throw as much earth as you can upon the roots of the plants; this will help to support them and prevent their lodging, and it will also leave a drill in the centre of each interval to sow the seed of the succeeding crop in. Your labour is now done till you reap; and here at your most busy time you will find one reaper go over as much ground as four would in a broadcast field. You may now put in Wheat upon as pretty and clean a fallow as you ever had, by merely running a drill barrow along the drills that lie ready opened for you; a light harrow drawn lengthways will cover the seed. Before winter comes on, set all the idle people you can to dig up deeply and roughly, and leaving rough all the rows of stubbles, and you will have a shelter for your young Wheat plants, and a softened surface to draw off the water. In the spring pursue the hoeing and stirring processes, and you will have a plentiful harvest and another crop of Wheat, and as many more as you please afterwards, each better than the preceding one. Of course I do not interdict manuring when necessary, but I would ask you to apply your manures, no matter what kind they be, on the surface and in the spring. You will not want straw to make them of; Liebig says burned straw, but I would rather the combustion took on a gentler aspect; perhaps straw moistened in heaps, and heating (not absolutely firing) till it were decomposed, would be a better article, urine, sulphuric acid and bones, &c., would suit—*James M. Goodiff, Granard.*

Campbell's Steep.—Last spring I made some experiments with Campbell's Steeping Materials, and as the result shows it to be a decided failure, I send you the particulars—as, by noticing it in your useful publication, it may prevent others from being disappointed. I paid 5*l.* 8*s.* last season for the material, and lost my crop into the bargain. I saw not the slightest difference on the Oats prepared with his steeps, farther than that on the portion steeped, there were fewer black heads. I gave the same quantity of seed per acre to each.

Note of some experiments made with Campbell's Steep and other manures, in laying down 4 Scotch acres of Chevalier Barley. The land was after 2 years' Grass, in wretched order, and quite out. It was furrow-drained in autumn, and sown on the 22d March.

First Acre.

Seed—6 bushels of Chevalier Barley, at 32*s.* per quarter		£1	4	0
Manure—30 loads of good farm dung, including extra expense of cartage, and spreading on the land, say at 2*s.*		3	0	0
		£4	4	0
Produce—6 quarters and 5 bushels weighing 56 lbs., at 28*s.*	£9 5 6			
Straw—97 stooks, dressings 1 bushel, weighing 45 lbs.				

Second Acre.

Seed—6 bushels as above	£1	4	0
Manure—3 cwt. of Peruvian Guano, mixed with 6 bushels of saw-dust, sown and harrowed in before the seed, 11*s.*	1	13	0
	£2	17	0
Produce—6 qrs., weighing 56½ lbs. at 28*s.* 6*d.* £8 11 0			
Straw 99 stooks, dressings 6 pecks, weight 46 lbs.			

Third Acre.

Seed—4 bushels as above	£0	16	0
Manure—6 gallons of Campbell's steep	0	12	6
	£1	8	6
Produce—3 quarters and 7 bushels, weighing 56 lbs., at 28*s.* £5 8 6			
Straw—67 stooks, dressings 1 bushel, weight 44 lbs.			

Fourth Acre.

Seed—4 bushels of Chevalier Barley	£0	16	0
Manures—6 gallons of Campbell's steep	0	12	6
,, 1 cwt. of Peruvian guano	0	11	0
,, 16 heaped bushels of pigeons' dung	0	16	0
	£2	15	6
Produce—4 quarters, weighing 56 lbs., at 28*s.* £5 12 0			
Straw—78 stooks, dressings 5½ pecks, weight 45 lbs.			

I think the result of this acre shows that the steep does more harm than good, as the land was equal throughout the field; and the manures on lot four seem to have been thrown away, as the extra produce is only 1 bushel. The particulars sent have been carefully noted down by my grieve, and I am certain you may rely on his statement.—*A Subscriber.*

Pigeons.—"A. B. C." in asking for advice as to how he may induce pigeons to remain with him, does not mention the circumstances to which he attributes their disinclination to do so. I know from experience that their highly gregarious disposition frequently prompts them to forsake the home where they have but few companions, for that in which, as in the large dove-cotes, there are many hundreds kept, and this too when in the former they are apparently better fed and provided with more commodious shelter. Again, they object to a locality surrounded by high trees, which interfere with the regularity of their flights; and from a variety of other causes, difficulty arises in inducing them to settle themselves at home. Having myself experienced this, and tried without success the various nostrums presbribed to me as infallible, such as salt-cake, composed of salt and marl—smearing their houses with assafœtida, the odour of which is certainly agreeable to them—I had recourse to the plan of drawing from one wing of each pigeon the seven longest feathers, which operation, appearing at first to savour of barbarity, if done tenderly and skilfully, inflicts really but very slight pain, as is evinced by the fact that in the interval between drawing each feather, a tame bird will not refuse food from the hand engaged in it. The birds must then be admitted to the dove-house from below, or supplied with some shelter adjoining and accessible to them in their temporarily disabled state, and minute precautions taken against the destructive attacks of cats, rats, and other vermin. In about six weeks the birds will have in some degree regained the drawn feathers, and should then be introduced to their permanent quarters, whither they will have full power to ascend before they acquire strength to fly any length.—*W. T. B.*——Another correspondent says:—Having attempted to domicile pigeons several times, and having always lost them by their flying away—probably to the place where they had been bred—I obtained them young, and drew their tail-feathers. They ran about the yard till these grew again, had then become perfectly tame, and have now no disposition to wander away. I have since pursued the same plan with a magpie, which comes every morning to the window for food, and I shall, as soon as I can get a supply of young ones, try the same plan with rooks.

Cabbages.—Seeing occasional paragraphs in your paper on the cultivation of the Cabbage as an agricultural plant, I take the liberty of sending you a paragraph I have met with in reading Mr. Almack's interesting Report of Norfolk Farming in the "English Agricultural Society's Journal." Mr. James Everitt says:—"I never, in any one year, have more than 3 acres, as I use them only in my lamb-yard during the lambing season; nor, on my light land, should I attempt to extend my quantity; being satisfied they are immense exhausters of the soil, and require a larger proportion of manure than any other crop." Mr. Everitt adds, he has tried two methods—transplanting, and sowing the seed where he intends the crop to grow. I will give their description, as nearly as I can, in his own words:—"In the former, I sow the seed in April, upon a well-manured seed-bed, at the rate of 1 lb. of seed for an acre. I ridge the land about midsummer, with a double-breasted plough, the rows being 27 inches from centre to centre, and then deposit at least 15 loads of farm-yard manure, and a quarter of a ton of rape-cake, per acre; split the ridges, so as to cover the manure, and then run a light roller over them. In the first period of damp weather I employ women and girls to transplant them in the ridges 18 inches apart; of course they require horse and hand hoeing." By this plan the Cabbages are generally larger than by drilling, except when the weather is very warm and dry; but, even then, watering by hand will save them. Mr. Everitt, however, finds this plan expensive; and although the other, of drilling the seed, does generally produce a lighter crop, he is inclined to follow it in future; and the crop I saw was so sown. The seed is thus drilled on 27-inch ridges, about the first week in June, in the same manner as Swedes, except having manure applied more liberally for Cabbages. Mr. Everitt grows two sorts—the Thousand-head, and the Drum-head, either of which the sheep will eat very well. For the first day or two after ewes have lambed, he finds they prefer Cabbages to anything else, and they are great promoters of milk.—*M.S.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

Meeting of the Council, March 6.—The Secretary read the following letter from Sir Richard O'Donnell, Bart., on transmitting his report of the quantity of thorough-draining executed on his estates in the county of Mayo, by his tenants, and through their instrumentality and co-operation, viz.:—"Newport House, Mayo, March 1, 1845. Sir—As a competitor for the gold medal to be granted to the landlord in Ireland who, in co-operation with his tenants, has most effectually introduced thorough-draining on the lands in their occupation, I take the liberty of calling the attention of the Royal Agricultural Improvement Society to the difficulties I have had to contend with, not only from the very defective knowledge of agriculture in this part of the country—from the great poverty of the farmers themselves—from the absolute necessity of making large and expensive main drains before the tenants could in many cases drain their land—but particularly from the extensive practice of farms and even whole townlands being held in common, which proved such a hindrance to the work that I was obliged to direct my agriculturist, in 1843, to stop in future laying out drains for tenants on land so held. My object in stating these difficulties is, to prove to landlords similarly circumstanced with myself that by a steady and active co-operation with their tenants all obstacles can be surmounted; and that the attention of a resident landlord will silence distrust, overcome ignorance or ingratitude, and uphold that confidence which of late years had been so much disturbed. It was with the conviction of these heavy responsibilities resting upon me, as the landlord of a poor, although a kind and attached tenantry, that my attention was first drawn, in December 1842, by the exertions of the Royal Agricultural Improvement Society, to the important subject of thorough-draining; and, with the view of carrying on the system as extensively as I could upon my property, I then commenced draining upon several different farms in my own possession; considering it necessary to train in a number of men to the work, and to prove to

he public, in my own case, the practical result of the ystem; by which means I have very much facilitated nd forwarded my main purpose—namely, the general mprovement of the land, and making the tenantry of his country familiar with the system. "Having enaged, in the early part of 1843, a competent agriculturist, commenced the work among my tenants; first, proiding a plentiful supply of all necessary draining tools, t my own expense, for their use. I forwarded printed eturns of the premiums I gave amongst my tenants in hat year. It is, indeed, most encouraging and gratifyng to me to be enabled truly to say, that, on looking back on my own exertions during the two past years, no 'feelings of mutual distrust which too often separate the classes of landlord and tenant, and prevent all united exertion for the common benefit,' did, in any way whatsoever, hinder the progress of our work. In two years and two months since first thorough-draining was introduced into this neighbourhood * * * 60,000 perches have been made upon my property, by the mutual co-operation and kindly feeling existing between us—a sufficient proof that thorough-draining has succeeded effectually. I found the system so rapidly extending over all parts of my estate in 1844, that I did not consider a few premiums sufficient co-operation on my part, and therefore I gave 2*d.* per Irish perch for all drains executed by my tenants on lands in their own possession, paying also one-half of the expense of opening all main vents and drains, such drains to be laid out by my agriculturist, and at the completion of the work, to be approved of and certified for payment by him; and so satisfactorily has the work progressed by him, that I have been obliged to engage a second agriculturist for the purpose. Some of my poorest tenants have drained 5 acres in one year—some have drained every perch of land in their possession; others have not only drained their land, but subsoiled 2 acres in one season. It is impossible to enumerate all the benefits that have resulted, and are likely to result, both to landlords and tenants; and whatever good this system of thorough-draining has conferred upon myself and tenants, it is satisfaction to me to see the work extending. My neighbour, the Marquis of Sligo, has this year engaged two agriculturists, and is also most liberally co-operating with his tenants for thoroughdraining the lands in their possession. The Earl of Lucan has thorough-drained 90 acres within the last two years. Mr. Jackson, of Carramore, has commenced the work in the barony of Tyrawly, and farmers and agriculturists, from different counties in this province, have here received instruction in the system.—I have the honour to be, &c., RICHARD O'DONNELL.—Edward Bul en, Esq., Secretary, &c."—The letter was accompanied by a report, containing a full and most interesting detail of all the different small farms upon which the work had been done, specifying the number of acres in each man's possession, and the quantity of thorough-draining executed by them in the years 1842, 1843, and 1844 respectively; together with a small diagram of each man's farm annexed, showing the extent and form of the drains, all of which had been strictly executed upon Mr. Smith, of Deanston's principles. The tenants are all now busily employed in trenching and subsoiling their farms, the beneficial effects of which are visible every day.

FARMERS' CLUBS.

Harleston.—At the Monthly Meeting of the above Club, held on the 19th day of February, and by adjournment on the 12th of March, inst., the following was the subject discussed and the resolution arrived at, viz.—Subject—"The expenses of cultivation on a heavy land farm, one-fifth pasture, the rest arable, on an average of eight years." Resolution—"It is the opinion of this Club that the expenses of cultivation on a heavy land farm of 125 acres (100 acres arable, 25 acres pasture, at a rental of 25*s.* per acre, with Wheat at 25*s.* per co.), on an average of eight years would be as follows, viz.—

Interest on 1000*l.* capital employed at 5*l.* per cent	£50	0	0
Rent on 125 acres, at 25*s.* per acre	156	5	0
Poor, Church, and Highway Rates, at 4*s.* 2*d.* per acre	26	0	10
Tithe rent-charge at 6*s.* 6*d.* per acre	40	12	6
Labour	166	3	5
Keep, and wear and tear of 5 horses	103	15	0
Tradesmen's Bills	27	12	0
Seed Corn	44	13	0
Wear and tear of Implements, Market Expenses, &c.	10	0	0
Insurance	1	0	0
	£626	1	9

—*W. L. B. Freuer, Secretary.*

Rebiews.

Economie rurale, considérée dans ses rapports avec la Chimie, la Physique, et la Météorologie. Par J. E. Boussingault. Paris: Béchet. 2 vols. 8vo. 1843-4. (Second Notice.)

In examining this work, we shall do so under the three distinct heads of Chemistry, Vegetable Physiology, and Practical Agriculture; the first and last will find a place in this division of our Paper, the second will be given in the *Gardeners' Chronicle.*

And first, as to the Chemistry of the book. We wish it were in our power to deal with this part of the work at the length that its importance would justify. Our limits are, however, so narrow, that we can advert to a few points only.

In the first chapter the chemistry of germination and the formation of vegetable matter, are illustrated by valuable original experiments. Seeds of plants were caused to germinate in confined portions of air, and at the close of the experiment, the chemical composition of the germinated seeds, or young plants, was compared with that of the same kind of seed before germination. Such experiments are extremely valuable. In an account of the aerial food of plants, some interesting experiments on the absorption of nitrogen will be found, in which seeds, the composition of which was known, were grown, and the plants produced subsequently analysed. The result showed that the proportion of azote taken up by different seeds varies very greatly, some plants containing no more azote than the seeds from which they grew, whilst in other cases a very considerable increase of that element was observed.

We pass over some inquiries into the probability of ammonia being formed in the soil, owing to the influence of electrical agency at the moment when hydrogen, set free from a non-azotised substance, is brought in contact with the nitrogen of the atmosphere; and some very long details relating to the inorganic elements of plants, their proximate principles, the nature and property of azotised substances, and other matters, which a judicious translator would advantageously curtail. In doing so we must, however, point out the singular error of stating that the trunk of a tree contains a larger proportion of inorganic matter than the branches; the truth being just the contrary.

The fourth chapter demands more attention. It contains an account of the nature and composition of soils, and the whole of it may be read with very great advantage by all who take an interest in the study of scientific agriculture. The chemical and mechanical composition of soils is clearly described; and though there is less of the author's own experiments in this, than in the other chapters, the matter it contains is very well selected, and is accompanied by many valuable remarks. The truth of the following lines will be acknowledged by all who have studied the chemical composition of soils:—"The qualities which we esteem in a workable soil depend almost exclusively upon the mechanical mixture of its elements; we are much less interested in its chemical composition than in this; so that simple washing, which shows the relation between sand and clay, tells of itself much more that is of importance to us, than an elaborate chemical analysis." The chapter concludes with some good observations on the amelioration of soils, by increasing their depth, or altering their mechanical structure; on the influence of climate on the fertility of soils; and on the manner in which the moving sands of the south of France have been successfully arrested by the ingenuity of M. Bremontier.

It is, however, in the important subject of manures, which occupies two chapters, that M. Boussingault's work has the highest merit. The author sets out with a statement that farmyard-manure is the best of all manures; now, although in one sense this is perfectly true, we should hardly have expected to find such a statement in the work of a chemist. As farmyard-manure contains a little of every kind of refuse, it is sure to contain everything that plants require, but it is also sure to contain a good deal of what they do not require; and, therefore, the farmer is at some trouble and expense in preserving and applying that which is of little or no use, along with that which is of value. The perfection of manuring is to restore to the soil just as much as we receive from it in our crops; and if chemistry ever enables the practical man to do this, it will indeed effect a great improvement in farming. In going into the subject of putrefaction, and the changes effected by the decay of organic matter, the Author places the philosophy of the dunghill before his readers in the clearest and most intelligible form. The observations on the formation of nitre, and other compounds of nitric acid in the soil, are also very good; but the experiments quoted to show that nitric acid is not formed by the oxidation of ammonia are by no means satisfactory, being made under circumstances which cannot be compared with those which exist in Nature. The value of ammonia in manure is, of course, placed in a strong light, and the valuable experiments of M. Schattenmann quoted as a practical illustration of its use. The whole subject of dung and liquid manure may be studied with very great advantage, for here sound chemical principles are applied to the operations of the farm. The important question as to the time when manure is most advantageously applied is less happily handled; the great argument appears to be, that perfectly fresh manure does produce fertilising effects; this no one disputes; the question is, is it best to let it slowly ferment on the soil, or rapidly in the heap, before applying? and although it certainly is better to apply it quite fresh than to rot it so wastefully as to lose the best part of it, there is no doubt that it may by proper care be protected from waste, and all its best parts retained. The fact is, that rain and other meteorological influences must be taken into account, and that under some circumstances the one process is the best, in others it is the worst. The author observes, that it has been objected to the use of fresh manure, that it contains the seeds of weeds and eggs of insects; this objection, he says, does not apply to the use of it for those crops which can be hoed. Now, it is not at all clear how the operation of hoeing can prevent the development of the insects, though, no doubt, it will prevent the growth of weeds. The articles on special organic manures, which conclude this chapter, are of considerable value, the Tables and analytical results of the highest interest as data for further inquiries and experiments, and cannot fail to be of use if rightly applied.

In the chapter on mineral manures, or improvers, the learned translator takes the liberty of making his author talk of *stimulants*, a term repudiated by nearly all men of science, and particularly objected to by Boussingault himself. The action of lime, and the use of marl, chalk, and limestone is carefully considered, and some interesting facts are quoted respecting the use of ashes and alkaline salts. The observations on gypsum are minute and full of valuable details; they may be studied with considerable advantage; the various theories of its action are carefully considered, and the author shows that in all probability the lime and sulphur which it contains are more important than the small quantity of ammonia which it may serve to fix from the atmosphere; the arguments, however, with which he endeavours to prove this are by no means unanswerable, and some of them indeed might almost lead to opposite conclusions.

The following chapter treats of the rotation of crops, in which the two great theories, viz., those of excretion and exhaustion are discussed, and the improbability of the former shown. The experiments on rotation in which the chemical composition of individual crops is given, are most valuable. The eighth and ninth chapters are occupied with the consideration of food, the processes of nutrition, the formation of fat, &c.; here are many interesting experiments of the author, as to the composition of food, and the nature, quantity, and composition of the various products which result from its digestion in the body of an animal. The remarks on the comparative value of food, and the difficulty of fixing a standard of comparison, are very good. With respect to the comparative value of boiled, roast, and raw food for cattle there is but little information given, the author contenting himself with stating the diversity of opinion entertained on the subject, and suggesting that boiling may possibly render starch more easily assimilated by animals. A new subject, and one of considerable importance is started, in drawing attention to the supply of lime, &c. required by animals to maintain their bony structure in a healthy state; thus he observes:—"It is not only indispensable that the allowance of an animal in full growth be sufficient to support and even to add to the soft textures; it must further contain the elements requisite for the nutrition of the osseous system, and it is not impossible that in feeding young cattle or horses so as to reduce to a minimum or supply to excess certain earthy constituents of food, we may materially alter the character of the breed." This speculation is certainly very curious, and well worthy the further consideration of chemists. The peculiar views which M. Boussingault holds in common with M. Dumas, as to the formation of animal fat, are now so well known that it is unnecessary here to say more than that the experiments and arguments on which his views are grounded, are most plausibly and ingeniously arranged; it is, however, right to add that his opinions are put forth with the degree of doubt which ought always to accompany new views, and that after speaking of the necessity of further experimental evidence he confesses himself ready to relinquish his theory as soon as proofs shall prove it to be erroneous.

The last chapter contains a number of interesting facts in the meteorology of agriculture, a subject which is generally wholly overlooked by scientific writers on agriculture, or at least greatly undervalued. Effects really due to local influences of climate are frequently referred to chemical causes, just in the same way as chemical reasons are so frequently assigned for the peculiarities of soil caused by mechanical structure.

The Agricultural Magazine, and Journal of Scientific Farming. F. Crisp, 7, North Wellington Street, Strand, London.

No. I. of a New Agricultural Monthly Periodical. It contains some interesting papers on various points of practical farming, among which we may name the Cultivation of the Oat and of Barley; an article on Rotation of Crops; and a Calendar of Operations for the month of March. It also contains full reports of the proceedings of Agricultural and of Scientific Societies; indeed, in reference to the latter, perhaps too much of its space is devoted to the publication of purely scientific information.

Miscellaneous.

Growth and Composition of Furze.—In regard to the growth of Furze, a correspondent in the county of Cork writes me as follows:—"In the western part of this great county, and in many parts of the north of Ireland, Furze (*Genista spartium*) occupies a prominent place as food for cattle. A friend of mine, who lives at Dunmanway, in the mountainous parts west of Bandon, feeds every year 200 or 300 head of cattle, from the 1st Nov. to the following May, on chopped Furze only, Sunday excepted, when they get Turnips. I have not seen finer or healthier cattle in Ireland; and all this on a small mountain farm not exceeding 400 acres (Irish?) This farm, some years ago, was valued at 1*s.* 6*d.* per acre—it is now worth 5*l.* Furze is now grown as Wheat or Clover, and lets, after the first year, at 5*l.* per acre all over this county (Cork)." The only analysis of Furze yet published is by Sprengel, and, as several members of the Association and others have written to me to know something of its composition, I insert here Sprengel's results. I have not myself had an opportunity of examining it:—1°. *Organic part.*—Water, 50.00—Albumen, gum, salts, and a little bitter extractive matter, 9.67—matter soluble in diluted potash, 13.38—wax, resin, and fatty matter, 2.76—woody fibre, 24.19. Total, 100.00. 2°. *Inorganic Part, or Ash.*—The quantity of ash it leaves is 0.938 p. ct. wet—1.876 dry.

This ash consists of—potash, 37.31—soda, 5.76—lime, 13.75—Magnesia, 2.99—oxides of iron and manganese, 0.53—alumina, 0.21—sulphuric acid, 6.39—phosphoric acid, 11.52—chlorine, 8.00—silica, 13.54. Total, 100.00 per cent.—*J., in the Quarterly Journal of Agriculture.*

Conveyance of Fat Cattle.—Unusual labour unavoidably produces a wasting of the animal substance. The practice of driving fat cattle over considerable distances was, doubtless, resorted to in the absence of any means of conveyance whose cost was tolerable; but that it should be continued where railroad or steam-boat transit can be employed must be attributed to blind adherence to usage, and neglect of the plainest principles on which the profit of the parties concerned depend. A long journey will, of course, walk flesh and fat off the bones, where it had been laid with all the skill of the grazier, and at no little care and cost. This fact is presented with the precision and authority of actual experiment, in the sailing-bill of the Enterprise steamer, which plies between London and Boston. It is there stated that Mr. D. Martin, of Wainfleet, sent five sheep to London to walk the whole distance on the road, and killed five others at home. The two lots were of exactly equal weight (858 lbs.) when alive. The carcases were weighed when dead, when it was found that the sheep which had walked to London weighed 435 lbs., and their loose fat 60 lbs.; while the five killed at home reached 489 lbs., their loose fat weighing 74½ lbs. The total difference of weight amounted to 68½ lbs., or 14 per cent. of the original weight of the mutton; and this was evidently the loss of meat occasioned by compelling the five sheep to walk from Lincolnshire to London. It is hardly necessary to point out the consequences of this important fact. 14 lbs. of every cwt. of the best of human food are absolutely thrown away in the performance of such a journey by the living animals; not a single human being is benefitted by the waste or the process. To abolish the practice would be equivalent to adding many thousands of acres to the grazing districts of the kingdom, and those of a kind to require no expense for management. Nor is this all. At the end of so long a journey, the animal, unused to effort, is wearied and diseased, and its flesh is, to say the least, less wholesome than it ought to be as human food. There can now be no excuse for the continuance of this practice; or, if some districts still remain unprovided with railways, the want is likely to be very speedily supplied. Steam conveyance, both coasting and inland, now supplies, or soon will supply, every grazing district with the means of sending its living produce, at reasonable cost, to the great seats of population, without waste or deterioration, and without unnecessary suffering to animals destined to die for the sustenance of man. But why should not the advance make another step? Why should these animals be killed in the crowded yards and dingy cellars of the metropolis, where causes of disease are rife enough without adding to them the unavoidable filth and putridity of innumerable slaughter-houses? The reasonable plan is evidently to send, not live cattle, but dead meat, to great towns and cities, and to locate in the country the processes by which the various parts of the animal are rendered serviceable to man. There the free winds sweep away what would be the cause of pestilence in crowded streets and alleys; and there the *residuum*, of whatever nature, is in its proper place to be applied again to the fertilisation of the earth. —*Railway Bell.*

Manures.—The farm-yard manure of Norfolk is almost invariably saturated with the essence of linseed-cakes, these being given in abundance to the cattle. Whether made in open yards or under cover, linseed-cake is the great improver of their dung, although there are called to its aid many other manures, such as bones, soot, &c. Many persons give their cart-horses green food in the yards or boxes during summer, such as Tares, Lucerne, Trefoil, Clover. They also carry into their yards all the vegetable matter they can readily collect. When within a moderate distance of the coast, they spread sea-sand in their yards, loose boxes, sheds, stables, &c., to absorb the liquid manure. I would particularise Mr. Browne of Thrigby as doing this, though there are many others along the coast. Refuse fish also is mixed with sea-sand or mould. Mr. J. H. Holley, of Aylsham Burgh Hall, uses very large quantities of sprats as manure for Turnips. He mixes about one ton of them with 8 or ten loads of mould, and finds that a ton and a half of these fish per acre will produce a good crop from very ordinary land; never having failed in any season. The mould for this mixture is obtained from the borders of the field where the Turnips are grown, and the carting of it does not cost more than the carting of 20 tons of yard-manure. Brewers' grains are also in some instances used as manure; they are supposed to pay best when mixed with farm-yard manure.—*Mr. Almack, in the English Agricultural Society's Journal.*

Notices to Correspondents.

BONES AND SULPHURIC ACID—*J V B*—We do not remember receiving your letters, and the fact that you have not received answers convinces us that they must have miscarried. Six bushels of bone-dust, with half their weight of sulphuric acid, is an abundant dressing per acre. You can pour the acid over the bones in a large wooden vessel, and let them remain for a day; dry the whole up with ashes, dry earth, &c., and apply it in the drills below the seed. This manure will, doubtless, answer well for Mangold Wurzel or Carrots also, provided the soil contain those other matters necessary for fertility, which cannot thus be supplied; lest this should not be the case you had better use 3 cwt. per acre of Peruvian guano instead. For soiling sow 16 lbs. of Clover and 1 bushel of Rye-grass per acre—see below. Lawson recommends for moory soils, which have been pared and burnt, or otherwise improved, with a view to their producing better pasturage, 30 lbs. weight of "mixed hay-seeds" and 6 lbs. of White or Dutch Clover, and 1 bushel of Rye per acre.

BOOKS—*F M C*—Low's "Elements of Practical Agriculture." —*W L*—Hillyard's "Practical Farmer and Grazier;" Mackintosh's "Practical Gardener."

CROSS-BREEDING—*M Y*—Pray send us samples of your Oats, and we shall be happy to try the process on them along with others on our list. You had better also place them in the hands of some seedsmen in your neighbourhood.

DISEASE IN SHEEP—*Pastor*—Next week.

GOLD OF PLEASURE—*Anon*—Sow 10 lbs. of seed per acre now, on light sandy soil. It will be ready to harvest in July. Harvest it when the seed-pods are of a gold colour.

GRASS SEEDS FOR DEEP MOSSY GROUND—*Old Sub*—Agrostis Stolonifera, 2 lbs.; Alopecurus pratensis, 2 lbs.; Festuca duriuscula, 2 lbs.; Lolium perenne, 10 lbs.; Phleum pratense, 2½ lbs.: Poa trivialis, 2½ lbs.; Trifolium repens, 6 lbs; Rye, 1 bushel. For prices apply to seedsmen.

ITALIAN RYE-GRASS—*Querist*—We do not know Italian *Bent*-grass; but presuming that you mean the Italian *Rye*-grass we may mention that we have sown it late in March, on *a rich sandy soil in good condition*, and mowed a good crop of it in June the same year.

OATS—*Clericus*—You may sow Clover among them; and with the dressing of guano you are to give them they will both doubtless do well. Sow 16 lbs. of seed per acre, 8 of red, 4 of white, and 4 of the yellow Trefoil, and sow with these 1 bushel of Italian Rye-grass per acre.

PARSNIPS—*E B*—Dibble the seed half an inch deep in rows 18 inches apart, and at intervals of 10 inches in the rows, on the surface of well and deeply cultivated soil. This will cost about 8*s.* an acre.

PASTURES—*Querist*—How late in spring may meadows be grazed without injuring the hay crop? It depends of course on the Grasses of which the pasture is composed. The earlier they are shut up the better.

PERMANENT PASTURE—*W E H*—You would, we think, be more likely to succeed in filling up the blanks by harrowing the piece after rain, sowing fresh seed, harrowing again, and then rolling, than by sowing the seed, and merely folding sheep on the place. If the land requires it, some top-dressing should be applied; 10 or 12 loads of earth, ditch-scrapings, &c. mixed with 2 cwt. of guano per acre, for instance.

POTATOES—*M P*—The Red Kidney, Purple, Breadfruit, and China Orange, are excellent eating varieties for the winter and spring months.

RABBITS—*A Sub* asks if any one can suggest a remedy for a disease common this season amongst domestic rabbits, "some of them dying without any apparent cause, others from a stoppage or gurgling in the throat."

SALT—*P H*—1 cwt. per acre is as sufficient for a stiff clay as 3 or 4 for a light soil. Throw in charcoal-dust, earthy coal-ashes, vegetable mould, &c., into the pit, along with night-soil; but by no means try quick-lime. Mix it in a compost along with other manures.

SHEEP ON COW PASTURES—*Querist*—"Is it injurious to cow-pastures to graze them with sheep? In Cheshire leases they are prohibited." Can any one explain this?

SLIDING HARROWS—*Dunkerru and others*—They are joined together at the other extremity by a chain put on in front. Will *H* be kind enough to state the measurements of the implement more fully?

SMUT IN OATS—*J Dunbar*—Adopt a similar pickle to that you use for Wheat. Old urine diluted, or a solution of 2 oz. of sulphate of copper per bushel, will probably answer the purpose.

SUPERPHOSPHATE OF LIME—*Querist*—We do not doubt its efficiency as a manure for meadows; but we have no *evidence* on the point.

SULPHATE OF IRON—*Glasgow*—It is preferable to gypsum, as being more certain in its operation. It is better to apply the latter on the land *in* the dung, than separately, but at the same time with it. Of the gypsum applied, a certain portion may be lost, being washed away by the rain; another portion may be useful by decomposing the carbonate of ammonia in the rain-water, and so fixing the volatile alkali for the use of plants; and a third will be useful as a direct article of food for plants. So with gypsum, incorporated with the dung; what portion of it may not have been decomposed by the carbonate of ammonia it meets with there, will become useful either as a fixer of atmospheric ammonia, or as a source of sulphur to those plants which it may enter in an unchanged form. Sulphate of iron is four or five times the expense of gypsum.

SUNDRIES—*Earliest Sub*—Common salt is not necessarily the best material to mix with pond-mud. If, as is probable, if you are inland, there be a deficiency in your soil of those elements of which common salt consists, then it is a very good substance to apply; and you may mix from 2 to 4 cwt. of it per acre, according to the lightness of the soil, with the quantity of mud which you intend to use on an acre—say 30 to 40 cubic yards. Skirving's or Laing's Swede is a good one. Always use the freshest seed you can get.

TURNIPS—*Querist*—We know of no reason why common Turnips should not be sown as early as the Swede, at any rate in South England, unless it be that they would come to maturity at a period when there is generally a sufficiency of other food.

*** As usual, many communications have been received too late.

Markets.

SMITHFIELD, MONDAY, Mar. 24.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s	8 to 4s	0	Best Long-wools	4s	0 to 4s	4
Best Short Horns	3	4	3	8	Ditto (shorn)	3	6	3	10
Second quality Beasts	2	8	3	2	Ewes and second quality	3	8	4	0
Calves	4	0	4	10	Ditto (shorn)	3	2	3	6
Best Downs & Half-breds	4	4	4	8	Lambs	5	0	6	0
Ditto (shorn)	3	8	4	0	Pigs	3	4	4	4

Beasts, 3004; Sheep and Lambs, 20,300; Calves, 44; Pigs, 315

WE have a large supply of Beasts, and this being holiday week a very small demand—4*s.* is quite an extreme price, and only realised for the choicest Scots, and but few of the best Short Horns make 3*s.* 8*d.* There is still a considerable deficiency in the supply of Sheep, and prices fully supported, although we noticed extreme dulness of trade towards the close. A very large proportion now come to Market shorn, and the weather is so much milder, are in request. Lamb-trade is very heavy. We had but few Calves; quality not first-rate; trade heavy. Pork-trade is steady.

FRIDAY, Mar. 28.

Since Monday the trade at the dead Markets has been excessively bad—there is in consequence a smaller attendance of buyers here to-day than we have observed for a long time. We have far too large a supply for the demand. We do not, however, submit to take much less than 4*s.* for the very best Scots. The best Short Horns make about 3*s.* 6*d.*; however, very little business is done, scarcely any in the second-rate qualities. We have a full average supply of Sheep, but the general quality is indifferent. Best Downs, &c., make 4*s.* 4*d.* to 4*s.* 6*d.*; Shorn, 3*s.* 8*d.* to 4*s.* Best Long-wools, 4*s.* to 4*s.* 4*d.*; Shorn, 3*s.* 6*d.* to 3*s.* 8*d.* Second quality, 3*s.* 4*d.* to 3*s.* 8*d.*; Shorn, 3*s.* to 3*s.* 4*d.* The supply of Lambs is not large but quite adequate to the demand; it is difficult to make 6*s.* of small and most saleable qualities. Large Lambs are very unselling, many remain unsold, and what are disposed of barely make 5*s.* A large supply of Veal to the dead Markets makes our trade f r this article very bad; the best Calves scarcely make 4*s.* 8*d.*, and many very little over 4*s.* Pork-trade is steady.

Beasts, 8.0; Sheep and Lambs, 5730; Calves, 133; Pigs, 320.

41, WEST SMITHFIELD.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Mar. 27.

Prime old Meadow Hay	105s to 110s	New Hay	—s to —s	Clover	105s to 115s
		Inferior Hay	90 100	Straw	37 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Mar. 27.

Superior Mead. Hay	105s to 112s	Superior Clover	110s to 115s		
Inferior "	90 100	Inferior "	93 105	Straw	37s to 40s
New Hay "	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Mar. 28.

Fine Old Hay	105s to 110s	Old Clover	105s 120s		
New Hay	90 100	New Clover	— —	Straw	34s to 40s
		" Inferior	— —		

COVENT GARDEN, MARCH 29.—In consequence of a favourable change in the weather, the supplies during the week have been rather more abundant; there has, however, been little new in the market since our last report. Trade begins to get brisker. The prices of Pine-apples are rather on the rise; the supply is equal to the demand, which is not great. Hothouse Grapes have just made their appearance; they bring about 30*s.* a pound; foreign sorts are tolerably good and plentiful. The prices of Apples and Pears are nearly the same as are mentioned in last week's report. Of the former the principal dessert varieties are Newtown Pippins and Nonpareils, and of the latter Beurré Rance, Easter Beurré, and Ne Plus Meuris. Strawberries are selling at from 1*s.* to 2*s.* an ounce. Oranges are sufficient for the demand; they have not altered in price since last week. Chesnuts are offered at from 3*s.* to 8*s.* per peck. Nuts are pretty abundant. Vegetables are yet far from being well supplied, although better than they were last week. Good samples of large white Broccoli, from Cornwall, may be obtained for about 9*s.* per dozen heads. Savoys and German Greens, although in some instances somewhat injured by the late frosts, are tolerably good in quality, and are sufficient for the demand. Carrots and Turnips are pretty plentiful. Good specimens of Myatt's Victoria Rhubarb may be met with, and Seakale is good and plentiful. French Beans are slightly reduced in price, as is also Asparagus, the best samples of which may be bought for 8*s.* or 10*s.* a bundle. Celery, considering the season, is good. Lettuces and Endive are scarce. Mushrooms are cheaper. Cut Flowers chiefly consist of Abutilon striatum, Aphelexis humilis, Kalmia latifolia, Pelargoniums, Camellias, Azaleas, Cinerarias, Epacrises, Heaths, Neapolitan Violets, and Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*	Oranges, per 100, 5*s* to 16*s*
Grapes, Spanish, per lb., 1*s* to 1*s* 6*d*	—bitter, per 100, 8*s* to 20*s*
— Portugal, per lb., 1*s* to 3*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 6*s* to 12*s*	— per 100, 6*s* to 14*s*
— Kitchen, 4*s* to 6*s* 6*d*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 5*s* to 12*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*	Cob Nuts, per 100 lbs., 120*s* to 150*s*
Pomegranates, per doz., 2*s* to 4*s*	Nuts, Barcelona, 24*s*
Filberts, per 100 lbs., 100*s* to 120*s*	— Brazil, 16*s* to 20*s*
Cheanuts, per peck, 3*s* to 8*s*	— Spanish, 2*s* 6
Walnuts, shelled, 6*s*	— Cob, 16*s*
Oranges, per dozen, 9*d* to 2*s*	

VEGETABLES.

Cabbages, per dozen, 1*s* to 3*s*	Spinach, per sieve, 5*s* to 8*s* —
— red, per doz., 2*s* to 2*s*	Scorzonera, per bunch, 1*s* 6*d* to 2*s*
— plants, per doz. bnch., 6*s* to 8*s*	Salsafy, per bunch, 1*s* 6*d* to 2*s*
Broccoli, per doz., 6*s* to 9*s*	Parsnips, per doz., 6*d* to 2*s*
Brussels Sprouts, hf.-sv., 2*s* to 3*s* 6*d*	Leeks, per doz., 2*s* to 3*s*
French Beans, per 100, 1*s* 6*d* to 2*s* 6*d*	Garlic, per lb., 6*d* to 10*d*
Sorrel, per hf.-sieve, 3*s* to 4*s*	Onions, per bunch, 3*d* to 4*d*
Jerusal. Artichok, p. hf.-sv., 1*s* to 2*s*	— large, per bushel, 4*s* to 7*s*
Potatoes, per ton, 60*s* to 90*s*	— Spanish, per doz., 1*s* 6*d* to 5*s*
— cwt., 3*s* to 5*s*	Shallots, per lb., 8*d* to 10*d*
— bushel, 1*s* 6*d* to 3*s*	Lettuce, per score, 9*d* to 1*s* 6*d*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	Celery, White, per bunch, 1*s* to 2*s*
— Autumn, per lb., 3*d* to 6*d*	— Red, per bunch, 1*s* to 2*s* 6*d*
— New, per lb., 3*s* 6*d*	Endive, per score, 1*s* 6*d* to 5*s*
Turnips, per doz. bch., 3*s* to 5*s*	Mushrooms, per pottle, 1*s* 6*d* to 3*s*
Red Beet, per doz., 1*s* to 3*s*	Small Salads, per punnet, 2*d* to 3*d*
Carrots, per doz. bchs, 6*s* to 8*s*	Fennel, per bunch, 2*d* to 4*d*
Basil, per bunch, 2*d* to 3*d*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Rhubarb, per bundle, 1*s* to 2*s*	Parsley, per half sieve, 3*s* to 4*s*
Seakale, per punnet, 1*s* 3*d* to 4*s*	— Roots, per bundle, 9*d*
Asparagus, per bundle, 3*s* to 10*s*.	Tarragon, per bunch, 4*d*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*	Mint, per bunch, 6*d* to 1*s*
Savory, per bunch, 2*d* to 3*d*	Marjoram, per bunch, 2*d* to 3*d*
Cucumbers, per brace, 5*s* to 10*s*	Chervil, per punnet, 3*d* to 4*d*

POTATOES.—SOUTHWARK WATERSIDE, Mar. 24.

SINCE our last Report the weather has changed from the extreme coldness of winter to the mildness of spring with fine fertilising rains. This Market continues much the same; the supply is equal to the demand. There was a tolerable business done in the best samples at the prices of several of the preceding weeks, but many of the ordinary lots are still left on hand.

York Reds	4*s* to 8*s*		Kent and Essex Kidneys	70*s*	to —*s*	
Perth	50	60	Wisbeach Kidneys	65	70
Fifeshire	45	50	— Blues	55	—
Early Devons	55	60	— Regents	60	—
Late Devons	—	—	— Whites	50	—
Cornwall	55	60	Guernsey Blues	55	60
Jersey Blues	55	60	— Whites	—	—
— Whites	—	—	York—Prince Regents	55	70
Kent and Essex Whites	50	—	— Shaw's	50	70

MARK-LANE, MONDAY, Mar. 24.

THE supply of Wheat by land carriage samples this morning was moderate; finest qualities realised last week's prices, but secondary and parcels out of condition met a slow sale on barely so good terms; the demand for Foreign was not active, but our last quotations were fully supported; during last week there was an increased inquiry for Baltic offers f.o.b., at an advance of 1*s.* per qr. upon previous rates, and our Hamburgh letters received this morning represent holders as insisting upon still higher prices—a further quantity having been purchased there for Belgium and France.—Barley is quite as dear.—Beans and Peas are unaltered. —The arrival of Oats is considerable, and sales are extremely difficult to effect, excepting at a decline of 6*d.* per qr.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	42	50	Red	42	48
—— Norfolk, Lincolnshire, and Yorkshire	—	—	—	White	—	—
Barley, Malting and distilling	28*s* to 33*s*		Chevaller	33	35	Grind.	24	27
Oats, Lincolnshire and Yorkshire			Polands	20	23	Feed	19	22
—— Northumberland and Scotch			Feed	20	22	Potato	21	24
—— Irish			Feed	20	22	Potato	21	23
Malt, pale, ship				54	60			
—— Hertford and Essex				58	65			
Rye				29	32			
Beans, Magagan, old and new	29 to 33		Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland	37 to 40		Winds	—	—	Longpod	—	—
Peas, White	33 to 36		Maple	31	34	Grey	30	33

FRIDAY, Mar. 28

There were a few fresh arrivals of Wheat by land carriage samples to this morning's market, but the trade being flat and factors unwilling to sell at a decline, the greater proportion remained unsold. There was scarcely any business doing in free Foreign, but its value is fully maintained. One or two cargoes of bonded Wheat were sold for export to Belgium, but we did not hear of any f.o.b. transaction. Barley, Beans, and Peas, remain unaltered from Monday. The Oat trade is very heavy, and sales difficult to effect, excepting at a decline of 6*d.* to 1*s.* per qr. upon Monday's prices.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Feb. 15 per Quarter.	45*s* 4*d*	32*s* 3*d*	21*s* 7*d*	29*s* 6*d*	35*s* 0*d*	35*s* 0*d*
— 22 "	45 2	33 4	21 7	30 2	35 0	35 3
Mar 1 "	45 0	32 3	21 7	32 6	34 9	35 7
— 8 "	45 0	32 2	21 7	33 5	34 8	35 5
— 15 "	45 1	32 2	21 4	31 1	34 7	35 [illegible]
— 22 "	45 5	32 4	21 8	30 5	34 6	35 8
6 weeks' Aggreg. Aver.	45 2	32 3	21 7	30 8	34 9	35 5
Duties on Foreign Grain	20 0	6 0	6 0	10 8	8 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, March 22.

PRICE.	Feb. 15.	Feb. 22	Mar. 1.	Mar. 8.	Mar. 15.	Mar. 22.
s. d.	..	..	..	..	..	..
45 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 1	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, Mar. 28.

Canary	per qr	42*s* to 46*s*		LinseedCakes, Foreign, p. ton	7*l* to 9*l*	
Carraway	per cwt	44	50	Mustard, White	p. bush.	10*s*	14
Clover, Red, English		40	65	— Superfine	"	12	16
— Foreign		50	60	— Brown	"	12	16
— White, English		50	60	Rapeseed, English, per last		26*l*	27*l*
— Foreign		50	80	Rape Cakes	per ton	—	—
Coriander		12	18	Saintoin		—	—
Hempseed	per last	35	38	Tares, Eng. winter p. bush.		7	8
Linseed	per qr	—	—	— Foreign		5	7
— Baltic		—	—	Trefoil	per cwt	—	—
— Cakes, Eng. per 1000		11*l* 10	12 10	Turnip (too variable for quotation).			

KINGSFORD AND LAY.

Sales by Auction.

BAGSHOT PARK, SURREY.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AGRICULTURISTS, AND OTHERS.

MR. TEBBOTT most respectfully informs the Public that he will have the distinguished honour to sell by Auction, on the Premises, on Monday, April 7th, 1845, and following days, each day at 11 for 12 o'clock precisely, the Property of Her Royal Highness the DUCHESS OF GLOUCESTER, the whole of the SUPERIOR FARMING STOCK, the rare Productions of the Forcing Pits, Conservatory, Hothouses and Greenhouses, the Decorations of the Pleasure Grounds, the Appendages of the Kitchen Gardens, and other useful and valuable Effects.

The FARMING STOCK comprises 14 Cows and Heifers in-Calf, 2 well-bred Bulls, 4 powerful gray Cart Horses, Gig Horse, a very handsome Filly rising three years old, Sows, Store Pigs, 2 Boars, Poultry, capital Waggons, Scotch Carts, Spring ditto, Sets of Suitable Harness, Ploughs, Harrows, Winnowing Machines, Rick and Waggon Cloths, Dairy Utensils, and other Implements for Agricultural Purposes; Fifty dozen of Hurdles, large quantity of Copse Wood in bavins and poles, Thatching and Hedge Stakes, &c. &c. A Rick of excellent second Clover Hay; Stump of Meadow ditto.

The RARE PRODUCTIONS of the FORCING PITS, &c. as before alluded to, consist of 150 splendid Fruiting and Succession Pines in Pots, Crowns and Suckers, 1000 strong Strawberry Plants, in Pots for forcing, Grape Vines, in Pots, about 2500 of exceedingly choice Plants, including Hydrangeas, Calceolarias, Seedling Chinese Azaleas, Gladiolus, Ixia and Oxalis various, Auriculas, Chinese Roses, Cinerarias, Collins's superb dwarf Scarlet Geraniums, Scarlet Compacta ditto, distinct choice sorts of Pelargoniums named, tall flowering Cactus, and other attractive Floral Specimens; a large collection of American Plants in pots, well set for bloom. The DECORATIONS of the PLEASURE GROUNDS include rustic seats, chairs, stools, stands, flower baskets and boxes, fancy wire-work for climbing plants and flower beds. The appendages to the Kitchen Garden are Melon frames, numerous lights from the forcing pits, quantity of flower-pots, mowing machine, wall netting, ladders, and other applicable utensils. Field Officer's Marquee, Turkish and other Tents; also a Portion of the Furniture of the Mansion.

To be viewed two days prior to the Sale by application to Mr. Toward, on the Premises, of whom Catalogues may be had (one shilling each); at the following Inns—Rose, Wokingham; Bear, Reading; Crown, Marlow; White Hart, Beaconsfield; Crown, Slough; White Hart, Maidenhead; Clarence Hotel, Staines; and at the Auctioneer's Office, Windsor; or forwarded to any part of the country upon application.

N.B.—The Farming Stock and Copse Wood will be sold on the first day; on the second day, the Rare Productions of the Forcing-pits and Hot-houses; and on the third and last day, a portion of the Furniture of the Mansion.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietors to sell by Public Auction, on the premises, Ponder's End (near the Railway station), on Monday, March 31, 1845, at 11 o'clock, by order of the Proprietors, in consequence of the Lease having expired, the whole of the STOCK, consisting of fine varieties of Erica, Epacris, Chorizema, Azalea Indica, Fuchsias, Heliotropes; about 1000 Standard and Dwarf Roses; a quantity of Evergreens, Herbaceous Plants, Box-edging, &c. Also two excellent Greenhouses, Stages, &c. May be viewed three days previous to sale. Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew Lane, on Wednesday April 2, and Friday 4th, 1845, at 12 o'clock, about Two Thousand STANDARD AND DWARF ROSES, consisting of all the leading varieties; also a fine assortment of AMERICAN PLANTS; the newest varieties of DAHLIAS, in dry roots; CAMELLIAS, well furnished with bloom, &c. May be viewed the mornings of Sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

TO BE SOLD BY AUCTION, by Mr. James Izod, at the Auction Mart, Bartholomew Lane, on Wednesday, April 2, at 12 for 1 precisely, without reserve, a superb Collection of CARNATIONS, PICOTEES, ROSES, GREENHOUSE HERBACEOUS PLANTS, &c. by name. The Carnations comprise the most esteemed varieties; many new, as Baker's Prince of Wales, Princess Alice, Cotherstone; Simpson's Prince Albert; Calcott's Brutus, Brabbin's Squire Meynal, Twitchett's Don John, Martin's Splendid, Jones's Brilliant, &c. &c.; Ely's Princess Royal, Field Marshal Soane, Prince Albert; Williams's Mrs. Hamilton. The Roses consist of many splendid varieties, with other choice roots. May be viewed on morning of Sale, and Catalogues had at the Mart, and of Mr. J. Izod, at his office, 46, Watling-street, City.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

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GUANO (GENUINE PERUVIAN & BOLIVIAN, ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL; And by their Agents, COTESWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, & CO., LIVERPOOL and BRISTOL. 17, Lime-street, Mar. 22.

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&c. &c. &c.

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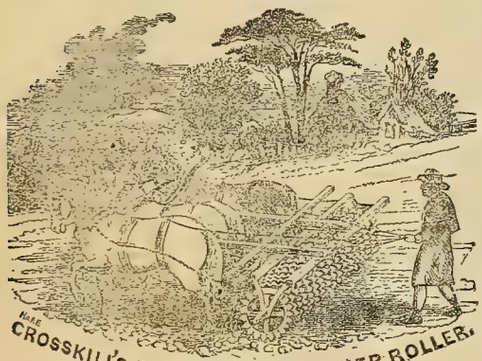
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12 Dessert ditto	20	7	2	7	3	4	12 Dessert ditto	26	7	4	9	10	8
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1845.] SATURDAY, APRIL 5. [PRICE 6*d.*

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12 superb do.	12*s.*

A few SELECT PLANTS—Extracted from General Catalogue.

	Per Plant—*s.*	*d.*		Per Plant—*s.*	*d.*
Achimenes hirsuta	2	6	Corræa Grevillei	1	6
,, picta	3	6	Dillwynia glycinifolia	2	6
,, rosea eximia	2	6	,, speciosa	2	6
,, splendens	2	6	Echites atropurpurea	7	6
Amicia zygomeris	3	6	Franciscea latifolia	3	6
Azalea indica alba superba	7	6	Gloxinia Cartonii	3	6
,, Cleopatra	10	6	,, macrophylla variegata	2	6
,, Gledstanesii	3	6	,, Priestleyana	2	6
,, incomparable	10	6	,, speciosa grandiflora	2	6
,, magniflora	10	6	,, ,, superba	2	6
,, variegata	2	6	,, tubiflora	2	6
,, many others.			Habrothamnus fasciculatus	2	6
Brachysema platyptera	3	6	Inga pulcherrima	3	6
Brugmansia arbuscula	3	6	Leschenaultia grandiflora	2	6
,, Knightii (double white)	2	6	Lychnis grandiflora	1	0
Buddlea Lindleyana	2	6	,, white, new species from China	1	6
Centradenia rosea	1	6	Nerium Oleander Tanglé	3	6
Cestrum aurantiacum	7	6	Pimelea spectabilis	3	6
Chœonostoma polyanthia	1	6	Silene speciosa	1	6
Chorozema macrophylla	1	6	Siphocampylos glabriuscula	3	6
,, spectabilis	3	6	,, lantanifolia	3	6
,, varium	2	6	Tetranema mexicana	5	0
Cisselia integrifolia	2	6	Veronica speciosa	2	6
Corræa grandiflora	2	6			

W. WOOD and SON'S descriptive Catalogue of Fuchsias and Verbenas, also lists of Petunias, Anagallis, miscellaneous Greenhouse and hardy Herbaceous Plants, Shrubs and Climbers, may be had GRATIS on application.

Plants will be presented to defray expense of carriage; a remittance or reference is respectfully solicited from unknown correspondents.

SEEDLING FUCHSIAS, "JUNIUS" AND "HAMLET."

JUNIUS.—This splendid large and handsome variety is warranted to be one of the greatest acquisitions of the season. The tube and sepals light blush, the latter expanding with a remarkably bright tip of green, showing a most beautiful orange-scarlet corolla to great advantage, and has merited the highest opinion of Mr. GLENNY and Dr. LINDLEY. (See Mr. G.'s opinion in the *Gardeners' Gazette* of Nov. 9th, 1844)—"Mr. SMITH'S Seedling Fuchsia, 'Junius,' pale outside, and scarlet corolla, much like Smith's Queen Victoria, not yet out, habit good, and much better than the mass of indistinct things already out, although not exactly what we want." (Dr. LINDLEY'S opinion in the *Gardeners' Chronicle*, Oct. 26th, 1844)—"Your seedling Fuchsia, 'Junius' appears to much greater advantage on the plant, the leaf of which is handsome and habit good; the flower is stout and handsome." Strong plants will be ready for delivery on the 24th of April, at 10*s.* 6*d.* per plant, with the usual discount to the Trade where six or more are taken at once.

HAMLET.—This will also be found a splendid variety, of strong growth, and prolific bloomer. Tube and sepals bright crimson, corolla purple. It was submitted to Dr. LINDLEY, July 27th, 1844, whose opinion is as follows:—"W. S.—No. 10 is an excellent variety; it appears to be a robust grower, and is the most prolific bloomer we have seen, bearing several flowers at every joint; the flowers are large, rich in colour, and measure from the base of the footstalk to the end of the pistil nearly six inches." 5*s.* per plant, with the usual discount as above.

The following three first-rate Seedling Verbenas G. S. can send out with as much confidence as he did Excelsa and Delicata, viz.:—

QUEEN OF ENGLAND, rosy pink, yellow eye, occasionally beautifully shaded, of fine form and habit, and described by Dr. LINDLEY as a large and handsome variety; warranted to be the best light flower of the season. 5*s.*

VESTA, peach blossom, yellow eye, very large, of fine habit, and a superior show flower. 5*s.*

BEAUTY, brilliant rose, of fine form. 3*s.* 6*d.*

*** The usual discount to the Trade when three or more plants are taken at once. To be sent out the 24th of April.

N.B.—Descriptive Catalogue of all the leading Verbenas, Fuchsias, Dahlias, Petunias, &c., will be forwarded on application.

The VERBENAS have been shown at the following Exhibitions, at each of which the first prize has been awarded them, viz., the Royal Botanic Gardens, Regent's Park; Royal South London, Surrey Gardens; South Essex, Wanstead Park; Hampstead; Newington; Highgate, &c.; and were pronounced by those vast assemblages to be far superior to any they had ever before seen.—GEORGE SMITH, Tollington Nursery, Hornsey-road, Islington, near London.

FUCHSIA—"VUURBERG."

J. FOWLE is happy to state he will be able to supply fine healthy plants of this truly beautiful variety in May next, at 10*s.* 6*d.* each. Drawings of it may be seen at the Nursery, and principal Seed-shops in town. It is also figured to appear in the "Florist's Journal" for May next.—Holland Nursery, North Brixton.

GREENHOUSE AND STOVE PLANTS.

WM. JACKSON & CO., NURSERYMEN, possessing a large Stock of GREENHOUSE PLANTS, &c. of all the rarest in cultivation, and in the finest possible condition, beg to offer them in Collections on the following very reasonable terms, including baskets, mats, and package.

50 CHOICE GREENHOUSE PLANTS for 2*l.* 2*s.*

Babingtonia camphorosmæ	Genista Atteyana, G. rodophnæa
Boronia serrulata	Gompholobium tenellum
Chorozema ericoides, C. Henchmanni, C. macrophylla, C. mucronata, C. ovata, C. rotundifolia, C. varium nana, C. varium nana, var.	Helichrysum humile, H. proliferum, H. rupestre, H. superbum
Corræa bicolor	Hydrangea japonica
Crowea saligna	Kennedya inophylla, K. nigricans
Cytisus racemosus	Leschenaultia biloba nana
Dillwynia cinerascens, D. glycinifolia, D. microphylla, D. rudis	Mirbelia reticulata, M. rubæfolia
Epacris campanulata alba, E. campanulata rubra, E. carnea, E. ceræfera E. coccinea, E. cœruscans, E. elegantissima, E. impressa, E. nivalis, E. pulchella, E. variabilis	Oxylobium capitatum, O. pultenia
	Podolobium berberifolium
	Polygala cordifolia
	Pultenia biloba, P. subumbulata
	Soliya linearis
	Sutherlandia species.

25 VERY SELECT GREENHOUSE PLANTS for 3*l.* 3*s.*

Habrothamnus fasciculatus	Grevillea acanthifolia
Boronia anemonæfolia, B. pinnata	Hovea Manglesii, H. pungens major
Chorozema Dicksonii	Labichea bipunctata
Daviesia latifolia nova	Mirbelia grandiflora
Dillwynia coccinea, D. rudis grandiflora	Oxylobium acutum, O. capitatum
Epacris Coplandii, E. impressa alba, E. Willmorea	Pimelea spectabilis
	Podosylis spherica
Eriostemon buxifolium	Styphelia tubiflora
Gastrolobium spinosum	Veronica speciosa
Gompholobium polymorphum luteum	Xanthosia rotundifolia.

25 VERY SELECT STOVE PLANTS for 2*l.* 2*s.*, including

Achimenes picta	Epiphyllum, Conway's Giant, E. Russellianum
Begonia coccinea	
Centradenia rosea	Gesnera Cooperii major
Clerodendron lævifolium	Thunbergia chrysops, &c. &c.
Columnia grandiflora	

Cross Lane Nursery, Bedale, Yorkshire, April 5, 1845.

HURST & M'MULLEN, SEEDSMEN, 6, Leadenhall-street, London, beg to inform their friends and the public, that their List of NEW AND CHOICE VEGETABLE AND FLOWER SEEDS for the Spring of 1845 is now ready, and may be had, on application. A selection from their List of Flower-seeds will be found in the last page of the *Gardeners' Chronicle* of March 8th.

CHOICE FLOWER SEEDS, IN COLLECTIONS.

	per collection—*s.*	*d.*
Imported German Stocks, in 36 splendid varieties	6	0
Do. do. in 20 do.	3	6
Do. do. Asters, in 24 do.	5	0
Do. do. do. in 15 do.	3	6
Hollyhocks (very choice), in 12 named varieties	3	0
Larkspurs (German), in 12 splendid do.	3	6
Balsams, 12 beautiful double varieties	5	0
Imported Zinnia elegans, 8 fine varieties	3	6
Cockscombs, 6 choice kinds	2	6
Verbenas, 8 do.	3	0
Wallflowers, 8 imported varieties	3	0
Scabious, German, 8 do.	2	0
Poppies, 16 splendid do.	3	6
Mimulus, 10 do.	3	0

The choice assortment of 36 kinds of leading Annuals, as mentioned in the *Gardeners' Chronicle* of March 1st, can be had for 12*s.*; and the 12 beautiful varieties of Greenhouse Annuals recommended March 15th for 6*s.*

A fine assortment of Carnations and Picotees 1*s.* 6*d.* per pair.

Grayson's Giant Asparagus Plant, two years old, 3*s.* per 100.

A choice selection of pot roots of all the best varieties of Dahlias in cultivation, from 1*s.* to 2*s.* 6*d.* each.

All the most approved varieties of Field Turnips and other Agricultural Seeds, selected from the finest stocks.

Mixed Grasses, for Lawns, of the very finest quality, 1*s.* 6*d.* per lb.; Do. do. for Pastures, 1*s.* per lb.

6, Leadenhall-street, April 5.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had on application.—Slough Nursery, April 5.

CARNATIONS, PICOTEES, AURICULAS, AND POLYANTHUSES.

JOHN SLATER, FLORIST, CHEETHAM HILL, near Manchester, calls the attention of Florists and Amateurs, to his large and healthy collection of plants, of the above-named varieties, which he is selling at low prices; Catalogues of which may be had on pre-paid application. 20 pairs of Carnations and Picotees, in 20 fine varieties, 20*s.*, package included.—J. S. has a few pairs of that fine Rose Flake Carnation "Chadwick's Flora," new last season, on sale, price, 5*s.* per pair, delivered post-paid.

TO CALCEOLARIA GROWERS.

T. PEARSON having raised three splendid varieties from about six thousand seedlings, flowered by him last year, intends letting them out this spring instead of keeping them longer in hand, and will send healthy plants, post free, of "INFANT SAPPHO," 6*s.*; "MARMION," 8*s.* 6*d.*; "ROSE OF TISTELON," 11*s.* 6*d.* The price is according to the stock in hand. No order will be attended to unless a post-office order is sent with it.—Chilwell Nurseries, near Nottingham.

GRASS SEEDS.

GRASS SEEDS can be had of Mr. H. R. SMITHE, of Eastling, Faversham, Kent, of the most approved mixtures, according to the soil and situation, for Permanent Pasture and Meadow, at 8*s.* per bushel; and for Lawns, at 10*s.*, including Clovers. Directions for sowing and treatment will accompany the seeds if desired. The sorts can be had separate at the general prices. The Trade supplied at a reduction.

AN ABRIDGED CATALOGUE OF DAHLIAS, SOLD BY W. R. WHALE, Elcot, near Hungerford and Newbury, Berks. W. R. W. begs leave most respectfully to thank his friends and the public generally for their increased patronage during the last season, and to inform them that he can supply most varieties in cultivation, at moderate prices and true to name.

	s.	d.
Whale's Duchess of St. Alban's, a seedling of 1843, a delicate primrose margined with dark mulberry if not too much bleached, beautifully cupped petals, well set, fine centre, shape and size of Ansell's Unique, took a prize at Salt Hill, &c , &c., height, 3 ft.	10	6
(Unless six or more plants are ordered.)		
Whale's Admiration, shaded orange margined with scarlet, a beautiful show flower, perfectly constant, never showing an eye the whole season, height, 4 ft.	10	6
(This variety will be scarce, as the roots are nearly all perished.)		
Albion, Sparey, bronzy salmon, finely cupped, an excellent show flower, height, 4 ft.	10	6
Beeswing, Drummond, first-rate show flower, one of the best of the season, crimson red, height, 4 ft.	10	6
Alice Hawthorn, Drummond, white tipped with rose purple, has obtained numerous prizes, height, 4 ft.	10	6
Essex Bride, Turvill, light lilac, a superb show flower, height, 4 ft.	10	6
Lord Denman, Nevill's, dark claret, one of the best show varieties of the season, height, 4 ft.	10	6
Attractor, Teebay, marone shaded crimson, good show flower, height, 4 ft.	10	6
Fancy, Teebay, bright red, height, 3 ft.	10	6
Fulwood Hero, Teebay, purple shaded up the centre of the petal with violet purple, has taken numerous prizes, height, 4 ft.	10	6

W. R. W. will take orders for Mr. Girling's Seedlings, the Union, &c. &c.

W. R. WHALE'S CATALOGUE OF DAHLIAS.

The following varieties at 24s. per dozen, if a dozen plants are taken of different varieties.

Aurantia, Sparey, orange	Standard of Perfection, Keynes, splendid dark
Lady Autrobus, Sparey, white, edged with pink	Espartero, Keynes, crimson
Alexander, Brown, mottled rose	Beauty of Bucks, light edged with rose
Bathonia, Drummond, fine dark	Spitfire, light rose, B
Bermondsey Bee, Girling, purple, superb	Desirable, Brown, buff
Nonpareil, Girling, scarlet, fine	Nutwith, Brown, crimson
Consolation, Widnall, fine dark	Paladine, Union, fine crimson
Delight, Brown, light peach	Doctor Primrose, Union, primrose
Emma Noke, blush	Young England, Union, crimson
Essex Champion, Turvill, orange	Alice Maud, light laced lilac, good
King of Sarum, Dodd, shaded orange	Beauty of Birmingham, Harrison, light laced with pink
Opher, Edward, yellow, shaded	Pet Rival, B, maroon
Orange Superb, Dodd, orange	Oliver Goldsmith, Union, sulphur
Lady St. Maur, Brown, light tipped purple	Beauty of Camden, Ansell, light
Queen of Roses, Widnall, light rose, very unique	Lord Howden, Harrison, bronzy crimson, a superior show flower
Park Mount Rival, yellow	Clara, Ansell, light
Rembrandt, Brown, purple	Lady Gray, Harrison, lilac
Raphael, Brown, shaded purple	Rival, rose, Wood's
Sir I. Stewart Richardson, Union, shaded rose	Queen of Cheltenham, H, white
Trafalgar, King, light rose, fine	Madeline, Daniels, lilac
Vanquisher, Dyson, rose crimson, fine	Prince of Waterloo, Drummond, dark
Vanquisher, Wood, dark	Hampstead Rival, Cowing, dark
Crimson Perfection, Whale, good show flower	Hero of Maida, Syred, orange
Preceptor, Whale, crimson scarlet	Talma, Girling, rose
Charlemagne, Mohring, large red	Sir H. Pottinger, dark

All the good old varieties at 12s. per dozen.

French, or Fancy Varieties.

Whale's Madam Villebois seedlings of '43, never before sent out, light edged with pink, a very pretty striking variety, 7s. 6d.

Madam Hansard, carmine, tipped with white, 7s. 6d.

Miss Dundas, carmine, striped with white, fine bold petal, 7s. 6d.

Bicolor, crimson, tipped with white, height 3 ft. each, 7s. 6d.

The following fancy varieties 12s. per dozen.

Madam Meillez, Dodd	Garland, G
Ditto, Girling	Admirable Bauduin
Oakley's Surprise	Madame Bavais
Nihille	Bicolor
Village Maid, G	Beauty Supreme
Jack of Newbury, G	Beauty of England
La Vogue, G	Butterfly
Oudine, G	Lady Rae Reid
Assuerus, G	Don Ferdinand
Quadricolor, G	Madame de Schwanfield
Noir et Blanc	Colonel de Schwanfield
Madame Le Carpenter, G	

W. R. W. is not in the habit of publishing long Catalogues of useless varieties, though his Collection is inferior to none!

DILLISTONE'S APPLE, the STURMER PIPPIN, a Drawing of which, and its History, appears in Maund's "Botanic Garden and Fruitist" for the present month.

The above Apple has proved itself unequalled for its combined qualities; it keeps firm and fine-flavoured until July or August, is fit for Dessert or Kitchen, is very hardy, bears well in all soils and situations; as a proof of this we have gathered from dwarf standard trees, planted in heavy clay, in the three last seasons, 320 bushels, the greater portion of which were sold in London, and realised higher prices by far than any other Apple in the market. Scions may be had, per post, free, upon the receipt of 2s. 6d. in stamps, or post-office order, payable either at Halstead, Essex, or Clare, Suffolk. Please address, S. and J. Dillistone, Nurseries, Sturmer, Haverhill.

PETUNIA MAGNIFLORA.

WILLIAM GREGORY most respectfully informs the Public that the above Plant is a seedling of his growing last year; the flowers of which are exceedingly large, white, shaded with lavender-colour, of a robust habit, a most profuse bloomer, and highly deserving of cultivation. It was seen, and plants were ordered by many highly respectable parties during the summer. Plants will be sent out in rotation as the orders are received, on and after the 18th of April next, at 5s. each, with the usual allowance to the trade when three or more plants are ordered.—Nurseries, Cirencester, April 5.

THE DESTRUCTION OF SLUGS.

T. AND C. LOCKHART, Florists and Seedsmen, 156, Cheapside, London, have on Sale a quantity of TOBACCO ASHES, which they beg to offer at 6d. per lb., or 25 lbs. for 10s., including package. It will be found destructive to Slugs, as well as an active manure.

Pawlonia imperialis, well rooted, per plant	2s. 6d.
Lawn Grass Seeds, per lb.	2s. 0d.
Mushroom Spawn, per brick	0s. 6d.

An excellent and varied Stock of Herbaceous Plants, of which Lists may be had. Plants of all the tender and half-hardy Annuals on sale till the second week in June.

GREAT YARMOUTH NURSERY, NORFOLK, 1845.

YOUELL AND CO.,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN; HIS MAJESTY THE KING OF THE BELGIANS; NURSERYMEN AND FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN DOWAGER.

YOUELL AND CO.'S CATALOGUE of the newest and very best

FUCHSIAS, VERBENAS, PETUNIAS, PANSIES, CINERARIAS, CHRYSANTHEMUMS,

and other highly-ornamental Plants, appeared upon the Advertising sheet of the *Gardeners' Chronicle* of March the 8th and March the 15th, to which they beg to call the attention of cultivators of the above elegant tribes of plants.

YOUELL AND CO.'S Eight New Splendid SEEDLING FUCHSIAS, price 42s. the set, and their Eight New SEEDLING VERBENAS, price 25s. the set, they can confidently recommend, and they will prove an acquisition to any collection. For particulars and colour of these see their Advertisement of the above dates.

Youell and Co. being the first who sent out per post, with safety, these tribes of plants, are desirous of calling attention to their advantageous method of executing orders, namely, that they will deliver them free of postage to any part of the United Kingdom, upon the following terms:—

12 Extra Fine Vars. of Fuchsia,	12s.	Selection left to Y. & Co.
12 Ditto ditto	21s.	Selection left to the Purchaser or ditto.
50 Fine Varieties	40s.	Selection left to Y. & Co.
50 Extra Fine ditto	60s.	Selection left to the Purchaser or ditto.

With the exception of those marked thus*.

The Plants are strong and healthy, and will be ready for delivery the latter part of March, thus insuring to the purchaser fine plants for competition the ensuing season. Many of the varieties can be supplied now.

VERBENAS.

12 Extra Fine Varieties, 6s, the Selection left to Youell and Co.
12 Ditto 10s., the Selection left to the Purchaser

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . 10s. per dozen.
12 Extra Fine do. do. . . . 18s. ,,

CHRYSANTHEMUMS. [Sent postage free]

Fifty of the newest best varieties, by name, 12s. per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12s. per dozen.

FLOWER-SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 5s.

THE TRUE FASTOLFF RASPBERRY.

Youell and Co. beg to state they continue to supply (as well as their Agents, a list of whom appeared in the *Gardeners' Chronicle* of the 7th of December last) the above Raspberry in its genuine state.

Packages containing 100 canes	£2	0	0
Do. do. 50 do.	1	1	0
Do. do. 25 do.	0	12	0

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see Youell and Co.'s Advertisement of March 15, 1845.

Youell and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee	7s. 6d.
,, Lady Alice Peel, Rose Picotee	7 6
,, Miss Jane, Purple Picotee	7 6
,, Mrs. Bevan, Red Picotee	7 6
,, Enchantress, Scarlet Picotee	5 0

CARNATIONS AND PICOTEES.

Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

				£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto	1	1	0

The Selection being left to Y. & Co.

FINE ERICAS, 12s. per dozen.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see Youell and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety) for 6s.

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by Youell and Co. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

Youell and Co. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10l. per 100, or 30s. per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60s. per dozen.

For further particulars see Youell and Co.'s Advertisement of Jan. 11.

CEDRUS DEODARA, 3 ft., 10s. 6d. per plant.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2s. 6d. and 5s. per packet.

Finest Double and Single Hyacinths, in pots by name, 9s. and 12s. per dozen, now coming forward for bloom.

Great Yarmouth Nursery, April 5, 1845.

R. WHITE AND CO. offer the following, viz.: Forty established Plants of first-rate show-flower GERANIUMS, including Beck's Zanzummum . . . £5 5 0
Twelve ditto ditto 2 2 0
Twelve ditto, not including Zanzummum . . 1 11 6
*Twelve ditto, good sort 1 1 0
Twelve Dahlias, first-rate kinds, including Beeswing 1 1 0
Twelve ditto not ditto . . 0 12 0
Twelve ditto, good border kinds . . . 0 3 0
*Twelve finest scarlet Geraniums, including General Tom Thumb, Fireball, King, Frost's Superb, &c. 0 12 0
Petunias, Verbenas, Phloxes, &c. including all the newest and best kinds, per dozen , , 3s. to 0 6 0

The following New Plants are confidently recommended, viz.:—Alona cælestis, Buddlea Lindleyana, Inga pulcherrima, Echites splendens, Luculia Pinciana, Gloxinia Cartonii, Achimenes picta, Rondeletia, new yellow, from Havannah, Hindsia violacea, Franciscea hydrangeiformis, Pentas carnea.

Poole Nursery, Dorsetshire.

THURSTON'S VICTORIA POTATO.—This first-rate Potato having been highly approved for its handsome form, excellent flavour, and heavy cropping, by Mr. Glenny, Editor of the *Gard. Gaz.*, will be let out at the following prices:—A Peck, including basket, 3s.; Two Pecks, including basket, 5s. 6d.; a Bushel, including basket, 9s. 6d.; and a Sack, 21s. Mr. Girling has consented to be Agent for the Sale, and those who desire any, are requested to forward Post-office Orders for the amount, and to be prompt with their commands, to Mr, Girling, Nurseryman and Florist, Stowmarket.

Persons wishing to be London Agents, to apply to Mr. Girling.

SPLENDID NEW ANTIRRHINUMS.

ATROSTRIATUM, VENOSA, BRIGHTII, LUTEA, MACULATUM, FOWLEII.

The first four are figured in the "Florist's Journal" for March last, and are now ready for delivery, price 3s. 6d. each, or 1l. the set; no discount unless two sets are taken.—J. Fowle, Holland Nursery, North Brixton.

ALSIKE; HYBRID CLOVER.—This valuable Variety partakes of the properties of the Red and White Clover; it is a lasting plant, and an abundant Cropper. Price of Seed, 2s. 6d. per lb.

MEADOW AND PASTURE GRASS SEEDS in Mixtures suitable to all the purposes of forming rich and abundant permanent Layers, 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. Directions for sowing and treatment will accompany the Seeds. Mixed sorts for improving Old Grass-land, 1s. 3d. per lb.; fine sorts for Lawns, &c., 1s. 4d. per lb.—George Gibbs and Co., Seedsmen, &c., to the Agricultural Society, 26, Down-street, Piccadilly.

N.B.—Priced Lists of Agricultural Garden-seeds are ready for delivery.

WARNER & WARNER, Seedsmen, &c., 28, Cornhill, London, beg to submit to the Nobility and Gentry the following New and Choice FLOWER SEEDS; and for a fuller and more lengthened List they would refer their friends to "Harrison's Floricultural Cabinet" for this and the two preceding months.

	s.	d.
Aster, collection of 6 new	2	0
Dwarf Varieties	2	0
— 6 new Pyramidal	2	0
— Tall Black Stem, beautiful per paper	0	6
Anemone Hudsoniana	0	6
Aquilegia grandiflora, beautiful	1	0
Anagallis Brewerii	1	0
Baptisia Australis	0	6
Calliopsis radicans tubulosa	0	6
Centaurea moschata, double blue	0	6
— double white	0	6
Chrysanthemum coronarium fistulosa, dble. white	0	6
Chrysanthemum coronarium fistulosa, dble.	0	6
sulphur per paper	0	6
— pectinatum	0	6
Cynoglossum linifolium	0	6
Elichrysum robustum roseum, beautiful	0	6
Lychnis fulgens	0	6
Linum grandiflorum	0	6
Potentilla Mackayana	0	6
— Missouriensis	0	6
Pentstemon atro-purpureum roseum	1	0
— gracilis	0	6
Statice alba	0	6
Stock, Queen's Bouquet, beautiful	1	0
— new dark Chamois, splendid	1	0

Also made up in Collections, for 10s., the 36 Showy and Hardy Annuals; for the list and description of which, see the *Chronicle*, dated March 1, of the present year, page 133.

Likewise the 18 varieties of Tender Annuals, for 7s. 6d., as mentioned in the *Chronicle* of the 22d of March, page 185.

GENERAL TOM THUMB SCARLET PELARGONIUM.

P. CONWAY has still on hand a few good Plants of the above desirable Variety, which he can only supply at 5s. the Plant.

CALCEOLARIA AURANTIA MULTIFLORA.—This very beautiful Bedding-out Plant, which is described with "Gen. Tom Thumb," in the *Gardeners' and Land Stewards' Journal*, of March 4th, and *Gardeners' Chronicle* of March 8th, is still on sale at 3s. 6d. a plant, 15s. the half-dozen, 24s. the dozen. The usual discount to the Trade on this plant when 12 are taken at once.

P. C. begs to offer the following beautiful varieties of Scarlet Pelargoniums, viz., Smith's Eclipse, 10s. 6d.; Little's Prince Albert, 5s.; Prize-fighter, 2s. 6d.; Mrs. Mayler, 3s. 6d; Frost's Superb, 2s. 6d.; Shrubland, 1s. 6d. to a guinea; Cooperii, 1s. 6d.; Frogmore, 1s. 6d.; Huntsman, 1s. 6d; Compactum, 1s. 6d. to 3s. 6d. And also Pelargonium Laneii, the best for forcing, 1s. 6d. to 5s.; Achimines multiflora, 5s.; A. picta, 2s. 6d.; A. hirsuta, 1s. 6d.; Pentas carnea, 2s. 6d.; Thunbergia chrysops, 2s. 6d.; Veronica speciosa, 3s. 6d. The Dandy variegated Geranium, now in great demand for edging Flower-beds, 1s. 6d. a plant, or 15s. the dozen. Calceolaria viscosissima, makes a splendid bed, 1s. 6d. a plant, or 15s. the dozen; Giant Cactus, 3s. 6d. to 10s. 6d.—Old Brompton, April 5.

TO THE ROSE TRADE.

R. B. BIRCHAM, Hedenham Rosery, Bungay, Suffolk, begs to offer the following first-rate Perpetual and Bourbon ROSES, Dwarf Plants in Pots, own roots, fit for transplanting into borders; or to form beds of Perpetual Roses:— The following are 1s. per Plant:—

Aubernon, Augustine Mouchelet, Clementine Seringe, Duchess of Sutherland, Duc d'Aumale, Earl Talbot, Fulgoric, Julie Dupont, Lane, Madame Dameme, Madame Laffay, Melanie Cornu, Mrs. Elliot, Prince Albert, Rivers' (Laffay) William Jesse, Queen of Bourbons, Acidalie, Alfred, Splendens, Duc de Chartes, Emile Courtier, Enfante d'Ajaccio, Gloire de Rosamene, Madame Nerard.

The following at 2s. 6d. per Plant:—

Comte d'Eu, Dr. Marx, Lady Elphinstone, Marquis of Ailsa, Marquis of Boccella, Prince de Galles, Comice de Seine et Marne, Edouard Derforsse, La Bouquitière, Lady Canning, Lilacea Grandiflora, Madame Aubis, Madame La Charme, Proserpine, Paul Joseph, Princess Modena, Cerèse, Perry de St. Cyr. The following at 3s. 6d. per plant:—

La Reine, Lady Alice Peel, Madame Emma Dampier, Gloire de Paris (Noisette), Cloth of Gold, Solfaterre, Pourpre de Tyr. The following at 5s. per plant.

Comte de Rambuteau, Souchet, Madame Souchet, Charles Souchet, Souvenir de la Malmaison, George Cuvier, Princess Clementine, Dumont de Courset.

Queen of the Priories, at 2s. 6d. each.

A purchaser may select *Fifty* of the above for 5l, *Cash on Delivery*. The plants are healthy, and ready for planting out the end of April. A Descriptive Catalogue sent on application. Carriage paid to London.—Hedenham, April 5, 1845.

SMITH'S FIELD and GARDEN SEED-DIBBLE, or Hand-Machine for depositing all kinds of Seed on the various soils, with the greatest accuracy and despatch.—This Machine is so simple in its construction and operation as not to be liable to get out of order. It is easily set, so as to deliver the exact quantity of seed intended to be planted into each hole made by the Dibble, at one operation, and is calculated to plant Mangold Wurzel Seed, Wheat, Barley, Peas, Parsnips, Carrots, Turnips, Onions, and other kinds of Garden Seeds.

1l. 15s. each. Commission allowed to agents.

These Dibbles may be obtained of Messrs. Cottam and Hallen, 2, Winsley-street, Oxford-street, London; through the agency of the principal Agricultural Implement sellers in the United Kingdom; or from the Inventor, by letter to his address, inclosing a Post-office order for the amount.

Richard Smith, Upper Hall, near Droitwich, Worcestershire.

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SCHOOL BOTANY; or, THE RUDIMENTS OF BOTANICAL SCIENCE. By JOHN LINDLEY, PH.D. F.R.S., Professor of Botany in University College, London. A new Edition, with numerous alterations.

London: Printed and Published for the Author by BRADBURY & EVANS, Whitefriars.

HORTICULTURAL SOCIETY OF LONDON.—PRIVILEGED TICKETS. NOTICE is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, will take place on the following SATURDAYS—viz., May 24th, June 21st, and July 12th; that Tuesday, April 15th, is the last day on which Tickets can be subscribed for by Fellows of the Society, at 3*s.* 6*d.* each, and that one Guinea after that time is allowed for taking them up; after which all the Privileged Tickets subscribed for, but not issued, will be cancelled.

SELECT AND CHOICE FLOWER-SEEDS, with Directions for Sowing, Height, Colour, &c.

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Twenty-five choice Annuals, including the most approved, new, for	15	0
Fifty do. do. do. for	8	6
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MASS and BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

The Gardeners' Chronicle.

SATURDAY, APRIL 5, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY,	April 7—Entomological	8 P.M.
WEDNESDAY,	April 9—Society of Arts	8 P.M.
SATURDAY,	April 12—Royal Botanic	4 P.M.
TUESDAY,	April 15 Horticultural	3 P.M.
	April 15 Linnean	8 P.M.

THE cultivation of TRUFFLES, to which reference was last week made, has been attempted, with more or less success, by several persons on the Continent, and two or three Treatises have appeared upon the subject. The principal ones are those of BORCH and BORNHOLZ; both, however, are very scarce, and it is only after long inquiry that we have been able to procure copies. The more recent Treatise of ROQUES, on Esculent Fungi, contains some information which is more easily accessible. Dr. KLOTZSCH, of Berlin, has also, we understand, made some excellent observations, but these, we believe, have not at present been published. We are not aware of the existence of any other sources of information; and at present experiments have not been attended with such success as to be really of any great importance in an economical point of view.

The attention, however, of some of our own cultivators has lately been directed to the subject, and we shall be much disappointed if their well-known perseverance is not at last duly rewarded. Meanwhile, it may be useful to give a short outline of former attempts, which may either suggest something really useful, or give some proper caution.

The work of the COMTE DE BORCH appeared in Milan in 1780, in the form of a series of letters to the MARQUIS DE BALBIAN. The experiments were made on two species which have not at present been regarded the unwearied researches of Mr. BROOME, the west of England, viz., Tuber magnatum and Tuber Borchii, the former of which is the much-prized Piedmontese Truffle, and sells at a very high price. This difference of species is not, however, a point of so great moment: for the principles of cultivation, with proper modifications in accordance with the habits of each peculiar species, will be much the same; and we do not doubt if our cultivators succeed in the production of the common Truffle, that, by the help of the Wardian cases, the spawn of this highly-valued kind may be safely imported. And if the Piedmont Truffle can command so high a price when transmitted in waxed paper, or preserved in oil, or dried, under all which modes of preparation a great deal of the peculiar aroma on which its delicate flavour depends is necessarily lost, there would be some prospect of emolument to stimulate exertion, could we succeed in supplying the market with fresh samples. Even in England there are ranges where a principal part of the employment of the peasantry is the collection for the London market, of Truffles which are principally disposed of in the first instance to country dealers, who buy them at comparatively low rate; but in those districts where the Piedmontese Truffles are found, so generally are they hunted after that the Truffle merchants, who have a sort of monopoly, acquire frequently large sums by the traffic. But even the common Truffle, if in good condition, commands always a good price in the market, and would doubtless amply repay successful cultivation.

It was long supposed that Truffles did not grow well in the environs of Paris; why, it is difficult to say, for perhaps few districts afford a greater variety of species; but a few years since a lucky discovery, which was for a long time kept secret, till accidentally found out, procured a little fortune for the discoverer. And we doubt not that they are far more generally distributed in our own country than is usually supposed. At least we have seen them in what would be considered the most unpromising districts; and should it prove that they are really less capricious as to soil and situation than is imagined, there will be the greater hope of their successful cultivation.

The COMTE DE BORCH, previously to commencing his researches into the mode of propagating Truffles, took an opportunity of examining the growth of the singular conglomerations of clay and Fungus-spawn, which are known in Italy by the name of Pietra fonghosa. These are not only objects of curiosity in consequence of their producing, when properly watered, a crop of Fungi, but the Fungi so produced form an excellent article of food. They are not often brought over to this country; but I have seen in an herbarium a specimen produced from one of these Fungus-stones in England. The Comte first removed a lump of the spawn from the surrounding earth, and contented himself with simply watering it, and under these circumstances it produced a pileus, which, however, withered when it had attained a certain height. He then as closely as possible imitated the soil of which the agglomerations were composed, and placed one of them in the centre of it, and after repeatedly sprinkling it with water, in which some Fungi of the same species had been washed, he had then an excellent crop, which were distributed to many of his friends. He determined to keep this in view in his experiments on Truffles.

His attention was directed chiefly to the nature of the soil in which the particular species of Truffle on which he experimented grew. He found that it was a light soil, mixed with particles of imperfectly decomposed vegetable substances, with a slight admixture of clay, and that a moist but not wet condition of it was most favourable to their development. He therefore prepared an artificial soil of such a description as that in which he found the Truffles most abundant. It was composed of seven parts of good garden-earth, two of light argillaceous soil, and one of Oak sawdust; this was intimately mixed together and abundantly sprinkled with rain-water. It was then exposed to the full sun till the moisture was absorbed to the degree he wished, and in the soil thus prepared he placed four Truffles of the best quality, but without any favourable result, as they all gradually became mouldy.

He then paid close attention to the structure of the Truffle itself, and he was led to suspect the existence of reproductive bodies in the veins, and having carefully collected a quantity, he had the satisfaction of finding, after 45 days, a number of minute Truffles.

Having now ascertained that Truffles were really propagated by seed, he thought that it would be more convenient to try the effect of planting whole Truffles, and this plan proved successful. Having prepared an entirely artificial bed, or, if the natural soil were preferable, taking care, after first trenching it to the depth of 2 feet and removing all large stones, to make such additions to it as should bring it as nearly as possible to the requisite condition, especially that of a due proportion of Oak sawdust, and if the clay were at all too stiff, about a tenth of pounded snail-shells, and choosing an aspect rather exposed to the north than the south, and where no reflected rays could fall upon it, with every precaution to insure its being thoroughly drained, he first watered it thoroughly with pure rain-water, and after waiting a day or two till it was in a proper state of moisture, he made rows half a foot deep, and in these, at 6 inches distance, he placed good and sound Truffles, each of them being surrounded with two or three handfuls of Oak sawdust, taking care to mark the rows accurately. Ridges were then made over each row to prevent the Truffles being injured by too abundant moisture: the bed was then left till the following autumn, with no other precaution than in dry weather to take care that it did not become too dry. The result, we are informed, was an abundant harvest every year from October to January.

This method, as observed before, was applied not to our species of Truffle, but principally, if not exclusively, to the true Piedmontese species. It is observed in the course of the work that BRADLEY had heard that Garlic-scented Truffles were found in Richmond Park, but that the scent might possibly be derived from wild Garlic. It would be a very interesting matter could some of the readers of the *Gardeners' Chronicle* give any information on this point, accompanied with specimens. It is far from impossible that this noble species should exist in England, and if so, no good reason can be assigned why it should not prove as fit a subject for cultivation here as the common black Truffle. It should be observed that BRADLEY, in his observations, was the first in this country to call attention to the possibility of cultivating Truffles. This, however, it appears from the curious treatise of CICARELLUS, which dates from 1561, translated by ST. AMOREUS, was known at a very early period, and the method there indicated differs but very slightly from that published by BORCH.—*M. J. B.*

IT has been suggested to us that it would render the reports on the POTATO CROP much more interesting and valuable if those who propose to experiment in the ensuing season would give an account of the results in some uniform order. If that were done it would be easy to compare the respective statements; and that important object would be attained with no greater trouble than is incurred in putting down such facts as may be elicited in a methodical, instead of unmethodical way.

We entirely agree in this recommendation; as indeed every one would who has had to pick information out of piles of letters written without the smallest degree of correspondence with each other. For the great purposes of the public, for the convenience of readers, and for the sake of our own time, we would venture, then, to ask our friends to class their experiments under the following heads, reporting them in the order in which they are here set down.

1. Kinds used; 2. Time of planting; 3. Quantity and quality of land; 4. Nature of the sets, whether whole, or cut, &c; 5. Width of rows; 6. Depth and manner of planting; 7. Kind of manure, &c.; 8. If lazy beds or earthed up; 9. Blossoms cut off or allowed to fruit; 10. Miscellaneous observations as to the manner of cropping; 11. Result. [This should always be given in actual weight, not measure; if measures are employed their weight can be easily ascertained on the spot, and reduced to weight. Before weighing, the Potatoes ought to be dried in the sun, and cleaned fit for sending to market. The chats or small Potatoes should always be separated from those fit for market, and the separate weights accurately given]. 12. General remarks on the result.

May we hope that these recommendations will be kindly borne in mind? They involve no trouble, and will give very great additional value to such information as we may be favoured with next autumn upon this most important question. There are those who think that 20 tons an acre will become the average crop of Potatoes on fair land. We think it possible; but if so satisfactory a result is to be arrived at, it will certainly be brought about many years sooner, if experiments are methodical and precise, instead of being tried without order, and reported without exactness.

ALTHOUGH the rival interests of tradesmen deter us from often placing the objects they have to sell in a very conspicuous position, yet, in cases where there is no competition, we may occasionally do so. We, therefore, without hesitation recommend, above all other kinds of paper, for the purpose of DRYING PLANTS FOR THE HERBARIUM, the material sold by Messrs. W. and T. BENTALL, of Halstead, whose advertisement appears in another column.

It has long been regretted that the heavy duty levied in England upon foreign paper should prevent the importation of the cheap woolly fabric of the French. That regret no longer exists for we can state that Messrs. BENTALL's paper is, in every respect, as good, and in quality much better than the generality of the French coarse drying paper. We have used it ourselves with much advantage, and we have seen specimens of plants which are very difficult to dry well, such as the common Myosotis, with even their colours perfectly preserved.

All botanical students should provide themselves with a supply of this material.

THE EASTER BEURRÉ PEAR;

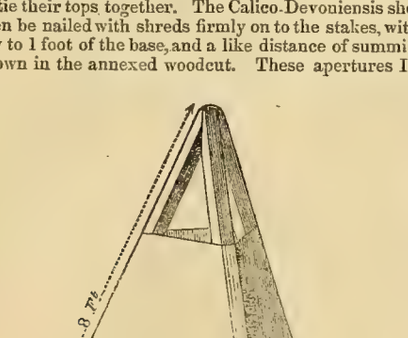
WITH SOME REMARKS ON THE CULTURE OF PEARS.

HAVING long cultivated this Pear, I am induced to offer the result of my experience. About 10 years ago I grafted 250 standard trees of seven years' growth with this sort; they were fine plants of various sorts, planted in rows for the purpose of being regrafted with some desirable variety. I may here remark that they were planted in soils very different in quality—from a light sand to a deep rich loam; the former on a hill, the latter in a valley. The trees, after being grafted, made fine growth, and rapidly formed fruit-buds, blooming abundantly the second season after being grafted. The following two seasons the trees when in blossom were pictures of beauty; but, alas! I soon found that they were more ornamental than useful. This variety puts forth its blossoms so early, and when the trees are so entirely destitute of leaves, that, unlike many other varieties of Pear, they receive no protection from the young leaves; consequently, a slight spring frost is apt to injure them. For three consecutive seasons my trees blossomed most abundantly and beauti-

fully, and brought forth—disappointment. In 1843, a most favourable season for Pears, I had a partial crop; but, although the trees were healthy, I found many fruit misshapen, and inclined to spot; they were placed in my fruit-cellar, with other Pears, and scarcely a fruit ripened well enough to be eatable.

As I have given the dark side of the question, let us now turn to the other. In France this Pear is esteemed as by far the best late Pear they have; it is cultivated to an enormous extent in every department; but mark, it is universally budded or grafted on the Quince stock, on which it grows freely, bears abundantly, and, what in our climate is of the utmost importance, ripens its fruit in all seasons. For the sake of contrast, I send you the only specimens I have left, from a tree grafted on the Quince. These, I think, you will find juicy and high-flavoured, but a little gritty at the core; this I attribute to the tree growing in a sandy soil, and its roots not being protected by a covering of litter, or dung, during the dry, hot weather of the last season. In France it is cultivated on the Quince stock, in every description of soil and situation, with invariable success. I should recommend, therefore, all those who wish to cultivate this Pear as espalier, half-standard, or as a pyramidal tree, to select plants budded or grafted on the Quince stock. For walls, with eastern or western aspects, I should also recommend this stock; but for a wall with a southern aspect, the Pear stock is to be preferred; for on the Quince, the probability is, that its fruit would be over-ripened. So wonderfully prolific is this Pear when grafted on the Quince, that plants only from 1 to 2 feet high will—if removed or root-pruned the first season after grafting—bear most abundantly the third season. I feel assured that on this stock it may, with facility, be cultivated in large pots.

The most eligible modes of cultivating this really good late Pear are, as espaliers and as pyramidal trees; and, for this purpose, care should be taken that the plants are grafted or budded on the Quince. Some means ought to be devised for protecting its blossoms, which, as I have before stated, make their appearance often too early for their welfare. Calico, prepared after the receipt given by "Devoniensis" (p. 38), will be found eligible; it may remain on till the beginning of June, when all danger from spring frosts is over. For root-pruned pyramidal trees, I beg to submit a recent invention of my own; simple enough to be adopted by everyone. For a pyramidal tree, 6 feet high—by occasional root-pruning, the most prolific trees need not exceed this height—take three stout, straight stakes, 8 feet in length, sharpen their lower ends, and fix them firmly in the ground round the tree to be protected, so that they will form at the bottom a triangle of 3½ feet; then nail or tie their tops together. The Calico-Devoniensis should then be nailed with shreds firmly on to the stakes, within, say to 1 foot of the base, and a like distance of summit, as shown in the annexed woodcut. These apertures I an-



ticipate, will allow of a free circulation of air. You will thus have over your tree, to use a curious expression, a triangular conical covering, open at the top and bottom, which to a certainty will keep off all spring frosts, and by being suffered to remain on the tree till July, or even later, will insure the ripening of varieties of Pears, which at present in many parts even of England, will not ripen unless trained to south walls, and then only giving fruit of inferior flavour. I feel firmly convinced that those fine old Pears, the Colmar, Crassane, Gansell's Bergamot, and Chaumontelle, may be grown on pyramidal trees, on Quince-stocks, by means of these protectors, as they bloom abundantly, but are too tender for the open air. This calico protection may also, by means of stakes placed so as to keep it from being in contact with the foliage and flowers, be made a permanent summer covering for espalier Pears of choice sorts, so as to produce fruit of very superior size and flavour in any climate in Great Britain. I should recommend these protectors for espaliers like those for pyramidal trees, not to be nearer the ground than 1 foot. A smaller aperture should be left at top, so as to admit of a free circulation of air; a constant current of mild air will thus be in circulation from the bottom to the top of the tree, as the heated air will constantly ascend, and be replaced by the cool external air from the opening at foot of the protector.*

I have recommended the triangular protectors for pyramidal trees in preference to any shape which would be liable to suffer from gusts of winds; it will be found, if the stakes are fixed firmly in the ground, that the protector will not easily be displaced by wind. This must, indeed, be carefully guarded against, for if blown over, it may involve the destruction of the tree. For espaliers the protectors will have the ridge-like form open at top and bottom; as these trees are frequently not more than 4 feet in height, but little danger from wind may be apprehended; if the method comes into general practice, espalier trees may be trained as low as possible for the express purpose of being protected.—*T. Rivers, Nursery, Sawbridgeworth.*

* Two lights from a garden-frame, placed on each side of an espalier-tree, so as to rest against each other at top, will at once give an idea of how such trees may be protected by the calico-covering; a row of glass taken out of each light at bottom and top will give the apertures required.

CAMPANULA PYRAMIDALIS.

Twenty years ago it would hardly have been expected that the Horticultural Society would have produced such a revolution in the culture of plants under glass in this country; but by their liberal offer of medals, enterprise and emulation have been excited, industry and skill have been rewarded, employers and employed have enjoyed a mutual satisfaction, and the public, by their splendid exhibitions, have been gratified. But while our tender exotics have been improved, some of our hardy and ornamental plants have been neglected. I allude more particularly to Campanula pyramidalis; this plant, when properly treated, will produce a flowering stem from 8 to 16 feet in height, regularly branching from the bottom upwards, and forming a pyramid, which, when the blossoms are expanded, is of singular beauty, and when placed in the lobby or entrance hall will continue so for a long period. To have good plants fit for pot-culture, the seed should be sown in March, in pans and when the plants are of sufficient size they should be pricked out in rich light soil, where they should remain until they begin to grow in the following spring, when the strongest plants may be selected for potting, as the plants are not intended to flower until they are two years old; they should at first be put in pots just large enough to prevent the roots from being cramped, and to induce a slow but healthy growth. It must be left entirely to the judgment of the grower whether they should receive another shift in the latter end of June or not; at all events it is not advisable that they should remain through the winter in a pot larger than an 8-inch pot, the chief object being to have well-ripened fibre or vegetable tissue with highly elaborated sap to resist the severity of the winter. The treatment during the winter months is to plunge the pots in sand or ashes in a frame, or any situation where they can be kept dry.

This species may be easily propagated by division of the roots about the beginning of March. Select some of the strongest, cut them into convenient lengths, pot them into 4-inch pots, using a light sandy soil, place them in a frame, where there is a little bottom-heat, and they will soon throw up numerous shoots; remove them all, except the strongest, and when the plants require it give them a larger shift; they will make good flowering specimens in the following spring. Supposing that the plants have stood the winter without injury, about the 20th of March numerous young leaves will have formed around the centre of the crown of the plants—an evidence that winter has relaxed her dormant embrace, and is giving way to the softening and life-invigorating influence of spring. The season has now arrived when the plants are to be shifted into pots in which they are to flower, and as they will have to be moved from place to place, the pots should not be larger than one man can conveniently carry when filled with soil. Let the compost be ¼ well-rotted and dry hotbed dung, put through a coarse sieve; ¼ turfy loam after being laid up 12 months to dry and decompose; and ¼ sand; let these be well mixed together, have ready a quantity of lime-rubbish, about the size of Filberts or Walnuts; let the pot be well drained, then over the drainage place a layer of the lime-rubbish, then the soil, on which place the plant with the ball entire, and as you proceed to fill up the pot let handfuls of the lime-rubbish be scattered round it with the soil. Give the pot an occasional shake, to settle the soil equally. It should be remembered that a day or two before this final shifting the plant ought to be copiously watered, to thoroughly wet the ball, after remaining so long in a dry state, and great attention should be paid to free the soil from worms; if they are not excluded our labour will have been in vain, or at least greatly counteracted. The plants should now be placed in a cold frame, and the lights should be kept close, admitting a little air when the sun shines, with an occasional watering overhead to produce vigorous growth. When the stem has grown 4 or 5 ins. in height, the plant should be removed to the greenhouse, or what is much better, to a late Vinery, where fires are seldom used. The shade and the proper treatment of the Vines in a house of this description are admirably adapted for the vigorous growth and elongation of the flower-stem; when it has attained its greatest height, the plant should gradually be exposed to more light, which will give strength to the stem and colour to the blossom, and if circumstances have been favourable, it will excite the admiration of everybody. —*Tassel.*

[By way of variety it would be as well to grow in the same manner the beautiful Campanula grandis, of which we borrow a cut from Mr. Paxton's Magazine. requires the same treatment, and is equally an ob that will repay the gardener's utmost care.]



HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. X.—*Cuttings of Dicotyledons.*—I have alw had reason to think that there is not a Dicotyledon plant which may not be multiplied by cuttings, eithe the roots or stems; by herbaceous shoots, or even detached leaves.

Cuttings by Roots.—Cuttings by roots, although l known, are not generally used by our better horti turists; this mode, however, seems sufficiently eff cious to fix the attention of those who study the ar multiplication. I have several times had occasion mention the case of Dais Cotinifolia. The roots of plant, cut into small pieces, and spread on the earth a pot in a hothouse, gave as many young plants as th were pieces of the root. I do not doubt that we n succeed in making cuttings of the soft wood of Dais equally well; but I have never succeeded with branches when the wood is hard.

I have already said that Paulownia imperialis may struck from herbaceous cuttings produced in a gre house; the manner of striking cuttings of the roo this tree is not less easy. Portions of the roots wh vary in diameter from ¼ to ⅔ of an inch, and in len from 1 to 2⅕ inch, take root well. The mouth of Ma is the most favourable time for striking these cuttin for in February they often rot, and the greatest car necessary to save them. The first seed of Paulow which I sowed having only produced me one individu perceived that this plant when kept in the pot produ so few buds as to deprive me of all hope of multiply it quickly. This led me to try cuttings from the r which perfectly succeeded, as the innumerable pl now seen in the nurseries sufficiently prove.

shoots of a Paulownia, struck from root cutti

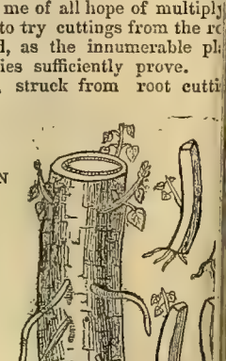


Fig. 9. Cuttings of a Paulownia imperialis.

came out round the root, as is seen in Fig. 9, N.; this method of proceeding gives us the facility of splitting the roots into several pieces, which, separately, strike as well as an entire root, Fig. 9, O. When the shoots, which are developed upon the root, have attained a length of an inch, or an inch and a quarter, we cut them above the two first leaves which appear; the detached portions are the cuttings, which are placed in a propagating pot, just sufficient to keep them upright, taking especial care the earth is not too dry. When the cuttings have taken root, and attained some vigour, we cut of head, which we again place in the earth; thus w tain two plants from the cuttings, both of which form trees. During this time the root of the Paul

ves other buds, which are subjected to the same operation; but it is useful, in order to draw the sap, to allow bud to remain upon it, which at a later period, if left itself, forms a stronger plant than the others.

As soon as we perceive that the last cuttings of which I have just spoken have taken root, we place them in a larger pot, and these pots are placed in the greenhouse, in a spot the least exposed to currents of air; the young plants will flag a little, but they soon recover. When they have begun to vegetate, we take them from the greenhouse and put them in a half-shaded cold frame, where a little air is allowed to enter if the sun is too hot; we thus accustom the Paulownia to support the rays of the sun and the action of the air; and, as soon as we think the cuttings sufficiently strong, we plant them in the open ground. All these successive operations take place so quickly, that a cutting made in March, and which is 4 inches high when it is first planted in the open air, attains by the following autumn the height of 1 foot or more, supposing that it has been planted in a soil suitable to its nature, and has been sufficiently watered.

VINES IN BOXES.

I am in the habit of growing annually from six to ten dozen of Vines in boxes, and with great success; in fact, producing Grapes almost equal to any from border Vines. I attribute that success to the manner in which I take advantage of the "retrograde system" of the sap. Early in spring I put in the Vine-eyes, and grow the plants from them in a strong moist heat, till the time of ripening the wood. In the following spring I select the best Vines, and transfer them to boxes; but instead of cutting down the shoots I leave them the entire length nearly of last year's growth, and rub off all the eyes as the Vines break, but the two lowermost; thus :—

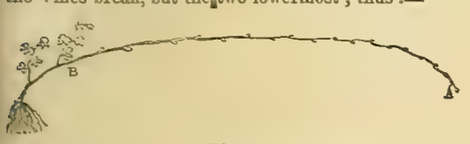


Fig. 1.

When these have attained to the length of about 1 foot, I select the best, and rub the other off, and by the latter end of the season the remaining shoot has made a strong cane, and the preceding year's wood up to A from B is completely exhausted of its sap, presenting the appearance of a piece of wire. It is now cut back to B. I now leave only last year's shoot nearly its full length, and everything is then in readiness for commencing to force in the following spring, when I manage the Vines thus :—

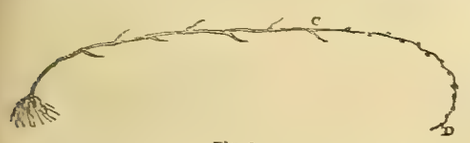


Fig. 2.

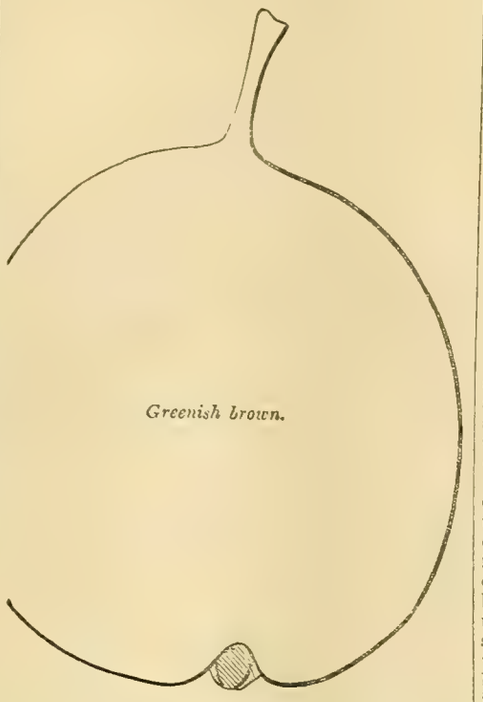
I disbud all eyes as soon as I can catch hold of them with my finger and thumb, except those represented above; and when the wood is completely exhausted of its sap from C to D, by the growing shoots, I then cut the shrunk branch off at C. I take from each Vine on an average from 10 to 15 bunches of Grapes, and fruit the same Vines two years in the same boxes in which they were at first planted.

I imagine that my success may safely be attributed to leaving the old wood to be exhausted of its sap by the new; for much finer rods can be obtained by doing this than by the old-fashioned way of managing young Vines. Let any one who has young Vines try the experiment as in figure 1, by way of competing with others managed in the usual way, and the superiority of my plan will, no doubt, soon show itself. This is now an excellent time to make the experiment. There is nothing new in the plan, and it was only the reading of Mr. Fleming's article that induced me to mention it. Probably it may be asked, why not cut out the eyes of the Vine in a dormant state, instead of allowing them to break; but I find it the more advantageous plan to allow the sap to be put in motion first. I can only account for the "receding principle" in this way, viz., when there is no outlet for the sap above the growing shoot it immediately returns to the root, and is taken up in its downward passage by the growing shoot.

Those who are acquainted with Pines, know how much faster a sucker will grow on the old stool when the old leaves are left on than one whose old leaves have been cut away, the sucker only being left. In my opinion, the old leaves of the Pine exert the same influence on the sucker as the budless part of the Vine does on the growing shoot. What do you think? —*Orford.* [We think so too.]

ALTHORP CRASSANE PEAR.

In describing the Broom Park (p. 209), it was stated that Mr. Knight found it and the Althorp Crassane to be two of the hardiest of the numerous hardy varieties he had raised. The Althorp Crassane fruited for the first time in 1830, and there is a figure of it in the "Transactions of the Horticultural Society," second series, vol. ii., p. 119, taken from a specimen grown against a wall. It has always been found best flavoured from a standard, for which it is particularly adapted. The fruit here represented was grown on a standard. The flesh is buttery, and very rich; it has been found to be so, even when grown in situations so unfavourable for the production of Pears that the colour shall be only green externally, not brownish, as it is when produced under more favourable circumstances. Ripens in the end of October, and will keep sometimes till the middle of December. The tree is vigorous, shoots olive yellow; leaves ovate, cordate at the base.



In remarking on this, and other varieties, Mr. Knight states that, "as a dessert Pear, the Althorp Crassane is to my taste the best; and its rose-water flavour will please where musk offends." He adds, "the original tree of this variety, though it has been much pruned for grafts, has borne well in the last six years, and I believe it to be greatly more hardy than any of the Belgic varieties. Neither the Marie-Louise, the Forelle, nor Glout Morceau, grown in my garden here (in Herefordshire), were tolerable. I planted standard trees of the three above-mentioned Belgian varieties, and of the Napoléon, and Passe Colmar, in the situation where this Pear acquired its highest state of perfection, but none of them succeeded at all." Subsequently, it has been seen in various seasons, from different parts of the country, and the fruit has always proved good.—*R. T.*

Home Correspondence.

Manure for Onions.—Being desirous to produce a better crop of Onions than my neighbours, I have pursued the following plan as regards putting in the seed, viz. :—Some time before sowing I mixed a considerable quantity of night-soil with an equal portion of good fine earth, the whole of which I had dug in when the ground was worked. I then collected all the rubbish lying about my premises, such as old shoes, leather, mats, carpets, &c. &c.; this I burned up, and drilled in the ashes thereof rather bountifully with the seed. Pray is this a method likely to produce a good crop? What manure can be advantageously used for this crop (Onions) as a top-dressing? Should watering become necessary, can guano or any other thing be mixed with it and produce a good effect.—*J. C. C., Exeter.* [Wait the event and report.]

Truffles.—You are not the only one who has made promises about the advent of cultivated Truffles—"bloated promises and lank performances," at least, up to the present time. Let us hope for the best. But I suspect your knowledge of the merits of the Truffle is "got from books" rather than practical experience, or in your enumeration you would not have omitted the King of *pla's* in the *Dindon aux Truffes*. [It was too common to be included in the curiosities of Truffle cooking.] There is a species or a variety of the Truffle which, as far as my experience goes, is confined to a part of Piedmont—the *white* Truffle; this is in perfection at Turin; the flavour is very different from the black one, viz., very like Garlic. It is very delicate, and highly prized. Gourmands make pilgrimages to Turin in the autumn to feast on it, and go home with indigestions, that take nearly a winter to cure. It is usually dressed by stewing in any fine oil, thinly sliced. I first heard of its merits from one of the messengers employed in bringing home the packets of evidence obtained by the Milan Commission of Inquiry into the crimes of poor Queen Caroline, who had orders, in addition to the delicacies in the way of evidence, to fill his bag with other delicacies, such as Strachino cheese, &c.; but he was never able, in his most rapid journies, to accomplish the introduction to Carlton House of the fresh White Truffle. I believe it is never seen even in Paris in perfection. I have called your attention to this delicate tuber, for if it were once introduced its black brethren would be little cared for.—*Dodman.* [All these varieties or species will be noticed by degrees by Mr. Berkeley.]

Quality of Timber.—About a fortnight ago you inserted a communication from me in which I advanced the opinion that the only reason why home-grown Fir-timber is almost invariably so much inferior to foreign is that usually the foreign Fir is of very slow growth, while home-grown is the reverse. I am in hopes that some person who has the opportunity will test the truth of this opinion by comparing the timber of the stem with the timber of the side branches of the same tree. If it should be found that the slow-grown timber of the branches is red and hard while the quick-grown timber of the main trunk is white and soft, my opinion will be established. I send a few specimens—that marked B is cut from the stem of a Scotch Fir 7 inches in diameter and of 30 years' growth; those marked A, C, and D were cut out of the side branch of another tree in which the outside annual ribs are so close that it is difficult to count them; more than 40, however, may be distinguished within the space of 1½ inch. The contrast between A and the others is so striking that it is impossible to doubt that there must be a great difference in their strength and durability. These specimens, however, are not conclusive as to the point in dispute, as they are not cut from the same tree, which I had not an opportunity of doing.—*Beobachter.*

Broccoli.—My Malta Broccoli have all stood well the severity of the winter, as have my Brimstone Broccoli, and Waite's Hardy Colewort, of which I have a superabundance, as well as of the green and yellow Savoys. Greens everywhere else about me are cut off.—*B. D., Greys.*

Tank-heating.—Your correspondent "Dodman," has only to go to Mr. Rivers, at Sawbridgeworth, to see tank-heating in its most economical, and apparently effectual state. There are three pits side by side, 60 feet long each, the bottom and sides of which are cased over with compo, and down the middle is a 4-inch brick division, open, of course, at the end furthest from the boiler; the whole is covered over with Duchess slates, on which is placed earth or sawdust. The water in the three pits is heated by one boiler, of Burbidge and Healy. Here there is a hotbed of 180 feet in length, obtained merely at the cost of a few barrels of compo, and something under 5*l.* for the boiler. This coupled with cheap glass, and stout frames, will soon give us Grapes and Pine-apples "for the million."—*Philo-Dodman.*

Rust on Grapes.—In consequence of red spider appearing on French Beans, in an early Vinery, I directed a strong dose of sulphur and water to be laid on the flue, with a brush, in the way of whitewash, nearly to the turn of the end flue, where the heat entered, on which part no mixture was laid. On the next morning, to my surprise, I perceived that every bunch of Grapes, over that part of the flue where the mixture had been laid, was sickly, and lifeless, while those over that part of the flue where the mixture did not reach, were perfectly fresh, and without blemish. Does not this prove that the washing of the hot flue with this mixture created a steam sufficiently strong to carry with it in its ascent innumerable particles of sulphur until it reached the Grapes, closing every pore of the berries almost to suffocation? Imagining that the Grapes might be restored to health by syringing, and keeping up a warm humid temperature, I was not disappointed, for in three days afterwards they began to force their way through the sickly green coat, which had nearly suffocated them, and which, as it got older, assumed the character of what is termed by gardeners rust. These facts may, perhaps, tend to throw some light on the cause of this evil.—*P. Foy, Sandon Hall, Staffordshire.* [This has nothing to do with the rust of Grapes.]

Swans.—I was induced, by observations in the *Chronicle*, to provide myself, during 1844, with a pair of swans, for the purpose of clearing a piece of ornamental water of rushes and weeds, which used to disfigure it, and to substitute for such unsightly objects the embellishment of these noble birds. Some correspondents, some time ago, speaking of swans, had enjoined clipping their wings to prevent them from flying away; others did not consider that deprivation an adequate security against vagrancy, but strongly insisted on mutilating the pinions themselves by taking off a joint. I had determined, however, that I would let my swans fly rather than amputate any part of their pinions. I was even reluctant to disfigure their wings by clipping their feathers, but I did it. The clipping of the wing feathers was, however, I believe, in my case, quite useless. It diminished, for the time, the graceful effect with which the swan erects its wings when sportively sailing on the water; but as my silvery friends never attempted to fly away, or to fly at all, when Nature had restored the growth of their wings, I have every reason to conclude that I despoiled them without necessity. It may be right to remark that from the pond where my swans are located no other water is in sight. There is both still water and a small river within a short distance of their domain, and the latter, though not visible, being a mountain stream, is, in calm weather, or when much rain has fallen on the neighbouring hills, audible to ears far less sensitive than those of swans. I should add, that I have had no experience of my swans' inclinations. I do not expect that they will ever take wing. Whatever the swans might be in old Hesiod's time, mine seem in no way to be correctly described as κυκνοι ἀερσιπόται. In clearing the pond of weeds, they have done wonders. I expect that in next year no vestige of these intruders

will appear on the surface of the water. I do not think that swans eat weeds, though they pass their time chiefly in biting, tearing, and destroying them. They may feed in a very partial degree on the weeds, but in pulling them up I am persuaded that they are chiefly intent on the insects, worms, and small shell-fish which are harboured by the aquatic plants, and which they devour with avidity. There is a prevalent notion that swans eat the common fish. Mine do not. The pond which they inhabit abounds in dace and tench. I have noticed a little shoal of these swimming within the shadow of the swans, but I never saw the latter make an attempt to capture or destroy one. My swans, which were born and educated (they are two years old) on the Thames, are very tame in the day time. A strong belief that every visitor brings them an offering of bread, or other food approved by swans, causes them to sail eagerly towards any one who may appear on the water's edge. It is, however, far otherwise at night; they then sleep floating in the centre of their pond, and will not be tempted towards the bank even by the lure of food. They have a small island in the pond, on which they sometimes stand musing, or pruning their feathers; but this is only in the day. At night they bivouac in the deep water, out of the way of foxes and other vagabonds.—*Derwent.*

Morphology.—I am not so charitable as your reviewer, with respect to Dr. J. Murray's pamphlet (which I have read), for I cannot view it as simply ridiculous: assuredly it is wicked for a man, especially for one obviously ignorant of his subject, thus to denounce a number of hard-working, self-devoted, eminent men, for merely publishing what they believe their eyes have seen, and what their reasoning powers tell them are just conclusions. Admitting the rank and arrogant assumption that their eyes have deceived them, and their reason failed, no just man would impute bad motives to these students of God's works.—*C. D.*

Culture of Cabbages by Slips.—Take healthy sprouts; cut them off close to the stalk of the Cabbage; let them lie in a dry, cold place two or three days. The cauterising of the wounds is much assisted by applying a little wood-ashes to them. Plant the Cabbages, and they require no farther trouble. Valuable sorts may thus be preserved unchanged, and a regular succession obtained throughout the year. Cabbages, I am told, are improved by having lime-rubbish incorporated with the soil in which they are grown.—*X. X.*

Gardeners' Benevolent Institution.—Without entering into the general questions which have been asked relative to the management of this Institution, it will, perhaps, be sufficient for me to explain the reason why Wm. Edwards was placed on the pension list of this Society. In consequence of one of the Committee (since dead) having received this man's (Wm. Edwards) subscriptions, and not having accounted for it, his name was not entered in the books of the Society; and hence the Committee, for the time being, could not admit his claim to the pension at the last election; and this will account for his name appearing in the polling papers. But, at a later period, he produced the necessary vouchers, and the Committee were compelled, by their rules, to recommend in their report to the annual general meeting that he should be placed upon the list, and which report (and I now enclose you a copy) was confirmed without a dissentient voice. If "T. Z." had been present at the Meeting, as his letter would leave strangers to believe, he would have known that W. Edwards was placed upon the pension list by the especial act of the general meeting confirming the Committee's report; therefore I think this matter requires no further explanation. In conclusion, I may remark, that the Committee court the closest investigation into their affairs, being convinced the more their proceedings are canvassed the more the charity must meet favour in the gardening world. The greatest misfortune which this Society sustains is, that persons make charges against it without being acquainted with the rules; but in future if any person will favour me with a line, I shall be happy to forward him a copy of the rules and regulations, &c. As you were pleased to say you would not insert any communications upon this subject, except officially, I beg leave to inform you that I do this by order of the Committee.—*E. R. Cutler, Secretary, 97, Farringdon-street, April 3.*

Societies.

HORTICULTURAL SOCIETY.

April 1.—R. W. Barchard, Esq., in the chair. T. M. Coombs, Esq., was elected a Fellow. On this occasion several fine things were brought together. From F. G. Cox, Esq., of Stockwell, were specimens of the extremely handsome purple-flowering Cattleya Skinneri, a species found on lofty trees in hot damp situations in Guatemala; Dendrobium macrophyllum, a trailing East Indian kind, with large lilac blossoms; the rare Cypripedium barbatum; and the somewhat slender-growing Oncidium bifolium. A Banksian Medal was awarded for the two first.—Mr. Hendry, gr. to the Rev. W. Antrobus, sent specimens of the Tree Violet, a variety well deserving a place in every small greenhouse. It was mentioned that this was originally brought from China, where it forms a small tree 4 feet in height, with spreading branches; keeping this fact in view, it, therefore, becomes a matter of some importance to ascertain whether, by skilful management, it is not possible to bring it to the same state of perfection in this country. Along with it was a plant of Mignonette, exhibiting the form of a tree and showing what shapes our commonest plants may, under particular circumstances, be made to assume. This, the common Mignonette, being a mere annual when sown in the open air, had formed a woody stem straight and clean for some inches in height, becoming branched near the top.—Messrs. Loddiges, of Hackney, sent a beautiful cut spike of an Odontoglossum, probably Cervantesii, having some resemblance to O. Rossii, especially in the pure white flowers being streaked with concentric bars of bright brown across the base of the petals. A Banksian Medal was awarded for it.—From Mr. Beck, of Isleworth, were beautiful Pelargoniums, not possessing, indeed, the properties as regards form, &c., which florists consider essential to perfection in that flower, but showing the results of an attempt to improve the quality of the forcing varieties. Amongst them one named Queen Mab was stated to have stood the heat of a warm stove for months, without being in the least induced to become drawn, the joints being short, and the wood quite firm and hard. From the same collection was a specimen of Achimenes picta, similar to that exhibited at the last meeting. It was mentioned to have been produced from three leaves that had been struck in autumn; they were grown for a short time in pots, and in December were shifted into the flat slate pan in which they were shown. This, perhaps, the most handsome of the genus, showed, however, in this instance, a marked improvement on the plant exhibited at the last meeting, the colours of the flowers becoming much brighter with the advance of the season. With it was a variety of Dendrobium pulchellum, remarkable for its handsome drooping habit, Lælia flava, a Brazilian species of recent introduction, a Hippeastrum, and a curious double Hyacinth, called Grand Monarch.—From Mr. W. P. Ayres, were two blooms of a semi-double seedling Camellia, considerably resembling Aitonii. Messrs. Henderson, of Pine Apple-place, sent a white hybrid Azalea, called Storyana, which was no improvement on the old Indica alba; three Heaths — Archeriana, Neillii, and ardens,— the latter producing beautiful small bright orange blossoms; and Gesnera maculata apparently a a cross between Gesnera Douglasii and some of the scarlet Brazilian kinds; it was a beautiful variety. A Banksian Medal was awarded to the two first-named. —Six seedling Camellias, in pots, were present from Mr. Jackson, of Kingston; five of these were red, the other was white, with the petals delicately striped with pink. Of the red sorts, one had a regular bar of white up the centre of each petal.—From Mr. Mountjoy, of Ealing, was a seedling Rhododendron, that was stated to have been raised from seeds of campanulatum; it was handsome, and will, no doubt, form a good addition to the pale-flowering varieties. A certificate was awarded for it.—Mr. Epps sent Begonia coccinea, a useful stove plant; Gesnera polyantha; a seedling Cytisus, like racemosus; the grotesque-looking, rather than beautiful, Columnea Schiedeana; and a pale-flowered Clerodendron. A certificate was awarded for the B. coccinea.—From Messrs. Rollisson, of Tooting, were the old Oncidium Baueri; Dendrobium sulcatum, an Indian species, with pale yellow flowers; Monomeria nitida, and the true Erica aristata major.—Mr. Crichton, gr. to J. Foster, Esq., sent the well-known Bletia Tankervillia, remarkable for its white and purple blossoms.—And Mr. Gaines, of Battersea, sent a pale-flowered seedling Rhododendron, called maculata nova. —Finally, from the Royal Botanic Gardens, at Kew, were several fine things; they consisted of the purple Hovea, a variety whose colour forms a striking contrast with the ultra-marine blue of the other species; the beautiful pink-flowered Begonia hydrocotylifolia, one of the most handsome of the genus; a Clerodendron, and the scarce Porphyrocome lanceolata, which flowers something in the way of an Aphelandra, the beauty of the blossoms consisting in the dark purple comb-like bracts which half conceal the Lamium-like violet flowers. —Among Fruit were the same high-coloured specimens of Uvedale's St. Germain Pears that were present at the last meeting. It proves to be a very useful variety for stewing, but by no means a good table-fruit.—An exceedingly fine Providence Pine, considering the season, was exhibited from the garden of the Duke of Marlborough; it weighed 8 lbs. 1 oz., and measured 20½ inches in circumference and 9½ in height; the number of pips was 10; it was a remarkable specimen of good cultivation, and was awarded a Banksian Medal.—From the garden of the Society were Tropæolum brachyceras, closely covering a trellis, with bright yellow flowers; Boronia anemonæfolia, producing a multitude of exceedingly gay rosy star-like blossoms; Trymalium odoratissimum, a Swan River shrub, remarkable for its sweet-scented clusters of minute white flowers; the old Illicium floridanum, an evergreen shrub from Florida, distinguished for its bright brown blossoms and sweet-scented seed-vessels; Acacia verniciflua; a rose-coloured variety of Rhododendron arboreum; the sweet-scented Begonia suaveolens; and Franciscea Hopeana.—Cuttings of the following Pears, viz., Knight's Monarch, Thompson's, Eyewood, and Broom Park, were distributed to such Fellows as wished to receive them.

LINNEAN SOCIETY.

April 1.—E. Forster, Esq., in the Chair. A. H. Hassall, Esq., was elected a Fellow. A paper was read from Dr. Cantor, on two species of Semnopithecus, inhabitants of China. He kept for a long time alive specimens of both animals. S. holonifer was remarkable for its tameness and kindness of disposition. In a wild state, they often came from the woods, and did much injury to the Cocoa and Coffee plantations, by eating the flowers. The one kept by the author was exceedingly fond of society, and, when left alone, made known his unhappiness by making a sound resembling a human being calling out, "O!" It had none of the tendency to mischief-making, and playing antics, as is seen in the ordinary forms of monkeys—the Cercopetheci. In its fondness for the society of man, it resembles the gibbons; but it does not, like them, dislike children. On the contrary, it showed the greatest attachment to a little girl who lived in the same house; and whenever the child came near, it would run to her, clasping its arms round her neck. It ate the leaves and shoots of plants, and the fruits of the Mulberry, Plantain, and Jambos; but would not touch insects or animal food. It also often swallowed dried twigs and sand. After it had taken its food, it would sit for some time chewing it before it swallowed it, which it would continue to do till it fell asleep. A specimen of the S. cristatus had most of the habits of the first, except that in temper and disposition it was exactly the reverse; no kindness could win it, and it sought every opportunity of inflicting injuries on those about it. In the jungle these animals are never seen on the ground, but always on the branches of trees; and when pursued, they take surprising leaps from one tree to another. If one is shot, they all stop to look at him, but never attempt to carry off the dead body.

Reviews.

Economie rurale, considérée dans ses rapports avec la Chimie, la Physique, et la Météorologie. Par J. E. Boussingault. Paris: Béchet. 2 vols. 8vo. 1843-4. (Third Notice.)

Vegetable physiology, if the chemical questions connected with it are separated, is very slightly touched upon by M. Boussingault. It occupies, indeed, but one section of his first chapter. We shall, therefore, dismiss it very briefly.

M. Boussingault first touches upon the general structure of plants, and connects their growth with the physical conditions to which they are subjected. He is of opinion that the pith of plants is not of great importance; and adds, that it may be removed from young trees without killing them, or even arresting their growth. Here, however, he should have added, that such removal can only take place after the pith is exhausted of its fluid contents. That this part of the structure of Exogens is really important, while young and filled with fluid, no physiologist would, we think, deny; but it is, doubtless, true that when it has become dry, it loses its vitality, and may be dispensed with. How prejudicial its destruction is to young branches is proved too evidently by the attacks of the Hylurgus piniperda; this insect forms a gallery in the pith of the young shoots of the Pine-tree, and such shoots invariably die. In another place, he repeats the old statement that the age of a Palm-tree is indicated by the number of circular scars on its stem; which is, we believe, by no means the case.

Speaking of the motion of the fluid, he states, and with truth, that we are still in the dark as to the true cause of the rise of the sap, and its conveyance to the most remote points of the vegetable structure. After all the explanations that have been offered of it, from the imaginary action of the silver grain to the famous theory of Endosmose, we are afraid that, unless *Deus interest*, we have no satisfactory explanation of the problem.

Towards the latter end of the little physiological notices that serve as preface to the work, we find the observation that a plant only grows when it perspires; which we believe to be a mistake. A plant perspires only under the action of sunlight; it ought not, then, to do so at night. Nevertheless, in some experiments on the growth of plants now before us, we find that in the month of July, 1844, a Vine grew 2·34 inches between 8 P.M. and 4 A.M., while it only gained 2·04 inches in length in the same period of time, between 4 A.M. and noon. And in like manner a Hop-plant grew 42·02 inches in the nights, and only 40·12 inches in the forenoons of the same number of days.

The agricultural part of the work is of far more importance, and will be noticed next week in the *Agricultural Gazette.*

P.S. While writing the above remarks we received a letter from Mr. Law, of whose translation of this book we were obliged to speak unfavourably in our first notice. We can only find room for an extract or two. After stating that he conceives his translation to be treated with undue severity, he adds, that when he had completed the greater part of the second volume his MS. was handed over to another translator on the professed plea that he had followed the author *too literally and circumstantially in many details*, bearing but remotely on practical agriculture, and that his labours required condensation, compression, and even retrenchment. "I was first made aware," says Mr. L., "of the full consequences of the measure, when to my surprise *I saw the present crude and inaccurate version. —I was not aware, till too late, that my text had been altered or disregarded, and my tables and calculations in effect falsified,*" &c. The italics are our own; but we would ask any reasonable man whether, after this admission, our criticism can be called unduly severe. We have nothing to do with the transactions between Mr. Law and his publisher, Mr. Baillière, and we cannot enter further into the matter.

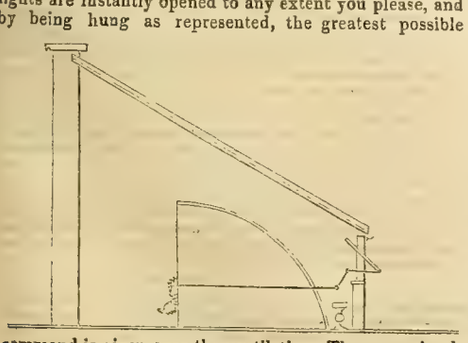
NEW PLANTS.

Aphelandra aurantiaca.—With reference to this plant, already mentioned at p. 171, M. de Jonghe, of Brussels, has addressed a letter to us, stating that it was brought from Mexico in 1841, by Messrs. Linden and Funck, who were engaged as collectors for the Belgian Government. The only plant that survived was presented to His Majesty King Leopold. It flowered in the stoves at Lacken, in July, 1843, and was then named by Professor Scheidweiler, "Hemisandra."

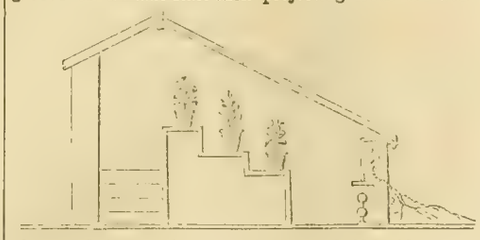
Having gained the 1st Prize for new plants at the exhibition of the Linnean Society of Brussels, specimens of it were given in exchange to Mr. Jacob Makoy, of Liége, through whom it found its way to England. (The original of this letter is published in the last Number of the "Botanical Register.")

Garden Memoranda.

Basing Park.—This is the country residence of Joseph Martineau, Esq., and is situated in the east of Hampshire. The grounds are distinguished by considerable undulation of surface, and in some places they are well wooded. Since the place came into the possession of the present proprietor it has undergone much alteration and improvement, both in regard to the grounds and gardens. The house is an excellent Italian structure, by Sir R. Smirke, and is well placed to afford pleasing landscape scenery. A new approach to the house is now nearly completed, which will be a great improvement, conducting the visitor through an interesting and varied country, which was not the case with the old road from Alton. The direction of this approach was laid down by Mr. Duncan, the gardener, who has shown considerable taste in the arrangement of the plantations, which flank a long line of bald country, otherwise presenting a sterile and forbidding aspect. The gardens and shrubberies are immediately connected with the mansion, and are planned so as to afford every facility for enjoying them: a large conservatory is situated near the house, and is approached by a covered way, which constitutes a conservative wall, on which are New Holland plants, Camellias, and others requiring partial protection. The conservatory is filled with large plants of Camellias, Oranges, &c. Mr. Duncan has a very simple, yet excellent, contrivance for exhibiting to advantage dwarf plants in flower, as well as Orchidaceous plants, which may be occasionally brought here for temporary decoration. This simple, but neat stand can be placed amongst the plants quite concealed, and at the same time brings the object upon it near the eyes. The flower-garden, which is extensive, is in the mixed style, which we deem exceedingly suitable for such a country; in some places there are circular beds of various diameters; these are appropriated, some to evergreens, such as Rhododendrons, Kalmias, &c., others are devoted to flowers in summer, thus presenting, even in winter, a cheerful and interesting character. Such a residence, so completely in the country, surrounded with a flower-garden exclusively devoted to what are termed bedding-out plants, presents, six months in the year, a wintry, desolate appearance, unless very considerable expense is applied in annually planting and removing evergreens to cover the naked beds, and this, at best, is unsatisfactory. The frost does not seem to have affected the common evergreens here to the same extent as in the vicinity of London; the Laurels and Laurustinus appear a little brown, but the hybrid Rhododendrons are unscathed, which is not the case about town, as they appear nearly killed. The kitchen-garden is conveniently situated as regards both the house and flower-garden, and was in excellent order, although the soil is most unsuitable for kitchen-garden purposes, being a dead obdurate clay, and we were agreeably surprised to find the various fruit-trees in capital order and condition. Mr. Duncan found that when the Pears remained for several years in one place, the roots got down in the clay; the trees, notwithstanding, continued to bear well, and, to all appearance, the fruit looked as if excellent, but they were not really so, for it was scarcely possible to use any of our fine Belgian Pears, either stewed or for dessert. Mr. Duncan's plan is to persevere in removing them, which keeps them in a bearing state, and they apparently receive no check from it, although covering the space allotted to them on the wall. Some very large trees have recently been so served, and a crop is expected from them in the forthcoming season. The roots are all carefully preserved in removing, and laid quite on the surface of the border, and were slightly covered with earth and a few decayed leaves. Mr. Duncan also serves his large plants in the conservatory in the same way, which keeps them within bounds, and causes them to flower more abundantly. On the northern wall of the kitchen-garden is a range of seven hothouses excellently constructed, and glazed principally with patent sheet glass. The Vines and Peach-trees were looking as they should do, and promised to yield a rich harvest. The mode of giving front air is particularly deserving of notice, not only for its simplicity, but for its convenience; for where it is impossible to reach the front lights, the handle which is attached to the iron rods extends to the back path, and by the least turn of the handle the whole of the front lights are instantly opened to any extent you please, and by being hung as represented, the greatest possible



command is given over the ventilation. The same simple machinery can be easily applied to the top lights, an improvement in hothouse building deserving at least attention. We also remarked an excellent plan which Mr. Duncan has of wintering his Vines, as they cannot be taken out of the house; it is exceedingly simple and not by any means expensive. This is accomplished by means of temporary front lights, which are let into a groove on a make-shift shelf projecting from the wall-



plate, and then resting upon the front shelf inside, or on a temporary shelf abutting from the sill. The house, in this case, is kept quite secure, and the Vines also preserved between the two front lights. The Pines here are principally cultivated in pits, and are in excellent health; some are planted out as recommended by Mr. Mills, and are looking "right well." Mr. Duncan has followed this plan for years with considerable success, although like Mr. Mills he only adopts it in a very limited degree. —*R.G.*

Mrs. Irlam's, Bootle, near Liverpool.—The following are the particulars of an immense specimen of a double white Camellia which I had lately an opportunity of seeing at this place. The plant, unfortunately, was pent up in a greenhouse by no means sufficiently capacious to admit of its proper development, and it was also crowded with greenhouse-plants. It is said, about two years ago, when it was less cramped for room, the sum of 250 guineas was offered for it, but at the present time a smaller sum would, no doubt, purchase it; and really I cannot imagine a greater acquisition for the large conservatory at Chatsworth, or the one about to be erected at Kew. The plant has been in its present situation 12 years, and doubtless at the time it was planted was a fine specimen. It is sunk in a large tub in the centre of the greenhouse, the tub being inclosed by brick-work, and the bottom of the hole is drained with brick-rubbish and old tan, into which the roots have no doubt penetrated by this time. The plant stands 15 feet high, is 63 feet in circumference, and the stem 7 inches in diameter. It had 4000 flowers upon it at the time I saw it in February, and last year it produced 7000 flowers. The plant is not so symmetrically formed as it might be, owing to its being crowded; but nevertheless it is a grand specimen, and worthy of being classed among the lions of horticulture. —*J. Cook, Brooklands.*

Market Gardens.—In consequence of the severity of the late frost, market gardens in the neighbourhood of London presented the appearance of midwinter, up to the middle of March. They were, perhaps, never known to be so empty as they were previous to the last fortnight of fine weather. With the exception of large breadths of autumn-planted Cabbages, some fragments of German Greens, and some of the latest-planted Savoys, scarcely anything was to be seen. The Broccoli-crop has been entirely destroyed, and Cabbages that had been lately planted, and that had not taken good hold of the ground, are greatly injured; Lettuces have also suffered considerably; Cauliflowers that had been protected by hand-lights, with few exceptions, are, however, looking well. Fruit-trees, having been little advanced in bud, appear to be safe, and in warm situations the Apricot and Peach were beginning to expand their blossoms. Gooseberries and Currants were, perhaps, never known to be so little advanced as they were at the middle of last month, when the weather began to change; they were then quite brown, and advanced but slowly until within the last week, when the green leaf began to make its appearance; little can be said about the fruit-buds of the former, which are more tender than the leaf-buds, until vegetation shall have been further advanced. The same may be said of Strawberries, which are now beginning to push away rapidly.

Miscellaneous.

Chinese Gardening.—The Chinese, with that practical application of facts to purposes of utility which so pre-eminently distinguishes them as a nation, have availed themselves of some of these features in their landscape gardening. To convey the appearance of distance, trees of the loftiest and largest growth, with foliage of the deepest green, are selected for the foreground. Others of smaller stature and more subdued shades are placed in the distance; whilst to vary the surface and increase the apparent extent, groups of suitable trees, selected also with a due regard to the influence of the seasons, are judiciously scattered about. To aid the effects produced by vegetation, representations of old ruins, receding walls, and time-worn rockwork, are all made available.—*Hinds, in Annals of Natural History.*

The late Professor Daniell.—We are happy to announce the formation of a committee to consider the best means of establishing a memorial of this lamented gentleman, in connexion with King's College, of which he was from its foundation so distinguished an ornament; it is desired that the memorial should consist of his bust, to be placed in the College, and a chemical prize or scholarship in connexion with the College. A subscription has been commenced, which is open not only to the members of King's College, but to the friends and scientific associates of the deceased.

Bees.

Removal of Bees.—"W." says, "the end of March, or early in April, is not the proper time to remove bees, for they will then have commenced their labours in the fields, and will perish from not finding their homes." I have, however, invariably practised this system with success. Although April is commencing, there are no field-flowers, in most districts, to be found—early garden-flowers and early fruit-tree blossoms being the first that the bee seeks—and I am certain, at this early period, they seldom stray far from home. On the 20th ult., I moved a strong stock about 50 yards, to form a new colony upon my principle; and from the weather being, as it most generally is at this time of the year, ungenial to bees, I find there are none which have returned to the spot from which they were removed; and I am certain that stocks removed half a mile distant before the end of March will always do well. I again state, that where no accident occurs to the stock, and the glasses are not put on too late, in proportion to their size, the bees with me have always filled the glasses. "W." speaks of "large tom-tits rapping at the doors," with as much sagacity as the nursery tale relates of the wolf and the kid; but, I confess, I have never had reason to fear an enemy of the kind. I have known toads lay under the bee-stools, and eat the bees that fall down. My remarks upon the moth and tom-tits were merely suggestions applicable to the case of "An Inquirer." Has "W." ever seen bees bring the cocoons out of the hive? If he examines old brood-comb, I think he will find, as I and others have done, a decidedly increased thickness of the shell, or wall of the cell. On this account, I hold it to be necessary, for the development of bees in health and good size, to examine, and occasionally remove, old brood-comb. I do not believe that the cells are occupied by brood more than five or six months of the year. I have removed in March brood-comb, and these stocks having done well with me, I am satisfied of the propriety of the system. I never disturb bees in winter; but, as I have before stated, hanging a piece of sacking in front, to arrest the warmth of the sun, until March, is very judicious. In conclusion, I beg to state that I consider midsummer an improper time to perform any kind of manipulation in the interior of a hive of bees.—*G. L. Smartt.*

Weight of Hives.—"Este" has three hives, and two boxes of bees.

1st hive weighed in Aug.	45lbs.	—It now weighs	25lbs.
2d hive	36½	. . . . .	25
3d hive	34	. . . . .	21
1st box	29	. . . . .	19
2d box	25	. . . . .	17

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSE, CONSERVATORIES, &c.

Great care must be had in watering all plants which have been recently shifted, of which there will be many at this time, until the roots have made some progress. This is a period in the life of plants, at all difficult of culture, requiring the utmost caution. Watering with impunity plants surrounded with a body of fresh soil frequently stagnates the circulation of the juices, and causes the plants to remain stationary for months: this, by a little attention, should be especially guarded against. Keep up the temperature of the stoves, and promote rapid growth by means of a warm and moist atmosphere, and be particular that the sudden changes of the external air do not interfere with, or check in any way, the circulation of the sap, which should now be moving in right earnest in all tropical plant structures. *Forcing Pit.*—Keep this well stocked with Geraniums, Indian Azaleas, Gardenias, Roses, and similar ornamental plants. Much of the spring beauty of conservatories is derived from this source. In this pit keep *up* the temperature, and keep *down* the green-fly. Continue potting every plant that requires it, and let former Calendars guide your other proceedings.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

As Grass-lawns will soon require mowing, they should be well swept and rolled, in order to be ready for the scythe. Plant out from the reserve-garden Pinks, Cloves, Picotees, Carnations, &c., into borders and beds, taking care to lift them with as much earth to the root as possible. Vacant beds should now be dug up roughly, to be sweetened by the sun and air before planting time. Attend strictly to the neatness of shrubbery borders, rake and clean off every thing unsightly before the more busy time arrives. *Pits and Frames.*—Remove to cold pits, to harden, the most hardy kinds of bedding out plants, such as Calceolarias, Verbenas, the more hardy kinds of Salvias, Pelargoniums, Ferrarias, Petunias, &c. Cover well up every night with mats, and shade a little through the middle of the day, if very hot. Such plants as are weak or scarce should be kept in a growing heat to strengthen. Attend strictly to watering, and shut up early in the afternoon. Pot off tender Annuals as they require it, and prepare a bed for a general sowing of half-hardy sorts; they should be sown in drills, and should have a frame placed over them; the soil should be free of vegetable matter, and of a light sandy nature, to prevent the plants from shanking off when they first come up.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas will require gentle waterings, as they are growing fast. Take great care that the advancing blooms are not drawn up weakly, as hardly anything looks worse than to see stems unable to support their trusses. *Polyanthuses.*—Seed may now be sown either in pans or boxes, or on a border with a north-east aspect. The soil should be composed of decayed leaves, loam, and a little sand. *Tulips* will be benefitted by having the surface of the beds loosened, all the cracks filled up, and the soil brought close round the neck of the bulb. It is usual to do this with a blunt stick, but we recommend the soil to be carefully broken with the fingers, as by this means no risk is run of injuring the bulbs or foliage. They should continue to have a mat thrown over them when there is any appearance of frost, and a net should be spread over the hoops during the day, to prevent hail-storms injuring them. *Carnations.*—Observe the directions given in the last calendar, and as we have had during the past week dry sunny weather, it will be advisable to give them a gentle watering to settle the soil around the roots. We find the wire-worm more abundant than usual in turf soil; let not a morsel of compost be used that has not undergone a rigid

scrutiny by being passed through the hand: the mortification of having valuable layers destroyed by these pests is thus in a great measure prevented. *Ranunculuses* ought all now to be in the ground; where this has been delayed their planting should immediately be attended to. *Dahlias.*—Continue to put in cuttings, and pot off those which are rooted.—*C.*

IV.—PINERIES, VINERIES, &c.

Planted-out fruiters will, of course, require a spring dressing; if the bottom-heat is to be maintained by tan they should have a few decayed leaves stripped off at each time of applying surface-dressing. Mr. Hamilton, in this process is, however, rather tenacious of burying too deeply the lower or original roots, and to this end selects the most pervious materials he can lay his hands on, placing a narrow cone of very hollow fresh turf in contact with the stem, surrounded by fresh tan as a lining, to cause the bottom-heat not so much to increase below, as to assume a higher level. Give air freely to growing successions; this, with closing in a high temperature early in the afternoon, and copious syringings, will produce not only a quick-grown plant, but a stout one also. *Vines.*—Follow up daily tying-in, disbudding, stopping, and thinning the berries, according to the period of forcing. Leave as much healthy leaf as can be conveniently exposed to light, for the purpose of increasing the general energies of the plant in the ensuing year. In regard of these processes, it is better to stop and disbud gradually than suddenly; in fact, the finger and thumb should be at work a little every day. *Peach-house, Figs, &c.*—Little can be added to last Calendar at present: be sure to keep very moderate night temperatures, especially in the Peach-house. If high night heat be persisted in, for the sake of early Peaches, they may become vapid in their ripening: it is far better to depend on a high solar atmosphere, early reduced, or taken away in the afternoon. This is a good time to introduce the last crop of French Beans.—Keep your spare walls sulphured; fumigate often—"Prevention is better than cure."—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Apricots on walls appear to have been more injured than the other kinds of fruit-trees by the late intense frosts. In many instances large portions of the alburnum has been disorganised, particularly in the case of young trees with vigorous shoots. It is to be feared that although the trees, perhaps, may not die in the present season, yet a source of disease has been established, which will occasion premature decay. Where the affected portions are not extensive, fresh layers of wood may be formed; but the enclosed dead matter will prevent the free circulation of sap, and gum will be formed. All that can be done at present is to shade the trees from the sun's rays, which only a sound state of vegetation can now withstand without injury. Thin screens will likewise prove beneficial to Peach and Nectarine trees against south walls, until such time as their leaves begin to expand. The borders should be stirred, mulched, and watered if drought continue; and the like attention will be necessary in the case of all newly-planted trees. *Kitchen Garden.*—Plant out the remainder of autumn-sown Cabbages and Cauliflowers from under glass; also Peas that have been forwarded in pots; and if the latter have been small the balls need not be broken when taken out, but plunged about a foot apart in the rows. Sow Borecole, Cabbages, Broccoli, and Cauliflower; also, Spinach, Turnips, Beet, Kidney Beans, Lettuces, Celery and Celeriac, Parsley, Fennel, and Thyme. Sow a few pots of New Zealand Spinach, in slight heat, previously steeping the seeds in water for a day or two. *Erratum.*—In last week's Calendar, for "Summer Savoy," *read* "Summer Savory."—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Continue to faggot up all loppings, &c., so as to clear the woods before the growing season; repair roads, and fill in any ruts or inequalities in the drives caused by getting out timber, &c. Evergreens may now be planted, but be very careful of their roots, and do not lift more than can be again planted before their fibres become affected by drought. Build walls, especially those for which mortar is used; and clear fences of all kinds. *Nursery.*—Clean between all young stock which have not been moved, and last year's seed-beds; sow seeds of evergreens, as before recommended; graft Hollies, layer evergreens, and guard against the ravages of vermin of all kinds.—*F.*

State of the Weather near London, for the week ending April 3, 1845, as observed at the Horticultural Garden, Chiswick.

Mar.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	28	20	29.813	29.72	51	37	47.5	W.	.01
Sat.	29	21	30.270	30.135	58	37	42.5	N.W.	
Sun.	30	(	30.273	29.997	56	36	46.0	S.W.	.02
Mon.	31		30.227	30.151	63	30	46.5	N.W.	
April		23							
Tues.	1	24	30.237	30.194	59	29	44.0	E.	
Wed.	2	25	30.089	30 031	60	33	46.5	E.	
Thurs.	3	26	29 962	29 232	69	30	49.5	S.E.	
Average			30.125	29.999	60.4	31.7	46.1		.03

Mar. 28—Slight rain; windy: clear and boisterous at night
29—Clear; deep-blue sky, with some whitish clouds; exceedingly clear, frosty
30—Clear; slightly overcast; showery and boisterous; clear
31—Heavy dew; clear and dry; slight frost at night
April 1—Slight dry haze; bright sun; frosty at night
2—Slight fog; dry haze and fine; clear
3—Slight haze; cloudless, with bright sun; clear and fine.
Mean temperature of the week 1½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending April 12, 1845.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 6	56.3	37.3	46.8	7	0.13 in.	2	4	2	—	4	6	1	—
Mon. 7	57.6	37.2	47.4	9	0.40	2	3	2	2	1	7	2	—
Tues. 8	56.3	35.9	46.6	6	0.50	1	3	4	—	3	4	3	1
Wed. 9	55.2	36.5	45.8	8	0.26	3	2	5	—	3	3	2	1
Thur. 10	55.3	34.2	44.8	6	0.26	1	4	4	1	2	3	3	1
Fri. 11	55.3	35.7	45.5	8	0.51	2	4	2	1	1	7	1	1
Sat. 12	54.3	33.4	46.3	12	0.56	—	5	3	—	2	5	—	4

The highest temperature during the above period occurred on the 9th 1844—therm. 73°; and the lowest on the 11th, 1843—therm. 22°.

Notices to Correspondents.

Apricot-trees—*W D S*—Your Apricot-trees, three years planted against a south wall, have been killed by the frost.

Asparagus—*A B*—In compliance with your request, we reprint from p. 157, 1842, the observations on a paper from Captain Churchill, R.M., on the cultivation of Asparagus at San Sebastian, in the province of Guipuscoa, North Spain:—"Asparagus is a plant found naturally on the beach of various parts of the coast of Europe, where it is covered by the drifting sand, and watered by salt-water at high tides. Sand and salt-water occasionally may, therefore, be regarded as indispensable conditions for maintaining it in health, and explain, in part, the excellence of St. Sebastian Asparagus. It seems that at the mouth of the Urumea is a narrow slip of land, about 3 feet above high-water mark, consisting of alluvial soil, and the wearing away of sandstone hills, at whose foot it is placed. This is the Asparagus ground of St. Sebastian. Beds are formed 5 feet wide, without any previous preparation, except digging and raking. In March the seed is sown in two drills, about 2 inches deep, and 18 inches from the alleys, thus leaving a space of 2 feet between the drills. The rows run invariably E. and W.—doubtless in order that the plants may shade the ground during the heats of summer. When the seedlings are about 6 inches high, they are thinned to something more than a foot apart. Water is conducted once a day among the alleys and over the beds, so as to give these seedlings an abundant and constant supply of fluid during the season of their growth. This is the cultivation during the first year. The second year, in the month of March, the beds are covered with 3 or 4 inches of fresh night-soil from the reservoirs of the town; it remains on them during the summer, and is lightly dug in during the succeeding autumn; the operation of irrigation being continued as during the first season. This excessive stimulus, and the abundant room the plants have to grow in, must necessarily make them extremely vigorous, and prepare them for the production of gigantic sprouts. In the third spring, the Asparagus is fit to cut. Doubtless all its energies are developed by the digging in of the manure in autumn of the second year and when it does begin to sprout it finds its roots in contact with a soil of inexhaustible fertility. Previously, however, to the cutting, each bed is covered in the course of March very lightly with dead leaves, to the depth of about 8 inches; and the cutting does not commence till the plants peep through this covering, when it is carefully removed from the stems, that the finest only may be cut, which are rendered white by their leafy covering, and succulent by the excessive richness of the soil. In autumn of the third year, after the first cutting, the leaves are removed, and the beds are again dressed with fresh night-soil as before; and these operations are repeated year after year. In addition to this, the beds are half under salt-water annually at spring-tides. Let any one compare this mode of culture with ours, and there will be no room for wondering at the difference in the result. The Spaniards use a light sandy soil; we are content with anything short of clay. They irrigate; we trust to our rainy climate. They know the value of salt-water to a sea-coast plant; we have but recently taken means to imitate nature in this repect. They dress their beds with the most powerful of all manures; we are contented with the black residuum of a Cucumber-frame, which is comparatively a *caput mortuum.* Finally, they throw leaves lightly over their beds, by which means they expose the young sprouts to the least amount of resistance, and force them onward by the warmth collected from the sun by such beds of leaves; we, on the other hand, compel the Asparagus to struggle through solid earth, capable in the smallest possible degree of absorbing warmth during the day—but, on the other hand, ready to part with its heat again at night to the greatest possible amount. Can any one wonder, then, at the poor results obtained by our manner of cultivation?—or that some gardener should now and then astonish his neighbours by producing Asparagus which we call Giant, but which, at St. Sebastian, would be called second-rate?"

Books—*Abdallah*—Lindley's "School Botany" will introduce you to the natural system of Botany; and then you may proceed to the "Vegetable Kingdom," which will be published in a few weeks. For prices consult our advertising columns. ——*W C*—If the lady will first gain a knowledge or the rudiments of Botany, for which Dr. Lindley's "School Botany" is especially provided, she will be able to advance as much further in the study of the science as she may desire.

Bricks—*C A A L*—We have no question from you unanswered. We never agitate fiscal or political questions, which are best suited to daily papers. Nor would there be any use in attempting now to obtain a change in the brick duties, the ministerial arrangements for the year having been completed. We fear we cannot make room for the Queen Bee.

Cucumber-Pits—*A Subscriber*—It is, as you have proved, impossible to keep up a proper heat above the soil by means of gutters underneath, without producing too much bottom-heat. To insure a sufficient degree of the latter, very little working is required. Your best and ultimately cheapest plan will be to connect with your Rogers's boiler 2-inch pipes for top-heat, stopping the circulation in the tanks when top-heat is required.

Cuttings—*An Old Sub*—Very few plants can be propagated by large cuttings, by which we understand you to mean truncheons. The Willow, Poplar, Mulberry, Elder, and a few more soft-wooded trees are the only ones; and in their case no care or skill is requisite; for you have only to drive them a couple of feet into the ground and the thing is done. We hope that Neumann's papers on striking cuttings will furnish much information to all classes before his statements are concluded.

Deodars—*G B*—As your Deodars are probably in pots, we advise you to plant them out forthwith. If they are not in pots, move them next November, and secure them *firmly* in their places during winter.

Fences—*A Sub*—Let your Hollies alone for the present. By-and-bye, when the dead leaves are thrown off by advancing vegetation, you may prune out the dead wood, if there is any. But if they are young it is hardly necessary.

Fruit-trees—*G Mann*—Some varieties of the Apple, such as the Burr-knot and Codling, will strike tolerably well from cuttings; but in general this mode of propagation cannot be advantageously adopted as regards Pears, Cherries, and Plums. The finer the variety the less perfect is its wood, and consequently the roots; the latter would prove ill adapted for furnishing a proper supply of nourishment, which in this climate can only be obtained by the energy of a wild and hardy stock. There are many hardy varieties of Apples which would grow in hedge-rows.

Gardeners—All gardeners should have a room to themselves, in which they can read and write, and attend to their business without the interference of the other servants. If that is impracticable, then, most assuredly, the gardener ought to sit with the upper servants. We cannot suppose that any gentleman would think of putting his gardener among the lower servants, unless he was a man whose manners and conduct rendered him unfit to be the associate of the upper servants. And, in that case, we advise that such a gardener be discharged, and a more respectable person engaged. But we repeat it is very desirable that a gardener should have some room where he can sit apart and occupy himself with the improvement of his mind.——*S W H*—This good man has the coolness to offer the Editor of the *Gardeners' Chronicle* Fifteen Pounds to procure him a place! If he will give us his name we will publish it *as a warning to all gentlemen wanting gardeners not to employ him.*

Garden Pots—In accordance with the suggestion of a friend, we have reprinted for *gratis* distribution our article on the sizes of pots, and the necessity for rechristening them. It has been done in a small form, that it may be stuck up in the potting or tool-house, as the case may be. Any party inclosing to the publisher his address and a postage-stamp, shall have a couple sent him;—more, if a greater number would be of use to him.

Gold Fish—*E S C* has a pond in which he put four brace seven years ago, and last year his pond was swarming with them. During the late frost the ice has been broken to give them air, and grains have been thrown in for their food. The other day several of the fish, weighing half-a-pound each, were seen with their tails downwards, their mouths being at the top of the water where the openings were made; and others were seen through the ice, immediately under it, so weak, that although the ice was struck violently they did not move. Some of them were taken out, when it was discovered that the fins and tails of the affected ones had the appearance of being eaten off, and the latter were in several instances bloody; others, (smaller ones), were quite dead.—The probable cause of the death of the gold fish was the accumulation of gas unfit for respiration, generated from mud and decayed vegetable matter, &c., at the bottom of the pond, which had not sufficient means of escape. If the pond had been clean, and the soil at the bottom fresh, it is probable that no injury to the fish would have occurred. Carp, of which genus the gold fish is a species, are more readily killed from the effect of this gas than almost any other fish: this was proved by an inquiry instituted in France, after the severe winters of 1788 and 1789 when, in some of the provinces, almost all the carp were killed, and the result of the investigation proved that the muddy and foul ponds were those that suffered. Experiments with healthy fish, subjected under a receiver to the effects of different gases, produced the same effects. It is not so easy to account for the appearance of the fins and tail, though, possibly, the fish being in a weak and powerless state from the cause above-stated, rose to the top of the water, and turning on their backs, brought their fins in contact with the ice, and they were consequently frost bitten. We would recommend that the pond should be thoroughly cleaned, and after the mud is taken out and time allowed for the bottom to dry, that it should be raked over two or three times during the summer, before the water is let in again.

Insects—*Investigator*—The larvæ from the stomach, I presume, of the black-headed gull, are the true wire-worms, and you may feel interested in their history, which is given in the fifth vol. of the "Royal Agri. Journal." *R.*——*W J E*—Your Fuchsia leaves are so matted together, that it is impossible to arrive at any conclusion regarding the blight. You had better send some more, protected in a shallow pill-box. *R.*

Lawn—*J K B*—Take Crested Dog's-tail, Meadow Poa, Hard Fescue, of each 4lbs.; 2 bushels of fine Rye-grass, 4lbs. White Clover, and as much Medicago lupulina. Sow them immediately. If you can afford more of each do so. If they cost too much diminish *pro ratâ.*

Manure—*A K*—If your liquid manure is drained from the farm-yard, it is probably much diluted already with rain-water; in that case, it requires no more. If, however, that is not the case, and it is really very strong, twice the quantity of water will be a proper addition.

Monsters—*C M*—We advise you to breed from your Rhododendron. A double variety would be very handsome; and the conversion of stamens into petals having taken place in your specimen, it is clear that the tendency to become double has been acquired. Fertilise it with the pollen of some other; sow its seeds, and keep all the seedlings till they flower, and you can judge which is the most double among them. Then go on breeding from that.

Morphology—*C D*—The Apple figured last week is the Pyrus Malus apetala, a curious variety, which has never been seen to bear petals. There is another curious monstrosity called Pyrus Malus granatina; cuttings of both can be had by Fellows of the Horticultural Society. There is nothing peculiar in the flavour of the fruit, which is an Apple of indifferent quality. We do not know whether any one has had the curiosity to sow the seeds; they would probably produce an Apple of the common structure.

Mushrooms—*Lanark*—We have the very information you want now lying before us: and you shall have it soon.

Musty Beer—*C R R*—Prevention in this case, as in many others, is the grand point. A musty barrel may be made perfectly sweet by washing it well with a weak solution of chloride of lime.—*M. J. B.*

Names—*L H J*—We doubt the possibility of naming with certainty the seeds taken out of a bog 3 feet below the surface; for their interior is wholly destroyed. They have very much the appearance of the seeds of a Reseda, and may possibly belong to the Weld plant, Reseda luteola.——*S N S*—We agree with you that it would be more convenient to the English if English names were given to new plants, as well as those Latin names which form the universal language of botanists; but in the present state of things, the measure can only be effected very partially. The fact is, that plants are best known by their Latin names; that there is no standard for English names, and till such a standard is settled no uniformity can be attained in an English nomenclature.

Names of Fruit—*S S*—4, Pigeonet; 8, Glout Morceau; 9, Easter Bergamot. The other numbers were detached, from the Scarlet Nonpareil, Northern Greening, and Blenheim Pippin.

Patience—*Z*—Well, we do confess that the plant is a long while in coming out. The truth is that the answer of *B* is so long that we have never been able to find room for it. It is a dissertation rather than an answer. You shall see it next week.

Pears—*Iota*—Of the Pears you enumerate, Williams' Seedling is, though improperly, a synonym of Williams' Bon Chrétien. Poire de Curé is the Vicar of Winkfield. Beurré Blanche is the White Doyenné, or old White Beurré. Doyenné d'Hiver is the Easter Beurré. Beurré Royal is Beurré Diel. The above are all very good Pears, as are likewise the Van Mons Léon le Clerc, and Beurré d'Aremberg. The Bezi de Montigny is not worth growing in this climate. With the exception of the Chaumontel, it is doubtful what the others may be.——*Clericus*—The Beurré Gris d'Hiver Nouveau is unknown. The Lewis is a good Pear, perhaps equal to the Passe Colmar; but it is said to vary considerably, and Knight's Monarch will doubtless prove the hardier of the two.

Rhododendrons—*E R*—R. Rollissonii and Zeylanicum would perhaps bear the winter of Cornwall or the west of Ireland, but they will not do so hereabouts.

Roses—The articles on the Cultivation of Roses are reprinting in the form of a small volume, price 5*s.* 6*d.*, under the title of the "Tree Rose;" it will be ready soon, and may be ordered of any bookseller.

Sap—*J B*—This fluid rises through the whole mass of the wood, but more especially through the alburnum, and descends by the bark. It neither ascends nor descends between the wood and bark.

Strawberries—*Este*—The mischief, if any, cannot be remedied. You can do nothing more than wait till the season restores them to health. But are they so much injured as you suppose? As soon as they begin to grow, give them a good watering with liquid manure.

Misc.—*A B C*—Zero of Fahrenheit is that point where water is frozen to the amount of 32° of his scale.——*R W T*—You may cultivate a Moss, or even a Stone-crop, in a thimble, which is considerably smaller than a thumb-pot. All that is necessary is to keep the thimble and its contents beneath a glass shade, where the air is always damp. We doubt whether there is any account of the art of dwarfing that can be relied on. The method consists, theoretically, in constantly stopping the growth of young shoots, only leaving just enough foliage to keep the plant alive, and in a corresponding cramping, or destruction of roots.——*A Constant S*—Anti-corrosive paint is a good material for out-door work; but it forms a gritty surface, and painters are not very fond of using it. We prefer it much for all purposes, except where sashes have to slide over it. We never give the names of dealers; it is their business to make themselves known.——*A Sub*—Veronica speciosa is a greenhouse-plant; Pleroma Benthamianum requires a stove. They are easily grown *if well potted.*—— *H J B*—Send six Post-office labels with your address and the Number shall be forwarded to you.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

Erratum.—In the report of the severity of the late frost, p. 210, an error has crept in. Instead of, "The lowest point to which the thermometer has fallen in that part of Perthshire is 4° below zero, Fahrenheit," read 4° above zero, Fahrenheit.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 23*s.* per quarter, including sacks; warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

The Agricultural Gazette.

SATURDAY, APRIL 5, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, April 9—Agricultural Society of England.
THURSDAY, April 10—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, April 16—Agricultural Society of England.
THURSDAY, April 17—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

April 7 { London / Stewponey / Darlington
April 8—Abergavenny
April 15 { Rochford Hundred / Framlingham
April 18—Halesworth
April 17 { Grove Ferry / Richmondshire / Bideford and Walsham
April 18 { Stoke Ferry / Wrentham
April 19 { Cardiff / Swansea

THE principles on which THE ART OF DRAINING depends will form suitable subject-matter for two or three Articles in this, the leading section of this Paper—remarks on the details of its *practice* must appear elsewhere: the former, whether we are correct in our views of them or not, are fixed and determinate, and influential everywhere—the latter are necessarily dependent on the character of each individual case: a skilful man will understand how, without losing sight of the former, to adapt the latter to the circumstances in which he is placed. In arranging the subject thus, we are guided, it will be observed, by the opinion often expressed that in agriculture more than in any other art, while principles may be announced authoritatively, practice must be defended with modesty.

Let us at once enter upon the consideration of our subject:—One can easily conceive that a single drain will dry whole acres of land, when its object and effect are to confine and carry off the waters of a spring which have hitherto saturated and overspread that extent; but it is not so easy to believe, and it could hardly be anticipated, that a ditch not more than 30 inches deep will dry land 15 or 20 feet from it—land which is wetted, not by springs, into the heart of which such a drain may run, but by rain-water uniformly over its surface. Indeed, in the absence of evidence on the subject, one might argue plausibly enough from the impermeability of embankments which, though not of greater breadth than "15 or 20 feet," are capable of *confining* waters of considerable depth; and he might thus, with some show of reason, altogether deny the possibility of such an event. Facts, however, which on this subject are now innumerable, are entirely opposed to such a conclusion; and, indeed, a little further consideration would convince any one who had adopted such an opinion, that the circumstances on which the efficiency of embankments depend are by no means *necessarily* opposed to the success of the ordinary methods of drainage, however much they may be so occasionally, through mismanagement. But to this, which is an important consideration, we shall hereafter revert.

We have alluded to two conditions of land requiring drainage—the one when it is wetted by spring, and the other when it is wetted by rain-water. In the one case, the proper remedy is to carry off the water immediately from its source before it can touch the land to injure it; in the other, such a remedy is manifestly inapplicable, and we must depend for our success in removing the moisture upon the influence of frequent artificial outlets for it. Very often both these cases meet on the same land, and then of course both of the remedies must be applied. The first of these methods of draining land—the only one formerly in vogue—was adopted and greatly improved about the year 1764, by Mr. Elkington, a farmer in Warwickshire. The second, though it has been in existence for many years in some parts of England, was first prominently and successfully brought into public notice by Mr. Smith, late of Deanston, in Perthshire.

Now, it might at first sight appear that much the greater part of land requiring drainage is suffering by injury from *spring water*; this, however, no one will admit who has seen the immense benefit which land, apparently dry, has received from the frequent drain system. The following passage from Mr. Smith's pamphlet on this subject is unquestionably true:—"The portion of land wetted by water springing from below bears but a very small proportion to that which is in a wet state from the retention of water which falls upon the surface in the state of rain; and a vast extent of the arable land of Scotland and England, generally esteemed dry, is yet so far injured by the tardy and imperfect escape of the water, especially in winter, and during long periods of wet weather in spring and summer, that the working of the land is often difficult and precarious, and its fertility much below what would uniformly exist under a state of thorough dryness." To this, therefore—the drainage of land wetted by the retention of the water which falls upon its surface—let us first advert.

And, at the outset, in order that we may be safely guided in our search after correct practice, let us consider what the objects of drainage are, and then in what manner drains act. The object of drainage is to hinder *the stagnation* of water in the land. This, of course, it effects by removing it; *the removal* of the water, however, we apprehend is not the *object* of drainage, but merely the means it takes to effect its object. Irrigated land requires drainage, perhaps more than any other; in this case the object is attained, the water accumulated *in* the soil is kept moving, just as that which flows *over* its surface; here drainage cannot effect the entire removal of the water, as that is purposely kept flowing on as fast as it flows off, and the fact that, in such a case, drainage is beneficial, sufficiently proves the statement, that to hinder the stagnation of water, not to effect its removal, is its object. It may be said, "This is mere play upon words; whatever the *object* may be the fact remains the same—the quicker you can get water out of the land the better." Though we admitted "the fact," as it is called, which is by no means indisputable, yet we contend it is well to understand clearly what the object of drainage really is: the explanation of it, by reference to the effect of drainage of irrigated meadows, is full of instruction.

This, however, and other matter bearing on this subject, we must postpone till another opportunity.

THE IMPORTANCE OF CORRECT AGRICULTURAL STATISTICS of any district, such as those of South Gloucestershire, supposing them to be accurate, which are given by "M. S." at pages 195, 196, and 215, can scarcely be overrated. We can hardly conceive that FARMERS' CLUBS could be more usefully or properly engaged than in compiling farm statistics of their respective neighbourhoods. They alone have the *power* of accomplishing such a work satisfactorily, and if all such Societies had also the *will* to do so, we should soon possess, collected together, a body of facts connected with agriculture far more useful to the young farmer than the information contained in any existing agricultural library. The idea which is often expressed by farmers that by giving up an account of the farm management in their neighbourhoods they are only laying themselves open to the demands of rapacious landowners, is, we think, fairly met by the assertion which is also often made, that it is only ignorant landlords they have to fear; and if this be so, it surely becomes the *interest* of the farmer to acquaint such landed proprietors with the true relation in which the produce and expenses of farming stand to one another. A statement of fact on this subject emanating from Farmers' Clubs would possess great authority.

It would also be very *useful* in other ways:—1st, to the Clubs themselves from which it emanated. There are frequently within so limited a district as that occupied by the members of one Farmers' Club considerable variations of climate, owing to want of shelter, to variety in elevation, &c.; and every one knows that there are often in such a district as great differences of soil as are to be found in a district of any size. Without such an account of their soil, climate, &c., as would find its place in a full statistical statement, we cannot compare the results of farming in any two districts, so as to determine upon the skill of their farmers; nor, indeed, can we intelligently compare individual operations or modes of farm management, unless we know the nature of the soil on which they are to be performed, and the character of the climate too. But the main value of Farmers' Clubs lies in their concentration of the knowledge of all the members, which is thus laid open to each—knowledge, remember, which has been acquired under peculiar conditions of soil, climate, and other circumstances, and which, so far from being useful, might mislead and injure those who acted upon it in ignorance of these circumstances. We submit, then, that a statement of the character of the soil and climate in the various portions of its district, would be of great use to the members of a Farmers' Club, as it would enable each to test the opinion of the other by considering it in connection with the climate *under* which, and the soil *upon* which he farmed. If to these were added details of farm management, and of the nature and quantity of the produce of the land in the different portions of the district, the Farmers' Club would not only have the opinions of its members expressed at monthly intervals throughout the year, but it would have constantly before it those same opinions as embodied in their practice, and tested by the results of that practice.

But such statistical statements would also be of great value to agriculture generally; they possess great value in the eyes of scientific men. It is of importance that the theory of agriculture be perfected, and to this end those who are competent to assist in this work must be furnished with facts and materials by the practical man. But it is rarely, indeed, that the results of a limited experience can be depended on in so variable a business as farming; it is only from the average of large extents or lengthened periods that correct inferences can here be drawn. The value of accurate reports of large districts of land is thus very great. We are persuaded that scientific men would strongly enforce our recommendation of this subject to the attention of Farmers' Clubs.

Correct agricultural statistics, if of districts of any extent, are valuable, lastly, in the determination of specific questions of agricultural policy. To one such, which has been already partly considered in this Paper—the policy of breaking up inferior Grass-land—we shall next week apply the information collated by "M. S." in the tables to which we before referred at pages 195, 196, and 215.

ON CALCAREOUS SEA SAND AS MANURE.

[In answer to a correspondent who asks for information as to the use of calcareous sea sand in Cornwall and elsewhere, we take the liberty of transcribing the passages in De la Beche's Survey of Cornwall, and in Kane's Industrial Resources of Ireland which bear on this subject.]

"As connected with the economic geology of the district, we must not omit to notice the sea and blown sand which is extensively employed as manure in different parts of it. It is, as we have seen (p. 246), partly now thrown up and partly an accumulation at various points when the relative levels of sea and land were different from those we now find, the land having been apparently raised. It was employed, as now, for agricultural purposes, 236 years since, as appears by Carew's Survey of Cornwall (1602). Mr. Worgan, in 1811, estimated the expense incurred for the whole county in land-carriage for this sand at upwards of 30,000*l.* per annum.* Dr. Paris states it to have been ascertained, that 4000 horse-loads have been taken from Bude in one day.† Not only is it carried from that place by the Bude and Launceston canal, with its branch extending to Holsworthy, the chief commerce on which is the conveyance of this sand; but it is conveyed overland abundantly in carts, so that a considerable portion of the adjoining portions of Cornwall and Devon are supplied with it from Bude. A good road has been constructed to Trebarwith Sands, on the coast near Camelford, purposely for conveying the sand there found into the interior.

"Large quantities of sand are obtained upon the Dunbar in Padstow harbour, employing constantly about 80 men in several barges. The amount of sand taken from this harbour was estimated in 1836 at about 100,000 tons per annum,‡ a large proportion of which was transported into the interior from Wade Bridge by the Bodmin railway, and its branch, up the Camel, to Wineford. Notwithstanding the constant addition of sand thrown by the sea upon the Dunbar, this large demand appears to cause its decrease; and we were assured by competent persons

* View of the Agriculture of Cornwall, p. 128. Borlase cites a letter in the Philosophical Transactions of April, 1675, in which the carriage of sand is estimated at 32,000*l.* per annum (Nat. Hist. of Cornwall, p. 48). Taking this sum and that given by Mr. Worgan as fairly accurate, and as Borlase did not object to a similar charge for the carriage of sand in his time, it would appear that it had remained nearly the same for about 140 years.

† Trans. Geol. Society of Cornwall, vol. i., p. 193.

‡ According to Mr. Worgan, the quantity of sand taken from Padstow harbour, in 1811, was 54,000 cart loads. Probably the facility afforded by the Wade Bridge and Bodmin Railway may have considerably increased the consumption of this mineral manure, independently of the general improvement in the agriculture of the country, within 25 years.

that it had lost from 6 to 8 feet in height within the last half century. Independently of the sand conveyed inland by means of the river, large quantities of sand are also taken away by means of carts, horses, and donkeys, from the sand hills opposite Padstow.

"Sand for agricultural purposes is also obtained in numerous bays and creeks on the north coast of Cornwall, from Trevose Head to the Land's-End, and is esteemed in proportion to the shelly matter it contains. Of the few places whence sand is carried on the south of Cornwall, that from Falmouth harbour, composed of little else than corals, shells, and their fragments, is most esteemed. If we consider that Padstow harbour furnishes one-fourth of the sand employed for agricultural purposes in Cornwall and Devon, and estimate the ton as containing about 14 cubic feet, we should have 5,600,000 cubic feet of sand, chiefly composed of comminuted sea-shells, annually conveyed from the coast, and spread over the land in the interior as mineral manure. If we take the produce of Padstow harbour as only a fifth, then we should have 7,000,000 cubic feet thus distributed.

"As may be readily conceived, numerous local causes tend to diminish or increase the value of the sands along the coast; generally speaking, the harder the coast and the less the detritus that can be worn from it, the greater the proportion of the comminuted shells in a given portion of sand. The easier also the streams or rivers flowing towards the shelly sands can deposit the sandy detritus they may bring down in floods, before they reach the shelly banks, the finer the sand. We have found the sands, considered worth removal for agricultural purposes, to vary from 40 to 70 per cent. in their calcareous contents. Dr. Paris states that the samples of sand usually employed, and which he examined, contained from 60 to 64 per cent. of carbonate of lime. Probably this may be taken as a fair average proportion. The same author suggests that, though unquestionably the beneficial effects of this mineral manure depend on the presence of the calcareous matter, the sea-salt with which it is impregnated contributes materially to its fertilising powers; citing as a fact, bearing strongly in favour of this opinion, that the farmers send several miles to the harbour of Padstow for the sand which is drifted close to them.* The farmers certainly seem to prefer the sand which the tide has just left, and which must consequently contain much saline matter. It often, also, then contains fragments of sea-weed, and occasionally fresh animal matter derived from dead marine creatures, among which are the tenants of microscopic shells still little decomposed in them."—*Geological Report on Cornwall, Devon, and W. Somerset, by De la Beche.*

The following is the Report on this subject contained in Professor Kane's work alluded to above :—

"That I may give an idea of the extent to which the shell banks on our coasts are available as sources of these manures, I shall extract briefly some estimates of the quantities raised at Derry, and on the southern coast of Cork. The former is taken from Captain Portlock's Report on the Survey of Derry and Tyrone, the latter from a most interesting communication by Mr. Francis Jennings.

"'The shell banks of Lough Foyle form, when the tide is out, extensive flats, which are firm enough to be walked on without any inconvenience, and they are resorted to by numerous boats for loads of shells, and though this system has been pursued for more than a century, they exhibit no appearance of a failure in the supply. The shells hitherto examined are all of recent species; and it becomes a question whence they came. There are engaged in raising the shells

285 men for 26 weeks, at 10*s.*	. .	3205*l.*
50 boys . . at 6*s.*	. .	390*l.*
The cost of the labour alone is thus	.	3595*l.*

"'There are annually employed about 94 boats, of tonnage from below 8 to 60 tons. The aggregate tonnage of 41 of the largest boats is 1306 tons. The total quantity of shells raised each summer is about 59,496 tons, which on the shore immediately opposite the bank sell for 1*s.* per ton; but at Derry and Strabane for 1*s.* 6*d.* to 2*s.* per ton. Altogether Captain Portlock considers the shell banks of Lough Foyle to be worth 5000*l.* per annum to the country. They are particularly useful in bringing bad lands into cultivation, and in ameliorating stiff wet clays, deficient in calcareous matter, being applied at the rate of from 30 to 60 barrels per acre. They are preferred to lime, as warming and brittleing the land.' In this the silicious sand is probably most useful in giving porosity to the clay.

"Mr. Francis Jennings, to whose union of zeal and scientific knowledge I am indebted for much information regarding the industrial condition of the south of Ireland, has kindly drawn up for me the following account of the use of sea sand as a manure, along the coast of Cork. I present it without alteration, that its value and authenticity may not be lessened.

"'The harbours and coasts of the south and west of Ireland abound in a calcareous sand, which is employed by the agriculturist for manure in very considerable quantities; that raised in Bantry Bay and the west, is termed coral sand, from the similarity of its appearance to portions of coral, but is in reality a semi-vegetable; that kind is, however, unknown in the harbours of Kinsale, Youghal, and the intermediate districts of the coast, which from a microscopical examination, is composed of comminuted shells, pulverised rock, portions of the shells of the crustacea, and in many cases no inconsiderable number of minute spiral and bivalve shells, containing the fish, either dead or alive.

"'To the large proportion of phosphate of lime contained in the crustaceous remains, and the nitrogenised matters of the fish, much of its importance, doubtless, is due. Its colour varies from a reddish brown to a blue and brownish black, dependent not alone on the remains of the shells, but also on the prevailing rock in the vicinity. The sand raised in the harbours of Cork, Kinsale, Oyster Haven, and Ringabella, is dredged from depths varying from about 10 to 30 feet; that taken in Youghal, and the bays and strands intermediate between it and Kinsale, excepting those already mentioned, is shovelled from the strand into carts and boats, generally at low water, and then taken up the country to its various destinations.

"In a few of those places already named, I have been able to ascertain, with tolerable precision, the average amount raised per annum, which from Youghal harbour and strand is about 300,000 tons, 130,000 of which are taken by boats, of various degrees of tonnage, to the different landing-places on the Bride and Blackwater, as far as Cappoquin.

"'In Oyster Haven, an inconsiderable creek west of Cork harbour, there are 32 boats, of about 12 tons burden each, employed in dredging sand, some of which make about 150 boat-loads each, in the year. These principally belong to the farmers, and the men, when paid in money for their work, earn 1*s.* 4*d.* per man for each cargo delivered, and a boat-load or two at the end of the season, as a perquisite, there being three men employed in filling and working each boat, which takes about 20 full dredges to complete its cargo; in many cases the men are partly paid by the use of a portion of land for a sufficient length of time to raise a crop of Potatoes. The sand can only be raised in calm weather, and the labour is very severe. The annual amount raised in this creek is about 57,000 tons, and a boat-load, when sold, brings, according to the weather, from 6*s.* 6*d.* to 7*s.* 6*d.* These data, in connexion with the quantity raised in Cork, Kinsale, and Ringabella, which is a very small creek off Cork harbour, are by no means accurate; the amount in those places taken together is, I am confident, considerably underrated at 1,000,000 tons. Much of that raised in Cork harbour is, after a water carriage of 10 or 12 miles, taken into the country on one-horse cars by working farmers a distance of 10 and 12 miles on hilly roads, which affords strong evidence in favour of its value as a manure; and it is placed on limestone ground as well as on the soil resulting from the decomposition of the old red sandstone and carboniferous slates. It is not, however, to be supposed that the raising of sand on the coast is confined to those places already mentioned. Every strand, nook, and bay to which access can be had, by either a horse with panniers, or a cart, is taxed to supply its quota of sand; and in many places of small extent, I have seen over 50 carts taking it at low water; that which is raised then being considered the best, and only inferior to that which is dredged. When it is, therefore, considered the number of places from which sand is raised, an approximation can only be obtained by inquiries requiring no ordinary degree of care and attention.

"'The amount of carbonate of lime contained in the sand varies considerably; some of a dark-blue colour, from Oyster Haven, which I tried a few years ago, contained 65 per cent.

"'It may be inquired, is the supply inexhaustible? The answer, as far as regards the dredged sand, might probably be in the affirmative, but in many places the strands, formerly covered to the depth of many feet, at present yield none except after heavy gales, and the inhabitants must either give up its use, or resort to the dredge for a supply. The amount of sand to the acre varies according to its price. In those places where it is about 6*d.* per ton, 800 cwt., or 40 tons, is by no means an unusual quantity to be applied every season for many years together.

"'In considering its agricultural value, the quantity of salt-water it contains must not be omitted, for the calculations are made not as to the amount of dry sand, but the state it is in after some hours' draining; moist to the touch but not wet. From its daily increasing consumption, and great value when taken far inland, I believe it would form one of the most considerable branches of internal traffic, at least in the south of Ireland, if canals existed which would allow of its being forwarded at moderate charges.'

"From a note furnished by the Duke of Devonshire's agent to Mr. Jennings, it appears that there are engaged in the procuring of sand at Youghal 363 horses, with carts containing 14 cwt.; 18 donkies, with carts containing 7 cwt.; each drawing 12 loads per week; 35 lighters, of 35 tons average tonnage, which take 2 loads per week. And the total quantity of sand raised annually is estimated at 293,503 tons, in the harbour of Youghal alone."

* Trans. Geol. Society of Cornwall, p. 194. Borlase has observed that the salter the sand the better it was for agricultural purposes.—(Nat. Hist. Cornwall, p. 82.) "Blown sand," he says, "which has been long exposed to the air, is good for little, its salts are so wasted by wind and rain."—(*Ib.* 83.)

THE BLOWING SANDS ON LORD PALMERSTON'S ESTATES IN IRELAND.

It is well known that considerable tracts of land upon the west coast of Ireland, as well as in different parts of Great Britain and the Continent, have been devastated to an alarming extent by the drifting of sand, which being put in motion by the high winds on the coast, has covered thousands of acres, forming in some places hills or mounds, overwhelming houses and other buildings, as well as utterly destroying all vegetation upon the land. It has, in some places, altogether changed the face of Nature from a rich and luxuriant pasturage to a dry and barren wilderness. Attempts have been, from time to time, made to stay the evil, and various plans have been adopted for this purpose in France, in Holland, in Russia, and in England. About the commencement of the last century the attention of eminent engineers was directed to the subject by the French Government, with a view to remedy the evil in part of that country on the confines of the Bay of Biscay, which was accomplished by the planting of a species of the Fir tribe (Pinus maritima major), which has effectually checked the progress of the sand drift, and at the same time has clothed the sandy desert with a forest of wood highly useful for many purposes. An experiment of a different kind has been tried upon a part of the estate of Lord Palmerston, on the west coast of Ireland, between the towns of Ballyshannon and Sligo, where a large tract of land, extending to about 1000 statute acres, was, for many years, covered with drift sand, in some parts to a depth of 100 feet and upwards, which was rapidly extending itself over the adjacent lands. About 18 years ago the attention of his lordship was directed to this subject, and attempts were made under the direction of the late Mr. Alexander Nimmo, an eminent civil engineer, to restrain the sand from further drifting upon the upland by planting a kind of Grass, found in considerable quantities in tufts upon the neighbouring sand-hills, called Bent (Arundo arenaria), which, after several unsuccessful attempts, has at length been found perfectly effective. The Bent is planted thus :—Portions of it are taken up from the numerous tufts or patches of it, with which these waste lands are interspersed; the plants are carefully divided and thinned out into bunches of about 1½lbs. each, preserving the roots as carefully as possible. These bunches are set in flat or fan-shaped, in holes in the sand, firmly beaten down with the foot. These rectangular holes I have found to be much better than round ones, inasmuch as when the Bent is inserted in thick round bunches they are apt to rot in the holes, and the fan shape is more favourable for the Bent throwing out its fibres among the sand; the plants are placed first on the side of the sandy ground, next to the point from which the wind blows most prevalently, at a depth of 2 feet or more, in which case the plants will still penetrate through the sand; but I have sometimes found it necessary, in case of failure, to plant anew on the drifted surface, until a fixed surface is established; the plants are put in at 2½ or 3 feet apart; at first they were planted in rows of 15 feet asunder, the plants being 3 feet asunder in the rows, but these distances I have found to be too great, as channels were formed between the rows or lines of Bent by the currents of wind acting upon the sand-drift, so that the whole had to be beaten up, or replanted; and it has thus been ascertained, that the more irregularly the plants are put down at the distances above stated (4 feet apart) the better. The Bent should not be planted at first in the most dry portions of the shifting sands, but in the more moist and firm spots. After a few years it will spread so much, that with care and attention a stock will be afforded for extending the planting every year. When the transplanted Bent begins to stool or spread, it effectually restrains the sand-drift, and the natural Grasses, such as white Clover, Bird's-foot, Trefoil, &c., come up in great profusion, and soon form a green sward or surface upon the sand. The seeds of the Bent ripen about the latter end of July, but the process of raising Bent from the seed is tedious, as the young plants will not be in a state fit for transplanting, for 3 or 4 years; the seed should be sown in clayey ground, the earth being mixed with sand from the sand-hills, and used in a larger proportion than the earth; the Bent plants should not be taken up till the latter end of September, and the process of planting may be continued until April, but it grows best when planted between the months of November and March both inclusive. From one root of Bent 49 bunches have been obtained, which planted an Irish perch of land 7 yards square, and in this way about 8 tons would plant an Irish acre. If the Bent plant is to be sent over seas, for the purpose of transplanting, it may be laid in the ship's hold, with Wheat or Barley straw between every two or three courses of the Bent, and in this way it will retain its vegetative powers for four or five weeks, or longer, in proportion to the care taken in packing it. By pursuing the plan above described, the most striking improvement has been effected upon this portion of Lord Palmerston's property; about 500 Irish acres of land, or 800 imperial acres, have been reclaimed, which now only require a little attention in replanting the Bent in places where it has missed, or where the drift-sand again begins to blow; and this district, which a few years ago was little better than a sandy desert, spreading its ravages in all directions, is now to a considerable extent a profitable and fruitful tract of pasture-land, a large proportion of it being covered with a good sole of various kinds of Grasses, and supplying food for a considerable number of cattle and sheep.

Another experiment has also been tried by Lord Palmerston, upon these sand-hills; his lordship imported from Bordeaux a considerable quantity of the seed of the Pinus maritima major, before referred to; and about 300 statute acres of the sand-hills have been sown therewith, a great part of which has grown pretty well. The first experiment was made in a very exposed situation, about 10 years ago; and the young plants, after presenting a promising appearance, were, unfortunately, overwhelmed with the sand-drift in one night,

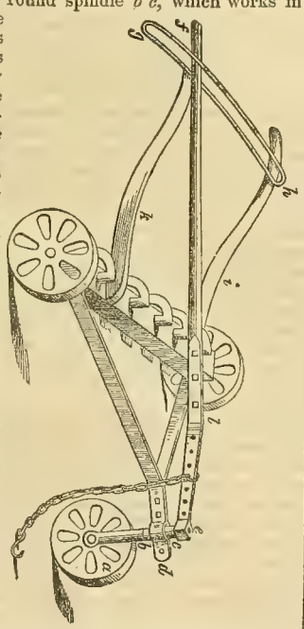
to the depth of 8 or 10 feet, and consequently destroyed; but the seed more recently sown has been placed in more favourable positions, and is likely to prosper. It is dibbled into the sand about 1½ inch to 2 inches deep, two or more seeds being put into each hole. The holes are made from 12 to 15 inches apart, by means of a dibble, or stick, 18 inches long, and rather blunt at the point; and the operation is effected by boys, each being provided with a dibble, and a small bag filled with seed. A boy trained in the nursery, or after being a short time accustomed to the work, will make the hole, drop the seed, and tramp them in with his feet, until the hole is well closed; and will do half a rood in a day; so that, calculating a boy's wages at 6*d.* per day, the cost of sowing the seeds will be about 4*s.* the Irish acre. I have also planted out a quantity of once-transplanted Oaks and Scotch Fir, and got dibbled in a few bushels of Acorns, which are all growing well, and, I must acknowledge, more freely than the Pinus maritima. The Oak from the Acorn is growing much better than those transplanted. [*Note.*—The Marran, or Sea Matweed (Arundo arenaria, Ammophila arundinacea of Host), employed in this experiment is the most frequent plant found in the sandy shores of England, Scotland, and Holland, and is the best binder of sand-drift. The Elymus arenarius is, perhaps, the next best; the Carex arenarius the third best; and then the Triticum junceum, Festuca rubra, Galium verum, and Trifolium repens.] —*John Lynch, Resident Steward and Agriculturist to the Viscount Palmerston, Rundle Cottage, Cliffony, 22d March*, 1845.

IMPROVED CORN-DRILL HOE.

We inclose a sketch and description, from a specimen in our Agricultural Museum, of a very simple and effective improvement made by Mr. Sterling, of Glenbervie, on the Corn-drill hoe, which it may be of use to insert in your *Agricultural Gazette*. As the drill system of culture appears to be rapidly extending, whatever facilitates the cleaning of the crops becomes of importance :—

In this hoe there are five coulters, or scarifiers, the machine being intended to be used after a five-rowed Corn-drill. In its original state the axle of the front wheel had a fixed position parallel to the axles of the side wheels; and the draught-chain was attached to the muzzle; a construction which, however it might work in a right line, was most intractable to follow the little curvatures and irregularities which occur, and cannot be avoided altogether in the sowing. The consequence was, that, in spite of the most careful management, the scarifiers would occasionally dash through corn as well as weeds.

In reference to the improvement, the front wheel *a* is furnished with a round spindle *b c*, which works in the muzzle *d*; the top of the spindle is made square, and is embraced by the key *e* at the end of the lever handle, or regulator *e f*; from *e* to *l* is iron, the remainder wood. This handle is movable along, and also supported by, an iron rod *g h*, attached to the end of the fixed handles *i k*. The end of the fixed handle *k* is cut off as not being required, and as it would be in the way of the movable handle. By shifting the regulator right or left the direction of the front wheel is changed, and hence, also, that of the coulters; but this is not all, the iron portion *e f* of of the regulator is perforated with holes, at one of which the draught-chain being affixed, instead of at the muzzle, the point of draught is therefore also shifted, and thus made to combine with the front wheel in effecting a change of direction. The result is a very perfect and readily-exercised command of the machine.—*W. Drummond and Sons, Agricultural Museum, Stirling.*



Home Correspondence.

Gold of Pleasure.—"Our friend, Capt. C. F., mentioned to me that you wished some further information about the Gold of Pleasure. I beg to refer you to Mr. W. Taylor, 314, Regent Street, who gave me, and can give you, every information upon the subject. What little I know of the plant is this: I saw an account of it last spring, and sowed in April about 9 inches apart, and very thin, something less than a pound; the produce has been 3 bushels of clean seed, two of which I have had crushed, and have between 3 and 4 gallons of pure oil, beside the cake, which is very good. I should add that the cake was not completely crushed, as a greater quantity than 2 bushels was required properly to fill the machine. I therefore do not consider this a fair trial, as regards the produce of the oil. I am now using it in our lamps; it burns well, with a fine light, and free from any smell whatever. I have a second crop in the ground, which I left as an experiment, to see if it would stand the winter, as it was beat out in the summer by the rain; it is rather too thick, but it is as high as one's knee, and in full bloom, and partly coming into seed; but I can hardly venture to hope that it may ripen. If it had not had so tart a check by the dry summer, and the first had been sown a little earlier, I have no doubt but that two crops may be produced in a year; if the second does not ripen, it would produce an abundance of seed, of which I find that cattle are very fond." Thinking that some of your readers may be interested in the subject of the foregoing letter, which I have lately received from Wiltshire, I send you a copy of it.—*S. Solly.*

Sheep.—A friend of mine, the other day in my hearing, told a party who was complaining of his ewes deserting their lambs, that once, when such a circumstance occurred to him, he tried many ways to make the dam take to its offspring; amongst others, by holding the ewe by the head, while the lamb attempted to suck; that one morning, being so engaged in a barn, a little dog happened to run in; he barked vigorously at the strugglers and frightened away the lamb, but the natural instinct of affection in the mother for its offspring was by the circumstance aroused; she immediately freed herself from restraint, and interposed her protection by attacking the intruder. Her alarm was suffered to continue for a minute or two, when the dog was turned out. The sequel to the anecdote was, that the ewe took to the lamb from that time, and that whenever my friend found a similar case he always adopted a similar remedy, and invariably found it succeed. Is this worth your notice as a recorder? I know your time is valuable, and beg you will excuse the length of my letter. Perhaps you may say, with Leonato, "Neighbour, you are tedious." If so, I must reply, as did my great prototype, "It pleases your worship to say so * * but truly, for mine own part, if I were as tedious as a King, I could find in my heart to bestow it all of your worship * * for I hear as good exclamation on your worship, as of any man in the city."—*Dogberry.*

Manufacture of Manure.—In consequence of a conviction that there is great folly in hoping to force from the soil continuous crops, unless the inorganic ingredients contained in those crops are faithfully restored by a system of manuring, I have been led to consider the manufacture of farm-yard manure, as it is usually conducted; and have come to the conclusion that a better practice must take place in this department of rural economy. Science informs us that the greatest portion of the inorganic constituents of the food of animals is contained in the urine, and it has been urged again and again upon farmers that the liquid manure of the fold-yards and cattle-stalls must be very valuable; and the farmer has been accused of apathy and neglect of interest, in allowing the drainage of his yards to escape, perhaps, to the nearest watercourse. In many instances tanks have been constructed, and the liquid applied by means of a water-cart, while but little benefit has been derived from the application; and farmers are to be found who assert that it is of very doubtful value, and that it certainly does not repay the cost of its application to the land. The secretion of the animals would be very valuable, but that it is too frequently allowed to run into the yards, where it is diluted with all the rain of the winter season, and which dilution is a sufficiently obvious reason for the want of success where such liquid may have been used. May not the time come when farmers will generally entertain the opinion that a smaller quantity of food is required to keep animals in equal condition when they have the advantage of warmth and shelter, than when they are exposed to every change of weather? and that the saving of food would be equivalent to the increased cost of attendance? Experiment has proved that feeding animals consume less food when not exposed to the vicissitudes of the season: may not the same fact hold with animals of all ages, and kept for every purpose? Assuming such to be the case, would it not be desirable to keep the stock in sheds round the yards, and, by this arrangement, materially reduce the exposed area of the dungheap? In this way, 60 head of cattle and 8 horses may be kept round a moderate-sized yard, and the manure wheeled from them to one central heap. If sufficient straw were used to keep the animals dry and clean, the greater portion of the liquid would be absorbed by the litter; and then, if the dung was protected from washing by the winter rain, no waste of manuring principle could take place. On large farms, perhaps, it would be profitable in the end to erect a cheaply-roofed shed in the middle of the yard, as a protection for the dung from the waste of rain; and if, under such circumstances, a tank was constructed at the end of the proposed shed, into which could be conveyed the surplus drainage—which, under these circumstances, would be valuable manure—it could be carted over the land, used for decomposing vegetable refuse, or occasionally thrown over the manure-heap, thus accelerating the decomposition of the mass at the option of the farmer; he would also have a better opportunity of preventing the loss of ammonia from the decomposing heap, in the facility such an arrangement would give for the application of gypsum, or any other fixer. Another advantage would be the opportunity afforded the farmer to carry on the decomposition of his manure to the exact point at which his experience decided it was most valuable to the crops for which it was intended. By this management of farm-yard manure, the greater portion of the elements of crops consumed would be restored to the soil, and the dung would be much better, from the fact of being mixed, and all equally decomposed and saturated with fertilising substances.—*J. B., Portin, Chenley.*

Width of Drilling Wheat.—I send you a statement of Colonel Rushbrooke's experiments on the subject, as he detailed them at a late meeting of the West Suffolk Agricultural Society.

No.	Wheat after Clover.	Quantity sown per acre.	Produce per Acre. Wheat.	Straw.		
	Dibbled. Inches.	Pecks.	Bushels.	Tns	Cwt	lbs.
1	6 × 4	8	45	1	1	56
2	6 4	6½	45	1	..	..
3	9 6	4	40	1	..	..
	Drilled.					
1	rows 6 in. apart.	8	45	..	17	16
2	6	6	42½	1	1	56
3	6	8	45	1	..	..
4	9	8	40	..	18	..
5	6	8	47½	1	1	56
6	9	2	35	..	17	6

—*M. S.*

A Mystery.—A correspondent informs us that Mr. J. Stephens, of Charterhouse, Mendip, has had seven horses and two three-year-old beasts die under the following extraordinary circumstances, and he would feel obliged to any one who can give him information that would throw light on the subject. It appears that about the middle of January his servant took a valuable horse to water at a pond, early in the morning, and after drinking, it ran away and fell backwards. He did his work during the day as usual, but the next morning fell backwards in the stable, and continued rising on his fore legs, and falling (not having the least use of his hind legs), the whole of the day, and until it was killed. When this one was dead, other horses in the same stable were taken in the same way; one of them, a cart mare, recovered in a fortnight. A farrier, of Bristol, opened one of the bodies, and pronounced her perfectly sound, and could not detect poison in the inside, or even inflammation sufficient to cause death. The rest were colts; they were taken on an adjoining farm, losing entirely the use of their limbs, being very tremulous, and lying on the ground without being able to get up; could eat, and were all in good condition, but lay till they were killed. Respecting the beasts, or steers, they were affected in the head, rubbing the right side of their faces until they dropped, and until the skin was broken off. They did not eat after they were taken, and both died within 12 hours. Twenty beasts and ten horses were with the colts and the steers that died, but no others of them were affected besides.

Cuscuta approximata — Dodder. — Some time ago, through a friend, I obtained a quantity of Lucerne seed, which had been recently imported from Affghanistan. Upon examination I found it to contain a considerable admixture of the seeds of the new Cuscuta, quite sufficient, as I supposed, to render it useless for agricultural purposes; I was, therefore, induced to make trial of it in my garden. In April last, a portion of the seed was accordingly sown, and a fine crop of Lucerne soon made its appearance; I was unable, however, to detect any trace of the Cuscuta amongst it, although it was carefully watched throughout the season. At the time above mentioned, a portion of seed was also sown in a flower-pot, and placed in a frame; by this means I succeeded in raising several young Cuscutas, only one of which, however, survived the vicissitudes to which young plants of their peculiar habit are exposed. By great care this little plant soon became well established upon a neighbouring stem of Lucerne, and I then transferred the pot containing it to the centre of a bed of the same plant, where it soon commenced growing rapidly, and in about two months destroyed the whole of the Lucerne. It would, no doubt, have extended its ravages further, had it been able to obtain a supply of food. I may remark that, when grown in a pot, it forms a curious and pleasing object, and is, in my opinion, by no means unworthy of a place in the greenhouse; its numerous thread-like stems stretching themselves over the rim, and hanging down to the extent of 2 or 3 feet, in elegant festoons around the pot. This species is identical in habit with C. trifolii, which has of late so much infested our Clover fields. It has been described under the name of Cuscuta approximata by Mr. Babington, whose careful and accurate investigation of the genus Cuscuta is so well known. —*T. B. Halstead.*

Management of Dung.—Several good plans for the forming of dung-heaps have lately appeared in the *Agricultural Gazette*; one, for instance, in the week before last, signed "W. Blackie." The practice seems to be, to tread firmly the dung in the heap, to prevent excessive fermentation, which is contrary to the old practice of putting it together loosely, to cause fermentation. I should be much obliged if you would let me know the chemical reason why dung in an unfermented state is better for land than in a fermented one?—*T. Dunne.* [Dung in an unfermented state is certainly not better per ton than dung fermented; but a given quantity unfermented is more valuable than that same quantity after fermentation, because, as that process is generally permitted to take place, the gaseous and much of the soluble products of it—valuable vegetable nutriment—are allowed to escape.]

Foreign Correspondence.

Brussels, March, 1845.—*Sleeping Seeds.*—An absence of some months from England has interfered with a perusal of the *Agricultural Gazette*, and I am not aware whether it may recently have contained any in-

formation respecting M. Bickes, of Mayence, and of the peculiar process by which he professes to cultivate soils of all descriptions without manure, solely by means of a peculiar preparation of the seed. Two or three years ago the London newspapers made some observations on him, and his experiments, as conducted in Germany, but I believe since that time the subject has been altogether dropped in England. It is, however, likely to be revived ere long; for M. Bickes, who has been much in Belgium of late, and is now in France, where he is engaged in some experiments upon the lands near Bourdeaux, proposes to visit England in the course of the next month. His associate, the Baron de la Peyrouse (grand-nephew of the celebrated navigator of that name), remains in Belgium, to complete his preparations for sowing spring corn in different places, more particularly in the heathy districts of La Campine and Flanders. Whatever may be the issue of M. Bickes' secret, it is probable that the present year will prove the test of its efficacy, and the invention will stand or fall by the results of many public experiments now pending in France, in Belgium, and elsewhere. I was present at one which was made at Forêt, near this town, on the 25th of Nov. last. It is scarcely possible that a worse soil, or a more unsuitable period of the year, could have been selected. But M. Bickes accepted the conditions, however adverse in all appearance to his chance of success. There was nothing discoverable to the eye on an examination of the seed. It had the whitish appearance which the grains prepared in our usual manner exhibit, but there was no particular enlargement, such as might be looked for in seed professing to be changed with all the materials necessary for its future enormous development. The extraordinarily severe frosts* which have since occurred have sufficiently accounted for the non-appearance of this Wheat above the ground as yet, but several of the October sowings were stated (previous to this long and severe winter) to have presented a most favourable appearance, particularly near Antwerp, some in La Campine, upon an uncultivated sandy heath, and those in the commune of Grez near Warre, where their vegetation exceeded in height, in depth of colouring, and in vigour, the Wheat and Rye, sown three weeks before them, upon good land well manured. With regard to the results of the experiments in Germany which have been in operation these 12 years, M. Bickes is furnished with numerous testimonials of their success. We have an opportunity of examining specimens of various sorts of corn grown in parts of the poorest and loosest sands, besides various other vegetable productions, and a *hortus siccus* of leaves and blades of Grass produced from plants which have been submitted to his process. They all exhibit a wonderful appearance of health and vigour. I was particularly struck with some leaves of a Hop; they were the produce of a plant the root of which M. Bickes assured me he had picked up accidentally, and inserted in the ground in the month of July; such was the efficacy of his application, that it shot to the height of 20 feet the very next year, and was profusely covered with Hops. An old Rose-plant of, I believe, the multiflora species, after remaining stunted for 11 years, was so much invigorated on a sudden by M. Bickes' process, that it immediately sent up two side-shoots of extraordinary health and size. M. Bickes holds forth great promises in the way of advancing agriculture, and promoting human happiness, by such an increased and easy acquisition of food. Without being a believer in the miraculous, a person who inspects his certificates may be disposed to regard his process as possessed of some real foundation, and without expecting a repeal of the beneficent law, which subjects the human race to severe but wholesome labour,

Pater ipse colendi
Haud *facilem* esse viam voluit!

We may not unreasonably suppose it possible that a time will come when the vast tracts of apparently worthless soil may be brought within the pale of our economy. Whether M. Bickes is likely to promote such an end remains to be proved. Whatever may be the issue of his experiments, M. Bickes cannot fail in being a welcome guest in England. His unpresuming intelligence and calm confidence in his discovery will insure an interest in his favour. I inclose an extract from one of the Brussels newspapers, containing some remarks upon this subject, which may perhaps not be uninteresting. —*H. L. L., Brussels.* [The process of M. Bickes, or something similar to it, was introduced last year, our readers are aware, by Mr. Campbell, of Dundee, with what success is also generally known. Whether its failure is to be attributed to the singular weather we last year experienced, or to the worthlessness of the process itself, of course we cannot say].

* Dec. 12, 9½°; Feb. 11, 10°; Feb. 20, 6°, of Fahrenheit; March 11 and 12 even lower.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's House, in Hanover Square, on Wednesday last, the 2nd of April; present, His Grace the Duke of Richmond, K. G., President, in the Chair; Lord Bridport; Hon. Capt. Hood; Col. Austen; T. R. Barker, Esq.; S. Bennett, Esq.; T. W. Bramston, Esq. M. P.; J. F. Burke, Esq.; Col. Challoner; F. C. Cherry, Esq.; Dr. R. Dickson; Capt. Forbes, R. N.; A. E. Fuller, Esq. M. P.; H. Gibbs, Esq.; B. Gibbs, Esq.; Col. Hall; W. F. Hobbs, Esq.; J. Hudson, Esq.; Sir J. V. B. Johnstone, Bart. M. P.; G. Kimberley, Esq.; J. Kinder, Esq.; Col. M'Dowall; Sir R. Price, Bart.; H. Price, Esq.; P. Pusey, Esq., M. P.; F. Pym, Esq.; J. A. Ransome, Esq.; Prof. Sewell; W. Shaw, Esq.; J. V. Shelley, Esq.; T. S. E. Sotheron, Esq., M. P.; W. P. Taunton, Esq.; C. H. Turner, Esq.; and T. Turner, Esq.

The following new members were elected:—
Atkinson, George, Morland Hall, Penrith, Westmoreland.
Burrell, Robert, Durham.
Dowell, Rev. Thomas, Ledbury, Herefordshire.
Ellis, John, Garn, Pwllheli, Carnarvonshire.
Evans, Owen, Tyn-y-Coed, Pwllheli.
Gray, William, East Bolton, Alnwick, Northumberland.
Wakeman, Thomas, Graig, Monmouth.
Smith, William, Sion Villa, Shrewsbury.
Jenkins, Richard David, Mayor of Cardigan.
Lott, H. B., Tracy House, Honiton, Devon.
Sadler, William James, Purton, Wootton-Bassett, Wilts.

The names of 35 candidates for election at the next meeting were then read.

Finances.—Mr. Raymond Barker, chairman of the Finance Committee, laid before the Council the monthly statement of the accounts of the Society, from which it appeared that the current cash-balance in the hands of the Society's Bankers, on the last day of the month just ended, was 1654*l.*

Prize Essays.—Mr. Pusey, M. P., chairman of the Journal Committee, reported to the Council the following awards made by the respective Judges of Essays in the classes of "Farming of Nottinghamshire," and "Fences:"—

I. The Prize of 50*l.* to Mr. R. W. Corringham, of Bolham Hall, near Retford, Notts., for the best Report on the Farming of the county of Nottingham.
II. The Prize of 20*l.* to Mr. James Grigor, Nurseryman and Land-Improver, Norwich, for the best Essay on Fences.

Mr. Pusey further reported that the whole of the Essays on the Farming of Nottinghamshire, were of so excellent a character, that the Judges found some difficulty in making their decision, but that they had at length unanimously assigned the prize to the Essay of which it now appeared, on the opening of the sealed motto-paper, Mr. Corringham was the author.

Shrewsbury Meeting.—The Report of the General Shrewsbury Committee was received and adopted; from which it appeared, that the plans for the showyard and pavilion were finally arranged; and that a communication had been addressed to the President, from the Treasury, stating, "that the amount of License Duty paid by stage coaches, which it is proposed to run from the Railway to Shrewsbury for the purpose of conveying passengers during the Meeting of the Royal Agricultural Society, would be afterwards returned upon the mileage duty being paid, and proof being given that the coaches were only run during the week of the Meeting." The President informed the Council that this privilege to the Coach Proprietors would be granted only on the condition that such proper fares were demanded as the Society should deem reasonable and proper.

Mr. William Smith, of Sion Villa, near Shrewsbury, was appointed the auctioneer to the Society for the Shrewsbury Meeting; and Messrs. Bathe and Breach, of the London Tavern, Bishopsgate-street, the contractors for the pavilion dinner.

Country Meeting of 1846.—Sir Matthew White Ridley, Bart., of Blagdon, transmitted to the Council, as Chairman of a Committee appointed by a Meeting of Agriculturists connected with the counties of Northumberland, Durham, Cumberland, and Westmoreland, held in Newcastle-on-Tyne, on the 15th of February, 1845, at which it was unanimously resolved, that an application should be made to the Council of the Royal Agricultural Society of England, to appoint the town of Newcastle as the place of the Country Meeting of the Society in 1846; a memorial to that effect, along with the resolutions agreed to by the Committee.

The Council ordered that copies of such parts of the standing regulations of the Council as prescribed the inquiries to be made and satisfactorily answered, prior to the selection of any town as the place of the Country Meeting of any year, should be transmitted to Sir Matthew Ridley, as the Chairman of the Committee in question; and the President gave directions that the Council should be specially summoned to meet on Wednesday, the 16th of April, for the purpose of receiving any further communication on this subject, and of taking such measures as the result might render necessary. Mr. H. Gibbs then gave notice, that he should move the following resolution at the next monthly Council,—"That should the Council not deem it advisable to hold its Country Meeting of 1846, or of any future year, in the district next in rotation, the Meeting shall be held in any other district upon which the Council may determine."

Trial of Implements.—Mr. Ransome then brought forward his motion on the trial of implements, of which he had given due notice on the 5th of February, and which he had postponed at the last monthly Council to the present time, on account of the pressure of other business on that day. This motion having been seconded by Mr. Fisher Hobbs, it was resolved, that the prizes for the ploughs, drills, and tile-machines, should not be awarded, until subsequent trials have been made at the expense of the Society, and under the direction of the stewards and judges, in different localities, and under circumstances of soil and season favourable for their trial and the determination of their comparative merits in each class respectively. The following Committee was appointed to report to the next monthly Council the details of a plan on which this resolution can be carried out in the most satisfactory manner, viz., Mr. Ransome, Mr. Pusey, Mr. Shelley, Sir Robert Price, Mr. Fisher Hobbs, Mr. John Hudson, and Mr. Samuel Bennett.

Fertility of Soils.—Mr. Barber, Secretary of the Stalham Farmers' Club, transmitted the required specimens of soil and subsoil from the field in Norfolk which had last year produced so remarkable a crop of wheat; and the Council resolved, on the recommendation of the weekly Meeting, on the 12th of March, that analyses of these soils should be made at the expense of the Society, by Dr. Lyon Playfair, consulting chemist.

Epidemic among Cattle.—The Duke of Richmond laid before the Council the two further communications addressed to him from the Board of Trade, from which it appeared from a despatch received by the Earl of Aberdeen, from Sir George Seymour, H. M. Minister at Brussels, "that the reports which had been circulated of the German 'Epizootie' having spread into Belgium, were entirely without foundation: the disease of which some traces had been observed in that kingdom, particularly in the district of Herne, being simply that of which some cases had occurred annually at the present season: and that M. Nothomb, the Belgian Minister for the Interior, had every reason for believing that no one case of the real 'Epizootie' had to that time occurred on that side of the Rhine." Professor Sewell stated, that the late Government order to prohibit the importation of cattle from the Continent suspected to be affected with, or actually labouring under, that peculiar disease called "Murrain," does not include the other severe and often fatal malady, called the "new epidemic," or "pleuro-pneumonia;" and he referred the Members to the Report of the Smithfield Cattle Market, of Monday, the 17th of March. A Veterinary Surgeon having an extensive cattle practice in the dairy establishments of London, had informed him, that having had an opportunity of making a post-mortem examination of foreign diseased stock imported into England, he found the morbid appearances to be precisely the same as those which die in this country. The President informed Professor Sewell that, on his communicating to him any instance of sick animals having been imported into this country from abroad, he would immediately, on receiving the instructions of the Council to that effect, make a representation to the Board of Trade on the subject. The Council unanimously requested the Duke of Richmond to make such a communication to the Government on the details being furnished to him by Professor Sewell for that purpose.

Veterinary Science.—The President reported from Her Majesty's Secretary of State for the Home Department, that the Government will communicate with the Council of the Royal Agricultural Society of England, prior to granting the Veterinary Charter.

Communications were received from the Claydon Farmers' Club, the Guiana Agricultural and Commercial Society, and the Rev. Dr. James Thompson.

The Council then adjourned to the 16th of April.

FARMERS' CLUBS.

[In answer to correspondents who have inquired about the best method of establishing a Farmers' Club, we have to publish the substance of the information which has been forwarded to us. It seems that the initial movement is made by those attending any market-town, calling a meeting of such as may be interested in the scheme, and discussing the proposal, and agreeing upon a series of rules for their guidance as a club. Of course any one anxious to establish such a club would make certain preparations beforehand, such as obtaining the promise of lectures or written papers from those qualified to contribute them on subjects of agricultural interest, such as points of farm management, or illustrations of the bearing of some of the sciences on agriculture. The following are a series of rules worthy of general adoption]:—

1. That the Society be considered as formed for the discussion and promotion of Agricultural [and Horticultural subjects], and generally to acquire and disseminate sound practical information in all matters connected with the cultivation of the soil, and that it be styled "The ——— Farmers Club." 2. That the Officers of the Club should consist of a President, Vice-Presidents, who shall be *ex officio* Members of the Committee, a Secretary, who shall act as Treasurer and Librarian, a Committee of Management, three of whom, with the Secretary, shall form a quorum; all of whom shall be annually elected, but eligible to re-election. 3. That an Annual Meeting be held on the —— day of ———, for the purpose of auditing accounts, and electing Officers. 4. That the Secretary receive donations and subscriptions, and keep the accounts and books, and regulate their distribution; take notes, at every Meeting, of such remarks as he considers bear strongly upon the question; and draw up a resolution, in conformity with the views of the majority; which resolutions shall be put to the Meeting, and when carried shall be entered in the minutes of the Club, with such remarks as appear necessary to elucidate the subject. 5. That a Meeting be held on the ——, nearest the full moon in every month or alternate month, at — o'clock, for the discussion of subjects proposed or adjourned at the previous one; that in the absence of the President or Vice-President, a Chairman, *pro. tem.*, be elected, when, after the business of the Club has been arranged, the Secretary shall read the notice for the subject for discussion, which shall be opened by the proposer. 6. That the Meeting shall terminate at — o'clock at the latest. All questions upon which a division may be necessary, shall be decided by a majority of votes; that the authority of the Chairman be final in case of dispute; and that he shall only have

a casting vote. 7. Any person wishing to become a Member, shall be proposed and seconded at one Meeting, and elected by a show of hands at the next. 8. That the Annual Subscription shall be not less than — Shillings, to be paid in advance. No Member to be admitted, or allowed to compete for Prizes, until his Subscription be paid; and that an Annual Subscription of —— Pounds constitute a Vice-President. 9. *That all reference to political subjects be studiously avoided.* 10. That any Member may introduce a visitor, who may take part in the discussion, but not vote. No person can be so introduced more than —— times in each year. 11. Any Member wishing to propose or alter a Rule, shall signify his intention in writing to the Secretary, at one Meeting, who shall communicate it to the Committee, and at the next it shall be proposed, and if seconded, be discussed, and determined by vote. 12. That the main surplus portion of the Funds, after paying the necessary expenses, be devoted to Prizes, to be distributed at the discretion of the Committee, in furtherance of the objects for which the Club is established. 13. That another portion be devoted to the purchase of strictly Agricultural and Horticultural Works, the latter having especial reference to Cottage Gardens. 14. That the Committee regulate the subjects for discussion, and, should it be necessary, the application of the Funds, in accordance with the object of the Society, and any Bye-Laws for the regulation of the Meetings, and Property of the Club. 15. That any Member not acting in conformity with the Rules, be excluded. [The importance of the 9th Rule cannot be too strongly insisted on. If the attention of the Club be directed exclusively to matters connected with the cultivation of the soil, it will doubtless disseminate much useful information, and its permanence is desirable. But experience has shown that the permauence of such Clubs is incompatible with the discussion of political questions.]

Harleston.—At the monthly meeting of the above Club held on the 19th inst., the following was the subject of discussion, and the resolution thereon:—The most judicious plan of commuting fixed payments into corn rents, and the general advantages of the latter. The Club having previously recommended the principle of corn rents, considers the following to be the best plan of carrying them into effect:—Commute the rent of the farm into equal quantities of Wheat and Barley, at the prices on which the rent was calculated; the value of these at the average prices of the past year, viz., from Michaelmas to Michaelmas, at the market where the corn is sold, shall be the rent for that year, but the variation shall be limited to an advance or reduction of 10*s.* per quarter from the original prices. For instance, taking a farm of the same size and value as that on which, at our last meeting, the calculation of expenses of cultivating land was made, viz., 125 acres of land, one-fifth pasture, at a rent of 1*l.* 5*s.* per acre, fixed when Wheat is 1*l.* 5*s.* per coomb, and Barley 15*s.* per coomb, the sum to commute would be 156*l.* 5*s.*, say 156*l.* or 78 coombs of Wheat and 78 coombs of Barley, the value of which at the average prices of each at Harleston market from Michaelmas 1844 to Michaelmas 1845, would be the rent payable at the latter period; thus, if the prices of Wheat and Barley were respectively 1*l.* 4*s.* and 14*s.*, the rent would be 148*l.* 4*s.*, and so on down to 1*l.*, and 10*s.*, when it would be 117*l.*: but if the prices were 1*l.* 6*s.* and 16*s.* the rent would be 163*l.* 16*s.* and so on up to 1*l.* 10*s.*, and 1*l.* when it would be 195*l.*, but above or below these sums it would not rise or fall, however high or low the price of corn might be. The Club regrets exceedingly the present imperfect system of taking the averages—it is of opinion that the returns should be made by the growers only, and that not in a few districts, but throughout the kingdom, and of all the corn sold (excepting for seed). The Club conceives there would be no difficulty in carrying out this suggestion, and that many advantages would arise from it—not the least of which would be the exact account of the corn grown and consumed in each year, a statistical document of no slight value.. The coomb is 4 imperial bushels.—*W. L. R. Freuer, Sec.*

[We regret being obliged to postpone the publication of an interesting discussion, which lately took place at the Stanraer Farmers' Club, on the most advantageous method of Fattening Cattle.]

Miscellaneous.

On the Process of Warping.—The process of warping was first practised about 80 years ago; it was commenced in a very small way, the sluices or cloughs used then being merely what now would be called shuttles; and the deposit at first was very small, from want of power consequent on the works being so small; gradually, however, the benefit became more generally known, and the works were made larger. In 1821, Ralph Creyke, Esq. (having gained considerable experience in improving a certain quantity of his own land) entered into an agreement with certain proprietors of land in the townships of Goole, Swinefleet, and Reedness, for the purpose of warping their land. An Act of Parliament was obtained, and he commenced excavating a large main drain to convey the tide-water from the river Ouse, through the old cultivated land to the barren and uncultivated morass about to be improved. The sluice or clough was built of stone, with two openings of 16 feet each in width, and 19 feet in height from the sole to the crown of the arch, with four substantial doors, made when shut to oppose the entrance of the tide, yet with power at will to keep them open for the admission of the tide during the time of warping, by means of strong staples and iron rods fixed in the stonework. The main drain was very large, it having been proved by continued observation and calculation that the area of a warping-drain ought to be three times that of the sluice, to prevent as much as possible any considerable resistance to the flow of the water; its dimensions were 30 feet wide at the bottom, 90 feet wide at the surface of the land, and 11½ deep; the banks were placed 9 feet from the edge of the main drain, the base of each bank was 60 feet wide, and they were 10 feet high; this main drain extended originally for nearly 3 miles, and cost, with the purchase of land and erection of sluice, about 18,000*l.* This main drain and its extension is now, and has been, used as a canal for vessels of about 75 or 80 tons burthen, and has been found very convenient for the purpose of conveying one of the chief productions of the warp land—namely, Potatoes—to the London market (where they command a high price under the name of Yorkshire Reds), bringing in return manure, an immense quantity of which is used in the cultivation of Potatoes, and is chiefly brought from Hull and London. In commencing the warping of any plot of land, it is first inclosed with banks, the size of which varies according to the quantity of land to be warped, and also to the level of the land about to be embanked; the general batten or slope of the banks is from 15 to 18 inches on each side for every 12 inches' perpendicular rise; they are left from 2 to 3 feet wide at the top. Particular care must be taken in erecting the banks to procure the proper levels, which should be taken by an experienced person, and laid out by the sprit-level. The main drain being cut up to the newly-embanked compartment, the tide is suffered to flow in. At first it is very advisable only to take rather small tides in, beginning to admit the water before they are at their height, and allowing them to increase by small degrees; for the banks being made of very porous materials—that is, peat-moss and bad sand—they are subject to leak very much, and in some instances considerable damage has been done by a breakage of the bank. In the case of a bank being rather exposed to the action of the wind, which is one of the greatest enemies that a warper can have to contend with, it is generally what is called "puddled," *i. e.* a trench from 2 to 3 feet wide, is cut longitudinally through the centre of the bank into the foundation; the material is chopped up and mixed with water, which being pressed down and beat by repeated treading, becomes a solid mass. The water is allowed to flow over the land during the spring tides. The reason why the spring-tides are only generally made use of is, that the neap-tides are much smaller in body of water, and although they might in certain instances be of sufficient height to flow the land, yet as one of the greatest difficulties in warping is to keep the main drains in order by preventing the warp from being deposited in them, and as that is chiefly done by the return of the water from the compartment under the process, which in spring-tides being a larger body of water, scours out the drains; in neap-tides there would not be sufficient flow, and they would be warped up. The water conducted by the main drain into the embanked allotment is more or less divided into smaller ones, called "inlets" (which vary much in size), and conducted to different parts of the compartment: for wherever the current, leaving a drain, expands itself, there the greatest quantity of warp is deposited: as soon, then, as the plots of land next the mouth of the inlets have a sufficient quantity of warp deposited, the inlets are extended by what are called "call-banks," which, though much smaller than the others, still conduct the current onward to parts not acted upon by the currents before, and so on according as required. One of the greatest niceties in warping is to have the land finished as level as possible, which can only be done by the strictest attention, and by proper judgment in conducting the different currents, which must not be suffered to cross one another, or to meet, as in such a case the deposit of the warp is less, not so regular, and of an inferior quality. Care must also be taken that the currents should not be too strong, for in warp there is a considerable portion of sand which, being the most heavy of all the particles floating in the water, sinks first, the lighter particles being carried on by the violence of the current, consequently a sand bed is formed. These sand-beds, however, if covered afterwards with warp, generally are found to crop better than warp, which may be too strong. With respect to the depth of warp deposited, it depends much upon the level of the land to be warped; for should the land be very irregular, in some places there would be a great deposit, and in others only a comparatively small one. It is generally advantageous to have the land to be warped as level as possible. A deposit may then be obtained of from 1 to 3 feet, and in some favourable instances it has been considerably more, but it cannot be generally calculated on. It has been frequently asked what quantity may be deposited in a single tide. It was mentioned before that "wherever the current, leaving a drain, expands itself, there the greatest quantity of warp is deposited:" consequently the water, though allowed to flow over the whole of the compartment, deposits the warp in a very irregular manner. In one spring, perhaps numbering 10 or 12 tides, as much as from 10 to 15 acres have been known to have been warped the thickness of from 1 to 3 feet, and even sometimes more; but the system being conducted entirely by currents, the general deposit of a tide or of a spring cannot be given with any certainty. It, however, sometimes is very great during a season.—*R. Creyke, in the Journal of the English Agr. Soc.*

Instance of the Advantage of Subsoiling, as an addition to Draining.—Having thoroughly drained the land during the winter, early in the following spring I pared it thin and burnt it, of course grubbing up the Brambles and Furze. I then put about 100 bushels of lime to an acre, and spread it with the ashes, ploughing all down as thinly as possible in the beginning of June, and sowing Swedish Turnips, which was an excellent crop, and which I drew off for fattening beasts in the yard. In the month of February, 1841, I subsoil-ploughed it, and in April planted Mangold Wurzel with about 15 tons of farmyard manure to an acre, from which I took in November upwards of 30 tons of Mangold Wurzel an acre; then ploughed it; and in March, as I wanted this field for permanent pasture, sowed 3 pecks of Rye-grass, 6lbs. of red, and 3 lbs. of white Clover to an acre, with a bushel of spring Tares, and I have had an abundance of Grass ever since that time, mowing upwards of two tons of hay per acre, the only manure used since being 40 bushels of soot an acre. At present it is looking as luxuriant as anything can be—except about a quarter of an acre, which was not subsoiled, and which is not half as productive as the other parts of the field. The remainder of the land I have managed much in the same way, except sowing on some parts common Turnips, feeding off part with sheep, and sowing Wheat, from which I have reaped, where subsoiled, abundant crops; and in no instance has the Clover failed, or have I been disappointed in my expectations. These 40 acres of land, before I began my operations, were valued at only 10*s.* per acre: at present is is worth more than 30*s.*, and the crops have well paid for the rent, taxes, manure, and labour. I should also observe that, in my opinion, all land of the above description that has not been ploughed for many years, and that is to be reclaimed, ought, as soon as it has been drained, to be pared, burnt, and limed, whereby a crop of Turnips is insured, an immediate return made, and the land permanently improved. It is also necessary that lands whereon Furze, Brambles, &c., were growing, should be kept in tillage for four or five years, so as completely to destroy them; and I know of no better succession of crops, than—1st, Turnips; 2d, Mangold Wurzel; 3d, Wheat; 4th, Tares, fed with sheep, and followed by Turnips; then Barley or Oats, with Grass seeds. On one field I put 50 bushels of soot an acre instead of dung, and had a good crop of Mangold; and for the Turnips, after Wheat I generally drill 20 bushels of bones (where dunged for Mangold); but where soot was used for the Mangold, I think it best to put dung for the Turnips. In conclusion, I can only say, that in this county there is a quantity of old Grass land, just in the state that mine was, producing Grass only about six months in the year, which, if drained, subsoil-ploughed, &c., would produce more of the necessaries of life in five years than in twenty previous ones: whereas a vast number of acres are quite over-tilled, and would be more profitable if allowed to rest a year extra when in Grass, and in good condition.—*George Turner, in the English Agricultural Society's Journal.*

On Claying or Marling in Norfolk.—I have no hesitation in saying that the value of many millions sterling is buried under what is now comparatively unproductive soil, in England alone. As an instance, I was shown in Norfolk what a gentleman called his "hidden jewel," so near the surface, that one plunge of his walking-stick convinced me it would be practicable to bring up sufficient by merely ploughing deeply with the common plough, the first time he broke up the land, which he said he intended doing immediately after the tithe-rent charge was apportioned. On the surface was light "fen," to a common observer apparently of little value, yet immediately below was the valuable slate-coloured clay, ready for its improvement. In the fens near Downham this clay is from 4 to 6 feet below the surface. Pits, about 6 feet by 3, and 3 feet apart, and dug in rows, generally two rows in a chain (of 22 yards), and taking out two or three spits deep of clay from each pit. In digging one pit, part of the peat is put in that which was last made. The space between the pits is very necessary; one of the men whom I saw at work appeared, notwithstanding this caution (as well as having a piece of wood to support the sides), to run some risk of being buried by the peat. In another place, within a short distance, the peat stood much better. The cost varied; being under or over 50*s.* per acre, according to circumstances; but it is very well repaid by the crops of red Clover, Wheat, and Beans which the land will afterwards grow. Where this slate-coloured clay is near the surface, and the land in 12-furrow "stetches," the following method is occasionally adopted by Mr. Hudson, of Castle Acre, on his farm at Seech:—Two of the "stetches" are ploughed outward, so as to leave a trench between them, to get out the clay for casting on each side. This saves some labour in digging for it. Most farmers have occasionally observed whole fields ploughed outward; the ploughs commencing at the outside and following each other round the field until it is finished. Mr. Hudson's plan of raising a swamp is just reversing that system, and "taking the land up." By two or three such ploughings, he calculates, the land may be raised as much as by 500 loads per acre carted on to it. As Mr. Cambridge, of South Runcton, enjoys the honourable reputation, among his brother farmers in the county, of having made great improvements by claying, &c. (the exact expression of it being, "Probably no other farm in the county owes so much to its occupier; for when he first took it, a large proportion was nothing but a white blowing sand"), I here insert a correct statement of the quantities of clay which he has spread on some of his fields. I do not give the whole list of what he has applied at his own expense as a tenant farmer, but I hope there is sufficient to show how great a debt

of obligation is owing to such men by the country, as well as by individuals whom they more directly benefit.

	A.	R.	P.	Loads of Clay.
1. Bret's Field	13	2	37	1964
2. East Field	11	0	16	524
3. 12 Acres	12	2	21	1780
4. 11 Acres	12	2	0	1770
5. 13 Acres	13	2	26	320
6. Barn Close	17	1	6	3407
7. Park Piece	24	0	10	2163
8. Chapel Field	20	3	34	2310
9. Town Close	11	3	16	3634
10. The Sinks	6	0	7	2895
11. Moor Field	21	3	8	5545
12. Forston Lot	10	3	16	3451
13. Thorp Lot	24	1	29	4900
14. Barn Lot	26	3	33	5852
15. Chiswick Lot	23	1	11	5920
16. Warren Lot	22	2	22	5280
17. The Grazings	12	3	13	2340
	286	2	25	54,055

Thus 54,055 loads have been applied to 286A. 2R. 25P., or, on an average, 188 loads per acre; but, if we observe the quantities named opposite each field, the real quantity allowed per acre has varied greatly, according to circumstances. Of course this includes repeated clayings to some of the fields. There are now several acres of clay pits on the farm, rendered in some degree ornamental by being planted, and forming lasting proofs of the persevering spirit of Mr. Cambridge. His farm is selected as a favourable specimen of what has been done for the soil in Norfolk, and to account for its present productive state; but so far from being a solitary instance of such improvements, the practice has been almost universal throughout the county, the quantity of clay applied varying according to circumstances. Mr. Keppel, of Lexham Hall, has made great improvement in his light sandy land, by claying at the rate of 50 loads per acre.* Near Swaffham I observed some men claying a field from a pit nearly in the centre of it; they were paid at the rate of one halfpenny per barrowful, or 7*d.* per "load;" their orders being to apply 80 such loads per acre; making the cost of it under 50*s.*, though the work was done without the use of horses; employment being thus found for more labourers, without fear too, of injury to the land by its being cut in using carts when not sufficiently dry.—*Mr. Almack, in the English Agricultural Society's Journal.*

Notices to Correspondents.

Biddell's Scarifier—*To Readers*—The price of this implement was omitted in our last week's Leading Article. As manufactured by Messrs. Ransome, of Ipswich, it is 15*l.* 15*s.* for the 9-tined implement.

Exportation of Lambs—*Anglais*—You must get them into eating oilcake by two or three weeks' practice before starting, and then send a supply with them on board ship. We do not know if many ships trade hence to Nantes.

Farming for Ladies—*Mrs. Loudon* has addressed to us the following note:—"A work, entitled 'Farming for Ladies,' being supposed by many persons to be written by me, I think it but justice, both to the real author and to myself, to state, that I never saw the work in question till some months after its publication. The only work I ever wrote at all relating to Farming is entitled 'The Lady's Country Companion,' and is just about to be published. March 31, 1845. I shall feel exceedingly obliged by your insertion of this letter."

Sea-sand as Manure—*W D*—You will find the information you ask for in another part of to-day's Paper.

Waterhouse, Bath—*A Sub*—Has the author of the communication on Dairy Management, signed thus, which appeared in a late Number of the *Agricultural Gazette*, any objection to communicate his name and address through us to "A Sub?"

*** As usual, many communications have been received too late

Markets.

SMITHFIELD, Monday, Mar 31.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3	10	to 4s 2	Best Long-wools	4s	0 to 4s 4
Best Short Horns	3	6	3 10	Ditto (shorn)	3	6 3 10
Second quality Beasts	2	10	3 2	Ewes and second quality	3	8 4 0
Calves	4	0	4 8	Ditto (shorn)	3	0 3 4
Best Downs & Half-breds	4	4	4 6	Lambs	5	0 6 0
Ditto (shorn)	3	10	4 0	Pigs	3	4 4 4

Beasts, 2650; Sheep and Lambs, 24,130; Calves, 61; Pigs, 324.

Our supply of Beasts is considerably less, and we have a consequent improvement in the trade. Some of the very choicest Scots have made 4s. 2d.; and Short Horns 3s. 10d.. these are, however, extreme quotations, and the more general prices are 4s. for the former, and 3s. 8d. for the latter description. A good clearance is effected.—Sheep are rather more plentiful, but the demand is adequate, and prices are tolerably well maintained for the best qualities.—Veal-trade is very dull, and only a choice Calf makes our top quotation.—Pork-trade is heavy.

Friday, April 4.

We have large arrivals of Beasts by various steamers to-day, and the weather inclined to be warm; the butchers are very shy of purchasing: the trade is, therefore, very heavy, but we do not submit to much reduction in price for the best qualities. The best Scots, &c., makeing 3s. 10d. to 4s.; and Short Horns 3s 6d. to 3s. 8d. currently. Second qualities are not much in request; many remain unsold. We are sorry to observe very many cases of epidemic to-day.—The trade for Sheep is about the same as Monday, and for prices we refer to our tabular statement of that day.—Lamb is a little more in demand, but still very little is wanted, and we cannot quote more than 6s. for the best qualities.—Here is also a little more briskness in the Veal-trade; we have very few good Calves; a choice one makes rather over 4s 8d., but many no more than 4s. per 8lbs.—Pork-trade about the same as on Monday.

Beasts, 880; Sheep and Lambs, 6641; Calves, 173; Pigs, 318.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 3.

Prime old Meadow Hay		New Hay	—s to —s	Clover	105s to 115s
	105s to 112s	Inferior Hay	95 100	Straw	38 42

John Cooper, Salesman.

CUMBERLAND MARKET, April 3.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 120s		
Inferior "	100 105	Inferior "	105 110	Straw	28s to 42s
New Hay	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

WHITECHAPEL, April 4.

Fine Old Hay	108s to 112s	Old Clover	—s 125s		
New Hay	92 100	New Clover	— —	Straw	36s to 42s
		" Inferior	110 120		

WOOL.—British, Friday, April 4.

Since our last the demand has been limited, but prices remain firm.

James Perrin, Wool Broker.

HOPS, Friday, April 4.

The Market is firm at full prices; the Official returns, just published, show the following results:—

	1843.	1844.	Increase.
Acres of Hop-land	48,150	49,485	1,329
Quarters of Malt made	4,459,673	4,617,247	157,574
" used by brewers	3,566,238	3,701,707	135,469

* Mr. Hudson states, that the late Mr. Garwood, of W. Lexham, clayed or marled upwards of 1000 acres twice over, at the rate of 40 loads per acre each time, during the first eight years of his lease.

COVENT GARDEN, April 5.—The weather still continuing favourable, most articles begin to improve in quality; but the supply is not large. Trade is getting brisker. Pine Apples have not altered in price since last week; they consist chiefly of Queens which are of pretty good quality. A few Hothouse Grapes are in the market; they bring about 30*s.* per lb.; Foreign sorts are good but not plentiful. Apples are selling at nearly the same prices as last week, as are also Pears; both of these are becoming very scarce. Little alteration has taken place in the prices of Oranges. Lemons are sufficient for the demand. Some fine samples of Spanish Walnuts are in the market. The supply of Vegetables in general is increasing, though slowly. Broccoli is becoming more plentiful; good specimens of a large white sort from Cornwall are offered at from 6*s.* to 9*s.* per dozen heads. German Greens are scarce, as are also Cabbages, very few of which are in the market. Carrots and Turnips, although not very good in quality, are tolerably plentiful; and Seakale and Asparagus are sufficient for the demand. The best French Beans bring about 2*s.* 6*d.* per 100. Rhubarb is plentiful. Cucumbers are slightly reduced in price, as are also Strawberries; the latter are becoming more plentiful. Frame Potatoes have not altered in price since last week. Among cut Flowers we noticed Lachenalia tricolor, Abutilon striatum, Aphelexis humilis, Kalmia latifolia, Camellias, Azaleas, Pelargoniums, Neapolitan Violets, Heaths, Epacrises, Cinerarias, and Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*
Grapes, Spanish, per lb., 1*s* to 1*s* 6*d*
— Portugal, per lb., 1*s* to 3*s*
Apples, Dess., per bush., 6*s* to 12*s*
— Kitchen, 4*s* to 6*s* 6*d*
Pears, Dess., per ht.-sv., 5*s* to 12*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*
Pomegranates, per doz., 2*s* to 4*s*
Strawberries, per oz., 9*d* to 2*s*
Chesnuts, per peck, 3*s* to 8*s*
Walnuts, shelled, 6*s*
Oranges, per dozen, 9*d* to 2*s*
Oranges, per 100, 5*s* to 16*s*
—bitter, per 100, 8*s* to 20*s*
Lemons, per dozen, 1*s* to 2*s*
— per 100, 6*s* to 14*s*
Almonds, per peck, 6*s*
Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Cob Nuts, per 100 lbs., 120*s* to 150*s*
Nuts, Barcelona, 24*s*
— Brazil, 20*s*
— Spanish, 2*c*
— Cob, 16*s*

VEGETABLES.

Cabbages, per dozen, 1*s* to 3*s*
— red, per doz., 2*s* to 3*s*
— plants, per doz. bnch., 5*s* to 8*s*
Broccoli, per doz., 6*s* to 9*s*
Brussels Sprouts, hf.-sv., 2*s* to 3*s* 6*d*
French Beans, per 100, 1*s* 6*d* to 2*s* 6*d*
Sorrel, per hf.-sieve, 2*s* 6*d* to 3*s* 6*d*
Jerusal. Artichok, p. hf.-sv., 1*s* to 2*s*
Potatoes, per ton, 60*s* to 90*s*
— cwt., 3*s* to 5*s*
— bushel, 1*s* 6*d* to 3*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*
— Autumn, per bs., 3*d* to 6*d*
— New, per lb., 2*s* 6*d* to 3*s* 6*d*
Turnips, per doz. bch., 2*s* 6*d* to 4*s*
Red Beet, per doz., 1*s* to 4*s*
Carrots, per doz. bchs, 6*s* to 8*s*
Basil, per bunch, 2*d* to 3*d*
Rhubarb, per bundle, 1*s* to 2*s*
Seakale, per punnet, 1*s* 3*d* to 4*s*
Asparagus, per bundle, 3*s* to 10*s*.
Horse Radish, per bundle, 1*s* 6*d* to 5*s*
Savory, per bunch, 2*d* to 3*d*
Cucumbers, per brace, 4*s* to 8*s*
Spinach, per sieve, 3*s* to 6*s*
Scorzonera, per bunch, 1*s* 6*d* to 2*s*
Salsafy, per bunch, 1*s* 6*d* to 2*s*
Parsnips, per doz., 6*d* to 2*s*
Leeks, per doz., 1*s* 6*d* to 2*s* 6*d*
Garlic, per lb., 8*d* to 10*d*
Onions, per bunch, 3*d* to 6*d*
— large, per bushel, 4*s* to 6*s*
— Spanish, per doz., 1*s* 6*d* to 5*s*
Shallots, per lb., 8*d* to 10*d*
Lettuce, per score, 9*d* to 1*s* 6*d*
Celery, White, per bunch, 1*s* to 2*s*
— Red, per bunch, 1*s* to 2*s* 6*d*
Endive, per score, 1*s* 6*d* to 5*s*
Mushrooms, per pottle, 1*s* 6*d* to 2*s*
Small Salads, per punnet, 2*d* to 3*d*
Basil, green, per bunch, 1*s*
Fennel, per bunch, 2*d* to 4*d*
Watercress, p. 12 sm. bun. 6*d* to 8*d*
Parsley, per half sieve, 2*s* to 4*s*
— Roots, per bundle, 9*d*
Tarragon, per bunch, 4*d*
Mint, per bunch, 6*d* to 1*s*
Marjoram, per bunch, 2*d* to 3*d*
Chervil, per punnet, 3*d* to 4*d*

POTATOES.—Southwark, Waterside, Mar. 31.

The supply to this Market continues to be liberal, and the best fresh samples are fully sufficient for the present consumption. Ordinary and stale lots are unsaleable; considering the holiday week, the trade was pretty good for the best samples at the annexed prices, but the tendency is downward.

York Reds	50s	to 80s	Kent and Essex Kidneys	70s	to —s	
Perth	50	60	Wisbeach Kidneys	65	70	
Fifeshire	45	55	— Blues	55	—	
Early Devons	55	60	— Regents	60	—	
Late Devons	—	—	— Whites	50	55	
Cornwall	55	60	Guernsey Blues	60	—	
Jersey Blues	60	—	— Whites	—	—	
— Whites	—	—	York—Prince Regents	55	65	
Kent and Essex Whites	45	50	— Blues	55	65	
			— Shaw's	50	70	

MARK-LANE, Monday, Mar. 31.

The arrivals of Wheat last week were considerable, a great proportion of which has, as usual, gone direct to the millers; this morning the show of samples from Kent, Essex, and Suffolk was very moderate, but the trade ruled heavy, and a reduction of 1*s.* per quarter was obliged to be acceded to in most instances where sales were effected; free Foreign sold in retail quantities, but secondary descriptions of Dantzic were rather more inquired after than of late.—The Barley trade is dull, and barely supports our quotations, particularly secondary qualities.—Beans fully maintain their late value.—White Peas are unaltered—Grey the turn dearer.—Irish Oats met a good sale at a decline of 1*s.* per quarter upon the rates of this day se'nnight; but Scotch were neglected, being generally held for late prices.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk White	42	49	Red	42	48
—— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 27s to 32s Chevalier	32	34	Grind.	23	26
Oats, Lincolnshire and Yorkshire Polands	20	23	Feed	19	22
—— Northumberland and Scotch Feed	20	22	Potato	21	24
—— Irish Feed	20	22	Potato	21	23
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new 29 to 33	Tick	29	35	Harrow	30	36
—— Pigeon, Heligoland 27 to 40	Winds	—	—	Longpod	—	—
Peas, White 33 to 36	Maple	31	34	Grey	30	33

Friday, April 4.

The arrivals of all Corn since Monday have been moderate, and the trade is dull for each description of Corn; the few samples of Wheat fresh up to this morning's market met a slow sale, and with difficulty realised our quotations. Foreign Wheat met a very limited inquiry on the same terms.—In Barley and Beans we observe no alteration; Maple Peas are inquired after, and bring rather enhanced prices.—The Oat trade is very heavy, particularly Scotch, but Factors are disinclined to submit to lower prices.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Feb. 22 per Quarter.	45*s* 2*d*	32*s* 4*d*	21*s* 7*d*	30*s* 2*d*	35*s* 0*d*	35*s* 3*d*
Mar. 1	45 0	32 3	21 7	32 6	34 9	35 7
— 8	46 0	32 2	21 7	30 5	34 8	35 5
— 15	45 1	32 2	21 4	31 1	34 7	35 8
— 22	45 5	32 4	21 8	30 5	34 6	35 8
— 29	45 10	32 4	21 5	30 0	34 10	34 8
6 weeks' Aggreg. Aver.	45 3	32 3	21 6	30 9	34 9	35 4
Duties on Foreign Grain	20 0	6 0	6 0	10 6	8 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, March 22.

Price.	Feb. 22	Mar. 1.	Mar. 8.	Mar. 15.	Mar. 22.	Mar. 29
s. d.						
45 10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 1	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, April 4.

Canary per qr	42*s* to 46*s*	LinseedCakes, Foreign, p. ton	7*l* to	9*l*
Carraway per cwt	44 50	Mustard, White p. bush.	10*s*	14*s*
Clover, Red, English	40 65	— Superfine "	12	16
— Foreign	50 60	— Brown "	12	16
— White, English	50 80	Rapeseed, English, per last	26*l*	27*l*
— Foreign	50 80	Rape Cakes per ton	—	—
Coriander	12 18	Sainfoin	—	—
Hempseed per last	35 36	Tares, Eng. winter p. bush.	7	8
Linseed per qr	44 50	— Foreign	5	7
— Baltic	— —	Trefoil per cwt	—	—
— Cakes, Eng. per 1000	11*l* 10	12*l* 10	Turnip (too variable for quotation).	

Kingsford and Lay.

NEW, GOOD, AND CHEAP.

B. W. KNIGHT, Florist, &c., Tivoli, near St. Leonard's-on-Sea, Sussex, begs to call the attention of his friends and the public to the following Choice Plants, which will be ready to send out in April: 12 new choice and distinct Fuchsias, fit for exhibition, for 6*s.*; 12 extra first-rate, very distinct varieties, all sent out for the first time last season, for 12*s.*; 12 distinct Verbenas for 3*s.* 6*d.*; 12 extra new good varieties for 6*s.*; 12 fine show Pansies for 6*s.*; 12 extra good for 12*s.*; 12 very choice Petunias for 6*s.*; 12 good and distinct Cinerarias for 6*s.*; 12 extra new kinds for 12*s.*; 12 extra choice Anagallis for 3*s.* 6*d.*; 12 fine Salvias for 4*s.*; 12 Heliotropiums for 4*s.*; 12 choice kinds Phloxes for 6*s.*; 12 extra new very distinct varieties for 12*s.*; 12 choice Antirrhinums for 6*s.*; 12 extra choice new kinds for 12*s.*

Also will be ready to send out in May, 12 good show Dahlias for 12*s.*; 12 extra good distinct kinds, all new last season, for 21*s.*; 12 choice fancy or border varieties for 6*s.* Any of the above can be securely packed and forwarded, post free, on receipt of the amount with the order. Catalogues of the above may be obtained on prepaid application.—April 5.

BEES, BEE-HIVES, and HONEY.

J. MILTON has an extensive assortment of FOREIGN and ENGLISH HONEY; likewise a great variety of BEE-HIVES, both in straw and wood. He has just completed a newly-constructed Hive—"The Royal Alfred"—by which the Apiarian can safely examine the Bees at work, and, with great facility, take the Honey without killing the Bees. A Sheet List is published, price 1*s.*, being the Plates of the Hives, and other useful apparatus in Bee management, as described in "The Practical Bee-keeper," by John Milton; may be had of Messrs. Parker, West-strand, and at J. Milton's, Foreign Warehouse, 10, Great Mary-le-bone Street.

TO HORTICULTURISTS, FLORISTS, &c.

GEORGE & JOHN DEANE'S Stock of GARDENING, and PRUNING IMPLEMENTS, combining all the latest improvements, is at once extensive and select; their sets of tools adapted for ladies and youths are universally approved of for their lightness, portability, and finish. G. & J. Deane's Conservatory Pumps, Garden Engines, Syringes, and Mowing Machines, are all manufactured of the best materials, and on the most correct principles. Their cast-iron Garden Seats and Chairs, and their Ornamental Wire Work for Lawns, &c., exhibit the most graceful devices. G. & J. Deane are sole London Agents for Lingham's Menograph, and their illustrated Catalogue of Horticultural Tools may be obtained at their Warehouse, or will be forwarded by Post.—George and John Deane, 46, King William street, London-bridge.

NEW ENVELOPE.—In consequence of the great variety of counterfeit Envelopes of ROWLAND'S KALYDOR, and other disreputable means resorted to by unprincipled individuals for imposing on the public their highly pernicious compounds under the title of "KALYDOR," the Proprietors and sole Preparers of the Original and Genuine Preparation acting under a sense of duty, and regardless of expense in the attainment of their object—the protection of the public from fraud and imposition, have employed those celebrated artists, Messrs. Perkins, Bacon, and Co. who have succeeded, at great cost, in producing from a steel plate a NEW ENVELOPE of exquisite beauty.

It comprises a highly-finished engraving of the GRECIAN GRACES standing on a classic pedestal, on each side of which is a rich profusion of flowers springing from an elegant cornucopia; these tastefully blending with Arabesque-scrolls and wreaths, encircle the royal arms of Great Britain, surmounting the words "ROWLAND'S KALYDOR," &c. &c. &c., whilst a plinth at the foot displays the Signature of the Proprietors, in red, thus—

20, Hatton Garden,
London, Jan. 1, 1845. A. ROWLAND & SON.

ROWLAND'S KALYDOR,

An Oriental Botanical Preparation, perfectly free from all mineral admixture. It exerts the most soothing, cooling, and purifying action on the Skin; and effectually dissipates all REDNESS, TAN, PIMPLES, BLOTCHES, SPOTS, FRECKLES, and other Cutaneous Visitations. The radiant bloom it imparts to the cheek, the softness and delicacy which it induces on the HANDS, ARMS, and NECK, and its capability of allaying irritation and removing sallowness and all unsightly appearances, render it indispensable to every Toilet.

Sold in bottles, at 4*s.* 6*d.* and at 8*s.* 6*d* each, duty included.

CAUTION.—BEWARE OF DELETERIOUS COMPOUNDS, under the title of "Genuine" KALYDOR, containing mineral astringents utterly ruinous to the Complexion, and by their repellant action endangering health. The only genuine article is inclosed in the *Envelope*, as detailed above.

*** All others are FRAUDULENT COUNTERFEITS!!!

The Genuine Preparation is sold by the Proprietors, and by repectable Chemists and Perfumers.

PIPE and TILE MACHINE (FORD'S PATENT), for making Tiles of any form, Pipe Tiles, and Socket Pipes, for Draining, and other purposes.

This Machine is portable, is worked by hand, or if required, by horse or steam power, and is complete within itself. The Mould, for forming Sockets on the Pipes, is new and perfect in its operation. From the simplicity of its horizontal movement the Machine is not liable to derangement, and, as it throws itself out of gear as soon as all the clay is worked out of the Container, it is not easily injured. The fixed Container is expeditiously filled with a sufficient quantity of Clay for 50 pipes of two inches in diameter, which can be made in four minutes, two rows being discharged at one time. One man is required to work it, one man to feed the Container, and two boys to take off the Pipes or Tiles; and the quantity made varies, with their size, from 4,000 to 9,000 per day. Every information may be obtained on application to the Manufacturers, Messrs. Simpson and Co., Engineers, Belgrave-road, Pimlico, London, at whose Works the Machine may be seen in operation.—April, 1845.

BENTALL'S BOTANICAL DRYING-PAPER.—This Paper is prepared expressly for drying specimens of plants and flowers. It possesses all the qualities required in such paper, preserving both form and colour in the best possible manner, and having also the peculiar advantage of requiring no change of paper whilst the plants are being dried, by which means much time and trouble are saved. Its stoutness and durability combine to render it economical, making it in fact quite as cheap as ordinary papers sold at a lower price. The Proprietors feel much pleasure in being kindly permitted to use the names of the following eminent botanists as strongly recommending it:—Sir W. J. Hooker, Professor Lindley, Mr. Babington, Dr. Bromfield, and Dr. T. Bell Salter. For the convenience of collectors of British as well as Foreign plants, the paper is made, as usual, in three sizes, viz., 16 by 10 inches; 20 by 12 inches; and 16 by 20 inches. Prices, 14*s.*, 20*s.*, and 26*s.* per ream. May be had of the manufacturers, W. & T. Bentall, Halstead, Essex; and of their Agents, E. Newman, 9, Devonshire-street, Bishopsgate, London; G. Davey, Broad-street, Bristol; H. Whitmore, 119, Market-street, Manchester; R. T. Mc'Intosh, 12, Catherine-street, Edinburgh.

ADVERTISE your New Flowers and Plants in THE QUARTERLY REVIEW OF HORTICULTURE, AND TRADES AND SOCIETY ADVERTISER, which will reach the hands of every buyer in Europe. Price 6*d.* per quarter, published in April, July, October, and January.—T. W. Thompson, Agent, Palsgrave Place, Temple Bar, who receives books for review and communications for the Editor.

Sales by Auction.

BAGSHOT PARK, SURREY.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AGRICULTURISTS, AND OTHERS.

MR. TEBBOTT most respectfully informs the Public that he will have the distinguished honour to sell by Auction, on the Premises, on MONDAY, April 7th, 1845, and two following days, each day at 11 for 12 o'clock precisely, the Property of Her Royal Highness the DUCHESS OF GLOUCESTER, the whole of the SUPERIOR FARMING STOCK, the rare Productions of the Forcing Pits, Conservatory, Hothouses and Greenhouses, the Decorations of the Pleasure Grounds, the Appendages of the Kitchen Gardens, and other useful and valuable Effects.

The FARMING STOCK comprises 14 Cows and Heifers in-Calf, 2 well-bred Bulls, 4 powerful gray Cart Horses, G g Horse, a very handsome Filly rising three years old, Sows, Store Pigs, 2 Boars, Poultry, capital Waggons, Scotch Carts, Spring ditto, Sets of Suitable Harness, Ploughs, Harrows, Winnowing Machines, Rick and Waggon Cloths, Dairy Utensils, and other Implements for Agricultural Purposes; Fifty dozen of Hurdles, large quantity of Copse Wood in bavins and poles, Thatching and Hedge Stakes, &c. &c. A Rick of excellent second Clover Hay; Stump of Meadow ditto.

The RARE PRODUCTIONS of the FORCING PITS, &c. as before alluded to, consist of 150 splendid Fruiting and Succession Pines in Pots, Crowns and Suckers, 1000 strong Strawberry Plants, in Pots for forcing, Grape Vines, in Pots, about 2500 of exceedingly choice Plants, including Hydrangeas, Calceolarias, Seedling Chinese Azaleas, Gladiolus, Ixia and Oxalis various, Auriculas, Chinese Roses, Cinerarias, Collins's superb dwarf Scarlet Geraniums, Scarlet Compacta ditto, distinct choice sorts of Pelargoniums named, tall flowering Cactus, and other attractive Floral Specimens; a large collection of American Plants in pots, well set for Use in. The DECORATIONS of the PLEASURE GROUNDS include rustic seats, chairs, stools, stands, flower baskets and boxes, fancy wire work for climbing plants and flower beds. The appendages to the Kitchen Garden are Melon frames, numerous lights from the forcing pits, quantity of flower-pots, mowing machine, wall netting, ladders, and other applicable utensils. Field Officer's Marquee, Turkish and other Tents; also a Portion of the Furniture of the Mansion.

To be viewed two days prior to the Sale by application to Mr. TOWARD, on the Premises, of whom Catalogues may be had, and also at the following Inns — Rose, Wokingham; Bear, Reading; Crown, Marlow; White Hart, Beaconsfield; Crown, Slough; White Hart, Maidenhead; Clarence Hotel, Staines; and at the Auctioneer's Office, Windsor; or forwarded to any part of the country upon application.

N.B.—The Farming Stock and Copse Wood will be sold on the first day; on the second day, the Rare Productions of the Forcing-pits and Hot-houses; and on the third and last day, a portion of the Furniture of the Mansion.

TO GENTLEMEN, FLORISTS, AND OTHERS.

TO BE SOLD BY AUCTION, by Mr. JAMES IZOD, at the Auction Mart, on Tuesday, April 8, at 12 for 1, without reserve, a Superb Collection of Carnations, Picotees, Fuchsias, Verbenas, Petunias, Roses, Herbaceous, Climbing, and Greenhouse Plants. The Carnations comprise the most esteemed varieties in cultivation; many new, as Martin's Splendid, Twitchett's Don John, Calcott's Brutus, Jones's Brilliant, &c. &c., and all the first-rate varieties. Fuchsias—Smith's Vesta, Gigantea, Hector, Modesta, Britannia, Albion, &c. &c. Verbenas—Blue Queen, Taglioni, Beauty, Beauty Supreme, Renown, Minstrel Boy, &c. &c. Petunias—Punctata, Medora, Magna Charta, &c. &c. The Roses consist of many splendid varieties. May be viewed on morning of Sale, and Catalogues had at the Mart, and of Mr. JAMES IZOD, at his Office, 46, Watling-street, City.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to submit to public competition at the Auction Mart, Bartholomew-lane, on Wednesday April 9th, 1845, at 12 o'clock, a fine collection of CARNATIONS and PICOTEES, the surplus stock of a well known grower; and comprise Jones' Brilliant, Miss Thornton, Brinkler's Duchess, Sansparil, Cornelius, &c. Also a fine assortment of Dahlias, Roses, Pinks, Heartsease, Fuchsias, &c. May be viewed the morning of sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS AND OTHERS.

MESSRS. PROTHEROE & MORRIS are instructed to submit to public competition, at the Auction Mart, Bartholomew Lane, on Thursday, April 10th and Tuesday 15th, 1845, at 12 o'clock, a rich collection of CARNATIONS and PICOTEES, the entire Stock of a well-known Amateur, declining their further cultivation, and comprise Franklin's Queen of Hearts, Calcott's Juba, Martin's Splendid, Brooks' Flora's Garland, Greig's Mary, Prince Albert, Don John, Brilliant, &c.; Sharp's Agitator, Crask's Prince Albert, Nonpariel, Countess de Grey, Lady Dacre, Miss Jane, Sharp's Gem, Mrs. Bevan, Princess Royal, and many others. Also, a fine assortment of Dahlias, Roses, Pinks, Fuchsias, &c. May be viewed the morning of sale. Catalogues may be had at the Mart, and of the Auctioneers Leytonstone.

EAST HILL, BATTERSEA, SURREY.

MR. ELLIOTT has received Instruction from Mr. WM. CARTER, who is declining business, to sell by Auction on the Premises, without reserve, on Thursday the 10th of April, 1845, the genuine Household Furniture and other effects; also a quantity of STANDARD and DWARF ROSES, CARNATIONS, PICOTEES, and GERANIUMS, &c. The House and seven acres of Land, well stocked with Fruit-trees, Flower roots, &c. &c., to be Let. Catalogues may be had three days previous, on the Premises, at the Inns in the neighbourhood, and of the Auctioneer, Putney, Surrey.

TO NURSERYMEN, SEEDSMEN, BUILDERS, AND OTHERS.

TO BE DISPOSED OF, most desirable NURSERY GROUNDS, situate within four miles of either of the Bridges, containing about Three Acres of Land, in a very high state of cultivation, and in the midst of a populous and wealthy neighbourhood. There are a Cottage, Greenhouse, Pit, and a Seed-shop on the premises. The above premises are held under a Lease, of which 31 years are unexpired. The Valuation of the Stock will not exceed 150*l*.—For further particulars apply, by letter, to C. D., 13, Saint Martin's-le-Grand, London.

ELIGIBLE OPPORTUNITY OF CARRYING ON THE NURSERY BUSINESS WITHIN ONE MILE OF THE FLOURISHING TOWN OF READING, BERKS.

TO LET.—Five Acres of good Land now planted as a Nursery, together with a Cottage on the same. Immediate possession may be had by taking the stock at a fair valuation.—Direct to Mr. DRAKE, Architect, Market-place, Reading.

ROYAL AGRICULTURAL MEETING, to be held at Shrewsbury, July, 1845. A Nobleman or a Party of Gentleman may be accommodated with spacious Sitting-room and Excellent Bed-rooms for the week, with attendance.—Direct, post-paid, to A. B., care of Mr. Starie, 23, Titchbourne street, London.

CHOICE FLOWER SEEDS.

W. E. RENDLE has succeeded in obtaining a few hundred seeds of that rare and richly-perfumed Annual named by Professor LINDLEY

MARTYNIA FRAGRANS,

Sold in packets at 2*s.* 6*d.* each. As well as a choice selected stock of the following new and beautiful Flower-Seeds:—

Imported German Stocks	Mesembryanthemum tricolor
,, ,, Asters	Phlox Drummondii
,, ,, Larkspurs	Rhodanthe Manglesii
Clematis montana	Trachimene cærulea
Clintonia pulchella	Finest mixed Zinnias
Lobelia ramosa	Schizanthus Hookeri

The above at 6*d.* per packet, or the whole set, including Martynia fragrans, free by post, for 6*s.*

36 leading varieties of Annuals, as recommended in the *Chronicle* of March 1st, for 12*s.*, free by post; 12 choice tender Annuals, as recommended 1 March 15th, for 6*s.*, free by post.

A General Catalogue of Flower Seeds has just been published, and can be had on application.

Union-road Nursery, Plumstead, April 5.

CARNATIONS, PICOTEES, AURICULAS, GERANIUMS, AND LILIUM LANCIFOLIUM.

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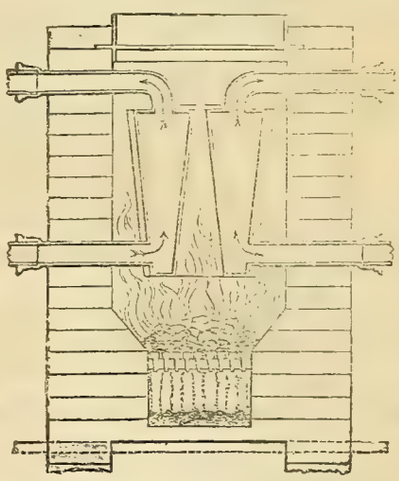
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		Wood-lice, to kill	244 *c*

OPEN TO ALL ENGLAND.

THE SPRING EXHIBITION OF THE NOTTINGHAM FLORAL AND HORTICULTURAL SOCIETY for Stove, Greenhouse, and Hardy Plants; Hyacinths, Auriculas, and Polyanthus; will be held, at the Exchange Rooms, on the 30th inst. Schedules of the Prizes, &c., can be had of S. R. P. SHILTON, Honorary Secretary.

CAMBRIDGE GRAND DAHLIA SHOW, (open to all England), to be held in SEPTEMBER, 1845.

PROPOSED PRIZES:

FIRST CLASS (open to all), 24 Blooms:—First Prize, 3*l.*; Second Prize, 5*l.*; Third Prize, 3*l.*; Fourth Prize, 2*l.* Entrance, 15*s.*

SECOND CLASS (open to growers of not exceeding 200 plants), 18 Blooms:—First Prize, 3*l.*; Second Prize, 5*l.*; Third Prize, 3*l.*; Fourth Prize, 2*l.* Entrance, 15*s.*

THIRD CLASS (open to growers of not exceeding 100 plants), 12 Blooms:—First Prize, 3*l.*; Second Prize, 2*l.*; Third Prize, 1*l.*; Fourth Prize, 10*s.* Entrance, 5*s.*

FOURTH CLASS (open to growers of not exceeding 50 plants), 6 Blooms:—First Prize, 2*l.*; Second Prize, 1*l.*; Third Prize, 15*s.*; Fourth Prize, 10*s.* Entrance, 3*s.*

FIFTH CLASS (open to growers of not exceeding 30 plants), 6 Blooms:—First Prize, 1*l.*; Second Prize, 15*s.*; Third Prize, 10*s.*; Fourth Prize, 5*s.* Entrance, 2*s.* 6*d.*

SIXTH CLASS (no dealers will be allowed to exhibit in this Class), 6 Blooms, not sent out until the present year:—First Prize, 3*l.*; Second Prize, 2*l.*; Third Prize, 1*l.* Entrance, 5*s.*

SEVENTH CLASS, Seedlings (open to all), 3 Blooms, not yet sent out.

CHINA ASTERS, 6 Blooms:—First Prize, 10*s.*; Second Prize, 7*s.*; Third Prize, 4*s.* Entrance, 1*s.*

AFRICAN MARIGOLDS, 6 Blooms (3 Orange and 3 Lemon):—First Prize, 10*s.*; Second Prize, 7*s.*; Third Prize, 4*s.* Entrance, 1*s.*

FRENCH MARIGOLDS, 6 Blooms:—First Prize, 10*s.*; Second Prize, 7*s.*; Third Prize, 4*s.* Entrance, 1*s.*

*** The day will be fixed in August next, when Schedules of Prizes may be obtained on prepaid application to W. G. ASHTON, Honorary Secretary.—Cambridge, April 12.

LISIANTHUS RUSSELLIANUS.—Plants of this Splendid Flower, strong and healthy, at 3*s.* 6*d.*, 5*s.*, and 7*s.* per plant; seed of the same at 2*s.* 6*d.*; also the beautiful Lianthus nigricans, 5*s.* per packet; a printed treatise will be included for growing the above; Cuthill's Prince of Denmark clove-scented Carnation, a nosegay in itself, 12*s.* per dozen; good collections of Picotees and Carnations, at 12*s.* per dozen; a beautiful Petunia ornatissima (Van Houtte), 1*s.* 6*d.* each; best Picotee Seed, 5*s.* per packet; Calceolaria ditto, 2*s.* 6*d.*; Melon and Cucumber Seeds, and healthy Plants, ready at all times. A large packet of Chicory Seed, with 10 years' successful directions for forcing the same, by J. C. Price, 1*s.* 6*d.*—the best of all winter salads.

N.B.—A strong active lad, aged 18, wanted.

Direct to J. CUTHILL, Florist, Denmark Hill, Camberwell, London.

MARNOCK AND MANLEY'S CATALOGUE OF NEW FUCHSIAS, VERBENAS, PETUNIAS, CHRYSANTHEMUMS, LOBELIAS, PHLOXES, DAHLIAS, &c., is now ready, and may be had on application at their Nursery, Hackney, London.—April 12.

SELECT GREENHOUSE AND STOVE PLANTS.

WM. JACKSON AND CO., NURSERYMEN, beg to refer the readers of this Paper to their advertisement in the 1st page of the *Gardeners' Chronicle* of the 5th inst.; and to call attention to the advantageous offers to purchasers of the above interesting Plants.—Quick communication to all parts of Scotland and Ireland. All parcels are carefully packed, and delivered free of charge on the Great North of England Railway.

Cross-Lanes Nursery, Bedale, Yorkshire.—April 12.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him, are respectfully requested to address him at Chiswick Nursery, near London.

TO CALCEOLARIA GROWERS.

T. PEARSON having raised three splendid varieties from about six thousand seedlings, flowered by him last year, intends letting them out this spring instead of keeping them longer in hand, and will send healthy plants, post free, of "INFANT SAPPHO," 6*s.*; "MARMION," 8*s.* 6*d.*; "ROSE OF TISTELON," 11*s.* 6*d.* The price is according to the stock in hand. No order will be attended to unless a post-office order is sent with it.—Chilwell Nurseries, near Nottingham.

GREAT YARMOUTH NURSERY, NORFOLK, 1845.

YOUELL AND CO.,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN; HIS MAJESTY THE KING OF THE BELGIANS; NURSERYMEN AND FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN DOWAGER.

YOUELL AND CO.'S CATALOGUE of the newest and very best

FUCHSIAS, VERBENAS, PETUNIAS, PANSIES CINERARIAS, CHRYSANTHEMUMS,

and other highly-ornamental Plants, appeared upon the Advertising sheet of the *Gardeners' Chronicle* of March the 8th and March the 15th, to which they beg to call the attention of cultivators of the above elegant tribes of plants.

YOUELL AND CO.'S Eight New Splendid SEEDLING FUCHSIAS, price 42*s.* the set, and their Eight New SEEDLING VERBENAS, price 25*s.* the set, they can confidently recommend, and they will prove an acquisition to any collection. For particulars and colour of these see their Advertisement of the above dates.

YOUELL and Co. being the first who sent out per post, with safety, these tribes of plants, are desirous of calling attention to their advantageous method of executing orders, namely, that they will deliver them free of postage to any part of the United Kingdom, upon the following terms:—

12 Extra Fine Vars. of Fuchsia,		12*s.*	Selection left to Y. & Co.
12	Ditto ditto	21*s.*	Selection left to the Purchaser or ditto.
50 Fine Varieties		40*s.*	Selection left to Y. & Co.
50 Extra Fine ditto		60*s.*	Selection left to the Purchaser or ditto.

With the exception of those marked thus*.

The Plants are strong and healthy, and will be ready for delivery the latter part of March, thus insuring to the purchaser fine plants for competition the ensuing season. Many of the varieties can be supplied now.

VERBENAS.

12 Extra Fine Varieties, 6*s.*, the Selection left to Youell and Co.
12 Ditto 10*s.*, the Selection left to the Purchaser

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . 10*s.* per dozen.
12 Extra Fine do. do. . . . 18*s.* "

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12*s.* per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12*s.* per dozen.

FLOWER-SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see YOUELL and Co.'s Advertisement of March 15, 1845.

YOUELL and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee	.	7*s.* 6*d.*
" Lady Alice Peel, Rose Picotee	.	7 6
" Miss Jane, Purple Picotee	.	7 6
" Mrs. Bevan, Red Picotee	.	7 6
" Enchantress, Scarlet Picotee	.	5 0

CARNATIONS AND PICOTEES.

Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices.

				£	*s.*	*d*
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto	1	1	0

The Selection being left to Y. & Co.

FINE ERICAS, 12*s.* per dozen.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety) for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL and Co. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL and Co. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL and Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

Finest Double and Single Hyacinths, in pots by name, 9*s.* and 12*s.* per dozen, now coming forward for bloom.

Great Yarmouth Nursery, April 12, 1845.

CARNATIONS, PICOTEES, AURICULAS, AND POLYANTHUSES.

JOHN SLATER, FLORIST, CHEETHAM HILL, near Manchester, calls the attention of Florists and Amateurs to his large and healthy collection of plants, of the above-named varieties, which he is selling at low prices; Catalogues of which may be had on pre-paid application. 20 pairs of Carnations and Picotees, in 20 fine varieties, 20*s.*, package included.—J. S. has a few pairs of that fine Rose Flake Carnation "Chadwick's Flora," new last season, on sale, price, 5*s.* per pair, delivered post-paid.

CHOICE FLOWER SEEDS.

W. E. RENDLE has succeeded in obtaining a few hundred seeds of that rare and richly-perfumed Annual named by Professor LINDLEY

MARTYNIA FRAGRANS,

Sold in packets at 2*s.* 6*d.* each. As well as a choice selected stock of the following new and beautiful Flower-Seeds:—

Imported German Stocks	Mesembryanthemum tricolor
" " Asters	Phlox Drummondi
" " Larkspurs	Rhodanthe Manglesii
Clematis montana	Trachimene cærulea
Clintonia pulchella	Finest mixed Zinnias
Lobelia ramosa	Schizanthus Hookerii

The above at 6*d.* per packet, or the whole set, including Martynia fragrans, free by post, for 6*s.*

36 leading varieties of Annuals, as recommended in the *Chronicle* of March 1st, for 12*s.*, free by post; 12 choice Greenhouse Annuals, as recommended March 15th, for 6*s.*, free by post.

A General Catalogue of Flower Seeds has just been published, and can be had on application.

Union-road Nursery, Plymouth, April 12.

NEW, GOOD, AND CHEAP.

B. W. KNIGHT, FLORIST, &c., TIVOLI, near St. Leonard's-on-Sea, Sussex, begs to call the attention of his friends and the public to the following Choice Plants, which will be ready to send out in April: 12 new choice and distinct Fuchsias, fit for exhibition, for 6*s.*; 12 extra first-rate, very distinct varieties, all sent out for the first time last season, for 12*s.*; 12 distinct Verbenas for 3*s.* 6*d.*; 12 extra new good varieties for 6*s.*; 12 fine show Pansies for 6*s.*; 12 extra good for 12*s.*; 12 very choice Petunias for 6*s.*; 12 good and distinct Cinerarias for 6*s.*; 12 extra new kinds for 12*s.*; 12 extra choice Anagallis for 3*s.* 6*d.*; 12 fine Salvias for 4*s.*; 12 Heliotropiums for 4*s.*; 12 choice kinds Phloxes for 6*s.*; 12 extra new very distinct varieties for 12*s.*; 12 choice Antirrhinums for 6*s.*; 12 extra choice new kinds for 12*s.*

Also will be ready to send out in May, 12 good show Dahlias for 12*s.*; 12 extra good distinct kinds, all new last season, for 21*s.*; 12 choice fancy or border varieties for 6*s.* Any of the above can be securely packed and forwarded, post free, on receipt of the amount with the order. Catalogues of the above may be obtained on prepaid application.—April 12.

PETUNIA MAGNIFLORA.

WILLIAM GREGORY most respectfully informs the Public that the above Plant is a seedling of his growing last year; the flowers of which are exceedingly large, white, shaded with lavender-colour, of a robust habit, a most profuse bloomer, and highly deserving of cultivation. It was seen, and plants were ordered by many highly respectable parties during the summer. Plants will be sent out in rotation as the orders are received, on and after the 18th of April next, at 5*s.* each, with the usual allowance to the trade when three or more plants are ordered.—Nurseries, Cirencester, April 12.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had on application.—Slough Nursery, April 12.

R. WHITE AND CO. offer the following, viz.: Forty established Plants of first-rate show-flower GERANIUMS, including Beck's Zanzummum . . . £5 5 0
Twelve ditto ditto 2 2 0
Twelve ditto, not including Zanzummum . . 1 1 0
*Twelve ditto, good sorts 1 1 0
Twelve finest scarlet Geraniums 0 12 0
Twelve good ditto ditto 0 3 0
Twelve Dahlias, first-rate kinds, including Beeswing 1 1 0
Twelve ditto not ditto . . 0 12 0
Twelve ditto, good border kinds . . . 0 3 0
Twelve Buddlea Lindleyana, superb plants for bedding 1 1 0
Twelve choicest and newest Verbenas and Petunias 0 6 0
Twelve good old sorts 0 3 0
Twelve first-rate Roses in pots, including Cloth of Gold, Beauty of the Prairies, La Reine, &c . . 2 2 0

The following New Plants are confidently recommended, viz.:—Alona cælestis, Buddlea Lindleyana, Inga pulcherrima, Echites splendens, Luculia Pinciana, Gloxinia Cartonii, Achimenes picta, Rondeletia, new yellow, from Havannah, Hindsia violacea, Franciscea hydrangeiformis, Pentas carnea.

Poole Nursery, Dorsetshire.

T. AND J. BACKHOUSE, NURSERYMEN, &c. YORK, beg to offer to the public their fine New DAHLIA, "GEM;" colour bright sulphur, shading into pale primrose, occasionally tipped with bronze; flowers very large, blooming on long footstalks; form and petal fine; a good acquisition to a stand: plant 3 to 4 feet high. Strong plants of the above at 7*s.* 6*d.* each, will be ready for delivery the first week in this month (May). The usual allowance to the Trade.

T. and J. B.'s General Catalogue of Dahlias, Pansies, &c., for 1845, together with that of Greenhouse and Stove Plants, may be had on application.

GRASS SEEDS.

GRASS SEEDS can be had of Mr. H. R. SMITHE, of Eastling, Faversham, Kent, of the most approved mixtures, according to the soil and situation, for Permanent Pasture and Meadow, at 8*s.* per bushel; and for Lawns, at 10*s.*, including Clovers. Directions for sowing and treatment will accompany the seeds if desired. The sorts can be had separate at the general prices. The Trade supplied at a reduction.

WARNER AND WARNER, SEEDSMEN & FLORISTS, No. 28, Cornhill, London, beg to offer to the Nobility and Gentry the following new and choice Flower and Vegetable Seeds, which they can confidently recommend. For a more lengthened list, W. and W. beg to refer to Harrison's "Floricultural Cabinet," for this and the two preceding months:—

Achimenes hirsuta, new, 1s.
Alonsoa Jerrisses, very beautiful, 6d.
Anagallis coccinea, splendens, 6d.; Bresseri, beautiful, 1s.
Antirrhinum hybridum, 20 shades of colour mixed, 6d.
Aquilegia glandulosa, very beautiful, 1s.
Aster, German, mixed from imported varieties, 6d.; double nosegay, 6d.; collection of 24 varieties, as imported, most splendid, 5s.
Balsam, double Camellia-flowered, mixed, 6d.; double German, 12 varieties, separate, the collection, 3s.
Brachycome iberidifolia, 6d.
Campanula stricta, 6d.
Carnation, from fine named show flowers, 1s.
Clintonia pulchella, 6d.
Clivea nobilis, 6d.
Cobœa scandens, 6d.
Cockscomb, new giant scarlet, 6d.; 12 splendid imported varieties, quite new, 4s. the collection
Convolvulus minor, dark purple, 6d.; inflatus, 6d.; major, new dark variety, 6d.
Cuphea silenoides, 6d.
Cytisus Atleeana, new and splendid, 1s.
Dahlia, from choice named flowers, saved by the most celebrated growers, 1s.
Elichrysum, superb, new var. from the Swan River, 6d.
Eucharidium grandiflorum, 6d.
Gilia splendens nova, 6d.
Gloxinia rubra splendens, 1s.
Godetia rosea splendens, 6d.; aurea, beautiful, 6d.
Heartsease, from choicest named show flowers saved by Thomson and other eminent growers, 1s.
Hibiscus Manihot, splendid, 1s.
Hollyhocks, a collection comprising 30 new and beautiful varieties, 6s.; Camellia-flowered, 6d.
Ipomœa rubro-cærulea, 1s.
Larkspur, German, 12 kinds, extra fine, 3s.; German, fine mixed, 6d.
Lobelia ramosa, beautiful, 6d.; propinqua, very pretty, 6d.
Lupinus variegata, very pretty, 6d.
Martynia fragrans, 1s.
Marigold, unique French dwf., beautifully striped, 6d.
Mesembryanthemum pyropæum, 6d.
Mimulus splendens, 6d.
Nasturtium, striped, beautiful variety, 6d.
Nemophila discoidalis, blk., 6d.
Pentstemon speciosum, 1s.
Petunia grandiflora, beautiful, 6d.
Phlox Drummondi, large crimson, 1s.
Pink, Chinese, new double fine, 6d.
Platystemon Californicum, 6d.
Portulaca Thellusonii, 6d.; splendens, 6d.
Poppy, 20 distinct colours, separate, from the Neilgherry Hills, 5s.
Primula sinensis rubra fimbriata, 6d.; alba ditto, 6d.
Salpiglossis, 20 varieties, mixed, superb, 6d.
Sanvitalia procumbens, 6d.
Scabiosa, 12 beautiful imported varieties, 3s. the collection
Schizanthus Hookerii, scarlet, 6d.
Schizopetalum Walkerii, sweet scented, 6d.
Sedum cœruleum, for rockwork, 6d.
Sieversia elata, new, 1s.
Silene speciosa, beautiful, 6d.
Stocks, German imported, 24 varieties, mixed, 6d.
Queen's Bouquet, most beautiful, new, 1s.
Collection of 36 varieties as imported 6s., very beautiful 6s.
Emperor, new and splendid; crimson and yellow hue, beautiful new, 1s.
New dark Chamois; yellow, large flower, 1s.
Sweet William, new dark rich colour, 6d.
Thunbergia Fryerii, new, 1s.
Tropæolum Jarrattii, 1s.; brachyceras, 1s.
Verbena, from the newest and best named flowers, 1s.
Wallflower, new double gigantic, bronzy red, most superb, 1s.; new double dwarf, dark brown, curiously shaded, 1s.
Zinnia elegans, 20 splendid varieties, as imported, 5s. the collection; all the choice varieties, mixed or separate, 6d.

CHOICE VEGETABLE SEEDS.

Beans, French new early Prolific, per quart, 1s. 6d.
Beet, variegated, beautiful for garnishing, per packet, 6d.
Broccoli, Cheltenham, new, a very large and most excellent late variety, per packet, 6d.
Warner's new Superb White; this sort W. and W. can particularly recommend, per packet, 6d.
Cabbage, the Queen (new), very fine flavour, per pkt. 6d.
Cauliflower, Walcheren, true, per packet, 6d.
Endive, new transparant yellow, beautifully curled, per packet, 6d.
Lettuce, New transparent Cos, per pkt. 6d.; New Summer Cabbage, per pkt. 6d.
Ohio Squash, a most delicious variety of vegetable marrow, per packet, 6d.
Parsley, extra fine dbl. curled, beatiful for garnishing, per packet, 6d.
Peas, Kentish Wonder (superb new Pea) most delicious flavour, per quart, 1s. 6d.
Warner's Incomparable Large, late Marrow Pea, an abundant bearer, and most delicious flavour, per packet, 2s.
Marshall's early, very dwarf, and a great bearer, per packet, 1s. 6d.
Pumpkin, several new varieties from New South Wales, per packet, 6d.
Radish, French scarlet, olive-shaped, per pkt., 6d.; Rose Winter, from China, new, per packet, 6d.

Also, made up in collections for 10s., the 36 Showy and Hardy Annuals, for the list and description of which see the *Chronicle*, dated March the 1st, of the present year, p. 133. Likewise the 18 varieties of Tender Annuals for 7s. 6d., as recommended March the 22d, page 185.

*** A General Catalogue of Garden and Flower Seeds may be had on application, post-free.

BAGSHOT NURSERY.

KALMIA LATIFOLIA, & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (late Hammond's), Surrey.

SEEDS.—CORNER OF HALF-MOON STREET.
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

SEED POTATOES.—HUNDRED-FOLD POTATOES, as advertised in the *Gardeners' Chronicle*, February, 1842. They have been proved to produce the largest amount of crop, and one of the very best Potatoes yet known. They may be obtained in quantities not less than half a load of 126lbs. at the rate of 30s. per load. Apply to R. S. YATES, St. Ann's Square, Manchester.—April 12.

JOHN RIVERS, AGRICULTURAL SEEDSMAN, Sawbridgeworth, Herts, begs to inform the Nobility and Gentry he has on hand selected Varieties of GRASSES for Lawns and Permanent Pasture. For Lawns (warranted to insure a fine Turf), including Clovers, 14s. per bushel; mixed for Pasture, 10s. J. R. requests those who favour him with orders to describe the soil. Directions will be given for sowing, &c. Russian Yellow SWEDISH TURNIP, 2s. per lb. Very select Long Yellow and Purple MANGOLD WURZEL, each 1s. per lb. Carriage paid to London.

HURST & M'MULLEN, SEEDSMEN, 6, Leadenhall-street, London, beg to inform their friends and the public, that their List of NEW AND CHOICE VEGETABLE AND FLOWER SEEDS for the Spring of 1845 is now ready, and may be had, on application. A selection from their List of Flower-seeds will be found in the last page of the *Gardeners' Chronicle* of March 8th.

CHOICE FLOWER SEEDS, IN COLLECTIONS.

	per collection—	s.	d.
Imported German Stocks, in 36 splendid varieties		6	0
Do. do. in 20 do.		3	6
Do. do. Asters, in 24 do.		5	0
Do. do. do. in 15 do.		3	6
Hollyhocks (very choice), in 12 named varieties		3	0
Larkspurs (German), in 12 splendid do.		3	6
Balsams, 12 beautiful double varieties		5	0
Imported Zinnia elegans, 8 fine varieties		3	6
Cockscombs, 6 choice kinds		2	6
Verbenas, 8 do.		3	0
Wallflowers, 8 imported varieties		3	0
Scabious, German, 8 do.		2	0
Poppies, 16 splendid do.		3	6
Mimulus, 10 do.		3	0

The choice assortment of 36 kinds of leading Annuals, as mentioned in the *Gardeners' Chronicle* of March 1st, can be had for 12s.; and the 12 beautiful varieties of Greenhouse Annuals recommended March 15th for 6s.

A fine assortment of Carnations and Picotees, 1s. 6d. per pair.

Grayson's Giant Asparagus Plant, two years old, 3s. per 100.

A choice selection of pot roots of all the best varieties of Dahlias in cultivation, from 1s. to 2s. 6d. each.

All the most approved varieties of Field Turnips and other Agricultural Seeds, selected from the finest stocks.

Mixed Grasses, for Lawns, of the very finest quality, 1s. 6d. per lb.; Do. do. for Pastures, 1s. per lb.

6, Leadenhall Street, April 12.

SEEDLING FUCHSIAS, "JUNIUS" AND "HAMLET."

JUNIUS.—This splendid large and handsome variety is warranted to be one of the greatest acquisitions of the season. The tube and sepals light blush, the latter expanding with a remarkably bright tip of green, showing a most beautiful orange-scarlet corolla to great advantage, and has merited the highest opinion of Mr. GLENNY and Dr. LINDLEY. (See Mr. G.'s opinion in the *Gardeners' Gazette* of Nov. 9th, 1844)—"Mr. SMITH'S Seedling Fuchsia, 'Junius,' pale outside, and scarlet corolla, much like Smith's Queen Victoria, not yet out, habit good, and much better than the mass of indistinct things already out, although not exactly what we want." (Dr. LINDLEY'S opinion in the *Gardeners' Chronicle*, Oct. 26th, 1844)—"Your seedling Fuchsia, 'Junius' appears to much greater advantage on the plant, the leaf of which is handsome and habit good; the flower is stout and handsome." Strong plants will be ready for delivery on the 24th of April, at 10s. 6d. per plant, with the usual discount to the Trade where six or more are taken at once.

HAMLET.—This will also be found a splendid variety, of strong growth, and prolific bloomer. Tube and sepals bright crimson, corolla purple. It was submitted to Dr. LINDLEY, July 27th, 1844, whose opinion is as follows:—"W. S.—No. 10 is an excellent variety; it appears to be a robust grower, and is the most prolific bloomer we have seen, bearing several flowers at every joint; the flowers are large, rich in colour, and measure from the base of the footstalk to the end of the pistil nearly six inches." 5s. per plant, with the usual discount as above.

The following three first-rate Seedling Verbenas G. S. can send out with as much confidence as he did Excelsa and Delicata, viz.:—

QUEEN OF ENGLAND, rosy pink, yellow eye, occasionally beautifully shaded, of fine form and habit, and described by Dr. LINDLEY as a large and handsome variety; warranted to be the best light flower of the season. 5s.

VESTA, peach blossom, yellow eye, very large, of fine habit, and a superior show flower. 5s.

BEAUTY, brilliant rose, of fine form. 3s. 6d.

*** The usual discount to the Trade when three or more plants are taken at once. To be sent out the 24th of April.

N.B.—Descriptive Catalogue of all the leading Verbenas, Fuchsias, Dahlias, Petunias, &c., will be forwarded on application.

The VERBENAS have been shown at the following Exhibitions, at each of which the first prize has been awarded them, viz., the Royal Botanic Gardens, Regent's Park; Royal South London, Surrey Gardens; South Essex, Wanstead Park; Hampstead; Newington; Highgate, &c.; and were pronounced by those vast assemblages to be far superior to any they had ever before seen.—GEORGE SMITH, Tollington Nursery, Hornsey-road, Islington, near London.

R. TEEBAY begs to call the attention of Dahlia Growers to his superb SEEDLING DAHLIAS, viz:—

	s.	d.
FULWOOD HERO—dark purple, shaded with rosy violet; very round, symmetrical, full, and well up in the centre; height 4 feet	10	6
FANCY—rich bright red; new in colour; very thick well-formed petals; the flower round, compact, of great depth, with a fine rising centre; allowed by all that have seen it to be a most splendid show flower; height, 3 feet	10	6
ATTRACTOR—dark maroon, distinctly shaded with bright light crimson; very full and round in the outline; great depth, forms almost a ball; the centre good and well up, but the petals are occasionally slightly ribbed; height, 4 feet	7	6

The above are very constant, of excellent habit, and are recommended with the greatest confidence.

SOVEREIGN—clear bright yellow; first-rate petal and shape; occasionally a most splendid and first-rate flower, but not constant; height, 4 feet	5	0

The above Seedlings have been frequently exhibited, and greatly admired. (See advertisement in *Gardeners' Gazette* of Nov. 2.)

The following respectable growers will be able to execute orders for any of the above, in good strong plants, the first week in May:—Mr. Keynes, Salisbury; Mr. Girling, Stowmarket; Mr. Widnall, Cambridge; Mr. Drummond, Bath; Mr. Harrison, Downham; Messrs. Brown and Attwell, Uxbridge; Mr. Sperry, Hungerford; Mr. Edwards, York; Mr. Whale, Elcot; Metropolitan Union, Maida Vale, London; Mr. Harrison, York; Messrs. E. and F. Sorrell, Chelmsford; Mr. Langley, Mirfield; Messrs. F. and A. Smith, Hackney; Mr. Catleugh, Chelsea; Mr. Meldrum, Kendal; Mr. Knight, St. Leonard's-on-Sea; Messrs. Henderson and Son, Brechin, Scotland; Mr. Foulds, Blackburn; Messrs. Hargraves and Sons, Lancaster; Mr. Alexander, Hackney; Mr. Edwards, Nuttall, near Nottingham; and Mr. Lee, Lenton, near Nottingham.

R. TEEBAY will be able to supply Plants of most of the New Dahlias coming out this season, of which a descriptive Catalogue may be had on application.—Preston, April 12, 1845.

TO FUCHSIA GROWERS.

T. TRINDER begs to inform his friends and the public that he has now ready to send out a few SEEDLING FUCHSIAS, in tin cases, post free, at 7s. per dozen; the above were raised from one of the best collections in the county, and are recommended with confidence.—Forest-hill, Peckham, near London. A remittance respectfully requested.

SPLENDID SEEDLING FUSCHIAS, CALCEOLARIA, AND PELARGONIUM.

GEORGE ROGERS (late W. ROGERS & SON), SEEDSMAN AND FLORIST.

G. R. begs most respectfully to inform his friends and the public generally, that in consequence of the death of his Father, he has succeeded to the above business, and for past favours he begs to return his most grateful thanks; and, for the future, he hopes by strict attention, in sending out none but strong-established healthy Plants, to merit a continuance of those favours which it will ever be his most anxious study to deserve. G. R. begs to intimate, that, in consequence of the protracted illness of his late parent, the above concern has been entirely under his own superintendence for some years, consequently all favours will receive that prompt attention as before.

SEEDLING FUSCHIAS.

No. 1-44.—ROGERS'S LADY SALE.—Acknowledged the largest and best light-coloured variety ever offered to the public.—See opinions of the Press:—

Gardeners' Chronicle, August 31, 1844.—"*R. & S.*—Your Seedling, 1-44, is a showy and desirable variety, the tube and petals are of a light delicate flesh tint, the latter with green tips, corolla rosy vermilion, flower stalks long. The largest of its colour we have seen."

HARRISON'S "Floricultural Cabinet," Sept., 1844.—"*Rogers & Son*, Uttoxeter.—No. 1-44, veined fleshy straw-coloured tube and sepals, the latter tipped with light grassy green, the corolla bright rosy vermilion. A well-shaped, distinct, and excellent variety."

GLENNY'S *Gardeners Gazette*, Sept. 1844.—"*Rogers & Son.*—If the habit be as good as the individual flowers, it will be an acquisition."

In addition to the above, G. R. begs to state, that the above has beautiful foliage, and of a dwarfish habit, blooming freely, forming one of the most superb varieties ever offered. Plants, 10s. 6d. each.

No. 2-44.—ROGERS'S LORD SANDON.—This is a most beautiful and distinct-formed variety; tube and sepals a bright crimson, the sepals expand quite horizontal, shewing to the greatest advantage its beautiful purple corolla. It has a very waxy appearance, and of great substance, causing the sepals to maintain their novel position until the flowers drop. The plant is of a beautiful habit, being a dwarf grower, throwing out numerous laterals, causing the plant to be in bloom from the pot to the top of the plant, as was the case with the parent plant, bearing hundreds of its novel-formed flowers, and excited the admiration of many excellent judges who saw the plant in bloom. Plants, 7s. 6d. each.

No. 3-44.—ROGERS'S THEOPHRASTUS.—This is a most extraordinary-formed and large variety, yet raised; colour of tube and sepals light crimson, the latter tipped with green, corolla shaded purple; the tube is remarkably short, with sepals of great length, which expand freely in a bowed form, which being so very long forms one of the most distinct and novel large Fuchsias ever offered. Its habit is remarkably dwarf, the parent plant being six feet in circumference when only 18 inches high; a very free bloomer, with deeply serrated foliage. Plants, 7s. 6d. each.

SEEDLING CALCEOLARIA.

No. 1.—ROGERS'S STAFFORDSHIRE RIVAL.—Opinions of the Press:—*Gardeners' Chronicle*, Sept. 9, 1843—"*W. R. & S.*—No. 1 is a fine variety, having curiously-formed blotches of a light maroon colour distributed over the entire front of the flower upon a light buff ground. It is a beautiful and desirable flower."

HARRISON'S "Floricultural Cabinet," August, 1844,—in describing the colour, pronounces it to be of good form and size, well deserving to be in every collection. A bunch of blooms was exhibited at the Chiswick Grand Fete, in July, 1844, and much admired, although the blooms had suffered on their journey. The above is an immense bloomer, and a truly superb variety. Plants, 15s. each.

SEEDLING PELARGONIUM.

ROGERS'S LADY TAMWORTH.—HARRISON'S "Floricultural Cabinet," Sept., 1844.—"Pelargonium, *Rogers & Son.*—Lively flesh-pink petals, having a small rich crimson red spot, smooth in texture, being without crumple of any kind; a good circular-shaped flower." Plants, 21s. each.

Strong established Plants of the above ready to send out the 20th of April.

The usual discount to the Trade on Seedling Fuchsias, when not less than two of each are ordered; Calceolaria, when two plants are ordered; Pelargonium, when one is ordered. All orders will be thankfully received, and every attention paid in packing to ensure a safe arrival, with plants presented gratis, to compensate for carriage.

G. R.'s descriptive list of Dahlias, Fuchsias, Cinerarias, Pelargoniums, Verbenas, Petunias, Phloxes, &c., is now ready, and may be had by a post-paid application.

Uttoxeter, Staffordshire, April 12, 1845.

F. AND A. SMITH AND CO. beg to offer the undermentioned DAHLIA—"LADY SALE;" colours, pure bright yellow ground, edged with rich light crimson or deep scarlet, cupped petals, of circular and globular form, the eye being well up. This Dahlia is the greatest acquisition of the season, surpassing every variety in its class, and inferior to no other in form; it is, from its free habit, a great ornament to the garden, and its constancy and novelty render it indispensable to exhibitors. Warranted a first-class flower, and has been thus noticed by Mr. GLENNY, in the *Gardeners' Gazette*. "LADY SALE, striking pale yellow, with reddish brown edge, full flower, deeply cupped petals, rather quilled on the face in the present specimen, tolerable good outline, and though now open, from decay, is a promising centre, quite fit for a stand among many present varieties, and may turn out a very useful flower;" height 3 ft.; plants 10s. 6d.; no discount allowed unless 12 plants are taken. It has obtained three seedling prizes, and one prize as the best of its class.

Dr. LINDLEY, in the *Gardeners' Chronicle*, observes: "*F. and A. S.*—Your seedling, LADY SALE, is a promising flower—a bright yellow regularly tipped with crimson; it is novel in colour, and good in form. The centre is well up, but the bloom sent was too young to judge whether this part of the flower developes itself sufficiently."

F. and A. S. and Co. can supply most of the new varieties of other growers, with all the approved old flowers. Catalogues may be had on application.—Hackney, London.

SEEDLING FUCHSIAS.

WM. IVERY, NURSERYMAN, FLORIST, &c., PECKHAM, near London, begs to inform his Friends and the Public that he is now ready to send out SIR H. POTTINGER; the habit is that of Eppsii, quite equal in size, and a very free bloomer; tube and sepals of a delicate light flesh colour slightly veined with pink; sepals well expanding, showing the beautiful dark crimson and purple corolla. W. I. has no hesitation in saying it is the most noble and splendid variety ever offered to the public. Plants 7s. 6d. each.

"Brooklands, Blackheath Park, Feb. 7, 1845.

"Dear Sir,—In answer to your questions relative to the FUCHSIA 'SIR H. POTTINGER,' which you purchased from my neighbour, Mr. Cole, I can have no hesitation in saying that it is the largest and best light Fuchsia which I have ever seen, and one which will give satisfaction to every purchaser; it has a fine robust habit, and under proper management will make a large specimen in a very short time.—I am, Sir, your obedient servant. "WILLIAM P. AYRES."

SIR W. MAGNAY, bright glossy red, sepals much reflexed, far superior to Stanwelliana, and beautiful habit. Plants 5s. each.

Agents in London:—Messrs. Warner and Warner, Seedsmen, Cornhill; Messrs. Hurst and M'Mullen, Seedsmen, 6, Leadenhall-street; Messrs. Flanagan and Son, Seedsmen, 9, Mansion-house-street. Catalogues to be had on application.

NOW READY,

NEW EDITION OF DR. LINDLEY'S SCHOOL BOTANY.

This day is published, in demy 8vo, with nearly Four Hundred Illustrations, price 5*s.* 6*d.*,

SCHOOL BOTANY; or, THE RUDIMENTS OF BOTANICAL SCIENCE. By JOHN LINDLEY, Ph.D., F.R.S., Professor of Botany in University College, London. A new Edition, with numerous alterations.

London: Printed and Published for the Author by BRADBURY and EVANS, Whitefriars.

HORTICULTURAL SOCIETY OF LONDON.—PRIVILEGED TICKETS. NOTICE is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, will take place on the following SATURDAYS—viz., May 24th, June 21st, and July 12th; that Tuesday, April 5th, is the last day on which Tickets can be subscribed for by Fellows of the Society, at 3*s.* 6*d.* each, and that one Fortnight after that time is allowed for taking them up; after which all the Privileged Tickets subscribed for, but not issued, will be cancelled.

THE DESTRUCTION OF SLUGS.

T. AND C. LOCKHART, FLORISTS AND SEEDSMEN, No. 156, Cheapside, London, have on Sale a quantity of TOBACCO ASHES, which they beg to offer at 6*d.* per lb., or 5 lbs. for 10*s.*, including package. It will be found destructive to Slugs, as well as an active manure.

Pawlonia imperialis, well rooted, per plant . 2*s.* 6*d.*
Lawn Grass Seeds, per lb. . . . . 2*s.* 0*d.*
Mushroom Spawn, per brick . . . . 0*s.* 6*d.*

An excellent and varied Stock of Herbaceous Plants, of which Lists may be had. Plants of all the tender and half-hardy Annuals on sale till the second week in June.

The Gardeners' Chronicle.

SATURDAY, APRIL 12, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

TUESDAY, April 15	Horticultural	3 P.M.
	Linnean	8 P.M.
WEDNESDAY, April 16	Society of Arts	8 P.M.
WEDNESDAY April 23	Microscopical	8 P.M.
SATURDAY, April 26	Royal Botanic	4 P.M.

"As it appears to me," says a correspondent, that SIR ROBERT PEEL, in taking off the whole of he DUTY FROM GLASS, has given the horticultural orld the greatest boon it has ever received at the ands of any ministry, it now only remains for us secure the full benefits of this most valuable oncession."

"That horticulturists will be defrauded (for a long eriod, at all events) of the benefits they ought to erive immediately from this measure, the following artling fact will show. The glass manufacturers nt up a deputation to Sir R. PEEL to obtain a rawback for the duty paid on their stocks in hand. ir R. PEEL conceded this to the extent of 75 per nt. Now it will scarcely be credited, and yet I sure you it is the fact, that this very same depu- tion *combined by mutual agreement not to reduce e price of plate glass to the public*, not- ithstanding this enormous reduction of duty. he chief means of defeating such a combina- n against the public interests, will be by exten- ve importation, which the present reduced duty ill admit of, and by giving encouragement to the mediate formation of rival companies, by whom a rge and remunerating return, under these circum- ances, may be safely depended on."

"I understand that glass manufactories are about be established in Ireland, and the north of Eng- nd. The first of these companies which may be mpted to make glass at the lowest remunerating ice, fit for horticultural purposes, will command ch an extensive trade as few now contemplate. I lieve the demand, in a short time, would exceed e power of any but a very extensive concern to pply; indeed, before long, if such glass can be pplied at low prices, it is my belief that it will swer the purpose of the London market-gardeners cover acres instead of small forcing-houses; and e demand consequently will be not for hundreds thousands, but actually for millions of squares."

We perfectly agree with our correspondent that ere is no apparent limit to the manner in which eap glass will be applied; and we think with m that the consumption will become enormous, e moment a suitable article at a low price is ought into the market. For great horticultural erations, for a large part of the work in all rdens, and especially in market gardens, a kind glass at present unknown to them would answer e purposes perfectly. We allude to well made ilky or semi-transparent glass, in which lime is esent. Common bottle-glass would be another cellent material. But these are matters upon ich, as well as the prices at which glass is likely to sold, we must reserve ourselves for the present eek. In the meanwhile we would refer our aders to a short practical article by Mr. RIVERS another column.

As to the combination above alluded to among e glass-makers, we know nothing of that; in- ed we find by the new price-lists that plate ass is actually offered at a reduced price; so t there is some misapprehension on the part of r correspondent. At the same time we must mit the existence of a very general apprehension that a combination to keep up the price of glass, and especially of window glass, does exist.

We are, however, convinced that the glass manu- facturers are too much alive to their own interests to join in any such league; and of this we are certain, that if the attempt were made, that com- petition, which is already beginning to be felt, would speedily put it down.

It has been the misfortune of the glass manu- facturers to have had a very injudicious advocate in Mr. SPOONER, and to his ill-advised speech last Monday, in the House of Commons, on the import duties, the alarm that has sprung up is, we think, to be traced.

The honourable Member for Birmingham, begged the House not to diminish the import duties on glass for one year. "He was satisfied," we quote from the *Times*, "that the right honourable Gen- tleman was giving a great boon to *the manufac- turers*, and to the public; but by acting precipi- tately they would destroy that boon; and introduce a large quantity of bad glass *at a very low price*." So that, according to Mr. SPOONER, the object of the repeal of the glass duties is, in the first instance, to benefit the manufacturer, and after that to do something for the public. But then he would not let that something be in the form of very low-priced glass, for fear it should be—of bad quality; from which it would seem that the advantage which Mr. SPOONER would permit us to enjoy is, that of buy- ing glass of excellent quality at a high price.

But we cannot believe that these are the senti- ments of the glass manufacturers. On the contrary, we have some reason to believe that the tariff of prices agreed to by them after the important deci- sion of the House of Commons, that the amount of import duty should be immediately reduced to 1½*d.* per lb. on window glass, will be a fair one. At all events, we shall be in a condition to analyse it next week.

It would be unreasonable to expect that the price of glass should on the instant reach its minimum. The manufacturers have many pre- liminary difficulties to overcome, and not the least of these is the strike of their workmen. Glass cannot be made without hands; and we find that the foolish men who are employed in the glass-works have combined against their masters; in fact, two of those employed by the great house of CHANCE and Co. have been sent to the treadmill within a few days. The public, therefore, ought to be fair towards the glass manufacturers, and to make allowance for the circumstances of their position.

Such is the view we at present take of the matter; if we are in the wrong we shall lose no time in saying so; and a very few days will put us in possession of all the evidence that is required to arrive at a correct conclusion. The question is one of the greatest horticultural importance. Among those who have gardens an enormous proportion of the new consumption will be distributed; and it is our duty, as well as our inclination, to watch narrowly over their interests in this matter. That we shall do; but, we trust, with perfect fairness to- wards both manufacturers and consumers.

WE mentioned last week in our article on TRUFFLES, that BRADLEY (who was formerly Pro- fessor of Botany in the University of Cambridge) was the first person in this country to call attention to the possibility of their cultivation. His obser- vations on the subject are contained in a work of which the 5th edition appeared in 1726, entitled "New Improvements of Planting and Gardening, both Philosophical and Practical." It is probably in the hands of few of our readers, and we shall, therefore, give a short extract. It does not appear, however, that his method was successful; we doubt, indeed, whether it was ever fairly tried.

"The Truffle may be easily cultivated where there are woods or coppices of Oak or Hazle, and where the soil is not too stiff, or inclining to chalk. The soil where they are most found is a reddish sandy loam. This will then be the best for our purpose, especially if it has lain long uncultivated. When we are thus provided with the proper soil we must be sure to let it lie undisturbed till we are ready to plant, which will be in the months of October, November, and De- cember, if the weather be open; for then the Truf- fles are to be found in their full ripeness, and then likewise one may find them in a state of putrefac- tion, which is the time when the seeds are prepared for vegetation; it is in the last state that one ought to gather Truffles for planting, or at least they should be in perfect ripeness.

"The proper soil and these rotten Truffles being found, we may begin our work as follows:—Open a spot of ground of a convenient space, and take out the earth about 8 inches deep, and screen it, that it may be as fine as possible; then lay about 2 or 3 inches thick of this fine earth at the bottom of the trench or open ground, and upon it lay some of the over-ripe Truffles, about 1½ feet distant from one another; and as soon as possible prepare a thin mud, made of the screened earth and water, well stirred and mixed together, and pour it on the Truffles till the opened ground is quite filled up. By this means, in a few hours, the ground will be as close settled about the Truffles as if it had never been dug or disturbed at all, and you may expect a good crop in due time. You must, however, take care to choose your spots of ground in woods or coppices, or such places as are shaded with trees." (Bradl., p. 581). Their favourite tree is the Oak, or the Ilex or Evergreen Oak, as the Elm is the favourite of the Morille. (l. c., p. 570.)

The Treatise of BORNHOLZ was published at Quedlinburgh and Leipzig in 1825, and a French translation has since appeared in Paris. Of the author we can obtain no information. His name is not inserted in either of the Lists of Botanists pub- lished in the Linnæa; if therefore it be not altogether fictitious, it is probable that he was rather a cultivator than a botanist. Unfortunately, as he gives no authorities, his observations scarcely command as much credit as is desirable in such a matter. It may not, however, be useless to state briefly the method he proposes.

A plot of the requisite size is to be chosen in a grove, free from all kinds of Fir-trees, not too deeply shaded, though by no means subject to the direct action of the sun, and in such a situation as shall ensure a constantly moist but not wet condition of the soil. This is to be trenched to the depth of 2½ to 3 feet, and if the soil parts too easily with its moisture, it is to be first lined with strong loam; in any case it is recommended to pave the bottom and sides with stones set edgeways, to prevent the burrowing of vermin. The great point is to guard against any water becoming stagnant, which would at once destroy the crop.

Truffles, at least in Germany, flourish best in a calcareous soil, more or less impregnated with iron. A compost, then, being prepared of such materials as usually compose the vegetable humus where they abound, of which a main constituent must be de- cayed Oak-leaves, especial care must be taken to mix in a due proportion of calcareous earth, which if it does not contain a proper proportion of iron, must be combined with iron-sand stone reduced to powder in the ratio of one to four; or, if that is not easily to be procured, with iron-filings or smithy- dust, of course in some smaller proportion. The trench is to be filled with this compost to the depth of a foot. A second richer compost meanwhile must be prepared, consisting of well-rotted cow-dung, prepared, however, in such a way as to lose its strength as little as possible, and if the weather has been very hot and drying, moistened occasionally with liquid manure.

The pulverised dung is now mixed in the propor- tion of a fourth or fifth with the natural vegetable soil we find in woods, and this with half its quantity of fallen Oak or Hornbeam leaves, the whole being carefully combined. The trench is then to be filled with the compost; some young Truffles inserted, not, according to the author, to produce others from seed, but merely by way of stimulating the latent energies of the compost, and the whole covered 6 inches deep with Oak-leaves. These are to be covered with branches of the Hornbeam, and a few young plants inserted.

If, however, we desire to raise Truffles in our gardens, a spot is to be chosen shaded towards the south by trees, and the trench being prepared as before. Vegetable soil must be prepared from the neighbouring woods, and a compost made containing a large proportion of decayed Oak-leaves, stamped bark, and Oak sawdust. The great point to be attended to is to secure the proper degree of moisture, and to temper the degree of light to which the bed is subject. The author assures us that this method will be attended with success, but from the internal evidence of the work, we doubt very much whether it is more than mere theory.

DR. KLOTZSCH recommends old and decaying Truffles to be used as containing the most perfect seeds, and Mons. ROQUES informs us that MON- SIEUR LE COMTE DE NOÉ had raised Truffles at Cahors by simply clearing some ground under Oaks and Hornbeams, and having deposited the peelings of some Truffles, and covered them with earth and dead leaves, he found after two years a quantity of Truffles. He made some further expe- riments afterwards; but as M. ROQUES had not ascertained the result after an interval of 14 years, we may conclude that it was not important.

In all these cases the Truffles themselves, or por- tions of them, have been planted; but as long as this method is used, there is not much probability of great success. The grand point is to discover

some method of preparing the spawn, as is done by Mushroom-growers; and we have now before us specimens of spawn made up in little cakes, with the assurance that the excellent observer who has communicated them to us, will be in a condition shortly to exhibit Truffles grown artificially, and to explain the mode of cultivation.

We anticipate no greater difficulty in the growth of the delicate white Truffle of Piedmont than of the common black Truffle. It is not, probably, quite so difficult of transport as has been represented. Dr. Montagne had a quantity sent to him last year at Paris in such perfection that his rooms were quite perfumed with them; and when the system of railroads now in contemplation is completed, there will be very little difficulty in the matter; or even should it prove greater than we suspect, the spawn may be prepared possibly on the spot. We seem, then, to be justified in expressing a firm belief that, ere long, these Truffles will be as common in our markets as artificially-raised Mushrooms.—*M. J. B.*

BIGNONIA JASMINOIDES.

For the purposes of cultivation, it is necessary that we should bear in mind the three great natural divisions into which the different modes of inflorescence may be conveniently divided:—The first of these is represented by the Grape-Vine, which flowers on the current year's growth; the Peach, which blossoms on the growth of the preceding season, furnishes a familiar example of the second; and the Pear, which bears on short spurs produced from the growth of former years, will exemplify the third division. Now, the genus Bignonia, which includes some of the finest climbers in the world, furnishes individuals in each of these divisions; and as plants of such opposite characters require different modes of treatment, it is not surprising that cultivators should err, or apply the wrong treatment at first to any of them.

Bignonia or Tecoma jasminoides belongs naturally to the spur-bearing division; but, when cramped at the roots, it will also sometimes blossom on the young wood. Its sterility, or shyness to produce blossoms may, therefore, be ascribed to a natural law under which all plants that produce their blossoms on spurs—whether in the orchard or in the stove—have a constant tendency to throw off that character under a high state of cultivation; hence the practice of root-pruning, shallow borders, or otherwise cramping the roots. Each of these modes may be useful or convenient in special cases, but they are too often carried to extremes; and a system—whether favourable to luxuriant growth or the production of wood and leaves, or to a stunted form of growth and more than an average amount of blossoms—ought to be avoided when the object required is the production of all the natural appendages of a plant in a full, healthy condition. The great point, therefore, to be determined in practice, in relation to spur-bearing plants, is to find out a mean between the extreme points which will be the most favourable to the object in view.

This point has already been satisfactorily ascertained in the case of Bignonia jasminoides; but to apply more practicably the *rationale* of the system I am endeavouring to explain, let us take another view of the subject. We all know that our best Vine borders, however shallow and well-drained they may have been made, are altogether unfitted for the proper cultivation of the Pear, as the degree of nourishment necessary for the well-being of the Vine would only favour the tendency in the Pear to depart from its natural habit of producing short-jointed spurs, and produce a profusion of long-jointed breastwood, from which no fruit or blossoms can be expected. In a number of instances this has hitherto been the case with B. jasminoides when planted out into the borders of the conservatory, which are necessarily made too deep and rich for its natural habits; and thus an excess of development is induced far beyond what it would be if left to Nature, without the means of increasing the quantity of light—so to speak—necessary to ripen or elaborate the increased growth. The practice of training climbers up pillars and along rafters of the conservatory, which is suitable to most climbers, is also unfavourable to the spur-bearing class, as that mode confines the branches too closely together to enable them to form spurs all over their surface; witness the many failures that have occured with the beautiful Bignonia Cherere, which belongs to the same division as the subject of our present inquiry. The leading branches of all the climbers in this division ought to be trained free of each other, and seldom, if ever, stopped till they fill up their allotted space, as they are not manageable if they break out with a quantity of contending leaders; and if they grow too strongly, take the usual precaution of bending them in a serpentine form; this will make them break all their eyes, as we call it, from which spurs will proceed in due time. Before the plants become established, strong side-branches will occasionally push from the main leaders, but you must bear patiently with them; train their heads downwards, and that will weaken them. Whereas, if you attempt to keep them down by cutting them through the growing season, you only increase your difficulty; when the plants are old enough to carry a heavy crop of blossoms, that will reduce them to a regular bearing condition sooner than any mode of pruning. The after-management is easily told—keep a regular balance between the roots and the branches; if the latter show signs of weakness give liquid manure to the roots, and if the contrary, give only clean water in less quantity; you must, therefore, have the roots under your control.

To begin with a young plant from the nursery; as soon as it begins to grow freely in spring shift it into a pot one size larger (the one-shift system not being suitable for the spur-bearing class of plants), using a rich loamy compost; when the plant is 3 feet in height stop it by cutting off the point—three or four of the upper eyes will then break into shoots; train three of the strongest of these at full length the first year; the others, if any, bend downwards, to weaken them; early in July the plant will require another shift into a pot only one size larger, the object being not to cramp the roots so much as to check the growth of the plant, nor allow them so much freedom as would encourage the plant to make a larger growth than would ripen in the same season; after the middle of September water it only once a week, and in a month's time it will stop growing altogether; through the next winter till the beginning of the growing season, give it no more water than will keep the leaves from flagging. At the end of the first season the three leading shoots should be from 10 to 15 feet in length, according to the previous strength of the plant; these should be shortened to two-thirds of their length at the beginning of the second season and allowed to produce two shoots each, which will form six leading branches; any more shoots they may make ought to be turned downwards as in the former season, but they should on no account be cut back till nearly the end of the growing season, when they may be cut to three or four joints, which will afterwards become flowering spurs. About July in the second season, the plant should have a pot 1 foot in depth, always using rich compost. Keep it through the second winter as dry as formerly; do not shift it the third season or cut its leading shoots, and about the end of June it ought to flower in great abundance; it will also flower sparingly in the second season. As soon as the flower-buds are formed give it liquid manure twice a week till the flowering season is nearly over.—*D. Beaton.*

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. XI.—There are other plants whose roots send out, contrary to the Paulownia, their buds upon the cut itself; this is remarked in Maclura aurantiaca, Fig. 10. They are formed between the wood and the bark by an innumerable number of exceedingly minute bulbs, which turn green and produce the buds. The cuttings of this plant strike very easily in the open air, following the same method of proceeding as in Paulownia; the large end of the root must be placed even with the earth or nearly so.

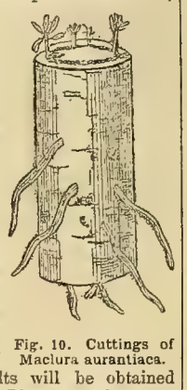


Fig. 10. Cuttings of Maclura aurantiaca.

The Cydonia japonica is only multiplied by layers. The difficulty which this method offers for striking has not permitted this plant, up to the present time, to be as much distributed in ornamental gardens as it ought to be. But if we strike from the roots, results will be obtained much better and expeditiously. If we cut the roots the size of a pen, into pieces 2 or 2½ inches long, and plant them upright, we shall have the same year as many plants as there were pieces planted. These cuttings should be made in the open air, along a border or strip of peat, without any other covering than the soil where they are to grow. If we plant them vertically, we should cover them very slightly with earth; and at the first watering the cut will be uncovered. If we place them horizontally, they should be covered with earth about $\frac{1}{16}$ of an inch deep. This last method succeeds equally well, but it is less certain than the first.

I have here mentioned these few species only to show what advantage we may derive from the method of multiplying dicotyledonous plants by cuttings of the roots; the good results which I have just pointed out will encourage, I hope, other attempts of the same nature to be made upon other plants, whose multiplication upon hot-beds has been attended by little or no result.

At the time when I was about to send the present treatise to the press, I discovered a new fact in corroboration of what I have stated, and I feel obliged to publish it. During the last six years, I have many times tried to strike an Araucaria from cuttings of the roots; up to this time, I had had no satisfactory results, but to-day, 10th May, 1844, I perceive that the cuttings of the roots of Araucaria Cunninghami, ¾ inch in diameter, and about 2¾ to 3 inches long, planted in October 1843, are at last sending forth shoots. I attribute my failure up to this time, to the presence of the glasses with which I covered the cuttings: the concentration of air charged with an excess of moisture makes them perish. In the first place, the pots which contained the roots were, in October last, plunged into tan still impregnated with a gentle heat; perceiving in March that the earth in the pots was decomposed, I changed it, without being able to distinguish the least sign of vegetation on the cuttings. The pots were then placed upon a bench and exposed to a moderate temperature; in April these pots were placed upon a warm bed of tan; and it was this, doubtless, which, to my great surprise, a month afterwards, excited vegetation.

All cultivators who know how to manage the Araucaria will, perhaps, doubt the truth of this phenomenon; but if they are willing to convince themselves by testimony of their eyes, I shall be happy to present them with a palpable proof. The realisation of this remarkable experiment, which nobody, I believe, has before made known, will, I hope, become a fact of great importance both in horticulture and agriculture.

If, as I have reason to believe will be the case, this mode of cuttings by roots succeeds as well upon all the species of the beautiful family of Coniferæ, the new Pines of the Himalaya and of other countries, which would for a long time have remained scarce, may soon be propagated with certainty; and I dare affirm, that the plants raised from cuttings of the roots will form trees as well constituted as those produced from seeds. I am going to follow up my experiments upon Araucaria excelsa, being nearly certain at the outset that I shall obtain the same results as I did upon Araucaria Cunninghami. The autumn does not seem to me the best season for this sort of operation, it ought to succeed best in spring; a close observation teaches us this.

There are some plants which are always kept so much the more scarce, as it has been impossible to multiply them even by the last process; such, for example, as Halesia diptera, of which I have never been able to save a single layer once detached from its parent plant, notwithstanding these layers have been well rooted, and under the constant care of the operator. Likewise, we have never obtained a result of the grafts of Halesia diptera made on tetraptera. However, I have reason to believe that cuttings of the roots will strike. The stock of Halesia diptera which exists in the *Jardin des Plantes*, begins to give fertile seeds. Let us hope that soon we shall be able to obtain from some individual seed of this beautiful shrub.

GLASS.

In my last I suggested in what way calico might be made available for protecting fruit-trees; but in fact a better prospect is now opening upon us, thanks to Sir R. Peel.

Why should we not have our gardens furnished with espalier Peaches, Nectarines, Apricots, and Grapes; these can have glass lights placed on each side of the trees, meeting at top and leaving occasional apertures for the circulation of air. We shall then run no risk from spring frosts or cloudy cold summers, both wood and fruit will be thoroughly ripened, and a constant annual crop secured.

Nothing that I am aware of has more excited my admiration, shall I say envy, when looking into the gardens in the south-west of France, than Moor Park Apricots ripening freely on espaliers, Muscadine Grapes also as espaliers, full of their drooping golden bunches. Glass protectors will, I feel assured, give us these and many other luxuries not as yet anticipated, even by the most sanguine.

I fear I shall trespass on your columns, but I feel that I ought here to offer a suggestion respecting the culture of Pears on walls. "R. T." remarks that from a south wall the Easter Beurré is mealy; in the neighbourhood I have also found it mealy and flavourless from a like situation, many other Pears are also apt to be over-ripened from a south wall. This I feel certain is in general owing to their being in contact with the wall: a single fact will, I think, illustrate this. I observed, some time since, some Pears growing on a south wall in a friend's garden; those in contact with the wall were very large, but in the centre of the tree there was a sort of recess, formed by a blind window; the fruit in this place hung about 4 inches from the wall, so as to admit of a free circulation of air behind them. I observed that these were not quite as large or so highly coloured as the others; I was induced from this to inquire as to their periods of ripening and flavour, and found that those in the recess, hanging as above stated, about 4 inches from the wall, kept more than a month longer than the others, and were always better flavoured. I feel, therefore, induced to recommend that all Pears trained to walls, whether south, east, or west, should have their branches tied to rails either of wood or iron, placed about 4 inches from the wall; as Pears are, for the most part, trained horizontally, upright rods of iron without cross-bars will be the most eligible. If this method is adopted I feel convinced that we shall not have the usual complaints of want of flavour in many Pears grown on walls.—*Rivers, Nurseries, Sawbridgeworth, Herts.*

Home Correspondence.

White Scale, &c.—Many of my greenhouse plants particularly some fine Oleanders, being infested to a great degree with the white scale, I was, of course, anxious to get rid of such a nuisance. Common washing we know to be a very tedious, difficult, and after all imperfect remedy; I had recourse, therefore, to the use of spirit of wine, as recommended at p. 134, and had much reason to be satisfied with the facility, expedition, and efficacy of its application; still it was a tedious and careful operation, and it occurred to me that it might be very readily and efficaciously applied in the form of vapour; I made the trial, and with great, I believe with perfect, success, and strongly recommend it to the attention of all horticulturists who may have occasion for a remedy for the white scale, and probably other insects, with which valuable or delicate plants may be infested. It may be as well to add, that the mode of use is sufficiently simple: the branches of a plant 6 feet high, were tied

not very closely together, then introduced into a tall air-tight bag, of common brown-paper, made for the occasion; under this was then placed a quart pot of boiling water, over which a cup was fitted containing an ounce of rectified spirit, and the bag was tied moderately close at the bottom. An air-tight box, a garden light, or bag of cheap glazed calico, supported or suspended over a plant would, I think, answer every ordinary occasion, at very little expense; and when necessary the spirit may be evaporated over a small oil-lamp.—*The Orts.*

Vine-Pruning.—In my opinion, the system of pruning recommended by Mr. Fleming and "Orford," viz., disbudding the wood to be cut away, and leaving it uncut until the young shoots at the base are of some length, offers facilities for avoiding "bleeding," which is so detrimental to Vines on walls, that from untoward circumstances are left unpruned until too late for the wounds to heal before the sap rises. I have recommended the above treatment for a few Vines here, on which my opinion was asked.—*P. Walker, Bath-road, Cheltenham.*

Vine-culture at Trentham (see p. 187).—"Facts are stubborn things," or else I freely confess, that had I been consulted as to the propriety of using concrete, I should have instantly condemned it; however, it is evident that in spite of our present much advanced condition, as regards gardening, we have much, very much to learn. I would first ask, is the concrete absolutely impervious to the atmosphere? If not so, it is a question of degree, and not of principle; and the whole subject might be aptly compared to a plant in a pot, in which the drainage was incomplete, and the soil of course "soured." Let the plant be, for comparison's sake, a Peach, or in fact a Vine, and the shoot to be forced introduced through the front of a house, and the pot plunged at the outside. Let the average temperature to be maintained inside be 70°, with the pot plunged in an average temperature of 45°. Now, I presume in the first place, that most practical men would prefer opening one of the front sashes, and introducing the pot within the house, for a greater amount of bottom heat. However, to pursue the comparison, would it be better to exclude all further moisture at the expense of atmospheric exclusion, or to leave the soil to be drenched with the storms of winter, for fear of such exclusion? When we take into consideration the small disparity of temperature that exists in winter between the average temperature of the soil and the atmosphere, I think it will be admitted that there cannot be so great an interchange of air between the soil and the atmosphere as is frequently imagined; and, in addition to this, if a Vine border be imperfectly drained, and consequently glutted with moisture, there is little room for the atmosphere to penetrate it. In such cases I am of opinion that the Vine drags out an existence on the accumulated sap of former and better days; added to a considerable amount of atmospheric moisture within the house, where stem roots often protrude, which I have always been in the habit of considering as evidence that the true and original roots have not fair play. If it can be proved that the concrete is impervious to the atmosphere, and that Vines can be proved to have flourished for a whole year or more without its influences, what will become of the improved modes of potting, together with the thorough drainage of soils in general, in both of which cases atmospheric influence is the key-stone of the arch? I would strongly recommend the plan suggested by "Ignotus," p. 187, of a tarpaulin instead of concrete, and I may mention that the same thing was suggested by me, at least 10 or 12 years ago, in "Loudon's Magazine."—*R. Errington.*

Truffles, &c.—The substance, if not the whole of Bornholz's work on the Cultivation of Truffles, is given in the late Mr. Loudon's "Gardener's Magazine," vol. 13, 1837, page 408. I think the hints given by the above author, and your remarks in the *Chronicle* of April 5, would, if judiciously applied, tend to insure the desired success; and that we may not yet despair of supplying our tables with all the varieties of the Truffle and Morel by artificial means, as well as of adorning our stoves with the magnificent Rafflesia, whose habits and cultivation seem buried in the same obscurity; and the revival of the subject of Truffle cultivation induces a hope that some one or other of the great lions of horticulture will search for and obtain a living specimen of the latter most extraordinary plant. Allow me to add that another class of plants seems not to have met with the favour, at the hands of horticulturists, they deserve, I mean aquatics; and I have tried in vain to get sight of a well-furnished aquarium, or to obtain a good list, with prices of the plants necessary to form one. The cultivation of the exotic kinds surely might be advantageously and cheaply effected by the recent means afforded by the tank system of heating, which appears admirably calculated for supplying the bottom-heat so essential for the successful cultivation of many of the tender sorts.—*George Wood.*

Labels.—There does not seem to be any method of securing labels made of wood, from decay, superior to Kyan's process. I have now deal labels, less than half an inch in thickness, prepared in this way, which have been nearly six years in the ground with scarcely any alteration in their appearance since they were so placed.—*Lusor.*

The Robin.—I am greatly obliged to "Quercus II." (p. 151), for his kindness in enabling me to add another interesting fact to those I already am in possession of, connected with the natural history of the redbreast. I do not remember to have before seen a single instance recorded of the cuckoo having deposited her egg in the nest of a robin, (the hedge-sparrow being the more usually favoured (!) bird); but herein is proved the force of her peculiar instinct, for not only is the robin not granivorous (and therefore an excellent foster-mother to the young of the cuckoo, which feed on insects), but her maternal affection is almost without parallel among the whole feathered tribe. From long study, I have found that, if in breeding canaries, mules, goldfinches, or linnets, the natural or rather unnatural parents should in any case desert their young, or refuse to feed them, this office would be readily and most affectionately undertaken and performed by a hen robin, who will bring up the whole brood. It is advisable, therefore, for amateurs always to have in their collection one or more of these useful birds. They are easily tamed, and become so familiar as to sit on the shoulder or the finger, and they will hop about the room without any indication of fear. I have, at the present time, some cock robins whose song (for execution, power, and sweetness) surpasses, in my opinion, almost that of any bird. They commence at day-break, and sing almost without cessation, till near midnight. I have brought them up under fine wood-larks, German canaries, and sweet-song linnets, thereby rendering their powers available to a greater extension of harmony; having for many years studied the red-breast, black-cap, nightingale, and other "soft-billed" birds (the melody of whose voices undeniably exceeds that of "hard-billed" birds). I may add, that the robin, whose praises have been repeatedly "sung and said" in the last year's volume, died from the severity of the frost, on the 6th of February last. He was a constant guest in-doors to his last day, but at night he invariably retired to roost in the Park; whereby, eventually, the fountain of his blood became stagnated, and he was unable to swallow his food. He came in, as usual, to breakfast, on the 6th of February, but was much swollen and very feeble. At mid-day, he suddenly withdrew; no doubt selecting a hole in some tree where he might make a quiet exit. Peace to his *manes!*—*William Kidd, New Road, Hammersmith.*

Manure for Onions.—I have always succeeded in the following way, being the surest and most economical:—Take off about 4 inches of the earth on the surface, the length and width of your bed, so that the ground under be solid. Spread stable-dung well over, about 4 inches in thickness, and then cover the same over with the earth taken from the surface. Sow your seeds rough, and you are almost sure of an abundant crop; and the land is the best for Parsnips and Carrots the following year.—*F. R. J., Ottery.*

Manure for Onions.—For the information of "J. C. C.," of Exeter (p. 225), I beg to say that last year I had one of the finest crops of Onions I ever saw; they were cultivated as follows:—The ground (which is a stiff loam on the lower oolite), was ridged up before winter. In the middle of March the ridges were levelled, and about 3 inches in thickness of compost was spread and pointed in so shallow as to be only barely covered with earth. The seed was immediately afterwards sown in drills 9 inches apart, and between every five rows was an alley 18 inches in width. Waterings were frequently applied during the early growth of the crop; and it was twice watered with water in which guano was dissolved. The compost consisted of about one-third well-rotted old hot-bed dung, one-third old night-soil, and the remainder of wood-ashes, and black woollen manure from a clothing factory in equal quantities; the latter contained a considerable quantity of oil. The whole had been well mixed together some months before it was applied.—*Cultor.*

Brussels Sprouts.—In reading Dr. Lindley's "Theory of Horticulture," Chap. 17, pp. 321 and 322, I find that a statement by M. Van Mons is quoted respecting the degeneracy of the Brussels Sprouts Cabbage. At the end of the quotation the author says—"it is very doubtful whether the case has been fully, if correctly stated." Now, I decidedly agree with him that the case has been very far from being correctly stated. This vegetable, like all others, with strict attention, can be preserved true by seed, and it is not possessed with any magic powers that defy science, as many would have us believe. I have sent for your inspection two Brussels Sprouts, being a sample of some which have been grown by myself at this place for five years, and by my father before me, from whom I had the seed, upwards of 20 years. In my opinion it is as genuine as when first imported; the soil in which I grow it is nothing beyond the common, neither do I consider that of any importance; for of the garden I now cultivate, one part is a light and rather sandy soil, upon a substratum of the old red sandstone-rock, and the other is a stiff heavy soil upon a substratum of blue clay; the vegetable grows equally well on either soil, which fully proves that soil is of no importance as regards its growing true to its kind. With regard to its being preserved true at Brussels, I imagine that the same thing happens there as occurs in country villages in England, in regard to Broccoli being kept true, viz., nothing else of the same natural order grows near to contaminate them; the idea of the degenerated seed being brought back from Malines to Brussels, and there acquiring its former habits, is to me absurd in the extreme, except it can be borne out by science; as shown in the same chapter of the "Theory of Horticulture," with isolated plants, the degenerated sort must have been very considerably less in numbers than the genuine sort, and the pollen possibly might have been carried in great quantities, which may account for their assuming something of their genuine habits in the second year; but that is very doubtful, as there is reason to suppose that the genuine variety would be contaminated to a certain extent with that which was degenerated. Gardeners are generally of opinion that this vegetable will degenerate under the most favourable circumstances in this country; and such an opinion will continue so long as they allow themselves to tread the beaten track, and are contented with what one or two individuals may assert; but if they arouse and think for themselves, and adhere strictly to Nature's causes, they will find that the Brussels Sprouts Cabbage can be preserved as true to its race as any other vegetable, and that it possesses no supernatural power, nor knows any difference between the soil of Brussels or that of England.—*D. Judd, Southill Gardens, Biggleswade.* [With this we received two plants of *perfect* Brussels Sprouts.]

Potato Planting.—It is generally allowed that cut sets are more uncertain than whole Potatoes. The ordinary mode of planting the former is to have the eyes uppermost, but a neighbour has just now told me that for the last few years he has reversed the common method by planting the cuts with their eyes downwards, and the consequence has been that he has never had any failures; he says, that he has made a comparative trial of the two methods, and the result fully satisfied him of the superiority of planting cut sets with their eyes downwards.—*Cultor.*

Potato Culture.—At the commencement of last year I planted some early Ash-leaved Kidney Potatoes; which, when matured, I took up and replanted with the view of getting a second crop in the same season; and in November I found the new tubers about the size of crow's eggs, or suitable for a gentleman's table, the increase being threefold; the haulm, then a foot high, was carefully moulded up to protect it from frost, and on examining the Potatoes last month (March), I found the haulm dead and the tubers again beginning to vegetate where the moulding was 12 inches deep; but in one row covered only 6 or 8 inches, the roots were destroyed by frost. Thus a second crop may be obtained in the season, where economy is not an object; but it appears that those planted in autumn should be earthed at least 12 inches deep, and even then the utility of the plan is of a doubtful character. In the above instance of autumnal planting, moulding may be indispensible, but I decidedly object to that operation in the general culture of the Potato, consequently never have practised it for years; this conviction is the result of experiments carried on for several seasons, together with careful comparisons with the crops of my neighbours, some of whom by-the-bye, appear determined to earth up till they are earthed up themselves. On the contrary, however, many follow, and are quite satisfied with my plan. I would just add, that I plant the tubers whole, a little deeper than when moulded; and I think it very important to plant before they exhaust themselves by sprouting. I also think it important to pluck the blossoms "i' the bud." I, consequently, have this duly attended to with a reaping-hook; and I am convinced I reap considerable benefit thereby.—*Wm. Godsall, Hereford.*

Autumn-planted Potatoes.—"Este" planted some Potatoes in October, following the advice given in the *Gardeners' Chronicle.* The earth was drawn into a ridge over the sets, which were thus 5 inches under ground. The frost penetrated 8 inches, being tried on purpose, yet on examining the sets last week all that were examined were found unhurt and sprouting. Nearly a quarter of an acre was planted. [We have the same report to make; so that the frost question may be considered settled.]

Highland Pine.—In reply to "A Highlander," I have to state that his rather ingenious argument has not yet removed my doubt, nor established the fact that plants raised from seeds collected in the Highland forests, produce timber-trees equal in quality to those from which they are taken. On a little farther inquiry, I find that the price of plants raised from Highland seeds have been invariably higher in the North of Scotland, than those of the common plantations. But I am informed, by a very extensive planter in that quarter, that the difference in price is so very trifling as not to exceed more than 2*s.* per acre, supposing it to be planted exclusively of this tree; and in one particular locality, where the Highland mania prevails, little else is grown; so that the difference in price would be required to bring plants from a distance. I am aware, without further inquiry, that the Highland and Agricultural Society of Scotland has offered premiums to the person who should rear the greatest quantity of plants from Highland seeds, and that they are persuaded of the superiority of hard-wooded trees over that of soft-wooded; but their being unanimous as to the superiority of plants raised from Highland over those of the common plantations, is not so certain, when it is known that the majority of the members plant chiefly of the common sort; besides, it is a curious fact, that although the subject has been under public notice for 15 years, to my certain knowledge, very few nurserymen, either in England or Scotland, have paid any attention to Highland seeds; and those who have, have frequently been obliged to sell the Highland at the same price as the common, in order to get rid of them. I do not mean to question the interest your correspondent takes in the matter. Fifty miles would appear a long walk to a Londoner, but it is nothing extraordinary to a Highlander. I am a Highlander myself, of 25 years' experience in the management of Pine plantations; and although not now in such walking condition as I have been in my younger days, still I will walk

with pleasure to any Pine plantation within 50 miles of my residence, and be happy to meet my countryman, if he will undertake to distinguish the red-wooded trees from the white ones with as much certainty as he would have me believe that he did in Beeston Park—of course I mean before the trees are cut down. Several instances like that which my friend has related of Beeston Park have come under my observation; and I have little doubt whatever that such incongruities are to be found in all the Pine plantations throughout Britain. Although "A Highlander" has clearly shown that hard and durable timber-trees of the Scotch Pine, and soft, and not durable timber of the Scotch Pine, have been found growing on the same soil, he gives no proof whatever that the former have been raised from Highland seeds. No mention is made of the age of those trees, when they were planted, or of whom the plants were obtained; so that, after all, he has advanced nothing but assertion; and the problem still remains to be solved, whether plants raised from seeds collected in the Highland forests really do produce timber-trees equal in quality to those from which they are taken. It is quite clear that the importation of seeds of Pinus sylvestris from Norway, Russia, &c., has not been extensive enough to produce one-third of the white-wooded Pine so prevalent throughout England and the Lowlands of Scotland; and "A Highlander" freely admits that Sir Walter Scott's statement regarding the Canadian Fir is incorrect; and, therefore, part of the white timber, and the greater part, must owe its parentage to the Highland forests. But, granting that it is proved that seeds of Pinus sylvestris have been imported from Norway and Russia in abundance to raise plants sufficient for the whole surface of Europe, it does not materially alter my position; for the tree known in those parts as the Pinus sylvestris produces red-wooded timber of a hard and durable character, equal in quality, if not superior to that which is grown in the Highlands of Scotland. It is a notorious fact; and if "A Highlander's" theory were correct, that seeds of red-wooded timber-trees produce red-wooded timber-trees, there would be no white-wooded sort in Britain, which is not the case.—*Pinus Sylvestris.*

Drills for Peas.—In sowing this vegetable I make use of a very simple instrument. A piece of wood 18 inches long, 2 inches broad, and 1 deep, is bored with holes of a size to admit the largest Pea in two rows; the holes are 1 inch apart. A slightly elevated edge prevents any Pea straying over the side that may slip from the gardener's hand. Being marked in inches the instrument also serves to set out the distances between the rows. In using it for sowing, a flat-bottomed drill is struck with the holes, the instrument placed in it, and a seed dropped into each hole, it being moved along, and the dropping continued until the entire line is completed. The process is slower than when sowing is effected entirely by hand, but the regularity secured, the saving of seed, and the greater abundance of produce, is far more than compensatory.—*G. W. Johnson.*

Productive Celibacy.—In obedience to your request (p. 212) I have much pleasure in furnishing you with particulars of Polly and her lyings-in. But *à priori*, we must take it for granted, I suppose, that no other bird has had access to her, or further interest in the following statement of facts would be misplaced. I have not the slightest hesitation in saying my belief is that during the 15 years she has domesticated with her proprietor, she has been solitary—all unconscious of a mate,—so, doubtless, the eggs are all barren ones. The facts are, that sometime about the year 1830, Polly was brought from Demerara by the captain of a West India trader, and presented to her present possessor; she was then considered a young bird. Being installed in her latticed domicile she was afterwards treated as such birds usually are, and ranked amongst the parlour pets. In the spring of 1838 (the exact date not noted at the time) she drooped in appearance and health for some time, moping when unnoticed, betraying anger and annoyance when spoken to or disturbed; in short, it was considered that poor Polly was ill and going to die. But surprise was, of course, excited one morning by the discovery of a pretty egg lying on the bottom of her cage; investigation only proved that Polly had laid it, for three others succeeded, with an interval of three or four days between each; after which she recovered her usual appearance, health, and temper. Being a favourite with visitors to the house, the circumstance was often adverted to, and three of the four eggs were begged away, the remaining one of that batch is now before you, as well as those of her after product, with its date on each. In 1841, she produced four others under similar circumstances, and in 1844 she was again in an interesting situation, and produced five eggs. This year she is in the same predicament, as yet only two have appeared, but as she is not yet "as well as may be expected," a further increase is daily looked for. Need I say more?—*Dogberry.* [Don't you think it would be kind to find a mate for Pretty Poll? This statement is certainly very curious. Has anybody a similar case?]

Societies.

BOTANICAL SOCIETY OF LONDON.

Nov. 1.—The Treasurer in the chair. Read "Notice of the discovery of Galium Vaillantii, near Saffron Walden, Essex," by G. S. Gibson, Esq. Specimens were presented.

Nov. 29.—Eighth Anniversary Meeting. The President in the chair. From the Report of the Council it appeared that 17 members had been elected since the last anniversary, and that the Society now consisted of 173 members. The Report of the Herbarium Committee, for the year ending 29th November, 1844, was read. A ballot took place for the Council for the ensuing year, when the Chairman was re-elected President, and he nominated E. Doubleday, Esq., F.L. S., and Dr. Bossey, Vice-Presidents. Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. T. Sansom, were respectively re-elected Treasurer, Secretary, and Librarian. The Report of the Herbarium Committee embodies a general sketch of the Society's present condition in its scientific department, and runs thus:—"*Exchange of British Specimens.*—Although other objects were contemplated on the first institution of the Society, and some of them have been carried into effect as far as practicable, yet it has always been considered that the Society's highest utility would be found in the exchange of specimens, and improving the private Herbaria of members, by the distribution of new or local plants. The attention of the Committee has been sedulously devoted to this object; and great assistance has been given by the ready kindness of members, in sending supplies of newly discovered, or otherwise interesting plants; the specimens of which have been promptly and regularly distributed to the other members who required them. Varieties, even of common species, have likewise been distributed, whenever obtained, since changes from their ordinary characters often bear importantly on the practical distinction of species. In addition, several current errors in nomenclature have been corrected, by the distribution of specimens collected and labelled expressly for this purpose. These novelties, &c., have been latterly enclosed to members, along with the specimens marked as their desiderata in the Edinburgh Catalogue, which could not include them. But as the London Catalogue of British Plants, lately printed for the Society, included all discoveries announced up to the end of 1843, the members will now be enabled to apply for past novelties and varieties in the usual manner, by drawing a short horizontal mark against the numbers which precede their names in the new catalogue. Already, however, additions and corrections require to be made to that new catalogue, examples of which will continue to be sent to the members (although not specially asked for), as the specimens can be procured. It unfortunately happens that the Society's anniversary occurs at a period of the year which is most inconvenient for the Herbarium Committee to make their report. It is precisely the time when fresh parcels are coming in, with the results of the summer labours of collectors; although too early for any examination of their contents to have been made. Still, it may be observed that the specimens already received or promised are sufficient to warrant an opinion on the part of the Committee, that there will be a very good stock of duplicates for distribution early in 1845, including many valuable specimens. It is not deemed necessary to lengthen the present report by any detailed enumeration of the species; they will be seen and estimated by the members who receive them from the Society. But the Committee feel justified in observing that the circulation of specimens through the Botanical Society is truly the very best method for making known new discoveries, and correcting errors of nomenclature. By this step the discovery or correction is promptly placed before the eyes of numerous active botanists, in the best possible form—that of actual specimens in proof of its reality or truth; while the unvarying regularity of distribution which has hitherto so peculiarly and exclusively distinguished the Botanical Society of London, affords a strong additional inducement for making this Society the general centre of inter-communication between the botanists of Britain. The Committee are well aware (and would by no means wish to conceal the fact), that in the few first years of the Society's existence, from 1836 to 1840, the system of labelling and distributing the specimens was very faulty. At the present time, with increased experience, and improved arrangements, in this respect, it is believed that the Society's labels and specimens may now be safely appealed to in questions of nomenclature, though liable, no doubt, to the imperfections of science at any single period, as well as to those occasional inadvertencies which may occur in the labelling of many thousands of specimens. *Exchange of Foreign Plants.*—The limited finances of the Society have hitherto prevented the engagement of a curator, sufficiently conversant with botany, for the labelling of foreign specimens; nor, indeed, have more than very few of the members expressed any wish to be supplied with exotic plants. Small packets of specimens from the following countries can now be distributed, viz.:—Europe, Azores (Watson and Hunt); New South Wales (Anderson and others); New Zealand (Allan Cunningham); Norfolk Island and New Zealand Ferns (A. Cunningham). It is expected that sets of North American plants (Gaver, Watson, and Kelvington) will be ready in the course of 1845. But the Committee will not venture to promise that the tropical plants (East India, &c.) can be got ready within the next 12 months. *British Herbarium*, under the active exertions of the Secretary (who promptly solicits examples of new and interesting plants for the use of the Society) the Reference Herbarium of British Plants has received many valuable additions, which have been, or will be, duly announced in the reports of the Society's monthly meetings. Among others, the following may be particularly mentioned:—Spergula stricta, presented by Mr. G. S. Gibson; Carduus setosus, by Dr. Dewar; Teucrium Botrys, by Mr. T. Ingall; Œnanthe fluviatilis, by Mr. Bentall; Galium Vaillantii, by Mr. G. S. Gibson, new to England, although another form of the same species was long ago reported in Scotland, by G. Don; Bromus commutatus var. pubens, by Mr. H. C. Watson. And in addition to these novelties, the Committee have to record their thanks to Mr. Edwin Lees, for a nearly complete set of British fruticose Rubi. *Foreign Herbarium.*—The progress of a general Herbarium has been checked by the same circumstance which has interfered with the exchange of foreign plants; and the Committee feel that the formation of a good general Herbarium cannot be expected for the present. At the same time it may be stated that some tardiness in this respect is the less to be regretted since the Committee have reason for believing that a good private collection, already including many thousands of species, and still rapidly increasing, will eventually come into the possession of the Society. *Cryptogamic Collections.*—Numerous important additions to this department of the Society's Herbarium have been made during the year, chiefly by the following gentlemen; namely, Messrs. Gray, Thwaites, Bowerbank, Stephens, Dennes, Fordham, Beesley, Riley, Jackson, Gardiner, Merrick, Sidney, Moggridge, Sidebotham, Ibbotson, Hollings, Croale, Torry, and Sansom. To Dr. Ayres and Mr. H. O. Stephens the Committee are indebted for many valuable specimens of Fungi: and to Mr. Bowerbank, for a collection of Algæ from the African coast at Algoa Bay. *Local Herbaria.*—The Herbarium of Thame, in Oxfordshire, has been completed by Dr. Ayres. A portion of that for Embleton, in Northumberland, has been presented by Mr. Embleton. That of Esher, in Surrey, has been collected by Mr. Watson, but is not yet fastened to paper. Mr. Salmon has commenced one for the neighbourhood of Godalming, in the same county. The Rev. W. R. Crotch, is forming one for the neighbourhood of Taunton, in Somersetshire.

BOTANICAL SOCIETY OF EDINBURGH.

March 13, 1845.—Dr. Seller, V.P., in the chair. R. Balloch, Esq., was elected a Non-resident Fellow. Numerous donations to the Library and Museum were announced. The following communications were read:—1. On the genus Closterium, (continued) by Mr. J. Ralfs, Penzance. 2. On Encyonema prostratum of Kützing, by the same. These papers will appear at length in the "Annals of Natural History." 3. Mr. M'Nab read a continuation of his journal of a tour through part of the United States and the Canadas. The last portion of this journal read before the Society chiefly related to the botanical aspect of the country immediately to the westward of Kingston; the indigenous Thorns and their fitness for forming hedges being particularly described. From Kingston the party crossed Lake Ontario to Rochester, situated on the American side, a few miles above the mouth of the Genessee river; considerable tracts of shallow water extend for some distance on either side of this river, in which the wild Rice grew more luxuriantly than had been hitherto observed. Proceeding upwards the river becomes narrower but deep, having beautifully wooded banks rising about 150 feet on either side, covered chiefly with Oaks, Elms, Hiccories, Beeches, and Birches, interspersed with Hemlock Spruces, White Pines, and Arborvitæs of large size. On the north bank, the black snake root, Actæa racemosa, was abundant, its long spikes of white flowers having a singular effect beneath the shade of the trees. It was not seen on the south bank, but in its place considerable quantities of Gerardia flava, and G. quercifolia were noticed, all richly clothed with flowers; here also several extensive groups of Buckthorns, Hippophäe canadensis, were observed; each plant formed a large silvery looking bush, and when backed by the dark evergreen trees gave a picturesque effect to the landscape. Crossing Lake Ontario again to Toronto, on the Canada side, a great difference in the vegetation was remarked; here, for the first time in Canada, healthy specimens of Weeping Willows, Locust-trees, and Canadian and Lombardy Poplars were met with; and, for the first time in the country, a native forest of Pinus resinosa; the trees composing this forest were very tall, but none of the stems measured exceeded 2 feet in diameter. Many detached specimens of the Black Birch, or Mountain Mahogany (Betula lenta) were also seen; this is described by Mr. M'Nab as a finely-shaped tree, with a wide-spreading top, much resembling the Beech-trees of Britain; the stems averaged about 2 feet in diameter. Here also Monarda fistulosa and Spiranthes tortilis were found—the latter very sparingly and for the first time. They next directed their attention to the Peninsula of Toronto, lying about 2½ miles from the city, across an arm of the Lake. The soil is poor and sandy, interspersed with marshes. Several species of trees of dwarfish growth were scattered about, the most remarkable being the Rose or Conegall Willow (Salix conifera); of this many fine specimens were observed; the branches generally terminated by silvery, cone-like excrescences, supposed to be occasioned by insects—which, with the silvery whiteness of the foliage, gave the plants a remarkable appearance. Several other species of Willows were noticed on these sandy plains, but none of them appeared to be infested with insects, although the appearance here described is not peculiar to the above species. The Arbutus uva ursi covered considerable tracts; the Canadian plant is larger than the British, and even differs slightly from that found in the United States; it is called by the Indians Sacacomis; they smoke the leaves, and believe them to possess excellent medicinal properties. Few herbaceous plants were picked in bloom, with the exception of Rudbeckia hirta, which was in great abundance,

although described by American ars as an inhabitant of the Southern States. Dcephalum virginianum is by no means an abundant in Canada, Niagara Falls being the station giv botanical books, but where Mr. M'Nab failed to it; its principal habitats are the mountain mead of Virginia and Carolina. Linum virginianum, Cys flavescens, and C. castaneus; Silene Antirrhina, tellaria parvula, and Lathyrus palustris. On drose sand, by the edge of the lake, Euphorbia polygdia was abundant; while, in marshy places, Lobeli mii formed the greatest part of the vegetation d was profusely covered with its rich blue flower Specimens of the most remarkable plants were exh to the meeting.

ROYAL ASIATIC ETY.

April 5.—Prof. H. H. Wilso he chair.—A root of an Indian plant was laid upo table, believed to be a Cardiospermum: it was se ree months ago by General Cullen, from Ooraghu ear Tritchoor, to Dr. Wight, of Ootacamund, as afterwards forwarded to the Society. Thnt possesses the peculiar property of being sphorescent. The letter of General Cullen, accompanied the specimen, stated that the p had been recently discovered by a Tahsildar, had accompanied Captain Bean on a journey, who, having been compelled by rain to take r at night under a mass of rock in the jungles, been astonished at seeing a blaze of phosphoric over all the Grass in the vicinity. This man ght some specimens to Trevandrum. General Cstated that the plant, though said to be only now dred, was known to the Brahmans. He inclosed dons—one, from the Amera Kosha; a second, fr Kumara Sambhava; and a third, from the book of am, which mentioned it. In one of these quotatie sun, called the husband of light, is said, when es the earth at night, to commit his wife to the these plants, that he may receive her again in thning. In another, the plant is celebrated as g light to the lovers wandering about the Hi mountains. In the Amera Kosha, the plant is oned by several names; among others, by that of Mati, the shining plant: in Colebrooke's edition, inglished by Heart-pea. The root exhibited being nd perfectly dry, it was doubted whether it retain phosphoric property; but a gentleman connecte the Society, wrapped a small slice of the root in oth, in which he allowed it to remain about an ho d he then had the pleasure of seeing it shinin he dark like a piece of phosphorus, or perhaps hat paler, more like dead fish, or rotten wood. Tt is stated, by Dr. Wight, to abound in the jungles he foot of the hills in the Madura district; and found in Burmah by Dr. Wallich.

Cour Shows.

Hampshire Horticu Society, March 27.—This was the first exhibitic the year. Various Prizes were awarded by Me handler and Sons, of Vauxhall; of these the foll are the more remarkable, viz.:—For Tropæolu byceras, a G. R. B. Medal, to the Rev. G. C. R ; for Oncidium Baueri, a G. R. B. Medal, to v. F. Beadon; for Stoveplants, a G. S. Me the Rev. G. C. Rashleigh; for Hyacinths, a G. edal, to Mr. W. Barnes; for Climbers, a G. al, to the Rev. G. C. Rashleigh; for Azaleas S. Medal, to the Rev. F. Beadon; for Misce s Fruits, a G. S. Medal, to H. F. Holloway, and among Vegetables, for Forced Potatoes, a S. Medal, to H. F. Holloway; together with sever Prizes of similar value.

Canterbury Ho ral Society, March 27.—This, the first meeting, merously attended. Several fine plants were together. Of these the more remarkable was a specimen of Dendrobium nobile, and of Eranther lchellum, from the Earl Cornwallis; several Epacrises, and Camellias, from the garden of t W. Brockman; and Coronilla glauca, and Acalia, from that of T. Doran, Esq. G. Buckley, Esq ed the first Prize for Corræas with C. Harris peciosa; and Miss Webb sent several Cape ncluding a fine Linnæoides, to which a first Pr awarded. A few Roses, Azaleas, and Cacti, we present. Of the latter, Mrs. Ramsay sent C. Jenkinsonii. Among Fruit were well pres ples and Pears; of the former, R. Francis, E Golden Harvey, and Mr. Filmer showed six sp of the Wellington or Dumelow's Seedling. A Pears were Easter Beurré, and Beurré Rand od condition, from Mr. Francis. A few Vegeta e also shown.

Reviews.

Tales of the or the Adventures of an Emigrant. By C. R Esq. 3d Edition. Smith, Elder, and Co.

A true and same time graphic history of the adventures telligent emigrant is, of all things, that which wanted in this country. We took up this boo hope that, notwithstanding its unpromising ould supply the want; and now that we have re are constrained to say that, notwithstandi ny, and, as a work of fiction, great merits, it hat we can altogether recommend. We at the e admit that we have but small expectation a more useful book written by any one havin uliar talent of Mr. Rowcroft.

No one can judge so correctly of the value of a work like this, as those who have visited the country in which the events which it narrates are supposed to have occurred. We have, therefore, placed it in the hands of a gentleman thoroughly acquainted with the subject, and the following are his observations upon it:—

"Tales of the Colonies" is a mis-nomer, only the colony of Van Diemen's Land being referred to. The work is well conceived, but executed with more spirit and talent than judgment. The object is professedly to guide and instruct the emigrant; and Robinson Crusoe seems to have been the model aimed at. But the patient accumulation of small useful details, which so eminently characterises Defoe's hero, is only imperfectly imitated by Mr. Rowcroft's, whose love of adventure, on the contrary, carries him too often from his business and home altogether, amid scenes which, however they may delight, cannot much instruct the inquiring emigrant.

In recommending the work now to perusal, another reservation requires also to be made. It describes a state of society and means of success in emigration now irrevocably past away. Whatever our private opinions regarding that convict system which the author describes here *en beau*, nothing can now bring it back. Even had Mr. Rowcroft been thus more detailed than he has in his economical instructions, the want of which appears to us the omission in his book, still the great social change which has made labour expensive, instead of as formerly cheap, and compelled land to be bought which was before granted, ought not to be overlooked. The most able and faithful guide in one set of circumstances may be the most delusive and treacherous in another.

To those who know Van Dieman's Land, a great interest is diffused over the work by the remarkable clearness of the local descriptions. The Den-hill, the Salt-pan plains, the country west of both, over which the Bushrangers were pursued, and east of them to which the child was followed, are depicted with a reality not to be exceeded. Yet even here, their economical applications are overlooked,—nor is any reference made to their capabilities of cultivation, or of carrying stock, or of the description of stock preferable in different seasons, and other circumstances. A genuine settler might have been expected to revel in such details; and the interest of the information so contributed would have survived all social vicissitudes. Instead of this, highly picturesque delineations of individual character, native and other, form the staple of the book: and when so well executed, perhaps it is churlish to object to them. Nor would we desire to want them, if we had but the other also.

In recommending the book, therefore, to perusal, which we do cordially, as being most interesting, and calculated to nourish many valuable emigrant virtues, by shewing through what difficulties and dangers they will bear their possessor unscathed, we yet feel it a duty to state, that as regards the present prospects of emigration to Van Dieman's Land, it is a fairy tale. The wave which bore its hero on to fortune in its rise, has in its recess wrecked as goodly and as stable-looking prospects as his are depicted in the concluding chapter. And though there can be no doubt, that with patience, perseverance, and self-command, all the elements of wealth are still in Van Dieman's Land, as in the other Australian Colonies; yet, perhaps, in none of them would these qualities be more severely tasked at the present moment than in this land of Mr. Rowcroft's adoption and praise. Into the whole circumstances causing this, it would be beside our purpose here to enter: but the changes made of late years in the convict system constitute one of them, and the general fact is unquestionable.

NEW PLANTS.

Whitfieldia lateritia. Brick-coloured Whitfieldia. (*Stove Shrub.*) Acanthaceæ. Didynamia Angiospermia.—This plant is a very desirable inmate of the stove, forming a small bushy shrub, with spreading branches, and copious evergreen foliage; the branches terminated by racemes of flowers of a rather large size, of which the calyx and corolla, and often large bracteas, are of one uniform brick-red colour. It is one of the many novelties brought home to Lord Derby, from the interior of Sierra Leone. As a genus of Acanthaceæ, I can refer it to no described one; though its affinity (yet not very close) is probably with Geissomeria, Lindl., and I have dedicated it to T. Whitfield, Esq., who, at the risk of his life, has made several voyages to, and journies into, the interior of Western—tropical Africa, and formed extensive collections of living plants and animals.—*Botanical Magazine.*

Bees.

At p. 7, a correspondent describes what he calls a "new plan, and from experience, the best plan of managing bees." But what he has related is similar to what has been advanced by Nutt and others, whose schemes, after many fair trials, have proved defective. I shall only notice two statements, viz., "Never kill your bees; never allow your bees to swarm." The first is held as an obstacle to the old plan of bee-keeping; and the second a bar against the new system. "A. C." imagines that the latter is to be overcome by merely opening "a passage between the middle hive and a hive at the side, and forcing the bees to pass through the latter, by stopping up the mouth of the former." However plausible this project may appear, bees will have their own way to increase their species. When we consider their manner of doing so, it can hardly be expected that the queen and swarm would settle so closely to her rivals about to come forth in the hive. Her jealousy towards them seems to be the cause of her quitting; consequently, when bees are in good condition, there can be no practical way of preventing them from swarming. To those unacquainted with bees, this may require a little explanation. The fact that the old queen bee leads off the first swarm a few days before her rivals quit their cells seems to set aside the supposition that she does this through jealousy; but it is believed that this jealousy is caused by her knowing that they will soon appear. Be this as it may, there can, however, be no doubt that the rivalry of the young queens is the cause of after-swarms; for they do not leave the hive until more than one queen is in the field to dispute the right of sovereignty. Some of our best apiarians think that the young queens lead off the swarms according to their seniority, but that is not quite clear, for it often happens that several queens leave the hive at once in a swarm. In general it is the after-swarms that are the destruction of bees, by breaking them into small communities at a time when they cannot collect food enough to enable them to survive the winter. This is not only a bar to the new method of bee-keeping noticed above, but also to the old one, and most probably gave rise to the practice of destroying bees. The "Old Bee-keeper," not knowing the plan of uniting bees, would very naturally have thought that it was better to do this, and take their store, though little, than to let them eat it, and then perish at last. It may be asked—Why does he destroy strong stocks, instead of taking a part of the honey? I answer, he must first be taught how to do it; his prejudices are not to be overcome by over-rated statements of produce from hives which he fancies differ much from his own. Supposing "A." prevented his bees from swarming, could he, by his cooling plans, stop the queen from finding out the brood-cells purposely made in the end boxes? No; nor, in a great measure, the destruction of brood while taking the honey. The latter is a great drawback; for that brood would have filled up the places of the bees falling off, many being of an age to die before the spring, and those which survive requiring, perhaps, to be fed. Though the "Old Bee-keeper" destroyed a part of his bees, yet he did not disturb his stocks for the next season; consequently, they contained plenty of brood, and, perhaps, as much honey as those of his neighbours. I shall leave it for apiarians to judge which of the hives they would choose to stand the winter.—*W.*

Method of putting two swarms into one hive.—People are apt to consider their own plans best, therefore I may be excused, perhaps, for thinking that a plan I have for putting two swarms of bees together, or putting a swarm into an old weak hive is better than any I have seen mentioned. On the swarm leaving the hive, I shake it into an octagonal wood box, which has at the top a hole 3 inches in diameter, which hole is closed by a slide the same day; in the evening, after all the bees have got in, I place the hive into which I wish the swarm to enter upon the top of the box, which I have previously smeared with honey, and then draw the slide; this usually causes a number of the bees which have been hanging to the slide to fall down on to the floor of the box, and creeping up again to join their companions, they find a hole through which they pass, and the rest follow them to feed upon the honey they find there, and then creep forward, still upward, so that next morning I generally find a united family without the stinging, or fighting, or killing of bees, consequent on the plans mentioned by other parties, as the amalgamation in most instances takes place without any of the bees being killed, or quarrelling with each other.—*T. G. Clitheroe.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—The lately-shifted plants will now be making roots; therefore, attend to the watering, and see that they do not suffer for want of this. Keep up a warm and moist atmosphere, especially during the day, that the growth may be accelerated by all possible expedients; shading will also be requisite when the sun shines out fiercely, but dispense with this as much as possible; and admit air when the temperature exceeds 90°, but with such a temperature the humidity must be kept up, or the plants will soon suffer in their foliage; and as the foliage of plants is just as important as the flowers, great attention will be necessary at this critical period, as the young leaves are very susceptible of injury, and one half-hour's negligence may place you six months in arrear. *Greenhouse.*—Keep this house rather close, until the plants have sent forth fresh roots in the new soil; and then expose them gradually to more air. Plants which make their growth in a comparatively low temperature will always endure more hardship than such as are kept too confined, and are not so liable to sudden decay. In this, as well as in other departments, be particular in watering, and observe that the old ball partakes of the moisture. It is best to let plants feel that they just want water, and then to administer a good supply, so that every part may be thoroughly moistened; for if given in small quantity, the top of the ball is kept too wet, while the under-roots are suffering.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIE

Owing to the continuance of dry weather, fresh planted shrubs must be carefully examined, and if dry they should be well watered and mulched with a thin coat of half-rotten leaves, or any other light substance. Tulip beds, and those of Hyacinths, &c., should be carefully forked up; also, borders that were dug up in autumn might be slightly forked over, and all clods nicely broken; it will be much more beneficial than raking them at present. Plant out Stocks, Rockets, Mule Pinks, &c., into borders or beds. Continue to prepare beds for planting when the season is a little more advanced. Laurel hedges should now be pruned, or Laurels might be cut with safety, as they are not liable to be injured by frost after this time. *Pits and Frames.*—Follow the directions given in last week's Calendar; remove the most hardy kinds of plants to cold pits, or sheltered situations, to harden. Pot-off Annuals as they require it, to prevent damping, and keep them in a gentle heat for a few days, until they begin to take hold of the soil, when they might be removed to cold pits. Put in cuttings of such plants as are scarce, for sum-

mer bedding, to follow the first planted-out Annuals, or other plants that have done blooming. Water freely but carefully until the nights are more genial. Shift Lobelias as they require it, and keep them in a growing heat. Sow Mignonette, Ten-week Stocks, &c., for succession. Pot off plants of Mesembryanthemum tricolor, Viscaria oculata, Clintonia pulchella, Phlox Drummondi, and Portulacas, or other choice Annuals, and keep them in a mild growing heat.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—The late frosty nights have been anything but propitious for this class of Florists' Flowers, and we trust, after the repeated warnings we have given, that our readers have not neglected the necessary precautions to prevent a "*check*" in their growth. Slugs and snails will sometimes, in spite of all the grower's vigilance, escape observation, and make ravages amongst the thrums of the opening flowers. To be beforehand with them it will be necessary to place a few tiles in the frame, supported at the corners with small stones, about half an inch from the ground; under these tiles fresh bran may be put, and the Auricula-pots may then be placed on the tiles: if any snails get into the frame, here they will congregate, and may be destroyed before they do much mischief. Attend to watering, and with calico, or some other thin substance, shield the plants from the direct rays of the sun when most intense. *Polyanthuses* are now throwing up their trusses (rather prematurely) with me. A similar device must be adopted to entrap slugs, &c., &c., as mentioned above, and regularly attended to, else the blooms will suffer, especially on plants in beds. Where soil and situation suit, these flowers are not subject to many diseases; but if exposed to the sun most of the day, or planted on a dry porous soil, they are apt to be infested with red spider, which is extremely difficult to destroy. *Ranunculuses.*—Should the soil of the beds containing these roots crack during the dry weather, the fissures must be filled up; the early planted roots will soon be making their appearance; much of the success in their cultivation depends on the soil being kept close round the rising plant. *Tulips.*—Protect from hail-storms, which are now likely to be frequent, and carefully stir the surface-soil of the bed as recommended last week. *Carnations.*—Continue to pot off, and where possible, shade the plants during the present very dry weather, and particularly attend to the directions given in late Calendars.—*C.*

IV.—PINERIES, VINERIES, &c.

Pinery.—Little can be said in addition to former Calendars at present. Beware of extreme bottom-heat; 90° will be always found amply sufficient, provided means are taken to secure a free and healthy action of root. Depend a good deal on syringing for both atmospheric and pot moisture, only observing to keep a powerful heat, when the houses or pits are closed for the day, with abundance of atmospheric moisture. Give much air on fine mornings to your Peach-houses, closing early and syringing heavily; about 4 o'clock they will enjoy a slight watering of tepid manure-water, at the root, about twice a week, provided there is no danger of stagnation. Keep down all superfluous shoots, retaining nothing at the final thinning but what is wanted for the next year's crop. *Vineries.*—If your latest Vines are swelling fast, they should be introduced as soon as possible; however, for latest crops, they should be kept out as long as is consistent with their safety. When introduced, the shoots should be kept very moist with the syringe, until they are in leaf. Ripening Grapes should have a much drier atmosphere, with a lively circulation of air, even in the night, if possible. No syringing will, of course, be allowed in the latter case. *Figs.*—Continue former directions. Keep the root in an equable state, as regards moisture, and do not permit very excessive fluctuations in the thermometer. Any great advance in this way should be from 3 to 5 o'clock in the afternoon, accompanied with copious syringings.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

There is no period in which the vegetation of Fruit-trees is so susceptible of injury from the privation of buds, or the removal of branches and shoots, as the present. No living branch should, therefore, be now touched by the edge of the pruning-knife; and disbudding should be commenced with the greatest caution. Except in some particular cases, this operation is not at all advisable whilst the leaf-buds are in the act of breaking. A few of the foreright shoots on the most vigorous branches of Peaches and Nectarines on walls should be first displaced. By frequently going over the trees, and only removing a little at a time, the flow of sap will not be deranged, as would be the case if all, or nearly all, superfluous shoots were at once removed. Stir the soil at the bottom of the walls, and completely clear away that next the bricks, replacing it with fresh, for broods of insects harbour in such soil and situation. *Kitchen Garden.*—Sow some Brussels Sprouts, and a little Salsify and Scorzonera, if required, early; but defer the principal sowing, as these plants are apt to run to seed. Sow Capsicums in heat; also Vegetable Marrows; the Italian Vegetable Marrow is an excellent sort, forming a bush of leaves without running over the ground, and it bears well. In case the ground continue too cold, it will be advisable to sow some Kidney Beans in small pots for transplanting. Sow Leeks, Angelica, Sweet Marjoram, and other annual herbs.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—The clearing of all extraneous matters should be continued, and everything forwarded before the barking season commences, as the repairing or making new fences and roads, clearing drains, &c. *Nursery.*—Grafting should now be finished as speedily as possible; also the layering of Laurestinus, Phillyreas, and similar Evergreens. Transplant now Evergreens of all kinds. Clean winter-dressed hedgerows before the weeds become advanced.—*F.*

VII.—COTTAGERS' GARDENS.

Those who have not an opportunity of procuring plants had better sow in a warm situation a few seeds of Cauliflowers, Broccoli, Brussels Sprouts, Large Green Savoy, and Vanack Cabbages. A sowing of Turnips had also better be got in on the first favourable opportunity. Where a few Cauliflower-plants have been preserved over winter under hand-lights they may now be thinned out, leaving three or four plants under each light, and transplanting the others into a sheltered piece of ground. After a shower draw the earth up to the stems of Cabbage-plants which were planted either in autumn or spring. This will guard the stems from the sun and wind, which will dry and harden them, taking care, however, not to draw the soil up into the hearts of the plants. Be careful to destroy slugs and snails, which at this season are invited abroad by gentle showers of rain. Those who are fond of Annuals may now sow a few in the open border, selecting from the lists given in late Numbers. Cover with fine light soil. Scarlet Pelargoniums that were taken up and stored away in autumn will now require a little heat, if possible, to forward them for planting out in May. Dahlias will also now require all the warmth that the cottager can command to start them into growth. Finally, keep all crops clean from weeds, for if in spring that work is neglected, it will require much more labour afterwards.—*G.*

State of the Weather near London, for the week ending April 10, 1845, as observed at the Horticultural Garden, Chiswick.

April	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 4	27	30.053	29.886	69	35	52.0	E.	
Sat. 5	28	30.041	29.992	58	32	45.0	E.	
Sun. 6	○	29.914	29.891	60	22	41.0	N.E.	
Mon. 7	0	29.915	29.813	60	26	43.0	N.E.	
Tues. 8	1	29.572	29.416	57	23	40.0	W.	.04
Wed. 9	2	29.068	28.972	47	35	41.0	N.E.	.09
Thurs. 10	3	29.118	29.020	48	34	41.0	W.	.19
Average		29.668	29.570	57.0	29.6	43.3		.32

April 4—Foggy; cloudless; very dry air, with slight haze; clear and fine
5—Thick haze; fine with dry haze; clear; slight frost
6—Clear and fine; very clear at night; sharp frost
7—Clear; slight haze, with very dry air; clear and frosty
8—Densely overcast; cola rain; cloudy; sunshine at intervals; clear; sharp frost
9—Foggy; densely overcast; showery; cold rain at night
10—Rain: dense clouds; showery; cold rain at night.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending April 19, 1845.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 13	56.2	36.1	46.1	5	0.12 in.	6	3	1	1	1	3	4	—
Mon. 14	58.1	38.4	48.3	7	0.31	2	3	—	2	2	4	1	5
Tues. 15	59.4	39.6	49.5	9	0.47	1	2	1	1	4	5	1	4
Wed. 16	56.9	36.7	46.8	9	0.63	4	4	2	1	1	3	2	2
Thur. 17	56.7	37.1	46.9	9	0.32	6	4	1	1	1	2	1	1
Fri. 18	57.5	37.8	47.7	4	0.49	2	3	2	1	2	3	4	3
Sat. 19	58.7	36.6	47.7	4	0.60	5	4	2	1	—	2	5	—

The highest temperature during the above period occurred on the 17th, 1844—therm. 71°; and the lowest on the 13th, 1843—therm. 24°.

Notices to Correspondents.

AZALEAS.—*Katherine*—The answer to your question is too long for insertion; if you will send your address it shall be forwarded privately.

ANNUALS—*M C K*—These are suitable for sowing under standard Roses:—Lupinus nanus, bright blue; Collinsia bicolor, purple and white; Phlox Drummondi, crimson; Nemophila insignis, azure blue; Platystemon californicus, lemon yellow; Leptosiphon androsaceus, purple and white; Cacalia coccinea, scarlet; Godetia Lindleyana, rosy purple with crimson spots; Calandrinia speciosa, crimson; Gilia tricolor, purple and yellow; Nolana atriplicifolia, blue and white; and Sphenogyne speciosa, orange yellow with dark centre.¶

BOOKS—*Sub*—We believe that at present there is no expectation of a new edition of "Loudon's Hortus Britannicus."‡ ——*Non Par*—"Florist's Journal."

CLIMBERS—*Scotch Sub*—The following will probably succeed on a southern aspect in a sheltered situation near Edinbugh, viz.:—Clianthus puniceus, Edwardsia grandiflora, Clematis azurea and montana, Jasminum revolutum, Chimonanthus fragrans and grandiflorus, Caprifolium flexuosum, Glycine sinensis, Magnolia conspicua and grandiflora, Solanum crispum, Banksia Noisette and climbing China Roses, Veronica speciosa, and Bignonia radicans, major, and grandiflora.¶

DOG'S-TOOTH VIOLETS—*Dodman*—These bloom best when seldom disturbed, and they in general only flower well every other year; they should be planted in rather strong rich soil, and kept moist during the growing season; divide the roots in September.¶

FERNS—*Saxum*—These can be had through any nurseryman, who, if he does not sell them, can procure them.

GENTIANELLA—*F R S*—This makes excellent edging for beds, but in your case where so large a quantity is wanted, it would be expensive. You had better plant the bright red Thrift, which will be much cheaper and more easily procured.‡

HABROTHAMNUS FASCICULATUS—*C J D*—This grows freely in an equal mixture of sandy loam and peat; but when the plants are young they should be grown in a richer soil, in order to gain size and substance quickly. When they have attained a considerable size, they require to be kept rather dry, and to be stunted in the pots. A good way to treat the plant is to turn it, when young, into the open border in a very rich soil, about the end of May, to supply it abundantly with moisture during the summer, and to take it up about the end of September. Pot it, keeping it in a close place for a week or two to recover the shift, and then place it in a rather dry situation, where it is secure from frost, for the winter. About the middle of the following March cut it back rather freely, and top-dress the soil in the pots, but by no means repot it; allow it to start in a rather cool but not very dry situation. As it advances, water more freely, and, finally, keep it rather close and damp, to cause it to flower freely.‡

INSECTS—*Ingram*—You cannot destroy the Caddis-worms; but you may perhaps succeed in getting rid of the flies they produce, by burning a *blazing* fire in the evening by the side of the Water-cress beds. You must first ascertain the exact period of their appearance, which will be probably in May, and then the hour of their flight. *R.*

LAURELS—*Roundwood*—We cannot think that there is any truth in the opinion that the common Laurel is unwholesome, when planted in large quantities, so as to be injurious to the health, in shrubberies surrounding and near to a house. We have lived for years in such places. At the same time we cannot affirm that some idiosyncracy of constitution may not *possibly* cause them to affect a person now and then.

LAWNS—*Scotch Sub*—Budding's mowing machine is the best for level ground, but it can only be used in very dry weather. Of Grasses, procure seeds of Poa pratensis and Crested Dog's-tail.¶

MANURE—*J H*—Cowdung and water is as good as any as a liquid manure for Pelargoniums; and super-phosphate of lime, mixed with water, furnishes an excellent fluid.

MARTYNIA FRAGRANS—*B J*—This is one of those plants with which nothing can be done except the house is damp as well as warm. It likes a rich soil and frequent potting; it should also be well attended to with water.‡

NAMES OF PLANTS—*C L*—Hippeastrum aulicum; a native of Brazil. It is ornamental, and one of those bulbs which every one can flower.§——*J J*—1, Lachenalia pendula, a common Greenhouse bulb, propagated by offsets; 2, Streptocarpus Rexii? but this leaf is unusually narrow.——*Juba.*—Narcissus lobularus ¶——*Constant Reader*—Melia Azedarach.——*Rector*—A fine var. of Amaryllis (Hippeastrum) vittata——*Sub*—1. Erica regerminans; 2. E. rubra calyx.‡

NURSERY STOCK—*A B C D* recommends Rose vendors to inform their customers whether any sorts ordered are more tender than common. He also recommends Mr. Miller, of Ramsgate, to name the colours of the seedling Pelargoniums he offers for sale this spring.

RIGHTS OF GARDENERS—*A Gard*—A gardener who has been a number of years in a situation, and who has added to the collection under his charge, by obtaining cuttings and roots of Dahlias, Fuchsias, &c., from his friends, now that his master is dead, and the collection is about to be sold, has no legal right to retain any of them as his own property, unless there is some agreement to that effect.

PARROTS—*A Bird Fancier*—The whole history of the Parrot disease was given last year at p. 654 and elsewhere.

PEARS—*Clericus*—The Lewis Pear is middle sized, roundish-obovate. Skin of nearly the same colour as that of the Crassane. Flesh whitish, melting, sugary, and rich, the flavour partaking of that of the Passe Colmar. Season Nov. and Jan. This was found to be its character on fruiting in this country; but whether it will constantly maintain such, remains to be proved; for in America, where it originated, it is said to vary considerably. Knight's Monarch is considered preferable to it. The Beurré Gris d'Hiver Nouveau exists in the garden of the Horticultural Society, and is likely to fruit this season. In M. Jamin's *Catulogue Raisonné des Arbres Fruitiers*, it is described as being middle-sized, melting, of first-rate quality, ripening in winter; tree very productive. The character given of the March Bergamot, p. 85, has been satisfactorily ascertained.‖

ROCK PLANTS—*J R*—The following are 40 plants, that are suitable for a rockwork, viz.:—Rhododendron ferrugineum, R. hirsutum, Arctostaphylos Uva-ursi, Chamæledon procumbens, Sedum rupestre, S. Forsterianum, S. populifolium, S. villosum, S. angulare, Pernettia phillyreæfolia, P. pilosa, Mahonia aquifolium, Ramonda pyrenaica, Soldanella alpina, Androsace villosa, Corydalis nobilis, Phlox ovata, P. subulata, P. nivalis, P. minor flore pleno, Campanula pumila, Gentiana verna, Dryas octopetala, Digitalis lutea, Sibthorpia europæa, Aralpina, Draba aizoides, Prenanthes purpurea, P. muralis, Anaria plantaginea, Gnaphalium arenarium, Ceterach officinarum, Polypodium vulgare cambricum, P. dryopteris, Osmunda sensibilis, Asplenium adiantum nigrum, Pteris cauda tantum capillus-veneris, Aspidium rigidum, A. Lonchitis.‡

SALT TREES—*G* gives what description of tree or shrub is most suitable to plant on the edge of the Thames, near Gravesend, where the water is salt, especially with a rising tide, to prevent washing away of the bank and Grass. It is presumed, a outset, some stakes would be required, until strong were formed; is there any species of Willow that will succeed, washed by salt-water?—Will any one who has science in such matters oblige him with the information?

SAP—*J C H*—We sorry to disoblige you: but we must adhere to our dec In fact, the subject, as you now propose to give it, would be a treatise on vegetable physiology, and better suit a volume than the columns of a newspaper. May we you to "Orford's" little experiment, at p. 225? It seems conclusive. If, however, you are of a different opin and will show *briefly* that in that case there is no retrogression of the sap, we shall be happy to give insertion such remarks as bear directly upon the question.

SEEDLINGS—*J W*—Amaryllises are handsome, but much too like Johnsoni that class. Of the Epacrises, No. 2 seems the best, none are remarkable. They came in miserable order re is no difficulty in procuring any number of pretties of Epacris; the real art is to find something very s.

SHRUBS—*Sub*—Thr berries in winter, viz.—Cotoneaster microphylla; C. difolia; Pyracantha; Holly, yellow and red-berried es; Winter Crab (Pyrus hiemalis); Cratægus prunifo and Arbutus unedo. The following are remarkable at th son for their rich-coloured shoots:—Cornus sibirica; striatum; and Tilia parvifolia aurea. Benthamia fragife ers about May, and ripens its fruit in autumn. It e in the open air through a mild winter in the neig ood of London; but it is generally very much injure dinary winter weather, and entirely killed by severe s. Paulownia imperialis is quite hardy, and forms ver-spikes late in autumn, but the flowers do not expa re the following May.¶

SLUGS—*W M*—Various edies have been given in former Numbers for the tion of these. Pretty strong gas-water applied to gr ested with them at their feeding-time kills them effe ‡

TIMBER—*Sub*—If tim to be barked it must be felled in spring: if the bark anted the end of autumn is the preferable time. O opinion, however, is, that no plan is better than to bar he spring while standing, and to fell in the autumn. orst time of all to fell trees of any kind is the spring, w wood is full of sap.

TROPÆOLUM MORITZI—*Non Par*—This is a perennial, and it is not hardy. has done blooming, water should be gradually withhel it, and the pot containing the tuber should be sto y in some dry place, until the season for starting it owth has returned. The tubers should then be repott placed in a gentle heat.‡

TRUFFLES—*Lawcensis*—vill see by degrees all that is known of this subject the manner of making Truffle spawn, that is just wh ve to find out.

VISCARIA OCULATA—*J* seeds of this annual may be sown in the open bo once; but the plants bloom better when they are n a warm pit and afterwards planted out, when all om late spring frosts is over.‡

WATER—*J F*—It is not pl keep in leaden cisterns water intended to be drank. vater is very pure it is certain to become poisonous. mpure it is less certain, but always dangerous.

WOODLICE—*Sub*—Directio destroying these have been given at p. 358 of last y ume. A toad or two kept in your greenhouse and fr ill thin their numbers, and large quantities may als ught by placing two tiles or boards over each other, which they crawl as morning approaches to conceal lves. Tiles laid over Cabbage leaves form good tr

MISC.—*J D D*—The Potiro is the largest variety of Gourd. Seeds of it may hed from the nearest seed-shop.‡——*Dodman*—The Berry is Shepherdia argentea; it has not yet fi England. The male and female are distinct plants. uit is small and of a red colour, produced in abun nd very ornamental, but worthless to eat. The pla requires to be planted in good garden soil; but car be taken to procure both sexes, and to plant them short distance from each other.¶——*G Mc. W*—Yo nd a select list of Pears given at p. 136 of this y ume.‡——*An Old Pupil*—Your question is answered of this year.‡——*Rook's Nest*—A select list of Ros een given at p. 88 of this year's volume.‡——*R H*—T on artificial climate, by Mr. Daniell, published in th sactions of the Horticultural Society," in 1824, ca obtained in a separate form.‡——*S W S*—Various f destroying the wire-worm have been given fro time in our columns; we would particularly refer pp. 54 and 246 of our volume for 1844.‡——*J F*—T heim Pippin and the Blenheim Orange are the sa y of Apple.‡——*K L*—In ignorance of all the circu connected with your Cucumbers, it is not easy to is wrong with them; but being planted in Novemb udging from the dried state of the stem and from arance of the leaf, we should imagine that they are g to decay; and that in consequence of the slow on of the sap, the increased heat of the sun at th n, acting through the glass on the leaves has exhaus tissue, and caused the brown burned-like appearan they exhibit.‡——*F. Smith*—Send a Post-office or 6*d.*, and the Numbers shall be forwarded. We sho despatched them at once, but you forgot to inclos dress.——*Philuca*—A paper on Yuccas has been pl your request, and only awaits an opportunity for tion.——*Devonian*—All Pines will grow in the pla eak of. Plant them so that they may be eventually part.

SEEDLING F

CAMELLIA—*J P*—The specimen s single seedling is very handsome; the petals are l t, and fine in form, and the light florets in the ce ve its appearance. The double flower unfortunately he centre, which is depressed, and the petals in tha t part losing their good form, are ragged and uneve

PELARGONIUMS—*A Constant Sub* seedlings are very healthy and well grown. Co ith the varieties generally cultivated, they are c deficient in form; the under petals are long, nar veiny; the upper petals too high, and the spots to hey all partake of the same defects. Save your s the best flowers only.*

RHODODENDRON—*M S*—The flowers seedling are large and handsome; it appears to open c icate lilac colour, which, from exposure, becomes e upper part of the throat is distinctly spotted; t s of the corolla are rather too long; but the flower ne green foliage, forms a handsome object.*

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The Agricultural Gazette.

SATURDAY, APRIL 12, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, April 16—Agricultural Society of England.
THURSDAY, April 17—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, April 23—Agricultural Society of England.
THURSDAY, April 24—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

April 15 { Rochford Hundred / Framlingham
April 16—Harleston
April 17 { Grove Ferry / Richmondshire / Blofield and Walsham
April 18 { Stoke Ferry / Halesworth / Wrentham
April 19 { Cardiff / Swansea
April 21 { Chepstow / Wenlock / W. Hereford / Cirencester / W. Firle / Yoxford

AMONG the points in Physiological Botany which bear upon agriculture, few are more important than the fact now generally acknowledged that the leaf, the blossom, the fruit of a plant, all spring from germs which originally are identical. THE DOCTRINES OF MORPHOLOGY, which is the name given to this branch of the science, were beautifully demonstrated and illustrated in a series of papers by "R. E." in the other department of this Paper last year; with the arguments and observations there collated we have nothing here to do, but assuming the accuracy of the inferences drawn from them, their application to the practice of the farmer is both easy and important.

If the statements about the *original* identity of the different parts of a plant are correct, then that period in its history when these germs assume the distinctive features of their ultimate products is vastly important. In reference to the Wheat-plant, for instance—and the present is about the critical period in its growth to which we allude—good cultivation now may make all the difference at harvest, between a plant with 20 ears of 60 grains in each, and one of a couple of stalks with but 20 or 30 grains a-piece. Proper treatment now,—*i. e.* top-dressing, if it be required, with soluble manures of the right sort, hoeing the crop, &c., if seconded by suitable weather, will cause the plants to *originate* their various parts in such number and vigour as, if they severally ripen, will insure a great crop.

But we often see ears on which many of the culms at either end are unproductive; this shows that a proper treatment of the plant requires to be persevered in throughout its growth. The soil may have contained vegetable food of such a character, and the weather may have been so propitious, that the plant in the early period of its growth developed all the parts necessary to a productive yield; but the particular food required by the plant when maturing its seed was not present in the soil, or the weather, &c., just before harvest was unfavourable, and the perfecting of these parts was not carried out.

This, however, though an unfortunate result, is one which is under our control to a later period in the plant's history than that which is owing to the non-development now of those germs whose products are looked for at harvest. If the plant sets out but two or three side-shoots now, however well by subsequent management the ears may be filled, there will be but two or three of them at harvest, and the maximum number of grains, too, on each, will be dependent on the vigorous growth of their germs during the next six weeks.

The nature of the early growth of our grain crops, Wheat, Oats, Barley, thus determines the *maxima* of their respective harvests. It is well, if by subsequent good management we can insure the full growth of all the parts for whose ultimate appearance provision is *now* made—it is well if we should attain the maximum which after the next month or two will be *possible*; but how important is the period of the plant's growth during which that maximum is fixed—and of what consequence, that by good management *now* we may place that maximum as high on the scale of abundance as possible!

WE have frequently referred to the importance of EXPERIMENTAL CO-OPERATION amongst large numbers of observers, in order to elicit the truth in agricultural matters. In reference to Potato cultivation, for instance, (see page 223) the usefulness of cutting off the flower-buds, not allowing them to form seed, is a subject on which *partial* observation is just as likely to tell one way as another; for the result is doubtless affected by the other circumstances of the system of cultivation adopted; but if the experimenters on this subject be numerous, as we hope they will be, we may reasonably suppose that the influence of circumstances under such a variety of them, and in so large an extent as will be experimented on, will be destroyed, that errors due to them being as often on one side as another, will balance one another, and that the aggregate result will represent the truth.

Now the following is another subject on which it is the interest of farmers to be informed; the experiments connected with which should be set about immediately, if their results are to be observed this year.

The question to which an answer is wanted is this:—What is the comparative value of gypsum, sulphate of iron, and muriate of lime, as fixers of ammonia in dunghills? And the following is the schedule published by Professor HENSLOW, which contains information for the guidance of the experimenter, and blanks to be filled up by him, with the results of his experiment.

1. Name and Address of the Experimenter.
2. Quality of the land.
3. Prepare nine patches of land, as nearly of the same quality as possible; each patch to contain 16 rods, *i. e.* the tenth of an acre.
4. Prepare five dunghills, each containing 1 ton of farmyard manure, and to be severally treated as follows, and used for the same kind of crop:—A. Nothing added to it; B. To be burnt to ashes. C. Sixty pounds of gypsum to be sifted among the materials whilst they are being heaped up; and the whole wetted with 25 gallons of water; D. Sixty pounds of sulphate iron to be dissolved in 25 gallons of water; and the materials of the dungheap wetted whilst they are being heaped up; E. The fifth heap to be similarly prepared with 60 lbs. muriate lime, dissolved in 25 gallons of water.

The utmost expense will not exceed 3*s.* or 4*s.* for so small a quantity of the materials as is required for these experiments. The wholesale prices are as follow:—Gypsum, 30*s.* per ton; sulphate of iron, 3*l.* 15*s.* to 4*l.* 4*s.* per ton; muriate of lime, 5*l.* to 6*l.* per ton.

N.B.—An additional experiment may be added for testing the action of sulphate of ammonia without the addition of carbonate of lime.

5. The nine patches of land to be manured as follows; the day to be noted when the manure is put on it. No. 1. Nothing added; 2. With A (dung); 3. With D (ashes); 4. With C (dung and gypsum); 5. Sixty pounds gypsum; 6. With D (dung and sulphate iron); 7. Sixty pounds sulphate iron; 8. With E (dung and mur. lime); 9. Sixty pounds muriate lime.
6. Results obtained; day noted.

	By Measure.	By Weight.	Remarks.
1. Nothing			
2. Dung			
3. Ashes			
4. Dung and gypsum			
5. Gypsum			
6. Dung & sulph. iron.			
7. Sulph. iron.			
8. Dung & Mur. Lime			
9. Mur. lime			

7. Prepare three other patches, each the tenth of an acre, and manure them as follows:—No. 10. With 30 lbs. sulphate of ammonia; 11. With 30 lbs. sulphate of ammonia, well mixed with 30 lbs. chalk, or any other description of carbonate of lime; 12. With 30 lbs. of the carbonate of lime alone, well pounded.
8. Results obtained.

	By Measure.	By Weight.
No. 10. S. A.		
11. S. A. & C. L.		
12. C. L.		

9. Any general observations of the experimenter respecting soil, situation, season, &c.

In order that the manure employed, made now, may be partly rotten in time for the crop, it had better be placed in a shaded spot, and occasionally wetted, taking care, however, not to put so much water on it as that it should run away from the heap. Let the crop, as it is well to have as much time as possible, be Swedish Turnips, which need not be sown for seven weeks yet. We shall be happy to publish the results of any of these experiments whose results may be forwarded to us.

NOTHING is more satisfactory than the demand for the means of DRAINING LAND, as evidenced by the constant efforts which are making to provide tile-machines which shall manufacture them cheaply and well. We have to direct the attention of our readers to an advertisement in last week's Number, which states that a machine capable of delivering 800 feet per hour of tiles 3¼ inches by 3½ is on exhibition at No. 14, South-street, Manchester-square, London, where any one interested in draining land may attend and judge of its efficacy. Messrs. B. DENTON and CHARNOCK, who are connected with it, are well known by their useful writings on the subject of drainage.

SUPPORT AND EMPLOYMENT OF LABOURERS.

AT the commencement of the late rigorous winter, I addressed a letter to a leading journal, recommending a plan for the support and employment of labourers. My letter was not inserted, but I have much gratification in finding that the identical plan recommended by me had occurred to others, and that it was attended, as the following extract from a letter in the *Times* newspaper of Saturday, March 29th, will show, with all the success which could be desired.

The following is the extract from a letter, dated Horsham, and signed "Z," in the *Times*, of March 29, 1845:—"The borough of Horsham is the head quarters of a Union, which comprises the following places: Nuthurst, Shipley, part of Beeding, Slinfold, Itchingfield, Rusper, Marnham, Ifield, and part of Horsham." The letter proceeds to state that great distress is liable to prevail amongst the population, entirely agricultural, during a hard season. It then goes on: "With a view to providing some sort of remedy for this state of things, a few of the most influential of the inhabitants subscribed during last summer about 300*l.*; with this sum they took 11¼ acres of land, at a rent of 40*s.* a year, and planted it with Wheat, the rent amounting up to the present time to 22*l.* 10*s.*; the rates and taxes, at 6*s.* per acre, to 3*l.* 7*s.* 6*d.* Besides this, 8¼ acres of common land were taken, to be held rent-free for the first year, and at the rate of 15*s.* a-year for the following two years. The Committee have laid out in labour upon the Wheat land about 100*l.*; upon the broken-up land, 60*l.*, and from this they have given employment of the best description for the support of the vines, for 14 weeks to the following number of individuals:—

Weeks.	Number of adults.	Number of children.	Rate of wages per week.
1	26	61	10*s.* 0*d.*
2	32	61	10 0
3	39	64	10 0
4	38	85	10 0
5	20	75	9 0
6	22	75	9 0
7	19	58	9 0
8	20	59	9 0
9	20	71	9 0
10	20	57	9 0
11	23	60	9 0
12	25	65	9 11
13	20	59	9 11
14	14	55	10 2½

By these means, then, a large number of families have been kept in constant employment for a period during which there has been a very limited demand for their services elsewhere, and the Committee who have conducted these operations entertain an expectation *that even in a pecuniary point of view, the experiment will be found to have been productive.* Now sir, I ask, would it not be for the good of the country if efforts of the kind I have described were general? Do not the results which this one experiment has achieved indicate what might be done, if the aristocracy and gentry of the country exerted themselves, as they should do in the localities with which they are severally connected? I have placed this simple statement of facts in your hands, from the hope that other parties may try similar experiments with a view to the benefit of the agricultural poor."

The following was my proposition, which as it enters rather more into detail as to what appeared to me the best method of proceeding to carry out such a plan as that above described, may perhaps still be of use:—

I am no advocate for charity work, whether given by boards of guardians, road surveyors, or other parties; or for any device which plainly says to the industrious man—"We consider you an incumbrance, but as you may become dangerous, we will put you to some job, though it may be entirely useless or at least superfluous, by which you may be allowed to earn a bare subsistence." I hold such language to a fellow Englishman, whether expressed or implied, to be little short of blasphemy, and wholly at variance with the words and designs of Him who commands man to "multiply and replenish the earth," and ever represents an abundant population as one of the greatest national blessings, declaring that the labourer is ever "worthy of his hire."

I have great confidence also in the fact that every field contains a mine of hitherto imperfectly explored wealth, which requires only the application of industry and skill to repay all parties, who, in faith in the grateful return which will be made in due season by the faithful earth, fearlessly invest their labour, science, or capital, in its development. I would, therefore, urge upon the attention of benevolent persons in all parts of the country where there is a lack of employment for the population, the formation of parochial or local land-improvement societies, the main object of which should be not to make a large profit, but to furnish employment at good wages at the risk of incurring only a trifling loss, even if a profit should not be realised. My idea would be, that the clergyman of the parish, with other inhabitants, should subscribe amongst themselves a small capital to be laid out in leasing at a low rent, for 5 or 10 years, a piece of poor and at present unproductive land, and in bringing it, by draining and spade husbandry, into a productive state. The lease should contain an agreement that the permanent improvement made on the land by the society shall be valued at the expiration of the term and paid for by the owner. The capital thus reimbursed might then be again applied in taking and improving another quantity of similar land, the current expenses of ordinary cultivation being repaid by the sale of the produce.

The want of employment in the winter season is generally felt most severely in neighbourhoods where the greater part of the land is in permanent Grass. Such land requires labour only at the hay-harvest, and almost its whole produce is shared between the landlord and tenant, to the exclusion of the labourer. It is well known that very much of such land, if broken up would produce even a larger return to the two first parties, and leave besides a liberal remuneration to the labourer. In such cases, then, the land-improvement society should select a piece of poor Grass-land; the more sour, cold, rushy, stiff, and desperate looking, the better for their purpose, so that it be sufficiently elevated to be out of the reach of floods, and capable of drainage. Down-land, heaths, or commons, covered with Furze would be equally eligible if obtainable for a certain term. Much of this sort of land is held at a merely nominal rent by its present occupants, being thrown into the bargain when farms are let, and would be easily surrendered, or perhaps granted to such a society, for a time, rent free, for the sake of the improvements to be made upon it, or from charitable motives. Now, supposing a few individuals clubbing together, as proposed, were to obtain a lease of from 10 to 20 acres of such land, they might afford to give employment for the next four months to, say 20 heads of families, and to some of their younger members, which would be a most sensible and welcome relief to the labour-market in many localities. The management of the land should be confided in the most competent of the subscribers, who should make a fortnightly or monthly statement of his plans and operations to a meeting of the society in order to keep up their interest in the progress of the business. The land should be, where requisite, drained, the turf and rough herbage pared off and mixed in heaps with quick-lime or burned, the ground double dug or trenched, so as to expose it thoroughly to the influence of the frost and the elements, and subsequently manured with stable-dung or town manure, or, where these could not readily be obtained, with imported manures, such as guano, bones, Rape-dust, &c. All the work should be performed and paid for by the piece at such wages that a healthy industrious man should be able to earn not less than 12*s.* a week or 2*s.* per day. The older men, lads, and women proportionably less. By the succeeding spring the ground, if thus properly and deeply worked in autumn and winter, would be in a state to receive crops of Wheat and other Corn, Vetches, Rye, Turnips, Potatoes, Mangold Wurzel, Cabbages, Beans, Carrots, &c., which should be dibbled in, or transplanted from seed-beds by hand, and all to be executed, as far as possible, by the piece, so that the earnings of each labourer, whether married or single, should depend upon his industry and skill, and not on any considerations of the number of his family, his character, &c. The cleaning of these crops, and stirring the soil between them with the hoe, would furnish employment to women, girls, and lads, during the summer. Whether the society should engage in feeding cows, sheep, pigs, or other live stock with the produce of their land would depend upon the circumstances of the place. Some existing buildings on the land, or near at hand, and the necessary skill in the purchase and treatment of live stock might not always be at the command of such a society; but at all events there would be no difficulty in finding purchasers for the crops, or they might be let at so much an acre to the neighbouring farmers to be eaten off on the land by cattle and sheep, or to be cut green. The produce would be laid out in the purchase of manure for the next year's crops, in which a proper rotation would, of course, be observed.

Such is an outline of what appears to me an easy and unobjectionable method of affording employment and comfort to the population, in localities where the peculiar circumstances affecting landed property, which often prevent its improvement, have rendered the labouring class, contrary to the wise intentions of their Maker, redundant. I do not wish to flatter the promoters of such a scheme with the belief that it would be profitable as a pecuniary investment. If the produce, at the end of the lease, covered the rent, taxes, and the expense of labour and manure, it should be considered successful; but even if the subscribers incurred a small annual loss, in what way could an equal amount of charity be so cheaply bestowed? Besides that, the apparent loss would probably be covered by the diminution in the poor's-rate. The effects of such a practice as I have advocated might, in many incidental ways, prove beneficial; by inducing the farmers, for instance, to raise the wages of their labourers; by showing to both them and their landlords that beneficial result of additional labour bestowed on land; by bringing the different classes of society more closely acquainted with each other; and by permanently increasing the productiveness of the land, and its healthiness. It would also furnish an interesting occupation to those who superintended the concerns of the little farms. Now, supposing 20 families to be maintained by the labour of one member of each, earning 12*s.* per week; this would require 12*l.* per week, or a capital for four months of 200*l.* After the first four months—beginning, say, on the 1st of Dec.—the expense would be less; and supposing no cattle kept, or horses employed, 400*l.* would probably suffice for all purposes, including draining-tiles, manure, seed, rent, &c., till the money began to be returned by the sale of crops. Eight persons, therefore, subscribing 50*l.* each, would furnish sufficient floating capital to carry on such a concern.

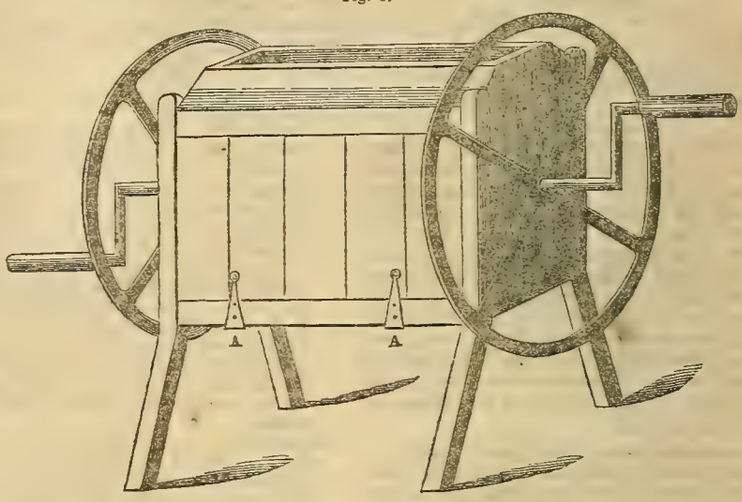
My letter concluded with an offer of a small donation to the first five such societies which should be organised for the above purposes, in certain specified counties; but, as the winter is now passed, and there is plenty of time to mature such a plan, if thought advisable, before next winter, I do not consider it necessary to repeat my offer. I trust that the measures announced by Government to be introduced by them, for draining land and inclosing wastes, will very much promote and facilitate all sorts of associations for the improvement of land. I hope that any societies of the kind recommended which may be formed, will report their proceedings through the medium of your Paper.—*T. T.*

HANDMILL FOR CRUSHING GORSE.

Soon after I had offered to send you drawings of the mill I have used for many years for bruising Furze for feeding cattle, I was obliged to leave home on business for some time, which, together with my finding it more difficult than I first supposed to render them explicit, has prevented me from being able to send you them until now. The bits of Furze are taken up and pushed into the mouth of the machine (until seized upon by the revolving teeth of the roller) by two forked sticks. This saves the pricking of the fingers, as also the danger of their being caught by the machine. The fuller the machine is of Furze, provided it has room to turn, the sooner and more perfectly will the Furze be bruised; when filled I generally find that about a dozen turns renders it quite fit for use. When bruised enough the trap door at the bottom should be let down, a basket or box being previously under it, and by then giving the roller a couple of turns all the bruised Furse will empty out through the bottom into the basket.—*Charles A. Walker, Belmont, Wexford.*

The following figure represents the machine complete: the Furze is put in at the top, and after several turns of the handles the bottom door is opened, and the bruised material falls out. The bottom opens downwards by hinges at AA, and is fastened by a hasp at the other side, so as to let the Furze fall out into a box or basket when bruised enough.

Fig. 1.



The nature of the mechanism by which this implement acts will be understood by Figure 2, which is a vertical cross section of it. The position of those teeth which are stationary in the framework, as well as of those which are fixed in the roller, is here exhibited. The latter point is better shown in fig. 3. The roller is about 2 feet long, and 8 in. in diameter. Elm is the best wood to make it of. The iron teeth are made of $\frac{3}{4}$ inch square iron, set lozenge way in the wood. The relative position of them in the roller, and those affixed to the frame-work, is such that when they revolve there is a $\frac{1}{4}$ of an inch between adjacent teeth. They project 4 inches. They require to be very firmly fixed, to be a considerable depth in the roller, and to go through the stationary pieces also and be clenched, or they will be displaced by the Furze, for the action is very severe. The roller has three rows of iron teeth; they are set in a spiral line, for if set otherwise the Furze would offer such opposition that the teeth would choke, and it would not turn round. The Furze should be put in gradually, and while the mill is in motion.

Fig. 2.

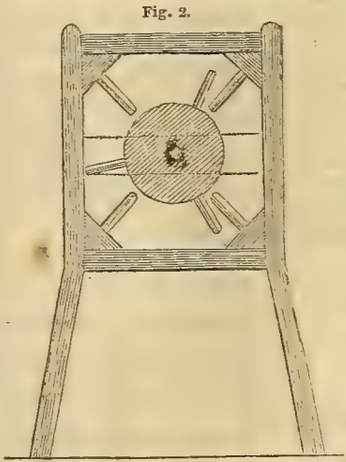
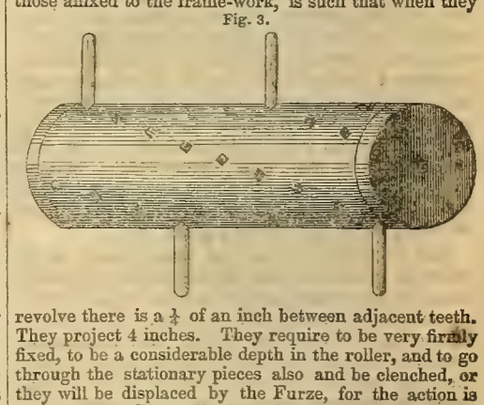


Fig. 3.



WHEN OUR SOIL IS POORLY LET US CONSULT THE CHEMIST.

I hope the time is approaching when we shall, for complaints of the soil, get advice from proper analytical chemists, as readily as we would for ourselves, so that they may investigate the disease, and prescribe a proper remedy, depending on the patient's constitution and the nature of the ailment, whether chronic or transient, whether arising from plethora, starvation, or dropsy, too much water without the means of escape, a very usual complaint in earthy patients. Farmers make frequent mistakes when they trust to their own notions of doctoring: they readily perceive, by the external symptoms, that their patient is in an unsatisfactory state, but make sad havoc with their nostrums. How frequently do we see a dressing of dung forced on an already satiated patient, who cries out for an alterative of chalk or cold clay. Another administers a strong stimulant of lime, where the sufferer is already exhausted by previous excitement, and requires a tranquillising tonic of good old

mellow manure. A third gives alkalies, where acids and phosphates can alone avail. They do not consider, that if troubled with stone, gravel, or density of the substratum, a gentle operation with the subsoiler might give ease by causing a loosening of the parts; or that in cases of scurviness and poverty—light, air, cleanliness, exercise, and good feeding, might prove a restorative. To be serious, it would be invidious in me to name particular individuals as well calculated to give proper analysis and advice; but, I apprehend, every farmers' club and agricultural society will find their interest in seeking and availing of those talented individuals who abound, and would be most happy to benefit agriculture and themselves, by the application of their chemical knowledge to increase the powers of the soil. I hope we shall live to see a complete change in this respect; and that the frequent demand for such information will cause it to be given at a cheap and available rate. Much money and trouble would also be often saved by consulting competent surveyors and engineers, prior to altering and draining our estates.—*I. J. Mechi.*

[From Mr. Mechi's published letter on Agricultural Improvement.]

ON FLAX-CULTURE.

The many successful experiments which have followed my letters of last year on the Cultivation of Flax in this country, by gentlemen now fully convinced that the soil and climate is adapted thereto, have induced me to devote a little more of my time in embodying and publishing my ideas on the cultivation and management of the plant; and this I hope may be found worth perusal by all those who wish to see agricultural improvement keep pace with the times; and, as it is my wish by this letter to make public what I have found to be the most certain mode of management, in order to obtain fine Flax, I shall not enter into much explanation on the mode of saving the seed, that being secondary to my purpose; I prefer leaving it to gentlemen in Norfolk, many of whom have already said, that Flax is, independent of the great value of the fibre, highly profitable to cultivate, on account of the seed, either as a primary or a secondary consideration, the fattening qualities of it having been proved to be superior to the foreign oil-cake, to say nothing of the very great saving in a pecuniary point of view.

Inasmuch as the prosperity of most, if not all our great establishments, has been principally owing to the soundness and well-matured system of their management, I consider that in farming, as in mercantile matters, we should begin with and follow up a judicious and well-directed course of management, if we expect to succeed or bring to perfection any plant congenial to the soil of the country; and as a skilful physician will study the constitution of his delicate patient, and administer such doses and order such nourishment as he knows the exhausted frame requires to bring it round to health and vigour, the farmer who enters on the cultivation of Flax with a determination to grow it to perfection, must pay due regard to the sort of soil he has to work with, as well as to the habit of the plant he is about to cultivate, and he should previously assure himself that his land is in a condition to grow good malting Barley, and very clean; if so, he may sow it in Flax in full confidence as to a favourable result.

I always preferred ground for Flax that I knew had been well manured for Potatoes or Turnips the year previous with solid or rotten mixed horse and cow manure, because I consider the Flax-plant is much like the Potato; it grows very quick and requires much moisture—I believe the application of liquid manure has been found to answer well; and I am of opinion where the ground has not been sufficiently manured the year before, liquid manure could be applied with undoubted success. However, if the land be in a high or rich state of cultivation, I should recommend a crop of Barley or Oats to be taken out of the ground after being manured for the Potatoes or Turnips previous to sowing it with Flax; as I know, from inquiries I made while four months on the Continent last year, that the Belgians always grow corn previous to Flax after a green crop; but I wish farmers to understand that those people have their ground in a very high state of cultivation. The farmer should also calculate his labourable ground, and so plan his rotation of cropping as to allow him to have, each year, a field for Flax; clear of weeds; choice ground; the size of which, of course, should be according to the number of acres he farms. I, therefore, beg leave to give a description of the course of management which I found to answer on two small farms I had in Ireland, which were in low condition when I got possession in 1824, but on which I grew Flax of fine quality; and on one I had a scutching-mill, the plan of which I send with this*. The ground was rather of a light, sharp mould, about 8 inches deep, next which there was, about 2 or or 3 inches, a sort of gravel, underneath which there was good red clay substratum. Wheat grown on this land was of nice quality, but invariably a light crop; but I had always a good crop of excellent malting Barley. There were 10 small fields in the farms, as described below; and, by my directions, they were farmed as follows.

There had been, in 1823, Potatoes in No. 1 and 2; therefore, in 1824, those two fields were ready for Wheat, Barley, or Flax. I commenced operations with a view to continue this system, viz.:—

No. of Acres in each	No.	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834
5	1	Flax	Clover	Grazing	Oats	Potatoes	Barley	Clover	Grazing	Oats	Turnip	Flax
8	2	Wheat	Meadow	do.	Turnip	Turnip	Flax	Meadow	do.	Turnip	Potatoes	Barley
6	3	Clover	Grazing	Oats	Flax	Flax	Meadow	Grazing	Turnip	Potatoes	Barley	Clover
6	4	Meadow	do.	do.	Barley	Barley	Clover	do.	Potatoes	Barley	Flax	Meadow
7	5	Grazing	Potatoes	Potatoes	Clover	Clover	Grazing	Oats	Barley	Flax	Clover	Grazing
6	6	do.	Turnip	Turnip	Meadow	Meadow	do.	do.	Flax	Clover	Meadow	do.
5	7	Oats	Flax	Flax	Grazing	Grazing	Clover	Turnip	Clover	Meadow	Grazing	Oats
7	8	Turnip	Barley	Barley	do.	do.	Meadow	Potatoes	Meadow	Grazing	Oats	
7	9	Potatoes	Clover	Clover	Oats	Oats	Grazing	Barley	Grazing	Oats		
6	10	Turnip	Meadow	Meadow	Potatoes	Turnip	do.	Flax	Oats			
65 acs.			Grazing	Grazing	Turnip	Flax	Turnip	Barley	Potatoes			
			do.	do.	Flax	Barley	Potatoes		Turnip			
			Oats	Oats	Barley	Clover	Barley		Flax			
			Potatoes	Potatoes	Clover	Meadow	Flax					
			Turnip	Turnip	Meadow	Grazing	Clover					
			Flax	Flax	Grazing	Oats	Meadow					
			Barley	Barley	Oats		Grazing					
			Clover	Clover			Oats					
			Meadow	Meadow								
			Grazing	Grazing								
			do.	do.								
			Oats	Oats								

By this course of rotation and cropping, field No. 1 and 2, which was manured in 1823, got two years' rest, and only bore two crops until manured in 1828; therefore, No. 1 and 2, not being exhausted by labour, in 1825 and 1826, produced an abundant crop of Oats when ploughed in 1827; and being manured again in 1828 for Potatoes and Turnips, was ready in 1829 for Barley and Flax; and, in order to grow Flax only every tenth year in the same ground, I changed my course, by sowing Barley in No. 1 and Flax in No. 2, in 1829. By this plan, I managed to avoid the old objection of having Flax too often in the same field; and, in order to deepen the ground, I put in the Potato-crop with the spade, in ridges; and this rotation caused each field to be well trenched, manured every fifth year, and brought into good condition.

Having explained my system of rotation, I shall follow it up with my observations on what I found to be the best method of the cultivation and management of the Flax plant during the various stages which it must go through before it is in a marketable state. No. 1 field being cleared of the Potato-crop in November, lay unmoved during the winter, and about the middle of March I had it neatly ploughed in ridges about 6 feet broad; and about the 10th to the 15th of April I put on my harrows, with children to follow and pick up every odd Potato, weed, or root that might appear, and after having made a clean, level, and fine face for the seed, I sowed 2½ bushels to the acre; I then put on a fine short-tooth very light harrow, and after giving it a stroke up and down, which almost made the whole field a level surface, I had the ridges again lightly marked with the plough (water-furrowed), and after all the lumps were well broken, I had it well rolled.

Seed.—In selecting the seed, I always preferred Riga and that which was large, bright, or clear and oily, avoiding that which had any dark ends, which is often the result of its having been saved in a wet state; in May, when the Flax appeared about 2 or 3 inches long, I carefully removed all weeds, and if I found the ground loose and open after this operation I gave it another turn with the roller; from this time it remained growing, until the end of July or the middle of August, when it began to ripen; my care was then directed to it to see that it did not ripen too much, for in my opinion the seed, with the assistance of the sun, in this case, extracts so much of the oil, or sap, from the stalk, as to operate much against the spinning qualities of the fibre, and leaves it what the spinners term brittle; the oil, glutinous matter, or adhesive parts being taken away on the plant being allowed to get full ripe; such has been my opinion for the last few years. I have known persons pull part rather in the green state, and allow another part of the same field to become more ripe, and have found considerable difference in the quality in favour of pulling early; but not being aware of the full value of the fibre when I was a grower, which no one can tell but he that spins it, or selects it to please spinners, I did not attend to those matters as I would now do, for I am satisfied that a day too much in a hot sun, is very injurious to the quality of the fibre, therefore I am an advocate for early pulling.—*J. H. Dickson*, 29, *Broad-street Buildings, London.* [We shall next week give the remainder of Mr. Dickson's paper on this subject. It will be found to contain a full explanation of the process of pulling, watering, skutching, &c. &c., requisite for preparing it for market.]

* This scutching-mill is described in another part of Mr. Dickson's paper.

Home Correspondence.

Agriculture in Ireland.—Any one that can contribute in ever so small a degree to the solution of that mystery which seems to have baffled the endeavours of successive Governments, viz., the tranquillising of Ireland, will, I trust you will think, do the United Kingdom some service. I think I am not wrong when I say that the cultivation of the soil and the civilisation of the people go hand in hand; and this was the more fully impressed upon me during a tour which I took through a great part of the sister island in the autumn of 1843. Never was there a land which the Almighty has so blessed and man so cursed; abounding along its coasts with the finest harbours in the world, with the most noble and navigable rivers running through the principal part of its country, possessed of a climate but little affected by frosts, and of a soil that produces the finest crops, how is it that lands lying in the most advantageous positions for cultivation—fields sloping down to streams, or stretching over ranges of easy undulations, are teeming with Ragweed, and Rushes, and Thistles, and stagnant water, and everything that can mark the most abject barrenness and poverty? and yet, as if to prove what the land can do, should you, after a ride of 50 miles of such neglected ground, come upon the estate of a resident landlord, or of an absent landlord who has an intelligent agent, what luxuriant crops! what fertile meadows, and thriving plantations! and these very often not half what they should be. How different, too, is the dwelling of the peasant! instead of an inhabited dungheap, which most of their dwellings in the south look like, with poor, emaciated, anxious-looking half-savages about them, neat little cottages, and the people apparently well disposed and happy. How can it be, thought I, that the newspapers are daily filled with advertisements of railway companies, joint stock companies, and half a hundred other doubtful speculations all over the world, and yet not one company (the poor Irish company excepted) started for buying and improving the thousands of acres of fine waste land in Ireland? Am I chimerical when I say private individuals had far better invest capital in reclaiming Irish waste lands, or let Government start model farms in every county in Ireland, after the plan of the interesting one related in your last week's columns, or let them be in the stead of large landed proprietors, and let them let out farms to respectable farmers upon certain fixed terms without that horrid power of infinite underletting, but under the superintendence of experienced, skilful, and first-rate agriculturists for agents—men of scientific and practical knowledge, of kind hearts yet firm to their purpose in that which is right, seeing equal justice done to Protestant and Catholic labourers, and with a fair standard of wages for a fair day's work. You may add schools, if you will. People may say "the Irish peasantry are such an indolent set;" so they may be under the old system. What interest have they in the land at the exorbitant rents that they have to pay for a patch, and brought up more like pigs than men—their minds left to run to weed as much as their lands. But do the Irish paviours, bricklayers, &c., in London work indolently, if made to work by the piece, and well paid for the same? In lands which are cultivated, and upon the estates of good landlords, one can see the comfort, industry, and cleanliness of our own island in the sister country. Have then, I say, model farms, farmed in first-rate style, in every county; set before industrious peasants an example of comfort and independence, show them what their country can do when their energies are put forth in a good cause. Teach them the blessings to be conveyed to the industrious and peaceable, and cultivation will bring civilisation; and if the English take a real substantial interest in the island, their warm-hearted fellow subjects will change their bigotry and hatred into affection and gratitude—the shillelah and gun into the reaping-hook and calumet of peace. Farewell then to repeal, and farewell to any further outcry about Corn-laws. Will you, sir, advocate this view, expressed in far better language than this hurried string of remarks? and you will prove, I am confident, in the well-known lines, if husbandry can be called "*Ingenuas artes*," that "*Ingenuas dedecesse fideliter artes emollet mores nec sunt esse feros.*"—*Erin go bragh.*

Campbell's Steep.—Last spring I made some experiments with Campbell's steeping materials; the result on the Barley, as tested, is very different from the account lately given in your paper by "A Subscriber." I may state that the experiment was carefully made on a well cultivated farm in the county of Moray, N. B. The soil, a free loam, had carried a crop of Turnips the previous year which was all carted off; as the land got no manure for the Barley, I shall state what the Turnip crop got per imperial acre, viz., 13½ single loads, or about that

number of cubic yards, of well prepared farmyard manure; above that, 1½ bushels of fine bone-dust, dissolved with 46½ lbs. of sulphuric acid and 92 lbs. of water; which, after having stood for 24 hours, was mixed up with 397 gallons of water; it was then put into the drills with a watering-cart constructed on purpose for giving a regular distribution; the expence of this manure was 1*l.* 13*s.* 5*d.* per imperial acre; the weight of Turnips after being topped and tailed, was 20 tons 6 cwt. 48 lbs. After the Turnips were carted off in the spring, the drills were split and harrowed down, and then ploughed for crop. The Barley was sown broadcast on the 3d of April, the soil equal:—

First brake—1 acre 17 perches imperial:

Seed—1½ bush. Chevalier Barley, at 31*s.* 6*d.*, say . . .	£0	5	11
Campbell's steep	0	6	6
	£0	12	5
Produce—8 qrs. weighing 55½ lbs. per bush., sold at 31*s.* 6*d.* .	£12	12	0
Deduct for seed and steep	0	12	5
	£11	19	7

Second brake—1 acre 12 perches:

Seed—2 bush. Barley steeped in clean water	£0	7	10½
Produce—5 qrs. 2 bush., weighing 54½ lbs., at 30*s.* 6*d.* . .	8	0	1½
Deduct for seed . .	0	7	10½
	£7	12	3

Third brake—1 acre 8 perches:—

Seed—3 bush., say . . .	£0	13	10
Produce—5 qrs. 3 bush, weighing 54¼ lbs., at 30*s.* 6*d.* . .	8	3	11
Deduct for seed . .	0	13	10
	£7	10	1

The Barley was all lodged; there was more straw after Campbell's steep than from the water steep, and the ear was much longer. From the result of this experiment I intend to try it this season again, and have it fairly tested, and will weigh the straw, the result of which I will communicate when the crop is threshed.—*A North Country Subscriber.* [Thank you.]

Thick Sowing.—In reply to your correspondent from the Banks of the Dearn, as to the propriety of thin planting Barley and Spring Corn, I have tried it two years, having dibbled Barley with my machines 2 bushels per acre, 6 inches by 8, with equally satisfactory results as for Wheat. Several gentlemen in the neighbourhood have also proved it as satisfactorily, having dibbled 1 bushel of Barley per acre, and the yield was 5 quarters per acre. Others dibbled about 2 bushels per acre, the produce being respectively 5 and 6 quarters per acre; the quality being greatly superior. Oats were tried last year, but the unfavourable season precluded all possibility of deducing the results.—*J. W. Newberry.*

Bones and Sulphuric Acid.—As I have not conveniences for preparing the whole at once, as has been proposed, I have thrown some acid diluted with water over a heap of bones, and kept turning them until they were quite saturated with the liquid; a great fume arose, which, perhaps, ought to have been in some measure prevented from escaping by throwing earth over the heap.—*J. White.* [This plan will do very well; *i. e.*, all the sulphuric acid you employ will be active, none of it will be useless; but then you will not be able to apply such a quantity as will act upon all the bones. A considerable portion of them will remain undissolved.]

Indian Corn.—Let the ground be well dug, and manured with short dung, (or guano might be tried); draw drills 3 feet apart, placing the seeds at intervals of 6 or 8 inches. If I remember rightly, Cobbett says, "plant it as you would French Beans;" when the plants are sufficiently high they should be moulded up, the spaces between the rows should be frequently hoed. Plant as early as you can venture to do so, say the latter end of April. I think that your correspondent planted the large sort of corn; Cobbett's does not generally exceed 4 feet in height.—*J. C. C.*

Pigeons.—I believe the only way to get pigeons to remain is to get a few pairs and pull the feathers from one wing, so that they cannot fly: if the holes are not sufficiently high to prevent them getting out, put bars across them for a few weeks, say a fortnight, when they may be removed; by this time they will be settled, and probably sitting, if he takes care to have old ones, which, knowing their deficiency, will not attempt to fly, but take a walk on the landing-boards to look about them, until they can fly to some building near, and so gradually get strong on the wing, which will be about 5 weeks. Up to this time they should be well fed in the court; but now put on short allowance until they come down to feed, when feeding in court may be discontinued. By this plan I kept all my pigeons, after four unsuccessful attempts.—*J. D.*

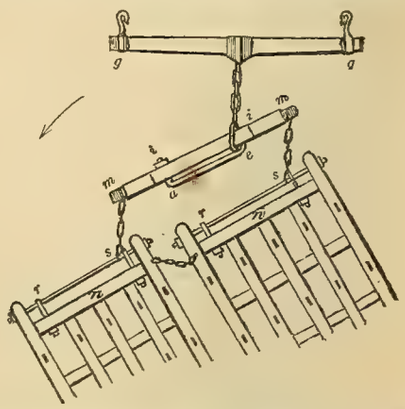
Rancid Bacon.—When ready to hang, swill each flitch with 2 or 3 buckets of water until all the loose salt is gone, then hang it to dry, and in a week it will be crystallised and as firm as a board, and will keep any reasonable time, if not covered over with paper, &c., as that retains moisture on the surface and destroys the crystallisation, which will not reform: it must be kept in a dry temperature. I have treated my bacon thus 5 years, and it has been as good at 2 years old and as weet as from the first.—*J. D., Mansfield.*

Potato-Culture.—From extensive observation and practical experience I find that early planting is a great preventive against failure. Thorough draining where required—there is little of the surface of our island that does not require it—and deep working all soils is of the first importance; as it admits a free current of air, and enables the fibres of plants to permeate the soil with ease in search of food. When this has been attended to at the proper season—in the end of autumn—it will be easy to get the land early in order for the reception of the Potato, which should be all planted before the end of April, when the land is moist, and the bud of the Potato in a natural state first appears. As the early planting will not permit of a thorough pulverisation of the land in spring, before the Potato has been planted, the width between the drills should be from 30 to 32 inches, to admit the soil being well grubbed and pulverised betwixt the rows. I would recommend that the drills be made a good depth; let dung, which should be moist and well made, by being regularly saturated with liquid manure, be then placed in the drill, and a little soil drawn from the top of the drill to blind the manure before the sets are placed on it. We have found this an excellent plan; it is a more natural element for the Potato set, and it can be done with a rake or bush-harrow close behind the spreaders; the whole should be covered as soon as possible with the plough. Employ careful persons to select the seed, laying aside all that have been injured in any manner; never make more than two sets of a Potato, cutting off the root end and laying it aside for other purposes, and then split the remainder into halves, so as to have a part of the rose or eye-end in each set. Immediately after cutting, dust the sets with a little gypsum or quick-lime; it helps to prevent the attacks of insects; and whether dusted or not, allow them to remain before planting two or three days in a cool shaded part quite thinly spread upon the floor. It has been the general practice for a good number of years back, to get seeds from the higher districts of the county, confirming the opinion that the less ripe Potatoes are they make the better seed; these are failing now also, no doubt, in a great measure from their not being properly kept in the pit or bin. Every farmer can raise and secure a quantity for seed before they are ripe, when some of the shaws or haulm are beginning to wither, and have them put in a narrow pit 2½ feet wide at bottom, with what will heap on that base, a little earth mixed among them, covered with it next to the Potatoes, and well thatched with straw; and, besides, run a drain tile along the bottom of the pit, open at both extremities, with some cross ones through the middle of the pit, about 10 feet apart, to secure ventilation. The green ones or those with a green side, that are on the top of the drills, have been highly recommended by practical men for seed. I get those collected last autumn, and a number of my neighbours advised to do so; those first gathered have kept well, while the others in the same pit have spoiled a great deal, showing the necessity of having them early collected, as the least frost will destroy them for seed. It has been also advised to have a quantity greened for seed by exposure to the sun and weather; but this will occupy from a month to six weeks, and the risk of frost is so great that it is a dangerous experiment on a large scale; but a few may be exposed in this way, and those with a green side on the top of the drills may be increased by exposing them while growing, and our seed strengthened by being grown from these. Proper ventilation of the Potato-pits or heaps must be attended to, whether for seed or general use; where drain-tiles are not plentiful, two boards placed one against the other in the form of a triangle, or as you have seen on the ridge of a house, will suit very well for placing along and through the pits to give a free current of air, so essential to their preservation. When a change of seed is desirable, it would be advisable that the farmer or his manager should inspect the pits from which they are intended to be taken, to ascertain how they have been kept. In treating the subject of Potato culture, I have merely endeavoured to lay down some practical facts. The Highland and Agricultural Society have offered a large premium for the best scientific investigation of the disease in the Potato, which will call the attention of our best chemists to that important subject.—*W. Ewing, Strageath, Mulhill, Crieff, Perthshire.*

Gorse.—In your extract from the "Quarterly Journal of Agriculture," (*Gardeners' Chronicle*, 29th March, 1845, p. 217, col. *c*,) we learn that Furze (Genista spartium) is much used in the county of Cork, as fodder. Now, in England, Furze is the name of the Ulex Europæus; but as Genista Anglica is sometimes called Needle Furze, it is possible that may be the plant meant. The Ulex was called Genista spartium by Tournefort, and may therefore be that here intended. Were the writer in the "Quarterly Journal" a botanist, he would know that no species of Genista (Broom) is now called spartium. In Scotland, and I believe in the north of England, Ulex Europæus is called Whins, or Gorse; and Genista Anglica, Petty Whins.—You would do your agricultural readers a service by teaching them to spell Mangel Wurtzel (want-root) rightly, not Mangold Wurzel, which is nonsense.—*Orthophilus.* [In reference to the last sentence in this communication, let the writer refer to pages 188 and 204 of our last year's volume. Mangold Wurzel is the proper way to spell the words.]

Bone Manure.—Having been at considerable expense in erecting a first-rate bone-mill on my premises for supplying the agriculturist with a pure article, I wish to know how it is that I am undersold. I will just give you an estimate of the cost and labour upon 1 qr. of 8 imperial bushels of ground bone. The present market price of bone is at the very lowest 5*l.* per ton. Now a quarter of genuine bone, crushed, will weigh 3 cwt. 2 qrs. 14 lb., which at 5*s.* per cwt. will come to 18*s.* 1½*d.* There is coal for engine, measuring and sacking up, 1*s.* 4½*d.* per quarter, which will bring it nearly to 1*l.* per quarter; and yet it is to be bought in London at from 15*s.* to 16*s.* per quarter. How is this to be done without adulteration? If any of your numerous readers will solve this question, they will very much oblige not only a large body of agriculturists, but *Frederick Brain, Guano Works, Stamford-st., Blackfriars-rd.*

Sliding Harrows.—The plan for sliding harrows which I communicated, and which you engraved in the *Agricultural Gazette*, No. 9, published on the 1st March, appears to have elicited several inquiries from your readers. I now send you the explanations you request, and will endeavour to describe each part separately. [We republish the engraving alluded to.] First, *g g* is



nothing more than a common swingletree, when detached, of the usual length and strength, with three hooks for the draught, one at each end in front, and one from behind the centre. Secondly, the swingletree *m m* is made round from a stout piece of Ash, 3 inches in diameter, and the length for a pair of two-horse harrows, of the dimensions stated below, is exactly 3 feet. 2 inches, being the same as the harrow's measure from *r* to *r* or from *s* to *s*, when placed in their true working position. It must be ironed, as already directed, to prevent friction, and having three chains, without hooks attached, for the draught. The one in front is made to slide by means of a large round ring, which encompasses the swingletree, and traverses it, when the harrows are turned, to the extremities of the flat staple, about 8 inches, from *e* to *a*; all injury which friction might occasion to the wood being prevented by the thin iron plate, through which the staple is passed. The two back chains *m s* are made to work laterally by means of a D-shaped loop on two iron pins, which pass through the plated ends of the swingletree, at *m m*. Neither the front chain nor the two back chains have hooks. Thirdly, in front of each harrow at *s s* a round sliding ring is affixed, both of which slide from *s* to *r* when the harrows are turned, and to each of these rings is one oblong link, and one hook to attach each harrow to the second swingletree at *s s*. In the present communication the dimensions given are suitable for a pair of two-horse harrows, 2 feet 8 inches wide across the front, and 2 feet 11 inches wide across the hind part; the length being 4 feet 10 inches, the wood 2¾ inches square, and the length of the teeth 10½ inches. I must beg to be allowed to take this opportunity of correcting a trifling error of the press, in the last sentence of the paragraph, at p. 137 col. *c* of the *Gazette*, which renders the meaning somewhat obscure. It should read thus:—"In turning the horses at the end of the field short back to the left hand, the ring at *s s* quickly slides from *e* to *a*." &c., and not from *a* to *e*, as there stated.—*H.*

Sheep on Cow-pastures. — Your correspondent "Querist," will find a ready solution to his inquiries in the fact that sheep pick out all the young Grass, tender and sweet; whilst the cow is a most dainty feeder, and probably would not eat readily what sheep have trodden upon. Can you learn for me what remedy there is for preventing a cow's losing milk from her bag; losing, perhaps, one-sixth of a pailful per diem?—*An Original Subscriber.*

Coal-ashes.—Having for some years watched the application of coal-ashes on garden sward and pasture land, and being of opinion, that it only impoverishes the soil, and that so far from diminishing Moss, there is one species which appears to flourish with renewed vigour after the Grass has been covered with coal-ashes for the winter months. I am anxious to obtain the advice of some of your practical and scientific correspondents who may perhaps benefit myself and others (after reading this letter) by the result of their experience. I believe coal-ashes to be injurious to the roots of most vegetables—they do not amalgamate with the soil or nourish. I have seen quick-lime and earth mixed with them, and after some months, being turned in heaps, they have formed one compact mass of compost, which was applied in the usual way, but I had no opportunity of observing the effect; perhaps some of your readers will tell me whether coal-ashes can possibly assist vegetation, especially in pasture and garden Grass, and on what principle? and how to be applied?—*An Observer without Science.*

Societies.

FLAX IMPROVEMENT SOCIETY.

The monthly meeting of the committee took place at Belfast, on the 26th ult. A general estimate of the receipts and expenditure of the Society, for the season, was laid before the meeting, which showed that sufficient funds would be available for the ordinary expenditure of the Society. But, as a wide field for its operations is now open, in the south and west, a considerable sum would be necessary to enable the committee, effectively, to work out their plans. The secretary was therefore directed to use every means of placing before those interested in the Society's measures, the importance of contributing liberally. The following communication from Mr. Cassidy, of Glenbrook, Magherafelt, may prove of interest:—"Sir,—I beg to inclose an order on the Northern Bank for one guinea, in favour of the Flax Society, and in doing so, I take the opportunity of expressing my conviction of the benefits which the instructions of the Society, as to the handling of Flax, are calculated to confer upon the country. I have read, with some interest, the discussion on the 'Flax question,' in the columns of the *Farmer's Gazette*, and I must say, I think that the opponents of the Flax do it most gross injustice; for instance, in the year 1843, I got 145*l.* for Flax, the produce of barely six Irish acres, and I calculated, that making a liberal allowance for every source of expense, I had 100*l.*, or rather more than 16*l.* per acre clear profit. The Flax was sold in Cookstown for 8*s.* and 8*s.* 6*d.* per stone. This year I saved some of the Flax on the Courtrai system; and on rippling it, we find the seed so excellent that we purpose sowing the one-half of our Flax with it for the incoming season. The bolls that were rippled off at the pulling of the Flax we have found most excellent and nutritive food for milch cattle, pigs, and horses, and to this kind of food we attribute the remarkable sleekness of the skin of animals feeding on it; and we observed that the milk of the cows improved both in quantity and quality, immediately after we commenced giving them the bolls." The following communication was also laid before the meeting:—"Carlton Club, March 4.—Sir,—I have long thought that the process of steeping Flax in cold water might advantageously be superseded by the use of steam. I wish very much you would institute some inquiries and experiments, calculated to prove whether I am right or not. High-pressure steam is very penetrating; and I think by care being taken not to keep the Flax too long under its action, the fibre may be separated from the stalk without trouble, and certainly without risk of staining the sample, as is often done in the common mode of steeping in cold-water tanks. I shall be glad to hear your opinion on the subject.—Your obedient servant, NEWRY AND MORNE. To James MacAdam, Esq." The secretary stated, that to carry out Lord Newry's suggestion he had caused experiments to be made by one of the agriculturists, and would report the results at a future meeting. Much discussion took place relative to the proper descriptions of Flax-seed; and Mr. Bankhead took occasion to state, that it was very difficult to procure good fresh seed in the south of Ireland. The secretary was ordered to caution all those corresponding on this subject, as to the descriptions of seed suitable for different soils. It being very desirable that some attempt should be made to ascertain the possible suitability to Ireland of the seeds of Flax grown in different parts of the world, and now imported into Great Britain for the purpose of oil-crushing; and Mr. M'Niven having kindly offered a piece of ground on which those experiments could be tried, it was ordered, that flax-seed, the growth of Egypt, Sicily, Greece, Turkey, the East Indies, and the southern provinces of Russia, should be obtained, and grown in competition with Irish, English, Riga, Dutch, and American seed, and the several qualities of Flax carefully ascertained and reported on. The advanced prices of Flax—in some cases fully 8*l.* to 10*l.* per ton—and the very large demand, and increase of the spinning business, has induced farmers to prepare much more ground than had been anticipated.—*Dublin Farmers' Gazette.*

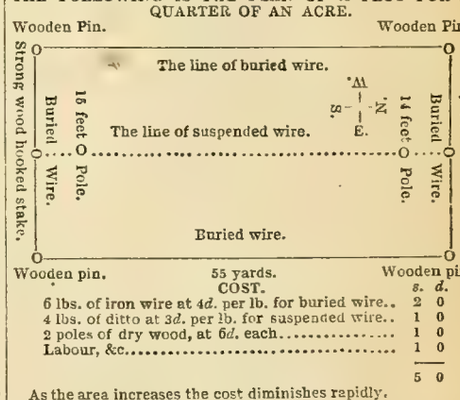
FARMERS' CLUBS.

Rhins of Galloway and Stranraer.—At a meeting of this Club on 28th Feb., the subject for consideration was, the most advantageous system of fattening cattle.—Mr. Harkness stated, that having been appointed at last monthly meeting to draw up a summary of the proceedings and discussions which had taken place in the Club during the three previous meetings, he would now endeavour to do so:—The subject was introduced to the monthly meeting of May last by Mr. M'Bryde. He urged the necessity of all farmers, desirous of pursuing an enlightened and proper mode of rearing and feeding, extending their green crops, which they could the more readily and cheaply do, now that artificial manures were so abundant and cheap. Mr. M'B. said he had corresponded with several eminent Ayrshire breeders and feeders on the subject, the result of one of whose communications he would now submit. M. M'B. said—"My correspondent keeps Ayrshire cows, and crosses with that indispensable animal the short-horned bull; he keeps the most of his calves, and feeds them as I will immediately show; sells them all off at little more than two years old from 14*l.* to 20*l.* per head. He, though an extensive Turnip-grower, finds an inestimable auxiliary in oil-cake; and says that on the use of it his success entirely depends. He at first, like many others, was afraid to make a trial of it, and began by using only about half a ton, but finding it to be an excellent and indispensable article of food, uses now about 120*l.* worth every year, and the manure of the cattle thus fed, throughout the whole course of his crops. He also states, that disease scarcely ever occurs amongst his cattle, although formerly he used to lose many of them, especially calves, which were frequently carried off by that fatal and malignant malady commonly called *black-leg*. But since he has commenced the use of oil-cake, it has been entirely banished from his premises. His mode of rearing and feeding, with a view to early maturity, is entirely based upon the use of Turnips, with a liberal allowance of oil-cake. After a long course of experience, he is of opinion that cows should calve during the month of February. If any should be calved later than this, they will be, as long as they are in the farmers' possession, an eye-sore, from their being so far behind their compeers in growth; and if earlier, the cows are apt to fail in their secretion of milk before the Grass can afford them a full bite. Of course, every farmer knows that as soon as the calf is dropped, it should be well and carefully rubbed dry with straw, and removed from its mother (when the practice is not to allow the calf to run after its mother) to another apartment, and soon after it should have an allowance of its own mother's milk, the first milk being necessary for the young animal from its medicinal and purgative qualities. It should now have a plentiful supply of milk, and nothing but milk, three times a day, for at least three weeks; then commencing with the oil-cake, which should be put into its mouth in small pieces after it has taken its milk, as it is then anxious to suck at everything it can lay hold of. By continuing in this way for a few days, and leaving a little of the broken cake in the trough before it, it soon becomes familiarised with it, and will soon learn to eat it greedily, when the allowance of milk may be gradually diminished to answer the purposes of the dairy. It should now have as much cake as it can devour, with a feed of Turnips sliced, if procurable, once or twice a day, until the Grass becomes fit for it, when the oil-cake should be gradually discontinued as it is observed to take with its pasture. Calves fed in this way when taken with the pasture, will be found to thrive rapidly, and will appear sleek and lively the whole summer. In the autumn they should be housed, as the nights begin to lengthen and feel cold, and again receive an allowance of cake, which should be powerfully and steadily adhered to throughout the winter, at the rate of at least 1 lb. for each beast, with plenty of Turnips and hay or straw. In the spring they should be kept upon this excellent fare, until their pasture is sufficient again to sustain their condition, which by this time will be beginning to afford their owner much delight and pleasure by their fine health-like and plump appearance, likewise enlarged bone and muscle. In autumn again they are tied up to be fed off for sale, and must now be carefully attended. They should now have abundance of Turnips and hay or straw, with an increased allowance of cake, viz., 5 or 6 lbs. for each beast; and by the middle or end of April, they will be in prime condition for the market." At the Monthly Meeting of the Club on 29th November, the subject was again introduced by the zealous Secretary, Mr. M'Bryde; his opinion was, that by tying up the cattle, the greatest amount of beef would be obtained in the shortest time; or, in other words, that the cattle should be tied up by the neck in stalls, and fed for six or eight weeks upon Turnips—with Oil-cake, if below 10*l.* 10*s.*, or bruised Oats, Beans, &c. Mr. M'Culloch, factor, Logan, was called on for his opinion—one of great weight considering the splendid cattle which were fed there, and the superior system of management adopted at Logan. Mr. M'Culloch said, that he was inclined to think that ordinary sized cattle would feed fully as well, tied up in properly ventilated houses, but that large cattle would do better in hamels where they had a small space to move about, and which prevented their feet giving way. One thing he observed, that the cattle in the hamels consumed more food than those stall-fed; but whether this extra food was expended in the production of motion, or went to the production of fat, he had yet to ascertain. With respect to feeding cattle upon whole or cut Turnips, a great diversity of opinion prevailed. From his experience he preferred cutting them into slices of from 1½ to 2 ins. thick; and whilst this thickness prevented little waste of the Turnips from their being too much reduced, it at the same time allowed the animals to masticate with ease, and to fill their stomachs with less trouble, and consequently there was less expenditure of the tissues of the body. In regard to giving oil-cake or grain to cattle, the system adopted on Logan Mains is, to grow and preserve the seed, which is bruised and boiled along with equal proportions of bruised Oats and Bere, and of this mixture is given hot from 4 to 6 lbs. per day, after the cattle had been tied up about two months; and he felt confident that this expense is amply repaid, besides the excrements being very much enriched. Were Oats unfortunately as low priced as last season, he thought that a few pounds of them per day would be a remunerating auxiliary to the Turnips. He also considered that if lumper Potatoes did not exceed in price above seven or eight shillings per boll, it would be profitable to feed cattle upon them; and the practice he adopted was to give, particularly in the spring, one feed of them about noon instead of Turnips, and which the cattle preferred when the Turnips became dry and fibry. If it be an object to save litter, he recommended that a small covered drain, with a grate, should be placed below each animal, and have the urine, of course, conducted into a tank; in this way the animal would be kept drier, and less litter would suffice. Mr. M'C. has not found that more litter is required for cattle in hamels than when stall-fed. Mr. Murdoch said, that he was inclined to think that if a farmer was scarce of straw, the plan of tying up to a stake would be found to economise the straw. The reason given by Mr. M'Culloch for feeding large and heavy cattle in boxes he entirely agreed in, for it was clear that in the event of such cattle being tied up, their feet would get hot, irritated, and would fail. When moving about in a loose way, their feet would be kept cool and in good condition. In Mid-Lothian the plan adopted by the farmers generally had special regard to the saving of litter or straw, which sold very dear in the Edinburgh market. The cattle were fed in open courts, and the sheds only in which the cattle retired to rest were bedded with straw, from which the manure was regularly taken, and the litter again turned up to dry and bed the cattle. The urine was a matter of the greatest consequence, and ought to be carefully collected into tanks.

Miscellaneous.

Corn Cultivation by Electricity.—At a meeting, last week, of the Polytechnic Society of the West Riding of Yorkshire, the following description was given of the result of the first considerable experiment of applying the free electricity of the atmosphere to the cultivation of corn. Dr. Forster, of Findrassie House, near Elgin, had thrashed, weighed, and measured his electric-cultured chevalier Barley, and the product was the enormous quantity of 104 bushels, or 13 quarters per acre! The tail corn was not measured, and each bushel weighed 54¼lbs. The weight of the straw was 9,300lbs. per acre. The cost of the electric apparatus is 1*l.* per acre, which will last for 20 years.

THE FOLLOWING IS THE PLAN OF A PLOT FOR A QUARTER OF AN ACRE.



COST.	s.	d.
6 lbs. of iron wire at 4*d.* per lb. for buried wire..	2	0
4 lbs. of ditto at 3*d.* per lb. for suspended wire..	1	0
2 poles of dry wood, at 6*d.* each.....	1	0
Labour, &c.....	1	0
	5	0

As the area increases the cost diminishes rapidly.

Convenient and desirable areas are, for—

Two acres, 127 by 75 yards.	¼ of an acre, 73½ by 33 yards.
One acre, 80 by 55.	⅛ of ditto, 55 by 22.
½ of an acre, 82½ by 44.	⅛ of ditto, 36 by 16½.

The mode in which the plot is laid out is as follows:—With a mariner's compass and measured lengths of common string, lay out the places for the wooden pins, to which the buried wire is attached, (by passing through a small staple.) Care must be taken to lay the length of the buried wire due north and south by compass, and the breadth due east and west. This wire must be placed from 2 to 3 inches deep in the soil. The lines of the buried wire are then completed. The suspended wire must be attached, and in contact with the buried wires at both of its ends. A wooden pin with a staple must, therefore, be driven in at A, and the two poles (one 14 and the other 15 feet) being placed by the compass north and south, the wire is placed over them and fastened to the wooden stake, but touching likewise at this point the buried wire. The suspended wire must not be drawn too tight, otherwise the wind will break it. [Electro culture is a very interesting subject; but we must not allow ourselves to be misled by it. It is to be regretted that Dr. Forster's experiments are not given at more length; at present they are so incompletely stated, that no opinion can be formed upon them. As to iron wires lasting in the ground for 20 years, that is inconceivable, unless they are protected in some way. Upon the whole, we think it better to wait, than to come to any conclusion either one way or the other.]

Stall Feeding, &c.—I think we may look upon stock generally as being merely "necessary evils;" bad customers for our roots and green crops, and dear manufacturers of manure. Supposing, in the very best case, that they come in at satisfactory prices, we treat them with punctilious attention, bed and board them in the best possible manner, and then when they are thoroughly fat and comfortable, introduce them politely to the butcher. What is our reward? Why, under favourable circumstances, we must be content to receive their excrements in payment for their bed, and not unfrequently, as in the case of bullocks, for a portion of their board too. Our sheep may choose to return to us bare cost price for our oil-cake and corn, and may perhaps pay us 3*d.* per bushel, or 10*s.* per ton for our Swedes; but no extras will either allow—no charge for epidemic or casualties of markets. Bullocks are most ungrateful fellows, and by no means favourites of mine. Although but a young grazier, I fancy sheep pay me one penny per bushel for roots more than bullocks, and pigs (if well bought, kept

warm, and their food cooked) one penny more than sheep. In fact, I have a great notion that it pays uncommonly well, when corn, &c., is cheap, to lay out 1000*l.* per annum, or 10*l.* per acre, in *purchasing* food for pigs or other stock, provided we can make them *return that amount* or *near it*, over and above their prime cost, and leave us *their manure as a profit.* This at present I have succeeded in doing with *pigs.* But whilst abundance of stock must be the farmers' sheet-anchor of manure, woe be to the unfortunate wight who neglects to keep them warm, dry, and well fed, and who *wastes* their manure by washing it down the brook. His account-book, if ever such a man kept a correct one, would show him a ruinous pecuniary loss.—*I. J. Mechi's Letters on Agricultural Improvement.*

Carrot Seed.—In sowing Carrot-seed, as it is so slow in appearing, it has been suggested to mix it with Mustard-seed, which comes up quickly, and enables us to hoe and clean the ground between the rows without injury to the line of seed. Some sow oats with the Carrot-seed. With all root seed I shall always mix twelve times its bulk of fine charcoal dust, as it is proved beyond a doubt it facilitates their *rapid* growth in dry weather.—*I. J. Mechi's Letters on Agricultural Improvement.*

Notices to Correspondents.

AGRICULTURAL MECHANICS—*A Sub*—The person you refer to should exhibit his plans to some of our best known agricultural implement-makers, who, if they thought them likely to prove successful, would probably assist him in their completion.

ATMOSPHERIC ELECTRICITY—*A A*—Your paragraph is not a hoax. Dr. Forster did grow the crops spoken of, though whether he be right in attributing his experience to the influence of electricity we do not know. It is a subject on which very little is known. The influence of the wires which are erected will be to keep the soil and the upper air in an equable electric condition—the current may be upwards or downwards, according to the relative electric conditions of the two. This same effect is, doubtless, in a measure, produced by the many vegetable points on an acre of cultivated land, and the difficulty with us is to conceive how the addition of some two or three hundred metallic points per acre, though they be placed in more favourable circumstances, to the many thousand efficient vegetable points on the same surface, can much increase whatever influence, on the growth of plants, is due through them to atmospheric electricity. However, the Highland and Agricultural Society, a highly intelligent and practical body, have sanctioned Mr. Gordon's offer of a premium for information on this subject, and doubtless many experiments will this year be tried.

BONE-CRUSHING MACHINE—*A Constant R*—Will "A Farmer," who wrote the short paragraph about Fry's bone-crusher, in page 197, be kind enough to describe the machine and state its price, and where it is manufactured?

CARROTS—*E W D*—In the absence of farm-yard manure, guano is doubtless the best manure you can apply. Seaweed is found to answer well in East Lothian; Kelp would answer the same purpose in an inland situation. If we had a lot of soot on hand we would apply it to the Potato crop rather than to the Swedes, and at the rate of 30 bushels per acre dusted along the top of each row before the sets sprouted. Other manure, such as that of the farm-yard, should be applied as well.

FATTING CALVES—*J R Wiseman*—Will the discussion at the Stranraer Farmers' Club, published in our columns this week, assist you? The proper season to sow Rye so as to have it early, is early in September, 3½ bushels of seed per acre. It likes a sandy soil.

F. O. B.—*Anon*—These letters in our market Reports signify *free on board.*

GARDEN FARM—*Beta*—Potatoes are your best crop. Is your land manured? If not, dig in 30 cubic yards of rotten farm manure per acre at once; and as soon as possible plant Potatoes; ½ an acre, for instance, with China Oranges, ¼ with Bread-fruit Potatoes, ¼ with No-blow Potatoes, and ¼ with Red Kidneys. As to an experiment you cannot do better than try the one recommended in last week's *Gardeners' Chronicle.* Take half of each of your plots and pull off the flower-buds wherever they appear, and let those of the other halves remain and form seed. When you harvest, carefully weigh and measure the produce on the different plots and you will ascertain the effect of this treatment on the different varieties.

GID, OR GIDDINESS—*Pastor*—It is produced by the pressure of a hydatid on the brain. If the watery cyst can be detected on the surface it can be removed by trephining or by puncturing with an awl, and in a few instances the disease may be thus removed; but as it is usually the case that there is either more than one hydatid, or that one situated beyond reach, we deem it the most economical plan to kill the sheep as soon as the disease is decidedly manifested, as it is sure not to thrive whilst effected with the complaint. For a further account of the disease we refer you to Youatt's or Spooner's works on the Sheep. If giddiness greatly prevails in your stock change the ram, as the disease will be increased by in and in breeding. *W. C. S.*

HORSE CARPET—*The Rev. H N* asks for information about a sort of horse-carpet, which it was said in the *Gardeners' Chronicle* was used four years at Woolwich, to the great saving of litter. What would be the first cost, and where is the article to be procured? Can any one answer this? We do not know what is referred to.

HYBRIDISING—*M Y*—We have received your samples, and will do our best with them.

MANGOLD WURZEL—*A H*—The Orange globe, so far as our experience goes, is the best variety grown. Sow in drills 26 inches apart, and at intervals of 12 inches in the rows.

MANURE—*A B T*—What is "*Vraie?*" It is not advisable to bury soluble manures too deeply. If they are volatile as well as soluble, they should be slightly buried; if they are not volatile, the best mode of applying them is as a top dressing.

MANURE TANK—*R R*—Your yard is 20 yards square, and your tank is to hold all the rain water which falls on it, as well as the urine of the cattle kept in it. The liquid manure will not require more dilution than it will receive. It would be much better if you could dispense with three-fourths of the rain-water, which will mix with it, as it is. What is the annual fall of rain in your neighbourhood? If it be 30 inches, then your tank, if only emptied once a-year, would need to be able to hold 8,000 cubic feet. If you will be able to empty it whenever it should be full, then it should be made to hold one day's heavy rain—say 1 inch of rain, or about 350 cubic feet, which it will be able to do, if 8 feet deep, 7 feet long, and 6 feet wide. About your other question, next week.

RED WATER IN PIGS—*A Sub*—This is not a common disease with swine, and it is very probably produced by erroneous management—such as exposures to wet and dampness. We presume you refer to the water in the abdomen, the red water of sheep—and not the dark coloured urine, the red water of cattle. It is better, however, when seeking for information, to state the symptoms and *post mortem* appearance. *W. C. S.*

SAINFOIN—*Onobrychis*—Sow 3½ bushels of seed per acre along with your Barley-seed.

SMITH'S DIBBLE, &c.—*J F* says, "Being anxious to try the effect of dibbling Wheat, and seeing Smith's dibble very highly praised, I purchased one, but have totally failed in making it deposit the seed, though tried with very great care: it appears to me it never can answer, as the passage at the bottom gets closed up with the soil." What is the best paint for iron railing?

SPENT TANNER'S BARK—*An Old Sub*—If very old, it will do very well to mix guano with, especially if you are to use it on clay land.

TROPICAL AGRICULTURE—*A Sub*—We have not yet received the work to which you referred some weeks ago.

TURNIPS—*Strangford*—Perhaps the best variety of Swedish Turnip, for weight, per acre, is Skirving's. Laing's is also an excellent variety. Steeping the seed in water may be useful—it is not necessary.

*** As usual, many communications have been received too late.

Markets.

SMITHFIELD, MONDAY, April 7.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3	10	4	0	Best Long-wools	4	2 to 4 6
Best Short Horns	3	6	3	8	Ditto (shorn)	3	8 4 0
Second quality Beasts	3	10	3	2	Ewes and second quality	3	10 4 2
Calves	4	0	4	8	Ditto (shorn)	3	4 3 8
Best Downs & Half-breds	4	4	4	8	Lambs	5	0 6 0
Ditto (shorn)	3	10	4	2	Pigs	3	4 4 4

Beasts, 2937; Sheep and Lambs, 26,230; Calves, 78; Pigs, 318.

We have rather more Beasts to-day. There is a very cheerful trade at very little less money—indeed, in some instances, the choicest qualities have made 4s. 2d. Everything is readily disposed of, although the increased supply causes, in many cases, a slight reduction in price.—Sheep are, also, rather more plentiful, but the demand is fully adequate, and we have a slight improvement in the prices.—Lamb-trade is very heavy.—Veal and Pork-trade continues very steady.

FRIDAY, April 11.

Our supply of Beasts is short to-day, and trade is quite brisk, the dead Markets being also very clear. The best Scots, &c., readily make 4s. 2d.; and Short Horns about 3s. 10d. Second quality 3s. to 3s. 4d.—We have a full average supply of Sheep, but they are in demand at quite Monday's prices; and, in some instances, a little over.—The weather still being cold but very little Lamb is wanted; a few of the choicest make about 6s., but a large quantity of good quality are sold at from 5s. to 5s. 4d.—Veal-trade is a shade better—a choice Calf makes nearly 5s.—Pork continues about the same as of late. Beasts, 640; Sheep and Lambs, 6670; Calves, 181; Pigs, 325.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 10.

Prime old Meadow Hay	105s to 115s	New Hay	—s to —s	Clover	110s to 117s
Inferior		Inferior Hay	98 100	Straw	36 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, April 10.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 120s		
Inferior	95 105	Inferior	105 110	Straw	38s to 42s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, April 11.

Fine Old Hay	—s to 110s	Old Clover	120s 126s		
New Hay	95 105	New Clover	— —	Straw	36s to 42s
		Inferior	105 115		

HOPS, FRIDAY, April 11.

OUR Market has been more active during this week for fine Weald of Kent and Sussex Hops than for some time previous; the stock on hand of this description is nearly exhausted; the weather continuing cold with frosty nights keeps the Hop-plant in a very backward state, which, by many, is thought will operate unfavourably on the coming crop. We understand that considerable quantities of Hops and beer have lately been exported to foreign countries, and that the reduced price of sugar and molasses is likely to increase extensively the brewing of beer in private families, and consequently cause an increased demand for Hops.

PATTENDEN & SMITH, Hop Factors.

COVENT GARDEN, April 11.—The market has been tolerably well supplied with most articles during the week, and, generally speaking, there has not been much alteration in their prices. Pine-Apples are sufficient for the demand, and they are tolerably good in quality. The best samples of Hothouse Grapes may be obtained for about 20s. per lb.; foreign varieties are becoming scarce. Good Apples are scarce; they have not altered in price since our last Report. Dessert Pears are also scarce. Oranges are pretty plentiful; they are a trifle dearer, as are also Lemons. Chesnuts, considering the season, are tolerably plentiful; they are rather on the rise. Strawberries may be obtained from 6*d.* to 1*s.* an ounce; they are becoming more abundant. Vegetables continue to improve in quality and to become more plentiful. Broccoli, both brown and white, is good; it is not so dear as it was last week, the brown bringing from 1*s.* to 2*s.* a bundle. Brussels Sprouts are nearly over for a season; and Savoys are getting scarcer. Asparagus is advancing in price, and Red Beet and Leeks are also dearer; but Endive, Rhubarb, and Seakale, are cheaper, as are also Cucumbers, the best of which may be purchased for about 8*s.* a brace. French Beans are good and plentiful, and Radishes and other Salading are becoming more abundant. Among Cut Flowers are Tropæolums, Epacrises, Heaths, Cacti, Camellias, Pelargoniums, Cinerarias, Azaleas, Violets, Amaryllises, Carnations, Picotees, and Moss, China, and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*		Oranges, per dozen, 9*d* to 2*s* 6*d*	
Grapes, Hothouse, per lb., 20*s*		— per 100, 5*s* to 18*s*	
— Spanish, per lb., 1*s* to 1*s* 6*d*		— bitter, per 100, 8*s* to 20*s*	
— Portugal, per lb., 1*s* to 3*s*		Lemons, per dozen, 1*s* to 2*s*	
Apples, Dess., per bush., 6*s* to 12*s*		— per 100, 6*s* to 16*s*	
— Kitchen, 4*s* to 6*s* 6*d*		Almonds, per peck, 6*d*	
Pears, Dess., per hf.-sv., 8*s* to 12*s*		Sweet Almonds, per lb., 2*s* 6*d* to 3*s*	
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*		Cob Nuts, per 100 lbs., 120*s* to 130*s*	
Pomegranates, per doz., 2*s* to 4*s*		Nuts, Barcelona, 24*s*	
Strawberries, per oz., 6*d* to 1*s*		— Brazil, 20*s*	
Chesnuts, per peck, 6*s* to 10*s*		— Spanish, 20*s*	
Walnuts, per bushel, 16*s* to 24*s*		— Cob, 16*s*	

VEGETABLES.

Cabbages, per dozen, 1*s* to 3*s*		Scorzonera, per bunch, 1*s* 6*d* to 2*s*	
— red, per doz., 2*s* to 8*s*		Salsafy, per bunch, 1*s* 6*d* to 2*s*	
— plants, per doz. bunch., 4*s* to 6*s*		Parsnips, per doz., 6*d* to 2*s*	
Broccoli, per doz., 1*s* 6*d* to 3*s*		Leeks, per doz., 1*s* 6*d* to 3*s*	
Brussels Sprouts, 1*s* to 2*s* 6*d*		Garlic, per lb., 8*d* to 10*d*	
French Beans, per 100, 1*s* 6*d* to 2*s* 6*d*		Onions, per bunch, 3*d* to 6*d*	
Sorrel, per hf.-sieve, 1*s* 6*d* to 2*s* 6*d*		— large, per bushel, 4*s* to 6*s*	
Jerusal. Artichok, p. hf.-sv., 1*s* to 2*s*		— Spanish, per doz., 1*s* 6*d* to 5*s*	
Potatoes, per ton, 50*s* to 90*s*		Shallots, per lb., 6*d* to 10*d*	
— cwt., 2*s* 6*d* to 5*s*		Lettuce, per score, 9*d* to 1*s* 6*d*	
— bushel, 1*s* 6*d* to 3*s*		Celery, White, per bunch, 1*s* to 2*s*	
— Kidney, per bsh., 2*s* to 3*s*		— Red, per bunch, 1*s* to 2*s* 6*d*	
— Autumn, per lb., 3*d* to 6*d*		Endive, per score, 1*s* 6*d* to 3*s* 6*d*	
— New, per lb., 2*s* 6*d* to 3*s* 6*d*		Radishes, per doz. hands, 2*s* 6*d* to 3*s* 6*d*	
Turnips, per doz. bch., 2*s* 6*d* to 4*s*		Mushrooms, per pottle, 1*s* to 2*s*	
Red Beet, per doz., 1*s* to 6*s*		Small Salads, per punnet, 2*d* to 3*d*	
Carrots, per doz. bchs., 6*s* to 8*s*		Basil, green, per bunch, 1*s*	
Basil, per bunch, 2*d* to 3*d*		Fennel, per bunch, 2*d* to 4*d*	
Rhubarb, per bundle, 2*d* to 2*s*		Watercress, p. 12 sm. bun. 6*d* to 8*d*	
Seakale, per punnet, 9*d* to 4*s*		Parsley, per half sieve, 2*s* to 4*s*	
Asparagus, per bundle, 2*s* to 14*s*.		— Roots, per bundle, 9*d*	
Horse Radish, per bundle, 1*s* 6*d* to 7*s*		Tarragon, per bunch, 4*d*	
Savory, per bunch, 9*d*		Mint, per bunch, 6*d* to 1*s*	
Cucumbers, per brace, 2*s* to 8*s*		Marjoram, per bunch, 3*d*	
Spinach, per sieve, 3*s* to 4*s*		Chervil, per punnet, 3*d* to 4*d*	

POTATOES.—SOUTHWARK, WATERSIDE, April 7.

THIS Market has been abundantly supplied during the past week. The trade continues to be unusually depressed. The best samples went off heavily at the annexed quotations, and some parts of cargoes of rough samples have been warehoused, they being unsaleable in the present Market. Several lots have been sold to the cow-keepers at from 35*s.* to 40*s.* per ton.

York Reds			45*s* to 80*s*	Kent and Essex Kidneys			70*s* to —*s*
Perth			45 55	Wisbeach Kidneys			65 70
Fifeshire			40 50	— Blues			55 —
Early Devons			50 60	— Regents			85 —
Late Devons			— —	— Whites			50 55
Cornwall			50 60	Guernsey Blues			55 60
Jersey Blues			55 60	— Whites			— —
— Whites			— —	York—Prince Regents			55 65
Kent and Essex Whites			45 50	— Blues			— —
				— Shaw's			50 70

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on Tuesday, April 15th, and Thursday, 17th, 1845, at 12 o'clock each day, the remaining stock of CARNATIONS and PICOTEES of a well-known Amateur, declining their further cultivation, comprising all the approved kinds in cultivation. Also a fine assortment of Dahlias, Geraniums, Roses, Fuchsias, Pinks, &c. May be viewed the morning of sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

SUPERIOR DAIRY STOCK.—TO COWKEEPERS, FARMERS, AND PRIVATE PURCHASERS.

MESSRS. DAVIS and VIGERS are directed by the Assignees to the Estate of MR. HY. TURNER, a Bankrupt, to sell by Auction, on the Premises, 75, Theobald's-road, Gray's Inn-lane, on THURSDAY, April 17, at 12, unless previously disposed of by private treaty, the valuable and well-selected Stock, comprising 56 YOUNG MILCH COWS, principally of the York Short-horn Breed, remarkably fine, and some of them, for their extreme beauty, deserving the attention of purchasers for the park or paddock. Also three powerful Young Cart-horses, a town-built Grain Waggon, nearly new, and a Dung-Cart, both with patent Boxes, Harness, Cow-chains, Milk-pails, Measures, Strainers, Chaff-box, and Implements; Household Furniture, and other Effects, and the beneficial Lease of Premises. To be viewed the day before, and morning of sale. Catalogues to be had of P. JOHNSON, Esq., Official Assignee, 84, Basinghall-street; Ram Inn, Smithfield; Red Lion, Whitechapel; Greyhound, Croydon; White Hart, Southall; White Hart, Romford; on the Premises; and at the Auctioneer's Office, 3, Frederick's-place, Old Jewry, London.

WILL POSITIVELY TAKE PLACE.—TO GENTLEMEN, FLORISTS, AND OTHERS.

MR. JAMES IZOD, will Sell by Auction at the Mart, on Tuesday, 15th April, at 12 for 1, without reserve, a SUPERB COLLECTION OF CARNATIONS, PICOTEES, FUCHSIAS, VERBENAS, PETUNIAS, ROSES, HERBACIOUS, CLIMBING, AND GREENHOUSE PLANTS, &c., as advertised to take place 8th April.—May be viewed on the Morning of Sale, and Catalogues had at the Mart, and of MR. IZOD; at this Office; and Sheriff's Sale-Rooms, 46, Watling-st.

TO NURSERYMEN AND OTHERS.

TO BE LET, within two miles of Hyde Park, in a fast improving neighbourhood, A MOST DESIRABLE NURSERY, with a capital Show-house, Shop, and Dwelling-house, three Greenhouses, and three ranges of Pits, with sheds and conveniences, and well situated for the sale of good Fruit. A long lease can be given. For particulars apply to Messrs. PROTHEROE and MORRIS, American Nursery, Leytonstone.

TO FLORISTS AND OTHERS.

TO BE LET, with immediate possession, an OLD ESTABLISHED BUSINESS in the above line, situate in one of the principal thoroughfares near London, and from the situation always must command a good trade. Lease 17 years unexpired.—Direct to A. B., at the Office of this Paper.

SPLENDID NEW GERANIUM AND PANSIES.

CHARLES NOYES, HOPE NURSERY, PENDLETON, near Manchester, begs to inform his friends and the public, that having a good stock of strong Plants of that splendid Seedling Geranium BRITISH HERO (which was raised by a gentleman's gardener in this neighbourhood), he is enabled to offer it at the following very low price: lower petals vivid scarlet, upper petals very dark, margined with crimson; first-rate form and substance. It has been seen by many competent judges, all of which pronounce it to be the brightest and best in its class they have yet seen. 10*s.* 6*d.*

PANSY, SIR H. POTTINGER, a flower of which was sent for Dr. LINDLEY's opinion, see *Gardeners Chronicle*, Oct. 19th, 1844, p. 704, under the signature "C. N." "It is a large and fine flower, having a small white centre with a well marked eye, the rest of the flower uniform light mulberry colour; it appears to want a little more substance for so large a flower." C. N. has no hesitation in saying it is decidedly the best Pansy in its class; owing to its being sent up so late in the season was the cause of the substance not being so fine, as in this respect, during the season, the substance was its best property; it has been exhibited in most of the winning stands in this neighbourhood. 5*s.*

HOPE RIVAL; upper petals brilliant light-blue; lower ones belted very distinctly with the same; ground colour creamy white, with beautiful pencilled eye; good form, distinct and novel; it was also exhibited in winning stands. 3*s.* 6*d.*

C. N. will have no objection to take out in anything new and good, to any amount, the orders he may be favoured with for the above.

His Catalogue of Dahlias, Geraniums, Fuchsias, Verbenas, Petunias, Calceolarias, Pansies, &c., are now ready, and will be forwarded on application.

SPLENDID NEW SHRUBBY CALCEOLARIAS.

H. MAJOR begs to remind the admirers of this beautiful tribe of plants, that he purposes sending out his new Seedlings, of acknowledged beauty, brilliance of colour, and variety, the first week in May, in 3 sets of 8 each; 1st set, 2*l.*; 2d, 1*l.* 10*s.*; 3d, 1*l.* Unbloomed Seedlings raised this year, and which will all bloom this year, in parcels of 20, at 5*s.* per parcel, post free. Twelve of his best CALCEOLARIAS sent out last year, he offers for 1*l.* 5*s.* Printed directions for the general management of the Calceolaria throughout the year will be forwarded to every purchaser. A few sets of H. M.'s three superior Seedling PANSIES still remain at 15*s.* the set, post free. An extensive stock of the leading Pansies at moderate prices, 24 select kinds for 25*s.*, post free. Choice Pansey seed 2*s.* 6*d.* per packet. All orders will be executed in rotation as they are given. A descriptive Catalogue of the Seedling Calceolarias and Pansies may be had on post-paid application. From unknown correspondents a remittance is respectfully requested with the order.—Knosthorpe, near Leeds.

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J. HARRISON, NURSERYMAN, &c., YORK, begs to state his intention of giving the following Prizes at the Grand Metropolitan Show in September next; viz., for the best six dissimilar blooms of DAHLIAS, selected from the undermentioned 12 varieties, 3*l.*; for the 2d ditto, 2*l.*; and entrance 1*s.* each, to form a 3d Prize.

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LONDON: LONGMAN, BROWN, GREEN, AND LONGMANS.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLET EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-st., in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, April 12, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1845.] SATURDAY, APRIL 19. [Price 6*d.*

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ROYAL BOTANIC SOCIETY, REGENT'S PARK. The Fellows, Members, and Subscribers are informed that Saturday next, the 26th inst., is the LAST DAY upon which Tickets can be obtained at 4*s.* each for the EXHIBITIONS at the Gardens. J. DE C. SOWERBY, Sec.

ROYAL SOUTH LONDON HORTICULTURAL SOCIETY.—Under the Patronage of Her Most Gracious MAJESTY.—The first Exhibition of the above Society will take place at the "Horns Tavern," Kennington, on Wednesday next, the 23d inst. Open to all Exhibiters. Admission from One to Six o'clock, at 1*s.* each. List of Prizes, and the Rules of the Society, may be obtained from JOHN TAYLOR NEVILLE, Secretary, Ebenezer House, Peckham.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—POSTPONEMENT OF THE FIRST EXHIBITION.—The First Exhibition of Plants, Flowers, Fruits, and Vegetables for the current year, will take place at the Society's Gardens, Old Trafford, on Wednesday, the 21st of May next, instead of the 7th May, as previously advertised, when Prizes will be awarded for the best specimens exhibited. The Schedule of Prizes and Regulations for admission and exhibiting may be had on application at the Secretary's office, 28, Brazennose-street, Manchester.—By Order of the Council.
S. E. COTTAM, Secretary.

THE DESTRUCTION OF SLUGS.

T. AND C. LOCKHART, FLORISTS AND SEEDSMEN, 156, Cheapside, London, have on Sale a quantity of TOBACCO ASHES, which they beg to offer at 6*d.* per lb., or 25 lbs. for 10*s.*, including package. It will be found destructive to Slugs, as well as an active manure.

Pawlonia imperialis, well rooted, per plant	2*s.* 6*d.*
Lawn Grass Seeds, per lb.	2*s.* 0*d.*
Mushroom Spawn, per brick	0*s.* 6*d.*

An excellent and varied Stock of Herbaceous Plants, of which Lists may be had. Plants of all the tender and half-hardy Annuals on sale till the second week in June.

CHOICE FLOWER SEEDS.

W. E. RENDLE has succeeded in obtaining a few hundred seeds of that rare and richly-perfumed Annual named by Professor LINDLEY

MARTYNIA FRAGRANS,

Sold in packets at 2*s.* 6*d.* each. As well as a choice selected stock of the following new and beautiful Flower-Seeds:—

Imported German Stocks	Mesembryanthemum tricolor
,, ,, Asters	Phlox Drummondi
,, ,, Larkspurs	Rhodanthe Manglesii
Clematis montana	Trachimene cærulea
Clintonia pulchella	Finest mixed Zinnias
Lobelia ramosa	Schizanthus Hookerii

The above at 6*d.* per packet, or the whole set, including Martynia fragrans, free by post, for 6*s.*

36 leading varieties of Annuals, as recommended in the *Chronicle* of March 1st, for 12*s.*, free by post; 12 choice Greenhouse Annuals, as recommended March 15th, for 6*s.*, free by post.

A General Catalogue of Flower Seeds has just been published, and can be had on application.—Union-road Nursery, Plymouth.

NEW, GOOD, AND CHEAP.

B. W. KNIGHT, FLORIST, &c., TIVOLI, near St. Leonard's-on-Sea, Sussex, begs to call the attention of his friends and the public to the following Choice Plants, which are now ready to send out: 12 new choice and distinct Fuchsias, fit for exhibition, for 6*s.*; 12 extra first-rate, very distinct varieties, all sent out for the first time last season, for 12*s.*; 12 distinct Verbenas for 3*s.* 6*d.*; 12 extra new good varieties for 6*s.*; 12 fine show Pansies for 6*s.*; 12 extra good for 12*s.*; 12 very choice Petunias for 6*s.*; 12 good and distinct Cinerarias for 6*s.*; 12 extra new kinds for 12*s.*; 12 extra choice Anagallis for 3*s.* 6*d.*; 12 fine Salvias for 4*s.*; 12 Heliotropiums for 4*s.*; 12 choice kinds Phloxes for 6*s.*; 12 extra new very distinct varieties for 12*s.*; 12 choice Antirrhinums for 6*s.*; 12 extra choice new kinds for 12*s.*

Also will be ready to send out in May, 12 good show Dahlias for 12*s.*; 12 extra good distinct kinds, all new last season, for 21*s.*; 12 choice fancy or border varieties for 6*s.* Any of the above can be securely packed and forwarded, post free, on receipt of the amount with the order. Catalogues of the above may be obtained on prepaid application.—April 19.

MAGNIFICENT SEEDLING FUCHSIAS.

W. J. EPPS begs to announce that he has now a Fine Healthy Stock of his two Magnificent SEEDLING FUCHSIAS, namely, "NYMPH" and "QUEEN OF THE BEAUTIES." For description, see Advertisement of Feb. 8.

A remittance from unknown correspondents.

Bower Nursery, Maidstone, April 19.

WARNER AND WARNER, SEEDSMEN & FLORISTS, No. 28, Cornhill, London, beg to offer to the Nobility and Gentry the following new and choice FLOWER SEEDS, which they can with confidence recommend. For a more lengthened list, W. and W. beg to refer to Harrison's "Floricultural Cabinet," for this and the two preceding months:—

Achimenes hirsuta, new, 1*s.*
Alonsoa Jerrisses, very beautiful, 6*d.*
Anagallis coccinea, splendens, 6*d.*; Bresverii, beautiful, 1*s.*
Antirrhinum hybridum, 20 shades of colour mixed, 6*d.*
Aquilegia glandulosa, very beautiful, 1*s.*
Aster, German, mixed from imported varieties, 6*d.*; double nosegay, 6*d.*; collection of 24 varieties, as imported, most splendid, 5*s.*
Balsam, double Camellia-flowered, mixed, 6*d.*; double German, 12 varieties, separate, the collection, 3*s.*
Brachycome iberidifolia, 6*d.*
Campanula stricta, 6*d.*
Carnation, from fine named show flowers, 1*s.*
Clintonia pulchella, 6*d.*
Clivea nobilis, 6*d.*
Cobœa scandens, 6*d.*
Cockscomb, new giant scarlet, 6*d.*; 12 splendid imported varieties, quite new, 4*s.* the collection
Convolvulus minor, dark purple, 6*d.*; inflatus, 6*d.*; major, new dark variety, 6*d.*
Cuphea silenoides, 6*d.*
Cytisus Atleeana, new and splendid, 1*s.*
Dahlia, from choice named flowers, saved by the most celebrated growers, 1*s.*
Elichrysum, superb, new var. from the Swan River, 6*d.*
Eucharidium grandiflorum, 6*d.*
Gilia splendens nova, 6*d.*
Gloxinia rubra splendens, 1*s.*
Godetia rosea splendens, 6*d.*; aurea, beautiful, 6*d.*
Heartsease, from choicest named show flowers saved by Thomson and other eminent growers, 1*s.*
Hibiscus Manihot, splendid, 1*s.*
Hollyhocks, a collection comprising 30 new and beautiful varieties, 6*s.*; Camellia-flowered, 6*d.*
Ipomœa rubro-cærulea, 1*s.*
Larkspur, German, 12 kinds, extra fine, 3*s.*; German, fine mixed, 6*d.*
Lobelia ramosa, beautiful, 6*d.*; propinqua, very pretty, 6*d.*
Lupinus variegata, very pretty, 6*d.*
Martynia fragrans, 1*s.*
Marigold, unique French dwf. beautifully striped, 6*d.*
Mesembryanthemum pyropæum, 6*d.*
Mimulus splendens, 6*d.*
Nasturtium, striped, beautiful variety, 6*d.*
Nemophila discoidalis, blk., 6*d.*
Pentstemon speciosum, 1*s.*
Petunia grandiflora, beautiful, 6*d.*
Phlox Drummondi, large crimson, 1*s.*
Pink, Chinese, new double fine, 6*d.*
Platystemon Californicum, 6*d.*
Portulaca Thellusonii, 6*d.*; splendens, 6*d.*
Poppy, 20 distinct colours, separate, from the Neilgherry Hills, 5*s.*
Primula sinensis rubra fimbriata, 6*d.*; alba ditto, 6*d.*
Salpiglossis, 20 varieties, mixed, superb, 6*d.*
Sanvitalia procumbens, 6*d.*
Scabiosa, 12 beautiful imported varieties, 3*s.* the collection
Schizanthus Hookerii, scarlet, 6*d.*
Schizopetalum Walkerii, sweet scented, 6*d.*
Sedum cœruleum, for rockwork, 6*d.*
Sieversia elata, new, 1*s.*
Silene speciosa, beautiful, 6*d.*
Stocks, German imported, 24 varieties, mixed, 6*d.*
Queen's Bouquet, most beautiful, new, 1*s.*
Collection of 36 varieties as imported 6*s.*, very beautiful 6*s.*
Emperor, new and splendid; crimson and yellow hue, beautiful new, 1*s.*
New dark Chamois, yellow, large flower, 1*s.*
Sweet William, new dark rich colour, 6*d.*
Thunbergia Fryerii, new, 1*s.*
Tropæolum Jarrattii, 1*s.*; brachyceras, 1*s.*
Verbena, from the newest and best named flowers, 1*s.*
Wallflower, new double gigantic, bronzy red, most superb, 1*s.*; new double dwarf, dark brown, curiously shaded, 1*s.*
Zinnia elegans, 20 splendid varieties, as imported, 5*s.* the collection; all the choice varieties, mixed or separate, 6*d.*

Also, made up in collections for 10*s.*, the 36 Showy and Hardy Annuals, for the list and description of which see the *Chronicle*, dated March the 1st, of the present year, p. 133. Likewise the 18 varieties of Tender Annuals for 7*s.* 6*d.*, as recommended March the 22d, page 185.

*** A General Catalogue of Garden and Flower Seeds may be had on application, post-free.

TO THE ROSE TRADE.

R. B. BIRCHAM, HEDENHAM ROSERY, BUNGAY, SUFFOLK, begs to offer the following FIRST-RATE Perpetual and Bourbon ROSES, Dwarf Plants in Pots, own roots, fit for transplanting into borders; or to form beds of Perpetual Roses:— The following are 1*s.* per Plant:—

Aubernon, Augustine Mouchelet, Clementine Seringe, Duchess of Sutherland, Duc d'Aumale, Earl Talbot, Fulgorie, Julie Dupont, Lane, Madame Dameme, Madame Laffay, Melanie Cornu, Mrs. Elliot, Prince Albert, Rivers (Laffay's), William Jesse, Queen of Bourbons, Acidalie, Alfred, Splendens, Duc de Chartres, Emile Courtier, Enfante d'Ajaccio, Gloire de Rosamene, Madame Nerard.

The following at 2*s.* 6*d.* per Plant:—

Comte d'Eu, Dr. Marx, Lady Elphinstone, Marquis of Ailsa, Marquis of Boccella, Prince de Galles, Comice de Seine et Marne, Edouard Derforsse, La Bouquitière, Lady Canning, Lilacea grandiflora, Madame Aubis, Madame La Charme, Proserpine, Paul Joseph, Princess Modena, Cerèse, Perry de St. Cyr. The following at 3*s.* 6*d.* per plant:—

La Reine, Lady Alice Peel, Madame Emma Dampier, Gloire de Paris (Noisette), Cloth of Gold, Solfaterre, Pourpre de Tyre. The following at 5*s.* per plant.

Comte de Rambuteau, Souchet, Madame Souchet, Charles Souchet, Souvenir de la Malmaison, George Cuvier, Princess Clementine, Dumont de Courset.

Queen of the Prairies, at 2*s.* 6*d.* each.

A purchaser may select *Fifty* of the above for 5*l.*, *Cash on Delivery*. The plants are healthy, and ready for planting out the beginning of May. A Descriptive Catalogue sent on application. Carriage paid to London.—Hedenham, April 19.

TO FUCHSIA GROWERS.

T. TRINDER begs to inform his friends and the public that he has now ready to send out a few SEEDLING FUCHSIAS, in tin cases, post free, at 7*s.* per dozen; the above were raised from one of the best collections in the county, and are recommended with confidence.—Forest-hill, Peckham, near London. A remittance respectfully requested.

SPLENDID NEW CALCEOLARIAS.

R. COOPER begs to offer the following NEW CALCEOLARIAS, which are now ready for sending out:—

COOPER'S ROYAL EXCHANGE; gained the Seedling Prize at the Bromley June Show, 1844	15*s.*	0*d.*
" MATILDA	10	6
" PRINCE ALFRED	10	6
" QUEEN OF THE FAIRIES	10	6

The above Seedlings were submitted to the Editor of the *Gardeners' Chronicle*, and obtained the following favourable opinion.—See *Gard. Chron.*, No. 21, for May 25, 1844, p. 340, under the signature "R. C."

"Your three Seedlings are extremely good varieties—good in form and fine in texture, and having the large blotch in front of the flower very decided; they will be very attractive when grown as specimen plants."

Priced CATALOGUE for 1845 of GERANIUMS, FUCHSIAS, HERBACEOUS PLANTS, &c., will be sent by post on application. Also CATALOGUE of choice FLOWER SEEDS.

SION NURSERY, Croydon, April 19.

SPLENDID SEEDLING FUCHSIAS—ROGERS'S LADY SALE, 10*s.* 6*d.*; LORD SANDON, 7*s.* 6*d.*; THEOPHRASTUS, 7*s.* 6*d.* CALCEOLARIA—ROGERS'S STAFFORDSHIRE RIVAL, 15*s.* PELARGONIUM—ROGERS'S LADY TAMWORTH, 21*s.*

GEORGE ROGERS beg to inform the admirers of the above, that he commences sending out the above STRONG HEALTHY PLANTS by post, or otherwise, after the 20th instant; for description and opinions see this Paper for last week, or G. R.'s Descriptive List, which may be had gratis on prepaid application. AQUILEGIA GRANDIFLORA, a beautiful plant, 3*s.* 6*d.* each, or 30*s.* per dozen.—Uttoxeter, April 19.

RARE AND BEAUTIFUL COLUMBINE, &c.

THE Subscribers beg to intimate that they have saved Seeds of a superb variety of AQUILEGIA GLANDULOSA. This splendid Columbine is a hardy perennial, and forms one of the most gay border plants in cultivation; it grows to the height of from 12 to 18 inches, abounding in two-coloured blossoms (blue and white), of the size and shape of the common Passion-flower. Packages of about 150 seeds will be sent, free, at 1*s.* each, or for stamps of that value. Packages of Seeds of the TRUE NATIVE, or RED-WOODED PINE OF SCOTLAND, at the same rate.

JOHN GRIGOR, & Co. Nurseries, Forres, N. B.

PANSIES.

C. HART, FLORIST, &c., GUILDFORD, begs to offer the Admirers of the above Flower collections at the following prices.

	£	*s.*	*d.*
20 Named Varieties, good flowers	0	10	0
20 ,, ,, show flowers	0	15	0
20 ,, ,, fine show flowers	1	0	0

C. H. has likewise good plants of Pizarro, Trafalgar, Formosa, Mary Jane, Queen of the Whites, Isabella, La Valiere, &c., at moderate prices. Catalogues may be had on application. The above sent free by post.

SPLENDID NEW PERUVIAN FUCHSIA.

FUCHSIA—"SERRATIFOLIA."

MESSRS. VEITCH AND SON have much pleasure in calling the attention of all lovers of Flowers to this truly beautiful plant, which they have been so fortunate as to introduce from Peru, through their Collector, Mr. W. LOBB. It was exhibited at the Horticultural Society's Rooms, in Regent-street, on Tuesday last, and received the Large Silver Medal; see Report in *Gardeners' Chronicle* of this day.

Messrs. V. and Son hope to have further opportunities of exhibiting it during the summer. Orders will be executed in strict rotation as received. Price and time of delivery will appear in a future Advertisement.—Exeter, April 19.

SPLENDID NEW SHRUBBY CALCEOLARIAS.

H. MAJOR begs to remind the admirers of this beautiful tribe of plants, that he purposes sending out his new Seedlings, of acknowledged beauty, brilliance of colour, and variety, the first week in May, in 3 sets of 8 each; 1st set, 2*l.*; 2d, 1*l.* 10*s.*; 3d, 1*l.* Unbloomed Seedlings raised this year, and which will all bloom this year, in parcels of 20, at 5*s.* per parcel, post free. Twelve of his best CALCEOLARIAS sent out last year, he offers for 1*l.* 5*s.* Printed directions for the general management of the Calceolaria throughout the year will be forwarded to every purchaser. Mr. M. can still supply a few orders for two of his superior Seedling PANSIES, viz. Duke of York and Purity, for 10*s.* 6*d*; Bridal Ring being all sold out. An extensive stock of the leading Pansies at moderate prices, 24 select kinds for 25*s.*, post free. Choice Pansy seed 2*s.* 6*d.* per packet. All orders will be executed in rotation as they are given. A descriptive Catalogue of the Seedling Calceolarias and Pansies may be had on post-paid application. From unknown correspondents a remittance is respectfully requested with the order.—Knosthorpe, near Leeds.

SEEDLING FUCHSIAS.

WM. IVERY, NURSERYMAN, FLORIST, &c., PECKHAM, near London, begs to inform his Friends and the Public that he is now ready to send out SIR H. POTTINGER; the habit is that of Eppsii, quite equal in size, and a very free bloomer; tube and sepals of a delicate light flesh colour slightly veined with pink; sepals well expanding, showing the beautiful dark crimson and purple corolla. W. I. has no hesitation in saying it is the most noble and splendid variety ever offered to the public. Plants 7*s.* 6*d.* each.

"Brooklands, Blackheath Park, Feb. 7, 1845.

"Dear Sir,—In answer to your questions relative to the FUCHSIA 'SIR H. POTTINGER,' which you purchased from my neighbour, Mr. Cole, I can have no hesitation in saying that it is the largest and best light Fuchsia which I have ever seen, and one which will give satisfaction to every purchaser; it has a fine robust habit, and under proper management will make a large specimen in a very short time.—I am, Sir, your obedient servant. "WILLIAM P. AYRES."

SIR W. MAGNAY, bright glossy red, sepals much reflexed, far superior to Stanwelliana, and beautiful habit. Plants 5*s.* each.

Agents in London:—Messrs. Warner and Warner, Seedsmen, Cornhill; Messrs. Hurst and M'Mullen, Seedsmen, 6, Leadenhall-street; Messrs. Flanagan and Son, Seedsmen, 9, Mansion-house-street. Catalogues to be had on application.

WANTED.—PICEA RELIGIOSA, AND ABIES DOUGLASII, 4 to 6 feet high.

Any one having the above plants for Sale, may hear of a customer by forwarding the description and price, delivered free, at one of the Wharfs in London, to ALEXANDER PONTEY.

PLYMOUTH NURSERY, Plymouth, April 19, 1845.

SEED POTATOES.—THE HUNDRED-FOLD POTATOES, as advertised in the *Gardeners' Chronicle*, February 7, 1844. They have been proved to produce the largest amount of crop, and one of the very best Potatoes yet known. They may be obtained in quantities of not less than half a load of 126lbs. at the rate of 30*s.* per load. Apply to R. S. YATES, St. Ann's Square, Manchester, or to Mr. J. W. DRAPER, Covent-garden, London.

AN ABRIDGED CATALOGUE OF DAHLIAS, SOLD BY W. R. WHALE, ELCOT, near Hungerford and Newbury, Berks. W. R. W. begs leave most respectfully to thank his friends and the public generally for their increased patronage during the last season, and to inform them that he can supply most varieties in cultivation, at moderate prices and true to name.

	s.	*d.*
Whale's Duchess of St. Alban's, a seedling of 1843, a delicate primrose margined with dark mulberry if not too much bleached, beautifully cupped petals, well set, fine centre, shape and size of Ansel's Unique, took a prize at Salt Hill, &c., &c., height, 3 ft. . . .	10	6
(Un ess six or more plants are ordered.)		
Whale's Admiration, shaded orange margined with scarlet, a beautiful show flower, perfectly constant, never showing an eye the whole season, height, 4 ft.	10	6
(This variety will be scarce, as the roots are nearly all perished.)		
Albion, Sparey, bronzy salmon, finely cupped, an excellent show flower, height, 4 ft.	10	6
Beeswing, Drummond, first-rate show flower, one of the best of the season, crimson red, height, 4 ft. .	10	6
Alice Hawthorn, Drummond, white tipped with rose purple, has obtained numerous prizes, height, 4 ft. .	10	6
Essex Bride, Turvill, light lilac, a superb show flower, height, 4 ft.	10	6
Lord Denman, Nevill's, dark claret, one of the best show varieties of the season, height, 4 ft.	10	6
Attractor, Teebay, marone shaded crimson, good show flower, height, 4 ft.	10	6
Fancy, Teebay, bright red, height, 3 ft.	10	6
Fulwood Hero, Teebay, purple shaded up the centre of the petal with violet purple, has taken numerous prizes, height, 4 ft.	10	6

W. R. W. will take orders for Mr. Girling's Seedlings, the Union, &c. &c.

W. R. WHALE'S CATALOGUE OF DAHLIAS

The following varieties at 24*s.* per dozen, if a dozen plants are taken of different varieties.

Aurantia, Sparey, orange
Lady Antrobus, Sparey, white, edged with pink
Alexander, Brown, mottled rose
Bathonia, Drummond, fine dark
Bermondsey Bee, Girling, purple, superb
Nonpareil, Girling, scarlet, fine
Consolation, Widnall, fine dark
Delight, Brown, light peach
Emma Noke, blush
Essex Champion, Turvill, orange
King of Sarum, Dodd, shaded orange
Opher, Edward, yellow, shaded
Orange Superb, Dodd, orange
Lady St. Maur, Brown, light tipped purple
Queen of Roses, Widnall, light rose, very unique
Park Mount Rival, yellow
Rembrandt, Brown, purple
Raphael, Brown, shaded purple
Sir I. Stewart Richardson, Union, shaded rose
Trafalgar, King, light rose, fine
Vanquisher, Dyson, rose crimson, fine
Vanquisher, Wood, dark
Crimson Perfection, Whale, good show flower
Preceptor, Whale, crimson scarlet
Charlemagne, Mohring, large red
Standard of Perfection, Keynes, splendid dark
Espartero, Keynes, crimson
Beauty of Bucks, light edged with rose
Spitfire, light rose, B
Desirable, Brown, buff
Nutwith, Brown, crimson
Paladine, Union, fine crimson
Doctor Primrose, Union, primrose
Young England, Union, crimson
Alice Maud, light laced lilac, good
Beauty of Birmingham, Harrison, light laced with pink
Pet Rival, B, maroon
Oliver Goldsmith, Union, sulphur
Beauty of Camden, Ansell, light
Lord Howden, Harrison, bronzy crimson, a superior show flower
Clara, Ansell, light
Lady Gray, Harrison, lilac
Rival, rose, Wood's
Queen of Cheltenham, H, white
Madeline, Daniels, lilac
Prince of Waterloo, Drummond, dark
Hampstead Rival, Cowing, dark
Hero of Maida, Syred, orange
Talma, Girling, rose
Sir H. Pottinger, dark

All the good old varieties at 12*s.* per dozen.

FRENCH, OR FANCY VARIETIES.

WHALE'S Madam Villebois seedlings of '43, never before sent out, light edged with pink, a very pretty striking variety, 7*s.* 6*d.*

Madam Hansard, carmine, tipped with white, 7*s.* 6*d.*

Miss Dundas, carmine, striped with white, fine bold petal, 7*s.* 6*d.*

Bicolor, crimson, tipped with white, height 3 ft. each, 7*s.* 6*d.*

The following fancy varieties 12*s.* per dozen.

Madam Meillez, Dodd
Ditto, Girling
Oakley's Surprise
Nihille
Village Maid, G
Jack of Newbury, G
La Vogue, G
Oudine, G
Assuerus, G
Quadricolor, G
Noir et Blanc
Madame Le Carpenter, G
Garland, G
Admirable Bauduin
Madame Bavais
Bicolor
Beauty Supreme
Beauty of England
Butterfly
Lady Rae Reid
Don Ferdinand
Madame de Schwanfield
Colonel de Schwanfield

W. R. W. is not in the hab't of publishing long Catalogues of useless varieties, though his Collection is inferior to none.

R. WHITE AND CO. offer the following, viz.: Forty established Plants of first-rate show-flower GERANIUMS, including Beck's Zanzummum . . . £5 5 0
Twelve ditto ditto 2 2 0
Twelve ditto, not including Zanzummum . . 1 11 6
*Twelve ditto, good sorts 1 1 0
Twelve finest scarlet Geraniums 0 12 0
Twelve good ditto ditto 0 8 0
Twelve Dahlias, first-rate kinds, including Beeswing 1 1 0
Twelve ditto not ditto . . 0 12 0
Twelve ditto, good border kinds . . . 0 8 0
Twelve Buddlea Lindleyana, superb plants for bedding 1 1 0
Twelve choicest and newest Verbenas and Petunias 0 6 0
Twelve good old old sorts 0 3 0
Twelve first-rate Roses in pots, including Cloth of Gold, Beauty of the Prairies, La Reine, &c . . 2 2 0

The following New Plants are confidently recommended, viz:—Alona cœlestis, Buddlea Lindleyana, Inga pulcherrima, Echites splendens, Luculia Pinciana, Gloxinia Cartonii, Achimenes picta, Rondeletia, new yellow, from Havannah, Hindsia violacea, Franciscea hydrangeiformis, Pentas carnea.

Poole Nursery, Dorsetshire.

TO CALCEOLARIA GROWERS.

T. PEARSON having raised three splendid varieties from about six thousand seedlings, flowered by him last year, intends letting them out this spring instead of keeping them longer in hand, and will send healthy plants, post free, of "INFANT SAPPHO," 6*s.*; "MARMION," 8*s.* 6*d.*; "ROSE OF TISTELON," 11*s.* 6*d.* The price is according to the stock in hand. No order will be attended to unless a post-office order is sent with it.—Chilwell Nurseries, near Nottingham.

WILLIAM MILLER begs to call the attention of the readers of the *Chronicle* to his CATALOGUE of New SEEDLING FUCHSIAS, VERBENAS, PETUNIAS, ANTIRRHINUMS, &c., which appeared on the 1st of March in this Paper.—Providence Nursery, Ramsgate, Kent.

MARNOCK AND MANLEY'S CATALOGUE OF NEW FUCHSIAS, VERBENAS, PETUNIAS, CHRYSANTHEMUMS, LOBELIAS, PHLOXES, DAHLIAS, &c., is now ready, and may be had on application at their Nursery, Hackney, London.—April 19.

NEW AND DISTINCT FUCHSIAS.

JOHN SMITH, NURSERYMAN, DALSTON, respectfully announces that he intends sending out in May the following fine and showy FUCHSIAS, good plants, in pots, at the prices named; viz., Atlas, 5*s.*; Cleopatra, 5*s.*; Eminent, 5*s.*; Helena, 5*s.*; Heroine, 5*s.*; Lord Ashley, 7*s.* 6*d.*; Magnet, 7*s.* 6*d*; Magniflora, 5*s.*; Mrs. Fry, 5*s.*; Recurva, 5*s.* The price of the above 10 varieties, 2*l.* 10*s.* Venusta, 10*s* 6*d.*; Smith's Queen Victoria, 21*s.* A descriptive List may be had on application at the Nursery, Dalston; or at his shop, Covent-garden, where drawings of the two last may be seen.—April 19.

MAGNIFICENT SEEDLING ANTIRRHINUMS.

	s.	*d.*
MONARCH—purple-crimson, with large yellow throat, very superb	5	0
ROBUSTUM—orange-red, large lemon throat . . .	3	6
FAVOURITE—white veined with crimson, large lemon throat, very novel and fine	5	0
CARYOPHILLOIDES SUPERB—very fine large white, striped with crimson, very beautiful, and always constant .	3	6
STRIATA FORMOSISSIMA—white, veined with dark crimson	2	0
MOGUL—large dark crimson purple	1	6
SPLENDENS—very beautiful gold colour	2	6
SUPREME—the largest and brightest yellow known .	5	0
MANET—rosy-lilac, yellow throat	1	6
GIGANTEA—flowers of an extraordinary size, of a beautiful colour, with yellow throat	3	6
PURITY—large, and clear white	1	6
LILACINA—fine rosy lilac	1	6

The whole Collection for 1*l.* 11*s.* 6*d.* Now ready to send out, in a stout case, post free, warranted to go safe.

The usual allowance to the Trade. (A remittance expected.)

NOTE.—The above beautiful Seedlings have been carefully selected from a great mass of fine flowers, and several of them were twice submitted to Dr. Lindley, whose opinion will be found in the *Gardeners' Chronicle*, pages 448—508: "Their distinct bright colours and large flowers, with their compact dwarf habits (differing from this class generally), render them alike desirable for the flower garden as for the shrubbery." Their continuance in bloom throughout all the summer is too well known to need further comment.—WILLIAM MILLER, Providence Nursery, Ramsgate

SPLENDID NEW GERANIUM AND PANSIES.

CHARLES NOYES, HOPE NURSERY, PENDLETON, near Manchester, begs to inform his friends and the public, that having a good stock of strong Plants of that splendid Seedling Geranium BRITISH HERO (which was raised by a gentleman's gardener in this neighbourhood), he is enabled to offer it at the following very low price: lower petals vivid scarlet, upper petals very dark, margined with crimson; first-rate form and substance. It has been seen by many competent judges, all of which pronounce it to be the brightest and best in its class they have yet seen. 10*s.* 6*d.*

PANSY, SIR H. POTTINGER, a flower of which was sent for Dr. LINDLEY'S opinion, see *Gardeners' Chronicle*, Oct. 19th, 1844, p. 704, under the signature "C. N." "It is a large and fine flower, having a small white centre with a well marked eye, the rest of the flower uniform light mulberry colour; it appears to want a little more substance for so large a flower." C. N. has no hesitation in saying it is decidedly the best Pansy in its class; owing to its being sent up so late in the season was the cause of the substance not being so fine, as in this respect, during the season, the substance was its best property; it has been exhibited in most of the winning stands in this neighbourhood. 5*s.*

HOPE RIVAL; upper petals brilliant light-blue; lower ones belted very distinctly with the same; ground colour creamy white, with beautiful pencilled eye; good form, distinct and novel; it was also exhibited in winning stands. 3*s.* 6*d.*

C. N. will have no objection to take out in anything new and good, to any amount, the orders he may be favoured with for the above.

His Catalogue of Dahlias, Geraniums, Fuchsias, Verbenas, Petunias, Calceolarias, Pansies, &c., are now ready, and will be forwarded on application.

GRASS SEEDS.

GRASS SEEDS can be had of Mr. H. R. SMITHE, of Eastling, Faversham, Kent, of the most approved mixtures, according to the soil and situation, for Permanent Pasture and Meadow, at 8*s.* per bushel; and for Lawns, at 10*s.*, including Clovers. Directions for sowing and treatment will accompany the seeds if desired. The sorts can be had separate at the general prices. The Trade supplied at a reduction.

DAHLIA PRIZES.

J. HARRISON, NURSERYMAN, &c., YORK, begs to state his intention of giving the following Prizes at the Grand Metropolitan Show in September next; viz., for the best six dissimilar blossoms of DAHLIAS, selected from the undermentioned 12 varieties, 3*l.*; for the 2d ditto, 2*l.*; and entrance 1*s.* each, to form a 3d Prize.

NAMES OF THE DAHLIAS.

HARRISON'S Ithuriel, Duke of York, Alice Hawthorn, Eboracum, Sulphuria, Lord Howden, Constance, and Lady Grey; Hedley's Cotherston, Dyson's Vanquisher, Daniel's Madelina, and Proctor's Nonpareil.

The following Nursery and Seedsmen will be able to supply plants of the above Dahlias the first week in May:—Messrs. Warner and Warner, 28, Cornhill; Mr. G. Charlwood, Covent Garden; Mrs. Hedley, Yarmouth; Mr. John Roualds, Brentford; Mr. E. Sparey, Deanford; Mr. Whale, Elcot; Mr. Stewart, Dundee; Mr. Drummond, Bath; Mr. Girling, Stowmarket; Mr. Keyne, Salisbury; Mr. Bragg, Slough; Mr. Stewart, Salthill; Messrs. Hancock and Son, Durham; Mr. Charlton, Wall; Mr. Robson, Hexham; Mr. Newton, Newcastle; Mr. Langley, Mirfield; Mr. Kearsley, Leeds; Mr. Barratt, Wakefield; Messrs. Backhouse, York; Mr. Clarkson, York; Mr. Lodge, Manchester; Messrs. Janson and Finney, Gateshead; Mr. Teebay, Preston; Messrs. Eagle and Henderson, Edinburgh; Mr. Newton, Alnwick; Mr. Réne Langelier, Jersey.

Grove Nursery, April 19.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE and WEDGWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the Nobility; from 9*s* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

GREAT YARMOUTH NURSERY, NORFOLK, 1845.

YOUELL AND CO.,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN; HIS MAJESTY THE KING OF THE BELGIANS; NURSERYMEN AND FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN DOWAGER.

YOUELL AND CO.'S CATALOGUE of the newest and very best

FUCHSIAS, VERBENAS, PETUNIAS, PANSIES CINERARIAS, CHRYSANTHEMUMS,

and other highly-ornamental Plants, appeared upon the Advertising sheet of the *Gardeners' Chronicle* of March the 8th and March the 15th, to which they beg to call the attention of cultivators of the above elegant tribes of plants.

YOUELL AND CO.'S Eight New Splendid SEEDLING FUCHSIAS, price 42*s.* the set, and their Eight New SEEDLING VERBENAS, price 25*s.* the set, they can confidently recommend, and they will prove an acquisition to any collection. For particulars and colour of these see their Advertisement of the above dates.

YOUELL and Co. being the first who sent out per post, with safety, these tribes of plants, are desirous of calling attention to their advantageous method of executing orders, namely, that they will deliver them free of postage to any part of the United Kingdom, upon the following terms:—

12 Extra Fine Vars. of Fuchsia, 12*s.* Selection left to Y. & Co.
12 Ditto ditto 21*s.* Selection left to the Purchaser or ditto.
50 Fine Varieties . . . 40*s.* Selection left to Y. & Co.
50 Extra Fine ditto . . . 60*s.* Selection left to the Purchaser or ditto.

With the exception of those marked thus*.

The Plants are strong and healthy, and are now ready for delivery, thus insuring to the purchaser fine plants for competition the ensuing season.

VERBENAS.

12 Extra Fine Varieties, 6*s*, the Selection left to Youell and Co.
12 Ditto 10*s.*, the Selection left to the Purchaser

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . 10*s.* per dozen.
12 Extra Fine do. do. . . . 18*s.* "

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12*s.* per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12*s.* per dozen.

FLOWER-SEEDS—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see YOUELL and Co.'s Advertisement of March 15, 1845.

YOUELL and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

Burroughes's Mrs. Benyon, Red Picotee .	7*s.*	6*d.*
" Lady Alice Peel, Rose Picotee .	7	6
" Miss Jane, Purple Picotee .	7	6
" Mrs. Bevan, Red Picotee .	7	6
" Enchantress, Scarlet Picotee .	5	0

CARNATIONS AND PICOTEES.

Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices.

				£	*s.*	*d*
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto	1	1	0

The Selection being left to Y. & Co.

FINE ERICAS, 12*s.* per dozen.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six Seeds (three of each variety) for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL and Co. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL and Co. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL and Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

Finest Double and Single Hyacinths, in pots by name, 9*s.* and 12*s.* per dozen, now coming forward for bloom.

Achimenes pedunculata, hirsuta, and grandiflora, 9*s.* per dozen; Achimenes picta, 18*s.* per dozen.

Great Yarmouth Nursery, April 19, 1845.

SEEDS OF THE TRUE HIGHLAND PINE TREE.

JAMES GRIGOR, NURSERYMAN, NORWICH, begs to inform the planters of England that the season for sowing the seeds of this tree is now at hand.

500 fresh Seeds, free by post, with directions for sowing, 2*s.* 6*d.*
1000 do. do. do. 5 0

The lovers of the picturesque are reminded that this tree forms one of the grandest and most appropriate accompaniments to rocks, ravines, cliffs, and all precipitous places. About half a dozen seeds should be inclosed in a ball or pellet, formed of moist earth and chopped straw, and if the site should be otherwise inaccessible, these pellets may be lodged by throwing them into the interstices, or on the ledges of rocks, where the seeds will speedily germinate, the plants assuming the most fantastic and picturesque forms. The beauty of cascades, rivers, streams, &c., may be very much heightened by the addition of this Pine, which has a bolder ramification than any other tree. Its adaptation for all descriptions of waste land is already well known.—Norwich, April 19, 1845.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had on application.—Slough Nursery, April 19.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

SELECT GREENHOUSE AND STOVE PLANTS.

WM. JACKSON AND CO., NURSERYMEN, beg to refer the readers of this Paper to their advertisement in the 1st page of the *Gardeners' Chronicle* of the 5th inst.; and to call attention to the advantageous offers to purchasers of the above interesting Plants.—Quick communication to all parts of Scotland and Ireland. All parcels are carefully packed, and delivered free of charge on the Great North of England Railway.

Cross Lanes Nursery, Bedale, Yorkshire.—April 19.

The Gardeners' Chronicle.

SATURDAY, APRIL 19, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS

WEDNESDAY, April 23	Microscopical		8 P.M.
	Society of Arts, Anniversary		8 P.M.
	South London Horticultural		1 P.M.
SATURDAY, April 26	Royal Botanic		4 P.M.
THURSDAY, May 1	Horticultural Anniversary		1 P.M.
FRIDAY, May 2	Botanical		8 P.M.

COUNTRY SHOWS.

TUESDAY, April 22—Surrey Horticultural and Floral.
WEDNESDAY, April 30—Nottingham Floral and Horticultural.

WHEN the House of Commons consented to continue the Income Tax, they were mainly induced to do so by the total REPEAL OF THE EXCISE OF GLASS. That measnre, the most important in many respects which has happened in our recollection, was felt to be one in whose benefits the whole country would largely participate. That such was the expectation on all sides there can be no doubt, and it was in a conviction that the expectation was well founded that the measure was agreed to. The repeal of the glass duties was, in fact, a bargain made with Her Majesty's Government, by the House of Commons, on behalf of the country; and both the parties to that contract will doubtless look to the working of the measure and see that their intentions are not defeated. The reduction of the import duty on window glass to 1½*d.* per lb. for the next year and a half, is an earnest of the determination of the great contracting parties not to permit the public to be a loser by the bargain that has been made.

But, as we ventured to state last week, we do not believe that any such intention exists on the part of the great glass houses. They are far too intelligent to suppose such a thing possible, even if they were inclined to try the experiment; and we therefore do not think that our horticultural friends need be alarmed. We last week ventured to express our belief that a report sent us by a correspondent respecting plate glass was erroneous, as, indeed, the old and new tariffs proved; and we now publish, in another column, a communication on the subject from one of the gentlemen who composed the deputation said to have entered into that combination to keep up prices, which it appears was not entered into at all.

In short, although, as will be presently seen, we are not satisfied with the new prices of glass, yet we do not see cause to distrust the great glass houses; on the contrary, we entertain no doubt that they will, before long, give the public the *full* benefit of Sir R. PEEL's measure. Indeed it is clear that they *must* do so, the instant that competition begins to do its work.

But it does not follow that the public will benefit as they ought to do, by the fair dealing of the glass manufacturers. The public does not come immediately in contact with them. There is a vast class of middle-men, who do not make glass themselves, but buy it from the manufacturers; and it is they who require to be looked after most narrowly. No repeal of duties, no acts of Government, will influence the latter unless buyers bestir themselves; and that they must do so is evident from two little circumstances within our personal knowledge.

Last autumn, a quantity of sheet-glass was ordered of a well-known wholesale dealer. When the invoice was delivered, it was found that 2*s.* 2*d.* had been charged for the same article as had been previously purchased of another house for 1*s.* 9*d.* A few days since, inquiry was made in London as to the new price per pound of striking-glasses, *i. e.* such as gardeners strike cuttings under. The price per lb. demanded by one person was 1*s.* 8*d.*; by another, 1*s.* 6*d.*; by a third, 1*s.* 4*d.*; by another, 1*s.* 2*d.*; or 1*s.* if more than 20*s.* worth was bought. We shall not mention the dear houses; but we think it right to say, that it was at the establishment of Mr. APSLEY PELLATT, in Holland-street, Blackfriars, that the price of 1*s.* per lb. was demanded. We would therefore advise our correspondent "F. S. A.," whose glazier informs him that glass cannot be had any cheaper than before, because the manufacturers pocket all the advantage from the repeal of the glass duties, to dismiss the said glazier, and inquire for himself. A very little investigation will show that such a statement as that made by the glazier is what in plain English is called by a very significant monosyllable.

The duty on glass ceased on the 5th inst., and we have now before us lists of prices from several of the most respectable dealers. We have extracted from them the present prices, and compared them with those previously advertised by the trade, the result of which is fully set forth in the following tables:—

COMPARISON OF TARIFF PRICES OF UNSILVERED PLATE-GLASS.

Dimension in Inches. Length	Breadth	Old. £.	s.	d.	New. £.	s.	d.	Difference. £.	s.	d.	Feet.	Difference per Foot. £.	s.	d.
12	12	0	8	9	0	3	4	0	5	5	1.	0	5	5
18	12	0	14	4	0	5	9	0	8	7	1.5	0	5	8¾
18	18	1	3	5	0	9	11	0	13	6	2.25	0	6	0
24	12	1	0	0	0	8	2	0	11	10	2.	0	5	11
24	18	1	13	9	0	15	5	0	18	4	3.	0	6	1½
24	24	2	5	0	1	3	11	1	1	1	4.	0	5	3½
30	18	2	2	2	1	1	9	1	0	5	3.75	0	5	5
30	24	2	16	3	1	12	5	1	3	10	5.	0	4	9¾
30	30	3	10	3	2	3	11	1	6	4	6.25	0	4	2¼
36	24	3	7	6	2	1	3	1	6	3	6.	0	4	4½
36	30	4	4	4	2	17	7	1	6	9	7.5	0	3	6¾
42	18	2	19	0	1	14	7	1	4	5	5.25	0	4	7¼
42	24	3	18	9	2	12	2	1	6	7	7.	0	3	9½
42	30	5	2	4	3	10	5	1	11	11	8.75	0	3	7¾
48	20	3	15	0	2	8	6	1	6	6	6.66	0	3	11½
48	25	4	15	6	3	6	3	1	9	3	8.33	0	3	6
48	30	6	5	0	4	3	4	2	1	8	10.	0	4	2
54	18	3	15	0	2	9	5	1	5	7	6.75	0	3	9¼
54	24	5	6	6	3	12	11	1	13	7	9.	0	3	8¾
54	30	7	9	2	5	1	4	2	7	10	11.25	0	4	3
60	18	4	4	4	2	17	7	1	6	9	7.5	0	3	6¾
60	24	6	5	0	4	3	4	2	1	8	10.	0	4	2
60	30	8	15	1	6	0	11	2	14	2	12.5	0	4	5
SQUARES OF LARGER DIMENSIONS.														
36	24	3	7	6	2	1	3	1	6	3	6.	0	4	4¾
36	36	5	6	6	3	12	11	1	13	7	9.	0	3	8¾
40	28	4	7	6	3	0	7	1	6	11	7.77	0	3	5½
48	36	8	5	0	5	13	4	2	11	8	12	0	4	3¼
48	48	12	13	4	9	0	9	3	12	7	16.	0	4	6¼
60	28	7	17	11	5	8	0	2	9	11	11.66	0	4	3¼
60	48	17	13	4	12	18	6	4	14	10	20.	0	4	8¾
60	60	24	13	9	18	9	5	6	4	4	25.	0	4	11½
64	48	19	8	10	14	6	4	5	2	6	21.33	0	4	9½
68	56	26	18	3	20	5	0	6	13	3	26.44	0	5	0¼
72	72	42	15	0	33	0	0	9	15	0	36.	0	5	5
76	52	28	9	0	21	9	6	6	19	6	27.44	0	5	1
80	68	45	17	2	35	10	3	10	6	11	37.77	0	5	5½
84	84	67	15	8	53	8	10	14	6	10	49.	0	5	10
88	48	31	9	0	23	17	8	7	11	4	29.33	0	5	1¾
92	60	46	17	1	36	6	5	10	10	8	38.33	0	5	5¾
96	84	82	16	8	65	17	0	16	19	8	56.	0	6	0¾
100	48	37	19	4	29	2	4	8	17	0	33.33	0	5	3½
104	68	68	0	7	53	12	10	14	7	9	49.11	0	5	9¼
108	84	98	19	3	79	4	4	19	14	11	63.	0	6	3
112	48	45	2	3	34	18	3	10	4	0	37.33	0	5	4¾
116	68	80	3	9	63	13	5	16	10	4	54.77	0	6	0¼
120	84	115	15	10	93	4	0	22	11	10	70.	0	6	5¼
124	48	52	10	7	40	19	0	11	11	7	41.33	0	5	7½
128	68	92	17	7	74	3	2	18	14	5	60.44	0	6	2¼
132	84	167	0	0	137	15	0	29	5	0	77.	0	7	7
136	68	101	16	1	81	11	5	20	4	8	65.16	0	6	2½
140	84	182	3	4	150	11	6	31	11	10	81.66	0	7	8¾

Small sizes from 3 to 8 inches—old, 3*s.* to 5*s.* a foot; new, 1*s.* to 1*s.* 6*d.* a foot.

COMPARISON OF TARIFF PRICES OF CROWN GLASS IN SQUARES.

Dimension in inches.	Old—per foot. £.	s.	d.	New—per foot. £.	s.	d.
4 by 3	0	0	5	0	0	2
5 by 3	0	0	7	0	0	3
6 by 4	0	0	10½	0	0	5
9 by 7	0	1	0	0	0	6
Quarries 10 to a foot	0	0	10	0	0	4

COMPARISON OF TARIFF PRICES OF FLATTENED SHEET GLASS IN SQUARES.

Dimension in inches.	Old—per foot. £.	s.	d.	New—per foot £.	s.	d.
6 by 4	0	1	7	0	0	11
9 by 7	0	1	9	0	1	0
12 by 10	0	2	2	0	1	3

A crate of crown glass, weighing 1 cwt. 1 quarter and 14 lbs., and containing 18 tables of 9 lbs. each, was formerly charged 9*l.* 12*s.*; of this about 5*l.* 5*s.* was duty. A crate of similar quality, but weighing 10 lbs. a table, is now charged 4*l.* 4*s.* In this instance the public has the *full* benefit of the repealed duties. The tables also show that plate-glass has fallen to the full extent of the duty; for the duty was 150 per cent., and 2*s.* 10½*d.* a foot was allowed as a drawback on export.

The foregoing statement will enable gentlemen to judge of the reasonableness of the prices they may now be called on by the glaziers to pay, and will protect them against gross imposition; but it is folly to think that the new prices are permanent. They must go down, and that very quickly.

SIR R. PEEL stated, in proposing the repeal of the duty, that its amount, on window glass, was about 200 per cent.; and it is understood that he spoke on the authority of the principal manufacturers. It is no wonder, then, that the public should be disappointed to find that the proposed price of this kind of glass has not fallen two-thirds. The reasons assigned are various.

It is urged by the dealers that they are losers by having a stock on hand which had paid the full duty, on which they have only been allowed 75 per cent. by the Government; but it is notorious that the stocks were generally light, certainly not more than three months' consumption. We believe the most valid excuse for their prices to be the fact, that the cost of coals has lately advanced very much, more particularly in the Midland counties, in consequence of railroads having widely extended the markets; and also that the glass-blowers, calculating on an increased demand for their services, insist on higher wages, aware that some time must elapse before additional workmen can be properly instructed.

Previous to the repeal of the duty, the trade was in few hands, and the manufacturers held periodical meetings to restrict the production, and to agree on a scale of prices; and they have lately met again, but it is to be hoped for the last time, and issued the present tariff. The numerous works now about to be erected will, doubtless, create such a competition as to render any combination to keep up prices inoperative, and the rapid reduction of the import duties will tend materially to keep down the home prices. Hitherto the duty on glass imported was 30*s.* a cwt., it is now 14*s.*, or 1½*d.* a lb.; in October 1846, it will be 7*s.*, or three farthings, and in April 1848, 3*s.* 6*d.*, or a farthing and a half. It has been stated that the actual cost in this country is 2½*d.* a foot, and in Belgium 1¼*d.*; and if this be even an approximation to the truth, the import duty in 1848 will not prevent the competition of foreign glass. The probability, however, is that the Belgian at 1¼*d.* is a very inferior article to the British at 2½*d.*

We have no doubt that the price of good English glass will gradually decline, until the public will obtain the full benefit of the repeal of the duty; and we also confidently expect that new descriptions of glass peculiarly calculated for many horticultural purposes, will, ere long, be in the market. We allude to sheet-glass manufactured from the same, or nearly the same materials, as green or black bottles.

The cost of the materials for such bottles, in situations favourable to the manufacture, is about 10*s.* 3*d.* for 20 cwt.; whilst the materials for 20 cwt. of flint-glass cost 9*l.* 7*s.* 6*d.* The price of the materials for window-glass we have not been able to obtain; but if it be assumed at the half of 9*l.* 7*s.* 6*d.*, it is evident that a very cheap glass may be expected from bottle glass materials; and the green colour, instead of being objectionable, will be a decided advantage.

THE length to which the glass question has extended, compels us to postpone a continuation of the observations on TRUFFLES till next week.

ON HEATING AND VENTILATING HOT-HOUSES AND CONSERVATORIES.

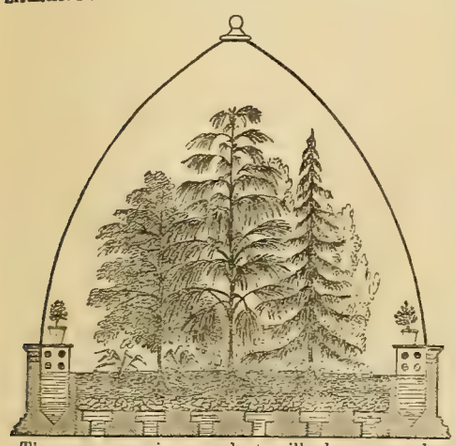
(Second Notice.)

DISPARITY of temperature between the roots and the branches, together with deficient ventilation, are the undeniable causes of those failures so common in the culture of exotics in large hothouses; the general effect of such circumstances upon the foliage presents an appearance similar to accidental visitations of frost, or as if scalding water had been dashed over the plants. Had ample ventilation been provided, and the soil in which the plants were growing been warmed to a natural temperature corresponding with the atmosphere of the house, much shading would have been avoided, and all hazard from excessive heats, which scourge the foliage, completely obviated; neither would there be any risk from sudden decrements of temperature, which produce similar prejudicial effects.

In several large houses which have been erected some years, it has been found absolutely impossible, with every care and attention, to secure rich and exuberant foliation where plants are committed to the soil in the body of the house, and after numerous fruitless attempts, which have but served as examples of so many failures, the thing has been abandoned as hopeless, and well it may, for how is it possible for plants to grow luxuriantly under the peculiar and extraordinary circumstances already described? These failures have in some measure been met by the introduction of large plants in tubs and boxes which are placed on the borders, and thus one of the evils produced by those whose pretensions to architectural effect are undisputed, but whose unacquaintance with the economy of the inhabitants destined to occupy these structures is in almost every instance notoriously manifest, is alleviated. The reason why those plants which are set upon the surface of the soil in boxes do better than such as are planted in the borders, is because the roots are surrounded by warm air, and the soil in the tubs necessarily becomes heated to a similar temperature with the air of the house, which is not the case with the soil in the borders as has been stated. These defective results have led many, in the erection of large hothouses and in their arrangement, to abandon

the idea of cultivating plants in them in the conservatory way altogether. Thus much of the interior beauty of these magnificent buildings is destroyed by the unsightly appearance of numberless vulgar-looking tubs and boxes, destitute alike of all ornament and taste, and perfectly unsuitable for such a place.

The question has frequently been asked, why are tubs and boxes admitted into such houses at all, especially as these edifices are designed exclusively for the growth of large plants, many of them in fact which occupy boxes are far beyond any human power of moving from one place to another, indeed are never intended to be moved, neither should they be. The denizens of such buildings ought to possess a more permanent character to maintain that classical illusion by a correct representation of tropical vegetation in all its gorgeousness and glory—and why should this not be? human skill, combined with wealth, has raised magnificent structures—palaces of glass—and the enterprising lover of science perils his life in every variety of climate; and yet swarming as our country is with men of science, no one has been able to heat satisfactorily, simple as it may sound, the border of a conservatory. No gardener would think of growing his Cucumbers, Melon or Pine-apple plants, on a bed of cold earth; and how can it be expected that tropical fruits and rare plants from the hottest parts of the globe can succeed in such situations?



The accompanying woodcut will show a mode of heating the bed of soil in a conservatory with the greatest ease and with the most complete success. Of course all such plans of heating will be regulated according to the peculiar requirements of the structures for which they are designed. The section of the house shows a series of hotwater gutters, as originally invented by Mr. Corbett, covered with common tiles in such a manner as will permit a portion of the steam to escape amongst the mass of loose stones which supports the soil destined for the growth of the plants. The stones themselves will constitute perfect drainage to the conservatory bed, at the same time the moisture which ascends in the shape of steam amongst the stones, and that also which filtrates through the earth in which the plants are growing, will readily escape, and cannot, in either case, injuriously influence the health of the plants; but the very contrary will be the result, as when the heat in the gutters is increased under such circumstances, so also will be the moisture, thus securing the soil from becoming exhausted or desiccated by the constant application of heat to the roots, which is the defect in all common contrivances of this kind that supply bottom-heat.—*R. Glendinning.*

THE AURICULA.—No. I.

HAVING had repeated applications to publish a code of laws, for the guidance of judges and exhibitors of florists' flowers, and as there appears to be some difference of opinion in various parts of the country, I am anxious to remedy this by establishing a systematic method of arriving at just conclusions, with regard to the merits of any flowers in competition, and at the same time to endeavour to lay down (what appears to me after 25 years' experience) certain properties which are indispensible in first-rate flowers.

As the spring shows, throughout the country, usually begin with the Auricula, I will commence the series with that lovely flower, dealing with the Polyanthus, Tulip, Pink, Ranunculus, Carnation, Picotee, and Dahlia, *seriatim*. In different localities various systems of exhibiting the Auricula are in practice. In the south it is usual to show in pairs, a green and grey, or white edge, for instance. In other parts of the country pans of four, consisting of the above varieties with a self-coloured one added, are brought in competition; to these some societies add an Alpine, which is a shaded Auricula, with a yellow eye or paste. Others, again, show entirely in classes, the flowers being placed first, second, third, &c., according to their respective merits in each colour. These various systems of exhibiting are of course mere matters of taste or convenience. I shall now mention what, in my opinion, ought to constitute the properties of a first-rate flower.

Form, including the shape and proportion of the tube, of course takes the precedence, without reference to colour; for let that be as it may, if the margin of the pips is undulated or frilled (a fault more particularly observable in selfs), or if the segments of each individual corolla are too wide, or should the flower have a disposition to cup, instead of lying flat and smooth, these are drawbacks which no brilliancy of colouring can counterbalance. Other defects under this head consist in the disposition which some flowers have to crack in the paste toward the tube, which is sometimes the case in Page's Champion; also when the tube is not perfectly round, and when the anthers or thrums do not fill the cavity, but appear as if they had discharged their pollen and shrunk to half their size, as in Pearson's Badajoz. Again, injuries which the corolla or pip may have received from a chafe or bruise, also detract from form; and, in judging the merits of the respective flowers, this would be considered a serious defect, though by no means lowering the value of the plant, as this drawback is either caused by accident or the carelessness of the exhibitor.

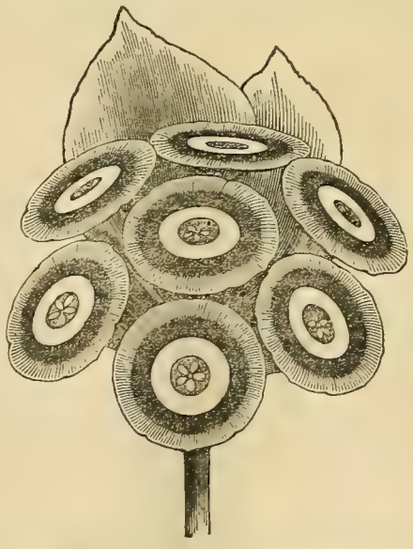
Harmony, or the proper distribution of the colours, is the second point to which I shall draw attention. Judges on taking into consideration the proportions of colour will, of course, attach the greatest merit to those pips where the eye or paste, the dark or body-colour, and the edge of green, grey, or white, are distributed in the most equal proportions—that is to say, the nearer the distance between the tube and inner margin of the dark band approximates in width to the band itself, and the margin likewise, the better are the proportions.

Defects.—Under this head may be pointed out such flowers as Cockup's Eclipse, and Howard's Nelson, where the dark ground is too large in comparison with the other parts, or Taylor's Plough-boy, where it is often too small; and the Pillar of Beauty, in which the body colour occasionally strikes through to the outer edge.

Colour, having depth or intensity, must always have the preference (other points being equal), to that of dull appearance. The purer the white, the darker the body-colour, and the more distinct the margin, the greater will be the merit of the flower; and the censors ought to bear in mind that these colours should be vividly and clearly pourtrayed.

A Lancashire flower called Galloway's Glory of Oldham, has a foxy tinge between the eye and ground-colour, which is a serious defect. Stretche's Alexander is apt to become a pea-green on the margin, after being expanded a day or two, so that a truss of this variety will often have a very motley appearance. Sometimes flowers will be placed for judging with the pounce from the eye, or that of the margin of grey or white-edged varieties, smeared over the ground or body-colour; this fault cannot be overlooked.

Uniformity is the fourth requisite, for whether the pips forming the head are small, medium, or large, they ought to be as near as possible of a size, as in the accompanying woodcut, which shows a perfect truss. Nothing looks more awkward than to have some of these twice the size of others, or to have some expanded three or four days, or a week, whilst others are comparative buds. A fine contour (if we may so express it) is indispensible for a first-rate truss.



Size may be the fifth point for judges to consider. Generally speaking, moderately-grown pips "come" (in florists' phraseology) the truest and best; but, of course, a large flower will always be preferred to a small one, the other properties being equal.

Having gone through what I consider the points requisite to form a fine flower for exhibition, and pointed out the defects which they also are liable to, I may observe that they are usually exhibited in the pots in which they have bloomed. The strength of an unsupported stem, like that in the woodcut, as an evidence of good management, is, by this means, apparent, but cannot be appreciated when shown in bottles—which is often done in the Midland Counties. Another desideratum (which, though absent, is not absolutely a defect) is, a single leaf immediately behind the truss; this gives it a neat and finished appearance—similar to the sprigs of green at the back of a bouquet. The number of pips necessary to form a head for competition varies much in different localities. In the North they are exhibited from three to nine; in London and the neighbourhood, seven are considered requisite. Not less than five, however, ought to be allowed (except in the case of the first season of seedlings, when the minimum might be three), and as many more as can be symmetrically arranged, that have the required properties.

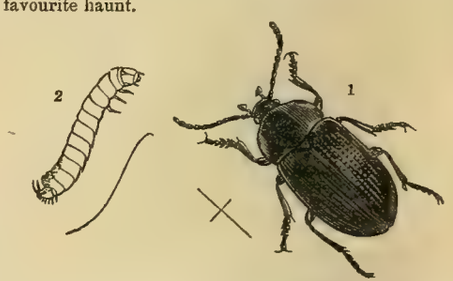


Selfs, or Auriculas with only one colour besides the eye, are judged on the same principle as regards form, colour, uniformity and size; with this exception, that as in some sorts the eye is small, in comparison with the blue, purple, or dark, a slight variation is required, under the head of "harmony;" and the paste, or eye, ought to be one-half the width of the tube—larger, in self-coloured Auriculas than in those which are edged. Alpines, or Auriculas with yellow centres and shaded margins, are judged by the same standard as above. They are not, however, often exhibited, or grown in collections, as it is next to impossible to save good seed where they are cultivated. *W.*



ENTOMOLOGY.

HELOPS CARABOIDES (*the Broom Helops*).—It is desirable to call the attention of gardeners to this insect, in consequence of the larva having been recently transmitted to me under an impression that it had caused the death of a fine plant of Erica ferruginea, by feeding upon its roots. It will be also remembered that it was this larva which the maggot of Thereva anilis destroyed, as was lately recorded in this Paper.* The female Helops is able to protrude the apical segments of her abdomen to a considerable extent, and by means of her ovipositor to lay her eggs in all probability beneath the bark of rotten or decaying trees, and at the mossy base of sound ones, in the natural or accidental crevices of the external surface. I have always observed these larvæ feeding in the soft, wet, and rotting wood of stumps in woods, which had been left as stools, where portions of the underwood had been felled. In searching for insects in Coomb-wood towards the end of April, 1841, I examined the stump of a decayed Birch-tree, covered with moss and very wet; on pulling it to pieces with a digger I detected two of these larvæ and several of the Helops caraboides with them, as well as great numbers in the crevices of the bark and at the base of other Birch-trees: they change to pupæ, no doubt, in the same situations, but I do not remember to have seen them in that state; I have, however, found the beetles just hatched, when they are, of course, very tender and almost white; they soon change to an ochreous tint, and eventually become of a pitchy colour. They may be taken in many parts of England throughout the year; by searching in the winter at the base of trees and the roots of Grass, where they hybernate; and in spring the Broom is their favourite haunt.



The beetle was named Helops caraboides by Panzer, H. dermestoides by Illiger, and H. striatus by Olivier, and it is the Blaps Spartii of Marsham. It is of a pitchy colour, often inclining to chesnut, the surface smooth and shining; the maxillary palpi are prominent and hatchet-shaped; the antennæ are moderately long, and a little thickened towards the extremity; they are ferruginous, silky, and 11-jointed, the second joint being minute, the third elongated, the remainder increasing in length to the apical one, which is oval; the head is oxate, thickly and minutely punctured; the eyes are black, lateral, and kidney-shaped; the thorax is twice as broad, convex, rather broader than long, and slightly narrowed before, the sides being rounded; scutellum small and triangular; elytra thrice as long as the thorax, very convex, elliptical; the apex rounded; they are thickly and minutely punctured, with eight shallow punctured striæ on each, uniting towards the apex, and there is a rudimentary

* *Gardeners Chronicle*, p. 169, 1845.

one next the scutellum ; the wings are not adapted for flight ; they are shorter aud narrower than the elytra, and truncated at the apex ; the legs are moderately long, the thighs are stout ; the tibiæ thickened at their extremities, each being furnished with a pair of minute spurs ; the tarsi are five-jointed, excepting the hinder pair, which are only four-jointed ; they are all ferruginous and pubescent beneath ; the four anterior tarsi are dilated in the *males*, the basal joint being semiovate, the second and third are considerably larger, the fourth is small, and the fifth clavate ; the hinder pair are altogether slender, with the basal joint elongated, the second shorter, third the smallest, fourth slender and clavate ; claws simple. The *female* is, I think, less convex, the tarsi are all simple, and the abdomen is furnished with a tubular and jointed oviduct, at least half the length of the elytra. Fig. 1, the male, the cross lines exhibiting the natural proportions.

The larva is horny, ochreous, shining, and cylindrical, thickened towards the tail, which is rough on the back, the 12th segment being sloped off abruptly ; the 13th is much smaller, with two erect but curved claws ; the head is transverse oval, the antennæ are short and triarticulate ; the first thoracic segment is ferruginous ; it has three pair of short-jointed pectoral legs, terminated by acute claws ; the head and tail are slightly hairy ; fig. 4, magnified.

From the preceding history of the habits of this insect, it appears that the larva lives in decomposing but moist wood ; it is certain that it affects gravelly and heathy districts, and that the perfect beetles resort to the Broom ; it remains, therefore, for the cultivators of the Erica to ascertain if the larva will attack the roots of those plants ; and should such be the case, it will be necessary to guard against their introduction in potting the plant, for in all probability they are very tenacious of life, and would resist any efforts to expel them from the roots. The genus Helops having been illustrated in Curtis's "British Entomology," the reader is referred to folio and plate 298 for dissections and the different species. —*Ruricola.*

Home Correspondence.

White Scale.—The ingenious method of attacking the white scale by the vapour of alcohol, suggested by a correspondent, p. 240, signing himself "The Orts," has suggested to me the possibility of a remedy being found for the lamentable injuries we have lately read of, occasioned by a Coccus to the Orange trees in the Azores. I conceive the vapour of spirits of turpentine would be quite as effectual as that of alcohol, and the cost very trifling. A covering of oilcloth, or India-rubber cloth, might be thrown over the trees in the form of a bag in the way described, and the vapour introduced through a tube from some vessel properly heated. The experiment must, at least, be worthy a trial where so much is at stake. Perhaps oilcloth cylinders, of various dimensions, stretched over slight wooden frames, would be useful addenda to greenhouses liable to be infested with scale. The plants to be fumigated could be covered, and a little spirits of turpentine, in a warm pan or spoon, introduced below would readily rise in vapour. I suggest this for trial. —*J. S. Henslow.*

Grass.—Being not only much interested in horticultural pursuits, but being also one of the deputation of glass manufacturers who lately waited upon Sir R. Peel, I have much pleasure in trying to dispel the fears of your correspondent, as well as any that he may have excited among your numerous readers, by assuring both him and them that there is no danger whatever of horticulturists being defrauded for a single day of the great boon conceded to them by the total abolition of the glass duty ; and that the "startling fact" which he assures you is a fact, is only startling inasmuch as it is an ingenious misrepresentation of the truth. One object in our waiting upon Sir R. Peel was to obtain a return of the duty upon stocks on hand, without exporting it, and I suppose we so convinced him by our reasoning of the loss we should sustain by such a step, that he proposed to return us only 75 per cent. of the duty already paid, for the privilege of not sacrificing more, thus, to some extent, defeating his own intention, as much more has been exported than would have otherwise been the case. Our other object related to the import duty on foreign glass, when we told Sir Robert, that as British manufacturers we scorned the word "protection," and that we sought none beyond a period requisite for remodelling our establishments and shaping them to our altered circumstances ; in other words, only whilst we recovered from the trammels imposed upon us by the late excise laws, and the artificial condition in which they have left us. I fancy we convinced him by our reasoning on this subject also, for he seemed to admit the force of our argument, but from his desire to make a better bargain for the consumers, he restricted it to a shorter period than was at first expected ; but still I hope long enough for the object proposed. Your correspondent is evidently not well acquainted with glass, or he would not speak of "plate-glass" for horticultural purposes, and I am strongly inclined to suspect that he has been imposed upon by some one wishing to sell foreign glass ; when he says, speaking of British manufacturers, that "the deputation combined by mutual agreement not to reduce the price of plate-glass to the public." You only did justice to the British glass-manufacturers when you said that you believed that such were not their sentiments, and I assure you that none such were ever expressed, nor do I believe that they were for one moment entertained ; and if further evidence be wanting you have only to refer to and compare the new tariffs of prices with the old ones, which have been before the public since the 5th April, as a complete refutation of the "startling" fact which has so unnecessarily alarmed your correspondent, and, as a proof of our intention to give the full benefit of the repeal of the glass duty to the consumer. I hope and trust, therefore, that our horticultural friends may safely rely upon that competition which is sure to spring up, combined with British skill, capital, and industry, to secure to them all the advantages of this great boon to the horticultural world, without having recourse to foreign assistance, of which it will be our study as well as our interest to render them independent.—☞ *April* 16.

Truffles.—I have read with great interest the articles which have lately appeared about the cultivation of Truffles, and I hope that ere long the ingenuity of English gardeners will have attained this great desideratum. In order to contribute my little mite towards this object, I beg to offer a few observations. First of all, I must make our gardeners acquainted with two species of Truffles, of which I do not find any mention in your pages. The first is one with which I am familiarly acquainted, being a native of my fatherland—the south of the Tyrol. It grows on the hillocks of Botzen, Meran, Trent, Roveredo, and Riva. It is a white species of Truffle, which resembles in tissue and colour that of Piedmont, but it wants the taste of Garlic ; and in flavour and scent equals, if not surpasses, that of Perigueux. Scopoli calls it Lycoperdon gulosorum, Fl. Car. But even among the said species of Truffle there is a difference in quality. The best are those which grow in a southern aspect, under the shelter of Oak and Chesnut trees. In my youth I have collected many, and, as I ever have been fond of trying experiments, I never picked up the smallest, but covered them again with their native soil, marking their abode with a peg. By this means I ascertained that they had acquired their full size the second year after my discovering them. So that the spores or spawn, which begin to germinate in the spring, are in the next autumn as big as a Hazel nut ; in the second autumn they are full grown. When they have acquired the full size, they preserve their flavour till the beginning of the winter. With the approach of the frost they grow soft, and finally decay. Thus the Truffle is, according to my experience, a biennial tuber. The soil in which they grow is a light soil, composed of decayed Oak and Chestnut leaves, virgin loam, mixed with more than two-thirds of sand, composed of silica and oxide of iron. The other species of Truffle is that which grows in Africa. The Roman epicures preferred it to all other kinds of Truffle. (Pliny 19,11.) and the remarkable verses of Juvenal, leave no doubt upon this subject. The Romans, at the time referred to by the two writers, were the best judges of dainty productions, and having the then known world at their command, could make choice of the best. I do not find in any modern writer on mycology, any mention of the African Truffles, which, as *laudatissimæ*, ought to be sought after by those who intend to bring them into cultivation. Surely, if the Romans could get them fit for their tables, without the immense advantages of our navigation, our gardeners might easily procure some specimens from Algiers or Tunis, for the sake of cultivation. Indeed, it would be interesting in an historical and botanical point of view, to ascertain which kind of Truffle grows in Africa, and in what point they excel those of Europe. If any of your readers has the means to ascertain this, he would render himself very meritorious by making the public acquainted with the results of his inquiries. The best way of packing them is to place them in a tin case, wrapped one by one in dry blotting paper, and the case filled tight with dry sawdust. I have thus sent, a great many times, Truffles from the Tyrol to distant parts of Germany. — *Constant Reader.*

Salt-trees.—In answer to "G.'s" inquiry (p. 244) about trees or shrubs suitable for the banks of the Thames, where it is salt, I should say that the Sea Buckthorn (Hippophäe rhamnoides) and Tamarisk are the best he can plant. I have seen quantities of the Buckthorn flourishing on the sea-banks, on the coast of Lincolnshire, and elsewhere, subject to be wet with the salt spray ; the silvery leaves and bright yellow Berries have a pretty effect. The roots are tough, and well calculated to bind the soil. I have generally seen it growing in sea-sand. The Tamarisk is a pretty shrub, and will also do well under similar circumstances. I am not aware if Willows would grow close to the sea, but should think that the water at Gravesend is not salt enough to kill them, unless they are within the reach of the ordinary tides.—*p.*——"R" adds, Tamarisk will grow well ; plant cuttings directly ; merely take a strong young shoot, sharpen it and push it down deep in the mud, and it will be sure to grow. It is best to head it down like Osiers every spring ; every shoot may be planted. The common Arbor-vitæ will also grow there : Pinasters and Weymouth Pine.

Instinct (*p.* 187).—I was perfectly aware of the distinction drawn by Lord Brougham and others, between instinct and animal intelligence, when I put (p. 70) the case of Tom's "ingenuity" to "Northwood's" merciful consideration ; but it was precisely because I think that the above distinction is "not proven," that I put the case as I did. Lord Brougham considers that the bee works—forms its cells, its honey, its bee-bread, &c., from a necessity which it has no power of resisting ;—"That it works without motive—without knowledge or design ; and yet it produces the effects of both. And that this constitutes the whole of the qualities of instinctive mind." *Illust. of Paley*, vol. 1, p. 195. This we term instinct, and these are examples—the bee forming its cells; the solitary wasp bringing food for a progeny it will never see; a bee, an hour old, flying to the right flowers, and bringing back the proper farina for making bee-bread; the chick, before birth, moving round in its shell from right to left, and chipping with its bill-scales, till it has cut off a segment from the shell. Now, these operations Lord B. considers the result of special interposition of Deity, following out Newton's theory. On the contrary, the predatory excursions of the ant, and their slave-trade propensities; the jackdaw filling the pitcher with stones because it could not reach the water ; Darwin's crows, that broke limpets by dropping them on stones, and that which dropped one on the skull of Anaxagoras, killing him thereby; the nymphæ of water-moths, which get into straws, and adjust the weight of their car, so that it can always float ; the old monkey at Exeter Change, who, having lost his teeth, cracked his nuts with a stone; Buffon's ape, that slept in a bed, and pulled up the sheets and blankets to cover him before going to sleep ; the mode of catching buffaloes by bears ; and, above all, the beavers building their huts in the water, cutting down trees, excavating banks, &c., all in workman-like order—these, according to Lord B., are instances of animal intelligence. Now, it is precisely because I can see no substantial difference between the bee working its cell, and the beaver its hut—or between the young bee getting proper farina to make bee-bread, and my tomtit tapping at the bee-hive, when its hunger prompts it to look out ; that I consider the definition of instinct, and its separation from animal intelligence not made out. Lord B. is quite clear in what he considers the difference between animal intelligence and instinct. "When the act is done in ordinary or natural circumstances, it may be called instinctive or not, according as it is what our reason would, in like circumstances, enable us to perform or not—according as the animal is in a situation which enables him to ask knowingly or not. Thus, a bee's cell is made by a creature untaught." *Op. cit.*, p. 134. Now I should like very much to know who taught Master Tom to knock at "Northwood's" hive when he felt hungry ? That it is the result of a mental operation, and not an acquired faculty from others' experience, is clear, from the fact that tomtits at Stowmarket knock at beehives just as they do in other parts of the world. What, then, becomes of the definition of instinct—"an untaught, inherent principle, acting blindly, under special Providential direction ?" It is clear that the tomtit's mode of catching bees does not come within the meaning of this definition ; and it is equally clear to my mind that the bee makes its nest in a particular form—just as the swallow, or the long-tailed tit does—because it has the design of filling it with food, or of hatching its young ; and that the solitary wasp provides food for that which it knows will be its young—precisely from the same mental operations. That instinct and animal intelligence, and reason, are modifications of the same eternal law which God imprinted upon matter when he breathed into it the breath of life ! It is also clear to my mind that the notion of the special operation of Deity, as regards instinct and reason, is not only not proved, but is derogatory to the Creator of those magnificent laws by which all Nature is governed. I hope "R. J." will now perceive that I have not been so ignorant of Lord Brougham's work, which is certainly not difficult to comprehend, as he imagined ; and I hope, further, that he will see and acknowledge that he has done wrong in stating so grave a charge, without putting his name at the bottom.—*C. R. Bree, Stowmarket.* P.S. I am sorry I offended "Furibus Hostis ;" I had no intention of doing so, and make him the *amende honorable.*¶

Sap generates Buds.—On the banks of the river Derwent stood a large Hawthorn hedge, which being undermined by the water fell in and left the greater part of the roots in the bank, about 1 or 2 feet below the surface ; the bank still wearing away has exposed them to the air for the length of 3 feet or more, and they are now in every respect similar to branches, developing buds, and consequently all the appendages of the axis ; they appear anatomically the same as branches, excepting the pith, of which they are destitute. Now, it appears that roots when so circumstanced perform all the functions of the stem, confirming Knight's theory, that sap can at any time generate buds, without any previously-formed rudiment, when circumstances are favourable to their production.—*T. Allestree.*

Application of Electricity to the Growth of Plants.—It is now nearly two years since I sent to the *Gardeners' Chronicle* a paper upon glazed pots, in which I hinted at the wonderful effects of electricity upon vegetation. Since that time my attention has been directed towards the all-pervading fluid by many incidents, and I would before now have communicated to your columns my opinions thereon, had not your "We wish this correspondent had left out his speculations about electricity," &c. &c. (see page 541, 1842), prevented me ; indeed, I consider from the rather ungracious manner in which you seem generally to receive communications touching upon this subject, that it is not in great favour with you. Now, why should we not try all things, and hold fast that which is true ? I have long been of opinion that the right application of electricity to the growth of plants, is the only true way of arriving at perfection in their cultivation ; for the more I study the subject the more I am convinced that my opinion is well founded ; indeed, I have long looked upon all manures as mer

conductors of electricity to the roots, and that just in proportion as they possess this quality are they good or bad. About two years ago I mentioned to some scientific gentleman that I believed the day was not far distant when all such dirty and expensive appliances would be superseded by electricity, and that I looked forward to a time when all laborious operations would be performed by its agency. I need not say how much pleasure the experiment of Dr. Forster, quoted in the *Agri. Gazette* of last week, gives me, To see that others are putting to the test of practice, what we have long deemed true in theory, is certainly calculated to strengthen our opinions; the more especially as there was no communion between the parties. Three years ago I commenced to lay out a large garden (27 acres), all of which I intended to have cultivated by electricity, procuring the fluid by wires suspended in the neighbouring woods and trees; but unforeseen circumstances put a stop to my operations, and it is now being finished in the old "use and wont" way. That electricity might be advantageously used in raising seeds and propagating cuttings does not, with me, rest upon theory; as far as I have been able to make experiments, they have been highly successful; I might here quote largely from Liebig and others, in support of the opinions advanced, although these writers do not themselves always perceive the *rationale* of what they write about; or if they perceive it are afraid from some cause or other openly to declare it. I hope that others may turn their attention to this subject, and communicate the result.—*A Reader from the Commencement.* [It is perfectly true that electricity *is* "out of favour" with us, as our correspondent puts it. Not that we undervalue the importance of this all-pervading force; for who that knows what it is can do that? But we do not like to see our columns filled with crude speculations about what is or is not possible. For experiments skilfully conducted we should be only too happy to find room as well as for theories founded upon them. But experiment must *precede* speculation; till that is done we regard disquisitions about the application of electricity to cultivation premature, to say the least of them. And we may appeal to the foregoing letter as a justification of this view: for what kind of information does it really convey, except that the writer holds certain opinions about electricity, and that he intended to cultivate 27 acres by means of it, but—did not.]

Productive Celibacy.—You inquire, at p. 242, whether anybody has a similar case to record with that noticed by your correspondent "Dogberry." I believe that any bird-fancier will assure you that such cases are extremely common. I know that my own father, who is a great bird-fancier, has repeatedly had solitary birds lay eggs: and if I remember rightly, he informed me that when caged birds were kept well fed this was very liable to happen.—*J. S. Henslow.*——Productive celibacy is arrant nonsense; the parrot's eggs are all bad, unless she has had access to a male parrot, and if bad there can be no productiveness. Female birds will lay without ever having been in company with a male, and this fact is well known to every naturalist. I have had numerous proofs of the fact,—amongst others I had a hen chicken, which, after it grew to the size of a blackbird, was taken from the mother, and was reared, and lived alone for eight months; when about 10 months old she began to lay, and having laid a certain number of eggs she sat upon them for 20 days, the usual time, but every egg was bad; this happened a second time, she was then put with other fowls, and the result was a brood of chickens. I have also reared a hen canary in a solitary state, which in due time began to lay, the result was of course the same; but when mated she produced numerous broods. With turkey hens, it is a singular fact, that one mating will produce two successive broods in the same year, from the same hen. Did "Dogberry" ever hear of Lord Thurlow's parrot and her eggs?—*R. T.* [The odd thing in Dogberry's case is, that Mrs. Poll continued her habit of laying for years together.]

Heath Edgings for Walks.—I tried this to some extent last spring, and it has succeeded so well and is so much admired, that I design edging the greater part of my flower-garden walks with it this season. It looks much better than anything else I have seen. Indeed Heath, the general covering of our native hills, although common, deserves a place in any nobleman's garden. While in bloom it forms a fine contrast with other plants of more delicate habits in the flower-border, and the fine dark-green colour which it retains during winter makes it remarkably well suited for edgings. My method of managing it is as follows: I cut the Heath up in turfs from a moor, free from Grasses or other weeds, and which has been burned, as it is termed here, about three or four years previously; so that the plants are thick and young, and bear transplanting well. Young Heath of the above age will average about 3 inches in height. The turfs are cut up into convenient sizes, say from 3 to 4 feet in length, from 3 to 4 inches in breadth, and about 3 inches in depth, for the sake of taking the roots properly up; then take out a trench about 9 inches in width and 8 inches in depth, close by the side of the gravel in the walks; fill this trench with Heath-mould from any dry moor (being best when of a sandy nature), to within 3 inches of the surface of the walk, so that when the turf is laid its surface may correspond with that of the gravel of the walk, making the mould pretty firm before laying down the turf lest the latter should sink when rains come. When the turf is laid down, apply the line on both sides and pare off any irregularities with an edging-iron or knife; fill up the trench on both sides with the same kind of mould as that below the turf, pressing it firmly in; thus you have the Heath planted in its native soil in which its roots may extend themselves for several years; give the whole now a good watering, spread a little gravel over the mould close to the turf on the side next the walk, and a small portion of garden-mould over the Heath-mould on the border side, and the work is finished. All the keeping that Heath requires is to prune it with a pair of shears once a year, in September, after the blooming season is over.—*Muiryfold Grange.*

The Cabbage.—A French journal observes that the Cabbage is a sovereign remedy for intoxication from wine, and that it has even the power of preventing it; for we are informed, that by eating a certain quantity of Cabbage before dinner, we may drink as much wine as we please, without experiencing any inconvenience. This property of the Cabbage is also mentioned by ancient writers, who are of opinion that it proceeds from the antipathy which the Vine shows to the Cabbage: if a Cabbage be planted near a Vine, the latter either retires or dies.—*Waterhouse.* [Pooh!]

Lælia majalis.—Having succeeded in flowering a small plant of Lælia majalis (the variety figured in the "Bot. Register"), and knowing it to be difficult of cultivation, I have ventured to communicate the method pursued, as I think the mode recommended by Mr. Llewelyn—of removing it to a hot and damp Orchidaceous-house—rather calculated to mislead. I procured my specimen in 1843, consisting of four imported bulbs, one very small one grown in England, and another very small one nearly completed; when this last was completed I removed the plant into a greenhouse well ventilated, the door always being open winter and summer during day time; the night temperature, about 45°. Here it remained until it put forth a bud or shoot in 1844; I then placed the plant on a charred log, and removed it to the coolest end of a cool Orchidaceous-house, close to the door; of this house the summer day temperature is scarcely ever more than 75°, and night 65°, and in winter day from 65° to 70°, and night 55° to 60°; the door leads into the greenhouse, and generally stands half open by day; thus a current of air is constantly on the plant. The bulb formed was thrice as large as the two previous; when completed, the plant was again removed into the greenhouse until the shoot broke forth in January, when it was again placed in its former airy situation in the cool Orchidaceous-house (of which the floor is always kept wet), and very soon the flower-stem burst from the centre of the new shoot, and the flower expanded on the 20th 5¾ inches across each way. If the above treatment is pursued, I am certain any one may succeed. My Dendrobium speciosum, with a constant greenhouse treatment, will have nine very fine spikes of flowers expanded in a few days. I am pursuing a similar system with Epidendrum auruntiacum as with the Lælias, but find it more difficult to flower. I do not despair of producing more than one flower on the Lælia majalis when my plant has become larger.—*George Walker, Eastwood.*

The Toad.—Having frequently observed, in my country walks, the (to me) unaccountable phenomena of a full grown toad carrying a young one on the back, I wish much to know if the reason can be given, and if it be true that this young one actually rides the large toad to death. Being fond of natural history I shall be extremely obliged by any light being thrown on this subject in your Paper.—*J. F. S.*

Societies.

HORTICULTURAL SOCIETY.

April 15.—R. W. Barchard, Esq., in the Chair. The Rev. J. J. Cleaver, B. Smith, Esq., Mr. R. Smith, and Mr. J. Hally, were elected Fellows.—On this occasion several things well worthy of notice were produced. The greatest novelty was a cut specimen of a beautiful species of Fuchsia called serratifolia, from Messrs. Veitch and Son, of Exeter, which being altogether new, will, no doubt, form an interesting addition to those already in cultivation. It appears to combine splendens with fulgens, yet it is very different from either. The flowers are produced in whorls, three or four together. The outside of the tube is of a rich rosy pink, passing into green at the tips of the divisions of the calyx, while the corolla is of a bright scarlet; the under sides of the leaves being delicately shaded with purple. Beautiful as the blossoms at present are, however, we have reason to believe that the colours will become more brilliant as the season advances. It was collected by Mr. Lobb, near Muna, in Peru, where it has been long ago known to Spanish botanists, and stated by them to form a tree 9 or 10 feet in height. A large Silver Medal was awarded for it. From the same collection was a yellow Rhododendron, raised between Azalea sinensis and one of the large light-coloured Rhododendrons. It possessed the blistered leaves of the Azalea with the large blossoms of the Rhododendron, proving what may be effected by skilful hybridisation. Along with these were Tropæolum Lobbii, a beautiful scarlet species that was shown at a former meeting, and a small Bossiæa from Swan River. — A Banksian Medal was awarded to Mr. Fairbairn for an exceedingly well-grown Cape Heath, called E. favoides elegans. It measured nearly 3 feet in diameter, and was richly clothed with healthy foliage down to the pot.—From Mr. Bunney, of Covent-garden, were three imported plants of Tropæolum tricolor, possessing very different shades of colour, and showing how these plants alter in that respect even in their natural state.—Mr. Beck, of Isleworth, again sent cut blooms of his improved varieties of forcing Pelargoniums.—From Mr. H. Powell wa a seedling Rhododendron, stated to be hardy and to have been obtained from seeds of R. ponticum crossed with arboreum.—Mr. Robertson, gr. to Mrs. Lawrence, sent Erica concolor, 7 feet in height, in the form of a small tree, having a clean stem for the height of 3 feet above the pot, with a spreading head, which was loaded with shining dark-brown blossoms. From the same collection was the handsome Dendrobium secundum, with long spikes of purple flowers turning to one side; D. macrophyllum, one of the handsomest of the genus, whose long pendent stems were richly ornamented with pink blossoms, which are stained at the base of the lip with dark-red blotches; the showy D. Wallichii; a huge plant in luxuriant health of Oncidium altissimum; a variety of O. luridum; the dark variety of Cyrtochilum maculatum; and cut flowers of the scarce Combretum macrophyllum, a handsome stove twiner from Sierra Leone. A Knightian Medal was awarded for the two first plants.—Mr. Green, gr. to Sir E. Antrobus, sent a magnificent specimen of Erica aristata, literally covered with blossoms; Epiphyllum Russellianum, a beautiful species from the Organ mountains of Brazil, closely resembling the violet-coloured variety of E. truncatum; and a plant of Tropæolum tricolorum. A Banksian Medal was awarded for the two first.—From Mr. Booth, gr. to Sir C. Lemon, was a bloom of a Cactus that had been received from Jamaica. It had considerable resemblance to the old speciosissimus, but was said to be of a different habit, the stems being from five to eight-angled, with short joints. Along with this were Epidendrum macrochilum; a variety of Gesnera Douglasii; and Begonia heracleifolia, which, like the rest of the species, is a profuse bloomer; and a branch of a Rhododendron nearly related to arboreum, which has endured the severity of the winter in the open border at Carclew, in Cornwall, unprotected, without injury; as also the greenhouse shrub Grevillea rosmarinifolia, a cut specimen of which was sent in perfectly good condition. These serve to show what may be done with half-hardy plants in the climate of Cornwall; although it has been found impossible to preserve such things unprotected over winter in the Horticultural Society's Garden at Chiswick.—From Messrs. Henderson, of Pine-apple place, were Epacris Atleeana, and onosmæflora; cut flowers of Combretum macrophyllum, Platylobium Murrayanum, and Corræa bicolor, the latter covered with delicate crimson flowers, which become white near the upper part of the tube.—Finally, from Mr. Errington, gr. to Sir P. G. Egerton, Bart., were Cactus laciniatus and longissimus, the latter being a flower of considerable size and beauty; and a series of blooms of seedling Cacti, the whole of which were exceedingly beautiful, but more especially Nos. A. 1 and 2, to each of which a certificate was awarded; several others gave great promise.—Of Fruit there was a dish of Peaches, which, although not well coloured, may be considered excellent, taking into account the unfavourableness of the season for forcing such things; they were from Mr. Hutchison, gr. at Eatington Park, near Shipston-on-Stour, in Warwickshire; they were stated to have been grown in pots in a Pine-stove, and to be the produce of a tree introduced into heat in the second week in November. Mr. Hutchison mentioned that they were part of the second gathering, the first fruit being fit for table on the 22d March. A certificate was awarded for them.—Grapes and Cucumbers were also present; the former from Mr. Toy, gr. to Col. Challoner; the latter from Mr. Cuthill, of Camberwell; and a certificate was awarded for remarkably large specimens of Mushrooms that were grown in the nursery of Mr. Prestoe, of Shirley. These were mentioned to have been produced in the following manner:—In the first week in August, a quantity of fresh stable-manure was collected and dried; a trench, 2 feet in width, 1 foot in depth, and 12 feet in length, was dug in the driest part of the nursery (running north and south); the dried dung was then put in and trodden firmly down, and cakes of Mr. Prestoe's improved Mushroom spawn were planted 1 foot distant from each other. The mould, which had been previously thrown on the side, was laid over the bed and firmly beaten by the spade. Thus the bed was formed and completed in one day. Common hurdles were covered with straw, and set over the bed in the form of the roof of a house; the whole remained for about six weeks in the same state. Afterwards a gentle watering was given, and the Mushrooms began to make their appearance on the 1st of October, when 122 specimens were produced fit for table; the bed continued to bear two or three months longer. As the thermometer began to sink below 40°, the ends of the roofed covering were closed, and about 3 inches of straw was laid over the bed. As the winter advanced, another covering of litter was laid on, which is all that was done to it; the crop was extraordinary. A second bed was made on the following day in all respects as above, excepting the covering, which was a close-made roof-like frame covered with painted canvas, and always kept close. The Mushrooms began to show about the usual time, and the bed produced an average crop. On the third day another bed was made as above described but covered with a common Cucumber-frame and glass lights; the Mushrooms were white and very light and insipid in flavour, the two last beds were covered with common garden mats.—From the Garden of the Society were the pretty little Leptotes bicolor, a species from the Organ mountains, deserving a place in every small collection, on account of its producing an abundance of blossoms which continue long in perfection; Cattleya Skinneri, from the warmer parts o

Guatemala; Dendrobium densiflorum and Heyneanum, the latter a lovely species, with stems about 6 inches in height, producing slightly-drooping racemes of snow-white flowers; Trichopilia tortilis, readily distinguished by its screw-like petals and large white lip, which is marked with brown spots; and Epidendrum selligerum, remarkable for its fragrance; along with these were Begonia peltata; the same Boronia anemonæfolia that was present at the last meeting, still in full flower; Phædranassa chloracra, and a species of Selago, chiefly useful for ornamenting the greenhouse with its small white flowers, in winter, when every solitary blossom is a desideratum. Seeds of the Babool or Poinciana regia were in the room for such Fellows as wished to receive them.

LINNEAN SOCIETY.

April 15.—R. Brown, Esq., V.P., in the Chair. Among the presents upon the table was the 5th Number of the "Botany of the Voyage of H.M.S. Sulphur," under the command of Capt. Sir Edward Belcher, in 1836-42, the admirable botanical descriptions of which are by George Bentham, Esq., F.L. and H.S., and the figures from the pencil of Miss Drake. F. Staines, Esq., of San Louis, Potosi, Mexico, to whom the Botanic Gardens at Kew are indebted for several splendid specimens of Cacti, was elected a Fellow. Read the commencement of a memoir, entitled "Observations upon the structure of two new species of Hectocotyle, found upon the Tremoctopus violaceus, and the Argonauta argo; with an exposition of the hypothesis, that these Hectocotyles are the males of the Cephalopods, upon which they are found," by A. Kölliker, Professor of Physiology and Comparative Anatomy, at Zurich; communicated by R. Brown, Esq. Read also a paper "On the anjing outan, or wild dog of the Malayan Peninsula (Chrysæus soccatus, Cant.)," by Theodore Cantor, Esq., M.D., Civil Surgeon in the Hon. E. I. Co.'s service at Penang; communicated by Dr. Horsfield, V. P. L. S.

Reviews.

School Botany; or the Rudiments of Botanical Science. By John Lindley, Ph.D., F.R.S., Professor of Botany in University College, London. A new edition; with numerous alterations, and nearly 400 illustrations. London: Bradbury and Evans, Whitefriars. 8vo.

In announcing the appearance of this work, obvious reasons preclude us from saying more than is absolutely necessary to explain its nature. We shall, therefore, do little more than select a few passages from the Preface, and an illustration or two from the body of the work:—

"This work was originally prepared, in haste, to meet a regulation of the University of London, by which it was required of all students, that, two years previously to proceeding to their first degree, they should be examined, among other subjects, in 'The characters and differences of the *principal* natural classes and orders of plants belonging to the Flora of Europe, in the botanical classification of De Candolle.'

"The obvious purpose of this regulation was to make young men acquainted with the names and properties of the vegetation that surrounds them; so that, after receiving what is called a liberal education, they might not be thrown upon the world ignorant of the names, at least, of the commonest plants of their own country. In the opinion of the author the measure was calculated to effect a real good, and to supply a wide gap in the common routine of a school, where it is most desirable that some natural history should be introduced, if it be only to relieve the tedium of the less attractive studies to which young persons are necessarily subjected.

"But it was also important for the sake of its substantial utility. There may be a difference of opinion as to the advantage of spending much time upon the study of Botany; but there is one opinion only as to the importance of knowing the names of the plants of which man has to make use, or which he is continually meeting with. There is not at the present day a person of any intelligence, ignorant of such things, who does not regret that some portion of his youth should not have been devoted to this kind of inquiry.

"The Dorsetshire gentleman who put himself to considerable trouble and no small expense to carry a sack of Hornbeam seed from Florence to London, would have been saved the exertion had he known that the Hornbeam grew in abundance on his own estate; and it may be safely asserted that every one of that celebrated Court party which discovered a prodigy in the beautiful tree in Windsor Park, would have been glad if their early education had spared them the mortification of learning from Lord M. that the tree in question was only the Spanish Chesnut.

"Whatever the future intentions of a student of Botany may be, it is indispensable that the first step to be taken should be that of gaining an acquaintance with the common plants of his own country. In the absence of that, he cannot make a single move in advance. He must first master the rudiments of the science, and master them correctly. This little book has been prepared for the purpose of enabling him to do so. It contains all that it is necessary to know in order to make a fair beginning, and it includes no more; so that if any one should have the patience to master the whole contents of the volume, he would then be in a position to carry his inquiries onwards with ease."

"None of the woodcuts employed in the first edition have been introduced on this occasion. Experience shows that, for purposes of teaching, it is indispensable that as much accuracy as is attainable should be observed in preparing the illustrations. To the untrained eye, plants are too much alike in reality; ill executed, or much diminished, woodcuts increase this resemblance, and consequently perplex more than instruct. The cuts now employed will, it is hoped, render it impossible that any mistake should be made by even the most inexperienced as to the plants to which they belong."

The manner in which the work is illustrated may be in some manner judged of by the following instances:—

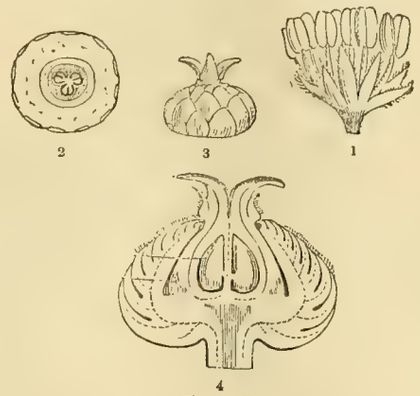


Fig. cxcvi.

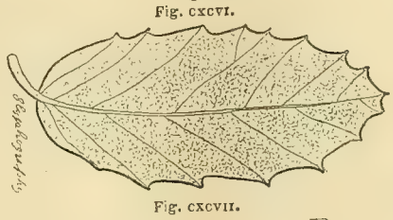


Fig. cxcvii.

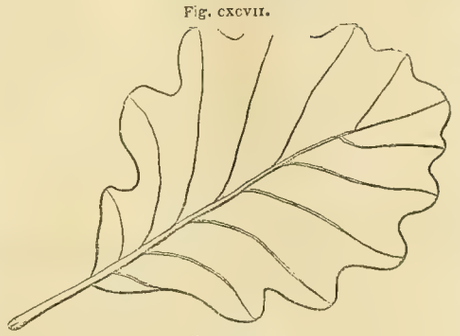


Fig. cxcviii.



Fig. cxcix.

Fig. cxcvi.—Quercus pedunculata. 1. ♂ flower; 2. ♀ do.; 3. transverse section of the ovary; 4. perpendicular section of the ♀ showing young cupule and ovules. Fig. cxcvii.—Quercus Suber. Fig. cxcviii.—Quercus sessiliflora. Fig. cxcix.—Quercus pedunculata.

The whole object of the work is to teach, or to enable persons to learn by themselves, the rudiments of the science. It is the first step to an intimate acquaintance with the subject: and there can be no doubt that a very considerable amount of useful knowledge of plants will have been acquired by the student who learns no more than he can find in its pages.

We may be permitted to add, as regards the price of the work, that it is an experiment made for the purpose of ascertaining whether it is possible to sell such a number of copies of illustrated works on natural history at a very small price, as will remunerate the publishers for the great cost of preparing them. Hitherto it has been found necessary to illustrate books coarsely and badly if they are to be sold very cheap, or to fix a high price upon them if the illustrations are of an expensive order. In this instance a very low price has been combined with figures executed with the greatest care. It is for the public to determine whether the experiment shall succeed or not.

New Plants.

Epidendrum aeridiforme. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—This plant was introduced from Rio in 1839, and added to the collection of Sir C. Lemon, Bart., M.P., at Carclew, where it flowered in December, 1843, and again about the same time the following year. In habit and mode of growth it bears some resemblance to E. nutans, as well as to E. patens, agreeing partly with the former in foliage, and with the latter in having a deeply-divided 3-lobed labellum, but widely differing in other respects from either. The root is round and fleshy, partly terrestrial, but more generally, I suspect, adhering for support to the stem of any tree that may be near it. The stem is erect, of a deep shining green, lengthening at the top into a kind of two-edged drooping stalk, covered by numerous thin oblong acuminate bracts of a pale yellowish green, spotted and tinged with brownish red at the point, and bearing a loose panicle of dingy coloured flowers, remarkably sweet-scented in the day time, at the extremity. The leaves are alternate, thick and rigid, clasping the stem at the base. They vary from 6 to 8 inches in length, and an inch, or an inch and a half in breadth, and are of a deep shining green, marked in several places with brown-coloured blotches. The plant requires the constant heat of a damp stove, and the same treatment as others of its class.—*Botanical Register.*

Gesnera Schiedeana. Schiede's Gesnera. (*Stove Perennial.*) Gesneraceæ. Didynamia Angiospermia.—This plant is another addition to the many beautiful Gesneras now cultivated in our stoves. It was sent from Woburn Abbey, by Mr. Forbes, who received the roots from Mexico. It quite agrees with the G. spicata of De Candolle (also from Mexico), and seems different, as that author suspected, from the original New Grenada G. spicata of Humboldt, in which the inflorescence is more truly spicate, the flowers smaller, and the corolla much less hairy. Our species is remarkable for its richly-coloured blossoms, clothed with long, shaggy hairs; their colour, a bright golden scarlet; the limb variegated with red and yellow, the red arranged in broken lines. It flowered at Woburn in November, 1844.—*Botanical Magazine.*

Calceolaria floribunda Copious-flowering Slipperwort. (*Greenhouse Perennial*). Scrophularineæ. Diandria Monogynia.—Our gardens abound in Calceolariæ from Chili, and extra-tropical South America; but very few are known alive in this country from the tropical regions of the New World. The present handsome species is from the environs of Quito, where it was gathered by Lobb, Mr. Veitch's South American collector, and sent to him in 1843. It flowered in Mr. Veitch's establishment, at Exeter, in September 1844. Although from within the tropics, and almost under the Line, yet, the city itself of Quito being at an elevation of 11,000 feet above the level of the sea, this will probably prove a suitable plant for the greenhouse, and perhaps may flourish in the open air in the summer months, where it cannot fail to be highly ornamental; and we should be thankful if it do not share the fate of the Chilian species, which are so hybridised, that the original native kinds are wholly lost to our gardens, and are to be found only in the Herbarium.—*Botanical Magazine.*

Aotus gracillima. Slender Aotus. (*Greenhouse Shrub.*) Leguminosæ. Decandria Monogynia.—This is a very elegant Swan River species of Aotus, which has been introduced to the Royal Gardens at Kew by Mr. James Drummond. We have also received it from Baron Hugel, imported from the same country, to which it seems peculiar. Mr. Preiss and Mr. Drummond have both sent dried specimens. Besides its glabrous branches and foliage it may at once be known from the old A. villosa by the very copious flowers, so abundant on the branches as to conceal the leaves of a great portion of the branches; thus its beauty will recommend it to every greenhouse. Only two species of the genus were known to Professor De Candolle, and both natives of Eastern Australia; now six others are described in the "Plantæ Preissianæ" as inhabitants of the Swan River settlement.—*Botanical Magazine.*

Garden Memoranda.

Stistead Hall, the Seat of O. S. Onley, Esq.—I lately visited this mansion and its beautifully disposed grounds. The house, built in the Italian style, is delightfully situated on an eminence of the park, commanding an extensive view of the valley of the Blackwater, and the surrounding country; and the gardens and pleasure-grounds, in their various arrangements, evince good taste and management, reflecting much credit on the gardener, Mr. Ross. Among the numerous specimens which adorn the conservatories at this season, was a magnificent Rhododendron arboreum, from the Himalayan Mountains, in perfect vigour, and covered completely with large heads of the richest crimson flowers. It is with pleasure that I observe the introduction of these truly gorgeous shrubs into gardens; and I have little doubt that ere long, few conservatories will be found destitute of so valuable an ornament during the early spring.—*O. S.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

WITH the advancing season plants of vigorous growth will now be making rapid progress. Great attention must therefore be paid in regulating and training the branches. The various kinds of climbers, in particular, will require to be kept in almost daily subordination. It is a question whether trellises of various fantastical devices are the most appropriate either for display or convenience. The most simple forms, or even plain rods, will be found to answer all practical purposes better, and may be in quite as good taste as many of the grotesque trellises in use. This, like all other matters where correct principles of taste are not often brought to bear, is usually overdone. Variety and intricacy, and what is termed originality, are too frequently mistaken for ornament; nothing can be ornamental strictly speaking, unless the principles of design form an essential element in its execution. Plants of shrubby growth will require to be stopped back, so as to give stability to the plants, as well as form. This will enable us to dispense with stakes in a great measure, for after all, stakes are but unsightly appendages to exotic plants; stakes at all times betray lameness and want of completeness in the object to which they are applied, and in proportion as these are increased, so also are our ideas of a perfect specimen decreased; but perhaps this is not the best place to discuss these matters. In all structures where plants exist, remember that ornament is the chief object for which they are retained; therefore let cleanliness and high keeping prevail in every corner.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Rolling and sweeping lawns should now be regularly attended to in suitable weather. Finish off new work, if not already done, without delay. Roll walks to get them firm before the dry weather again sets in, edge and sweep them after rolling, to give them a neat appearance. Any tender Roses that have suffered from the late severe winter, and that are now breaking, should be pruned; but leave such as have not begun to grow, until the season has advanced a little. Shrubs also should be looked over in the same manner. *Pits and Frames.*—Look over tender annuals and cuttings during dull weather, and see that no damp generates amongst them; if this should make its appearance, more air, and much less water, must be given. This is a good time to take off the tops of early-struck cuttings, and to put them into cutting-pots for store; if not wanted for beds, they might be planted out into borders after the beds have been filled. Keep up a gentle heat to tender annuals, and attend to potting off and shifting as the plants require it. Continue to harden off such plants as have made sufficient growth, to prepare them for beds; this is an important point in bedding out, as sudden exposure nearly, if not quite, destroys them.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—In boisterous weather, if the frames are tilted, woollen netting is a most excellent thing to throw over the aperture to prevent too great a rush of cold air. When flowers are wanted for competition they should be classed, so that those which are too forward may be retarded, or the late ones brought forward as the case may be, so as to be ready by the time of exhibition as near together as possible. It is obvious that this cannot be accomplished if all are bloomed in the same frame. Where pips are too much crowded or misshapen, they should be removed immediately with a pair of sharp-pointed scissors. *Polyanthuses* require the same attention as the Auricula, if grown in frames. When in beds, the expanding blooms should be covered with hand-glasses or boards, and great attention should be paid to the destruction of slugs, &c. *Tulips* require little else just now than protection from frost and hailstones. *Ranunculuses.*—The beds must occasionally be examined, and the cracks, if any, filled up. *Pinks.*—Long straggling plants are apt to break off at the surface during rough weather; small hooks or sticks are necessary to prevent them from being blown over, and as a general direction, keep plants, whether in pots or beds, free from weeds, and the surface-soil in a friable state.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—The importance of shading Pines of all ages, during intense and long-continued sunshine, is pretty well known, but not so extensively practised as it ought to be. Although light is, of all things, the most important to plants of tropical climes, in so dull a climate as Britain, yet it is at times too intense to benefit those plants, tending to exhaustion, partly, it would appear, through the assimilative process moving with greater rapidity than the absorbing. Fruiters and successions, of all ages, and in all conditions, will be benefitted by a screen of some kind, if thin, through the months of April, May, June, and July, more especially. Of course, it need only be applied for a few hours each day—regulated by the intensity of sunlight, and the condition of the plant. *Vineries.*—Ripening Grapes, the roots of which are outside, should have the fermenting matter partially or entirely removed forthwith. If the border-heat has averaged from 60° to 70°, it will, by the accumulating heat of the atmosphere, be quite sufficient for Vines in that stage; they will, in fact, be gainers by the free access of the atmosphere. Keep an eye on those not introduced, and intended for late crops; the moment the bud begins to push, let them be introduced. *Peach-houses.*—Everything having reference to the next year's crop—as the proper equalisation of the sap, and the permanency of the tree—should be attended to; take special care to stop, with the finger and thumb, all gross shoots, or "robbers," when three or four eyes long: these, if permitted to remain untouched, will decoy a vast amount of sap from its legitimate channels, to the injury of the tree, and bearing wood, and the fruit. If you want large fruit, suffer your houses to cool down, on dull days, to a lower temperature, thus affording time for the fruit to "feed:" both flavour and size will be improved thereby. *Figs.*—As before. Continue stopping the young wood, and syringe freely.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Recently planted fruit-trees should be inspected in case they have been loosened by the winds; for although deep planting is not supposed to have been practised, yet the soil should be kept in close contact with the stem quite as high as the surface level. It is necessary that fruit-tree borders should be well drained, to prevent the stagnation of water at all times; but with this provision there will be no danger from all the rain entering the borders which falls upon them between this and August, even if it should be abundant. The climate in front of a south wall is an artificial one, chiefly as regards an increased temperature; but with this there is afforded no corresponding increase of moisture. The latter must be supplied by watering; but the less this becomes necessary so much the better. If the border is smooth, firm, and sloping, heavy rains are carried off by the surface, and lost, as regards the roots of the trees. Therefore, from this time until August, or the period of ripening, keep the surface loose, so that rain may enter freely. Fig-trees should now be partially uncovered, or entirely so, if mats be placed over them at night. Weed Strawberry plantations. *Kitchen Garden.*—Draw earth to the stems of Cauliflowers and Peas, and immediately stick the latter. Keep up successional sowings of Peas, Kidney Beans, Spinach, Lettuces, and Turnips. Stir the soil frequently amongst young crops, and destroy weeds as they appear.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Continue to make and repair roads and drives, repair fences, clear drains, &c., so as to have none of this description of work to do in the barking season, which is now fast approaching. *Nursery.*—Evergreens may still be planted, and Fir seeds sown; examine the clay of grafts and fill any cracks caused by drought; it is a good plan to earth up dwarf grafted stocks above the clay, and to cover that of tall ones with Moss. Firm all newly-planted trees and shrubs, use vigilance in the destruction of weeds and vermin.—*F.*

State of the Weather near London, for the week ending April 17, 1845, as observed at the Horticultural Garden, Chiswick.

April		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	11	4	29.636	29.285	49	30	39.5	N.E.	.16
Sat.	12	5	29.770	29.607	54	34	44.0	W.	.03
Sun.	13	6	29.787	29.354	54	41	47.5	W.	.10
Mon.	14	☽	29.558	29.401	55	39	47.0	N.W.	.10
Tues.	15	8	30.126	29.696	49	40	44.5	N.E.	.02
Wed.	16	9	30.275	30.265	54	39	46.5	N.E.	
Thurs.	17	10	30.323	30.190	62	38	50.0	N.E.	
Average			29.925	29.685	53.8	37.3	45.5		.41

April 11—Cloudy; cold rain; densely clouded; slight frost at night;
12—Overcast; cloudy and fine; rain
13—Overcast; showery; constant rain; clear at night
14—Boisterous; fine, with clouds; cold rain, and boisterous
15—Boisterous; showery; densely overcast
16—Cold and overcast; boisterous, but dry; cloudy
17—Clear and fine, with brisk wind; bright sky, with some white clouds; uniformly overcast at night.
Mean temperature of the week 1½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending April 26, 1845.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 20	59.3	37.4	48.3	8	0.22 in.	1	4	2	—	—	5	5	2
Mon. 21	57.8	40.0	48.9	8	0.20	1	3	4	1	1	3	6	—
Tues. 22	59.4	41.0	50.2	11	0.32	3	4	2	1	1	3	5	—
Wed. 23	58.6	39.7	49.1	11	0.52	1	2	1	—	4	2	4	5
Thur. 24	58.8	36.5	47.7	8	0.55	3	1	2	4	1	5	2	1
Fri. 25	59.6	38.9	49.2	7	0.47	2	3	2	2	5	2	1	2
Sat. 26	59.7	38.0	48.9	8	0.12	2	2	2	3	1	5	2	2

The highest temperature during the above period occurred on the 25th, 1840—therm. 80°; and the lowest on the 25th, 1827, and 26th, 1835—therm. 25°

Notices to Correspondents.

ASPARAGUS—*A C K*—We see no objection to the application of the Spanish method to a newly planted bed. It is of the first importance to get the plants very strong; for till that is done no good Asparagus for table can be expected.——*L W H*—Do not cut your plants this year. You will weaken them too much. The reason is this; the new sprouts are formed at the expense of the organisable matter now in the roots, which matter they do not replace. If they are allowed to exhaust the roots in their own formation, hereafter, when the summer shoots are to be left, the latter, being feebly supported by the roots, are themselves feeble; and that debility is necessarily transferred to the succeeding crop.

CAMELLIAS—*Wilson Boardman*—We never heard of Camellias bearing fragrant flowers in Portugal, and doubt the fact.

CANADA—*J*—We believe the only way to pay money in Canada is by lodging it with the Canada Company (Great St. Helens), and they will cause it to be paid; but you had better inquire there.

CITRUS—The best eating Oranges are the China, the St. Michael, the Tangerine, the Mandarin, the Malta. You must inquire for them of the nurseryman.

FAIRY RINGS—*F H*—These may be destroyed by watering the place with a weak solution of nitrate of soda or saltpetre.¶

FERN-SEED—*A K*—Sow on the surface of the damp mould in a garden pot, which place in the shade, with a bell-glass over it, in a warm but not hot situation, or, if the Fern is hardy, under a north wall. If the seed is good it will soon come up. Peat is a good soil to sow Fern-seed on.

GARDENERS—*Bishop Auckland*—An "irrational head gardener, who impedes everybody under him, who, instead of assisting his men to improve themselves, throws every possible obstacle in their way, and calls his betters humbugs"—if there be such a man—is fit for nothing but to be dismissed.

GARDEN POTS—In accordance with the suggestion of a friend, we have reprinted for *gratis* distribution our article on the sizes of pots, and the necessity for rechristening them. It has been done in a small form, that it may be stuck up in the potting or tool-house, as the case may be. Any party inclosing to the publisher his address and a postage-stamp, shall have a couple sent him;—more, if a greater number would be of use to him.

GRAVEL WALES—*B P*—The method of making a kind of asphalte substitute for these was explained at p. 379, 1842. If they are to be made of gravel only, proceed thus:—Cut out a trench of the desired width to the depth of 6 or, better, 9 inches. Fill it to the depth of two-thirds with very coarse screened gravel; over that put a good coat of firm material; and over the whole a thick layer of very fine binding gravel, taking especial care that the walk is made convex. With an intelligent gardener, a heavy roller, and good materials, you may thus make a walk that will never remain wet.

HEATING—*S P*—We cannot praise Mr. Perkins' mode of heating for garden purposes. It has been used for large buildings, and in some cases advantageously; but we do not recommend it. If air gets into the pipes an incessant clicking is produced; which renders it quite unsuitable for a church.

INSECTS—*A Y N*—There is no small portable book which will enable you to determine the species of British insects. A simple synopsis would require five or six vols. like Lindley's, and there is no encouragement for the undertaking such a laborious work. We will inquire about an Ornithological Synopsis; "Mossop's Synopsis of British Land-Birds" is a classical and cheap little volume. *R.*——*Donald*—Your Chinese scale is nearly allied to one found upon the Myrtle, but I do not remember to have seen your variety before, and without having the males for examination it is difficult to limit the species of Cocci. *R.*——We are obliged to *Mr. Johns* for the gall of the Cynips Quercus-radicis. *R.*——*A J D*—The beautiful Trombidium holosericeum is common on flower and vegetable beds in the spring, but we are not aware that it does any mischief. *R.*——*E G S*—The scientific name of the beetle which is the parent of one of the true wireworms is Elater lineatus; the Millipedes, or false wireworms, which are most destructive in our gardens, are Julus pulchellus and Polydesmus complanatus; they are described in the 5th vol. of the "Journal of the Royal Ag. Soc.," but we will attend to your suggestion.

MILDEW—*F S*—This is a subject that has not escaped our attention; and, in the course of a few weeks, you may expect to see it treated of. But can it be caused merely by insufficient ventilation, when plants out of doors are among the greatest sufferers by it? we fear that evidence is not quite favourable to that theory. However, we will take the matter into consideration, and see whether the mildews of parchment, &c., may not arise from one cause, and those of living plants from another. That is possible.

MISTLETOE—*D T O*—This may be increased either by seeds or cuttings. When the former are employed they should be inserted into the bark in which they will germinate, and root in spring. If grafts are used they should be made in the first or second week in May. Where the stock is not more than half an inch in diameter, an incision should be made in the bark, into which the scion, pared thin, should be inserted, having a bud and a leaf at the upper end. In grafting large branches a notch should be cut out, an incision made below the notch, and a shoulder left on the scion to rest on the notch in the manner of crown grafting. The Mistletoe may also be propagated by budding, taking care to have a heel of wood and a joint at the lower extremity of the bud.‡

MUSHROOMS—*H Lanarkshire*—You will find the information you want given in the report of the Horticultural Society in another column of to-day's Paper. ‡

NAMES OF PLANTS—*F Croucher*—Gongora truncata.——*J M*—Dendrobium cucullatum.——*Carstairs and Co.*—Acacia Drummondi.——*M D*—Azalea ledifolia is the white Azalea indica.——*K X*—We do not recognise the leaves. They seem to belong to some Echites.

OLEANDERS—*Sub.*—These do not like to have their roots constantly in stagnant water, and you must not trust the plants always in it. *While growing* give them a great deal, however, so that they never are dry; when not growing give them very little. The natural habit of the Oleander is to follow the course of streams in Barbary, where it glows with rosy flowers and dark-green foliage when everything else is parched.‡——*E P*—That your plants are spoiled by very bad gardening is certain; but what sort of bad gardening we are unable to say, in the absence of information as to what has been done with them.

ORANGE-TREES—*Lignosus*—Judging from the appearance of the leaves, your Orange-trees are in a bad state at the root. Imperfect drainage is most probably the cause of the evil. We should advise you to repot them now into a compost of fibrous loam and peat well mixed together, adding pretty liberally rough pieces of charcoal. They like the very strongest manure; and above all attend to having the pots well drained, for in this lies nearly the whole secret of successful cultivation. Read carefully the articles on potting that have lately appeared in our columns; follow their directions, and we imagine your success is certain.‡

PHLOXES—*C M*—These are suited for planting in beds. They flower early in the season (April and May), are low-growing kinds, and should be planted about 15 ins. apart. Phlox nivalis white; procumbens, purple; subulata, pink; amœna, deep rose; setacea, light rose; and ovata, rosy purple. The following are late flowering kinds (July to September); they grow about 18 ins. in height, and should be planted about 2 feet apart:—Phlox tardiflora, white; Browni, crimson; picta, light pink; Van Houttei, striped purple and white; reflexa, deep purple; and omniflora, white. Tagetes lucida remains long in bloom in the autumn; but is not very handsome, particularly in a bed.¶

POTATOES FROM SEED—*Amateur*—When the "Potatoe Apple or Plum" is ripe, preserve it from frost till it is shrivelled, when the pulp, &c. may be mixed with peat-mould, and preserved in that way till sowing time. About this season, a slight hotbed may be made, and when filled to about 1 foot from the glass, a layer of turf should be placed above the fermenting material, with the grassy side down, and over this about 4 inches in depth of peat-mould and rotten dung or fine rich mould should be spread; then sow the seed in rows 4 inches apart, adding a little soil between them as the plants advance. As the plants grow they should be freely exposed in fine weather, and gently watered; and when they have advanced to about 6 inches in height, in the beginning of May, or when all danger of frost is over, they may be planted out into rows of a suitable distance apart, placing the plants pretty thickly in the rows. Nothing more is now needed but to attend to them in the usual way. In a small bed of 3 or 4 feet across, some thousands of plants may be raised.‡

ROSES—The articles on the Cultivation of Roses are reprinting in the form of a small volume, price 5*s.* 6*d.*, under the title of the "Tree Rose;" is now ready, and may be ordered of any bookseller.

SAP—*J C H*—We mean no discourtesy whatever, and we have none to complain of; but we must be permitted to exercise our own judgment as to what is printed, and what not. Vegetable physiology is the foundation of sound gardening; but you must allow us to say that neither physiology nor gardening are likely to be advanced by profitless discussions, the parties to which are not quite conversant with the subject. Did you ever read Biot's experiments? If not, you should do so; and they will show you that there is a retrograde movement of the sap, even in the sense in which you say that you use that term. As to Cambium, what is it but elaborated sap? You surely do not require to be informed that the term is hardly used by any modern physiologists, except Mirbel and Spach; the objection to it being, that it is not a term having any definite application. If your papers can be found they shall be returned to you in a post or two. Circulation exists in the cells of plants, though not in their system. We adhere to our offer, and we really can make no other.

SEEDS—*Edinb*—Those from the Cape are greenhouse plants; those from Bombay require a stove. 15, 23, 27, 28, are not worth growing; 20, 25, 26, 30, require a great deal of room as climbers.——*D Newe*—Your plants are hardy annuals.

VERBENAS—*W J B*—Procure the following:—Youell's Princess Royal, white; Boule de Feu, orange scarlet; amethystina, lavender; Catleugh's Ne plus Ultra, rose; atrosanguinea, dark scarlet; and Youell's Leonora, dark violet.*

VINERIES—*A B*—The plan you mention has been found to answer well. But now that glass is cheap it will be less troublesome and more economical to have a large strong pane fitted so as to be easily removed when the Vines require to be taken out. The lower part of the stem, below the sash, can be closely boxed up from the heat, but exposed to the cold draught through the opening in the wall, below the wall-plate.‖

ZERO—*Lamb*—Zero is 32 degrees below the freezing point; and 32° of Fahrenheit is 32 degrees above Zero. Is *this clear?*

MISC—*Sylva*—We have no means of ascertaining the age of the Chesnuts in Greenwich Park. Mr. Loudon could gain no information on the subject.——*S E H*—Of the Nos. for 1842 only 16 are to be had; it is doubtful if the others could be procured.——*A K* is answered at p. 228 of this year.‡——*E S*—We fear little is to be gained by endeavouring to improve the condition of your old and worn out Vine, whose branches are in a dying state. You had better replace it by young plants, which, under good management, will reach the top of the house during the season.‡—*W J B*—Let your offsets bloom, and as soon as you are satisfied of their quality nip off the flowers.*——*A Regular Subsc.*—Campanula grandis will do very well for bedding out; but the Orange Lantana not.——*A F*—We fear you will have a difficulty in procuring Cuscuta sinensis. It is some time since we saw it anywhere. Perhaps an advertisement might produce it. It will grow on any soft-wooded plant.——*Clithero*—Dried specimens of British plants may be purchased of Mr. W. Gardiner, 40, Overgate, Dundee, at a very cheap price.——*Querist*—We do not keep covers for the Paper——*J F Smith*—Your letter should have been sent to Mr. W. It is an advertisement.

SEEDLING FLOWERS.

CALCEOLARIAS—*A Subscriber*—There is nothing uncommon in the colour of your seedling; the flower is too angular in its general outline, and too much indented at the bottom.*

CINERARIAS—*W M*—Though bright, your seedling is common in appearance. The colour dies away imperfectly round the disk, and the irregularity in the growth of the petals is fatal to it.*——*C M*—A and C are quilled varieties, which are not so much esteemed as the commoner sorts; they seldom expand with regularity, and these are no exception to the general rule; they are good in colour, and A very lively in appearance. F is large, new in colour, showy, but rather coarse, and unequal in growth. G, D, and B are three distinct shades of blue, fine in colour; D is a particularly bright pure blue without any intermixture of crimson; E is of a peculiar lilac-crimson, with the flower better filled up than common. These seedlings are very fine in colour, their defects are in form; but in this respect they are as good as those generally seen.*——*J M F*—The colour of your seedling is bright and attractive, but the petals are not placed round the disc with sufficient regularity; in some parts they are too crowded, and in other parts spaces are left, running down to the centre; this is a great defect in the Cineraria.*

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities. TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkstone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivered free. Also, BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE. 23*s.* per quarter, including sacks; warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than 3 tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London

POTTER'S GUANO.

REDUCTION IN PRICE.

THIS MANURE, which has stood the test of three seasons, and been shown to be superior to the Foreign Guano, is now offered at a greatly Reduced Price.

Sold by all dealers in Manures.

POTTER'S LIQUID GUANO,

FOR FLOWERS AND VEGETABLES.

Recommended by Dr. LINDLEY and others. Sold by all respectable Seedsmen and Chemists, at 1*s.* 9*d.* per Quart Bottle, enough to make 60 to 80 gallons of Liquid Manure.

CAUTION.—Be sure to ask for POTTER'S MANURES, as there are Imitations.

PHOSPHATE OF LIME, 6*s.* 6*d.* per cwt.; SULPHATE OF LIME, (Gypsum) per ton, 25*s.* in quantity.

Manufactory, 28, Upper Fore-street, Lambeth.

The Agricultural Gazette.

SATURDAY, APRIL 19, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, April 23—Agricultural Society of England.
THURSDAY, April 24—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, April 30—Agricultural Society of England.
THURSDAY, May 1—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

April 21 { Chepstow, Wenlock, W. Hereford, Cirencester, W. Firle | April 21—Yoxford, April 24—Ottery St. Mary, April 28—W. Market, April 29—Bromsgrove

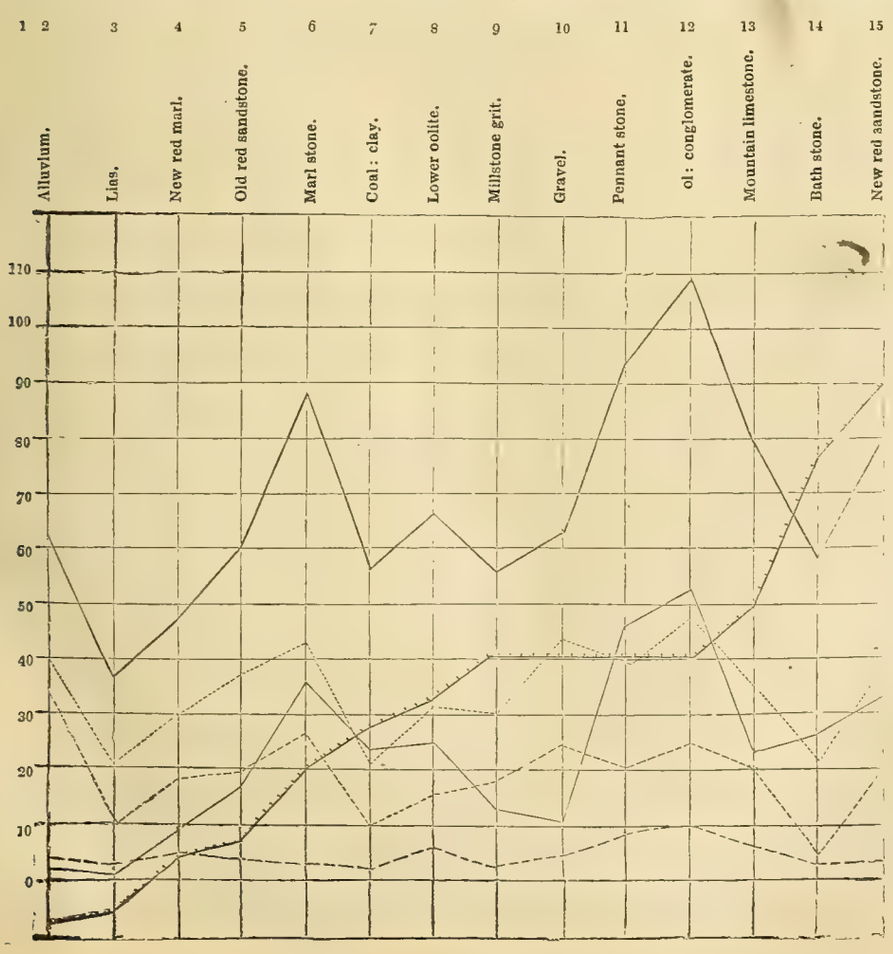
IN our last year's volume we referred at some length (see pages 817 and 837), to the duty which rests on farmers and landowners of adopting such a mode of cultivation as, besides affording profit to themselves, may provide sufficient work for the agricultural labourer. It is a happy thing that the *policy* of doing so is as certain as the *duty;* labour may be applied with a profitable result much more thickly on most lands than at present it generally is. If our second-rate pastures were drained, broken up, and well cultivated, a large increase of agricultural produce, an increased demand in the market for labour, increased farmers' profits, and after the repayment of the capital invested in the transaction, increased rents might all reasonably be looked for.

Let us consider how far the statements we have lately published on South Gloucestershire Farming illustrate this subject—THE POLICY OF BREAKING UP INFERIOR GRASS-LANDS. We take the statistical tables to which we refer, not because they are peculiarly illustrative of our views, but simply because they are the only ones of the kind with which we are acquainted. It is obvious that the policy of breaking up inferior pastures would be most striking where the ploughed land was well cultivated, and the meadows mismanaged; but over the larger portion of the district we have selected, the reverse is the case—arable land is poorly farmed, and pastures are managed well.

The following is a detail of the facts from which our inferences are to be drawn: That portion of South Gloucestershire to which we refer is about 200,000 acres in extent. In situation it is south and west of the latitude and longitude of Stroud, and north and east of the Avon and Severn; it is a district of a very curious and variable geological character—rocks of every formation, from the upper silurian to the lower oolite, each with its characteristic surface-soil, occur in it; and the consequence is, that its agriculture is singularly variable also. We need not repeat what has been already said (in last year's volume), of the different modes of farming to be met with in South Gloucestershire; but we may just say that the variety is not greater than one would expect, on learning that while some districts in it are of a stiff clay soil, others are almost blowing sands; while in some, the surface is within a few inches of the limestone-rock, others are almost wholly a deep loam; while some are nearly all Grass, others are altogether arable. All this will be learnt on reference to the tabular statements at pages 195 and 196. The following are the general results calculated from these tables:—Col. 1 in the subjoined Table gives the geological names of the districts; Col. 2 the proportion of arable land in each, in 100ths of its whole extent; Col. 3 the total value of agricultural produce in each district—the reader will easily ascertain by an examination of the table already alluded to, how the figures in this column were obtained. The sums in this column are attempted in the next three to be divided amongst the three classes to whom they revert, viz., the labourer, as wages, trademen's bills, &c.—the farmer, as profit on the use of his capital and time, and the landlord, as rent and taxes. In effecting this division, "M. S." was guided first by information as to rent, then by his own judgment in estimating the expense of labour, and the difference between the sum of these and the total was, of course, the farmers' profits. In the next four columns the sums in the 1st, 3d, 4th, and 5th, are reduced to their respective results *per acre.* Col. 6th gives the value of the gross produce. Cols. 7, 8, and 9, gives the expense of labour, the amount of farmer's profit, and the amount of rent and taxes—all *per acre.*

Names of Districts.	Total Value of Produce.	Extent of Arable Land in 100ths of each District.	Total. Labour.	Total. Profit.	Total. Rent.	Per Acre. Gross produce	Per Acre. Labour.	Per Acre. Profit.	Per Acre. Rent.
	£.		£.	£.	£.	s. d.	s. d.	s. d.	s. d.
Alluvium	70,240	3	12,110	13,970	44,160	73 1	12 7	14 9	46 0
Gravel	9,352	50	2,746	2,048	4,558	73 1	21 1	16 0	36 0
Bathstone	141,824	86	76,344	29,120	35,360	68 2	37 2	14 0	17 0
Lower oolite	58,824	42	27,336	12,288	19,200	76 7	35 7	16 0	25 0
Marlstone	31,072	30	14,102	4,810	12,160	97 1	44 1	15 0	38 0
Lias	91,168	4	24,608	24,960	41,600	43 10	11 10	12 0	20 0	20 0
New red sandstone	5,904	100	2,896	960	2,048	92 3	45 3	15 0	32 0
" marl	52,904	14	13,272	12,544	25,088	59 0	18 3	14 0	28 0
Magnesian limestone	22,280	50	11,720	3,840	6,720	116 0	61 0	20 0	35 0
Coal: clay	8,034	37	4,066	1,664	2,304	62 9	31 9	13 0	18 0
" : Pennant stone	123,015	50	65,999	22,496	35,520	104 0	55 0	19 0	30 0
Millstone grit	11,776	50	4,078	2,708	4,990	61 4	21 4	14 0	26 0
Mountain limestone	23,440	60	10,720	5,120	9,600	79 6	33 6	16 0	30 0
Old red sandstone	45,814	17	16,374	10,240	19,200	71 7	25 7	16 0	30 0
Total . . .	697,647	35	288,371	146,768	262,508	70 1	29 0	14 9	26 4

Now, we have no intention of contending for the absolute accuracy of the above figures, but they are the calculated results of a series of statistical Tables in the compilation of which great care, we know, was taken; so that they are, probably, an approximation to the truth. Perhaps the annexed diagram will represent more intelligibly the statements they express, as well as their relative bearings.



The districts are here arranged, not in their geological order, but in the order of their respective proportions of ploughed land. Thus commencing with the alluvium, only 3 per cent. of which is ploughed, and ending with the new red sandstone, all of which is arable, an unbroken line is drawn across the diagram, whose height above the base (A B), ascertainable by reference to the figures in the first column, represents the proportion ploughed of each district whose column it traverses. Thus 37 per cent. of the coal-clay district, 60 per cent. of the mountain limestone, 17 per cent. of the old red sandstone, we may ascertain from this diagram, just as from the Table above, are arable. The other lines which traverse the diagram refer, one to the value of the gross agricultural produce, another to the amount of rent, a third to the expense of labour, a fourth to the amount of farmer's profit, a fifth to the amount of rent and profit, or gross produce *minus* labour, *i. e., net* agricultural produce per acre. And the height of these lines above the base line (A B), at any column which they cross, represents, as regards the district to which that column belongs, the number of shillings' worth per acre in that district of rent, labour, profit, gross or net agricultural produce, as the case may be. The numbers signified will be ascertained, as before, by reference to the figures at the side of the diagram. Take an instance: look at the position of all the curved lines on the column of the lias formation, and you learn that its gross agricultural produce is worth about 44*s.* per acre; viz., rent and taxes 20*s.*, farmer's profit 12*s.*, and labour about 12*s.*, per acre. You also learn that the value of its

net agricultural produce—*i. e.*, value of the produce *minus* the expense of producing—is about 32*s.* per acre, and that 4 per cent. only of that district is arable. All this is explicitly stated in the Table above; but this way of representing the variations of any fact, along with the varying circumstances connected with it, is much more expressive of their relative bearings than any other. Thus, see how all these curves sink and fall together, attaining their maxima on the marlstone, the lower oolite, the magnesian limestone, and the new red sandstone, and sinking to their minima on the lias, the coal-clay, the millstone grit, and the Bathstone, thus expressing the fact that the circumstances under which the greatest amount of agricultural produce is derived from the land, are precisely those which provide most labour for the industrious, most rent for the landlord, and most profit to the farmer. This result we believe to be true in the general, and what a happy thing that it is so; that it is the interest of all parties dependant on agriculture that the land should be thoroughly cultivated. Of course there are circumstances which interfere with the general truth of this statement, and some of these, more especially as regards the labourer, we must now consider. In reference to the landlord, obviously, the fertility of the land, independently of the condition in which it is, must greatly influence the rent, and this element, as it also necessarily affects the total value of the agricultural produce grown upon the soil, must influence all the other items, too, into which the produce divides itself. Take, for instance, the alluvial district; though wholly pasture, its fertility is such that the value of its agricultural produce is great; but the landlord is almost the only party benefitted by that fertility—much the larger portion of its produce is paid away as rent, little is required to pay the labourers who are employed on it; then look at the Bathstone district, the Gloucestershire Cotswolds; its soil, compared with that of the alluvium, is so poor, that though almost wholly arable, while the latter is wholly pasture, the value of its agricultural produce is the less per acre of the two. But how much more of it goes to the labourer; so much more that though the land is doubtless less valuable to its owner there can be no doubt that in the present condition of the two districts, the former is *nationally* much the more useful of the two.

But our remarks have already attained such a length, that we must postpone the rest of them till next week.

ON FLAX CULTURE.

(*Continued from page* 247.)

The Pulling.—This operation should be done with as much care as possible in order that the roots be kept even or level, and as like a brush as possible, and the stalks kept straight. There is considerable loss in tying the sheaves with the plant; if rush bands are not to be had, old mats may be cut up, or anything in preference to wasting the Flax, as bands of the Flax never water or clean out but at a loss; the sheaves should not be large or bound tight in the band; allowance should be made for the swell which takes place by the fermentation, when in the water; after being pulled it should remain like corn in the stook for some days, until perfectly dry, and ready to be brought to the stack-yard.

The next process is *rippling*, or taking off the seed, which is easily done by an iron comb fixed in a position like coarse hackles, over which the tops of the sheaves are drawn until all the seed-balls are taken off; those balls should be taken to the barn or large lofts, and spread, where the current of air would effectually dry them. I advise this to be done in August or September, in order that the seed may be had for feeding during winter. Fire must never be resorted to, in order to dry either Flax or seed, as that will prove ruinous.

Watering, or Soaking.—This operation should be done in May or June, as it requires less time in the water, and the water being warm, the fermentation soon takes place, and, as a consequence, the wood inside the fibre is the more rapidly decomposed; a pond of river-water, sufficient to hold whatever Flax is to be steeped, should be collected, but water containing mineral substances should always be avoided, and care taken not to let any fresh water into the pond or pit, or any out of it, until the Flax that has been binged is lifted; being carefully placed under water for 10 to 15 days, and covered over closely with boards or Grass-sods, in order to prevent the fresh air from affecting the fermentation; it must be, after the first week, frequently examined to see that it has not undergone more fermentation than sufficient to cause the wood to separate from the fibre.

Now, if persons who publish pamphlets on the subject would say that this part of the process in the management of the plant, not the growing, deserves serious consideration, those who know the value of the fibre would believe they had some knowledge of the subject they profess to know; in my opinion the secret in producing strong and good fine Flax entirely depends on the management in this stage of the process—and Messrs. Herdman and Co.'s experiments are a proof of it; and if there be a lottery in the growing of it to perfection, the experienced and skilful farmer has in this stage an opportunity of showing himself able to arrive at perfection, and to find out where he may place his hand to have a prize; however, nothing but practical experience and proper instructions will enable those unacquainted with the process to become master of what I consider the most important part or finish in the management.

After being 8 or 10 days in the water it is necessary to take out a handful and examine it; try with the fingers if the wood breaks short, and if the fibre will leave the stalk without breaking, or if you can release 4 or 5 inches of the wood from the middle of the stalk without tearing the fibre, and such wood be free, or has none of the fibre adhering to it, you may then remove it from the pond; but as it frequently happens that a rapid change takes place when fermentation is over, it should be tried as I describe every four or five hours; it should be carefully lifted with the hands to avoid tossing, and placed on the ends when out two or three hours, in order to let the rotten water run from the stalks previous to being spread.

Grassing or Spreading.—For this operation new-mowed meadow or clean pasture-ground is requisite; the Flax should be spread thin and equal, and when on the Grass it requires to be once or twice turned, as that will prevent the sun from acting too much on what is exposed to its scorching rays; if it happens to be showery weather so much the better. I am no advocate for the very dry or hot weather for this process. To know when it is ready for lifting, a few stalks rubbed in the hand, when dry from the root to the top, will tell; if the wood breaks quite short, and separates from the fibre, leaving it free like a narrow riband, it has got sufficient of Grass; another proof of its being ready for lifting is, a number of stalks can be observed resembling a bow and string, the fibre quite separated from the wood or stalks as they lay on the Grass.

Rolling.—When in the mill it is opened out and separated into small handfuls to feed the rollers; by this process the wood inside the fibre is broken into $\frac{1}{4}$ or $\frac{1}{8}$ of an inch; there are five rollers about 18 inches or 2 feet in circumference, one in the centre, which turns the two above and two below; the Flax being put in at the upper part of the centre rollers is drawn round, under the two upper rollers, which are pressed down by two levers with weights; it is then turned by a board behind, and comes out over the upper part of the two under rollers, receiving the pressure of the fluted parts in the five rollers, which deliver it on a board in the front indented by the action of the several rollers; it is then ready to be handed over to the scutchers in the mill to be cleaned out, that is, the shives, or short wood, taken out by the action of the scutching handles.

Although I admit those rollers do the work tolerably well when carefully attended, I cannot but condemn them, and all the inventions I have yet seen for that purpose, for two reasons: first, they are dangerous, and men often lose their arms, thus; the Flax will sometimes go wrong in them, and men forget themselves, and in attempting to rectify the Flax their hands are caught by the rollers; another reason of objection is, the Flax is frequently much tossed, and delivered uneven, and this causes much waste or loss in the scutching or cleaning process, therefore I intend to recommend a machine free of all danger, that will break or indent it, in a lying position, without tossing or making it uneven, which I am prepared to prove will be a vast saving in the scutching.

Scutching.—In the mill at the scutching stalk or board it is prepared for market; and as it is very easy to convert any old corn mill into a scutch mill, I shall describe the simplicity of the machinery. The common fly-wheel used for driving stones in a corn-mill, will drive a shaft for 6 or 12 men to scutch at; on the end of this shaft a small spur-wheel is fixed, with cogs calculated to work on the face of the fly-wheel. This shaft has from 6 to 12 pair of arms driven through it from $3\frac{1}{2}$ to 4 feet apart; on those arms are fixed short swords or handles of Beech, one on each end; those arms, crossed in the shaft, revolve according to the power let on the water-wheel or engine, and pass round within from $\frac{3}{4}$ to 1 inch of an upright and stationary standard made of hard wood (called the scutching-stalk), over which the man or scutcher holds two-thirds of a handful of Flax (called a streik) under those swords, keeping a tight hold of the other one-third until the large portion is clean, when he turns the other end of the streik, and in a similar way feeds the swords, over the scutching-stalk, until by the action of those swords the last of the wood, or stem, on which the Flax grew is dusted, or driven out, leaving the fibres all together, like some hundreds of narrow ribands. The rollers are also driven by a lying shaft, from the face of the fly-wheel. This is the whole process, as followed up in Ireland by those who are endeavouring to compete with their more experienced rivals the Belgians; formerly they all watered their Flax when pulled, in order to have it early in the market, to meet the payment of their November rents; but this mode of management cannot be too strongly condemned; and as it is much against the interest of the grower, I shall point out the error: first, those persons glut the markets in Oct., Nov., and Dec., and so anxious are they to have their Flax early to market, that often have I had to allow my men to work day and night, and as those workers are paid by weight for what they clean or scutch, there is always great loss in their being so hurried by the owners. Much of the finer fibres are cut up and lost in the stem, or wood, and the ends of the Flax also much cut away. I consider the system of paying workers by weight a very bad one, as the loss, if the Flax has got rather much water, and turns out soft, is very great, when hurried over; this has been ascertained by weighing 1 cwt. of rough Flax, and having it scutched by hand at home, and comparing it with the same weight done in the mill; there is much room for improvement in the scutching department of the business. I have also another reason for condemning the system of steeping the year it is pulled. The Belgians keep it over to the next season, and I believe the Flax is the better for it; in my opinion the fibre absorbs all the oil or sap from the wood or stalk, and from its being kept over year, the wood becomes quite brittle, and it requires less time in the water to cause it to quit the fibre; therefore, I must believe that to grow and manage the Flax-plant to perfection, time must be looked to in every stage of the process, and as the watering or soaking should not be done till the year after growing, it is my opinion that the secret in knowing how to grow and obtain a fine fibre and an abundant crop is to be found out by proper attention to this in all the stages of the process.

Effects and Use of Flax-water.—I was often struck with astonishment after rain in the months of September and October to see the great number of large trout dead in the water-course to my mill, from the effects of the water which had been let off from the several pits in the neighbourhood where Flax had been soaked. I am glad to find that even the water in which it is steeped can be turned to a good account. Some of the members of the Belfast Society have been trying experiments, and find that it can be returned to the land in the shape of manure. I should think bog-earth thrown into such water would be, when taken out, valuable.

Having given an outline of the plan of operation by which I and others have been successful in cultivating Flax, and having watched the mode of management pursued by others in Ireland who had year after year prime Flax, I cannot imagine how men can be so prejudiced as to assert that the growing of Flax is a lottery. I am aware that it is not every man who wants to do so can grow it of fine quality; he must have time to bring his ground into a proper state of cultivation. Added to this, as there are a great number of farmers uninformed of the value and variety in quality of Flax, they must have Belgian teachers, or be guided by the Belgian system of management, before they can compete with our foreign neighbours; however, I do not despair of their success when knowing the result of several experiments made by gentlemen in Norfolk who have produced fibre equal to the best Belgian, and I have pleasure in informing them that I have been lately favoured with letters from some of the most extensive Flax spinners in Yorkshire and Lancashire, promising to encourage and give a preference to their own country Flax the moment they can do so without actual loss. No doubt these gentlemen feel, as landowners should do, the hardship of being obliged to pay so largely for Flax to a people that tax the yarns made from their own Flax 40 to 60 per cent, although they must have it for their wants.

As England is second to no country in the world in her manufactures or mechanical skill, it is to be hoped that the owners of the soil will not be the only class to follow, or hesitate to lead in the march of improvement, and I trust they will see that Flax may be profitably grown both for the feeding qualities of the seed and for the fibre, although not in the same ratio, and that there is a great chance (if Flax is cultivated with success) of many of the Manchester cotton spinners following the example set them by the Belfast cotton spinners, whose mills have been, with two exceptions, all turned to Flax spinning within the last 12 years. The first Flax mill was built in 1828 in that town out of the ruins of a burnt-down cotton mill, and at present there are above 30 Flax mills in Belfast and neighbourhood at full work, and five new ones about to commence work, not taking into account the several mills in the counties of Armagh, Derry, Dublin, and in the town of Drogheda. Whilst many thousands of hands are employed in the Flax spinning factories, and in the weaving into linen what their neighbouring farmers and landlords have produced; here is a connecting link that cannot be broken between agriculture and commerce. The Belfast Flax spinners are the only protective society the farmers in the north of Ireland require. As statements without proof are often considered erroneous, I shall conclude my observations on this subject by quoting, as proof, what I took from the *Times* newspaper in July, 1843. A deputation from the Flax spinners in Ireland waited on Ministers at Whitehall, and made the following statement, because they considered their trade was going to be much injured by a free importation of machinery to a country that advanced the duty from what it was, 10 per cent. on linen and yarns in 1840, to what it then was and now is, 40 to 60 per cent.:—

We (they say) only exported from Ireland		
Yarns in 1832 amounting to . .		£5,000
Ditto in 1841	„ . .	1,700,000
Ditto in 1842	„ . . .	1,000,000
Ditto in 1843	„ . .	1,200,000

Here is an increase from 1832, from 5000*l.* to 1,200,000*l.* sterling, exported in 1843 up to July; now if proof be wanted to convince landowners of the increased consumption of Flax in Ireland, and the extraordinary benefit the northern district in that country must derive from growing as it now does what is spun, to meet an immense increase of exportation, such as the above figures proves to have taken place these last 12 years, I hope I may be allowed to say, I have brought forward facts worth the serious and conclusive consideration of

the landed proprietors of this kingdom.—*J. H. Dickson, 29, Broad-street-buildings, London.* P.S. I prefer Riga seed; because, from Riga Flax being coarse, and seldom worth more than 40*l.* to 50*l.* per ton, I am of opinion that the growers there place more value on the seed than they do on the fibre, and therefore allow the plant to become full ripe, and its seeds become then better for sowing.—*J. H. D.*

Home Correspondence.

Experimental Co-operation.—The schedule you have noticed in your last Number, at p. 245, as put forth by me for the purpose of experimental co-operation, was prepared, at the request of Lord Ebrington, for the Agricultural Society in Devonshire. It may be considered a sequel to the one put forth in 1843, for the purpose of testing the value of gypsum as a fixer of ammonia in open dunghills. That schedule was forwarded to 96 individuals, who undertook to return it in due time with the required entries; and I was then to collate their accounts, and publish the results. I have received 24 returns, the last about three weeks ago; and as I do not expect to receive any more, I shall hope soon to reduce the results obtained to a uniform scale. This will take some little time to accomplish, and I happen to be too much occupied for the next three or four weeks to undertake the task. From what I have observed in these returns, I expect to find subject matter for thought and discussion.—*J. S. Henslow, Cambridge.*

Potatoes.—In one of your late Papers you mentioned that some one in Scotland spoke of exposing Potatoes on the surface of the ground, after they were taken up, for the purpose of getting better sets, and it was objected that, however well adapted the plan might be for garden culture, it would not answer for fields; because the land would be wanted for sowing with Wheat as soon as the Potatoes were raised. But it is by no means either necessary or desirable that Potatoes for sets should be perfectly ripe before getting up, but the contrary. This practice of greening the Potatoes, as it is called here, is much practised in this neighbourhood, and it not only gives an earlier crop, but the Potatoes so treated scarcely ever rot; and it gives so much hardiness to the Potatoes, that I have now Potatoes perfectly sound and good, which have been laid on the surface of the soil and uncovered by anything, and out of doors during the whole of the past winter. It is true, they were under a south wall, but with the thermometer frequently at or near zero; it is astonishing to me how any of them could have escaped. They were the produce of a Potato which had accidentally come up in that situation, and the Potatoes that were produced were some of them partly and some entirely out of the ground; two entirely escaped the effects of the frost, and the remainder only suffered as far as they were exposed to the light; those parts of the Potatoes which were buried in the soil being quite sound and good. Whether the decay, which has commenced where they were frosted, will go through them remains to be seen. I mention this for the information of your Kentish correspondent, who doubted whether Potatoes could be preserved in the ground all winter. You have given the analysis of the Potato from, I believe, two or three celebrated chemists, and, to my surprise, although they speak of the potash contained in the root, they do not seem to be aware of what is in the top. Whereas, in the tops of Potatoes, grown in fresh broken-up land which has not been under the plough for many years, there is almost as great a proportion of potash as there is in Wormwood. A friend of mine, who has grown a quantity of Potatoes in land of this kind, made a large quantity of potash by burning the top, and lixiviating the ashes. This, of course, was before he had read Liebig, or he would not have been so fond of robbing his land of it; and it is my opinion that one reason why Potatoes are injurious to the land arises from the farmer casting away so large a proportion of the alkali of the soil in endeavouring to get rid of the lumber of the top, they frequently being led out to road-sides to rot, and, of course, all the alkali is washed out by the rain.—*T. G., Clitheroe.*

Sparrows.—On a small field lately sown with Oats, adjoining a village, I have been greatly annoyed by the sparrows picking up the corn, which was but slightly covered up. I procured half a gallon of gas-tar water, in which was steeped half a peck of Oats about 12 hours, and sowed it in the field. The result was, my friends, the sparrows, came as usual for their morning feast; but, not liking what I had provided for them, have altogether ceased troubling me with their company. I have since tried the same experiment when rooks were very troublesome, with equally good effect.—*J. T.*

Blowing Sands.—Among the plants which are exceedingly serviceable in binding the loose sand which abounds on certain parts of our coast, ought to be mentioned Ononis arvensis (Rest-harrow). Its peculiar use is distinct from that of Ammophila arundinacea; for, instead of sending its roots in a horizontal direction, like the last-named plant, it directs its long and woody root perpendicularly downwards to the depth of many feet. I have observed it growing abundantly on sand-hills at Gunwallo, in this neighbourhood, scarcely beyond the reach of the sea, at high-water, and have remarked that where the base of a hillock has been undermined by the action of the water, the roots of Ononis have produced the effect of giving to its exterior surface the appearance of a miniature cliff. I think, therefore, that this plant ought to be added to your list, which is composed principally of plants furnished with creeping roots. —*C. A. Johns, Grammar School, Helston.*

To Destroy Rats.—I frequently observe inquiries from your correspondents as to the best means of destroying these pernicious and destructive vermin. Let them try the following nostrum—the secret of one who professed the art, and was eminently distinguished, and supported too, until, at length, in his old age, he conceived and executed the happy idea of publishing his renowned secret, by subscription, in the form of a sealed pamphlet. This publication, of some 16 pages octavo, was sold extensively for 1½ guinea per copy, and, to the best of my remembrance, it contained but very few receipts of any value, except the one I subjoin. I have mislaid the pamphlet, and therefore quote the chief receipt from memory; but have no doubt of its efficacy, from having seen it tried repeatedly. The poor man has, undoubtedly, been "gathered to his fathers" long since; his important secret can, therefore, no longer concern him in any way. The book, if I remember rightly, was published by Seeley, some 25 years ago. 1 quart of the best Oatmeal; 2 ounces of finely-powdered loaf-sugar; 6 drops oil of Rhodium; 6 drops oil of Carraway; 6 drops oil of Aniseed; Musk, ¼ of a grain. Mix well together on a sheet of clean paper with a knife, taking every possible care to break the small lumps formed by the drops of oil in the oatmeal; also not to touch the mixture with the hands. Keep it in a closely-covered pot for use. Choose a very quiet, retired place, much frequented by rats; place on six or eight pieces of clean board about two table-spoonsful of the feed, for at least four nights successively, taking care to remove all that the rats have not consumed every morning; in so doing, disturb the rats as little as possible, and on no account whatever attempt to strike or kill them, even should they be found tame enough to be caught by the hand. In the course of four or five days, they will become tame, and will scarcely leave the feed on the approach of any person. They will scent each other, and will probably congregate from all parts of the neighbourhood. Continue to feed them nightly, until they are found to eat freely; then, about the sixth night, mix a small teaspoonful of arsenic with the powder; and after leaving it all night, remove what may remain, and burn it. The publication stated that a rat has no gall, for which reason the smallest quantity of the poison, if taken by them, will be found to insure their destruction. They will retreat to their haunts, where, feeling an intolerable thirst, most of them will drink water and die. Few will remain to tell the tale, if these directions are attended to; but care must be taken not to use too much arsenic, on account of its extreme acidity, or their natural instinct will be sure to deter them from swallowing any part of the poison.—*H.*

Waste of Manure.—While you are descanting upon the value of urea as manure, and deploring the waste of it, from want of arrangement for procuring it from the drainage of cities and towns, I suggest an appeal to the Agricultural Society, to turn their attention to this important subject, by such mode as may appear to them best suited—perhaps by the offer of premiums for the best plans. The moment is favourable, as it may be well combined with whatever measures may be recommended by the Health of Towns Committee. If some spirited individual or local association would show the way in some country town, the principle would soon extend itself. I apprehend there cannot be a doubt that in the present demand for manures, some well-digested plan would yield a satisfactory profit upon the outlay. A scheme was formerly proposed of carrying all the drainage of London to excavations at the Isle of Dogs, and I doubt not that the demand for it as manure would afford an ample profit.—*Subscriber from Commencement*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Special and Weekly Meetings of the Council were held at the Society's house in Hanover-square, on Wednesday last, the 16th of April; present: P. Pusey, Esq. M. P., in the chair, Earl of Ducie, Earl of Tyrconnel, Viscount Torrington, T. R. Barker, Esq., T. W. Bramston, Esq. M. P., R. Burgess, Esq., J. F. Burke, Esq., Col. Challoner, F. C. Cherry, Esq., W. Cope, Esq., G. Cottam, Esq., J. E. Denison, Esq. M. P., Dr. R. Dickson, T. C. Eyton, Esq., A. E. Fuller, Esq. M. P., H. Gibbs, Esq., B. Gibbs, Esq., W. O. Gore, Esq. M. P., S. Grantham, Esq., W. F. Hobbs, Esq., Rev. E. C. Keene, J. Kinder, Esq., J. H. Langston, Esq. M. P., Col. MacDouall, J. Morant, Esq., W. M. Mundy, Esq. M. P., A. Ogilvie, Esq., J. Parkes, Esq., E. Parkins, Esq., E. W. W. Pendarves, Esq. M. P., Sir R. Price, Bt., H. Price, Esq., G. H. Ramsay, Esq., J. Read, Esq., Professor Sewell, W. Shaw, Esq., R. A. Slaney, Esq., T. H. S. E. Sotheron, Esq. M. P., W. R. C. Stansfield, Esq. M. P., H. S. Thompson, Esq., T. Turner, Esq., and T. Tweed, Esq.

The following new members were elected:—

Graham, James, Bersted Lodge, Bognor, Sussex.
Jacob, James, Kingsland, Shrewsbury.
Dunne, Thomas, jun., Bircher, Leominster, Herefordshire.
Corbet, Vincent, R., West Felton, Oswestry, Salop.
Povey, John, The Derwen, Oswestry, Salop.
Eldin, Joseph, Caterham Court, Godstone, Surrey.
Walford, John Henshaw, Wem, Salop.
Muir, W. Frederick, Temple Lawn, Worcester.
Field, Frederick, 36, Upper Marsh, Lambeth.
Oakden, John, Waresley, Caxton, Cambridgeshire.
Squire, William, Yarmouth, Isle of Wight.
Watson, George, Wellingham, Fakenham, Norfolk.
Nicholson, Calvert, Bunny, Nottingham.
Fowle, Rev. Henry, Chute Lodge, Andover, Hants.
Carins, Michael, Meldon, Morpeth, Northumberland.
Davison, James, Trillington, Morpeth.
Dickenson, Joseph, Paxton-Dean, Felton, Northumberland.
Donkin, Samuel, Bywell, Felton.
Bates, George, Heddon, Newcastle-on-Tyne,
Browne, Richard, Dunscombe Farm, Crediton, Devon.
Farley, George, Henwick, Worcester.
Talbot, Wm., Hollings-Preston-Patrick-Burton, Westmoreland.
Bencraft, Stephen, Barnstaple, Devon
Reynolds, Joseph, 131, Piccadilly
Roberts, Thomas, Ivington-Bury, Leominster, Herefordshire
Edwards, Thomas, Hodgebatch, Bromyard, Herefordshire
Williams, Edward, Lowes Court, Radnorshire
Dodd, William J., Ipsden, Wallingford, Berks.
Smart, William Lynn, Evershott, Woburn, Beds.
Langley, Henry, 2d Life Guards
Kirwan, Denisis, Castle Hackett, Co. Galway
Taylor, F. Manley Shawe, Castle Taylor, Co. Galway
Hayward, George, Walford House, Shrewsbury
Brackenbury, William T., Shouldham Thorpe, Downham, Norf.
Gunning, Sir Robert, Bart., Horton, Northampton.
Brewer, Edgar, Newport, Monmouthshire.

The names of 41 candidates for election at the next meeting were then read.

Prize Essays.—Mr. Pusey reported from the Journal Committee the following awards of Prizes for Essays:—

I. The Prize of 20*l.* for the best Essay in the miscellaneous class of "any Agricultural Subject," to Mr. Henry White, Land Agent and Surveyor, Warrington, Lancashire, for his detailed account of the making of Cheshire Cheese.

II. The Prize of 20*l.* for the best account of reclaiming Heath-land, to Mr. John Watson, jun., Land Agent, Kendal, Westmoreland.

III. The Prize of 20*l.* for an account of the cheapest and best method of establishing a Tile-yard, to Mr. Frederick William Etheredge, of 15, Park-street, Westminster.

Bone Manure.—Mr. Pusey then informed the Council, that the Prize Essay of Mr. Hannam, on the application of bones as a manure for the Turnip crop, contained, in his opinion, not only a detailed account of the best experiment ever made in Agriculture, but some points of so much importance at the present season, when the time for sowing Turnips was coming on, that he felt anxious that not a moment should be lost in communicating the facts to the members, for their information and guidance. Mr. Pusey having adverted to the great discovery of the economical and efficient employment of bones as a manure when dissolved by maceration in sulphuric acid, proceeded to read extracts from Mr. Hannam's Prize Essay, of which the following is the substance:—

I. Superiority in economy and effects.—This result consisted not only in a greater amount of crop obtained at less cost than in the case of bones employed in their ordinary state, but also in the condition and character of the plant itself, as well as in its growth; the crops derived from dissolved bones being both more abundant, healthy, and less liable to attacks of insects, and the plant more rapid in its growth (by 10 days in the first month, and the gain of a month at the end, the Turnips from the dissolved bones being ready for use several weeks before any other), while it exhibited a decided tendency to form bulbs at a much earlier period. The greater and more readily fertilising effects of bones dissolved in acid than any sort of bones not so prepared, were clearly shewn in the following results; in which the crops from the dissolved bones took the lead from the commencement:—

Bush. of Bones per acre	Cost of Bones per acre.	State of Bones.	Amount of Produce per acre.
	£ s. d.		tons. cwt. st. lb.
16	2 0 0	Crushed	10 3 4 8
2	... ...	Dissolved	9 12 0 0
2	... ...	Dissolved	11 15 0 0
4	... ...	Dissolved	12 11 6 4
4	0 19 6	Dissolved	14 6 4 0
4	1 0 6	Dissolved	14 11 7 0
8	1 9 9	Dissolved	13 15 7 0
8	1 13 0	Dissolved	15 2 5 0
8		Dissolved	16 1 3 6

From which it appeared, that 2 bushels of dissolved bones per acre would actually produce as good results as 16 bushels of bones in their ordinary state in some cases; that 8 bushels of dissolved bones would greatly surpass 16 bushels of bones used in any other manner; and that 4 bushels per acre would be a fair quantity to apply in the state of solution: the results being greatly superior to those from four-fold the same quantity of bones applied in the usual manner, and the cost of the application less in proportion to the amount of effect produced, evidenced by the weight of the crop, than that of any other quantity.

II. Proportions.—1. *Bones and Acid.*—The proportion of acid had generally been one-half of the weight of bone employed; but one-third, or even one-fourth of the weight of bone might be used with success, if occasion required. That was an important point in the economy of the manure, as it affected the cost materially. 2. *Water.*—The proportion of water had generally been 100 times the weight of acid; but 50 or 25 times the weight of acid would serve the purpose required very efficiently. That fact was one likely to be of great use, one of the main practical difficulties to contend with in the application of dissolved bones being the large quantity of water which had been considered necessary. Mr. Hannam's results showed that four bushels of bones (12 st.), 6 st. of acid, and 300 st. of water (50 times that of acid) gave 420 gallons of dissolved bones to be applied per acre; while 150 st. of water (25 times that of acid) would suffice. It was, however, worthy of notice, in reference to the preparation of the mixture, that the bones should be pulverised as much as possible before they are mixed with the acid, in order to render the solution more complete; but should that not be the case, and a few of the larger por-

tions of bone be left undissolved, that circumstance would occasion no injurious effect, as there would be bone enough dissolved for the plant in its early stages, and the larger particles would disintegrate by degrees and come into operation towards the end of the season.

III. Dissolved-Bone Compost.—Mr. Pusey thought that however great a point was gained by reducing the bulk of the water employed for diluting the solution of the bones, a still greater step was attained by substituting altogether the compost for the liquid form of the application. In the Society's last Journal, p. 596, Mr. Tennant, of Shields, near Ayr, gave the following account of his practice on this head :—"I put 25 bushels into three old boilers (of which every farm here has a supply), and next pour in two bottles of acid, of about 170 lbs. each, and 36 Scotch pints (18 imperial gallons) of boiling water into each boiler. It boils away at a great rate for some time, and in a day or two we empty the boilers into two carts of light mould, and turn the mixture over. At this stage, the bones are only partially dissolved, but they heat and decompose in the heap, after being turned over three or four times ; and in the course of seven or eight weeks the compost becomes dry, and breaks down with a shovel in a fit state for spreading with the hand in the drill."—Mr. Thompson stated that he had himself last year found 4 bushels of dissolved bones applied in the form of compost fully equal to 20 loads of farm-yard manure, there being no perceptible difference in the crop throughout the field.

IV. Cost of Acid.—The Earl of Ducie called the attention of the Council to the price of the acid employed for the solution of the bones. He understood that sulphuric and muriatic acid might be obtained for three farthings per lb. It was desirable, not only that the price of the acid should be ascertained, but that its purity and strength should also be uniform.

Mr. Hyett has communicated the following interesting particulars in a letter to Mr. Pusey :—"Messrs. Leonard and Jordan, of the Alkali Works, Bristol, offer to supply me with acids for dissolving bones as follows :—

"Oil of Vitriol (sulph. acid) sp. gr. 1850 per lb. 1*d*.
Brown Acid (ditto) ditto 1700 „ ⅜*d*.
Muriatic Acid . . ditto 1100 „ ¾*d*.

"These prices are charged for 10 carboys or upwards : for any less quantities ¼*d*. is usually added. A carboy is a large glass bottle, containing from 1 to 1½ cwt. This is a reduction of 25, 50, and 100 per cent. respectively, on some of our printed prices ; but those who buy largely should be able to test the strength, without knowing which, the price, of course, is of no great value. This is done very easily with a small phial called a thousand-grain bottle, which costs about 6*d*. Balance one of these in the scales, fill it with the acid up to the mark on the neck ; the weight gained is the specific gravity and measure of strength. Thus, the oil of vitriol of commerce in the thousand-grain bottle should weigh 1850 grains ; and the brown acid named above, 1700 grains. The manufacturers inform me that there is no difference between these two, excepting that the latter is less concentrated than the former. This, I think, must mean less purified as well. It probably contains some very small quantity of organic matter, which has found its way into the sulphur during its voyage or manufacture ; and which being charred, gives the colour, and renders it less saleable for many purposes of manufacture. For our purposes, this is no objection. The reduction in strength as compared with the oil of vitriol is more than covered by the reduction in price. I calculate, that the quantity of the brown acid, which would cost only 5*l*. 6*s*. 3*d*., would, taking its relative strength into account, dissolve as many bones as a quantity of the oil of vitriol, which would cost 6*l*. 7*s*. This, of course, presumes that there are no impurities in either injurious to their effect on bones, and is mere calculation, which should be tested by actual trial. In all sulphuric acid, I believe there is a little lead, derived from the leaden vessels in which it is manufactured ; and sometimes, when made from Pyrites, a little arsenic, but not enough, I suppose, to have any decided effect on the specific gravity or strength, nor on the vegetable or animal that feeds upon the crop."

Mr. Thompson suggested, that as it was often difficult for a small farmer to find a vessel of sufficient capacity to contain the mixture of the dissolved bones and water, it might be found a simple substitute to form a sort of pond, puddled with three or four loads of clay, in which the mixture could be made. When the solution was complete the clay might be mixed with the compost.

Expenses of Draining.—The Chairman called upon Mr. Parkes to read a paper on the cost of draining land.

Mr. Parkes stated that the following digest had been drawn up by him at Mr. Pusey's request, in order to exhibit the real costs of drainage to a landowner who might be disposed to erect his own tilery. The price at which he had estimated the inch-bore pipes fully covered every expence incurred in their manufacture, including interest at 5 per cent. on the annual expenditure for wages, and a charge of 20 per cent. per annum for the tilery and machine, *i. e.* on the extreme supposition that, at the end of five years, all the pipes required for the estate would be made and that none would be sold to profit. He called this an extreme supposition, as there were few considerable estates on which many other articles besides draining-tiles were not in constant demand, such as roofing-tiles, bricks, &c. and, in most cases a profitable sale would be found for the productions of a tilery. He was now erecting several tileries on a scale suited to the magnitude of the respective drainages.

Instances of the cost of draining an acre of land, the Drains being laid with inch-pipes at various depths and distances asunder ; the Pipes being manufactured on an estate, and assumed to cost 6*s*. per thousand.

Instances. No.	Depth of Drains. Feet.	Distance between Drains. Feet.	Length of Drains per Acre. Rods.	Furlongs.	Cost of Digging Drains. Per Rod. 3*d*.	Per Furl. Acre. 10*s*. 0*d*.	Per Acre. 20*s*. 0*d*.	Pipes per Acre. Feet.	Cost of Pipes per Acre. 7*s*. 11*d*.	Total Cost of Drains per Acre. £ *s*. *d*.	Character and Soil.	Authority and Place.
1	3 0	33	80	2	3	10 0	20 0	1320	7 11	1 7 11	Uniform clay.	Thomas Hammond, tenant-farmer, near Penshurst, Kent.
2	3 0	33	80	2	3	10 0	20 0	1320	7 11	1 7 11	Ditto.	Henry Putland, tenant-farmer, Saylherst, Sussex.
3	3 0	33	80	2	3	10 0	20 0	1320	7 11	1 7 11	Ditto.	John Thompson, tenant-farmer, Woolver's Farm, Horley, near Reigate, Surrey.
4	3 6 to 4 0	40	66	1.65	4	13 4	22 0	1089	6 6	1 8 6	Ditto.	Thomas Hammond.
5	4 0	50	53	1.325	6	20 0	26 6	875	5 3	1 11 9	Clay, with some stones.	Ditto.
6	3 0 to 3 6	49½	53.3	1.333	8	26 8	35 6	880	5 4	2 0 10	Clay super ; hard gravelly subsoil.	Henry Simmonds, tenant-farmer, Hadlow, Kent.
7	4 0	49½	53.3	1.333	8	26 8	35 6	880	5 4	2 0 10	Clay super ; hard gravel bottom.	— Kepping, Hadlow, Kent.
8	4 0	66	40	1	8	26 8	35 6	660	4 0	1 10 8	Various ; clay, gravel, sandy loam.	Ditto.
9	3 6 to 4 0	33	80	2	7½	25 0	50 0	1320	7 11	2 17 11	Clay-super ; hard black gravel, springy subsoil.	John Taylor, tenant-farmer, Mereworth, Kent.
10	2 6 to 3 0	30	88	2.2	Stone Drains 1s. 4½*d*. p. rod, for digging, getting, drawing, breaking stone, filling in.				6	8	Clay and stiff loam super ; with stones in subsoil.	— Bartlett, tenant-farmer, Butleigh, Somerset.
11	3 0	20	132	3.3	Ditto.				8	2	Clay, with some boulders in subsoil.	— Maidment, tenant-farmer, near Butleigh, Somerset.

Observations.—"The particulars of all these drainages were collected by myself. With the exception of Nos. 3, 10, and 11, they are stated in my 'Report on Drain-tiles and Drainage,' (Journal, vol. iv.) ; the only change now made being in the cost of pipes, which is adapted to the case of a landowner manufacturing his own pipes, and charging himself with their prime cost. The wages given for digging are common to the respective districts mentioned, laying pipes, filling in, and spreading any surplus soil included. The first three examples show the rates for cutting 3 ft. deep to be alike, as regards uniform clays, in Kent, Sussex, and Surrey. The price given for cutting must necessarily vary with the texture of the subsoil, and the depth of the drains ; whilst the total cost will be materially affected by the distance at which they are placed asunder. Nos. 4, 5, 6, 7, 8, 9, would have cost nearly twice the money had the drains been laid in the clay 30 inches deep, whereas, by going through the clay into the gravel (which were full of water) the freer percolation in the latter strata admitted of a greatly extended distance between the drains ; thus, even in such an instance as Mr. Taylor's, No. 9, the most difficult of the cited cases, and requiring greater nearness in the drains from the abundance of springs, this excellent drainage would have been effected at less than 3*l*. per acre, if the pipes had been produced at 6*s*. per thousand feet, as I believe may be done.

Mr. Thompson, No. 3, has drained 185 acres of his own two farms, and 225 acres for Mr. Clarke, of Denmark Hill, owning adjoining estates in Surrey at Sidley Bridge and Kenersley. He first drained with bushes, but finding bush drains very liable to stoppage, he erected a tilery for Mr. Clarke in 1841, and completed the drainage with 1½-inch pipes. He states that he never saw any of the parallel drains more than half bore full at the out fall, nor have any of them betrayed signs of derangement. He prefers, and has adopted, 4 feet for the depth when the outfall permits, and did so from observing that main drains of that depth bled the land more effectually, and to a greater distance, than the parallel drains 3 feet deep flowing into them. He is in the habit of covering the pipes with thin hedge loppings, or other refuse, which he considers to advance the action of the drains, and to prevent silt from entering at first. The water issuing from these, as from all other deep drains I have witnessed, is invariably as clear as crystal. Mr. Thompson has not paid more than 3*d*. per rod for any of his drains (excepting a few patches where large flat sand-stones had to be got out) and this price includes the covering with hedge-clearings pressed firmly down upon the pipes. The getting and carrying this refuse to the drains may be rated at about 2*s*. 6*d*. per acre. The drainers earn from 12*s*. to 15*s*. per week, according to the time of the year and their skill.'

Nos. 10 and 11 are instances of the cost of stone drainage in Somersetshire. Deep drains are there recognised as much more effective than a shallow system, and I observed some recently made 3-feet drains, at 60 feet asunder, keeping the land in good condition. It was clay with a porous subsoil. Stone-draining seems to have been practised on the estate of the Honourable and Reverend G. Neville Grenville, Butleigh, for at least 100 years ; but these old examples (which were probably not made with due precautions), are now all stopped up and useless. Almost all of them are laid in the direction of the greatest fall, and parallel with each other. The cost of stone drains, and their liability to choke, have formed a great bar to improvement in this district. From the examination I have made of the soils of Butleigh (the drainage of which is now committed to my management), I consider that its complete and permanent drainage with pipes made on the estate will be effected at a rate varying from 30*s*. to 40*s*. per acre total cost. The pipes delivered in the fields will not cost so much per acre as the mere leading of the stone."

Mr. Parkes then communicated some interesting facts respecting the increased produce of drained soils compared with the same before drainge.

Mr. Hobbs wished to warn the members of the Society against the use of inch-pipes, as drains laid down with them had been found in Essex to *blow*, or stop up ; and he believed it was impossible for so small a pipe as an inch-bore, to carry off the water quickly enough. He had observed, after heavy rains, more water issuing from drains than would fill a 2-inch pipe. He referred to Mr. Dixon, and a statement made by him in the last Journal.

Mr. Pusey observed that the length of the drains mentioned by Mr. Dixon, was much too great for the size of the pipes ; and this accounted for the accumulation of water in the soil.

Mr. Parkes agreed with Mr. Pusey on that point. An inch-pipe drain was sufficient, if not exceeding 300 yards in length. If the field was of greater length, larger pipes should be added in succession, as was practised in Kent. He had never heard of, nor seen, an inch-bore pipe running full at the outfall, 300 yards in length, when a drain was 3 feet deep ; and when the distance between the drains was as little as 24 feet. He had never heard of inch-pipes *blowing* (a phrase which he did not understand), nor stopping, where the drain was properly formed to receive the pipes ; it was a mere prejudice on the part of those who did not practice the proper system of cutting, laying, and filling in. The hundreds of instances of success in all varieties of soil, was a sufficient answer to the allegation. Mr. Hobbs had observed that the surface water was not removed sufficiently quick by inch-pipes. He (Mr. Parkes) would say that by shallow drainage, the water of rain might be, and was, often carried away too quickly ; it was removed before its fertilising qualities had time to give out their full virtue. By deeper drainage the water was removed below the surface as quickly as by shallow drainage, that the land was equally soon ready for working, &c. ; but by compelling the water to descend through a greater mass of earth before it passed finally off, the deeper subsoil was elevated in temperature, its texture was ameliorated, and the water quitted the earth perfectly colourless ; whereas from shallow drains it issued cloudy and charged with useful matter. He then instanced cases of his own knowledge, which showed that inch-pipe drains were uninjured by annual floods ; they were neither blown up nor stopped up, although the flood covered the surface of the fields, and necessarily filled every drain with water. He also adduced examples of excess of drainage in certain soils, and the advantage in such soils of being able to command the presence of water at a proper depth below the surface, in a season similar to that of last summer. The use of 2-inch instead of inch-bore pipes was not only unnecessary as a general rule, but would add considerably to the cost of drainage.

Mr. Pusey objected to the use of 2-inch, or any larger pipes, where the inch-bore sufficed, not only on account of their increased price, but from the increased weight and cost of carriage. He had tried the inch-pipes, and had entered into a contract for 200,000 of them, at 10*s*. per thousand. This would only amount to 100*l*. The same length of draining-tiles would have cost him last winter 550*l*., and six winters back 850*l*. He stated as an interesting fact that drains he had laid previous to last year, in a very retentive clay, had either not run, or very insufficiently, till last autumn, when all acted well, in consequence, no doubt, of the deep and extensive cracking of the soil from the drought. He had begun draining at 10 feet interval and 30 inches of depth ; but now drained the same land at 30 feet interval, and a depth of 34 inches. Drains so made last winter, had acted at once in consequence of the previous dry summer.

Mr. Childers, M.P., presented through Mr. Thompson, a collection of Australian Wheats ; Mr. Gillies, a sample of the finest Van Dieman's Land Wheat ; the Rev. Dr. Thompson, specimens of Mexican Barley ; Mr. Murray (publisher to the Society), 13 volumes of works, published by him, and connected with agriculture ; Lord St. John, plans of farm-buildings ; and the

Earl of Tyrconnel, a specimen of cylindric drain-tile, with a flat rest attached to it, and made by Messrs. Cottam and Hallen's tile machine.—Mr. Bailey Denton notified to the Council that the drain-tile machine of himself and Mr. Charnock, would be shown at work until the 25th of April, at 14, South-st., Manchester-sq.

Country Meeting of 1846.—The special business of the council consisted in receiving communications from Sir Matthew White Ridley, Bart., chairman of the Newcastle-on-Tyne Committee, for inviting the Society to hold its Country Meeting of next year in that town; in taking the various points of those replies to the Council's inquiries into consideration; in directing such further questions to be transmitted to the committee as referred to topics of required information; and in appointing the Hon. Captain Spencer, Mr. H. Gibbs, Mr. B. Gibbs, Mr. Miles, Mr. Shelley, and Mr. Thompson, a committee for the personal inspection of the several sites at Newcastle-on-Tyne proposed for the purposes of the meeting.

The Council then adjourned to Wednesday next, the 23d of April.

Reviews.

Economie rurale, considérée dans ses rapports avec la Chimie, la Physique, et la Météorologie. Par J. E. Boussingault. Paris: Béchet. 2 vols. 8vo. 1843-4. (Fourth Notice.)

It is a happy thing as regards the value of this work that its author is not only a chemist but a practical farmer—that he is not only acquainted with the nature of the principles on which all farming depends, but also with their results under the circumstances in which the farmer is placed. We have so often spoken of the dependence of the details of farm management upon these circumstances, that it will not be supposed we are about to take upon us to criticise M. Boussingault's farming; our chief object in noticing his work is to state the position in which as a farmer he was placed, and in which his agricultural experience was acquired, so that English farmers into whose hands his work is about to go—much, undoubtedly, to their benefit—may be able to estimate the value to them of some of his practical recommendations.

Bechelbronn, M. Boussingault's farm, is situated in the province of Alsace, the extreme east of France, where the summers are much hotter, and the winters colder than those of England; its soil is a stiffish clay; the quantity of rain falling there is not so much as on the average in this country—it amounts to about 27 ins. in the year. The influence of this climate upon the crops may be understood by the following detail of their respective seed-times and harvests:—

"*Wheat.*—In 1835 we sowed our Wheat on the 1st of November; the cold set in shortly after the plant had sprung, and the harvest took place the 16th of July, 1836. The vegetation during the last days of autumn is so slow and irregular, that it may be assumed, without sensible error, that it really begins in spring, when the frosts are no longer felt; from this period only does it proceed without interruption. For Alsace, I regard this period as beginning with the 1st of March. The period of the growth was, therefore, 137 days; the mean temperature was 59° F. Tremois Wheat, this same year, required 131 days to ripen, under a mean temperature of between 60° and 61° F."

"*Barley.*—At Alsace (Bechelbronn) Barley sown at the end of April was harvested on the 1st of August. It had remained 92 days on the ground, the mean temperature having been between 66° and 67° F. Winter Barley, sown on the 1st of November, was cut on the 1st of July. Reckoning the period of active vegetation from the 1st of March, it was 122 days in coming to maturity, the mean temperature having been between 58° and 59° F."

"*Maize.*—In the neighbourhood of Bechelbronn the Maize, which sprouted on the 1st of June, yielded an abundant harvest on the 1st of October, the mean temperature having been 68° F."

"*Potatoes.*—In 1836, our Potatoes at Bechelbronn were put into the ground on the 1st of May, and the crop was gathered on the 15th of October, after 157 days therefrom, the mean temperature having been about 65° F.; but in ordinary years, when the temperature is less elevated than that of 1836, the Potato crop is generally gathered at the end of October, after 183 days, the mean temperature having been, as before, nearly 59° F."

In all these crops it will be seen the seed-time is later, and the harvest earlier, than their respective periods here.

Were we inclined to disregard the influence of circumstances upon the farmer, the following detail of the average crops grown would be apt to excite but a poor opinion of the farming in East France:—Wheat 20½ to 22 bushels per acre; Oats, 37 bushels per acre, weighing 33½ lbs. per bushel; Potatoes, 5 tons 5 cwts. per acre; M. Wurzel, 10¾ tons per acre; Turnips, when cultivated on fresh-manured soil, 28 to 33 tons. With the exception of the last, which is certainly a large crop, the English farmer would consider these as very low averages. [We quote from the English translation, our French copy not being at hand.]

Without entering at present into any lengthened detail of the contents of this work, we may just consider the nature of one of the recommendations made in it—one which strongly exhibits the influence of circumstances on the practice of the farmer. M. Boussingault exclaims strongly against the practice of rotting manure. He recommends the use of fresh manure:—

"Fresh manure, such as it comes from the stable, introduced immediately into the ground, there undergoes precisely the same changes, and gives rise to the same products as it does when subjected to preparation in a dung-heap in the manner already described; there is only this difference, that being scattered and mixed with a large quantity of inert matter, the decomposition takes place much more slowly than it does in the heap. The question which has been so actively discussed, therefore, reduces itself to this: is it advantageous to have the manure fermented in the soil it is intended to fertilise? We may be allowed to express surprise that such a question should have been raised in the present day, and still more that the affirmative answer should have been disputed by agriculturists of distinguished merit. Some have even gone so far as to maintain that fresh excrements were injurious to vegetation. Proofs to the contrary are readily obtained; it is enough to recollect that, in the grazing and folding of sheep and kine, the dung and urine pass directly into the ground of our pastures and fields, and who shall say that the land is not benefitted by what it thus receives?"

There are many reasons in practice why the farmer cannot always use fresh manure. Manure requires to be in a sufficiently forward stage of fermentation in the soil during the growth of the plant, so that excepting in sandy soils, and warm climates, it would need to be in the ground some months before the crop. It would generally require to be applied in autumn—the season when, on most farms, but little is made. Autumn manuring for green crops, were it possible, would, however, be a great improvement on the present mode of management. And we can easily see in this recommendation of M. Boussingault's, the effect of experience acquired on a clay soil; such a soil would be greatly benefitted in its *texture* by the fermentation in it of strawey manure; had he farmed a light soil, however faulty it may be in theory, unless most carefully done, he would probably have found it advisable to ferment his manure in heaps before applying it, in order to give it a greasy and adhesive texture, calculated to benefit, not injure, that of his soil.

Among the other subjects in this work which are most ably and usefully treated, we may refer to those spoken of in the chapters on "The Relations of Elements in Crops and Manure," and on "Food and Feeding." M. Boussingault details, in their appropriate places, the very numerous and instructive experiments he has performed on the feeding of animals; some of these statements we shall take an early opportunity of translating, and presenting to our readers.

Miscellaneous.

Weight of Cattle.—A correspondent supplies us with the following admeasurement of six heifers, as to the increase in height and girth, during a run of Grass from May-day to Michaelmas-day.

No.	Age.		May 13.		Oct. 14.	
			Height.	Girth.	Height.	Girth.
	yrs.	mo.	in.	in.	in.	in.
1	2	4	52	71	53	77
2	2	2	49½	70	50½	76
3	2	0	53	72	53½	76
4	1	10	54¼	75	57	79
5	1	7	50	71	53	77
6	1	5	48	67	49½	72

No. 4 an ox.

—*Doncaster Chronicle.*

One Important Cause of Non-Improvement in Agriculture.—I had occasion to visit the son of a friend of mine, at a school of great respectability in a wealthy agricultural district. The master, a very intelligent person, showed me the details of his well-arranged establishment, which was certainly a pattern in every respect. On entering the well-filled school-room he observed, that most of his scholars were farmer's sons. Glancing at his library I enquired what books on agricultural subjects it contained? The master seemed struck with surprise (as if the thought of such books had never occurred to him), and replied, "With shame I acknowledge, *not one*; but send me a list of such as you recommend, and I will immediately procure them." Now, I apprehend this case might be multiplied by a thousand or more. Can we wonder then that a youth who never heard the word agriculture at school, and who is seldom or never sent into different districts to be taught agriculture as a science, should go home to his parent, and follow his plan of farming—be it good, bad, or indifferent. In all other trades and professions an apprenticeship is considered essential to the acquirement of knowledge; but farming, the most necessary of all trades, is to be left to chance, or rather mischance. A system of uniformity is essential in making a hat, coat, or shoes—there are established educational rules for the church, the bar, and the senate; but agriculture, the greatest interest of all, on which our very existence depends, economically and politically, is to be like a ship without a compass, tossed about by the ever-varying gale of individual opinion, without a hope of reaching the port of Perfection. Were a youth ever so much inclined to furnish his mind with comparisons and observations of the various systems of culture in our own different counties, as well as in foreign climes, there is, under the present school system, no opportunity for his doing so; and, no doubt, he would be surprised if told that we are a century at least behind the Chinese in agricultural practice. I hope we shall soon see every school, and, in fact, every farmer's parlour, possessing a few sound practical works on agriculture. I presume no man will consider he knows everything in agriculture—if he does it is unfortunate for him. Little as I am acquainted with the subject, I am daily convinced that it is full of interest, and of such extent that a lifetime of study and practice would find us on the wrong side of perfection.—*I. J. Mechi's Letters on Agricultural Improvement.*

Quality and Economical use of Agricultural produce.—Corn and Potatoes are direct food for man. Turnips and green herbage are only indirectly convertible to his use. The manufacture of these into such food as he can consume—into beef, mutton, and pork, or into milk, butter, and cheese—gives rise to important branches of rural economy, to which much rural industry is devoted, and a great breadth of land. In these branches it is as important to convert the raw vegetable material—the Turnips and herbage—into the largest quantity of the manufactured article, beef or cheese, as it is, in arable culture, to raise the largest possible amount of grain with the smallest quantity of manure, and with the least injury to the land. Hence arise many questions as vitally affecting this indirect, as the doctrine of manures affects the direct method of raising human food. Thus it was observed that one kind of herbage, or corn or root, fattened animals more quickly than another; or aided their growth more; or caused them to yield more milk; or made their milk richer, in butter or in cheese; that, from certain kinds of land, or after some modes of culture, or when raised by the aid of some kinds of manure, the same kind of produce was more nutritive; and that, when given in some states, or under some known conditions, it went further, and was therefore more valuable in the feeding of animals. How many curious questions are suggested by such observations as the following! Some varieties of Wheat are better suited for the pastrycook; others, for the baker of bread. Some samples of Barley refuse to melt in the hands of the brewer and distiller; and some yield more brandy; while others lay on more fat. The Scottish ploughman refuses bog Oats for his brose-meal, or for his Oaten-cake, because they make it tough; and the cotter's family prefer Angus Oats for their porridge-meal, because they swell, and become bulky and consistent in the pot, and go further in feeding the children at the same cost. The Pea sometimes refuses to boil soft; and Potatoes, on some soils and with some manures, persist in growing waxy. If Swedish Turnips sell for 30*s.* a ton—as in large towns they often do—yellow Turnips will bring only about 25*s.*, and white globes, 18*s.*; while all the varieties cease to feed well as soon as a second growth commences. What is the cause of such differences as these? How do they arise? Can they be controlled? Can we by cultivation remove them? Can we raise produce of this or that quality at our pleasure.—*Progress of Scientific Agriculture; "Edinburgh Review," January*, 1845.

Evils of Mismanagement.—The following is a striking illustration of the evils of want of capital, judgment, and management, and its results to the tenant, the landlord, and the nation:—October 9, 1844.—Conversing casually to-day about land with a gentleman from Wales, he said, "I know of 64 acres of a freehold cultivated hill farm to be sold for 4*l.* per acre." Astonished, I enquired particulars. He said, "The tenant, who was miserably poor, had carried off and sold the crops for seven successive years, paid no rent, starved himself, and his landlord too." See, in this case, what a loss in food and in labour, and through them in manufactures, commerce, and trade, a little of our money (that is now lent to *foreigners!*) would have accomplished. I have reason to believe there are thousands of similar cases *Could* this have happened were the land farmed under a capitalised company? Welch landlords can, I apprehend, give ample confirmation this season of the evil effect on rents by want of capital and cultivation, and still we send our men and our money abroad! But how can orphans or widows know about letting and managing estates? Had their property descended to them *in shares* of a land company, such a case as the above could never occur. A company always lives, that is by its directors and officers.—*I. J. Mechi.*

Notices to Correspondents.

Atmospheric Electricity—*W P M*—Thank you: You would see that we noticed the subject last week.

Blowing Sands—*J. Mc Adam*—Have you noticed the two or three papers on this subject we have lately published. If the article you allude to contains anything not yet published, we shall be exceedingly obliged by an abstract of it.

Cow losing her Milk—*An Original Subscriber*—The best remedy for a cow losing milk from her bag, is to have her milked thrice a day; early in the morning, at mid-day, and again rather late in the evening. This may be pursued with advantage for the first five months after calving, and relinquished by degrees; regard to be had to her food being sufficiently nourishing during the time of yielding extra produce.

Dibbling Machine (p. 197)—*A Dibbler*—We do not perceive the error to which you allude. The nut, as you call it, is just the handle of the rod: if you find the rod too long, so that it projects too far beyond its case, and makes too deep a hole, screw the handle *on* to it, and you shorten it; if it be too short, screw the handle *off* it, and you lengthen it.

Food for a Mare just Foaled.—*R K*—Give the mare a bran mash daily, and as much good meadow hay as she will eat, and if she is poor, you may add a few oats. A paddock with a hovel is her best situation, but otherwise, she should have a roomy yard or box. *W. C. S.*

Guano—*L B W*—Provided the wood-ashes are old, you may mix them with the guano with perfect safety, and indeed, with advantage, for they would supply that in which guano is generally deficient. If new, they might contain caustic alkali, which would dispossess the ammonia in the guano of any acid with which it might be in union, and thus cause it to become volatile, and escape. We think with you, that the guano would be buried too deep were it placed in the drills just as manure; but in placing it less deep under the seed, care must be taken not to let the two come in contact.

Horse Carpet—*Rev. H. N.*—If you will give us your address

we will forward the information on this subject that we have obtained.

Kohl Rabi—*Amateur*—This is probably the bulb you allude to (see page 155). It has long been known in England, though not to any extent in our *fields*. Any good seedsman will supply you with the seed both of it and of the yellow and red globe Mangel Wurzel.

Moss in Grass—*C M S*—We must refer you to several paragraphs in past Numbers of this Paper. The means to be adopted must be such as will increase the vigour of the growth of the Grasses, and render the land less fitted for that of the Mosses Try harrowing and cross-harrowing the land; then sow a bushel or so per acre of Grass-seeds over the land, and spread 20 or 30 loads per acre of a compost composed of ditch-scrapings, 2 cwt. of guano, 2 cwt. of gypsum, and 2 cwt. of super-phosphate of lime per acre over all.

Potatoes—A mixture of 30 bushels of soot with 4 cwt. of gypsum per acre would be a good manure for Potatoes. Mix burnt clay and charcoal dust with cloacine; that will tend to destroy smell. Chloride of lime will also do it.——*G* says that he apprehends the frost question is not yet settled, for though he had some planted 12 inches deep in December, which are not injured, yet 5 or 6 acres planted in Jan. and Feb., are quite spoilt. Guano may be usefully spread, broadcast, over Onions in wet weather.

Sliding Harrows—*G*—Will "H." be kind enough to furnish this correspondent.

The Fip or Gapes—*T H C*—"Let some one take the chicken, holding it in one hand and placing the other over its back, so as to hold it firm; then let the operator take a small but firm feather from a hen or pigeon, and strip it from the stem, excepting about 1½ inch from the tip end, according to the size of the chicken; wetting it a little, except at the extreme point. The operator should then take the head of the chicken in the left hand, placing his finger and thumb on each side of the bill in such a manner as to hold the mouth open, the neck being gently but firmly drawn out in a straight line. Then observe the opening back in the tongue; place the feather as near it as possible, and when the chicken breathes the windpipe will be open; at which moment enter the feather quickly, and push it down gently, but not in a hurry, from 2 to 3 inches; then draw it out, and in so doing turn the feather round, by which means some of the worms will adhere to the feather, and others will be so loosened that the chicken will sneeze them up. As many as 11 have been got out at one haul." The above passage is extracted from a little work entitled "Farming for Ladies," which should be in the hands of all poultry fanciers. Can any of our correspondents give us their experience on this subject?

Tropical Agriculture—*P L P*—Thank you; we received the work on Saturday, and now, therefore, have two. We shall refer to it next week.

Errata—*Erin-go bragh*—We are shocked at the awful misprint which was allowed last week to find its way into the columns of this department of the Paper. The best apology that we can offer is perhaps made for us by a correspondent who calls himself a "Fellow Sufferer" and who says—"If more respect were paid to the much neglected dot, there would be more *ease* for *eyes*, and readers would have fewer; from neglect of that significant note, we have no fewer than six errors in that well known sentiment, "Ingenuas didicisse fideliter artes, emollit mores, nec sinit esse feros." We however feel that the blemish is, after all, inexcusable.

*** As usual, many communications have been received too late.

Markets.

SMITHFIELD, Monday, April 14.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 2	Best Long-wools	4s 2 to 4s 6
Best Short Horns	3 8 3 10	Ditto (shorn)	3 8 4 0
Second quality Beasts	2 10 3 4	Ewes and second quality	3 10 4 2
Calves	4 0 4 8	Ditto (shorn)	3 4 3 8
Best Downs & Half-breds	4 4 4 10	Lambs	5 0 6 0
Ditto (shorn)	4 0 4 4	Pigs	3 4 4 4

Beasts, 2795; Sheep and Lambs, 27,720; Calves, 93; Pigs, 317.

Our supply of Beasts is shorter, and trade very brisk. Friday's advance is well supported, and, in some instances, the best qualities command higher prices. Some of the choicest Scots have made 4s. 4d.; and a few superior Short Horns 4s. The second qualities are also cleared off at rather more money.—We have a few more Sheep to day; notwithstanding (the demand being considerable), the best qualities are sold at rather better prices.—A little more Lamb is wanted, but no better prices are realised.—Veal-trade is very heavy.—Pork-trade is steady.

Friday, April 18.

We have to-day a very large increase in the number of Beasts, including several very good Scotch and a great many foreign Beasts in good condition; trade is, consequently, dull, and we are obliged to submit to a reduction in price; the best Scots barely reach 4s. 2d.; many very good ones make no more than 4s.; and the best Short Horns cannot be quoted at more than 3s 8d.; second qualities also suffer in like proportion. There being, however, a previous clearance, and the weather continuing favourable, no doubt everything will be got rid of.—Mutton-trade is heavier, and it is difficult to obtain Monday's prices for the best Downs. Coarse and second quality are decidedly lower. Best Downs &c., 4s. 4d. to 4s. 10d.; Shorn, 4s. to 4s. 4d.; Long-wools, 4s. to 4s. 4d.; Shorn, 3s 8d. to barely 4s.; Ewes and second quality, 3s 8d. to 4s.; Shorn, 3s. 2d. to 3s. 6d.—The supply of Lamb to day is, generally speaking, of inferior quality, and the weather being cold, trade is bad; the best cannot be quoted at more than 5s. 8d.—Veal-trade is heavy, owing to a large supply and small demand at the dead Market; 4s. 8d. is the extreme price of the best qualities.—The weather favours the Pork-trade, which continues steady.

Beasts, 1113; Sheep and Lambs, 7460; Calves, 219; Pigs, 321.

4l. West Smithfield.

HAY.—Per Load of 36 Trusses.

Smithfield, April 17.

Prime old Meadow Hay	—s to —s	New Hay	—s to —s	Clover	110s to 120s
	110s to 117s	Inferior Hay	100 105	Straw	38 44

John Goper, Salesman.

Cumberland Market, April 17.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 120s		
Inferior —	100 110	Inferior —	105 110	Straw	38s to 43s
New Hay —	— —	New Clover —	— —		

Joshua Baker, Hay Salesman.

Whitechapel, April 18

Fine Old Hay	—s to 110s	Old Clover	120s 125s		
New Hay	95 105	New Clover	— —	Straw	35s to 42s
		„ Inferior	105 115		

WHOLESALE PRICES OF MANURES.

Alum, per ton	£11 0 0	Muriate of Lime, per ton	4 0 0
Ammonia, Carbon., per cwt.	2 16 0	Muriate of Potash, per ton	£13 0 0
— Sulphate „	16s. to 0 17 0	Nitrate of Soda, per cwt.	0 16 6
— Muriate „	1 6 0	Do. Potash (Saltpt) „	1 7 0
— Sal Ammoniac „	2 0 0	Rape Cake per ton	5 5 0
— Phosphate, per lb.	0 1 0	Salt (Common) „	2 0 0
Bones, per ton	5 10 0	Soda (Dry Carbonate) per cwt.	1 1 0
Do. dust unadulterated per 22s. to 25		— (Crystallised) „	0 7 0
Guano, Peruvian, p. ton	11 to 12 0 0	Sulph. of Mag (pure) „	0 8 0
— Ichaboe „	7l. to 8 0 0	— Potash „	0 14 0
— African „	6 0 0	— Soda per cwt	0 4 0
— Potter's „	10 0 0	Sulph. Acid (sp. g. 1.81) p. lb.	0 0 1½
— Liquid, p doz.	1 1 0	— (sp. g. 1.70) „	0 0 0¾
Gypsum, per ton	1 10 0	Superphos. of Lime, per cwt.	0 7 0

COVENT GARDEN, April 19.—Owing to the prevalence of cold east winds, the market has not been so well supplied this week as it was last; prices have, however, not altered much since our last report. Pine-Apples, though not plentiful, are sufficient for the demand; and they are of pretty good quality. Hothouse Grapes are improving; they are becoming more abundant, and are a little cheaper; foreign sorts are scarce, and the demand for them is not great. Considering the season, Apples are tolerably abundant; and good Dessert Pears, though dear, and far from being plentiful, are, nevertheless, sufficient for the demand. Oranges are plentiful, and not so dear as they were last week. Chesnuts are scarce, and realise high prices. Strawberries are more abundant, and are becoming better in quality with the advance of the season. Notwithstanding the powerful heat of the sun, the cold winds have the effect of retarding the growth of Vegetables, which, generally speaking, are still scarce. Broccoli, both brown and white, however, is good, and slightly reduced in price. Brussels Sprouts are nearly over for a season; and very few, if any, Savoys are to be met with. Asparagus has not altered in price since last week; Seakale is rather on the rise. Rhubarb is good and plentiful, as are also French Beans. Cucumbers are nearly the same as last week. Endive, Lettuces, Radishes, and other salading, although on the increase, are far from being plentiful. Cut Flowers chiefly consist of Hovea Celsi, Abutilon striatum, Aphelexis humilis, Gardenias, scarlet and other Pelargoniums, Cinerarias, Azaleas, Heaths, Epacrises, Camellias, Carnations, Pinks, Moss, China, and other Roses.

FRUITS.

Pine Apple, per lb., 6s to 10s		Oranges, per dozen, 9d to 2s 6d	
Grapes, Hothouse, per lb., 15s to 20s		— per 100, 5s to 16s	
— Spanish, per lb., 1s to 1s 6d		— bitter, per 100, 8s to 20s	
— Portugal, per lb., 1s to 3s		Lemons, per dozen, 1s to 2s	
Apples, Dess., per bush., 6s to 12s		— per 100, 6s to 14s	
— Kitchen, 4s to 6s 6d		Almonds, per peck, 6s	
Pears, Dess., per hf.-sv., 5s to 12s		Sweet Almonds, per lb., 2s 6d to 3s	
— Baking, per hf.-sv., 2s to 2s 6d		Cob Nuts, per 100 lbs., 120s to 150s	
Pomegranates, per doz., 2s to 4s		Nuts, Barcelona, 24s	
Strawberries, per oz., 6d to 1s		— Brazil, 20s	
Chesnuts, per peck, 4s to 8s		— Spanish, 27s	
Walnuts, per bushel, 16s to 20s		— Cob, 16s	

VEGETABLES.

Cabbages, red, per doz.	3s to 8s	Parsnips, per doz., 6d to 2s	
— plants, per doz. bnch..	3s to 6s	Leeks, per doz., 1s 6d to 3s	
Broccoli, per bundle, 1s to 3s		Garlic, per lb., 3d to 10d	
Brussels Sprouts, hf.-sv., 1s 6d to 2s		Onions, per bunch, 3d to 6d	
French Beans, per 100, 1s 6d to 2s 6d		— large, per bushel, 4s to 6s	
Sorrel, per hf.-sieve, 1s 6d to 2s		— Spanish, per doz., 1s 6d to 4s	
Jerusal. Artichok, p. hf.-sv., 1s to 2s		Shallots, per lb., 6d to 10d	
Potatoes, per ton, 50s to 90s		Lettuce, per score, 9d to 1s 6d	
— cwt., 2s 6d to 5s		Celery, White, per bunch, 1s to 2s	
— bushel, 1s 6d to 3s		— Red, per bunch, 1s to 2s 6d	
— Kidney, per bsh., 2s to 3s		Endive, per score, 1s to 3s	
— Autumn, per lb., 3d to 6d		Radishes, per doz. bunds, 2s6d to 3s	
— New, per lb., 1s 6d to 3s 6d		Mushrooms, per pottle, 1s to 1s 6d	
Turnips, per doz. bch., 2s 6d to 3s 6d		Small Salads, per punnet, 2d to 3d	
Red Beet, per doz., 1s to 6s		Basil, green, per bunch, 1s	
Carrots, per doz. bchs, 6s to 8s		Fennel, per bunch, 2d to 4d	
Basil, per bunch, 2d to 3d		Watercress, p. 12 sm. bun. 6d to 8d	
Rhubarb, per bundle, 9d to 2s		Parsley, per half sieve, 2s to 4s	
Seakale, per punnet, 1s to 5s		— Roots, per bundle, 9d	
Asparagus, per bundle, 3s to 14s.		Tarragon, per bunch, 4d	
Horse Radish, per bundle, 1s 6d to 7s		Mint, per bunch, 6d to 1s	
Savory, per bunch, 9d		Marjoram, per bunch, 9d	
Cucumbers, per brace, 2s to 8s		Chervil, per punnet, 3d to 4d	
Spinach, per sieve, 8s to 8s			

HOPS, Friday, April 18.

The Market continues firm, and the Plant, owing to the cold weather, makes but little, if any progress.

Pattenden & Smith, Hop Factors.

WOOL.—British, Friday, April 18.

Our Wool Market still remains very quiet, and prices have not varied since our last.

James Perrin, Wool Broker.

POTATOES.—Southwark, Waterside, April 14.

This Market continues to be abundantly supplied, but chiefly from the Northern districts; there has also been some considerable arrivals from Arbroath, Montrose, and Aberdeen; the Potatoes shipped from these places are much inferior to those shipped in the vicinity of Perth. These samples, and also the second-rate Perth Reds, have been, and are still, a complete drug, and they have been generally sold for the use of cattle at from 35s. to 40s. per ton, as there is more than sufficient of the best samples for the present demand. Notwithstanding the lowness of our prices, the trade is very heavy, and 80s. for the best York, and 55s. for the best Perth Reds, may be considered nominal.

York Reds	45s to 80s		Kent and Essex Kidneys	70s to —s	
Perth	40 55		Wisbeach Kidneys	65 70	
Fifeshire	40 45		— Blues	55 —	
Early Devons	50 55		— Regents	— —	
Late Devons	— —		— Whites	50 55	
Cornwall	50 55		Guernsey Blues	60 —	
Jersey Blues	60 —		— Whites	— —	
— Whites	— —		York—Prince Regents	50 70	
Kent and Essex Whites	45 50		— Blues	— —	
			— Shaw's	50 70	

MARK-LANE, Monday, April 14.

The supply of Wheat from Essex this morning was again small; that from Kent and Suffolk good; the sale was not brisk, but we observe no alteration in its value; free Foreign is saleable only in small retail quantities at late prices; in f.o.b. business there is nothing doing, and the accounts from the continental markets are flat; Canada letters of the 28th ult. quote Flour at 19s. to 20s. per Barrel, f.o.b. for May and June shipment, and the markets rather inclining downwards; in New York, on the 31st., western qualities were also rather lower, and southern descriptions had advanced 12 to 18 cents.—Barley is neglected, although Malting qualities are offered at 1s. decline; in Hamburgh, on the 9th inst., prices were also declining, and holders becoming anxious to realise.—Beans sell freely at the extreme rates of Monday last.—White Peas are unaltered, but we raise our quotations for Maple 1s. per qr.—Oats of all kinds meet an improved demand, and fine qualities in some instances command a trifling advance.

British, per Imperial Quarter.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk White	42	49	Red	42	45
— Lincolnshire, and Yorkshire —	—	—	White	—	—
Barley, Malting and distilling 25s to 29s	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19	22
— Northumberland and Scotch	Feed	20	22	Potato	21	24
— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		—	54	60		
— Hertford and Essex		—	53	55		
Rye		—	29	32		
Beans, Mazagan, old and new	29 to 33	Tick	29	35	Harrow	30	36
— Pigeon, Heligoland	37 to 40	Winds	—	—	Longpod	—	—
Peas, White	33 to 36	Maple	34	36	Grey	30	33

Friday, April 18.

The arrivals of Wheat, Barley, Oats, and Tares, since Monday, have been good.—Wheat, both English and Foreign, fully supports that day's quotations, although sales of the latter are very limited.—Barley is difficult to quit, and some quantity of Monday's supply remains unsold.—Beans and Peas are inquired after, but we cannot note them dearer.—The Oat trade is firm, notwithstanding that dealers act on the reserve, purchasing only for their immediate wants.—Tares are in moderate demand at declining prices.

Imperial Averages.	Wheat.	Barley	Oats.	Rye.	Beans.	Peas.
Mar. 8 per Quarter.	45s 0d	32s 2d	21s 7d	31s 5d	34s 8d	35s 6d
— 15	45 1	32 2	21 4	31 1	34 7	35 8
— 22	45 5	32 4	21 8	30 5	34 6	35 8
— 29	45 10	32 4	21 5	30 0	34 10	34 8
April 6	46 5	32 5	21 4	29 6	35 0	35 7
— 12	45 3	32 5	20 11	30 6	35 5	36 6
6 weeks' Aggreg. Aver.	45 8	32 4	21 4	30 4	34 10	35 7
Duties on Foreign Grain	20 0	6 0	6 0	10 8	8 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, April 12.

Price.	Mar. 8.	Mar. 15.	Mar. 22.	Mar. 29	April 5.	April 12
s. d.						
45 10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 1	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, April 18.

Canary	per qr	42s to 48s	Linseed Cakes, Foreign, p ton	7. 10s. to 8l	
Carraway	per cwt	44 48	Mustard, White	p. bush.	10s 14s
Clover, Red, English	40 65	— Superfine	„	12 16	
— Foreign	46 54	— Brown	„	12 16	
— White, English	50 80	Rapeseed, English, per last	26l 30l		
— — Foreign	50 80	Rape Cakes	per ton	— —	
Coriander	12 18	Sainfoin	— —		
Hempseed	per last	35 36	Tares, Eng. winter	p. bush.	7 8
Linseed	per qr	— —	— Foreign	—	5 7
— Baltic	— —	Trefoil	per cwt	— —	
— Cakes, Eng. per 1000	11l 0	11l 10	Turnip (too variable for quotation).		

Kingsford and Lay.

EAST INDIA ORCHIDACEÆ.

MESSRS. J. C. & S. STEVENS beg to announce they will Sell by Auction at their Great Room, 38, King-street, Covent-garden, on Thursday, April 24, at 1 for 2 o'clock, precisely, a Consignment of ORCHIDACEOUS PLANTS, which have just arrived overland from India; they were gathered from several localities in the Presidency of Bombay, in the month of January last, and are now in a fine healthy state. May be viewed the day prior and morning of sale, and Catalogues had of Messrs. J. C. and S. Stevens, 38, King-st., Covent-garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition at the Auction Mart, Bartholomew-lane, on Tuesday, April 22d, and Thursday 24th, 1845, at 12 o'clock each day, a fine Collection of CARNATIONS AND PICOTEES, comprising all the best Varieties. Also a fine Assortment of Geraniums, Fuchsias, Verbenas, Dahlias, Pinks, Roses, Petunias, Hardy Climbers, and other Plants in bloom. May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS AND OTHERS.

MR. JAMES IZOD will Sell by Auction on Wednesday, 23d April, at the Auction Mart at 1 o'clock precisely—A superb Collection of CARNATIONS, FUCHSIAS, PETUNIAS, PICOTEES, ROSES, VERBENAS, Herbaceous, Climbing, and Greenhouse Plants. The Carnations comprise all the leading varieties. Many new Verbenas: Enchantress, Beauty, Supreme, &c. Petunias, many new and fine varieties: Ranunculuses in mixture from the first named flowers.—May be viewed on the morning of Sale, and Catalogues had at the Mart, and of Mr. Izod, at his Offices, Sheriff's Saleroom, 46, Watling-street, City.

TO GARDENERS AND OTHERS.

TO BE DISPOSED OF, by private contract, at a very low price, 50 Cucumber Lights and Boxes in good order; also an excellent strong market-cart complete, and a dung-cart, with copses and tail ladder, suitable for a builder.—Enquire of Mr. Coate, near the Beehive, Lorrimore-lane, Walworth.

UNDER THE PATRONAGE OF HER MAJESTY.

WAITE'S "QUEEN OF DWARF" PEA.—This is a variety that cannot be too extensively introduced to the notice of the Horticultural world, being distinct from any that has been previously brought before the public. In its habit it is quite different from all others, being not more than 1 foot in height, and covered with Pods. The Pea is twice the size of any other Dwarf Pea in cultivation, and excelling by threefold in produce. It has been grown at the Royal Gardens, Frogmore, and approved of there as a new variety; and also at Her Majesty's table for its superior flavour. None genuine unless bearing the seal of J. G. Waite.—Price 7s. 6d. per quart.

J. G. W. begs to inform the Nobility and Gentry that he has spared neither time nor expense to make his collection of seeds equal, if not superior to any other house in the kingdom. In the Grass-seed department will be found some of the finest sorts in cultivation, which he has selected from the best sources at home and on the Continent. In the Horticultural and Floricultural branch will be found all the approved and newest varieties. Also the Turnip-seed department will be found complete, and he can offer the following new varieties at the low prices stated:—New Zealand Golden Melon Swede, a very delicious flavour, 2s. 6d. per lb. New White Decanter, very large, and fine sheep-feeder, 2s. 6d. per lb.

All other kinds of Seeds 30 per cent. lower than any other house in London. Catalogues to be had on application.

4, Eyre-street-hill, Hatton Garden. April 19

I. AND J. GAITSKELL, Nurserymen, Seedsmen, and Florists, respectfully call the attention of the Nobility and Gentry to their extensive stock of SHRUBS, consisting of LAURELS, COMMON and PORTUGAL, RHODODENDRONS, KALMIAS, AZALEAS, ANDROMEDAS, AUCUBA JAPONICA, &c. in great variety, of which well-furnished plants, of various sizes, may be had upon very moderate terms, at their Nursery, Hall Santon, near Whitehaven. The Trade will be liberally treated with for Laurels, 1 to 3 feet, Evergreen Privet, Red-twigged Limes, &c. Plants will be given to compensate for long carriage. Communication to Liverpool by steam-packet three times weekly.

N.B.—The nature of the soil from which the plants are removed insures their ultimate success.

JOSEPH FRYER begs to inform his friends and the public, that his New Catalogues of Greenhouse and Herbaceous Plants, Florists' Flowers, Fuchsias, Pansies, &c., are now ready, and will be forwarded on application (Seed Catalogue may be had separate). J. F. can supply a few packets of Martynia fragrans, Portulaca Thellusonii, fine mixed Petunia, Fuchsia, Thunbergia Fryerii, crimson fringed Primula sinensis, &c., at 1s. per packet; fine selected Pansy seed, 1s. to 2s. 6d. per packet, and all other choice Flower seeds at 3d., 6d., and 1s. per packet; fine strong plants of J. F.'s Seedling Pansy "Standard," which was so favourably noticed last season, at 5s. each, sent post free.

Clarendon Nursery, Camberwell, London.

DANECROFT NURSERY, STOWMARKET.

S. GIRLING begs leave to refer the Readers of the *Chronicle* to his choice collection of new DAHLIAS, VERBENAS, PETUNIAS, FUCHSIAS, and PHLOXES, as printed in the *Gardeners' Chronicle* of March 15, 1845. General Catalogues can be had on application, by sending two postage stamps in the letter of application.

TROPÆOLUM LOBBIANUM.
BEATIFUL NEW SCARLET NASTURTIUM.

MESSRS. VEITCH and SON have now ready for delivery plants of the above beautiful new species, which they have introduced from Peru, through the assistance of their collector, Mr. W. Lobb, in compliment to whom it is named. See figures in Curtis's Botanical Magazine for July, 1844, and Paxton's Magazine for January, 1845. Strong plants 21s. each.

Messrs. V. and Son also offer,

Tropæolum azureum	*true* 7s 6d.	pr. plant.
Hindsia violacea	strong 42s.	„
„	small 21s.	„
Alona cœlestis	5s. to 7s. 6d.	„

N.B.—A remittance or London reference from unknown correspondents.—Exeter, April 19, 1845.

JOHN LLOYD, many years Foreman to the late Mr. Pamplin, and who had the care of his extensive collection of FERNS, intends proceeding to the North to collect, and wishes to secure a few Subscribers at 20s each. He engages to supply to every Subscriber, 40 Plants of the rarer FERNS and LYCOPODIUMS, of at least 20 species. Money to be paid when the Plants are delivered. J. L. will also supply 26 Southern ones (13 species), fit for a North Border or Rockwork, for 6s.—Direct, John Lloyd, 11, Gloucester-street, Vauxhall.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT SHREWSBURY, JULY, 1845.

PRIZES AND REGULATIONS FOR AGRICULTURAL IMPLEMENTS.

Forms of Certificate to be procured on application to the Secretary, 12, Hanover-square, London. All Certificates must be returned, filled up, to the Secretary, on or before FIRST OF MAY; the Council having decided, that in no case whatever shall any Certificate for Implement be received after that date.

PRIZES.

For the PLOUGH best adapted to heavy land . Ten Sovereigns.
For the PLOUGH best adapted to light land . Ten Sovereigns.
For the best DRILL for general purposes, which shall possess the most approved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited
Fifteen Sovereigns.
For the best TURNIP DRILL on the flat, which shall possess the most approved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited
Ten Sovereigns.
For the best TURNIP DRILL on the ridge, which shall possess the most approved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited
Ten Sovereigns.
For the best SCARIFIER . . . . . Ten Sovereigns.
For the best CHAFF CUTTER . . . . . Ten Sovereigns.
For the best MACHINE for making Draining Tiles or Pipes for agricultural purposes. Specimens of the Tiles or Pipes to be shown in the Yard: the price at which they have been sold to be taken into consideration, and proof of the working of the Machine to be given to the satisfaction of the Judges
Twenty Sovereigns.
For the best HARROW . . . . . Five Sovereigns.
For the best DRILL PRESSER depositing Manure and Seed
Ten Sovereigns.
For the best CHURN . . . . . Five Sovereigns.
For the best WEIGHING MACHINE, for live Cattle and Farm Produce generally . . . . . Ten Sovereigns.
For the best STEAMING APPARATUS for Roots Five Sovereigns.
For the best ONE-WAY PLOUGH . . . Five Sovereigns.
For the best SKIM OR PARING PLOUGH . Five Sovereigns.
For the best Subsoil PULVERIZER . . Ten Sovereigns.
For the best CLODCRUSHER . . . Ten Sovereigns.
For the best HORSE SEED-DIBBLER . . Fifteen Sovereigns.
For the best HAND SEED DIBBLER . . Five Sovereigns.
For the best LINSEED CRUSHER . . . Ten Sovereigns.
For the best moveable SHEEP-FOLD . . Ten Sovereigns.

GENERAL REGULATIONS FOR THE EXHIBITION OF IMPLEMENTS.

CERTIFICATES.

1. The necessary printed forms of certificates may be obtained from the Secretary, at No. 12, Hanover Square, London, by persons who are desirous of exhibiting implements, &c.
2. No implement will be admitted for exhibition unless the necessary certificates, filled in on the printed form prescribed, complete, and signed by the exhibiter (or his agent), in the manner directed, have been delivered to the Secretary, or sent (postage free), directed to him so as to reach No. 12, Hanover-square, on or before the FIRST OF MAY. The receipt of all certificates will be acknowledged by the Secretary.
3. A description of each article intended to be shown must be written on one side only of the certificate: it must state the name and address (when they are known) of the inventor, the improver, and the manufacturer: it must also detail the improvements (if any), peculiarities, &c., of each implement.
4. The certificate must state the space each exhibiter will probably require (the sheds being 20 feet wide), in order that the Director or Stewards may apportion the standing-room among the various parties who make application.
5. The certificate must state the lowest selling price of each article.
6. If an article is intended to compete for the prize offered for any new agricultural implement, it must be entered as such in the certificate.
7. If a prize or medal has been awarded at a previous meeting of the Society, to any implement which is entered for exhibition at Shrewsbury, the certificate must state whether it was a prize or medal, or both, and the date at which it was awarded; if a prize, the amount must be stated.
8. If any improvement has been made in the implement subsequently to that award, a description and drawing of the improvement must accompany the certificate.
9. Exhibiters must state the number of men, or boys and horses, required to try each implement, in case it should be selected for trial by the Judges.
10. Persons who intend to send their own horses and driver to work in the field, must declare, in the certificate, their intention of doing so; otherwise they will not be entitled to the remuneration stipulated in Rule 26.
11. Any person who intends to offer for sale at the Auction, any of the articles which he may exhibit in the Yard, must signify his intention in the certificate.

ARRIVAL OF IMPLEMENTS, &c.

12. All implements, &c., entered for exhibition, must be brought to the Show-yard before nine o'clock on the evening of the 10th of July, being the Thursday previous to the Show.
13. No implement, &c., will be admitted into the Yard for exhibition, unless it has been described as a separate article, in the form prepared for that purpose, attached to the certificate delivered to the Secretary.
14. A ticket, bearing the number corresponding with the certificate, must be attached to some conspicuous part of each article, before it is brought to the gate.
15. The admission-order, which will be sent for articles properly entered, must be delivered to the gate-keeper of the Yard by the person who brings the articles for admission.
16. No implement, having upon it paint or varnish that is wet, will be allowed to enter the Yard.

ARRANGEMENT OF IMPLEMENTS.

17. All implements must be unpacked and arranged in each stand, by the exhibiter, according to their numbers, and in the same direction as the numbers of the different stands run, consecutively. As no day has been set apart this year for the arrangement of implements, exhibiters are requested to have them arranged by nine o'clock in the evening of Thursday, the 10th of July, as the Judges will commence their inspection early on the following morning. All implements, &c., that are not unpacked by that hour, will be removed from the Yard.
18. No implement will be allowed to be painted or varnished after it has entered the Yard.

TRIAL.

19. All implements admitted to the exhibition will be liable, upon the recommendation of the Judges, to be proved by actual trial.
20. Ample private trial will be given to such implements as the Judges shall select, and at the time and place appointed by the Stewards.
21. On Tuesday, the 15th, the public exhibition of "implements at work" will take place; but of such implements only as may be selected by the Judges, or of such as have gained prizes at previous meetings of the Society.
22. No person will be permitted to remove any implement from the Yard to the Field, unless by the express orders of the Director or Stewards, upon the recommendation of the Judges.
23. Exhibiters are requested to be in attendance during the trials, and in the Implement-yard, while the Judges are inspecting the implements, in case any explanation may be required from them.
24. No implement will be allowed to commence work in the Field, unless by the express orders of the Judges or Stewards.
25. Notice of the nature of the soil, upon which the trials are to take place, will be given to the exhibiters, by the Secretary.
26. An option of sending a pair of horses and a man is given to the exhibiters of implements, if they declare such intention at the time of returning the certificate: the Society paying to the man 5*s.* for each day he works at the trial of implements, and 2*l.* for the pair of horses for the three days, to be employed primarily at the exhibition of the master's implements; but should these not be in work, to be under the directions of the Stewards.
27. Chaff-cutters, corn-crushers, and other small implements, will be removed, for trial, into the space attached to the Implement-yard, into which space the Judges of implements, and the exhibiter, during the trial of his implement, will alone be admitted.
28. Hay, straw, turnips, &c., may be brought with the implements for the purpose of being used in the trial of those implements.
29. The Prizes for the Ploughs, Drills, and Tile Machines will not be awarded until subsequent trials have been made at the expense of the Society, and under the direction of the Stewards and Judges, in different localities, and under circumstances of soil and season favourable for their trial, and the determination of their comparative merits in each class respectively.

AUCTION.

30. There will be a Sale by Auction of Stock, Implements, &c., which have been properly entered in the certificates and exhibited in the Yard.
31. If an exhibiter should withdraw any article or lot of articles that has been entered for Sale by Auction, he must pay a fine of 5*s.*
32. No article will be sold by Auction, unless the owner or his agent is present.
33. An order for the delivery of articles sold at the Auction must be obtained from the Auctioneer, and delivered at the gate by the person removing them.

DEPARTURE OF IMPLEMENTS (AFTER THE SHOW).

34. No implements, excepting those selected for trial, can be removed from the Yard, until 6 o'clock on the evening of Thursday, 17th of July.
35. The "Delivery Order," filled up and signed by the exhibiter or his agent, must be delivered to the Gate-keeper: no implement can be removed without it, excepting those sold at the Auction, in which case the Auctioneer's order will be required.

GENERAL AND MISCELLANEOUS REGULATIONS.

36. Non-subscribers wishing to exhibit implements, &c., are required to pay 5*s.* for their standing room during the Show. This payment must be sent by a Post Office Order made payable to the Secretary, and enclosed with the certificate.
37. Implements which have been removed to the field must be brought back to the Yard, and replaced according to their numbers, either on the Tuesday evening or Wednesday morning, by 6 o'clock.
38. No fire will be allowed to be lighted in the Show-yard for any steam-engine or other implement.
39. After the appearance of the Report of the Judges in the Journal, a copy of that Report will be delivered gratis to such exhibiters of implements as may not be members of the Society, upon their making application to the Secretary, No. 12, Hanover square.
40. On Tuesday and Wednesday the price of admission into the Implement-yard will be 2*s.* 6*d.*
41. Exhibiters of implements will have a Free Ticket sent to them, with the "Admission Order."
42. The Judges' decision in all cases to be final.
43. Any person who shall have been proved, to the satisfaction of the Council, to have been excluded from showing for Prizes at the exhibition of any Society, in consequence of having been convicted of an attempt to obtain a prize by giving a false certificate, shall not be allowed to compete for any of the Prizes offered by the Royal Agricultural Society of England.

INSTRUCTIONS TO THE JUDGES.

The Judges are requested to observe that they will have Friday the 11th, Saturday the 12th, and Monday the 14th of July, for making their adjudication and signing their award.

The Judges are instructed neither to divide nor to increase any of the specific prizes. If they should not award any specific prize mentioned in the Prize Sheet, they are instructed not to appropriate that sum to any other description of implement.

If, in the opinion of the Judges, there should be equality of merit, they are instructed to make a special report to the Council, who shall decide on the award.

The Judges are instructed to withhold any prize, if they shall be of opinion that there is not sufficient merit in any of the implements exhibited for such prizes to justify an award.

The Judges are requested to observe that, in addition to the specific prizes, there is a sum of 100*l.*, which they have the power of awarding, either in money or medals, to the exhibiters of such miscellaneous articles as may possess sufficient merit.

The Judges are instructed to deliver to the Director their *final* and *complete* award of all prizes and medals, not affected by general regulation No. 29, *before they leave the Yard*, on the evening of Monday, the 14th July, in order that the necessary placards may be placed on the Prize Implements.

The Judges are requested to observe that it is left to their discretion to select the implements for trial, and also to determine which shall be publicly exhibited at work in the field.

In making their decision, the Judges are instructed to take the selling prices of the implements into consideration.

The Consulting Engineer of the Society will be in attendance in the Implement Yard, and also during the private trials, to give his opinion when required by the Judges.

INSTRUCTIONS TO THE STEWARDS.

The Director and Stewards of the Implement Yard are instructed to take care that no Governor, Member (including the Council), or Stranger be admitted into the Implement Yard before Tuesday, the 15th of July. They are also instructed not to admit into the Trial Yard, adjoining the Yard, any person excepting the Judges and the Exhibiter during the trial of his implements.

The Stewards are empowered to make such regulations for the trial of implements as they may consider requisite; and previously to place the land which they may select under such culture and management as may insure a fair and perfect trial.

The Council also delegates full power to the Director and Stewards to inforce the above regulations.

PRIZES FOR CHEESE.

To the Exhibiter of the best hundredweight of Cheese (of any kind) made within the district—Ten Sovereigns.
To the Exhibiter of the second-best ditto—Five Sovereigns.

PRIZES FOR SEED WHEAT, BARLEY, AND OATS.

I. Fifteen Sovereigns, or a Piece of Plate of that value, will be given to the Exhibiter, at the Meeting at Shrewsbury, of the best 14 bushels of White Wheat, of the harvest of 1844, and grown by himself.

II. Fifteen Sovereigns, or a Piece of Plate of that value, will be given to the Exhibiter, at the Meeting at Shrewsbury, of the best 14 bushels of Red Wheat, of the harvest of 1844, and grown by himself.

III. Ten Sovereigns, or a Piece of Plate of that value, will be given to the Exhibiter, at the Meeting at Shrewsbury, of the best 14 bushels of Spring Wheat, of the harvest of 1844, and grown by himself.

IV. Ten Sovereigns, or a Piece of Plate of that value, will be given to the Exhibiter, at the Meeting at Shrewsbury, of the best 14 bushels of Barley for malting, of the harvest of 1844, and grown by himself.

V. Ten Sovereigns or a Piece of Plate of that value, will be given to the Exhibiter, at the Meeting at Shrewsbury, of the best 14 bushels of Oats, of the harvest of 1844, and grown by himself.

Competitors are requested to send with their Wheat, Barley, or Oats, specimens, fairly taken, of the same in the ear, with the whole of the Straw, in a sheaf not less than 1 foot in diameter, with the roots attached.

[12 bushels of the Wheat, Barley, or Oats, will be sealed up by the Director or Stewards, and one of the remaining bushels of each variety will be exhibited as a sample to the public; the other being kept for comparison with the produce of the next year. At the General Meeting in December, 1846, the Prizes will be awarded.]

The two best samples of each of these classes of Wheat, Barley, or Oats, without at that time distinguishing, in any of the cases, between the comparative merits of either sample, will be selected by the Judges appointed for the Meeting at Shrewsbury; and will be sown under the direction of the Council (the Winter Wheats in the autumn of 1845, and the Spring Wheat not earlier than the 1st March, 1846), by four farmers, who will make their report, upon which the prizes will be awarded, provided there be sufficient merit in any of the samples. Ten Sovereigns will be given at the Meeting at Shrewsbury to each Exhibiter whose Wheat has been selected for trial, and Six Sovereigns for the Barley or Oats.

*** No variety which has been selected for trial at any previous show shall be qualified to compete in the same class.

N.B.—All persons admitted into the Show-yard shall be subject to the Rules, Orders, and Regulations of the Council.

By order of the Council, JAMES HUDSON, Secretary.

SEEDS.—CORNER OF HALF-MOON STREET.
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

ORNAMENTAL WIRE-WORK.
G. B. THOMSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 390, Oxford-street, their large stock of ORNAMENTAL FLOWER-STANDS, TRAINERS, ARCHES, and fancy Wirework, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements. Also their improved WATER POT, with finely perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is prepared expressly for drying Botanical specimens, for which purpose it is peculiarly adapted; and has received the most unqualified approval of our most eminent Botanists. Sold by the Manufacturers, W. and T. BENTALL, Halstead, Essex; and by their Agents, E. Newman, 9, Devonshire-street, Bishopsgate (sole Agent for London); G. Davey, Broad-street, Bristol; H. Whitmore, 119, Market-street, Manchester; R. T. McIntosh, 12, Catherine-street, Edinburgh. For particulars see *Gardeners' Chronicle*, April 5, 1845; see also the Leading Article of the same Number.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches . . .	11*s.* 0*d.*	20 inches . . .	22*s.* 6*d*
15 inches . . .	12 6	22 inches . . .	25 0
16 inches . . .	16 0	24 inches . . .	32 0
18 inches . . .	19 0		

Slate Works, Isleworth, Middlesex.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory, lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to an inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1845.] SATURDAY, APRIL 26. [PRICE 6*d.*

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Under the Patronage of the Right Rev. LORD BISHOP OF ROCHESTER, and the Nobility and Gentry of the neighbourhood.

A GRAND FLORAL and HORTICULTURAL EXHIBITION, for the Benefit of the GARDENERS' BENEVOLENT INSTITUTION, will again take place on Tuesday, June 10th, as previously announced in the Gardening Journals, in the Grounds adjoining the WHITE HART HOTEL, BROMLEY, KENT. For Lists of Prices and Tickets of Admission, apply at the White Hart Hotel, or to S. OSBORN, Secretary, Bromley. Tickets 2*s.* 6*d.* each.—BROMLEY, April 26, 1845.

TO THE ROSE TRADE.

R. B. BIRCHAM, HEDENHAM ROSERY, BUNGAY, SUFFOLK, begs to offer the following FIRST-RATE Perpetual and Bourbon ROSES, Dwarf Plants in Pots, own roots, fit for transplanting into borders; or to form beds of Perpetual Roses:—

The following are 1*s.* per Plant:—

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The following at 2*s.* 6*d.* per Plant:—

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The following at 3*s.* 6*d.* per Plant:—

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The following at 5*s.* per Plant:—

Comte de Rambuteau, Souchet, Madame Souchet, Charles Souchet, Souvenir de la Malmaison, George Cuvier, Princess Clementine, Dumont de Courset.

Queen of the Prairies, at 2*s.* 6*d.* each.

A purchaser may select *Fifty* of the above for 5*l.*, *Cash on Delivery*. The plants are healthy, and ready for planting out the beginning of May. A Descriptive Catalogue sent on application. Carriage paid to London.—Hedenham, April 26.

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WILLIAM WOOD AND SON are now sending out strong Plants of their new VERBENA HUDSONII, at 3*s.* 6*d.* each, with the usual discount to the Trade, when three or more are ordered at once. A full description of the above will be found in the *Gardeners' Chronicle*, former advertisement, March 29.

W. WOOD AND SON respectfully solicit attention to their superb collection of Fuchsias and Verbenas, collections of which will be sent at the following prices, the selection of sorts being left to themselves:

FUCHSIAS.

12 fine varieties for	6*s.*	12 new vars. for exhibition	18*s.*
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12 fine varieties for	5*s.*
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12 superb ditto	12*s.*

For a select List of Greenhouse Plants, purchasers are referred to former advertisement, April 5.

W. WOOD and SON'S Descriptive Catalogue of Fuchsias and Verbenas, also lists of Petunias, Anagalis, miscellaneous Greenhouse and hardy Herbaceous Plants, Shrubs, and Climbers, may be had GRATIS on application.

Plants will be presented to defray expense of carriage; a remittance or reference is respectfully solicited from unknown correspondents.—April 26.

FERNS.

JOHN LLOYD, many years Foreman to the late Mr. Pamplin, and who had the care of his extensive collection of FERNS, intends proceeding to the North to collect, and wishes to secure a few Subscribers at 20*s.* each. He engages to supply to every Subscriber, 40 Plants of the rarer FERNS and LYCOPODIUMS, of at least 20 species. Money to be paid when the Plants are delivered. J. L. will also supply 26 Southern ones, 13 species, fit for a North Border or Rockwork, for 6*s.*—Direct, JOHN LLOYD, 11, Gloucester-street, Vauxhall.

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W. J. EPPS begs to announce that he has now a Fine Healthy Stock of his two Magnificent SEEDLING FUCHSIAS, namely, "NYMPH" and "QUEEN OF THE BEAUTIES." For description, see Advertisement of Feb. 8.

A remittance from unknown correspondents.

BOWER NURSERY, Maidstone, April 26.

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PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN; HIS MAJESTY THE KING OF THE BELGIANS; NURSERYMEN AND FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN-DOWAGER.

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and other highly ornamental Plants, appeared upon the Advertising sheet of the *Gardeners' Chronicle* of March the 8th and March the 15th, to which they beg to call the attention of cultivators of the above elegant tribes of plants.

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12 Fine Show Varieties, by name . . . 10*s.* per dozen.
12 Extra Fine do. do. . . 18*s.* ,,

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12*s.* per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12*s.* per dozen.

FLOWER SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see YOUELL and Co.'s Advertisement of March 15, 1845.

YOUELL and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

Burroughes's Mrs Benyon, Red Picotee	. .	7*s.* 6*d.*
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,, Miss Jane, Purple Picotee	. .	7 6
,, Mrs. Bevan, Red Picotee	. .	7 6
,, Enchantress, Scarlet Picotee	.	5 0

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Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

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12 pairs extra fine and very superior first-class Show Flowers			2	10	0
25 ditto	ditto	ditto	5	0	0
12 ditto	ditto	Show Flowers	1	10	0
25 ditto	ditto	ditto	3	0	0
12 pairs of extra fine Show Pinks			0	12	0
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The Selection being left to Y. & Co.

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FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six seeds (three of each variety) for 6*s.*

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Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL & Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

Finest Double and Single Hyacinths, in pots by name, 9*s.* and 12*s.* per dozen, now coming forward for bloom.

Achimenes pedunculata, hirsuta, and grandiflora, 9*s.* per dozen; Achimenes picta, 18*s.* per dozen.

Fine plants of Pinus excelsa from Seed, 9in. to 1ft., 42*s.* per dozen.—Great Yarmouth Nursery, April 26, 1845.

F AND A. SMITH AND CO. beg to offer the undermentioned DAHLIAS: "LADY SALE;" colours, pure bright yellow ground, edged with rich light crimson, or deep scarlet, cupped petals of circular and globular form, the eye being well up. This Dahlia is the greatest acquisition of the season, surpassing every variety in its class, and inferior to no other in form. Height, 3 feet. Plants, 10*s.* 6*d.* No discount allowed unless 12 plants are taken. It has obtained three Seedling Prizes, and one Prize as the best of its class. For further description see *Gardeners' Chronicle* of April 12.

	s.	*d.*
Admiral Stopford (Trenfield)	1	0
Antagonist (Bragg)	1	0
Applause (Whale)	1	0
Alpha (Smith)	1	6
Aurantia (Spary)	2	0
Asmodeus (Davis)	1	0
Alexander (Brown)	1	6
Alice Hawthorn (Drummond)	10	6
Beauty of Birmingham (Harrison)	1	6
Beauty of Bucks (Bragg)	2	0
Beauty of Sussex (Mitchell)	1	0
Bermondsey Bee (Proctor)	3	6
Belsize Rival (Pipe)	1	0
Blue Bonnet (Brown)	1	0
Bathonia (Drummond)	2	6
Beeswing (Sainsbury)	10	6
Cheltenham Queen (Hodge)	1	0
Competitor (Hodge)	1	0
Cora (Smith)	1	6
Curiosa (Smith)	5	0
Cleopatra (Attwell)	10	6
Crimson Perfection (Whale)	1	6
Consolation (Widnall)	2	6
Cornelia (Girling)	1	0
Claudine (Foster)	1	6
Delectus (Jones)	1	6
Delight (Brown)	1	6
Duke of Wellington (Smith)	1	0
Desirable (Brown)	1	6
Emma Noak (Dowding)	1	0
Essex Triumph (Turville)	1	0
Essex Champion (Turville)	1	6
Essex Bride (Turville)	10	6
Eximia (Girling)	1	0
Eclipse (Catleugh)	1	0
Favorite (Dodd)	1	0
Firebrand (Smith)	1	6
Fleur de Gand (Van Houtte)	1	0
Fairy Queen	1	0
Fulwood Hero (Teebay)	10	6
Great Mogul (Attwell)	1	0
General Sir R. Sale (Smith)	1	0
Gauntlet (Smith)	1	6
Hampstead Rival (Cowan)	1	6
Hero of Maida (Syred)	1	6
Imperator (Jones)	1	6
Integrity (Smith)	2	6
Indispensable (Tessart)	1	6
Lady Ann Murray (Catleugh)	1	0
Lady Antrobus (Spary)	2	0
Lady St. Maur (Brown)	2	6
Lady Gray (Harrison)	1	0
Lord Howden (Harrison)	2	6
La Lionne (Lucoz)	1	0
Miranda (Brown)	1	0
Marchioness of Exeter (Widnall)	1	0
Mrs. Shelley (Mitchell)	1	0
Mr. James Richardson (Edwards)	1	0
Model (Bourne)	1	6
Madeline (Daniels)	2	0
Madame Miellez (Girling)	2	0
Madame Chauviere (Girling)	2	6
Marchioness Ormond (Bourne)	10	6
Nabob (Pipe)	2	6
Nonpareil (Proctor)	2	6
Noir et Blanc (Lehuidoux)	1	0
Ophir (Edwards)	2	0
Oliver Goldsmith (Union)	2	0
Orion (Smith)	1	6
Orange Perfection (Bourne)	1	6
Prince of Waterloo (Drummond)	2	0
Preceptor (Whale)	2	0
Park Mount Rival	2	0
Princess Alice (Gaines)	1	6
Perpetual Grand (Brown)	1	0
Pet Rival (Bushell)	1	0
Plenipo (Pearson)	2	6
Quadricolor (Lehuidoux)	1	6
Queen of Roses (Widnall)	2	6
Queen (Widnall)	1	0
Rose Nouvelle (Pipe)	1	6
Rival Yellow (Smith)	1	6
Rainbow (Smith)	1	0
Rival Rose (Wood)	1	6
Rembrandt (Brown)	2	6
Raphael (Brown)	2	6
Rob Roy (Stein)	2	6
Spitfire (Fisher)	2	0
Standard of Perfection	2	6
Stanley (Jones)	1	0
Surprise (Oakley)	1	0
Sir H. Pottinger (Drummond)	2	0
Sir J. S. Richardson (Union)	2	6
Twickenham Rival	2	0
Talma (Girling)	1	6
Trafalgar (King)	2	6
Victory of Sussex (Stanford)	1	0
Vivid (Thomson)	1	0
Virgil (Mountjoy)	1	0
Vanquisher (Dyson)	2	6
Zechim (Jones)	1	6
Zanoni (Smith)	2	0

Plants in May.

Early orders are necessary to secure several of the above varieties.

F. and A. S. can supply all the new sorts of other Growers, if timely notice be given, with all the older varieties.

A List of Fuchsias and Verbenas may be had on application. Hackney, London.

NEW AND DISTINCT FUCHSIAS.

JOHN SMITH, NURSERYMAN, DALSTON, respectfully announces that he intends sending out in May the following fine and showy FUCHSIAS, good plants, in pots, at the prices named; viz., Atlas, 5*s.*; Cleopatra, 5*s.*; Eminent, 5*s.*; Helena, 5*s.*; Heroine, 5*s.*; Lord Ashley, 7*s.* 6*d.*; Magnet, 7*s.* 6*d.*; Magniflora, 5*s.*; Mrs. Fry, 5*s.*; Recurva, 5*s.* The price of the above 10 varieties, 2*l.* 10*s.* Venusta, 10*s.* 6*d.*; Smith's Queen Victoria, 21*s.* A descriptive List may be had on application at the Nursery, Dalston; or at his shop, Covent-garden, where drawings of the two last may be seen.—April 26.

WILLIAM MILLER begs to call the attention of the readers of the *Chronicle* to his CATALOGUE of New SEEDLING FUCHSIAS, VERBENAS, PETUNIAS, ANTIRRHINUMS, &c., which appeared on the 1st of March in this Paper.—Providence Nursery, Ramsgate, Kent.

TO FUCHSIA GROWERS.

T. TRINDER begs to inform his friends and the public that he has now ready to seed out a few SEEDLING FUCHSIAS, in tin cases, post free, at 7*s.* per dozen; the above were raised from one of the best collections in the country, and are recommended with confidence.—Forest-hill, Peckham, near London. A remittance respectfully requested.

CHEAP DAHLIAS, &c.

J. G. WAITE, SEEDSMAN and FLORIST, 4, Eyre-street-hill, Hatton-garden, London, has on Sale DAHLIAS consisting of first-rate Show Flowers, at 20*s.* per dozen, including one of Keyne's Standard of Perfection, Bermondsey Bee, Procter's Nonpareil, and other splendid varieties; for particulars, see Catalogue.

Excellent older sorts at 9*s.* per dozen, usually sold at 15*s.*

12 good varieties, Pansies	.. ..	6*s.* per doz.	
12 fine show do.	do.	9*s.*	,,
12 superior do.	do.	12*s.*	,,
12 extra fine do.	do.	18*s.*	,,
Extra fine Pansy Seed, saved from the best vars., p. pkt.,			2*s.* 6*d.*
do. Dahlia Seed,	do.	do.	do. 1*s.* 9*d.*

April 26, 1845.

SCARLET RUNNERS.

J. G. WAITE begs to inform the Trade, that he can supply them with SCARLET RUNNERS, in any quantity, as he has just received a large importation from the Continent. Terms to be had on application.—4, Eyre-street-hill, Hatton-garden, London. April 26, 1845.

GENUINE AGRICULTURAL SEEDS.

J. G. WAITE, SEEDSMAN, 4, Eyre-street-hill, Hatton-garden, London, begs to inform the Nobility, Gentry, and Agriculturists in general, that his Stock of AGRICULTURAL SEEDS is upon the most extensive scale, amongst which will be found the finest description of Grasses, Turnips, Carrots, Mangold Wurzel, Cabbages, &c., at 30 per cent. lower than any house in London. Catalogues may be had on application.—April 26, 1845.

NEW, GOOD, AND CHEAP.

B. W. KNIGHT, FLORIST, &c., TIVOLI, near St. Leonard's-on-Sea, Sussex, begs to call the attention of his friends and the public to the following Choice Plants, which are now ready to send out: 12 new choice and distinct Fuchsias, fit for exhibition, for 6s.; 12 extra first-rate, very distinct varieties, all sent out for the first time last season, for 12s.; 12 distinct Verbenas for 3s. 6d.; 12 extra new good varieties for 6s.; 12 fine show Pansies for 6s.; 12 extra good for 12s.; 12 very choice Petunias for 6s.; 12 good and distinct Cinerarias for 6s.; 12 extra new kinds for 12s.; 12 extra choice Anagallis for 3s. 6d.; 12 fine Salvias for 4s.; 12 Heliotropiums for 4s.; 12 choice kinds Phloxes for 6s.; 12 extra new very distinct varieties for 12s.; 12 choice Antirrhinums for 6s.; 12 extra choice new kinds for 12s.

Also will be ready to send out in May, 12 good show Dahlias for 12s.; 12 extra good distinct kinds, all new last season, for 21s.; 12 choice fancy or border varieties for 6s. Any of the above can be securely packed and forwarded, post free, on receipt of the amount with the order. Catalogues of the above may be obtained on prepaid application.—April 26.

THOMAS BROWN'S ANNUAL CATALOGUE of DAHLIAS and PANSIES is now ready, and can be had application.—Slough Nursery, April 26.

I. AND J. GAITSKELL, NURSERYMEN, SEEDSMEN, and FLORISTS, respectfully call the attention of the Nobility and Gentry to their extensive stock of SHRUBS, consisting of LAURELS, COMMON and PORTUGAL, RHODODENDRONS, KALMIAS, AZALEAS, ANDROMEDAS, AUCUBA JAPONICA, &c., in great variety, of which well-furnished plants, of various sizes, may be had upon very moderate terms, at their Nursery, HALL SANTON, near WHITEHAVEN. The Trade will be liberally treated with for Laurels, 1 to 3 feet, Evergreen Privet, Red-twigged Limes, &c. Plants will be given to compensate for long carriage. Communication to Liverpool by steam-packet three times weekly.

N.B.—The nature of the soil from which the plants are removed insures their ultimate success.

TROPÆOLUM LOBBIANUM.
BEAUTIFUL NEW SCARLET NASTURTIUM.

MESSRS. VEITCH and SON have now ready for delivery plants of the above beautiful new species, which they have introduced from Peru, through the assistance of their collector, Mr. W. Lobb, in compliment to whom it is named. See figures in Curtis's "Botanical Magazine" for July, 1844, and "Paxton's Magazine" for January, 1845. Strong plants 21s. each.

Messrs. V. and Son also offer

Tropæolum azureum	. .	*true* 7s. 6d.	per plant.
Hindsia violacea	. .	strong 42s.	,,
,,	. .	small 21s.	,,
Alona cœlestis	. .	5s. to 7s. 6d.	,,

N.B.—A remittance, or London reference, from unknown correspondents.—Exeter, April 26, 1845.

GEORGE SMITH begs to refer the readers of the *Gardeners' Chronicle* to his Advertisements in April 12 and two preceding Numbers, of his Splendid Seedling FUCHSIAS "JUNIUS" and "HAMLET." Also to his three Seedling VERBENAS, all of which he warrants to be first-rate. A Descriptive Catalogue can be had of Fuchsias, Verbenas, Dahlias, Petunias, &c., on application. A remittance from unknown correspondents.—Tollington Nursery, Hornsey Road, Islington.

GAINES'S SUPERB SEEDLING FUCHSIAS AND DAHLIAS.—Fuchsia "DUCHESS OF SUTHERLAND," flesh-white tube, with rosy purple corolla; very large flowers, 10s. 6d. "FAVORITE," similar to Venus Victrix, much larger flower, 10s. 6d. "REMBRANDT," very fine large dark show-flower, 7s. 6d. DAHLIAS: "MATILDA," blush-white, laced with cherry, finely cupped, a great depth of petals, a superior show-flower, obtained several prizes, 4 ft., 10s. 6d. "FANCY," pale sulphur, deeply tipped with bright red, a beautiful border variety, being quite new and distinct in colour, height, 4 ft., 7s. 6d. "COMMODORE," bronze-rose shaded, well cupped, and a great depth of petals, 4 ft., 7s. 6d. A priced Catalogue of Dahlias, Fuchsias, Geraniums, Calceolarias, Cinerarias, &c. &c., may be obtained of N. GAINES, Surrey Lane, Battersea.—April 26.

SEEDS.—CORNER OF HALF-MOON-STREET.
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the
"ROYAL AGRICULTURAL SOCIETY OE ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

TO HORTICULTURISTS, FLORISTS, &c.

GEORGE & JOHN DEANE'S Stock of GARDENING AND PRUNING IMPLEMENTS, combining all the latest improvements, is at once extensive and select; their sets of tools adapted for ladies and youths are universally approved of for their lightness, portability, and finish. G. & J. DEANE'S Conservatory Pumps, Garden Engines, Syringes, and Mowing Machines, are all manufactured of the best materials, and on the most correct principles. Their cast-iron Garden Seats and Chairs, and their Ornamental Wire Work for Lawns, &c., exhibit the most graceful devices. G. & J. DEANE are sole London Agents for Lingham's Menograph, and their illustrated Catalogue of Horticultural Tools may be obtained at their Warehouse, or will be forwarded by post. GEORGE and JOHN DEANE, 46, King William-street, London-bridge.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9s. to 7l. 10s. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

BAGSHOT NURSERY.

KALMIA LATIFOLIA & HEMLOCK SPRUCE FIRS.—The undersigned having a large stock of the above, of all sizes and in fine condition, begs to offer them to the trade, and to the public in general, on very reasonable terms. Apply to Mr. GEORGE BAKER, Bagshot Nursery (*late* Hammond's). Surrey.

GERMAN ASTERS, STOCKS, &c.

J. CARTER begs to inform his Customers that he has just received a fresh supply of GERMAN SEEDS in the original sealed packets, which may be had at the following prices:—

In separate papers.—s. d.		*In separate papers.*—s. d.	
40 Splendid Aster	.. 10 0	12 Prussian Stock	.. 4 0
20 ditto	.. .. 5 0	12 Autumnal ditto	.. 4 0
25 Finest Dwarf Stock	7 6	*16 Queen & Brompton do.	5 0
12 ditto dittto	.. .. 4 0	* 8 ditto ditto	.. 2 6
12 ditto Branching ditto	4 0	*12 Fine Wallflower	.. 5 0

Smaller packets may be had of the above, at half-price.

16 Double Poppy	.. 3s. 0d.	8 Fine Petunia	.. 2s. 0d.
*30 ditto. Hollyhock	.. 6 0	12 ditto Marigold	.. 3 0
*15 ditto ditto	.. 3 0	*8 Splendid Scabious	2 6
24 Zinnia elegans	.. 8 0	10 Elichrysum	.. 2 6
12 ditto ditto	.. 5 0		

Various Seeds.	*Sep.* s. d.	*Mix.* s. d.	*Various Seeds.*	*Sep.* s. d.	*Mix.* s. d.
*8 Alstrœmeria	.3 6	1 0	6 Linaria	1 0	—
*4 Anemone	1 6	0 6	*6 Lobelia	1 6	—
*6 Antirrhinum	1 6	0 6	*6 Marvel of Peru	1 6	0 6
*6 Aquilegia	1 6	0 6	6 Nemophila	1 6	
20 Aster, German	—	0 6	*6 Œnothera	1 6	0 6
* Auricula, Alp.	—	0 6	*6 Papaver	1 6	0 6
6 Calliopsis	1 6	0 6	* Picotee, finc.	—	1 0
*8 Campanula	2 0	0 6	* Pink, extra	—	1 0
* Carnation, dbl.	—	1 0	*8 Potentilla	1 6	0 6
8 Convolvulus	2 0	—	* Polyanthus, fine	—	1 0
16 splendid	—	1 0	* Ranunculus, fine	—	1 0
* Dahlia, finest	—	1 0	* Scabiosa, 12 var	—	1 0
*6 Delphinium	1 6	0 6	6 Schizanthus	1 6	0 6
*8 Dianthus	2 0	0 6	*3 ,, biennial	1 6	0 6
*8 Digitalis	1 6	0 6	20 Stock, German	—	1 0
8 Godetia	1 6	0 6	,, New Scarlet	—	0 6
*3 Geum	1 0	0 6	*6 ,, Brompton	2 0	0 6
*20 Gladiolus, fine	—	1 0	*20 Sweet William	—	0 6
* Heartsease, fine	—	1 0	* double Scarlet	—	0 6
*25 Hollyhock	—	1 0	*10 Wallflower	—	0 6
*2 Ipomopsis	1 0	0 6			

Those marked * are Biennials and Perennials; the others all Annuals.

GREENHOUSE SEEDS.

	per packet—s. d.		per packet—s. d.
Calceolaria, finest	.. 1 6	Gesnera, 14 sp.	.. 2 6
,, from Chili, mixed	1 0	Gloxinia, 8 sp.	.. 1 0
Cineraria, finest	.. 1 6	Lophospermum, 3 sp.	.. 0 6
Erica, 30 sp.	.. 2 6	Maurandya, 2 sp.	.. 0 6
Fuchsia, 6 fine sp.	.. 1 0	Primula sinensis	.. 1 0
Geranium, finest	.. 1 0	Thunbergia alata, 3 var.	0 6

And most other flower seeds.

*** The Perennials, Stocks, Calliopsis, Godetias, Nemophilas, Schizanthus, and Greenhouse seeds may also be sown in the autumn.—JAMES CARTER, Seedsman and Florist, 238, High Holborn, London.

SUMMERLAND AND CITY NURSERIES, EXETER.

C. SCLATER AND SON beg to inform the Nobility and Gentry that they are sending out their very superior collection of new Fuchsias.

QUEEN OF THE WEST.—This beautiful variety is of first-rate form, large, open, fine habit, and a very free bloomer; the tube and sepals are of a clear glossy white, of great substance, slightly tinted with pale blush. The corolla is finely formed, very large, and of a bright scarlet crimson colour .. .. 10s. 6d.

SYLPH.—Tube and sepals very smooth, pale blush, finely expanded, showing to great advantage the handsome corolla, which is of a rich purplish carmine. The blooms are large, and of extraordinary length. This variety is of dwarf habit, and a remarkable free bloomer .. .. .. 10s. 6d.

OBERON.—Very fine and large, of great substance, and quite distinct. The tube and sepals bright pink, the corolla considerably darker, forming a decided contrast .. .. 5s.

IMPERIALIS.—Dark glossy crimson tube and sepals, the corolla of a beautiful dark violet—the great size and depth of which forms a remarkable feature in this very handsome variety—of very dense habit and fine foliage, showing the blooms, which are produced in surprising quantities, to the greatest advantage .. .. 5s.

HERO (MAYNE'S)—This is a very large bold flower, good form, and well proportioned. The tube and sepals crimson, reflexed, the corolla very deep rose .. .. 5s.

MAYNEII GRANDIFLORA (MAYNE'S).—This is a superb bold flower, very elegant in form, tube and sepals carmine, the corolla deep blood colour. The plant is a free bloomer, and of a remarkably erect habit .. .. 5s.

Price for the Collection, 1l. 10s.

THE ASHCROFT SWEDISH TURNIP was raised by Mr. ASHCROFT, some few years ago; it has won several prizes in competition with other sorts; it is somewhat of an oval form, has a yellow flesh, and is highly nutritive; is a very heavy cropper, and is well adapted for storing; will bear sowing later than most other Swedes, price 1s. per lb. Skirving's, Matson's, and Pain's, Hardy Green-crown Swedes, 1s. per lb. each; True Purple-top Swede, 9d. per lb.; Gibbs' Green-crown Yellow-hybrid, Dale's Hybrid and Purple-crown Yellow-hybrid, 1s. per lb. each. General priced Catalogues are ready.—MEADOW and PASTURE GRASS SEEDS, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. Mixed Sorts for improving old Grass land, 1s. 3d. per lb. Directions for sowing, &c., will accompany the seeds.—GEORGE GIBBS & Co., Seedsmen, &c., to the Agricultural Society, 26, Down-st., Piccadilly.

GIGANTIC PURPLE-TOP SWEDE.—Any quantity of this highly-esteemed Seed, which has produced the enormous quantity of 42 tons of Turnips per acre, and obtained a first-class Agricultural Prize, may be had of Mr. NICHOLLS, of Bourne, at the moderate price of 8d. per lb., for cash.

Bourne, Lincolnshire, April 26.

BULB CUCUMBER-GLASSES, for Watering by Evaporation during the growth of the Fruit, 2s. 6d. to 3s. 6d. each; GRAPE-GLASSES, with holes, 1s. 9d. to 2s. 6d. each; BEE-GLASSES, 1s. to 2s. 6d. each. Cylindrical CUCUMBER-TUBES, from 6d. to 4s. each; PROPAGATING-GLASSES, Green, 1s. per lb.; white, 1s. 2d. per lb.; or 2s. 6d. to 24s. per dozen; FISH-BOWLS, from 1s. 6d. each; ditto, with hole in bottom for Fountains, 2s. 6d. per lb., at APSLEY PELLATT'S, Falcon Glass Works, Holland-street, Blackfriars. Orders from the country, accompanied with a Post-office order, will meet with prompt attention.

SILVER SAND.—Nurserymen, Florists, Gentlemen's Gardeners, &c., are respectfully informed that they can be supplied with the above article of a superior quality, in quantities of one ton and upwards, 21s. per ton; delivered within 6 miles, 26s.; smaller quantities, 1s. 6d. per cwt. E. KEMP, 11, Manor-street, Old Kent Road.—References given to most of the principal Nurserymen and Plant Growers in Bromley, Lewisham, Blackheath, and neighbourhood. Orders by post punctually attended to.

THE NEW and SPLENDID DAHLIA "CLEOPATRA."—W. BRAGG has purchased the whole. The prizes won were in 1843, single bloom: First at Wycombe, first at Windsor, and first at Sunbury—all open shows, and the only places it was shown at that year.

W. BRAGG begs to observe that in consequence of the very cold weather, "CLEOPATRA" cannot be sent out till the beginning of May. No discount unless 12 plants taken.

In 1844, Stonehenge, Salisbury Plain; 1st prize, beating Beeswing and Empress of the Whites, and 1st class prize in yellows.

South London, Surrey-gardens, 2d prize.
Teddington, Middlesex, 1st class prize.
Staines, 1st prize and 1st class prize.
Sunbury, 1st prize and 1st class prize.
Wycombe, 1st prize and first class prize.
Uxbridge, 1st prize and first class prize.
Great London Show, Baker-street, 1st prize.
Highgate, equal prize with Marchioness of Ormond.
Chelmsford, equal prize with any there.

Manchester excluded, being too late, but pronounced first class. It has also been exhibited at Nutting's, Cheapside, all the season.

W. BRAGG intends sending it out in strong plants, at 10s. 6d. The full discount to the Trade, on ordering 12 or upwards.

W. BRAGG has also purchased the root of Mr. Howard's BURNHAM CHAMPION, which gained the first prize at Windsor, a claret-coloured flower, with good outline, well up in the centre, and every way a desirable variety, and intends letting it out the first year without discount at the usual price, 10s. 6d. Of course the number from one root will be very limited, but if it should disappoint in quality, they will not be charged for.

Also the following new sorts:—Marchioness of Ormond, Essex Bride, Drummond's Bees-wing, Smith's Lady Sale, Brown's Arethusa and Orlando, Attwell's Wonder, and Turner's Red Rover.

Likewise the new flowers of Messrs. Keyne's Widnall, Sparr, Whale, Girling, and others.

Also the following excellent Show varieties of last year, at from 20s. to 30s. per dozen:—Lady Antrobus, Bermondsey Bee, Nonpareil, Bathonia, Alexander (Brown), Lord Howden, Consolation (Widnall), Delight (Brown), Essex Champion, Lady St. Maur, Queen of Roses (Widnall), Rembrandt (Brown), Raphael (Brown), Sir J. S. Richardson, King's Trafalgar, Standard of Perfection, Beauty of Bucks, Spitfire (Fisher), Desirable (Brown), Nutwith (Brown), Beauty of Birmingham, Prince of Waterloo, Sir H. Pottinger, and every other approved variety in cultivation, on equally moderate, and, of course, much lower terms.

Orders must now be prompt, as they will be ready to send out the first week in May.

Persons who have not paid their accounts for Antagonist, Vivid, Beauty of Bucks, or Spitfire, are requested to send Post-office orders for their new favours.

W. BRAGG has a fine stock of Fuchsias, Heartsease, and Verbenas, just ready to go out.—BRAGG'S Nursery, Slough.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

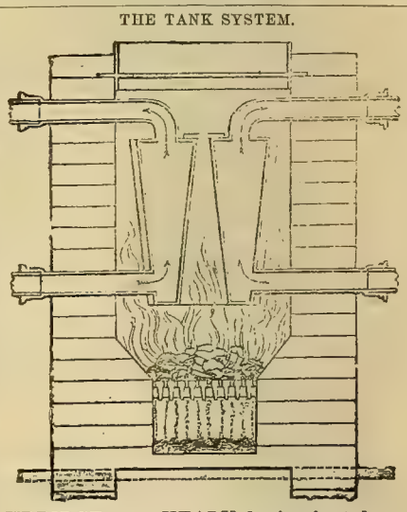
EDWARD BECK will be happy to answer any inquiries, either personally or by post.

HORTICULTURAL BUILDING AND HEATING.

JAMES GRAY AND CO., No. 7, Queen's-terrace, Queen-street, Chelsea, beg to inform the Nobility, Gentry, and Horticulturists, that they have commenced business in the above line. One of the firm having been a professional gardener, the adaptation of all structures erected by them to the purpose intended will be guaranteed, and all work shall be of the best description, so as to insure satisfaction to those who may honour them with commands. Plans and Estimates will be furnished for Building and Heating with Hot Water, and gentlemen waited upon in town or country. Satisfactory references will be given.

J. WEEKS AND R. DAY, ARCHITECTS, HORTICULTURAL BUILDERS, &c., Gloucester-place, King's-road, Chelsea. The great simplicity of their improved plan of SHADING, by which the roof of the largest or smallest house can be instantly covered with a sheet of Canvas, renders the principle an object of admiration. To be seen in use at most of the London Nurseries, and at their Horticultural Manufactory, Gloucester-place, Chelsea.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

GIRLING'S NEW STRIPED PETUNIAS.—The following Set will be delivered on and after the 1st day of June, including hamper and package (or free by post), 10*s.*:—Attraction, Beauté de jour, Beauté parfait, Cœrulea striata, Forget-me-not, Louis Gullino, Membranacea, Perfection, Portrait, Queen of May, Sanspareil, Striata delicatissima, and Morgan's Delineata. They are highly recommended by Professor Lindley, Mr. Glenny, and Mr. Ayres.—W. G. RENDLE, Union-road Nursery, Plymouth.—April 26, 1845.

NEW ALSIKE CLOVER, 2*s.* 6*d.* per lb.—This new and improved variety partakes of the character of the RED and WHITE CLOVER; is a Perennial plant, producing an immense crop. Likewise GRASS SEEDS of the very best quality, suitable either for Lawns or Pasturage. Also, the improved Long Red MANGOLD WURZEL and the YELLOW GLOBE, ditto. Fine selected Field TURNIPS, embracing all the newest and most approved sorts in cultivation.—The above to be had, with every particular, at WARNER & WARNER'S, Seedsmen, &c., 28, Cornhill, London.

N.B.—For a List of new and choice VEGETABLE and FLOWER SEEDS, W. & W. beg to refer to Harrison's "Floricultural Cabinet" for this and the two preceding months. See also a Selected List in the previous Number of the *Gardeners' Chronicle*.

CARNATIONS, PICOTEES, AURICULAS, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth), BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility and Gentry the present season as the best for making selections of the above FLOWERS, which he can supply at the under prices:

		£	*s.*	*d.*
25 pair of CARNATIONS, in 25 Superfine sorts, named		2	10	0
25 pair of PICOTEES, in 25 ditto	ditto	2	10	0
25 AURICULAS, in 25 ditto	ditto	3	3	0
25 GERANIUMS, in 25 ditto	ditto	3	10	0
Good kinds . .	per doz., from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each		0	3	6
Ditto ditto PUNCTATUM	ditto	0	7	6
Ditto SPECIOSUM (true)	ditto	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Foreign Orders executed.—April 26.

The Gardeners' Chronicle.

SATURDAY, APRIL 26, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, April 30	Society of Arts	8 P.M.
THURSDAY, May 1	Horticultural Anniversary	1 P.M.
FRIDAY, May 2	Botanical	8 P.M.
MONDAY, May 5	Entomological	8 P.M.
TUESDAY, May 6	Horticultural	8 P.M.
	Linnean	8 P.M.

HITHERTO, in dealing with the GLASS question, we have confined ourselves to the actual state of the glass market. For the present we suspend our remarks upon that part of the subject; but we shall resume it as soon as we have had leisure to consider the points adverted to in the correspondence which our comparison of old and new prices has elicited.

For ourselves and the purpose of this journal, we should care little for the price of glass not employed in gardening: and should therefore omit all inquiry into the proper charges for plate-glass, if we did not feel convinced that the value of the one material is likely to regulate, or at least affect, the other. We shall, however, come back to the plate-glass question hereafter.

As we have already stated, what is wanted in gardens, that which to horticulture is all-important, and for which an enormous demand may be expected, is cheap strong common glass, white, or milky, or green. It must be very cheap to be largely employed; it must be very strong, or its cheapness will prove to be dearness; it may be very common, because for the most considerable part of gardening operations the mere appearance of the glass is of small moment. At present no such glass is in the market; crown-glass, as now manufactured, is too thin, and can only be used in small squares, which entail a great expense in glazing. No 3, sheet-glass, is far too dear; fifteen pence a foot is a prohibitory price; the charge ought, at this moment, to be 8½*d.*, and if buyers are wise they will wait till they can get it for that sum; for to that it must come in a few months, when the market shall have been fairly opened, and no manufacturer shall have it in his power to keep *up* prices by keeping *down* the quantity to be made. But we entertain a confident expectation, that a much lower price will be asked, ere long, for good serviceable glass.

What the minimum price will be hereafter, it is impossible at present to foretell. When the paper-makers were getting 36*s.* a ream for bad paper, they would not have believed that a better article could be prepared for 13*s.*, although they remained fettered, and that pretty tightly, by the excise laws. They did not then know how to use the worthless materials which skill has since taught them to prepare; nobody dreamed that the filthy cotton refuse, greasy and blackened by metallic particles, which was in former days carted to the dunghill, would be made to assume the appearance of the finest writing-paper. So it is with the glass-makers. They too have to discover the art of dispensing with the more costly of the ingredients of their raw material. The slag of the foundries may, perhaps, prove as useful to them, as the refuse of the cotton-mills to the paper-makers.

But it is unnecessary to travel thus into the realms of conjecture. Evidence of a tolerably positive character already exists in the article of green bottle glass. We have ascertained that the selling price of wine-bottles, at the works, previous to the repeal of the duty, was 31*s.* a gross; the intrinsic cost being 16*s.* and the duty 15*s.* They ought then to be sold at the present moment for 16*s.* a gross, the manufacturer retaining the whole of his present profit. We will call this 1½*d.* each, for the sake of ready reckoning; it is not so much. Now wine-bottles weigh, on an average, 1½ lb.; and are therefore sold for 1*d.* per lb. A square foot of the best sheet glass (No. 3) weighs 2lb., and of the commoner kind (No. 1) 1 lb.; so that green bottle glass made into sheets, instead of bottles, might sell from 1*d.* to 2*d.* per square foot, if it could be made in squares as cheaply as in its present form. How far that can be effected remains to be ascertained. We are aware that green glass is a more infusible compound than white glass, and that there is a difficulty about cutting it. But we also know that the excise would not permit sheet glass to be made at the green bottle works, and therefore we have as yet no evidence to show how far this hard, and therefore excellent, material may be rendered more manageable than it is at present asserted to be.

This at least is certain, that glass no greener than that from which soda-water bottles are made, is perfectly well suited for nearly all purposes of cultivation, if not for all.

Now let us imagine that this material, weighing 1 lb. to the square foot, and manufactured in squares 40 inches long by 12 inches wide, could be sold for 1½*d.* per foot, does any one who knows what gardeners are doubt for a moment that an immediate and enormous demand would spring up for it? Why, there would not be a market-gardener in the country who would not immediately set about using it to the utmost extent of his capital. But we must not indulge in anticipations of this kind. The hare is not caught as yet, and we cannot sell her skin. We may, however, mention that these conjectures are not so wild as they may seem to be, for we hear that Bohemian glass is likely to be offered for sale at 3*d.* per foot, although the import duty is 1½*d.* a lb. What such a commodity may be good for remains to be seen.

THE details of the new system of TRUFFLE-GROWING have not yet been presented to the public; but it appears that a principal part of the system depends on the collection of the spawn, which, we are informed by a correspondent, can be procured only on very dark nights, and is recognised by its shining as brilliantly as glow-worms. As, however, our woods produce a great variety of species, of which one or two only are likely to be of any use to the cultivator, it will be necessary for him to guard against disappointment.

Twenty species, at least, have been found in this country, and it is probable that, ere long, the number will be greatly increased. It is principally to the indefatigable researches of Mr. BROOME that we are indebted for our knowledge of their occurrence in Great Britain. They belong to three distinct types:—

1. The real Truffles, which are distinguished by their being of a close, fleshy texture, marbled with veins which contain the spores inclosed in transparent sacs; their structure is easily ascertained under an ordinary microscope. A very few species present larger or smaller cavities when cut, but there is no difficulty in discovering the group to which they belong.

2. The Puffball-Truffles, which, though rough and granulated externally, are at once known by their soon becoming dusty within. They occur in immense quantities, and are generally far more common than the real Truffles. All the species are wholly unfit for food.

3. The false Truffles, which present a multitude of minute sinuous cavities, just like those of a young Puffball, whose walls are clothed with a dense velvet-like pile of vertical cells, surmounted by the spores. These are not easily examined without a pretty good glass.

The only species interesting to the cultivator belong to the first and third sections.

Of the real Truffles there is but one British species, as far as they are at present ascertained, likely to be of any use as a subject of commerce; for we do not at present know what the large white Truffle, figured by Sowerby, really is. The common Truffle is known to every cultivator by its fine aroma, its large size, and its rough black surface. One species only has been discovered in Great Britain at all resembling it; and should the spawn of this chance to be collected, it would probably grow to a large size, and pass unobserved, except by a very discriminating eye, amongst the other species. The reddish-brown and white species would probably prove worthless; and even should they attain any size, they would at present scarcely be saleable. Many of them, though altogether worthless as articles of food, are to be found in Italy in the Truffle-baskets; and the peasants have the art of preparing them in such a way as to pass them off even for the real Truffle of Piedmont. Different names are given by the Truffle-hunters to different states of the common Truffle. The younger individuals, though black externally, are known by the name of White Truffles, when the veins are not yet distinctly marked. These are comparatively worthless, as the aroma depends in some measure on the presence of spores. Some are known by the name of French Truffles, others are called English Truffles; but though specimens have been sent to us under these names, we have not perceived any specific difference. The smaller and less valuable species are thrown away as useless, and very rarely, if ever, come to market; at least, we have taken every opportunity of examining the Truffle-baskets in Covent-garden market, and have made inquiry of the dealers, but have never been able to perceive any except the common species, Tuber æstivum.

At present the Truffle of Piedmont has not been found in Great Britain. It is known by its delicious taste and strong odour, resembling somewhat that of Garlic; its minutely granulated pale ochre, or yellowish green surface; its pale reddish flesh, which is not unfrequently variegated with red spots, or occasionally the whole internal substance is red like Beetroot. It is very highly valued, and sold at an enormous price, though sometimes pretty common. It occurs abundantly in the mountains and hills of Piedmont, as in the neighbourhood of Alessandria, on either side of the Po, and possibly in no other country, for it is not certain that what has been received by botanists from Bohemia is the same species. It is to Piedmont, then, that the attention of the cultivator must be drawn who wishes to procure the true plant, and when once his efforts in regard to the more common Truffle have been crowned with success, we doubt not that a little tact and care will also, in this case, be rewarded.

White Truffles were formerly procured in great abundance from Africa, and they have been found in Algiers by the French officers. Three species have at present occurred; one of them in great abundance, but not identical with any European species. Of this we have received specimens, but without any information as to its qualities.

There is a species which has been found in some abundance by Mr. BROOME, in August 1843, at Spye Park, in Wiltshire, in sandy ground, which is distinguished by its being, unlike the common Truffle, full of little cavities which communicate with the outward air. It has been named Hydnobolites Tulasnei. This, or at least a species perfectly resembling it externally, is sold in immense numbers in the market at Prague, under the name of Czerwena Tartoffle. Of its merits our informant, who has communicated a specimen, does not speak. The English specimens, at present found, are too small to make them of much importance.

Of the third series indicated above, there is but one species, as far as we know, which can be considered edible, Melanogaster Broomeianus. It is much used at Bath, where it is known under the name of the Red Truffle, and is preferred to the common species. We cannot say that we consider its aroma very tempting, but as it abounds in myriads of minute brown seeds, we suspect that its great merit consists in the soy-like brown which it communicates to the viands with which it is dressed. It is not probable that it would meet with any sale in the London market, and as it belongs to quite a different order of fungi from the common Truffle, it would require, probably, a different mode of cultivation.

The author of the present remarks would be happy to furnish a specimen of the Melanogaster to any one interested in the matter, and to give any information he may possess on such species as may occur in the neighbourhood of any one engaged in making experiments on Truffle-growing.—*M. J. B.*

CONSIDERABLE doubts having prevailed as to the period at which the AUCTION DUTIES are to cease, we are authorised to state that the Lords of the Treasury have addressed a letter to the Commissioners of Excise, authorising them to forbear to charge the duties on auctions after the 8th of April, on the usual condition of the parties consenting to abide the ultimate decision of Parliament.

IT may be interesting to those who are anxious for experiments upon the APPLICATION OF ELECTRICITY to cultivation, to know that arrangements are making by Mr. EDWARD SOLLY, for trying the effect of some Electrical arrangements in the Gar-

den of the Horticultural Society, during the ensuing season. It is to be hoped that this experiment, and others already announced elsewhere, may bring us to something like a definite conclusion as to the possibility of applying this all-pervading form to gardening and farming. As we have stated before, all reasoning, in the absence of such experiments, is, to say the least of it, premature.

THE AURICULA.—No. II.

In continuation of my paper on the properties and right system of arriving at just conclusions as to the respective merits of Auriculas in competition, I will suppose a quantity of flowers staged for exhibition, and the judges ready to decide on their qualities. They should, previously to entering on their duty, ascertain from the secretary if it is the custom of the Society to depart from any of the usually established rules. They must inquire the smallest number of pips which are allowed to constitute a truss; whether shown in pans of four, or exhibited in pairs; if in classes, how many of each colour constitute the class, and whether the same variety may win twice or more, and whether it is customary to allow seedlings to be shown in pans, &c. It is perfectly necessary to be acquainted with these little matters, and on receiving the proper information, they may at once proceed with business.

It often happens that some fine well-grown flower either in the pans or general collection, stands so prominently forward as immediately to catch the eye and arrest the attention, though it is seldom indeed that in any one flower all good properties are centred. This, then, should be brought forward to a small table, and the competing pairs, pans, or collection, as the case may be, should now undergo a rigid scrutiny, and other flowers should be brought and pitted against it. Then commences the friendly disputation; each censor freely expresses his opinions, pointing out defects or beauties in the rival flowers; and if the superiority of the first is not thoroughly apparent and satisfactorily proved to each censor individually, or the points so nearly balanced as to cause some doubt as to which really is the best, they should examine the properties *seriatim*, allowing a certain number of points for each, by which means they cannot fail in coming to a proper decision. My system in a case of this description is as follows:—Aiming at *perfection*, I give to form, including rotundity and flatness of the corolla, &c. five points; to *harmony* or a just distribution of colour, four points; to *intensity* of colouring, three points; to *uniformity*, or proportions of the truss, two points; and to *size*, one point.

Suppose, by way of illustration, that the two heads of flowers in dispute are trusses of Lee's Colonel Taylor, green edge; No. 1 with seven pips, from rather a weakly plant; No. 2 with five, rather larger. In form and colour they are acknowledged equal; but No. 1 has two of the pips in which the ground or dark colour has struck through to the outer edge, still it is most uniform.

There would then in this case be only three properties to decide on: distribution of colour or harmony, uniformity, and size; and the decision would stand thus:—

No. 1—Form . . equal	No. 2—Form . equal
Harmony . —	Harmony . 4
Intensity . equal	Intensity . equal
Uniformity . 3	Uniformity . —
Size . —	Size . 1
—	—
3	5

No. 2 would thus be awarded the first place, winning by two points. Again of Colonel Taylor, *v.* Galloway's Glory of Oldham.

The former would be best in form . . . 5	The latter best in Uniformity . . . 2
Distribution . . 4	Size 1
Colour . . . 3	—
—	3
12	

Again, we will suppose other two flowers. No. 1 best in form and colour; which would be 5 and 3. No. 2 best in distribution, uniformity, and size; which would reckon 4, 2, 1. No 2 would thus lose by one point.

Another example will be sufficient to show the working of this method:—No. 1, best harmony or distribution, and most intense in colour, would be 4 and 3. No. 2, best form, uniformity of truss, and size, 5, 2, 1; No. 2 winning by one point. It will thus be seen that no mistake can well be made relative to the respective merits of the flowers under consideration, and fresh flowers are brought from the stage to compete in a similar manner with the losing one till the requisite number is obtained in each of the classes. By this simple means, working on established rules, all wrangling and unpleasantness is done away with, and any dissatisfied exhibiter, on application in writing to the Secretary (if such proceeding were allowed), might have "chapter and verse" for the censors' decision.

The judges having placed the winning flowers should give the whole a slight revision (especially in cases where they have not decided arithmetically), to make the propriety of their awards "doubly sure;" for on this point the unity of societies, and the comfort and confidence of members, greatly depend, and I hardly can conceive anything more essential than the selection of censors who, in addition to their known ability with respect to being perfectly acquainted with the merits of florists' flowers, possess a character for impartiality, uprightness, and honesty, with their fellow men.

Before closing this article I would just hint the propriety of all judges being "wide awake." Unfortunately, in the best regulated societies, unfair and disreputable advantages will occasionally be taken. I have known, for instance, where a fine head of Auricula had several defective pips, these were extracted from the calyx, and a short time previous to staging, perfect pips were obtained from other flowers, and inserted in their place, being fastened with a very small quantity of glue or gum.

Occasionally, grey-edged flowers have been exhibited as green, after having had the pounce carefully removed from the margin with a camel-hair brush, and a fresh name given to the plant. When these tricks are discovered, the censors ought immediately to disqualify the pan or flower, as the case may be, leaving it with the society to adopt ulterior measures with the delinquent parties, as they in their wisdom see fit.—*W.*

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. XII.—*Cuttings by Pieces of the Trunk.*—This mode of multiplication, which I first published seven years ago, is now in use in all countries. I employed, for the first time, Cycas circinalis, which was then rare in greenhouses. For this purpose I cut some slips, or slices, 1½ in. or 2 inches thick; I then left them freely exposed to heat for four or five days, to dry them; then I planted them in pots of suitable size, which I placed, covered with a bell-glass, upon a hot-bed. These slices are not long before they emit roots, and show shoots between the scales; (fig. 11). When all these were formed, I detached them, in order to make cuttings, which developed themselves as well as the plant which served to make the cuttings. I did not then doubt that, in dividing these slices of Cycas like the roots of Paulownia, I should obtain the same results; I then cut them into several pieces (*d c*, fig. 11), each of which gave me a new plant. The head of the Cycas (*a*), which I had cut to obtain the slices, was planted after having been exposed to the air of the stove for three weeks; I did not expect any result from it, because it was so young; but, in the following year, I perceived that this head had taken root, and it soon produced shoots which showed themselves in the same manner as the parts before cut. It is generally one year before these cuttings take root. Perhaps we shall be able some day to obtain plants of Cycas by striking the scales with which this plant is provided.

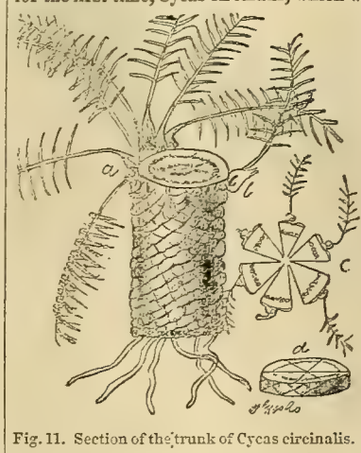


Fig. 11. Section of the trunk of Cycas circinalis.

Peg Cuttings.—The easiest and simplest of all cuttings is known under the name of peg-cutting; it is that generally used for multiplying trees which grow near water, such as Osiers, Poplars, &c. For this purpose we employ branches of a certain strength, and we cut the lower end to a point, as in fig. 12; we then force it into a hole in the ground previously made by a stake, or, which is preferable, into a hole larger than the cutting, and which we then fill with earth, pressing it down as soon as the cutting is put in its place. Everybody knows that cuttings root more easily in a light soil than in one too compact; it is for this reason that I advise this last method. I ought here to notice, among the Poplars, P. heterophylla and P. argentea, which take root from cuttings with difficulty. They are, therefore, better grafted on P. Caroliniana, to which they have more analogy.


Fig. 12.

Cuttings of the Trunk. — This species of propagation is the same as peg-cuttings made with stronger branches; I mention it separately here, in order to call to mind that we may make cuttings of trees of considerable size (fig. 13). Anybody may have seen on the borders of rivers, where Willows are cultivated, the stems of such trees sharpened, and forced into the soil to keep together the beds; these Willows root freely, and often live for a long time, although they may have been injured by the violence used in planting them. There is in the possession of M. Jacques, at Neuilly, a specimen of Sophora japonica which took root in this manner.


Fig. 13.

MOSS ON LAWNS AND PASTURE LANDS.

Since the publication of my observations (p. 149) on the innocuous influence of the growth of Moss on Grass lands, I have observed amongst "Notices to Correspondents" that some inquiries have been directed to you on the subject, and that you have very properly recommended your subscriber to observe for himself whether Moss did or did not impede the growth of good herbage. As regards the lawn, you agree with me that Moss improves the sward, and makes it more elastic. If your correspondent has observed your recommendation in watching the progress of his pasture field, he will now see that the Moss is fading away, and that good Grasses are pushing through, and will soon overpower its remains. It is to be premised though, that there must be fair play in exposure to the full influence of sun and air; for, as you say, under trees some sorts of Moss grow all the year, because nothing else will.

I put the question to a grazier the other day, of what he did to prevent the growth of Moss? His reply was, "I do not think we take much notice of it. The best cure is a good coat of dressing." Now the *rationale* of this answer is, in the first place, that the appearance of Moss is a matter of no great moment; and, in the second place, that if it be, instead of bestowing useless labour and pains in eradicating the Moss, means should be taken to improve the growth of Grass and green herbs in the place of the Moss, by the application of suitable manure. In truth, the "good dressing" does not stop the growth of the Moss, but it encourages an early and vigorous growth of the Grasses, particularly of those of the grosser blade, and so the Moss is hid, perhaps before its period of natural decay, or is suffocated and destroyed by them.

I got a similar reply yesterday from a shepherd, who was grazing his sheep in a field at the foot of the south-downs, in which very little Moss was visible, whilst in an adjoining close it was most abundant, and the pasturage less copious. His words were "the reason why that field is more Mossy than this is, that it is poorer; dress it and get a better sward on it, and the Moss will go away." Of these two fields, too, I could observe that in the one in which Moss seemed to usurp the place of Grass, there were marks of landing-up, and other signs of a ploughed field lately laid down to Grass; whilst in the better field there were not any such signs, and the turf was of older date and well impacted growth. The shepherd was of opinion, also, that the bad field wanted draining. Now here is no evidence of the Moss being any hindrance to the growth of Grass; but only that it luxuriated there and covered the ground, which would otherwise be unoccupied. Even here the Grasses and Trefoils, Lamb's-tongue, and other wholesome herbs were pushing through the Moss, and, I doubt not, in a few weeks will entirely usurp its place.

In a pasture-field of my own of 7 acres, well drained, and all equally well exposed to sun and air, there is a space of about 1½ acre, on which it is observed my cows are more frequently found than on any other part of the field. There is little or no perceptible difference in the general aspect of this portion and of the rest of the field; but it is a little depressed, and I suspect anciently, when it was a ploughed field, it received, and perhaps still receives, some of the alluvium of the adjoining parts, and so its herbage is richer and sweeter. Now, this acre and a half is, every spring, the most Mossy part of my field. I have visited it to-day, and observe that the herbage is pushing through the Moss, which is itself growing brown and fading in the customary way. I may add that the field in question is mown every year, depastured in the autumn and winter, and has a coat of well-rotted stable-dung every third year. Of the protecting influence of the Moss in winter and early spring, I shall have more to say when I bring forward a parallel case in the matted covering of flooded lands, to be observed in early spring, and which experience proves it is injurious to remove.

Since the above was written, I have read the instructions given in the agricultural part of last week's Paper (in the "Notices to Correspondents"), for the destruction of Moss on Grass land. These instructions are exactly in accordance with what I have learnt and again inculcate—that the improvement of the turf, or green-sward, should be the object of the cultivator, and not the mere destruction of the Moss. Perhaps to facilitate the introduction of the good seeds and the manures with it, it may be useful to scarify the surface at the time of their application; but otherwise, and without these applications, I am certain that denuding a poor field of its Moss in early spring is injurious to the tender plants it serves at that season to protect and nourish.—*P. P.*

Home Correspondence.

Glass.—Though I am much better pleased with your remarks in your last Paper, upon the subject of glass, than with those of your correspondent in the previous one, you must excuse my saying that the House of Commons had no more to do with the repeal of the glass-duty than they had with the continuation of the income-tax—that this scheme had long been a favourite one with Sir R. Peel, and that he only waited his opportunity for carrying it into effect. So much afraid, however, was he of his intention becoming known before he placed his "bane and antidote" before the House, that for want of better information he then made a statement calculated not only to mislead the public and to injure glass manufacturers, but from his glowing anticipations of the enormous quantity of glass that would be required from, "water-pipes up to chronometer springs," he has created such expectations of increased employment among the working glass-makers, that they have already demanded and obtained an advance of from 20 to 25 per cent. of their former wages. He stated that a manufacturer de-

manded 1*s.* for glass which he would supply without the duty at 4*d.* per foot; this, I understand, was for sheet glass of a stipulated size for a large conservatory at the Botanic Gardens in the Regent's Park, which sizes would have been made exact, and consequently there would have been little or no loss in the cutting. The duty was 73*s.* 6*d.* and the drawback 80*s.* per cwt., with 5 per cent. in both cases; in other words, the manufacturer first obtained a bonus upon the duty, amounting almost to 1*d.* per foot, but what was still better, he devoted the inferior to its original designation and reserved the superior quality for the best glazing purposes, and of course at a much higher price. In furnishing us with an example of the former, and the present prices of crown glass, you say, "that in this instance the public has the full benefit of the repealed duties" (though there is nothing like two-thirds of a reduction in price), and yet you have previously stated that "you are not satisfied with the new prices of glass," and go on to say "it is folly to think that the new prices are permanent." I am sure that it cannot be from a desire to serve the horticulturists at the expense of the glass manufacturers, that you express the hope "that the latter have met for the last time." This may be sport for you, but it is death to us, and whilst we see these things done daily both in the agricultural and horticultural world, you surely will not blame us for following such worthy examples. Why not as well hope that the House of Commons had met for the last time; but we, like your friends, meet for improvement, as well as for self-preservation. Though you have exonerated the glass-manufacturer from the charges previously imputed to them, we do not wish to make a "scape goat" of the middle-men or the glaziers, who are as essential to us as the salesman and the butcher are to the feeders of fat stock; at the same time we agree with you in saying that if any one submits to be imposed upon by such statements as you have furnished, with such means of better information at hand, they fairly deserve it. The restriction of make to which you allude, was not adopted to raise the price of glass; at least, such was not the effect; manufacturers have to pay their workmen full wages, work or play, and the more they made, the less its cost, so that with this stimulus and their increased powers of production, they made far more than was required, and since, when made, a very heavy duty was to be paid upon it, they either sold or exported it at an enormous sacrifice to raise that duty. It was only, therefore, after this exterminating war of prices had gone on (which I am sure you do not wish to see renewed), and after more than one-fourth of the glass-houses in the kingdom had ceased to exist, the survivors then met, and agreed, upon cool reflection, to be governed by the excise returns as to quantity, and to make in future only such glass as the legitimate wants of the trade required. From this you will perceive, and must admit, that our powers of production have not latterly been put forth to their full extent, and my firm belief is, that let the demand be as great as you anticipate, and as I hope to see, that we shall be able to meet it. At all events we are preparing for it, so far as the present number of workmen and their disposition will permit, and we hope not only in time to keep out foreigners, but also to supply them with some of our superior glass; which must not only reduce the product and increase the cost of their manufacture, but we trust, without offending our gardening friends here, may probably enable the Belgian gardeners to enter into competition with them in the forcing department; and I further trust, that the gentleman connected with the Board of Trade may be furnished either by one or the other with as fine Asparagus throughout the whole winter as he partook of at Vienna on Christmas-day.—*William Pilkington, Crown, Sheet, and Plate-Glass Works, St. Helen's, Lancashire, April* 23.

York Tulip Challenge.—The York Floral Society having last autumn thrown out a challenge that they would show florist flowers against any Society in England, Tulips were mentioned, and it was proposed by four of the Altrincham Society, to show any six of the York Society at Normanton, for not less than 25*l.* This was objected to, on account of their friends not being able to view the flowers, and it was suggested by one of the York Society to show at the Coppice, near Nottingham, as some of the Society were entered for that exhibition. I am authorized to state that they will show them at their own Society's show, York, or any other place, and the money shall be deposited as soon as the match is concluded in some individual's hands; trusting that this will meet the views of the York Society, I subscribe myself, *John Slater, Cheetham Hill, Manchester, April* 22.

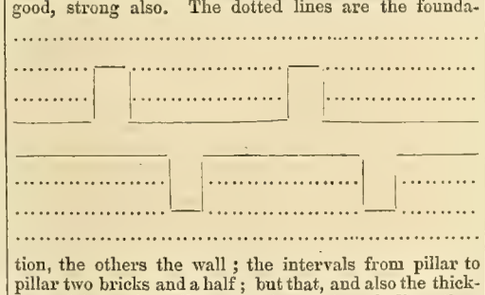
Broccoli.—The following sorts of Broccoli have stood the winter well, and are now quite green, although most of the outer leaves were destroyed and have fallen off. The soil is gravel, and the number about 10 dozen:—Victoria, laid down and buried up to the leaves; one of the Superb Whites treated in the same way; Millar's Dwarf, earth drawn up round the stems; Sprouting Broccoli is very much injured, mostly destroyed.—*Este, Portsmouth.*

Galvanic Protectors.—I beg to refer Mr. Barnes to page 115, Vol. I., of the *Chronicle*, where I first described the action and use of the galvanic plates (accompanied with a drawing). These plates are infinitely better than the hoop invented by Mr. Walker, as any space from half a foot square to a whole bed, may be thus protected; while the hoop protects only a single plant. To Mr. Barnes's first question it is replied, that if it be desirable that plants, flowers, or seedling crops, should not be devoured by slugs, then are the protectors useful and necessary. To the second I affirm, that no plan has yet been made known that is so effectual, so efficient, in wet or drought, so easy of application, and so inexpensive, as the galvanic protectors; nor do I believe that any better plan can be devised, for this is complete. To the third question, "is it necessary to galvanize snails to keep them from plants?" it is answered, it is not necessary to hang a man in order to kill him; yet hanging is a most efficient mode. Through the whole range of the vegetable kingdom, there is nothing so tempting to the taste of snails (if one may judge by their determined attempts to get at them), as the anthers of Polyanthuses and the seed-leaves of Ranunculuses; yet, though my garden has its share of slugs and snails, notwithstanding my many excellent friends, the toads, I grow my choice Polyanthuses and raise a portion of my seedling Ranunculuses in the open border; but *noli me tangere*—touch me not—is the admonition of the galvanic plates placed around them—no slug ever passed my battery. But the *experimentum crucis* was devised by the late Mr. Loudon. He placed three slugs without food within the circle of the protectors; he stated that they remained there many days, and were not able to get out.—*F. T. Horner, M.D., Hull.* P.S.—Brick-dust or sand, with a little tow, is what I use for the purpose of cleaning them, when put into use.

Potatoes versus *Frost.*—Much has been said respecting the influence which frost has upon Potatoes, without their vegetative powers being destroyed. I beg to inform you that I had a small quantity of Ash-leaf Kidneys lying in an outhouse the whole winter without any covering whatever; the door of the house was not once closed during the whole period, not even during the severe nights in March when my thermometer stood on the outside wall of the house at about 7°, and yet the Potatoes remained uninjured. This is a clear proof that they will bear much more cold weather than is generally supposed, and particularly when well dried before they are housed for winter.—*A., St. John's Wood.*

The Toad.—(See p. 258).—In Dorsetshire, several years ago, I remember the roads and gravel walks being strewed with dead toads, and others in a languishing and seemingly dying state. Most of the latter carried one of smaller (though not very small) size, on his back. I took particular notice of the circumstance, but imputed it to kind motives on the part of the large one, and a wish to remove the other from the earth, the state of which (though not then wet) I supposed to produce the epidemic. Observations of the same fact may have given rise to the idea, that the dying toad is "ridden to death;" which, however, I cannot readily credit. The shrew mouse is seldom seen dead except on a road, gravel walk, or hard path, though rarely seen there alive. They seek the driest situation (I conceive) as the best chance of prolonging life.—*A. Herbert.*——A correspondent from Manchester writes:—"The smaller toad on the back of the other is the male, the larger the female. They remain thus together till the female has laid all her spawn, which the male impregnates as it leaves the female. Frogs will sometimes remain between 30 and 40 days together, but I do not know how long toads keep up their intercourse." [We did not understand the inquiry to allude to this circumstance.]——The young toads are the males, which leave the females unhurt, after the latter have deposited their eggs in the water. Sometimes, however, the female toads die through exhaustion, especially when they are grasped by more than one male. I have known no less than five males clinging to one dead female. Hence might arise the false notion that young toads ride on the old ones' backs till the latter die.—*W.*

Garden Walls.—Taking for granted the soundness of Mr. Rivers's remark (p. 240), as to the bad effect on some Pears of close contact with the wall, I beg to suggest a plan of wall for those Pears, which I would assuredly try were I in want of walling, and which would be cheap, and, the bricks and mortar being good, strong also. The dotted lines are the foundation, the others the wall; the intervals from pillar to pillar two bricks and a half; but that, and also the thickness of the main wall, are at the gardener's discretion. In building up the pillars, whole bricks and half bricks must be used alternately, that the whole of the work may be properly tied in together.—*W.*



The Robin.—Soft-billed birds being seldom or never domesticated in Scotland, at least, in any part of it with which I am acquainted, would Mr. Kidd inform an anxious northern reader of the manner in which he generally treats these birds, the food they like, and especially how nestlings are dealt with? With regard to the cuckoo, allow me to observe, that the hedge-sparrow is not the "usually favoured bird" here. In all my experience I never found, nor heard, locally, of a young cuckoo being discovered in the nest of either the hedge-sparrow or robin; the tit-lark being the only favoured foster-mother of the young cuckoo, which, however, must find itself equally at home with any of the three. But the nest of the latter is by far the most accessible, and to that circumstance alone it is indebted, no doubt, for the preference.—*D. M., Perth.*

Propagation of Plants from Roots.—Observing that you are enumerating those plants that can be propagated from roots, I beg to name the Seakale, whose roots throw out innumerable shoots at both ends wherever they are broken.—*Reader.*

Vines.—If these are injured by bleeding it is generally before they break. The chief cause of it is late pruning. Mr. Hoare recommends pruning to be performed as soon as the leaf has fallen; and more recently Mr. Roberts prunes and disbuds with the leaf on, husbanding as it were the energies of the plant. The system of pruning back close up to the shoot after it has grown a foot or more in length, as practised by Mr. Walker and "Orford," is worthy of general application. It supersedes the old plan of amputation, the scars of which may be seen for 10 or more years afterwards. By pruning close up to the young shoot, new wood nearly covers the wound in one year, and quite so if the Vines are young.—*W. Brown, Merevale.*

Pelargoniums.—It may interest the amateur to know how difficult it is to obtain a really fine seedling Pelargonium. Edmund Foster, Esq., grows annually about 2000; Rev. J. Garth, several hundreds; Captain Thurtle, about 1000; Mr. Lyne, many hundreds; Mr. Beck as many; Mr. Cock, 200; and Messrs. Catleugh and Gaines, several hundreds each; beside many more private growers whose numbers I am not acquainted with. And it is a remarkable thing that with but few exceptions, the character of the flowers of each raiser is so different that the experienced eye is able at once to distinguish them. Another singular circumstance is, that some of the finest and most desirable varieties have never been the parents of anything to equal themselves. I have repeatedly tried to obtain something fine from Sylph, Matilda, Erectum, and Queen of Fairies, and have never succeeded. There is something to desire in the whole of them. Sylph burns upon the edge of the spot; Matilda wants greater breadth in the same point; Erectum is too small; and Queen of the Fairies is always cramped, wants expansion, and is seen so in every collection. Yet with all their faults, some if not all of these are to be found at every exhibition, and this is, after all, the great test of the value of a flower. When true, what finer flower is there than Favourite? but it sports to such a degree that no exhibiter can afford to risk its growth.—*Veritas.*

Potato-haulm.—From a passage in Prof. Playfair's Lectures, it seems that Potato-haulm, containing nutrition both for the Grass and the seed, should be a desirable ingredient in compost. I have some which was green about five years since, and has been a soil for a year and a half: it looks promising. I imagine there is a great difference in the strength of its fibre; some sorts appear to decay faster than others.—*O.*

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

April 23.—This, the first meeting for the season, took place at the Horns Tavern, Kennington. Although not superior to the last spring show, several interesting specimens were produced. The Royal Adelaide Cup was awarded to Mr. Pawley, of Bromley, for the best collection of miscellaneous plants. In this group were several well-grown Cape Heaths, among which a large E. vestita rosea was particularly remarkable, on account of its handsome dark-red blossoms; from the same collection were large specimens of Azalea in full bloom; Leschenaultia formosa; Aphelexis humilis; the useful Tropæolum tricolor; Hovea Celsi; Ixora coccinea; and a good Euphorbia splendens, whose brilliant scarlet blossoms contrasted well with the white-flowering Azaleas, producing a fine effect.—A large Silver Medal was awarded to Mr. Bruce, gr. to B. Miller, Esq., for a miscellaneous collection of plants, many of which were specimens of good management. These comprised a large Euphorbia splendens; a fine plant of Pimelea spectabilis; a well-managed Aphelexis humilis; the showy Ixora coccinea; Tropæolum tricolor; Erica grandinosa, a useful species covered with multitudes of small snow-white blossoms; two species of Acacia; Cactus Jenkinsoni; and a spreading bushy plant of Gnidia pinifolia, presenting an abundant display of white bloom. — Mr. Hamp obtained [a second Prize for a small group, comprising, among others, Cytisus racemosus; a large Azalea indica alba in full blossom; Clerodendron fragrans; a good Epacris grandiflora; Camellia reticulata; two Boronias and Ruellia formosa.—From J. Allnutt, Esq., of Clapham, were several Azaleas, Hovea Celsi, and other plants.—Some Orchidaceæ were present from J. Cox, Esq., of Stockwell, and Mr. Pawley, of Bromley; from the former was a specimen of Dendrobium macrophyllum, whose gracefully drooping branches were clothed with large lilac blossoms.—Of other single specimens Mr. Fairbairn, of Clapham, sent an immense plant of Erica favoides elegans, which, although not one of the handsomest of the genus, well deserves a place in every collection; Mr. Allnutt, a beautiful Erica propendens, producing an abundance of small pink bell-shaped blossoms; Mr. Dickson, of Acre-lane, Brixton, a small, but handsome plant of the larger variety of E. aristata; and finally from Mr. Ivery, of Peckham, was a pretty specimen of Tropæolum tricolor, covering a circular wire trellis. — Mr. Wood, of Norwood, sent a collection of named Alpines.—The show of Auriculas, taking into consideration the late unfavourable season, surpassed our expectations,

but the display was not so large as on former occasions. The seedlings were not very good; the best, which received a second class certificate, was from Mr. J. Dickson, named Sir R. Peel, the circular properties of which were very good; another was also selected from Mr. Chapman's seedlings, named Earl Stanhope, the paste of which was too starry. The Silver Cup, value 5 guineas, presented by Mr. James Dickson, was awarded to W. Trahar, Esq., for Hedge's Britannia, Page's Champion, Taylor's Glory, and Smith's Mrs. Smith. Mr. Trahar's flowers were Clegg's Crucifix, Waterhouse's Conqueror of Europe, Dickson's Apollo and Duke of Wellington. In the Amateur's Class, for the best Pair of Auriculas, the Middle Silver Medal was awarded to J. H. Schrœder, Esq., for Page's Champion, and Waterhouse's Conqueror of Europe. The 2d Prize, a small Silver, was won by Mr. Trahar, with Taylor's Glory, and Lightbody's Star of Bethlehem, and a 2d small Silver Medal was awarded to — Sandeland, Esq., for Page's Duchess of Oldenberg, and Gordon's Champion. In the Nurserymen's Class, for the best Pair, the small Silver Medal was awarded to Mr. Jas. Dickson, for Page's Champion and MacLean's Unique. *Class I.*—For the best 6 Auriculas, Amateurs, middle Silver Medal, to Mr. Trahar, for Metcalfe's Lancashire Hero, Gordon's Champion, Cardinal Fleury, Moon's Violet, Page's Champion, Pollit's Highland Boy; small Silver Medal, J. H. Schroeder, Esq., for Conqueror of Europe, Lord Primate, Chapman's True Blue, Gabel's Duke of Wellington, Stretches' Alexander, Page's Champion. The Prize of 3 guineas, presented by Messrs. Trahar and Chapman, was awarded to Mr. Jas. Dickson, who also exhibited a large collection not for competition. A Class Certificate was awarded to J. Burnard for a seedling Polyanthus, named R. Cobden, a flower of good properties. Pansies were present from Mr. May and Mr. Hart, of Guildford, and a fine collection of well-grown Cinerarias was exhibited by Mr. Ivery, of Peckham.

BOTANICAL SOCIETY OF LONDON.

Dec. 6.—The Treasurer in the chair. Dr. Dewar presented specimens of Carduus setosus, discovered by himself in July last, three miles from Dunfermline, Fifeshire. This being a plant of eastern Europe, and apparently hitherto unknown on the western coasts, there seems much probability that the seed has been accidentally imported from Russia. Its nearest ally in Britain is C. arvensis. Mr. T. Bentall presented specimens of Œnanthe fluviatilis (of Coleman) collected by himself in the river near Halstead, Essex, in July. The Rev. W. R. Crotch presented specimens of Helianthemum Breweri (Planchon), collected in the long known locality of Holyhead Mountain, Anglesea. This species has hitherto been confounded with H. guttatum, by all British botanists; but is figured as an undescribed species in the "London Journal of Botany," for Nov. 1844, and explanations given in the succeeding number of the same periodical. The true H. guttatum, from the south of France, was shown to be quite a different plant, by specimens laid before the Society. Mr. Hewitt Watson called the attention of the Society to a series of specimens, in illustration of the three species of Œnanthe described by Mr. Ball, in the "Annals of Natural History," under the names of pimpinelloides, Lachenalii, and silaifolia. Mr. Watson stated that these species had been confused and misnamed by Hudson and Smith, and that most succeeding botanists had in consequence been misled about them; the errors and confusion being greatly increased by the want of root and fruit, on specimens collected for herbaria. He considered that Mr. Lees was the first English botanist who correctly understood the true pimpinelloides. Mr. Babington next rightly determined the Lachenalii. And lastly Mr. Ball, contrasting these two plants with the peucedanifolia of Smith, showed clearly enough that three indigenous species had been confused into two only, on account of no single botanist being sufficiently acquainted with all three. Specimens sent to the Society by the Rev. A. Bloxam, Mr. Lees, Mr. G. S. Gibson, and Mr. Thwaites, with others collected by Mr. Watson himself, illustrated the three species clearly; except that the early radical leaves, and perfectly mature fruit, of Smith's peucedanifolia, were still wanting. Mr. Watson, however, suspected that Mr. Ball's name of silaifolia was equally incorrect as Smith's name of peucedanifolia; and not knowing any other described species to which Smith's plant could be referred, he adopted the name of Œnanthe Smithii, to be temporary or permanent, as occasion might require. Having sent a paper to the "Phytologist," on the subject, he would not extend his remarks further before the Society. The following is an abbreviation of the specific characters proposed for the species:—1. Œ. pimpinelloides, Linn. Tubers oval or subspherical, connected with the stem by a slender peduncle; fruit cylindrical, about as broad as the calyx, callous at the base, not contracted. 2. Œ. Lachenalii, Gmel. Tubers elongated and slender, clavate, fusiform, or subcylindrical, gradually enlarging from the base of the stem, without any distinct peduncle. Fruit oblong or turbinate, broader than the calyx, contracted and without callosity at base. 3. Œ. Smithii, H. Wats. Tubers short and thick, clavate, fusiform, or oblong, sessile at the base of the stem; fruit cylindrical, scarcely so broad as the calyx, callous at the base, not contracted. The Society has specimens of these three species for distribution; but those of pimpinelloides and Smithii are, unfortunately, few in number, and by no means in good condition. So long as they will last examples will be introduced into each parcel sent out in rotation, in order to correct errors of nomenclature, which may be expected in most British herbaria.

Country Shows.

Cheadle Cucumber Show, April 19.—This meeting, which was held at the George and Dragon Inn, was numerously and respectably attended; and, notwithstanding its being a first effort, it gave general satisfaction, both to growers and amateurs. The fruit, as will be seen from the subjoined schedule, was of first-rate quality.

Grower.	Sort.	Mode of growth.	Length	Form.	Colour.	Neck.	Spine.	Bloom.	Blossom.	General Appearance.
1. J. Hamilton, gr. to F. A. Phillips, Esq., Thornfield.	Hamilton's black Spine & Gill's Victory.	Pine stove.	23 ins.	Straight.	Lively green. Dark do.	Small. Short & thick.	Black.	Slight.	Perfect.	Very handsome.
2. Ed. Leathes, Esq., Lowestoffe, Suffolk.	Browston's Hybrid, both fruit from one plant.	Mill's improved pit.	19¼ do.	ditto.	Dark green.	Short & thick.	White.	Very.	ditto.	Good fruit.
3. G. Elkin, gr. to J. Newton, Esq., Cheadle.	Gill's Victory.	Pine stove.	19¼ do.	ditto.	ditto.	ditto.	Black.	ditto.	ditto.	ditto.
4. P. Mottershead.	Hamilton's white Spine. Emperors.	Hot water stove.	18 do.	ditto.	Lively green.	Rather long.	White.	None.	ditto.	Handsome young fruit.
5. J. Carr.	Watkinson's green Spine.	Pine stove.	17 do.	ditto.	ditto.	Long.	Black.	Slight.	ditto.	Irregular.
6. T. Fay.	Bailey's Hybrid.	Cucumber pit.	18 do.	ditto.	ditto.	ditto.	ditto.	None.	ditto.	Not handsome.
7. R. Gill.	Newblack spine and Snowden.	Frame.	19½ do.	ditto.	ditto.	Short.	ditto.	ditto.	ditto.	Very Irregular.
8. R. Hurstfield.			18½ do.	ditto.	ditto.	ditto.	ditto.	ditto.	ditto.	Irregular.
			16 do.	ditto.	ditto.	ditto.	ditto.	ditto.	ditto.	Indifferent.
			17¾ do.	ditto.	ditto.	ditto.	ditto.	ditto.	ditto.	

It is worthy of remark, that Mr. Hamilton, the first on the list, has been as fortunate with Cucumbers as with Pines; he has exhibited at 18 early spring Shows in the locality of Manchester and Stockport, and won first prizes at 17 of them.

Reviews.

The Grasses of Britain. By R. Parnell, M.D. 8vo. Blackwood. With 76 Copperplates.

This is the sequel to the Grasses of Scotland, noticed at page 791 of our volume for 1842. The same plan is adopted as on the former occasion, only it is now applied to the remainder of the British Grasses not included among those of Scotland.

We do not know that we can add anything to what we formerly said of the work. It is undoubtedly a very useful aid to those who, without herbaria, and extensive libraries, wish to make themselves acquainted with the distinctions between the numerous species that occur in this country. Good characteristic figures of what are supposed to be new species are to be found in this work, which is preceded by useful directions for laying down artificial Grass, the principal part of which appears to have been furnished by Mr. Lawson.

The Quarterly Journal of the Geological Society (8vo. Longmans).—The first number of this periodical is before us. It is an official statement of the progress of geological inquiry, published by the Vice-Secretary of the Geological Society, under the control of the Council. It is intended that the work shall appear quarterly, if due encouragement is given to the publication; but it is not to supersede the quarto "Transactions" which have hitherto contained the original papers read before the Society. We can say that the plan of the work is excellent, and that it is so well executed that we can hardly doubt of its being well received by all geological readers.

Botanical Rambles in Braemar (Duff, Dundee, 12mo.) is a pamphlet of 52 pages, in which an account of the more remarkable species of plants in the counties of Aberdeen, Perth, and Forfar is given in the form of a traveller's journal. Our crowded columns prevent our giving extracts from the work, but we recommend all lovers of botanical gossip to procure the pamphlet for themselves. It is worth reading. To those who purchase Mr. Gardiner's dried specimens of Scotch plants, which, by the way, are very cheap, it will be particularly interesting.

Budge's Practical Miner's Guide (Longmans).—A second edition of this useful work has just appeared. We need not say that it is indispensable to all persons engaged in practical mining. We remark towards the end a fierce attack upon the geologists, with whose views the author cannot agree. Considering who the great geologists of the day are, we think that Mr. Budge's language might have been rather more courteous. If his views respecting the formation of "heaves," &c. are right, he might have expressed his opinions civilly. Rude dogmatism carries no weight with it in the minds of men of sense.

Report of Lectures on the Natural History of Plants Yielding Food (12mo, Churchill), is a little brochure of 48 pages, by Dr. Lankester. It is a popular view of the more important plants used in diet, and will be found an interesting exposition of what is known on the subject, drawn up with clearness and in the true spirit of philosophy. An extract on the subject of pie-crust will show the manner of the book.

"It ought to be mentioned that starch had one peculiar property, that of entering readily into combination with oil, forming a peculiar chemical compound, exceedingly indigestible; but which was not formed at a low temperature, so that the starch in ordinary bread and butter would not combine with the butter, but it would so combine with oleaginous matter in baking or boiling; and this was why pie-crust and other matters were so exceedingly indigestible. Plum-cake, plum-pudding, pancakes, &c. ought to be interdicted altogether as articles of diet by those who wish to retain their digestive powers in all their original integrity."

The Lady's Country Companion; or how to enjoy a Country Life Rationally. By Mrs. Loudon. 12mo. Longmans.

It is worth knowing how to enjoy life rationally anywhere; and Mrs. Loudon undertakes to show how that is to be done in the country. Will nobody teach the way of doing so in cities? She states that her own wants and feelings have been made the standard for judging of those of others; and a better standard could hardly have been found.

The work consists of 19 letters, of which one is Introductory, five relate to the House, six to the Garden, four to Domestic Animals, one to Rural Walks, one to Country Amusements, and one to Country Duties.

It is not to be supposed that much novelty can be found in such a subject as this; the aim of the talented authoress has been to give very general information upon the common subjects with which ladies should be familiar, and we have no doubt that her work will be read with advantage by the young who are about to take upon themselves domestic responsibility in a country residence.

Bees.

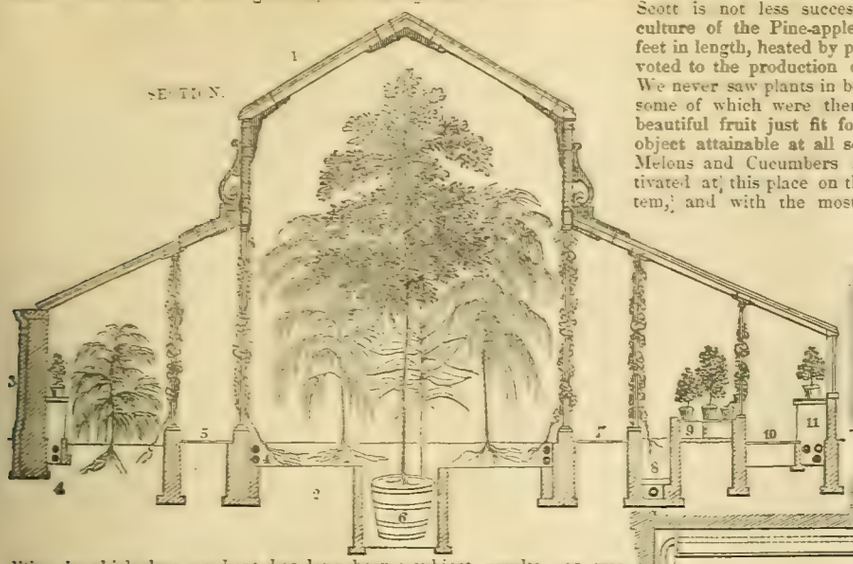
Nutt's Bee-hives.—"W." states that the new system of bee-management, discovered by Nutt, does not answer. I can produce abundant proof that it does answer, and could send you many names of persons who have tried it with the best effect. If clumsy or careless persons do not find it to answer, the fault is in themselves and not in the system.—*C. A. A. Lloyd, Whittington, Oswestry.*

Weight of Hives.—Your correspondent "Este" (p. 227), has given the weight of his hives and boxes of bees, from which I perceive that the greatest decrease in weight was in the first hive, which weighed the most in autumn, the decrease being 44½ per cent., and that the least decrease was in the second hive, being 31½ per cent.; that the average decrease of the three hives was about 38, and that of the two boxes was about 33½ per cent. Now, it would be of great service to your apiarian readers if "Este" would oblige them by stating whether they were all managed alike during the winter; and if not, what kind of aspect, situation, and temperature each of them had been subjected to since they were weighed in August. The result of similar experiments from different parts of the kingdom, would materially assist in ascertaining what is the most successful method of managing bees during winter. The articles by Mr. Smartt, which have recently appeared in your columns, contain much useful and practical information on bee-management; and the remarks of "W." have elicited some important hints and suggestions; but as the shape and size of the hives, and system of management of the above correspondents differ in many points, they would confer a favour on your readers by each giving a statement of the amount of produce which they have obtained from three or six stocks or families of bees during the last three years.—*E. Briggs, West-street, Bourne.*

Answers.—*Semper paratus.*—Put your box-hive in a dry, warm place; if that does not clear the mould from the combs, do as you mention—make a clean box of it yourself. Be guarded against damp, otherwise your bees will not prosper.—*W.*——*J. Thomas.*—Do not remove your bees from the cottage-hive, wait till they swarm. Put the bees into a box about 16¾ inches clear each way. That size will do for whatever plan you adopt. Collateral hives are good, as are also toryfing boxes.—*W.*

Garden Memoranda.

Leigh Park, Havant—Sir George T. Staunton, Bt., M.P.—The extent of these gardens, and the high condition in which they are kept, has long been a subject of notoriety with those who have visited the great establishments in all parts of the kingdom. Those, however, who have not inspected the gardens and pleasure-grounds of Leigh Park, have yet in store as rich a field for the gratification of their taste in gardening as this country can afford. Any report, however, of this place that we can give must necessarily be meagre: for it is difficult to say whether we most admire the extent and perfect keeping of the grounds, the magnificent glass houses, or the high cultivation which distinguishes every plant in them. The first object which we inspected was a large conservatory contiguous to the mansion, 60 feet in length, 40 feet in width, and 14 feet in height, filled with noble plants of various kinds; several splendid Orange-trees in perfect health, reaching to the the top of the house, covered with foliage, and laden with both ripe and green fruit to the ground. There were also in this house large Camellias, Araucarias, &c., a Tea-tree in fine condition, 10 feet in height, and many other similar specimens. We were then conducted to the stove, which has recently undergone many improvements, under the supervision of the gardener, Mr. Scott; it is perhaps unequalled for its size in this country, and its inhabitants exhibit a mass of exuberant foliage from the ground to the glass.



Palms.—In the general collection of stove plants, the following are well worthy of remark:—Cocos coronaria, 30 feet in height; Calamus verus, 20 feet in height and very graceful; Arenga saccharifer, leaves 20 feet in length, and 6 or 7 feet in breadth; Latania Borbonica, 10 feet in height; Elais guineensis; Caryota urens, 15 feet in height, with numerous large bunches of flowers in bud; Phœnix dactylifera, 15 feet in height; Chamædorea elegans; Bactris setosa; Raphis; and Chamærops.

Fruits.—Mango tree, 8 feet in height, very branching, and coming abundantly into flower; Rose Apple, Eugenia jambos, 8 feet, coming into flower; Euphoria Litchi and Longan, each 10 feet in height; Blighia sapida, 20 feet in height, has fruited for several years, but the fruit is but little esteemed; Cherimoyer of Peru, Anona Cherimolia, flowers, but does not fruit; Sour-sop, Anona muricata; Avocado Pear, Persea gratissima; Tamarind tree, 12 feet in height, flowers, but has not yet fruited; Grias cauliflora; Achras sapota; Papaw-tree, Carica Papaya, 8 feet in height; Mammea Americana; Jack-tree, 14 feet in height, Artocarpus integrifolia; Guava P. Cattleyanum, the preserved fruit from this plant is equal to jelly imported from the West Indies, and is used at table; Granadillas, four sorts fruited here.

Spices, &c.—Laurus cinnamomum, 8 feet in height, in fruit; L. Cassia; Clove, or Caryophyllus aromaticus, 8 feet in height, very handsome shrub; Allspice, or Myrtus Pimento, 12 feet in height, 2 varieties, flowers and fruits; Nutmeg; Coffee, with ripe berries: Chocolate, Theobroma Cacao; Sugar-cane, 15 feet in height; Logwood; Mahogany-tree, 15 feet in height; Bamboo, a handsome one, 27 feet in height, and 15 feet in diameter,—in summer the young shoots grow ¼ inch every hour, or 6 inches in the 24 hours.

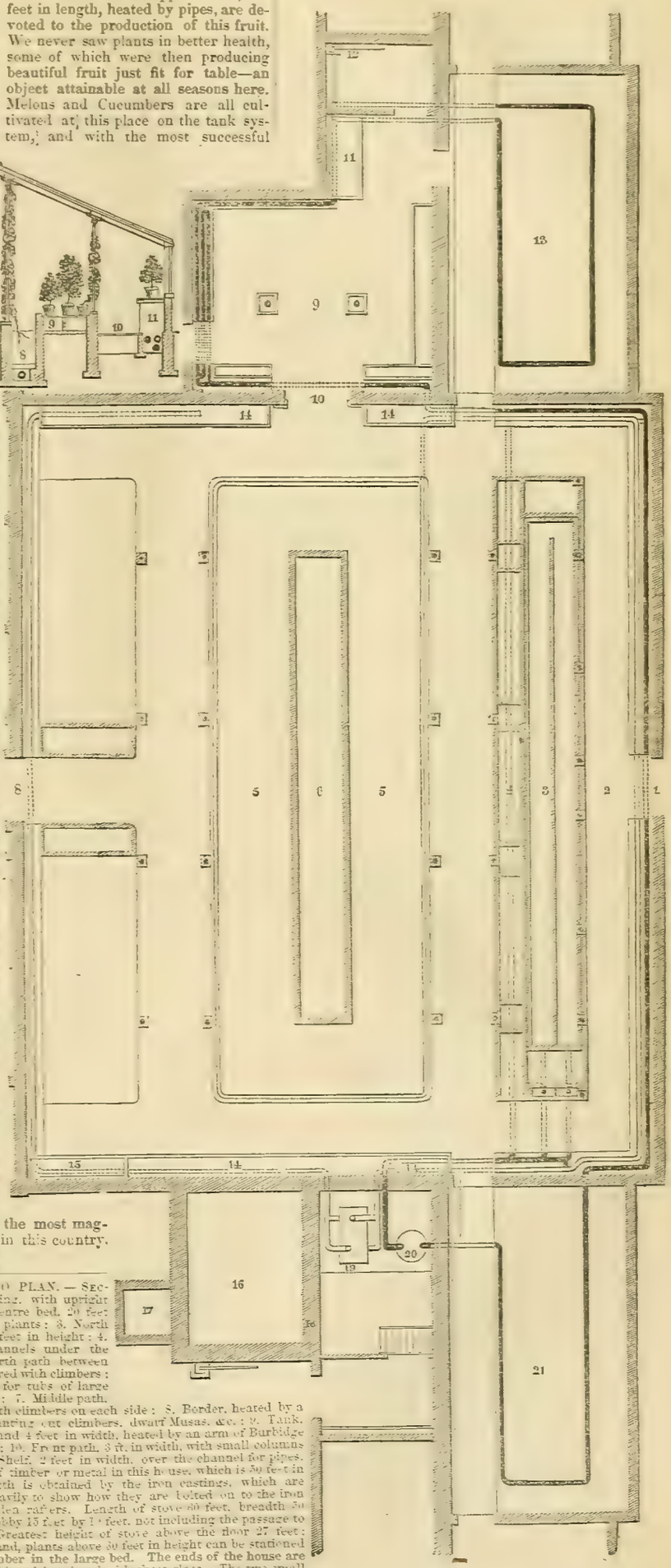
Aquatics.—Nelumbium speciosum, single and double-flowered varieties both flower here; Nymphæa cœrulea, Lotus, and rubra; Papyrus antiquorum, 20 ft. in height; Cattleyas, Dendrobiums, Cyrtopodiums, Oncidiums, Maxillarias, &c., grow luxuriantly in the north wing of this house.

Interesting Plants.—Ficus religiosa, the Pippul-tree; F. indica, the Banyan-tree; F. Sycamorus, the Sycamore of the Bible; Bananas of several varieties, 4 distinct sorts have been fruited here, and an abundance of fruit is obtained every season. Amongst climbers, Combretum, Quisqualis, 35 feet long, Stephanotus floribundus and Allamanda cover a space of 400 square feet, and flower from April to November.

A house, 50 feet in length, is appropriated to Cape Heaths, many specimens of which measure 4 feet in height, and are clothed with foliage down over the rim of the pots; there have lately been in full flower, some matchless plants of E. linnæoides and hiemalis. Mr. Scott is not less successful in the culture of the Pine-apple. Pits, 150 feet in length, heated by pipes, are devoted to the production of this fruit. We never saw plants in better health, some of which were then producing beautiful fruit just fit for table—an object attainable at all seasons here. Melons and Cucumbers are all cultivated at this place on the tank system, and with the most successful results, as was apparent from the fine Cucumbers there in abundance. Mr. Scott looks upon dung as a nuisance in gardening, unless when applied at the roots of plants, so thoroughly has he proved the value of hot water.

The pleasure-grounds cover a diversified and undulating surface of 20 acres, delightfully interspersed with water, and in the best of keeping, even in winter. Numerous ornamental buildings, at a great outlay, are raised in appropriate situations, such, for example, as a Turkish Kiosk, Chinese temples, and various other buildings, with vases, urns, statues, &c. In a retired part of the pleasure-ground is a temple, with this inscription—"Sacrum parentibus et amicis," with a marble vase and a fine bust. The above is, however, but an imperfect epitome of one of the most magnificent gardens in this country.—*R. G.*

PLAN.



REFERENCE TO PLAN.—Section.—1. South wing, with upright front sashes: 2. Centre bed, 20 feet in width, for large plants: 3. North wing, with wall 8 feet in height: 4. Pipes in open channels under the floor level: 5. North path between iron columns, covered with climbers: 6. Brick chamber for tubs of large Musa, Palms, &c.: 7. Middle path, 4 feet in width, with climbers on each side: 8. Border, heated by a return-pipe, for planting out climbers, dwarf Musas, &c.: 9. Tank, 48 feet in length and 4 feet in width, heated by an arm of Burbidge and Healy's boiler: 10. Front path, 3 ft. in width, with small columns for climbers: 11. Shelf, 2 feet in width, over the channel for pipes. There is no tie of timber or metal in this house, which is 50 feet in width: the strength is obtained by the iron castings, which are marked rather heavily to show how they are bolted on to the iron columns and wooden rafters. Length of stove 80 feet, breadth 50 feet. Length of lobby 15 feet by 12 feet, not including the passage to the pump-room. Greatest height of stove above the floor 27 feet: but as it is on sand, plants above 20 feet in height can be stationed in the brick chamber in the large bed. The ends of the house are upright, and not hipped in, glazed with sheet-glass. The two small Vineries are included, to show the arrangements of the pipes. These houses are used for stove plants in winter. The stove is in the middle of a range of 5 divisions. Plan.—1. Front door in south wing: 2. Front Path: 3. Tank: 4. Borders for climbers, &c.: 5. Middle bed: 6. Channel for large tubs with Palms, Musas, &c.: 7. North Path: 8. North door: 9. Lobby connected with east end of stove: 10. Large folding door (glass): 11. Cistern: 12. Pump-room connected with tank of 3000 gallons for rain water: 13. Vinery: 14. Border for climbers, 6 inches above the floor level: 15. Cistern: 16. Tank of 1000 gallons, pump, &c.: under the arch of this tank there is room for 4 or 5 tons of coals: 17. Hatch-door for putting in coal: 18. Boiler-shed hid in a shrubbery, with chimney shaft, at a distance from house: 19. Fowler's boiler—this heats the north wing, the centre, and part of south wing of stove: 20. Burbidge and Healy's boiler—one arm heats the lobby, two Vineries, and part of south wing of stove; the other arm heats the tank: 21. Vinery.

Miscellaneous.

Death of Mr. Griffith.—We announce with unfeigned regret the death of William Griffith, Esq., in the East Indies, after a few days' illness, on the 7th of February last. Thus has disappeared one of the most philosophical and ardent botanists of the present day. Mr. Griffith's observations upon Vegetable Impregnation, and lately upon the development of Azolla and Salvinia evinced talents for observation of the highest order; and it will, we fear, be long before his place can be supplied in India. Our last letter from him was dated Calcutta; he had been lately married, and was about to proceed to Malacca, on medical duty.

Botanic Garden, Cambridge.—We have reason to believe that Mr. Murray has been selected for appointment to the curatorship. We shall give full particulars next week.

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—The increased temperature will require great vigilance to keep down the scale and bug on all kinds of exotics in warm atmospheres; nothing can be more unsightly, or betray greater negligence, than to see plants swarming with these in otherwise finely kept stoves, therefore, follow them up until they are quite eradicated, either by the fumes of alcohol, or by some of the effective washes recommended by some correspondents; at any rate keep them clear by whatever means your assiduity or diligence may suggest to be effectual. The foliage which plants are now making, is, in many instances, destined to be their chief ornament for months to come, and if this is permitted by supineness to get destroyed in this early stage, the plants will exhibit all the evidences of bad and careless management. *Greenhouse.*—Attend to training as before recommended, give abundance of air in the day-time, and syringe the plants in the afternoons in fine weather, closing the house on such occasions, to promote rapid growth.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Continue to fork up borders slightly that were dug in autumn, and to regulate any of the more advanced herbaceous plants, tying them up if they require it. Clematises, or such climbers, must be frequently looked over, and nailed or tied as they advance in growth, at the same time removing abortive wood if not wanted for another season. Recently-planted shrubs that have been loosened by wind must be made fast, giving them, if necessary, a good watering. Hardy Annuals coming up too thickly should be thinned out, and transplanted if required. Sow Annuals amongst rockwork, and plant out any rock-plants that have been kept in pots during winter. Plant out Ferraria roots that have not been potted, into borders, and plant also in beds Gladiolus cardinalis, Ixias, Tritonia fenestrata, &c., sticking Laurel-branches thickly amongst them as a sort of protection, for a few days; if frost should occur, a few mats might be thrown over them. *Pits and Frames.*—Such plants as are removed to cold pits should be left uncovered during mild nights, and air should be left on pits and frames where the plants are sufficiently strong for turning out. Recently-struck Verbenas might be pricked out into rich beds, protecting them with hoops and mats; in a month they would be fine plants for removing into the flower-garden, taking care to preserve balls of earth to the roots. Calceolarias, Salvias, &c., might be treated in the same way. Pot off tender Annuals, and keep them in a mild heat until they are well rooted. Sow Annuals, &c., for succession.—*B.*

III.—FLORISTS' FLOWERS.

The past warm weather has brought Auriculas on very fast; the expanding blooms must be carefully shaded, and the plants regularly watered; an occasional watering with Brain's liquid guano appears to invigorate my plants much. As the exhibitions of this flower will soon take place, the pips which are not wanted may be thinned out, and a small piece of cotton wool introduced amongst the foot-stalks of the truss, to keep them in their proper places. *Tulips* must be protected day and night; they also are rapidly advancing; keep the beds free from weeds. *Carnations.*—When these have been potted about a week, it will be necessary to introduce the sticks, for the support of the rising stem; when deferred to a later period the roots may be injured by its insertion. *Ranunculuses* are now making their appearance; a top dressing of very rotten cow manure, which has been passed through a riddle, will be found beneficial. Take especial care that the soil is well closed round the necks of the rising plants. *Pinks.*—The beds may be top-dressed with rotten manure, and sticks put to the plants as soon as possible. I am growing my best sorts in pots, in the way of Carnations. *Dahlias.*—Those that are potted off, and are sufficiently established, may be hardened by a gradual exposure, preparatory to being planted out.—*C.*

IV.—PINERIES, VINERIES, &c.

In many cases the late crops of Grapes are grown on the rafters over a pit of Pines—such Vines will now have to be introduced, and as the sunshine is apt to be excessive at this season they will require shading: this will suit the Pines also. Where such is the case, however, the Pines will require rather less root-watering for a while, as the temperature will have to be reduced to enable the Vines to break slowly. Under a moderated heat of from 65° to 70° through the day, and from 60° to 65° by night, they will take no harm for a week or two. Successions, which are growing quickly in pits, will now require abundance of air to keep them strong. Both these and fruiters should be rather freely watered with warm manure-water; stale cow's urine, with some guano dissolved in it, and soot-water, all in a perfectly clarified state, will be found good for this purpose. My practice is to put about a quart of this strong fluid to a large watering-can of water of the temperature of from 85° to 90°. Attend to the Vineries as before. Those late Vines just introduced, or set in motion, should, as before observed, be, if possible, shaded for a few hours on bright days while they are breaking. This is doubly necessary after so severe a winter, for, doubtless, many Vines will have received more or less injury from frost. I have heard of two or three cases; therefore the slower they break the better. Syringe their stems frequently, and preserve a very moist atmosphere until they are in leaf. *Peaches, Figs, Cherries, &c.*—Little can be added to former Calendars on this head. See that no insects are allowed to get a footing. Lose no opportunities of stopping gross shoots, with a view to the equalisation of the sap; no system of winter pruning, however clever, can effect this half so well. Give abundance of air; if possible, a little all night.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The operation of disbudding Peach and Nectarine-trees should be proceeded with, more or less, according to the development of vegetation; and as this will now be rapid, owing to the advanced period of the season, constant attention will be necessary, in order that the removal of shoots may be gradual. Should the green-fly appear, moisten the trees, and then dust them over with snuff, or powdered Tobacco-leaves. Strawberry plantations will require abundance of water, if dry weather continue; and a piece of ground should be prepared for the reception of plants as they are turned out from the forcing-house. These will afford early runners. *Kitchen Garden.*—Sow Cardoons, and the principal crops of Salsify, Scorzonera, and Beet; the seeds of the latter should be steeped a day before sowing, especially if the soil be dry. Sow a portion of the late kinds of Broccoli; and successions of Peas and Beans, and amongst the former Knight's Tall Marrow should form a principal part. Plant out Kidney Beans forwarded in pots or boxes, and sow for succession. Prick out Celery, in an open situation, on beds formed of rotten dung and rich free loam, about 4 inches thick, laid on a hard surface. The growth of these plants should never suffer any check from draught. Prepare ridges for pickling Cucumbers; these are best sown where they are intended to produce; and hand-lights, not now required for Cauliflowers, can be placed over the patches, although some even dispense with such protection. In case of accidents, however, some should be sown in pots, but not forced. Thin plants in seed-beds, for if crowded in a young state, their future success is endangered. Break off the flower-stems of Rhubarb as they appear, unless a few be required to run up for seed.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—The trees which are intended to be barked should be now marked; peel them standing, unless the timber is required; by peeling the trees standing, and not felling them until next winter, the timber is much improved in value, although there is a trifling loss of bark from the smaller branches. Continue draining, the repairing of woods, &c., as before. *Nursery.*—It is of the utmost importance in consequence of the very dry weather, to make all newly removed plants firm about their stems; their well-doing will, in a great measure, depend upon this. Water seedlings, cuttings, and layers, but do this effectually, or not at all; slight waterings are worse than useless. Protect early growing choice Firs, and other plants, from late spring frosts, which often prove more disastrous than those in winter; hoeing between young plants will effectually destroy weeds, and prevent the ground from cracking.—*F.*

VII.—COTTAGERS' GARDENS.

Peas, which are now growing rapidly, should be earthed up; after which they should be sticked, taking care to use the shortest sticks for dwarf-growing varieties. Sow for succession whenever the last put in are appearing through the ground; by observing this rule, a constant supply of green Peas may always be had during their season. The same thing holds good in sowing Beans; the soil between the rows of these should be stirred up, and a little earth drawn to their stems. Sow Radishes often, in order to have them young and tender; and to have a succession of Spinach, observe to sow as soon as the last sowing makes its appearance above ground. Sow in drills between the rows of Peas and Beans. Artichokes should now be dressed; clearing off all superfluous suckers, and digging in good manure about the stools. Asparagus beds should also be forked up, taking care in performing the operation not to injure the crowns of the roots. Where the soil is dry and warm Kidney Beans might be put in. Draw the drills rather shallow, placing the Beans three or four inches apart, and covering them about two inches in depth. Let plantations of Strawberries be cleared of weeds, and well watered, if the weather continues warm; and as the season is drawing near when we may expect a visit from Gooseberry caterpillars, it cannot be too often repeated that good powdered Hellebore destroys them. Whenever the pests make their appearance, take a small muslin bag filled with the powder, and dust those trees that are affected.—*G.*

State of the Weather near London, for the week ending April 24, 1845, as observed at the Horticultural Garden, Chiswick.

April		Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain
Fric.	18	11	30.157	30.101	58	37	47.5	N.E.	
Sat.	19	12	30 061	30.032	60	36	48 0	N.E.	
Sun.	20	13	30 139	30.078	68	36	52.0	E.	
Mon.	21	14	30.108	30.014	66	38	52.0	N E.	
Tues.	22	○	29.982	29.924	63	31	47.0	N.E.	
Wed.	23	16	29.851	29 727	72	34	53.0	E.	
Thurs.	24	17	29.747	29 707	71	34	52.5	S.W.	
Average			30.009	29.940	65.4	35.1	50 3		.00

April 18—Uniformly overcast; bright blue sky, with scattered white clouds; cloudy at night
19—Overcast and cold; very fine; slightly clouded
20—Slight haze; fine, with light clouds; clear and fine at night
21—Fine; very fine; exceedingly clear at night
22—Hazy; very fine; clear; slight frost
23—Slight dry haze; sultry; very clear at night
24—Slight haze; very fine throughout.
Mean temperature of the week 2 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending May 3, 1845.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 27	60.8	37.4	49.1	8	0.12 in.	6	1	3	2	4	2	1	—
Mon. 28	62.2	37.8	50.0	7	0.10	1	4	3	4	3	2	—	2
Tues. 29	62.3	40.4	51.4	7	0.75	2	3	4	2	4	—	4	4
Wed. 30	63 9	42.2	53.0	7	0.31	2	2	5	1	3	3	1	2
May													
Thur. 1	64.8	41.7	53.3	7	0 51	1	2	4	2	5	3	2	—
Fri. 2	65.6	43.4	54.5	6	0.72	1	3	5	—	4	3	2	1
Sat. 3	63.5	42.9	53.2	9	0.30	1	4	3	1	4	4	—	2

The highest temperature during the above period occurred on the 28th, 1840—therm 77°; and the lowest on the 27th, 1235, and 26th, 1835—therm. 27°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 2*s* for 3*s*.

Asparagus—*Tristan*—Asparagus is generally grown in beds, particularly near London, where it is deeply landed over with soil from the alleys, which ultimately become deep trenches. Some injury is occasioned to the roots by this proceeding, but there is an advantage as regards earliness; for the sun's rays strike heat into the sides of the bed, and thus the deep roots are stimulated sooner than would be the case if the whole surface of the plantation were level. ‖

Bark—*H G B*—There is no objection to slitting the bark of hide-bound trees; it should be done in the spring, and the incision should not go deeper than the liber.

Books—*Ignoramus*—Probably Neill's "Fruit, Flower, and Kitchen Gardener," of which there is a new edition, would meet your views. The directions in it are plain, simple, and in general good.——*F T M*—Lindley's "Synopsis of the British Flora," and Babington's "Manual" are cheap books on the Natural System. The last editions of Hooker's "British Flora" are also arranged on the same plan. If you wish to study the Natural System, and the Linnean is consigned to the tomb of the Capulets, you had better study "School Botany," which, if you have any tolerable power of observation, will set you fairly afloat.

Fairy Rings—*H G B*—These are produced by Toadstools, which radiate from a common point while spawning, and appear above-ground at the circumference of the circle thus formed.

Fruit-tree Borders—*Amateur*—Strawberries dry the soil much more than light vegetable crops, therefore they ought not to be planted on fruit-borders. If for want of space it become a matter of necessity, the plants should be kept single, and an extra quantity of manure supplied. Fruit-trees will thrive better in borders manured and cropped, than in those that are neither cropped nor manured. ‖

Fuchsias—*Sub*—A sandy, pulverised, turfy loam, is the best soil for the first potting; where this can be obtained, one-sixth of the whole proportion of sand is enough; but in heavy loam, one-fourth is requisite. The above distinction in loam is a necessary one in cultivation generally. We would refer you to Mr. Wood's articles on the Fuchsia, given in our volume for 1844, which may be read with much advantage. ‡

Garden Walls—*W K L*—Your garden being exposed only to the south and south-west, the wall trees will suffer comparatively little from winds, for they are not cold from these quarters. The cross walls you propose cannot be in a better direction than that indicated by the two projections already formed; and it will be the best and cheapest plan to build them straight; for curves occasion eddies, and these injure foliage more than a strong and steady wind. Arbor-vitæ hedges planted across the border, at right angles to the wall, are of great utility in breaking the sweep of the wind, and for this purpose they are far more efficacious than projecting walls. 12 feet is a good height for garden walls, but the higher the better. Sloping walls have been tried for fruit-trees, but they are too damp in wet weather. ‖

Garden Pots—We have reprinted for *gratis* distribution our article on the sizes of pots, and the necessity for rechristening them. It has been done in a small form, that it may be stuck up in the potting or tool-house, as the case may be. Any party inclosing to the publisher his address and a post-age-stamp, shall have a couple sent him;—more, if a greater number would be of use.

Glass—*C P, S A R, P*—Buy no glass at present; make no contract for glazing; but make shift as well as you can, until the manufacturers take off the whole of the duty that has been remitted. We shall probably revert to that subject next week. In the meanwhile, *wait;* and read the Leading Article in to-day's Paper.

Greenhouses—*R H B*—Build in a line with the front of your house. A south-west aspect will do very well.

Insects—*K L*—Please to send a leaf and some of the insects inclosed in a pill-box, to Mr. Curtis, of Hayes, near Uxbridge, for all the insects you allude to had escaped from the envelope, and the leaf was crushed. *R.*——*J K*—It is the true wireworm you complain of, and we must refer you for remedies to the "Royal Agricultural Journal," where you will find all that is known concerning them. *R.*——*E R*—Water the bank with spirits of tar, but avoid touching the flowers. *R.*

Lancewood—*A Lincolnshire Subscriber*—The wood termed Lancewood, grows in Demerara; the name of the tree is Duguetia quitarensis.

Names of Fruits—Your Apple is the Hollow Crowned Pippin. ‖
——*J M L*—Holland Bergamot. ‖

Names of Plants—*E B*—We are sorry to say that it is impossible to name exotic seeds without a degree of labour which cannot be afforded to them, even if they were worth it, which they are not.——*Anon*—1, Polygala speciosa; 2, P. grandiflora; 3, Hibbertia grossulariæfolia; 4, Saxifraga cordifolia; 5, Orobus vernus. §——*D*—Aspasia lunata.

Peas—*J Wilkinson*—The comparative merit of Waite's "Queen of Dwarf Peas" is not known to us. ‖

Potatoes—*R W T*—Those you sent appear to be the Ash-leaved Kidney, as far as can be judged from the tubers only. You can be certain if it produce pinnated leaves and no flowers. ‖

Productive celibacy—*Dogberry* presents his compliments to "R. T." and would feel interested in any *civil* communication he may be pleased to record, respecting Lord Thurlow's parrot and her eggs, alluded to at p. 258.

Roses.—The Tree-Rose is now ready, neatly done up in cloth, price 4*s.* 6*d.*, not 5*s.* 6*d.*, as stated in former announcements.

Tobacco—*N G*—It is unlawful to plant Tobacco, except in any physic garden of either University, or in any other private garden for physic or chirurgery only; and in those places the quantity so planted must not exceed half a pole. Heavy penalties are also incurred by manufacturing Tobacco without attending to the excise regulations on the subject. ‡

Transplanting—*W F G*—We have not Col. Greenwood's book at hand, but we will read it in a day or two, and give our opinion next week.

Violets—*G*—These do not like much forcing, especially by bottom-heat in winter, and they are very impatient of damp. In September fill a pit, whose bottom-heat is nearly exhausted, as high as will ultimately cause the leaves of the plants to come within an inch or so of the glass. On this bottom, trodden firmly, place about an inch in thickness of rich well-decayed manure; let the Violets be placed on this with all the ball of earth with which they can be lifted, and then fill up with a compost of half sandy heath-soil in a mellow state, and with the other half tolerably stiff yellow loam. The bottom-heat should be about 55°, keeping the surface-heat from 5° to 10° lower, and giving abundance of air at all times when it is not too cold. The leaves, which are peculiarly liable to rottenness, should be picked off the moment the evil presents itself. In frosty weather the pit should be carefully covered up at night with mats. By this treatment Violets may be had in perfection through all the spring months. ‡

Misc.—*H H*—Kyanising consists of steeping wood in a solution of corrosive sublimate until the wood is impregnated with it. ——*Aliquis*—Tickets for the Exhibitions at Chiswick cannot possibly be procured except through the intervention of some Fellow of the Horticultural Society. They may be bought at the gates at an advanced price, but even then the authority (written or personal) of some Fellow is required. We believe the regulations of the Botanic Society are of a similar nature. All these regulations are advertised from time to time.—— *R W J*—If you cannot wake, get an alarum-clock, or make one with a candle, an iron ball, and a metal basin.——*W F C* —Cuttings of both your plants, which are Aster argophyllus and Pernettya mucronata, may be struck under ordinary treatment. The best time is about the beginning of March, or as soon in spring as cuttings can be had from them. The pots in which they are to be struck should be prepared thus: one-half potsherds, covered with any rough soil, then filled up with silver sand. Select cuttings of half-ripened wood, about 1½ inch in length, and place them under a bell-glass in a gentle bottom-heat. §——*J D Davies*—We would willingly answer your note, but we cannot read it.

SEEDLING FLOWERS.

Auriculas—*J R*—Your seedling self is too much fringed, and the paste is too thin.*

Cinerarias—*B B*—Your specimens were so much mutilated by transmission through the post, without protection, that it is impossible to judge of them generally; they appear to have well-formed petals, and the lighter variety having the petals finely edged with delicate blue, appears to be a good flower; the other specimen is not uncommon.*——*D J*—Your seedlings, though varied and refined in colour, have all weak and narrow petals, 2 and 3 are the best in the collection.*

Pansies.—*W J E*—These are good sorts:—Pierson's Black Prince, Mulberry Superb, Major's Bridegroom, King's Exquisite, Brown's Arethusa, and Buxton's Ne plus Ultra.*

Polyanthus—*J R*—Your seedling is of no value; it does not possess the properties of a show-flower.*

Verbenas—*Correspondent*—Your crimson seedling is a good flower; but it does not appear to be sufficiently distinct from other varieties to warrant its being sent out as a new one.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

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AND THE BEST RESISTER OF FROST FOR GARDEN USES.

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The Agricultural Gazette.

SATURDAY, APRIL 26, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	April 30	Agricultural Society of England.
THURSDAY,	May 1	Agricultural Imp. Soc. of Ireland.
WEDNESDAY,	May 7	Agricultural Society of England.
		Highland and Agricultural Society.
THURSDAY,	May 8	Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

April 22	W. Market	May 5	London
April 29	Bremsgrove		Stewponey
May 3	Columpton		

IN directing the attention of our readers once more to THE POLICY OF BREAKING UP INFERIOR PASTURES, we have in the first place two remarks to make. The first is to those who may think that we are giving this subject too much prominence. In the present state of this country any plan by which the produce of the land may be increased, and especially any so simple as that now under consideration, is of the highest importance—the population of an entire county, it must be remembered, is every year added to that which our island appears already unable to feed.

The second has reference to the real nature of the question before us: it evidences but a narrow view of the subject to confine it as we have hitherto done to the policy merely of *ploughing up Grass-lands*. The real question to be asked is: *what crops* should be grown in order that the three classes dependant on it—the landowner, tenant, and labourer—may derive the greatest benefit from the cultivation of the land? Some lands will yield Wheat and Potatoes alternately during a series of years—what could be a higher or more useful mode of cultivation than this? Other lands are peculiarly Barley, Turnip, and Clover soils. Some require, or *are said* to require, lengthened rests as they are termed; the land is laid down to Clover and Grass, and remains as pasturage for two or sometimes three or more years; on ploughing it up at the end of that period, it is found to have regained the fertility which it had lost. Obviously, however, such lengthened periods of comparative unproductiveness must not only take from the value of the land to its owner; they must also diminish the profits of its occupier, and they undoubtedly destroy many opportunities for the employment of the labourer. Can it ever be the interest, then, of those concerned in the matter that the land should remain *permanently* in this state of rest, in this condition of comparative unproductiveness—as a pasturage? This, it will be observed, is the real position of this question—so far from being an independant subject for consideration, it is but one of the many which arise on a comprehensive consideration of the proper end and object of agriculture.

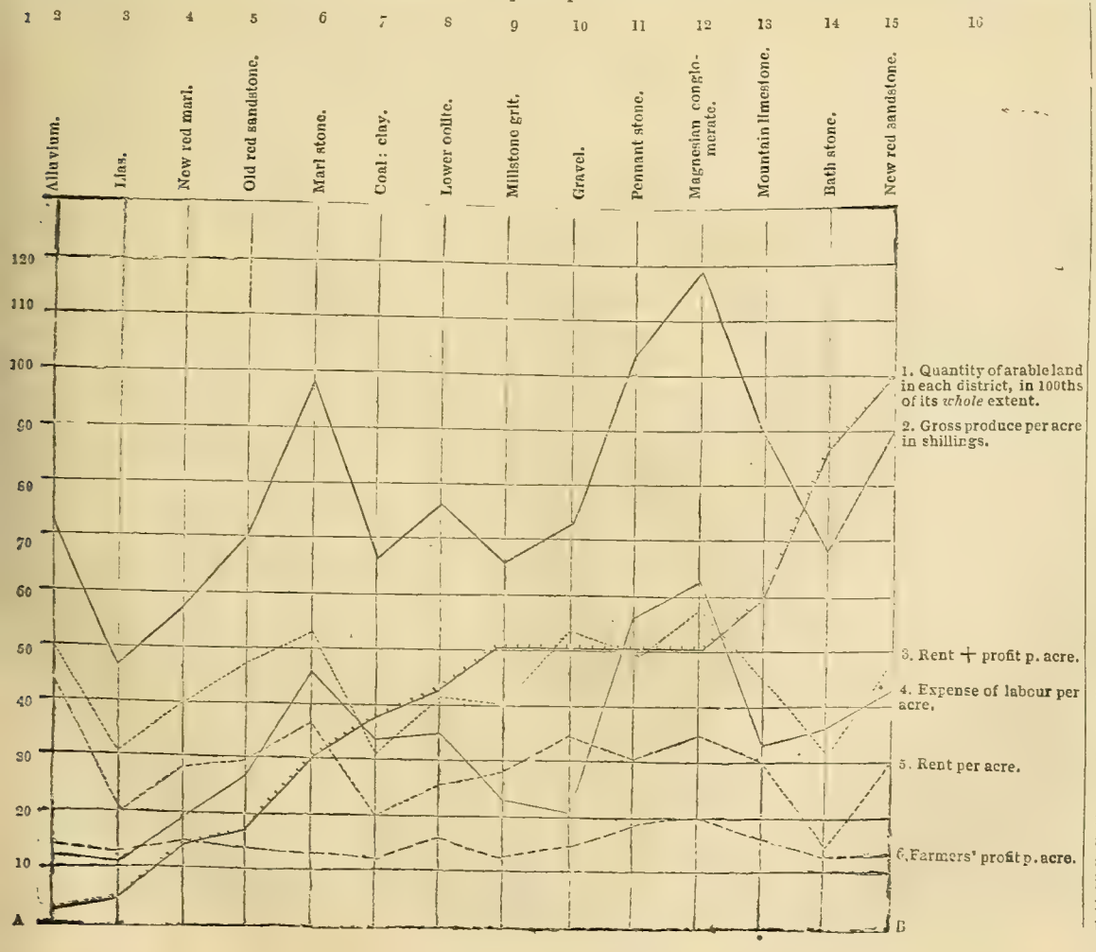
Let us now return to a continuation of our last week's remarks on the bearing which the statistical statement of South Gloucestershire farming, published at page 195, has on this subject. We last week referred particularly to the way in which these tables, collated by "M. S.," illustrate the interest of the labourer in the matter.

There are still one or two points connected with this aspect of the subject to which we must allude; and it may therefore be well, in illustration of them, to republish the diagram printed at page 261, in explanation of the relations which obtain, in the several districts of South Gloucestershire, amongst the proportion of each which is ploughed, the gross produce of the land, the rental of it, the profit which the farmer derives from it, and the amount of labour spent upon it.

It is unnecessary to repeat here what was said at page 261 in explanation of this diagram; those who have not been accustomed to see exhibited, by means of curved lines, the relations to one another of circumstances varying either according to place or time, will easily understand the matter by reference to last week's remarks. The form of any of these curved lines—its variable height above the base line (A B)—expresses the relations of the several districts, whose columns it traverses, to the subject to which it refers. Thus, No. 1 is a line expressive of the quantity of ploughed land in the various districts of South Gloucestershire; and No. 4 signifies the amount per acre spent on labour in these districts.

Now, it may appear that were the assertion that all classes would benefit by the breaking up of our permanent pastures true, then the curves expressing the interest which the different classes have in the matter—curves Nos. 4, 5, and 6; one referring to the expense of labour per acre, another to the amount of rent, and the third to the amount of farmer's profit—ought all to coincide with, or at least resemble that (No. 1) which is expressive of the proportion of ploughed land in each district: but we must remember that there are many circumstances which interfere with this otherwise to be expected result; and accordingly it will be observed that while all these curves do resemble each other in so far as upon the whole they all rise from the left to the right-hand side of the diagram, yet there are many disagreements and discrepancies amongst them. These, though apparently somewhat anomalous, admit in reality of very satisfactory explanation.

Ploughed land *may* be allowed to lie fallow, and waste, and then, though—being arable—it be in a better condition for the profitable application of labour, yet the labourer will not receive employment; or, compared with neighbouring *pastures*, it may be of a very infertile character, and then, though, of the two, it be in a condition greatly the more favourable to the production of useful crops, yet it will be much the less valuable to its owner; and, lastly, though, compared with Grass-land, it be in a condition to yield profitable returns for a much larger application of capital in its cultivation, yet mismanagement, or the exaction of an unjust rent, may deprive the tenant of the greater profit which is reasonably to be expected for him. These considerations will easily suggest how the apparent descrepancies exhibited in the curves of the above diagram may admit of explanation. And in point of fact, it *is* in this way, as any one who may have read the account which "M. S." has given of South Gloucestershire will have seen, that these disagreements have arisen. For instance—on the Bathstone district, though nearly all arable, the rent is so much lower than that on the alluvium, which is almost wholly pasture, because its soil is naturally of so much poorer a description; on the marlstone and on the magnesian conglomerate, the amount spent on labour is so much greater, though their proportionate extent of ploughed land be less than on the gravel and Bathstone, because, while on the latter, a regular system of farming is adopted, and horse labour mostly employed, and large farms exist, on the former the chief crop grown is Potatoes for the Clothing and thickly inhabited districts of the county, and the farms are small, and there is much of spade husbandry.



The above diagram, in short, supposing its statements to be correct, exhibits the *existing* circumstances of a certain district; it does not give the figures (though *they* also might be founded on fact) of a suppositious case; it states things not as they might be, but as they actually are, under the influence of a variable soil, a variable amount of farming capital invested, and a variable degree of energy and intelligence on the part of the farmers, as well as under that of a variable proportionate extent of arable land.

But let us call attention to another statement of fact, bearing upon this question. We are at present residing upon a farm of about 260 acres, which six years ago was nearly all in pasture; what extent of land on it was ploughed was farmed badly; and the pasture fields, it must be acknowledged, were also mismanaged. The land was also buried in hedgerow timber, and it greatly needed drainage. Its rent and taxes did not then amount to twenty-two shillings per acre. Since

that period much money has been spent in laying the land open, in draining it, in making good roads, and in erecting suitable buildings. The tenant of this farm entered upon it after its improvement had been completed, paying, of course, a largely increased rent on that account; so much for the landowners' interest in the subject. He now finds a *profitable* investment on the land for considerably more than 10*l.* per acre of what is strictly *farming capital*—a sum exceeding by, probably, four times that which was invested by the former tenant; so much for the occupier's interest in the matter. And the expenses of farming, which may all be considered as either directly, or, through tradesmen, indirectly reverting to the labourer, exceed 70*s.* per acre—a sum many times what was thus annually spent by the former tenant; so much for the interest of the labourer in the matter. Add to this the fact, which is the chief point of view in which the matter exhibits *national* importance, that the value of the gross agricultural produce of the land must be somewhere near 8*l.* per acre, more than four times what it formerly yielded, and the whole benefit which in this case has been derived from agricultural improvement—from breaking up and properly cultivating inferior pastures, is exhibited.

There cannot be a doubt but that wherever this process—the conversion of our second-rate Grass-lands—is carried on in any degree skilfully, the result is beneficial to all parties connected with it. Let us hope that the rapidity with which it is now proceeding in the country, and with which, urged on as it is by the necessities of the people, it must continue to proceed, may rapidly increase; not only is it an object of national interest thus to increase the abundance of food in the country, but in their too often depressed condition, any plan for providing *profitable* employment for the labourers, surely deserves the earnest advocacy of all.

Among the operations of husbandry at the present season few are more important than that involved in the use of the Roller. We have not, at present, space in which to describe the different forms of this implement—these, the common smooth cylinder, the bar roller, Crosskill's clod-crusher, and others, we shall hereafter refer to at greater length—our present object is merely to state the nature of their effects upon the land.

Cloddy land is, very frequently, a consequence of mismanagement. Land which has been ploughed whenever necessary, and *when in proper condition as to dryness*, will rarely form into clods; and perhaps the superiority of the practical over the amateur farmer, the tact conferred on him by experience, is seldom seen to greater advantage than in the advantage which a knowledge of the proper condition in which different kinds of soil admit of cultivation thus gives to him. Notwithstanding this, however, clod-crushers are useful implements to the farmers of the generality of soils.

Their main purpose in *fallow* operations is to break clods, and thus not only to bring land to a tilth, but also to enable the removal of root-weeds. Those acquainted with the different forms of this implement will easily see how much more efficient those must be which exert an irregular pressure on the land, such as Crosskill's clod-crusher and others, than those which, like the smooth cylinder, press uniformly over it.

Another important use of the roller at the present season is to close and flatten the surface of the land, in order to hinder the loss, by evaporation, of the moisture it contains. Rolling is as beneficial an operation for this purpose on our young Clovers, Wheats, &c., as it is on lands lying fallow; but in working the latter for our root crops, especial care should be taken that as the harrows closely follow the plough, so the roller should follow closely in the wake of both. And, though the observation to the practical man may appear simple enough, no one need fear that this use of the implement will tend injuriously to consolidate the soil and neutralise the loosening and pulverising effects of previous cultivation. We have lately been endeavouring to ascertain the depth to which the influence of the roller extends, when drawn at the usual rate over the surface of the land; and our anticipation that its effect is merely to consolidate the soil for the first inch or so of depth was fully confirmed. Three spirals of sheet-lead, one foot in diameter, and 2 inches in depth, were buried in a loosely prepared soil of uniform texture at the depths respectively of 6, 4, and 2 inches. On passing the roller (it was a light implement) over the land, and afterwards carefully examining the spirals, it was found that the uppermost had been compressed in all about the 8th of an inch, but that the others were entirely unaffected. On afterwards, however, stepping on the land over each, thus exerting a considerable pressure for a length of time, it was found that all three were considerably flattened—that, in fact, the consolidation of the soil *thus* produced extended throughout its depth.

OBSERVATIONS ON A LABOUR-RATE.

I am sorry to observe that you advocate a labour-rate. The inclosed observations, which were written, as you will perceive, 11 years ago, still express my opinion on the subject:—

"The labour-rate system is one of those mischievous expedients which parishes burdened with poor, and involved in difficulties, have recourse to, in order to obtain deliverance from them; but the natural effect of which is to increase pauperism, and thus to aggravate the evil. It interferes with the free circulation of labour, for it does not admit of any labourers but those belonging to the parish being employed under it (1); and the same labourers cannot be employed in any other parish during the operation of the measure. It also interferes with, and has a mischievous effect on the price of labour, by depressing it below its level; inasmuch as it leads to an apportionment of all the labourers in the parish, and a regulation by the vestry of their wages (2). The labourers are classed according to their ages, or supposed skill and ability, and each class is paid a certain sum or minimum of wages, which minimum will soon become the maximum throughout the parish; and the wages thus depressed being inadequate to the support of married men with families, an allowance in aid thereof will, of necessity, be made to them, in one shape or another, out of the poor-rate. Thus, the allotting of the labourers will have the effect of depressing the price of labour below its level; making allowances out of the poor-rate in aid of low wages will depress them still lower; and one evil having generated another, they will thenceforth act reciprocally upon and aggravate each other.

"The labour-rate is, under another name, the roundsman system: for where is the material difference between sending men round, and allotting them to the rate-payers? The man who is allotted to an individual for a given time, be it five days or fifty, feels that he is allotted, not hired (3)—that he is a pauper working out a labour-rate for an unwilling master, not a servant earning the wages of labour.

"The character of the several labourers should be taken into consideration, and a distinction made between the deserving and undeserving, between the industrious and the idle, profligate, or extravagant: but under the labour-rate system such a distinction cannot be made (4). 'It paralyses industry, discourages prudent foresight, and confers a premium on profligacy and extravagance.' Take the case of two men.—The one, a single man perhaps, earned during the summer, on an average 20*s.* a-week at jobbing work; the other, it may be a married man with a large family, worked for a farmer, and received, with the addition of beer in harvest time, 12*s.* a-week. On the return of winter, occasion has ceased for their hands, and they are penniless. Under the labour-rate system both of these men would be allotted; and each would be paid, not according to his desert, but according to his age, or supposed skill and ability. I humbly contend that the profligate and extravagant, if not left to shift for themselves, should at least have hard tasks, and small wages; whilst the man who, from no fault of his own, but from unavoidable necessity, is compelled to apply for relief, should be set to work, and paid fair wages.

"The labour-rate system will make servants careless about keeping their places; and it will destroy those feelings which should subsist between master and servant, which induce the servant to identify his own interest with that of his employer, and lead the master to treat his servants with kindness (5). It is contrary to sound principle to force individuals to employ a precise number of labourers on their land. The labour-rate takes the control of a person's own purse from himself: he is not to expend as much as he pleases, but as much as others say he ought to expend (6). Such a proceeding is calculated to drive capital out of the country.

"The measure will oblige parish officers and others to interfere with the management of their neighbours' concerns (7); and it will introduce a system of espionage into our parishes; for returns of the number of men, women, and children employed by every rate-payer must be made, and the accuracy of the returns inquired into.

"The machinery which the measure requires is so complicated (8) that the majority of parish officers would be utterly incompetent to arrange the details. The above observations apply to the principle of the measure.

"I will now suppose that the principle is good, and proceed to show, that 'no equitable labour-rate can be founded on the assessment for the relief of the poor.' The quantity and quality of the land held by the several rate-payers, and also its class, that is to say, whether arable, pasture, woodland, garden, or nursery ground, &c., should, in adjusting a labour-rate, be taken into consideration. Pasture is very generally rated higher than arable land, 'because of its comparative exemption from the outgoing of labour.' The expense of cultivating arable land is greater than of cultivating pasture; and the gross profit from each is in the same, or nearly the same proportion. Two parcels of land of the same class may be very unequal as to quantity and quality, and yet be assessed at the same sum. Upon 200 acres of arable land, of inferior quality, rated at 100*l.* many more hands may be employed with advantage to the occupier than upon 100 acres of good land rated at the same sum. No two farms are in exactly the same circumstances as to the quantity of manual labour they may require. They may be assessed at the same sum, and be of the same class, and alike as to quantity and quality; but from the superior mode in which the one has been for some time past managed, it is in excellent condition, and consequently less labour can be profitably bestowed upon it than on the other which may be in a bad condition. Some lands, woodlands for instance, require a great deal more labour to be bestowed on them in winter than in summer; and *vice versâ*. The fences on some properties consist principally of hedges and ditches; on others, of walls and paling. For the former description of fencing agricultural labourers are required; for the latter, bricklayers and carpenters.

"'In parishes,' observes an advocate for a labour-rate, 'where there is a greater number of labourers than that which is really needed to keep the land in a proper state of cultivation, care must be taken to make such an arrangement as shall throw upon each person his fair share, and nothing beyond that share. For this purpose, it is necessary to ascertain, first, what portion of the labourers are really required to keep the land in a proper state of cultivation, and to distinguish between this portion and the remainder which is left, after they have been deducted from the whole body. The former portion falls exclusively upon the occupiers of land. Until they have employed this portion of the labouring population, they have no right to come upon the rest of the rate-payers to assist in supporting able-bodied labourers. And when they have provided employment for this portion, they are still fairly liable to be called upon, in common with the rest of the parishioners, to contribute their fair share to the expense incurred in setting to work the remainder of the labouring class; those, namely, whose services are not required to keep the land in a fair state of cultivation.' The same writer then proceeds to place in a very striking point of view the injustice inseparable from the principle of allotting the labourers according to the rental. The injustice and absurdity of allotting agricultural labourers to individuals on account of their houses, which are, perhaps, already filled with servants, are obvious; and yet it is an injustice and an absurdity of which many of the advocates of the measure have been guilty.* Were returns made by those parishes in which labour-rates have been established, it would, I apprehend, appear that they have very generally proceeded on the principle of pauperising the whole body of labourers, and then assigning to each rate-payer a share proportioned to the sum at which he stands rated. If landlords and tenants would rescue the poor from pauperism, and themselves from all the evils which result from the moral degradation of a peasantry, they must apply their minds with energy to the subject; and when any remedial measure is proposed, they must determine its eligibility or expediency, not merely by its affording present relief, but by the degree of probability there may be that it will on the whole be beneficial, that it will in its ultimate and general consequences or effects promote the welfare of the poor, whose interests are inseparably bound up with their own. We must not sacrifice the future to the present, but rather be prepared to make a sacrifice of the present to the future. It is only by ameliorating the condition of the poor that poor's-rates can be permanently reduced; and the condition of the poor will not be permanently ameliorated, till they shall have acquired habits of self-dependance."—*John Boswell, Iver Lodge, Bucks; July 8th*, 1833. [Let the reader study the above objections, numbered 1, 2, 3, to 8, and then turn to pages 159, 160, and see whether the evils alluded to are not those shown to be capable of entire removal, by a judicious mode of carrying "A Labour-rate" into effect.]

AGRICULTURAL EDUCATION.

The education of farmers has hitherto merely taught them the labours of the farm mechanically and by rote, without any science. They have been taught the operations and seasons, but unassisted by any analytical or inductive reasoning; and hence the difficulty to improve them, and the diversity of principles, and the uncertain basis on which much of their practice stands. They may attain a certain skill in practice, such as a working watchmaker may attain in putting together a watch; but no improvement can arise unless the laws and principles on which it must depend are known, and the mind (governed by right knowledge of causes and effects), be brought into action, enlightened but unfettered by previous practice. The time is now come when very different returns for the labour must be realised on the generality of soils, to leave the cultivators any profit, and the expenditure, too, must be lessened—not by a reduced scale of wages, but by the general use of improved machines and implements. One of the great misfortunes attending the study of agriculture has been, that the varied knowledge its improved practice calls for, is either not understood, or far too lowly rated; and indeed, it can be fully appreciated only by those who are engaged in the pursuit with proper education and views. You may make a machinist, an engineer, an architect, a surgeon, or an accountant, by an educa-

* The Rev. Mr. —— has, with the intention of taking pupils, hired, and, with money which he was obliged to borrow, furnished a large house in a small market town. There is every reason to expect that eventually the house will be filled with pupils; but, for the present, he must be content to see it only partially occupied. It is evident that a labour rate, founded on the rental, would grievously oppress and probably ruin a man so circumstanced.

tion limited to the immediate knowledge to which either looks. An engineer need not know surgery—nor a surgeon the principles of building—nor an accountant mechanics; but unless a farmer be so educated that he may select the best implements, estimate rightly the ntility of machinery, arrange his buildings, lay out his improvements, doctor his cattle, and keep his accounts, so as not only to tell him each year's gain or loss, but also to separate the result of each pursuit, he cannot be expected to farm with the advantages that should accompany his large outlay of capital, and the distant and varied returns that attend it. The pursuit of agriculture is, therefore, one in which the man of science finds much to interest him; but it is always taken up by such too eagerly, and too generally attended with unfavourable results—not because his scientific views are wrong, but from the fact that whilst farming may receive important aids from each, success depends on the well carrying out of every branch, and with a care and an economy that is bestowed only by the master's presence and discretion.

No pursuit has such a variety of interest, nor can any business or profession vie with it in happiness and independence. The farmer has every day some fresh incident, some new progress to observe—the advance of his crops, the condition of his stock, and the results of his experiments—and his life is passed in the midst of all that should make it enjoyable; its attractions are felt by the highest, and it is a following that never degrades. No profession or occupation in these respects can compare with it, and without affording large profits, it begins by giving much that large profits and years of labour are devoted to end with.—*Hewitt Davis, Spring Park, Croydon.* [Extracted from a letter of advice to a father, who had consulted the writer as to a pursuit for a son.]

Home Correspondence.

Economy of Farming: Large Farms an Evil.—The merchant becomes rich, the mill-owner amasses a large fortune, and the revenue advances, yet the cry of agricultural distress, no work for the labourer, and the farmer ruined, sounds through the land. Something must be wrong to cause starvation in the midst of plenty, to stare those in the face through whom the markets are supplied with food. Had not the manufacturers called in the assistance of ingenuity, invention, and improvement of every knd in machinery, they must have sunk into mediocrity, and our native land must have receded from the high position it holds, consequent upon its riches and fruitful resources in time of need. Those who are anxious to attain wealth and eminence in the commercial world freely give out their capital on speculation, and the result, where care and diligence are observed, rewards the spirited adventurer. Why should not the same system be carried out in agriculture? The great obstacle to the general improvement of land appears to be the unwieldy extent of farms, compared with the means of the tenant; if a man has sufficient money, understands his business, and has constitutional activity, no matter what number of acres he commands; but, on the other hand, if there is a waste of the sinews of war the farm should be divided, and a proportion of the land let commensurate with the purse of the holder—of what use is an acre of ground to a man who can only till half a one? It naturally follows that he cannot obtain a full crop, although the whole of the soil may be apparently in cultivation; he thus pays too much rent, and deprives his fellow-creatures of a certain quantity of food, which might have been prevented by observing the old adage, "cut your coat according to your cloth." The distribution of prizes at agricultural shows should be to encourage the most productive and least expensive plan of raising grain, roots, and green forage, and feeding animals for the markets, not offering premiums for unfortunate oxen, pigs, &c., crammed by artificial means, till they can scarcely move, a burthen to themselves, and a disgusting sight to most people. It is not a criterion of first-rate farming to stuff a cow, regardless of cost, with oil-cake, grains, hay, oats, &c., till the animal is obliged to be carried to the butcher's. The natural appetite provoked by tonics will accomplish all this, aided by an unlimited cash order, only at the command of the rich. Societies would do well to give rewards to farmers who bring the best corn, &c., to the shows grown at the cheapest rate, the best eatable meat fatted at the lowest cost, and the best bred animals requiring the least food to prepare them for the slaughter-house; showing, at the same time, a Dr. and Cr. account. Competition, under such circumstances, would be most profitable, and ultimately produce the highest character of tillage. Prizes for the greatest quantity of land on a farm annually under spade husbandry, not less than one-sixth of the whole, would have a favourable tendency towards decreasing the poor-rates and increasing the yield, particularly of root crops. Prizes should also be given for the most scientific, best, and cheapest cultivated farm; and the most successful stall-feeding, which is so lucrative, not only in saving provender, but in economising manure, the mainstay of farming. The advantage of laying out money on land has been shown by the experiments of Mr. Mechi; and although it is not recommended to any one to speculate to such an extent, yet, if the return for the expenditure on Tiptree amounts to four per cent., what might not be anticipated from a more thrifty management of funds. Mr. Mechi deserves the thanks of the agricultural interest, as he has manifested what may be done by energy, talent, and a free use of money; and farmers may take a lesson from his mistakes and miscalculations, if any exist.—*Falcon.*

Potato Culture.—This being a subject in which every one is interested, I think it cannot be too much discussed, as every hint at this season must be of benefit to some parties. I have examined those of mine, planted in January last, and find the whole tubers now beginning to bud, but the cut ones are every one rotten, wherefore I consider it to be folly in any one to plant cut sets in autumn or winter. They cannot stand much wet without rotting, nor can they endure much dry weather, as then by losing the water which forms a great part of their structure they equally become inert from what is termed dry rot, so that either too early or too late planting does not suit them, but as stated by a correspondent in last week's *Gazette* just when they naturally begin to show signs of vegetating. Of course it is clearly proved that as far as the safety of the seed goes whole tubers may be set at any time by a little care being paid to the manner of putting them in the ground, although, if to remain long in the earth, they should be carefully selected free from cracks or blemishes, for otherwise they would share the fate of the cut ones. *John Thomas, Wem, Salop.*

Guano, &c.—I farm a stiff soil, unsuited for the Turnip husbandry, but by dint of care and attention, I contrive to raise pretty good crops at times; by ploughing in a large supply of manure in winter, the soil is greatly ameliorated, and of course more easily worked in spring. When I sow the Turnip, I frequently have only to apply a proportion of foreign manure, as 3 cwt. of guano per acre. A friend of mine says that 2 cwt. of guano, and 2 cwt. of Dawson's carbon, are equal to 3 cwt. of guano, the ammonia being fixed by the carbon; is he theoretically correct? would it not be advisable to mix the above quantity of guano with only 1 cwt. of carbon, and 1 do. of gypsum.—[Carbon does not *fix* ammonia, properly speaking; it retards its evaporation indeed; but the ammonia, which is condensed within its pores, is still volatile, and will gradually escape. The *fixation* of ammonia consists in its assuming a non-volatile condition, by union with an acid. As, for instance, when carbonate of ammonia and sulphate of lime (gypsum) mutually decompose each other (both being in solution), and result in carbonate of lime and sulphate of ammonia. We should prefer the last-named mixture.]——There is often great difficulty in getting a braird of Swedish Turnip on clay soils; but when once secured in good time after being sown, and early in the season, the crop is generally very good. I have tried washing and steeping the seeds in pure water, rolling down the drills with a light wooden roller, all very useful and beneficial in their way; but there is a great desideratum wanting in agriculture—a steep which will ensure a speedy germination, and rapid growth of the seed of the Swedish Turnip in the early stages of its growth, for unless that is secured, and if the plants are long in being fit for singling, no amount of manure will ensure a good crop. The above remarks have reference to land that has been thorough drained, ploughed from 12 to 14 inches deep, thoroughly cleaned, beautifully worked, and liberally manured; and be it remarked, that in certain parts of the fields, where the land was naturally better adapted for the Turnip husbandry, a great crop rewarded the outlay. The foregoing question is well worthy of your attention, and the evil is loudly complained of in all districts where farmers are obliged to cultivate this invaluable crop on land which, even after thorough drainage, and deep tillage, is but ill-fitted for the same. —*Investigator.*

Tethering Cows.—I am a farmer in a very small way; but all farmers whether great or small are, I imagine, at this time looking thoughtfully, first at their rick-yards, and secondly at the verdure which is just now coming over their pastures, and are considering how they may best economise the one in order to replenish the other. I believe that nowhere is the produce of Grass-land made to do more for the pasturing of cows than in the islands of Guernsey and Jersey; and they who have visited those islands will naturally attribute this to the practice which almost universally prevails there, of tethering their cows. Mr. Duncan, in his "History of Guernsey," says,—"Three vergées and a half (*i. e.*, rather more than an acre and a quarter) of good ground are sufficient to afford food for one cow during the year. It is an invariable practice throughout Guernsey to tether the cattle, staking them by the horns to the earth, by means of an iron or wooden peg, attached to a halter about 12 feet in length. This is shifted four or five times per diem, allowing a fresh range of from 2 to 5 feet each time. By this system the most is made of the Grass, for none can be trodden down or wasted." Mr. D. adds: "Guernsey butter is as yellow as gold, and of most excellent flavour. It is indeed finer than any that can be obtained in England." My object in sending you this extract is, to call your attention and that of your readers to the practice of tethering, and to ask whether from your own experience or their's you are able to recommend its adoption? and if so, to express further my hope, that you will favour your readers with some advice as to the best way of carrying it into effect.—*A Constant Subscriber, April 2.*

Instinct.—In one of your late Numbers, you state that Lord Brougham, in his edition of "Paley's Theology," inclines to the opinion that what is termed instinct in the lower animals is a direct impulse from the Deity in every instance. But what are we, in that case, to say to the mistakes of instinct? Take the earthworm, for instance; when it feels the earth shaken by the burrowing of the mole, it immediately ascends to the surface, to escape from its natural enemy; but if a lad wants earthworms, to bait his night-lines or feed his jackdaws, he gets a dung-fork, and begins to gently shake the ground, and the worm, apparently fancying it is the mole, creeps out as usual, and is immediately laid hold of by the boy who has availed himself of the instinct of the animal to obtain it; and thus the instinct of the worm, in this instance, leads to its destruction. Other examples might be adduced, but this seems to me sufficient to show the folly of generalising and reasoning upon what we do not, and, probably, cannot understand.—*T. G., Clitheroe.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover Square, on Wednesday last, the 23d of April; present: T. Raymond Barker, Esq., in the chair, Earl of Lovelace, W. Blacker, Esq., W. R. Browne, Esq., E. Buller, Esq., M.P., Col. Challoner, F. C. Cherry, Esq., H. Colman, Esq., A. E. Fuller, Esq., M.P., H. Gibbs, Esq., B. Gibbs, Esq., E. Holland, Esq., Rev. C. E. Keene, A. Ogilvie, Esq., E. Parkins, Esq., E. W. W. Pendarves, Esq., M.P., E. S. Chandos Pole, Esq., Sir R. Price, Bart., J. Scales, Esq., W. Shaw, Esq., R. A. Slaney, Esq., H. S. Thompson, Esq., T. Turner, Esq., T. Tweed, Esq., and J. Wood, Esq.

The following new members were elected:

Millhouse, William, Barwell Hall, Hinckley, Leicestershire.
Atkinson, Joseph, Embleton, Alnwick, Northum.
Ridley, John M., 15, Montague Place, Bryanstone-sq., London.
Carter, John, 65, South Molton-street, London.
Marshall, James Garth, Headingley, Leeds, Yorkshire.
Smart, Captain George John, Turnby, Boston, Lincolnshire.
Grimmer, Frederick, Thurlton Hall, Norwich.
Adams, George T., Hawkhurst, Staplehurst, Kent.
Barker, Henry John, Wem, Shropshire.
Raynes, Michael, Mells Park, Frome, Somerset.
Kough, Thomas Harley, Shrewsbury.
Hoare, George, Morden Farm, Mitcham, Surrey.
Evans, R. W., Eyton Hall, Leominster, Herefordshire.
Baird, Sir David, Bart., St. Margaret's Cottage, Twickenham, Middlesex.
Corringham, R. W., Bolham Hall, Retford, Notts.
Dodd, John, Bagley, Ellesmore, Salop.
Broughton, Richard M., Llanymynech, Oswestry, Salop.
Broughton, Robert, Ruyton-Eleven-Towns, Shrewsbury.
Matthews, William, Baschurch, Shrewsbury.
Smith, John Kennedy, Radbrook Villa, Shrewsbury.
Davison, John, Brandon-White-House, Alnwick, Northum.
Scott, Thomas, Beal, Belford, Northumberland.
Pinkerton, Thomas, Ancroft-stead, Berwick-on-Tweed.
Lloyd, Alfred, Broadgreen, Croydon, Surrey.
Hill, Hon. Richard Noel, Cronkhill, Shrewsbury.
Phillips, Charles, The Abbey, Foregate, Shrewsbury.
Venables, Richard, The Hoarstone, Hodnet, Salop.
Cree, John, Owermoigne, Dorchester, Dorset.
Wood, Edward Atkyns, Osmington, Weymouth, Dorset.
Walcot, Rev. Charles, Bitterley Court, Ludlow, Salop.
Jones, John Pryce, Bitterley, Ludlow.
Hilditch, George, Treflack Hall, Oswestry, Salop.
Buckland, George, Benenden, Cranbrook, Kent.
Byron, Robert, Bradford, Yorkshire.
Blane, Capt. Robert, 2d Life Guards.
Andrus, J., Scotbury, Gravesend, Kent.
St. Aubyn, Rev. H. Molesworth, Clowance, Camborne, Cornw.
Chune, George, Colebroke Dale, Shrewsbury.
Morris, Henry, Maidstone, Kent.
Nicholson, William Newzam, Newark-on-Trent, Notts.

The names of nine candidates for election at the next meeting were then read.

Bones and Sulphuric Acid.—A letter from Mr. Spooner, of Southampton, was read, in which he stated that, last year, he had used bones and sulphuric acid as compost for Turnips. He had prepared it by placing 1¾ bushel of finely-ground bones in a tub, with half their weight of acid, diluted with four times the quantity of cold water; after some hours, a few bushels of fine mould and some coal-ashes were added, so as to make the whole amount to 15 bushels of compost. This compost was used in three days after its preparation, but, being damp, did not run so well through the drill as if time had been given for its drying. The mixture was applied at the rate of little more than 2 bushels per acre; and, as Mr. Spooner states, successfully rivalled 16 bushels of bones applied to an acre of superior quality.—Mr. Slaney remarked, that in Shropshire they mixed the acid and bones in a stone trough; and, having stirred them well together, continued to add water till the whole was in a proper state for use. Excellent crops were obtained when the mixture could be equably distributed; but no common farmer would be able to employ it to advantage upon an extended plan until some mode for such regular distribution could be devised.—Colonel Challoner had seen on the Duke of Richmond's estates, in Scotland, a most simple and excellent contrivance for effecting that purpose, namely, a vessel suspended like a compass, in such a manner, on a pivot, as to preserve its horizontal balance in every position of the wheels and axle supporting it; and so contrived that the mixture could be distributed from it exactly over the drills. The price, he believed, was from 8*l.* to 12*l.*—Mr. Thompson thought that the difficulty was not confined simply to the distribution of the mixture by means of the water-cart, however excellently it might be invented for the purpose required, but extended to the imperfect reduction of the bones when the application was made. He had found particles of bone remain in the spout of the rose after he had increased the apertures by degrees to a considerable extent; even when he had employed whaledust (or coarse sawdust from the large bones of the whale), instead of fragments of common bone, as the basis of his operations: this sawdust being found after a fortnight's maceration to be so imperfectly dissolved, as to impede the even distribution of the mixture by the rose of the water-cart. He had applied the preparation with success in the state of compost, at the rate of 4 bushels of bones per acre.

American Agriculture.—The Hon. Edward Everett, the American Minister, presented to the Society

a set of the "Transactions of the Massachusetts Agricultural Society," along with copies of the Prize Essays of Mr. Dana and Mr. Foote, on the manufacture of manures, and their application to the different variety of soils.—Mr. Colman bore testimony to the highly respectable character of the Massachusetts Agricultural Society, which had been now established for 30 years, and to the attainments and great practical knowledge of the gentleman whose Prize Essays were then offered to the Council.—Mr. Thompson observed, that in those essays the principles of chemistry, in reference to their application to agricultural processes, were explained with a clearness and precision he had never before met with; and he thought Mr. Colman would confer a great favour on the agriculturists of this country, by facilitating the importation of those essays.—Mr. Colman expressed the satisfaction he would feel in procuring copies of the works in question for any of the members of the Council who might wish to possess them.

Cole-seed.—Professor Pryme, of Cambridge, having on a former occasion presented to the Society a supply of Cole-seed of a new variety, the following communication from that gentleman was read, on the inspection of the seed in question by the members present. "I have sent a present of half a bushel of Cole or Rape-seed, more productive (at least as a green food) than the common sort. I found, some years ago, about 20 plants springing up in a field of Mangold Wurzel, of an appearance so different, that it was at first doubted if it were a Cole-seed. It was on a decomposed peaty-soil at Wistow, in the east part of Huntingdonshire. I had them transplanted for seed: and have since grown it as much as I could. A botanical friend, to whom I sent a plant, thinks that it belongs to the Brassica campestris oleifera, the common Coleseed being Brassica napus oleifera; and the chief test being the roughness of the young leaves of the Campestris, while those of the Napus are smooth. The green produce is at least in the proportion of 4 to 3; and live stock seem to prefer it. In peaty soils, of which there are about 250,000 acres in the Bedford Level, Cole-seed is the usual green crop, instead of Turnips.

Beans and Turnips.—Lord St. John favoured the Council with the following details of the double crop of Beans and Swede Turnips, grown on clay-land, at Melchbourne, with complete success for four years, and of which a notice had been communicated to the Council on a former occasion:—"Although I am not able, accurately, to furnish a statement of the weight and measure of my crop, owing to my having used some of the Beans of last season amongst the stock, yet I think I can give to the Council a satisfactory account of the general results of the system of cropping. At the present time my sheep are eating off the Turnips, and I have had the measure taken of the part of the field which they have cleared. It is 4½ acres, which has kept 212 sheep for five weeks. In 1843, I had 3½ quarters of Beans per acre, with a very good crop of Turnips; and in 1842, I had as much as 6 quarters and 2 bushels of Beans per acre, with as good a crop of Turnips."

Productive Wheat-field.—Mr. Barber, Secretary of the Stalham Farmers' Club, communicated to the Council the following additional particulars relating to the crop of Wheat brought under the notice of the Council at a former meeting, and to the field in Norfolk from which it was obtained. "The productive field, of which I have sent specimens of the soil and subsoil for analysis, contains exclusively of fences, 4 acres, 3 roods, and 33 perches; and its produce last harvest was 107 coombs of best Wheat; and 4 coombs, 2 bushels of small; making in all 111 coombs, 2 bushels. It belongs to E. Wilkinson, Esq., of North Walsham, and lies in the parish of Happisburgh, within about ¾ of a mile of the sea, from which it is not much sheltered. It had not been marled for many years before the abundant crop was grown, nor was it ever subsoiled. It is worthy of remark that there is not a tree either in the field or on any fence which bounds it; nor any game preserved in its neighbourhood. The previous crops in the field were grown as follow:—1. In 1838, Mangold Wurzel; 2. In 1839, Barley; 3. In 1840 and 1841, Grass, fed both years; 4. In 1842, Wheat; 5. In 1843, Peas; 6. In 1844, the abundant crop of Wheat. About 2 bushels, 3 pecks of seed per acre were used to grow the last crop; the best corn of which weighed about 17 stone 12 lbs. per coomb. Mr. Holland, of Dumbleton, presented to the Society the model of a single-horse cart for a hill-farm; for which, in the communications then received, the Council ordered their best thanks to be returned.

The Council then adjourned to Wednesday next, the 30th of April.

HIGHLAND AND AGRICULTURAL SOCIETY.

At the monthly meeting of this Society, held on April 2d, the drain-tile making machine, invented by Mr. Ainslie, now of the Alperton Tile-works, near Acton, in Middlesex, was the first subject of consideration. Mr. Slight observed, that in the early stages of drain-tile manufacture the process of moulding was done by hand-labour alone, when three men could produce not more than 1500 tiles a day. As the demand for tiles increased, machines of important character appeared, and increased the production to 3000 tiles a day from the same number of hands. At this particular period, the celebrated machine of the Marquis of Tweeddale was brought out, and it formed quite an era in tile-manufacture, producing with ease 10,000 tiles a day. But up to this period, the operation of moulding was performed either by a series of manipulations, or of distinct processes. The piece of clay, for example, was first spread out into thin cakes by various means, and then bent into the arch form, either at once, as in the hand process, or gradually, as in the Tweeddale machine. The effect of this forcible bending of the clay was to form rents in the back of the tile, to obliterate which another process was required—namely, the smoothing the back of the tile with the moistened hand, or in machine moulding, by a member of the machine acting as an artificial hand, but, in either case, the tile was left in an imperfect state. To Mr. Ainslie, as Mr. Slight farther observed, we were indebted about five years ago for the introduction of a machine which could mould tiles by a direct process, giving them the proper form at the instant of production, with a uniform compact fabric, not liable to flaws or defects. Mr. Ainslie procured letters patent for his invention, although its leading principle was not new. So decided, however, was the superiority of the direct method of moulding, that numerous patents have since been brought out, in which this leading principle is the chief feature. Mr. Ainslie's new patent machine consists of a pair of plain iron rollers, between which the clay is passed from a feeding-board; and such is the adhesion between the clay and the rollers, that it is drawn in with sufficient force, not only to fill a small chamber, bounded in front by a plate having apertures of the desired shape of the tile, whether tiles, soles, or pipes, but the clay is projected through these apertures in a continuous stream of tile or pipe, as the case may be, and as it passes along upon endless webs it is cut in lengths by an ingenious though simple apparatus, which carries a cross wire that makes the cut at the proper length, cutting the tile upward square off, without stopping its forward motion. The machine exhibited sends out two such streams, by the power of two men at the rate of 6000 tiles, each 15 inches long, in 10 hours. The power of the machine is enlarged by increasing the number of streams of tile projected, and not by increasing the velocity of the machine; exclusive of the power, the machine can be worked by a man to feed in the clay, and a boy to take away the tiles, or with two boys to take away the tiles from a large machine. In the present case of the hand-machine, four individuals in all are required to carry on the process.—Mr. Macpherson Grant, of Ballindallock, then read a letter, addressed to the Secretary, from Mr. James Carmichael, Raploch Farm, near Stirling, recommending the expediency of taking the fiars prices of cattle, sheep, and wool, in each county, by the Fiars Courts, as is done in the case of grain, for the purpose of referring to them as a means for determining the rents of pastoral farms as satisfactorily as the rents of corn farms are at present determined by the fiars prices of grain. Mr. Carmichael is aware that in the Sutherland, and some other large estates, the rents are regulated by the market prices of sheep and wool; but in most other properties such a reference is dreaded, simply because there exists no satisfactory means by which the annual price of these can be readily ascertained with accuracy, for the prices of stock and wool vary so much in the same farms in different seasons, that no average can be fairly taken, and the periodical wool markets, such as at Inverness, are sometimes so dull and doubtful as to be of little avail for fixing prices, whilst the great trysts at Falkirk furnish no better criterion, as the stocks there are chiefly in the hands of dealers, and not in those of breeders and feeders. Mr. Grant was of opinion that not much use would be derived from striking the fiars prices of cattle, as he conceived the usual practice of fixing their prices as a criterion for the rent of pastoral farms seemed to work well enough. The practice is to take the average of all the three great trysts at Falkirk, or 1s. a stone below the price of any one tryst. As to taking the fiars prices of wool, the object he considered an important one, but conceived it would be difficult in the attainment, as the information would require to be derived from the manufacturing districts or marts of England—such as Liverpool, Leeds, and Huddersfield, where the principal purchasers of wool are to be found. Colonel Macdonald, of Powderhall, conceived that the fiars prices of stock and wool could be as easily ascertained from the testimony of breeders of stock and wool merchants, as those of corn are at present ascertained in the fiars courts from the testimony of grain farmers and corn merchants. Mr. Grant then read a letter from Mr. R. MacNaughten, Clerk of the Corn-market at Stirling, to Mr. Hog, of Newliston, in which he endeavours to show the propriety of reporting the weight as well as the price of grain sold in the grain markets of the country. He conceives that in a fine district, such as near Edinburgh, Dalkeith, or Haddington, the grain is nearly all of the same quality, and, of course, weight; but in such corn markets as Stirling, where grain from carse-land, dry-field, and muir-land, and from high and low ground, are presented at the same time, a report of the top price of the grain sold from all these districts would give no correct idea of its actual quality, and unless the weight were given the price may be reported actually higher, when the grain was worth intrinsically less. To show the effect of weight Mr. M'Naughten adduces as examples, that when the price of Wheat is under 45s. per quarter, a difference of 1lb. of weight in the bushel makes a difference of price of 2d. per bushel, or 1s. 4d. in the quarter; and when the price is between 45s. and 55s. per quarter, a difference of 1 lb. of weight makes a difference of 2½d. per bushel, or 1s. 8d. per quarter, in the price; and so on. Mr. Naughten also states two objections to the mode of finding the weight of the bushel from the printed table in general use; one is, that the weight is set down in cwts., which have to be reduced to stones, and then to pounds; and the other objection is founded on the assumption that all bags are of equal weight, namely, 4 lb., whereas the four bushel bag does not exceed 3 lb. in weight, whereby the seller of the grain loses a quarter of a pound weight on every bushel. In a table in use in the Stirling market these objections are removed, and expedition is thereby secured. Mr. Aitchison of Drummore had no doubt that the weight entered everywhere as an element into every bargain that was made in grain. Indeed, in Ireland grain was sold by weight alone; but this practice was erroneous in principle, because 100 lb. of grain of inferior quality was not worth so much as 100 lb. of fine quality. The practical criterion of the intrinsic value of grain, which worked well enough, was to take the weight of a given measure of grain, usually the bushel; and yet different classes of purchasers modified this generally useful practical rule, in judging of the grain presented to them. The miller, for example, always buys the heaviest barley, because it invariably yields the greatest quantity of meal, whereas the malster does not rely entirely on weight, but partly on a quality of a peculiar nature, which yields the greatest quantity of saccharine matter. It would be as easy to return the weight as the price of grain in our markets; but the practice could not be enforced without an Act of Parliament. Mr. Scot, of Craigmuie, then read a notice on the substitution of tubes made of larch wood for tiles used in draining. The drought of the two last seasons putting a temporary stop to the operations of the saw-mill, enabled Mr. Scot to test the accuracy of his former calculation of the cost of larch tubes, made of wood of even superior quality, purchased at a saw-mill in his neighbourhood. The price of the wood was 7d. per foot, delivered sawn into the requisite lengths of 6 feet, the requisite breadths of 4 inches for tops and soles, of 2 inches for the sides, and 1 inch in thickness, ready in all respects to be bored and pinned, which operations, on repeated trials, very carefully conducted, did not exceed 1½d. per rood of 18 feet, but call it 2d., and the tubes are thus furnished at 9d. per rood, including every expense except carriage from the saw-mill. On the other hand, purchasing tiles at the nearest kilns, at Dumfries and Dalbeattie, each 20 miles distant, their cost was as follows:—

	£	s.	d.
1000 drain tiles of 3-inch	£1	10	0
Cartage, each cart carrying 333 tiles, at 6s.	0	18	0
2000 dressed slates for soles, at 7s. per 1000	0	14	0
Cartage of do.	0	8	0
	£3	10	0

The tiles were only 12 inches in length, and the slates 6 inches square, and the quantity specified above served to lay 55½ roods of 18 feet, thus costing very nearly 1s. 3½d., leaving a balance in favour of wood of 4½d. per rood, and had the wood been Mr. Scott's own, the balance would have been 1d. more. These results having verified former calculations, Mr. Scott conceives he has reason to complain of the manner in which the use of Larch tubes is contrasted with that of tiles, and set aside, generally, on the ground of their greater expense, by Professor Low, in his recent work on "Landed Property," and by Mr. Stephens in his "Book of the Farm," especially as Mr. Scott from the outset deprecated such contrast, and only recommended the use of Larch tubes in localities where tiles cannot be obtained but at great expense, and where wood is abundant and cheap, and where, also, the subject to be drained is boggy ground, covered with strits or rough Grass, and black Mossy sloughs of great depth. In explanation of what he had stated on this subject in his "Book of the Farm," Mr. Stephens remarked that as he had never had experience in draining any kind of land with Larch tubes, nor seen any land so drained, he had taken his data from the statements of Mr. Scott himself, as they appeared, some time since, in the Society's "Transactions;" and founding his calculations on these data, he was led to the conclusion, that tubes of Larch were much more expensive than ordinary drain tiles. For taking the size of tubes at 4 inches in breadth at top and sole, and 4 inches at the side, with the deal 1 inch in thickness, it may be found by simple measurement with a foot-rule, that a cubic foot of wood will just make 12 feet of tube; but a tube to extend to a rood of 18 feet requires 1½ feet of wood, which at 7d. per foot gives a cost of 10½d. per rood for the wood alone, and if the tubes cost 2d. per rood putting their pieces together, the entire cost incurred in making them will be 12½d. per rood. Now, 1000 tiles and soles, each 15 inches long, may, at the present time, easily be obtained in any quantity for 30s., which makes the cost of each tile and sole under 1½ farthing; and as 14 tiles reach the length of a rood of 18 feet, and leaves 6 inches over, it follows that the cost of tile and sole is a minute fraction more than 5d. per rood, or 7½d. per rood less than wood; and should the tile be only 12 inches in length, the cost will not exceed 7d. per rood, which is still 5½d. less than the wood.

FARMERS' CLUBS.

Loughborough.—The Loughborough Agricultural Association lately held a meeting for the purpose of deciding upon resolutions relative to the conduct which ought to be observed between landlord and tenant, so as to secure mutual confidence, and the good tillage and management of the land. A committee had been previously appointed to draw up some documents for the consideration of the meeting. Mr. Charles Stokes, in bringing forward the subject of a future regulation of

tenant rights in the midland counties districts, disclaimed any intention of a desire to effect any other object than a good, perfect, and equitable understanding between landlord and tenant, believing that it was such understanding that made Lincolnshire, Norfolk, and Scotland so much in advance of the midland counties. He did not advocate leases, as so great an amount of capital was not required here as in Norfolk, but he was equally certain that without some security there could be no great permanent improvement take place in the agriculture of the midland counties' district; for no farmer would spend his capital upon land which he might lose at any moment his landlord liked. The following resolutions were then proposed to the meeting :—1. No old turf land to be broken up without the consent in writing of the landlord or his agent.—9. No timber to be lopped or cut down without the consent of the same parties.—3. No tenant ought to be repaid for any buildings to be erected by him, unless the same shall have been done with the consent in writing of his landlord or his agent. 4. All draining, where it can, ought to be done by the landlord, and 5 per cent. per annum charged to the tenant; but if the tenant drains the land himself, with the consent and under the superintendence of the landlord or his agent, an allowance for 14 years should be made for the materials, carriage, and workmanship. And if the landlord finds materials, the allowance should be made to the tenant for seven years only for carriage and workmanship. 5. An allowance ought to be made for lime and carriage for five years. 6. An allowance ought to be made for four years for the cost and carriage of all bought dung and night-soil which may be spread upon the land. 7. An allowance ought to be made for bones for four years. 8. In Rapeseed, one-third of the bill, after a crop of long corn or Clover. 9. For working or claying land, an allowance ought to be made for carriage and labour for seven years. 10. In Linseed-oil-cake and corn, used for feeding cattle or sheep, one-third of the cost ought to be paid for the first year, and one-sixth for the second year, where the manure belongs to the landlord. 11. Where the manure so made from oil-cake or corn belongs to the tenant, an extra allowance ought to be made on the value of the manure in the same proportions as in the foregoing rule. 12. An allowance ought to be made for Turnip fallows, namely, the working, rent, and taxes to be calculated, and the crop of Turnips to be valued, and one-half of the value of the Turnips to be given to the out-going tenant. Two-thirds of the Turnips to be consumed upon the light soils. 13. The above allowances are made on the presumption that all the produce, except, corn, meat, wool, and the produce of the dairy, are consumed upon the farm; and all allowances are to be made in equal proportions in each year, for the periods over which they extend, except in the 10th and 11th rule. 14. Such system of cultivation ought to be adopted as may be most suitable for the quality of the land; and allowances ought to be made to the landlord if such system be not adopted, and for any dilapidations in the fences, gates, and drains. 15. At the termination of each year the tenant shall give an account to his landlord, or his agent, of all money expended by him during the previous year, for which he is entitled to claim any allowance on quitting his land. 16. If the outgoing tenant refuse or neglect to enter in an agreement with his landlord or his agent on or before the 17th day of October next preceding the termination of his tenancy, then the landlord ought to have the power of entering to sow Wheat, where the crops do not belong to the tenant, the tenant receiving compensation for herbage and stubbles. 17. The landlord ought to have the power of entering to plough for and sow spring corn on the 2d day of February previous to the tenant quitting the farm. Mr. Stokes then proposed that the above code of laws be adopted by the Loughborough Agricultural Association. Mr. S. B. Wilde seconded them, believing they would be for the mutual advantage of landlord and tenant. Mr. Packe, M.P., the chairman, expressed his concurrence with the resolutions. A very long discussion ensued upon the resolutions, which were eventually agreed to unanimously, and ordered to be entered on the minutes of the association.

Rebiews.

An Essay on Tropical Agriculture; with some Remarks on certain Analyses of Barbadian Soils, &c. &c. By P. Lovell Philipps, M.D., Oxon, F.R.C.P.L. James Hedderwick and Sons, Glasgow.

This pamphlet contains a very able application to Tropical Agriculture of those principles which have of late years been insisted upon by scientific writers, and especially of those of them which have been sanctioned by the experience of practical men. These principles, if true here, must necessarily be active everywhere; and *that* everywhere must be the best system of cultivation which is founded upon them.

Drainage, for instance, an essential feature either natural or artificial of every good system of cultivation—a practice resting on the soundest principles—will doubtless benefit the growth of the Sugar-cane as much as it is found to benefit that of the Wheat-plant or Potato. And thorough draining is strongly recommended in the pamphlet before us. The author skilfully combats the opinion which in a tropical climate would doubtless at first be generally held that the effect of this operation is *injuriously* to dry the soil, and he shows that this opinion, held also in this country by very many, is being confuted by everyday experience—that, in fact, a thoroughly-drained soil, while it will be drier in wet seasons, will nevertheless be moister in dry seasons than one which is undrained. Of course, in order that this result may obtain, a thorough and *deep* cultivation of the soil is necessary, and accordingly we find that Dr. Philipps strongly advocates the use of efficient agricultural implements. In short, his object throughout the work, it appears, is to convince West Indian cultivators, that it is their interest not merely and exclusively to be growers of the Sugar-cane, but to attend to *the cultivation of the soil.*

The fault which is condemned by the general tenor of this work has been incident to all early systems of cultivation. Farmers, originally, have never been *agriculturists* in the full meaning of the word—they have been merely growers of particular plants. It has always been a long time before they learned that it was their true interest, even in reference to the plant which was the main object of cultivation, to adopt a rotation of crops, and to farm the *land* well.

The *Sugar-cane* is the chief object of cultivation in the West Indies; and now, as formerly, the growth of grain crops, or, let us say, of *Wheat*, may be termed the main object of most arable farmers in England. Formerly the demand for this crop was met by the exclusive devotion of the land to its growth; soon the necessity of fallows was learned, and large portions of the land lay waste, whilst those in crop yielded but sparingly. *Now*, while, probably, not above one-third of the arable land is annually in grain crop, it would be hard to say how many times the present produce exceeds that of former times. It is *now* acknowledged as an axiom among our best farmers that the larger the stock of cattle, sheep, &c., kept on arable land, *i. e.* the larger the green crops grown upon it, the more abundant is its yield of corn; so that whilst *this*, as originally, may still be considered the main object of arable farmers, the main attention of the best of them is directed to the good cultivation of their *root crops*—their *food for stock;* and the Wheat crop is left, comparatively speaking, to take care of itself; and this is found to be the best policy, not only as regards the profits of farming *on the whole*, but also in reference to the annual yield of grain. And we doubt not that the principle on which this system is founded will hereafter actuate tropical as it now does British cultivators. Nor do we doubt that Dr. Philipps's pamphlet, if it be as extensively read as it deserves, will exert a most beneficial influence in bringing about this desirable result.

Miscellaneous.

Feeding of Animals. Preliminary Observation. Boussingault, vol. 2, p. 385.—The identity of composition and properties which seems to exist between certain substances derived from the animal and vegetable kingdom leads naturally to the notion, that animals do not originate the substances which enter into their organisation, but that they find them already formed in their food. Whence we must conclude that many vegetable principles are assimilated directly by herbivorous animals, without being subjected to any great modification, and that the elements of animal fluids and tissues pre-exist in vegetables, which contain, besides, the earthy phosphates which form the base of bone. The food of herbivorous animals must then always, and in fact does always, contain four essential principles which by their union constitute their normal nutriment, viz. :—1. An azotised substance, such as albumen, caseine, or gluten; this is probably the origin of flesh. 2. An oily matter, or at least one approaching to the nature of fat. 3. Some substance of a ternary composition, as sugar, gum, or starch. 4. Salts, especially phosphates of lime, magnesia, or iron. This complication of elements, which must necessarily enter into the composition of a plant fit for fodder justifies the general notions put forth by Dr. Prout on the subject of nutriment. This able chemist showed milk to be the normal nutritious substance, and that any proper system of food must partake more or less of its constituent qualities; that is, that it must contain, independently of phosphates, some azotised substance, an unazotised principle, and a fatty substance to replace the caseum, sugar, and butter. The fundamental principle—that animals find their proper substance already formed in the food by which they are nourished, may enlighten the practical man in the feeding of herbivorous animals; for, if the flesh, the fat, and bones exist, at least in essence, ready formed in their food, that must clearly be the most suitable which in the same weight contains the greatest quantity of these substances. The exact appreciation of the azotised substances, such as gluten and albumen, is not without difficulty; it requires much time and care. But if it is once admitted that the nutritive value of food increases in proportion as they increase, it is clear that this amounts to the same thing, with the value being proportional to the quantity of azote it contains. The quantity of azote is easily ascertained, whereas the appreciation of the albumen and gluten requires much tedious manipulation. The proportion of azote being once known, it is easy to calculate the amount of albumen (or flesh), contained in any given food; for, in general, vegetable nutriment does not contain any other azotised principle. It is true all azotised vegetable principles cannot be considered as nutritious. Some are violent poisons, or active medicines; but these poisonous matters are not met with in any appreciable quantity in such plants as are used for nutriment; and indeed, when once any particular plant is admitted as an article of food for animals, we may assume the absence of any injurious principle. All vegetable substances which are used for the food of herbivorous animals, as far as they have been at present examined, contain, in point of fact, a certain quantity of azotised constituents. We know from the researches of Dr. Magendie that food void of azote will not support life. Animals subjected to such a regimen lose their condition, and at last die. On the other hand we know that the value of any kind of flour increases with the gluten it contains. It is because the seeds of leguminous plants, such as Kidney Beans, Peas, Beans, &c., are richer in azotised principles (that is in flesh) than corn, that they are also more nutritious. From all these considerations, I have admitted that the nutritive quality of vegetables depends mainly on their azotised constituents, and that in consequence their nutritive quality is proportional to the quantity of azote which they contain. It must, however, be remarked that I am far from thinking that azotised substances are sufficient for nutriment, but it is matter of fact that any vegetable nutriment highly azotised, is in general accompanied by the other organic and inorganic principles which concur in the act of nutrition. In estimating the azote of many kinds of food, I have tried to find a base to serve as a fixed point for appreciating comparatively their nutritious qualities. The agriculturists of Germany and England have long tried to solve this important problem of rural economy. It is with this view that Thaer and others have given as the result of their researches, numbers to express in weight the proportion in which one kind of food may be substituted for another; they indicate, for example, that a given quantity of hay or roots may be replaced by another of leaves or grains to nourish in the same proportion an ox for market, or a horse for the field. The nutritive equivalents are, however, very differently stated, and this could hardly have been otherwise, as the conditions under which these equivalents were estimated could scarcely have been precisely similar; and the difference will surprise those only who are not acquainted with the difficulty of the subject. It is probable that this must be sometimes attributed to the relatively moist or dry condition of the substance in question. The nature of the soil, a wet season, climate, &c., may be considered as so many causes affecting the quantity of water contained, or the nutritive quality. Far more useful results would be obtained by first determining the quantity of moisture contained, or in other words, by estimating the nutritive equivalents of bodies previously completely divested of moisture. The equivalents thus obtained are often very near those furnished by direct observation, and I may add that the data of theory have been sanctioned by experience. —*M. J. B.*

Sulphate of Lime, or Gypsum.—This substance, which is a compound of sulphuric acid and lime, is found in abundant quantities in a native state, both for the purpose of agriculture and the arts; and it has been recommended for the same purpose as the muriate of lime,—viz., the fixing ammonia; but is infinitely inferior for that purpose, in consequence of its difficult solubility—at the temperature of 60°, one part of gypsum only being soluble in 460 parts of water, to obtain which, however, the gypsum must be finely divided, and macerated for a great length of time. Its more obvious use in agriculture is, however, as a direct food to certain plants, either as supplying the sulphate of lime, or, by its decomposition, affording the sulphur necessary to the due development of certain plants, such as the Crucifera, &c. The following table, extracted from "Sprengel's Analyses," shows the quantity of lime and magnesia, sulphuric and phosphoric acids, in 100,000 parts in several of our ordinary crops :—

	Lime	Magnesia	Sulphuric Acid.	Phosphoric Acid.
Wheat	96	69	50	406
Barley	106	180	59	210
Oats	86	67	35	70
Potatoes	33	32	54	40
Cabbage	1822	202	774	436
Swedish Turnips	835	282	890	408
Wheat straw	240	32	37	170
Barley do.	554	76	118	160
Oat do.	152	22	79	12
Red Clover	584	70	94	138
Beet	285	133	123	167
Turnips	127	22	41	73

The above table may not be strictly accurate, but I believe it approximates to the truth, and certainly agrees with my own practical observations respecting the exhausting powers of different crops on various soils. Cabbages are known to be one of the most scourging crops that is grown, and we see from the above table that both it and Swedes require a large amount of the sulphate of lime; the next is Red Clover, and the application of gypsum to the Clover crop, on lands sparingly endowed with this substance, has been so repeatedly treated of, that it is an act of supererogation to enlarge on its usefulness.—*Journal of Highland and Agricultural Society of Scotland.*

Notices to Correspondents.

Bones—*Querist* asks which are those parts of bones best adapted for knife handles, and where there is a market for them, and their price, and how sold, by weight or otherwise. Also, whether hoofs and horns (those of sheep) are not worth more than bones; their value, and the market for them? Bone-dust weighs from 45 to 55 lbs. a bushel.

Books—*Investigator*—Dr. Lindley's "Theory of Horticulture."

Dairy Management—Will "A Sub" who asked for the address of the author of a lately-published communication on this subject from Bath, have the goodness to give us his name and address?

Electro Culture—*J Thomas*—Thanks: we prefer waiting for the results of the experiments now in progress.

Fairy Rings—*A Constant Sub*—A fungus rises in Grass land, grows, and dies; the spawn by which it reproduces its species spreads uniformly around it, and grows vigorously next year, but the site of its present growth is so exhausted of the food necessary for it, which previously existed in the soil, that *there* the seed perishes. You can easily conceive how this cause, acting year after year, would cause the ring (growing only and always on its outer side) to enlarge, and that the decayed fungi on that portion of the land which each year is incapable of producing them, may be good manure for the Grass. Such is one attempt to explain the rings of luxuriant growth often observable on the Grass land of commons and wastes. *Will* the nitrate of soda obliterate these rings? If so, it is probably by inducing a *uniform* luxuriance of growth. About your other question, next week.

Gas-Lime—*Ely*—It consists of that which, if exposed and turned over frequently, will absorb oxygen from the air, and become (a large portion of it), *gypsum*. Apply a couple of tons per acre. Make it into a compost with anything which will keep it open, such as leaves, half-rotten turf, &c.; turn it over frequently, and in about two months from the time you first had it, apply it broad cast on your land, and harrow it in. You should procure it, so that you may apply it *now* on land for root-crops.

Guano—*C K*—You had better apply it broadcast in wet weather on the surface of the ground, after the Potatoes are dibbled, and harrow it in immediately: 3 cwt. per acre is an ordinary quantity to apply. You will be able to keep two cows on every three acres, if properly farmed.

Harrows—*G*—Will "H" be kind enough to furnish this correspondent with the name of any maker of his sliding harrows.

Management of Stiff Land—*A C K*—When you consider that land may be stiff, though it contain but 8 or 10 per cent. of alumina, you will see how a few cart-loads per acre of clay may produce a considerable and beneficial influence on the texture of light soil, while many cart-loads of gravel, ashes, or sand, will not influence the texture of clay. You must hope to improve the character of your soil, not by these means, but by drainage, liming, occasional paring and burning, and good cultivation. Drain with tiles if your land be flat, or with clean stones which will pass through a 2-inch ring if it be steep, and in either case straight down the slope, 30 inches deep, and 16 feet apart. Do this now—then pare and burn the land; or if it be lying fallow, burn all the clods of earth you can gather together, and spread the ashes. Fallow the land well, and manure it this summer, and let a good subsoiling across the line of the drains be one of the fallow operations. Sow Wheat in the autumn, and you will probably reap a good harvest next year. Apply 100 bushels of hot lime per acre on the stubble.

Mangold-Wurzel—*H N*—You may safely transplant, but not till the plants have roots the size at least of your finger. The only precautions needed are that the roots in pulling the plants up shall not be unnecessarily broken, and that in transplanting they be not doubled up, nor put in contact with an old, exposed, or dry surface of soil.

St. Peter's Farmers' Club—*To the Secretary*—Will you kindly favour us with your address?

Threshing-floors—I am desirous of making a threshing-floor, and I beg to know if any of your readers can inform me if asphalte, or any combination of it with chalk, or if the new advertised kind of elastic pavement, I believe India-rubber, is applicable to the purpose [we suspect not]? It seems to me that they would be better than the present wooden floors, and safer from the attacks of vermin. *C L.* [Surely it is not your interest to be laying a threshing-floor when threshing-machines are so efficient, and so obviously superior to the flail.]

Tropical Agriculture—*A Sub*—Will you be kind enough to give us in full the titles and publishers of those works which you refer to at pages 38 and 39, as Porter's and Roxburgh's?

Weeds and Coarse Herbage on a Lawn—*Erin go bragh*—Have you resolved on not breaking it up? In that case your own suggestion of the scarifier and harrow being used across it, and seed being then sown, is the best method of improving it. Apply 30 or 40 yards per acre—over the seeds—of a rich compost of manure, ditch-scrapings, &c.; bush-harrow, and roll. If the land be not dry it should be drained; on this and subsequent good management of the land in the way of manuring, &c., you must depend for success. Gas-water will be useful *as a manure*. In reference to your other field we would make a compost of your dung-heap, and any clayey rubbish, such as ditch-scrapings, &c., and apply 30 or 40 cart-loads of it per acre over the sandy and gravelly soil; work it in with the cultivator and sow the following seeds per acre:—Alopecurus pratensis, 1½ lb.; Avena flavescens, ½ lb.; Dactylis glomerata, 5 lbs.; Festuca duriuscula, 2 lbs.; F. pratensis, 2 lbs.; F. rubra, 2 lbs.; Lolium perenne, 12 lbs.; Poa pratensis, 1 lb.; Medicago lupulina, 1 lb.; Trifolium pratense perenne, 4 lbs.; Trifolium repens, 5 lbs.; and 1 bushel of Rye; of course, we presume the land is now clean.

Wood-ashes—*Botley*—We have no improvement to suggest on your proposed method of applying them.

Markets.

SMITHFIELD, Monday, April 21.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 2	Best Long-wools	4s 0 to 4s 4
Best Short Horns	3 8 3 10	Ditto (shorn)	3 8 4 0
Second quality Beasts	2 10 3 4	Ewes and second quality	3 6 4 10
Calves	4 0 4 8	Ditto (shorn)	3 2 3 6
Best Downs & Half-breds	4 4 4 8	Lambs	5 0 6 0
Ditto (shorn)	3 10 4 4	Pigs	3 4 4 4

Beasts, 2722; Sheep and Lambs, 25,700; Calves, 113; Pigs, 269

We have again a short supply of Beasts, yet trade is rather dull, the weather being warmer and the dead Markets not very clear. Our late quotations, however, are fully supported, some few of the choicest Scots making 4s. 4d., and Short Horns, 4s.—The number of Sheep is considerably less, but there is a proportionate falling off in the demand, and it is with difficulty the best qualities realise late prices.—The Lamb-trade is rather brisker, but there is no advance in price.—Veal and Pork-trade are very dull, owing to the weather being warmer and an over-supply to the dead Markets.

FRIDAY, April 25.

The Market this day was dull, and Monday's prices could scarcely be maintained; good Lamb being the only article in demand.

Beasts, 850; Sheep and Lambs, 7890; Calves, 177; Pigs, 815.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 24.

Prime old Meadow Hay	115s to 120s	New Hay	—s to —s	Clover	115s to 126s
		Inferior Hay	100 110	Straw	38 44

John Cooper, Salesman.

CUMBERLAND MARKET, April 24.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 120s		
Inferior	100 108	Inferior	105 110	Straw	38s to 43s
New Hay	— —	New Clover	— —		

Joshua Banks, Hay Salesman.

WHITECHAPEL, April 25.

Fine Old Hay	110s to 115s	Old Clover	115s 120s		
New Hay	95 105	New Clover	— —	Straw	35s to 44s
		Inferior	— —		

HOPS, Friday, April 25.

The Market continues firm with every appearance of an advance in prices; the merchants are nearly out of stock, and the brewers, for a long time past, have only bought for immediate consumption; as the weather becomes wa mer the demand for beer must rapidly increase, seeing all classes are so fully employed.

Pattenden & Smith, Hop Factors.

POTATOES.—Southwark, Waterside, April 21.

This Market continues in such a depressed state that we find it difficult to give a series of reports without adopting the same words. The supply continues to be more than equal to the demand, and the best samples only are in request; all secondary samples are a complete drug, and are either sold to the cowkeepers or put into the store.

York Reds	40s to 80s	Kent and Essex Kidneys	—s to —s
Perth	45 50	Wisbeach Kidneys	60 65
Fifeshire	40 45	Blues	55 —
Early Devons	40 45	Regents	60 —
Late Devons	— —	Whites	60 —
Cornwall	— —	Guernsey Blues	60 —
Jersey Blues	60 —	Whites	— —
Whites	— —	York—Prince Regents	55 65
Kent and Essex Whites	45 50	Blues	— —
		Shaw's	50 75

COVENT GARDEN, April 26.—The weather being fine during the week, the market has been tolerably well supplied, and trade begins to get brisker. Hothouse Grapes are becoming more abundant, and are in consequence getting cheaper. Pine Apples, of good quality, are sufficient for the demand; they are offered at nearly the same prices as quoted in our last report. The chief novelty is in the shape of Cherries, a small quantity of which has been offered during the week at a high price. Apples, though pretty plentiful, do not meet with a ready sale; dessert varieties are a little reduced in price. Little alteration has taken place in the price of Pears, since our last report. Oranges and Lemons are sufficient for the demand, the latter are a little dearer. Chesnuts are becoming scarce, as are also Spanish Nuts. Good samples of Strawberries have been offered. They consist chiefly of Keen's Seedling, the best of which may be obtained at 1*s.* an ounce. These fine days have had the effect of bringing a large quantity of Cucumbers into the market, and of improving Vegetables generally. Excellent Cucumbers may be bought at 5*s.* a brace. A few bundles of Asparagus from the open ground have also been offered, the best of which was sold for 20*s.*; the price of forced Asparagus has not altered since last week. The supply of Broccoli is rather on the increase; French Beans are also sufficient for the demand. Seakale and Rhubarb are good and plentiful. Lettuces and Endive are scarce. Radishes are becoming more plentiful. Among cut flowers we noticed Pentas carnea, Nemophila insignis, Stephanotus floribundus, Olivea nobilis, Lily of the Valley, Pelargoniums, Cinerarias, Camellias, Azaleas, Primulas, Epacrises, Heaths, Moss—Provins, and other Roses.

FRUITS.

Pine Apple, per lb., 8*s* to 10*s*		Oranges, per dozen, 1*s* to 2*s* 6*d*	
Grapes, Hothouse, per lb., 2*s* to 15*s*		— per 100, 6*s* to 16*s*	
— Spanish, per lb., 1*s* to 1*s* 6*d*		— bitter, per 100, 8*s* to 20*s*	
— Portugal, per lb., 1*s* to 3*s*		Lemons, per dozen, 1*s* to 2*s*	
Apples, Dess., per bush., 4*s* to 8*s*		— per 100, 6*s* to 16*s*	
— Kitchen, 4*s* to 6*s* 6*d*		Almonds, per peck, 6*s*	
Pears, Dess., per hf.-sv., 5*s* to 12*s*		Sweet Almonds, per lb., 2*s* 6*d* to 3*s*	
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*		Cob Nuts, per 100 lbs., 120*s* to 150*s*	
Pomegranates, per doz., 2*s* to 4*s*		Nuts, Barcelona, 24*s*	
Strawberries, per oz., 6*d* to 1*s*		— Brazil, 20*s*	
Chesnuts, per peck, 5*s* to 8*s*		— Spanish, 2*s*	
Walnuts, per bushel, 16*s* to 20*s*		— Cob, 16*s*	

VEGETABLES.

Cabbages, red, per doz., 2*s* to 8*s*		Parsnips, per doz., 6*d* to 2*s*	
— plants, per doz. bnch., 3*s* to 6*s*		Leeks, per doz., 1*s* 6*d* to 3*s*	
Broccoli, per bundle, 1*s* to 3*s*		Garlic, per lb., 3*d* to 10*d*	
Brussels Sprouts, hf.-sv., 1*s* 6*d* to 2*s*		Onions, per bunch, 3*d* to 6*d*	
French Beans, per 100, 2*s* to 4*s*		— large, per bushel, 4*s* to 6*s*	
Sorrel, per hf.-sieve, 1*s* 6*d* to 2*s*		— Spanish, per doz., 1*s* 6*d* to 4*s*	
Jerusal. Artichok, p. hf.-sv., 1*s* to 2*s*		Shallots, per lb., 6*d* to 10*d*	
Potatoes, per ton, 50*s* to 90*s*		Lettuce, per score, 9*d* to 1*s* 6*d*	
— cwt., 2*s* 6*d* to 5*s*		Celery, White, per bunch, 1*s* to 2*s*	
— bushel, 1*s* 6*d* to 3*s*		— Red, per bunch, 1*s* to 2*s* 6*d*	
— Kidney, per bsh., 2*s* to 3*s*		Endive, per score, 1*s* to 3*s*	
— Autumn, per lb., 3*d* to 6*d*		Radishes, per doz. hands, 2*s* 6*d* to 3*s*	
— New, per lb., 1*s* 6*d* to 3*s* 6*d*		Mushrooms, per pottle, 1*s* to 1*s* 6*d*	
Turnips, per doz. bch., 2*s* 6*d* to 3*s* 6*d*		Small Salads, per punnet, 2*d* to 3*d*	
Red Beet, per doz., 1*s* to 2*s*		Basil, green, per bunch, 1*d*	
Carrots, per doz. bchs, 2*s* to 3*s*		Fennel, per bunch, 2*d* to 4*d*	
Basil, per bunch, 2*d* to 3*d*		Watercress, p. 12 sm. bun. 6*d* to 8*d*	
Rhubarb, per bundle, 9*d* to 2*s*		Parsley, per half sieve, 2*s* to 4*s*	
Seakale, per punnet, 1*s* to 5*s*		— Roots, per bundle, 9*d*	
Asparagus, per bundle, 3*s* to 14*s*.		Tarragon, per bunch, 4*d*	
Horse Radish, per bundle, 1*s* 6*d* to 7*s*		Mint, per bunch, 6*d* to 1*s*	
Savory, per bunch, 2*d*		Marjoram, per bunch, 3*d*	
Cucumbers, per brace, 2*s* to 5*s*		Chervil, per punnet, 3*d*. to 4*d*	
Spinach, per sieve, 3*s* to 5*s*			

MARK-LANE, Monday, April 21.

There was a moderate supply of Wheat from Essex this morning, but small from Kent; the best samples sold quickly at last Monday's rates, but some of the inferior kinds remained undisposed of at a late hour, although we cannot quote them lower; Foreign continues to meet a retail inquiry at our quotations.—The arrivals of Foreign Barley being considerable, added to the previous depression of the trade, rendered even the best English very unsaleable; but sweet Foreign found buyers at a decline of 1*s.* per quarter. Beans and Grey Peas are scarce, and 6*d.* to 1*s.* per quarter dearer; White are unaltered.—The supplies of Oats, both Irish and Foreign, being large, caused buyers to act very reservedly; finest qualities could not be bought cheaper, but inferior Foreign must be written fully 6*d.* per quarter lower.—The Continental Markets are dull for all descriptions of Corn, with a downward tendency of prices.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk . . White	42	49	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire . .	—	—	White —	—	—
Barley, Malting and distilling 25*s* to 29*s*	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . .	Polands	20	23	Feed	19	22
—— Northumberland and Scotch . .	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	29 to 32	Tick	29	35	Harrow	30	36
— Pigeon, Heligoland .	36 to 40	Winds	—	—	Longpod	—	—
Peas, White	33 to 36	Maple	35	37	Grey	30	33

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4499 Sks. — Brls.	7639	1750	5159	1180	20	629	123
Irish . — " — "		—	10	—	29428	—	—	—
Foreign . — " — "		812	15596	—	16883	—	1043	354

Friday, April 25.

The arrivals of Corn since Monday have been moderate; Wheat, both English and Foreign, sells in retail on the terms of that day.—The fine quality of the Saal Barley, and lowness of prices, induces a fair inquiry for this description for malting, and causes English to be much neglected—the value of either remains much the same as last quoted.—Beans and Peas fully maintain our quotations.—Holders of Oats are firm, and in some instances held for an advance of 6*d.* per qr., which the buyers are unwilling to comply with, and the sales effected were consequently not extensive.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	8730	4740	310	5720 Sks
Irish . .	—	—	3420	—
Foreign . .	—	4150	10380	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Mar.	15 per Quarter.	45*s* 1*d*	32*s* 2*d*	21*s* 4*d*	31*s* 1*d*	34*s* 7*d*	35*s* 8*d*
—	22 . . .	45 5	32 4	21 8	30 5	34 6	35 8
—	29 . . .	45 10	32 4	21 5	30 0	34 10	34 8
April	5 . . .	46 5	32 5	21 4	29 6	35 0	35 7
—	12 . . .	46 3	32 5	20 9	30 6	35 5	36 6
—	19 . . .	45 11	31 11	21 4	32 1	35 1	36 1
6 weeks' Aggreg. Aver.		45 10	32 8	21 4	30 7	34 11	35 8
Duties on Foreign Grain		20 0	6 0	6 0	10 6	9 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, April 19.

Price.	March 15	March 22	March 29	April 5	April 12	April 19
46*s* 5*d*	..	..	..		..	..
— 3	..	..	..	..	..	..
45 11	..	..	..	..	..	..
—10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 1	..	..	..	..	..	..

SEEDS, April 25.

Canary . . per qr	42*s* to 48*s*	Linseed Cakes, Foreign, p. ton	7*l* 10*s* to 9*l*
Carraway . . per cwt	44 48	Mustard, White - p. bush.	10*s* 14*s*
Clover, Red, English .	40 66	— Superfine " .	12 16
— Foreign .	46 56	— Brown " .	12 16
— White, English .	50 80	Rapeseed, English, per last	26*l* 30*l*
— Foreign .	50 80	Rape Cakes . per ton	— —
Coriander . . .	12 18	Sainfoin . . .	4*s* 6*d* 6
Hempseed . per last	35 36	Tares, Eng. winter p. bush.	5 7
Linseed . . per qr	52 60	— Foreign - .	4*s* 6*d* 6
— Baltic . .	28 44	Trefoil . . per cwt	18 23
— Cakes, Eng. per 1000	11*l* 0 11*l* 10	Turnip (too variable for quotation).	

Kingsford and Lay.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to Public competition, at the Auction Mart, Bartholomew Lane, on Friday, May 2d, 1845, at 12 o'clock, a rich collection of CARNATIONS and PICOTEES (the entire Stock of a Gentleman Amateur declining their further cultivation), comprising in the Carnations, Twitchet's Don John, Cartwright's Rainbow, Brook's Flora's Garland, Fletcher's Duchess of Devonshire, &c. In the PICOTEES are Mrs. Barnard, Gidden's Miss Hennell, Willmer's Prince and Princess Royal, Gidden's Sir R. Peel, Kirtland's Princess Augusta and Wellington, Wilson's Fanny Herby, &c. Also a splendid assortment of GERANIUMS, FUCHSIAS, VERBENAS, DAHLIAS, &c. May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on Tuesday, April 29, 1845, at 12 o'clock, a splendid assortment of GERANIUMS, and other plants in bloom; the newest varieties of FUCHSIAS and VERBENAS; choice DAHLIAS, HEARTSEASE, ROSES, &c. And on Thursday, May 1, a very rich collection of CARNATIONS and PICOTEES, the surplus stock of a gentleman amateur, comprising Franklin's Queen of Hearts, Pollard's first-rate Roi des Capucius, Cartwright's Rainbow, Willmer's Solander, Brook's Flora's Garland, Beauty of Woodhouse, Mitchell's Patriot, Hale's Prince Albert, Ely's Lord Milton and Regular, Dover's Jemmy Webb, Sealey's Princess Royal, &c.; Dawson's Flora, Brown's Lord Sondes, Garrett's Lady Dacre, Wildman's Isabella, Ely's Field Marshal, Willmer's Princess Royal, Fellow's Annette, Willmer's Prince Royal, &c. &c. Also a splendid assortment of GERANIUMS, and other plants in bloom; the newest varieties of FUCHSIAS and VERBENAS; choice DAHLIAS, ROSES, HEARTSEASE, &c.—May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

UNRIVALLED COLLECTION OF TULIPS.

MR. GLENNY has been instructed by Mr. Brown, of Slough, to submit for SALE by AUCTION (if not previously disposed of by Private Contract), the magnificent Collection of TULIPS of the SLOUGH NURSERY, comprising the finest varieties in the world, about the fourth week in May, when the Bloom is in perfection; together with the Stages, Cloths, Boxes, &c., the Nursery having been disposed of to a party who declines taking them.—For particulars and Catalogues apply to George Glenny, *Gardeners' Gazette* Office, Tavistock-street. This Stock, which would provide a handsome income, would be worthy the attention of any dealer.

Farms to Let.

TO BE LET, and entered upon at Michaelmas next,

TAPNEL FARM,

In the parish of Thorley, in the Isle of Wight, containing:—

	A.	R.	P.
Arable	337	2	35
Meadow and Pasture	153	2	30
Homestead &c.	5	1	17
	496	3	2

This Farm will be Let either on Lease for a term of years, or subject to Tenant rights on the Lincolnshire system.—For further particulars, apply to Messrs. Sewells, Norris, and Estcourt, Solicitors, Newport, Isle of Wight.

TO BE LET, on the 25th of March, 1846, a FARM from 600 to 700 acres, chiefly Arable, but containing a proportion of Pasture and Water-Meadow; the land is of first-rate quality, and varies from a red marl of great depth to a lighter description on a subsoil of gravel. There is an excellent Dwelling House on the Farm, which is situated in a Midland County, 3 miles from a Railway Station, and near good markets. An agreement will be given, securing the capital of the occupier, to the fullest extent. The object of the proprietor in advertising is, to secure a Tenant of large capital, and who is determined to farm on the most approved principles of modern agriculture.—Direct, A. B., Arthur's Club, St. James'-street, London.

ESTATE.—WANTED, to PURCHASE a RESIDENCE, placed in its own small park or ornamental grounds, with from 30 to 150 acres of land. The house must be well situate, and capable of accommodating a family of respectability, with all suitable offices. A good neighbourhood easy access to medical advice, and good markets are indispensable, and preference given to the western or midland counties.—Particulars to be addressed to Messrs. Hedger, land agents, 10, New Bond-street, opposite the Clarendon.

STEPHENSON and CO., 61, Gracechurch-street London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c. by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

SUPERIOR HOT-WATER APPARATUS for HEATING HOT-HOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes vapourising Gutters, Tanks, &c., being the sole invention of J. Porter, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. Porter upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Ford's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,

(And at Southwark-bridge Iron Roof and Building Works.)

DRAINING OF LAND.—THE WORKMAN'S LEVEL, invented by Mr. Bailey Denton, is made and sold, as approved by him, by Messrs. Jones, Opticians, 30 Lower Holborn, London, price 30*s.*

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

GUANO, of the best quality, in bags.—PERUVIAN 11*l.* to 12*l.* per ton; ICHABOE 7*l.* 10*s.* to 8*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, April 26.

ON SALE.

DANIELL'S PATENT WHITE MANURE. Two years' experience prove it equal to Bone-dust or Guano. In Cargoes at 30*s.* per ton; from the Warehouse, in any quantities, 40*s.* per ton, all in bulk.
Apply to EGERTON CANNELL and Co., 18, Castle-street, Liverpool, Sole Agents for the North of England; to
WM. LAYCOCK, Oldhall-street, Liverpool; or to
J. F. CANNELL, Castle-street, Liverpool.
Samples, per post, sent to any part of the United Kingdom, on the receipt of Six Postage Stamps.

PURE GYPSUM, precipitated from a solution of Lime by Sulphuric Acid; being in a very finely divided state, it is better adapted for the various purposes for which it is employed in Agriculture, such as fixing Ammonia, and as a top dressing for Clover, &c., price 2*l.* per ton.
Superphosphate of Lime, 7*l.* per ton.
At Mr. LAWES' Factory, Deptford Creek.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.
The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.
The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.
40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.
BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.
GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.
Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.
Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices to 130, Fleet-street.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late Thomas WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles made in a very superior manner, are kept on sale at the London Warehouse, viz.—

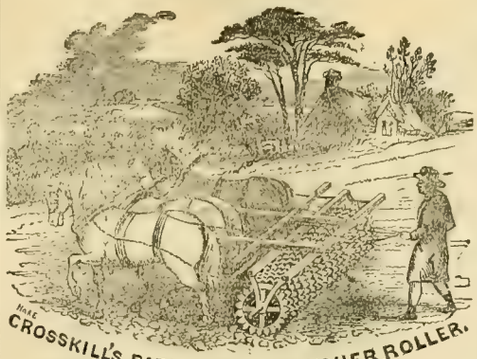
Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double-action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

PATENT "ECONOMIC" DRAIN TILE AND PIPE MACHINE will remain on show one week longer, at 14, South-street, Manchester-square. Information may be acquired on the spot, or at Mr. BAILEY DENTON'S Offices, 9 Gray's Inn Square; or of Mr. CHARNOCK, or Messrs. BRADLEY and Co. (the Makers), Wakefield.—9, Gray's Inn Square, April 26.

HEAL AND SON'S LIST OF BEDDING containing a full Description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding. Sent free by post, on application to their Establishment, the largest in London, exclusively for the manufacture and sale of Bedding (no bedsteads or other furniture being kept). HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

TO AGRICULTURISTS.
WILLIAM CROSSKILL, BEVERLEY IRON WORKS NEAR HULL, YORKSHIRE.



The following are the various uses to which his PATENT ROLLER may be applied:—
1. For Crushing Clods, after Turnip crops, to sow Barley.
2. For Rolling Corn, as soon as sown, has been found better than twice harrowing.
3. For Rolling Wheat Lands sown late in the year, which are cloddy in the spring.
4. For Rolling Wheats, after Frost, upon light land in the spring, when the plants are out of ground.
5. For Rolling Barley, when the plants are three inches out of ground.
6. And again—if weather will permit, when the corn is six inches out of ground, is equal, if not more valuable than once hoeing.
7. For stopping the Ravages of the Wireworm and Grub.
8. For Rolling Grass Lands, and Mossy Lands after compost.
9. For Preparing Land to sow Turnips, Clover, and fine Seeds.—It makes the finest bed imaginable for small seeds,
Cash Prices, with Travelling Wheels complete, delivered in Hull, 6 ft. 6 in., 21*l.*; 6 ft., 19*l.* 10*s.*; 5 ft. 6 in., 18*l.*
In consequence of the enormous advance in iron, and its already making a difference of Four to Five Pounds in the cost of each larger size Roller, it is intended, after due notice being given to the Agriculturist, to advance the price of the Patent Roller 3*l.* each size.
A Model of the Roller is exhibited at the Royal Polytechnic Institution, London.
Upwards of Five Hundred Patent Clod Crushers have been sold from the Beverly Iron Works, since January 1st, 1844.
CROSSKILL'S IMPROVED IRON LIQUID MANURE CARTS.
PATENT PEG PORTABLE THRESHING MACHINE.
REED'S PATENT SUBSOIL PLOUGH OR PULVERISER—PRICE 5*l.* 5*s.*
CROSSKILL'S PATENT WHEELS AND AXLES to carry 30 cwt. Price 5*l.* 10*s.*
Improved One-horse CARTS, with Patent Wheels and Iron Axletrees, price 10*l.* 10*s.* and 12*l.* 12*s.*, and every other Implement known in Agriculture may be had from this Manufactory.
CROSSKILL'S AGRICULTURAL MACHINE SHOW-ROOM, 42, QUEEN-STREET, HULL.
N.B. Goods forwarded, at very low rates, from Hull, by steamer, Trader, Railway, Canal, or Carrier, to all parts of the kingdom.—Iron Works, Beverley, April 26.

SHANKS' IMPROVED GRASS-CUTTING and ROLLING-MACHINE.—The complete success which has attended the introduction of this instrument in Scotland, is sufficiently attested by the accompanying documents, which the Advertiser has been kindly permitted to make public. Mr. Shanks is now prepared to receive orders for delivery, in any part of the Kingdom, for any number of Machines, which will be duly forwarded. They are made to cut breadths of 42, 30, and 20 inches respectively, the latter being adapted to hand-power. Further particulars, and a note of prices, may be obtained by addressing Mr. ALEX. SHANKS, Machine-maker, Arbroath, North Britain.

Letter from the Right Hon. Lord Kinnaird to Mr. Shanks.
"Rossie Priory, Inchture, June 12, 1843.
"SIR—I shall have much pleasure at all times in recommending your Mowing Machine, as answering most perfectly in every respect, as I have had some months' trial of it, and find that a man and horse and one woman can cut and clean up upwards of two acres and a half in seven hours, while it formerly took four men and three women nearly three days to put the same ground in order. Your obedient servant, &c.,
"Mr. Shanks." "KINNAIRD."

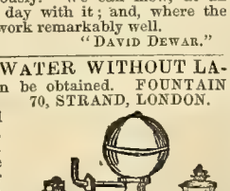
From Mr. Kyd, Chief Gardener to Lord Kinnard, Rossie Priory.
"April 1, 1845.
"In reply to yours of the 22d, I can myself state, and without fear of contradiction, that your Grass-cutting Machines have, ever since we had them, given us ample satisfaction."

Letter from Mr. Taylor, Factor to the Earl of Camperdown.
"Camperdown, 1st April, 1845.
"SIR—After using your Grass-cutting and Rolling Machine for the last two seasons, I am glad to state it has given us every satisfaction, and the Earl of Camperdown is much taken with it. I think we can cut nearly two acres in three hours with a pony, a man, and a boy. It answers well for green roads and walks; we can cut in a morning two or three miles in two rounds. If you wish it, the Earl of Camperdown will give you a certificate. I am yours, &c. "THOS. TAYLOR."

Letter from Mr. Lindsay Carnegie.
"Kimblethmont, April 1, 1845.
"SIR—Three years' experience of the Grass-cutting Machine you originally made for me has fully confirmed the opinion I have already expressed to you of its efficiency and economy.—I am, Sir, your obedient servant,
"Mr. Shanks." "W. F. LINDSAY CARNEGIE."

Letter from Mr. Dewar, the Right Hon. the Marquis of Bredalbane's Park Overseer, Taymouth Castle.
"Taymouth, 4th March, 1845.
"The Grass-cutting Machine used here has given ample satisfaction. It is not only a great saving of labour, but performs the work most expeditiously. We can mow, at an average, four Scotch acres per day with it; and, where the ground is level, it performs the work remarkably well.
"DAVID DEWAR."

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.
F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



TO GENTLEMEN, NURSERYMEN, AND DEALERS IN GLASS.—The Union Plate Glass Company, St. Helens, Lancashire, have determined on offering the undermentioned Lots of PLATE GLASS, on the cash terms named, to clear the premises of small sizes:—

POLISHED GLASS.

Lot 1.—1700 panes, full 4 inches wide, and of lengths varying from 6 to 13 inches, and measuring about 460 feet.
Lot 2.—2100 panes 5 inches wide, varying from 6 to 14 inches long, and measuring about 590 feet.
Lot 3.—1200 panes 6 inches wide, varying from 6 to 12 inches long, and measuring about 400 feet.
Lot 4.—1250 panes 7 inches wide, varying from 7 to 12 inches long, and measuring about 550 feet.
Lot 5.—620 panes 8 inches wide, varying from 8 to 13 inches long, and measuring about 350 feet.
Lot 6.—500 panes 9 inches wide, varying from 9 to 14 inches long, and measuring about 350 feet.

The whole of the above is perfectly finished, and most of it fit for silvering; it is all peculiarly applicable for the fronts of Greenhouses.—Lot 1 will be sold at 10*d.*; Lots 2, 3, and 4, at 1*s.*; and Lots 5 and 6 at 1*s.* 3*d.* per foot, superficial.

ROUGH GLASS.

Lot 7.—3850 panes full 4 inches wide, and varying from 6 to 42 inches long.
Lot 8.—4700 panes 5 in. wide, and varying from 6 to 34 in. long
Lot 9.—3800 panes 6 in. wide, and varying from 6 to 36 in. long.
Lot 10.—2200 panes 7 in. wide, and varying from 7 to 50 in. long.
Lot 11.—540 panes 8 in. wide, and varying from 8 to 19 in. long.
Lot 12.—150 panes 9 in. wide, and varying from 9 to 17 in. long.
Lot 13.—110 panes 10 in. wide, and varying from 10 to 21 in. long.
Lot 14.—70 panes 11 in. wide, and varying from 11 to 21 in. long.
Lot 15.—250 panes 12 in. wide, and varying from 12 to 22 in. long.

The Rough Glass is admirably adapted for the roofs of Greenhouses, Dutch-pits, &c. &c., as it will resist the heaviest hail-storms, and its cost will be entirely repaid in a short time by the saving in fuel. This Glass is about $\frac{3}{8}$ of an inch in thickness, and will weigh about 4½ lbs. per superficial foot—Lot 7, 8, and 9 will be sold for 1½*d.* per lb.; Lots 10, 11, and 12 for 1¾*d.* per lb.; and Lots 13, 14, and 15 for 1¾*d.* per lb.
The above will remain on sale until the 15th May, and any then unsold will be put back into stock. No less quantity than an entire lot will be sold, and the glass must be packed and taken away at the expense of the purchaser, but an experienced person in the employ of the Company will be permitted to assist. The whole of the Glass is as nearly as can be rectangular and rectilinear. A. R. ARROTT, Manager.
Pocket Nook, St. Helens, April 26.

IMPORTANT TO GARDENERS, NURSERYMEN, SEEDSMEN, &c.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

THE ONLY PROTECTION FOR PLANTS, &c., against Frost, Rain, Snow, and Changes of Climate, is CROGGON'S PATENT ASPHALTE FELT, as Improved by the Original Inventor and Patentee, being the only Felt in which hair is used, and the best of Asphalte, without any mixture of pitch, tar, rosin, or other inferior materials.
This Felt is guaranteed to be the Only Patented ASPHALTE FELT, all others being imitations; and is the only one used in THE ROYAL HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK.
The price is ONLY ONE PENNY PER SQUARE FOOT. A liberal discount allowed to the Trade.
THOMAS JOHN CROGGON,
2, Ingram-court, Fenchurch-street, London;
Of whom may be had the best Foreign Bitumen for Paving, Flooring, &c.

BERDOE'S LIGHT WATERPROOF OVER COATS for SPRING and SUMMER.—These well-known and gentlemanly garments will be found most agreeable substitutes for any other outside coat. They are made in the best manner, and are thoroughly respectable, equally free from vulgarity and singularity; are guaranteed (without confining perspiration), to exclude any rain whatever, and no untried novelty, having been in extensive use among the respectable classes more than six years. A large stock of first-rate garments, in new and greatly-improved materials (manufactured expressly for W. B.), now ready, of which an inspection is confidently invited.—Made only by W. BERDOE, Tailor, Waterproofer, &c., 69, Cornhill (north side).

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1*s.* An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130*B*, Oxford-street, one door from Holles-street.
Caution—Beware of the words "From Metcalfe's," adopted by some houses.

FOR THE HAIR.—Admirably efficacious and unerringly certain in its operation, highly approved in the leading circles of fashion, and extensively demanded by all who cultivate the graces of the toilette, is
C. & A. OLDRIDGE'S BALM OF COLUMBIA.
Sold by the Proprietors, 1, Wellington-street, Strand, (two doors from the corner), and by most respectable Perfumers and Medicine Venders in the United Kingdom.
IT STRENGTHENS AND NOURISHES.
exerting a healthy influence, and occasioning an ample and luxuriant growth of hair;
PRESERVES,
where the hair is already full, the conservative properties of the Balm maintain it in strength and luxuriance;
RESTORES,
when weak or falling off the Balm completely restores. In the event of partial or entire baldness, its renovating influences, except with the extremely old, produce an entirely new growth.
BEAUTIFIES,
unlike the action of ordinary stimulants, which spoil the hair, inducing an elegant wave or curl, and a rich beautiful appearance, AND CLEANSES THE HAIR.
The Balm is peculiarly valuable as a detergent, cleansing in the most complete and agreeable manner; and for young people superseding, as the most respectable heads of schools can testify, the use of the fine comb.
THE NURSERY.
The peculiar mildness of the Balm, the action of which can be regulated at discretion, specially suits infancy and childhood. No well-regulated Nursery can dispense with it again. Price 3*s.* 6*d.*, 6*s.*, and 11*s.* per bottle. No other prices are genuine.
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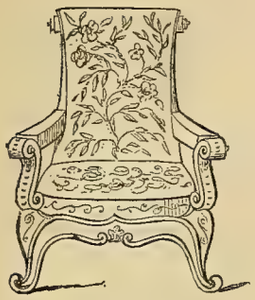
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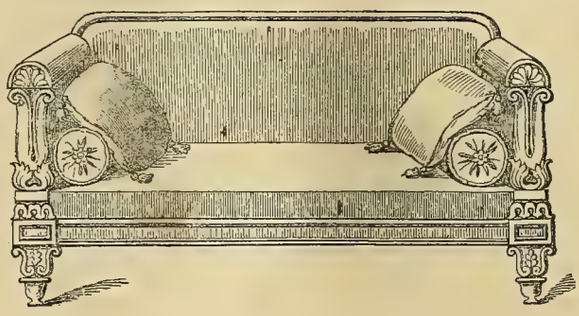
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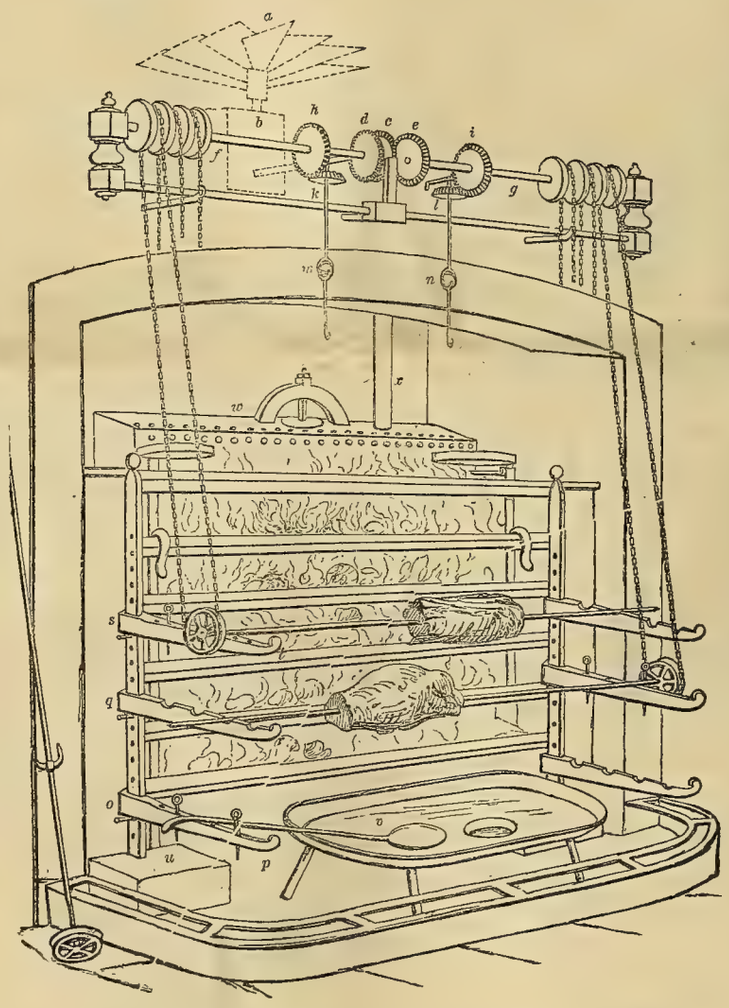
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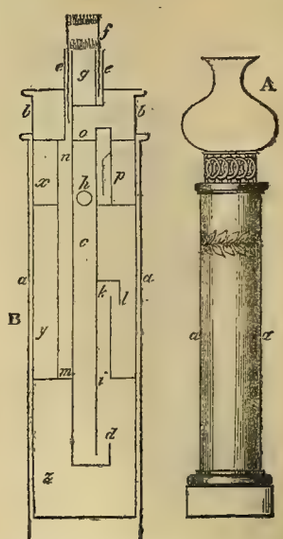
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1845.] SATURDAY, MAY 3. [PRICE 6*d.*

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HEARTSEASE SOCIETY.—The next Show will be held on the 30th May, at Mr. LIDGARD's, Thatched House Inn, Hammersmith.—For particulars, apply to Mr. R. S. MOUNTJOY, Nurseryman, Ealing, Middlesex. Hon. Sec.

GRAND FLORICULTURAL AND HORTICULTURAL EXHIBITION, Open to Exhibitors from all parts of England. The Floricultural and Horticultural Exhibition in the grounds of the Yorkshire Museum will be held at York in August next. Further particulars will be announced in a future Advertisement.—York, May 3.

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Calampelis scabra, 1*s.* 6*d.* do.
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Clematis azurea grandiflora, 24*s.* per doz.
C. Sieboldii, 18*s.* do.
C. montana, fine light blue, rapid climber, 2*s.* each.
Glycine sinensis, 1*s.* 6*d.* each.
New scarlet Honeysuckle, Youngii, 2*s.* do.
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N.B.—A remittance, or London reference, from unknown correspondents.—Exeter, May 3, 1845.

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*4 Anemone	1 6	0 6	6 Lobelia	1 6	—
*6 Antirrhinum	1 6	0 6	*6 Marvel of Peru	1 6	0 6
*6 Aquilegia	1 6	0 6	6 Nemophila ..	1 6	
20 Aster, German —	0 6		*6 Œnothera	1 6	0 6
* Auricula, Alp. —	0 6		* Pink, extra .. —		1 0
6 Calliopsis	1 6	0 6	* Picotee, fine.. —		1 0
*8 Campanula ..	2 0	0 6	* Carnation, dbl. —		1 0
8 Convolvulus..	2 0	—	*8 Potentilla	1 6	0 6
18 splendid .. —		1 0	* Polyanthus, fine—		1 0
* Dahlia, finest —		1 0	* Ranunculus, fine—		1 0
*6 Delphinium ..	1 6	0 6	* Scabiosa, 12 var —		1 0
*8 Dianthus	2 0	0 6	6 Schizanthus..	1 6	0 6
*8 Digitalis	1 6	0 6	*3 ,, biennial	1 6	0 6
8 Godetia	1 6	0 6	20 Stock, German —		1 0
*3 Geum	1 0	0 6	,, New Scarlet—		0 6
*20 Gladiolus, fine —		1 0	*6 ,, Brompton 2	0	0 6
* Heartsease, fine —		1 0	*20 Sweet William —		0 6
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Geranium, finest	1 0	Thunbergia alata, 3 var.	0 6

And most other flower seeds.

*** The Perennials, Stocks, Calliopsis, Godetias, Nemophilas, Schizanthus, and Greenhouse seeds may also be sown in the autumn.

*** *All kinds of Dahlias at the lowest advertised prices. Tigridia pavonia, 2s. 6d. per dozen.*

JAMES CARTER, Seedsman and Florist, 238, High Holborn, London.

MAGNIFICENT SEEDLING ANTIRRHINUMS.

	s. *d.*
MONARCH—purple crimson, with large yellow throat, very superb	5 0
ROBUSTUM—orange red, large lemon throat	3 6
FAVOURITE—white veined with crimson, large lemon throat, very novel and fine	5 0
CARYOPHILLOIDES SUPERB—very fine large white, striped with crimson, very beautiful, and always constant ..	3 6
STRIATA FORMOSISSIMA—white, veined with dark crimson	2 0
MOGUL—large dark crimson purple	1 6
SPLENDENS—very beautiful gold colour	2 6
SUPREME—the largest and brightest yellow known ..	5 0
MAGNET—rosy-lilac, yellow throat	1 6
GIGANTEA—flowers of an extraordinary size, of a beautiful colour, with yellow throat	3 6
PURITY—large and clear white	1 6
LILACINA—fine rosy lilac	1 6

The whole Collection for 1*l.* 11*s.* 6*d.* Now ready to send out, in a stout case, post free, warranted to go safe.

The usual allowance to the trade. (A remittance expected.)

NOTE.—The above beautiful Seedlings have been carefully selected from a great mass of fine flowers, and several of them were twice submitted to Dr. LINDLEY, whose opinion will be found in the *Gardeners' Chronicle*, pages 448—508: "Their distinct bright colours and large flowers, with their compact dwarf habits (differing from this class generally), render them alike desirable for the flower-garden as for the shrubbery." Their continuance in bloom throughout all the summer is too well known to need further comment.

WILLIAM MILLER, Providence Nursery, Ramsgate.

BEVAN'S "LEANDER."—This splendid Rose DAHLIA, considered by the Judges at last year's Shows to be a first-rate variety, will be ready for delivery on the 21st May, at 10*s.* 6*d.* All applications to be made to the respective Nurseries, or to Mr. BEVAN, 3, Norfolk-place, Shacklewell Green. No discount allowed for less than 12.

GREAT YARMOUTH NURSERY, NORFOLK, 1845.

YOUELL AND CO.,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN: HIS MAJESTY THE KING OF THE BELGIANS: NURSERYMEN AND FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN DOWAGER.

YOUELL AND CO.'S CATALOGUE of the newest and very best

FUCHSIAS, VERBENAS, PETUNIAS, PANSIES, CINERARIAS, CHRYSANTHEMUMS,

and other highly ornamental Plants, appeared upon the Advertising sheet of the *Gardeners' Chronicle* of March the 8th and March the 15th, to which they beg to call the attention of cultivators of the above elegant tribes of plants.

YOUELL AND CO.'S Eight New Splendid SEEDLING FUCHSIAS, price 42*s.* the set, and their Eight New SEEDLING VERBENAS, price 25*s.* the set, they can confidently recommend, and they will prove an acquisition to any collection. For particulars and colour of these see their Advertisement of the above dates.

YOUELL and Co. being the first who sent out per post, with safety, these tribes of plants, are desirous of calling attention to their advantageous method of executing orders, namely, that they will deliver them free of postage to any part of the United Kingdom upon the following terms:—

12 Extra Fine Vars. of Fuchsias,	12*s.*	Selection left to Y. & Co.
12 Ditto ditto	21*s.*	Selection left to the Purchaser or ditto.
50 Fine Varieties . . .	40*s.*	Selection left to Y. & Co.
50 Extra fine ditto . . .	60*s.*	Selection left to the Purchaser or ditto.

With the exception of those marked thus *, the Plants are strong and healthy, and are now ready for delivery, thus insuring to the purchaser fine plants for competition the ensuing season.

VERBENAS.

12 Extra Fine Varieties, 6*s.*, the Selection left to Youell and Co.
12 Ditto 10*s.*, the Selection left to the Purchaser.

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . 10*s.* per dozen.
12 Extra Fine do. do. . . . 18*s.* „

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12*s.* per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12*s.* per dozen.

FLOWER SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

THE NEW AND SUPERB SEEDLING PICOTEE, "BURROUGHES'S DUKE OF NEWCASTLE."

For particulars of the above, see YOUELL and Co.'s Advertisement of March 15, 1845.

YOUELL and Co. are also enabled to supply the following superb Picotees, raised by the same gentleman, all possessing first-rate properties, and which have been exhibited and obtained first-class prizes at several of the metropolitan Exhibitions of the last year. They are as follow:—

		£	*s.*	*d.*
Burroughes's Mrs Benyon, Red Picotee .	7*s. 6d.*			
„ Lady Alice Peel, Rose Picotee .	7	6		
„ Miss Jane, Purple Picotee .	7	6		
„ Mrs. Bevan, Red Picotee .	7	6		
„ Enchantress, Scarlet Picotee .	5	0		

CARNATIONS AND PICOTEES.

Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and ready for sending out to any part of the United Kingdom and the Continent at the following prices:

				£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto .	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto .	3	0	0
12 pairs of extra fine Show Pinks . . .				0	12	0
25	ditto	ditto	ditto .	1	1	0

The Selection being left to Y. & Co.

FINE ERICAS, 12*s.* per dozen.

TO MELON GROWERS.

FISH'S EARLY CANTALOUPE and HARDY GREEN-FLESH MELON. For particulars of these invaluable Melons, see YOUELL and Co.'s Advertisement in *Gardeners' Chronicle* of Feb. 1. Six seeds (three of each variety) for 6*s.*

ARAUCARIA IMBRICATA, or CHILI PINE TREE, which has been extensively supplied by YOUELL & Co. for the Royal Gardens, Windsor; also for his Grace the Duke of Hamilton, Earl of Orford, Lord Burlington, Lord Walsingham, Lady Granville, Marchioness of Ormonde, Lord Harris, &c.

YOUELL & Co. being the largest holders of this magnificent Hardy Ornamental Tree, beg to offer them upon the following advantageous terms:—

Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL & Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

Finest Double and Single Hyacinths, in pots by name, 9*s.* and 12*s.* per dozen, now coming forward for bloom.

Achimenes pedunculata, hirsuta, and grandiflora, 9*s.* per dozen; Achimenes picta, 18*s.* per dozen.

Fine plants of Pinus excelsa from Seed, 9in. to 1ft., 42*s.* per dozen.—Great Yarmouth Nursery, May 3, 1845.

NEW ALSIKE CLOVER, 2*s.* 6*d.* per lb.—This new and improved variety partakes of the character of the RED and WHITE CLOVER; is a Perennial plant, producing an immense crop. Likewise GRASS SEEDS of the very best quality, suitable either for Lawns or Pasturage. Also, the improved Long Red MANGOLD WURZEL and the YELLOW GLOBE ditto. Fine selected Field TURNIPS, embracing all the newest and most approved sorts in cultivation.—The above to be had, with every particular, at WARNER & WARNER'S, Seedsmen, &c., 28, Cornhill, London.

N.B.—For a List of new and choice VEGETABLE and FLOWER SEEDS, W. & W. beg to refer to Harrison's "Floricultural Cabinet" for this and the two preceding months. See also a Selected List in the previous Number of the *Gardeners' Chronicle*.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	11*s. 0d.*	20 inches	22*s. 6d.*
15 inches	12 6	22 inches	25 0
16 inches	16 0	24 inches	32 0
18 inches	19 0		

Slate Works, Isleworth, Middlesex.

TULIPS.—A small but choice bed of TULIPS, late the property of an Amateur Collector, deceased, to be disposed of on very reasonable terms for the benefit of his Widow. They are expected to be in perfect bloom in about 10 days. For Cards of Admission and Catalogues, apply at Mr. BATTEN'S Library, Clapham Common, from whose house they are within five minutes' walk.

DANECROFT NURSERY, STOWMARKET.

S. GIRLING begs to refer the Readers of the *Chronicle* to his choice collection of new DAHLIAS, VERBENAS, PETUNIAS, FUCHSIAS and PHLOXES, as printed in the *Gardeners' Chronicle* of March 15, 1845. General Catalogues can be had on application, by sending two postage stamps in the letter of application.

TO FUCHSIA GROWERS.

T. TRINDER begs to inform his friends and the public that he has now ready to send out a few SEEDLING FUCHSIAS, in tin cases, post free, at 7*s.* per dozen; the above were raised from one of the best collections in the country, and are recommended with confidence.—Forest-hill, Peckham, near London. A remittance respectfully requested.

THE ASHCROFT SWEDISH TURNIP was raised by Mr. ASHCROFT, some few years ago; it has won several prizes in competition with other sorts; it is somewhat of an oval form, has a yellow flesh, and is highly nutritive; is a very heavy cropper, and is well adapted for storing; will bear sowing later than most other Swedes, price 1*s.* per lb. Skirving's, Matson's, and Pain's Hardy Green-crown Swedes, 1*s.* per lb. each; True Purple-top Swede, 9*d.* per lb.; Gibbs' Green-crown Yellow-hybrid, Dale's Hybrid and Purple-crown Yellow-hybrid, 1*s.* per lb. each. General priced Catalogues are ready.—MEADOW and PASTURE GRASS SEEDS, at 32*s.* per acre, allowing 2 bushels and 12 lbs. to each acre. Mixed Sorts for improving old Grass land, 1*s.* 3*d.* per lb. Directions for sowing, &c., will accompany the seeds.—GEORGE GIBBS & Co., Seedsmen, &c., to the Agricultural Society, 26, Down-st., Piccadilly.

SUMMERLAND AND CITY NURSERIES, EXETER.

C. SCLATER AND SON beg to inform the Nobility and Gentry that they are sending out their very superior collection of new Fuchsias.

QUEEN OF THE WEST.—This beautiful variety is of first-rate form, large, of fine habit, and a very free bloomer; the tube and sepals are of a clear glossy white, of great substance, slightly tinted with pale blush. The corolla is finely formed, very large, and of a bright scarlet crimson colour .. .. 10*s. 6d.*

SYLPH.—Tube and sepals very smooth, pale blush, finely expanded, showing to great advantage the handsome corolla, which is of a rich purplish carmine. The blooms are large, and of extraordinary length. This variety is of dwarf habit, and a remarkably free bloomer .. .. .. 10*s. 6d.*

OBERON.—Very fine and large, of great substance, and quite distinct. The tube and sepals bright pink, the corolla considerably darker, forming a decided contrast .. .. 5*s.*

IMPERIALIS.—Dark glossy crimson tube and sepals, the corolla of a beautiful dark violet—the great size and depth of which forms a remarkable feature in this very handsome variety—of very dense habit and fine foliage, showing the blooms, which are produced in surprising quantities, to the greatest advantage .. .. 5*s.*

HERO (MAYNE'S)—This is a very large bold flower, good form, and well proportioned. The tube and sepals crimson, reflexed, the corolla very deep rose .. .. 5*s.*

MAYNEII GRANDIFLORA (MAYNE'S).—This is a superb bold flower, very elegant in form, tube and sepals carmine, the corolla deep blood colour. The plant is a free bloomer, and of a remarkably erect habit .. .. 5*s.*

Price for the Collection, 1*l.* 10*s.*

CARNATIONS PICOTEES, AURICULAS, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth), BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility and Gentry the present season as the best for making selections of the above FLOWERS, which he can supply at the under prices:

		£	*s.*	*d.*
25 pair of CARNATIONS, in 25 Superfine sorts, named	2	10	0	
25 pair of PICOTEES, in 25 ditto	ditto	2	10	0
25 AURICULAS, in 25 ditto	ditto	3	3	0
25 GERANIUMS, in 25 ditto	ditto	3	10	0
Good kinds . . per doz., from 12*s.* to	0	18	0	
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	3	6	
Ditto ditto PUNCTATUM	ditto	0	7	6
Ditto SPECIOSUM (true)	ditto	2	12	6

H. GROOM begs to say his Catalogue of GERANIUMS and New Plants is ready, and will be forwarded by post on application.—Foreign Orders executed.—May 3.

THE BEST MARKET FOR GERANIUMS, &c.—Amateurs and other Cultivators of the above popular Flower can be supplied with *fine robust Plants* of all the *choicest kinds* in cultivation, at very low prices, by applying to

T. APPLEBY, NURSERYMAN, YORK,

as the following extract of a letter from a customer in Ireland will show:—

"I feel much obliged by the very liberal way in which you have executed my order, not only as to kinds, but in sending me such fine strong plants. I certainly never saw such *strong plants* in such *small pots*. They do not seem much the worse of their confinement from the very excellent way in which they were packed. I shall do what I can to recommend your plants to other customers in this quarter; indeed, the plants you have sent me will recommend themselves."

T. A. has also a fine Stock on hand of suitable Plants for bedding out, such as Fuchsias, Verbenas, Petunias, Heliotropes, &c. Those are all *autumn-struck Plants* coming into flower, and will be supplied at 5*s.* per doz. for cash, the selection being left to himself.

T. A.'s collection of Dahlias and Pot-Roses contain all the best kinds, and are now fine strong Plants fit for sending out immediately. Descriptive Catalogues of T. A.'s general Collection of Plants, &c., will be promptly sent to applicants inclosing two postage stamps.

DAHLIAS.

JOHN HARRISON, NURSERYMAN, &c., YORK, begs to offer to the Trade the undernamed DAHLIAS, of which he has a fine healthy Stock. Amateurs dealt with liberally. His Catalogue of DAHLIAS, GERANIUMS, FUCHSIAS, PANSIES, &c., can be had on application.

DAHLIAS, at 12*s.* per dozen.—Nonpareil, Lady Antrobus, Stewart Richardson, Constance, Crimson Perfection, Emma Noke, Cheltenham Queen, Claudine, Gauntlet, Lady Grey, Madelina, Orange Superb, Vanquisher, Triumphant (Knight's); and at 18*s.* per dozen—Lord Howden, Standard of Perfection, Spitfire, Bathonia, Lady St. Maur, Ondine, Prince of Waterloo, Sir H. Pottinger, Queen of Roses, Raphael, Aurantia, &c.

Grove Nursery, May 1.

SILVER SAND.—Nurserymen, Florists, Gentlemen's Gardeners, &c., are respectfully informed that they can be supplied with the above article of a superior quality, in quantities of one ton and upwards, 21*s.* per ton; delivered within 6 miles, 26*s.*; smaller quantities, 1*s.* 6*d.* per cwt. E. KEMP, 11, Manor-street, Old Kent Road.—References given to most of the principal Nurserymen and Plant Growers in Bromley, Lewisham, Blackheath, and neighbourhood. Orders by post punctually attended to.

MR. BROWN'S MAGNIFICENT STOCK OF TULIPS, collected during many years at vast expense, and enriched with the new unrivalled flowers raised at the Slough Nursery, will be Sold by Auction, without reserve, (as Mr. BROWN retires from business) by Mr. GLENNY, the fourth week in this month, while in bloom.—Catalogues may be had in a few days of the AUCTIONEER, and *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

A NEW SEEDLING RHODODENDRON, of Dwarf Habit, a free Bloomer, and perfectly Hardy, having been grown near Manchester without protection, or means used to forward it, is now in full bloom, and will be exhibited in the Horticultural Society's Rooms, Regent-street, on Tuesday the 6th May, after which time it can be seen for two or three days at Messrs. W. & J. NOBLE'S, 152, Fleet-street, London.

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13 NEW PETUNIAS FOR 10*s.*

GIRLING'S SET, with MILLER'S "UNIQUE SUPERB," can be had in June, post-free, on receipt of the above amount.—Providence Nursery, Ramsgate.

SPLENDID VERBENA, "CRIMSON SUPERB."—Colour, dark crimson maroon.—W. CUTBUSH begs to announce that he is now able to send out the above at 3*s. 6d.* each; a specimen of which will be exhibited at the Royal Botanic Gardens on Wednesday next. The description given in the *United Gardeners' Journal*, of April 26, renders any other quite unnecessary. Early orders are requested, as the stock is small. The usual allowance to the Trade.

Barnet Nursery, Herts, May 3.

CHOICE FLOWERS, AND PLANTS IN POTS.

HUMPHREYS'S INODOROUS SOLUBLE COMPOUND, to promote the growth and beauty of plants. Fertilising agents, of great power are here combined in a highly condensed form, so that a few grains of the powder, added once a week, or once a fortnight, to the water used with plants, is sufficient to produce the most vigorous growth, and splendid flowers. Applicable to all Greenhouse plants; and highly effective with Melons, Cucumbers, Bulbous Roots, &c. Sold in bottles 1*s.* 9*d.* each, by the leading Druggists and Seedsmen in town and country. Wholesale Agents, DAVY MACKMURDO & Co., 100, Upper Thames Street, London.

C. HART, FLORIST, &c., GUILDFORD, begs to offer the Public Collections of the undernamed Flowers, at the following prices.

PANSIES.

		£	*s.*	*d.*
20 Fine Show Flowers	0	15*s.*		
20 Superior ditto ditto	1	0		

Plants of Pizarro, La Valière, Queen of the Whites, Isabella, Marginata, &c., at moderate prices.

VERBENAS.

		£	*s.*	*d.*
12 Good Varieties	5*s.*			
12 Superior ditto	8			

Such as Atrosanguinea, Beauty Supreme, Minstrel Boy, Princess Alice, Renown, Defiance, &c. &c. Sent free by post.

PRESTOE'S IMPROVED MUSHROOM SPAWN, Patronised by the Earl of Auckland, the London Horticultural Society, &c. &c.

This superior variety of Mushroom frequently attains 12 inches in diameter (See Report of Horticultural Society in *Gardeners' Chronicle* of April 19th). The Spawn is made up in cakes of a proper size to plant whole. Sold in baskets, a sufficient quantity to plant 50 feet of bed 5*s.*, with printed instructions for cultivating Mushrooms in the Shed, the Cellar, the Garden, or the Field. The common Mushroom Spawn 5*s.* per bushel. N.B.—W. P. will keep a supply of Morel and Truffle Spawn, which will be duly advertised in the *Gardeners' Chronicle*, and other Periodicals, in proper season.

Shirley Nursery, near Southampton.

SEEDS.—CORNER OF HALF-MOON-STREET. THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

TO HORTICULTURISTS, FLORISTS, &c.

GEORGE & JOHN DEANE'S Stock of GARDENING AND PRUNING IMPLEMENTS, combining all the latest improvements, is at once extensive and select; their sets of tools adapted for ladies and youths are universally approved of for their lightness, portability, and finish. G. & J. DEANE'S Conservatory Pumps, Garden Engines, Syringes, and Mowing Machines, are all manufactured of the best materials, and on the most correct principles. Their cast-iron Garden Seats and Chairs, and their Ornamental Wire Work for Lawns, &c., exhibit the most graceful devices. G. & J. DEANE are sole London Agents for Lingham's Menograph, and their illustrated Catalogue of Horticultural Tools may be obtained at their Warehouse, or will be forwarded by post. GEORGE and JOHN DEANE, 46, King William-street, London-bridge.

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is prepared expressly for drying Botanical specimens, for which purpose it is peculiarly adapted; and has received the most unqualified approval of our most eminent Botanists. Sold by the Manufacturers, W. and T. BENTALL, Halstead, Essex; and by their Agents, E. Newman, 9, Devonshire-street, Bishopsgate (sole Agent for London); G. Davey, Broad-street, Bristol; H. Whitmore, 119, Market-street, Manchester; R. T. McIntosh, 12, Catherine-street, Edinburgh. For particulars see *Gardeners' Chronicle*, April 5, 1845; see also the Leading Article of the same Number.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,

(And at Southwark-bridge Iron Roof and Building Works.)

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.—The first Meeting will take place on Saturday, the 24th of May; Subjects for Exhibition must be at this Office on Friday, the 23d; or at the Garden, before Half-past Eight o'clock, A.M., on the day of Exhibition. The gates will be open to Visitors at One, P.M. Tickets are issued to Fellows, at this Office, price 5s. each; or at the Garden, in the afternoon of the days of Exhibition, at 7s. 6d. each; but then only to orders from Fellows of the Society.

N.B.—No Tickets will be issued in Regent-street on the day of Exhibition.—21, Regent-street.

PROPAGATING GLASSES, 1s. per lb.; or 2s. 6d. to 24s. per dozen; BULB CUCUMBER-GLASSES, for Watering by Evaporation during the growth of the Fruit, 2s. 6d. to 3s. 6d. each; GRAPE-GLASSES, with holes, 1s. 9d. to 2s. 6d. each; BEE-GLASSES, 1s. to 2s. 6d. each. Cylindrical CUCUMBER TUBES, from 6d. to 4s. each; FISH-BOWLS, from 1s. 6d. each; ditto, with hole in bottom for Fountains, 2s. 6d. per lb., at APSLEY PELLATT'S Falcon Glass Works, Holland-street, Blackfriars. Orders from the country, accompanied with a Post-office order, will meet with prompt attention.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD SUSSEX.

WILLIAM WOOD AND SON are now sending out strong Plants of their new VERBENA HUDSONII, at 3s. 6d. each, with the usual discount to the Trade, when three or more are ordered at once. A full description of the above will be found in the *Gardeners' Chronicle*, former advertisement, March 29.

W. WOOD and SON respectfully solicit attention to their superb collection of Fuchsias and Verbenas, collections of which will be sent at the following prices, the selection of sorts being left to themselves:

FUCHSIAS.

12 fine varieties for	6s.	12 new vars. for exhibition	18s.
12 superior ditto	8s.	50 fine ditto	30s.
12 superb ditto	12s.	50 new ditto for exhibition	50s.

VERBENAS.

12 fine varieties for	5s.
12 superior ditto	9s.
12 superb ditto	12s.

For a select List of Greenhouse Plants, purchasers are referred to former advertisement, April 5.

W. WOOD and SON'S Descriptive Catalogue of Fuchsias and Verbenas, also lists of Petunias, Anagallis, miscellaneous Greenhouse and hardy Herbaceous Plants, Shrubs, and Climbers, may be had GRATIS on application.

Plants will be presented to defray expense of carriage; a remittance or reference is respectfully solicited from unknown correspondents.—May 3.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him are respectfully requested to address him at Chiswick Nursery, near London.

TO THE ROSE TRADE.

R. B. BIRCHAM, HEDENHAM ROSERY, BUNGAY, SUFFOLK, begs to offer the following FIRST-RATE Perpetual and Bourbon ROSES, Dwarf Plants in Pots, own roots, fit for transplanting into borders; or to form beds of Perpetual Roses.

The following are 1s. per Plant:—

Aubernon, Clementine, Seringe, Duchess of Sutherland, Duc d'Aumale, Earl Talbot, Julie Dupont, Lane, Madame Dameme, Madame Laffay, Melanie, Cornu, Mrs. Elliot, Prince Albert, Rivers (Laffay's), William Jesse, Queen of Bourbons, Acidalie, Alfred, Splendens, Duc de Chartres, Gloire de Rosamene, Madame Nerard, Thiaffait.

The following at 2s. 6d. per Plant:—

Comte d'Eu, Dr. Marx, Thibault, Amenaide, Marquis of Ailsa, Marquis of Boccella, Prince de Galles, Comice de Seine et Marne, Edouard Derforsse, La Bouquitière, Lady Canning, Lilacea grandiflora, Madame Aubis, Madame La Charme, Proserpine, Paul Joseph, Princess Modena, Cerese, Perry de St. Cyr, Anne Beluze, Manteau de Jeanne d'Arc.

The following at 3s. 6d. per Plant:—

La Reine, Lady Alice Peel, Madame Emma Dampier, Gloire de Paris (Noisette), Cloth of Gold, Solfaterre, Pourpre de Tyre. Virgil.

The following at 5s. per Plant:—

Comte de Rambuteau, Souchet, Madame Souchet, Charles Souchet, Souvenir de la Malmaison, George Cuvier, Princess Clementine, Dumont de Courset.

Queen of the Prairies, at 2s. 6d. each.

A purchaser may select *Fifty* of the above for 5l., *Cash on Delivery*. The plants are healthy, and ready for planting out the beginning of May. A Descriptive Catalogue sent on application. Carriage paid to London.—Hedenham, May 3.

NEW FUCHSIAS.

W. MILLER has a few strong PLANTS which may still be had.

12 Fine New Kinds	7s	6d.
12 Extra, very superior	15	0

Providence Nursery, Ramsgate.

The Gardeners' Chronicle.

SATURDAY, MAY 3, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY,	May 5	Entomological	8 P.M.
TUESDAY,	May 6	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	May 7	Royal Botanic Gardens	2 P.M.
		Society of Arts	8 P.M.

COUNTRY SHOW.

TUESDAY, May 13—Stamford Hill Horticultural.

TRUFFLES are occasionally found of a considerable size in Great Britain, but it is very rare for them to exceed a few ounces in weight. A species occurs, however, in Van Dieman's Land, of which almost every individual exceeds a pound. A fine specimen, sent to England by Mr. GUNN, arrived perfectly fresh after its long voyage, and then weighed two pounds, having probably lost something in the course of its travels. This species has none of the fine aroma which makes the Truffle so much in requisition, but has a subacid rather disagreeable flavour; when dry, however, this vanishes; the central substance becomes exceedingly hard and horny, and, when cut into small fragments, has somewhat the appearance of Sago, and is no doubt nutritious. It is much sought for by the natives, and is known by the name of "native bread." It is not unfrequently met with in ploughing up the land, and is sent over to this country as an object of curiosity. It appears to be very closely allied to our common Truffles, but the specimens hitherto received, and we have seen several, have not been in a perfect state of fructification. It was first published in the "Annals of Natural History," under the name of Mylitta Australis, but the perfectly fresh individual received from Mr. GUNN, exhibited a structure at least as nearly approaching to Tuber as to Mylitta, a genus which at present is but imperfectly known.

A very curious parasite has lately been discovered upon it by Mr. GUNN, which is probably itself a delicate article of food. This, however, is but conjecture, for we have no positive information on the point. It is the more remarkable, because there are one or two productions of a very similar appearance externally, which are in reality merely the tuberous bases from which in due time the perfect fungus springs. One of these is figured in RUMPHIUS' "Flora Amboinensis," and grows to a considerable size. Specimens have indeed been seen by no modern botanist, but there is every reason to believe that it is not in itself a perfect fungus; and the other, which has been found in North America, from Pennsylvania as low as Texas, is evidently merely a sort of concentrated mycelium. We have examined specimens from both the localities mentioned, and find the mass to consist of irregular feculoid bodies of various forms, which, on the application of iodine, assume a yellow or brownish tint. FRIES has made a distinct genus of it under the name of Pachyma, but we believe it has no more title to distinction than the mass of imperfect fungi known under the name of Sclerotium.

At present Truffles have not been found in any abundance in America. Two or three species are recorded as occurring now and then, but we have seen no specimens, and we have not been able to obtain information from Mr. LEA, of Cincinnati, who has made an extensive collection in Ohio. He has never met with any himself, although we have called his attention especially to the subject. Possibly they occur in many parts where they have not been detected, for want of Truffle dogs. And we are the more inclined to think that this is the case, because such multitudes of European fungi occur in the northern portion of the United States.

On a future occasion we shall show what the exact nature of the Truffle is, and in the meanwhile print the following letter from Mr. PRESTOE, of Shirley, a very successful and intelligent grower of Mushrooms, whose spawn is really a valuable article.

"I yesterday forwarded per rail, a small basket of Mushrooms gathered from the same bed which I had some time ago described to you. Their colour might be considered a little too brown, but this will in no way injure their flavour, as the vertex is never cooked or made use of in any way. The cause originates in their being exposed to the full action of sun and air by day; by night they have a slight protection. This simple method of cultivation cannot fail to give satisfaction. With the Mushrooms I have also sent six specimens of what might be considered the component parts necessary to be brought together—or in order to commence a course of artificial cultivation of the English Truffle. Having read with delight the remarks of the Rev. Mr. BERKELEY, in the *Gardeners' Chronicle*, and also your invitation to practical gardeners and others to come forward and lend their aid to carry out this hitherto difficult question, namely, How can Truffles be artificially cultivated? I embrace the present opportunity to come forward and give the result of 16 years experience.

"The cultivation of Truffles has been hitherto, it appears, very doubtful; even those who have written on the subject seem to have carried on their experiments in a foreign or distant country; but as the present wish is to have them always at hand it must be now done at home. Gardeners must set their wits to work, and not only their wits but their eyes, for after all they will have some difficulty to find Truffles, as they are seldom, if ever, seen growing above-ground. I have a relation who has 'hunted Truffles' 29 years, and never found but one above ground; and this he supposes was scratched out by a pheasant. But as it is my intention to set about the work of cultivation, I would advise every gardener to prepare for a good start; and if he fails the first, second, and third year, I would further advise him to double his efforts the fourth, for it is a practical work, and one that will require some little attention. As regards my own experience, it is not so complete as I could wish; although I can grow Truffles, I cannot find them so well as I could wish; but I hope soon to get over even that difficulty. The first thing a gardener has to do is, to provide proper soil, in order to be ready by next year (for it will not be brought about before); and I suppose this will try "DODMAN'S" patience. He must begin at once to prepare a compost-heap, at least two waggon loads well prepared; and in order to make every one acquainted with the necessary materials, I have sent you a sample of each, which I leave to your better judgment, to describe and annex to this paragraph.

"No. 1 is artificial soil, composed of common vegetable earth and sawdust, intended for the cultivation of Morels. You will, on close examination, perceive there are some small globular fungi; if you taste it, it resembles a Morel; but I cannot find they ever show above-ground, but sometimes reach the size of a Pea, and then die away. Can you inform me what it is, or do you think it is an embryo Morel? The soils, Nos. 2, 3, 4, 5, 6, when wellmixed, is the identical soil in which Truffles luxuriate."

We have read with great pleasure Mr. PRESTOE'S communication, whose zeal and ability give us promise of ultimate success; and we have examined the specimens of soil to which he alluded. No. 1 is what has been used for experimenting on the growth of Morels, consisting of common soil mixed with a portion of coarse sawdust. It is strongly impregnated with spawn, to which are attached the little globular bodies in question, which, as he remarks, have a fine flavour like that of Morels. We are not, however, inclined to think that it is really the Morel spawn, but rather that of some Mushroom. The Morel spawn is more delicate, and we do not think the embryo Morels would assume so globular a form. The globules, when submitted to the microscope, present a highly condensed cellular, and by no means filamentous, structure, and are precisely of the same nature as the little bodies like Mustard seed, which are frequently so abundant in the tan of Pine pits, and are undeveloped Agaricus cepestipes, a beautiful sulphur-coloured species, with a stem swollen in the middle, which must have frequently attracted the admiration of every cultivator. We do not find any of a larger size, or they would probably exhibit, in a vertical section, traces of the future pileus. An excellent memoir on the changes undergone by another species, not uncommon in stoves, Agaricus volvaceus, by Nees von Esenbeck, is to be found in the "Nova Acta Ac. Holmiæ," where, however, the author, in accordance with a theory very common in Germany, considers the globules, which have been arrested by some external causes in their development, as actually constituting a distinct species. It is in general to a want of light that the check in the evolution of the globules is attributable, in accordance with the dogma of Fries, that the hymenium or fructifying surface is the creature of light. I have myself been watching, for some months, the progress of some minute warty globules, seated on a radiating base, which have showed themselves on the damp wall of an old greenhouse. The cold weather has probably checked the growth of the greater part of them; but a few are now exhibiting the characters of the beautiful Agaricus radiatus, which was figured in its early stage of growth by Mr. JAMES SOWERBY as a Lycoperdon. In any compost, prepared with a view to the growth of Morels, there should be a large proportion of wood-ashes and cinders. It is well known that in Germany a law was made to restrain the burning of wood by the peasants, who committed serious ravages in order to promote the growth of Morels, as they observed that they were most abundant where the surface of the soil had been charred. It would be well also to encourage the spawn to run as much on the surface as possible. Morels are rather uncommon in our neighbourhood, at least the esculent ones, and we have therefore had few oppertunities, comparatively, of observing their mode of growth; in those instances where we have gathered them, we have almost always observed some burnt vegetable substance, and the spawn has been quite superficial.

The other samples of soil sent by Mr. PRESTOE, consist of—No. 2. Decayed Beech and Oak leaves. No. 3. Soil from old ant-hills, which will, of course, vary with the locality, but, except in clayey districts, must always be valuable. 4. Loamy pasture soil. 5. Chalk. 6. Road sand. A small proportion of iron should always enter into the composition, if not contained naturally in the soil. The nest of the black ant, when thoroughly free from larvæ, would doubtless be an excellent ingredient in the compost.—*M. J. B.*

WE have prepared some forms for the guidance of those who will be so obliging as report their experiments on POTATO CULTIVATION in a methodical

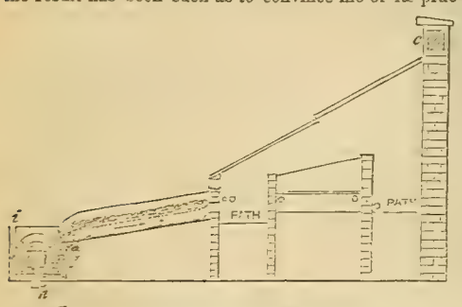
manner. We shall be happy to give one to any person who calls at our office, or sends a penny stamp to cover the postage.

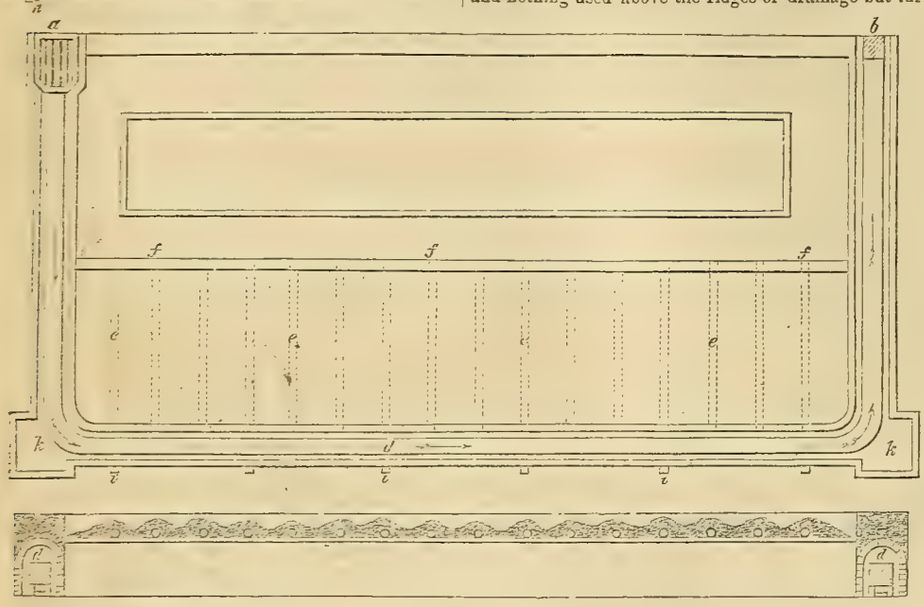
WE had intended to pursue the subject of the GLASS trade this week; but some communications that have been made to us render it advisable to delay doing so for a few days.

In the meanwhile we repeat our advice, NOT TO BUY.

NEW PLAN OF HEATING VINE BORDERS.

I BEG to submit to the consideration of the readers of the *Gardeners' Chronicle* the following Plan for Heating the Borders of Vineries, a matter which is of the utmost importance to all who are required to produce early crops of Grapes. The plan I propose has occupied my attention for some time; and having made a few experiments to satisfy myself as to the success reasonably to be expected from it, I am glad to be able to say that the result has been such as to convince me of its practicability. It is agreed on all hands that, to insure success in early forcing of Vines, the roots must be kept warm and moderately dry; and that when this is done, we may, with proper management within the house, make pretty sure of a crop of good fruit, possessing all the desirable qualities of being well-flavoured, free from shrivelling, and having a perfect bloom. In introducing any improvement into our practice, economy must always be one of the first considerations. Nothing which does not possess the desirable qualities of simplicity and cheapness can ever be of general utility. The method I am about to describe will have expense connected with it; but when I consider the frequent failures and disappointments to which gardeners are subject in Vine forcing, and the anxiety that has long existed to prevent shanking and shrivelling (which arise from cold and wet borders), I trust all will admit that the expense will be amply compensated for. It must also be borne in mind that the expense of forming the border being once incurred, there are no after-claps, not one additional shovelful of fuel will be required; and the labour, as well as the litter of the old plan of heating by means of fermenting material, will be avoided.





I propose to carry the smoke from the furnace (*a*), in the accompanying woodcut, round the border, as indicated by arrows, to the wall at (*b*), where it will rise to a horizontal flue under the coping, and pass along it to the chimney over the boiler. The flue will be inclosed in an arched chamber (*d*), from which will proceed perforated earthen pipes, passing through the drainage of the border, which will be formed in ridges, as shown in longitudinal section; these ridges will be composed of bones, broken bricks, lime, stone, and pieces of charcoal, to afford nourishment to the roots, as well as to act as drainage. The warm-air pipes will terminate inside the front wall of the house at (*ffff*), and there be fitted with zinc ventilators. By means of these ventilators the warm air can be made to act equally upon every part of the border. For instance, the ventilators of the warm-air ducts nearest to the origin of the flue being shut, the air would pass on to the next open ones. The floor of the border should be formed of concrete, and at (*g*), in the transverse section, is a rubble drain to carry off the water from the concrete to a drain (*h*). At (*iiii*) are apertures for the purpose of admitting cold air to the bottom of the arched chamber, to displace the heated air, which being lighter will rise into the perforated air-ducts, and partly diffusing itself through the draining material into the soil, the remainder will pass into the house. From this will arise the collateral advantage of being able at any time to cause a circulation of air in the interior of the house, which will be found congenial to the health of the Vines, and whatever other plants it may contain. I may here remark that the warm air in its passage to the border cannot be otherwise than moist, as the rains that usually fall during winter, spring, and autumn, will always cause a sufficient moisture about the sides of the chamber, which being converted into vapour, by the heat from the flue, will pass with it into the border. From the outside of the stoke-hole should be brought a current of air to the end of the chamber next the boiler, to drive the heated air from that part in the direction of the warm-air ducts. The smoke by passing along the flue will lose a great part of its blackness, and will appear more like steam when it leaves the chimney. This of itself will be almost equivalent to the expense incurred; while the soot can be easily collected at (*k k*), in the ground-plan, and employed as manure, as well as for destroying insects. The arrangement of the material of the border is, I imagine, a decided improvement on the old plan. The soil laying on the ridges of hard material cannot fail to be well drained; while liquid manure may be poured along the top of the ridges during the swelling of the fruit without any danger of over-wetting the soil. On such a plan as this all soft and quickly-decaying matter may be dispensed with in making the border, and nothing used above the ridges of drainage but turf from a sandy loamy soil, mixed with $\frac{1}{4}$th of its bulk of the same material as the ridges. Grapes from such a border would be of superior flavour, would keep well, be free from shanking, and if the Vines were not over cropped, would colour in a very superior manner to what they do on a deep sour border. Where there are two houses heated by one boiler, the smoke could be made to heat both borders by means of dampers by which it could be made to take the direction of either border at pleasure, or if found more than sufficient, it could, by means of dampers, be made to ascend the chimney at once. I anticipate that by the plan I have described, two great desiderata in gardening will be obtained with ease, certainty, and economy, viz.—the application to a useful purpose of all the heat that the fuel consumed is capable of affording, and the effectually heating of Vine-borders. The subject is an important one, and it would be well if we could arrive at something like unanimity of opinion upon it.

To obtain by artificial means good crops of our choicest fruit, a variety of conditions are required, some of which involve great expense, and it is a necessary consideration whether the cost may not be economised by making one of these answer two purposes. In forming a border for Vines, the first requirement is that it be effectually drained. Instead of digging out the space for the border to the depth of 2 or more feet as is usually done, and then forming drains, I would merely remove the loose surface and give it the proper fall, which should not be less than 1 foot in 6; then make the surface compact by laying on about 3 inches of any dry material, such as ashes, waste gravel, or sand, upon which I would lay about $2\frac{1}{2}$ inches of concrete, which is cheaper than any other material with which I am acquainted that can be used for the purpose. This concrete, while it forms a dry bottom, at the same time effectually prevents the descent of the roots to the bad soil below; and I know from experience that the roots of Vines delight to run upon the surface of concrete. If about 1 inch of marl is laid on the concrete it will retain a great part of the nutritive matter that is washed out of the soil by rains and watering (and which would be lost through a rubble bottom or one formed of paving without the layer of marl), for the roots to feed upon. The next consideration is to find a material for the border, which shall give the Vines sufficient vigour to enable them to bear a moderate crop the second, and a full one the third year of their being planted, supposing them to be strong one-year-old plants at the time of planting, which should not be done later than April; and also be of a description to afford nourishment for many years. It must also be formed of such materials, and be so arranged, as to continue permanently in a state to free itself from excess of moisture, without being so open as to render it troublesome to keep it sufficiently moist during hot dry weather. To assist me in explaining my idea of what I consider to be the best sort of Vine border, I must again recur to the longitudinal section, which is taken from a border already formed at this place (although not heated), but the drains communicate with the external atmosphere at the front of the border, and thus a free admission of air to the roots is secured, as well as a free passage for superfluous water. The ridges shown in the section are formed, as stated above, of broken bricks, lime, stone, crushed bones, and charcoal, all the materials being in lumps varying from $\frac{1}{2}$ inch to 4 inches in diameter, care having been taken to place some of the smallest on the surface to prevent the soil from being washed down into the interstices of the drainage. My reasons for preferring to place the drainage in ridges rather than having a flat surface are, first, because the border is drained more effectually; and secondly, that when liquid manure is required it can be poured along the tops of the ridges without the least danger of making the border too wet. This is a great advantage, particularly when the fruit is swelling. If all Vine borders were constructed in such a way as to admit of their being kept dry, while the Vines are dormant, and being plentifully supplied with liquid manure while growing, I think the result would be better crops and finer Grapes than are generally obtained. No soil is better adapted for Vines than turf about 4 inches in thickness, from the surface of a light loamy pasture. This should be got in dry weather, immediately conveyed to the border, and laid on the ridges with a fork, rejecting the small pieces, mixing it as it is put on with about one-fourth of its bulk of the same kind of material of which the drainage is composed. In this manner a border may be formed which I know from experience will grow good Grapes, and will not become compressed for many years. Soft manures of all kinds I would reject, as tending to induce too rapid a growth at first, and when reduced to keep the border sour and wet. By forming Vine borders in this manner, we secure a suitable and wholesome situation for the roots, and a medium for them to grow in through which they may obtain all that is necessary for their welfare, viz., heat, air, and water, with liquid manure when required. With a border so formed there can be no difficulty in keeping the roots at a proper degree of temperature. When forcing is began the border should be covered with about 3 inches of dry Fern, which would not exclude the air from the soil, while the heat from below would pass into it, and any rain or snow which did not run off would be ameliorated in its passage through the Fern to the border.

With regard to the shrivelling of Grapes, I am convinced that the evil proceeds from cold ill-drained borders, and sudden depressions of temperature within the house. Shrivelling was common here till the system of keeping up a bottom-heat was introduced, since which there has been no appearance of it, except in a late house last year. In the month of August, we had a good deal of rain, which penetrated the border of the house of which I am speaking. The weather was for a few days cold, and the Grapes, which up to that time had been swelling beautifully, received a check, and shortly after many of the fruit stalks shrivelled. Some Muscats and Muscadines, which were nearly ripe, cracked, and were totally spoiled. The shoots shortly after this began to grow more rapidly, and in some instances the laterals produced shows. This occurring so late in the season was unfavourable to the Vines as well as to the crop; and suggests the advantage even in summer, of keeping some kind of covering on the borders to throw off cold rains; or at least of having some covering in readiness for that purpose.

On one border here formed in the manner above described (but not heated), and the air admitted to the roots by means of draining-tiles, laid along beneath the ridges of drainage, and which is also covered with concrete, I intend to let the concrete remain all the summer. I have no fear of the roots suffering for want of air, and the action of the sun upon the concrete will bring them to its under-surface, where they will, I have no doubt, enjoy themselves, and be able to collect food of the best description for the support of the Vines. Little water will be required, as evaporation will go on but slowly, if at all, through the concrete, and the hotter the concrete becomes with the rays of the sun, the more humidity will be attracted towards its under-surface from below. One, and not the least advantage to be anticipated from this method of heating, is the power it will give of causing a circulation of air in the interior of the house even in the night. I believe it is considered by most practical gardeners who have paid attention to the subject, to be beneficial to all plants cultivated under glass for the production of fruit, to have a constant circulation of warm air among the foliage, and through the whole of the interior of the structure. My own experience this season convinces me that it is beneficial to Vines. Such being the case,

I know of no plan so well adapted for securing this circulation as the one under consideration. In its passage through the border the air will imbibe a degree of humidity, and a softness which will render it congenial to the health of the plant. I have no doubt that the roots will find their way into the air-drains, where the warm air cannot act otherwise than beneficially upon them. It will also sweeten the border, and by decomposing the decayable portion of it, prepare it for becoming food for the plants.

I will only add, in conclusion, that some Vines here which are planted in a border, having a flue running under it, enclosed in an arched chamber, have succeeded as well as any Vines I have ever seen. They were planted last year, and are now showing a great number of bunches along the whole length of the rods, none of which are less than 21 feet in length. Seven of them are Muscats of Alexandria, and I believe most people at first sight would suppose them to have been planted two or three years instead of 11 months. It was remarked while the Vines were growing last summer, that the leaves were very small compared with the diameter of the stems; and at the same time remarkably thick and substantial. The wood also was much harder and shorter jointed than that of other Vines placed in exactly similar circumstances, with the exception of the flue beneath the border.—*G. Fleming.*

THE GENUS KALOSANTHES.

(*Continued from p.* 149.)

In my last article I brought the treatment of these plants down to the end of the second season; I will now resume the subject with those plants which were not permitted to bloom in the second season, but were reserved to form still finer specimens. These, we will presume, were stopped a second time last July, and they are now, the spring of the second season, compact, thickly-set, half-globular plants, in 8-inch pots, about 8 or 10 inches high, and 15 inches in diameter. They will now require to be stopped for the third (and last) time before flowering; and in performing the operation, cut them well in, and into whatever form you wish them to assume when in bloom. Remove the leaves from the ends of the shoots after cutting down as before directed. When these plants have produced young shoots an inch long they must receive their final shift. If it is wished to make very fine specimens they must receive a liberal shift, and the compost, in addition to being very rough, must be plentifully intermixed with potsherds or rough flinty stones. After they are potted, replace them in the greenhouse, and keep them rather close for a few days; but after they have made fresh roots expose them freely to both light and air; and occasionally, after a warm day, give them a light syringing over head. If properly attended to they will grow with great vigour, especially if assisted with liquid manure or a little superphosphate of lime; and, therefore, great attention will be necessary to get the tissue of the plant matured, and the flowers set early in the autumn. The treatment through the winter must be dry and cool, with a free exposure to all the light possible. This treatment must also be continued until after the flower-buds are perceptible in the spring, at which time something a little more stimulating, such as more humid treatment, may be indulged in. As the flower-stems progress in growth they require to be supported either by small painted sticks or a few wires passed through the plant in the form of a glove, as is sometimes practised in the training of Heaths, Dwarf Cactuses, &c. When the flowers begin to show colour the plants must be removed to a more shaded situation, say behind a north wall, but let them be freely exposed to the light. Supply the plants liberally with water during the time they are in bloom, but be particular in preventing any dust getting to them.

The plants, if they are kept in a shaded situation, will continue in fine bloom for six weeks or two months; but if it is intended to grow them on for another season, it will be advisable to cut them in directly they get shrubby, or, at the latest, before the middle of September. In cutting the plants in, the cultivator must be guided by what sized plants he wishes to produce at the second time of blooming, always recollecting that these plants will only produce flowers in perfection every alternate year; or, in other words, they require one entire season to make the wood and set the bloom, and the greater part of the second season to bring the bloom to perfection; therefore, unless very large specimens are desired, it will not be advisable to keep the old plants, as plants of sufficient size for all ordinary purposes may be produced in two seasons. If, however, it is intended to grow the old plants on, it is a matter of little importance how close they are cut in, as they will break freely from the oldest wood, provided the leaves are removed as before directed. When the plants are cut down and have made shoots an inch long, they must be repotted, and at the same time the ball must be reduced in size sufficiently to admit of being placed in an 8 or 9-inch pot, using the same compost as before, but adding an extra handful of gritty sand. Grow them on pretty briskly until the young shoots are 2 or 3 inches long, and then let them go to rest for the winter. In the following spring the shoots must be again stopped and thinned out, and afterwards their treatment will be the same as before directed.

At the time the plants are cut down, the best of the branches must be used for cuttings. In preparing the cuttings, cut them off about 3 inches long, preferring the wood which is well ripened; expose them for a day or two to the sun, to dry up superfluous moisture, and then pot them either singly in 3-inch pots, or collectively in 6-inch pots. They will root with great freedom if placed on a gentle bottom-heat, and if properly attended to, will be strong plants by the following spring. These are the sort of plants which the cultivator will first commence operations with, and may be purchased in the nurseries at from 1*s.* to 3*s.* 6*d.* each, according to the kind. It may also be remarked, the Kalosanthes is a plant which will not be injured by comparatively deep potting, as it roots freely from the old stem; and therefore, if the old plants, or young ones purchased from the nurseries, are a little long-legged (a fault by far too general in most nurseries), the plants may be potted deep without any fear of their being injured.

Splendid, however, as these plants are when cultivated in pots, there is yet another situation in which they are, if possible, still more brilliant; and that is when bedded out in the flower-garden. Scarlet Pelargoniums make fine beds, and so do scarlet Verbenas, but neither of them will bear comparison with this my favourite plant. If guarded from the mid-day sun, they will also continue to bloom for a considerable period, say from July until the end of September. Their treatment for blooming in the flower-garden is the same as for blooming in pots, that is, they require one year's preparation before they are bedded out; but it may be remarked, it will not be necessary to remove them into pots nearly so long as when grown for specimens; neither need such stimulating compost be used as before recommended; peat and turfy loam will be sufficient, mixed with some rough sand. The plants should be removed into 8-inch pots in the spring, being previously stopped, and through the summer may be grown in a sheltered situation, or in the open air. Winter them as before directed, and bed them out in the flower-garden about the middle of June. It may be thought that the plants would do best during their preparatory season if planted out, but they are liable to grow too fast, and if the autumn is wet they rarely set their bloom abundantly; they are also liable to be injured in taking up. The most satisfactory method is to grow a few dozen in pots every season, and to throw the old plants away after they have done blooming. The kinds most deserving of cultivation are K. coccinea, a scarlet, and a coccinea alba, white; K. versicolor, changing from pink to red; K. nitida, pale red, and sweet-scented; and K. grandiflora miniata, inclining to flesh-colour.

Closely allied to Kalosanthes is another genus called Rochea, one of the species of which is well known in gardens under its old name of Crassula falcata. I never saw a really fine specimen of this plant, but its treatment is the same as that described for Kalosanthes, with the exception that it requires nearly *roasting* at the foot of a south wall in the autumn to make it form flower-buds. In the Paris markets it is produced in great abundance during the autumnal months, and I am informed the Parisian growers get the plants well established in 5-inch pots early in the season, and then place the plants in the full sun, and give no more water than is just sufficient to keep them alive until the following spring. With this treatment they flower abundantly. Perhaps, however, your Paris correspondent can throw some light on this subject, as could also Mr. Falconer, of Cheam, who is a successful cultivator of it. —*Isaac Tomkins, Walton-le-Grand.*

THE POLYANTHUS.

This is the next flower which demands attention, coming, as it does, to perfection early in the spring months. Though not boasting of the diversity of colour which the Auricula possesses, still it appears to be a general favourite; to the inexperienced eye there appears a great sameness amongst the varieties, which florists at a glance distinguish by name. My opinion as to what ought to constitute the properties of a first-rate flower, will be comprised under the following heads:—

1st. *Form*, as in the Auricula, takes precedence. The pip or corolla should rise clearly from the calyx, spreading horizontally; it is monopetalous, though appearing to the casual observer to consist of five or six petals, formed by segments or divisions reaching to the eye, or centre. The less these segments are perceptible the better; so that the starry shape, so objectionable in the Polyanthus, may as much as possible be avoided. The tube ought to be round, as in the woodcut, with a slight rim, or what is usually termed "trumpet-eyed," and filled with five anthers, or thrums, which should completely cover the pistil or female organ; perfect rotundity and flatness of the pip are indispensable qualities; at least those blooms which come nearest to this standard are best. Defects, under the head of form, are, in the first place, a crowded state of the segments (called, *par excellence*, petals), generally apparent when the corolla has more than five divisions. Collier's Princess Royal is an example; it often appears frilled and uneven from the above cause. The segments being carried too far down, causing the flower to have a cracked centre, is also a defect, as in Yorkshire Regent, Hudson's Negro Boy, and some others. Again, too large a space occurring between the petals, detracting from the rotundity of the pips, is a deficiency; and when the thrums do not fill the tube properly, but appear meagre and weak; and, lastly, when the pistil is not hidden by the thrums, causing the flower to be "pin-eyed."



Harmony is the second property for consideration. The width of the yellow eye, from the tube to the inner margin of the ground colour, ought to correspond in width with the dark or body colour—the latter must be regularly laced with yellow. This yellow edging, which is broader in some varieties than in others, should be uninterrupted, forming a straight line through the centre of each division to the eye; on each side, the lacing will curve slightly, following the form of that part of the corolla.

Defects, or Want of Harmony, consist in the centre being too large in proportion to the body-colour, as in Clegg's Lord Crewe, and Hudson's Lady Lincoln, and *vice versâ* in Stead's Telegraph, Hufton's George IV., and some others. Whilst rough coarse lacing is apparent in Lee's (alias Pearson's), Alexander and Nicholson's Gold Lace, though the former can come a splendid flower. A deficiency of lace, or not edging properly, is apparent in Burnard's Formosa, and Buck's George IV.

Colour is the third point. This should be bright, distinct, and well defined; in different varieties it varies, through the shades of black (or nearly so) to red or crimson, the latter colour being most rare. Martin's Prince William Henry is an old variety of this sort, whilst Bullock's Lancer is, perhaps, the best of the more modern red kinds. The colour of the margin is also a material point; this ought to be bright and even, and whether lemon or orange, it should be of the exact shade as the centre, continuing so as the flower fades. Defective properties: under this head are the lacing or margin assuming a different hue to the centre; this is often apparent after flowers have been expanded a few days; bleaching before the pips fade, as in Fletcher's Defiance, Hudson's Negro Boy, and Nicholson's Bang Europe, &c. The centre being tinged with orange, as in the common Cowslip, interrupted or broken margins, not leading through to the eye or round the indentations, ought to be severely scrutinised by the censors.

Uniformity comes next, not only in size, but also in the number of indentations in the corolla of each flower. Five, as before stated, is the usual number corresponding with the five stamens. Still, when all the pips composing the truss have each six segments, such a flower will be placed by judges, but should some have five and others six, it destroys the uniformity, and is a point against the flower thus composed.

Size is the last property; the same requisites are necessary here as in the Auricula, and the directions given for estimating the individual worth of each flower respectively in competition may be adopted by censors with advantage.—*W.*

ACCUMULATIVE SYSTEM OF CULTIVATION.

(*Continued from page* 208.)

Of the plants previously described, two of Brachysema latifolium were started into growth for the first four weeks in a cool stove, and afterwards placed with the remainder in a small lean-to greenhouse looking to the west, but which, from its extreme inclination, the absence of front-lights, the low elevation of the pit, and the still lower position of the front ventilators, admitted a very irregular circulation of air, and required each plant to be elevated upon large inverted pots for exposure to intense light; in other respects, the temperature of the house was controlled solely for their management. During the first four weeks the weather was heavy and cool, and no artificial heat being applied after the first few days, a close and careful treatment was essential to preserve the plants under these conditions. The following rules were observed:—As previously stated, the ball of each plant having been uniformly moistened prior to being potted, syringing morning and afternoon was substituted for watering during the first week, the operation becoming progressively heavier as the surface-soil became dry. Air was admitted early for half an hour, previously and during the syringing, and the house was again closed until an early hour in the afternoon, when the same operation was repeated, and the house closed, with a humid atmosphere from copious effusions of water, and as high a temperature was maintained as the first gleam of sunlight would admit.

About the beginning of the second week, a supply of water was given to each plant, if uniformly dry, equal to its amount of soil. A free admission of air was given for an hour during the first watering, and the external air being still cool, the house was again closed until afternoon, when the same attention was paid to giving air and water over the house, omitting to syringe the plants. After the first watering to the roots, heavy syringing upon the plants was partially relinquished, until the surface-soil and ball of each plant again indicated a due circulation of its moisture. During the first three or four ordinary waterings of the soil, which may be considered the most critical period of management, special attention was paid to affording an increased and intense agency upon the plants, 1stly, by an early and longer admission of morning air; 2dly, by a comparatively close internal atmosphere by day; and 3rdly, by a free admission of air, previously to the house being closed early in the afternoon, with a warm and humid temperature. These precautions were considered essential towards ascertaining correctly how far such arrangements were capable of ensuring a uniform circulation of moisture.

The intervening period between the first and second watering to young plants, subjected to a heavy amount of soil in potting, may be considered the key by which the degree of uniform circulation is to be determined during their entire growth. The practised eye will, however, readily determine from the existing ratio of

circulation (by mechanical and atmospheric agency alone), what will be its probable mean force when the chemical and organic forces of vegetation are called into mutual combination. Care having been thus taken, after the first general watering, to preserve the plants from excessive moisture, by a partial cessation of syringing, and an increased degree of humidity in the atmosphere, until the surface-soil became dry—recourse was again had to heavy syringing morning and afternoon, until about the end of the second week, when an additional watering was given nearly equal to the whole amount of soil, omitting such as indicated a slower circulation until the following day. After the second watering, the same precautions were observed as before, until the gradual evaporation of moisture required a renewal.

The above course was followed for about four weeks, during which time the low front ventilators were open only during the free admission of air in the morning and afternoon, air being admitted by day at the top-lights, as occasion required. From the first week in June, the writer was enabled, by favourable weather, to adopt his intended treatment, by applying the most intense heat and moisture which the plants were capable of sustaining, and which the lateness of the season and the nature of the experiment required.

As the plants commenced a vigorous growth, the general treatment was as follows:—Air was still admitted early; heavy syringings (regulated by the external atmosphere) were given over the whole house, and upon the plants, in proportion to the amount of moisture in the soil, and the house was partially closed for two or three hours; after which, by 10 or 11 o'clock in the forenoon, ventilation was partially increased, and during intense sunlight, an external canvas shade was extended over the house until 2, 3, or 4 o'clock in the afternoon, when it was withdrawn, a partial increase of air admitted for a short time, heavy syringing again applied, with requisite water to the plants, and the house closed at a temperature from 70° to 90°. The plants grew rapidly, equal to the most sanguine expectation of all who saw them. As the object was not so much to gain the greatest extent of growth, as to obtain the most accumulated vigour and uniform bloom, by a due formation of the primary leaf-buds, the foreshoots, or buds, were removed (as the plants progressed) at every second and third axil, or joint, (as illustrated at p. 692, 1843); pyramidally-formed trellises of 18 inches and 2 feet, were now applied to the plants, most of which were uniformly covered with proportionately-matured growth. As the season advanced the plants were gradually exposed to a low and drier temperature, and were finally removed, in August and September, to a deep cool pit, until they were re-housed for the following season.

The final result of this first experiment of potting, which may be considered, perhaps, the most perfect mechanical arrangement of soil hitherto practised, was as follows:—Out of 12 plants, three were lost during the first stage, not having survived their removal. The uniform condition of the remainder may be correctly estimated by the value of those which were sold. When potted in May, the price of them varied from 2*s.* 6*d.* to 5*s.* each; and when they had attained to the growth now detailed, those in twelve-inch pots were disposed of at 40*s.* each; and those in eleven-inch pots at 30*s.* each. As the accumulated produce of a single season's growth, it may detract nothing from their merit to add, that the plants appeared to excite as much interest from their uniform and compact growth, as others by their beauty, when in bloom.—*W. Wood, Pine-apple Place.*

SPARMANNIA AFRICANA.

Amongst the multifarious pursuits which occupy the attention of mankind, the cultivation of flowers is, perhaps, the most delightful and instructive. The amateur who is in possession of a competency, a garden, and a greenhouse, may retire from the stirring and exciting turmoil of busy life, to contemplate the floral productions of Nature, and have his mind soothed and strengthened by their benign influence. Among other things, the cultivation of Sparmannia Africana is well deserving his attention, both from the beauty of its flowers, and its easy culture; the flowers are produced in umbels, and are well elevated above the foliage; the petals are white, and the numerous stamens are particularly beautiful. A very interesting feature of the latter is their sensitiveness. During the months of April, May, and June, when the plant is in flower, on a calm, warm afternoon, when the sun is shining, let the flowers be examined, and the stamens will be found drooping, and crowded together, as if enjoying a tranquil repose; give them a smart tap with the finger, and they will separate and expand in a semi-globular form. The Sparmannia will succeed well, and flower freely, if grown in a small pot. It is a plant of free growth, and when placed in a large pot, it is apt to become naked at the bottom—tall and unsightly. About the beginning of March, select those shoots which are too weak to flower for cuttings; prepare them in the usual way, put each into a small pot, plunge the pots in a gentle bottom-heat, and shade the cuttings until they have taken root. When well established, let them be finally shifted into a 9-inch pot; they will grow well in ⅝ good turfy loam, ⅜ peat, and ⅛ silver-sand. The plants should be encouraged to grow freely in the early part of the season, and the points of the shoots should be nipped off once or twice when growing, to make the plant more bushy, as it is naturally inclined to grow to a single stem. The stopping should, however, not be done later than July; in August the plants should be placed out of doors, in the shade at first, gradually exposing them to the full influence of the sun. This plant will survive the winter well in a greenhouse, merely protected from frost; but if placed in the most favourable situation with regard to light, it will produce a better display of flowers. When done blooming, cut back the branches, in order to induce the plant to acquire a bushy habit; and when the young shoots have just made their appearance, turn it out of the pot, and reduce the ball of soil and roots; when repotted, let it be placed in a frame until it has made fresh roots, treating it in the same manner as plants from cuttings. If a few plants were placed along with early-forcing Pelargoniums, &c., the treatment which suits them would forward the blooming of Sparmannia; and if placed in the conservatory, or where flowering plants are required, it would form no mean ornament in the collection. Sparmannia is an old and much-neglected plant, but it nevertheless well deserves a place amongst our spring flowers.—*Tassel.* [The sensitiveness of the flowers of this plant is new to us. The plant itself deserves all that is said of it.]

COMPOSTS.—No. II.

I will now say a few words about drainage of pots for choice and tender plants, and venture to make some remarks on the propriety of using cut turf in preference to bruised; or, in other words, to recommend the use of turf possessing its native texture in preference to that having an artificial one, which is created by the riddle or sieve. However excellent the system of draining pots, commonly called crocking, may appear, I cannot but think that, in particular cases at least, something more than this mere crocking with pieces of broken pots is required, and may be obtained.

If nothing more than mere mechanical drainage could possibly be obtained, the crocks might for ever maintain their position; but if other bodies can be found, which, in addition to this, will add some nutrition, why not, at least in part, employ them? Such, in my opinion, are charcoal and boiled bones.

Now, seeing that crocks (broken pots), are extremely useful for covering the hole or holes in the bottom of garden-pots, I would merely, in that respect, mention that a single crock placed over the hole is not to be relied upon for plants which are impatient of excess of moisture; for if this crock happens to be rather flat, and sediment of any kind close the interstices between it and the pot, it matters not what drainage is placed above it, or how well the soil may be constituted: stagnation ensues. What I practise, and what I would recommend, is to use three large crocks—the first to be placed half across the hole, and the other two to overlap each other: by this means three bold escapes for water are provided, which will rarely be closed at the same time; and if these three crocks are well protected with the charcoal mixture, as recommended in my former paper, a safe drainage will be insured for years. All Moss, tufts of Grass, &c., in contact with the bottom crock, are defective in point of endurance, however well they may work for a time, and when rotten they furnish an excellent nidus for worms.

The mixed drainage above recommended is, I conceive, equally nutritious with the richest compost—possesses at all times a little moisture, and is in a good situation to receive the influences of the atmosphere. As to whether the roots of plants, in general, will take to such a mixture, I can only say that I have frequently met with roots not only in contact with the exterior of charcoal and boiled bones, but penetrating their whole mass; and the boiled bones being more porous than the unboiled, afford excellent facilities for a shelter to the fibres, where it will scarcely be doubted they are in the land of plenty.

Whole pots inverted are much used for drainage, and very effective they are in that respect alone. However, since one object of pot-culture is to obtain much in little compass, I cannot but regard the inverted pot as an antagonist in the affair.

There is one point to which I would here wish to advert, as chiefly connected with very large shifts, and that is the propriety of using what I call a half-way drainage, especially in very deep pots; the depth being, of course, in opposition to the porosity of the fibrous matter in the pot, on which so much depends. I have frequently tried a thing of the kind, and have generally found that it had a tendency to force one division of the fibres up to the surface of the pot: this is of itself an argument in favour of half-way drainage. There are many plants which, in their mode of rooting, root immediately down to the bottom of the pot, and leave one-half of the soil towards the surface unused.

A better argument, however, in favour of a half-way drainage, in large and deep shifts, is founded on the well-known tendency which water has, as a mere act of gravitation, to carry down decomposed matters, and thus progressively to close the interstices, or "breathing-places," of the mass of soil; and this is in proportion to the depth, together with the amount of soluble matter existing in the soil. In using this half-way drainage, in the case of large shifts, I generally use a single layer of the charcoal mixture No. 15, in my former paper on this subject, and then tightly press another layer of turf squares, in a dry state, over this mixture; after which I fill up with the regular compost as before. I have tried this repeatedly, and have always found it efficient, with regard to the end in view. It may not be so well adapted to cases wherein the only object is rapid growth alone, but it is to be recommended for its adaptability to plants which have to remain for some time in their pots or tubs.

I now come to the subject of cut squares, or lumps of turf possessing their native texture. It is not, I imagine, necessary to prove that this is altogether, as to its mechanical effects in the transmission of moisture, a very different thing from what I term bruised or disintegrated turf, which is a sure consequence of the common mode of breaking up composts, together with a free use of the riddle. This will, I think, be at once admitted. From the somewhat angular shape of these squares, coupled with their entireness in point of texture, it will be obvious that they are favourable to the escape of superfluous moisture, to the free admission of atmospheric influences, and to progressive and long-enduring nutrition. If used in a dry state, and prepared according to Nos. 11 and 12 of my former paper, they will, I conceive, be found extremely useful for effecting the above ends. They are cut by the spade; a given turf is merely cut through in parallel lines, an inch or two apart, and then served the same transversely, after which (they being perfectly dry), a shake or two in a riddle of half-inch mesh will readily disengage any amount of mere soil, and leave the respective lumps or squares open and porous for the free percolation of moisture and atmospheric influences.

Thus for plants which like peat, the peaty squares may predominate, and for those which require loam, the loamy squares may be the most abundant. For large single shifts, and for specimen plants in large pots or tubs, such as Oranges, Camellias, &c. &c., I have proved these squares to be excellent; and especially when used in connection with a system of administering manures in a liquid state, which, from their known tendency to close the pores of the soil—even when clarified—require a counteracting power, to secure a free percolation. It may also be presumed that from the great similarity of all vegetable or organic matters in a state of decomposition, that less of both peaty and leafy or vegetable soil will be required in the compost; and if so, this is a gain in point of permanency at least, as vegetable matters are capricious, and not to be relied on like the organic matter of loams, when containing their native texture. These squares also, as I have proved, possess another important property, if prepared as here recommended: they are incapable of injurious extremes as to moisture—they are never very wet and never very dry; a slight watering moistens their exterior and passes away—a heavy watering cannot saturate them. To guard against misunderstanding, I must here add, however, that I do not fill the pots in question entirely with these squares; I use a mixed compost as well; this compost is presumed to be complete in point of both texture and quality, but is considered more durable and progressive by the introduction of the squares. The point I aim at is to introduce these squares alternately with the mixed compost, until within two or three inches of the top of the pot; and the last layer is completed by the compost, taking care, in case of plants very impatient of moisture, to introduce less or more of the "half-way" drainage. These directions, however, refer more especially to large shifts.

I find it an excellent plan to use a little fine charcoal through all the mixed composts; and for this purpose the smallest fragments, excepting the mere dust, is proper. Fresh burnt wood and vegetable ashes are also great improvers of soils, used in small proportion; and it is not altogether improbable that as these matters come more into use, sand may grow somewhat more into disuse, as the latter may be considered a loss in point of bulk in a garden pot, as far as nutrition is concerned, compared with soil.

I am in the habit of using liquid manure very frequently, and I find this of great benefit, more especially when the compost for the plants is prepared with a reference to its use; that is to say, more fibrous and open. I use only one kind, which is prepared thus: Four handfuls of guano are stirred well in a large watering-pot; this is left to settle all night, and is strained off in the morning, when it is perfectly clear; all sediment is cautiously avoided. To this, then, is added about two quarts of cow's urine, which has been in the tank for a week or two; and a little of this prepared liquid is poured into every water-pot, as it is filled, just enough to colour the water—say about a quart to a large watering-pot of clear water.—*Robert Errington.*

CHICORY.

The paragraph (p. 169) by Mr. Cuthill, recommending Chicory as a winter salad, brought to my recollection an effort I made 18 years ago, through the medium of our lamented friend Mr Loudon's "Gardeners' Magazine," to induce the London market-gardeners to supply its inhabitants with this most wholesome vegetable as abundantly as is done at Brussels, where I then resided, and where the poorest man for a penny may have a bowl of it every day from December to April; and as I still retain my opinion, that if properly brought into notice, as much of this salad might be sold in winter here, as of Rhubarb in spring, to the great advantage of the pockets of the growers, and of the palates and health of the consumers, I will, with your permission, recapitulate the substance of what struck me at Brussels as to the merits of this plant, and the feasibility of offering it *forced*, and perfectly *blanched* at a very moderate price, through the winter. Towards the close of autumn the Brussels gardeners take up their Chicory roots, often grown in distant fields, partially cut off the leaves, and cart them to their homesteads. Here they range them close together, side by side, in a vertical position, as if growing, on any vacant piece of waste ground, or even a paved yard, in plots of 5 or 6 feet square,

and then throw over and among them sifted mould so as to fill up the slight interstices between the roots; and, lastly, cover them with straw to protect them from frost. As soon as winter sets in, and the season for Chicory salad arrives, one or more of these plots of roots, according to the supposed demand, has the loose straw removed, is well watered, and more earth added if necessary, and has then hot manure applied to the sides and top, being there kept from immediate contact with the leaves by the interposition of a little clean straw. The plot being thus converted into a sort of hotbed, the heat penetrates into the interior, sets into motion the true sap (or whatever is the received name for the matter accumulated for the support of the future leaves), which, absorbing the moisture necessary for its dilution, from the adjoining wet mould, causes the young leaves to shoot out, and these, when of sufficient size, which they are in a few days, are cut off, and being perfectly blanched, or rather, as Mr. Cuthill says, "of a beautiful cream-colour," are ready for sale. What chiefly struck me in observing this process in my walks among the market-gardens at Brussels, was its applicability to London, on two accounts; first, from the facility of obtaining the roots from a distance; and, secondly, the abundance of cheap fermenting dung which London offers. The Chicory roots might be grown on low-rented land 50 miles from London, and conveyed thither by water, and might be bought by the market-gardeners, and forced on any waste piece of ground; in fact, every mews, were it not that its proper destination would be interfered with, might be applied to the forcing of Chicory; and every one with a bit of garden behind his house, by buying a few hundred Chicory roots (which might be sold at Covent-garden as Cabbage plants are), and a load of fermenting manure, might have the pleasure of cutting his own salad every day in winter, and the spent manure would serve to fertilise his garden; or, as Mr. Cuthill suggests, he might even force them in a few garden-pots in a warm closet or cellar. What I am anxious to see is, the cultivation of Chicory so extensively carried on for the London market, and for that of other towns, as not merely to supply a luxury to the upper and middle classes, but to the working-classes a grateful and salutary addition to their dinner-table in winter and early spring, when other salads, from their high price, are mostly out of their reach. The only objection that has occurred to me, in the way of the general use of Chicory salad, is that it might seem at first too bitter for some English palates; but I am glad to find, from what Mr. Cuthill says of its approval by the families for which he has grown it, that this objection has no weight; and in fact the slight excess, when compared with Endive, of bitter flavour, becomes, after twice or thrice eating it, rather a recommendation, as it ought to do, since this bitterness implies valuable tonic properties. In short, all that is wanted is, that some spirited London gardener should grow it, and the upper classes patronise and bring it into fashion; and there seems no reason why, as above observed, a new demand for this vegetable should not spring up, as extensive as that for Rhubarb, and prove as beneficial both to the growers and consumers. As large quantities of Chicory are now grown in Suffolk and some other parts of England, for the sake of the roots, to be used when dried and ground as a substitute for Coffee, it would be very practicable, if a demand for them for furnishing salads were to arise, to obtain them by water-carriage, at a moderate price for forcing; the Chicory salad trade being thus subdivided, according to my original idea, into two branches, that for supplying the roots from land of a lower rent than near London, and the other, that of simply forcing and selling the leaves by the London market-gardeners; this subdivision of capital and labour, as is usual in similar instances, leaving a greater profit to the producers, though derived from a lower price to the consumers.—*W. Spence.*

Home Correspondence.

Glass.—Your information and advice respecting glass is one of the greatest benefits that has been conferred on the public since the commencement of the *Chronicle*; but it appears very desirable that you should also urge the necessity of returning to the thickness of crown glass, as in use for garden purposes as well as in dwelling-houses, 50 years ago, which was certainly three times greater than what has recently been made use of, in consequence of the duty being taken by weight. Whether the strength should be defined by the weight per superficial foot, or some familiar gauge should be adopted for ascertaining the thickness, I leave to your better judgment.—*An Old Subscriber.*

Glass Tiles—Feeling the value that the cheapness of glass may be of to all who have gardens, and being also grateful to you for the information your pages are affording as to its application, and the prices at which it ought to be supplied, I venture to suggest a form in which it may probably be useful for horticultural as well as other purposes, not hitherto, I believe, known in England, though common enough in some parts of France. There it is moulded into tiles of the shape of those here called pantiles, and thus by introducing a few of those among the earthern ones, any shed or upper floor of a building is amply lighted without any of the expense of window-frames, glazing, &c. In this manner the sheds which in a large garden are found so useful, may not only be rendered more convenient and cheerful in their appearance, but might probably be adapted to stowing and preserving many kinds of plants during winter, for which such kind of protection might be sufficient. But further, if wall fruit-trees are to be guarded from frost in the early spring, or the ripening of Grapes to be forwarded in the summer; or, as one of your correspondents has proposed, Apricots and Peaches are to be grown as espaliers under screens of glass, how easily and cheaply might this be done by the use of glass tiles such as I have described. The simplest kinds of frames crossed with common pantile laths, which the least skilled carpenter could construct, or any intelligent gardener would make for himself, would be all that would be required if placed in a sloping position against walls, or leaning one against the other, and properly secured from disturbance by wind. If tolerably accurately moulded so as to fit pretty well, a covering of this kind might answer for pits and Melon-frames, and there would be little occasion to have sliding sashes in any case, as air and water might be admitted by merely lifting out of their places two or three of the tiles, or by raising the lower ends of a few by wedges. For other operations a compartment might be lifted off, or in a few minutes as many tiles might be displaced as to afford opening enough to do what was necessary. These tiles are made in France of the thickness of about a quarter of an inch, and are therefore pretty strong. If made of bottle-glass they would, I conceive, transmit sufficient light, and ought to be very cheap. If this should meet the eye of any glass-manufacturer who would be inclined to make them, he would oblige many who may wish to try them, by informing us where they may be had in London and at what price. Bell-glasses of bottle-glass for flower-borders, &c., were formerly in use; but I have not seen them for many years; may this have been owing to some excise regulation? and if so, may we not now expect to have them, and at a cheap rate?—*A Constant Reader, Kensington Gravel Pits.*

Morphology.—In reading a book of the beginning of the last century, entitled "Morton's Natural History of Northamptonshire," I came upon the following passage:—"Of a Rose (if I may call it so), which I found in Mr. Bacon's garden, of Burton Latimer, the leaves did not come altogether in a cluster, or head, upon a footstalk, in the usual way; but dispersedly upon a branch of the Rose-tree, which, with this attire of flowers upon it, resembled, at a transient view, the spike of some verticillated plants. There was no appearance of any husk or calyx. The middle part of some of the flowers was, in substance, the same with the leaves of the branches; and others of them were prettily striped with the same sort of foliaceous substance, and seemed



to be composed, about one-half of them, of the same matter that the leaves of the tree consist of. At the bottom of the spike (if it may so be called) was one single leaf of the flower—such as it was—and opposite to it a branch of the Rose-tree." My reason for transcribing the above passage is, to inquire if I may look upon it as an instance corroborative of the truth of Morphology, — in which the petals were actually in a transition state, or whether it was a mere sport of Nature?—*A Sub., but εἰς τῶν ἀσυνετων, Northampton.*

[This was a case in which the axis did not, as usual, stop growing while the petals, &c., were forming round it; but suddenly lengthened when the metamorphosis was half complete, and carried up upon its surface the organs in an intermediate condition. The annexed cut represents a case of a similar kind; but not quite so remarkable.]

Cambridge Botanic Garden.—Since you wish me to give you some sort of general statement of the manner in which the election of a Curator to our Botanic Garden last week took place, I do this with very great pleasure, because I consider the steps that were taken by the Trustees of the garden were most disinterested and judicious. The appointment of a Curator (as well as the general superintendence over the interests of the garden) is vested, by the will of the founder, in the Vice-Chancellor, the masters of Trinity and St. John's, the Provost of King's, and the Regius Professor of Physic. The first step which these gentlemen took was to request the conductors of some of the principal Botanical establishments to name to them candidates for the office, who should possess testimonials to their competency of not only conducting, but of forming a new garden. Your having made public their request in the *Gardeners' Chronicle* induced several candidates to come forward from other establishments than those to which application had been made. After a careful inspection of the testimonials of all the candidates, the Trustees selected five from among them, whom they invited to Cambridge, in order that they might form by examination a more precise opinion respecting their relative proficiency on some points of importance beyond their qualifications as practical gardeners. I was entrusted with this inquiry; and I am desirous of bearing my humble testimony to the good spirit in which they submitted themselves to this scrutiny. Questions were put them, to which they returned written answers. Mr. Babington and myself tested the comparative value of these answers. I then made separate inquiry of each of the candidates, respecting his notions of how a botanic garden should be arranged. The result of this examination was then laid before the trustees, who themselves inspected some portions of the answers and plans that had been returned to me; and after due deliberation, they announced their choice to have fallen upon Mr. Murray, of the Liverpool Botanic Garden. The names of the five candidates selected by the Trustees were Murray, Gibson, Moore, Hume, and Catling. In addition to these Mr. Maitland was permitted to enter the lists, as he had come to Cambridge from a considerable distance, entirely at his own expense, and was most favourably recommended to the notice of the Trustees. The opportunity which I have had of testing (I think satisfactorily), the extent of intelligence and general information of these six candidates, has served to impress me with a very favourable opinion of what must be the degree of skill and education now abroad, among the superintendents of botanical and horticultural establishments; and I consider the six persons above-named to have fully justified the testimonials they had received, by the manner in which they passed their examination.—*J. S. Henslow, Cambridge.*

Mildew.—With regard to mildew, especially as attacking Roses, do you not think it depends more on the state of the root than anything else? Last year I watered a number of newly-planted Roses with some highly concentrated liquid manure, before their roots had taken a firm hold on the ground. The consequence was, they were all mildewed to a very great degree, and on examining their roots last autumn I discovered that, in those especially which had shown most mildew, the large roots were rotted in many places, I imagine from the effect of the manure, and were covered with filaments of a whitish mould. The seeds of this I believe to be taken up by the absorbing vessels of the roots, and deposited by the sap in the branches, especially in those where the circulation happens to be languid. The remedy would therefore be, carefully removing all decayed parts of the roots, and preserving the circulation in an active state.—*J. P. H.*

The Cuckoo.—Mr. Kidd, in common with many others, appears to have been unacquainted, previous to his reading the letter of "Quercus II.," with the fact, that the cuckoo sometimes deposits its eggs in the robins'-nest, and some writers have gone so far as to deny that it ever has been the case; the following facts will, however, add to the testimony of "Quercus" on this point:—It is now more than 20 years since I was a regular bird's-nest hunter, and very few of their haunts escaped my vigilance. One morning, in the month of April, I discovered, in the hole of an old Damson-tree, the nest of a robin which, to the best of my recollection, contained only one of her own eggs, and another of a different bird. This excited my curiosity so much, that robin redbreast was favoured beyond the feathered tribe that came within my reach; and I allowed the two eggs to remain undisturbed, in order to know the result. In the course of a short period the egg of the robin was not to be found, and from the remaining one I was surprised to find that my robin brought forth a fine cuckoo, which she nourished with unceasing care, till it became quite feathered, and could hop about a little. Pleased with my pet bird, I procured a wicker-cage, which, while it preserved my cuckoo from flying away, permitted the robin to enter and feed it, which she did for a long time. My cuckoo was an object of great curiosity to all friends who came to my father's house, and I paid it great attention. One morning, however, on opening the door of the cage, as it hung near the old Plum-tree, my cuckoo flew out and ran along the ground with great speed; while I, in my eagerness, not desiring to lose my curious friend, followed in haste. Cuckoo stopped suddenly, when I trod upon it, and killed it instantly, depriving myself of the expectation of hearing the note of the cuckoo sounding from my wicker cage, the following April.—*A., St. John's-Wood.*——The robin, the hedge-sparrow, and particularly the titlark are mentioned as acting the part of foster-mother to this bird; but I very much doubt if the robin ever takes any part in this matter, as it is a bird which breeds at a much earlier season in the year than that at which the cuckoo visits us, and is, therefore, likely to deposit its eggs. I will now mention another bird which, I doubt not, many of your readers, as well as myself, have observed bringing up the young cuckoo. Three or four years ago being on a visit to a friend in Dorsetshire, in the latter part of the month of August, while sitting in a room fronting the lawn of the garden, I happened to see a pair of wagtails tending a young cuckoo. It certainly amused me not a little to watch these two small birds feeding such an overgrown baby. They, however, seemed highly delighted with their adopted offspring, though they were kept in pretty constant employment, in order to satisfy the cravings of his voracious appetite.—*W. W.*——I beg to corroborate the fact of the cuckoo (cuculus canorus) depositing its egg in the nest of the common titlark. During the last summer I was witness to three

young cuckoos being taken from such nests, and strange to add, that in each instance the nests were by the side of the Hull and Selby Railway, where trains are continually passing and repassing. I am certain from my own observation that the cuckoo does not deposit her eggs indiscriminately in the nest of the first bird that comes in her way, but searches for a congenerous nurse with whom to entrust her young. Accordingly we never find the young of this interesting bird in any nests except such as belong to soft-billed insectivorous birds; and the extreme difference in the peculiar organisation of the digestive apparatus, in soft and hard-billed birds, completely precludes the possibility of both becoming good foster-parents. The food of the cuckoo consists of the common dragon-fly (libellula) spiders, maggots, &c., and various seeds. It has been a puzzle to philosophers to ascertain the reason why the cuckoo does not perform the office of incubation herself.—*H. I. Raines, Newport, Yorkshire.*

Effects of the Winter in Devon.—For nearly half a century the south of Devon has not been visited with such intense cold as occurred during the early part of the month of March. Being absent from home, the exact degree was not tested in my garden, but it was sufficiently severe to freeze the neighbouring estuaries; and consequently the injury to our tender plants has been great. Among the shrubs in my own grounds that are either entirely destroyed or killed to the ground are three splendid specimens of Acacia—dealbata, melanoxylon, and a broad-leaved variety of verticillata, which never had a leaf injured before, though wholly unprotected; they were planted, but not trained, against east or south walls, and the former was more than 30 feet in height, and in the month of April literally a mass of bloom. Many other species of smaller size have likewise perished, as have Leptospermum grandiflorum, Comarostaphylis arbutoides, Arbutus canariensis. three tender species of Cytisus, Corræa virens, and Hydrangea japonica. The following having survived such a season, may, I think, be classed among those shrubs that are actually acclimatised in this district, though a few of them have had the foliage slightly injured. Arbutus tomentosa, Ceanothus thyrsiflorus, Magnolia Harwicus (?), Tasmannia aromatica, Eucalyptus alpina, Corræa rufa, Viburnum odoratissimum, Poinciana Gilliesii, Grevillea sulphurea and rosmarinifolia, Fabiana imbricata, Ozothamnus multiflorus, and the beautiful Japan Lilies. Rhododendron Rollissonii, zeylanicum, arboreum album, a. roseum, and a. Roylii; cinnamoneum, campanulatum, and campanulatum roseum have stood well; and all the hybrids from arboreum and a. album are uninjured both in foliage and flower-buds; but the hybrids from cinnamoneum have suffered a little; Rhododendron Smithii aureum has lost its leaves, and Azalea indica phœnicea is much hurt. My Lemons, Oranges, Citrons, and Shaddocks under a frame of reed, are more injured than I ever remember them to have been, but those under a frame of wood have received no damage.—*A Devonian.*

——It will be interesting to your readers to learn the difference of climate in Cornwall, exemplified during this last winter. Last February twelvemonth I planted Rhododendron arboreum, Azalea indica alba, phœnicea, pulchra, and two of Danielsiana, out in the open border (which consisted of some rough turfy peat, without any sand at all), facing the north-east; and though these are not showing flower (which I attribute partly to their being under the drip of a branch of a large tree, which made them very dirty and smutty), they are very healthy in foliage; and the only one (or two) at all cut by the continual east wind is Danielsiana, which, though at present looking a little wisht, I have no doubt of recovering. When I removed them from the bed in which they had been first planted, in order to avoid the drip, I found that they had all made fine strong fibrous roots. There are several cases of A. indica alba succeeding in the open border here, even better, if possible, than in a greenhouse, and flowering in profusion. I was told that it was the only one that would succeed, but I am happy to say that I have proved the contrary; and I think this winter has been a very fair trial.—*C. C.*

Worms.—A few weeks since, one of your correspondents noticed the habits of the earth-worm, as indicative of change of weather. After the late frost a friend noticed, during the thaw and before the rain, many conical heaps of gravel stones very cleanly taken up, some from distances of 9 or more inches, and piled up from 2 to 3 inches in height. On removing the stones (some weighing from 2 to 3 ounces) a worm hole was invariably found. Is this common, and have any of your readers ever seen worms carrying these stones? If so, it would be interesting to learn how it is accomplished, and whether the heaps are made as a protection from approaching rain, of which this worm has instinctive knowledge.—*Anon.*

Misletoe.—In that beautifully picturesque park, the seat of Sir W. Heathcote, Bart., M.P., at Hursley, are some very fine specimens of this growing on various kinds of trees, but particularly on the White Thorn. The most magnificent specimen, however, perhaps in the world, is at East Tytherly, where there is a splendid Lime tree, beautifully studded with fine bushes of Misletoe, offering a striking proof (in this instance, at least), that this parasite does not injure the growth of timber, even when multiplied to an astonishing extent.—*Quercus II.*

Performance of Boilers.—After reading the reports of the performances of boilers (p. 210), I cannot help feeling impressed with the conviction that, however correctly such performances may be registered and reported, yet such report may convey very uncertain and inadequate relative data for correct judgment as to the economical performance of any given apparatus. It is true that the skill of the engineer is shown in properly adapting his apparatus to the precise conditions of the structure to be operated upon; but how frequently are the best efforts and judgment of the skilful mechanic defeated by the parsimony of the employer—bad glazing, exposed situation, inferior fuel, improper management, thin glass, badly-fitted sashes, &c. I have experienced cases where one foot of 4-inch pipe to the 100 cubic feet of space to be warmed produced a tropical temperature; and I have also witnessed situations where three times that quantity was insufficient to produce the same amount of temperature; therefore the same apparatus in one case would be pronounced a wonderful one, and in the other a failure. The public have to depend in a great degree for a correct account of the merits of apparatuses in general upon the *ipse dixit* of their manufacturers, or the too often empirical knowledge and judgment of the parties using them. It is universally admitted that horticulture owes much to the anxious and unremitting exertions of the engineer or other scientific individual, who in all new discoveries of this kind has frequently to endure a long probation of sad disappointments and vexatious failures before experience has taught him the right method, and too often the whole fruits of many an anxious day, and sleepless night, has proved a golden harvest to those only who follow, without one effort of the mind whatever. How often the correct working of a really good and well arranged apparatus is entirely defeated by the neglect of a workman in omitting to place a simple air-pipe in the proper situation, by a want of proper level in the pipes, by a careless bricklayer leaving obstructions in his flues, which the most ordinary care or forethought would have avoided, or being compelled to work into old and imperfect flues already existing, those only know who have had much experience in this department of the arts. I would suggest that all these difficulties might soon be brought to an unerring certainty, and a correct conclusion be arrived at, as to the particular merits of the various apparatuses now in general use. I would recommend the Horticultural Society (ever foremost in the furtherance of the true interests of horticulture), or some other public-spirited body, having the eliciting of truth for their sole object, to have a good serviceable span-roofed house erected, of useful proportions, and within it placed a given quantity of radiating surface, in whatever form deemed most useful, and along one side of it a convenient furnace-place, in which any reasonable number of boilers could be erected. I would have the pipes with connexions so arranged that any reasonable number of boilers could be attached, under precisely the same conditions (easily done); I would then invite all boiler-makers to come in, and at their own expense and cost, erect and attach their peculiar arrangements, with such connexions as to enable each boiler and flue to be cut off from the pipes or other apparatus within the house, so that each furnace could be fairly tested. I would then appoint one or more experimental chemists of undoubted standing and experience, with a civil engineer or other uninterested person, to conduct and report a faithful series of experiments. I would have the whole number worked consecutively with the same fuel, viz., the whole tried first with ordinary bituminous coal, then the whole series with anthracite, then with coke, then with cinders and other rubbish (too often the only fuel consigned to the use of the gardener), and lastly I would have them tried with wood as fuel. I can scarcely imagine that any other series of experiments would be more serviceable to horticulture at this particular period, now that the science of gardening and the cultivation of tropical fruits and exotic plants have become so all-absorbing a pursuit; and more especially now, when Sir Robert Peel has thought it prudent to remit the duty upon glass. I, for my part, would be most willing to subject my apparatus to such an ordeal, not with any overweening confidence as to its particular merits, but that the truth might be arrived at—feeling perfectly satisfied that the true interest of all parties concerned in the erecting of such apparatuses is in ascertaining and adopting the best, and most generally useful plan; for it is quite possible that the most economical in fuel may not be the most economical in time, management, and durability; and I would make it a condition that the best apparatus should be left attached to the house, as a reward to the successful candidate—as a monument of his skill. No particular interest would suffer, as all parties would be amply rewarded by the experience they would gain, for all the present forms of apparatuses are quite open to the use of all parties. Of course, all the expense of proving and reporting should be borne by the parties benefitted. —*A Boiler-maker.*——*Mr. Edwards, Southampton,* remarks—speaking of Burbidge and Healy's boiler, which heats a house 30 feet in length, 9 feet in width, and 8 feet in height—"We manage the fire admirably; it is never touched but twice in the 24 hours, and it frequently burns 14 or 15 hours beautifully, and has not been out once during the winter. We now use the coke whole, and do not break it at all; for it burns better, when well managed, whole, than if reduced to the size of an egg—that is to say, the fire is stronger, and lasts for a greater length of time. A great deal depends on the good management of the fire, and, with a little attention, the secret will soon be found out. Of course chimnies differ so that no fixed rule can be laid down on this head for the exact guidance of others. A ton of coke for a house kept up to 75° at all times, as mine is, will last 68 days; once it lasted 70—never less than 65; and I feel sure that the difference arose from the quantity, and not from any variation in the consumption. For the sake of exactness, I estimate a ton to last 10 weeks, which, at 20*s.* per ton, is 2*s.* a week. The turning of manure for a pit, 30 feet in length and 9 feet in width, would take three days every week, to say nothing of the hauling and putting it round. For cheapness, therefore, there is nothing to be compared to hot water, well applied. I give the result of my winter's experience, in order that the exact particulars may be known."

The Toad.—Seeing an inquiry in the *Chronicle* relative to the equestrian exercise practised by toads on their mothers, I beg leave to state, upon frequent observation, that when the old one is weak and unable to defend herself the young ones, sometimes even to the number of four or five, mount the poor creature, and in the most merciless and barbarous manner, as it would seem, insert their fore-feet into its sides, and thus pinch and squeeze it to death. I and several others who can vouch for the truth of all I write, have on a fine spring morning seen on the banks of a pool of water I should think at least 50 mangled remains of toads, truly a most shocking spectacle, and in some respects too horrible to relate. I am no naturalist, but if asked, should state it as my opinion that the reason of this devastation must be that toads would multiply to an alarming extent were their deaths not thus accelerated by their tender and grateful offspring.—*J. M. R.*

Age of Trees in Greenwich Park.—Mr. Jesse, surveyor of the royal parks, says, in his "Gleanings in Natural History"—"The trees which at present form so much of the beauty of Greenwich Park were planted by Evelyn, and if he could now see them he would indeed call them 'goodly trees,' at least some of them. The Chestnuts, however, though they produce some fine fruit, have not thriven in the same proportion with the Elms." This will help to fix the date of the planting of the Chestnuts in this park.—*C. A. Johns, Helston.*

Gold-fish.—I have watched with some interest the answers to the inquiries of the lady whose gold-fish were furred with a kind of moss, that no doubt has by this time proved fatal to them. I have observed that gold-fish supplied with water from certain wells have invariably become furred in a very short time, and unless removed into different water have died; whereas I have known them to live 12 months at least in water drawn from wells in chalk, without any signs of wasting. In general they will not live longer than 12 months in a globe, however well attended to, and with the most suitable water, which ought to be changed daily, or oftener, for four or six fish, and the globe should be well cleaned each time. As prevention is better than cure, my advice to the lady is, to procure a different kind of water: pond or river-water is the best, rain-water from tubs will not do; if pond or river-water cannot be obtained sufficiently clear, get spring-water out of chalk, or gravel free from iron. To encourage the lady to try the latter, I may mention that I know of three basins which have been filled with fish for years without any casualty: two of them are about 6 feet in diameter, and are supplied with water, one from a well in the chalk, and the other from the New River: the third is of larger dimensions, and only 18 inches in depth; a well in the chalk supplies this.—*J. S., Epsom.*

Wasps.—We have killed, within the last week, in the garden and adjoining field, more than 30 wasps. The locality 10 miles from town, on the road to Dartford. —*Este.*

Societies.

HORTICULTURAL SOCIETY OF LONDON.

May 1.—The 36th Anniversary Meeting was held. From the Report of the Auditors it appeared that the Society had succeeded in discharging their bonds bearing five per cent. interest, by the issue of promissory notes at four per cent.; and that the debt was reduced in the course of the year to the extent of 1579*l.* 5*s.* 9*d.* It was announced that a new Part of the "Transactions" was ready for delivery; after which a Report by the Council on the condition of the Society was read, which Report Col. Challoner trusted that the Council would order to be published. The meeting then proceeded to the election of Council and Officers for the ensuing year, when J. R. Gowen, H. Pownall, and C. B. Warner, Esqrs., were elected new members, in the room of Sir Oswald Mosley, Bart., R. H. Solly, Esq., and Alexander Henderson, M.D. His Grace the Duke of Devonshire was re-elected President; Thomas Edgar, Esq., Treasurer; and J. R. Gowen was elected Secretary for the year ensuing.

BOTANICAL SOCIETY OF LONDON.

Jan. 3.—The President in the chair. Mr. S. Gibson presented a specimen of Scirpus acicularis (Linn.), with much larger stems than ordinary. The culms formed a dense tuft, about 14 inches high. Mr. Fitt presented specimens of an Œnanthe, commonly considered Œ. pimpinelloides by the botanists of Norfolk. It is the Œ. Lachenalii (Gmel), of Babington's "Manual," and the species confused with, or mistaken for, the true pimpinelloides, by most other English botanists since the time of Hudson. Four of the specimens were selected for the Society's herbarium, as showing variations from the normal character of the root. Some of the tubers were branched; some approximated to those of Smith's "peucedanifolia," in being thicker and shorter than ordinary. On one specimen the external fruits in the umbellules

are very slightly contracted at their base, the ridges being confluent, and forming a ring, much like the callous base of the fruit in the true pimpinelloides. The specimens were obtained from salt-ditches near Yarmouth. The Secretary called the attention of members to a series of specimens of Dryas octopetala (Linn.), which had been sent to the Society some years ago by Mr. Tatham, from Arncliff Clouder, Yorkshire. The sepals or lobes of the calyx varied considerably in length and breadth; on one specimen the length was scarcely twice the breadth; while, in another, the length was four times the breadth. The convexity of the base of the calyx also varied much. He reminded the meeting that Mr. Babington had described a second species of Dryas (D. depressa, Bab.), found in Ireland, and distinguished from the well known D. octopetala by exactly the same characters which these specimens proved to be within the range of variation of the true D. octopetala. He had not seen any example of the D. depressa described in Babington's "Manual," and could not speak with certainty about its claims to be held a distinct species; but the published characters by which it was attempted to be distinguished from the better known species, were scarcely sufficient with these examples before the Society. When a series of specimens of D. octopetala are examined, it will be seen that the sepals are usually broader in those which are more advanced in the fruiting stage, as compared with others just opening into flower. Of the specimens before the society, the one having the broadest sepals was advanced in fruit. But it was proper to observe, that on this specimen a single sepal was longer than the rest, and had apparently been white and petal-like at its extremity; it might therefore be held an aberration, rather than a healthy variation from the normal form.

BOTANICAL SOCIETY OF EDINBURGH.

The Monthly Meeting of this Society was held in the Committee Rooms, 13, Queen-street, on Thursday the 10th ult. The Vice-President in the chair. A valuable donation to the Herbarium was announced from R. Brown, Esq., London, consisting of South American plants, collected during Captain King's voyages. The special thanks of the Society were voted to Mr. Brown. J. R. Oliver, Esq., was elected a Resident Fellow of the Society. The following communications were read:—1. On a monstrous variety of Gentiana campestris. By Dr. Dickie, Lecturer on Botany, University and King's College of Aberdeen. 2. On the Correct Nomenclature of the Lastræa spinosa and L. multiflora of Newman. By C. C. Babington, M.A., F.L.S., &c. 3. Dr. Balfour read an account of a botanical trip to the Mull of Cantyre, and the island of Islay, undertaken with his pupils in August, 1844. He gave a general account of the geological features of the districts, and noticed the more important plants which were picked by the party.

MICROSCOPICAL SOCIETY.

April 23.—J. Birkett, Esq., in the Chair. A paper by J. S. Bowerbank, Esq., F.R.S., &c., entitled "Description of a New Genus of Calcareous Sponges," was read. The subject of this paper was found attached to the stem of a new species of Coralline, received by the author from Mr. G. Dunsterville, Surgeon, of Port Elizabeth, Algoa Bay, after whom it has been named. It was found on the beach at Cape Receif, about 10 miles from the town. Its description is as follows:—Dunstervillia. Generic character—sponge calcareous, outer surface arranged in polygonal plates or compartments; body composed of simple straight, angulated canals, radiating from the central axis of the sponge. D. elegans—Sponge sessile, sacculate, compressed; ventral orifice single, terminal, surrounded by a single or a double fringe of erect, simple asbestiform spicula. External oscula indistinct. Spicula of the body simple, double-pointed, triradiate. Although closely approximating to the genus Grantia of Dr. Fleming, its structure is so peculiar as to justify the author (in his opinion) in making it the type of a new family; and the more so, as, although he is acquainted with no recent analogue, yet there is a fossil to which it appears to be very closely allied. The fossil alluded to is the Sphæronites tessellatus, the outer surface of which presents a tesselated structure closely resembling this sponge. It must however be remarked, that there exists much doubt as to the real nature of this fossil, but as the external appearance of the plates or compartments in it is precisely like that of the recent sponge, and as certain peculiarities of the internal structure are apparently to be met with in both, and also as the microscopical examination of the outer and inner surfaces of the fossil present appearances which strongly favour the idea of its spongeous origin, Mr. Bowerbank does not hesitate in referring both to one and the same genus. A second paper by the same gentleman, being a description of a new genus of Freshwater Sponge, was also read. The singular and highly interesting sponge, whose description forms the subject of this paper, was found at Tenby, S. Wales, by a poor man who collects freshwater shells to sell to the visitors. It occurs in a large muddy ditch in the vicinity of Tenby, which, although very near the sea, has no communication with it. To this sponge Mr. Bowerbank gives the name of Somatispongia, and its generic and specific descriptions are—Sponge, with a central, round or oval coriaceous body, surrounded by three-winged, keratose fibres, which spring from its surface. S. pulchella—Sponge free; body covered with reticulations, the areas of which are depressed, furnished with two mammæ opposed to each other, either in the long or short axis, in the latter case with a deep sinus intervening: fibre flexible; reticulations polygonal, without interstitial fleshy matter or spicula. This beautiful little sponge is more or less of an oval form. It rarely exceeds half an inch in length from one extremity of the fibre to the other, and the central body is about four lines in length. The fibres are of a greenish amber colour, the body partaking of the same hue, but much deepened by its greater degree of density. When denuded of its surrounding fibres, the body appears to be divided into numerous nearly equal-sided polygonal areas, which are most frequently five or six-sided. From the angles of these reticulations, the fibrous structure springs, preserving the same form of reticulation as that of the parent surface. Its internal structure also presents many interesting peculiarities, which were fully detailed in the paper.

ROYAL INSTITUTION.

April 25.—The subject of Anastatic printing, to which the attention of the public has been called by the somewhat too broad announcement of its projector, was introduced to the meeting by Prof. Faraday, calling attention to the two distinct characters in which he had from the commencement of these meetings appeared before them; in the one case as the expounder of his own researches, in the other, as the medium of conveying the researches and discoveries of others, always to him the most pleasing character, for he was ever fearful that a too natural partiality to productions of our own might induce him to overrate the importance of his labours; he was induced to allude to these from his having (as appeared by a letter he held in his hand) been charged with saying he looked forward with confidence to obtaining perpetual motion, as well as from the circumstance of his having received numberless cautions since the announcement of this subject—one, he had thought, quite worthy their attention as a branch of that power of conveying our ideas by printing, now and of late years obtaining so many improvements and facilities, and forming a distinctive mark of the age. He would remark, then, that the present was one of those occasions in which he was but the medium of the thoughts and acts of another party, who would before them go through the whole process, during which he would endeavour to point out the principles upon which it was conducted, episodically stepping aside to illustrate more forcibly parts to which he would direct their attention. Anastatic was a term, he was given to understand, which signified re-arisen, or reformed, as one of the specimens laying on the table, which was obviously an old specimen of letterpress, such as nobody would, perhaps could, produce at the present day, the type being old and ill-arranged. These prints were produced from a similar page, printed, they would observe, on both sides by precisely the same process that would be shown and explained to them; there were hanging up, and on the table, various results of the same kind—copies from pages of printed works, one having letterpress on one page and music on the opposite, prints from a portrait of Prince Albert, drawn by Mr. Minasi; the actual drawing and the print produced from it; another of the head of a female, and some sketches by Mr. Nasmyth, all having the absolute drawing from which the prints were obtained side by side with them. There were also some pages having illustrations on wood, the actual page copied, and that produced for their comparison, and, last of all, the plates themselves. A page for illustrating the process would be taken, and within 20 minutes they would have a copy obtained before them.

In the first instance, the page was saturated with a dilute solution of nitric acid; when saturated, it was placed between blotting-paper, and gently pressed, to get rid of the superfluous acid—the operator knowing, much better than he could explain, the quantity of moisture necessary for his purpose. When ready, it was subjected to a very heavy pressure upon a clean surface of zinc; the operator cleaning it finally there, rubbing it always in one direction; it would answer equally well were it polished. When the zinc was cleaned, the page was laid upon it, and over it two sheets of paper. With respect to saturating the page, it was necessary to observe that water and oil have not only no affinity for each other, but are actually repulsive; the extent of this was shown by placing a little coloured water on a plate, and dropping thereon a few drops of oil, and *vice versâ*, each receded from the other; and the effect of the saturation of the page was, in some measure, to detach the oily particles of which the ink was compcsed from the paper, as well as to facilitate its attachment, when subject to pressure, with the zinc, which had now to be done; the press used in this operation was different from the ordinary lithographic press, and resembled in principle the common copper-plate press, having steel rollers of small diameter, which came immediately in contact with the paper without the intervention of blankets. The pressure was very heavy, requiring two men to keep up the necessary equable motion; for, if any stoppage or hesitation occurred, it would injure the perfection of the transfer. While this was progressing he would call their attention to the difficulty experienced in wetting a polished metal of any kind; he would take, for instance, a sheet of common tin, and drop a little water on it; the water could be rolled about on the tin, and divided by shaking—rejoined in a mass, rolled about again, and, with all this, it would be observed that not a particle had attached itself to the tin. The case was very different with oil, which attached itself to the metal at once; hence, in the transfer of the paper and zinc through the press, a portion of the oily matter of the ink having its affinity for the paper destroyed, readily became attached to the zinc—the acid, at the same time, inking the zinc on all parts opposed to the white surface of the paper, the inked portions of the paper acted in a protective manner to the portions of zinc opposed to them.

Referring again to the difficulty of wetting a polished metal plate, it would be found to be completely overcome by mixing a solution of common gum arabic with the water he would place on the tin plate, and it would be observed that though the water would not wet the plate alone, yet that, after adding a little gum, it attached itself directly, and they would now see the operator rubbing the plate with a cloth moistened with gum water in a way that if we were not quite satisfied he must know what he was about, we should fear that he would totally obliterate any effect that had been previously produced on the zinc; he was by this means preparing those portions of the plate that would be represented by the white paper to have an affinity for water, in order that by wetting the plate before he passed the inking roller over it, all parts not having already imbibed any oily matter should be protected from any ink attaching to them.

He would now advert to something that considerably improved the effect of the application of the gum-water to the zinc, and which was peculiar to this process, viz., phosphatic acid, not phosphoric, with the difference between which he would not meddle, merely stating how the former was obtained. A piece of phosporus was put in a bottle, and covered with water; the stopper of the bottle was allowed to remain partially open, and as phosphatic acid was formed, it gradually fell to the bottom; this very much improved the process of gumming, and its application prevented the gradual increase of the thickness of the lines. The plate in this state is ready to imbibe water in all the parts represented by the white paper on the page, and thus the oily particles obtained from the inked parts of the original, will cause the ink from the roller to attach itself to those parts only, on its being passed over the plate; and this now being done we shall have a print much within the given time. It appears that in old pages on paper that has been printed a long time, it is requisite to leave it longer in the solution of nitric acid; but there is also another process by which the same result can be obtained, viz.:—The paper is soaked with a solution of potass, and subject to the vapour of tartaric acid, and tartrate of potass is thus obtained on the surface of the paper, which has no affinity for oil, and the operator boldly runs his roller over the sheet of paper, merely re-inking the parts inked before. The paper is then subjected to the press, as in the former case, and the same results obtained. For the production of prints, portraits, and drawings, the process is the same as before detailed; but the drawing must be made in lithographic transfer ink; some results of this were shown, as before alluded to, and were satisfactory. There were two circumstances deserving of notice: the operator could, to the eye of an inexperienced observer, completely wash out the whole work from the plate with spirits of turpentine, so that not a particle appeared on the zinc. It is true, on holding it at an angle, the parts affected by the acid became visible, and that was all that could be perceived on the zinc, but on re-inking it with the roller, it was found rather to have improved than injured the work; for the ink is liable to spread by repeated working, and occasional washing off restores the sharpness again. On neglecting to water the plate, the roller could be made to impart ink to the whole surface—hence, a black print would be the result. This was removed by repeating the washing as before.

The operator then distributed prints that had been made to illustrate the lecture, and they certainly were far superior to those which have been put forward at other times as specimens of the result of this process. The great error of most discoverers is the endeavouring to make their principles reach ends and purposes for which they are inadequate, or which, if obtained at all, can be better obtained by other means. On reviewing the above process, little is found differing from the process of lithography in its ordinary form, except the transfer of old prints. Several transfers by lithographers, so long since as 1825, were exhibited on the table and in the library, which were highly satisfactory; but it is fair to conclude that their production was too expensive, for want of experience and manipulation, to render them available for purposes of trade. Indeed, it is difficult to imagine how the present process can be made profitable, seeing that printing from zinc can scarcely compete in price with ordinary copper-plate, and is far dearer than letter-press. It is only, therefore, as a restorer of old works that it will have any advantage over other processes. Transfer of drawings can be made by the ordinary lithographic process, leaving but a very narrow field for the anastatic to appropriate to itself. Thus, then, has the announcement of printing from drawings (not expressing the particular kind of drawing), copying notes and deeds, that appeared in some periodicals a few months since, calling for a special Act or Acts of Parliament to restrain the projector of this process, far outstepped the reality of the danger. Few, we imagine, will step out of their way to draw up deeds, or sign them, in lithographic transfer ink; and unless such a course is pursued, legal documents are as safe as ever. Drawings to be copied must be in line—a difficult and laborious style, and must be done in a material difficult to manage. Anastatic artists will necessarily be confined to that branch of drawing; and whether their productions will be cheaper

or better, or as cheap and as good as other branches of art, remains yet to be proved.

SOCIETY OF ARTS.

April 30.—Sir J. L. Goldsmid, Bart., in the chair.—A drain-tile submitted to the Society by Mr. W. Moffat, was described. The transverse section of this tile is nearly in the form of the letter H; the lower half being left open, forms a channel for the water, while the upper half, whose sides are perforated, is filled with broken stone, or burnt clay. The length of the tile is 14 inches, and the depth 8¼ inches; the water-channel being 3 inches square.—The Secretary read a paper by Mrs. T. Allom, on the introduction of bees to New Zealand. The attention of the author of this paper was first drawn to the subject, by hearing from her son (who was on the New Zealand Company's Surveying Staff), of the high price of butter in that colony, for which article she conceived honey would form an excellent substitute. The danger of the bees being neglected on the voyage was urged by many of her friends as a reason why she should abandon her project—the opposition, however, with which she met, rendered this lady more determined to endeavour to carry out a plan which appeared to her calculated to be of great service to the settlers; accordingly she set to work to contrive a method of safely transporting her "tiny colony" to New Zealand. The contrivance is as follows:—A large oblong box of wood, having its top and also front of perforated zinc containing in the centre a common straw hive, which answers as the pavilion, and has an entrance in front; on either side is a wooden breeding-box, communicating with the pavilion: on the top of the case is a circular zinc feeding-trough, furnished with a cylindrical passage from the interior of the case, through which the bees pass to a perforated zinc floating stage above the hive on which they rest while feeding; the feeding-trough is filled with liquid honey through a funnel-shaped opening in the side; a glass top enables the apiarian to inspect the insect while feeding. During the voyage the bees were taken care of by the Rev. Mr. Saxton and his family. After passing the Bay of Biscay the bees were fed twice a week with two-thirds of honey and one-third of water. The whole arrived safely in the colony, and wax, the first produce of bees in New Zealand, has been presented by Mrs. Allom to the Society.—Mr. Rotch described his collateral box-hive, the principal object of which is to secure the apiarian from the attacks of the bee. In general form this hive is similar to that of Mr. Nutt; but, by the introduction of perforated zinc slides between the pavilion and the side compartments, the manager is enabled to remove the collateral box without the bees escaping; the ventilation is rendered complete. Moreover, every part of the hive may be inspected through glass windows, which are covered (when required) by hanging shutters. For the purpose of fumigation, without displacing any of the compartments, a gauze bag is suspended under each; the bottom of which is formed of perforated zinc.

Country Shows.

Alkrington Auricula Show, April 21.—This was held in the Mason's Arms, Middleton, near Manchester. The following prizes were awarded:—Premier Prize, Mr. Hall, with Litton's Imperator, Kenyon's Ringleader, Taylor's Favorite, Clegg's Blue Bonnet and Lord John Russell. Green Edged—Mr. Jackson, with Booth's Freedom. Grey Edged—1. Col. Lee, with Grime's Privateer; 2. Mr. Ball, with Kenyon's Ringleader; 3. Mr. Hall, with Rider's Waterloo. White Edged—1. Mr. Hall, with Lee's Bright Venus; 2. Col. Lee, with Taylor's Favorite; 3. Mr. Hall, with Ashworth's Regular. Selfs—1. Col. Lee, with Netherwood's Othello; 2. Mr. Hall, with Clegg's Blue Bonnet. Polyanthuses—1. Mr. Hall, with Clegg's Lord John Russell; 2. Mr. Ball, with Pearson's Alexander; 3. Mr. Ford, with Buck's Geo. IV.; 4. Mr. Ball, with Maud's Beauty of England.

Reviews.

Sowerby's Supplement to English Botany.

In accordance with the request of some of our readers, we propose in future to give a notice of the contents of each Number of this work, shortly after its appearance, and in order to make our reference to the *Second Series* complete, we begin with the first Number. For the convenience of reference, the numbering of the plates is continuous, from the commencement of the original English Botany of the late Mr. Sowerby and Sir J. E. Smith. The name of the botanist who drew up the description for this supplement will be given, and also references to Hooker's "British Flora," and Babington's "Manual of British Botany." Each Number contains four plates.

Pl. 2868.—*Trifolium Bocconi* (Guss). This curious little trefoil was discovered by Mr. Borrer, near Cagewith, in Cornwall, in July 1839. It had not previously been noticed in any place out of the "very south of Europe," except in Anjou, and is one of the many proofs that the Flora of the south of the Continent extends very far to the north, on the coasts of the Atlantic. The outward resemblance of this species to *T. striatum* is so great, as to make it very probable that it has been overlooked in many other places. The description is by Mr. Borrer. Bab. Man. Br. Bot. p. 74.

Pl. 2869.—*Ranunculus circinatus* (Sibth.), which is here admirably represented, has been confounded with the *R. aquatilis* by English botanists, since the time of the publication of Smith's Fl. Britan. until very recently. It is nevertheless a very distinct species, and far from rare, usually inhabiting deep still water (although not always) and constant to its characters even in swift streams, and rising nearly vertically to the surface. All its leaves are deeply divided into capillary segments, spreading at right angles to the stem, and so arranged that each leaf presents a flat and uniform surface, differing in that respect remarkably from *R. aquatilis*, in which the slender segments of the divided leaves spread from the end of the leaf-stalk in many directions, so that their ends, if connected together, would form a greater or less portion of a sphere. *R. circinatus* has white flowers (the only part of the plant rising above the surface of the water), which are in perfection in the later half of June, nearly a month later than those of *R. aquatilis*. Described by Mr. Babington. Bab. Man. p. 5.

Pl. 2870.—*Ranunculus fluitans* (Lam.) is another plant usually referred to *R. aquatilis*, but long since distinguished by Ray and Sibthorp. It is mostly found in rivers and swiftly running and clear brooks, but does not confine itself to them, as we have seen it in quite still water, only connected with a river by a ditch at one extremity. It is so ornamental a plant that it is known to most persons as seen floating, for many feet and even yards, in the shallows of rivers, and producing its large, white flowers, in June and July. The leaves consist of a few long, slender segments, and are occasionally as much as a foot in length. Described by Mr. Babington. Bab. Man. p. 5.

Pl. 2871.—*Hypnum polyanthos* (Hook. and Tayl.). A rare Moss from Anglesea, different from that figured under the same name (E. B. t. 1664), which is now considered as *H. multiflorum*. Described by Mr. Wilson.

Pl. 2872.—*Ectocarpus pusillum* (Harv.) is a curious sea-weed, found in Devon and Cornwall by Mrs. Griffiths and Mr. Ralfs. Described by the Rev. M. J. Berkeley.

(To be continued.)

New Plants.

Cryptadenia uniflora. Solitary-flowered Cryptadenia. (*Greenhouse Shrub.*) Thymeleæ. Octandria Monogynia.—Among the handsomest of the Linnean genus Passerina were three species, the present, P. grandiflora, and P. ciliata, which, in habit as well as in essential character, differed considerably from the others. These, Professor Meisner has wisely separated from Passerina and named Cryptadenia, from the presence of eight glands concealed within the tube of the floral envelope, and alternating with the eight stamens. All are natives of the Cape. The present species, though sufficiently known in herbaria, is probably rare in gardens, though well deserving of a place on account of the beauty of its copious blossoms, and the long time the plant continues in bloom. At Kew, it flowers in the early summer months in an airy part of the greenhouse.—*Botanical Magazine.*

Backhousia Myrtifolia. Myrtle-leaved Backhousia. (*Greenhouse Shrub.*) Myrtaceæ. Icosandria Monogynia.—This pretty shrub, its conspicuous petaloid calycine segments giving the idea at first sight of large corollas to the flowers, was found by Mr. J. Backhouse, in the Illawara district of New South Wales; and, not being referable to any Myrtaceous genus yet described, Mr. Harvey and myself are anxious to dedicate it to our mutual friend now mentioned. Specimens, though less perfect, of the same plant, were detected by Mr. A. Cunningham, in a state of bud only, "south of the Colony" of New South Wales, and marked "allied to Eugenia elliptica;" and what confirms the stability of the genus is the discovery by Mr. A. Cunningham of a second species (which exists in Mr. J. Smith's herbarium) on the Hastings' river. With regard to the present individual, it has been introduced to our gardens by Mr. Low, of Clapton, to whom the Botanic garden of Kew owe the possession of it, and there it forms a small tree-like shrub, six to eight feet in height. It is readily increased by cuttings, and they flower quite small soon after being struck.—*Botanical Magazine.*

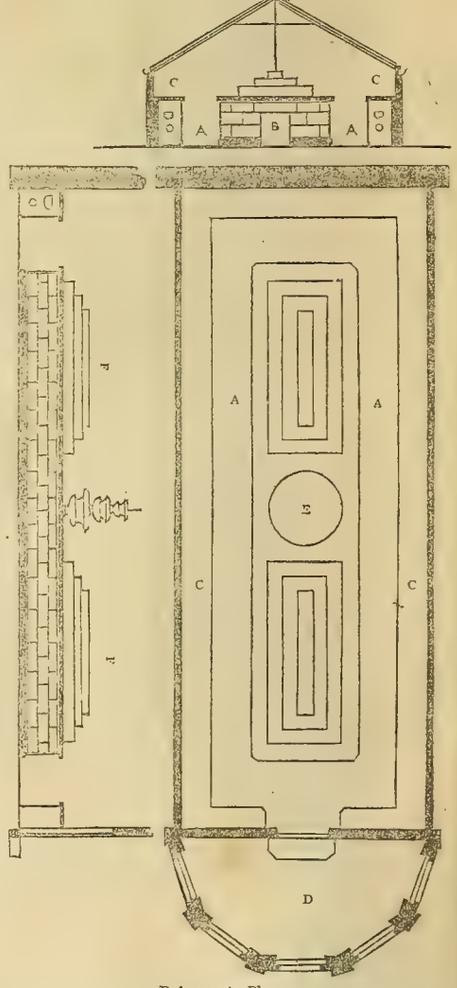
Turnera ulmifolia. Elm-leaved Turnera. (*Stove perennial*). Turneraceæ. Pentandria Trigynia.—There are in the West Indies two striking varieties of this. One has been figured under the name of T. angustifolia. The much finer state, and that which is considered the type of the species, is the above, which flowered in the rich collection at Syon Gardens. Its seeds were sent over from Jamaica by Mr. Purdie, and its very showy flowers and ample glossy foliage were in perfection in the stove, in July, 1844. Shortly after, plants from the same source flowered in the Royal Botanic Gardens, and convinced us that this variety, at least, is well deserving of cultivation. It appears, however, to be a plant of short duration, and requires to be renewed from seed.—*Botanical Magazine.*

Sida graveolens. Heavy-scented Sida. (*Stove Shrub*). Malvaceæ. Monadelphia Polyandria.—This is a native of the East Indies and of Jamaica; and probably common to the tropics both of the old and the new world. The present species, which is undoubtedly the S. graveolens of Dr. Roxburgh, the S. hirta of Reichenbach (if not of Lamarck), and probably, as Messrs. Wight and Arnott suggest, also the S. Indica and S. Asiatica of Linnæus, has been always considered to be exclusively a native of the East Indies; but Mr. Purdie detected it growing wild in Jamaica; and seeds which he sent to the Royal Gardens produced plants which have blossomed in the autumn of 1844 in the stove. It is a handsome species with pale-green foliage, and yellow flowers with a deep blood-coloured eye.—*Bot. Mag.*

Garden Memoranda.

J. C. Lyon, Esq., Ludiston, Mullingar.—The following plan and description of an excellent Orchidaceous House has been kindly supplied to us by this gentleman:—The house is 45 feet long and 16 feet wide, with a double roof. The stage in the middle is comprised of three shelves on each side, and on the ends, and one in the centre, sunk into pans half an inch deep in Yorkshire white flags; the side walls are 5 feet 6 inches in height, without any upright glass; the sashes are single lights and are fixed; the ventilators are built in the side walls under each sash—of these there are 11 on each side; in each gable end there is also a ventilator, thereby creating a thorough current of air the entire length of the house, as well as across it, by means of those in the side walls: the latter can be confined to that portion of the house where it is required; at each end compartments are made for creepers to be trained on wires across the rafters. The house is entered at the end through an ante-room, which answers the two-fold purpose of preventing a rush of cold external air into the house, and enables visitors on leaving the heated atmosphere, to remain there a sufficient length of time to prevent any danger of cold, from the very sudden change of temperature. As these plants during their vigorous summer growth require a considerable degree of moisture, and that the atmosphere of the house should be nearly at the point of saturation, every facility has been afforded for carrying that object into effect, being fully aware that the less labour required the less chance of neglect. For this purpose I have adopted a very ingenious contrivance of Mr. Hammond's, at Broughton Hall, near Manchester, by which means the entire of the centre stage can be overflowed with water, as well as the walks, in a few minutes. The shelves are sunk into pans and filled up with small pebbles, on which the pots are placed. The side shelves running the entire length of the house, can with equal facility be flowed with water when required. In the centre of the house is a Grecian Fountain composed of three Tazzas, with a variety of jets; this has a very good effect, particularly in very hot weather; the water falls into a small pond, in which aquatic plants will be grown, the overflow from which runs back to the great tank holding 2000 gallons of rain water, collected from the several buildings and sheds, as nothing else is used for either the plants or hot-water pipes. Mr. Bateman remarks, "The collections which are watered exclusively with *rain water* are the least infested" (with small snails). For watering and syringing the plants a supply of tepid water is at hand, heated by passing through a chamber near the boiler. Underneath the stage, which by the jet and aquarium being in the centre is of necessity divided into two, are arched vaults, where Seakale, Mushrooms, and Rhubarb are forced, without extra expense.

Plan of Epiphyte House.—(Scale 12 feet to 1 inch.)



Reference to Plan.

A.A. Walk; B. Entrance to Vault under stage; C.C. Side shelves for Plants, with tanks and return-pipes underneath; D. Ante-room; E. Fountain and Aquarium; F.F. Plant Stage.

The house is heated by Messrs. Burbidge and Healy, by means of their ribbed boiler and metal tanks. The tanks are, I conceive, particularly applicable to such a structure; by closing the stoppers in winter, all damp is prevented from entering the house, and by removing them in spring the atmosphere is softened by the admission of the vapour to any required extent. I have no doubt but the ribs on the boiler are a decided advantage, as exposing a much larger surface to the action of the fire, and thereby deriving a much greater benefit from the same quantity of fuel, than could be obtained with a plain boiler. From the length of the house, 45 feet, I find there is a difference of from 6° to 8° between the end at which the boiler is set and the entrance; this I conceive to be an obvious advantage. I also find a considerable saving in fuel, as this large house does not consume more than the two small houses did, although it is more than twice the size of both.

Miscellaneous.

Preservation of Objects of Natural History for the Microscope.—I had an opportunity a few days since of inspecting Mr. Thwaites' collection of Algæ, at Bristol, and as his mode of preparing the specimens is not perhaps generally known, and as regards utility, is far superior to any other I have seen, I think it may not be disagreeable to some of your readers to have a short notice of it in your Journal. The distinguishing peculiarity of the collection is, that the specimens are ready mounted for the microscope, and preserved in a liquid which retains all their characters perfectly, so that at a moment's notice any species is ready for inspection in as great perfection as when it was first gathered; and if any unusual structure occur, the portion of the plant may be set up and re-examined at pleasure, a point which was impossible in many cases before. The value of this method will at once be appreciated by all practical algologists, who know that scarcely any tribe of plants suffer so much by drying as Algæ, especially the freshwater Algæ. The complicated endochrome, for instance, of Zygnema and allied genera is entirely destroyed by drying; whereas by Mr. Thwaites' method every peculiarity of structure is admirably preserved, even to the cytoblasts which occur in some species. The method is simple, and requires only a little delicacy of manipulation, which, indeed, may be said of all microscopical preparations. Slips of plate glass of a size convenient for the microscope are the best recipient for the specimens. On the centre of these a little square area is insulated with gold size, which must be laid on of greater or less thickness, so as to build up a little wall, according to the thickness of the specimen to be mounted. A number of these should be prepared ready for use. A solution is then to be made, consisting of 1 part alcohol, 14 parts water, and to be accurately saturated with creasote. This should then be filtered through prepared chalk, and the solution allowed to stand for a month, in case any precipitate should form; it must then be decanted for use, and kept in a stoppered bottle, and the small portion wanted from time to time should be passed through a piece of linen to prevent any impurity from spoiling the clearness of the preparation. When, then, it is requisite to mount a specimen, a drop or two of the fluid is placed in the insulated area, the edge having been first lightly retouched with gold size and the specimen floated in the fluid, care being taken to remove all air-globules; a slip of talc, or, what is better, microscopic glass, a little exceeding the size of the area, is then dropped upon it and pressed gently upon the size, by which means the specimen is hermetically sealed; a coat or two of gold size is then put round the edges for greater security, and when the whole is perfectly dry, a coat of sealing-wax varnish. Care of course must be taken that the glass, especially that which covers the specimen, is perfectly clean. The slips are all made precisely of the same size, and are placed vertically in little drawers, on the sides of which grooves are made for their reception. A box of the size of a common writing-desk will hold about 250 specimens. Mr. Thwaites finds this solution answer best for freshwater Algæ; for marine Algæ he uses generally Goadby's solution, the formula for which is given in the "Microscopical Journal" for 1842, p. 183. It consists of 4 ounces of bay salt, 2 ounces of alum, 4 grains of corrosive sublimate, and 2 quarts of boiling water. This does not answer, however, for freshwater Algæ. Some of the specimens of marine Algæ, mounted in Goadby's solution, such as Codium tomentosum, Helminthocladia vermicularis, &c., are admirable. This method of preparing Algæ certainly requires some little expenditure of care and patience, but it will be found so satisfactory in its results as amply to compensate any additional pains; and when once the requisite arrangements have been made the trouble in the case of individual specimens from time to time will not be found so great as might be expected. It may be remarked that the method is equally applicable to other microscopical objects, and especially to those of vegetable physiology.—*Rev. M. J. Berkeley, in Annals of Natural History.*

Death of Mrs. Gilbert.—Eastbourne.—It is our painful duty to announce the death of Mrs. Gilbert, relict of Davies Gilbert, Esq., M.P., F.R.S., and for many years president of that society. Mrs. Gilbert expired at the family residence in this place, on the evening of Saturday last, at an advanced age. The deceased lady, actuated by an earnest desire to improve the condition of the labouring classes, has for several years devoted her energies to agricultural affairs, and was a zealous supporter of the allotment system, which she carried into practical operation to a large extent on her estate in this parish and the neighbourhood. The benefits resulting from her benevolent proceedings, we believe, have fully realized the expectations which the supporters of this system anticipated. Self-supporting industrious schools have also been instituted by her, and the plan appears worthy of imitation.—We fear her loss will be severely felt in this place.—*Sussex Express.*

Queen's Ink and Paper.—There is on sale under this name in London now, a beautiful invention by Sir George Mackenzie. The ink is a fluid resembling water in appearance, and not soiling any thing with which it comes in contact, except silver. The paper is white and of the usual appearance. When such paper is written on with such ink, the letters appear of a dark grey, or blue colour. The clearness and beauty of the materials render them peculiarly suited to drawing-room use. We have also seen a capital black ink, invented by the same highly-distinguished gentleman, which is said to resist the action of all known chemical agents, and therefore to be incapable of obliteration.

East Indian Orcuidaceous Plants.—At a recent sale of these plants by Messrs. Stevens and Co., the lots produced from 14*s.* to 5*l.* 5*s.* each; and one of them, a Dendrobium aqueum, a species of no great beauty, realised 10*l.* On the whole, 48 lots were sold for 118*l.* 4*s.* 6*d.*

Dropmore, April 30.—To those who are interested in the multiplication of the rarer species of Conifers, it may be useful to know that the following are now producing their cones at this celebrated place. Abies Webbiana has male catkins on it for the first time, and there are many cones appearing. A. Douglasii is covered with catkins and cones; and there are six cones on Pinus monticola.

Bees.

"*Never Kill Bees; never allow Bees to Swarm.*"—Although this system has been often advocated, it has never been satisfactorily disposed of. The old plan of killing the bees yielded a larger profit than most of the new systems; chiefly on account of the worthlessness of the latter; and sometimes, also, from a want of requisite knowledge on the subject. Humanity justly recoils from the act of killing bees, and urges the philanthropist to adopt such a system of management as will afford him a fair quantity of produce, without either direct or indirect injury to his bees. We are led more particularly to this conclusion, when we reflect that honey and wax are not by any means indispensable articles for man's sustenance or comfort; but, as they are, nevertheless, exceedingly useful, we should endeavour to obtain them, if possible, without cruelty. There are several methods of taking honey without killing the bees, which is probably never necessary, and I imagine that the flat-topped hive is as good as any for the purpose. The hive should be of straw, with a wooden top half an inch in thickness, having a hole either circular or square; or, if preferred, two holes, 4 ins. in diameter, and 6 ins. apart. I find that a piece of plate, or other thick glass, having a bearing of only ¼ in. all round, is better than anything else to lay over these holes. The edge of the glass should be smeared with wax on the the under side to prevent any draft. The hive should be 15 ins. in diameter, and 7 ins. in height in the clear; and the top should be made with a lip or place for the bees to alight upon, similar to that on the bottom board. Wooden-topped hives require thick covering in winter. When swarms are not wanted, a straw hive, box, or glass, capable of holding half a peck, should be put on the top, first removing the glass with a piece of fine wire; and a hole should be left in the front of this top for the bees to enter by, instead of passing through the bottom hive. If a glass is employed, it should be mounted on a thin piece of board, having a hole in the centre nearly equal to the size of the glass, and a passage-hole in front. I have found that when an addition of this sort is put on a stock-hive early in March, the bees have seldom, or in fact have never, swarmed with me. Bees of course increase their species at the proper season, which commences probably in March, and closes early in July; but in this they are evidently guided by circumstances. For instance, a healthy large stock always produces a larger swarm than a small stock; and as there is generally a considerable loss of bees in winter and early spring, from various casualties, the loss seems to be made up in the breeding-time; and by giving additional room early in March, instead of swarming, they fill the enlarged space. Much that is related respecting queens is chimerical. There is no doubt a young queen, hatched at the same time with the bees that are to emigrate with her, always accompanies a swarm, but I think never more than one; for if a swarm settles in three or four bunches, the bees will gradually all come together, perhaps uniting with the smallest cluster, thus indicating where the queen is. I separated a double stock early in April, and both are doing exceedingly well, although one must have been without a queen; but in this case, the bees without a queen might have been conscious of their having eggs in queen cells in their hive; for a hive that I tried to separate a fortnight earlier, did not succeed, all the the bees going to one hive, and that the one which I had removed. It is never advisable to keep second or third swarms (called casts and flights); in the evening of the day in which they come off, put them on the top of a first swarm, previously rubbing the board with honey; and about the end of July, this top hive should be carefully removed. Stock hives should never be plundered of honey-comb by bee-keepers, as it irritates the bees exceedingly, and gives them more trouble to repair the damage than to fill an additional hive or glass. Every cottager should make his own hives, and this sort are easily managed. Split cane is better than bramble, and costs only 4*d.* per lb. I may again mention, that after-swarms should invariably be joined to first-swarms the day in which they come off; and no stock should be deprived of any of its contents for profit; but you obtain by proper management, in May and June, and early in July, the return for your trouble. From an experience of 23 years in comparing the relative utility of the many variously constructed hives, I may state that for easy management, amount of produce, preservation of, and facility in, performing the various operations of the bees, I consider the hive I introduced to the notice of your readers, at p. 87, by far the best. —*G. L. Smartt, Enfield.*

Answers.—*Sub.*—The semi-transparent substance is propolis, which bees use in founding, and stopping up every little crevice in their hives. It differs materially from wax, and will neither float nor melt in boiling water; consequently it is a sure fence against the influence of the weather.—*W.*——At p. 274 an error has crept into my answer to "J. Thomas." It ought to have read "put the bees into a box about 10¾ inches clear each way," instead of "16¾ inches," which would be a large hive indeed.—*W.*——*J. Smartt.*—You mention at p. 227, that "although April has commenced, there are no field-flowers in most districts to be found." This circumstance was, therefore, very likely to cause bees to seek garden-flowers, and to tempt them to find the White Willow or Elm, at a distance, whose blossoms never fail to afford bees a rich supply. Are you aware that bees have been known to swarm in April? Your mentioning this backward season in favour of what was said respecting removing bees in April, operates against your plan of extracting their brood-combs in March. Was that month not winterly indeed? Examine your bees more closely, and you will find that their "cells are occupied with brood more than five or six months during the year." I question if prosperous bees do not rear brood at all times. In the severe winter of 1814, Hudgson found brood in the cells on the 12th of Feb. I have found young bees myself in all the various stages of existence about the same time in March—the very time you propose to extract the combs. Why do you think midsummer an improper time for the operation? You say that tomtits do not eat bees. Compare your statement at p. 87, respecting keeping tomtits from plundering hives by coloured strings, with what I said, then see which is most like a "nursery tale." The filth that falls from old combs shows that bees clean out the cells, but it is doubtful whether the crumbs are excrements, or part of the cocoons supposed to be left by the larvæ. I mentioned several things that showed this was an unsettled point, none of which you noticed. I shall give the following extract, which I received last year from one whose authority is good:—"The coatings of old brood-cells I take to be one of the unsettled matters. If you put a piece of old brood-comb into warm water, you may separate it into several layers—the structure itself appearing to consist of successive layers. I have just made out five. Now, take a piece of white virgin comb, and you will be ready to decide that the cells consist of but one of these layers—*ergo*, do the bees recoat them on the emerging of each set of brood? From the manner of the adherence of these layers, I have my doubts as to their being, too, cocoons of the brood." Since the above was written I have examined several brood-combs of different ages, and have found but one coating in each of the cells; the only difference was that the coatings in the old were darker than in those of the new cells. I am convinced that the cells are coated by the bees, and not by the cocoons from the brood; if otherwise, why are cells coated that never contain any? I have just detected the tough substance in some half-finished cells on the margin of a brood-comb, which is enough to set the matter at rest; and also put aside all that has been said concerning the necessity of extracting combs from old hives. It is worthy of remark, if brood-cells were not of a firmer texture than honey-cells, they could not stand the great heat from the larvæ and the bees; and likewise, if honey-cells were coated like brood-cells, those that eat honey-comb would have a sweet but a tough mouthful.—*W.*—— *Este*, in reply to Mr. Briggs, mentions that hives Nos. 1 and 2 are under a south wall. Hive No. 3, box No. 1, in a wooden stand facing the south; box No. 2 on a flower border, south; they were not touched from August until March. I began to feed early in March, cold days frequently interrupted the feeding; they were weighed on 28th March; I continued to feed until the 14th inst. The hives under the wall are very strong; the 3d hive not quite so strong; the 2d box weak. I had one swarm each last year from the 2d hive and 1st box, viz., on the 8th and 12th of May. Each hive and box is placed on a butter firkin, two holes being bored through the hive board; the dead bees were deposited in the firkins; scarcely any dead bees were found on 28th of March, except in the firkin under the 2d box, in that there were nearly a thousand; the box No. 2 is five years old, the others three. For two years I have followed Mr. Jeston's plan of placing a butter firkin, holding 56lbs. of butter, under each box and hive, except under box No. 1. Each year the firkins have been filled entirely with comb, with but very little honey; the firkins are too large, and the seasons were bad. Box No. 1 gave me last year two caps full of honey, each weighing

14 lbs. The first was taken off on the 9th of June, the second on the 14th of August; I should doubtless have had a third had not there been neglect; I had in all 62 lbs. of honey. This year I have put caps on the two boxes and on the first hive, not using the firkins. I had a swarm from No. 5, and one from No. 6.

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stoves.—Attend to shifting all the free-growing plants, which will now be making great progress, such as Clerodendrons, Gloxinias, Gesneras, and similar showy kinds, which contribute largely to the decoration of the stoves, and even greenhouses, in summer and autumn. The great art in cultivating these things is never to allow them to flag for a moment, but to keep them at it, in right earnest, by an abundant supply of heat and moisture and occasional shading in scorching sunshine, until their flowers appear, when they may gradually be exposed to more air and a lower temperature. *Greenhouses.*—Many kinds of plants in these structures may now be removed into frames, and even under temporary coverings; this will enable you to place advantageously the numerous kinds of New Holland plants which at this season contribute so largely to the beauty of these houses. Admit air freely, and protect the plants in bloom from the sun's rays. *Pelargoniums.*—These will now be making great progress, and the early plants will be coming into flower. Attend to tying them neatly, and never allow them to suffer for want of water, and even a little manure-water will benefit them. Keep the foliage free from dust by syringing and washing, in order that the leaves and flowers may be shown to the best advantage.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

As there is every appearance of a continuance of fine weather, a few of the most hardy kinds of bedding plants might be turned out, such as woody Calceolarias, Salvia fulgens, a few Verbenas, &c., provided there is a possibility of protecting them from frosts, which often occur early in May. Keep Grass lawns neatly cut, roll and sweep walks, weed Box, Thrift, and other edgings in moist weather, and clear off dead plants from borders and beds, if not already done; look carefully over the stock of bedding-out plants, and arrange the different kinds preparatory to planting out, contrasting the colours as much as possible. *Pits and Frames.*—Annuals that were sown last month will now require to be potted off, German Asters, &c., might be pricked out on beds under mats, supported on hoops, previous to transplanting; Stocks, and other annuals might be pricked out in the same way. Pot off tender annuals, with Convolvulus major and minor, into pots, and protect them under glass until all danger of frost is over. Tender plants that were potted off early should be shifted if they require it, for if they get pot-bound before being planted out they seldom succeed so well afterwards.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas are now in full flower, and in order to prolong the bloom, it will be requisite to remove them from the frames to a north-east, or northern aspect, protecting them from rain by an awning of calico. When seed of fine quality is a desideratum, manual or artificial impregnation may be resorted to. As seedlings get of sufficient size to handle, prick them out into store-pans. *Polyanthuses.*—if grown on beds, and intended for exhibition, the plants should be lifted with a ball of soil, and potted over-night, at the same time watering well; they may be returned to their places after the competition is over, sustaining little or no injury by the removal. *Tulips* are now colouring fast, and when sufficiently forward, should be partially shaded, and especially protected from the hail-storms, which may now be expected to prevail. Support those requiring it with neat sticks, and keep the bed free from weeds. *Carnations.*—Insert the whole of the sticks intended for the support of the flower stems. Late planted layers must be carefully tended. The past dry weather has affected many throughout the country, that apparently had survived the late severe winter well. It will, however, be generally found that those suffer most which have been "nursed too much." *Pinks.*—If the beds are not already top-dressed, let it be done without delay. *Dahlias.*—Continue to pot off rooted cuttings, and harden those already potted. *Pansies* will now propagate readily by the small side-shoots. Prick them out under a hand-glass in a shady border.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Where a continual supply of fruit is wanted, no time should be lost in putting out suckers in due succession; this being in some degree the ground-work of continual supply. Keep up atmospheric humidity by every possible means, especially on hot days. The tan in the pits should have a slight watering at times, and, if possible, be stirred up, to promote the escape of vapour. Those in houses should be syringed slightly at least once a day, and those in dung pits on most sunny days, about 3 o'clock in the afternoon, shutting up close immediately. *Vineries.*—Disbud your latest Grapes attentively. Keep their stems constantly moist for a week or two, and maintain for a short period a very moderate temperature. Early Grapes now ripening should have their remaining laterals thinned out considerably, in order to throw abundance of light on their principal leaves. *Figs.*—These will now require abundance of water. Stopping the young wood must still be followed up as before, treating humidity, &c., as in former Calendars, but slightly increasing it. *Cherries* will now, of course, be ripe or ripening. Give abundance of air, and withhold water.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

It may be observed that the portions of shoots of Apricots which had been surrounded by the shreds in the preceding summer have been more injured by the frost than the adjoining portions. The shreds employed for fastening the summer shoots should therefore be of good quality, in order that very narrow strips may suffice; and no more should be employed than is absolutely required. Plenty of room should be allowed; and the leaves should hang free, not bundled in along with the shoots. Walls are expensive; and every gardener ought to keep a good face upon them as long as possible, by not driving nails farther than is necessary. For summer nailing, it will generally be sufficient that merely the point of the nail be inserted, just enough to hold, but rarely farther than would render difficult its removal by the finger and thumb. With regard to driving nails in the face of the brick, that is quite inexcusable. Water effectually all trees that require it. If only a little rain fall, insufficient to reach the roots, so much more the trees will suffer on the return of dry weather—an expanded foliage being induced, requiring an increased supply of moisture, which the roots are not in condition to give, if judicious watering be not attended to. *Kitchen-garden.*—In cutting Asparagus, all the first shoots should be taken. If one or two of the strongest stems are allowed to run up, the other shoots from the same crown are placed at great disadvantage; but ultimately some good shoots, but none of the very small ones, should be left to grow up. Where common salt has been employed as manure, the Asparagus will be found earlier and better; the cutting, however, ought not to be continued in this case so late as is usually done under ordinary circumstances. Sow Walcheren and Knight's Protecting Broccoli, German Greens, Savoys, Carrots, for drawing young; Radishes, Lettuces, and successions of Peas and Beans.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Continue, as before recommended, to forward every description of work which might cause hindrance during the Oak-barking season, which, in early districts, should be closely watched, that the earliest opportunity may be taken to commence. *Nursery.*—Examine newly-grafted plants, and last year's budded stocks, to see that the side-shoots or suckers are not gaining an undue influence over the worked kinds. The seeds of evergreens may still be sown; destroy weeds, &c., as before.—*F.*

State of the Weather near London, for the week ending May 1, 1845, as observed at the Horticultural Garden, Chiswick.

April	Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain
Frid. 25	18	29.786	29.632	67	52	59.5	S.	.18
Sat. 26	19	29.983	29.414	63	47	55.0	S.W.	1.01
Sun. 27	20	29.651	29.621	61	44	52.5	S.W.	.02
Mon. 28	21	29.682	29.627	64	50	57.0	S.	
Tues. 29	22	29.983	29.876	66	49	57.5	W	
Wed. 30	23	30.041	29.875	63	51	57.0	S.W.	01
May								
Thurs. 1	24	29.905	29.829	65	48	56.5	W.	.01
Average		29.864	29.710	64.1	48.7	56.4		.23

April 25—Light clouds and fine; very fine; densely overcast
26—Cloudy; very fine; clear at night
27—Cloudy and windy; showery; clear and fine
28—Fine; overcast; slight showers
29—Fine; very fine; slightly overcast
30—Overcast; slight showers; densely overcast at night
May 1—Very fine, with brisk wind; overcast.
Mean temperature of the week 6 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending May 10, 1845.

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 4	64.9	43.2	54.0	7	0.70 in.	3	4	3	—	5	2	2	—
Mon. 5	64.1	43.7	53.9	12	0.26	2	3	1	2	6	3	1	—
Tues. 6	63.9	40.9	52.4	8	0.22	—	5	3	2	2	4	2	1
Wed. 7	65.7	42.1	53.9	4	0.45	2	5	2	1	4	3	1	1
Thur. 8	64.5	42.5	53.6	7	0.57	—	4	5	—	4	2	3	1
Fri. 9	62.6	44.3	53.5	7	0.40	2	5	3	1	2	4	2	—
Sat. 10	62.3	39.3	52.6	3	0.10	3	4	2	1	1	3	3	1

The highest temperature during the above period occurred on the 6th 1830—therm 81°; and the lowest on the 6th, 1831—therm. 28°.

Notices to Correspondents.

ANEMONES—*Amateur*—These will live for years in a warm well-drained border; but as they are apt to be attacked by grubs and cannot bear wet in winter, it is better to take up the roots after the plants have bloomed, and when the leaves have began to turn yellow. The roots should be kept in a dry airy place until required for replanting. The soil most suitable for them is good sandy loam and well decomposed cowdung, mixed in the proportion of three parts of the former to one of the latter. If the loam is stiff, add a sufficient quantity of sand to make it free. They like an open airy situation.‡

BIRDS—*D M*—I shall be most happy to afford you the information you require, but as the columns of the *Chronicle*, crowded as they are, weekly, with articles of more general interest, cannot be open to discussion at any length, though a man of little leisure, I shall feel great pleasure in learning your name and address, when I will answer any queries you may put to me, be they ever so numerous.—*William Kidd, Newroad, Hammersmith.*

BOOKS—*Alethro*—M'Intosh's is a very good one.——*H W*—Mills's "Treatise on the Cucumber and Melon."‡

BROMPTON STOCKS—*Sub*—Two sowings of these should be made annually, the first about the middle of May, and the second about the 21st of June. Sow in beds of a nice sandy loam, in an open situation, and about the end of August, if the weather is moist, or the beginning of September, transplant them into a border, placing five in a patch: at the same time pot off a store to be kept in a frame over winter for planting out in spring, as winters like the past invariably destroy them, except in very sheltered situations. Use 6-inch pots for the purpose, which should be filled with good loam mixed with a little rotten dung; the more airy the situation is, and the dryer the plants are kept in dull weather, the better they will succeed. Plants that survive the winter in the borders are always finest, but those kept in pots are well worth the trouble. Seed three or four years old is better and more likely to produce double bloom than that of one year old. *F.*

CREEPERS—*W W*—Hardenbergia macrophylla (blue), Mandevilla suaveolens (white), Clematis azurea (lilac), Caprifolium japonicum (pale yellow), Tecoma australis (dark orange). We never give prices.

DAHLIAS—*J M F*—No report of the Dahlia Show you mention appeared in this paper. We cannot assist you in selecting the new sorts coming out this season. The following varieties sent out last year are good show flowers:—Proctor's Nonpareil, Keyne's Standard of Perfection, Spary's Lady Antrobus, Turville's Essex Bride and Bermondsey Bee, Brown's Lady St. Maur and Raphael, Sir J. Stewart Richardson, and Smith's Sir R. Sale.*

DOLICHOS LIGNOSUS—*A Subscriber*—It requires a great deal of pot-room, plenty of light, and not more heat than is derived from the sun.

GAS-TAR—*Sub*—We have never heard of oil being used with gas-tar; all that is required is to make it *hot*, and to apply it in that state. *S.*

GRASS-SEEDS—*Alethro*—You do not want any Grass-seeds. Fill in the joints as you propose, and as soon as the Grass begins to grow, it will run from turf to turf, and hide the openings. Roll it well. If you *will* have Grass-seeds, take Crested Dog's-tail and White Clover.

HYACINTHS—*Corylus*—The offsets should not be removed till the foliage is withered and the roots perfectly dry.‡

INSECTS—*E A*—No. 1 is Timarcha tenebricosa; 2, Pæcilus cupreus; 3, Cychrus rostratus. *R.*——*Donald*—Your insects are the males of *two* species of Coccus; but you should have sent the females with them, and a leaf of the plants they inhabited. *R.*——*B C*—The weevil is the Curculio picipes, described and figured in the 1st vol. of this journal, p. 292, to which I must refer you for the remedies. I should like to learn the result of the application of gas-water. *Nipping* the infested leaves of the Apricots answers every purpose. *R.*——*K L*—It is a thrips which has injured your Cucumbers, and fumigation with tobacco or sulphur, is the best remedy.——*Valisneria*—Please to send us some of the small water-insects you complain of, without which it is not possible to answer your inquiries. *R.*——If a *Subscriber* will transmit us specimens of the caterpillars destroying his Cherry, Apple, and Pear-trees, we will advise him on the subject. *R.*——*J N*—We cannot at present furnish the information you require respecting the toad. Have you searched Rees's or any other Cyclopædia? *R.*

LOCAL SOCIETIES—*President of W. H. S.*—Thanks.

MANURES—*W R*—Guano should be applied when the land is wet, or mixed with water. It is unfit for Peas, and only makes them run to leaf. It is excellent for Strawberries, and is advantageously applied when they are *about* to flower.——*Sub*—You may apply nitrate of soda to your lawn at the rate of 2 cwt. per acre. Let it be dissolved in abundance of water, and applied by means of a water-cart.‡——*J L*—We believe that bone-grease may be obtained by boiling and skimming. The last prices of the manure market were given at p. 266.‡

MORPHOLOGY—*A B*—Your Polyanthus, called Charles in the Oak, is one of the best evidences of Morphological truth. The cup (or calyx) is generally angular and five-toothed. Botanists say that it consists of five leaves imperfectly formed; ignorant people disbelieve that statement, and call it atheistical. Here you see that whether atheistical or not, it is true; for the five leaves, instead of being imperfect, as is usual, have, owing to some unknown cause, grown into five small but perfect leaves.

NAMES OF FRUITS—*E M*—Eriobotrya japonica.‖——*D D*—Not known.‖

NAMES OF PLANTS—*S Warnford*—It is impossible to say what your Narcissus is from a withered flower and no leaf; but it seems curious and distinct in its present state.¶——*J C*—1, Narcissus anceps; 2, N. calathinus; 3, N. Macleaii; 4, N. stramineus; 5, N. parvulus.——*J C*—Xylosteum alpigenum.——*B*—Oncidium luridum.——*Nuuzy*—Some sort of Cucurbit; perhaps a Water Melon.——*Sub*—We cannot undertake to name florists' flowers.‡——*A Gall*—It is impossible to say what kind of Acer either is from such twigs; that in the letter is not A. dasycarpum. Send full-grown leaves in summer, and then you can have the proper names.¶

PANSIES—*G P*—Procure the following 12 flowers:—Major's Bridegroom, King's Exquisite and sulphurea elegans, Pierson's Prince Albert, Buxton's Ne Plus Ultra, Cook's Paragon and Mulberry Superb, Pierson's Black Prince, Brown's Curion and Arethusa, Thompson's Coronation and Pizarro. Two parts good loam, enriched with one of well-rotted manure, is a suitable soil for Pansies.*

PELARGONIUMS—*Tristan*—Instead of plunging the pots into the soil during the summer months, your plants will succeed better if they are turned out of the pots and planted into the beds; they may be taken up and potted again in autumn.§

PLANTING—*W F G*—Col. Greenwood's plan of transplanting is, we doubt not, a good one; we, however, know nothing of it beyond what is stated in his book, which was reviewed in a former number.

POTATOES—*A Moss*—The Potatoes are yellow, mealy, and *excellent.*

ROSES—*M C K*—The "Tree Rose" gives practical instructions for its formation and culture. You had better order it of your bookseller; if that is very inconvenient we will send you a copy by post.

SEAKALE—This is so easily grown that we dare not promise any lengthened observations on its growth, so long as we are so much pressed upon by other matters, but your letter shall not be lost sight of. The plant likes stiff soil, and salt and water applied abundantly; give each plant over head ½ oz. of salt in a quart of water weekly for six weeks, when in full growth. As soon as the cutting is over withdraw the covering pots, and leave the plants to their fate. We suspect you to have been taking too much from your stools.

SOIL—*Taunton*—It is difficult to say why young Apple-trees will not thrive where old ones have been previously growing; the fact is well known. Theory says that the roots of the Apple throw off excrementitious matter which other Apples will not grow in: but experiment does not confirm the speculation. The belief is that the soil is utterly exhausted of something which the Apple *must* have to grow in: that something is probably mineral matter; try the effect of adding to the soil lime, with nitrate of soda in small quantities. Pears and Plums will follow Apples, with better success.

THE ANIMAL OAT—Would any good-natured person oblige the Editor with a few seeds of this old fashioned, and now forgotten, but most curious annual? Unpaid to Dr. Lindley, Turnham-green, London.

VINES—*J L*—The green excrescences on your Vine-leaves are produced by excessive growth. You have kept the house too damp and hot, and have forced the leaves too fast, with too little light. Such exuberant growth is unsightly, but of no other importance.

VIOLETS—*Sub*—You will find directions for the management of these in last week's Paper, at p. 276.‡

WORMS—*A Sub*—Lime-water kills them as soon as it fairly bathes them; how often the pots must be watered depends upon the state of the soil. If in good order, once, or at the most twice, is often enough.

MISC.—*Sub*—The Pelargonium sent is not the "Rising Sun."*——*F G S*—Tweezers for dressing flowers may be procured from any respectable seedsman, who will also most probably be able to tell you where the wire is to be purchased.——*Corylus*—The properties of the Fuchsia will be given in a future Number.*——*A B*—You can have the Number mentioned.——*J P H*—Sheet-glass will not resist the blow of a storm; but rough plate-glass, such as is advertised, will. The space, *e f g h*, will do perfectly well for a span-roofed conservatory, provided trees do not approach it *very* nearly on the north, &c. But you had better use as large squares of glass as you can readily get, and, under your circumstances, that glass should be white and clear on all sides except the south. In all probability, your Coronilla was killed at the bottom, though you did not perceive it. If its roots are alive, it *may* push again: but we doubt it. Mildew is to us a most mysterious disease: we will print your letter, and it may elicit an opinion from somebody.——*Highgate*—We will answer your inquiry when we can find the plant you mention. London-bridge is a large building; be so kind as name the whereabouts of the granite masses on which the plant is growing.——*A Sub*—Plant out your Tobacco 2 feet apart in rows of rich soil, and protect the plants from frost. First, however, put the seedlings three in a pot, and keep them there till they have made four leaves. It is very possible to over-manure Broccoli; manure is best dug into the ground some time before the plants are lined out. Trim your Fuchsia corymbiflora to a single stem, train the head umbrella-shape; give it good soil, the shelter of a conservatory, and plenty of light and pot-room. You probably kept it in the shade too much. The stocks shank off from too much *cold* moisture in the soil.——*G J A*—The cheapest material for shading greenhouses is a course canvass that may be had for 5*d.* a yard; the easiest way of using curtains made of such materials is to attach them to pullies in the top of the roof, and to draw them up when wanted. Rollers are always out of order. Such canvass will not permit bees to pass *through* it; but, of course, they will find their way in between the joins of the separate curtains. If you want to exclude bees, you must use threads stretched across the openings, or very coarse muslin.——*F H*—Rhododendron Smithii is not hardy.‡——*Sub*—Had you not better ascertain whether your Tropæolum is sound? We should think not, or 70° would surely have started it into growth; should it, however, show signs of growing, remove it immediately to a light and airy part of the greenhouse, as, if forced to grow too rapidly it will be apt to lose its leaves afterwards.‡——*P Mackenzie*—Yes, with much pleasure; but how can it be sent?——*A E*—We believe the fruit to which you allude is the Momordica Charantia.

SEEDLING FLOWERS.

CALCEOLARIAS—*Sub*—The outline of your seedling is good, but it is too flat in front, and the blotch dies away gradually instead of having a clean edge.*——*J H E*—None of your seedlings possess much novelty; they are very good flowers, varied in colour and marking; 1, 2, 3, 6, are the best in the collection.*

CINERARIAS—*D*—A large flower of good colour, but too starry.*——*G H*—Three good seedlings, of which we prefer No. 3, on account of its compact and slightly cupped form; 1 and 2 are repetitions of sorts in cultivation.*——*J D P*—No. 4, the quilled variety, is worthless, from the irregularity in the form of the flowers. No. 3 is very pretty but too small. The notched petal of No. 2 is a great fault, being so evident, otherwise it is a delicate and pretty variety.*

CORRÆA—*J D P*—Your seedling is no improvement.*

PANSIES—*J M B*—Your seedling is a large and bold flower, faulty in its outline, and too ragged on the edge of the petals.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

Farms to Let.

TO BE LET, and entered upon at Michaelmas next,
TAPNEL FARM,
In the parish of Thorley, in the Isle of Wight, containing :—

	A.	R.	P.
Arable	337	2	35
Meadow and Pasture	153	2	30
Homestead &c.	5	1	17
	£496	3	2

This Farm will be Let either on Lease for a term of years, or subject to Tenant rights on the Lincolnshire system.—For further particulars, apply to Messrs. Sewells, Norris, and Estcourt, Solicitors, Newport, Isle of Wight.

TO BE LET, on the 25th of March, 1846, a FARM from 600 to 700 acres, chiefly Arable, but containing a proportion of Pasture and Water-Meadow ; the land is of first-rate quality, and varies from a red marl of great depth to a lighter description on a subsoil of gravel. There is an excellent Dwelling House on the Farm, which is situated in a Midland County, 3 miles from a Railway Station, and near good markets. An agreement will be given, securing the capital of the occupier, to the fullest extent. The object of the proprietor in advertising is, to secure a Tenant of large capital, and who is determined to farm on the most approved principles of modern agriculture.—Direct, A. B., Arthur's Club, St. James'-street, London.

NATIONAL MODEL FARM, GLASNEVIN, NEAR DUBLIN.
MR. SKILLING, Agriculturist, having received permission from the Commissioners of National Education to receive into the above establishment a superior class of Agricultural Pupils, from and after the 12th of May next, Twelve will be admitted. Terms for Board, Lodging, Washing, and Instruction, 30*l*., per annum, payable half-yearly in advance. Gentlemen wishing to avail themselves of the instruction given by Mr. Skilling, without residing in the establishment, may attend his lectures and receive practical information upon the payment of 20*l*. per annum, payable half-yearly in advance. The pupils will receive instruction in the theory and practice of Agriculture, and in the ordinary branches of an English Education.
Further particulars will be given upon application to Mr. Skilling, at the Farm.—Glasnevin, May, 1845.

PERUVIAN GUANO.
The Inca's cargo of PERUVIAN GUANO, imported by Messrs. Wm. Jos. Myers & Co., Liverpool, the Agents of the Peruvian Government.
H. AND J. WEBB having purchased the above Cargo, will have much pleasure in handing any one the Analysis of the same, by Dr. Ure, M.D., F.R.S., Professor of Chemistry, London.
Dr. Ure, in his Report, says—"This is a cleanly-collected primitive Guano, in a state of entire preservation, being the genuine excrement of the birds, and the proportion of rich organic matter is double of that in the average Ichaboe (African) Guano, and the Ammonia is 70 per cent. more."
He also adds—"From its large amount of Potentia Ammonia its beneficial operation will continue for four or five seasons."
H. and J. W. have just received another Cargo of LINSEED-CAKE, of first-rate quality.
CRUSHED LINSEED, NITRATE OF SODA, AFRICAN GUANO, GYPSUM, SULPHURIC ACID, &c.
City Wharf, Bath Road, Worcester.

GARDEN, FLOWER, AND AGRICULTURAL SEEDS.
CLARKE AND CO., Seedsmen, 86, High-street, Borough, beg leave to submit to their Customers and the Public, the following choice assortment of Seeds which they can confidently recommend, having been selected from the best stocks. A collection of Kitchen Garden Seeds, one year's supply for a large establishment for 30*s*. ; a collection of do. do., in smaller quantities, 15*s*. ; 65 papers of choice Half-Hardy and Hardy Annual Flower Seeds, for 10*s*. ; 25 papers of New Sorts of Flower Seeds, such as Viscaria oculata, Nemophila discoidalis, Phlox Drummondii, Clintonia, Martynia, Brachycoma, &c. &c., for 6*s*. A collection of German imported Asters, in 24 Superb Varieties, for 4*s*. ; a collection of German 10-week Stocks in 36 Superb Varieties, for 5*s*. ; Double Purple and Double Brown Wallflower, 1*s*. per packet ; Emperor Stock, blue and scarlet (of superior beauty, lasting six years and blooming three or four times in the season), 1*s*. per packet ; with every other description of Garden and Flower Seeds at equally low prices. A list of prices of a choice assortment of Field Turnips can be had on application. Genuine Ichaboe Guano at 7*l*. 5*s*. per ton, or in small packages for the accommodation of Amateurs, 4 lbs. for 1*s*.—London, May 3.

BRAIN'S GYPSUM, 23*s*. per Ton, Good and Cheap.
No. 397. April 24, 1845.—This is to certify that we have examined a sample of Gypsum sent by Mr. BRAIN, of Thomas street, Stamford-street, and find it contains

Sulphate of Lime	94·10
Water	5·00
Carbonate of Lime	·90
Animal Matter and Soda	Traces.
	100·00

(Signed) Mitchell & Field.
5a, Hawley-road, Kentish-town, London.
Delivered free of Cartage to any Wharf or Rail in Town.

The Agricultural Gazette.

SATURDAY, MAY 3, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, May 7 { Agricultural Society of England. / Highland and Agricultural Society.
Thursday, May 8—Agricultural Imp. Soc. of Ireland.
Wednesday, May 14—Agricultural Society of England.
Thursday, May 15—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

May 5 { London / Stewponey
May 10 Darlington
May 12 { Rochford Hundred / Framlingham
May 15—Grove Ferry
May 15 { Richmondshire / Blofield and Walsham
May 15 { Stoke Ferry / Debenham
May 16 { Wrentham
May 17—Cardiff

THE present is the proper season for TOP-DRESSING OUR GRAIN CROPS. As the winter has been a prolonged one, it is quite certain that the Wheat harvest will be late, and it is extremely probable that the plant will be found to have suffered in many cases a still more serious injury.

Under such circumstances the means of invigorating its growth, which we have in the application of stimulating food to the weakened and retarded plant, become peculiarly valuable. And in order to answer at once the numerous inquiries we receive on the best way of pushing forward vegetation and promoting the development of numerous and vigorous stems, where the root, owing to the long period of alternate frost and thaw, is now thin and weak, we take the present opportunity of calling attention to the subject.

The practice of top-dressing grain is not a new one. In many parts of England it has long been the custom, at this season of the year, to apply top-dressings to sickly crops upon weak soils. Soot, salt, rape-dust, and other substances, have been more or less so used as fertilisers. Although, however, top-dressings may have been very generally successful, centuries of experience in their use have left us no trustworthy principles to guide future practice, much less have they predicted the advent of a period, now confidently looked forward to, when a specific application may be made to a crop, under given circumstances, and its results, in every case, anticipated. This fact is a clear evidence of the inadequacy of any amount of experience by itself to direct us, under all circumstances, in the march of improvement. A true *theory* of agriculture is wanted to guide us in our search after "fresh fields and pastures new," from which each succeeding generation may derive the increase of food which it requires. The fisherman, it is true, can navigate with certainty when he keeps near his own shore ; but he who would "venture more," and visit strange seas, must steer by compass and chart.

In the case before us, having no knowledge of the causes which operated to produce beneficial effects upon the crop, the occasional failure, and the occasional success of top-dressings, did not afford to the farmer a rule by which he could, in the one case, find a more efficient, and, in the other, a more economical agent. This, we repeat, was a difficulty whose solution was beyond the ability of any amount of that practical skill which depends solely upon experience. Since, however, science has been adopted as a guide by the labourers of the field, the case has assumed a different aspect. The food essential to the perfect nutrition of the plant ; the quantity of such food existing naturally in the soil ; and the proportion of each element of it, as it exists in the manures usually applied, are no longer matters of vague conjecture. The intelligent cultivator is, in fact, now able to select for use those manures which contain the greatest proportion of the matters which his crops require, or which his soil is especially deficient in ; and consequently he is able to explain, with some degree of certainty, the success or failure of his operations ; and to predict the effects of an intended application.

For the most comprehensive attempt which has yet been made to test the merits of the various fertilisers, and to note their effects in a manner admitting of conclusions illustrative both of principle and practice, we are indebted to the Highland and Agricultural Society of Scotland. In 1841 that Society offered prizes of 50*l*., 30*l*., and 20*l*., for the best Essays "on the Effects of Special Manures ;" pointing out for trial a great variety of substances. In 1844 these prizes were awarded, and the successful papers have since been published in the "Transactions" of the Society. We shall not attempt to give any abstract of the experiments and investigations reported in these papers ; such reports cannot be abridged without mutilation. They form, however, a valuable book of reference for the agriculturist who would inquire into the peculiar and specific action of a great variety of manures upon different crops. As we have already said, they are not only strikingly illustrative of the *theory of manuring*, but they also place before the farmer a chain of facts which are safe guides to future *practice*, especially as regards that branch of manuring—top-dressing—to which we now refer.

In proof of this, we may quote the following conclusions, deduced by Mr. John Hannam (who obtained the first prize), and by Mr. Gardiner (who was the next successful competitor). Upon the Wheat crop, on thin limestone (magnesian) soil, Mr. Hannam's investigations show ("Transactions," March, 1844, page 195, &c.) :—

1st—That *nitrate of soda, nitrate of potash,* and *soot,* have a tendency to increase the produce of Wheat, both straw and grain.

2d—That *common salt* has a slight tendency to increase the quantity of grain, and to decrease the *weight* of straw (mark the "*weight* of straw," as it will be observed that it does not diminish the bulk) ; and that *common salt* increases the weight per bushel of the grain, and hence it may be advantageously used as an auxiliary to other manures.

3d—That *sulphate of soda* has no visible effects upon the Wheat crop.

4th—That *ammoniacal liquid,* from the gas-works, has an astonishing tendency to increase the produce of Wheat ; and that the gas liquid has the same effect upon the green plant as the nitrates, viz., renders the colour darker, and retards the process of ripening.

5th—That *sulphate of soda,* 1 cwt., fails to supply the place of half a cwt. of nitrate of soda.

6th—That *common salt* diminishes the weight of straw more than the bulk, and renders it white and brittle ; and improves the sample and weight of the grain.

7th—That nitrate of soda may be applied with the greatest advantage as a top-dressing for winter Wheat, which does not answer our expectations at spring.—The following are also a few of his conclusions on the effects of manures upon the Barley-crop on the same soil.

1st—That guano is superior to Rape-dust.

2d—That saline applications may be used with success upon soils which require manure.

3d—That upon a soil which has had Rape-dust as a manure for grain for a length of time, a dressing of saline manures may be advantageously used upon the Barley-crops.

4th—That *nitrate of soda* increases the crop of straw in a greater ratio than the grain, and renders the straw soft and bulky.

5th—That *salt* increases the grain more than the straw.

6th—That *salt* as a top-dressing, auxiliary to Rape-dust, &c., is extremely valuable, and improves the produce in quantity and quality.

7th—That *salt* applied alone, or with another substance, has the same visible effects—acting at the latter period of the plant's growth, and blanching the straw and stubble.

Conclusions of a similar nature are deduced from several other experiments upon all sorts of grain. Mr. Gardiner's experiments with the same substances lead him to conclude (pages 231-249—"Transactions Highland Society," July 1844) :—

1st—That all dressings and manures, containing a large per-centage of nitrogen ; as guano, Rape-dust, salts of ammonia, nitrates of soda, &c., make the grain grown by them lighter in weight per bushel, while at the same time they give more bushels per acre as well as more straw.

2d—That, on the other hand, such manures as common salt give heavier grain per bushel but fewer bushels per acre.

3rd—That if the same be found to hold good in other places, the most judicious and economical method is to use a mixture of these, as common salt with nitrate of soda, or any of the others ; the one will give *quantity,* while the other will give *weight.*

4th—That guano does not lessen the weight of grain quite so much as the nitrates of soda and potash, and that a mixture of it with salt would, there is reason to believe, become one of the best dressings for Wheat crops.

5th—That salt will in places far from the sea, in general, be found advantageous as a dressing upon grain crops ; although it does not bring away a rush of growth like the nitrates it will be found in such places that it will cause the grain to weigh more and be of better quality in clearness of colour and plumpness.

6th—That the sulphates and muriates of ammonia act in the same way, and have the same effect as the nitrates of soda and potash.

7th—That sulphates of soda and magnesia act differently, and in many cases will not pay when applied to grain by themselves.

8th—That soot differs little in its effects from the nitrates ; but that upon grain its effects are more evanescent.

9th—That guano is "a universal manure," and "has in all cases been found an acquisition."

We shall next week examine the practical and theoretical tendency of these conclusions.

THE CULTIVATOR, OR SCARIFIER.

As I see you have lately been describing this implement in your Paper, I take the liberty of forwarding to you an account of the proceedings at a trial of several forms of it which I lately had the pleasure of witnessing on the estate of W. H. Hyett, Esq., Painswick. The object of this trial of implements was as much to test the relative merits of the Dynamometers (Clyburn's and Cottam's) employed as to ascertain the points on which the merits of an efficient cultivator must turn.

The field on which the experiments were tried was on the side of a hill ; the upper part of it contained a great deal of Couch, and was thus well suited to test the capabilities of the implements ; the lower part of the field was cleaner. There was a marked difference in the quality of the work performed, and without naming those implements which, in my opinion, excelled the others, I may safely say that one point (to which, indeed, you have already alluded at p. 193) was clearly brought out, viz., that the liability of the cultivator to clog in foul land is greatly diminished by the rows, in which the teeth lie, being placed *obliquely,* not directly, across the implement. A greater distance is thus permitted between the teeth themselves, while the nearness of the paths in which they move in the land remains unaltered. Another point which was also determined as conducive to the self-cleaning ability of these cultivators is the height of the framework of the implement above the ground.

In reference to the indication by the dynamometers

of the draught of the various implements, I am unable to give the precise number of stones to which it amounted, but there are one or two points to which I may advert. 1. The difference in the draught, when working in foul and in clean land, was not so much as I expected; on the average it did not amount to above 16 or 18 per cent. on the whole—being, when the bottom of the tines were set 3 inches below the plane of the bottom of the wheels, about 41 stone for the foul land, and 35 on the clean. 2. Nor was the difference in the draught, when working up and down-hill, so considerable as might have been expected; the up-hill averaging somewhere about 40 stone, and the down-hill not much more than 35. As regards the two dynamometers, the indications of Cottam's, as registered by an observer, generally exceeded those of Clyburn's, registered by itself, to the amount of 10 to 12 per cent.; but there was a wonderful uniformity in these differences, showing that, when observed by a careful and competent person, this dynamometer may be usefully employed—the difference may have arisen from the scale being inaccurately divided; or, as is not improbable, it may have arisen from the observer being more struck by the maxima in the variable position of the index than by its minima, and being thus induced to place the average somewhat higher than its proper position on the scale. Without, however, entering here into the question how far the variable force employed in the draught of agricultural implements is capable of accurate indication by the variable collapse of a spring; it is, at all events, clear that, assuming its accuracy, it is far better that this indication should be registered on paper by the same instrument which exhibits it, than that its amount should be left to the estimation and award of an observer. — *John Morton, Whitfield, Wotton.*

ON DIBBLING SEED.

You will doubtless accuse me of a very inhuman desire to hunt this unhappy subject to death; but, if you have a spare corner of your Paper, I will beg it for the accompanying observations.

Some persons whom I have conversed with upon this matter, have thought there was not sufficient evidence for the importance I have attached to nicety in depositing the seed at a certain depth, and they have appeared to have been less aware of the nature of the roots of white corn crops than I had thought probable when I sent you my former remarks upon dibbling. I therefore send you herewith a sketch of two young Wheat plants, if you think that the introduction of it into your Paper may add to the information of any of your readers. Of these, fig. 1 is a dibbled specimen; fig. 2, a drilled one. Upon examination of these two plants, the benefit of securing a proper depth to the seed cannot, I think, be at all dubious. It will be seen that from the germ of each there is a kind of neck (*a*) up to the point at which it is about to emerge from the earth. From the shoulder (*b*), which is next above this neck, proceed those roots which are commonly termed the coronal roots; the lower end of the neck is furnished with other roots striking deeply into the ground. Now, it is very plain that plants like Wheat, Barley, or Oats, which grow to a considerable height, must, when agitated by the wind, exercise a very powerful leverage over the roots; if those roots, therefore, commence their branches immediately at the surface of the soil, as in fig. 2, although they may be ever so strong or numerous they will not be able to preserve the perpendicular direction of the stems attached to them; the stalks may be thrown down even while the roots are as firmly as ever fixed in the earth. But, if the neck be fully developed as in fig. 1, it will be impossible that this can be effected without great violence, because the tap roots act as the stepping of a mast, while the coronal roots steady it as the shrouds do. In this case something must break before the plant can be thrown down, which in the other need not happen. Now, upon inspection of a natural specimen of this neck, it will be perceived that though slender it is of a very stiff and unyielding nature, to which fact the durability of it will bear witness, for it will be found nearly perfect in all the stubbles which have stood the wet and frosts of winter. If sown or drilled stubbles be examined carefully, there will be found necks of every length from 3 or 4 inches long to almost nothing at all, and it will appear that these different lengths will be owing not to any capriciousness in the plants themselves, but solely to variation in the deposition of the seed, for it will be shorter or longer in exact proportion to the depth at which the grain shall be placed in the soil. This the remnant of the seed will prove; and further inspection of corn-fields antecedently to harvest will show that the best tillered and most erect plants are those most perfectly furnished with this highly effective apparatus, while those which are lodged or root-fallen are wholly or partially destitute of it.

From such facts we can only conclude that a shallow deposition of the seed makes it impossible that Nature's provision for the future stability of the plant shall be carried into effect. The only objection to this statement which occurs to me at present is, that Nature could never have intended that a grain of Wheat, Barley, or Oats should be sown at any depth in the soil, because, in the absence of human labour, this was not likely to take place extensively; but the same objection might be urged against growing Pine plants in England to which climate they are not indigenous, and yet the finest Pines are grown here. We may therefore conclude, without any arrogance or impiety, that we may improve upon the ordinary operation of Nature in the case of the Cerealia also; and, indeed, instances of this are so very frequent, that it is quite unnecessary to dilate upon the point. Since then there are evident signs of the superiority of such plants of white corn as have been set at a proper depth, over those which have been carelessly disposed on or near the surface; it is plainly indicated to the agriculturist, that inquiry as to the proper depth, and exactness in attaining it, are subjects which may very advantageously occupy his attention. The want of this attention or of the means of correctly performing the operation, will satisfactorily account for some of those disappointments which farmers so frequently experience when their crops are coming into ear. On good ground the plants which have not a full develop-



Fig. 1.



Fig. 2.

ment of the tap-root will tiller quite as well, and for a considerable time present as promising an appearance as those which have; it is only when increased height and the swelling ear acts forcibly upon the roots that the defect begins to be seriously disadvantageous; they then become lodged or root-fallen. Dry weather must also be more prejudicial to these superficially-rooted plants, since their descending roots are both less strong and less numerous than the others.

The hand-dibble of your correspondent "Capensis" seems to be an useful implement; its operation, however, must be slow, and I should think the pressure it exercises would be likely to destroy the seed in hard or strong soils. The machine which I have already alluded to in your columns acts upon a principle somewhat similar, except that it obviates this probable disadvantage, by sinking the solid end of the dibble in the soil, then delivering the seed, and afterwards pressing it down.

I do not know whether it has ever been practised, but it seems to me that the mechanism which Nature provides for securing the erect position of the Cerealia would, if imitated, be the most effectual method of steadying newly-planted trees.—*H. W., St. Giles's, Oxford.*

FIBROUS COVERING STIMULATES VEGETABLE GROWTH.

A light covering of *straw*, for instance, on Grass land, will stimulate its growth in an extraordinary degree; much more indeed, it would appear, than can be accounted for on the supposition that the ground is thus kept moist in dry weather. As I have not seen much reference hitherto to this subject in your columns, I send you some answers to the following questions, which I have received from G. Gurney, Esq., of Woodleigh, Cornwall, who first directed attention to this subject:—

1. What crops has the process hitherto been tried on with success? Ans.—Meadow Grass, Clover lea, Vetches, and Wheat.

2. At what period of the year is it best to apply the covering? Ans.—From the beginning of April to the end of October it is the most powerful in its action. For early Grass it should be applied at the end of Feb.

3. Is the covering allowed to remain on till the crop is ready for cutting, *i. e.* supposing Grass to be the crop? Ans.—It is generally removed three or four days previous to cutting. It is lifted, that is, raked up and relaid about every three weeks, while the Grass is growing.

4. What material is used in covering? Ans.—Wheat straw, Oat straw, Rushes, or Brushwood. In this scarce year of straw, Rushes and Heather have been much used.

5. What weight of material should be used per rood (¼ of an imp. acre)? Ans.—1½ ton (25 cwt.) per statute acre, if Wheat straw; this will furnish a measure for other materials used.

6. What instances of success has the process met with in your experience? Ans.—The instances are very numerous; there is no instance on record where it has failed, except in cases where too great a quantity of fibrous covering had been used, or which is by far the more general where too little had been applied. Most persons on first using fibrous covering, are afraid of using too much.

In addition to this, I take the liberty of copying the following remarks made by Mr. Gurney, in June last, at a meeting of the East Cornwall Experimental Club, as they were reported in the newspapers of that date.

"About seven weeks since, I covered half a field of 3 acres of Grass in this manner, and about a fortnight since, when examined, the increase was found to be at the rate of 5000 lbs. per acre over the other part of the field. At the same time the straw was raked off, and laid in rows about 12 feet apart on the field; 115 sheep were then put into the field with a view to eat it down as quickly as possible, and after they had been there about a week they were succeeded by 26 bullocks to eat off the long Grass which the sheep had left: the field was eaten as bare as possible. The same straw was now thrown again over the same portion of the field from which it had been raked, and, on inspection this morning, I found the action going on under it as powerfully as before."—To this I have to add a few sentences from a letter with which I have been favoured from Mr. Gurney: "If you lay about 20 lbs. of Wheat straw lightly over a piece of Clover lea or meadow Grass, of 18 feet long by 18 feet wide, you will very soon see for yourself the singular action of fibrous covering; rake it off in about a fortnight, and relay it; observe the change produced on the piece of Grass as compared with that of the other parts of the fields. In my practice the covering is 'lifted' (*i. e.* raked off and relaid) about once a fortnight or three weeks. I usually eat it off by sheep at the end of a fortnight; at the time it is lifted the straw is raked into heaps by a crescent tooth rake, and the sheep admitted into the field. If depastured by bullocks, I generally allow the covering to remain three weeks; these periods are, however, regulated by the nature of the soil and the weather. If you will make an experiment on Vetches, and also on Wheat, you possibly may be interested in watching its action. I have given you the quantity of straw on a definite extent of ground that you may be enabled to judge of the best thickness if used over fields on an extensive scale. I shall be happy to hear the results if you make any experiment. I am desirous of comparing the different results of experiments making in several parts of this country with a view to determine the *rationale* of the action; experiments are being made also in different climates, some in Russia, and some under the line: it will be curious to see if this, or the nature of the soil, has any influence."

I must also add the following paragraph on this subject, from the *Cornwall Gazette*, being a report of the discussion on this subject at a late meeting of the North Cornwall Experimental Club:—

"In reporting the further results of Gurneyism several curious facts came out. The Rev. W. Wright, of Marhamchurch, said he had this year produced con-

siderable increase in the growth of Vetches by its action; on other herbage the effect was similar to that of last season. Mr. Rowe said, that Grass had grown 4 inches within the last three weeks at Poughill; that it was of a dark green colour, and looked healthy and strong. The report of the effects of fibrous covering this season showed that its action was not owing to the shade or drought, as supposed by many last summer. The chairman reported the results of several interesting experiments on the influence of fibrous covering, placed at given distances above the ground. He had supported the covering on light frames, elevated respectively, 3 inches, 6 inches, 1 foot, 2 feet, and 3 feet above the ground. Also, at the same time, he had in the same field laid some Wheat straw lightly on the Grass. He had noticed and measured as accurately as he could the effect produced under the coverings. The experiment was made on the 26th March, and about a land yard of ground in each case was operated on adjoining each other. Under the lowest covering, there was soon a darker colour visible, and the white Dutch Clover made its appearance; in about four days, the outline of the pieces was distinctly formed. The rest followed in succession. On the 17th of April the first had grown through the covering; under that of 6 inches high, the Grass had increased about 5 inches in length, above that of the other parts of the fields; and was rapidly making its way to touch the covering. Under a foot, the Grass had increased about 3½ inches in length. Under the covering placed 2 feet above the ground, the Grass had increased only about 1¼ inch; and under that of 3 feet elevation, there was simply a marked outline, visibly showing an action going on; the Grass was darker, looked stronger, and thicker, but was not of sufficient length above that surrounding it to be measured. Under the straw laid on the ground, the Grass had increased about 3 to 4 inches. The most rapid growth was that under the covering placed 3 inches above the ground. He was repeating the experiments at lower and higher distances, and would communicate the results at their next meeting. Many reports were made of the effect of this singular action in practice. It appeared that in one of the midland counties a ton and a half of Wheat straw, per acre, had produced within the last month, 2 tons of Grass. When raked off, it was said, 'no watered meadow looked, or was believed to be, equal to a well Gurneyised field.'"—*J. M.*

Home Correspondence.

Poultry.—Having been much interested in observing the peculiarities of my poultry-yard, it has occurred to me that you may possibly consider what I am about to relate as of sufficient interest to deserve a place in your *Gazette*. During the greatest heat of the summer of 1843 (I cannot recall the date), a chicken was hatched in my hen-house, from a nest-egg which had so long served the purpose that it was on the point of being removed; it was hatched by the hens which successively chanced to lay their eggs in the nest, aided by the unusual and equable heat of the atmosphere. Another circumstance of interest and peculiarity occurred in the same poultry-yard last summer, in June. A brood of guinea-fowl were hatched by a hen, and, at the end of five or six weeks, were deserted by their foster parent; they then attached themselves to another hen, and the attachment has continued on both sides up to the present time. Only two of them now remain, and they are the terror of the poultry-yard, waging war with every cock and hen; their favourite alone escapes their tyranny, but to her they are always gentle. They roost together, fly to each other's rescue when attacked, and are seldom apart, showing every sign of affection of which they are capable. The hen is now laying. I am curious to ascertain whether, when she has a family of her own, the affection will continue undiminished, by jealousy on one side, and maternal ties on the other.—*J. R.*

Inorganic Chemistry is at the present time receiving considerable attention from the agricultural community, in its relation to the satisfactory explanation of the processes of vegetation. The theory of the necessity of alkali, and other inorganic elementary substances, to assist in the full development of the plant, is nearly universally received; but I have no recollection of having seen any record of experiments in which was fully demonstrated the impossibility of growing plants when any particular ingredient generally found in the species of plant under cultivation was entirely absent from the soil, every other condition being the same. Would not experiments upon a small scale—the experimenter having this object in view—be of great service to the practical farmer? as, if the fact which is assumed as to the absolute necessity of the presence of inorganic element is fully proved, it would completely establish the claim of chemistry on his attention; and this would be beneficial, for he is not generally very sanguine as to the advantages to be derived by him from an acquaintance with science. Superphosphate of lime has been found to be the best manure for Turnips; but as the Turnip is a potash-plant rather than a lime-plant, the superphospate would appear to act, to a certain extent, by enabling the plant to extract from the soil the potash generally found therein. Under this view of the action of the manure, the suggestion naturally arises that its value would be enhanced by the addition of potash at the time of using. This scarcely appears to be the case; as the addition of wood-ashes in quantity to the superphosphate does not give proportionate results in the increase of crop. Under these circumstances it would appear that potash, as a manure, is not so essential when superphosphate is used; and with this fact in view, the question has arisen with me—whether Turnips could be grown to the same advantage, by the use of superphosphate, in soils well known to be deficient in potash? The inorganic theorists say that it would be impossible; but would it not be desirable to prove its impossibility by experiment, and thus establish the truth of the positive necessity of particular inorganic element in the food of plants? A boon would be conferred upon the farming community if individuals who have opportunity and inclination would, on a small scale, direct their attention to the growth of plants in artificial soils, in which it was known no alkaline substances were present; at the same time inquiring how far the mineral may be substituted for the vegetable alkali, and how far the alkaline earths may be substituted for both. Experiments of this description, if conclusive in favour of the inorganic theory, would go very far to remove the prejudice of the farmer against the suggestions of science. The best way of proceeding would be to prepare a poor sand, by washing with acid to remove the alkalies, and then to give the ingredients of earth supposed to be favourable to the growth of the particular plant under experiment, with the exception of the particular substance to be withheld at the option of the experimenter. The results of comparative trials, conducted for the purpose of proving the necessity of certain substances as component parts of the soil from which they will be taken to effect the organisation of a plant, would, if published, be very valuable to the farming community.—*J. Birditt.*

Subsoiling Clay Land.—I am sorry I have so long delayed answering your questions respecting the experiment of subsoiling a retentive clay. The part of the field to which I alluded in my former communication, was ploughed in the autumn of 1843, about 5 ins. deep, and the subsoil plough moved the under part of the furrow about the same depth. I thus obtained about 10 inches of soil. After so doing, I crossed-ploughed it with a double mould-board plough, throwing up the furrows similarly to a Celery-mound. I imagined the frosts would then pulverize the same, and in the spring it would only require the cultivator to reduce it to a good seed-bed. To my disappointment I found the raised furrow fine on the surface, and wet and stiff at the bottom. I therefore harrowed it as level as possible, and ploughed it with a common plough. The stiff furrows hardened in a few days, and required the spike roller to break the clods. The weather continuing dry, I burnt the whole of the surface in heaps (of about half a cart-load in each), at an expense of three guineas per acre, including coal and spreading, and planted it with Swedes to draw off in the autumn. The plants looked well the first two months, but afterwards turned blue in the top, and were not so good as those in a field adjoining that was cross-ploughed but not subsoiled. After removing the Swedes I planted the part of the field with Wheat, and now that the burnt soil is thoroughly incorporated with the natural earth, the plants grow away vigorously, and the appearance is promising. To those who think the experiment an unfair one, as the cross-ploughing might have injured the land, I would suggest a trial without it, and shall be happy to hear the result was favourable. My own private opinion is opposed to subsoiling retentive clays. I have subsoiled 60 or 70 acres of sand and deep loam with great advantage. In fact, nothing can be better than occasionally shaking the under part of the Turnip soils. The same should be done when under fallow, and invariably dressed with lime afterwards.—*Henry Hudson, Jun., Wick.*

Employment of Surplus Agricultural Labourers.—At a time when poor's-rates, poverty, and population, are each and all upon the increase, together with the probability that the law of settlement will be revised, and a junction of parishes into Unions take place, it may be well to consider whether the rate for the poor is administered so as to create the greatest amount of benefits which such a sum of money would naturally command. It is admitted that one great cause for the rate is an excess of labour, and of this excess there is no diminution, rationally, to be expected. Instead of confining the excess within the ignoble walls of a Union house, I propose to place it in a position to earn its own livelihood under the glorious canopy of Heaven. This, I shall endeavour to show, might easily be done without any additional rate. I will take two counties, Norfolk and Suffolk, with their population, number of acres, and amounts levied as poor's-rates, and assume that for every hundred acres four agricultural labourers are employed, and call the excess 10 per cent. of able-bodied, *i.e.* 10 per cent. more than are required to cultivate the land, or rather, than are employed,—to illustrate the proposition—

	Population, 1841.	Acres.	Rate.	Assumed Excess Labourers.	Excess 10 pr ct.
*Norfolk ..	412,621	1,292,300	236.079	51,692	5,169
Suffolk ..	315,129	918,700	175,795	36 748	3,674

The rate, per head, of the whole population, is in Norfolk 11*s.* 5*d.* and in Suffolk 11*s.* 2*d.* I mention this to show that the poor's-rates of these counties nearly double the average of the kingdom at large, and that such a fact calls aloud for inquiry. I have said that a considerable portion of the rate is in consequence of an excess of labour, which I assume to be 10 per cent., forming as above 5,169 excess of labourers in Norfolk, and 3,674 excess of labourers in Suffolk. This then is the question—Is it better for the community that this excess should be provided for in a Union house at a rate not less than 10*l.* per head per annum, or that land of the annual value of 10*l.* should be compulsorily taken on hire in every parish, and placed free and uncontrolled in the hands of the most industrious portion of this excess of labourers for life? Such a reward, for good conduct, must eventually raise around us a much more contented and happy population. To effect it very little more than one-fifth part of the rate now levied would be absorbed, and that which was an excess replete with idleness and want, and sunk in all the concomitant evils attending such a degraded state, would claim its privilege to walk erect and put on the native dignity of man. These small allotments to industrious labourers would, at once, supply the link that has long since been required in the chain that should unite all mankind in one common brotherhood. To a willing mind, giving life and power to this sketch would be an easy task, for be the real per-centage of excess what it may, so long as the expense per head in a Union house for able-bodied labourers is 10*l.* per annum, so long will it be more wise, more humane, and more in conformity with Christian duty, to adopt some plan of this kind. To any who suppose that land of the annual value of 10*l.* would not support a man, his wife, and family, I would refer them to any industrious labourer. I would make the rate security for the rent to the land owner, and would require certain qualifications on the part of the labourers.—*Beccles, March*, 1845.

Runnet.—Numbers of persons are at a loss to comprehend many articles which appear in the journals, from the fact that very different names are applied to the same things in one part of the country to what are used in another district. When speaking of the runnet (page 215), "W." says, "it is made in the same way as usual," &c. Now, I presume, by runnet, he means the liquid produced from a solution of the calf's stomach cured. In order that he may better understand me, I beg to inform him that here the calves' stomachs are salted by the butchers, and placed in mugs, perhaps 50 or 100 together, for some time (part of the salt melting forms a pickle or brine); they are then sold by the butcher, and called bag-skins. The farmer, when he gets them home, shakes out the salt, stretches them with a strip of wood, and hangs them up to dry; some hang only one at a time, and use it while it lasts, whilst others (and I think the better plan) hang three or four, and cut a piece off each. The farmer, or dairy-maid, makes her steep (or liquid used for curdling the milk) every day, by pouring upon the cutting or cuttings of the bag-skin a certain quantity of water, and letting it stand till the following morning, when it is stirred in the milk to produce curds—that is what is here called "putting in the steep."—*W. Livesey.*

Domestic Poultry.—I should be glad if some of your readers, who are keepers of poultry, would supply a few plain and practical directions for the treatment of the various kinds, and particularly as to the best and cheapest method of feeding those which are necessarily confined to a poultry-yard, in order to insure their good health and productiveness. There are, I am aware, a number of treatises published with the view of supplying this information; but a short explanation of some successful modes of management would be infinitely more useful. As the subject of poultry is now frequently referred to in the *Chronicle*, it would be well if those dealers who can supply pure breeds would make use of your advertising columns, naming in all cases the prices.—*A Subscriber.*

Gorse.—Is not the Furze which seems to puzzle "Orthophilus" (see page 248) the Ulex hibernicus, which, I know, is used in some parts of Ireland as fodder? I have seen a small quantity cultivated in Gloucestershire for the same purpose; and it was found to answer very well for cows, being much more tender, and not nearly so rough as the English Gorse.—*A Subscriber.*

Top-Dressing—Grass-Lands.—There is scarcely any question on which farmers are more divided than the proper time of applying top-dressings to Grass-lands. Some are advocates for spring, and others autumn. I am of opinion that autumn is the proper time, it being the season of the greatest leisure to the farmer, and the land is then less injured by carting over it. The temperature of the soil and atmosphere being much colder in winter, the dung affords a protection to the tender roots of the plant, and whatever particles of fertility exist in the manure, are in winter washed down into the soil. A scorching sun and dry winds are more pernicious to manures spread thinly over the soil, than any drenching rain can possibly be. And the fact that those farmers who supply large towns with hay adopt the practice of autumn-dressing deserves consideration. Animal manures, either liquid or solid, before being applied as a top-dressing, to Grass-lands in particular, should be well incorporated with some earthy substance, so that the gases may be retained. For, spreading animal manures alone upon the surface of a field, is to manure the atmosphere, and not the soil. I would suggest to the consideration of farmers, whether it might not be proper in the first case to give Grass-lands a good harrowing, applying the manure immediately afterwards, which should be spread as evenly as possible over the field, then cover the manure with some earthy substance (of which the soil is deficient, if it can be procured), applying the roller after to consolidate the whole. By such means a good compost will be made in the field after the manure is applied. The soil spread over the dung, will not only absorb gases which would otherwise escape, but protect it from the sun and winds, till its fertilising qualities are incorporated with the soil. By pursuing this system, the objection to the application of

* Companion to the British Almanack for 1843, pages 192, 193.

unfermented manures is obviated. And the soil is so opened that any manure spread upon it gets at once to the roots. Consequently a small quantity thus applied goes as far as a larger quantity applied in the common way. After such a process, it will be advisable to sow a small quantity of Grass seeds to supply the place of what may have been torn up by the process of harrowing. Should the above be in practice by any farmer, I shall feel obliged by information on this subject through the medium of your Gazette. In conclusion I beg to say, that I consider it a bad practice to pasture early hay-fields late in autumn. There should be enough Grass left to afford the tender roots some protection against the severity of our winters. If the soil be well dressed with manure it can do little or no injury to pasture, in the early part of autumn, taking care not to let cattle upon it in wet weather.—*J. M'Intosh.*

Steeping Seeds.—Extract from a letter, May, 1843: —"Mr. Sabonadière, of Caub, on Rhine, has discovered that chloride of lime accelerates vegetation in an astonishing degree; he has communicated the discovery to a scientific body in Germany, who are causing experiments to be made. He showed me French Beans that had been steeped for four hours in water, in which a ½ oz. of chloride of lime to 1 gallon of water had been mixed; the Beans were up with two rough leaves, when other Beans which had not been steeped, and planted by the steeped ones, were not above ground, and only sprouted a little." The same effect was produced on Lettuces, and a little of the chloride, in powder, was put in the pot, in which was a hardy shrub which would never blossom, and in a short time it blossomed out of the "hard wood." Perhaps some of your readers may think the experiment worth repeating, and favour us with the result.—*Lusor.* [This is an old process.]

Beer-shops—an Evil.—Among the various schemes now proposed for alleviating the distress of the labouring classes—field gardens, labour-rates, &c., no one seems to think of the chief cause of all their misery—the beer-shops, which are increasing beyond all calculation, even in hamlets of not more than 50 inhabitants. In places where the labourers have constant employment and good wages I know that seldom more than 3*s.* or 4*s.* is ever brought home at the end of the week for the support of their families, the rest of their hard earnings is all spent in these dens of idleness and vice—every additional beer-shop that is opened being celebrated by a new outrage or crime, in a neighbourhood perhaps till then comparatively well-conducted and peaceable. Independently of the increase of poaching, incendiarism, and every species of vice which is fostered there, to the utter ruin especially of the boys and very young men, is it wonderful that the most abject poverty should also prevail? that our villages should have lost their former neat and comfortable appearance? that ruined cottages, neglected gardens, tattered clothes, and universal wretchedness, are everywhere to be seen, increasing the poor-rates, and filling the prisons, while vain are the efforts of the clergy and upper classes, by means of churches, schools, lay readers, and all the charity which abounds in this country, to counteract the evil. Nuisances of other kinds, injurious to the health or comfort of a neighbourhood, are put down immediately without scruple by the strong arm of the law; but this pest, affecting soul and body, and rendering every endeavour useless to improve the condition of the labourers, is allowed to increase and corrupt every corner of the land. If any of those admirable persons who are doing so much for the amelioration of the lower classes, would but take this matter up, here is, indeed, the most important object for their exertions; and, without attempting to get rid of the evil entirely, which is, perhaps, hopeless at present, a Bill could surely be brought into Parliament to restrict the beer shops in parishes to a certain number, in proportion to the inhabitants. In the hope that some one may be moved to pity and exertion for the poor, who have none to help them (their natural guardians, and those in authority over them, only using their influence in this matter to lead them into evil, through a false good nature, that worst of sins, or as an encouragement to competition even in vice), I conclude this appeal, only observing that the framer of such a Bill would have all the well-disposed in the country in his favour, and, if successful, would be rewarded by the consciousness of having achieved the greatest good that could be conferred upon the agricultural labourers.—*A Landed Proprietor.*

Waste of Manure.—In the *Agricultural Gazette* of the 18th inst. appeared some remarks on the waste of manure in this country, and the necessity of chemistry finding out some method for the preservation of the manure of towns, which is now allowed to flow into our rivers. Some very sensible remarks on this subject appeared in the *Farmers' Journal* of January 13, which I confess that I am surprised in this manure-seeking age, did not attract more attention. The object of the writer was to point out the importance of preventing the putrefactive process, by which compounds of hydrogen are formed, and introducing the other form of decomposition, in which compounds of oxygen are substituted for those of hydrogen. This chemical principle, as it affects the decomposition of animal matter, has been long acknowledged by chemists, and also has been long acted upon in the manufacture of nitre on the Continent. The principle consists in admitting oxygen to the nitrogen of the animal matter, by which nitric acid (instead of ammonia), is formed and combines with potash supplied in the ashes of plants which are mixed with the decomposing material. The nitrogen is thus saved, and all offensive smells carried into the air by the formation and escape of ammonia), are prevented. Why this sensible and economical plan of preparing manures has not attracted the notice of agricultural chemists, is quite beyond my comprehension. A little consideration and a few trials will show, I am convinced, the superiority of oxygen over hydrogen as an agent of decomposition in the preparation of manures. —*Oxygen, Kensington.*

Fruit-trees in Hedge-rows.—I would claim your advocacy, from time to time, of the more extended growth of fruit-trees, particularly of the keeping fruits, such as Apples, in our hedge-rows. Is it not a shame that we should be in so great a degree dependant upon France for our winter supply of Apples; and now that sugar is likely to be in a short time so much cheaper than it has been, the system of wine-making may become more general with our cottagers with the softer fruits, while the less perishable, besides their marketable value, would evidently produce to the farmer who planted them in his hedge-rows, a source of considerable domestic comfort, while their offal yielded food for pigs and other animals.—*G. Mann.*

The Grapes in Chickens.—In answer to "T. H. C.," I beg to inform him that I have for the last three years been very successful in curing pheasants and chickens by the process described in your "Notices to Correspondents"—merely substituting a straw of the smallest size for the feather, dipping the end (which is to be put about 2 inches down the bird's wind-pipe), in sweet-oil.—*M. P.*

Tussocks (*Aira cæspitosa*) may be cleared off the land by the mattock as stated by "Lusor," p. 197; but as they always grow where the land is wet, either from springs, or the stagnation of the surface water, they will soon reappear if this is not removed by draining.—*T. Allestree.*

Crowfoots.—The species of the genus Ranunculus growing in Grass land may justly be considered the worst pasture weeds we have, the whole tribe being acrid and injurious to stock. No practical plan has yet been devised for eradicating them; but they may be much checked, and the herbage much improved, by early depasturing with cows. A meadow overrun with the Bulbous and Pilewort Crowfoots, (Ranunculus bulbosus and ficaria) used to be stocked about the beginning of May, when the radical leaves were so strong that the cows in a great measure grazed between them, consequently they became strong and rampant. Latterly, by turning on about a fortnight earlier, the radical leaves of the Crowfoot get eaten with the then short Grass, and being much weakened, the herbage is much improved for the season.—*T. Allestree.*

Manures at Home.—It is a remarkable thing, that all the investigations of chemists and the experiments of practical farmers, and some of them have been truly ingenious, would seem to point to home as the source of the most valuable manures. A great variety of substances have been tried as fertilisers; but the best amongst them are found to be those that may be said to be ready at hand amongst our household stuff. Thus, you have Rape-dust as home produce; you have common salt in continual use; you have salts of ammonia, of potash, and of soda, as well as phosphates of lime and magnesia in the urinary and other excretions, and in a form, too, best fitted for vegetation. Sulphate and muriate of ammonia (sal ammoniac) are found in the soot from coal fires; while potash or its salts are found in the ashes of wood fires, as well as in the water ejected after purifying the body, or its covering, by washing with soap, or other detergents. You have abundance of phosphate of lime (bone-ash), &c., in the hair, flesh, and bones of animals. Nitre (or saltpetre) forms spontaneously around you, in the soil, its grand element, nitrogen, being derived from the atmosphere, or from the transformation of the ammonia of decaying bodies; which element, nitrogen, is so essential to vegetable life, that it has been termed the "moving agent," which, acting under the living principle of the plant, moulds into shape the other elements; nay more, you have a substance that contains all these things, a complete type of guano, in the dung of your domestic fowls.—*Mr. Nowell's "Manual of Field Gardening."*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY MEETING of the Council was held at the Society's House, in Hanover-square, on Wednesday last, the 30th of April; present: His Grace the Duke of Richmond, K.G., President, in the chair; Earl of Ilchester, Earl of Ducie, Earl of Lovelace, Hon. R. H. Clive, M.P., R. Archbold, Esq. MP., Col. Austen. M.P., Sir D. Baird, Bart., T. R. Barker, Esq., W. Blacker, Esq., F. Burke, Esq.. W. W. Burrell, Esq., Col. Challoner, T. I. Croggon, Esq., C. Cure, Esq., J. Dean, Esq., A. E. Fuller, Esq. M.P., W. O. Gore, Esq. M.P., W. L. Gower, Esq., W. Fisher Hobbs, Esq., E. Hussey, Esq., Sir J. Johnstone, Bart. M.P., N. Malcolm, Esq., Col. MacDouall, E. Parkins, Esq., E. W. W. Pendarves, Esq. M.P., E. S. C. Pole, Esq., R. A. Slaney, Esq., W. R. C. Stansfield, Esq. M.P., Rev. J. R. Smythies, C. T. Tower, Esq., T. Tweed, Esq., W. Voss, Esq., and H. Wilson, Esq.

The following new Members were elected:—

Chaplin, William James, Exchurst Park, Basingstoke, Hants
Baker, Robert, West Hay, Bristol
Bowes, John Halford, Ludlow, Herefordshire.
Elwes, Capt. H. Cary, Special House, Kidderminster, Worc.
Lawton, Robert, Mayor of Shrewsbury.
Vibart, James, Chilliswood House, Taunton, Somersetshire.
Beauchervel, Ayscoghe, Willingham House, Market Rasen, Linc.
MacNeill, Forbes, H, Finsbury Circus.
White, Henry, Warrington, Lancashire.

The names of 12 candidates, for election at the next meeting, were then read.

PRIZE-ESSAY.—Mr. PUSEY reported from the Journal Committee, the adjudication of the Prize of 10*l.*, for the best Essay on the Fattening of Cattle, to Mr. George Dobits, of Kirtling Hall, Newmarket.

VETERINARY CHARTER.—The Highland and Agricultural Society of Scotland communicated, through the President, a view of the proposed plan of the Charter for a Veterinary College of the United Kingdom; which was read, and referred to the consideration of the next Monthly Council.

BONES AND SULPHURIC ACID.—Mr. P. Davis, of Milton House, near Pembridge, Herefordshire, favored the Council with the following statement of results:—"25th April, 1845.—With reference to Mr. Pusey's suggestion as to the propriety of using bone-dust dissolved in sulphuric acid, along with *compost* instead of *water*, for turnips, I can confirm his idea from practice, having last year manured 2 acres with only 13 bushels of bone-dust dissolved in 270lbs. of the acid and 150 gallons of water. After standing 24 hours, the liquid was mixed with three cart-loads of coal-ashes, and left to remain remain for a week; during which time it was turned over two or three times. The mixture was then drilled along with the seed; and the result was a fair crop of common Turnips off a piece of poor land, without other manure, and at a cost of only 12*s.* 9*d.* per acre."

The Council ordered their thanks to be returned to Mr. Davis for this communication, with a request that he would further favour them with a statement of his previous cropping of the field, as well as of the quantity of his crop when freed from tops and tails.

HILL-FARM CARTS.—Mr. Holland, of Dumbleton Hall, near Evesham, Worcestershire, favoured the Council with an account of the single horse-cart for hill-farms, of which he had presented a model at the last meeting.

TOP-DRESSING WHEAT.—Mr. J. H. Toswill, of Pitt, near Chudleigh, Devonshire, informed the Council, that if it should prove of any service to the Society, he would give the result of his top-dressing Wheat, with salt; salt and lime; salt, lime, and ashes; soot; soot and ashes; of which he had nearly 40 acres.

The Council ordered their thanks to be returned for this offer, with a request that Mr. Toswill would include in his statement an accurate detail of the character of the land, its previous cropping, and the net quantity of clean marketable grain, seconds, and tail.

Communications having been read from Mr. H. Dixon, of Witham, Mr. Raymond Barker, Mr. Allnatt, and Mr. Fuller, M.P., on the Draining of Land, an interesting discussion ensued on general conditions, particular anomalies, and details of practical experience connected with that subject. The Council then adjourned to Wednesday next, the 7th of May.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

AT the late half-yearly meeting of this Society, the following paper, showing the accounts of the last year, and also illustrative of the progress of the Society during the four years of its existence, was read:—

April 18, 1845.

(Signed) GUSTAVUS LAMBART, Chairman Finance Committee.

	1841.		1842.		1843.		1844.		Total.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
RECEIPTS.										
Amount of donations received and funded to	1407	10 0	360	0 0	225	0 0	5067	10 0		
Amount of annual subscriptions received in the respective years	796	6 0	963	15 0	997	6 0	1501	5 0	4258	12 0
Dividends on stock each year	70	9 7	151	14 0	168	2 2	171	5 3	561	11 0
Received towards payment of premiums for the different cattle shows	0	0 0	500	0 0	530	0 0	912	11 0	1942	11 0
Annual income for each year	866	15 7	1615	9 0	1695	8 2	2585	1 3	6762	14 0
EXPENDITURE.										
Amount of premiums awarded at the respective cattle shows	0	0 0	480	12 8	661	15 1	756	11 10	1898	19 7
Ditto to local societies in connection with the Central Society	138	10 0	452	14 8	584	18 9	769	12 3	1945	15 8
Total amount of premiums awarded each year	138	10 0	933	7 4	1246	13 10	1526	4 1	3844	15 3
Permanent charges and expenses of the society each year	611	5 0	495	16 8	594	18 11	530	7 9	2232	7 9
Total expenses of the Society each year	749	15 0	1429	4 0	1811	12 9	2056	11 10	6077	3 0
Number of local societies in connection with the Central Society each year	23		52		80		100			

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FARMERS' CLUBS.

Rhins of Galloway and Stranraer.—At the Monthly Meeting of the Club, Friday, December 27, the subject of Fattening Cattle, noticed at page 249, was resumed, when Sir J. M'Taggart communicated some important information which he had obtained when lately in Yorkshire. We understand that these experiments were seen by Sir John while with a relative of Lord Spencer's, and a tenant of that eminent agriculturist, at whose house Sir John had been visiting, and where he recently met Lord Spencer. In these circumstances Sir John stated that he had seen the English style of fattening in perfection—that he had seen a three-year-old short-horn which was sold for 45*l.*—that he had seen 85 prime animals of same breed, feeding, and thriving well, all tied up, and all of the short-horned breed. Their feet had failed—still that system was approved. Sir John approved of their getting a moderate proportion of oil-cake, and bean-meal, if not too expensive. The manure would be greatly enhanced in richness and value. Mr. Harkness then read a communication from Mr. Skilling, of Glasnevin, Dublin, from which we make the following extracts:—"How does it happen that the Belgians have kept up in the highest condition an indifferent soil without any such extraneous manures—without bones or guano, or any other importation of the kind? This they have done for hundreds of years, and yet their land is never poor or exhausted, but in the highest state of production. The reason is obvious. There is no witchery in their management; and if the farmers of Scotland would only condescend to follow their example, they would find themselves fully recompensed for their pains. If they would trench and deepen their lands, keep more stock, and chiefly house-feed them, saving the manure—liquid and solid—raise an abundance of crop for soiling summer and winter food, they would make more of their cattle, and depend less on the grain crops for rent and expenses. They would, besides, have abundance of manure without any foreign aid, and of the best quality. The Belgian system has been tried in this country, and with complete success, wherever it has been fairly carried out. Our establishment here is a practical example. I commenced operations on the 18th of March, 1838, and I am now in the seventh year. My average stock is from 20 to 22 head of cattle, a bull, 3 horses, and from 30 to 40 pigs, all on 32 Irish acres, the rent alone of which is 25*l.* 7*s.* 8*d.* per year. In six years I have gone over all the land twice with dung, and am commencing the third time this year, and in fact it is too rich. The first year I bought 90 loads of dung to commence with, but not 1 lb. weight of any description of manure since that. I could spare some, or manure a great deal more land this season. The system is most successful with me, and was so on a small farm in the north of Ireland before I came to this neighbourhood. I would strongly recommend that you should take up this very important subject at your meetings, for it is a matter worthy of discussion and deep consideration. I am convinced that if your farmers would adopt the system in even a modified shape, they would soon be convinced of the error of their ways. *The System of House-feeding is the best to Pursue.*—It was first promulgated by Mr. Blacker, to whom Ireland is more indebted for her agricultural improvements than to any other man living at the present day. It is one of the most important of modern discoveries; and if not in every case successful, it is not his fault, or the fault of the system. When I adopted first the house-feeding system, my neighbours laughed at me, and predicted that my cattle would die; others said the cows would give no milk; but their predictions were not verified. I lived near to a village through which I drove my cows twice a-day to water: they had a good appearance, as they were well fed, and they ran through the village wild and full of spirit. I fed them on Mangold Wurzel; and when other cows were dry, mine were giving milk. During three years I kept three cows, and sold 6*l.* worth of butter each year from each cow, besides having a sufficiency of milk and butter for a family of six persons. The National Board of Education determined that, together with a literary education, they would also teach agriculture; and being employed by the Board, brought from a farm of 4½ acres to one of 52 British acres, I have placed before the agricultural world this system in its full efficiency, got a cow-house erected, and kept my cows in it. When I took the land in the neighbourhood of Dublin, I did so under disadvantageous circumstances, but the contiguity of the market equalised the value of the land. The farm was taken at 5*l.* per British acre. I immediately adopted the system spoken of, and offered to the Board to pay the rent of the farm and keep a ploughman for the purpose of instructing the pupils. My rent was, as I stated before, 257*l.* 7*s.* 8*d.*, general expenses from 150*l.* to 200*l.* a year, making in all an expense of about 400*l.* for 52 acres and 20 perches. I kept 16 cows which, on an average, made me 15*l.* 10*s.* per year each. I have estimated correctly, that a cow fed in the house will make 25 tons of liquid manure, which will be sufficient for an acre of ground. I can, on an average, keep a cow on every two British acres of land, if no horses are kept; but if horses are kept it changes the ratio in the same proportion as Irish to English acres. Such are the advantages that accrue from the system of house-feeding. There may be difficulties in keeping cattle in houses, but people should have patience and not let difficulties overcome them. The advantages that arise from house-feeding, are chiefly a larger quantity of manure, and much more milk; and such being the case, it would appear strange that men should continue to practice the old plan, not half so productive; thus eventually bringing discomfort to themselves, and ruin to their families. But it may be objected that in a very large farm, say 1000 acres, how may a cow-house be erected sufficiently large to accommodate so many cattle as would be necessary. But the difficulty can be easily obviated, by building cottages on the farm, at proper places, with cow-houses attached, so that the persons residing in the cottages can take care of the cattle in the houses next to their own. Then the young cattle could be kept in one house, the milch cattle in another, the fat cattle in another, and so on; and it will be found at once that the system is quite convenient, and as applicable to a large farm as to a small one. When my present farm was in pasture, I have ascertained that it pastured only 18 cows in summer, but now it feeds from 20 to 22 cows, 3 horses, and from to 30 to 40 pigs, all the year round; and I have as large a proportion of grain crops on the same land as most other people have on their farms of equal extent. No doubt the system, if ill-wrought, will fail. Some who try it will bring their cow into the house; it is tied up, perhaps injudiciously confined—is kept filthy—not regularly cleaned—a large quantity of some particular kind of food is thrown before it, and this repeated, cloys the appetite, and the animal becomes satiated and refuses its food. It is, perhaps, neglected in water—by-and-bye it loses milk—gets out of condition—and the whole experiment is a failure. Success, therefore, is only secured by skill and attention. Cows that are properly house-fed must get altogether another kind of treatment. The house itself must be airy, well ventilated, and kept perfectly clean. The animals must be well curried and brushed, at least twice a day. There ought to be one particular person to superintend and pay attention to the feeding; and one of the first and most important parts of his duty is, to ascertain the appetite of every beast. Cows, like other animals, will eat less or more; and they ought to be supplied accordingly as they require it, being kept rather with an appetite than otherwise. As soon as the animal has eaten its food, all refuse should be immediately taken away, and nothing suffered to remain in the stall before it. Should it seem delicate or careless in eating, let the food be at once removed; if in health, it will be anxious for the next feed, and if not, you may consider there is something the matter with it, and you ought to take steps accordingly. This is one of the great advantages of house-feeding. An animal at pasture may be far gone in disease, indeed past recovery, before it is observed, but in the house you perceive the first symptoms, and can apply the remedy in time. The times of feeding are also of great importance, and ought to be strictly observed and regulated. The cattle will know the hour of feeding as correctly as the clock can tell it, and will be disappointed and fretted if neglected. This neglect is prejudicial both to milking and fattening. The kind of food given is also of the utmost consequence. No matter how nutritious, there ought to be a variety—a change, if possible, for every feed. I shall simply state a mode of feeding, which I have found eminently successful. I give six feeds in the day, summer and winter, beginning at 6 o'clock in the morning, and ending at 9 in the evening, viz., at 6, at 8, at 12, at 3, at 6, and at 9. They get water in their stalls at 10 in the morning, and at 5 in the afternoon. They are likewise turned out one hour from 10 to 11, where they exercise and drink if they choose. The kinds of food I use are chiefly the following: in summer, at 6, feed with perennial or Italian Rye-grass and Clover; at 8, with Cabbages or leaves; at 12, with cut hay and straw, mixed (this feed is to prevent the action of too much green food on them—a cow in health ought never to be purging—if she is, both milk and flesh are running off); and then feed at 3, upon Vetches; at 6, upon Mangold Wurzel, leaves, Rape, cleanings of Grassy ditch-brows, or refuse of the farm or garden; at 9, Clover or Grass, or this may be a dry feed if the state of the bowels require it. In winter, at 6, first feed with steamed food; at 8, with Turnips, raw; at 12, with cut hay and straw; at 3, with Mangold Wurzel, raw; at 6, with steamed food; at 9, with hay and straw; water must be given or offered, and plenty of salt used in the steamed food." Having thus brought this important subject forward in a condensed form, Mr. Harkness said, that it seemed to him that farmers should not only extend their green crops, so as to afford abundance of Turnip for all kinds of stock kept, whether horses, cows, pigs, young or aged cattle, but also take a leaf out of Mr. Skilling's book, by appropriating a convenient part of their ground to the growing of Clover, Vetches, Cabbages, Rape-kail, &c., so as to afford an alterative system of feeding their stock. The benefit was beyond all doubt, and the practicability was equally obvious. Horses, cows, young cattle, old cattle, and pigs, were all the better for a portion of boiled or cooked food, judiciously given. To feed cows and cattle entirely on cooked food would certainly not answer, for, in that case, the process of rumination would either be impeded or stopped; and it was by the mastication and rumination of the raw food, that the necessary quantity of saliva and oxygen were taken into the stomach of the cow or bullock to promote digestion. He was satisfied that a moderate feed each day of proper mixed and cooked food would promote the health, the milk, and fattening of cattle; and he was aware not only of the Irish small-farm system proving this, but that it was practised with advantage at home. A large and efficient steaming apparatus and establishment was, therefore, advantageous for every farm, to cook what food was necessary for horses, for cows, for cattle of all ages kept in the house, and for pigs. All sorts of refuse of vegetables and grain, chopped straw or hay, or chaff and small grain, could be profitably mixed in such cooked Turnips or Potatoes. He trusted therefore that, ere long, Mr. Robinson's new steaming apparatus would be found in every farm suited to its size. Various members of the Club then expressed their opinions, stating their custom in feeding cattle to be, to tie them up by the neck, and to feed them 3 or 4 times a day with sliced Turnips, beside straw after the Turnips. Mr. M'Bryde, Balcar, who is feeding upwards of 60 splendid cattle this season, approved of that plan, and a moderate supply of oil-cake or Oats. He fed his cattle three times a day with Turnips and straw, and once with oil-cake, currying them twice every day, and cleaning out their feeding-boxes every time they are fed. Mr. M'Meckan, of Mark, deputy-chairman, who feeds extensively both cattle and sheep, recommends, and follows, the same plan, giving from 4 to 6 lbs. of Oats, and a sufficiency of straw after every feeding. Mr. John Crawford, Culhorn, also concurred. He said Lord Stair's cattle, stall-fed, at first got Turnips three times a day, and when habituated to them they were fed four times, getting a sufficiency of straw at each Turnip feeding; and they also got about 7 lbs. of bruised Oats and oil-cake. They were also well curried, kept clean, and the place properly ventilated. Mr. M'Culloch stated a system which was now very much approved of, and which he had adopted with part of his fat stock, viz., that of feeding three times a day with cut Turnips, with a feed of boiled or steamed food intervening, consisting of Turnips, chaff, and cut straw, which is mixed, after being prepared, with bruised grain, allowing from 3 lbs. to 6 lbs. to each animal. He was aware that this system was practised with great success by Mr. M'Credie, Challoch, who had from 40 to 50 of the fattest Galloway cattle in the county; and he was informed that Mr. Pagan, the Liverpool salesman, who had been at Challoch lately, considered this the most profitable system of feeding. Hay or Oat-straw is given after each feeding. The hours of feeding are—at 5 morning, then straw; at 11, Turnips and straw; at 3 afternoon, a boiled feed; at 6, Turnips; at 8, plenty of straw. With respect to ventilation, Mr. M'Culloch stated that he considered agriculturists had paid too little attention to this important subject, as nothing tended more to promote the health, and consequently the condition of animals, than well ventilated houses. The plan which Colonel M'Douall has instructed him to adopt, in the new buildings on his estates, was that of making a small aperture in the wall of about 3 inches square, before and behind each animal, level with the pavement, as also one before and behind the animal, close to the ceiling, and should there be no loft, the openings are placed near the top of the wall; and by the admission and ascent of the cold fresh air beneath the respired vitiated air (carbonic acid gas), which is very injurious to animal life, together with the pernicious effluvia produced from the skin, urine, and dung, all this injurious atmosphere is forced to make egress at the upper aperture, and in this way you have a constant renewal of air, which is necessary to its purity, and the health of the animals; and while these openings are sufficiently large for the purpose of ventilation, yet they are not so much as to cause a direct current upon the animal, which would, of course, be injurious. Mr. M'C. was astonished to observe, that even in the establishments of many of our most eminent agriculturists, this important subject was so much overlooked. In several places you will observe openings in the upper part of the wall, or roof, for the escape of the contaminated air, but it seems to be forgotten that there must be an admission of fresh air below to cause the effective expulsion of the contaminated atmosphere. The Club came to the following resolutions on the whole subject of feeding:—1. They recommended, where cattle of a proper kind and age for stall-feeding are intended to be fed off in the winter and spring months, that they should be tied up by the neck. With regard to aged cattle kept fattening for years, the case might be otherwise, and boxes would probably be preferable, to keep them better ventilated, and their feet in better order. 2. At first the cattle so put up should be fed moderately three times a day on Turnip, with fresh straw or hay between each feeding; afterwards they should get an increased allowance, with from 4 to 6 lbs. of bruised Oats, and the same weight of oilcake per day; and, where convenient, Mr. M'Credie's plan of feeding on boiled stuff might be resorted to with profit. 3. Though cattle should be kept warm and comfortable, so as to encourage them to rest after feeding and to carry on the fattening process, still a proper ventilation should be kept up throughout the feeding-house, so as to supply it with a fresh atmosphere, and keep it at an equal temperature of healthy warm air: and the recommendations by Mr. M'Culloch to attain this object are laid before the public for their imitation and adoption, both as regards horses and cattle, stables and feeding-houses. And the Club, in thus calling attention to the advantage of ventilation to promote animal health, cannot too strongly point out the benefit of cleanliness, currying, &c., in the feeding of either cows or cattle, whether for milk or flesh, as well as the importance of a variety of kinds of food for milk cows, and the advantage of a mixture of a portion of cooked food with the raw food given.

Harleston.—At the monthly meeting of the above Club, held on the 16th, the subject for discussion was "The neglect of home-made manures." Resolution: "It is the opinion of this Club that all manures should be made as much as possible under cover, and should

then be carted upon the heap, and compressed. The bottom to receive it should not be less than a foot thick of earth, and the heap, when made, should be closely covered with earth, to check fermentation, and to prevent the escape of ammonia; in turning over particular care is required, to insure its being properly shaken in pieces and mixed; and with regard to liquid manure, the yards or sheds should be well prepared with a coating of earth sufficient to absorb it, but when it is allowed to accumulate in tanks for the purpose, it should be applied to the manure-heap, or to any earthy matter collected to receive the heap in preference to its being applied immediately to any crop."—*W. L. B. Freuer, Secretary.*

Debenham, March 20.—Subject: "Comparative Advantages of Stall or Pasture Feeding Cart-horses."—Resolved—That the system of stall or yard-feeding cart-horses in summer with Vetches or Clover, is decidedly preferable to turning them on the pastures.—That Vetches for the lands in this district, which are generally heavy, and farmed according to the four-course system, are the best and cheapest green food that can be grown for the purpose of soiling;—the cheapest because they are grown on land intended for summer-tilth, which, if properly attended to when cleared of Vetches, is not exhausted or impoverished; on the contrary, the vegetable matter which falls from, or is left by, the Tare, improves rather than deteriorates the land for the Barley-crop—the best, because Vetches produce the greatest quantity of food per acre—the earliest and the most nutritious. The Vetches cut into chaff with a portion of hay, straw, or any kind of dry fodder, may be better used for food for cattle than when given without being so cut, which in a season like the present, when the stocks of hay are unusually short, is a matter of very great importance to the farmer. Vetches ought not to be continued on such land beyond the end of June; that Clover should follow as the next green food, which will find a supply until the harvest is finished. That neither Clover or Vetches should he given unless withered for 24 hours.—*W. G., Hon. Secretary.*

Wingerworth.—At the late monthly meeting of this club, the subject for discussion was "On the most approved method of planting young Quicks, and the General Management of Hedges." Mr. F. Brown, the Secretary, opened the debate by pointing out the advantages to the farmer of having good fences, and the best method of obtaining and keeping them in a flourishing condition. He described the evils arising from a neglect of this important and much-abused branch of husbandry; in the waste of useful land, the accumulation of seed-shedding weeds—the harbour they afforded to insects destructive to the crops—the loss sustained to the crops by cattle breaking pasture—the injury done by high hedges impeding the free currents of the wind, and the action of the sun,—and concluded by strongly recommending the taking down those timber-trees which had arrived at their full growth (especially the Ash and Elm), and planting in various parts of the farm—those corners of the fields where the plough would not work well—such young trees as would speedily, by proper management, afford shelter or shade for cattle.—*Derby Reporter.*

Stratford-on-Avon.—At the last meeting of the above, D. Galton, Esq., in the chair, a paper was read by C. W. Hoskyns, Esq., of Wroxhall Abbey, near Warwick, on the "Advantages of Draining." After some preliminary observations he remarked that draining had given rise to diversity of opinion, and that a difference of opinion induced discussion, and discussion elicited truth. The increase of our population was at the rate of nearly 1000 a day, that is of 350,000 per year—all being nearly supplied by home produce, very little foreign Corn being imported; and of all the means of increasing that produce; draining was the most important. He computed that two-thirds of the soils of this country required draining. He named many modes of draining, but considered it impossible to lay down any defined rules, as much depended on locality and very many other influences; for instance, every drain laid down in North Warwickshire on the plan of Mr. Smith, of Deanston, had to be taken up again. The lecturer observed that not a drop too much of water falls; it is the fault of the cultivator in not draining properly, whereby the water cannot percolate freely through the subsoil. Ammonia, as is well known, is the fertilising principle of manure, and the air is always more or less charged with it, giving it up to the rain, which falling to the ground invigorates it, and ammonia may be detected by the delicious scent observed after a thunder storm. Where the drainage was perfect, every element was a friend; but where the subsoil is impervious, the reverse was the case.

Yoxford.—I have done myself the pleasure of handing you a resolution at which the Yoxford Farmers' Club arrived, at its late monthly meeting; and thinking it to be a subject in which the agricultural portion of the community is at the present time peculiarly interested, and ought to be made widely and thoroughly acquainted with in all its bearings, should you deem it worthy a column in your valuable Paper, you are quite at liberty to publish it.—*A. Hughman, Secretary.* "The relative position of landlord and tenant, with respect to the great variation in the value of agricultural produce, and the most desirable method of insuring a fair protection to both, with regard to letting and hiring farms," having been duly considered by the members present, a unanimous feeling was expressed by them that long leases, based upon an equitable corn rent, would operate with equal benefit to the landlord, tenant, and labourer. "To the landlord, because his estate would be kept in better cultivation, from his tenant being in a safer position to employ the necessary labour—added to the landlord's comfortable reflection in seeing his farms tenanted from father to son in that social, hereditary compact, known in former days. To the tenant, from his having a greater prospective encouragement for investing his capital, and exerting his skill in making his land more productive; at the same time, establishing that most desirable feeling of cordiality between himself and his landlord, arising from a reciprocity of advantage. And to the labourer, inasmuch as it would operate materially towards insuring him more permanent work, from his employer being so circumstanced as to be able to do it with a reasonable expectation of benefit to himself."—*Mark Lane Express.*

Halifax.—A meeting of the Geological and Polytechnic Society of the West Riding of Yorkshire took place here on the 13th ult. Henry Briggs, Esq., then stated, at the Rev. W. Thorp's request, the Results of the Free Electricity of the Atmosphere in the Cultivation of Corn. Dr. Forster, of Findrassie House, near Elgin, had threshed, weighed, and measured his electro-cultured Chevalier Barley, and the product was the enormous quantity of 104 bushels, or 13 quarters per acre! The tail corn was not measured, and each bushel weighed 54½ lbs. The weight of the straw was 9300 lbs. per acre. The cost of the electric apparatus is 1*l.* per acre, which will last for 20 years. The electrical power is applied by inclosing an oblong area or plot within a wire buried in the ground 2 or 3 inches deep, and secured at the corners by a wooden pin with a small staple, through which the wire passes. Another wire is then carried from one end of the oblong to the other, midway between the longitudinal lines, suspended over two poles, one 14 and the other 15 feet high, placed at a short distance from the cross lines of the buried wire, with which the suspended wire is brought into contact at each end by a wooden pin and staple. The greater length of the buried wire must be laid due north and south, and the suspended wire in the same direction, the south end being the most elevated. For inclosing a rood the area may be 10 rods by 4, for an acre 16 rods by 10, and for 2 acres 127 yards by 75. The cost for inclosing a rood will be 6 lbs. of buried wire at 4*d.*, 4 lbs. of suspended wire at 3*d.*, two poles of dry wood at 6*d.* each, labour 1*s.*—total 5*s.* As the area increases, the cost diminishes rapidly.—The Rev. W. Thorp remarked that the application of the electricity of the atmosphere upon a large scale for the purpose of agriculture is a discovery which, if successful (and there is every theoretical reason that it should be so), will exercise a most important influence upon its interests. Dr. Forster here has obtained more than three times the average amount of both Barley and straw (4 to 5 qrs. being the average, while he has 13 quarters; and about 3000 lbs. of straw, while he has 9300 lbs.) The application of electricity to field culture is quite in its infancy, and probably many improvements will be discovered. It is unnecessary to add that the electric fluid acts as a stimulant, and therefore the usual quantity of manure must be applied. Under the direction of Mr. Gordon, the President of the Tring Agricultural Association, many of its members are trying the experiment. Mr. Mechi, at Tiptree Hall, is trying 50 acres; Mr. Briggs, at Overton, near Wakefield, and Capt. Newton, of Womerley Grove, are, likewise about to try it upon their Barley crops.

Ballinasloe.—Mr. Laurence Egan, one of the small farmers of this district, addressed the Earl of Clancarty at a late meeting of this Society as follows:—"I am but a young as well as a small farmer; for although I held the farm which I now occupy previous to the organisation of this Society, I was only a farmer in name, for I farmed without profit or advantage. I may, therefore, date the commencement of my farming with the commencement of the Ballinasloe Agricultural Society, and the arrival of Mr. Clapperton in my neighbourhood: not that I am yet an experienced farmer; far from it, for I have much yet to learn. However, as I am a child of the Society's, I shall give some account of my proceedings during the past year; and as my name has been connected with draining as a successful candidate, I will first make a few remarks on it. Draining I believe to be the root and ground-work of farming: I had a very wet piece of land attached to my farm; the upper stratum consisted of heavy adhesive clay, about 6 or 8 inches in depth; this rested upon a substratum of a gravelly nature, exceedingly hard, and quite impervious to water, or to anything except the crowbar. This subsoil was a depth of about 8 inches; and when broken up, under it was another substratum, consisting of a heavy clay, yellow, 10 inches deep; and under this a blue-black clay, or gravelly substance, perfectly black and rotten from water. So the water in the bowels of the earth had no way of escape, and the water from the clouds could not get down, or get away, except by evaporation. The land grew nothing but flags, rushes (carices), a kind of Grass which no animal would eat of; this land would also rot sheep. Mr. Clapperton pointed to me the great loss which I sustained, in allowing the land to remain as it was, and advised me to commence at once and drain it. I pleaded want of capital, the fall in the markets, and the low price of agricultural produce, the danger of coming short of my half year's rent, and many other powerful arguments. However, he overcame all my scruples, and I commenced draining; and drained about five Irish acres. I put all this drained land under Potatoes, as it could not be properly prepared for Turnips and Mangold, and put all my farmyard manure under the Potatoes. I prepared for the Turnips and Mangold crop by ploughing and furrow-ploughing the land, and made up a heap of compost, composed of guano, bones, night-soil, and black mud. The Mangold all failed; but I got as many plants from the model farm of the Society, after the thinning out, as transplanted the rood of ground, and this rood of Mangold has obtained the first prize. My lord, if I were to contrast the state of my farm now and six years ago, the contrast would be very strong indeed. Five years ago, my farm was so poor that it would grow nothing; and I could plant but 1 acre of Potatoes, and those were badly planted, because the manure was bad. Well, the consequence was a bad crop of Potatoes, and a scarcity of Potatoes the following year, so that I had to buy Potatoes for my family, to the amount of 27*l.* 10*s.*, and oatmeal to the amount of 8*l.* This state of things could not continue long. But this year, I have been able to manure 5 acres of Potatoes, 1 of Turnips and Mangold, and I have 7 acres of Oats, and this of a superior quality. I have also this year 8½ acres laid down under Clovers and artificial Grasses, and this has a most luxuriant appearance." This, indeed, may well be denominated a splendid instance of success, and an argument amounting to proof positive of the utility of agricultural societies, in conjunction with paid agriculturists; and surely the inference is a legitimate one, that were there a greater number of regularly appointed agriculturists throughout the country, there would be a corresponding increase of farmers enjoying the same comfort and independence as that now possessed by Mr. Egan.—*Dublin Farmers' Gazette.*

Reviews.

The Potato Problem Solved. The Cause of the Disease in the Potato pointed out; Remedies exemplified; and New Systems of Potato Cultivation proposed. By Robert Arthur. W. H. Lizars, 3, St. James's-square, Edinburgh. 47 pages.

Any new suggestion towards the explanation and prevention of the Potato rot is worthy of attention and trial, and especially one so well founded on *analogy* as that brought forward by Mr. Arthur. In reference to the propagation of plants by means of eyes he quotes the following passages from Dr. Lindley's work on the "Theory of Horticulture."—"The only species very generally so increased, are the Potato and the Vine." "In order to insure success in this operation upon the Vine, it is only necessary that the *eye should be dormant;*" and reasoning from this on analogy he recommends Potatoes to be cut for seed at a period when the juice in them is *dormant*, so to speak; when in fact the set will not bleed at a cut surface. He shows, in a variety of instances, though not in so many perhaps as would be needed to prove "the Potato problem" at last to be "*solved*," that the practice of cutting the Potato sets in autumn instead of spring perfectly answers. Perhaps the most striking confirmation of his views would be the general success of the Potato crop this year—for the sets, owing to the frost, must have been much in that dormant state which he recommends when cut this spring. We could easily extract many interesting paragraphs from this little work, but we have no wish to *satisfy* the curiosity of our readers and interfere with its sale by transferring its contents to our columns. The book is written by a practical gardener, and well deserves extensive perusal.

A Series of Letters on Agricultural Improvement; with an Appendix. By John Joseph Mechi. London: Longman, Brown, Green, and Longmans.

There are but few people interested in agricultural improvement who have not heard of Mr. Mechi, and his proceedings at Tiptree-hall Farm. A farm 130 acres only in extent, that cost only 3250*l.*, has had 6200*l.* laid out on it in drainage, roads, buildings, and good cultivation. This is indeed an "extreme case" of agricultural improvement, and one which, to make it profitable, would, one would think, need to be superintended by a man of lengthened experience in farming. Mr. Mechi accordingly acknowledges the question addressed to him—"What can you, as a Londoner, know about farming?"—to be sufficiently natural under the circumstances. He answers:—

"I always loved the beauties of nature, the pure air of Heaven, the sports of the field, and the hospitality of our honest yeomen. I have seen one farmer making a fortune, and his next neighbour losing one. I have seen one field all corn, and another nearly all weeds. I asked, 'How is this?'—inquired into the causes—noted the results—obtained from all the best farmers, and all the best Agricultural books within my reach, every information bearing on agricultural pursuits—practised on my own little garden, on a small scale, a variety of experiments; and after carefully weighing the evidence, I come to the conclusion, that want of drainage, both in land and buildings, waste of manure, shallow ploughing, and short leases, are amongst the greatest curses to this country; and I, as far as my individual means will permit, am resolved on remedying them."

There can be no doubt that the conclusions here arrived at are quite correct, and if all those situated as Mr. Mechi is would adopt his resolution with regard to them, and carry it out with half his spirit, well-paid labour, large produce, and sufficient profit, would be vastly more general than they are at present.

Many of these letters have already been published in our columns—the Appendix, however, comprising a large portion of the volume, contains a great deal of new and useful matter; some paragraphs from which

we shall take the liberty of printing occasionally in another section of this Paper. We take the liberty of recommending this book to the attention of landlords and farmers; they will find in it a great deal of useful information and sound reasoning on agricultural improvement—a cause which the author has most enthusiastically at heart—and all expressed with a clearness and eloquence which will excite their interest, even though the subject may be new to them.

We are sure that all unprejudiced men, whether farmers or otherwise, must heartily wish that Mr. Mechi may experience the work of agricultural improvement to be profitable; for, so widely is his example known, that if he should succeed, it will certainly be extensively followed. We say, *unprejudiced* men; for there are many amongst farmers who, however wrong it may be, apparently cannot help looking with a prejudiced eye upon one—a farmer, apparently, but of yesterday—who comes amongst them, active and enthusiastic, propounding new theories and practices, and carrying them out with an energy rarely seen in connexion with such a routine affair as farming—an energy which exhibits a humiliating contrast to their own sluggish management. We conclude with the following paragraph:—

"No doubt some farmers (not all) are preparing to laugh at any failure of mine, and, strange to say, seem anxious to do so; but that will not deter me from following the dicates of reason. I cannot distinguish between an *individual's* garden and a *nation's* garden; the same means will produce the same results, whether on a large scale or a small one. The question is, is manual labour applied to land profitable (who will deny it?) If it is, the cost is of no consequence on the largest scale, provided there is CAPITAL. In another letter I have proved there *is more than enough* capital, but unfortunately that capital is *not* employed as it *ought to be* in Agricultural Improvement, but in loans to foreign nations, in foreign mines, and foreign railways. Shame! shame! shame! that it should be so."

Miscellaneous.

Feeding of Animals (*Boussingault, vol. ii., p.* 390).—Hay is the kind of fodder most frequently used, and may be considered almost as the normal food of those animals which are of most importance in the farm. It is on this account that it may conveniently be taken as a standard by which other kinds of vegetable food may be compared. The quality, however, of hay varies extremely; our standard, therefore, must be good meadow hay. It appears, from the analysis I have made at various periods, that in the state in which it is consumed it contains from 1 to 1½ per cent of azote. As, however, the determination of its nutritive value is of great importance, I shall point out the mode of proceeding, in order to obtain specimens representing as fairly as possible the mass from whence they are taken. The method is applicable to other kinds of fodder. Hay is composed of four distinct parts, each of which has a very different nutritive value. It is of consequence, then, that in a specimen taken for the determination of the azote it contains, each of these parts should be properly represented. I distinguish in hay—1, the woody stems; 2, the slender straws or stems to which the leaves were attached; 3, the leaves, flowers, and seeds. A small portion of hay is taken, and carefully sorted, and the parts are weighed separately. In a specimen of strong meadow hay, made in 1841, I found—

Woody stems	2.404 lbs.	Taken for analysis	680	drams.
Straws or very slender stems	8.493 ,,	,, ,,	239	,,
Flowers, leaves, and a few seeds	1.764 ,,	,, ,,	497	,,
		Mixture analysed	1.416	

My analysis gave—

Azote per cent.	1.19
Contract hay for Parisian Cavalry, 1840	1.21
Hay from Alsace of 1835	1.04
Do. 1837	1.15
Mean of four samples, in the state in which it is consumed	1.15

In this state it contains from 11 to 12 per cent. of moisture, which is dissipated by desiccation. Since albumen, caseum, and vegetable gluten, contain 16 per cent. of azote, the animal matter (or flesh) may be estimated at 7·2 per cent. Hay does not, however, always present this quantum of azote: that, for instance, from marshy land contains decidedly less. Some, on the contrary, is more rich in the animal principle. The same hay will give a larger proportion if the woody stems which it contains be removed. The second crop is generally more nutritious than the first, as we have often proved at Bechelbronn; but it is considered, I know not why, to be less fit for horses. Perhaps this arises from its being more liable to be more or less spoiled in the stack, in consequence of its being made in damper weather.

A second crop gave on analysis	2 per cent. of azote.
A choice sample of the first quality	1.29 ,,
Hay divested of the greater part of the woody stems, and consisting principally of bottom	2.1 ,,

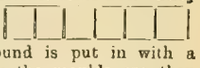
These examples are sufficient to prove that, in considering the substitution of other food for hay, attention must be paid to the quality. In the table which I have prepared, I have taken, as the basis of the equivalents, ordinary meadow hay, containing 1.15 per cent. of azote and 11 per cent. of water. The importance of a table of equivalents, as regards different kinds of food, is duly appreciated by all agriculturists; and great thanks are due to those who have taken pains to arrive at a knowledge of their relative value. The mode of using such tables is very simple. The numbers placed below the value of hay indicate the weight which may be substituted for 100lbs. of hay. For instance, according to Block, 366 lbs. of Carrots may be substituted for 100 lbs. of meadow hay. According to Pabst, 60 lbs. of Oats=100 lbs. of hay. Would we then substitute Jerusalem Artichokes for 3.3 lbs. of Oats, which form part of the food of a horse, we find in the table 60 lbs of Oats=274 lbs. Jerusalem Artichokes, whence we conclude that it will require 15 lbs. of the tubers to compensate the above-named weight of oats. A certain knowledge of the relative value of food may be of real benefit in rural economy, as it may guide the farmer in his determination of what kind of diet is the most profitable. Suppose, for example, 165½ lbs. of Potatoes to be worth 10*d.* in the market, when* 220½ lb. of hay is worth 5*s.* Then, if we admit, in accordance with theory, that 220½ lbs. of hay=695 of the tubers, it is clear, on comparing the price of these equivalents, that there is a considerable advantage in buying Potatoes, for the 695 lbs. of Potatoes would cost only 3*s.* 6*d.* At this price it would be beneficial to the farmer to sell his hay and replace it with Potatoes. The equivalents which I have deduced from the analysis of various kinds of food agree in most cases with the numbers assigned by practical men; sometimes, on the contrary, they differ remarkably. It must, however, be observed, that the equivalents of practical writers exhibit differences of the same nature. Schnee and Thaer give as the equivalent of 100 lb. of hay 666 lbs of Wheat straw, whereas Flotow gives 175 lbs. According to Meyer, 290 lbs. of Turnips=100 lbs. of hay, whereas Middleton gives 800 as the equivalent, a result which accords with that of theory. Block gives 30 as the equivalent of Peas, while Thaer, who is quite as high an authority, gives 66. The same agriculturist gives 460 as the equivalent of Mangold Wurzel, while Pabst and Meyer give 250, and M. de Dombasle, 261. Making every allowance for the difficulties of the subject, it is hard to account for these great discrepancies. As regards the marvellous agreement which the practical results frequently present, one cannot but be convinced that authors have often silently transcribed the results obtained previously by others. It is often impossible to decide whether the data of agricultural works are original or merely transcriptions. Every one at all acquainted with experiments will at once decide that 11 isolated observers can never have arrived in the case of Lucern hay at the exact equivalent of 90, or that five have obtained precisely 600 for Cabbages.—*M. J. B.*

Composition of Soils.—Now, through the labours of Sprengel chiefly—not solely, for he had predecessors and contemporaries also, though less laborious, and less clear and decided in their opinions than himself—it has been established regarding soils—1. That they all contain a certain proportion of organic, chiefly vegetable matter, which readily burns away when they are heated to redness in the air. This combustible matter in peaty soils sometimes amounts to 50 or 60 per cent. of the whole weight; while in clay soils, such as the white undrained clays of Lanarkshire, less than one per cent. is present. 2. That in all naturally fertile soils, the incombustible part contains a notable quantity of each of 10 or 11 different mineral substances. 3. That soils in which one or more of these substances is either wholly wanting, or is not present in sufficient quantity, will not produce good crops. 4. That to these latter soils what is wanting may be artificially added, and that thus their fertility may be increased, restored, or maintained. 5. That some of these substances, when present in excess in the soil, become noxious to the plant; and that, to render such a soil productive, this excess must be, in some way or other, removed. These five propositions comprehend nearly all that is of importance, in regard to the incombustible part of the soil. They are all fully and frequently stated in the works of Sprengel. They are illustrated and enforced in those of Liebig and Johnston. It would interfere with our present purpose to dwell upon the combustible or organic part of the soil. But, with the aid of these propositions, the general doctrine of soils, and the action of saline or mineral manures, become so far clear and simple. A soil, to be fertile, must contain 10 or 11 known substances. If any of these be altogether absent, you will improve your soil by adding them to it; if they are present, the addition of them will do no good. If salt or gypsum, for example, or the ingredients of wood-ashes, be wholly absent, you will obtain large crops by adding these substances largely to the soil; if they are merely deficient, a smaller application will be of service; if they are already present in sufficient quantity, any application of them to the soil will be so much money thrown away.—*Progress of Scientific Agriculture; "Edinburgh Review," January*, 1845.

Kohl Rabi.—I observed in the *Gardeners' Chronicle*, of the 8th inst., some account of growing Kohl Rabi in Gloucestershire. I wish to add my testimony of its hardihood and usefulness for field culture. Being very little affected by the insect tribe, of late so destructive to the Turnip, its early growth is very rapid; the plants soon get out of the way of its only enemy, the slug. My method of cultivation is to drill 1 lb. per acre of the seed with the Mangold Wurzel; so that if the Mangold Wurzel fail, which it mostly does to some extent, I have plants enough of the Kohl Rabi in the field to fill all vacancies which occur on the ridge. This transplanting is done by women and children going up and down the furrows, and inserting a plant where it is wanted; and as they take up some earth with the root, the plant receives but little check in the operation. My Kohl Rabi has been exposed to the frost all the winter without receiving injury; and when cut, affords excellent food for ewes and lambs. I do not find they get sticky except the stalk, which, when cut, cattle will eat down to the root with less waste and spoil than either Mangold Wurzel or Turnip.—*J. S., in the Gloucester Chronicle.* P.S. I have grown both the purple and green varieties; the purple always grows to the largest size.

Neighbouring Bounds.—Your correspondent has an undoubted right to cut the branches off his neighbour's tree (overhanging his land), as well as to cut off the roots encroaching therein under the surface. This was decided by Sir J. Patteson, at the Nottingham summer assizes, 1843. Your subscriber, however, must first give his neighbour notice to cut and remove the same, and on his neglect or refusal so to do, your subscriber may then cut and remove them; but he cannot apply his neighbour's property to his own use. He must ask his neighbour to point out some place near where he may put the branches; and should he not reply to this, your subscriber must place them as convenient for his neighbour as he can. Of course the branches must be cut off in a workmanlike manner, and in the proper season.—*A Special Juryman in the above case.—Mark Lane Express.*

Comparative Value of Land.—The immovable or stationary propensity of our farmers is strongly illustrated by the comparative rent and value of land of the same quality in different counties. In one 20*s.*, or more, per acre; in another 10*s.* or 12*s.* It is too frequently the case that low rents and bad farming go together; and that the higher the rent (irrespective of the quality of the land) the better and more profitable the farming—the more comfortable the position of the labourer. This fact suggests a great many considerations: 5*s.* an acre difference in rent is thought much more of than the loss, by mismanagement or bad farming, of *one* sack of wheat per acre, which is worth 28*s.*—*I. J. Mechi's Letters on Agricultural Improvement.*

Linseed Compound.—1st, Let a quantity of Linseed be reduced to fine meal. 2d, Put about 16 gallons of water into a copper, and let it boil. 3d. Stir into the water quickly 2 lbs. of the Linseed meal, and let it boil for about five minutes. 4th, Let 60 lbs. of Barley or Bean meal be sprinkled upon the boiling mucilage by the hand of one person, while another, as rapidly as possible, stirs and works it in. The whole will now have assumed the form of a thick mess or pudding. When cold the compound should be perfectly stiff. Many farmers put it into moulds, like those used for bricks, while hot. They are thus made, and placed upon  a flat piece of board, somewhat larger and wider. The compound is put in with a trowel, and pressed down firmly; the moulds are then lifted up, and the cakes left to cool. In this way the food will keep longer; but I generally put it into a tub, and ram or press it down with an instrument made of wood,* in order to exclude the air. The compound is generally given in small quantities at first, and increased at pleasure—for the first week, 5 lbs. or 7 lbs. per day, when, according to the size of the animal and quality of other food given, the quantity may be increased to 14 lbs. 21 lbs., or 28 lbs. per day. Observe, the inside of the mould should be a little wider at the bottom, in order to prevent the compound from sticking to the sides. With respect to making Beans into compound, no difference is to be observed, except that they will require 2 or 3 gallons, or even more, of water than Barley, as you will perceive in the course of your experience. But observe, the Beans must be reduced to a fine meal, equal, if possible, to flour. Linseed can be incorporated with chopped hay or straw with great effect. I use it largely, and find it much cheaper than corn. The proportions, according to the size of my copper, are nine pails of water and a pail and a half of Linseed meal, and about nine bushels of cut hay, chaff, or straw. The plan of mixing is first to form the mucilage as you would for other compounds; next place a large tub with a strong bottom, or trough, near the copper; then put a bushel of the cut hay into it, and your two or three bowls of the boiling mucilage upon it, which is to be immediately stirred up with hay. Then add a bushel of the hay, with some more of the mucilage, which, after being intimately mixed, is to be pressed down as firmly as possible with the rammer. The first layer is then finished. Proceed as before till the copper is empty; smooth the top of the mess over with the trowel, and in the course of two or three hours it will be fit for use. To make cattle compound with Potatoes or white Carrots, nothing more is required than, after having been properly steamed or boiled, to remove them from the vessels as hot as possible into a trough, then sprinkle some Linseed meal upon them, and knead the whole into a mass with the rammer. The compound may be put hot into the moulds, and made into cakes, or used from the trough. Less labour will be required if the roots are removed from the cooking vessels in small quantities, and incorporated with the meal. The effect of giving only 1 lb. of Linseed meal per day to a bullock, when incorporated with Potatoes or Carrots, will soon become visible; but if a pound or two more were added, the animal would fatten at a rate which those alone who watched the proceedings could believe. The price of Linseed for crushing purposes appears to be about five farthings per pound. Remember that when the hay compound becomes cold, it turns sour, and the bullocks

* 220.6 lb=100 Kilogrammes, the standard of the tables. The prices are those in the French market.

* These rammers are square or club-ended, with a knob like a pestle at top, or a cross-stick through, to give better hold.

then reject it. Mine eat it smoking.—*John Warnes, jun., Farmer's Journal.*

On the Allotment System.—I found a difficulty at first in persuading my tenants to give up small portions of their respective farms to form my allotments; they were prejudiced against the plan, suspicious and fearful of its effects. Some of their considerations they probably did not impart to me; those which they urged appeared to me to be groundless, or of little weight. At the end of more than 20 years I have the great satisfaction of finding my tenants convinced of the good effects resulting from the practice, and willingly co-operating with me in carrying it on. I have now introduced a clause into my agreements with tenants, that if small portions of their respective farms should be wanted for cottages or allotments (not exceeding half an acre for each labourer), such portions may be taken, and allowance made according to valuation, in the same manner as had been stipulated before with regard to land required for planting. In allotting land to labourers I have begun with assigning a small portion to each man; frequently less than 1 rood, though sometimes more. Mathematical precision in allotting one rectangle of 40 poles, neither more nor less, has always appeared to me objectionable. One man, with sturdy children, can manage half an acre with more ease than his next neighbour, with a puny family, can work 20 poles. I took my pieces of land, such as they might be, as opportunities offered. The nearer a piece might lie to the cottager the more advantageous it was to him; but in some instances I have been obliged to assign land lying at a distance of half a mile from the man's dwelling; yet he has eagerly hired it, and I have reason to know that they have derived much profit from it. However, the nearer at hand the ground lies, the better both for the labourer and his employer. When I have found that the allotment-man did justice to his land, and possessed a pig or two to produce manure, I have taken any opportunity that presented itself to increase his portion; for experience has shown me that a good labourer, with the help of his family, can very well cultivate half an acre without its interfering with his constant employment on a farm. But it must be borne in mind that a considerable proportion of our labourers cannot obtain constant employment on the farms in this quarter of England; many men are thrown out of work during three or four months in the year; and the inferior hands during six or seven. I do not run out of the record to discuss the question whether more constant and profitable employment might not be devised, but I see that, taking the case as it stands at present, to such men half an acre of land, on which they can work with a certain return of profit, is of the greatest value. There are also in every village some men, such as thatchers, bricklayers, pig-jobbers, &c., who have much leisure time at their command, and can manage from half an acre to an acre with great advantage. But, on the whole, I consider half an acre to be the best average; and I believe that the labourer's net profit on this quantity of land may be rated at from 3*l.* 10*s.* to 5*l.* a year. But as one of them said to me, "I cannot tell you, sir, what my land is worth to me in money; it helps us in so many ways; a bit here and a bit there. It helps the children, and it feeds the pigs and the fowls. It is the best thing that ever was done for a poor man." I may add to his calculation of benefits the moral good resulting from its keeping his children employed, instead of their idling about the parish, and acquiring vicious habits. They are brought up in industry, and learn its advantages in their early days. The soil of most of my allotments in this parish is a strong clay, with a marly subsoil. The spade is used on all; but I do not insist on its being used exclusively, because I wish to leave an opening for a farmer to do an act of kindness occasionally to a good labourer, by ploughing his land for him, and thus to generate or improve kindly feelings towards his employers. At first the allotment-men thought of nothing but Wheat and Potatoes. But they came to find that the Potato-crop, and constant digging and rich manure, loosened the soil too much for their Wheat. It was apt to become root-fallen. They now grow various things; and particularly a proportion of Beans, which they find to answer well for their pigs, and to render the ground firmer for their Wheat. The produce of the latter per rood is very great: I have seen their crops in many instances yield at the rate of 6, and, in one instance at the rate of 7 qrs. an acre. The number of pigs kept in the parish is now very great; and in consequence most of the families use some animal food. Many of the inferior hands, when not required by the farmers, obtain occasional employment in digging on the larger allotments. The rents which I charge for these cottage lands may be averaged at nearly 2*d.* a rod, tithe-free. I pay the parish-rates if the allotment does not exceed an acre. In three instances I have let as much as 4 acres each to labourers who had saved money. These men work no longer on farms; but they maintain their families comfortably, and their lands are kept in a very good condition. I may mention, by-the-bye, a remarkable fact, that the population of this parish increased rapidly in the 20 years preceding my residence here; while in the last 20 it has advanced very little; nay, in the last 10 it has actually decreased. I am willing to attribute this singular circumstance partly to the operation of the "prudential check."—*Sir H. E. Bunbury, in the English Agricultural Society's Journal.*

So-called Stimulating Manures.—And now the true action of those saline substances, hitherto called stimulants, became more clearly manifest. They no longer appeared to act like wine upon the human body, exciting it to an abnormal or unnatural effort, which was afterwards necessarily succeeded by langour, feebleness, and depression. They were acknowledged really to feed the plant; since they supplied those things out of which its several parts were built up, and without which they could not be satisfactorily completed. And if the soil was less productive in after years, in consequence of the application of these substances, it was because the crop had extracted from the soil more than the manure had given to it. The so-called stimulant supplied potash, or soda, or lime only to the soil, and, getting these readily, the plant grew rapidly; but it gathered out of the soil, at the same time, magnesia, sulphur, and phosphorus, without which it could not grow. The large crops which were carried off exhausted the soil, therefore, of these latter substances; and unless these were added again in some form or other, the soil must remain impoverished, and more or less unproductive. If the builder have abundance of stone or bricks, and we give him mortar in addition, his walls and houses will rise rapidly; but the faster they rise the sooner will his bricks be exhausted; and when this happens we shall look in vain for an advance in his work if we continue to supply him with mortar only. Give him a new supply of bricks, however, and he will start afresh. So it is with the soil. The so-called stimulants excite the plants after the same manner as the mortar excites the builder—leave behind a langour or exhaustion of a similar description, to be removed, also, after a similar manner.—*Progress of Scientific Agriculture; "Edinburgh Review," January*, 1845.

Notices to Correspondents.

CATTLE—*N N*—Send them by the railroad to the nearest station on the Birmingham and Liverpool line, and they will walk the rest of the distance, 30 or 40 miles.

DRAINAGE—*T Spedding, Gilling*, having noticed in our Paper of April 19th, instances of the cost of draining land with pipe-tiles, which he thinks very low, is induced to ask what kind of tools Mr. Parkes used in his 3 and 4 feet drains? and what width were his drains at top and bottom?

ETHERIDGE'S PRIZE ESSAY—*St Remy*—It is the property of the Royal English Agricultural Society; you should apply to the Secretary.

FOOT-ROT.—*W B H*—Remove the sheep to dry ground; pare the feet sufficiently to allow any matter that may have formed under the horn to escape; and apply, by means of a feather, hydrochloric acid. And after one, two, or three applications of the acid, the following powder:—Charcoal, alum, prepared chalk, sulphate of zinc, equal quantities of each, finely powdered. No internal medicine is required. For a further account of the disease, see "Spooner on the Sheep," &c. *W. C. S.*

GYPSUM—*Querist*—How is this ground and powdered?

POTATO CULTURE—*R Bainbridge*—Your proposed manuring will doubtless perfectly answer your purpose.

STILTON CHEESE—*W Livesey*—"W" is unable to answer some of your questions, and therefore we publish them, as perhaps some one will be kind enough to give you the information you ask for.—What should be the temperature of the room in which the cheese-making is proceeding? What should be the temperature of the room in which the cheese is kept after being turned out of the vat? In reference to your other questions, the Lemon, with the Cloves, is introduced along with two or three "bag-skins," as you name them (of the lamb), into the water, a portion of which is taken and used as runnet. The strainer is simply a cheese-cloth, into which the curds are put before being introduced into the drainer or open cheese-basket, and its purpose is to facilitate the removal of the curd. The layers of curd should be about the thickness of the finger. Probably your suggestion regarding its immediate introduction into the vat, to get firm, might be an improvement; but the regularity of the slices, at which you aim, is not, we apprehend, altogether desirable.

TROPICAL AGRICULTURE—*Subscriber*—Thank you; we should like to see the papers you refer to.

WARRANTY—*A Constant Sub*—There is no stated time at which a warranty expires. You must prove the horse to have been unsound at the time of purchase. Ringbones and sidebones constitute unsoundness, though no lameness may be present. The former term is applied to an ossific deposition on the pastern bones, and the latter to an ossification of the lateral cartilages just above the hoof. Take the horse to a veterinary surgeon, let him examine the animal and give a certificate of his unsoundness, for which you will have to pay 10*s.* Then tender him to the seller and demand the amount of the purchase money. *W. C. S.*

MISC—*B J W*—Your suggestion is under consideration.

⁂ As usual, many communications have been received too late.

Markets.

SMITHFIELD, MONDAY, April 28.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 0	Best Long-wools	4s 4 to 4s 6
Best Short Horns	3 6 3 8	Ditto (short)	3 10 4 2
Second quality Beasts	2 10 3 2	Ewes and second quality	4 0 4 4
Calves	3 3 4 6	Ditto (short)	3 6 3 8
Best Downs & Half-breds	4 6 4 10	Lambs	5 4 6 0
Ditto (*short*)	4 0 4 4	Pigs	3 8 4 6

Beasts, 3,325; Sheep and Lambs, 25,650; Calves, 83; Pigs, 320

We have to-day a very large supply of Beasts. Prices are rather lower; there is, however, an extensive demand, and very few are left unsold. The best Scots have, in some instances, made a little over 4s.—Good Sheep are rather scarce, and prices are well maintained.—Lamb is more in demand.—Veal is a heavy trade at rather less money.—Pork is a heavy trade.

FRIDAY, May 2.

We have a fair supply of Beef. Trade is rather better, owing to a good demand at the dead Markets. We make about 4s. 2d. of the best Scots, &c.; and 3s. 10d. Short Horns.—Good Mutton is still scarce, and makes a high price; there are now scarcely any in the wool, we therefore cease to quote them. The best Downs, &c. (short), make from 4s. 2d. to 4s. 6d.; Long-wools, 4s. to 4s. 4d.; Ewes and second quality, 3s. 8d. to 4s.—Good Lambs are also dearer, they make from 5s. 8d. to 6s. 4d. Veal trade is heavy, and it is still difficult to make 4s. 8d. of anything.—Pork continues steady.

Beasts, 311; Sheep and Lambs, 7170; Calves, 148; Pigs, 298.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 1.

Prime old Meadow Hay	110s to 115s	New Hay —s to —s	Clover	110s to 126s
		Interior Hay 95 105	Straw	38 44

JOHN COOPER, Salesman.

CUMBERLAND MARKET, May 2.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 123s		
Interior — 100 108		Interior „ 100 110	Straw	39s to 44s
New Hay — —		New Clover — —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, May 2.

Fine Old Hay	110s to 115s	Old Clover	126s 130s		
New Hay — 100 105		New Clover — —	Straw	38s to 44s
		„ Inferior 100 120		

HOPS, FRIDAY, May 2.

THE Hop blues have made some progress during this week, but we hear that in places the flea is doing mischief, and that on those grounds which suffered so much from blight last season the bine comes very weakly in the young plantations. The wireworm is doing much damage. On the whole, the prospect of a full crop is anything but encouraging. The Market continues firm with more inquiry. PATTENDEN & SMITH, Hop Factors.

WOOL.—BRITISH, FRIDAY, May 2.

THERE has not been quite so much doing since our last as for some weeks previously, but prices continue tolerably firm.

JAMES PERRIN, Wool Broker.

POTATOES.—SOUTHWARK, WATERSIDE, April 28.

THIS Market continues to be over-stocked, the supply being considerably more than the demand. Hundreds of tons are sold weekly for the use of cattle. There is but little demand even for the best samples. York Reds are selling from 40s. to 80s., but exceedingly few fetch more than 70s. Inferior Scotch Reds are unsaleable. There are several cargoes of Dutch Potatoes in the Market selling at from 35s. to 40s.; and the trade generally is excessively heavy at the following prices:—

York Reds	40s to 80s	Kent and Essex Kidneys	70s to 75s
Perth	40 45	Wisbeach Kidneys	60 —
Fifeshire	35 40	— Blues	50 —
Early Devons	40 45	— Regents	60 65
Late Devons	— —	— Whites	50 —
Cornwall	— —	Guernsey Blues	60 —
Jersey Blues	60 —	— Whites	— —
— Whites	— —	York—Prince Regents	55 65
Kent and Essex Whites	40 —	— Blues	— —
		— Snaw's	50 70

COVENT GARDEN, MAY 3.—In consequence of the continued fine weather most articles begin to improve rapidly in quality, and trade is getting better. The prices of Pine Apples have not altered since last week. Hothouse Grapes are every day becoming more plentiful—Foreign sorts are scarce. Cherries have been offered during the week at from 25*s.* to 30*s.* per lb. The best dessert Apples bring 15*s.* per bushel, and the same quantity of kitchen sorts about 8*s.* The prices of Pears have not altered since last week. Oranges begin to get scarcer. Lemons are sufficient for the demand. Strawberries realise the same prices as mentioned in last week's report; they are becoming more plentiful. A few green Gooseberries have been offered during the week. The supply of vegetables in general is increasing. Broccoli is good; the large white is selling at 3*s.* a bundle, and the brown as low as 1*s.* A few early Cabbages have just made their appearance; they bring from 1*s.* 3*d.* to 2*s.* per dozen. Good Cucumbers may be bought for 1*s.* a brace; the very best samples, however, cannot be obtained under 6*s.* a brace. Asparagus is very good and plentiful, as is also Seakale; the latter is considerably reduced in price. Rhubarb is plentiful; French Beans bring from 2*s.* to 4*s.* a 100. Carrots and Turnips are sufficient for the demand. Among Cut Flowers we noticed Clivea nobilis, Clematis azurea, Cianthus puniceus, Nemophila insignis, Boronia pinnata, Lily of the Valley, Gloxinias, Heliotropes, Cinerarias, Fuchsias, Pelargoniums, Epacrises, some of the rarer Cape Heaths, Camellias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb., 8*s* to 10*s*	Oranges, per dozen, 1*s* to 2*s* 6*d*
Grapes, Hothouse, per lb., 8*s* to 15*s*	— per 100, 6*s* to 16*s*
— Spanish, per lb., 1*s* to 1*s* 6*d*	— bitter, per 100, 3*s* to 20*s*
— Portugal, per lb., 1*s* to 2*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 5*s* to 15*s*	— per 100, 6*s* to 14*s*
— Kitchen, 4*s* to 8*s*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 5*s* to 12*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*	Cob Nuts, per 100 lbs., 150*s* to 160*s*
Pomegranates, per doz., 2*s* to 4*s*	Nuts, Barcelona, 24*s*
Strawberries, per oz., 6*d* to 1*s*	— Brazil, 20*s*
Cheesnuts, per peck, 5*s* to 8*s*	— Spanish, 20*s*
Walnuts, per bushel, 16*s* to 20*s*	— Cob, 16*s*

VEGETABLES.

Cabbages, red, per doz., 4*s* to 12*s*	Parsnips, per doz., 6*d* to 1*s* 6*d*
— plants, per doz. bnch., 3*s* to 5*s*	Leeks, per doz., 1*s* 6*d* to 3*s*
Broccoli, per bundle, 1*s* to 3*s*	Garlic, per lb., 3*d* to 10*d*
Brussels Sprouts, hf.-sv., 1*s* 6*d* to 2*s*	Onions, per bunch, 3*d* to 6*d*
French Beans, per 100, 2*s* to 4*s*	— large, per bushel, 4*s* to 6*s*
Sorrel, per hf.-sieve, 1*s* to 1*s* 6*d*	— Spanish, per doz., 1*s* 6*d* to 4*s*
Jerusal. Artichok, p. hf.-sv., 1*s* to 2*s*	Shallots, per lb., 6*d* to 10*d*
Potatoes, per ton, 60*s* to 90*s*	Lettuce, per score, Cab., 6*d* to 3*s*
— cwt., 2*s* 6*d* to 5*s*	— Cos, 3*s* to 4*s*
— bushel, 1*s* 6*d* to 3*s*	Celery, White, per bunch, 1*s* to 3*s* 6*d*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	— Red, per bunch, 1*s* to 2*s* 6*d*
— Autumn, per lb., 3*d* to 6*d*	Endive, per score, 1*s* to 2*s*
— New, per lb., 1*s* 6*d* to 3*s* 6*d*	Radishes, per doz. hands, 1*s* 2*d* to 2*s* 6*d*
Turnips, per doz. bch., 2*s* 6*d* to 3*s* 6*d*	Mushrooms, per pottle, 6*d* to 1*s*
Red Beet, per doz., 1*s* to 2*s*	Small Salads, per punnet, 2*d* to 3*d*
Carrots, per doz. bchs., 6*s* to 8*s*	Basil, green, per bunch, 1*s*
Basil, per bunch, 2*d* to 3*d*	Fennel, per bunch, 2*d* to 4*d*
Rhubarb, per bundle, 6*d* to 2*s*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Seakale, per punnet, 6*d* to 2*s*	Parsley, per half sieve, 1*s* 6*d* to 2*s*
Asparagus, per bundle, 1*s* 6*d* to 12*s*.	— Roots, per bundle, 2*d*
Horse Radish, per bundle, 1*s* 6*d* to 7*s*	Tarragon, per bunch, 4*d*
Savory, per bunch, 2*d*	Mint, per bunch, 6*d* to 1*s*
Cucumbers, per brace, 1*s* to 6*s*	Marjoram, per bunch, 2*d*
Spinach, per sieve, 1*s* 6*d* to 2*s* 6*d*	Chervil, per punnet, 3*d* to 4*d*

MARK-LANE, MONDAY, April 28.

THE market this morning was moderately supplied with Wheat from Essex and Kent; fine samples realised the prices of last Monday, but inferior were difficult to dispose of. In Foreign we observe no alteration.—English Malting Barley is nominally the same as last week; fine Foreign finds buyers at our quotations, and Grinding were more in demand than of late, and consequently obtained rather higher rates.—Beans and Grey Peas must each be written 1*s.* dearer; White were rather more inquired after, but very scarce.—Oats have sold freely at an advance of 6*d.* to 1*s.* per qr.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk . . White	42	49	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 22*s* to 29*s* Chevaller	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . . Polands	20	23	Feed	19	22
—— Northumberland and Scotch . . Feed	20	22	Potato	21	24
—— Irish . . . . . Feed	20	22	Potato	21	23
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new 29 to 34	Tick	30	36	Harrow	31	37
—— Pigeon, Heligoland . 26 to 40	Winds	—	—	Longpod	—	—
Peas, White . . . . . 33 to 36	Maple	35	37	Grey	30	33

FRIDAY, May 2.

THERE were a few samples of English Wheat fresh up for this morning's market, some proportion of which, as also of Monday's, remain unsold; much Cambridgeshire and Lincolnshire was offering f.o.b. at a decline of 6*d.* to 1*s.* per qr. upon previous rates.—Barley, Beans, and Peas, are unaltered in value.—The show of Oats being small, factors held for an advance in price, which was not complied with, and sales were consequently limited.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Mar. 22 per Quarter.	45*s* 5*d*	32*s* 4*d*	21*s* 3*d*	30*s* 5*d*	34*s* 6*d*	35*s* 8*d*
— 29 . . .	46 10	32 4	21 5	30 0	34 10	34 8
April 5 . . .	46 5	32 5	21 4	29 6	35 0	35 7
— 12 . . .	46 3	32 5	20 9	30 6	35 5	36 6
— 19 . . .	45 11	31 11	21 4	32 1	35 1	36 1
— 26 . . .	45 11	31 6	20 11	30 2	35 9	36 3
6 weeks' Aggreg. Aver.	46 0	32 2	21 3	30 5	35 1	35 9
Duties on Foreign Grain	20 0	6 0	6 0	10 6	8 6	7 —

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, April 26.

PRICE.	MARCH 22	MARCH 29	APRIL 5	APRIL 12	APRIL 19	APRIL 26
46*s* 5*d*	..	..	..	..	..	..
— 3	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 1	..	..	..	..	..	..

SEEDS, May 2.

Canary . . per qr	44*s* to 50*s*	Linseed Cakes, Foreign, p. ton	7*l* 10*s* to 8*l*
Carraway . . per cwt	44	48	Mustard, White - p. bush.	10*s*	14*s*
Clover, Red, English .	40	65	— Superfine „ .	12	16
— Foreign .	46	56	— Brown „ .	12	16
— White, English .	50	80	Rapeseed, English, per last	28*l*	30*l*
— Foreign .	50	80	Rape Cakes - per ton	—	—
Coriander . . .	12	18	Sainfoin . . .	—	—
Hempseed . per last	36	36	Tares, Eng. winter p. bush.	5	7
Linseed . . per qr	52	60	— Foreign -	4*s* 6*d*	6
— Baltic . . .	52	54	Trefoil . . per cwt	12	13
— Cakes, Eng. per 1000	11*l* 0	11*l* 10	Turnip (too variable for quotation)		

KINGSBORD AND LAY.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on TUESDAY, May 6th, and THURSDAY 8th, 1845, at 12 o'clock each day, a fine Collection of CARNATIONS and PICOTEES, comprising all the best Varieties. Also a splendid Assortment of GERANIUMS and other Plants in bloom. The newest Varieties of Dahlias, Fuchsias, Verbenas, Heartsease, &c. May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

TO be SOLD by AUCTION, early in June next, at the White Hart Hotel, Bromley, Kent, 200 very Superior SPECIMEN PLANTS, consisting of Orchidaceous, Cape Heaths, and choice Stove and Greenhouse Plants, unless previously disposed of by private contract, for which the proprietor is open to treat with any respectable and experienced person to take the half-part, and entire management, of the same. A collection will be exhibited at the Royal Botanic and Chiswick Shows, in the present month; and sold in consequence of W. PAWLEY declining to grow for Exhibition. Catalogues may be obtained at the place of Sale, after the 21st.

TO GARDENERS.—EAST HILL, BATTERSEA, SURREY.

TO BE LET, Seven Acres of SUPERIOR GARDEN GROUND, adjoining the high road from Wandsworth to London, well Stocked and Cropped. For particulars, apply to Mr. J. ELLIOTT, Auctioneer, Putney, Surrey.

EXCELLENT INVESTMENT.

A FREEHOLD ESTATE for Sale by Private Contract, situate in the most desirable part of the West Riding of Yorkshire, and in the immediate neighbourhood of several important towns; containing 880 acres in a ring fence, Arable Pasture and Woodland in good proportion; and fairly rented on leases so as to yield to the purchaser a clear return of 4½ per cent. per annum upon the price required. The Buildings are in good repair, and the poor-rates but 1*s.* 8*d.* in the pound. The Estate is well located for Railway communication.—Apply to Mr. BAILEY DENTON, Land-agent, 9, Gray's-inn-square, London.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.

Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

J. WEEKS AND R. DAY, ARCHITECTS, HORTICULTURAL BUILDERS, &c., Gloucester-place, King's-road, Chelsea. The great simplicity of their improved plan of SHADING, by which the roof of the largest or smallest house can be instantly covered with a sheet of Canvass, renders the principle an object of admiration. To be seen in use at most of the London Nurseries, and at their Horticultural Manufactory, Gloucester-place, Chelsea.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

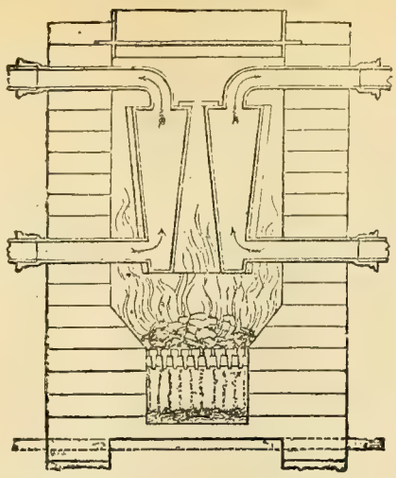
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much-approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.

GENUINE BOLIVIAN GUANO—EX PROVIDENCE.



WILLIAM E. RENDLE and Co., PLYMOUTH, have made arrangements with Messrs. Anthony Gibbs and Sons, and can supply any quantity of Bolivian GUANO direct from their Import Warehouse in London, being enabled therefore to guarantee the article to be pure and unadulterated.

Plymouth Manure Company's Office, Union-road, May 3, 1845.

GUANO, of the best quality, in bags.—PERUVIAN 11*l.* to 12*l.* per ton; ICHABOE 7*l.* 10*s.* to 8*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, May 3.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

GUANO.—GENUINE PERUVIAN and ICHABOE GUANO, of the finest quality, is now selling from the Importer's Bonded Warehouses, and will be shipped coastwise or forwarded by land carriage in quantities to suit the convenience of farmers upon application to Mr. T. N. KERR, 57, Lime-street, London. The genuineness of the article may be confidently relied on, but samples and analysis will be forwarded if required.

PURE GYPSUM, precipitated from a solution of Lime by Sulphuric Acid; being in a very finely divided state, it is better adapted for the various purposes for which it is employed in Agriculture, such as fixing Ammonia, and as a top dressing for Clover, &c., price 2*l.* per ton.

Superphosphate of Lime, 7*l.* per ton.

At Mr. LAWES' Factory, Deptford Creek.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

POTTER'S GUANO SUPERIOR TO PERUVIAN proved by the following TESTIMONIAL just received:—

"Arthurstown, April, 1845.—Last season I distributed a large quantity of Guano to the tenantry, to induce them to get into the green cropping system, principally Peruvian. I also ordered two tons of yours, through a Waterford house. It proved a good article, indeed, *much superior to the best Peruvian*.—Yours most obediently, WM. LUMSDEN."

"To Mr. Potter, 28, Upper Fore-street, Lambeth."

The price of POTTER'S GUANO is now much under that of Peruvian, and those who study economy will give it the preference. Mr. POTTER has also testimonials from Lord Zetland, Mr. C. Porcher, of Cliffe, Weymouth, and others, proving the superiority of his Manure over the Peruvian Guano, which commands so high a price.

Orders addressed as above instantly attended to, and a very considerable allowance made when a quantity is taken.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

SILVER TEA-SERVICES.—A. B. SAVORY and SONS, MANUFACTURING SILVERSMITHS, 14, CORNHILL, London, opposite the Bank of England, submit the prices of the following SILVER TEA and COFFEE SERVICES. The Cottage Pattern is plain, standing on shell feet, the Tea and Coffee-pot with a flower ornament on the lids. The King's Pattern is richly embossed with flowers and scrolls. The shape of either is new and elegant.

Cottage Pattern.				King's Pattern.			
Strong Silver Teapot	£12	0	0	Strong Silver Teapot	£12	0	0
Ditto Sugar Basin	6	16	0	Ditto Sugar Basin	7	10	0
Ditto Milk Ewer	4	10	0	Ditto Cream Ewer	5	10	0
Ditto Coffee-pot	15	0	0	Ditto Coffee-pot	15	0	0
Complete	£38	6	0	Complete	£40	0	0

A variety of upwards of 50 Tea and Coffee Services may be seen in the show-rooms, where may be selected every article of Silver requisite for the sideboard or plate-chest. Pamphlets of prices, illustrated with sketches of the various articles, gratis, and forwarded, postage free, to all parts of the kingdom.

A. B. SAVORY and SONS, 14, Cornhill, London, opposite the Bank of England.

MEEN FUN, the celebrated Chinese Cosmetic Patronised by the Queen and the Royal Family.—The great value of this Cosmetic is, that the ingredients being solely herbaceous the most delicate complexion can apply it without injury, while rough, red, and moist skins speedily experience beneficial results. Another most important feature is that of repressing, without detriment to the sanatory condition of the user, the truly unpleasant sensation accompanying too copious perspiration. Travellers and residents in warm climates, subject to the enervating influence of tropical heat, will, when the skin becomes moist and heated, experience inconceivable comfort by resorting to this Cosmetic, as it will both allay and avert discoloration and coarseness. Sold retail by all respectable perfumers, chemists, &c., in boxes price 3*s.* 6*d.* and 7*s.* 6*d.* each, and wholesale by the Proprietors, FABIAN and Co., late Watson, Fabian, and Co., 24, Mark-lane, London. Country agents required.

LINGHAM, BROTHERS, BIRMINGHAM.—MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to any thing of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.

Sole Agents in London:—GEORGE and J. DEANE, Horticultural Implement Warehouse, 46, King William-street, London-bridge.

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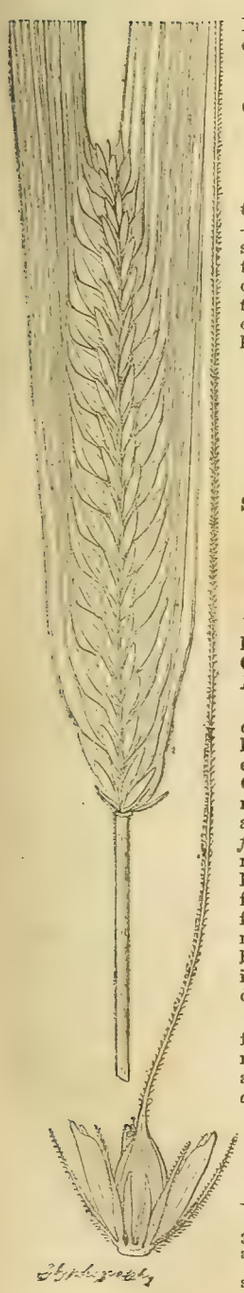


Fig. CCXLI.

Egyptian mummies. Its branched ears are very remarkable.

SECALE.

Glumes subulate. Spikelets 2-flowered, with the rudiment of a third flower in the middle. Otherwise like Triticum.

1. S. *Cereale* (*Rye*). Glumes shorter than the spikelet. Rachis tough. ——— *Fields.* The grain of this sort of corn produces flour inferior to that from wheat, and forming a dark sweet nutritious bread. It is the common food of the peasantry of Germany, but is little used in England.

*** Rye differs from Wheat in having very small narrow glumes, and the centre floret of each spikelet constantly imperfect.

HORDEUM.

Spikelets in pairs or threes, 1-flowered. Glumes 2. Paleæ 2, the lower awned at the apex. Scales obtuse, fringed. Styles feathery. Ovary villous at the end.

1. H. *hexastichon* (*Six-rowed Barley, Winter Barley, Bere, or Bigg*). Spikelets all fertile, arranged in 6 rows. Grain adhering to the paleæ. ——— *Fields.*

2. H. *distichum* (*Two-rowed or common Barley*). The middle spikelets only fertile, the two lateral of each cluster barren and beardless. One palea of the middle florets furnished with a very long awn. Grain adhering to the paleæ. ——— *Cornfields.* This is the sort of barley commonly grown in England. It prefers light land. Bread is sometimes made from its flour; but it is chiefly used for malting, previously to being fermented for beer. Malt is the grain of barley forced to germinate, by which it acquires sweetness, and then kiln dried.

3. H. *murinum* (*Wall Barley*). Lateral flowers barren. Glumes of the intermediate ones lanceolate, fringed. Grain adhering to the paleæ. ——— *Walls and waste places.* A worthless weed.

*** Barley differs from Rye, which it somewhat resembles, in having its spikelets one-flowered only, and constantly



Fig. CCXLII.

Fig. CCXLI. Hordeum distichum with 3 spikelets separate, of which the two lateral are sterile, and the central only perfect.
Fig. CCXLII. Secale Cereale with a spikelet separate.

umbel, while the involucels at the base of the partial umbels consist of many bracts.

The manner in which flowers are arranged is called their *inflorescence*. It is a sort of branching, and has different names, according to the manner



Fig. XXXVII.

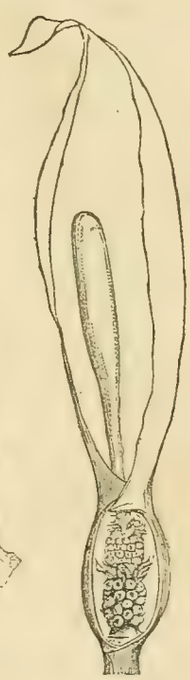


Fig. XXXVIII.



Fig. XXXIX.

in which the branches are arranged. The principal kinds are these:—1. The *capitulum*, or *flowerhead*, when all the flowers are sessile upon a broad plate called a *receptacle*, as in the Daisy (Bellis perennis). 2. The *umbel*, when the pedicels all radiate from one point, as in the Cherry (Fig. XL.); this is called compound, when each ray of the umbel is itself umbellate, as in the Fool's Parsley (Æthusa Cynapium, Fig. XXXIX). The *spike*, when the flowers are sessile along a common peduncle, or axis, as in Ribgrass (Plantago lanceolata). 4. The *raceme*, when the flowers are all stalked along a common axis, as in the Currant. 5. The *corymb*, when the flowers of a raceme are all on the same level, as in Candy Tuft (Iberis). 6. The *panicle*, when the pedicels of a raceme are themselves branches, as in the Fiorin Grass (Agrostis stolonifera). 7. The *cyme*, when a panicle is corymbose and irregularly contracted, as in the Elder-tree (Sambucus nigra, Fig. XLI.) A *spadix* is the inflorescence inclosed in a spathe (Fig. XXXVIII.); an *amentum*, or *catkin*, is a



Fig. XL.

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LARDNER'S CABINET CYCLOPÆDIA.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1845.] SATURDAY, MAY 10. [Price 6d.

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GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given, that a General Meeting of the Subscribers to this Institution will be held at the London Coffee House, Ludgate-hill, on Wednesday, 4th June next, for the purpose of Electing Four Poor Persons to the benefit of a Pension of 16*l.* per annum, from among the following Candidates, whose Testimonials have been examined, and approved of by the Committeee :—

Name.		*Age. Residence.*
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James Everest,	1st ,,	,, 64—Bagshot.
Mary Hamilton,	1st ,,	,, 74—Hammersmith.
John Longhurst,	1st ,,	,, 57—Charlton.
William May,	1st ,,	,, 76—Footscray.

The Chair to be taken at half-past Eleven o'clock precisely. The Ballot will commence at Twelve and close at Two o'clock precisely. Edward R. Cutler, Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The General Meeting will be held at the Society's House in Hanover-square, on Thursday, the 22d of May, at 12 o'clock precisely.

By order of the Council, James Hudson, Secretary.
London, 7th May, 1845.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.—Under the Patronage of HER MOST GRACIOUS MAJESTY THE QUEEN.

The Second EXHIBITION for the Season will be held in the Royal Surrey ZOOLOGICAL GARDENS, on Wednesday, May 21st, 1845 (Open to all England), when Prizes will be awarded for the following Collections, viz. :—Miscellaneous and Orchidaceous Plants, Cape Heaths, Pelargoniums, Roses, Tulips, Heartsease, Vegetables, &c. The following Exhibitions will also take place in the above Gardens : on Wednesday, June 25th; Wednesday, July 23d; and on Wednesday, September 17th, 1845.

List of Prizes and the Rules of the Society, may be obtained from John Taylor Neville, Secretary.
Ebenezer-house, Peckham.

AMATEUR TULIP SOCIETY.—The Second Annual Exhibition of the above Society will take place at the Horns Tavern, Kennington, on Friday, the 23d of May. Admission between 3 o'clock and 6, by tickets only, which may be obtained of any Member of the Society, a List of whom may be seen at the bar of the above Tavern.

GRAND FLOWER-SHOWS AT GRAVESEND, KENT.—Exhibitors are respectfully informed that two Shows upon a large scale will take place next season—the first at the Terrace Gardens on the 17th day of June, and the second at Rosherville, on the 9th day of July next. The prizes will be of sufficient magnitude to induce exhibitors to attend, and will be paid without deduction on each day of Exhibition.

A List of Prizes may be obtained at the Office of this Paper, or of W. A. Coombe, Esq., Town Clerk, Gravesend, Hon. Sec.

OPEN TO ALL ENGLAND.

THE ANNUAL CARNATION AND PICOTEE SHOW will be held at The Coppice, near Nottingham, on Tuesday, the 29th of July; Entrance, 7*s.* 6*d.*, which must be paid to the Secretary, Mr. J. G. Robinson, 4, Ram Inn Yard, Nottingham, on or before the last day of June next. Schedules may be obtained of Mr. J. F. Wood, at The Coppice, on prepaid application, inclosing a postage-stamp.

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Good kinds	per doz., from 12*s.* to	0	18	0
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,, Snowiana	2	6	Drymonia punctata	2	6
,, atrata	2	6	Achimenes picta	2	6
,, magniflora	2	6	,, hirsuta	1	6
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VERBENAS.

12 fine varieties for .. .. 5*s.*	
12 superior ditto .. .. 9*s.*	
12 superb ditto .. .. 12*s.*	

A few SELECT PLANTS—Extracted from General Catalogue.

	Per Plant—*s.*	*d.*		Per Plant—*s.*	*d.*
Achimenes hirsuta ..	2	6	Correæa Grevillei ..	1	6
,, picta ..	3	6	Dillwynia glycinifolia ..	2	6
,, rosea eximia	2	6	,, speciosa ..	2	6
,, splendens ..	2	6	Echites atropurpurea ..	7	6
Amicia zygomeris ..	3	6	Franciscea latifolia ..	3	6
Azalea indica alba superba	7	6	Gloxinia Cartonii ..	3	6
,, Cleopatra ..	10	6	,, macrophylla variegata	2	6
,, Gladstonesii ..	3	6	,, Priestleyana ..	2	6
,, Incomparable ..	10	6	,, speciosa grandiflora	2	6
,, magniflora ..	10	6	,, ,, superba ..	2	6
,, variegata ..	2	6	,, tubiflora	2	6
And many others.			Inga pulcherrima ..	3	6
Brachysema platyptera	3	6	Leschenaultia grandiflora	2	6
Brugmansia arbuscula	3	6	Nerium Oleander Tanglé	3	6
,, Knightii, double white	2	6	Pimelea spectabilis ..	3	6
Buddlea Lindleyana ..	2	6	Silene speciosa	1	6
Cestrum aurantiacum ..	7	6	Siphocampylus glabriuscula	3	6
Chorozema macrophylla	1	6	,, lantanifolia ..	3	6
,, spectabilis	3	6	Tetranema mexicana ..	5	0
Correæa grandiflora ..	2	6	Veronica speciosa ..	2	6

W. Wood and Son's descriptive Catalogue of Fuchsias and Verbenas, also Lists of Petunias, Anagallis, Miscellaneous Greenhouse and Hardy Herbaceous Plants, Shrubs, and Climbers, may be had gratis on application.

Plants will be presented to defray expense of carriage. A remittance or reference is respectfully solicited from unknown correspondents.

S. WALTERS, Florist, Hilperton, Wilts, respectfully invites the Floral Public to his choice assortment of ORNAMENTAL PLANTS for bedding, which he offers as follows : Verbenas .. .. .. per doz.—3*s.* 6*d.*

Dahlias (Show Flowers)	6 0
Fuchsias	6 0
Geraniums	6 0
Petunias	6 0
Pansies (Show Flowers in pots)	6 0
Roses (China) in pots, strong plants ..	6 0
,, Hybrid Perpetual	12 0
,, Bourbon	9 0
,, Tea	9 0
Grand Specimens in bloom, in pots, each	1 6

With every novelty of the season in their respective classes.

GIRLING'S NEW PETUNIAS.—A few dozen sets on sale, now ready, and offered at prices as low as any one in the trade. Petunia "Pink Pet," (Walters's) has been favourably noticed by the Editors of the *Gardeners' Chronicle* and *Gardeners' Gazette*. Plants 3*s.* 6*d.* each.

Purchasers may depend on having very fine plants. Verbenas, Petunias, Geraniums, and Pansies are nearly all in bloom. Descriptive Catalogues may be had on application. Remitted Orders punctually and promptly attended to.

A. PAUL and SONS' CATALOGUE of DAHLIAS, GERANIUMS, VERBENAS, FUCHSIAS, &c. &c. is now ready and will be forwarded gratis, per post, on application. The plants are good, and prices moderate.

Nurseries, Cheshunt, Herts.

SPLENDID SEEDLING FUCHSIAS, CALCEOLARIA, AND PELARGONIUM.

G. ROGERS begs to return his thanks to those who have kindly favoured him with orders for the above, &c., and begs to say that he cannot supply any more plants of FUCHSIAS 'Lord Sandon' and 'Theophrastus,' until after 20th inst. G. R. can supply a few more plants of his 'Lady Sale' at 10*s.* 6*d.* each; it has bloomed this season, and it fully bears out the high encomiums passed on it by Dr. Lindley, Mr. Harrison, and Mr. Glenny, and he has the greatest confidence in offering it as one of the most beautiful light varieties in cultivation; its habit renders it indispensable to those intending to compete at the various exhibitions.

CALCEOLARIA, Rogers's 'Staffordshire Rival,' Plants, 15*s.* each. Dr. Lindley, in describing the colour &c. of the above, pronounces it a beautiful and desirable flower.

PELARGONIUM, Rogers's 'Lady Tamworth,' 21*s.* each. Mr. Harrison, Downham, in describing the colour, pronounces it a good circular-shaped flower, without a crumple of any kind. If the three are taken, they will be charged 2*l.*, with plants gratis for carriage.

Aquilegia grandiflora, 3*s.* 6*d.* each, or 30*s.* per dozen.
Fuchsia, Norfolk Hero, 2*s.* 6*d.* to 3*s.* 6*d.* each.

G. R. begs to offer very strong plants of most of the best kinds of Fuchsias at low prices—they are plants that would soon make fine specimens. G. R.'s Descriptive List may be had by prepaid application.

Uttoxeter, Staffordshire, May 10, 1845.

FUCHSIAS; to include such as Cormackii, Sanguinea, Eppsii, Transparens, Brockmannii, Venus Victrix, Colossus, Adonis, Britannia, &c. PETUNIAS, 12 varieties, of the largest and best Flowers, including several Seedlings of last year. DAHLIAS: choice sorts. HELIOTROPIUMS. The above well-rooted Plants, correctly named, out of pots, 3*s.* per dozen. PHLOX DRUMMONDII, and DOUBLE INDIAN PINKS, 2*s.* per dozen.

J. and S. Shilling having a good Stock of the above, beg to offer them to the public generally, at these extremely low prices, package included, a post-office order accompanying the order.—Northwarnbro' Nursery, near Odiham, Hants.

NEW, GOOD, AND CHEAP.

B. W. KNIGHT, FLORIST, &c., TIVOLI, near St. Leonard's-on-Sea, Sussex, begs to call the attention of his friends and the public to the following Choice Plants, which are now ready to send out: 12 new choice and distinct Fuchsias, fit for exhibition, for 6s.; 12 extra first-rate, very distinct varieties, all sent out for the first time last season, for 12s.; 12 distinct Verbenas for 3s. 6d.; 12 extra new good varieties for 6s.; 12 fine show Pansies for 6s.; 12 extra good for 12s.; 12 very choice Petunias for 6s.; 12 good and distinct Cinerarias for 6s.; 12 extra new kinds for 12s.; 12 extra choice Anagallis for 3s. 6d.; 12 fine Salvias for 4s.; 12 Heliotropiums for 4s.; 12 choice kinds Phloxes for 6s.; 12 extra new very distinct varieties for 12s.; 12 choice Antirrhinums for 6s.; 12 extra choice new kinds for 12s.

Also will be ready to send out in May, 12 good show Dahlias for 12s.; 12 extra good distinct kinds, all new last season, for 21s.; 12 choice fancy or border varieties for 6s. Any of the above can be securely packed and forwarded, post free, on receipt of the amount with the order. Catalogues of the above may be obtained on prepaid application.—May 10.

TO THE ROSE TRADE.

R. B. BIRCHAM, HEDENHAM ROSERY, BUNGAY, SUFFOLK, begs to offer the following FIRST-RATE Perpetual and Bourbon ROSES, Dwarf Plants in Pots, own roots, fit for transplanting into borders; or to form beds of Perpetual Roses.

The following are 1s. per Plant:—

Aubernon, Clementine, Seringe, Duchess of Sutherland, Duc d'Aumale, Earl Talbot, Julie Dupont, Lane, Madame Dameme, Madame Laffay, Melanie, Cornu, Mrs. Elliot, Prince Albert, Rivers (Laffay's), William Jesse, Queen of Bourbons, Acidalie, Alfred, Splendens, Duc de Chartres, Gloire de Rosamene, Madame Nerard, Thiaffait.

The following at 2s. 6d. per Plant:—

Comte d'Eu, Dr. Marx, Thibault, Amenaide, Marquis of Ailsa, Marquis of Boccella, Prince de Galles, Comice de Seine et Marne, Edouard Dorforsse, La Bouquitière, Lady Canning, Lilacea grandiflora, Madame Aubis, Madame La Charme, Proserpine, Paul Joseph, Princess Modena, Cerèse, Perry de St. Cyr, Anne Beluze, Manteau de Jeanne d'Arc.

The following at 3s. 6d. per Plant:—

La Reine, Lady Alice Peel, Madame Emma Dampier, Gloire de Paris (Noisette), Cloth of Gold, Solfaterre, Pourpre de Tyre, Virgil.

The following at 5s. per Plant:—

Comte de Rambuteau, Souchet, Madame Souchet, Charles Souchet, Souvenir de la Malmaison, George Cuvier, Princess Clementine, Dumont de Courset.

Queen of the Prairies, at 2s. 6d. each.

A purchaser may select *Fifty* of the above for 5l., *Cash on Delivery*. The plants are healthy, and ready for planting out the beginning of May. A Descriptive Catalogue sent on application. Carriage paid to London.—Hedenham, May 10.

DAHLIAS.

JOHN HARRISON, NURSERYMAN, &c., YORK, begs to offer to the Trade the undernamed DAHLIAS, of which he has a fine healthy Stock. Amateurs dealt with liberally. His Catalogue of DAHLIAS, GERANIUMS, FUCHSIAS, PANSIES, &c., can be had on application.

DAHLIAS, at 12s. per dozen.—Nonpareil, Lady Antrobus, Stewart Richardson, Constance, Crimson Perfection, Emma Noke, Cheltenham Queen, Claudine, Gauntlet, Lady Grey, Madelina, Orange Superb, Vanquisher, Triumphant (Knight's); and at 18s. per dozen—Lord Howden, Standard of Perfection, Spitfire, Bathonia, Lady St. Maur, Ondine, Prince of Waterloo, Sir H. Pottinger, Queen of Roses, Raphael, Aurantia, &c.

Grove Nursery, May 10.

THE ASHCROFT SWEDISH TURNIP was raised by Mr. ASHCROFT some few years ago; it has won several prizes in competition with other sorts: it is somewhat of an oval form, has a yellow flesh, and is highly nutritive; is a very heavy cropper, and is well adapted for storing; will bear sowing later than most other Swedes. price 1s. per lb. Skirving's, Matson's, and Pain's Hardy Green-crown Swedes, 1s. per lb. each; True Purple-top Swede, 9d. per lb.; Gibbs's Green-crown Yellow Hybrid, Dale's Hybrid and Purple-crown Yellow Hybrid, 1s. per lb. each. General priced Catalogues are ready.—MEADOW and PASTURE GRASS SEEDS, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. Mixed sorts for improving old Grass Land, 1s. 3d. per lb. Directions for sowing, &c., will accompany the seeds.—GEORGE GIBBS & Co., Seedsmen, &c., to the Agricultural Society, 26, Down-st., Piccadilly.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

NEW ROSES.—Damask Perpetual, "MOGADOR," brilliant scarlet, finely shaded with purple, well-formed, large, and very double; habit of Rose du Roi, 21s. each.

Hybrid Perpetual, "COMTESSE DUCHATEL," bright rosy carmine, most beautifully cupped, large and very double, retaining its brilliant colour several days after expanding, 21s. each.

WILLIAM WOOD & SON have the honour of soliciting the attention of their friends to the above named new and unique Roses, now offering for the first time in England, strong plants of which are ready for immediate transit, together with all the best varieties of the season.

The month of May being considered the most favourable time for planting out China, Tea-scented, Bourbon, and other Roses usually grown in pots, WILLIAM WOOD & SON are now prepared to execute orders from their very extensive stock at the under-named prices, the selection of sorts being left to themselves:—

L'Isle de Bourbon	.. .. ..	per doz. 12s.
ditto	finer varieties ..	.. 18s. to 24s.
China	.. ..	.. 12s. ,, 18s.
Tea-scented	.. ..	.. .. 12s.
ditto	finer varieties ..	.. 18s. to 24s.
Noisette	.. ..	.. 12s. ,, 18s.
Climbing	.. ..	.. 9s. ,, 12s.

Plants will be presented with each order, to defray carriage, &c. Rose Catalogues may be had, gratis, on application.

SPLENDID VERBENA, "CRIMSON SUPERB"; COLOUR, DARK CRIMSON MAROON.

WM. CUTBUSH begs to announce that he is now able to send out the above at 3s. 6d. per Plant; early orders are requested, as the stock is small. The usual allowance to the Trade, when two or more are taken.—Nurseries, Barnet, Herts, May 10.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	Orange Tubs, Flower Boxes, &c.
Garden Edging	

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

J. WEEKS AND R. DAY, ARCHITECTS, HORTICULTURAL BUILDERS, &c., Gloucester-place, King's-road, Chelsea. The great simplicity of their improved plan of SHADING, by which the roof of the largest or smallest house can be instantly covered with a sheet of Canvass, renders the principle an object of admiration. To be seen in use at most of the London Nurseries, and at their Horticultural Manufactory, Gloucester-place, Chelsea.

EXHIBITIONS AT THE GARDEN OF THE HORTICULTURAL SOCIETY OF LONDON, FOR THE YEAR 1845.

THE DAYS OF EXHIBITION will be the three following SATURDAYS, viz.: MAY 24th, JUNE 21st, and JULY 12.

EXHIBITORS.—All Persons, whether Fellows of the Society or not, will be at liberty to send subjects for exhibition.

FLOWER-STANDS.—Exhibitors of Cut Flowers must SUPPLY THEIR OWN BOXES OR STANDS. No box or stand should exceed eight inches in height at the back, or 18 inches in depth from front to back. The lids of all boxes MUST either be loose or made to unhinge.

MEDALS AND REWARDS.—The Society distributes the following Medals and Rewards,—namely,

C.	The Certificate	value—£0	10	0	SG.	Large Silver Gilt Do.	value—£4	0	0
SB.	Silver Banksian Medal	1	0	0	GB.	Gold Banksian Do.	7	0	0
SK.	Silver Knightian Do.	1	5	0	GK.	Gold Knightian Do.	10	0	0
LS.	Large Silver Do.	1	15	0	LG.	Large Gold Do.	20	0	0

Exhibitors to whom any of these shall be awarded can exchange them one for another, or may receive their value in money, or in plate. *If within one month after the third Exhibition of the year* no intimation shall have been received from an Exhibitor of the manner in which he desires his Medals to be disposed of, all the Medals due to him may be prepared and *transmitted to him through the usual public conveyances, without further notice.* In case an Exhibitor shall receive a First Prize in any one letter, he shall not be entitled to receive any other Medal in the same letter, except in *K K*, *M M*, and *N N*.

IT IS, HOWEVER, TO BE PARTICULARLY OBSERVED that if any Exhibitor shall obtain the award of a Medal, and it shall be afterwards ascertained that he has gained it by exhibiting plants not *bona fide* his own property, or that of his master, such award shall be cancelled, in favour of the Exhibitor next below him, whose Medal shall in like manner be transferred to he person immediately following him in the award, and so on.

SUBJECTS OF EXHIBITION.—These will be divided into Classes, as explained further on. No articles not of Horticultural produce will be allowed to be placed upon the tables. Exhibitors will do well to make themselves acquainted with the arrangements described in the following List, as they will in ALL CASES BE REQUIRED TO SIGN A PRINTED FORM OF DECLARATION TO BE FURNISHED TO THEM IN THE GARDEN, stating under what letter their plants are to be shown; and they are particularly requested to TAKE NOTICE, that if errors in the awards of the Judges should occur, in consequence of mistakes on the part of Exhibitors in filling up such Declarations, the Society cannot undertake to rectify the errors afterwards.

Names fairly written are to be attached by Exhibitors to all Florists' Flowers; and the Judges are restrained from awarding any Medal to such Exhibitions, whatever their merit may be, if this regulation is not complied with. By Florists' Flowers are meant not only flowers usually so named, but also Fuchsias Pelargoniums, Roses, and Calceolarias. It is also hoped that all other subjects of Exhibition will be neatly and legibly labelled with their names.

(CORRECTED LIST OF MEDALS, &c.)

CLASS I.—FLOWERS; for which Nurserymen and Private Growers exhibit independently of each other.

A. Pelargoniums; in collections of 12 new and first-rate varieties, cultivated with superior skill, in pots of 24 to a cast. GB—SG—LS.

B. Pelargoniums; in collections of 12 varieties, in pots of 24 to a cast. GB—SG—LS.

C. Pelargoniums; in collections of six varieties, in pots of 8 to a cast. LS—SK—SB.

D. Roses, in pots; Amateurs to show in collections of 12, Nurserymen in collections of 25 distinct vars. GB—SG—LS.

N.B. It is the wish of the Society, in a future season, to require Roses to be shown exclusively in pots, and not to allow cut specimens to be exhibited at all.

E. Roses, in pots; single specimens displaying superior cultivation. SK—SB—C.

F. Moss Roses, in loose bunches, each consisting of three trusses, as they are gathered, so as to exhibit, as far as possible, the habit of the variety; in 12 varieties. SK—SB—C.

G. Other Roses, exhibited as in the last letter, and in 50 varieties. LS—SK—SB.

N.B. No one who exhibits in this letter can also compete in the following.

H. Other Roses, exhibited as in the letter F, and in 25 varieties. SK—SB—C.

N.B. Higher Medals than those here offered for Roses cannot be given by the Judges. And if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I. Cape Heaths; in collections of 20 entirely distinct varieties. GK—SG—LS.

N.B. It is expected that the same plant shall not be exhibited on more than one occasion.

K. Cape Heaths; in collections of 12 entirely distinct varieties. GB—SG—LS.

L. Cape Heaths; in collections of 6 entirely distinct varieties. SG—LS—SK.

N.B. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M. Cape Heaths; single specimens displaying very superior cultivation. LS—SK—SB.

N. Calceolarias, in sixes; in pots of 24 to the cast. LS—SK—SB.

O. Carnations, in pans of 24 distinct varieties. LS—SK—SB.

P. Picotees, in pans of 24 distinct varieties. LS—SK—SB.

Q. Pinks, in pans of 24 distinct varieties. SK—SB.

R. Ranunculuses, excluding Turbans; in stands of 12 distinct varieties for Private Growers, and 24 for Nurserymen. LS—SK—SB.

CLASS II.—FLOWERS; for which all persons are admitted to equal competition.

S. Stove or Greenhouse Plants; in collections of 40 plants. LG—GK—GB.

N.B. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums to be excluded from *S*, *T*, *V*, and *W*.

T. Stove or Greenhouse Plants; in collections of 20 plants. GK—GB—SG.

N.B. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*.

V. Stove or Greenhouse Plants; in collections of 12 plants. GB—SG—LS.

W. Stove or Greenhouse Plants; in collections of 6 distinct species. SG—LS—SK.

X. Greenhouse Azaleas; in 12 distinct varieties. GB—SG—LS.

Y. Greenhouse Azaleas; in 6 distinct varieties. SG—LS—SK.

N.B. No one can show in both classes of Azaleas.

Z. Stove or Greenhouse Climbers; in collections of 6 species SG—SK—SB.

AA. Exotic Orchidaceæ; in collections of not fewer than 20 species. LG—GK—GB.

N.B. Exhibitors cannot show in more than one of the classes *AA*, *BB*, and *CC*.

BB. Exotic Orchidaceæ; in collections of 12 species. GK—GB—SG.

CC. Exotic Orchidaceæ; in collections of 6 species. GB—SG—LS.

DD Scarlet Pelargoniums; in 6 distinct vars. LS—SK—SB.

EE. Pelargoniums; in 6 DISTINCT SPECIES. SG—LS—SK.

N.B. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden crossbreds.

FF. Achimenes; in collections of 6 species, grown in pans not less than a foot in diameter. LS—SK—SB.

GG. Distinct varieties of Tall Cacti in flower. GB—SG—LS.

N.B. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH. Fuchsias; in collections of 12 VERY DISTINCT varieties, of which one-half shall have a light calyx. LS—SK—SB.

II. Cinerarias; in pots, in collections of 12 distinct varieties. SK—SB—C.

KK. New or extremely rare ornamental Plants. SG—LS—SK.

NB. These Medals will be awarded by the Society's Officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare plants can be exhibited under this letter. *Nothing will be regarded as new which has been exhibited in the Garden in a previous season.*

LL. Single specimens of very superior cultivation. SG—LS—SK.

MM. Miscellaneous subjects. SK—SB—C.

N.B. Exhibitors under *MM* will not be thereby *entitled* to a pass-ticket. Cockscombs, Heartsease, Hydrangeas, and bouquets are altogether excluded from exhibition.

NN. Seedling Florists' Flowers. SK—SB—C.

N.B. Every seedling must be shown singly, and marked with the name it is to bear. The same seedling cannot gain a prize more than once in the season. Pelargoniums are to be shown in pots, and not in a cut state. No person will be allowed to exhibit more than 6 seedlings at each meeting. Exhibitors under this head will not be thereby *entitled* to a pass-ticket. For seedling Pelargoniums exhibited the first year no higher prize shall be given than a Certificate, and this is to be awarded to flowers of decided merit. Seedling Pelargoniums of the second year must be shown in pots not smaller than 32s. and each exhibitor may produce six of them, but not a larger number.

IN ADDITION to any Medals assigned to the classes *I*, *S*, *T*, and *AA*, the SK, SB, and C are offered for the collections in those classes which shall be best named by the Exhibitor.

N.B. The Society's Officers, who will make this award, will be guided in their judgment by a consideration not only of the correctness of the names, but of the accuracy of the spelling, and the neatness of the writing.

CLASS III.—FRUIT; for which Market Gardeners, Fruiterers, or persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY RIPE and WELL-COLOURED and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary it will be disqualified.

OO. Miscellaneous Collections of Fruit, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS.

N.B.—Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter.

PP. Grapes. SG—LS—SK—SB.

QQ. Pine Apples. SG—LS—SK—SB.

RR. Peaches or Nectarines, in dishes of six specimens. SK—SB.

SS. Other kinds of Fruit. SK—SB—C.

JUDGES.—The Judges have the power of *increasing* or *diminishing* the number and value of the Silver Medals offered by the Society for particular objects, and also of *conferring* Silver Medals or Certificates in cases not contemplated in these regulations, if they think it necessary to do so.

The Judges are also required to bear in mind that the Society's Medals are offered less for new and curious objects than for fine specimens of Horticultural skill, the design of the Council in instituting these meetings being not so much to encourage the Collector as to reward the skilful Gardener. They are also not to make any award in cases where the objects exhibited do not appear worthy of a Medal; otherwise a bad single exhibition might obtain a prize, merely because there is no better exhibition of the same class to oppose it.

By order of the Exhibition Committee, Aug. 31, 1844. JOHN LINDLEY, Vice Secretary.

*** Copies of these Regulations can be procured upon application at the Society's Office, 21, Regent-street.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, PANSIES, CHRYSANTHEMUMS CARNATIONS, AND PICOTEES.

YOUELL AND CO. continue to supply the above highly-ornamental plants per post, free, at the following prices. Their collection of the above is the most extensive and select in the United Kingdom, thus insuring to the purchaser the certainty of receiving none but first-rate varieties.

FUCHSIAS.

Youell & Co.'s 8 New and Splendid Seedlings, 42s.
12 Extra Fine Varieties of Fuchsias ..... 12s.
12 Ditto ditto, New ..... 21s.
50 Fine Varieties ..... 40s.
50 Extra fine ditto ..... 60s.

VERBENAS.

12 Extra Fine Varieties, 6s., the Selection left to Youell and Co.
12 Ditto 10s., the Selection left to the Purchaser.

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . 10s. per dozen.
12 Extra Fine do. do. . . . 18s. "

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12s. per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12s. per dozen.

FLOWER SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6s.

CARNATIONS AND PICOTEES.

		£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers		2	10	0
25	ditto ditto ditto .	5	0	0
12	ditto ditto Show Flowers	1	10	0
25	ditto ditto ditto .	3	0	0
12 pairs of extra fine Show Pinks		0	12	0
25	ditto ditto ditto .	1	1	0

The Selection being left to Y. & Co.

FINE ERICAS, 12s. per dozen.

ARAUCARIA IMBRICATA, OR CHILI PINE TREE.—Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10l. per 100, or 30s. per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60s. per dozen.

For further particulars see YOUELL & Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2s. 6d. and 5s. per packet.

Finest Double and Single Hyacinths, in pots by name, 9s. and 12s. per dozen, now coming forward for bloom.

Achimenes pedunculata, hirsuta, and grandiflora, 9s. per dozen; Achimenes picta, 18s. per dozen.

Fine plants of Pinus excelsa from Seed, 9in. to 1ft., 42s. per dozen.—Great Yarmouth Nursery, May 10, 1845.

The Gardeners' Chronicle.

SATURDAY, MAY 10, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, May 14—Society of Arts . . . . 8 P.M.
WEDNESDAY, May 21—Microscopical . . . . 8 P.M.
WEDNESDAY, May 21—South London Floricultural . 1 P.M.
SATURDAY, May 24—Horticultural Gardens . . 1 P.M.

COUNTRY SHOWS.

TUESDAY, May 13—Stamford Hill Horticultural.
WEDNESDAY, May 21—Manchester Botanical and Horticultural.
THURSDAY, May 22—Surrey Horticultural and Floral.
THURSDAY, May 22—Liverpool Botanic and Horticultural.

WE are now within a fortnight of the first of the GREAT EXHIBITIONS in the GARDEN OF THE HORTICULTURAL SOCIETY, and it appears probable that the Collections then to be produced will excel all that have before been seen, even on such occasions.

It may be interesting to the Exhibitors to know that a new and better tent has been provided for the display of Fruit; that means have thus been obtained for receiving larger numbers of plants; and that breakfast will be furnished to them, gratis, within the Garden. The regulations as to the time and manner of showing remain much as they formerly were, with certain exceptions, the whole of which will be found embodied in an Official Statement by the Society, in our advertising columns to-day.

THE observations which we have already made upon the GLASS-TRADE will, we trust, have shown that we have wished to treat the subject temperately, and with an anxious desire to avoid exaggerated statements. There are those, indeed, who have believed, that in our anxiety to be just, we have suffered ourselves to become partizans in disguise. We confidently expect that what is now about to be said will remove all fears of that kind.

We have ascertained that the green bottle trade is dealt perfectly fairly by the public. Immediately upon the repeal of the duties, they reduced their prices from 42s. per gross to 26s., so that the duty being 15s., they gave their customers the full and instant benefit of its removal, and something more. As we hope that the makers of bottles will soon become makers of green sheet-glass, we propose them beforehand our hearty goodwill and support.

Messrs. POWELL and Co., of the Whitefriars glass works, assure us that, *as far as their firm is concerned*, the ¾*d.* per lb., which was all that remained of the old duties on flint-glass, has also been thrown off. We are the more glad to hear this, because many shopkeepers who deal with some flint-glass purposes have not as yet discovered such a reduction.

Up to the present time we have been under the belief that other glass-makers had also acted more fairly by the public than the public was inclined to give them credit for; and in order to show that to be so, we published a few weeks since an elaborate comparison of old and new prices, from which it appeared that on some descriptions of glass the full duty had been taken off, and that plate-glass was one of them, though sheet-glass was not. We have, however, since discovered that, in some houses at least, the prices which *immediately* preceded the repeal of the duties had been lower than we were aware of, and this necessarily alters our opinion.

The duty on plate-glass was 2*s.* 10½*d.* a foot, or thereabouts; therefore every square foot ought to be sold at 2*s.* 10½*d.* below the price which it bore *immediately before* the 5th of April. Up to that time 2*s.* 10½*d.* a foot was paid to Government by the maker; after that time the 2*s.* 10½*d.* was no longer paid. In the comparative statement which we published it appeared that the reduction in price varied from 3*s.* 5½*d.* to 7*s.* 8¾*d.* per foot, and therefore the trade seemed to have dealt fairly by the consumer. But we have now before us the price-list of the Union Plate-glass Company for 1844, and the following table shows how far that Company has thrown off the 2*s.* 10½*d.* per foot duty.

Dimension in inches.	Old.			New.			Difference actually made by the trade.			Difference which ought to be made, taking the duty at 2*s.* 10*d.* a foot.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
12 × 12	0	7	0	0	3	4	0	3	8	0	2	10
18 × 12	0	11	6	0	5	9	0	5	9	0	4	3
18 × 18	0	18	9	0	9	11	0	8	10	0	6	4⅓
24 × 12	0	16	0	0	8	2	0	7	10	0	5	8
24 × 18	1	7	0	0	15	5	0	11	7	0	8	6
24 × 24	1	16	0	1	3	11	0	12	1	0	11	4
30 × 18	1	13	9	1	1	9	0	12	0	0	10	7½
30 × 24	2	5	0	1	12	5	0	12	7	0	14	2
30 × 30	2	16	3	2	3	11	0	12	4	0	17	8½
36 × 24	2	14	0	2	1	3	0	12	9	0	17	0
36 × 30	3	7	6	2	17	7	0	9	11	1	1	3
48 × 20	3	0	0	2	8	6	0	11	6	0	19	1½
60 × 30	7	0	2	6	0	11	0	19	3	1	15	5
48 × 48	10	2	8	9	0	9	1	1	11	2	5	4
80 × 68	36	13	9	35	10	3	1	3	6	5	6	11½

This calculation proves that although these glass dealers have thrown off, on small sizes, the duty and something more, yet they have amply indemnified themselves in the larger sizes. Let the reader just compare the 4th and 5th columns of the foregoing Table, commencing with 30 × 24, and he will find that instead of throwing off 2*s.* 10*d.* a foot, the dealers only allow about 2*s.* 6*d.*, 2*s.* 5*d.*, 2*s.* 1*d.*, 1*s.* 7*d.*, 1*s.* 6*d.*, 1*s.* 4*d.*, and 8*d.* If it were worth occupying space with a further comparison, we could not only show that the reduction is less as the sizes increase, but, incredible as it may appear, that the repeal of the duty has actually increased the charge enormously in certain sizes. Upon turning to the prices of the Thames Plate Glass Company, before the abolition of the duties, we find the cost of a glass 140 × 84 to have been 118*l.* 2*s.* 6*d.*, while in the new tariff it is charged at 150*l.* 11*s* 6*d.*! Such a square of glass measures about 81¼ square feet superficial; the reduction of duty on it is 11*l.* 10*s.* 11*d.* Therefore the people who trade under the name of the Thames Plate Glass Company, receiving from Government 11*l.* 10*s.* 11*d.* *for the benefit of the public*, give it to the public *in the form of an overcharge* to the extent of 43*l.* 19*s.* 11*d.* in 150*l.* 11*s.* 6*d.* Fortunately, the rich are those whom it is intended thus to favour.

Every plate-glass dealer who sells at the present prices 37¾ square feet in one piece, permits his customer to have 8*d.* of the remitted duties, and pockets 2*s.* 2*d.* himself; and so on of the other sizes above 30 × 24, in the proportion above stated.

This is a startling fact, about which there is no room for doubt, for the proofs are before us in the form of the glass-makers' own circulars of 1844 and 1845. But they are not the only surprising things that we must disclose. We copy from the price-list of June, 1843, issued by a well-known glazing firm, the prices of "patent plate window-glass;" and, by way of comparison, we add, line for line, the prices demanded for the same article by the same firm on the 7th of April, 1845.

	Best.						Seconds.					
	1.		2.		3.		1.		2.		3.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
6 × 4 in., &c. June, 1843	2	3	2	6	2	9	2	0	2	3	2	6
April, 1845	1	9	2	0	2	3	1	6	1	9	2	0
9 × 7 in., &c. June, 1843	2	6	3	0	3	6	2	3	2	9	3	3
April, 1845	2	0	2	3	2	6	1	9	2	0	2	3
1 foot, &c., June, 1843	3	3	3	9	4	3	3	0	3	6	4	0
April, 1845	3	0	3	6	4	0	2	9	3	3	3	9
2 feet, &c., June, 1843	4	0	4	6	5	0	3	9	4	3	4*	9
April, 1845	3	9	4	3	5	3	3	3	3	9	4	9
3 feet, &c., June, 1843	4	6	5	0	5	6	4	3	4	9	5	3
April, 1845	4	0	4	6	5*	6	3	6	4	0	5	0
6 feet, &c., June, 1843	5	3	5	9	6	3	4	9	5	3	5	9
April. 1845	4	3	4	9	6	0	3	9	4	3	5	6

Thus it appears that instead of 200 per cent. being thrown off the old prices—and the manufacturers told Sir ROBERT PEEL that that was the proportion between the duty and the selling price of glass—the reduction ascends from 0 to 60 per cent. In the instances marked*, the dealers *pocket the whole of the repealed duties*, or 200 per cent., *and at the best they give the consumer but* 3*d. out of* 9*d.*!!! Indeed, we have serious doubts whether they do so much. There is, however, a difficulty in reconciling the various price-lists; and, therefore, we give the glass trade the benefit of our doubt. And yet we see glass dealers attempting to humbug the public with placards and advertisements about the immense reduction in the price of glass. The truth is, they take off the duty on crown-glass, which no man of sense will now buy, and they keep up the price of sheet-glass, which is the only quality that is worth having.

And is it for this that the Government has given up 650,000*l.* a year? for this that the income-tax is perpetuated? We will not do the common-sense of the country the injustice to suppose that it will submit to such a proceeding.

Nothing more plainly shows a man to be in the wrong than his anxious evasion of a plain question; a shuffling answer is an indication of a bad conscience not to be mistaken Ask a plate-glass dealer this question: I have your *net* price for a sheet of glass, 84 by 140, before the 5th April—tell me at what per cent. reduction you will deliver me the same article now? He will not give a direct answer; he will inform you that it *requires an immense amount of calculation*—that it varies materially with circumstances—that he will *call upon you*, and *convince you* that the removal of 2*s.* 10½*d.* a foot duty makes little or no difference, &c. We have such an answer in our hands.

If it is difficult for the dealer to calculate how much he ought to allow the public under these circumstances, we, at least, have no difficulty in calculating how much he puts into his own pocket by withholding the duty, and that is 2*s.* 10½*d.* a foot.

The glass-makers complain that their workmen have struck for wages, and demand 20 or 30 per cent more pay. But with what face can they complain of their men for following their own bad example? The masters combine to keep up the price of their commodity; the workmen will, of course, combine also to keep up the price of wages. The men are sent to prison for claiming an advance of 25 per cent: in attempting to appropriate 200 per cent. which belongs to the public, the masters are only shown up in a newspaper. But WILL IT END THERE? Such things have been heard of as Acts to amend Acts, and even as Orders in Council.

"Well Mr. * * *," said a passer-by to a glass dealer the other day, "what is the price of crown-glass now?"—"Wonderfully cheap, sir! Wonderfully cheap. Only half-price!"—"Why, my good friend, you don't pretend to say that you expect as much as that?"—"Oh! Don't I though," replied the man of glass, "I do; but *at all events* WE 'LL TRY IT ON." This happened to ourselves.

It is exactly what the glass trade is doing. THEY ARE TRYING IT ON.

It is denied by one of our correspondents, interested in the glass trade, that the House of Commons had anything to do with the repeal of the glass duty, for that it had long been a "favourite hobby with Sir ROBERT PEEL." It has long been a favourite hobby with many persons, and with ourselves among others; but we cannot presume to say that we had anything to do with the repeal. We submit that the House of Commons was a *rather* important party to the measure. The case is briefly this:—Sir ROBERT PEEL applied to the House of Commons for permission to continue the Income-tax, on condition that, among other things, the glass duties should be *wholly* repealed. Give me, said the minister, 7*d.* in the pound on the income of your constituents, and I engage that every one of them who heretofore paid 1*s.* for a pane of glass, shall get it for 4*d*; in other words, for the 3 per cent. which you give me on income I will present you with 200 per cent. on glass. This, it must be confessed, was a tempting offer; the House considered it so; and for that and other reasons, but most especially for that reason, they agreed to the continuance of the Income-tax. Would the House have consented to so unpopular a measure upon any weaker grounds? Would SIR ROBERT PEEL have ventured to ask for such a concession without some such apparently advantageous an equivalent? Most certainly not. It was the total, not partial, repeal of the glass duties that was offered and accepted. Can, then, the right hon. gentleman—can the House of Commons—permit the glass manufacturers to exact for their own benefit what was considered a grievous burthen when levied for the service of the state? As the case now stands the makers of sheet-glass take advantage

of their position to intercept two-thirds of the remitted duties. The minister gives us 8*d.*, but Messrs. Blank and Co. pocket all, or graciously hand over 2¾*d.* to the public. We can comprehend how the consumer, in his ignorance, or helplessness, may submit to the glass-makers toll; but we do not see how the Government can tolerate such an extortion.

Sir Robert Peel told the country that the repeal of the glass duties was a great experiment. It *is* a great experiment; the greatest of which we have any recollection, and the most worthy of a far-seeing and liberal-minded statesman. Let us take care that it is not an experiment upon our credulity. The glass makers cannot be permitted to secure for themselves those advantages which were intended for others. They have no right to one farthing of the old excise duties; they are called upon to sell their commodity of better quality *minus* the whole amount of the duties now repealed, and *minus* as much more as the removal of the indispensible but most vexatious and costly interference of the excise will permit. Let them do that, let them follow the honest example of the bottle trade, and they will act fairly by the public; let them deal otherwise, and we are convinced that the whole of the middle class, the landed interest, and the Government itself, will join to frustrate the attempt.

We have no sort of desire to pry into the mysteries of the profits on glass; nor, indeed, should we feel justified in doing so; and we appeal with confidence to our former remarks on the subject, for proof that we have never even contemplated such a thing. But if it is proper towards the glass trade to avoid interference with their legitimate profits, we have a still higher duty to perform, as public journalists, and that is, to protect those who do us the honour to read our columns, against all unfair practices on the part of men who accidentally hold possession of the means of turning great fiscal improvements intended for the benefit of the community, to their own exclusive advantage. It is in this light, and in no other, that we have investigated the glass question, and we must continue to do so, however unpalatable our statements may be.

That the glass makers mean to appropriate to themselves, as long as they can, the lion's share of the abandoned glass duties seems clear, from the foregoing calculations. It is for the public to determine whether they will permit them. If buyers will only be true to themselves, if they will only avoid all purchases for a time, the vendors are at their mercy. We would, therefore, advise the glass dealers to reconsider their plans. It would be very inconvenient to them to find French, Belgian, and Bohemian glass *sought for*, in preference to English glass. We should think that the last kind of policy for sensible men to hazard, would be that of allowing the current of public opinion to be *turned in favour* of foreigners; most dealers would have found it enough to encounter the ordinary competition of trade, and it seems Quixotic for a man to see how he can best multiply the chances against himself. But we live in days of wonder.

We do not know what the profit upon sheet-glass may be; we do not want to know. It is clear that there must be some profit, or the trade would have long since become extinct; and we will call that something 10 per cent.; it may be 2, or 5, or 500 per cent., but we will call it 10. If so, 100*l.* worth of sheet-glass formerly involved the following charges, viz.:—

30*l.*	actual cost
60*l.*	duty
10*l.*	assumed profit.
100*l.*	

But at present the account stands thus: that which formerly cost 100*l.* now costs 33*l.* 6*s.* 8*d.*; viz.:

30*l.*	0*s.*	0*d.*	actual cost
3	6	8	assumed profit.
33*l.*	6*s.*	8*d.*	

or one-third of the former sum, *profit included*. It is plain to any one of common understanding, that a higher charge is an attempt on the part of the manufacturer to put into his own particular pocket that which the House of Commons intended exclusively for the pockets of the people. If 100*l.* was a fair price for a given quantity of sheet-glass three months since, the honest charge for the same quantity now ought to be 33*l.* 6*s.* 8*d.*; or in another form, a square of glass which formerly was sold for 1*s.*, will produce to the vendor the same rate of profit, if now sold for 4*d.* This is a statement which it will be found, we think, impossible to contradict.

The glass manufacturers may complain of the clamour that has been raised against them. But who complains with most reason, we who are demanding our rights, or they who, as we have demonstrated, are withholding them? They cannot expect that the public should be contented with payment in a currency depreciated 60 or 70 per cent. Parliament has given us back 8*d.* out of every shilling, and we cannot take even 7¾*d.* as an equivalent.

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

No. XIII.—*Cuttings with a Heel.*—This method, called cutting with a heel, is well known; it consists in carefully raising up a branch (see fig. 14) in such a manner that the wood which unites it to the principal stem is detached with the cutting; this wood has the advantage of exciting the development of the roots. The branches which are thus cut ought to be two or three years old; the roots come out better from this wood than from one-year-old shoots. Such cuttings are made the length of three or four eyes, of which two or three are buried, and one is always left above-ground.



Fig. 14. Heel-cutting of Gustavia augusta.

Cuttings by Branches. — The evergreens which we cultivate in the open air may be multiplied by cuttings, if we choose the branches of the preceding year at the time when the sap begins to rise. The month of March seems to me the best for the climate of Paris. The Abies Deodara, which I introduced into France some years ago, and which resists the severity of our winters so well, may be multiplied perfectly by cuttings of its branches.



Fig. 15. Cutting of Columnea Lindeniana.

The instrument with which the branch intended to be put into the earth is cut ought to be so sharp that the wound presents no raggedness; it is usually cut rather a little below the petiole than above it; if this operation has been well performed, the base of the petiole ought to remain after the cutting, as is shown in fig. 15; the same branch cut into several portions, following the same plan, forms as many cuttings as there are pieces. The leaves which might hinder the planting of the cutting are cut at $\frac{1}{20}$ or $\frac{1}{16}$ of an inch from the base of the petiole.

There are certain plants, as the Clusia, for example, whose leaves we do not cut off. Buds are often formed in the axils, which pierce the earth and develope themselves in the air. It has been said, and some persons still say, that such cuttings never form fine trees; this idea seems to me erroneous, and, in defence of what I say, I shall quote the examples of Araucaria excelsa and Cunninghami, which, raised from cuttings, cannot be distinguished from plants raised from seeds; Poplars, Abies lanceolata, &c. are in the same case.

It is not, however, an indifferent matter, whether such or such a branch is taken for striking; there are some trees which, when lateral branches are operated on, only give lateral branches, and never form a head; such are Araucarias, Abies, Proteas, some species of Leguminous and other trees; but if we detach the head of these plants to make a cutting, we obtain a plant in every respect similar to that produced from a seed of the same species.

However there are some species of trees whose cuttings made from lateral branches will produce, under the callus, when arrived at a certain strength, a true shoot which will not be long in showing itself, and will one day form a plant having the same appearance as that which a cutting made from the head would have produced. Physiology teaches us that the callus which is formed at the base of a cutting is nothing more than a successive collection of a multitude of small bladders or nipples, which are white when they are formed under the earth, and take their proper green colour as soon as they are exposed to the light; these bladders are easily seen by the naked eye.

When they are sufficiently collected to give birth to a new being, the bud then developes itself, and the tree begins to grow; such is the effect which is remarked in the cuttings of Abies lanceolata, Ginkgo biloba, and many others.

Fig. 16 gives an idea of this phenomenon; *d* is a lateral branch struck from a cutting, *e* is the callus, *c* a branch sprung from an adventitious bud and destined to become a tree which, to be well formed, ought to be produced upon the cellular matter of the callus and not upon the stem of the cutting; this last ought to be cut the moment that the shoot which it has brought to light is a little developed.



Fig. 16. Cutting of Abies lanceolata.

Some years ago I was advised to put a lateral branch of Araucaria excelsa into the ground; I was told that I should obtain along this branch adventitious buds which would form heads; I tried it, and never obtained a satisfactory result, nor have I ever been able to find at any horticulturist's a single fact in defence of t speculation.

PLANT WATERING.

As good potting is the first step in plant growing, good watering is most assuredly the second; the form even when rightly accomplished and with the best m terials may be defeated through want of skill in wat ing. Imperfect knowledge or carelessness in the d administration of this essential element kills more plan or keeps more in suspense between life and death, th utter ignorance in all other matters relating to pla growing. Let us not imagine that because we have p a root to a plant, and placed it in a pot in the right w and in the proper kind of soil, that the object of c solicitude is accomplished, and that our duty is t minated; for the contrary is the fact, if we have ambiti enough to desire our achievements to be admired or corded.

It may be superfluous to state, that plants either suf from too much or too little water; but it is not so show that this is frequently the case in the same pot the same time; that is an evil far more extensive in general collection of plants than may be supposed, a a point opposed to good cultivation earnestly demand our attention. When the surface-soil in the pots comes dry, a careless hand adds at once a fresh supp without ascertaining whether the soil, in which the ro are, at all requires it, and again on the other hand, top soil frequently appears perfectly wet, while the b tom of the ball is as dry as dust. This is a m calamitous circumstance, and one of common occ rence, especially amongst newly-potted plants. Wh a plant is just potted, it should have a sufficient sup to penetrate every part of the ball, and then remain un another supply is positively required, that is, till ball has parted with the greater portion of its moisture the plant is upon the point of flagging, the interst being all filled with air as it should be. This air ag requires to be driven out by a fresh supply of wa thus keeping up a vigorous and healthy action continual interchanges of air and water, but the same time never allowing either of th to remain long enough to affect the health the plant. Watering by "driblets" is the worst all watering; it keeps the surface of the soil in puddle, but never reaches the roots; the eye is t deceived, and the plant is often dead before the caus discovered. When a plant does not part with its m ture freely, like its neighbours, but remains in a state, it should be immediately inspected; for shoul plant remain subject daily to the application of dribl of water for any time, death must of necessity ens One effectual watering, whether applied to plants pots under glass or to those committed to the soil in open ground, is not only of far greater utility, but m more economical than ten ineffectual supplies. Th is no duty attending plant cultivation so difficult to p form as this, and to intrust it in careless and incon tent hands will certainly entail upon a collection valuable plants positive ruin; for unless he who u the watering-pot has some practical acquaintance w vegetable economy, and can discriminate so far as act agreeably to the necessities and wants of the s jects committed to his care, he will always find him a day's march in arrear. These necessities and wa be it remembered, are not quite so apparent to naked eye of the novice as they are to the keen scrutinising vision of the ever-anxious, and hence ev watchful, cultivator.

There is a kind of watering very commonly p formed in many places, which cannot, when valua and choice plants are attempted to be cultivated, be severely censured. This is the daily afternoon sup which is given to every plant as far as time will adm regardless of its requirements—at least, when this c ration is intrusted to men of inexperience, which is too common; and this kind of gardening goes on many places for years. Plants die, it is true; but is one of the unresolved mysteries in gardening, wh to some minds, is quite satisfactory, and enables th to account for the loss of plants by violent me Finally, it has been asked, how often are we to w this or that plant, and the answer usually is, alw when it requires it; let us, therefore, add, and v some earnestness, *never before.*—*Dub.*

Home Correspondence.

Anecdotes of Natural History.—I once had a fav ite female black cat, which was very fond of game. W she had a family of young grimalkins about her, always kept them well stocked with provisions; at time when she had kittens in an old shed. I happe to discover a nest of four young rabbits in a south bo of early Peas that was not well protected from game. killed three of the young rabbits, which, to all app ance, were not more than two or three days old. I t them with the live one to the old cat, for breakfast; I was quite astonished to observe that she at once ado and fondly protected, this live rabbit, and encourag to suck, which it immediately did. She nursed it her two kittens, and the rabbit suckled during the w time that the kittens were allowed to suck; and it g a good sized rabbit, but it continued to be very w running out of sight behind the baskets, tools, &c. the approach of any one. When the old cat lef suckling her family, the poor rabbit died, to my sor because I considered that this was owing to inatten in not giving it its natural food, for it had no relish mice, rats, birds, and game, which the old cat bro

or her family. However, I learned something by this disaster, for having heard it said by many people that birds will only feed their young for a short time when confined in a cage, when they find that they cannot succeed in procuring their release, the parents or old birds will procure for them unnatural or poisonous food, and destroy them. I at once concluded that this was an erroneous idea, and that it was only the duty of the parents to procure food for their offspring for a certain time, and to teach them how to feed, and where to find their food, and then when the young are strong and able leave them to search and shift for themselves. I procured a nest of five young goldfinches, put them into a cage, took them some distance to a safe situation, and hung them up in the cage: the old birds, who no doubt were watching and following me, at once came joyously to the cage, and fed them, and so continued to do for about 20 days. They then left off feeding them, but kept near the spot chirping, and singing to them: they finished their parental duty, and did not forget to perform it properly, for I took care to place plenty of seeds inside the cage the same day in which I placed the birds therein; but I had no farther trouble than the pleasure of observing the old parents leaving their young to feed themselves, which they did effectually. In a short time the five birds grew very strongly, four of which turned out to be cocks; the hen I allowed to fly away, and by accident one of the cocks flew away. One I gave away, and two I have now, which, though four years old this spring, are at this moment singing beautifully. They are as tame and familiar, that they begin to chirrup, and seem always pleased to see me come into the house. I have two cats and two other birds that follow me in company all over the garden in an evening; and they all feed out of the same dish without falling out, or the cats taking undue advantage of the birds. On throwing them a bit of food, all eagerly run to see which shall have it, coming in contact with each other occasionally.—*James Barnes, Bicton Gardens.*

Oncidium sanguineum.—A specimen of this plant, which I have growing on a charred log of wood, flowered with me last autumn; and when the flower-stem was about 8 inches in height, I noticed that the point of it frequently changed its position, and was induced to watch it more closely. I found that, in fact, it was a twiner, and regularly completed a revolution each day, in search of a support. The motion was from east to west, with the sun, and this was continued until the flower-stem was about 2 ft. in length, and had become pendent from its weight. I could not conveniently allow it to attach itself to anything in the neighbourhood, but the stem and its vessels were regularly twisted, as is usual with twining plants. I do not recollect to have seen this property mentioned in any work to which I have access, nor to have heard of it from others; and I have little doubt that the immensely long flower-stems of various Oncidia, O. altissimum, Baueri, and their allies, in this manner support themselves on the trees upon which they grow. This species varies very much in size and appearance. The above specimen has leaves 18 inches in length, and its flower-stem exceeded 4 feet, whilst of others which I possess, the leaves do not measure more than 4 or 5, and the flower-stem 12 or 18 inches. Of course, I speak of those grown in their native wilds, and uninfluenced by cultivation. The leaves are sometimes spotted like those of O. lanceanum, and sometimes without the least marking. I consider O. roseum the same plant, and O. Hernhauseni is a mere synonyme.—*Pons Œlii.* [Many of the Peruvian and Colombian Oncidiums are true twiners.]

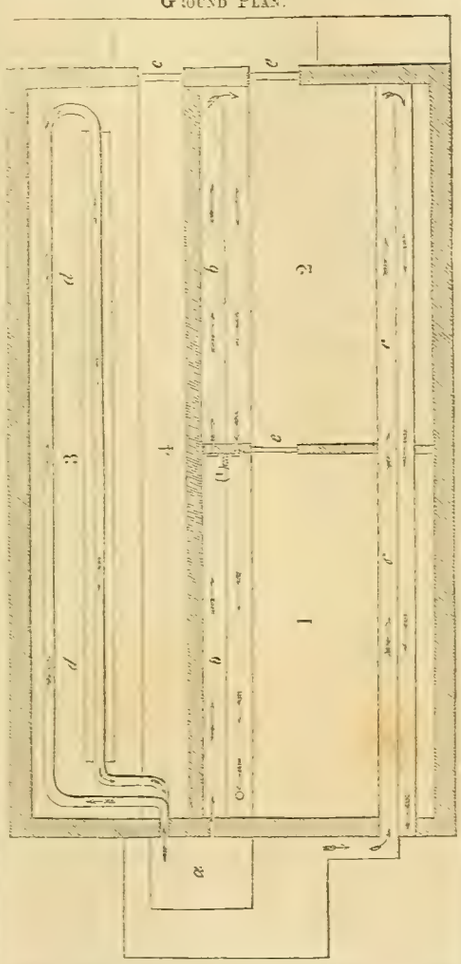
Truffles.—Allow me to offer the following extract on the culture of these, from Dr. Neill's useful little work on Horticulture. The Dr. observes that—"No attempt has hitherto been made to cultivate Truffles, but of the practicability of the thing there seems no reason to doubt. In their habits of growth, indeed, they differ essentially from the Mushroom, but it is certainly possible to accommodate the soil and other circumstances to the peculiar nature of the fungus. It has been said, that the tubercles on the surface of Truffles are analogous to the eyes or buds of Potatoes, and that they have been propagated, like Potatoes, by means of cuts furnished with tubercles; it may, however, be suspected that the pieces thus planted contained ripe seeds." (I should imagine this to be a true conjecture). "Truffles, we may add" continues the Dr., "seem to delight in a mixture of clay and sand; and a moderate degree of bottom-heat, such as is afforded by a spent hot-bed, might probably forward their vegetation." According to the late Mr. Loudon, the Truffle is common on the downs of Wiltshire, Hampshire, and Kent, where dogs are trained to scent them out.—*J. M'Intosh.*

Tank-heating.—In reply to "Dodman's" inquiry, p. 70, respecting the expenses of a hot-water apparatus for a pit or low greenhouse, which he wishes to convert into a forcing-house, I beg to give the result of my experience, having last year done precisely the same thing with a Pine pit. The pit was 31 feet in length inside; by removing the back wall, strengthening the outer-lining wall, covering that space with glass, and dividing the interior with a cross wall, we have two small houses, each 15½ feet in length, and 9 in width, to be used together for forcing, or one as an intermediate house, or for a greenhouse as we choose. The heating is effected by a common saddle-boiler, conveying hot water to a wooden trough or tank, running along the front of both houses, with wooden sluices to shut off the flow into the second house when needful; and by a tile flue at the back of the house, which is heated by means of a damper at the entrance of the chimney of the furnace, more heat is obtained if wanted beyond what is supplied by the tank through its covering of ¼ inch slate. The flue serves also to dry the house when required, and to regulate the fire-draught according to circumstances. The size of the tank is 2 feet in width, and 7 inches in depth, carrying 5½ inches of water always in it. By a raised shelf of slate over a part of the tank we have every convenience for bottom-heat for propagating, without lessening the supply of heat to the houses, and steam is had by plugs as wanted. The cost of the heating apparatus was as follows:—

	£	s.	d.
The wooden tank or trough, of 1½ inch plank, making and fixing . . .	9	0	0
Slating to cover it	1	12	0
Boiler	4	10	0
Pipes, cocks, &c. for ditto, and fixing .	6	0	0
In all	£21	2	0

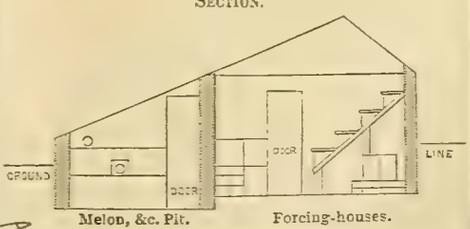
We had an old furnace and all the materials for fixing it. Our fuel is one-third small coal and two-thirds cinders and ashes. The above explanation meets all that "Dodman" asks for. But we have added to the above houses a range of eight lights of Melon and Cucumber pits, according to the accompanying plan of the whole. A covered passage behind the pits connects them with the forcing houses, admitting of all the work being done under cover, and without moving the lights. This range of pits is heated by a hot-water 4-inch pipe supplied from the same boiler, which heats the tank in the two houses, having stop-cocks to let on the water or turn it off as required, the return pipe being laid in a trough of galvanised iron covered with tiles for bottom-heat. During the frost on the night of the 11th Feb., the fire was attended to till near midnight; at half-past 7 o'clock the next morning, when the temperature outside, as indicated by a thermometer within a few yards of the spot, was 36°, the heat in the first house was 68°; in the second, 50°; and in the pits in front, without hot water in their pipes, but with openings for hot air to enter from the second house, 44°.—*H. B., Teddington.*

GROUND PLAN.



References.—Nos. 1 and 2.—1st and 2d houses heated with hot-water tank. No. 3.—Range of pits, &c.; 4, passage behind pits; *a* stoke-hole with boiler; *b*, wooden trough or tank, (1) sluices; *c*, smoke flue; *d*, hot-water pipes; *e*, doors.

SECTION.



Melon, &c. Pit. Forcing-houses.

Tree Mignonette.—There is no really arborescent variety of Mignonette beyond that of constitutional vigour usually observed in all seedling plants. I have a specimen now in my conservatory border, where it came up accidentally last summer, about 4 feet in height, with a large head, loaded with blossom. The method of growing Mignonette in this way is as follows:—Select a strong plant; while in a vigorous herbaceous state, pinch off all shoots but the centre one, and all laterals from this. In a few days the change in the constitution of the plant will be singular, and, most evident; the stem will become hard and erect, and the leaves will acquire such succulency, that care must be soon taken not to break them in handling, as they will become as brittle as glass. When the button of blossom at the top is sufficiently developed to get at it, break it off, and you will find two laterals at the base, each containing an embryo spike of blossom. Select the strongest of these for a leader, and remove the other. This will elongate rapidly, while no perceptible scar will remain where the original blossom-head and the other lateral were removed. The present leader must be now treated like the first, and so on till you have raised the stem, step by step, to the desired height. Then pinch off the flower-head for the last time, and leave the plant to blossom. In the meantime, fresh laterals will appear almost daily, which must be removed, and the plant supported the whole time with a thin strong deal stick. As the experiment would not be advantageous in the open border, from the obstacles presented by our winters, the best plan would be to sow a few seeds in the centre of a pretty large pot (selecting the strongest plant for the purpose), as this plant is so impatient of any injury to the roots, that a shift might spoil the experiment. Use liquid manure, of course, and very rich soil.—*Micklewell.*

The Auricula.—This has fewer aliases than any other florist's flower, and the only instance I believe on record is that of Oliver's Lovely Anne being sold by a Middleton florist as a seedling under the name of Kenyon's Juno. Little need be said in favour of the Auricula, as it is an established favourite with all from its blooming so early in spring, and from its flowers imparting an agreeable fragrance. I have classed the Auricula in three divisions. The first for an Amateur commencing to grow it; the second as a further addition to his collection; the last embracing all (with very few exceptions) that may be considered worthy of a place in any collection. For an Amateur's first collection, procure of—*Green-edged.*—Rider's Waterloo, Pollit's Standard of England, and Highland Laddie, Ollier's Lady Anne Wilbraham, Oliver's Lovely Anne, shown also in grey-edged class. *Grey-edged.*—Grimes' Privateer, Kenyon's Ringleader, Warris' Union, Sykes' Complete, Thompson's Revenge. *White-edged.*—Taylor's Glory, Leigh's Bright Venus, Taylor's Favourite, Kenyon's Lord Chancellor, Leigh's Pillar of Beauty. *Selfs.*—Grimes' Flora's Flag, Berry's Lord Primate, Whittaker's True Blue. *Alpines.*—Emmerson's Favourite, Fieldhouse's Fair Rosamond. 2d. As an addition to his collection obtain of—*Green-edged.*—Booth's Freedom, Leigh's Colonel Taylor, Yates' Morris' Green Hero, Page's Champion, Ashton's Prince of Wales, Clough's Dolittle, Barlow's King, Litton's Imperator, Howard's Nelson, Pearson's Badajos, Pollitt's Ruler of England, Buckley's Jolly Tar, Faulkner's Ne Plus Ultra. *Grey-edged.*—Fletcher's Mary Ann and Ne Plus Ultra, Waterhouse's Conqueror of Europe, Thompson's Bang-up, Taylor's Plough-boy, Pearson's Liberty, Howard's Sweepstake, shown also in green-edged, class. *White-edged.*—Ashworth's Rule-all and Regular, Taylor's Incomparable, Wood's Delight, Popplewell's Conqueror, Potts' Regulator, Ashton's Bonny Lass, Cheetham's Countess of Wilton. *Alpines.*—King of the Alps, Queen Victoria, Conspicua, Rising Sun, Fair Helen, Kettleby's True Blue. *Selfs.*—Redmayn's Metropolitan, Netherwood's Othello, Berry's Lord Lee, Clegg's Blue Bonnet, Kay's Jupiter, Kenyon's Freedom, Gorton's Stadtholder (yellow), Hufton's Squire Munday. Lastly, these are worthy of a place in any collection. *Green-edged.*—Hepworth's Robin Hood, Moore's Jubilee, Lightbody's Star of Bethlehem, Stretch's Alexander. *Grey-edged*—Atcherley's Alpine Shepherdess, Metcalf's Lancashire Hero, Ashworth's Newton Hero, Simpson's Lord of Hallamshire, Kent's Queen Victoria. *White-edged.*—Lily of the Valley, Wild Bright Phœbus, Leigh's Earl Grosvenor. *Selfs.*—Oddie's Rest, Goldfinch (yellow), Faulkner's Hannibal, Bradshaw's Tidy. I ought to have stated that the Amateur's first collection comprises such as are not high priced, and yet good, but it must not be forgotten that the second addition contains all the first-rate varieties in cultivation, with very few exceptions.—*J. Slater, Florist, Cheetham Hill, near Manchester.*

Quick Method of Killing Insects.—Observing at p. 188, a method of killing insects by means of ether, or spirits of turpentine; but finding the one to be expensive, and the use of the other frequently objected to by collectors, I beg to offer the following simple plan:—Cause a tin-box to be made, say sufficiently large to hold a pint, and let it have a perforated partition fixed in the middle; line the upper appartment with a piece of silk, or something soft, to prevent the tip of the wings from being injured in the case of the insects fluttering. Inclose your destined victim in its silken chamber, and introduce some pounded, or bruised Laurel leaves into the lower apartment, close the box at both ends, and the prussic acid from the Laurel will effectually do its work in a few minutes. Even the Cossus ligniperda, or goat moth, an insect so remarkably tenacious of life, that the severest pressure will not quiet it is, I believe, by this means, killed in eight or ten minutes. Should this, or some equally efficient plan, be generally resorted

to, this most interesting branch of natural history might be pursued, with pleasure, even by the most humane.—*J. Isacke, Stroud.*

The Late Winter.—While we are looking around us in vain for many of those fine half-hardy plants which we had fully anticipated, with slight protection, would have endured the climate of London, we are, in some measure, gratified in finding that in some parts of the country these are still left to ornament our lawns. At Leigh Park, which is situated about two miles from Longstone Harbour, the thermometer indicated in the morning of 8th December, 1844, 14° ; 12th February, 1845, 14° ; 14th March, 1845, 7° ; whereas on the morning of January 19th, 1838, in the same situation, it fell to 4°. In that season, Laurestinus, Sweet Bays, Chinese Privets, &c., lost a few young shoots, but in this spring all the shrubs look as well as usual, and the Laurestinus are now in full flower. In the kitchen garden the Peaches and Apricots have not suffered in the least, and are very thickly set with fruit. The following plants have escaped without injury, protected only by a few Spruce Fir branches, viz., Pinus Russelliana, Cedar of Goa, Cratægus glabra, Photinia serrulata, Arbutus procera, Solanum crispum, Euonymus of sorts, Laurus Sassafras, Chinese Privet, Escallonia rubra, Jasminum revolutum, and many similar plants. —*R. G.*

Pruning Forest Trees.—In the various papers I have read on this subject, the principle of thinning has never been disputed, however little it may have been carried into execution. I may say that, unless the sun and air can have access to trees, their bark will not be healthy. Pruning, generally speaking, is mutilation. Some have stated what is judicious and what injudicious pruning. "Quercus" has pointedly asked what is judicious pruning? He is answered by one who says that cutting off a dead branch is such. Could this ever admit of dispute? Another talks of balancing the branches ; while a third would—and such is the opinion of Dr. Thackeray—take off the lower tier of living branches, which would not make a wound that could be detected after a few seasons. Now, this might not be discovered outside, but it would be invariably seen when the wood was cut up, and, besides the deprivation of branches and leaves, takes from the tree its means of getting its living. It has been stated that many object to the use of the pruning-knife altogether ; and in order to settle these differences, it has been proposed to form a national society, which would be of the greatest importance. I have been applying in a very high quarter to obtain the assistance of Government in furtherance of this object, being firmly persuaded that no private society can ever effect much good. Mr. Billington, in his publication, has given us the result of his experience, which was that a Larch pruned, and some of the lower tier of branches taken off, would not, and did not, produce so much wood as one that retained all its branches. Such an experiment as this is worth volumes of *pro* and *con* arguments.—*James Hamerton, Hellifield Peel.* [We have no expectation of advantage from such a society. To try the experiment we have recommended would cost less than a year's subscription, and would be *conclusive*.]

Cucumbers.—I beg to correct two errors which have crept into the Report of the Cheadle Cucumber Show, given at p. 274. First, the committee have not even mentioned Mr. Latter's name, who was the winner of the second prize ; second, the fourth brace grown by Mr. P. Mottershead is mentioned as being not handsome, whereas they well deserved the title given to the third brace, viz., handsome young fruit ; and the third brace should have been stated to be good fruit, but not particularly young, which is evidently a mistake of the reporter.—*J. Hamilton, Thornfield.*

Mistletoe.—If "Quercus II." had ever been in the Home Park, Windsor, he would have seen noble lime-trees in a state of decay in consequence of the enormous quantity of mistletoe on them. It is a pity that some of your correspondents do not consult authors before they ask questions.—*L. L. D.*

Societies.

HORTICULTURAL SOCIETY.

May 6.—R. W. Barchard, Esq., in the chair. E. A. De Grave, H. J. Milbank, Esqrs., and Mr. C Wood, were elected Fellows. This being the season of Azaleas and Rhododendrons, several fine varieties of these showy plants were produced. Among the latter, perhaps, the most remarkable were cut blooms of R. formosum, miscalled Gibsoni, from the Duke of Devonshire's gardens at Chiswick. This pretty East Indian species has been described for many years, but it is rarely to be met in gardens ; on account of the plant having been grown in a stove the flowers were of a pure white, having much the appearance of large blooms of the white Indian Azalea : but when the plants are grown in a cooler house, and exposed to bright light, the flowers are beautifully streaked with pink, giving the plant a handsome appearance. Along with this was Dendrobium densiflorum, producing three handsome spikes of bright yellow blossoms. A certificate was awarded for the Rhododendron.—From Mr. J. Wells, gr. to W. Wells, Esq., were beautiful cut blooms of Rhododendrons, including R. caucasicum, a hardy rather dwarf spreading species, and R. campanulatum, a perfectly hardy Indian species, of considerable beauty, which will suffer any amount of cold without the last injury. The latter is easily distinguished by its somewhat large and flat foliage, the underside of which is covered with a soft ferruginous down, and by its large white flowers which are tinged with pink. The principal part of these Rhododendrons had been kept during winter under the canvass of a Tulip shade, assisted by mats at the sides in very severe weather, but exposed to the weather at all favourable times. A Banksian medal was awarded for the latter.—Messrs. Cunningham and Orr, Manchester, sent a hardy hybrid Rhododendron, with light-coloured blossoms, apparently a cross between R. caucasicum and some of the common hardy kinds.—From Mr. Jackson, of Kingston, was a pale-coloured seedling Rhododendron, very distinctly marked with dark brown spots.—Finally, the Dean of Winchester sent a collection of blooms of hybrid Rhododendrons in excellent condition, including one named R. campanulatum, which appeared, however, to be a spurious variety of that species. These were mentioned to have stood the whole of this untoward winter unprotected in the open gardens, at Bishopstoke, where the plants are now in full beauty. They were mostly red kinds, having in them much of the crimson arboreum. Along with these were cut blooms of Magnolia Soulangeana, a cross between conspicua and purpurea ; M. purpurea and gracilis ; the latter like purpurea, but smaller. A Banksian Medal was awarded for these.—Mr. Errington, gr. to Sir P. G. Egerton, Bart., again sent a collection of seedling Cacti, among which, one named regalis is a fine showy scarlet flower, measuring fully 6 inches across. Several others also possessed considerable beauty.—From Messrs. Veitch and Son, of Exeter, was Bletia catenulata, which was found by their collector, Mr. Lobb, growing on dry sandy hills, near Muna, in Peru. It is the original species named by the Spanish botanists after Don Louis Blet, whose name the genus bears, and is not known to have been before introduced into this country.—Mr. Ayres, gr. to J. Cook, Esq., sent Begonias coccinea and suaveolens, the latter remarkable for its fragrance ; a Cactus called Conway's Giant, a large, noble-looking flower ; Leschenaultia Baxterii ; and Chorozema angustifolium, a New Holland species of considerable beauty. A Banksian Medal was awarded for this and the Begonias.—From Mr. Cole, gr. to C. Lewis, Esq., was the larger variety of Corræa speciosa, and a seedling Cineraria. — R. Golledge, Esq., sent a collection of Calceolarias.—From Mr. Robertson, gr. to Mrs. Lawrence, was a perfectly hardy scarlet Rhododendron, and an exceedingly handsome Erica propendens, which was covered from the soil in which it grew to the top with multitudes of pretty little pink bells ; a Banksian Medal was awarded for it.—Messrs. Loddiges sent Epacris miniata ; a species of recent introduction, having much of the aspect of E. grandiflora, but possessing peculiarities which readily distinguish it from that species. The flowers are long, of a rosy-pink colour, passing into pure white at the end of the tubes ; indeed, we can scarcely imagine anything more beautiful than this plant when in full bloom ; it was awarded a Banksian Medal.—Mr. Lawrence, of Parliament street, sent a small watering-pot, for plants in sitting-rooms, which was worked on the same principle as the one exhibited at a former meeting. —From the garden of the Society were plants of the white and purple Indian Azaleas ; Chorozema varium, a handsome Swan River shrub ; Gesnera Douglasii ; Æschynanthus maculatus, an Indian species, with bright scarlet blossoms ; Cyrtochilum hastatum ; Eriostemon buxifolium, a pretty New Holland shrub, bearing multitudes of showy flowers, and deserving a place in every greenhouse ; varieties of Epidendrum macrochilum and Oncidium ampliatum ; Spiræa Reevesiana, a hardy species, but whose pretty heads of white flowers and fine green foliage render it well worthy of a place in the greenhouse, where it is very ornamental at this season ; Clematis Sieboldii, and two Cinerarias. Seeds of Buddlea Lindleyana were distributed to such Fellows as wished to receive them. This is a native of Chusan, where it was found by Mr. Fortune, growing in ravines and on banks, in company with Glycine sinensis ; it is said to form a fine shrub 5 or 6 feet in height, with clusters of deep violet flowers, probably as large as those of the Persian Lilac. It is supposed that it will turn out to be hardy ; but this remains to be proved.

ROYAL BOTANIC SOCIETY.

The First Exhibition for the season was held on Wednesday last in the Gardens, inner circle, Regent's Park. The morning was gloomy, yet no rain fell until after the gates were opened, at two o'clock. Those patrons of gardening, whom no weather heretofore ever daunted, had apparently on the present occasion lost all their enthusiasm, for when the gates were thrown open, scarcely a dozen persons had assembled for admission, and not a single carriage, with the exception of two cabs, had made its appearance. The garden itself, which was in good order, looked cheerless, with its numerous empty benches. When the rain began to fall the military bands took shelter under the canvass, which afforded during the afternoon ample space for the company to patrole up and down, listening to the music. The exhibition itself, although inferior to former seasons, was creditable to the growers, evincing improvement in plant culture. The Azaleas which were expected to have been in great perfection, were inferior to many former exhibitions, and the collections of Orchidaceous plants were much below the average. Of new plants there were scarcely any worth recording, unless it was the new Gompholobium, mentioned below, from Messrs. Lucombe, Pince, and Co. In the general collections there were some striking specimens. Eriostemon buxifolium, from Messrs. Veitch, of Exeter, was an extraordinary plant, in the highest possible perfection ; so also was an Erica aristata from Mr. May, as regarded health, but not in good bloom. There were some noble specimens of Erica Cavendishii ; that in Mr. Pawley's collection was in robust health, although scarcely in flower. In the same group was also a gorgeous specimen of the double red Azalea, just in its prime, and literally loaded with blooms. In the collections of Messrs. Hunt and Barnes were some wonderful specimens of cultivation, and Mr. Green had some fine plants ; Azalea variegata stood out in bold relief, a perfect mass of bloom ; in his collection, also, were two new kinds of which much was expected, viz. exquisita and prælautissima. They, however, were inferior to many of the older varieties. The Roses of Messrs. Lane and Son were done superbly, so also were the Pelargoniums of Mr. Gaines, of Battersea. We cannot omit mentioning that the spelling of the names in many of the collections was extremely inaccurate, a circumstance which has a tendency to mislead the visitors, and betrays great carelessness on the part of the exhibitor.

Large collections of 30 Stove and Greenhouse Plants were contributed by Mr. Hunt, gr. to Miss Traill ; Mr. Barnes, gr. to G. W. Norman, Esq. ; and Mr. Green, gr. to Sir E. Antrobus, Bart. In Mr. Hunt's group, which gained the first prize, were some remarkably well-managed plants, including a handsome specimen of Leschenaultia formosa, about 1½ foot in height, and covering the pot with its pendent branches ; Gardoquia Hookeri, low and bushy, and richly covered with scarlet blossoms ; Tropæolum tricolor, in fine bloom, covering a wire trellis about 3 feet in height ; a large bush of Achimenes grandiflora ; several well-grown Cape Heaths ; and a good Boronia serrulata, which was literally covered with blossom. In the same collection were also several magnificent specimens of Azaleas ; Hovea Celsi, producing a profusion of its ultra-marine blue flowers ; Boronia anemonæfolia, a handsome New Holland species, with rose-coloured blossoms ; Eriostemon buxifolium ; and a good specimen of Gompholobium polymorphum. The second prize was awarded to Mr. Barnes, in whose collection were Leschenaultia biloba, a handsome species, with beautiful bright blue blossoms, which contrasted well with the multitudes of scarlet flowers which richly ornamented a fine L. formosa in the same group. Along with these were Eriostemon cuspidatum, loaded with white starry blossoms ; Daviesia latifolia ; the useful Aphelexis humilis ; Podolobium trilobatum ; and several large well-grown Cape Heaths, among which was grandinosa, 4ft. high, loaded with blossoms. Finally, Mr. Green obtained a third prize for a group which contained several Cacti ; a large plant of the old Phaius grandifolius, in fine condition ; Calanthe veratrifolia, whose spikes of snow-white blossoms rising above the dark-green foliage had an interesting effect. In the same collection were Boronia serrulata, and an excellent Gongora atropurpurea, producing multitudes of long pendulous flower-stems. Intermixed with these were several large Azaleas whose showy blossoms had an imposing effect. Collections of 15 Stove and Greenhouse Plants were produced by Mr. Fraser, Mr. Pawley, of Bromley, and Mr. Veitch, of Exeter. Mr. Fraser had plants, in excellent condition, of Podolobium staurophyllum, Bossiæa cordata ; Chorozema angustifolium, a handsome New Holland species ; and Azalea lateritia, studded with its showy blossoms. A second prize was awarded to Mr. Pawley, in whose group were Pimelea spectabilis, in fine bloom ; Erica Cavendishii, in luxuriant growth, but scarcely in flower ; the profuse flowering E. perspicua nana ; Aphelexis humilis ; and Tropæolum tricolor, the latter covering a flat circular trellis, about 4 feet acrossd — In Messrs. Veitch's collection, which obtained a third prize, were Pimelea spectabilis, a large Cymbidium aloifolium, Lalage ornata, and a good plant of Brachysema platyptera. Groups of 10 Stove and Greenhouse Plants were produced : that from Mr. Bruce, gr. to R. Miller, Esq., was the best ; it contained a fine spreading plant of Adenandra uniflora ; a beautiful Erica propendens, loaded with blossom ; Pimelea spectabilis, producing large heads of showy flowers ; Gnidia pinifolia, and several handsome Azaleas, among which was Gladstonesii, in fine condition, but it wanted the stripe which is so beautiful and distinguishing a feature in this variety. A second prize was awarded to Mr. Slowe, gr. to R. Baker, Esq., for 10 plants, among which was a very handsome Hovea Celsi, producing abundance of bloom ; a very tall Cytisus racemosus ; Corræa ventricosa, whose blossoms are larger than those of the old speciosa ; Eutaxia myrtifolia ; and other plants evincing equally good management. Other groups of 10 plants were produced, but they were inferior to these.—Of rare plants, Messrs. Lucombe and Pince, of Exeter, produced Rhododendron campanulatum hybridum, with lovely pale-coloured blossoms ; and a Gompholobium, from Swan River, resembling G. polymorphum in the flowers, but of a much more arborescent habit.—Messrs. Veitch sent Tropæolum Lobbii, a species with large scarlet flowers ; and a plant called a Lisianthus, from Brazil, apparently a robust grower, and having very large dark foliage ; it was not in bloom.—Of single specimens, Messrs. Lucombe and Pince sent Eriostemon buxifolium, a perfect cone, 7 feet high ; Erica elegans, a grand specimen, and one of the most remarkable plants shown ; Azalea Leucomegista, covered with large white flowers ; the beautiful Acrophyllum venosum, a remarkable New Holland plant, in fine condition ; E. Goodheart, Esq., a small Erica elegans ; Messrs. Veitch, Leschenaultia biloba ; Mr. Robertson, gr. to Mrs. Lawrence, a lovely Erica

propendens ; and Mr. Kay, gr. to B. D. Colvin, Esq., Statice mucronata.

Beautiful specimens of Cape Heaths were exhibited in great variety, and excited considerable interest. The best collection was from the garden of E Goodheart, Esq. ; it contained noble bushes of mundula, perspicua nana, and propendens, the latter literally covered with blossoms ; a well-grown aristata major ; a large specimen of grandinosa ; and several others, exhibiting equally good management.—Groups of 12 plants were produced by Mr. Fairbairn, of Clapham, and Mr. Pawley, of Bromley. In the former collection, which gained the first prize, were excellent specimens of intermedia and suaveolens, the latter loaded with lilac blossoms ; a variety of ampullacea ; and a fine Cavendishii in luxuriant growth. In Mr. Pawley's group were likewise some good specimens, among which a large trossula, covered with small waxy-looking white blossoms, was particularly remarkable.—Several collections of eight and six plants were produced ; of these, the two by Mr. Hunt and Mr. Barnes contained the best specimens. In that of the former, which gained the first prize, were fine plants of odorata, covered with small fragrant white bells ; Sprengelii and aristata, the latter exceedingly well grown.—Collections of Papilionaceous plants were contributed by Mr. Kyle and Mr. Clarke. In Mr. Kyle's group were creditable plants of Podolobium trilobatum, Kennedya inophylla, and Mirbelia Baxteri. Mr. Clarke sent Chorozema Henchmanni, Platylobium triangulare, and a good Bossiæa ensata.

The display of Roses in pots, considering the season, was excellent ; the plants were exceedingly well grown, and reflected the highest credit on the cultivators. Collections were produced by Mr. Lane, Mr. Slowe, and Mr. Beck. Among Mr. Lane's plants we remarked the following :—*Tea :* Barbot, Eliza Sauvage, Anteros, Leveson Gower, Niphetos, Triomphe du Luxembourg, and Diana Vernon. *Hybrid Perpetual :* Duc d'Aumale, Madame Laffay, Aubernon, and William Jesse. *China :* Marjolin, Cramoisie superieure, and Fabvier. Mr. Slowe contributed 10 plants, among which were Napoleon, Hymene, Mrs. Bosanquet, Alcine, and Abricoté. And from Mr. Beck were Augustine Mauget, Caroline, Delphine Guidot, Hardy, and Bourbon Queen. —Among Orchidaceæ there was nothing particularly novel or striking. A first prize was awarded to F. G. Cox, Esq., of Stockwell, for creditable specimens of Dendrobium nobile and fimbriatum, and a good plant of Brassia maculata, producing seven spikes of flowers. Mr. Hunt obtained a second prize for a group in which were Maxillaria Harrisoniæ, in good condition, and a large Acanthophippium bicolor, covering the surface of the pot with its singular blossoms. Other specimens of this interesting tribe were produced by Mr. Barnes, of Bromley, and Messrs. Henderson, of Pine-apple-place. Six Gesneraceous plants were shown by Mr. Beck, including several exceedingly well grown specimens of Achimenes ; Gloxinia rubra and candida, and a seedling with violet blossoms.

In Azaleas, a first prize was awarded to Mr. Green, for a collection containing variegata in fine condition ; speciosissima, producing large bright rose-coloured blossoms ; and a good plant of indica alba.—In the Nurserymen's class a first prize was awarded to Mr. Smith, of Norbiton, for a collection containing good plants of formosa, bicolor nova, the old indica alba, and splendens.—Mr. Gaines obtained a second prize for a group in which were pulchella, Queen Victoria, Florida, and floribunda ; the latter covered with blossoms of a most intense scarlet colour. Some good specimens were also exhibited by Mr. Clarke, who sent a splendid plant of the double-red, and an excellent double-flowered purpurea.—Mr. Slowe likewise furnished very fine plants of Indica alba and plumosa ; and in Mr. Hunt's collection was a most beautiful lateritia, and a magnificent plant of splendens, 5 feet in height and 3 feet through.

The display of Pelargoniums exceeded our expectations. The collections which contained the new and distinct varieties were not only the most interesting, but they were produced in finer condition, than the older sorts. Mr. J. Dobson, gr. to Mr. E. Beck, had no competitor in this class. The collection contained the following sorts : Zanzummin, Conflagration, Bella, Cleopatra, Milkmaid, Sultana, Serjeant, Capella, Flora, Lurida, Lord Chancellor, and Matilda.—Mr. Gaines exhibited alone in the same class for Nurserymen, with Queen of the Bourbons, Lady Prudhoe, Rosalind, Pirate, Augusta, Rising Sun, Saxon King, Princess Alice, Hermione, Cotherstone, Imperialis, and Lydia. For collections of 12 Pelargoniums grown in 11-inch pots, the first prize in the Amateur's Class was awarded to Mr. Parker, gr. to G. H. Houghton, Esq., for Bleda, Queen of Bourbons, Priory Queen, Wizard, Coronation, Pomona, Mabel, Erectum, Queen Consort, Bridesmaid, Unit, Comte de Paris ; second prize to Mr. Slowe, gr. to W. R. Baker, Esq., for Bridesmaid, Clarissa, Simile, Coronation, Emperor, Victory, Roseum elegans, Priory Queen, Annette, Vulcan, Sylph, and Lifeguardsman.—In the Nurserymen's class, the only exhibitor was Mr. Gaines, who showed Lady Sale, L. J. Douglas, Albion, Juba, Coronation, Nymph, Madeine, Lord Mayor, Sylph, Emperor, Vanguard, and Ivanhoe.

Calceolarias.—First prize, Mr. Gaines, for six distinct and well-grown varieties, named Sylph, Eclipse, Candidate, Vivid, Venosa, and Crimson Superb.

Cinerarias were shown in collections of four distinct varieties, in 11-inch pots. Mr. Kay, gr. to B. D. Colvin, Esq., took the first prize in the Amateur's class, with Beauty of Wonhem, Nosegay, Tricolor, and Fanny Ellsler ; second, Mr. Taylor, gr. to G. Corster, Esq., Prince of Wales, Emperor, Climax, and Pride of Peckham. Nurserymen.—First, Mr. Ivery, Peckham, for Regina Victoria, Fanny Ellsler, Wee-Pet, and Matilda ; second, Mr. Gaines, Lady Middleton, Matilda, King of Prussia, General Tom Thumb.—A large collection from Mr. Ivery was exhibited, not for competition, containing the finest sorts in cultivation ; they were well-grown, and from the large mass of bloom, looked exceedingly well. —An extra prize was awarded to Mr. Kendall, of Stoke Newington, for a collection of Fuchsias, among which Erecta elegans was conspicuous for its small foliage and bright flowers.— Heartsease were shown ; Mr Brown's stand contained some large and finely-grown sorts, but we recognised no novelties.

Seedlings were not numerous in any class. Two Seedling Pelargoniums of the present year from Mr. Beck, of Isleworth, named Hebe's Lip and Patrician, received Certificates of Merit ; both flowers are large, of good substance, and form, and should they retain their present good qualities will find their way into every good collection. Resplendent, a seedling of 1844, from the same grower, is a high-coloured variety, with a white centre, and remarkably clear and striking in appearance. From a collection of Seedling Calceolarias, from Mr. Gaines, spotted varieties, two were selected for Certificates, viz., Madonna, having a deep-coloured blotch decidedly edged, upon a primrose ground ; and Harlequin, having bright brown spots upon a bright yellow ground. A Certificate was also awarded to Mr. Lane for a Fuchsia, named Mrs. Lane ; a large flower, with light tube of considerable substance ; and a first prize to Mr. Kinghorn, gr. to A. Murray, Esq., for a Seedling Azalea, named Murrayana, a variety of very dwarf habit, with large flowers of a rosy crimson colour.

Among Miscellaneous Objects were six handsome plants of Schizanthus, from Mr. Cox, of Stockwell — A collection of British Ferns from Mr. Taylor, and an ingenious device executed with cut flowers, illustrating the principles of arrangement and combination of colours of plants in beds, in a flower-garden, from Mr. Barton.

Miscellaneous.

Addiscombe.—We have the satisfaction to announce that Edward Solly, Esq., has been appointed, by the Honourable Court of Directors of the East India Company, the Lecturer on Chemistry, at the Military Academy, Addiscombe, in the place of the late lamented Professor Daniell.

The India-rubber Tree.—A correspondent of an American paper, writing from the Brazils, gives the following interesting particulars of the process of tapping the India-rubber or caoutchouc tree, and of manufacturing the gum into shoes and other things :—"The caoutchouc tree grows, in general, to the height of 40 or 50 feet without branches ; then branching, runs up 15 feet higher. The leaf is about six inches long, thin, and shaped like that of a peach tree. The trees show their working by the number of knots, or bunches, made by tapping ; and a singular fact is, that, like a cow, when most tapped, they give most milk or sap. As the time of operating is early day, before sunrise we were on hand. The blacks are first sent through the forest, armed with a quantity of soft clay, and a small pickaxe. On coming to one of the trees, a portion of the soft clay is formed into a cup and stuck to the trunk. The black then striking his pick over the cup, the sap oozes out slowly, a tree giving daily about a gill. The tapper continues in this way, tapping perhaps 50 trees, when he returns, and with a jar, passing over the same ground, empties his cups. So by 7 o'clock the blacks come in with their jars ready for working. The sap at this stage resembles milk in appearance, and somewhat in taste. It is also frequently drunk with perfect safety. If left standing now, it will curdle like milk, disengaging a watery substance like whey. Shoemakers now arrange themselves to form the gum. Seated in the shade, with a large pan of milk on one side, and on the other a flagon, in which is burned a nut peculiar to this country, emitting a dense smoke, the operator having his last, or form, held by a long stick or handle, previously besmeared with soft clay (in order to slip off the shoe when finished) holds it over the pan, and pouring on the milk until it is covered, sets the coating in the smoke, then giving it a second coat, repeats the smoking, and so on with a third and fourth, until the shoe is of the required thickness, averaging from six to twelve coats. When finished, the shoes on the forms are placed in the sun the remainder of the day to drip. Next day, if required, they may be figured, being so soft that any impression will be indelibly received. The natives are very dexterous in this work. With a quill and a sharp-pointed stick they will produce finely lined leaves and flowers, such as you may have seen on the shoes, in an incredibly short space of time. After remaining on the forms two or three days, the shoes are cut open on the top, allowing the last to slip out. They are then tied together and slung on poles, ready for the market. There pedlars and Jews trade for them with the country people ; and in lots of 1000 or more they are again sold to the merchants, who have them stuffed with straw, and packed in boxes to export, in which state they are received in the United States. In the same manner any shape may be manufactured. Thus toys are made over clay forms. After drying, the clay is broken and extracted. Bottles, &c., in the same way. According as the gum grows older, it becomes darker in colour and more tough. The number of caoutchouc trees in the province is countless. In some parts whole forests of them exist, and they are frequently cut down for firewood. Although the trees exist in Mexico and the East Indies, there appears to be no importation into the United States from these places. The reason, I suppose, must be the want of that prolificness found in them here. The caoutchouc tree may be worked all the year ; but generally in the wet seasons they have rest, owing to the flooded state of the woods ; and the milk being watery, requires more to manufacture the same article than in the dry season."

Garden Memoranda.

Mount Pleasant, West Green, Tottenham.—This, the residence of H. Scambler, Esq., is situated a short distance from the village of Tottenham, and commands an extensive view of the adjacent country. The gardens are but of limited extent, but are being enlarged, and are undergoing much alteration. We particularly remarked an excellent crop of Mushrooms which are cultivated here with great success, under the stage of a small greenhouse, where they have had all the light and air that could be given them ; indeed the gardener, Mr. Chamberlain, considers these two elements as essential to the production of fine Mushrooms as to cultivating successfully good specimens of greenhouse plants. His method of preparing the beds is as follows :—He collects horse-droppings from the farmyard after they have lain for about three months, carefully rejecting all straw or rough litter ; these he throws into a heap in a dry shed, where they lie for about three weeks, occasionally turning the heap, in which is placed a thermometer, and whenever this indicates 55° of heat, the bed is made up, treading it firmly with the feet, and afterwards beating it down with a spade. It is then spawned regularly over with spawn broken to the size of a hen's egg. The bed is again trodden firmly, and a slight covering of good soil is spread over the dung ; the whole is then neatly covered over with turf about ½ an inch in thickness, laying the Grassy side upwards, and the work is finished. We counted on a small bed, 8 feet in length and 2 feet in width, 45 full-grown Mushrooms ; and another bed, 11 feet in length and 6 feet in width, has produced 4 bushels of Mushrooms since last November, and still promises an abundant supply for some time to come. Some of the Mushrooms measured 6 inches across, and weighed 9½ ozs. This bed is in a tiled shed, the front of which is a series of doors hinged at the top along the horizontal plate from which the rafters start. At all times, when not too cold, these doors are lifted up, thus exposing the Mushrooms to light and air. Mushrooms are also grown here in pots on the greenhouse stage ; the pots are well drained with crocks, over which is placed a little moss ; then the pots are filled up near the top with dung, and spawned ; a green turf is put neatly over the dung, and the Mushrooms come up through this in a beautifully white state. Mr. Chamberlain makes his own spawn ; this he effects by collecting into a heap, and mixing well together, some time previously to making the spawn, box-clippings, small half-rotten sticks, good turfy loam, and river-sand. In this he mixes all the spawn that he can obtain from old Cucumber-beds ; this lays for a short time, and is then well mixed together and made up into bricks which are beaten hard with a mallet and placed in a shed to dry, where they are kept in a dry state till they are used. It may be necessary to state that the bed in the tiled shed is not covered with turf, and Mr. Chamberlain mentioned that the Mushrooms were not of such good quality as those from the bed in the small greenhouse that was covered with turf. Water is administered to the beds about once in a fortnight, or whenever the surface begins to crack.

Bees.

Nutt's Hives.—The system of bee-management, said to be Nutt's, but the essential principle of which is, I imagine, a century older, is certainly bad. The tin or zinc sliders are highly improper, as they are powerful conductors of heat, and must prevent the stock-hive from being kept at an uniform temperature, which is very essential. The difficulty of making them fit and slide in the grooves, the certainty of greatly irritating and injuring the bees in using the slider, and the many unnecessary apertures between the boxes, are some of the more apparent objections to such a system. With regard to the "Management of Bees during Winter" but little is required. No hive should be kept through the winter that is not full of good comb, and weighing say 12 lbs. ; but if 20 or 30 so much the better ; the bees of light hives should be added by fumigating to heavy ones, and they should be prevented from coming out of the hives during winter, by the means mentioned in my former papers. This prevents great loss in number from wind and rain. But little can be said with regard to produce ; nor do I consider it necessary ; for healthy bees, if they have a dry sheltered inclosed space, will invariably store it with honey, &c. A straw-hive, wooden-box, cask, or roof of a house, will suit these industrious insects. The great object is to give them a dwelling which is dry, cleanly, and free from insects ; the inside always possessing the same temperature, ornamental, and above all, one so constructed as to afford them great facility for working in additional hives or glasses, and to enable the proprietor to perform any manipulation that may be required, without in the least exciting the bees, much less injuring them. I consider that the hive above referred to answers all these ends, and will enable the most timid person to feel a pleasure he could not otherwise enjoy in keeping bees. A criterion cannot be well formed of the amount of pro-

duce of relative hives, as localities and other circumstances prevent a just decision. Last year I procured from a hive of my introduction two glasses and a small straw hive full, that yielded me collectively 43 lbs., the stock not swarming, but remaining till spring full of bees and very heavy. On the 23d of last April I put a glass to this stock; and within two days I found the bees had commenced building comb, and although the weather is not very genial, they are working well. Previous to the 23d, for some days, there had been probably 200 or 300 young bees at the doorway, and no doubt there would have been an early strong swarm; but there is not now any such appearance of idleness. I would have preferred putting a small straw-hive on (9 ins. wide by 7 high, inside measure), but I had not one by me, such hives being better than any other for the purpose. My other hives were by no means so profitable to me last year.—*G. L. Smartt.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Orchidaceous House.—The temperature of this house should be increased to the maximum point, with a corresponding degree of humidity; all means under the control of the cultivator should, in fact, be brought into active and vigorous operation at this season. The plants which are beginning to expand their flowers should be removed into a warm, but much drier, atmosphere; indeed, many of the species, with slender flower-stems, should be similarly located, to prevent their damping off; those in baskets, and on blocks of wood, should never, at this season, be allowed to get perfectly dry. Every care should be taken to promote the extension of the roots, and to preserve them, for on this depends the strength of the flower-stalks; and, of course, the ultimate beauty, and complete perfection, of the plant. *Greenhouses.*—Calceolarias will now be coming into bloom; they should have their flower-stalks supported, and plenty of room afforded them. They will now begin to form objects of considerable attraction in the greenhouse, but above all see that they are perfectly free from aphides, before their flowers expand. *Pelargoniums.*—These interesting and exciting plants will now begin to claim much of our attention, and deservedly so. See that every leaf is perfectly clean before a blossom expands; and that the branches and flower-trusses are properly, not lavishly, supported with sticks. Water freely, and occasionally, with manure-water.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Tender Roses, that have suffered from the effects of the past winter, will now require to be pruned; Standards would, likewise, be much improved by giving them a good soaking with dung-water—it is best applied in cloudy weather. All vacant beds in the flower-garden should be again dug up or raked over, to be ready for the reception of the plants, which should be put in whenever the weather is suitable. Such herbaceous plants as Pæonias, &c., that soon come into bloom, should be tied up. Divide and transplant Hepaticas, and strong plants of Double Scarlet Lychnis; or take off some cuttings close to the root, and place them in a mild frame-heat in small pots; these will soon strike root, and will be fit for planting out into borders. Attend to the watering of lately-planted shrubs if they require it. *Pits and Frames.*—Harden off carefully tender Annuals and other plants for the flower-garden, and continue potting off Annuals and struck cuttings as they require it, putting in cuttings of scarce sorts for store. If cuttings of choice Rock plants, such as Phlox setacea, nivalis, subulata, verna, procumbens, and amœna, &c., with Saponaria ocymoides, Onosma tauricum, Alyssum saxatile, Iberis sempervirens, &c., are put into prepared cutting-pots, in sand, placed in a mild frame-heat, and treated as Verbena cuttings, they will soon strike root, and be fit for planting out or potting off, as might be required.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—As the blooms fade extract them from the calyx; if allowed to remain they retain wet, to the certain injury of the seed-vessels. Do not now neglect these plants because their season is over; but keep them free from weeds, stirring the surface-soil occasionally, &c. &c. *Polyanthuses* require the same sort of treatment as recommended above. *Tulips* will now require almost undivided attention. Get the top-cloths on; but allow all air possible at the sides, only closing in exceedingly rough weather. Keep the bed, and all about it, neat and clean, so that the awning and appurtenances shall be more an ornament to the garden than otherwise. *Ranunculuses*, though generally speaking, planted later than usual this season, are now making rapid way, the present showery weather being extremely suitable to their habits. Attend to the minutiæ of weeding, &c. *Pinks.*—Continue to stick and tie, &c. *Carnations.*—If green-fly appear on them, dust with Scotch-snuff, or brush off with a camel-hair pencil. Put all sticks in the pots, and attach stems that are beginning to spindle. *Pansies.*—Continue to put in cuttings of side-shoots, which root best. Peg down to the surface, or cut back, all straggling shoots, and continue to prick out seedlings in moist weather. *Dahlias* may, in some situations, be put out, sheltering them during the night for the first 10 days.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—See that the growing successions receive no check for the want of timely potting; every day is important at this season, provided fine large fruit is desired, remembering that the final shift should be controlled in some degree by the time at which the shows are required; as a general rule, from eight to ten months may be allowed. This, however, varies much, according to the system by which they are grown; the system itself, of course, dependant on the character of the structures provided for the growth of the plants; together with the facilities afforded in point of labour, and other matters, under the pressure of business. Keep at all times a good supply of dry, mellow, loamy turf, in the shed, from three to six months old. This alone, if from old rest land, with the most perfect drainage, and the constant use of highly clarified liquid manure, will, without any other aid, grow the Pine in the highest perfection. *Vineries.*—Young Vines in rapid growth may be stopped as soon as they reach the back of the house, disbudding all laterals progressively from those eyes or buds which are intended to produce the future crop. Allow the terminal points beyond the bearing eyes to ramble freely at intervals, with the object of getting a good border full of healthy roots, or, in other words, to enable the roots to be in advance of the top at the next pruning season, thus ensuring a good store of energy for the next year's crop. This is an excellent time to plant new Vineries. The Vines, if outside, should, if possible, have something over their roots to exclude heavy rains; old glass-lights, not in use, would be excellent; they would increase the amount of bottom-heat as well as keep out the rains. *Figs* as before.—Syringing should be withheld in a considerable degree where fruit is ripening, taking care to resume both it and root-watering the moment the first set is gathered. When the Cherries are gathered, water the borders or boxes with manure-water, and endeavour to arrest the too hasty decay of the leaf to ensure a good bloom for the next year.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Proceed with the disbudding of Peach, Nectarine, and Apricot trees, taking care not to wound the bark of the branches at the base of the shoots; a knife should generally be employed. The blossoming being over, temporary copings may be removed, and syringing commenced. The aphis must be sharply looked after and destroyed as it appears, by means of tobacco-dust. Hoe and weed Strawberry plantations, and lay Grass or other substance between the rows to keep the fruit clean and the ground moist. *Kitchen Garden.*—When the ground is not too wet the hoe should be kept in use—in some instances the appearance of weeds will sufficiently indicate the necessity of this; but even where such is not the case, this implement, or small three-tined drags should be employed to stir the soil frequently between the rows of young crops. Transplant Lettuces from the seed-beds before the plants get too large, and sow succession; the White Paris Cos and the Malta Cabbage Lettuces should be more especially cultivated for summer use. Stick Peas as soon as they are earthed up when a little above the ground, and sow successions, with round Spinach between the rows, if space for the latter be not found elsewhere. Prick out Celery; and a few trenches for the earliest may now be got ready, using plenty of manure—for, to have it fine, it must be planted almost entirely in dung. Examine the various seed-beds in order that any defect may be made up as much as possible.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Forward as expeditiously as possible the barking of Oak, for after the late copious rains it is probable vegetation may progress so rapidly as to prevent the bark from stripping freely in a very short time. Set up your bark in the driest available situation, rain may otherwise injure its colour, and deteriorate its value. *Nursery.*—Late planted choice trees and shrubs should be mulched and secured from being waved by high winds; this may save much labour in watering, and render success more certain. Watch newly sown seeds against the depredations of vermin. Allow no weeds to *flower*; much after-expense and trouble will thus be spared.—*F.*

State of the Weather near London, for the week ending May 8, 1845, as observed at the Horticultural Garden, Chiswick.

May		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain
Frid.	2	25	29.957	29.821	64	36	50.0	S.W.	
Sat.	3	26	29 9 9	29.878	59	37	48 0	W.	.01
Sun.	4	27	29 895	29.791	60	33	48.0	N.W.	
Mon.	5	28	29.885	29.822	58	27	42.5	N.W.	.03
Tues.	6	☽	29 836	29.681	55	27	42.0	W.	.48
Wed.	7	1	29.649	29 589	50	37	43 5	N.W.	20
Thurs.	8	2	29.457	29.430	52	34	43.0	S.W.	.01
Average			29 809	29.716	56 8	34.3	45.8		.73

May 2—Fine throughout
3—Overcast; fine, with clouds; shower in the evening; clear
4—Cloudy and cool; fine; overcast; clear
5—Fine; dense dark clouds; clear, with frost at night
6—Frost; overcast; cloudy and cool; heavy storm of rain, and hail between 5 and 6 P M; heavy rain at night
7—Cloudy; hail-shower in forenoon; showery
8—Cloudy: showery; overcast
Mean temperature of the week 7½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending May 17, 1845

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 11	63.4	41.9	52.6	7	0.26 in.	2	5	3	1	4	2	1	1
Mon. 12	64.2	40.7	52.5	7	0.40	1	5	4	1	3	2	1	2
Tues 13	65.5	39.1	52.3	6	0.10	2	5	2	—	3	2	3	2
Wed. 14	64.7	41.3	53.0	7	0.66	2	4	3	1	3	1	2	1
Thur. 15	65.3	41 2	53.5	5	0.41	1	5	1	1	7	2	2	—
Fri. 16	67.6	43.0	55.3	5	0.17	3	4	4	—	2	4	1	1
Sat. 17	67.3	43.1	55.2	6	0.68	—	5	4	—	1	3	4	2

The highest temperature during the above period occurred on the 15th and 17th, 1833—therm 85°; and the lowest on the 15th, 1838—therm. 26°.

Notices to Correspondents.

ASPARAGUS—*G J B*—Give it salt and water every fortnight while the summer-shoots are growing; and when they cease doing so, cease salting also. Your stable-dung will no doubt prove a capital preparation, in addition, for the crop of next year, which will be much improved by your not cutting this year. Why not add guano to the salt and water during this summer? the result will pay you. Nitrate of soda will not act well unless succeeded by wet; in dry weather it does more harm than good.——*Sub*—There is only one kind of Asparagus; the difference in colour exhibited in some specimens is only owing to accidental circumstances. You may form your bed either now or early in autumn. ‡——*C G*—You are clearly in the wrong. Upon what grounds a prize can be given for Asparagus, hard and white, and uneatable, in preference to fine green succulent heads, we cannot comprehend. Such an award would be only intelligible if the Asparagus were intended for drumsticks. At the same time we must admit that you have precedents enough for the line you took.

BOOKS—*X O Z*—There is no such book: what sort of coloured plates can you expect for 1s. a month?——*Z Z*—We must have misunderstood your question. But you cannot expect to read botanical books without understanding the elements of botany. You might as well attempt to read Greek without understanding the alphabet. You *must* begin with the beginning, or you will never get to the end. Perhaps a Gardeners' Catalogue is what you want; in which case take Loudon's "Hortus Britannicus," Paxton's "Botanical Dictionary," or Sweet's "Hortus Suburbanus Londinensis."——*A Sub*—Dr. Lindley's "Monograph of Roses" does not include information respecting cultivation; it is an account of such *species* of Rose as were known to botanists 25 years ago. Neill's book on the "Fruit, Flower, and Kitchen-garden," will probably answer your purpose. We will inquire about apiarians. Do not the articles on the Tree-Rose, partly given in our columns of last year, and now reprinted in a separate form, with additions, answer your purpose?——*Reader*—There is no good book on the construction of greenhouses and stoves. Sweet's "Hothouse and Greenhouse Cultivator" will perhaps suit you for cultivation.

CONSERVATORIES—It has been repeatedly decided that conservatories attached to a dwelling-house are not liable to window-tax.

DAHLIAS—*Cavanensis*—A list of the best Dahlias sent out last season is given in last week's *Chronicle*, p. 296.*

FUCHSIAS—*Amateur*—Out of your list, we recommend the following 25, viz:—*Brockmannii, *Exoniensis, Colossus, Attractor, Enchantress, *Eppsii, Stanwelliana, Splendida, Defiance, *Lanei, *Toddiana, Champion, Victory, Majestica, Paragon, Splendens, Robusta, *Youellii, *Moneypennii, Standishii, Dalstonii, Curtesii, *Riccartonii, Eclipse, and Spectabilis*.——*Cavanensis*—Add the following six light-coloured varieties to your collection; Barkway's Norfolk Hero, Youell's Alicia, Conspicua arborea, Bell's Queen, Halley's Sanguinea, and Smith's Vesta,—and the following six dark sorts; Epps's Kentish Bride, Standish's Colossus, Youell's Queen Victoria and Countess Tyrconnell, Iveryana, and Lindleyana.*

GLASS—*J J G*—Our Leading Articles give you all the information we possess. If you are in a hurry, you will buy and be overcharged; if you have patience, it will be more difficult to overcharge you. Buy not at all: *that is our advice.*—— *Erratum*—We are indebted to a correspondent for pointing out a misprint in our "Notices to Correspondents" of last week. In speaking of glass we are made to say "Sheet-glass will not resist the blow of a storm." It should have been "the blow of a stone." We believe that the use of good sheet-glass is the best of all insurance against the violence of hail and storms.

GLAZING—*A B*—There is more disadvantage in theory than in reality in the employment of pale green glass; as greenhouse plants are kept out of doors during the summer, and make little or no growth in winter, we do not apprehend any inconvenience from its adoption; we fear, however, that it would not do for early forcing, or for houses in which plants are made to grow all winter long; our remarks did not apply to such cases. Light is certainly most important and not to be dispensed with; but it is only wanted in great abundance while plants are growing, and even then gardeners find too much of it, as is proved by the expense incurred in canvass for shading. Get glass as thick as you can afford; the thicker the glass the less it will cost for fuel in winter; but we strongly advise you to defer purchasing for some time to come. We see no objection, but much advantage, in metal roofs, provided SUFFICIENT *ventilation* is secured. A hot-water apparatus will heat your house, but the pipes ought to pass along the front wall rather than beneath the stage.

INSECTS—*J Usher*—We cannot tell what your larva is, and being crushed, for want of protection, it is impossible to rear it. If you will tell us where it was found, and what it fed upon, it may enable us to give you some information; but the larvæ of various small moths resemble one another so remarkably that without such particulars it is often impracticable to determine the species. *R.*——*J N*—Your Weevils are the Curculio picipes, which has been figured and described in the 1st vol. of this Paper, p. 292. Shaking the trees over a sieve at night you will find the most ready mode of destroying them. *R.*——*A S Tinsley*—The Weevils are Curculio lineata, figured and described in this Paper, vol. 4, p. 388. When the Peas and Beans are moist with rain or dew, dust them well with soot; try also a small patch dusted with soot and lime, and let us know the result. *R.*——*K L*—I am sorry you did not succeed; but if you will place an infested leaf beneath a tumbler, and burn a sulphur match under, then slipping the glass back so that the fumes cannot escape, and leave it for five minutes, you will not find, I expect, a Thrips alive. *R.*

MANURE—The return of the wholesale price of manures, given at p. 266, was obtained expressly for your information, and we assure you that, as far as we can learn, there has been no subsequent change.

NAMES OF PLANTS—*A B C*—Habrothamnus purpureus; a rather pretty plant.——*J M*—Helicteres verbascifolia, an old and well-known plant.——*R O*—Opuntia decumana.

NITRE BEDS—*Peter Salt*—We have found an account of the mode of preparing them in Boussingault, vol. ii, p. 29; and we will take an early opportunity of publishing a translation of the statement by the French chemist.

NORFOLK WILD FLOWERS—Any of our readers rejoicing in a Hortus siccus, and desiring specimens of Holosteum umbellatum, and other wild flowers of this county, will find their account in communication with Rev. Kirby Trimmer, Bishopgate-street, Norwich.

PLANTS FOR A WALL—*A Lady*—The following will succeed on a conservative wall in Devonshire:—Clianthus puniceus, scarlet; Veronica speciosa, purple; Jasminum grandiflorum, white; Tecoma capensis, scarlet; T. jasminoides, white and pink; Sollya heterophylla, blue; Double Oleander, rose; Cytisus elegans, yellow; Myrtus tomentosa, pink; Mandevilla suaveolens, white; Statice arborea, purple; Hardenbergia macrophylla, blue; Kennedya rubicunda, scarlet; Abutilon vitifolium, lilac; together with Cape Heaths, Fuchsias, Chinese Azaleas, Camellias, Tropæolum azureum, tricolor, and pentaphyllum; and for flowering in winter, Chimonanthus grandiflorus.¶

PUTTY *may* be softened by very strong potash; but the trouble is more than the result is worth. A good tenacious, but not hard putty, is a great desideratum in gardening. We have sometimes thought that India-rubber might possibly be employed in its preparation.

THE ANIMAL OAT — We beg that *A Regular Subscriber, D., C. M'Ewan*, and *Mr. Maxwell*, who have been so obliging as to send us seeds of this plant, will accept our best acknowledgments for their very obliging attention.

TRUFFLES—*P H B*—The bandy-legged Truffle-dogs are well known.——*J H*—The specimens you have sent are Morels.‡

WINDOW GARDENING—*Bootmaker*—The following hardy plants are suitable for the outside of your back window, viz., Daphne Cneorum, Iberis semperflorens, Alyssum saxatile, Aubrietia deltoidea, Campanula grandis and nitida, Cheiranthus ochroleucus, Cyclamen neapolitanum, Mimulus moschatus, Veronica saxatilis, the different species of Saxifraga, and Sedum Sieboldi. For the front window, or north aspect, you may procure Cotoneaster microphylla and rotundifolia, Campanula grandis, Mimulus moschatus, Sedum Sieboldi and others, Saxifragas, Phlox nivalis, subulata, and procumbens, Cytisus purpureus, Cynoglossum omphalodes, Aubrietia deltoidea, Rubus saxatilis.¶

WIREWORMS—*A B*—Full directions for the destruction of these will be given next week. ‡

MISC.—*J Mauder* will find the names of a dozen Roses suitable for pot-culture in the report of the Royal Botanic Society given in another column.‡——*J J*—Young men can only be admitted, as workmen, into the garden of the Horticultural Society upon the recommendation of a Fellow.‡——*An Exhibitor of Fruit* at the Horticultural Society's exhibition need not intimate his intention of exhibiting before the day of exhibition, unless he likes.‡——*T Davis*—What *is* the Oyster plant?

SEEDLING FLOWERS.

CACTUS—*S J*—Your seedling is one of the richest-coloured varieties we have seen; the petals (which are finely formed) have the rich purple hue of speciocissimus, with a scarlet crimson stripe up the centre of each; it opens well, and forms a very handsome variety.*

CALCEOLARIAS—*W B*—Your seedlings are large and bold varieties, generally with tolerably good outlines, but too flat in front, and the dark varieties want decision and depth of colour; the best flower in the collection is No. 11, being round and velvety in texture; 1 and 6 are also large, showy, and good flowers; 4, 6, and 7, want decision of colour, the yellow varieties are not so good as we have been accustomed to see; 3, 8, and the dark self, are deficient in form.*——*A Constant Reader, Kent*—Your seedling is a flower of good form, but there is nothing uncommon in the marking.*

CINERARIAS—*W M*—A neat flower of good colour, but in other qualities not equal to some of the same colour in cultivation.*——*W R*—Your quilled variety, crimson and white, is one of the neatest flowers of its kind we have seen.*——*S J*—Your seedlings are no improvement upon the varieties in cultivation.*——*G H*—These are the largest Cinerarias that have come under our notice; they have also considerable substance, and in some cases the width of the petals is increased, as in 4 and 7, which are the best flowers in the collection; in some of the others the petals are too narrow for their length, and they become starry; but 4 and 7 are stout flowers, and the best in colour also.*——*J H*—Your seedlings have all the same character; they are pretty and varied in colour, but deficient in substance and form.*

PANSIES—*J H K*—Pansies require to be packed in some damp substance; your flower arrived in so dry a state, that it was impossible to judge of its form or colour.*

POLYANTHUS—*J U*—Your seedling is a large and brilliant flower, the defects of which consist in the segments being too deeply cut, and the quality of the yellow in the lacing differing from that of the eye. The ground-colour is fine, the tube neat and well formed, and the lacing regular and perfect.*——*F C L*—The lacing on your flower is rather imperfect, the segments too deeply cut, and the eye is of a deeper yellow than the lacing round the segments.*

RHODODENDRON—*A L*—Your seedling, No. 1, forms a large and compact head of bloom, but it wants brilliancy of colour, and the divisions in the corolla are two deep and narrow. No. 2 is a better shaped flower, but it is small, and wants colour also.*

VERBENA—*W M*—Your flower was completely dried up.*

Farms to Let.

TO BE LET, and entered upon at Michaelmas next,
TAPNEL FARM,
In the parish of Thorley, in the Isle of Wight, containing:—

	A.	R.	P.
Arable	337	2	35
Meadow and Pasture	153	2	30
Homestead &c.	5	1	17
	A496	3	2

This Farm will be Let either on Lease for a term of years, or subject to Tenant rights on the Lincolnshire system.—For further particulars, apply to Messrs. SEWELLS, NORRIS, and ESTCOURT, Solicitors, Newport, Isle of Wight.

HODDESDON, HERTS.

TO BE LET, with possession at Michaelmas next, a FARM, consisting of about 235 acres of land, with a convenient Homestead, 1¼ mile from the Broxbourn Railway Station.—Direct to Mr. WILLIAM CHAPMAN, Bailiff, Broxbournbury.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.
Proprietor, Mr. THOMAS CLARK, Jun.
Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars: and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

The Agricultural Gazette.

SATURDAY, MAY 10, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, May 14—Agricultural Society of England.
THURSDAY, May 15—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, May 21—Agricultural Society of England.
THURSDAY, May 22—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

May 12 { Rochford Hundred / Framingham / Grove Ferry
May 15 { Richmondshire / Bucks and Walsham / Stoke Ferry
May 16 { Debenham / Wrentham
May 17—Cardiff
May 19 { Wenlock / W. Hereford / Cirencester / Yexford
May 20—Isle of Thanet
May 21—Swansea

WE are happy in being able, after so long an interval, to recommence our report of experiments on DRAUGHT IN PLOUGHING. We must confine our remarks at present, however, to a description of the instrument — CLYBURN'S SELF-RECORDING DYNAMOMETER—which was employed to register the draught of the ploughs. The subjoined figures, on a scale of ¼, are sufficiently illustrative of its mechanism. The instrument is made a link in the draught-chain of the plough—its two terminal hooks are attached, one of them to the muzzle of the plough, and the other to the draught bar; its hanging wheels roll on the ground as the plough proceeds, and it will be observed how, by means of the bevil wheel at the extremities of the rod which connects them with the body of the instrument, their motion is communicated to rollers within its case. On these rollers the sheet of paper is wound on which the recording pencil registers the draught. As, by the revolution of the wheels, motion is communicated to one of these rollers, this sheet of paper is wound *upon it* and *off* the other, and the motion of the latter being rendered difficult by means of a tightening spring the paper is always kept tight.

The position of the pencil, seen in fig. 1, is made dependent on the tension of the spring, and thus, significant of the strain on the instrument, by means of the chain and wheels within its case, as exhibited in fig. 2. As the spring collapses, the motion of the moveable end of it is communicated to the larger of these wheels by means of rackwork and pinion; and it is around this wheel that the chain works to which the pencil is attached.

The pencil is fixed to this chain at zero on the scale, when the instrument is at rest, and the changeable collapse of the spring, when attached to an implement whose draught is so variable as that of the plough, causes it to oscillate to and fro within the slide in which it moves; and, being kept by a spring pressing upon the upper of the two rollers on which the paper is wound, all its oscillations are recorded on the sheet, which, moved by the ground-wheels as the horses proceed, continually passes before it.

The spring employed in this instrument is a double spiral, as may be seen in both figures; the spirals are twisted in different directions, in order that they may not catch in one another.

The above few sentences, assisted by an examination of these figures (for which we have to acknowledge the kindness of Mr. CLYBURN), are, we think, sufficient to explain the structure of this instrument: we shall next week commence the publication of the diagrams drawn by it during its attachment to the different ploughs; taking each point in succession to which we stated, at page 73, attention should be directed.

FIG. 1.

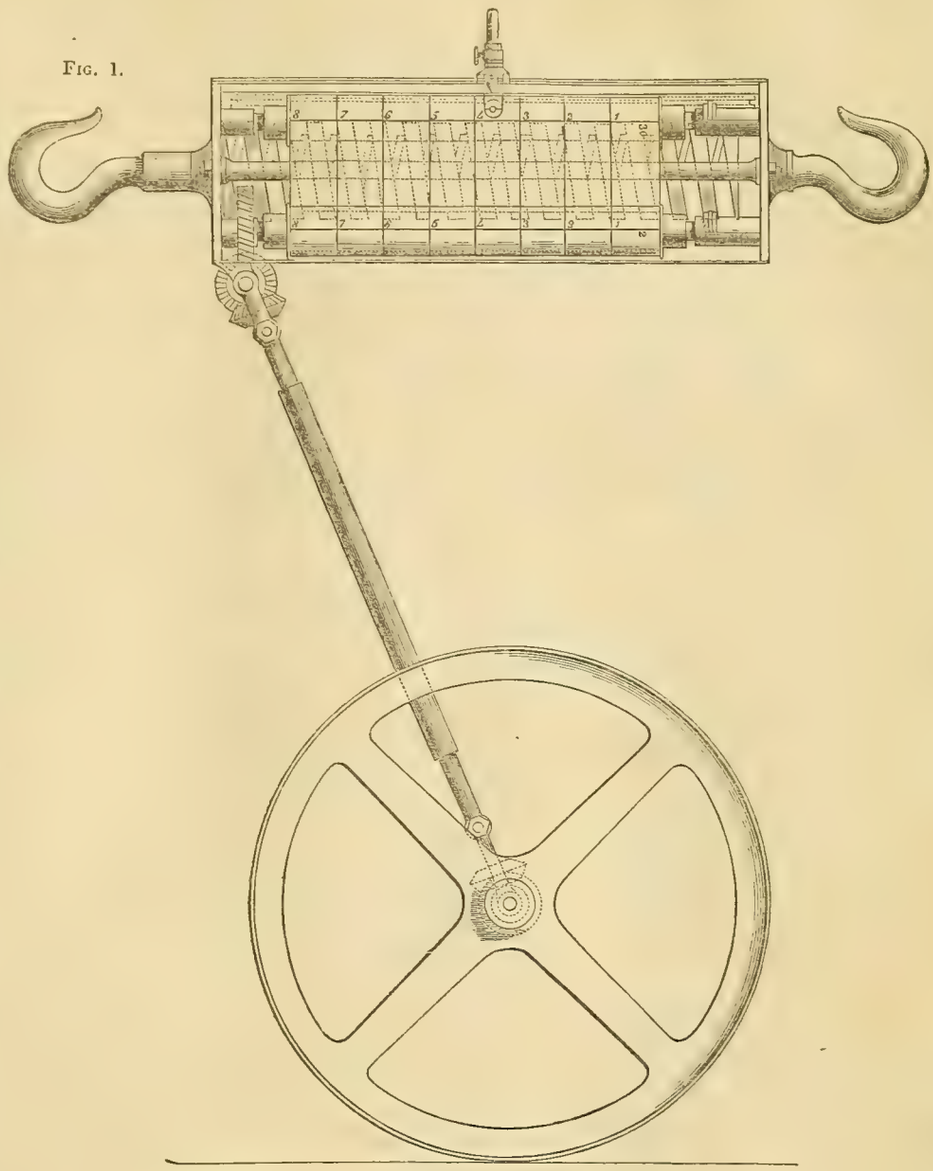
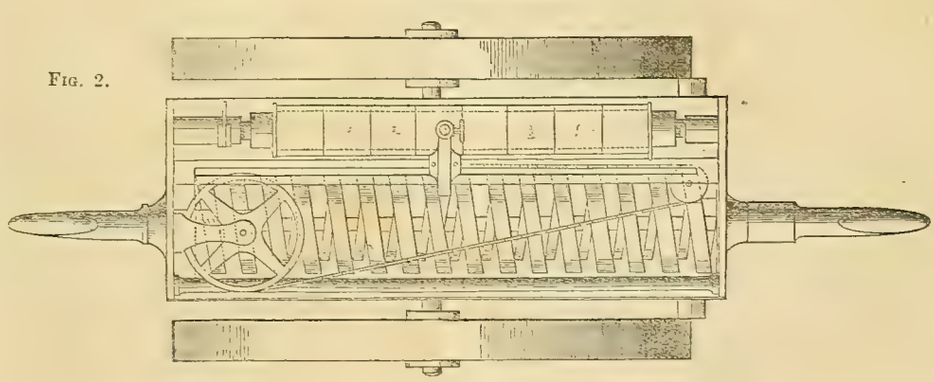


FIG. 2.



WE continue our remarks ON TOP-DRESSING WHEAT. In examining the conclusions quoted last week as having been arrived at by experimenters upon this subject, there are several facts worthy of notice. Not only is the peculiar action of each manure confirmed, in each case, by several distinct trials by the same experimenter, but the same peculiarities of result are developed, and similar conclusions are deduced from them, by *both experimenters*, though acting far apart—a circumstance which, considering the circumstances under which the trials were made, speaks much for the trustworthiness of the conclusions as *points of practice* for the consideration of the farmer.

Again, it is equally worthy of remark, both as a further evidence of the value to the agriculturist of these investigations, and as a proof of the use of well-digested practice to theory itself, that the deductions which we have quoted not only agree with and confirm each other, but also illustrate and are confirmed by the received principles of science as applied to the subject.

For example, the identity of the action of the various compounds of nitrogen is shown in the similar and peculiar effects arising from applications of the nitrates of soda and potash, the salts of ammonia, guano, Rape-dust, soot, &c., all of which contain nitrogen, and develop their peculiar effects in proportion to the quantity which they contain; a result which is in conformity with, and fully bears out, the modern theory, that ammonia and its compounds act by supplying nitrogen to plants—a position which is very clearly established, when we consider that nitrogen is an essential element of plants: and its existence in all the manures just named—in the nitrates, for instance, in the form of nitric acid (or nitrogen and oxygen), and in ammonia, in union with hydrogen, still further supports this view; for when we have *different* compounds producing *similar* effects, if these compounds contain a certain ingredient common to all, to this we cannot but attribute their common result.

Again, the general efficiency of guano as a manure, the peculiar action of the nitrates in flushing

vegetation to a high degree of luxuriance, and the comparatively weaker, yet similar, results arising from the use of rape-dust, soot, and other matters containing nitrogen, are in full accordance with the estimate placed by science upon their power of supplying nitrogen. For instance:—Pure sulphate of ammonia contains about 28 per cent. of nitrogen; nitrate of soda, about 14½ per cent.; guano, 10 per cent.; rape-dust, 5 per cent.; and soot, from 2 to 6 per cent.

Science also satisfactorily accounts for the fact, that guano should be termed "an universal manure, and an acquisition of great value," as it contains not only a large supply of nitrogen, but also from 20 to 30 per cent. of phosphate of lime, or bone-earth, and much other inorganic matter of utility to vegetation; while rape-dust and soot, containing much less nitrogen, are also deficient in the other useful constituents of vegetable food.

Salt, it is true, does not owe its success to nitrogen, for it contains none; but, at the same time, it is interesting to know that the advantages which spring from its use along with other manures, and which the experiments quoted so fully illustrate, were known to a few of the observing agriculturists of the past generation. Thus, Sir George Sinclair, Dr. Cartwright, and Dr. Priestley, all urge their experience in support of its great utility, especially in mixture with other manures.

To sum up our case, then; confirmed as the conclusions which we have thus cursorily noticed are by mutual corroboration, by the doctrines of chemical science, and, as we could show, if we had an opportunity of entering more fully into the question, by the multiplied experience of others, we may safely take their guidance in our selection of dressings for the present season. We would observe here, however, that it is not to be anticipated that the relative effects of the various manures will in all cases be the same as those stated by the writers we have quoted from. On the contrary, peculiar circumstances may occasion peculiar results. The general estimate, however, which they afford us of the relative efficiency and peculiar action of the manures is, beyond dispute, correct, and competent to direct our practice; for instance, we cannot fail to deduce from what has been said the following clear, practical conclusions, viz.:—

1st—That if we have a sickly crop of grain at spring, upon any sort of soil, a dressing of nitrogenous manure will be of use.

2d—That upon soils which yield grain liberally in proportion to the straw, but which grow straw sparingly, any of the salts of ammonia, or the nitrates of soda or potash will answer best.

3d—That upon soil which yields grain sparingly, or even on good land, which is deficient in plant, owing to circumstances connected with the season, either guano (as it contains, along with a liberal supply of nitrogen nearly all the essential food of plants) or the nitrates and salts of ammonia in mixture with common salt may be used with advantage.

4th—That salt mixed with the manures which contain nitrogen, improves the application upon all sorts of inland soils.

It is by no means intended to infer that these are the only applications to be used. Rape-dust, soot, &c., are shown to produce good results. Under the specific circumstances laid down, however, the substances named seem to have the advantage, yet various considerations, as well as the sort of soil and the circumstances under which they are applied affect their relative eligibility. Thus, cost and quality of the articles, are to be considered; and it is possible that in some localities the cheapness and convenience of one may entirely overbalance the superior quality of the other. For example, so cheap and convenient a supply of soot, of a quality superior to that generally met with, may perhaps be had in some places that it may be used more profitably than rape-dust, and perhaps even than guano or the nitrates. At the same time, however, it is necessary for us to know, as has already been shown, what are the *real capabilities* of each dressing under favourable circumstances, before we can judge which is really the cheapest when we require their use.

There are also other circumstances connected with the application of these top-dressings which should not be forgotten, viz., That Rape-dust and soot require a wet season to develop their full effects, and that in a dry one they are perfectly useless to the crop. That guano should be applied immediately before a shower, as otherwise its ammonia partly escapes into the atmosphere; and that it answers best in moist weather. And that the nitrates, &c., being easily dissolved, do not require so much rain as the other substances—that they do not lose any of their effect after being exposed for some time to dry weather, and that when mixed with salt they will even operate beneficially in *dry weather*, as the salt attracts moisture from the atmosphere. Nitrates, and all the salts of ammonia, however, act more speedily, and also more efficiently if applied in showery weather.

We shall take an early opportunity of publishing, in illustration of the above remarks, an extract from Mr. Hannam's Essay, showing, as it does clearly, the efficacy and use of top-dressings under circumstances when ordinary manuring at seed-time is almost useless.

AN AGRICULTURAL PILGRIMAGE.

No. I.—Mr. Biggs, near Colchester—Wheat after Wheat—Ammoniacal Water—An Opinion on Smut, Seed Wheat, &c.

In the latter end of June, 1844, I happened to be at Colchester, in Essex, and hearing of Mr. John Biggs, a farmer occupying land within three miles of that town, I paid a visit to him on his farm. He is a tenant on the estate of Earl de Grey, and though only a tenant-at-will and without the security which a good lease confers, he has been, and is now, a great improver of the soil. Yet, it must be remarked at the outset, that though a tenant-at-will, he is not holding his farm on the ordinary terms. He pays the usual rent in the usual way, but his occupancy is the result of good service to Earl de Grey in another capacity. So that his tenure is probably as safe for his own life as if it were provided for on parchment. The personal kindness of his lordship has also been extended to Mr. Biggs, through his agent, to allow him to depart from the usual rotation of cropping on parts of the farm, in order to make certain experiments.

Thus far, it is necessary to premise, to show why Mr. Biggs has been allowed to depart from the agricultural customs around him, so stringently enforced on others. He has been allowed to grow Wheat successively on the same ground. On one piece of land he has grown the fifth crop of Wheat in seven years. And as he has favoured me with an account of the produce of the crop which I saw in June since it has been threshed out, and that produce being 5 quarters 3 pecks per acre, I think it worth while to draw attention to the farm, the farming, and the farmer.

Passing over several farms north of Colchester, whose gravelly soils last summer were afflicted with the long drought, and which faced the southern sun and the dry west winds, with but little shade or shelter, I reached the neighbourhood of Mr. Biggs's farm, some of which had been woodland within the last three years, some within six years and ten years; and nearly all of which, with other farms near it, had been woodland within the memory of younger persons than "the oldest inhabitant." The soil was generally tending to clay; much of it might be called thin and cold. None of it was of a natural richness to warrant such excessive cropping as it was compelled to undergo. Without vigorous and intelligently applied stimulants, the results at harvest would have been different. The adjoining farms, possessing quite as good a soil, but being very differently farmed, prove this. I found the farm-fields lying somewhat scattered, several small portions of land having been united into one farm by Mr. Biggs at different times. I believe the farm is still extending in size, by grubbing up the woodlands, and putting odd inclosures into one. The aspect was north and easterly, the shelter good, approaching in some parts to suffocation in summer time. It was exposed also to the game a good deal. The hedges had been cut down and were kept clean at bottom, and only as high as would be a fence. These hedges and their bottom ditches employed one man at 11*s.* a week all the year, save harvest, and Mr. Biggs assured me that he saved this man's wages by the reduced number of small birds, and other depredators, and foul seeds which resulted from the trimming of the hedges. He had two or three acres in separate places under seeds, Colewort, Turnip, &c. The advantage of a good fence and free air, where the plantations tended, as these, to suffocation, was also valuable. The first thing I noticed was the greater number of men he had at work for such a moderate breadth of land, than is usual in that part of England. He pays 400*l.* in wages on the same breadth of land upon which other farmers pay but 200*l.* in wages. And last year they reduced their payment of wages to about 150*l.* They say that the high farming of Mr. Biggs will not pay with present prices. He says that however desirable it may be to have higher prices, he will make a better profit by the expenditure of 400*l.* in wages for such work as he executes on his farm, than they will from 150*l.* or 200*l.* in wages for such work as they execute on the same extent of land. Having his authority to use his name publicly, I do so that he may be personally referred to. Looking to my note-book I find that in front of his house on the opposite side of the public road which passes his door, there is a small inclosure of two acres. He had obtained leave to raise Wheat on this for seven successive years; the soil was naturally thin, and (my notes do not state so, but I think my memory is correct) a rather tenacious clay. At all events it was what would be called a poor soil. The design of treating it was to have a full crop of Wheat alternately with a half crop of Wheat. Last year's crop was the second of the system, and was the half crop, or fallow. He has one particular kind of manure which he calls "ammoniacal water," procured from the refuse of the gas-works at Colchester. He tries every other kind of manure, and on these two acres had tried no fewer than eight different fertilisers, but had nothing to equal his "ammoniacal water." He thinks that by sowing just half the quantity of seed every second year, he will give the soil breathing-time under its burden of continued Wheat. He proposes this instead of fallowing, as is the custom around him every fourth year. His half crop looked but indifferently on the 24th of June, save on the portion watered with ammonia; that is, it struck me as being an indifferent crop before it was explained that it was only intended to be a half one. The manures used were these:—1st. Liquid composition of pigeon's dung. 2d. Pigeon's dung without mixture. 3d. Ammoniacal water, Mr. Biggs's own composition, upon which the Wheat was dark in the blade and strong, and more full of promise than on any of the other manures. 4th. The same material applied as a powder. The Wheat not looking so well, because, as Mr. Biggs thought, of the continued drought. The first rain of the summer fell next day; but I did not again see the crops. The cost of the liquid ammonia was 25*s.* per acre, the powder half that sum, owing to the lesser amount of labour bestowed upon it. The 5th was a composition of salt. The 6th, farmyard drainings. The 7th, chamber-ley, and the 8th, soot and lime. I have since received a note of the produce of this half crop; it was upon an average of all the manures, 3 quarters per acre, weighing 65½ lbs. per bushel; being an increase in weight of 3 lbs. per bushel over the full crop on the same ground in 1843.

I next passed to a field of Wheat after Mangold Wurzel. In one or two places it was scorched by the drought; but, as a whole, looked exceedingly well. A compost, made from the gas-work's refuse, had been applied to the Wurzel; before *that* it was Wheat—his first crop on that piece of ground—and that Wheat was "after some of the worst farming in England," for poverty and foulness.

Next, we passed to a Potato-field; where, with the aid of a compost, Potatoes were growing for the fifth year, the previous crop being 3 bushels per rod—this crop also looked well. The ground was declared to have been so poor as not to yield over a peck of small Potatoes per rod, before the application of the ammoniacal compost. Next, we came to Wheat on a light gravelly soil, one acre dressed with the ammoniacal water; another piece of the same field dressed with a mixture of chamber-ley and farm-yard manure—this looking exceedingly well. In this field there was a blank spot, which had been poisoned by the barrel containing the chemical fertiliser standing there, and spreading around more driblets than enough. Next, we came to some Colewort-seed in the very highest perfection; this had been manured, at an expense of 30*s.* per acre, by the compost. Mr. Biggs had been offered the market-price for it, at the rate of 12 coombs per acre (6 quarters); he did not take it, being sure it would yield more. Adjoining it was Wheat, as good as any I had seen, judging Wheat by its looks in June, between Yorkshire and Essex; and this was on land which did not yield over 3½ coombs per acre when he first got it; did not pay its labour, though that labour was of small amount—probably *because* it was of small amount. The crops of Wheat on it now were usually 13 and 14 coombs per acre—Wheat growing every second year. There used to be a ditch, the nursery of filth, across this field, occupying in breadth half a rod; the good it did was now performed by one of 18 inches, and all the evil was avoided.

In another field, which bore Wheat and looked well, a ridge had been manured with "a material never before used as a manure," but Mr. Biggs declined to say what it was until he had further proved it. At this part of the farm we found a large heap of compost, which men were conveying to the furrows of the ploughs then at work, preparing for Turnips; the ammonia in this compost was strong beyond anything I had ever seen on a farm-field. The number of hands employed did not allow any unnecessary exposure to the air. Mr. Biggs considered that the saving of wages, by fewer hands, would have been a great loss in handling this manure. The heap had been carefully covered with earth, to suppress the ammonia while it lay there; the main ingredients were all from the gas-works.

Near this we saw 7 acres of Grass, which had been mown for hay; the previous crop was Wheat and the one previous to that a rough copse-wood. The 7 acres cost 125*l.* before the Wheat was sown, for grubbing the roots and preparing the soil; the produce of hay was estimated at 9 tons on the 7 acres. It had suffered by drought, yet was much better than the usual crops of hay of last year. Wheat grew near this, on land which should have been fallow. Three ridges manured with compost, had the full promise of 10 coombs per acre; the rest of the piece not more than seven. Next we came to the Wheat, after Wheat, for the fifth time in seven years; the produce of this, when threshed, Mr. Biggs writes to me, was 5 quarters 3 pecks per acre. Near this we saw Clover which had been sown in the spring of 1843 with Wheat. In September of that year, the Wheat being reaped in August, the Clover was mown on the stubble, and yielded one ton per acre. In June following, the period of my visit, the hay crop was 1¾ tons, the drought having affected it. The second crop, however, of 1844, was 3 tons. He expects to have fine Wheat after this Clover in 1845. Near this was Wheat sown after Wurzel, and after Turnips. In regard of manure and soil, each had an equal chance; but that which followed the Wurzel lingered hopelessly behind the other. Mr. Biggs sows no Oats. Being able to grow Wheat at will, he finds it more profitable to buy Oats for his horses. He grows some Beans. As some of his manures were mere

experiments, but all less or more successful, he intends experimenting further this year. The farm contains 150 acres. He thus concludes a letter writen to me in the latter part of last year:—"I would caution the inexperienced in farming, to be sure not to sow damp Wheat for seed, as it will, in all probability, grow smuts or bladders. Having been forced, by being damp already, it will be weakened, and rendered unable to bear the changes of temperature which it will meet with. It should be a good dry sample, properly dressed, either with salt, lime, or blue vitriol. If we were to pay proper attention, the smuts would not be grown as they are. I had a proof of that this year. A poor man had about an acre of Wheat, and he sowed it with damp seed, and it was in a most shocking state; and, in my opinion, this was the only cause. I grow my seed Wheat in a particular manner; I add to the quantity I want for seed a large portion of carbon, phosphate of lime, and sulphate of ammonia, which make it stronger than usual, and will give it a dark colour in the sample. But this does not matter, as it is the better, and will endure greater hardships. In my practice for several years I have discovered that faint Wheat is not fit for seed—the difference is very great."

So much for a sketch of the mode of farming which Mr. Biggs has devised for himself, seemingly with considerable success. Some other matters which I observed on his farm and in his neighbourhood, deserve a few remarks, more particularly his method of reforming ill-behaved men; for he does not only turn to a good agricultural purpose the elements of fertility which other farmers neglect and despise, but he turns to a good moral purpose the erring men whom others cast out and proscribe, and punish, by refusing them employment—the means of being honest; he adopts these men, puts confidence in them, pays them the highest wages of the district, and makes them sensible that they are elevated as high as the best-conditioned labourers, and higher than they ever were before. But I have not room to enter more largely into this subject at present.—*Pilgrim.*

ON SOOT AS A MANURE.

The soot of ovens and chimneys, which may be procured in the vicinity of large towns, is among the most effective manures; there is not required more than 450 or 500 lbs. on the Magdeburg acre of land, in order to produce on all soils (especially the light ones) the most luxuriant vegetation. Soot is another example demonstrative of the great utility plants derive from certain mineral substances, as we know, by analysis, that 100,000 parts consist of—

38,330	coal, resin, and empyneumatic oil.
30,200	humic acid (partly combined with ammonia).
0,200	acetate of ammonia.
0,360	chloride of calcium.
1,500	phosphate of lime.
5,000	gypsum.
5,650	acetate of lime.
14,660	carbonate of lime, and a little carbonate of magnesia.
4,100	acetate of potash.
100,000	parts.

The constituent parts of soot obviously depend on the component parts of the fuel; for which reason, in some of them much carbonate of ammonia, sulphate of ammonia, and sulphate of potash is to be found, by which naturally their action as manures is much increased. The soot of coal is superior to that of wood, the former being richer in ammonia.

If 500 lbs. of soot are put upon the Magdeburg acre of land, the soil will receive (according to the above analysis), of really fertilising matter, 20 lbs. of acetate of potash. 73 lbs. of carbonates of lime and magnesia, 28 lbs. of acetate of lime, 25 lbs. of gypsum, 8 lbs. of phosphate of lime, 2 lbs. chloride calcium, 1 lb. acetate of ammonia, and 150 lbs. of humic acid and humate of ammonia. We may well assume, that of the above substances the salts of ammonia and potash, gypsum, and the acetate of lime will be the most effective, as there is too little of the other substances to possess any tangible influence. In Belgium they take for every measure of seed-corn 8 to 10 measures of soot.

As soot acts by its easily soluble substances, it is always to be used as a top manure, and it is strewed, therefore, in spring over the winter crops, or harrowed in with the seed of the summer crop. Sickly winter crop will be thereby very soon improved; their colour will change into dark green, which is owing to the ammoniacal salts. It destroys almost immediately [?] the Moss of the meadows, as these plants cannot bear ammonia at all, as we have seen when speaking of the manure with urine. A top manure of soot over Clover will yield a most striking result, which is owing to the gypsum it contains; but in order that it may act efficiently, wet weather is wanted—in dry weather it may even be hurtful, as the plants will then receive too concentrated food. Its effects last but one or two years. The decompositions which it effects in the soil are of no consequence.

At some places, soot, previous to being used, is mixed with lime and earth. But before the lime-dust is added the soot and earth must be well mixed together, and left lying in a heap for 8 or 10 days. After the lime has been added, the mixture is to be left lying in heaps for 4 or 6 weeks; then it is well worked up and used as top manure. The proportion in which these substances are mixed together is 1000 lbs. soot, 1000 lbs. lime, and 10,000 lbs. earth; the latter, however, must be very rich in humus, or the lime will expel the ammonia of the soot.

On Building-rubbish as Manure.—The rubbish of clay, lime, or stones, obtained by the pulling down or repairing of old buildings, may be used to advantage as a manure, especially if derived from buildings which were tenanted by either man or cattle; because in that case it will contain saltpetre and ammoniacal salts, as these are always formed where animal putrefaction and decomposition is going on. Previous to being carried on the field it must be well mixed, broken in small pieces, and freed from large stones; it is also to be protected from much rain, which would soon extract the saltpetre and the ammonia salts. The amount of lime, loam, and even gypsum, which it contains constitute its value, as well as they regulate the quantity which is to be brought on a certain area. At times it may be advantageous to mix the rubbish with humic earth in a compost-heap, in which case it must be well broken to pieces and sifted.

A still better manure is the rubbish of burnt-down buildings; because it consists of wood-ashes, soot, much ammonia, saltpetre, lime, gypsum, roasted and burnt clay, &c. It is to be broken into small pieces, freed from wood, stones, &c., and soon used; else it would lose some of its ammonia.

Besides the mineral substances already mentioned, in many cases also the common earth can be used as a manure or corrective of the soil; because one kind may contain substances which another is deficient in, and *vice versâ*. It is not seldom that fields in one place contain too much clay or sand, which they are deficient in at another; in which case such earth may be mutually exchanged and transferred. Such a mixture of the furrow-slice always improves the condition of the soil; still it requires, in order to be done effectively, a perfect knowledge of the different sorts of earth, and nothing will be better than to resort to a chemical analysis.—*Sprengel.*

Home Correspondence.

Electro Culture.—The experiment of Dr. Forster having excited much interest, anything tending to corroborate it seems deserving of attention. Having planted an Onion-bed in rows, I erected the apparatus over one portion. On the seed coming up, that within the wire appeared to be the first; it has advanced since so as to remove all doubt; and at present, of the many who have examined it, I have never known one dispute the superiority of the electrified square. I have also inclosed four acres of Barley by two parallelograms. I am afraid, however, that large areas will have a trifling success, and that figures, long and narrow, are best adapted for receiving any benefit the scheme may be found to give. I was the more induced to venture on these experiments by having myself made already some abortive attempts. I inserted in the ground two sheets of copper and zinc, at a certain distance, and connected them by copper wire in the air. The seed sown under the wire grew with great vigour, but not having made a distinct patch I had no means of comparison—in fact, I had expected the effect to take place in the line of the connecting wire. If our hopes of the power of electricity should be realised, I still think that this method, first, I believe, suggested by Mr. Bain, is the best means of applying it.—*Beta.*

Pigeons.—When I was a pigeon-fancier, I had what I consider a much better plan than plucking out the wing-feathers, recommended by one of your correspondents. I had found that my newly-bought pigeons were apt to fly away when they were liberated; and, in the first instance, I plucked their wings, as recommended by your correspondent; but I found these primary quill-feathers were a long time in growing again, and the pigeons were in danger of being caught by the cats, &c. I therefore tied five or six of the quill-feathers with a waxed thread, as being less liable to slip than common thread; and I found a fortnight's tying was quite long enough to get the birds acquainted with the place, as they never flew away when this plan was adopted.—*T. G., Clitheroe.*

The Pip or Gapes.—Last year I lost a fine young cock by this complaint; this winter I had another in the same way, I asked a neighbour what was a good thing for it, he caught the cock and pulled off the tip of his tongue which was white and dead, therefore had not strength to feed; he was very bad, but it saved him, and he is all right now.—*N. N.*

Bone Crushing Machine.—In answer to "A Constant Reader," I have only to say that the machine is very good for breaking oil-cake and stones, and does the bones very well, only it takes some time to do a quantity; the price is 4*l.* 4*s.* I have one or two in use, and will send "A Constant Reader" one, if he likes to have one, and lives in one of the counties near Gloucestershire. Will you inform me whether bones and sulphuric acid will do to mix with guano or dried night soil? [Perfectly.] And whether the hybrid and green-crown Turnips can be secured in the field in small pits during winter like Swedes? [They can in ordinary seasons, but they should be all consumed by January.]—*A Farmer.*

Wheat.—I have been pleased with the substance of your leading article on the prospective development of Wheat, at the present critical period, when its proportionate yield may be increased to an enormous extent by a knowledge of causes, and an appropriate application of means. I will only say a few words on morphology, a theory which, however beautiful it may appear, does not seem to admit of demonstrative evidence. But I may be permitted to enter my protest against that abominable *Cri à L'Athée*, by which a spirit of pure and simple research has been assailed. But let this pitiful affair go by—you speak of the Wheat-plant, and of that "proper treatment"—by top-dressing or otherwise, which might treble the produce of our fields. The process of dibbling has been under trial with me for two seasons, and I last year exhibited a set of plants from about 38 seeds, sown in one row, at 8-inch distances, which average from 5 or 6 to 13 or more ears from each seed. I took no pains at all with the growth during the extreme drought of 10 weeks; and birds destroyed the grain. However, the ears proved what the produce might have been, and this solely from thin sowing. But there is one circumstance attending the tillering of autumn-sown Wheat, which I have rarely seen noticed, though it is known to many. In ordinary seasons, the plant forms a ring or collar, about 1 inch above the original winter roots, and from that collar branch forward all the secondary plants, or tillers, which produce the supernumerary ears you allude to. Until the month of March, the first-formed leaves are supported by the few fibrous roots that emerge in autumn; hence, as these trace the surface soil only, the Wheat-plant is frequently disrooted by severe frost, and by fierce wind. In March, however, when a tiller is protruded, a second series of roots emerge connected with it, and these are more fleshy, and tap perpendicularly towards the sub-soil. Strange to say, in this backward season, this second process is far more inert, and the plants now (April), assume more closely the habits of spring Wheat, which does not develope two sets of roots, but taps at once. I send a specimen of White Suffolk



Wheat, sown late in October, just raised from the soil. Below *a*, we have the early or winter fibres; at *b*, the ring or node, whence the first tiller arises, and below it is the rudiment of the real, or tap-root: at this period of 1844, or rather a month earlier, this root was an inch long, firm and vigorous. The whole process however is one of deep interest, and adds force to your observations; it also speaks volumes for thin sowing.—*J. Towers, Berks.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's House, in Hanover Square, on Wednesday last, the 7th of May; present: The Right. Hon. Earl Spencer, in the chair: Viscount Hill, Hon. R. H. Clive, M.P., Colonel Austen, M.P., T. R. Barker, Esq., J. R. Barker, Esq., J. Beard, Esq., S. Bennett, Esq., W. R. Browne, Esq., F. Burke, Esq., Rev. T. Cator, Colonel Challoner, F. C. Cherry, Esq., Rev. J. Y. Cooke, H. Colman, Esq, W. Y. Freebody, Esq., H. Gibbs, Esq., B Gibbs, Esq., S. Grantham, Esq., W. F. Hobbs, Esq, R. Hodgkinson, sen., Esq., W. H. Hyett, Esq., Sir J. Johnstone, Bart., M.P., S. Jonas, Esq., G. Kimberley, Esq., J. Kinder, Esq. R. Milward, Esq., E. S. Chandos Pole, Esq., H. Price, Esq., F. Pym, Esq, J. A. Ransome, Esq., Professor Sewell, W. Shaw, Esq., J. V. Shelley, Esq., R. A. Slaney, Esq., W. R. C. Stansfield, Esq. M.P., J. Turner, Esq., S. Wilbraham, Esq. M.P, and F. Woodward, Esq. F. R. Westwood, Esq., of Arnwood House, Lymington, Hampshire, and Ruthin Castle, Denbighshire, was elected a Governor, and the following gentlemen Members of the Society:—

Arundell, Hon. Robert A., Houghton Lodge, Stockbridge Hants

Neave, Richard Digby, Pitt House, Epsom, Surrey
Kynaston, Sir John Roger, Bart., Hardwick, Shrewsbury
Bibby, Thomas, Llanfyllan, Oswestry, Salop
Williams, H. Lloyd, Llanfyllan, Oswestry, Salop
Smith, Sir William, Bart., Eardiston House, Worcester
Pierpont, Matthew, Crow's Nest, Worcester
Corbet, Andrew William, Sundome Castle, Shrewsbury
Pratt, Edward, Sedlescomb, Battle, Sussex
Applewhaite, Edward, Pickenham Hall, Swaffham, Norfolk
Lowe, Joseph, Hill Hall, Bardfield, Braintree, Essex
Pyne, William, 4, Inner-Temple-lane, London

The names of 24 candidates for election at the next meeting were then read.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, reported to the Council the purchase of 500*l.* stock in the 3¼ per cents., agreeably with their order to that effect at a former meeting; and the amount of capital then invested in the names of the Trustees of the Society, as standing accordingly at the increased sum of 8200*l.* stock: the current cash balance, in the hands of the bankers being 1558*l.*

Shrewsbury Meeting.—The report of the General Shrewsbury Committee was read, and the recommendations it contained of Messrs. Bathe and Breach, of the London Tavern, Bishopsgate, being accepted as the contractors for the supply of the Council dinner, and Messrs. Chune, of Shrewsbury, as the contractors for the loan of 1700 Wood Hurdles, to be hired for the construction of the pens in the Show-yard, unanimously adopted.

Trial of Implements.—Mr. Shelley presented the Report of the Committee on the trial of Implements, which was adopted and confirmed.

Judges of Stock and Implements.—On the motion of Mr. Fisher Hobbs, it was resolved, that the following Committees should be appointed for the purpose of carrying out the resolutions of Council on the 4th and 14th December, and 5th March last, "That in future the judges of Stock and of Implements should be appointed by the Council, from a list of nominations made by the members at large at a General Meeting, and on the report of committees, to whom such lists should have been respectively referred; no member being allowed to interfere either directly or indirectly in the nomination or appointment of a Judge in any class in which he himself intended to be an exhibitor."

Committee on Stock.—Earl Spencer, Mr. Shelley, Mr. Charles Stokes, Mr. Fisher Hobbs, and Mr. Shaw.

Committee on Implements.—Earl Spencer, Mr. Shaw, Mr. S. Bennett, Mr. Shelley, and Mr. Pusey: any one of those gentlemen being precluded from acting on the committee, to which he was then named, in the case of his intending to be an exhibitor in the department to which the committees respectively belonged. The Council decided that under this new regulation for the selection of the Judges it would be open to the members of the Society at large to communicate their nominations of gentlemen willing to act in that capacity at the Shrewsbury meeting, by the personal delivery of their lists to the President at the ensuing General Meeting of the members at 12 o'clock on Thursday the 22d of May, or by transmission of them by post, so as to reach the Secretary by the previous day, and be laid by him, in their names, before the President at that meeting on the day following.

Country Meeting of 1846.—The Report of the Committee of Inspection, consisting of Mr. H. S. Thompson, Mr. H. Gibbs, and Mr. B. Gibbs, who had visited Newcastle-on-Tyne, agreeably with the directions of the Council, and examined into the suitableness of the proposed sites and localities, for the purposes of the Country Meeting next year, having been read, it was moved by Mr. Shelley, and carried unanimously, that the Annual Country Meeting of the Royal Agricultural Society of England, for the Northern District, comprising the Counties of Northumberland, Cumberland, and Westmoreland (including Berwick-on-Tweed), should be held, in the year 1846, at the town of Newcastle-upon-Tyne.

Annual Country Meetings.—Mr. Gibbs read to the Council a series of points connected with the selection of places for the Country Meetings, on which it was desirable that full information should in future be obtained prior to the decision of the Council being finally taken on the subject; and concluded by giving notice at the next monthly council, he should move their consideration and adoption.

The Duke of Richmond transmitted documents from his Excellency the Belgian Minister, connected with the sanitory measures in reference to the epidemic among cattle in that part of the Continent. Lord Prudhoe and Mr. Henry Hudson suggested a prize for the best mode of keeping farm-accounts; and Mr. Rees, of Carnarvon, applied for facilities in the task he had undertaken of distributing among the farmers of North Wales translations into Welsh of such agricultural papers as had a practical application to their own purposes.

The Council then agreed to the recommendation for election of Members of Council to be made to the ensuing General Meeting, on the 22d of May, and to a Provisional Prize-sheet for the Newcastle Meeting; and having postponed the consideration of the plan of a Veterinary College proposed to them by the Highland and Agricultural Society of Scotland, to a future Monthly Council, and the final arrangement of the Report to the General Meeting to such Special Council as the President might direct to be summoned, they adjourned to the Weekly Meeting on Wednesday next, the 14th of May.

AGRICULTURAL CHEMISTRY ASSOCIATION.

At the meeting of this Society on the 9th ult., Professor Johnston gave a report of his proceedings since the last meeting of the committee. He called the attention of the meeting to what had been done in the laboratory since the last meeting. At that time he took occasion to mention the slag from iron furnaces, which Mr. Houstoun, of Johnstone Castle, can get crushed for a shilling per ton. Its value depends on the silicate of lime it contains; its action is not so immediate nor so valuable as quick-lime, and it is of comparatively little value where that substance is abundant and cheap; but where it is close at hand, and lime is high in price, or has to be brought from a distance, it might be applied with advantage, such, for instance, is the case at Muirkirk. At the last meeting he felt it his duty to give his opinion on the Cornwall patent manure. This had called forth an advertisement, which had appeared in some of the Edinburgh papers, from the manufacturers of that substance. It was his duty, however, to give his opinion honestly and faithfully, when consulted as to what might or might not be of benefit to the members of this Association, and no proceedings such as were threatened by those gentlemen should deter him from doing so. The attention of the meeting was then directed to the value of several limestones. In developing the agricultural resources of a county, the want of lime in many places is felt as a great evil; anything, therefore, that will remove this, must be of corresponding benefit. It was his duty, therefore, to make known the good qualities of any limestones sent for analysis by members of the Association. This has already been done in several instances, as may be seen in the printed report of its proceedings, where there is mention of a limestone from Inverness. Mention was here made of several limestones from the neighbourhood of Edinburgh, two of them from Mr. Greenhill, of Bruntisland, an analysis of one of which he was permitted to publish. The one is found immediately above the other, but though so close together they are different in quality, the lower containing more magnesia than the upper, and therefore not so good for agricultural purposes, though well adapted for building. The following analysis will show the composition of the upper one, which is the purest, and therefore best fitted for agricultural purposes. He mentioned that specimens of the limestone, and also of several others which were subsequently referred to, were on the table for the inspection of the members:—

Carbonate of Lime, ...	95.84
Carbonate of Magnesia, ...	0.84
Alumina and oxide of iron, ...	0.46
Insoluble silicious matter, ...	2.68
	99.82

There has also been examined a limestone from Broxburn, which lies a few miles to the west of Edinburgh. This is not so pure as to serve for agricultural purposes, but it is valuable as a cement, as may be seen from the specimens submitted for inspection. Several iron-stones of the true black band variety have also been examined, but these were not sufficiently interesting to occupy the meeting. Among other substances sent for examination with the view, was the first water in which Barley is steeped for 24 hours by the maltster. This water is at present allowed to run off, but it has been found to contain a large quantity of solid matter (about 26 grains to the half-pint). This liquor, if mixed with urine, might be beneficial as a manure, but another and further examination will show its merits better. In the steeping of Barley, as is well known, the grain is allowed to sprout, but its growth after it has gone a certain length is stopped, and the sprouts fall off. In the neighbourhood of Durham, these sprouts sell for about 1*s.* a basket. Mr. Houstoun sent a portion of these for analysis: this has been done, and some curious facts have resulted therefrom. It has been found that they leave 10 per cent. of ash; and 25 per cent. of it consists of phosphates which are so valuable in other manures. The sprouts also contain the elements of ammonia, and 15 parts of silica. This last is a curious fact, as the Barley itself scarcely contains any; this silica is contained in the husk which sticks to the seed, and it appears, therefore, that the Barley derives its silica from the plant—not like Wheat, which takes its silica directly from the soil. Mr. Houstoun has made a contract with some maltsters in his neighbourhood for this substance, and Prof. Johnston recommended that others should do the same, as he was sure that it would remunerate the purchaser at a reasonable price. Another topic of great importance to the farmer is, the action of sulphuric acid on bones: and the more important, as guano, in a few years, may fail, and it will require to be replaced by some other substance, and this may be done by bones, of which there is always a constant supply. They being of great value to the farmer, will now become of still greater when guano fails. Bone consists chiefly of two substances—first, gelatine, which can be extracted by boiling in water; and also by the process which was exhibited (that of steeping the bone in dilute spirit of salt). The former method is used for making glue or gelatine. If the bone be burnt in the fire it sometimes retains its form, but becomes more white and easily crumbles down to powder; this is the second substance, namely, the bone-earth, which consists chiefly of phosphate of lime, with a small quantity of phosphate of magnesia, carbonate of lime, and other matters. When either of these substances (the gelatine or bone-earth), are applied to the soil, they are found highly favourable to the growth of plants; but if the bones be boiled in water, and the resulting liquid applied, as is done about Manchester, it produces a decided improvement; and if the bone-earth be reduced to powder and applied alone, it also produces good effects, though not so apparent as when both are applied together. But when sulphuric acid is poured upon bones reduced to powder, certain substances are produced, as gelatine, sugar, or glycerine. This substance contains nitrogen in a form which may be converted into ammonia, and which by itself is capable of entering the roots of plants from its solubility. (The proportion in which sulphuric acid is added to bones is either half a pound of the former to a pound of the latter, or weight for weight.) By the action of sulphuric acid on bones, gypsum and bephosphate or superphosphate of lime, as it is sometimes called, are formed. These being soluble in water can be taken up by plants, and thus the materials of which they build their frame are placed within their reach. This superphosphate is of great consequence, as from some recent experiments which have been made with it, it has been found to produce very striking effects, such as the following:—Clover has been increased one half; and its effects on Wheat have been marked when used as a top-dressing. Wheat, without a top-dressing of this substance, yielded 29½ bushels; with a top-dressing 53 bushels, or nearly double. It has also been found to produce a greater effect than 3½ cwt. of Peruvian guano, the cost of each manure being the same (namely, 42*s.*); and Sir John Ogilvie has found it to answer better than guano for Turnips. The Professor here stated, that his recommendation of these or any other manures, was not for the purpose of aiding any manure-manufacturer, but from a thorough conviction that they were likely to prove of advantage to the members of the Association. By the action of sulphuric acid on bones (one of acid mixed with twice its bulk of water), effervescence is produced; this soon ceases, and a greyish pulpy mass is left, which only requires a little bone-dust or sawdust, which should be charred on a hot plate, to make it capable of sowing by the common drill. This in practice has been found to be of great advantage, as some gentlemen have tried 4 pints of it, others 2 pints, and found that it produced the same effect as 16 pints of the bones applied in the usual way. It was here urged on members of the Association to try these experiments on portions of their land, before the want of guano might oblige them to do so on a large scale. Another method of using it is with a large quantity of water, and applying it in the liquid form, as the great advantage of applying manures in the liquid state is every day becoming more apparent. It is more effective than applying the dry bones, as it is spread more completely over the land, and the roots of the plants do not require to spread out their fibres in search of food, as it is here brought to them in a state fit to be taken up. It is well known to practical men that bone-earth is not found to answer in stiff or clayey soils, so well as in open or Turnip-soils: the reason of this is, that in the former, where the bones are used in a crushed form, each particle of bone becomes covered with a coat of clay, which excludes the air, and prevents its decomposition: now this might be obviated by using them in the liquid form, which will give a greater benefit without this evil occurring. In the last Doncaster Report, the action of bones is said to be greater when used along with rich compost, than when they are mixed with farm-yard manure or used alone. This may be explained in the same manner as already done, as also many other effects of bones with which we are acquainted. Before concluding, a few observations were made on several samples of guano that had been sent in for analysis. There was one analysis, the Professor here stated, that had been sent to him for his opinion, by Mr. Stirling, of Kenmure, and from the manner in which it was reported, he had no hesitation in saying that such a guano had never been imported into this country; and that the analysis (as any one in the least acquainted with chemistry might see) was made by a person totally incompetent to do it. I am permitted to give a copy of the analysis. It is said to be that of a cargo from Ichaboe.

Urate, Muriate, Phosphate,	of ammonia,	36.14
		9.08
		22.70
Hychosuphate		6.89
Oxalate and phosphate of Lime,		13.33
Silica, &c.		5.00
Water, ...		6.00
Loss by analysis, ...		0.86

There was also another sample sent by a member of the Association, and, though many guanos had passed through the Professor's hands, still from the appearance of this one, he thought it a good one, as it was said to be Peruvian, but on analysing it he was greatly disappointed to find, that what he thought might be worth 7*l.* or 9*l.* a ton, was not worth 4*l.*; thus showing that even the most experienced may be deceived by the appearances presented. The following is a copy of the analysis which is allowed to be inserted in your paper:—

Water, ...	14.75
Organic matter and ammoniacal salts	13.71
Common salt, with a little sulphate of soda	25.74
Phosphates of lime and magnesia, ...	38.06
Carbonate of lime, ...	5.17
Insoluble silicious matter, ...	2.57
	100.00

The last sample of these guanos which were exhibited was, from its dark colour, not likely to be a good one, but it was even worse than was anticipated, by the

proof, containing as it does, above 20 per cent. of stones and sandy matter, as the analysis shows—

Water,	... ...	24.47
Organic matter and ammoniacal salts,		20.61
Common salt, sulphates, phosphates of potash, and soda,	... ...	9.34
Phosphates of lime and magnesia,	...	22.67
Carbonate of lime,	... ...	0.50
Insoluble silicious matter, consisting of		
a large stones,	...	9.52
b sandy matter,	...	12.89
		100.00

The Professor stated it to be his object in mentioning these things, to put the public and the farmers of this country on their guard against such impositions, and to let them know that there was a source where they could apply to discover their frauds; and he further stated, that he was always ready to give his opinion upon these topics to members, when called upon to do so, free of charge. Several very curious specimens were on the table, especially one from Mr. Balfour, of Balbirnie, of a deposit which had taken place in a wooden pipe used to convey water from a mine. A perfect stone pipe had been formed within the wooden one, and which could not be distinguished from wood, except by the touch and weight—the wooden pipe being so exactly represented by the deposit.—*Abridged from the Ayrshire Agriculturist.*

Reviews.

Mr. Donaldson's Introductory Lecture delivered at Hoddesdon, Herts, on the opening of the Agricultural Training School there, on the 16th Jan., 1845.

The means of agricultural instruction for all classes seem to be rapidly extending. For the labourers, there are in many places schools on the self-supporting plan of the late Mrs. Gilbert, in which the children acquire dexterity in manual operations as well as an acquaintance with good spade-husbandry, at the same time that they are also learning to read and write. In the parochial schools of Scotland the rudiments of agricultural chemistry and of the theory of farming generally, are being taught to the sons of farmers; and in many of the schools in Ireland the same addition to the ordinary branches of education are being adopted. Thus, in a letter by Dr. Kirkpatrick, county Antrim, lately published in the *Inquirer*, we find the following reference to Larne National Schools:—

"It is now three years since agricultural instruction was introduced into the Larne National School, and the result has most satisfactorily proved, that the rudiments or principles of agricultural science may be successfully taught in connection with the ordinary branches of school education, without interfering in any degree with the usual course of literary instruction. The principle which has been thus established by means of our institution—that of combining agricultural with elementary instruction in our common schools—is about to be extensively carried out in Scotland. A public examination of a few of the scholars from the Larne school took place in Glasgow, in August last, before the Agricultural Chemistry Association of Scotland; the meeting was presided over by the Lord Justice General, and was attended by a large concourse of gentlemen, eminent in scientific and practical agriculture, who subsequently resolved—'That they thought it of importance to express their conviction, from what they saw and heard, that it is possible to impart to very young boys much agricultural instruction, which will be of use to them in after-life: that it is practicable to impart it without the erection of any new machinery, and without interfering with the ordinary course of instruction in our common schools; and that it is highly desirable that some steps should be taken for the purpose of introducing such instruction into the parish and other elementary schools, especially in the rural districts of Scotland.' I know of no means so likely to effect a change in the habits and condition of the small farmers of Ireland especially, and to remove those ignorant and prejudiced views which not only retard agricultural improvement, but, as a necessary consequence, also perpetuate poverty and wretchedness, as giving the young of the rising generation lessons in industry and the skilful management of their affairs, and I therefore trust, that the example set by the Larne school will be very generally followed."

It appears that the system pursued in combining agricultural and elementary instruction at these schools is the following:—

"Half-an-hour on three days in the week is set apart for giving instruction on agricultural subjects. This instruction is given by way of lecture, the boys at the same time taking notes. They are questioned on alternate days on the subject previously discussed, and are required to write out in their leisure hours at home, as fully as the notes they have taken enable them to do, the substance of the matter brought under their consideration. This method not only affords them an opportunity of acquiring theoretical knowledge, but it also forms one of the best exercises in spelling and composition. Theoretical knowledge, however, is not the only thing aimed at; an acquaintance with the practical operations on the farm is also attended to. For the attainment of this object, the boys are taken out to the farm in classes, generally accompanied by the teacher, who explains to them the manner in which the different operations are performed. They are then engaged at whatever light work may be in progress of execution, and after having been employed the specified time, they are replaced by another class. In this way one class replaces another successively, by which mode of procedure a thorough acquaintance with the performance of the various operations is obtained by all."

Among the subjects thus brought under their notice are the principles of chemistry, both organic and inorganic, so far as is considered necessary for a practical farmer. The formation, nature, physical properties, and best methods of improving the different soils. Draining, trenching, subsoil-ploughing, and the principles upon which their efficacy depends. The nature, constitution, and properties of the different manures—animal, vegetable, and mineral. The best and most economical methods of collecting and preserving manure and compost heaps. The different rotations of cropping, as applicable to the various kinds of soil. House-feeding of cattle and its advantages. The errors at present prevailing in Irish husbandry, with a view to their removal. The structure of plants, and the mode in which their nourishment is obtained. The exhausted state in which the soil must be left by the production, in succession, of grain crops. The best methods of cultivating the different crops. The selection and proper division of farms.

In addition to these, which may be considered as among the more elementary schools, we now have boarding establishments for the sons of gentlemen, holding out among their numerous advantages the means of more advanced instruction in the theory of agriculture. And lastly, we have Agricultural Colleges expressly devoted to systematic instruction in the theory and practice of farming.

We have already alluded to that which is being established at Cirencester. While the plans of its managers are gradually but surely progressing towards successful development, a "training school" has started up in full-grown activity at Hoddesden, Herts, at which, besides the ordinary branches of a good education, the sciences on which agriculture depends, and the practice of farming itself, are also taught.

We have before us the lecture of Mr. Donaldson, introductory to a course on agriculture, delivered on the 16th of January, at the opening of this School, and shall make such extracts from it as will illustrate the nature of the course on which he has entered. It is necessarily of too general a nature for us to transfer wholly to our columns as we have been kindly permitted to do, should it be deemed advisable. Mr. Donaldson commences with a consideration of the general advantages of education.

"In whatever light we view education, it cannot fail to appear the most important subject that can engage the attention of mankind; for when we contrast the ignorance, the rudeness, and the helplessness of the savage, with the knowledge, the refinement, and the resources of civilised man, the difference between them appears so wide, that they can hardly be regarded as of the same species. Yet compare the infant of the savage with that of the most enlightened philosopher, and you will find them in all respects the same. The same high capacious powers of mind lie folded up in both, and in both the organs of sensation, adapted to their mental powers, are exactly similar. All the difference which is afterwards to distinguish them, depends upon their education. While the mind of the savage, left entirely neglected, will scarcely raise him above the level of the animals around him—insensible to all the wonders of creation, and shut up from all the treasures of nature—the more fortunate member of enlightened society, whose capacities shall be evolved by a proper education, will comprehend within the ample range of his intelligence, the universe of God; all the beauties of nature will lie unveiled before him, nature will unlock to him her sacred stores, and reveal her secret laws; the powers of other creatures will become subject to his control, and the faculties and attainments of men will be made subservient to his advantage and to his delight. Such is the importance of education to the intellectual improvement, and consequently to the happiness of man. But it is not by his intellectual improvement alone that he enlarges the sphere of his enjoyment. It opens to him sources of still more exquisite pleasure, in the moral and religious tendencies of his nature. The barbarian and the civilised being, opposite as they appear, are formed originally after the same image. It is to education alone that the civilised and enlightened man owes all his superiority."

The lecturer then gives a sketch of the history of agriculture and of agricultural literature, and concludes with a definition of farming, an account of the theories which have been broached to account for the formation of soil, the basis of the art, and a syllabus of the course of lectures on which he has entered.

"The whole art of agriculture has been very correctly and concisely defined in two Latin words, *Arare et Stercorare*, or, in English, to plough and manure; a sufficiently correct definition, certainly, but wholly depending on the modes and ways in which the two operations or processes are performed.

"It is the generally received opinion of the formation of soils, from the detrition of rocks by the force of external agencies, that the disintegrated materials have been carried by floods to the ocean, and there accumulating, are formed into horizontal layers. But the decay of rocks themselves must be very gradual; in some dry countries, inscriptions are perfect, and the angular edges and shapes are but little blunted or altered, after a lapse of 20 centuries. The formations that are taking place in the present quiescent state of the globe, are made by the sea, fresh-water rivers, and by lacustrine deposits, from substances collected and rolled along by the course of the waters over the earth. The depositions go on in many places, visibly, though slowly; but we know little of the processes by which the vast alluvial deposits have been made in all the different arrangements, mixtures, and combinations, to the depth of several hundred feet, and extending over vast tracts of various and discordant qualities; or of the means employed by nature in the process of alluvial deposition from the detritus accumulated at the foot of mountains, from the decomposition of rocks, and of the subsequent removal and consolidation; or even of the operation by which animal and vegetable exuviæ are converted into soil. But these petrefactions and organic remains would seem sufficient to place one fact beyond dispute, that the globe has undergone many extensive changes; and it is not a little curious, that they are confined to particular formations, and are not found in contiguous strata, and that the remains of trees and vegetables are found only in some few similar situations. Soils are often found to contain substances that do not exist in the rocks on which they rest; and rocks frequently possess materials, of which no vestige can be detected in the upper soil, and which, being destructible, would be found in some degree or quantity, if soils were derived from the adjacent formations. These circumstances would appear to indicate, that other agents than detrition have been at work in the production and creation of soils."

From the index given at the end of this lecture, to the nature of those which are to follow it, we have no doubt but that Mr. Donaldson's course of lectures on agriculture will be of great use to those attending it who may afterwards undertake the occupation of the farmer.

Miscellaneous.

Feeding of Animals (*Boussingault, vol. ii. p.* 396).—The determination of the relative nutritious qualities of food, from the proportion of azote which they contain, is far from being free from objection; it has a tendency to make the equivalents too low by overrating the quantity of animal matter. A very small part of the azote obtained by analysis may arise from the nitrates which occur in plants, and which are of no use as regards nutriment. This source of error is, however, in general, scarcely appreciable; but there are leaves and roots which, in certain soils, and those almost free from nitre, are extremely rich in nitrates. It is to this circumstance that I attribute the anomaly presented by the leaves of Mangold Wurzel. In estimating the azote I confine myself to ascertaining the proportion of animal principle contained in any given nutriment. It is that principle which, though small in amount, it is most important to estimate, as beyond all doubt the relative value of different kinds of vegetable food depends on the degree in which it is present. The other non-azotised principles, such as sugar, starch, and gum, form the greater part of vegetable food, and almost always bear a large ratio to the azotised matter. These substances are indispensable. In the process of digestion the amylaceous fecula is changed into gum and sugar, which are then directly absorbed. The fatty matter becomes divided into infinitely small particles, and thus forming an emulsion gives rise to the adipose tissue; the woody fibre, on the contrary, at least in the state in which it exists in plants, does not appear to conduce directly to nutrition; it is found almost unaltered in the excrement. These principles having been admitted, it is easy to perceive that it is by no means a matter of indifference that, with a given proportion of animal matter, a certain larger proportion of starch, sugar, and woody fibre, should coexist. The starch and other non-azotised substances concur evidently in the process of nutrition, whilst the woody fibre is simply inert, exercising merely a mechanical action, and either helping to divide the contents of the stomach, or serving as a sort of ballast. Hay and Potatoes, reduced to the same degree of dryness, contain almost the same proportions of azote, viz, 1.3 and 1.5 per cent., that is to say, about 8¼ per cent. of animal principle. In dry Potatoes the remaining 91¼ parts are formed almost entirely of starch. In hay, on the contrary, there is a very large proportion of woody matter in the residuum. These facts will explain why, notwithstanding the same proportion of animal matter*, Potatoes are really more nutritious than hay, on the probable supposition that the woody matter does not contribute to nutrition. To give then to one table of equivalents all possible precision, we must determine, for each kind of food, the quantity of organic matter which remains undigested. I do not, however, attempt this just at present. By the help of these new data, we should have for each kind of food three elements to enable us to compare its nutritious powers, viz., the proportion of azotised matter; that of non-azotised matter, as sugar, gum, starch, and pectine; and thirdly, that of indigestible substance which must be allowed in the weight of a given meal. The determination of the azote does not enable us to appreciate the different non-azotised substances which enter into the composition of any kind of food, or rather it shows us, though not with rigorous precision, that these substances are the complement of the animal principle. This, it must be confessed, is an inconvenience in the method which I have proposed. But the inconvenience is not so great as might be supposed, because the nutritive powers of the azotised matter, which it is of the highest importance to estimate accurately, are incomparably greater than those of starch, of sugar,

* It must be remembered that the author is speaking of Potatoes divested of their moisture.

or oily substance, which exist without exception in vegetable food. I have chosen, as an example, hay and Potatoes, because they differ as much as possible in their composition and nature; nevertheless, their relative equivalents deduced from their respective proportions of azote agree as nearly as one could wish. In fact, theory indicates 300 as the equivalent of raw Potatoes, that of hay being 100; and after long-continued experiments on the feeding of horses, I do not think it would be prudent to substitute less than 200 lbs. of Potatoes for 100 lbs. of meadow hay.—*M. J. B.*

Notices to Correspondents.

Rural Chemistry—By E. Solly, Esq., F.R.S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all booksellers, price 4*s.* 6*d.*

Agricultural Statistics—*Inquirer*—The average rent of land in England is said to be 18*s.* 10*d.*, and that of Wales, 9*s.* 5*d.*; the average of England and Wales, 17*s.* 8*d.* The produce of Wheat in England and Wales is probably under 21 bushels per acre.

Bone-dust, &c.—*E B N*—Apply Bone-dust on your light land, 16 bushels per acre, and guano mixed with dissolved bones, on your clay-land; 2 cwt. of the former, mixed with 1 bushel of the latter per acre. On the other piece you mention, apply 1 cwt. of guano, mixed with 4 bushels of bones dissolved in 100 lbs. of sulphuric acid, and dried with half-charred sawdust, if you can get it, per acre.

Books—*W M P*—There is no complete work on Drainage, as practised by Mr. Smith, of Deanston. That gentleman published a tract on the subject in the Third Report of "Drummond's Agricultural Museum." Stirling, N. B.

Distance of Plants—*A B*—Lucerne, about 10 ins. apart; Carrots, eight in the row. Your proposed dressing will answer perfectly.

Draining Tiles—*T G*—We shall be able to give you the required information next week.

Food for Horses, &c.—*Rusticus*—See Mr. Mechi's paragraph at p. 60. Urine fixed with sulphuric acid, unless too much acid has been used, will not act on the metal of your watering-can. We should apply the liquid in wet weather *without any* dilution. For your other question next week.

Foot-rot—*F H S*—See "Notices to Correspondents" last week.

Guano—*T C*—Read this and last week's Leaders; you had better apply nitrate of soda, 1 cwt. per acre, broad-cast: we cannot tell you where to purchase here—for *that* read our advertising columns.

Quality of Manure—*Rus in Urbe*—It is generally understood that the following is the order in which domestic animals stand as regards the quality of their manure, beginning with the best:—The pig, horse, sheep, fat ox, store cattle, milch cow; but it will easily be understood that the quality of the manure must depend upon that of the food. The elements of bacon, taken from the ordinary food of fatting pigs, you will at once see must have something more valuable as manure than that which is left of Grass when the elements of milk are removed from it. As regards your other question, in our ignorance of the wants of our land, it is always best to use as compound a manure as possible.

Sliding Harrows—*G* should apply to Mr. White, drill-maker, &c., Evesham; or to Wm. Andrews and Joseph Sherwood, of Wick, near Pershore, Worcestershire; or if he please, he may communicate with "H" through us; in that case he should send us his address.

Sow and Pigs—*Constant Sub*—In addition to the Cabbage-leaves, &c., give her a little Linseed jelly.

Threshing Machines—*J Usher*—No such objection as that you urge against them is made in Scotland, where maltsters probably look as sharply after their own interests as they do here. The flail there is only to be found in "old curiosity shops."

Tropical Agriculture—*J D Wilson*—Will any one inform our correspondent what kind of one-horse plough, and two-horse plough, with their respective weights, is best suited for the West Indies? The land is stiff, and becomes very hard under a hot sun. The difference between spring and winter Tares is, we believe, one merely induced by different treatment of the same plant. The Winter Tare has acquired hardiness by its treatment. On the land to be laid down, we should recommend a well-cultivated Turnip-crop this year, and a light seeding of Barley next year, with the following mixture of Grass-seeds per acre:—Alopecurus pratensis, 1½lbs.; Dactylis glomerata, 4 lbs.; Festuca duriuscula, 2 lbs.; F. heterophylla, 1 lb.; F. pratensis, 2 lbs.; Lolium perenne, 10 lbs.; Phleum pratense, 1lbs.; Poa trivalis, 2lbs.; Medicago lupulina, 1 lb.; Trifolium pratense perenne, 3lbs.; Trifolium repens, 4lbs. About the other question next week.

Miscellaneous—*Melibœus*—Mr. Robinson, Lisburn, Ireland. Can any one tell our correspondent what is the best churn for use, where 10 to 20 lbs. of butter are made per week?

*** As usual, many communications have been received too late.

Markets.

SMITHFIELD, Monday, May 5.—Per stone of 8 lbs.

Best Scots, Herefords, &c	4*s*	0 to 4*s*	4	Best Long-wools	—*s* to —*s*
Best Short Horns	3	8	4 0	Ditto (shorn)	4 6 4 8
Second quality Beasts	2	10	3 4	Ewes and second quality	— —
Calves	4	0	4 8	Ditto (shorn)	4 0 4 4
Best Downs & Half-breds	—	—		Lambs	5 6 6 4
Ditto (shorn)	4	8	4 10	Pigs	3 6 4 4

Beasts, 2915; Sheep and Lambs, 20,650; Calves 103; Pigs, 320.

We have a large falling off in the supply of Beasts from last Monday, and the trade is very brisk at prices quoted above. The supply of Mutton is remarkably small, and readily bought up at the above quotations; in some instances the best Short Downs, as also the most selling Long wool, have made 2d per 8 lbs. more than we have stated.—Lamb is also dearer.—Veal-trade is heavy, though in some instances a little better.—Pork-trade is heavy.

FRIDAY, May 9.

The late advance in prices have caused a large increase in our supply of Beasts, and we have a consequent decrease in price. The best Scots, &c., make very little, if anything, over 4*s*; and Short Horns only a trifle over 3*s*. 8*d*. per 8 lbs.; second qualities suffer in like proportion.—The same cause has also operated in binging a large number of Sheep and Lambs to this day's Market, although we still notice a deficiency of good Sheep; we have, however, a rather worse trade, and prices are about 2*d*. per 8 lbs. lower than on Monday last.—Lamb is much lower, and scarcely any make over 6*s*; and many are sold at about 5*s* 4*d*.—We have more than twice as many Calves as on Friday last, the trade is exceedingly bad, this being an article which, at the present time, is selling worse than anything else in the dead Market. It is difficult to make more than 4*s*. 4*d*. of the choicest Veal, and many good Calves are sold under 4*s*.—Pork-trade is rather brisk at late prices.

Beasts, 1091; Sheep and Lambs, 11,930, Calves, 207; Pigs, 298.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 8.

Prime old Meadow Hay	105*s* to 110*s*	New Hay	—*s* to —*s*	Clover	105*s* to 120
		Inferior Hay	95 100	Straw	38 42

John Cooper, Salesman.

CUMBERLAND MARKET, May 8.

Superior Mead. Hay	112*s* to 118	Superior Clover	115*s* to 120.		
Inferior "	95 105	Inferior "	100 108	Straw	38*s* to 43*s*
New Hay	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

WHITECHAPEL, May 9.

Fine Old Hay	105*s* to 110*s*	Old Clover	110*s* 120		
New Hay	90 100	New Clover	— —	Straw	38*s* to 41*s*
		" Inferior	— —		

Supply large and the trade extremely sluggish.

HOPS, Friday, May 9.

The Market is firm without any alteration in prices since last week.

Pattenden & Smith, Hop Factors.

COVENT GARDEN, May 10.—During the week there has been an increased supply of almost all kinds of Vegetables; hothouse fruit is also much more plentiful and of better quality. Trade has been pretty brisk. Among Fruit the chief novelty is a small quantity of ripe Peaches, which are offered at from 18*s*. to 30*s*. per dozen. The price of Pines has not altered since our last Report. Hothouse Grapes are becoming more plentiful; they are chiefly Black Hamburghs, the best of which may be purchased for about 15*s*. per lb.; Foreign varieties are very scarce. The supply of Cherries is still limited. A few green Apricots are to be met with at from 3*s*. to 4*s*. per pottle; green Gooseberries may also be obtained at from 1*s*. 6*d*. to 4*s*. per pottle. Of Strawberries there is a tolerable supply; they have not altered in price since last week. Among Vegetables, the supply of Broccoli has been tolerably good; and Cabbages are also becoming more plentiful. There is a slight decrease in the prices of Asparagus, which is good in quality and pretty plentiful. A few young Carrots and Turnips have been offered, the former bringing from 1*s*. 6*d*. to 3*s*. a bunch, and the latter from 2*s*. to 4*s*. a bunch. The prices of French Beans remain nearly the same as mentioned in last week's Report. Rhubarb is a little cheaper. Lettuces and other Salading are becoming more plentiful. Among Cut Flowers there is a beautiful display of Pelargoniums, Calceolarias, Azaleas, Gardenias, Ericas, Pinks, Carnations, and Roses.

FRUITS.

Pine Apple, per lb.,	8*s* to 10*s*	Oranges, per dozen,	9*d* to 2*s* 6*d*
Grapes, Hothouse, per lb.,	8*s* to 15*s*	— per 100,	4*s* to 16*s*
— Spanish, per lb.,	1*s* to 1*s* 6*d*	— bitter, per 100,	10*s* to 20*s*
— Portugal, per lb.,	1*s* to 3*s* 6*d*	Lemons, per dozen,	1*s* to 2*s*
Apples, Dess., per bush.,	6*s* to 15*s*	— per 100,	6*s* to 14*s*
— Kitchen,	4*s* to 8*s*	Almonds, per peck,	6*s*
Pears, Dess., per hf.-sv.,	5*s* to 12*s*	Sweet Almonds, per lb.,	2*s* 6*d* to 3*s*
— Baking, per hf.-sv.,	2*s* to 2*s* 6*d*	Cob Nuts, per 100 lbs.,	120*s* to 150*s*
Pomegranates, per doz.,	2*s* to 4*s*	Nuts, Barcelona,	24*s*
Strawberries, per oz.,	6*d* to 1*s*	— Brazil,	20*s*
Chesnuts, per peck,	5*s* to 8*s*	— Spanish,	2*l* 8*s*
Walnuts, per bushel,	16*s* to 20*s*	— Cob,	16*s*

VEGETABLES.

Cabbages, per doz.,	1*s* to 3*s*	Parsnips, per doz.,	6*d* to 1*s* 6*d*
— red, per doz.,	4*s* to 12*s*	Leeks, per doz.,	1*s* 6*d* to 2*s*
— plants, per doz. bnch.,	2*s* to 5*s*	Garlic, per lb.,	3*d* to 10*d*
Broccoli, per bundle,	6*d* to 3*s*	Onions, per bunch,	3*d* to 6*d*
French Beans, per 100,	2*s* to 4*s*	— large, per bushel,	4*s* to 7*s*
Sorrel, per hf.-sieve,	1*s* to 1*s* 6*d*	— Spanish, per doz.,	1*s* 6*d* to 4*s*
Jerusal. Artichoke, p. hf.-sv.,	1*s* 6*d* to 2*s*	Shallots, per lb.,	6*d* to 10*d*
Potatoes, per ton,	60*s* to 90*s*	Lettuce, per score,	6*d* to 3*s*
— cwt,	2*s* 6*d* to 5*s*	— — Cos,	1*s* 6*d* to 3*s*
— bushel,	1*s* 6*d* to 3*s*	Celery, White, per bunch,	1*s* to 3*s*
— Kidney, per bsh.,	2*s* to 2*s* 6*d*	— Red, per bunch,	1*s* to 2*s*
— Autumn, per lb.,	3*d* to 6*d*	Endive, per score,	1*s* to 2*s*
— New, per lb.,	1*s* 6*d* to 2*s* 6*d*	Radishes, per doz. bnds.	6*d* to 2*s*
Turnips, per doz. bch.,	2*s* to 4*s*	Mushrooms, per pottle,	5*d* to 10*d*
Red Beet, per doz.,	1*s* to 6*s*	Small Salads, per punnet,	2*d* to 3*d*
Carrots, per doz. bchs,	6*s* to 8*s*	Basil, green, per bunch,	1*s*
Basil, per bunch,	2*d* to 3*d*	Fennel, per bunch,	2*d* to 4*d*
Rhubarb, per bundle,	4*d* to 1*s* 6*d*	Watercress, p. 12 sm. bun.	6*d* to 8*d*
Seakale, per punnet,	6*d* to 2*s*	Parsley, per half sieve,	1*s* to 2*s*
Asparagus, per bundle,	2*s* to 3*s*	— Roots, per bundle,	2*d*
Horse Radish, per bundle,	1*s* 6*d* to 6*s*	Tarragon, per bunch,	4*d*
Savory, per bunch,	2*d*	Mint, per bunch,	6*d* to 1*s*
Cucumbers, per brace,	1*s* to 6*s*	Marjoram, per bunch,	2*d*
Spinach, per sieve,	1*s* 6*d* to 2*s*	Chervil, per punnet,	2*d* to 4*d*

POTATOES.—Southwark, Waterside, May 5.

The supply during the past week has been less than in several of the preceding, yet the best fresh samples were only in request by the trade; and, notwithstanding the lowness of the prices, they only purchased for present consumption. The principal buyers were the cowkeepers, at from 30*s*. to 3*s*. per ton. We believe the oldest salesman never saw before such an immense quantity of Potatoes sold at such low prices. The York Reds are selling at from 40*s*. to 75*s*.; but the latter quotation is merely nominal, as scarcely any of the very best samples made more than 70*s*. per ton.

York Reds	40*s* to 75*s*	Kent and Essex Kidneys	70*s* to 75*s*		
Perth	40 45	Wisbeach Kidneys	55 60		
Fifeshire	30 40	— Blues	35 50		
Early Devons	20 40	— Regents	60 —		
Late Devons	— —	— Whites	40 50		
Cornwall	30 40	Guernsey Blues	55 60		
Jersey Blues	55 60	— Whites	— —		
— Whites	— —	York—Prince Regents	55 65		
Kent and Essex Whites	40 —	— Blues	— —		
Dutch	35 40	— Shaw's	55 70		

MARK-LANE, Monday, May 5.

The market this morning was moderately supplied with English Wheat from Essex and Kent; best qualities sold at last week's rate, but the trade for secondary descriptions was dull, although their value remains unaltered; the inquiry for Foreign was limited, and prices are nominally the same. We observe no alteration in Barley, either Malting or Grinding, but the demand is confined to retail purchases for immediate use.—Beans and Peas are each inquired after, and in some instances obtain rather more money.—The show of Oats is small, and holders being firm in insisting on an advance of 6*d*. per qr. upon the rates of Monday last, render the trade less active.—In the Baltic markets prices of Wheat are receding, and purchases of good red qualities may be again made at 26*s*.; Barley, 17*s*. to 22*s*.; White Peas, 23*s*. to 28*s*.; Oats, 9*s*. 9*d*. to 12*s*. 6*d*. each f. o. b.

BRITISH, PER IMPERIAL QUARTER,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White 42	49	Red	42	48
—— Norfolk, Lincolnshire, and Yorkshire	— —		White	—	—
Barley, Malting and distilling 25*s* to 29*s*	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19	22
—— Northumberland and Scotch	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
— Hertford and Essex		58	66			
Rye		29	32			
Beans, Mazagan, old and new	29 to 34	Tick	30	36	Harrow	31	37
—— Pigeon, Heligoland	36 to 40	Winds	—	—	Longpod	—	—
Peas, White	33 to 37	Maple	35	37	Grey	30	33

FRIDAY, May 9.

We observe no alteration in the value of Wheat; but in addition to a good supply from our own coast, about 4700 qrs. are reported to-day from Rostock and the lower Baltic ports, part of which will doubtless be offered for sale.—The arrivals of Foreign Barley are considerable, and in some instances a reduction in price is submitted to in preference to incurring landing expenses; English is heavy at late prices.—Beans and Peas fully maintain their value.—The market is fairly supplied with Oats, including some quantity from abroad, for which, where sales are pressed, rather lower prices are acceded to.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Mar. 29	per Quarter.	45*s* 10*d*	33*s* 4*d*	21*s* 5*d*	30*s* 0*d*	34*s* 10*d*	34*s* 8*d*
April 5		46 5	32 5	21 4	29 6	35 0	35 7
— 12		46 2	32 5	20 9	30 6	35 0	36 6
— 19		45 11	31 11	21 4	32 1	35 1	36 1
— 26		45 11	31 6	20 11	30 2	35 9	36 1
May 3		46 0	31 2	21 4	29 9	36 1	36 10
6 weeks' Aggreg. Aver.		46 1	31 11	21 2	30 4	35 4	35 11
Duties on Foreign Grain		29 0	7 0	6 0	10 6	7 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 3.

Price.	March 29.	April 5.	April 12.	April 19.	April 26.	May 3
40*s* 5*d*	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, May 9.

Canary	per qr	44*s* to 50*s*	Linseed Cakes, Foreign, p. ton	7*l* 10*s* to 9*l*	
Carraway	per cwt	44 48	Mustard, White	p. bush.	10*s* 14*s*
Clover, Red, English	40 65	— Superfine	"	12 16	
— Foreign	46 56	— Brown	"	12 16	
— White, English	50 80	Rapeseed, English, per last	26*l* 30*l*		
— Foreign	50 80	Rape Cakes	per ton	— —	
Coriander	12 18	Saintoin	— —	— —	
Hempseed	per last	35 36	Tares, Eng. winter	p. bush.	5 7
Linseed	per qr	52 60	— Foreign	4*s* 6*d*	6
— Baltic	36 44	Trefoil	per cwt	18 23	
Cakes, Eng. per 1000	11*l* 0 11*l* 10	Turnip (too variable for quotation).			

Kingsford and Lay.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on Tuesday, May 13th, and Thursday 15th, 1845, at 12 o'clock, a very fine collection of DAHLIAS, comprising all the new and leading varieties; also a splendid assortment of GERANIUMS, and other Plants in bloom; with the newest varieties of FUCHSIAS, VERBENAS, HEARTSEASE, &c. May be viewed the morning of sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

MR. BROWN'S SUPERB TULIPS.—Mr. Glenny, who is instructed to sell these by Auction, without reserve, on Tuesday the 3d of June, on the premises, at Slough, will forward Catalogues, by return of post, in answer to all applications addressed to him at the *Gardeners' Gazette* Office, 2, Tavistock-street, Strand.

TULIPS.—TO BE DISPOSED OF, on very reasonable terms, for the benefit of his widow, a small, but choice, bed of TULIPS, late the property of an amateur collector. They will be in perfect bloom on the 14th inst. For cards of admission, and catalogues, apply at Mr. Batten's Library, Clapham-common, from which place they are not five minutes distant.

TO BE DISPOSED OF.—The whole or a Partnership in an established, lucrative, and highly-respectable NURSERY BUSINESS. The coming in would be made very easy, and this advertisement is well worth attention. For a Partnership none would be treated with but men of known abilities and good standing.—Address to A. B., at the Office of this Paper.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OE ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

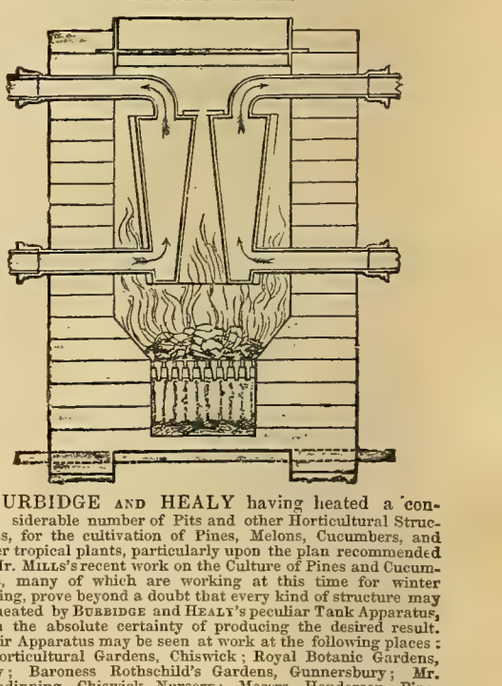
HENRY HUNT'S PATENT GARDEN POTS and STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s*. to 7*l*. 10*s*. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

PROPAGATING GLASSES, 1*s*. per lb.; or 2*s*. 6*d*. to 24*s*. per dozen; BULB CUCUMBER-GLASSES, for Watering by Evaporation during the growth of the Fruit, 2*s*. 6*d*. to 3*s*. 6*d*. each; GRAPE-GLASSES, with holes, 1*s*. 9*d*. to 2*s*. 6*d*. each; BEE-GLASSES, 1*s*. to 2*s*. 6*d*. each. Cylindrical CUCUMBER TUBES, from 6*d*. to 4*s*. each; FISH-BOWLS, from 1*s*. 6*d*. each; ditto, with hole in bottom for Fountains, 2*s*. 6*d*. per lb., at Apsley Pellatt's Falcon Glass Works, Holland-street, Blackfriars. Orders from the country, accompanied with a Post-office order, will meet with prompt attention.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. Neighbour & Son, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

"Nutt on Bees" (5th Edition) now published.

THE TANK SYSTEM.



BURBIDGE and HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. Mills's recent work on the Culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by Burbidge and Healy's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

HORTICULTURAL BUILDING AND HEATING.

JAMES GRAY and Co., No. 7, Queen's Terrace, Queen-street, Chelsea, beg to inform the Nobility, Gentry, and Horticulturists, that they have commenced business in the above line. One of the firm having been a professional gardener, the adaptation of all structures erected by them to the purpose intended will be guaranteed, and all work shall be of the best description, so as to insure satisfaction to those who may honour them with commands. Plans and Estimates will be furnished for Building and Heating with Hot Water, and gentlemen waited upon in town or country. Satisfactory references will be given.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,
(And at Southwark-bridge Iron Roof and Building Works.)

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory lately erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, May 10.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO.—Genuine Guano, also Gypsum, Sulphates of Iron and Copper, Sulphuric Acid, Bone-dust, Superphosphate of Lime, Sulphate and Phosphate of Ammonia, and all other Manures on Sale, by MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

GUANO.—GENUINE PERUVIAN and ICHABOE GUANO, of the finest quality, is now selling from the Importer's Bonded Warehouses, and will be shipped coastwise or forwarded by land carriage in quantities to suit the convenience of farmers upon application to Mr. T. N. KERR, 57, Lime-street, London. The genuineness of the article may be confidently relied on, but samples and analysis will be forwarded if required.

GUANO.—A cargo of excellent quality, from Ichaboe, will be sold from the ship in any quantity not less than 20 tons. The advantage of purchasing direct from the vessel must be manifest to consumers.—Apply to Messrs. EDWARDS and FISHER, 5, Trinity-square.

PURE GYPSUM, precipitated from a solution of Lime by Sulphuric Acid; being in a very finely divided state, it is better adapted for the various purposes for which it is employed in Agriculture, such as fixing Ammonia, and as a top dressing for Clover, &c., price 2*l.* per ton.

Superphosphate of Lime, 7*l.* per ton.
At Mr. LAWES' Factory, Deptford Creek.

BRAIN'S GYPSUM, 23*s* per Ton, Good and Cheap. No. 397. April 24, 1845.—This is to certify that we have examined a sample of Gypsum sent by Mr. BRAIN, of Thomas-street, Stamford-street, and find it contains

Sulphate of Lime	94·10
Water	5·00
Carbonate of Lime	·90
Animal Matter and Soda	Traces.
	100·00

(Signed) MITCHELL & FIELD.
5a, Hawley-road, Kentish-town, London.
Delivered free of Cartage to any Wharf or Railway in Town.

GUANO.—Genuine GUANO (Peruvian and African) on SALE, at SWAYNE and BOVILL'S Bonded Warehouses, Mill-wall, Poplar, where the stock may be inspected as imported.—Apply as above, or at 19, Abchurch-lane, City.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

POTTER'S GUANO SUPERIOR TO PERUVIAN proved by the following TESTIMONIAL just received:—

"Arthurstown, April, 1845.—Last season I distributed a large quantity of Guano to the tenantry, to induce them to get into the green cropping system, principally Peruvian. I also ordered two tons of yours, through a Waterford house. It proved a good article, indeed, *much superior to the best Peruvian.*—Yours most obediently, WM. LUMSDEN."

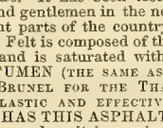
"To Mr. Potter, 28, Upper Fore-street, Lambeth."

The price of POTTER'S GUANO is now much under that of Peruvian, and those who study economy will give it the preference. Mr. POTTER has also testimonials from Lord Zetland, Mr. C. Porcher, of Cliffe, Weymouth, and others, proving the superiority of his Manure over the Peruvian Guano, which commands so high a price

Orders addressed as above instantly attended to, and a very considerable allowance made when a quantity is taken.

POTTER'S LIQUID GUANO, sold by Chemists and Seedsmen, 1*s.* 9*d.* per Quart Bottle, with directions.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN USES.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of IMPROVED PATENT ASPHALTED FELT, for Roofing Houses, Sheds, Verandahs, &c., and particularly for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.* It has been tested in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference can be made, This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy. — Price ONLY ONE PENNY PER SQUARE FOOT.

Samples, with directions for laying on, and testimonials and references of seven years' experience as to its merits, sent free to any part of the town or country.

PATENT FELT MANUFACTORY (THE ONLY FACTORY IN GREAT BRITAIN WHERE THE ABOVE DESCRIPTION OF ROOFING IS MADE), LAMB'S BUILDINGS, BUNHILL ROW, LONDON.

A Specimen Roof and Frame to be seen at the Factory, and a Discount allowed to the Trade.

DRAINING OF LAND.—THE WORKMAN'S LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30*s.*

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles made in a very superior manner, are kept on sale at the London Warehouse, viz.—

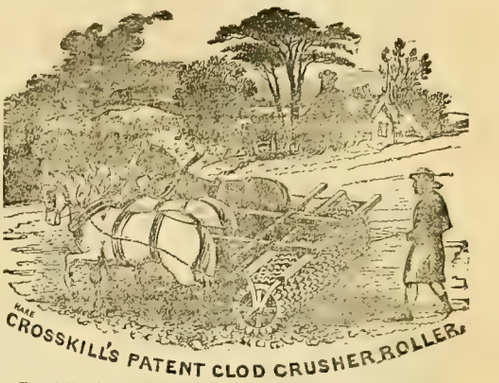
Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double-action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

THE PATENT ECONOMIC TILE MACHINE having been on view, at work, in London, for five weeks, is now removed to Mr. BAILEY DENTON'S offices, No. 9, Gray's-inn-square, where it can be seen daily, between the hours of 10 and 4; price, 20*l.* Orders received by Mr. DENTON, Gray's-inn; by Mr. CHARNOCK, or the Makers, Wakefield. The "A" Level for Draining, can also be seen at the above address; price 30*s.*

TO AGRICULTURISTS.

WILLIAM CROSSKILL, BEVERLEY IRON WORKS, NEAR HULL, YORKSHIRE.



The following are the various uses to which his PATENT ROLLER may be applied:—

1. For Crushing Clods, after Turnip crops, to sow Barley.
2. For Rolling Corn, as soon as sown, has been found better than twice harrowing.
3. For Rolling Wheat Lands sown late in the year, which are cloddy in the spring.
4. For Rolling Wheats, after Frost, upon light land in the spring, when the plants are out of ground.
5. For Rolling Barley, when the plants are three inches out of ground.
6. And again—if weather will permit, when the corn is six inches out of ground, is equal, if not more valuable than once hoeing.
7. For stopping the Ravages of the Wireworm and Grub.
8. For Rolling Grass Lands, and Mossy Lands after compost.
9. For Preparing Land to sow Turnips, Clover, and fine Seeds.—It makes the finest bed imaginable for small seeds,

Cash Prices, with Travelling Wheels complete, delivered in Hull, 6 ft. 6 in., 21*l.*; 6 ft., 19*l.* 10*s.*; 5 ft. 6 in., 18*l.*

In consequence of the enormous advance in iron, and its already making a difference of Four to Five Pounds in the cost of each larger size Roller, it is intended, after due notice being given to the Agriculturist, to advance the price of the Patent Roller 3*l.* each size.

A Model of the Roller is exhibited at the Royal Polytechnic Institution, London.

Upwards of Five Hundred Patent Clod Crushers have been sold from the Beverly Iron Works, since January 1st, 1844.

CROSSKILL'S IMPROVED IRON LIQUID MANURE CARTS.

PATENT PEG PORTABLE THRESHING MACHINE.

REED'S PATENT SUBSOIL PLOUGH OR PULVERISER—PRICE 5*l.* 5*s.*

CROSSKILL'S PATENT WHEELS AND AXLES to carry 30 cwt. Price 5*l.* 10*s.*

Improved One-horse CARTS, with Patent Wheels and Iron Axletrees, price 10*l.* 10*s.* and 12*l.* 12*s.*, and every other Implement known in Agriculture may be had from this Manufactory.

CROSSKILL'S AGRICULTURAL MACHINE SHOW-ROOM, 42, QUEEN-STREET, HULL.

N.B. Goods forwarded, at very low rates, from Hull, by steamer, Trader, Railway, Canal, or Carrier, to all parts of the kingdom.—Iron Works, Beverley, May 10.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices to 130, Fleet-street.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

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HORTICULTURAL IMPROVEMENTS.—J. READ begs leave to inform Ladies, Amateurs, and Practical Gardeners, that—after 31 years' experience in Practical Gardening in all its departments of vegetation, and mechanical cultivation of trees, plants, &c. &c., from the Apple to the Grape, Peach, and Pine; and 25 years' practice in manufacturing of Syringes, Machines, and Engines for destroying those Animalculæ which make such deadly havoc on all choice fruit trees and plants at this season of the year—he has just taken out a NEW PATENT for certain Improvements in the above Machines, which surpass anything of the kind he ever made before, and *without any increase of price.* J. R. will warrant the *Valves* to be kept in repair during the term of the Patent. They may be seen and proved at 35, Regent Circus, Piccadilly.

N.B. None are genuine except Stamped with the Patentee's name.

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AND

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PART V., PRICE ONE SHILLING,

Contains EIGHT ILLUSTRATIONS, and the following Original Papers:—A Treatise on the Cultivation of Hardy Stocks and Wallflowers.—Practical Gardening in the Flower Garden, Stove, Orchidaceous House, Greenhouse, Conservatory, Kitchen Garden, and Fruit Garden.—Horticultural Buildings.—New Flowers of the Season.—Iron Pipes.—Cucumbers.—Asparagus.—Rapid Growth.—Importance of Glass in Horticulture.—Berberis Infoliata.—Trellises.—Petunia.—Culture of Balsam.—Old Trees.—The Flower Garden.—Animals and Plants.—Horticultural Notes, &c.

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"It is well edited, and its treatises, small and large, are written so clearly and distinctly, that neither gardener, horticulturist, nor amateur can well fail to understand them, or mistake the plain practical directions given."—*Birmingham Advertiser.*

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"This new monthly periodical promises to be one of the most useful of its kind which has yet been issued. The combination of horticulture and floriculture is extremely judicious; and the choice of subjects, which include full and clear directions for each month, equally so. Woodcuts are given where required."—*Gloucestershire Chronicle.*

"It contains original essays on the leading topics of interest connected with horticulture, along with plain and practical directions for the cultivation of those flowers, shrubs, &c., which are most in vogue. The work is liberally and effectively illustrated."—*Aberdeen Journal.*

"This is a new candidate for public favour. The papers are varied and interesting. The articles on the Rose, the Pelargonium, the Hyacinth, the culture of Myatt's Pine Strawberry, and the culture of the Melon, are of a superior order."—*Shrewsbury Journal.*

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"The contents are invaluable to every gardener, and no lover of horticultural and floral pursuits should be without it."—*Cheltenham Journal.*

"To the professional as well as the amateur gardener or horticulturist, this Magazine will prove a valuable companion, from the extensive and general information afforded on the subjects of his study and care; while from the happy manner in which the various topics are treated of, it may be perused with pleasure by the general reader."—*Dundee Courier.*

"Its articles, for the most part, are thoroughly practical, and, what is extremely rare in so clever a work, are distinguished for sound sense and simplicity. Science, stripped of her abstruse terms and technicalities, is here clothed in the plain and familiar language which every one can understand and appreciate. It is, in short, a well-written practical magazine, and therefore most useful, if not essential, to all gardeners and florists who wish their knowledge to keep pace with that of the age they live in."—*Ten Towns Messenger.*

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"A popular work on gardening, adapted to bring the most successful system of gardening within the reach of almost everybody. The simplicity of its style makes it invaluable to the general reader, while the wide range of its subjects gives him all the information he requires. We heartily recommend this Magazine to our readers, assuring them they will find in its pages all the information in practical gardening that they may want."—*Ipswich Express.*

"There is in each Number a great body of useful information, possessing the highest interest to horticulturists and gardeners, as well as to all who take pleasure in the most delightful department of creation."—*Worcester Herald.*

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"The parts before us teem with interesting information. Indeed, we have no hesitation in saying, with respect to one department of this magazine (and it is one to which we have given some attention), that it excels any publication of the kind we have ever met with before. We refer to the information with regard to the cultivation of flowers, which is altogether so full, plain, and practical, that it affords at once what could be acquired otherwise only by years of inquiry and experience. To the professional florist, as well as to the amateur, therefore, the work will be of the greatest service, and we cordially recommend it to their attention. The illustrations, which are numerous, are faithfully and beautifully executed. The writing generally is elegant and perspicuous, and we trust the magazine will have, as it deserves, a most extensive circulation."—*Glasgow Courier.*

"The writer, with great good sense, aims at being more familiar rather than more original than his predecessors. This Magazine is cheap, beautifully and profusely illustrated, and embodies a selection of articles, both practical and scientific, which must greatly tend to the advancement of horticulture."—*Western Agriculturist.*

"The object of the present Magazine is the practical application of science to horticultural improvement, and towards this all knowledge is requisite. The readers of this Magazine will be informed of every operation at the season required; and, as it appears to us, in a clear and satisfactory manner, so that every man may be his own gardener,—not only in things common and useful, but in respect to the choicest and most difficult to raise of garden produce. The illustrations are abundant, and beautifully executed."—*Keene's Bath Journal.*

"A new periodical, addressing itself to all who love gardening. It purposes to be eminently practical. The writers make it their rule to premise that their readers know nothing about the subject they treat of; so they begin with the beginning, and tell them minutely what is to be done, leaving nothing to surmise. Woodcuts are introduced where required for the purpose of explanation or illustration."—*Somerset County Gazette.*

FOR CONTINUATION OF TESTIMONIALS, SEE PART VI. OF "THE HORTICULTURAL MAGAZINE."

PUBLISHED BY T. HOULSTON, 154, STRAND, AND HOULSTON & STONEMAN, PATERNOSTER-ROW, LONDON; W. WHYTE & CO., EDINBURGH; W. CURRY, JUN., & CO., DUBLIN; AND SOLD BY ALL BOOKSELLERS.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1845.] SATURDAY, MAY 17. [PRICE 6*d.*

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GARDENERS' BENEVOLENT INSTITUTION.—

Notice is hereby given, that a General Meeting of the Subscribers to this Institution will be held at the London Coffee House, Ludgate-hill, on Wednesday, 4th June next, for the purpose of Electing Four Poor Persons to the benefit of a Pension of 16*l.* per annum, from among the following Candidates, whose Testimonials have been examined, and approved of by the Committee:—

Name.		*Age.*	*Residence.*
GEORGE MARTIN,	3d application,	aged 67	—Bristol.
JOHN ADAMSON,	2d ,,	,, 68	—Mortlake.
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The Chair to be taken at half-past Eleven o'clock precisely. The Ballot will commence at Twelve and close at Two o'clock precisely.

EDWARD R. CUTLER, Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—

The General Meeting will be held at the Society's House in Hanover-square, on Thursday, the 22d of May, at 12 o'clock precisely.

By order of the Council, JAMES HUDSON, Secretary.
London, 7th May, 1845.

ROYAL SURREY ZOOLOGICAL GARDENS. FIRST FLOWER SHOW OF THIS SEASON.

On WEDNESDAY next, MAY 21, the Royal South London Floricultural Society will hold the first of their splendid series of Flower Shows at the Gardens, on which occasion an unusual number of valuable prizes will be given by the Society, in addition to several offered by Members, and arrangements have been made to render the Floricultural Exhibition worthy the patronage and high standing of this Society. In addition to the Grand Panorama of Edinburgh and its vicinity, the celebrated Juvenile Minstrel Brothers (from 5 to 12 years of age) will perform during the day. Bright's Brass Band is also engaged, and the Evening Exhibition of Fireworks, concluding with a Loyal and Patriotic Tableau in honour of Her Majesty Queen Victoria and Prince Albert will present a pyrotechnic display never equalled.

Doors open at One. Admission One Shilling.

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JAMES RIGBY. NURSERYMAN, FLORIST, and SEEDSMAN, has for sale a most splendid Scarlet Geranium, named "The Queen's Perpetual," remarkable for the size, brilliancy, and constant succession of its bloom, being the very best Scarlet Geranium ever yet grown. It is of dwarf habit, and well suited for the conservatory, or for turning out. A house 70 feet in length may now be seen in the Stanhope Nursery full of this beautiful plant in flower. Very fine plants 24*s.* per dozen; fine ditto 18*s.*; ditto, strong small ditto, 12*s.*

J. R. has, in addition to his general stock of Camellias, Heaths, and other greenhouse plants, Dwarf and Standard Roses, Shrubs, &c., several plants of that splendid ornamental evergreen the Araucaria Braziliensis, from 1½ to 3 feet high.

"MARCHIONESS OF ORMONDE," DAHLIA.

SAMUEL GIRLING having supplied the wholesale orders to the Trade of this beautiful variety, have still a few plants on hand, and can now supply persons in the Trade with plants at the regular discount price, and Amateurs at 10*s.* 6*d.*, including a tin box and postage to any part of the country; almost every variety of new and old Dahlia can yet be had on application, and after the 20th of May, collections will be sent out, including a portion of the choicest of last year's varieties, in which he is plentiful, at 12*s.* per doz. Collections of 50 good sorts, well arranged and embracing a portion of fancy or border Dahlias, for 25*s.*, and 100 for 40*s.*, left to the choice of S. G. Verbenas, Petunias, and Bedding plants generally at moderate prices. S. G. beg leave to state that his Dahlia Plants are strong and healthy.

Danecroft Nursery, May 17, 1845.

WM. IVERY, FLORIST, &c., PECKHAM, begs to inform his Friends and the Public that he can again supply strong plants of those Beautiful FUCHSIAS,

SIR H. POTTINGER ..... 7*s.* 6*d.*
SIR W. MAGNAY ..... 5*s.* 0*d.*

Catalogues of CINERARIAS may be had on application.

A. PAUL AND SONS' CATALOGUE of DAHLIAS,

GERANIUMS, VERBENAS, FUCHSIAS, &c. &c. is now ready and will be forwarded gratis, per post, on application. The plants are good, and prices moderate.

Nurseries, Cheshunt, Herts.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most ECONOMICAL as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him are respectfully requested to address him at Chiswick Nursery, near London.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, PANSIES, CHRYSANTHEMUMS CARNATIONS, AND PICOTEES.

YOUELL AND CO. continue to supply the above highly-ornamental plants per post, free, at the following prices. Their collection of the above is the most extensive and select in the United Kingdom, thus insuring to the purchaser the certainty of receiving none but first-rate varieties.

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12 Extra Fine Varieties of Fuchsias ..... 12*s.*
12 Ditto ditto, New ..... 21*s.*
50 Fine Varieties ..... 40*s.*
50 Extra fine ditto ..... 60*s.*

VERBENAS.

12 Extra Fine Varieties, 6*s.*, the Selection left to Youell and Co.
12 Ditto 10*s.*, the Selection left to the Purchaser.

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12 Fine Show Varieties, by name . . . 10*s.* per dozen.
12 Extra Fine do. do. . . . 18*s.* ,,

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FLOWER SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

CARNATIONS AND PICOTEES.

		£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers		2	10	0
25 ditto	ditto ditto	5	0	0
12 ditto	ditto Show Flowers	1	10	0
25 ditto	ditto ditto	3	0	0
12 pairs of extra fine Show Pinks		0	12	0
25 ditto	ditto ditto	1	1	0

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For further particulars see YOUELL & Co.'s Advertisement of Jan. 11.

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Finest Double and Single Hyacinths, in pots by name, 9*s.* and 12*s.* per dozen, now coming forward for bloom.

Achimenes pedunculata, hirsuta, and grandiflora, 9*s.* per dozen; Achimenes picta, 18*s.* per dozen.

Fine plants of Pinus excelsa from Seed, 9in. to 1ft., 42*s* per dozen.—Great Yarmouth Nursery, May 17, 1845.

MESSRS. J. & H. BROWN are now sending out the following desirable plants, for bedding, &c.:—

Anagallis Breweri and bicolor, 8*s.* per doz.
Antirrhinums, of sorts, 6*s.* do.
Alstroemerias, 8 vars., 1*s.* 6*d.* each.
Cinerarias, 8 vars., 6*s.* per doz.
Calceolarias, 12 best vars., 18*s.* per doz.
Shrubby yellow, for beds, 4*s.* do.
Fuchsias, all the newest and best varieties, one of a sort, 12*s.* per doz.
Other good kinds, 6*s.* do.
Geraniums. — General Tom Thumb, 2*s.* 6*d.* each.
Scarlet, variegated, and others, 6*s.* per doz.
Heliotropiums, 4*s.* and 6*s.* do.
Iberis sempervirens, 9*s.* do.
Lantana crocea speciosa, fine for beds, 9*s.* do.
Lobelias, 6 vars., 6*s.* do.
Lychnis fulgens and coronata, 9*s.* do.
Linum flavum, 6*s.* do.
Mimulus, 6 vars., 6*s.* do.
New Border Pinks, 4*s.* do.
Do. Yellow Picotee, 3*s.* per pair.
Œnothera macrocarpa, fine for beds, 9*s.* per doz.
Petunias, 6 new vars., 6*s.* do.
Other good kinds, 4*s.* do.
Pentstemons, 6 best vars., 6*s.* do.
Phloxes, best vars., 6*s.* do.
Potentilla, 6 fine species, 6*s.*
Silene laciniata, fine for beds, 9*s.* per doz.
Scutellaria splendens, fine for beds, 9*s.* do.
Salvias, 6 vars., 4*s.* & 6*s.* p. doz.
Tigridia, Commelinas, and Marvel of Peru, 2*s.* 6*d.* do.
Verbenas, 12 best and newest varieties, 6*s.*, others 4*s.* do.
Viola arborea, or Tree Violet, 1*s.* 6*d.* each.

Most of the above can be sent by post.

ROCK PLANTS.

25 superior sorts, 15*s.*
50 do. 25*s.*
50 do., herbaceous plants, 25*s.*
100 herbaceous plants, 45*s.*
Selection left to the Purchaser.

CLIMBERS.

Buddlea Lindleyana, 2*s.* 6*d.* each.
Cobæa scandens, 6*s.* per doz.
Maurandyas, 3 vars., 9*d.* each.
Lophospermum, 3 do. 9*d.*, do.
Calampelis scabra, 1*s.* 6*d.* do.
Ceanothus divaricatus, 2*s.* 6*d.* do.
Clematis azurea grandiflora, 24*s.* per doz.
C. Sieboldii, 18*s.* do.
C. montana, fine light blue, rapid climber, 2*s.* each.
Glycine sinensis, 1*s.* 6*d.* each.
New scarlet Honeysuckle, Youngii, 2*s.* do.
Jasminums, 6 vars., 1*s.* do.
Passifloras, 4 vars, 1*s.* do.
Climbing Roses, one of a sort, 9*s.* per doz.
Pyrus japonica, 4 species, 1*s.* each.
Andromeda floribunda, in pots, 2*s.* 6*d.* each.

The above carefully packed and forwarded to any part of the United Kingdom. Payment by Post-office order, or reference in town. Lists of new and choice Greenhouse plants, Dahlias, &c., can be had.—Albion Nursery, Stoke Newington, London.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WOOD AND SON respectfully solicit attention to their superb FUCHSIAS and VERBENAS, collections of which will be sent at the following prices, the selection of sorts being left to themselves.

FUCHSIAS.

12 fine varieties for .. .. 6*s.*	12 new vars. for exhibition 18*s.*
12 superior ditto .. .. 9*s.*	50 fine vars. for exhibition 30*s.*
12 superb ditto .. .. .. 12*s.*	50 new ditto for exhibition 50*s.*

VERBENAS.

12 fine varieties for .. .. 5*s.*
12 superior ditto .. .. 9*s.*
12 superb ditto .. .. 12*s.*

A few SELECT PLANTS—Extracted from General Catalogue.

	Per Plant—*s.* *d.*		Per Plant—*s.* *d.*
Achimenes hirsuta	2 6	Correæa Grevillei	1 6
,, picta	3 6	Dillwynia glycinifolia	2 6
,, rosea eximia	2 6	,, speciosa	2 6
,, splendens	2 6	Echites atropurpurea	7 6
Amicia zygomeris	3 6	Franciscea latifolia	3 6
Azalea indica alba superba	7 6	Gloxinia Cartonii	3 6
,, Cleopatra	10 6	,, macrophylla variegata	2 6
,, Gladstonesii	3 6	,, Priestleyana	2 6
,, Incomparable	10 6	,, speciosa grandiflora	2 6
,, magniflora	10 6	,, ,, superba	2 6
,, variegata	2 6	,, tubiflora	2 6
And many others.		Inga pulcherrima	3 6
Brachysema platyptera	3 6	Leschenaultia grandiflora	2 6
Brugmansia arbuscula	3 6	Nerium Oleander Tanglé	3 6
,, Knightii, double white	2 6	Pimelea spectabilis	3 6
Buddlea Lindleyana	2 6	Silene speciosa	1 6
Cestrum aurantiacum	7 6	Siphocampylus glabriusculus	3 6
Chorozema macrophylla	1 6	,, lantanifolia	3 6
,, spectabilis	3 6	Tetranema mexicana	5 0
Correæa grandiflora	2 6	Veronica speciosa	2 6

W. WOOD and SON'S descriptive Catalogue of Fuchsias and Verbenas, also Lists of Petunias, Anagallis, Miscellaneous Greenhouse and Hardy Herbaceous Plants, Shrubs, and Climbers, may be had GRATIS on application.

Plants will be presented to defray expense of carriage. A remittance or reference is respectfully solicited from unknown correspondents.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD SUSSEX.

NEW ROSES.—Damask Perpetual, "MOGADOR," brilliant scarlet, finely shaded with purple, well-formed, large, and very double; habit of Rose du Roi. 21*s.* each.

Hybrid Perpetual, "COMTESSE DUCHATEL." bright rosy carmine, most beautifully cupped, large and very double, retaining its brilliant colour several days after expanding, 21*s.* each.

WILLIAM WOOD & SON have the honour of soliciting the attention of their friends to the above named new and unique Roses, now offering for the first time in England, strong plants of which are ready for immediate transit, together with all the best varieties of the season.

The month of May being considered the most favourable time for planting out China, Tea-scented, Bourbon, and other Roses usually grown in pots, WILLIAM WOOD & SON are now prepared to execute orders from their very extensive stock at the under-named prices, the selection of sorts being left to themselves:—

L'Isle de Bourbon	.. per doz. 12*s.*
ditto finer varieties	.. 18*s.* to 24*s.*
China	.. 12*s.* ,, 18*s.*
Tea-scented	.. .. 12*s.*
ditto finer varieties	.. 18*s.* to 24*s.*
Noisette	.. 12*s.* ,, 18*s.*
Climbing	.. 9*s.* ,, 12*s.*

Plants will be presented with each order, to defray carriage, &c. Rose Catalogues may be had, gratis, on application.

STRONG DAHLIA PLANTS.

THOMAS BROWN is now sending out strong Plants of all the best Varieties in cultivation, including his two new and favourite Flowers, ARETHUSA and ORLANDO, and prompt orders are requested.—Slough Nursery, May 17.

VERBENA—"THE FAVOURITE."

WILLIAM MILLER, has still a few good strong Plants of this beautiful VERBENA. Its large bright flowers render it a good addition. Post free, 5*s.* each. The usual allowance when three are taken.

W. M. cannot take any more orders for his other Seedling Verbenas, nor supply any more Verbenas of sorts by dozens.

N.B.—The above has been favourably noticed by Dr. Lindley, whose opinion may be seen in W. M.'s advertisement of March the 1st.—Providence Nursery, Ramsgate.

R. WHITE & CO. beg to recommend the following COLLECTIONS OF PLANTS, which they are now offering at extremely moderate rates to all lovers of flowers, having the utmost confidence in their pleasing every purchaser. The plants will be ready to send out the first week in June.

20 distinct varieties of Petunias, of rare beauty, including Girling's and other fine seedlings	15*s.* 0*d.*
20 superb Chrysanthemums	10 6
20 ditto Verbenas, splendid sorts	10 6
20 ditto Fuchsias, ditto ditto	10 6
20 ditto Geraniums, in first-rate sorts, and strong plants, now ready	1 1 0

A list of rare plants, Pinus, &c. may be had on application. Fuchsias, Verbenas, Petunias, &c., of old sorts, 3*s.* per doz.

Poole Nursery, Dorsetshire.

BEVAN'S "LEANDER"—This splendid Rose DAHLIA, considered by the Judges at last year's Shows to be a first-rate variety, will be ready for delivery on the 21st May, at 10*s.* 6*d.* All applications to be made to the respective Nurseries, or to Mr. BEVAN, 3, Norfolk-place, Shacklewell Green. No discount allowed for less than 12.

ROYAL BOTANIC SOCIETY, REGENT'S-PARK.

LIST OF PRIZES AWARDED AT THE EXHIBITION, ON WEDNESDAY, THE 7TH INST.

For Collections of 30 Stove and Greenhouse Plants.—1st Prize to Mr. Hunt, Gr. to Miss Traill, Bromley; 2nd to Mr. Barnes, Gr. to G. W. Norman, Esq., Bromley; 3rd to Mr. Green, Gr. to Sir E. Antrobus, Bart., Cheam.

For Collections of 15 Stove and Greenhouse Plants.—1st Prize to Mr. Fraser, Lea-bridge-road, Leyton; 2nd to Mr. Pawley, White Hart, Bromley; 3rd to Messrs. Veitch & Son, Exeter.

For Collections of 10 Stove and Greenhouse Plants.—1st Prize to Mr. Prince, Gr. to R. Pellew, Esq., Tooting; 2nd to Mr. Slowe, Gr. to W. R. Baker, Esq., Postcombe-park; 3rd to Mr. Cockburn, Gr. to Earl of Mansfield, Caen-wood; 4th to Mr. Taylor, Gr. to J. Chester, Esq., Sydenham.

For Specimen Greenhouse Plants.—1st Prize to Messrs. Lucombe, Pince, & Co., Exeter, for Eriostemon buxifolium; 2nd to the same, for Acropelytum venosum; 3rd to E. Goodheart, Esq., Langley-park, Beckenham, for Erica elegans; extra to Messrs. Veitch & Son, for Leschenaultia biloba; extra to Mr. Robertson, Gr. to Mrs. Lawrence, Ealing-park, for Erica propendens; extra to Messrs. Lucombe, Pince, & Co., for E. elegans; extra to the same, for Azalea indica leucomegista; extra to E. Goodheart, Esq., for A. lateritia; extra to Mr. Marsden, for Hydrangea japonica.

For New or Rare Plants not in Bloom.—1st Prize to Messrs. Lucombe, Pince, & Co., for Rhododendron campanulatum hybridum; 2nd to the same, for Gomphol bium, sp. nov.; 3rd to do. for Boronia pauciflora; extra to Messrs Veitch & Son, for Tropæolum Lobbii.

For New or Rare Plants not in Bloom.—A 2nd Prize to Messrs. Veitch & Son, for Lisianthus, sp. nov.

For Collections of 24 Fine Flowering Plants.—1st Prize to Mr. Wood, Norwood.

For Collections of 12 Flowering Plants.—1st Prize to Mr. Kyle, Gr. to R. Barclay, Esq., Leyton; 2nd to Mr. Clarke, Gr. to W. Block, Esq., Muswell-hill.

For Collections of 4 Cinerarias.—1st Prize to Mr. Lane, Berkhamstead; 2nd to Mr. Ivery, Peckham; 3rd to Mr. Gaines, Battersea.

For Collections of 10 Greenhouse Plants.—A Prize to Mr. Dobson, Gr. to Mr. Beck, Slate-works, Isleworth.

For Collections of 15 Cape Heaths.—1st Prize to E. Goodheart, Esq.

For Collections of 12 Cape Heaths.—1st Prize to Messrs. Fairbairn, Clapham; 2nd to Mr. Pawley.

For Collections of 8 Cape Heaths.—1st Prize to Mr. Hunt; 2nd to Mr. Barnes; 3rd to Mr. Taylor.

For Collections of 6 Cape Heaths.—1st Prize to Mr. Reid, Gr. to E. Wigram, Esq., Walthamstow; 2nd to Mr. Young, Gr. to C. Barron, Esq., Camberwell.

For Collections of 12 Greenhouse Azaleas.—1st Prize to Mr. Smith, Norbiton, Kingston; 2nd to Mr. Gaines.

For Collections of 10 Greenhouse Azaleas.—1st Prize to Mr. Green.

For Collections of 6 Greenhouse Azaleas.—1st Prize to Mr. Clarke; 2nd to Mr. Barnes.

For Specimen Rhododendrons.—1st Prize to Mr. Smith, for maximum; 2nd to the same, for album.

For Collections of 10 Orchideæ.—A Prize to Messrs. Henderson, Pine-apple-place, Edgware-road.

For Collections of 6 Orchideæ.—1st Prize to F. G. Cox, Esq., Stockwell; 2nd to Mr. Hunt; 3rd to Mr. Barnes.

For Collections of 30 British Ferns, in pots.—1st Prize to Mr. Taylor.

For Stove or Greenhouse Azaleas.—1st Prize to Mr. Kinghorn, Gr. to A. Murray, Esq., Twickenham, for Murrayana; 2nd to Messrs. Lucombe, Pince, & Co., for Duke of Devonshire; 3rd to Mr. Smith, for Semi-duplex pura.

For Collections of 6 Calceolarias.—1st Prize to Mr. Gaines.

For Collections of 12 New Pelargoniums, in No. 24 pots.—1st Prize to Mr. Dobson.

For Collections of 12 New Pelargoniums, in No. 24s (Nurserymen).—1st Prize to Mr. Gaines.

For Collections of 12 Pelargoniums, in No. 12s.—1st Prize to Mr. Parker, Gr. to J. H. Oughton, Esq., Rochampton; 2nd to Mr. Slowe.

For Collections of 12 Pelargoniums, in No. 12s (Nurserymen).—1st Prize to Mr. Gaines.

For Seedling Pelargoniums of 1845.—Certificates of Merit to Mr. Beck, for Patrician and Bebe's Lip.

For Seedling Pelargoniums (deep scarlet).—Certificate of Merit to Mr. Beck, for Resplendent.

For Seedling Calceolarias.—Certificates of Merit to Mr. Gaines, for Madonna and Harlequin.

For Seedling Fuchsias.—Certificate of Merit to Mr. Lane, for Mrs. Lane.

For Collections of 20 Roses, in pots.—1st Prize to Mr. Lane.

For Collections of 10 Roses, in pots.—1st Prize to Mr. Slowe; 2nd to Mr. Dobson.

For a Device illustrating the Principles of Arrangement and Combination of Colours.—1st Prize to Mr. Barton.

For Collections of 36 Pansies.—1st Prize to Mr. Brown, Slough; 2nd to Mr. May, Tottenham.

Extra Prizes were awarded for the following Miscellaneous subjects:—To Mr. Jackson, Bedale, Yorkshire, for 2 Cinerarias, Lady Prudhoe and Countess of Zetland; to F. G. Cox, Esq., for 6 vars. of Schizanthus; to Mr. Kendall, Stoke Newington, for 7 Fuchsias; to Mr. Pamplin, Walthamstow, for a seedling Cineraria, Azurea.

The Council has the pleasure of returning their thanks thus publicly to the unsuccessful competitors, whose contributions, by their excellence and number, added greatly to the brilliancy of the display. J. De C. Sowerby, Sec.

THE ASHCROFT SWEDISH TURNIP was raised by Mr. Ashcroft some few years ago; it has won several prizes in competition with other sorts: it is somewhat of an oval form, has a yellow flesh, and is highly nutritive; is a very heavy cropper, and is well adapted for storing; will bear sowing later than most other Swedes, price 1s. per lb. Skirving's, Matson's, and Pain's Hardy Green-crown Swedes, 1s. per lb. each; True Purple-top Swede, 9d. per lb.; Gibbs's Green-crown Yellow Hybrid, Dale's Hybrid and Purple-crown Yellow Hybrid, 1s. per lb. each. General priced Catalogues are ready.—MEADOW and PASTURE GRASS SEEDS, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. Mixed sorts for improving old Grass Land, 1s. 3d. per lb. Directions for sowing, &c., will accompany the seeds.—George Gibbs & Co., Seedsmen, &c., to the Agricultural Society, 26, Down-st., Piccadilly.

WM. JACKSON & CO., possessing a splendid stock of Calceolarias, Geraniums, and Cinerarias, beg to offer fine strong plants for bedding out on the following reasonable terms; viz.

12	splendid Calceolarias, named, for	..	12s.
12	do. Geraniums, do.	..	12s.
12	do. Cinerarias, do.	..	12s.
50	choice Greenhouse Plants for	..	2l. 2s.
25	very select Do. Do.	..	2l. 3s.
25	do. Stove Plants for	..	2l. 2s.

Plants will be given to compensate for long carriage.
Cross Lanes Nursery, Bedale, Yorkshire. May 17, 1845.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

PLANTS AT REDUCED PRICES.

WILLIAM E. RENDLE has this Season an unusually large Stock of GERANIUMS, FUCHSIAS, DAHLIAS, and VERBENAS, and is enabled to offer them at very reduced prices.

GERANIUMS.—Selection of 20 Sorts from the following List, including hamper and package, for 25s.:—Favourite, Prince of Waterloo, Eveline, Count d'Orsay, Creole, Hamlet, Lord Ebrington, Cynthia, Aurora, Attila, Lady Cotton Sheppard, Portia, Jupiter, Life Guardsman, Vulcan, Amethyst, Camilla, Van Amburgh, Enchantress, Ivanhoe, Glory of the West, Consort, Princess Royal, Circassian, Mabel, Prince Albert, Bridegroom, Sybil, and SUNRISE.

FUCHSIAS.—*First Class.*—Selection of 20 new Sorts from the following List, including hamper and package, or free by post, for 15s.:—Duke of Wellington, Florence, Magnet, Elegii, Kentish Hero, Lindleyana, Vesta, Reflexa, Modesta, Hector, Gigantea, Espanii, Decora, Coccinea Vera, Coronet, Albion, Uttoxeter Beauty, Riccartii Grandiflora, Lowreyii, Exoniensis, Kentish Bride, and Lawley's Queen.

Second Class.—Selection of 12 Sorts from the following List, including hamper and package, or free by post, for 6s.:—Rogersiana, Balloonii, Venus Victrix, Formosa Elegans, Transparens, Brockmanii, Nobilissima, Defiance, Champion, Eclipse, Robustum, Lancii, and Prince Albert.

DAHLIAS.—*First Class.*—Selection of 12 Sorts from the following List including hamper and package, for 15s.; or free by post for 18s. 6d.:—Standard of Perfection, Emma Noke, Lady Antrobus, Madame Hellez, Blue Bonnet, Aurantia, Young England, Oakley's Surprise, Essex Triumph, Confidence, Antagonist, Fairbairn's Surprise, Sir F. Johnson, Princess Royal, Prince of Wales, Conqueror of the World, and Rouge et Noir.

Second Class.—Selection of 20 Sorts from the following List, including hamper and package, for 10s.; or free by post for 12s.:—Glory of Plymouth, Lady Douglass, Bloomsbury, Bridesmaid, Beauty of the Plain, Will Watch, Conqueror of the Plain, Oriental Pearl, Eclipse, Tournament, Burnham Hero, Unique, Virgil, Bedford Surprise, Bianca, Great Western, Mrs. Shelley, Sir R. Sale, Queen of Trumps, Favourite, Mrs. J. Richardson, Hero of Stonehenge, King of Lilacs, Vivid, Violet Perfection, Col. Baker, Grand Monarch, Lady Cooper, and Sure Enough.

VERBENAS.—Selection of 20 Sorts from the following List, including hamper and package, or free by post, for 9s.:—Princess Royal, Striata Coccinea, Cœrulescens, Speciosa, Formosa, Fanny Ellsler, Laconii, Prince of Wales (Knight's), Alba Superba, Queen, Teucroides, Melindres Latifolia, Prince of Wales (blue), Rubra-purpurea, Duke of Cornwall, Emma, Blue Queen, Zenxes, Beauty, Purpurea Superba Rendle's, Delicatissima Rendle's, Naimii, and Odoratissima.

GIRLING'S NEW STRIPED PETUNIAS.—The following Set will be delivered on and after the 1st day of July, including hamper and package, or free by post, for 10s.:—Attraction, Beauté de Jour, Beauté Parfait, Cornilea Striata, Forget-me-not, Louis Gullino, Perfection, Portrait, Queen of May, Sans-pariel, Striata Delicatissima, and Morgan's Delineata. They are highly recommended by Professor Lindley, Mr. Glenny and Mr. Ayres.

CINERARIAS.—The following Set, including hamper and package, for 6s.:—Cœrulea, Enchantress, Royal Blue, Imperial Blue, Queen of May, Reflexa, Prince Albert, Queen Victoria, Grandissima, Ovid, Webberiana, and Rival King.

AZALEAS.—The following Set, including hamper and package, for 6s.:—Lateritia, Splendens, Variegata, Smithii, Rawsonii, Danielsiana, and Indica Alba.

ERICAS.—Selection of 12 Sorts from the following List, including hamper and package, for 20s.:—Willmoreana, Picta, Mollis, Ventricosa Superba, Verticillata, Linnæoides, Viridiflora, Muscaria, Cruenta, Transparens, Translucens, Cylindrica, Bowieana, Campanulata, Arbuscula, Corinthoides, Mammosa Pallida, Westphalingia.

HARDY HERBACEOUS PLANTS.—Selection of 12 Sorts from the following List, including hamper and package, for 5s.:—Lychnis Bungeana, Dianthus aggregatus, Stachys inodora and speciosa, Double White Antirrhinum, Phlox Van Houttei, P. Lilacea grandiflora, P. Cordata maxima, P. speciosissima, P. Riversii, P. verna, Œnothera fruticosa, Spiræa japonica, Campanula grandis, Alstrœmeria Hookerii, Dracocephalum speciosum, Iris variegatum, Lysimachia verticillata, Ranunculus repens pleno, Silene maritima plena.

MISCELLANEOUS PLANTS.—Selection of 12 Sorts from the following List, including hamper and package, for 20s.:—Pentas carnea, Habrothamnus fasciculatus, Rhododendron fragrans, Gloxinia cerina, Veronica speciosa, Begonia speciosa, Achimenes grandiflora, A. hirsuta, Stephanotus floribundus, Justicia nudosa, Centradenia rosea, Ixora coccinea, Bignonia picta, Columnea splendens, Siphocampylus Betulæfolius, Hibiscus Cameronii, Brugmansia floribunda, Lantana crocea, Passiflora Loudoni, Gesnera Cooperii, Stylidium fasciculare.

Every new Plant obtained as soon as introduced.

Thirty Packets of Choice Flower Seeds, free by post, for 5s.

Orders will be executed in strict rotation.

The whole of the above (except Petunias) will be forwarded immediately, on receipt of Post-office order.

*** ALL ORDERS ABOVE £3 WILL BE DELIVERED FREE OF CARRIAGE TO LONDON OR BRISTOL.

Union-road Nursery, Plymouth, May 17.

THIS ADVERTISEMENT WILL NOT BE REPEATED.

THE BEST MARKET FOR GERANIUMS; and also DAHLIAS, FUCHSIAS, PANSIES, VERBENAS, and other ornamental plants for bedding out, is at

T. APPLEBY'S NURSERY, YORK.

Amateurs and other cultivators of the Dahlia may *select* the best of those kinds *sent out new last May*, at 20s. per dozen (including package and plants to compensate for carriage); and plants may be *selected* of older kinds at 10s. per dozen (including, &c.), or at 6s. per dozen if the selection is left to T. A. The plants are *strong and healthy*, and have been exposed to the night air for some time. The other classes of plants *named above* are all *strong plants*, showing flower, and will be supplied at prices varying from 3s. to 9s. per dozen.

The Trade supplied on liberal terms.

T. A. is also prepared to supply plants, at 10s. 6d. each, of that *splendid new*

POTENTILLA McNABIANA,

which is a *dazzling scarlet, and very large*. It was raised by Mr. Menzies, of Halifax, and it may be presumed that *no mean production* would have been named to perpetuate the memory of so distinguished a botanist and cultivator as Mr. McNab.

T. A. can also supply the following:—Thunbergia chrysops, 2s. 6d.; Achimenes picta, 1s. 6d.; Pentas carnea, 1s. 6d.; Habrothamnus fasciculatus, 1s. 6d. to 5s.; Gesnera discolor, 5s.; Rose, La Reine, H.P., 3s. 6d. to 7s. 6d.; Fuchsia, Englan Chief, 3s. 6d.; do., The Admiral, 3s. 6d.; Camellia, Marchioness of Exeter, 7s. 6d. And Girling's new Petunias and Verbenas, at *half* the advertised prices.

T. A. begs to refer the readers of the *Gardeners' Chronicle* to his Advertisement in this Paper of the 3d instant.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	.. ..	11s. 0d.	20 inches	.. ..	22s. 6d.
15 inches	.. ..	12 6	22 inches	.. ..	25 0
16 inches	.. ..	16 0	24 inches	.. ..	32 0
18 inches	.. ..	19 0			

Slate Works, Isleworth, Middlesex

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9s. to 7l. 10s. per dozen. Wholesale and Retail Depot, 29, Queen's-row, Pimlico, near the Palace.

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is prepared expressly for drying Botanical specimens, for which purpose it is peculiarly adapted; and has received the most unqualified approval of our most eminent Botanists. Sold by the Manufacturers, W. and T. Bentall, Halstead, Essex; and by their Agents, E. Newman, 9, Devonshire-street, Bishopsgate (sole Agent for London); G. Davey, Broad-street, Bristol; H. Whitmore, 119, Market-street, Manchester; R. T. McIntosh, 12, Catherine-street, Edinburgh. For particulars see *Gardeners' Chronicle*, April 5, 1845; see also the Leading Article of the same Number.

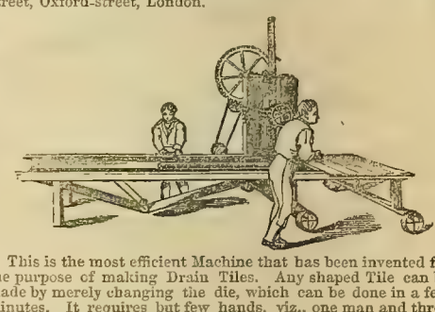
J. WEEKS and R. DAY, Architects, Horticultural Builders, &c., Gloucester-place, King's-road, Chelsea. The great simplicity of their improved plan of Shading, by which the roof of the largest or smallest-house can be instantly covered with a sheet of Canvass, renders the principle an object of admiration. To be seen in use at most of the London Nurseries, and at their Horticultural Manufactory, Gloucester-place, Chelsea.

PARTNERSHIP.—A PARTNER WANTED for a NEW HORTICULTURAL NURSERY ESTABLISHMENT on an extensive scale, and on an entirely new system. The Advertiser is about building a new Nursery on a novel and most magnificient plan. The Houses are to consist of one noble structure, 200 feet long by 100 feet wide, which space is to be covered with low span-roofs, with a noble dome in the centre, and the interior to be heated by Hot Water, and divided only by Glass Partitions; and laid out in various forms, for all required purposes. Horticulturists, with Money at command, whose views coincide with the Advertiser's, may see the Plans, and learn every particular, upon application to Messrs. J. Weeks and Day, Horticultural Architects, Gloucester-place, King's-road, Chelsea. Early applications are requested.

TO MARKET GARDENERS.

PARTNER WANTED.—A Person having about 40 acres of land is in want of a PARTNER, to attend to the sale of the produce in London. None need apply who cannot command 500*l.*—Application to be made (if by letter, prepaid) to Mr. James Burn, Solicitor, 11, Tokenhouse-yard, Lothbury, London.

PATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1½ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the Machine includes free use of it.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory lately erected at Chiswick.

D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.—The first Meeting will take place on Saturday, the 24th of May; Subjects for Exhibition must be at this Office, on Friday, the 23d; or at the Garden before Half-past Eight o'clock, A.M., on the day of Exhibition. The Gates will be open to Visitors at One, P.M. Tickets are issued to Fellows, at this Office, price 5s. each; or at the Garden, in the afternoon of the days of Exhibition at 7s. 6d. each, but then only to orders from Fellows of the Society.

N.B.—No Tickets will be issued in Regent-street on the day of Exhibition.—21, Regent-street.

WILLIAM MASTERS having been employed during the last 20 years in the study and practice of Horticulture, begs respectfully to remind his Friends and the Public, that he has possessed constant opportunities of obtaining novelties, and therefore his collection of Plants contains a greater number of species than are usually cultivated in a Provincial Nursery,—especially

The genus PINUS and its allies.
RHODODENDRON, AZALEA, and American plants generally.
HYBRID RHODODENDRONS, of vivid colours, many of which have stood the test of exposure during the late severe winter.
ROSES of nearly 1000 varieties.
GERANIUMS of the finest modern kinds.
CALCEOLARIAS in great variety.
CACTUS, OPUNTIAS, and Succulents generally.
ORCHIDACEOUS PLANTS and FERNS, a large collection.
CAPE and AUSTRALIAN PLANTS of many choice kinds.
AMARYLLIS, CRINUMS, LILIUMS, and other rare Bulbs.
A general assortment of Stove Plants.

In addition to these, the usual kinds of cheap plants, as Verbenas, Petunias, &c., employed for bedding, and a large assortment of the handsomest Herbaceous Plants, are cultivated for sale. Catalogues, with price attached, will be forwarded, postage free, upon application. Packages from 1l. and upwards forwarded free of expense to London, or plants added to compensate for carriage if preferred.

Exotic Nursery, Canterbury.

The Gardeners' Chronicle.

SATURDAY, MAY 17, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

WEDNESDAY, May 21—Microscopical Society of Arts . . . 8 P.M.
SATURDAY, May 24—South London Horticultural . . . 1 P.M.
SATURDAY, May 24—Horticultural Gardens . . . 1 P.M.
SATURDAY, May 24—Linnean Anniversary . . . 1 P.M.

COUNTRY SHOWS.

WEDNESDAY, May 21—Manchester Botanical and Horticultural.
THURSDAY, May 22—Surrey Horticultural and Floral.
THURSDAY, May 22—Liverpool Botanic and Horticultural.
FRIDAY, May 23—Kensington Tulip.
FRIDAY, May 3—Hammersmith Heartsease.

OUR remarks on the GLASS TRADE have produced two replies, one from Mr. PILKINGTON, and the other from Mr. CHATER; they will be found in another column.

We shall wait a few days to see whether these communications close the case of the Glass Trade, and then make our reply. For the present we shall only observe that if we find any error in our calculations, we shall admit it without reserve. If we have hurt any man's feelings, we much regret it. But we have to perform an imperative duty from which we cannot shrink; and we must add, that the letters in question appear to contain unwilling, but conclusive evidence as to the general accuracy of our statements.

IN 1843 some observations were published in this Journal, page 134, On the Construction of ARTIFICIAL ROCKWORK. A few more remarks are now offered in the hope that they may be acceptable to those who have the means of adding this ornament to a garden. It must be understood, however, that by artificial rockwork it is not intended to recommend a formal mass of flints, clinkers, brickbats, and oyster-shells; but a structure, of which the outline is mentioned in the Paper above referred to, arranged upon a settled plan, in which the aspect and situation are so contrived as to suit particular plants; and the soil, by a judicious division of each compartment, is adapted to the habits of such as it is desired to cultivate.

In a large garden, where space is not an object, the divisions or beds in rockwork should not be small, but formed for growing masses of plants; smaller spaces may be made at intervals for single plants of Fuchsias, Cistus, Cytisus, Daphne, &c.; and a standard Berberry may be introduced with good effect in some prominent part of the work. Petunias, Verbenas, Antirrhinums, and the varieties of Ivy-leaved Geraniums, are well suited for beds. Many species of Iris and Primula thrive well on rockwork; and, from retaining some degree of verdure during winter, produce a good effect at that season. The Savin also is a beautiful plant for this purpose. We do not, however, go into that matter on this occasion, because the main point to which at present it is wished to direct attention is, the means which this structure, properly made, affords of growing many plants with success, which are found in many gardens to require more care and expense than can be ordinarily given to them.

With this object in view, it is proposed to form rockwork in such a manner that the plants which require the shade of a northern aspect shall obtain it sufficiently for the preservation of health and vigour, which the height of a north wall frequently interferes with at the time of flowering; and that those plants, which require a southern aspect and shelter from cold winds, should receive all the benefit of the full exposure to the sun in mild weather, and yet be capable of such protection in a severe winter, or from early spring frosts, after they begin to grow, as to secure them from those sudden changes of temperature which too frequently either wholly kill the plants or injure them so severely as to render them an eyesore for the succeeding season. Now the latter object may be obtained by laying the stones at the edges of such beds as require protection, so as to admit of a glazed frame being placed upon them, which can be altogether removed as the season advances. In this way many of the Cape bulbs, such as Ixia, Gladiolus, Ornithogalum, Amaryllids, Oxalids, &c., may be cultivated, some of those requiring only a covering in winter of decayed tan or ashes to prevent the frost reaching them. Others, as Mesembryanthemums, being furnished with a covering of glass, and the ordinary protection of mats in severe weather, will form a beautiful mass of flowers in the summer, and many plants which are now only kept in pits might be thus treated with better success, and less trouble. On the north side of the rock, besides those plants, such as Ferns, &c., which are well known as thriving in shade, some of the beautiful tribe of Lilies may be successfully grown in such situations; for the height of the rock may be so arranged as to prevent the too powerful action of the sun upon the roots and leaves, and yet admit of the flower-stem, when it is thrown up, receiving the full benefit of the sun and free air for expanding the flowers in perfection.

In such situations as admit of rockwork being formed round a spring of water, more particularly if the spring rises on the slope of a hill (or where no such natural advantage occurs, if water can be laid on by pipes) it may be directed to such plants as require a constant supply of moisture, or used to refresh the mass in dry summers without the labour attendant on the ordinary means of watering plants. Where a fountain can be introduced the effect may be still further increased, particularly if it is so placed as to be seen from the windows of the house which front the western aspect, when it will exhibit a beautiful and varying effect as the sun sinks below the horizon.

The advantage of rockwork is the power of relieving the sameness of a level surface by such a judicious arrangement of its structure as will correspond with the position it is intended to occupy; the assisting by artificial means certain natural advantages which will admit of its introduction for effect or for growing particular plants; the opportunity of growing plants within the limits assigned to them, in which aspect, soil, and other minutiæ required can be arranged without interfering with such as may occupy the adjoining divisions; the facility of shade, or of exposure to the hottest sun, with protection from winter and spring frosts, and the perfect power of drainage so especially essential for the growth and luxuriance of all, but especially of half-hardy and tender plants.

The only objection which can be urged against rockwork, is its tendency to harbour snails and slugs. This may be easily remedied by watering early in the spring with ammoniacal liquor from the gas-works, diluted with water in proportions already given in this paper; or in the summer time, with lime-water, some time after sun-set, when these creatures come from their hiding-places to feed during the night. Such a process, with the ordinary care of picking off any that may be seen at intervals will, by perseverance, effectually destroy them.

The object of the above remarks has been to point out the opportunity of improving the appearance of many gardens. Rockwork may be made available to hide some part wished to be concealed—it may relieve the sameness of a long line of level surface—or it may form an appropriate division between one part of a garden assigned to ornamental purposes, and another to the cultivation of distinct plants. It may vary in height according to the circumstances required, and may in some cases be useful as a shelter from north-east or other prevailing winds for other parts of the garden. The application of the hints here given must be left to the taste, talent, and experience of the intelligent cultivator; but one thing is essential, NATURE MUST BE STUDIED IN THE CONSTRUCTION OF THE WORK; it must not be cramped and made up of small fragments put together artificially, but should possess a bold natural appearance in its general form and outline. Masses of stone, where they can be readily obtained, are best; even varieties of stones from various quarters may be worked in for different parts, and the horticulturist who has a taste for geological specimens which are too large for the cabinet, may give variety and interest to the work by placing them in such prominent situations as will readily meet the eye.

More might be said; but enough is offered to those who have not made rockwork on this plan. To those who have studied such a means of growing plants these remarks may suggest some improvements, and perhaps induce them to communicate the result of their experience for the subject of a future notice. Above all things we trust that our advice will have the effect of putting an end to the hideous mounds of flints, &c., which are so frequently seen in places where something better might have been anticipated.

IT appears probable that the NUMBER OF PLANTS to be EXHIBITED NEXT SATURDAY, AT CHISWICK, will be more considerable than usual. It would, therefore, be a convenience to the Society if those who propose to send plants would give notice with as little delay as possible.

WE are happy to learn that the practice of THROWING SHOWS OPEN TO ALL COMPETITORS is now becoming more frequent, and in fact the transmission of flowers from a distant part of the kingdom to another is so easy and certain, that the delicate and perishable florist's flower can be taken hundreds of miles with greater safety, and with less risk of chafing and injury, than it formerly could be carried ten.

There is only one objection that we see to these exhibitions, which is, that the time is usually fixed to suit the locality in which the show takes place, and consequently from the difference of the blooming season in the east, west, north, and south of England, the best collections can never, on these occasions, be brought in competition together. We are led to make these remarks by observing an advertisement of another show to be held at the Coppice, near Nottingham, the latter part of July. This period may suit Northampton, Oxford, Birmingham, Worcester, and the counties lying east and west of the place of competition; but for many parts of Yorkshire it would be too early, and for the more northern counties wholly out of the question, whilst the best flowers in the south will generally be over. We certainly consider that the system of holding open shows, in various localities, year after year, on the plan of the Agricultural Society of England, would be attended with most beneficial results, as it would give the growers, in each part of the kingdom, a chance in their respective turns, and would also add an impetus to the cultivation of florists' flowers wholly unprecedented.

We see that a Tulip show, open *only to Yorkshire*, will take place early in June, and though, we believe, that there is some difference in opinion, with regard to judging the properties of the Tulip, between metropolitans and provincials, still we hail all meetings of this kind, as a step taken in the right direction.

HOTHOUSES FOR AMATEURS, &c.

THE ample directions given from time to time in the *Chronicle*, for the management of small greenhouses, will enable amateurs to keep their collection of plants in good order without much difficulty; but there are doubtless many persons who would prefer a hothouse, but may be deterred from erecting one on account of the supposition that it is more difficult to manage than a greenhouse. I have, however, no doubt that with a little experience and perseverance, any intelligent person will find very little difficulty in the matter; and it must afford gratification to the owner of a small hothouse to produce for his own table, and by his own management his dish of French Beans, new Potatoes, Strawberries, Cucumbers, &c., and also a succession of beautiful flowers all through the winter and early spring months, and in summer a constant supply of Melons, a good crop of Grapes, and a Pine-apple occasionally, besides a regular display of hothouse plants in flower.

A hothouse for these purposes, of from 25 to 30 feet in length, and 12 feet in width, should have at least four hot-water pipes round the front and both ends. A platform for plants along the front and one end, a pit in the centre for Pines, the path to go entirely round it; a strong deal shelf 14 inches in width fixed on the back wall, 3 feet or 3½ feet from the glass, and a shorter one across each end; these shelves must be strongly supported with iron brackets, as they will have to bear large heavy pots; and as they will be always exposed to intense sun-heat, they should be made of the very best seasoned timber; shelves of smaller dimensions should also be put up in front for Strawberries, &c., and as these will only be in use for a few months, they should be so fixed as to be easily taken down when not in use.

Now, suppose a house of this kind is built and finished in the month of March or April, the first thing to be done is to plant the Vines; if it is not convenient to make the border at once, make it 5 or 6 feet in width, which will be quite sufficient for the first year, adding a few feet every season till the border reaches its proper width; this plan I consider better in every case than making it all at once. The next thing to be done is to get the pit ready for Pines, and to begin to form a collection of flowering plants; of these the following are a few sorts that flower in succession nearly all the year round, and are not liable to the attacks of red spider. For the winter months procure Euphorbias, Poinsettia, Plumbago rosea, Franciscea, Ixora coccinea, &c. For early spring, Gloxinias, Gesneras, Amaryllises, &c. For spring and summer, Amaryllises, Achimenes, Gardenias,

&c. ; with a good assortment of the above a constant succession of flowers may be kept up. About the beginning or middle of September plunge a pot of Cucumber seeds in the bark bed, and when the plants appear cover them with a bell-glass, to preserve them from wood-lice; as soon as the rough leaf begins to appear the plants will be ready to pot off into 3 or 4 inch pots; as the plants will most likely be considerably drawn, carefully coil the stem round the sides of the pot, just leaving the head above the surface of the soil, which should be composed of one-half fresh loam and one-half very rotten cow-dung, or leaf-mould ; plunge the pots again into the bark bed, shading the plants from the sun for two or three days. In the month of October, as soon as the Vines are fit to turn out, the house should be well cleaned and washed in every part, and shut up closely, as little or no air will now be wanted. The Cucumber plants will now be ready for their final shift into 13 or 15-inch pots ; the pots being well drained, fill in with lumps of turfy light soil and very rotten manure, shaking a little finer soil amongst the lumps to make all firm; place the plant deep in the pot, as every part of the stem buried will emit roots into the soil ; when all is finished place the pots on the back shelf in the middle of each light to catch the full sun as much as possible ; water gently at first, increasing the supply as the plants acquire strength, and never neglect syringing every morning and evening ; in training they may be brought forward on to wires stretched across the rafters : my favourite plan is simply to tie them to a single stick, and when the plant is about 2 feet in height I then stop it ; this causes laterals to push out at every joint with fruit on each ; these should be stopped one joint before the fruit; as the fruit swells it may be allowed to hang down over the pot, or be tied up to the stick. I find this the most convenient plan of training, as when the plants come well into bearing they can be taken down and placed on the kerb or back wall of the Pine-pit, where they continue to grow and bear quite well, and another lot of younger plants can then be put upon the shelf for succession ; by this way of management I find no difficulty in having a continual supply of Cucumbers all through the winter and spring, and although I have capital hot-water pits, I find it saves me a great deal of trouble to grow the early crops in pots. I very seldom admit air in winter, allowing the thermometer to range from 55° to 90° or 95°, as it happens to be sunny or cloudy weather.

Melons may be grown exactly in the same way, and in pots of the same size (15-inch), only using nothing but pure strong loam to grow them in. I have just now a crop in pots (the Beechwood) swelling beautifully. I allow only two fruit to each pot, and one plant for the same, giving liquid manure freely when the fruit is swelling ; it will thus be seen how this part of the house may be turned to account, where, in nine cases out of ten, it is to be seen empty and, of course, useless. If it happens that I am short of young Cucumber plants, I turn out the old plants that have borne a crop, reduce the ball, and repot them, coiling the old stems down, and leaving a young shoot just above the soil. An old plant managed in this way will grow and bear quite as well as young plants.

A few Ash-leaf Kidney Potatoes may also, in October, be potted (9-inch pot) and placed on the shelves ; and, by continuing to pot a few every three weeks, will keep up a succession. French Beans also may be started in November, Strawberries in February on the front shelf, and Melons may also now be sown to take the place of the Cucumbers, if there should be any convenience for growing the latter out of doors ; in March the Vines will require to be brought into the house, when the temperature must be lowered for a few weeks; yet if the Cucumbers, &c., are kept free from insects, and are in good health, they will scarcely feel the change. In the management of a hothouse there is one thing to be most particularly borne in remembrance, viz., never to crowd plants—always leave plenty of room for everything to grow and thrive ; better have a "little and often" than a great deal and then none ; and if I may presume to give advice to amateurs on another point, I would just observe, that the quickest and most economical, as well as the most complete knowledge to be acquired how to manage, as well as to build a hothouse, is to consult an experienced practical gardener, to trust neither to his own judgment nor that of any other person unexperienced in practical horticulture, but to take the advice of a clever gardener, both in building and management, and to abide by it ; by so doing he will not only save himself trouble and expense, but will gain more experience in 6 months than he will do by books in 6 years.—*Robt. Reid, Noble Thorpe.*

BIENNIALS.

The following six hardy kinds comprise the most ornamental sorts ; they are of different colours, grow well in any rich common garden soil, and bloom abundantly ; the seeds may be sown in the open border :—

Coreopsis (*Calliopsis*) *Atkinsoniana*, grows from 1½ to 2 feet in height, branched, and rather erect. The flower-heads are bright yellow, about the size and very like those of Calliopsis tinctoria, but destitute of the dark centre. It blooms freely, remains long in perfection, and comes from the north-west coast of America.

Pentstemon speciosum, attains a height of from 3 to 4 feet, with hardly any side branches ; in habit it is rather erect. The flowers are azure blue of various tints, large, and produced in long spikes. It blooms profusely, remains long in perfection, and, when well grown, is one of the most beautiful hardy biennials in cultivation. It is from the same country as the preceding.

Hedysarum coronarium, grows from 3 to 4 feet in height, rather spreading. The flowers are bright scarlet, large, and very handsome. It blooms freely, remains long in perfection, and is a native of Italy. There is a variety of this with white flowers, which is also very ornamental.

Campanula Medium, grows about 2 feet in height, branching and rather erect. The flowers are large, of various tints from deep blue to white ; on some plants they are double. It blooms abundantly, and remains long in perfection. It is well known under the name of Canterbury Bells.

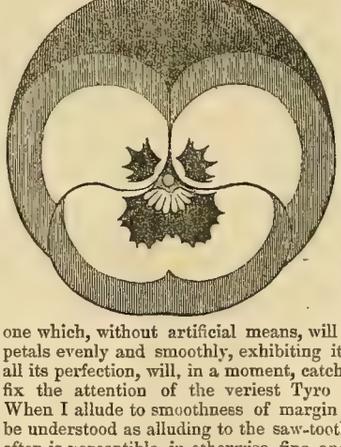
Scabiosa atropurpurea, grows from 1½ to 2 feet in height, rather spreading. The flowers are of various shades from dark crimson, or deep purple, to white and variegated. It blooms very abundantly, and remains long in perfection.

Catananche bicolor, attains a height of from 12 to 18 inches, rather spreading and much branched. The flower-heads are white, rather large in size, with a deep purple centre ; they are very handsome. It blooms freely, remains a considerable time in perfection, and comes from the south of Europe.—*George Gordon.*

THE HEARTSEASE OR PANSY.

As far back as I can recollect, roundness, or as florists were wont to express it, "a good shape," was one of the first and most essential points in a flower, and however this property in certain localities, and by sundry florists, might be underrated, still we shall find that it is no new thing to advocate. It is but a few years ago when the Pansy was almost of any form you liked, except circular, and we need only refer to the floricultural periodicals of that day to show what a rapid advance has been made, and how completely the "splendid sorts" of that time, are now thrown into the shade. As many readers of the *Chronicle* may not be *au fait* with respect to the properties essential to constitute a show flower, though growing many seedlings of their own, I shall briefly state what is requisite, and enumerate the various points of excellence, &c.

Form—as in the flowers previously described, takes precedence, and under this head I would include smoothness of margin and perfect flatness of the petals. These ought to be so disposed as to form a perfect circle, and, in fact, when the lower petal and the two upper ones are removed, the two side petals, in fine-shaped and well-proportioned flowers, should also meet at the upper and lower parts. I believe that the petals meeting well above the eye, as shown in the woodcut, is of great importance, making the form of "the shield" complete. In judging flowers, this is a point I have always advocated. A disposition to bloom flat is also desirable; and the contrast between a rough, uneven, frilled flower, and one which, without artificial means, will dispose of its petals evenly and smoothly, exhibiting its rotundity in all its perfection, will, in a moment, catch the eye and fix the attention of the veriest Tyro in the fancy. When I allude to smoothness of margin I must beg to be understood as alluding to the saw-toothing which too often is perceptible, in otherwise fine and unexceptionable flowers. It is absolutely necessary that this should be avoided, for though the defect may be minute, still it tells against a bloom, when in competition with one perfectly smooth. Many of the improved flowers have an indentation on the lower part of the lip, in some it is scarcely visible ; but wherever this occurs it detracts from the merits of the flower, by destroying its circular form, which is so essential.



Substance, or thickness of Petal, is the next point. Let the form be ever so good, if the flower is flimsy and the petals weak, its beauty cannot be justly appreciated ; and for this reason they should be thick and velvety in their texture, so as to enable the flower, in florist's phraseology, to "stand well."

I certainly think all flowers shown in stands should be inserted in nipples (tubes), rising at least half an inch from the surface ; by this means weak-petaled flowers would immediately be detected; whereas, according to the present system of exhibiting, they are supported by the stand. I see no good reason why they should not be shown with the petals quite clear of the pan, in the way of Pinks and Carnations.

Harmony, or proper distribution of Colour, is a property on which there appears to me to be a great diversity of opinion ; but, in all flowers, I hold it essential that the three bottom petals should agree in shade, whatever may be the colour of the upper ones; and, in selfs, it is necessary that they all should assimilate. The reverse of this, I am aware, has been for a length of time allowed, and many flowers have been sent out as first-rate with the ground-colour sadly stained, which is as great a defect in the flower under consideration as a discoloured bottom to the cup of a Tulip. If the flower is a self, whether white or yellow, it must be pure and steadfast in colour ; and the eye large and well-defined, being generally either black or dark purple, contrasting as much as possible with the body colour. When the colour is dark, whether purple, black, morone, or crimson, the eye should be either yellow or white, without that shading off so apparent in some varieties. In belted flowers, or those with a margin of colour encircling the three bottom petals (as shown in the woodcut), it ought to be of a uniform width throughout ; and the less the triangular spot, often seen on the lower one, is apparent, the better is the flower.

Size is the least essential of the properties to be enlarged on, as there can be no question which flower should take precedence, when the other points of those in competition, are equally balanced. In judging a collection of flowers, I should give to form, four points ; substance, three ; distribution, or harmony, two ; and size, one. And it will be necessary that censors should disqualify any flowers that have been unfairly dealt with, by cutting or clipping the edges, pressing, &c.—*W.*

Home Correspondence.

Glass.—I am sure that no one who has read your late observations on the prices of glass can suppose, for a moment, that you are a "partizan in disguise ;" and since you say that you have wished to treat this subject temperately, and to avoid exaggerated statements, you cannot refuse to correct such as are shown to be erroneous. In your Leading Article of last Saturday you say that you have ascertained that the green-bottle trade has dealt fairly by the public, and you promise them your support if they will commence making green sheet-glass, though I often read in your Paper that you never recommend any tradesman. But of course it is only for the advantage of their honesty that you promise them your support beforehand, and you then proceed to denounce the plate, sheet, and crown-glass trade, and threaten them that, if they will not give the public glass at prices founded on your own calculations, you will compel them to do so by "Acts made to amend Acts," "Orders in Council," &c., whilst it unfortunately happens, for the credit of your discernment, that the largest glass manufacturers in the kingdom not only make green glass bottles, but plate, sheet, and crown-glass also ; in other words, though hitherto deemed highly honourable and most respectable, it would now appear that they are only honest in their dealings in the proportion of one to three, not even honest by halves. The striking error which you perpetuate is the same as was committed by Sir R. Peel in his speech on the budget, in which he assumed drawbacks upon exportation to be the same in amount as the duty paid upon glass. What the difference was upon plate-glass I cannot tell, but upon crown it was 33⅓ per cent., whilst upon sheet it was about 9 per cent. in excess over and above the duty allowed on account of the restrictions imposed upon exportation, and as an equivalent for the loss previously sustained, but surely it is not correct to deduct this excess ; you may call it bounty if you please, from the cost or price of an article that is duty free. I am sorry to add, that there is less excuse for you than for Sir R. Peel, because I have before pointed out this error to you, and yet you reassume it, whilst a very little inquiry would have told you both that the duty alone never formed two-thirds of the price or cost of either plate, sheet, or crown-glass. In a letter to myself you said, "you see that I am writing in full possession of all material facts," and in your last "slashing article" upon this subject, having previously admitted, the week but one before, that crown-glass manufacturers had acted fairly by the public, you say "the truth is, that they take off the duty upon crown-glass which no man of sense will now buy ;" but I infer that you must either be ignorant of, or have overlooked the fact, that all restrictions as to thickness were removed at the same time that the duty was repealed, and crown-glass can be made as thick, and of course as strong, though not in such long panes, as sheet-glass, which you say is the only article worth having. As your premises are clearly and decidedly false, so are your inferences ; and as you do not want to know the profits upon sheet-glass, which, though a dishonest manufacturer according to your version, I trust you will believe when I say they are not near so great as I could wish. I will dismiss this part of the subject by only saying that when you next publish your computations, you must add at least 25 per cent. to the amount of wages. You must not overlook the increased cost of coal, timber, iron, &c. &c.; the increased thickness of the duty-free glass ; you must not, as you have done in your comparison of prices, set 16 oz. against 13 oz. per foot ; and last, though not least, you must not forget the 25 per cent. taken from us of duty on stock on hand ; the quantity of glass exported at a great sacrifice to recover the full amount of drawback, and what is more serious still, the large amount of wages paid between the 14th Feb. and the 5th April, when our men were comparatively speaking doing little or nothing ; at which times, as I before told you, we, according to our contract pay them, work or play. These are facts, startling facts, of which I am sure you could not be in full possession, or you would not write as you have done. You further say that manufacturers complain of their workmen, and send them to prison for demanding higher wages. This is a new order of things, and I was not before aware that even a magistrate could have done this with impunity ; for in the case you allude to, I had in my simplicity supposed that the magistrates had sent the men to

prison for a breach of their agreement, and I am further surprised that you did not say, if it were only for the sake of consistency, that glass manufacturers and their workmen were all rogues together, for conspiring to defraud the public and keeping up the prices of glass to the poor horticulturists. But allow me to put this matter in another form; and suppose I go to buy a Pine-apple in Covent-garden market, for which 10*s.*6*d.* is demanded; when I reply, Nonsense, I can get one which comes from foreign parts for 2*s.* 6*d.*, and you must be a rogue for demanding more. It is no fault of mine that you cannot grow it at the same price; but you must remember that the duty is taken off foreign fruit; and recollect, sir, that there are Acts to amend Acts, and Orders in Council, sir, and which will prevent your withholding our just rights from us. I leave you to suppose the man's astonishment, and to supply his answer, the mildest of which would be, "then go and buy it," &c. Again, I have for three years past purchased my fruiting Pines, at an average price of 4*s.* per plant; however, on sending my gardener this year to four nurseries, at three of which he was unknown, he was asked 10*s.* and 10*s.* 6*d.* for each; and finally paid 9*s.*, according to the bill and receipt beside me. The reason they all assigned was, that as the duty was about to come off glass, Pines would be in greater demand and at a greater price than ever. When my gardener related this to me I did not say that they were dishonest or robbing the public of their just rights, but merely observed—"Well, we must begin and raise our own in future;" and I would humbly and respectfully suggest the same to the horticulturists, if they choose to adopt it rather than be cheated. This, too, is what I suppose the glass dealer meant by "trying it on," or what Sir R. Peel calls buying in the cheapest and selling in the dearest markets—a plan which he recommended to all, but which you deny to glass manufacturers only. You repeatedly allude to some compact entered into between the Government and the House of Commons, on behalf of the public, to the effect that, if they would submit to a continuation of the income-tax, they should have glass at a certain price. Now, my partner, who is a member of the House, never informed me of it; but I conclude that the glass manufacturers were represented on that occasion by Messrs. Blank & Co., to whom you refer, and who, too, have neglected to acquaint us that it was then and there admitted that the public have a vested interest or right in our private property. I am aware, however, that the Government agreed to become our partners; in other words, they have kept 25 per cent. off the duty paid upon the stocks of all manufacturers and dealers in the kingdom, and have not yet refunded the remaining 75 per cent.; in other words, they have left us to get it back from the public as we can, securing their share beforehand. Perhaps you can explain upon what other principle this bargain was driven with the glass manufacturers, if this be not the correct one; and as there seems to be so close a connection between this "great boon to the public" and the income-tax, whether, if the income-tax should cease at the end of three years, the duty is again to be charged upon glass as formerly? I can quite understand that you are disappointed in the present prices of glass, and believe that, in your zeal to serve the horticultural world, you do not wish to inflict an injury on any other class. You say that you wish to discuss this subject fairly, and I must put your sincerity to the test, by requesting you to make my remarks as public as your previous observations, and let your readers judge and act for themselves.—*William Pilkington, Crown, Sheet, and Plate Glass Works, St. Helen's, Lancashire.*

Glass.—I have experienced much pleasure in reading the various articles that have lately appeared in the *Gardeners' Chronicle* respecting the prices of the different kinds of glass, and am greatly surprised that the manufacturers do not immediately give the public the full benefit they derive from the repeal of the duty. I quite agree with you in the arguments brought forward in favour of an equivalent reduction of price, but I would also add one, which I think clearly proves that the manufacturer might reduce the price more than the actual amount formerly paid to Government, and still realise as large a profit as during the existence of the duty. The point I allude to is the small capital at present required compared with the amount under the old system, which in the manufacture of sheet-glass would now only be one-third the amount, the duty having been, as you have already so clearly stated, 200 per cent. The breakages must likewise make a considerable difference, as the duty was always charged on the metal in the pots, and therefore the amount paid was lost on all articles spoiled in the manufacture. I hope very shortly to see your predictions verified, by the appearance in the market of a strong green glass for horticultural purposes, at a price that will encourage the different branches of forcing on a much larger scale than has ever hitherto been practicable. I am also decidedly of opinion that an article of the kind would soon be in considerable demand with agriculturists, for I know, from personal observation, that many farm buildings are kept inconveniently dark for want of a more durable and cheaper material for lighting them than it is at present possible to procure.—*Arthur Hall, 25, Upper Eaton-street, Pimlico.*

Glass.—As a general reader of your Paper and an amateur horticulturist, allow me to say that I think the lengthened article you have given the public this week upon the prices and manufacture of glass, deserve the highest commendation. On speaking to my glazier a short time ago, there was the same "haggling" about the thing, and that "the duty off would not make it cheaper." I ask, with hundreds of others, "why not?" If we have hitherto been paying 200 per cent. duty, and that 200 per cent. is now repealed, the public have a right to demand the same deduction. I wish your opinions were circulated in every family in the kingdom, and more particularly amongst those whose gardens demand so large a quantity of this important article.—*A., St. John's Wood.*

Glass.—Having read your observations in the *Gardeners' Chronicle* respecting the glass trade, which I trust will have the effect of enlightening the manufacturers as to their true interest in giving the public the full benefit of the reduction of duty, and thus extend the consumption of the article to an almost indefinite amount, I beg leave to direct your attention, as well as that of the manufacturers of glass, to the possibility of substituting glass for wood or iron for the frames of conservatories, hothouses, &c. I need not point out the advantages that would arise from the greater degree of light to plants, and the avoidance of all risk of breakage, as in the case of iron, from the sudden expansion or contraction of the metal by change of temperature. With regard to the strength of the material, I am inclined to think that cast glass frames would be quite as strong as iron, and, at the present price of that metal, considerably cheaper. I really believe if the matter was to meet with your approval, as an horticulturist, my proposition may be the means of opening a most extensive and lucrative market for our glass manufacturers, if they can only be induced to meet the public fairly.—*C. J. C., Lincoln's Inn.*

Glass.—I think the glass manufacturers may, indeed, complain of the clamour you have raised against them, which might have been avoided had you sent any person with common understanding to ascertain the real state of the question. It would almost appear you were disposed to misrepresent facts rather than avoid exaggerated statements. In the first place, let me set you right about the dealers, who, you say, are neither influenced by the repeal of the duties, nor by Acts of Parliament; and then you say, "We believe the most valid excuse for their prices to be the fact that, the cost of coals has advanced very much," with which, as you will see hereafter, they have nothing whatever to do. Upon inquiry you would have found the dealers are merely brokers for the sale of glass for manufacturers, who alone fix prices, allowing the dealers, after their expenses are paid, only a small commission upon the amount of their returns. So that your remark that the dealers pocket the whole of the repealed duties is, as Mr. Pilkington told you, a misrepresentation of the truth. The glass trade are not much benefitted by your doubts, whilst you, from week to week, urge the public to abstain from buying upon false premises. Crown-glass stands first in amount of duty paid, and is preferred by the public for windows, notwithstanding you have a different opinion. The quantity manufactured in 1844 was 99,180 cwt., which paid 382,710*l.*, scarcely equal to 6½*d.* per foot, in *drawback*, not duty. The printed prices throughout the kingdom in 1844 were for

	Best.	Seconds.	Thirds.	Fourths.	Fifths.
Under 1ft. 6 ins.	1*s* 10*d*	1*s* 7*d*	1*s* 5*d*	1*s* 3*d*	1*s* 2*d* per ft.—duty [say 6¼*d.*
Present prices under 2ft.	0*s* 11*d*	0*s* 10*d*	0*s* 9*d*	0*s* 8*d*	0*s* 7*d*

The glass of 1844 averaged 9½ ounces to the foot; it now averages more than 11 oz. to the foot. Sheet-glass manufactured last year was 31,560 cwt.; the duty paid 121,782*l.* A very large proportion of this article, in the trade called cylinder-glass, was sold at 1*s.* per foot, equal to 10½*d.*, with 15 per cent. off. It is now 6*d.* per foot, less 20 per cent., equal to 4¾*d.* It weighed from 9 to 10 oz. to the foot, and being made square, only paid a duty of 5½*d.* per foot, including a bounty. The new cylinder sheet-glass weighs at least 11 ounces to the foot.

No. 1, sheet-glass, in 1844, averaged 13 oz. to the foot—Duty paid, 73*s.* 6*d.* per cwt.

	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	[p. cwt.
Price under 2 ft. was	2	0	1	10	1	5	1	4	p. ft., duty 7*d.* at 84*s*
No. 1 now avs. 16oz at	1	3	1	1	1	0	9	0	8 ,, new prices.
No. 2, in 1844 ,,	2	3	1	2	1	1	7	1	6 ,, duty 9*d.* at 84*s*
No. 2 now avs. 21oz at	1	5	1	1	1	0	11	0	10 ,, new prices.
No. 3, in 1844 ,,	2	10	2	8	2	4	2	2	,, duty 13*d.* at 84*s*
No. 3 now avs. 32oz at	2	6	2	2	1	6	1	5	a new article.

The cost of sheet-glass in crates, you will see by the numerous lists with which your table is covered, is less than when cut into squares, which difference does not pay the loss in cutting, but upon this ground I will take my stand, independently of cylinder sheet-glass, when comparing Sir R. Peel's words about cost to the manufacturer. The worst quality he assumed to be good enough for the horticulturist, for which he took the price of 1*s.* 2*d.*, less 15 per cent., equal to 1*s.* The present price, 7*d.*, less 20 per cent., will net 5⅓*d.* for an article 3oz. thicker than the No. 1 of 1844, and the carriage *now* will, of course, amount to double the price per foot, thus:

No. 1—13 oz. 1*s.* 2*d.* in sheets		No. 1—16oz. 7*d.* in sheets	
Less 15 p. ct.	0 2	Less 20 p. ct.	1½
	1 0		5½
Duty.....	0 7	Deduct one-fifth for 3oz.	1
	0 5		4½
		Carriage....	½
			4

Now, I think I have shown that the whole of the duty has been remitted to the public in crown and sheet-glass. You admit that the duty on bottles is fully allowed, and the duty on flint-glass being only three farthings per lb., is almost too small to calculate on articles of high value, so that I thus dispose of

£360,200 on crown-glass
89,400 sheet
69,900 on bottles
49,400 on flint-glass
and 76,800 on plate-glass remains to be discussed.

£645,700 amount of duty on glass retained for home-use [in 1844

The duty on plate-glass formed a very small proportion of its value, which consists principally in labour and risk in grinding, and polishing each surface; large plates being seldom cast sufficiently good to finish; they are very rare, but even now cheaper than foreign plates. It is now admitted the duty did not amount to 2*s.* 10½*d.* per foot, at 60*s.* per cwt., with 50 per cent. allowance for waste. A very large proportion of small plates were exported to obtain 2*s.* 10½*d.* per foot drawback, *not duty*, and they amounted to one-fifth the whole quantity manufactured. These are now thrown upon the home trade, far below cost price, and their value is added to the price of large plates, to enable the makers to divide the same dividend they have hitherto done. There are four manufacturers of plate-glass; one has never divided one shilling profit, two others pay five per cent., and their shares have only advanced to par since the 14th Feb. The other is a private firm, whose affairs are not so notorious, but they only made half their quantity whilst prices were so much reduced. They all issue one tariff, and the discount is the same to the public for one plate, as to the trade, who buy many per week. Two other houses commenced manufacturing about seven years since, but they have both suspended working for the last two or three years, as they could make no profit. Now I will show you why plate-glass shares have been below par, and why they have reduced the price of plates from 12 by 12 to 30 by 18, so much more than they paid duty. Large sums of money have been sunk in machinery, to bring to perfection the grinding and polishing of sheet-glass; this has been effected, and patent plate, now made by four sheet-glass makers, has been sold considerably under the prices of plate-glass. It has quite superseded the use of plate-glass in engravings, and is now introduced at the Royal Exchange, and in houses of the largest class; but here the labour and risk enter again very largely into its cost; it is, in fact, made into plate-glass, after immense loss by breakage, and this may account to you for the difference in its price from that glass, but still coming into the market considerably cheaper than plate-glass; at the same time it must be admitted, it is not so thick. You will find upon farther examination into the patent plate tariff, that all your prices, line for line, are wrongly placed; that the present numbers, weights per ounce, and superficial contents, do not correspond with those of 1844: for instance, one price now governs 3 feet to 6 feet; in 1844, 3 feet to 6 feet were four different prices. No. 3, of 1845, is a new article, ⅛ of an inch thick, not allowed by Act of Parliament to be made in 1844. No. 2 averages 19 oz. to the foot; this was in the third column of the old list; it now takes the place No. 1, 16 oz., which is not now manufactured: see the following Table.

Best Patent Plate	No. 0, 13oz. 1844.	1845.	No. 2, 19 oz. 1844.	1845.
			2*s.* 9*d.*	1*s.* 5*d.*
6 × 4 and under 7 × 5	2*s.* 3*d.*	1*s.* 4*d.*		
7 5 .. .. 8 6	2 3	1 6	2 9	1 7
8 6 .. .. 9 7	2 3	1 8	2 9	1 10
9 7 .. .. 10 8	2 6	1 10	3 6	2 0
10 8 .. .. 12 9	3 0	2 0	4 0	2 2
12 9 .. .. 14 10	3 0	2 2	4 0	2 4
14 10 .. .. 1 ft.	3 0	2 6	4 0	2 9
Above 1 ft. ..	1 6	2 9	4 3	3 3
1 ft. 6	2 0	3 0	4 3	3 6
2 .. 0	2 6	3 6	5 0	4 0
2 .. 6	3 0	3 9	5 3	4 3
3 .. 0	4 0	4 0	5 6	4 6
4 .. 0	5 0	4 0	5 9	4 6
5 .. 0	6 0	4 0	6 0	4 6
6 .. 0	8 0	4 3	6 3	4 9
8 .. 0	9 0	4 6	6 6	5 0
	Duty with bounty, 7*d.*		Duty, &c., 10½*d.*	

I have now sufficiently shown that the dealers are not those contemptible humbugs you write them down; and I call upon you to retract that the trade of sheet-glass makers, or dealers, are in any case intercepting one iota of the duty; and that you will, henceforth, consider you are injuring a trade far more seriously than you are called upon to do, by advising the public not to buy, before you have sufficiently examined into the facts yourself. The dealer is by far the largest sufferer already; he was mulcted 25 per cent. on the stock he held, which it is quite impossible he can ever recover. His income will be greatly reduced, with the same expenses over his head. You say it is clear there must be some profit upon sheet-glass, or the trade would have long since become extinct. For your information, I will tell you that I was the cause of sheet-glass being made in this country, by importing foreign sheet-glass of larger sizes than could be made here in crown-glass, which induced a manufacturer to make it here, and that is only within these 20 years; and such was the prejudice against it for years with the public, that the manufacturer must have ceased making it had he not been allowed to ship it for exportation, recovering the duty paid with a heavy bounty for a time. The list you hold of patent plate was altered between the 24th March and the 7th April, before it came into operation, and was replaced throughout the trade. Small sizes from 6 in. by 4 in. to 1 foot, for which there is no demand, being reduced in price to induce sales. The new list is inclosed herewith, but that would not alter the question at issue.—*Joseph Chater, St. Dunstan's Hill, London, May* 14, 1845.

Gardeners at Exhibitions.—The exhibitions at our gardens are attended with a nuisance, which last season

became almost insufferable. This is the attendance and behaviour of low gardeners. I meant to have written to you about it at the time, but forgot it in the multitude of affairs. Now, I remember well, that one of these men, smelling desperately of Garlic, intruded in the narrow path close to the stand, mixing with and pushing by the ladies. When doing the latter to an inconvenient degree, I remonstrated with him, and told him, that at all events he need not press on or pass others, but move along with the rest of the company, on which he, of course, made some rude answer, as, in fact, from his previous behaviour, was to be expected. Now, my opinion is, that as such people are admitted in the morning, they have no business there whatever afterwards. Certainly, as they, during the morning, can examine the flowers as minutely as they like, they have no pretence for crowding the lower paths and for inconveniencing ladies or gentlemen in the afternoon. Moreover, as they do not pay, it seems rather too much that they should annoy those who do pay; and, as they are not members, trouble those who are. I am not very squeamish about matters of rank, but where room and air are scarce, those who pay I think should have the preference in that for which they pay over those who come in free.—*A Fellow of the Horticultural Society.*

[Passes are given upon the express condition that persons so admitted do not loiter in the tents. If our correspondent will give notice *at the time* of conduct such as that he complains of, the offenders will be removed, provided they have been admitted by passes.]

Wasps.—As this is the best season for destroying wasps, it may be useful to some of your readers to know that the insect forceps, used by entomologists, is a most efficient instrument for the purpose. Armed with one of these, I killed, in my own garden, during the six weeks subsequent to the 19th April, 1843, 676. Very few were seen in the ensuing autumn, and they were equally rare throughout 1844; but the present year threatens to be very prolific, as I have destroyed 359 in the course of the last three weeks, and on one of the days of that period, 151. Most of these were caught while feeding on the flowers of the Gooseberry, in which situation very little practice will enable any one to secure the insect without injuring the plant. When between the blades of the forceps, it may be safely and instantaneously deprived of life, by crushing the thorax between the finger and thumb. Bottles of syrup, which prove so good a bait in autumn, are almost useless at this season; as during the last fortnight I have only succeeded in entrapping two by this means. The importance of destroying wasps in spring becomes evident, when it is remembered that female wasps alone survive the winter, and that the produce of each individual of the Vespa vulgaris (the only species I have met with as yet), now suffered to escape, is estimated by Messrs. Kirby and Spence, as well as other entomologists, to amount in autumn to 20,000 or 30,000.—*F. G. S.*——*Hibernicus* adds: I never saw wasps so plentiful at this early season as they are this year. I have a Cotoneaster microphylla trained against a west wall, on which I see five or six whenever I pass it. I have killed many; but I observe that, at this time of year, wasps know their value, and take excellent care of themselves. I hung up a wide-mouthed bottle, with vinegar and honey in it, but though they buzz round, they pay no attention to it.

Important Erratum.—Pray correct an error in my paper in page 313, col. *b*, line 37 from top, of last week's *Chronicle*. After 36°, "of frost" should have been inserted. Subsequent experience of these humble structures has entirely confirmed my opinion of their utility.—*H. E., Teddington.*

Societies.

BOTANICAL SOCIETY OF LONDON.

Feb. 7.—E. Doubleday, Esq., V.P., F.L.S., in the Chair. Mr. Edmondston presented specimens of the Shetland Cerastium, which occasioned some discussion among British botanists in the year 1843; Mr. E. then describing the plant as a new British Cerastium, identical with the Linnæan C. latifolium, but distinct from the Welch and Highland species, described under that name in the works of Smith and other English authors. Although differences of opinion were then stated respecting the Highland species, it seemed generally agreed that the Shetland Plant was properly referred to the C. latifolium of Linnæus. The specimens now presented to the Society, however, are labelled "Cerastium nigrescens. Edmond. in Shetland Fl. ined." It would thus seem that Mr. Edmondston has changed his opinion regarding its specific identity with the Linnæan species. In the "London Catalogue" the Plant is given as a variety (Edmondstonii) of Cerastium latifolium (Linn.), but it may be doubted whether Mr. Edmondston's specimens can be distinguished from the Highland and Linnæan C. latifolium, even as a variety merely; there is certainly nothing in the form of the leaves to keep them distinct. Mr. Edmondston also presented specimens of the Shetland Lathyrus maritimus, which has been considered a different variety (acutifolius) from the same species found on the coasts of England. Except in the more robust growth of the English specimens, there is little to distinguish those of Shetland from others collected in Suffolk by Mr. D. Stock. Far wider differences may be seen in the leaves of Orobus tuberosus, Vicia sativa, and others of our common Leguminosæ. Mr. W. O. Newnham presented specimens of Elatine Hydropiper, and Elatine hexandra, from the lately discovered locality near Farnham, in Surrey. Specimens of Lastræa spinosa (Newman) were exhibited, which had been selected from a number of others collected by Mr. Jabez M. Gibson, near Coggeshall, Essex. Two of the specimens having been obligingly examined, and the correctness of the name certified by Mr. Newman, the Herbarium Committee had resolved to send out similar examples in each parcel during the current year, as the species usually is labelled L. dilatata by many botanists. In the "London Catalogue," the name of Roth is inadvertently given as the authority for Lastræa spinosa (copied from the "Phythologist," I., 836), but since Roth described the plant under the generic name of Polystichum, Mr. Newman is, probably, the first author who has applied Roth's specific name, spinosum, to the other generic name Lastræa.—Read "Notice of the Botany of Thame, Oxfordshire," by Dr. P. B. Ayres. Specimens of the plants mentioned are deposited in the Society's collection.

Country Show.

North British Professional Gardeners' Society, April 30.—This Society held their Spring Competing Meeting in their rooms, Waterloo-place, Edinburgh, when a fine display of Flowers, Fruits, &c. took place. The following are some of the principal prizes which were awarded:—Best 6 *Auriculas*, Mr. J. M'Neill, gr to E. Broughton, Esq., for Barlow's Morning Star, Smith's Waterloo, Warris's Blucher, Stretche's Alexander, Wood's Delight, and Lee's Venus; best 3 *Selfs*, Mr. M'Neill, for Flora's Flag, Blue Bonnet, and Lady Milton; best 3 *Ericas*, Mr. J. Addison, gr to the Earl of Wemyss for Favoides elegans, Linnæoides, and Hartnelli; best 3 *Exotic Plants*, Mr. Young, gr to Mrs. H. N. Ferguson, for a hybrid Cactus, Gesnera Arnoldii, and Hovea Celsi; best 6 *Hyacinths*, Mr. Foulis, for Hercules, Grand Vadette, Voltaire, Lawrence, Anna Maria, and Nimrod; best 3 *Hardy Herbaceous Plants*, Mr. Stirling, for Corydalis nobilis, Pulmonaria virginica, and Fritillaria pyrenaica; and, finally, for the best *Dessert Apples*, Mr. Young, for Nonpareil, Ribston Pippin, and Hollow-eyed Pippin.

Reviews.

The Principles of Practical Gardening. By Geo. W. Johnson, Esq. 12mo. Baldwin.

This is an important work for gardeners, and one which well deserves, we do not say their perusal, but their most attentive study. Like the "Theory of Horticulture" it is intended to explain the reasons for Horticultural operations, the principles on which they are founded, and the causes of their success or failure. Mr. Johnson says, with great truth, that "Physiological knowledge can alone now direct the gardener to improvement, for he possesses all that mere practice is likely to give;" a sentiment in which we quite concur; and we wish to see, as he advises, such words engraved over the entrance to every garden. Not that either he, or we, undervalue practice. Quite the contrary; practice was the mother of theory, and it is no disparagement to practice to say that the child has now become the guide of its aged parent.

The work is well arranged, well written, and carefully reasoned, and if we cannot subscribe to all the statements made in it (that, for instance, respecting the structure of the Epidermis at p. 125, which is a mistake) we certainly should to the greater part, and that the most essential part. We cannot, however, just now go into a formal criticism of the contents of Mr. Johnson's book, but must return to it on some early occasion, recommending it in the meanwhile to every gardener who wishes to know what he is about.

Travelling in the sunshine is at all times more desirable than groping in the dark, and these physiological commentaries upon the routine of practice are the suns by whose light the gardener must learn to shape his course.

Garden Memoranda.

Ealing Park.—The name of Mrs. Lawrence is so familiar to every one interested in horticultural pursuits, and her magnificent plants, long associated with the great Exhibitions of the Horticultural Society, are so well known and appreciated, that every lover of gardens will be interested in hearing of the actual state of the collection at Ealing Park on the eve of those occasions when the choicest are again to be produced for public competition.

Ealing Park, then, has been singularly favoured this winter compared with other suburban residences; so fresh and luxuriant are all the evergreens, that one might be led into the belief that a great glass house had sheltered the whole. The Laurustinus are blossoming freely, so also are the crimson Rhododendrons; Garrya elliptica; and Euonymus variegatus are quite unscathed; Aralia japonica and Paulownia imperialis are bursting out with their wonted vigour; a fine plant of Arbutus procera is just coming into flower; Photinia serrulata and Maclura aurantiaca are both unhurt, and so is Berberis trifoliata, a rare shrub of great beauty and interest. Ceanothus thyrsiflorus has been killed almost everywhere near London; but at Ealing Park, against a wall, it appears as green as if we had had no winter at all.

The lawn, connected with the house, occupies a surface of several acres, studded all over with valuable objects of great interest; amongst them we observed the following:—Fine plants of Picea Webbiana, P. nobilis, P. amabilis, Pinus Montezumæ, P. monticola; indeed all the scarce and valuable sorts procurable in the vicinity of London. A great number of Deodars, Araucarias, &c., are occasionally grouped over this lawn, which, with great propriety, may be termed a Pine-grove; one remarkable feature is an avenue of Cedrus deodara, which, in the course of a few years, will be a grand object, especially when looking from the lower part of the grounds towards an appropriate building, called Pope's Temple. In passing through the grounds the visitor is occasionally and imperceptibly brought into the view of some charming little scene, suddenly bursting upon him; so skilfully have the sentiments of the poet been carried into effect:—

> "More cautiously will taste its stores reveal;
> Its greatest art is, aptly to conceal;
> To lead, with secret guile, the prying sight
> To where component parts may best unite."

In going from the house, in one direction, you pass through an arch, forming a part of an architectural screen projecting from the principal building, and approach a piece of ornamental water; the walk on both sides is flanked with a row of Irish Yews, the effect of which is excellent. The Belvidere rises in the centre of the water, immediately before the spectator. The taste, however, which dictated such an arrangement, we are quite certain could never subscribe to the beds of herbaceous plants surrounding the water, and we were glad to find that their days were numbered. There is a piece of rock-work recently executed at considerable cost, representing some remnant of antiquity near Jerusalem; doubtless, this is accomplished with great truth, and much faithfulness in all its details. A noble Cedar of some two hundred years' growth sheds a sacred halo over these representations of antiquity; contiguous to this also is a lovely dell with fountains, and other appropriate objects of a similar kind, overshadowed with Willows from the tomb of Napoleon, at St. Helena. Close by are some fine specimens of Cercis siliquastrum, a princely Cherry-tree of great size, and an extraordinary Juglans nigra of immense growth. On this lawn we also noticed Ilex latifolia, and a singular Juniper, introduced by Lord Auckland, and presented to Mrs. Lawrence; it is of compact growth, and of a singular purplish glaucous hue; various architectural objects are judiciously placed about the grounds, and not the least of them is an ornamental dairy, beautifully, yet chastely fitted up with numerous specimens of natural history, as well as objects of art, decorative in character, yet appropriately applied. Close to the mansion is a conservatory, or rather greenhouse, chiefly filled with splendid Camellias in capital health, just gone out of bloom; on the outside are placed two superb plants of Araucaria excelsa, giving quite a character to that side of the building; leaving this conservatory, and proceeding through the shrubbery on the right from the house, the visitor is brought at once in front of the principal hothouses; in approaching them you pass through a flower-garden, chiefly appropriated to summer ornamental flowering plants, with various accompaniments of vases, statues, rock-work, &c., and in the centre a basin of water with a Triton fountain These hothouses are filled with plants of no ordinary kind, not only as regards their intrinsic value, but particularly with reference to the care and skill bestowed in their cultivation. Taking these two circumstances together few private establishments in this, or as far as we know, any other country, can approach the collection at Ealing Park; such an assemblage of the most valuable objects in this branch of natural history could only have been brought together at great cost, aided by an enthusiasm that knows no limit; these botanical riches are open to public inspection by application at Ealing Park on certain days. There are four houses filled chiefly with New Holland plants, two of them measure 65 feet by 17 each, all of them with span roofs. The following are a few and a few only of the plants which compose this part of the collection:—Phœnocoma prolifera, 3 feet high, and 3 feet across; there are two of these dense bushes, one of them is 4 feet through, and coming into bloom; Dillwynia subumbellata, 2 feet 6 inches high, and the same in diameter—a fine plant; Chorozema cordatum, 7 feet high and 5 feet through—a monstrous plant, loaded with flowers; also Chorozema ericoides, fine; Anthocercis littorea, in flower, well grown, and 3 feet high; the old Coral-tree, 6 feet high and 5 feet across, with 15 spikes of flower coming up, will shortly be a magnificent object; Chironia frutescens, very fine; and Stylidium fasciculare, like a huge bush; Babingtonia Camphorosmæ, in good health; likewise three enormous plants of Chorozema varium; Hardenbergia Comptoniana, on a trellis, 8 feet high, covered with flowers; the scarce Enkianthus reticulatus, 4 feet high, and in fine health, so also is Illicium religiosum; Loddigesia oxalidifolia, is 2 feet high and 3 feet through—a beautiful and perfect specimen; two fine Gompholobium polymorphums, on shield trellises, very good, and coming into bloom; on similar trellises are good plants of Tropæolum edule and tricolorum; Eleocarpus dentatus, and Podolobium trilobatum, are in fine health; so is Scottia dentata; Zichya villosa, on a shield trellis, 5 by 4, is really grand; Gastrolobium spinosum, a rather scarce plant, proves to be a most valuable acquisition to our greenhouse plants, and is here coming beautifully into bloom; Oxylobium Pultenæa is also finely in flower, and, by its side, forming a beautiful contrast with its violet-purple flowers, is Prostanthera violacea, 4 feet high by 3 feet across; close by these stand splendid plants of Daviesia latifolia, Acacia pulchella, and Indigofera australis, all in perfect beauty; Dillwynia speciosa, 3 by 3, in flower, contrasting with Pimelea spectabilis, 4 feet high and 4 feet through—a perfect specimen of superb cultivation; Boronia Fraseri, 4 feet by 3, a good bushy plant, in rude health; the scarce and sniffy Merbelia grandiflora promises to make a good specimen; Chorozema Henchmanni betrays skilful treatment, and will shortly be in bloom; so likewise does a plant

of a new Daviesia, with showy flowers; the scarce Dracophyllum gracile deserves our especial commendation; for, although scarce in collections, no garden should be without it. The elegant Indigofera incana is also another subject of much interest, and will shortly be a picture of great beauty. There is a new Gastrolobium, which promises well, and is growing away vigorously. There are also the following very remarkable plants:—Acacia cultriformis; Coleonema pulchrum, 3 by 5 feet; Gnidia pinifolia, 2½ by 3, a lovely plant; Epacris ceræflora, with elegant white flowers, and in profuse bloom; Diplolæna Dampieri; Platylobium formosum; and Adenandra speciosa, all large and healthy specimens; Veronica speciosa, an immense plant, 4 by 4 feet; Pimelia decussata, 4 by 3, a superb bush; Xanthosia rotundifolia, large and in good condition. We observed, among numerous other climbers, a superb plant of Zichya coccinea, trained to stakes. Indeed, the principal of the climbers are trained in this way, Mr. Robertson preferring these both for convenience and appearance; certainly nothing could well exceed the effect produced by this plant: Polygala bracteolata, trained also to stakes, 4 feet high, with a corresponding diameter. Here also was the graceful Acrophyllum venosum, a plant of sterling interest, just throwing up numerous spikes of its feathery white flowers, 2 feet high and 2 feet 6 inches across. Pultenæa stricta, Selago Gilliesii, and Oxylobium retusum, were all equally deserving of notice. The graceful and sweet-scented Cytisus filipes, 10 feet high, with abundance of pendent branches covered with small white Pea blossoms, is an object of no mean beauty. In immediate connexion with this stood an enormous plant of Acacia alata 10 feet high, in profuse blossom. A. platyptera, 5 feet high, A. pulchella, 6 feet high, and 5 feet in diameter; and A. verticillata, 9 feet high. These are trees under glass far surpassing the usual inhabitants of greenhouses; Leschenaultia biloba, 4 by 4 feet, L. formosa, 2 by 4 through, very fine. Eriostemon buxifolium, of which there are two remarkable specimens, were coming into blossom freely. *Cactus House.*—The kinds usually cultivated in this house have little interest in the eye of the scientific botanist, being chiefly those profuse blooming sorts remarkable for the gorgeousness of the blossoms. We noticed numerous large specimens of the following kinds, speciosus, speciosissimus, Ackermanii, A. major, Jenkinsonii, Lawrenceanus (seedling), Mallesoni, splendens, &c. *Heath House.*—This is a lean to building 40 feet by 16, containing all the rare kinds of this favourite genus; several pits are also stored full of them, as the house cannot contain above one-half of the collection. The following are superbly in bloom: Humeana, Beaumontiana, Templeana, and and the valuable pinea, scarcely ever seen in collections; three grand depressas, and a matchless Cavendishii, loaded with bloom; Banksiana, splendens, two tricolor elegans, two gemmifera, infundibuliformis, ampullacea vittata, Pattersonii, and a monstrous plant of ventricosa globosa; a large intermedia, ampullacea vittata, superb; grandiflora, cerinthoides, elata, the charming Blandfordiana, and a huge inflata, 4 feet high and 5 ft. in diameter; radiata 4 by 4 ft., trossula 3 by 3 ft., and the pretty andromedæflora; two persoluta albas, 5 feet high and 3 feet through; Irbyana in capital condition; tricolor, Archeriana, grandinosa, vestita coccinea; the useful and lovely ovata, together with Thunbergiana, ventricosa coccinea minor, v. carnea, Aitoniana, Solandri, daphnoides, Bonplandiana, the beautiful Parmenteriana rosea, and an excellent plant of tortulæflora in first-rate health; Macnabiana in equally fine order; so was elegans.

A new forcing pit, 38 feet long, is heated with water underneath the bed of earth, in which are growing Cucumbers and Melons, and a few rare plants. We remarked two new species of Gesnera, Pleroma Benthamianum, Luculia Pinceana, Luxemburgia ciliosa, the beautiful Cyrtoceras reflexum, Rondeletia sulphurea, Allamanda grandiflora, Echites melaleuca; Portlandia grandiflora, an old, but first-rate, plant; Hindsia violacea, Pavetta borbonica, Erythrochiton Braziliensis, and the extraordinary new Pitcher Plant called Nepenthes Rafflesii; there were also several large plants of Clerodendron fallax, C. Kæmpferi, C. squamatum, and C. macrophyllum, and a fine plant of the splendid Gardenia Sherbourniæ. Beechwood and Cabul Melons were doing well; and there was an abundance of Latter's Victory of England Cucumber.

We now come to the large stove, a house 55 feet wide, with three spans to the roof, and 65 feet long; the height is nearly 20 feet. Numerous rare birds, of rich and vivid plumage, are placed near the Orchidaceæ. Gold-fish swarm in a basin of water below, overhung with Ferns and huge masses of gorgeous Orchidaceous flowers, constituting a rich and dazzling combination of tropical vegetation, in high keeping, surrounded with luxuriant foliage; a glass screen separates the general collection of plants from the Orchidaceæ There was a grand plant of Cuphea Melvilla; a cutting struck from the plant exhibited by Mr. Robertson last season, 4 feet through; this forms a useful plant for the greenhouse in autumn. Gloxinia tubiflora coming into bloom. Tabernæmontana coronaria, and coronaria flore pleno, beautifully in flower. Clitoria fulgens, a new climber; and some large plants of Manettia cordifolia, M. splendens, Begonia sanguinea, and Pleroma petiolatum, were also fine. Thunbergia chrysops, trained to stakes, is rioting away most gloriously; Sauranja spectabilis, a plant with fine foliage, is coming into flower; Calliandra Houstoni, Æschynanthus Roxburghii, and Inga pulcherrima are doing well; Pavetta caffra, 12 feet high, and well furnished, is in admirable health; so is Allamanda cathartica, 8 feet in height. There is a well-grown specimen of Hindsia longiflora, and another on stakes of Dipladenia crassinoda, 4 feet high, which will shortly be a magnificent object. Begonia parvifolia is finely in flower, so is a wonderful specimen of Euphorbia splendens. Poweria coccinea is very large on stakes; so are two plants of Stephanotus floribundus, one, the original plant introduced—certainly the parent of a valuable progeny; these are really grand objects, scarcely to be described by so feeble a pen. There are also the following remarkable specimens:—Franciscea latifolia, F. Pohliana, Centradenia rosea, Petrea volubilis, Burchellia capensis, Ardisia crenulata, loaded with crimson berries; Osbeckia sinensis, Clitoria Ternatea, with blue Pea flowers; Turnera ulmifolia, T. elegans, several large Clerodendrons, C. hastatum, C. Hugelii, and C. splendens; Aphelandra cristata, Gesnera reflexa, a magnificent Lemonia spectabilis, 3 feet high, and 4 feet through. Two very good Rondeletia speciosa, the rare Aphelandra aurantiaca, Melhania Erythroxylon, Laplacea semiserratifolia, Ardisia mexicana, and several large Ixora coccineas; Echites splendens is rambling away most luxuriantly; and Barringtonia speciosa is putting forth his broad Magnolia-looking foliage in great luxuriance. Among the Orchidaceæ were some Sobralias just imported; Odontoglossum hastatum was sending out two fine spikes; Oncidium divaricatum was in capital health and finely in bloom; so were O. luridum var. and O. ampliatum, Saccolabium guttatum, S. præmorsum, Aerides affine, A. affine rubrum; Barkeria spectabilis, Cattleya Mossiæ, C. crispa, and Oncidium pulchellum, were thrusting out their roots and spikes of flowers most vigorously. The following Dendrobia were very remarkable:—D. nobile, D. moschatum, D. crispum, D. cupreum, D. cærulescens, D. calceolaria, D. densiflorum, superlatively fine; D. aggregatum, D. taurinum, D. sanguinolentum, D. Gibsonii, D. Dalhousiana, D. fimbriatum, D. chrysanthemum, D. Cambridgeanum, and the curious D. comminatum. Many of these are immense plants; so are Oncidium altissimum, and two O Lanceanums; O. flexuosum, and O. Baueri, Vanda teres, V. violacea, and Saccolabium Blumei, were in excellent health. There is a wonderful mass of Aerides odoratum, and large plants of Camarotis purpurea, Phaius Wallichii, Schomburgkia violacea, S. marginata, Peristeria elata, Cymbidium giganteum, Vanda unicolor, V. Roxburghii, V. cærulea, and V. cristata. The beautiful Phalænopsis amabilis is doing well; so is Aerides virens, Epidendrum rhizophorum, and a host of others equally grand. The curious Cephalotus follicularis, with its little pitchers, is thriving finely.

There is a range of five other houses, principally filled with choice plants; two of them chiefly with Azaleas. The principal Azalea house is 40 ft. long, and contains some grand specimens; several large phœniceas, from 4 ft. to 6 ft. high, clothed to the ground with foliage and flowers; several whites of similar dimensions and growth; sinensis, 5 ft. high and 5 ft. through, is bursting literally into a mass of bloom; speciosissima 5 by 3ft., fine; Danielsiana, several trained like standard Apples. Fine bushes of Smithii, Rawsonii, mirabilis, leucomegista, splendens, 5 ft. by 5 ft., a grand plant, double red; pulchra, 6 by 5 ft, and purpurea macrantha, and various other splendid specimens. The next house contains all the finer kinds known about London, new and old kinds: amongst them we noticed exquisita, a noble lateritia, densely covered with bloom, just expanding; a magnificent tree of Danielsiana, tricolor, triumphans, coronata, rosea superba, phœnicea alba, Prince Albert, Hibbertii, grandiflora rosea, Apollo, Minerva, Decora, sinensis tricolor, leucomegista, and Prima Donna. It is scarcely possible to imagine plants in more luxuriant growth than these; many of them in this house, although only one year out of the hands of the nurseryman, are already great rude bushes in rampant growth. The succeeding house is what is termed the intermediate house, and contains some fine things. Gompholobium polymorphum luteum is progressing rapidly, so also is a healthy bush of Pimelea Hendersoni. Roella ciliata is 2 by 2 ft., and in superb order. Chorozema angustifolia, C. ovata, and a new species of a fine genus, are all admirable; in a similar state of health is Lalage ornata and Cosmelia rubra. Leschenaultia Baxteri is making a fine plant, so is Chorozema Dicksoni. There is a fine plant of Chorilæna myoporoides, 3 ft. across and 3 ft. high, growing very rapidly. The scarce and beautiful Daviesia cordata is just coming into bloom. There are very large specimens of Statice macrophylla and S. arborea, Siphocampylus Betulæfolius and lantanifolius. Solanum amazonicum and Canavalia bonariensis are just expanding their blossoms. There is a fine plant of Styphelia tubiflora, and an immense one of Æschynanthus formosissimus. Zychia rotundifolia is shooting out vigorously, so also is a curious climber from New Zealand allied to Echites, named Parsonsia heterophylla.

The next and last house comprises a collection of Pelargoniums which are cultivated principally for exterior decoration, as a vast number of showy plants are required during summer for vases, beds, and other situations. Finally, Mr. Robertson conducted us to what is termed the North House, a desirable and most useful building in all large establishments where plants are required to be kept in bloom for any particular purpose, as is often the case at Ealing Park, not only for the great exhibitions of the Horticultural Society, where the collections of Mrs. Lawrence form objects of prominent interest, but also for the purpose of decoration during the gay parties which are so often given here during the summer. In this house we found noble plants of Cytisus filipes and C. racemosus, the latter 10 feet high and 7 feet through—a perfect mass of bloom; Eriostemon myoporoides, 7 by 4 ft., just in perfection, so likewise was E. cuspidatus, 6 feet high, and beautifully formed; Acacia alata, 10 feet high and 9 feet across, a most wonderful plant to be in a pot; Kennedya monophylla, trained to stakes 6 feet high, and clothed thickly to the pot, is a sheet of purple. But our space is exhausted sooner than our subject, which, to be treated properly, would require a volume, instead of a few columns in a newspaper.—*R. G.*

Bees.

ANSWERS.—*Mr. Smartt.*—On Nutt's system it is not necessary to have the zinc slides under the stock hive, and the very slight effect they can have under the side hives in the summer time can be of no consequence whatever. Nutt's discovery is new, for it is not to be found in any old book, of which I have read a great number. It does not consist in side hives, which were known long ago, but in regulating their temperature after the bees have worked in them a few days.—*C. A. A. Lloyd.*——*W.*—"A swarm in May is worth a load of hay." Although bees have been known to swarm in April, it is as much against the usual course of things as swallows appearing round our dwellings in March. The conditions are—a well-sheltered spot, fine warm weather, and above all, a healthy stock; that is, both heavy and full of bees, without which it cannot take place. The earliest swarm is the best, as both it and the stock have a longer period for work. Thus, it is essential to keep heavy well-filled stocks. In examining hives early in March, once in four or five years, for removing bad combs, judgment must of course be exercised with regard to extracting comb occupied with brood. "Bees do not breed at all times," otherwise young bees would be observed, which is not the case. It is a rare occurrence to see young bees from the beginning of August to the 1st of April, even under the above conditions. The filthy matter found on the board, principally after the winter season, is very different in properties and appearance from the cocoon. If you examine with the microscope sections of virgin-comb and old brood-comb, you will at once perceive their great dissimilarity. Although extremely thin, yet three or four layers deposited annually for four or five years, must contract the cell, and ultimately prevent the development of full-sized strong bees. Besides, comb, from age and other causes, will become black, and may then probably emit an unhealthy odour, detrimental to the bees. The good authority quoted at page 295 evidently admits that he has seen old brood-comb with five layers, which confutes the subsequent remarks; although he, too, has doubts. The matter constituting the lining in other cells is quite different from that of the brood-cells. I am satisfied that the tough substance found on the margin of brood-comb, and in unfinished cells, was not in thin transparent layers, and was therefore distinct from cocoons. The cells in a hive do not purposely vary in substance. I have never observed any difference in a new colony in that respect; nor do I consider that the larvæ or young bees increase the heat of the hive; indeed, it is reasonable to suppose that the internal heat is greatest in winter, from the bees being in a body and perfectly quiet; for the constant flapping of their wings and being less congregated together, must tend to reduce the heat rather than increase it in summer. But should there be an increased heat from the bees, the cocoon being able to withstand such heat, must make of course an excellent defence or lining to the cell; for such a purpose I imagine, nevertheless, it is not needed. "If honey-cells were coated like brood-cells, those that eat honey comb would have a sweet but tough mouthful." My theory, therefore, appears to be correct, for no such unpleasant result is experienced by honey-comb eaters; the additional thickening by cocoons being confined to brood-cells.—*G. L. Smartt.*——*C. A. A. L.*—We do not recollect having stated that the "new system of bee-management, discovered by Nutt, does not answer." Indeed we did not know that he had invented anything new. Was the collateral and inverted hive not known about the days of Sir. C. Wren? and plans of ventilating hives in use before we heard of Nutt, and with as much success. Perhaps you may say that they were only adapted by clumsy, careless persons; but can you say so of some of the best of our apiarians who have sifted Nutt's schemes and found much dross. The following are some of their names: Dunbar, Bevan, Clarkson, Savage, Hart, Payne, and Golding. The latter once observed to us, and justly too, that "no system can maintain a larger population than one queen can produce. Nutt would have us believe that his hives continue to increase in strength, whereas any tyro knows that under ordinary circumstances a colony is as strong the year following its settlement as a swarm, as ever it is, or can be." Would you give the address of some of the great many persons who have practised Nutt's plans several years? That may afford us the means of knowing whether or not we have made a too hasty assertion.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouses.—The great art in the culture of plants in these is to take every advantage of the growing season, when light abounds, therefore stimulate by all possible means, get rapid growth, and thus secure luxuriant foliation at the right season. Mature that growth, and you are then prepared for winter. A low temperature will produce few injurious effects. This, in truth, is the grand secret in the right culture and keeping of these plants,

and the only way that many of the most beautiful can be brought into a flowering state. As the season advances, continue shifting such as are making great progress, if your object is the production of specimens of superior culture. *Heath House.*—Now that these plants are growing, observe that the entire ball of earth is daily supplied with moisture: many fine specimens are lost for want of a little attention in this respect; if the plants are in the right kind of soil, and well potted, little fear need be apprehended from a generous supply of water at this season. *Forcing House.*—Promote the growth of Balsams, Cockscombs, and similar plants, required to fill the greenhouses during summer and autumn. Let them have large pots, rich soil, abundance of light and heat, a free supply of liquid manure, and there can be no question as to the result.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The most hardy kinds of bedding-out plants should now be planted out, keeping the tallest and strongest plants in the centre of the beds. Rustic baskets and vases should now be put in order preparatory to planting. Take off cuttings of Œnothera macrocarpa, and dibble them into borders and beds; shade them for a few days and they will soon root without the aid of glass. A few might also be put into a frame in cutting-pots for transplanting later in the season. Pinuses and other things that have been protected during winter should have a part of the covering removed. Mowing, sweeping, and rolling are now daily required, and should be strictly attended to. *Pits and Frames.*—Remove to sheltered situations such plants as are well rooted, to harden. Pot off Convolvuluses, Lupines, Clintonias, Verbenas, Salvias, Fuchsias, Alonsoas, Petunias, &c.; and plant into nursing beds the more hardy kinds for transplanting into the flower-garden. Shift Tuberose roots into larger pots, and as they advance in growth remove them to the greenhouse for blooming. Leave a little air on pits and frames when the nights are warm, to harden the plants previous to planting out. Chrysanthemums, if not already struck, should be put in at once, and the old roots planted into the borders.—*B.*

III.—FLORISTS' FLOWERS.

The directions given last week must still be attended to as far as Auriculas and Polyanthuses are concerned. *Tulips* will require increasing attention as they expand; if intended for competition, a slight ligature of worsted or other soft material should be passed round the cup, to prevent the petals being split by their closing at night, which is too often the case when not thus attended to. Flowers intended for impregnation should have their anthers extracted as soon as possible, before the petals open; and amateurs should now examine those beds where new varieties are grown, and, where purchaseable, they ought to obtain the best strains possible. It is ill-judged economy for the sake of a pound to get an inferior variety; a good sort will always repay the outlay, and with interest, too; a bad sort is "dear at any price." *Carnations.*—Keep the pots free from weeds, and tie up the shoots as they spindle. An occasional dose of Brain's liquid guano, applied after a shower, will prove highly beneficial to the plants. *Ranunculuses* may be watered between the rows with soft water; avoid wetting the foliage as much as possible. *Pansies.*—Continue to prick out seedlings, &c. &c. *Pinks.*—Tie up to small and neat supports, watering occasionally. *Dahlias* may now be planted out, and the stakes put down at the same time.—*C.*

IV.—PINERIES, VINERIES, &c.

Little can be added at present to former Calendars. I may, however, repeat that every possible means must be taken to secure a due amount of atmospheric humidity. To obtain too much by the common and imperfect modes of producing it, viz., by sprinkling floors, &c., is entirely out of the question; and I apprehend that the day is not distant when abundance of atmospheric moisture (without so much loss of time in applying it) will be secured by means of much more permanent and simple plans. Be moderate in the use of fuel; by attending with an anxious eye to the shutting up as early as possible, consistent with safety; as much solar heat may generally be secured as will almost supersede the necessity of fires. *Vineries.*—Follow up stopping, &c., with the latest Grapes. Take every possible means to prevent the borders from becoming choked with wet, in the case of heavy rains. I have a strong objection to heavy summer top-dressing on that account, unless the borders are new and can be well relied on. It is better, with suspicious borders, to top-dress in November heavily with powerful manures, which are carried down with the rains through the winter; removing them entirely in the months of April and May, to obtain the greatest amount of solar warmth. After its removal my practice is, to pare the surface of the border to a smooth inclined plane, by which means I find that two-thirds of our heaviest gluts of rain are carried at once down the surface to the front drains. Mind to give air betimes in the morning, especially where much humidity exists; as owing to a much more sluggish circulation, in the latter case, scalding easily occurs both in leaf and berry. Give abundance of air night and day to ripening Peaches; their flavour most materially depends on this. Persist in stopping every luxuriant shoot at all seasons, when five or six joints long; this is too much neglected both in-doors and out. Figs should be kept dry in the fruit while ripening; still stop the young shoots. I need hardly repeat the necessity of keeping thoroughly down all insects, if real success is desired.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Fruit.—On looking over Apricot and other stone-fruit-trees against walls, it will be observed that in some instances the branches have either died or pushed young shoots so imperfectly as to render it expedient to cut back to a well-placed healthy shoot; and this should now be done. Disbudding will require to be carried on with increased diligence, especially if warm weather ensue whilst the ground is naturally moist. All crumpled leaves should be removed and burned. Blistered and swollen leaves, induced by cold, should also be cleared off from Peach and Nectarine trees. *Kitchen Garden.*—Earth and stick advancing crops of Peas. Top the earliest when in flower, as it tends to forward the podding. Hoe, thin, and weed the crops of Onions, Carrots, Parsnips, and Turnips, &c. If any blanks appear in the Onion crop, they may be filled up by transplanting, choosing cloudy weather for the operation. Hoe between the rows of Potatoes, and draw a little earth to such of the early kinds as are above ground. Plant out Capsicums and Tomatoes if the weather prove favourable; but it will be advisable to cover the plants with a pot at night for some time. Pickling Cucumbers, Gourds, and Vegetable Marrows, will likewise require protection at night. Sow Cape Broccoli, Grange's Early Cauliflower Broccoli, and the Walcheren Broccoli or Cauliflower; also Dwarf Curled German Greens and Portugal Cabbage. A portion of the seeds of Turnips intended to be sown should be previously steeped about six hours in water, and then mixed with the other portion not steeped. The plants will come up at different times; and there is, consequently, a better chance of a crop being saved from the fly.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—The barking season being now at its height, nothing should be advised to hinder that operation. *Nursery.*—See the last two Calendars.—*F.*

State of the Weather near London, for the week ending May 15, 1845, as observed at the Horticultural Garden, Chiswick.

May	Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 9	3	29.490	29.483	59	34	46.0	S.W.	
Sat. 10	4	29.597	29.457	58	36	47.0	N.	.04
Sun. 11	5	29.549	29.505	58	42	50.0	N.	.08
Mon. 12	6	29.859	29.737	58	42	50.0	N.	.09
Tues. 13	7	30.171	29.943	61	44	52.5	N.E.	.03
Wed. 14	)	30.302	30 247	61	36	48.5	N.	
Thurs. 15	9	30.278	30 274	63	42	55.5	N.	
Average		29 935	29 849	59 7	40 1	49 9		.24

May 9—Slightly overcast; cloudy and calm; clear and cold at night
10—Foggy; cloudy, clear and cool; rain
11—Overcast; cloudy; rain at night
12—Rain; showe y throughout
13—Cloudy; showery; with dry air in intervals; slightly clouded
14—Fine; cloudy; clear and fine at night
15—Overcast fine.
Mean temperature of the week 2½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending May 24, 1845

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 18	65.0	44.5	54.7	5	0.14 in.	1	5	4	2	1	4	2	—
Mon. 19	65.8	44.7	55.2	7	0.50	1	5	5	1	1	4	2	—
Tues. 20	66.4	45.0	55.7	8	1.14	—	4	5	3	3	3	—	1
Wed. 21	65.7	44.4	55.6	7	0.36	2	4	7	1	3	1	—	1
Thur. 22	65.8	44.1	54.9	9	0.10	4	2	3	2	3	3	2	—
Fri. 23	68.0	47.2	57.6	6	0.21	1	4	3	4	1	2	1	3
Sat. 24	68.3	45.7	57.0	8	0.36	2	4	5	—	3	3	1	1

The highest temperature during the above period occurred on the 21st, 1827—therm 81°; and the lowest on the 23d and 24th, 1837—therm. 30°.

Notices to Correspondents.

ANIMAL OAT—We have again to offer our grateful acknowledgments to Messrs. *Sang and Sons*, *M B, Pearsie*, *N*, *Capt. Shute*, Messrs. *Lawson and Co.*, *Mrs. Cr.*, and *Dundee*, whose letter, by the way, we do not comprehend. We are now amply supplied.

AZALEAS—*Sigma*—These may be struck from cuttings of the less than half-ripened wood *now*, or as soon as the young shoots are about 1½ in. in length, if you have skill in the art of striking.‡

BOOKS—*Young gr*—Cobbett's "English Grammar."——*Reigate*—If you really wish to understand Botany as a science, you must begin at the beginning, and that is, after all, the easiest way. Study "School Botany," and when you have mastered that, which any one of moderate perceptive powers may do in a few weeks, you may start upon a fresh inquiry, and we will advise you further. Northumberland and the Lothians.

FUCHSIAS—*Precission*—We think you somewhat harsh in your remarks; and that the corn to be found in the field you would have us burn is well worth the trouble of searching for it.

GLASS—*Liverpool*—Of course we shall consider your letter private, as all such communications are; you will see it used next week. Confidential communications, authenticated by the address being given, are just now peculiarly useful to us, and we can and will employ them in the defence of the public against the powerful combination that has been formed.——*X Y*—We thank you for the names of the parties to some curious discussions at certain meetings of proprietors of glass works, and for the resolutions at which they arrived.

HEATING—*Hibernicus*—We have no fault to find with the plan for your forcing-pit, which may be sufficiently heated for your purpose in the way you propose.‡

HYBRIDISING—*Forres*—No, no; depend upon it no effect was so produced. A Cactus and a Crinum cannot affect each other, as your seedlings will show you.

INSECTS—*J W*—Roesel's "History of Frogs" will supply what you want, if you read German.——*A Y N*—There is no Synopsis of British Birds, but "The British Vertebrate Animals," by the Rev. L. Jenyns, will probably answer your purpose. *R.*——*R F*—You must search at night for the weevils attacking your Vine, when you will, I fear, find many more. They are named Curculio picipes, and you will find their history and the best modes of destroying them, given at p. 292, 1841. *R.*——*W W*—The scales on your Peach-trees are now hatching; collect all the cottony substance and burn it; then wash over the trunks and branches with tobacco-water, lime, soot, and clay, as thick as paint, using a stiff painter's brush.—*R.*——*A Peasant*—No. 2 is infested with a species of scale insect; No. 3 has suffered from the attacks of an aphis allied to the Aphis Faber; and No. 1 has some of the same insect upon its leaves. They may be destroyed by fumigating with tobacco.—*E.*——*B F*—I am unable to decide regarding the sexes of the toads, but it is probable the largest was a female. The small toads must have been several weeks, perhaps months old, and I have no longer any doubt that under certain conditions toads become viviparous, which will at once dispel all difficulties regarding the appearance of the young in localities where they have no access to water.—*R.*

MANURES—*Alpha*—Yeast before being applied as manure should be diluted with water till the fluid becomes a very pale brown; it is a most energetic manure, but dangerous in over doses; we should think it would be serviceable to growing crops of Onion and Celery. It certainly is most remarkably so to Mangold Wurzel.

MORPHOLOGY—*D M*—Your case of Dionæa is very curious. It shall be carefully examined, and will probably form the subject of an article by "R. E." We have not before seen such a case.

NAMES OF FRUITS—*G L*—Your Apple appears to be Powell's Russet.‖

NAMES OF PLANTS—*A B N*—Adoxa Moschatillina.——*W G*—Physianthus albicans, easily struck from cuttings of the half ripe wood. The fruit is a curious form of that of Asclepiads.——*A B*—Oncidium altissimum.——*J P L P*—The seed belongs to some leguminous plant, but we cannot say to what; it will probably form a pretty bush. Thanks; yes.——*Anon*—Zichya pannosa.§——*Ignoramus*—Erica tubiflora.‡——*Mimosa*—Acacia verticillata; it will flower freely in a greenhouse.——*T Davis*—We will reply about the Oyster Plant next week.

NATURAL HISTORY—*Anon*—It is surprising how different the same thing appears to different persons. The matter you speak of did not strike us in the same light. However, you may be right, and your friendly jog shall not be forgotten.

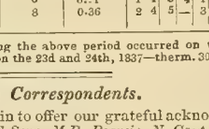
ROSES—*H V S*—The following are suitable for covering a cottage wall, viz:—Aimée Vibert, Noisette, Corymbiflora, Jaune Desprez, Triomphe de Plantier, Madame Desprez, Bourbon, Phœnix, Lamarque, Fulgore, and Lady Fordwich.‡

SUN-DIAL—*A Constant Reader* will find full directions for setting this in Rees's "Cyclopædia" (art. Dial); they are too long for transcription.

VINES—*A very old Sub.*—You may plant five Vines in a house, 24 feet by 12, which you intend to employ partly as a greenhouse. The varieties may be 3 Black Hamburghs, 1 Royal Muscadine, 1 White Frontignan.‖——*Sub.*—Your Vines being planted outside, and opposite arches in the front wall, you may pave the foot-path in front with stone, and the rest of the floor with bricks as you propose; but the bricks must not be set in cement, otherwise no moisture will get through to the soil. The pipes should either be on rollers, or slung from iron supports. Border at least 12 feet wide. A few Pelargoniums in pots might be placed on the border, provided it is not trodden in watering them; but the less it is shaded the better. Those boilers which admit of the fire in brickwork under them are the best.‖

WATERING-POTS—*T B Lawrence*—If you will look at p. 314 again, you will find that you have no cause for complaint. It is not stated that your pot for watering plants in sitting-rooms is "similar to the one you exhibited at a former meeting," it is mentioned that "it is *worked* on the same principle," which is the fact.‡

MISC—*J Hatch*—We do not perceive the merit of your plans; the pot is very ugly, and the stakes are merely iron rods with a wooden point. We suspect that gardeners will prefer such materials as they have at hand.——*Maria Perplexa*—We do not agree with those who say that Camellias should not be exposed to the full light of the sun; on the contrary, we would always give them all the light they can get in this cloudy climate Your Banksian Roses seem to want some good manure, such as is furnished by an old Cucumber bed; they ought to grow as fast as a Honeysuckle. Your Ixias will hardly flower again; they should be grown in a warm and damp atmosphere fully exposed to light; they should be flowered in one less damp and more warm; they should be ripened off with still more heat and still less water. They cannot possibly have too much light during all the period of growth. No doubt your Martynia is suffering from cold; it likes a warm damp atmosphere and cannot endure chills; for moisture and heat are its favourites. No tender plants like a cold current of air. In order to ventilate your hotbed, push a pipe or two through the sides of the hot litter into the centre of the bed, and let their open ends communicate with upright shafts made of an old chimney pot, or a few bricks, in the interior; you then will not want to lift your sashes. The arrangement may be thus:—



a b c d the hotbed; *e g* the pipe; *e f* the upright shaft.——*A Sub*—We cannot account for it that in Canada when one growth of timber is cleared from the land, another of quite a different species springs up spontaneously in its place—the Oak or the Beech succeeding the Pine, and the Pine to the Oak or Maple; and although such statements are often made, we should like some proof of their accuracy.——*Sub*—Strawberries to travel some distance by railroad should be carefully packed in a box among cotton wool, but tissue-paper should always be placed between them and the wool, otherwise the cotton adheres to the fruit, and renders it unfit to be eaten.‡——*Gilpinetto*—The culture of the Mushroom has been given in detail in Nos. 7 and 19 of this year.‡——*Sub*—A detailed account of the culture of Persian Melons has been given by Mr. Fleming in our last year's volume, p. 52, together with a plan of the pit in which he grows them.‡——*L A E*—Carnations and Picotees may be bloomed in 5-inch pots, if that is your wish; but they would succeed better in 6 or 8-inch pots.‡——*J C C*—The direction of the wind is noted at Chiswick at 1, P.M.——*A Constant Reader*—Lists of the Fellows of the Horticultural Society are not sold, and are only given to the Fellows.

SEEDLING FLOWERS.

CACTUS—*Y Y*—The handsomest variety among your seedlings is No. 4, the inside of the flower possessing the purple tinge visible in *C. speciosissimus*, with a crimson red tint through the centre of the petals; it opens well and is very showy. Next in merit we place No. 3, a flower in size and form similar to 4, but wanting the purple tinge; it is of a uniform bright red colour. No. 1, though the largest flower, has long narrow petals, apparently wanting substance, and we should think from its appearance that it does not open freely; 2 is similar to 1, except that it is a stouter flower, and also smaller than the others. 4 and 3 are decidedly the best.*——*R M*—Your seedling *Cereus* is a very handsome variety, large, bright, and fine in colour.*——*T S*—Your seedling is handsome, but hardly so fine as Regalis or Conway's Giant.

CALCEOLARIAS—*Y Y*—Your seedlings are very common sorts.*——*B & Co.*—Unfortunately when your flowers arrived the numbers were not attached to the flowers. The best in the collection is a yellow ground sparingly spotted with dark spots. The dark self is also a good flower; the others are large well-grown flowers, but they are repetitions of varieties raised by other growers.*——*A Subscriber*—There is nothing uncommon in your seedlings. 3 is the best both in colour and form.*——*H P*—Your seedlings are very prettily spotted, but they do not differ from many collections submitted to us. 1, 2, and 4 are the best.*——*T W*—The spotted varieties are become so common that unless they are very large, finely formed, or possess some striking novelty, they are useless to the public. Your specimens are pretty; but they are small, and not uncommon.*——*Orford*—Your seedling is a repetition of a very pretty old variety; the form is not good.*

CINERARIAS—*R J*—Your seedling is fine in colour, but the growth of the flower appears cramped, and the petals surround the disk irregularly.*——*Y Y*—No. 4 is a pretty variety, but there is no improvement or novelty in any of them.*——*H D*—Your seedling is the most novel in appearance that has come under our notice this season; the dark disk, with the petals equally divided into white and crimson, with the colour leaving off abruptly, gives it a singularly gay appearance.*——*C M G*—No. 1 is an extremely delicate and pretty variety, not new; 4, appears to want substance and regularity. Seedling *H* is a brilliant and lively flower, with rather narrow petals. *I* is a good blue, with broad petals, the circle being better filled up than usual.*

PANSIES—*J T*—The yellow seedling is of no use; the texture of the flower is course, and the top petals cloudy. The dark variety is fine in texture and substance, good in form, a little cramped, which prevents the petals lying flat.*——*C H*—Of your yellows 1 is the best, the ground-colour being alike in all the petals, and the eye large and fine—the upper petals are cramped, and want flatness; 2 and 3 are both clouded with white, and 2 rough on the edges; 4, fine in form, but the blue should be absent in the side petals, and the portion of the eye in the lower petal mixes too much with the margin; 5, good substance, wanting flatness in the top petals; 6, a good flower, but the colour wants decision where it joins the margin; 7, deficient in the side petals; 8 and 9, rather common; 10, very beautiful, bloom rather too young; 11, wants texture; 12 do., the ground-colour uneven; 1, 5, and 10, are the most promising.*——*J M*—Your seedling (Dr. Wolff), is a flower of good form and substance, rather novel in appearance, with fine eye; ground-colour rich and bright yellow, and the rest of the flower of a rich bronzy purple.*——*J R*—The most promising flower in your collection is 3; form and substance first-rate. The pencilling about the eye breaks through too much to the margin, as it does also in No. 1. The other flowers are rough and indistinct in colour, and can be regarded only as border varieties. Look to 3, the bloom was cut too soon.*——*A Constant Reader*—A large, well-formed, but coarse flower, with the colours too much blended.*

POLYANTHUS—*J Y*—Your seedling is a good sized flower, possessing many fine properties; it is round and flat, with very shallow indentations; the lacing is very perfect, and the ground-colour fine. Two faults are apparent; the eye and the lacing are of different shades of yellow, and the tube wants the projecting rim, to give finish to the centre.*

VERBENA—*Orford*—A large and delicate pink variety; the divisions in the corolla are too deep: but it forms a handsome head of bloom.*

ERRATA—We omitted to mention in our Report of the Exhibition of the Royal Botanic Society, Regent's-park, that the 1st Prize for Cinerarias was awarded to Messrs. Lane and Son, Berkhampstead; and that extra prizes were given to Messrs. Jackson and Co., for two seedling Cinerarias named Lady Prudhoe, and Countess of Zetland.

*** As usual, many communications have been received too late, and others are unavoidably detained till the requisite inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

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The Agricultural Gazette.

SATURDAY, MAY 17, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, May 21—Agricultural Society of England.
THURSDAY, May 22—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, May 28—Agricultural Society of England.
THURSDAY, May 29—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

May 19 { Wenlock, W. Hereford, Cirencester, Yoxford
May 20—Isle of Thanet
May 20—Wingerworth
May 21—Swansea
May 22—W. Market
May 27—Bromsgrove
May 29—Ottery St. Mary

AT page 73 the precautions were described that were taken to render the results of our inquiry into the DRAUGHT OF PLOUGHS trustworthy; and at page 105 are engravings of implements whose draught was tested: we have now to detail some of the conclusions that were arrived at. One of the first points to be noticed is, the striking variety which exists amongst the ploughs as regards their draught, even when nominally in the performance of the same work. By some of these implements, indeed, the additional labour thus laid upon the draught animals is spent in the more efficient performance of their work; and thus it is possible that the plough of greatest draught may, in truth, be as economical of draught-labour as one of the lightest. Nevertheless, the fact that this great variety, however it may originate, *does* exist, deserves much attention both from farmers and manufacturers; for it shows how entirely, in this matter, both parties have been guided by mere local usage hitherto. It is not our object to point out to purchasers which are the ploughs of lightest, and which those of heaviest draught—we had not a sufficient variety at command for this purpose; our aim is simply to illustrate the great difference between them, and thus bring home to farmers the necessity of inquiring into this matter for themselves.

Before noticing the engravings below, which constitute the depositions upon this subject of the ploughs that were employed, let us refer to the experience of previous observers. The following are some of the results of Mr. PUSEY'S Experimental Inquiry—see Eng. Agri. Soc. Journal, vol. i.

POWER REQUIRED TO OPEN A FURROW 5 INCHES DEEP AND 9 INCHES WIDE.

NAME OF PLOUGH.	Sandy Loam.	Blue Clay.	Loamy Sand.	Strong Loam.	Moory Soil.	Average.
	st.	st.	st.	st.	st.	st.
Ferguson's Scotch Swing . .	19	50	19	35	23	29
Clark's do. do. . .	20	52	17	33	23	29
Hart's Berkshire, one wheel . .	14	43	12	23	16	21½
Ransome's F.F. two wheel . .	14	43	13	33	14	23½
Do. do. Swing . . .	18	44	16	30	21	26
King's Swing	18	48	15	27	19	25
Do. onewheel	17	43	17	30	18	25
Rutland, Ransome, two wheels .	17	50	16	36	21	28
Old Berkshire Wheel Plough .	23	52	21	36	25	31½
Holkham Plough, two wheels .	18	...	...	...	...	...

Here we have the same work performed, *i. e.*, a furrow-slice of the same depth and width moved, by different implements; and while one requires a power of 23, 52, 21, 36, 25, or, on the average, 31½ stones to work it, another, under similar circumstances, a force of only 14, 43, 13, 33, 14, or, on the average, a force of only 23½ stones, and between these extremes there is, amongst the other implements, the greatest possible variety.

The following, again, are the results of trials of swing ploughs, by the Ipswich Farmers' Club, as given in the "Farmers' Magazine."

SWING PLOUGH—THE FURROW 9 INS. WIDE BY 7 INS. DEEP DOWN THE FIELD, AND 9 INS. WIDE BY 6 INS. DEEP, UP.

NAME OF PLOUGH.	Maker.	Draught down, 9 × 7.	Draught up, 9 × 6.
		stones.	stones.
Swing Plough, S.R. .	Ransome	20	22
Ditto F.F. .	Ditto.	24	...
Ditto F.S. .	Ditto.	25	25
Palmer's Patent, W.H. .	Wood.	28	26
Wooden Plough . .	Meadows	32	...
Essex Swing . . .	Ransome	38	32

In these trials, compared with those of Mr. PUSEY, a still greater variety, it will be seen, was observed in the draughts of the implements tested.

The following is the testimony of another observer—H. J. HANNAM, Esq., who writes on this subject in the third volume of the "English Agricultural Society's Journal." The ploughs were tried on a "Wheat stubble, in a gravelly-sandy loam, after a good deal of wet;" and the following results were noted by those present. The furrow was kept at 9 inches wide and 5 inches deep:—

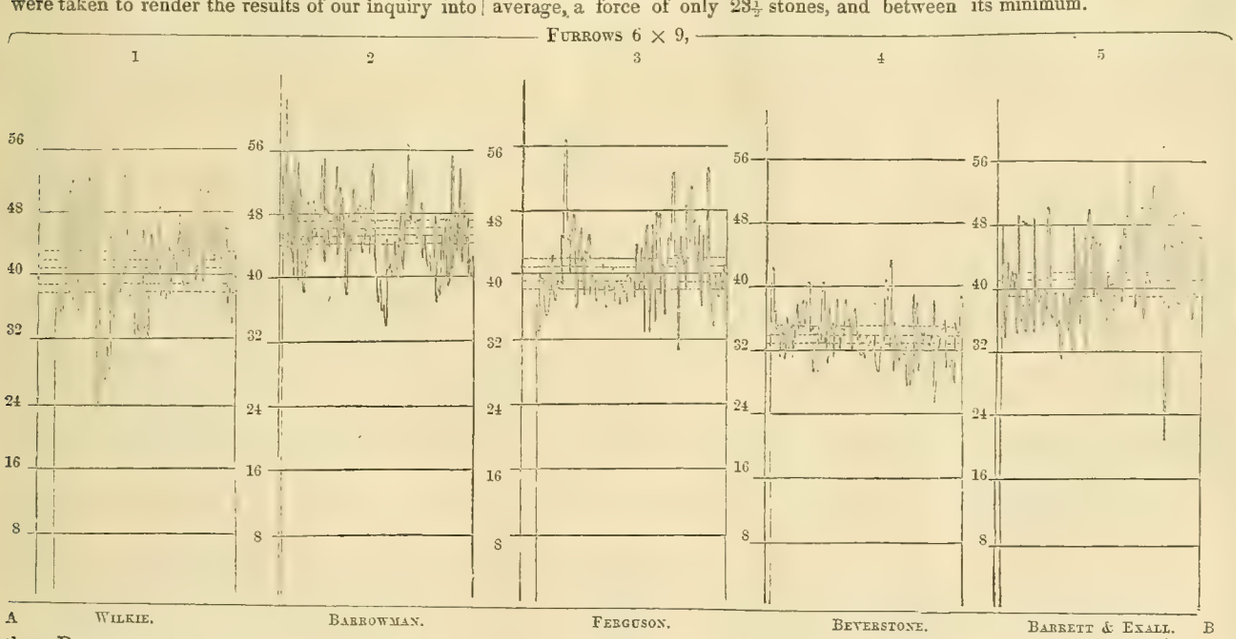
1. Cuddesdon, Oxon, old one wheel . . 22 stones.
2. Burcott, do. do. . . 22 „
3. Scotch swing plough . . . . 20 „
4. Barrett's No. 8, two wheel, with Ransome's mould-board . . . 20 „
5. Barrett's No. 8, one wheel, with Brightwell's mould-board . . . . 19 „
6. Wallington, Oxon, one wheel . . . 18 „
7. Hart's one wheel . . . . 17 „
8. Ransome's N. L. 7, two low wheels . 16 „
9. Barrett's L. 2, one wheel . . . 15 „
10. Do. D. P., do. . . . . 13 „

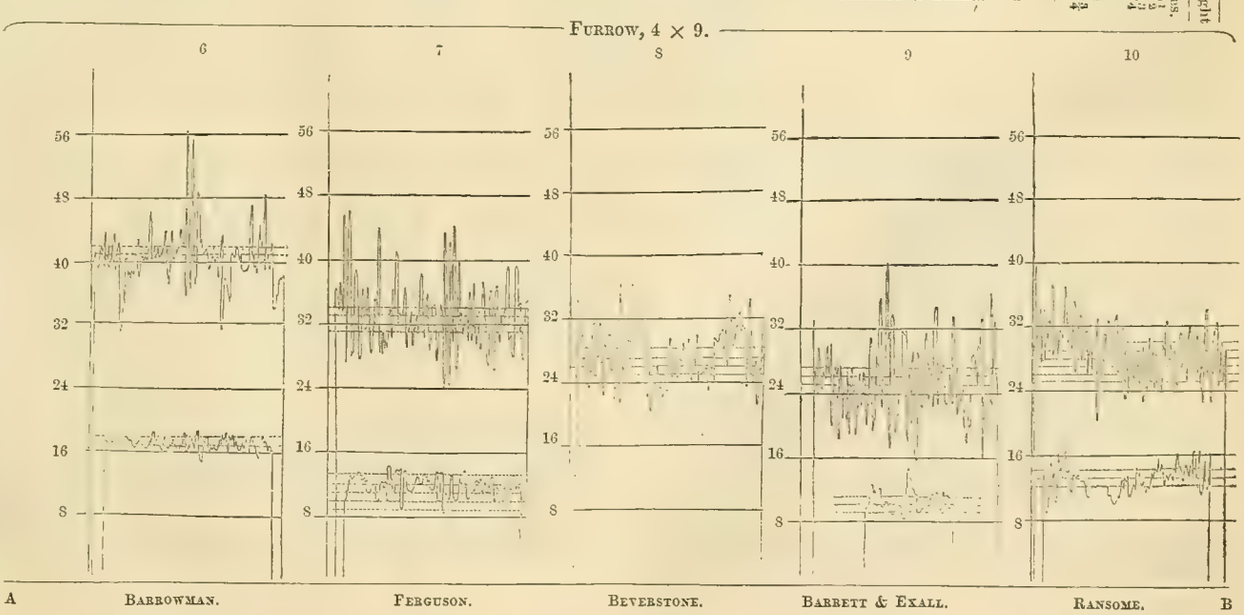
Here, too, in this descending scale of draughts the same truth is exhibited; there is a variety in the draught-labour required to work these ploughs, amounting, between its extremes, to 70 p. cent. upon its minimum.

In Mr. HANDLEY'S Prize essay on Wheel and Swing Ploughs (1st vol. of the "English Agricultural Society's Journal"), the following Table appears:—

PLOUGHS TRIED AT IPSWICH, NOVEMBER 1838.

Description of Plough.	Maker and Mark.	Draught
		stones.
Rutland, with wheels	Ransome, N.L.	19½
Bedfordshire do.	Do. L.L.	23¾
Lincolnshire Swing .	White; Ransome's Irons,	24
Lincoln Heath, do.	B.M.	24¾
Do.	do., L.H. . . .	24¾





Here, also, there is an important, though not so considerable a variety, as in the cases just detailed. These ploughs were working in a stubble field of sandy loam, the furrows being 6 inches deep and 10 wide.

It is needless to quote further in illustration of this point, otherwise we might point to the experience of ARTHUR YOUNG many years ago, and to the testimony of many other observers, especially in Scotland of late years, all indicating the truth of the assertion that among ploughs even when nominally in the performance of the same work there is an enormous difference as regards the draught-labour they severally require. The inferences which naturally present themselves on considering this subject are, 1st, How entirely unguided by anything like mechanical principle the manufacture of this particular farm implement must hitherto have been; and 2d, How important it is that farmers should ascertain the draught of the implements they use, in comparison with those used by others; there may be as much difference between them as will occasion, in one case, double the horse-labour that suffices in another.

Let us now refer to the figures on the previous page: the first five were drawn by the pencil of the recording dynamometer when attached successively to the Scotch swing ploughs of WILKIE (Lanarkshire), BARROWMAN (Fifeshire), and FERGUSON (Stirlingshire), and to the English one-wheel ploughs, BEVERSTONE (Gloucestershire), and BARRETT'S D.P. (Berkshire): the furrow opened by each was 6 inches deep by 9 inches wide.

We need not explain these figures farther than was done at page 73: the height of the characteristic irregular line, traversing each, above the base line A B, as indicated by the numerals up the side of each diagram, expresses in stones the draught of the plough named below each. It will be observed, on examining our list of ploughs at page 105, that the draught of one of them—RANSOME'S one-handled plough—was not taken on this occasion; the reason was, it was found entirely unsuited for working so deep as 6 inches. BARRETT and EXALL'S D. P. also made very poor work at that depth; and to its being thus tried beyond the depth for which we presume it was intended, as well as to its being newer than the others, the paint not being quite polished off, we must attribute the great draught which the dynamometer has recorded against it.

The upper lines in the next five figures represent the draught of the ploughs when at work 4 inches deep, the furrow-slice as before being 9 inches wide. RANSOME'S plough answered perfectly at this depth, and so did BARRETT'S D. P., and it will be observed that the latter assumes that position amongst the others as regards easy draught, which previous observers had assigned to it. WILKIE'S plough was not tested by the dynamometer at this depth owing to an accident which befell the instrument.

We may just remark by the way, that the lower irregular lines in some of these diagrams represent the draught of the plough when drawn along an empty furrow; they are illustrative of another aspect of this question, to which we shall refer next week.

Any one by stretching a thread across each of the diagrams in succession can determine for himself the draught of the ploughs, as it is represented by these irregular lines. The following, we think, is pretty accurately their testimony:—

NAME OF PLOUGH.	Draught in Stones.	
	Furrow 6 by 9	Furrow 4 by 9
Wilkie	41½	..
Barrowman	46	41
Ferguson	40	33
Beverstone	34	27
Barrett and Exall's D.P.	40½	25½
Ransome's one handled	..	28½

This Table quite confirms the testimony of previous observers, as to the variety in draught which is observable among different ploughs, though in the performance of the same work, so that this point may be considered perfectly established; and it is one which points out how local usage has regulated the manufacture of this implement to the entire exclusion, *in the general*, of any guidance by mechanical principles. We by no means assert that true economy in horse-labour is ensured by the selection of implements of least draught—the quality of the work performed by them, must greatly influence our choice; an increased draught is very often owing, among other circumstances, to greater excellence of the work done. But to these circumstances we shall refer in future articles, commencing next week with *the influence of the weight of the plough* upon its draught.

WE cannot allow the communication in next column, from Mr. DAVIS, to pass without calling the attention of agriculturists to the valuable practical information it affords on that very important question — THE RIGHT PROPORTION OF SEED-CORN. It clearly and sensibly points out the fact—which farmers rarely think of—that too much seed *must* produce too many plants, the latter growth of which, like that of an over-crowded plantation, will be impeded, and a diseased state of the whole will necessarily be the consequence. Mr. DAVIS shows the present practice on this point to be an effectual bar to the improvement of grain; and he also shows that the additional expense, from the loss of seed, amounts nearly to the rent of the land—that, in fact, it involves an annual loss to the nation of more Wheat than the average importations of that grain into this country during the last 14 years.

When we find that this information comes from a large farmer of extensive experience; that it is the result of 12 years' practical testing, into which every means have been taken to beget inquiry by the agricultural papers, and by his own writings, and that he has shown his desire to prove all he says by throwing his farms open to inspection, and further learning that hundreds have been to see the crops growing; nay, more, that the Royal Agricultural Society itself has in its last "Journal" given the corroborative testimony of the Maidstone farmers' deputation, who visited the farms last year, expressly for the purpose of testing it; we must express our regret that the communication which we present to our readers was passed over by the Council of the Roy. Ag. Society, and that the important doctrines which it contains have not been sanctioned by the award of a premium to Mr. DAVIS, for the talent and energy he has exhibited in urging them upon the attention of farmers. We are sure that the essay to which we allude will be received by practical farmers as affording one of the most serviceable helps, in a time of need, ever rendered to Agriculture.

ON THE INJURY AND WASTE OF CORN, ARISING FROM THE USE OF TOO MUCH SEED.

FROM what I see in my practice, I am each year more and more impressed with the waste and injury of corn that arises from too thickly sowing, and therefore wish to take every opportunity of drawing notice to the subject, as one requiring the very serious attention of farmers, less for the loss of seed than the injury done, from sowing too much, to the young corn. With this view I wrote the following Essay for the "Royal Agricultural Journal," but the prize for which I contended has been awarded to an Essay entitled "An Experimental Inquiry into the Theory of the Action, and the Practical Application of Bones as a Manure for the Turnip crop" I must confess I consider my work every way calculated to be of far more service to the farmer than the one the Council has selected, although the merit of greater ability may belong to Mr. Hannam, and I therefore beg to present it to your readers, having only to add that farmers are welcome at all times to test what I have said by personal observation of my farms. —*Hewitt Davis, Spring Park, Croydon.*

"Inopem copia fecit."

"It is with no ordinary satisfaction that I bring before the Society the result of many experiments which I have made for the discovery of the right proportions of seed corn that should be sown to secure the largest returns; for the importance of these experiments is very considerable, and the result has shown me that not only may a saving, nearly equal to the rent of the arable land, be advantageously effected by a saving in seed, but, what is of far more importance, the quality of the crop and the return per acre will certainly be thereby increased. That such has been the result in my practice I have not the least hesitation in asserting, from an experience of 12 years, and over five farms; and it is now for upwards of two years that I have by my writings invited general inspection of my crops; and some hundreds of farmers, during the last dry summer (which for my thin Turnip soils was a most disadvantageous season), have come to see what has thus been grown from little more than a fourth of the ordinary proportions of seed, and at a saving of 10*s.* or 12*s.* per acre; and although some have very much over estimated the quality of my land, or have considered me fortunate in having hit on a peculiar system adapted only for a peculiar situation and soil, still I am not aware that any one has denied the more than ordinary average goodness of the crops. It is now upwards of 12 years since I began to diminish my sowings of seed, and, as I shall best describe what I have been doing by bringing only one description of grain in illustration, I will take Wheat for my example, only premising that the reduction has been proportionately made in all other corn sowings, and with the like results, and that much of my land has been reclaimed from heath, and is of the poorest quality I ever saw in cultivation.

"In the year 1833 I became the tenant of the Spring Park Farm, a part of a large estate that had for some years previously been in my management for the proprietor, so that although only at that period had I become the tenant, I had previously had it in cultivation for six or seven years. The proportions of seed Wheat that had always been given, were from 2½ to 3 bushels to the acre, broadcast or drilled in rows 7 inches apart, and notwithstanding that manure was usually applied for this crop (and only the best portions of the farm were considered good enough for this grain), the return seldom exceeded 24 bushels per acre, and frequently not so much. My attention was first awakened to the subject by the general yellow cast that uniformly in the spring of the year came over the thickest parts of the young Wheat, and I observed that however promising the plant had appeared in the winter, a change then took place for the worse, and that, too, at the season when the meadows and other vegetation put on their most verdant colours. I further noticed that at the turn of the lands, where frequently the drill had twice deposited seed, this change was still more apparent; whilst the corn plants that had been thinned out by wireworm, or that had been thinner sown, were remarkable for their greener hue. These observations led me, in 1831, to lessen my sowings by half a bushel per acre, and finding at harvest my crop of Wheat the largest I had ever known on this farm, my success induced me further to lessen the quantity of seed, and since then my practice has been to go on gradually diminishing my quantities, carefully watching the consequences that I might not hazard loss; for the stake I have at risk is too considerable for me to venture far, without first feeling my way. In this manner, and more particularly from having * accidentally on one occasion sown with advantage so little as only 2 pecks to the acre. I have gone on reducing my sowings until, at this time, my standard is only 3 pecks per acre; and I fancy I still sow too much. Since I have written on the subject, I have each year (to enable the public to witness the contrast) had the wheel that regulates the quantity of seed changed for a turn in two or three fields, so as to put on a double allowance (6 pecks per acre), that the difference might be seen; and last year I had a field at Selsdon, near Croydon, in Wheat, situate by the side of the high road to Croydon, having in the centre a double turn thus sown; the whole came up well; but throughout the winter the thicker sown showed by far the best and had the greenest hue, the difference being apparent a mile off; and thus it continued till towards April, when this part gradually drooped, and became equally remarkable for its yellower hue, and up to the harvest never recovered to bear comparison with the thinner sown; and then, strange to say, the straw was 3 inches shorter, and the ears ¼th less, than the rest of the field, and it had every appearance of owing its lesser luxuriance to a want of dressing, and which the remainder of the field seemed to have had. Whereas, the whole field had had no dressing of any kind for four years, and during that period had borne six luxuriant crops, viz.:—1st year, Swedes, half of which were sold at 20 guineas per acre, and pulled and carried off by the purchaser to London. 2d year, Oats, the yield of which was upwards of 105 bushels per acre. 3d year, Red Clover, which was twice mown, and made into hay, and afterwards again cut for green meat, and such was its luxuriance, that the third cutting lasted till the second week in November. 4th year, Beans, the produce was beyond 4 quarters to the acre, with a good crop of Turnips sown in the Beans. 5th year, Wheat, which yielded above 4¼ quarters per acre; and yet no dressing of any kind had been applied since the one for the Swedes, save what the sheep had left when feeding off the half crop of Swedes and the Turnips which had been sown among the Beans; the field at this time (spring, 1845) is sown with Tares, and has the promise of a fine crop. I have selected this field above every other for an example to be made public; for, from its situation—it lay in the sight of many of the farmers who attended Croydon market, and passed it weekly—the experiment cannot have failed to have been noticed by them and hundreds of others; and the facts here stated are too well known to admit of any doubt of their correctness.

"Having thus shown, in practice, what has resulted from diminishing my quantities of corn seed, I will now explain why it is that 3 pecks of Wheat per acre will yield more than a larger quantity. The contents of an average ear of Wheat, taken from where the usual quantity of seed (say 2½ bushels) has been sown, is about 30 grains; therefore it is clear, if a grain of seed produces only one ear, 30 times the seed should be returned at harvest. It also follows that, if the yield of an acre be 30 bushels, and more than 1 bushel has been sown, more plants will at first be produced than come to maturity, and the consequence must be that, after growing through the winter, a period will arrive when there will be neither space, air, nor nutriment for the whole to continue to increase in a healthy state, and stagnation and disease of the whole must ensue; that all this does happen, the sickly appearance of the Wheat in the spring, and the great number of defective plants at harvest, has clearly shown to me. I am aware it may be said, I have made no allowance for the loss by birds, wireworm, slugs, game, and the many enemies the young plants have to struggle with; but to

* In the autumn of 1840 I had a field of 8 acres to sow with Wheat, for which 7 bushels were given out. Owing to an accident of my drillman, when he had sown half the field, he found he had not put on half the seed, and in order to prevent my discovering his mistake, he altered the drill, so as to sow not only 3 pecks to the acre, but the overplus on the remainder; in this way, one-half of the field got only 2 pecks per acre, and the other had 4 pecks. I was not then made aware of the error, and in the winter was surprised and alarmed, on walking over the field, to see one part (the thinner sown) looking so bad, and but for the remainder appearing so much better, I should have condemned the whole to be ploughed up; subsequently, at harvest, however, the thinnest part proved the best, and this induced my drillman to point the difference out, and make me acquainted with the error he had committed; and but for this fact, I never should have known the difference he had made in sowing.

this objection I reply, that such is the extraordinary power given to all the cereal Grasses to *stock out*, that no allowance is necessary (and were it necessary, I should say wrong would be done to provide against an uncertain, casual, and partial loss, by oversowing in the first instance, and with the certainty of thereby injuring the whole); but the fact is, that, instead of calculating the return at thirty-fold, that is to say, that one grain of seed will produce only one ear, and that ear only 30 grains, a single grain will produce, where room is given, many ears, and these ears from 40 to 100 grains each, so that the return, as has frequently been shown, would be above a thousand-fold; and hence extra allowance for casual loss cannot under any view be necessary or advisable when a bushel is talked of as the quantity of seed for an acre of land.

"It is an extraordinary fact, that whilst the Wheat is naturally so prolific a plant as to yield a thousand for one, the return for the seed sown throughout Great Britain cannot be said to be more than about tenfold; and of the crop raised, a tenth is given back to the soil, and yet the saving of seed which I advise may be most advantageously made, would afford six weeks' consumption, and in itself amounts to more than the average of the importations in the last 14 years; so that, according to my theory and practice, a saving at once may be made to diminish the expenses of the cultivation of the arable land of Great Britain, equal to more than half the rent that is paid for it, and by the saving the occasion for a foreign supply would be superseded, and this, too, simply by an economy, the want of which I am anxious to show is in itself highly injurious to the growth of corn, and even of far more consequence than the value of the lost seed. A further and very important consideration is also necessary; namely, how far the Wheat-plant, from the present practice of over-crowding it, is prevented from partaking of the improvement in size and yield, which better individual attention to cultivation and selection of seed has made with plants in gardening. We are indebted for our finer fruits and vegetables wholly to the care given to afford increased nutriment and ample space for the better development of selected plants; and I fancy an opening is here before us which some day may be taken advantage of to produce a larger and better berry; but ample space must not be forgotten to be afforded, or it will be in vain to look for larger growth. It is gratifying to me to find that already very considerable attention has been paid to my representations, and I have heard from many of their success who have been trying thinner sowing; and in my travels in the autumn, I have frequently observed by the greater width of the drills, that my notions are being very generally tested. I have only to express my hope that when failure results, as under every system will happen occasionally, care will be taken to trace it to the right cause, and not to impute every want of plant, every short crop, to thinner sowing; for want of plants and failure of crop is frequently the attendant of thick sowing, and may arise from 20 causes independent of thin sowing. Were I called upon to say what is the greatest difficulty in the way of agricultural improvements, I should answer it is the attributing of results to wrong causes, and drawing erroneous conclusions from experiments; to these mistakes must be owing the contradictions continually apparent in the opinions and examples of practical men, and the uncertainty that prevails on many points of practice, and it is against these errors I wish to warn any one who would test my assertion on the subject of thin sowing. By the time this paper can appear in the 'Journal,' many trials now in progress will have advanced sufficiently to try the correctness of what I have said, and I trust their results will become generally known, for I have the fullest confidence that the doctrine I have advanced will prove correct, viz., that the quantity of seed to be sown should be only in proportion to the number of plants that the space will allow to mature, and that to apply more is a waste of seed, and an injury to the after-growth of the entire crop, attended at first with unnecessary expense, and at last with a diminished produce.—*Hewitt Davis*, 3, *Frederick-place, Old Jewry, London.*"

ELECTRO-CULTURE.

I SHOULD like to enter my humble caveat against the present mania for electrical wires, which seems raging amongst some agriculturists. Like many others, I was bitten by the announcement of Mr. Forster's truly wonderful statement; but subsequent inquiry has sorely shaken my faith—I do not say in that gentleman's veracity, but in the probability that any other mortal will produce the same results by the same means. Just as I was about to erect my poles, *secundum artem*, I met with a work of Ingenhouss', published about 60 years ago, entitled "Nouvelles Expériences sur la Physique," &c., in which it appears that many learned societies at that time were engaged in researches on the influence of electricity on vegetation. Ingenhouss details the results of his own experiments, which seem most carefully conducted; and these all disprove, in the clearest manner, that electricity, even in its most concentrated form, that is, as lightning conducted by iron, produces any sensible effect on vegetation. The particulars of his careful trials on this subject would, I think, prove very interesting to your readers; but I have not the work at hand to refer to, and have even given the title only from memory. His testimony against the supposed benefits to agriculture from managing and distributing the electrical fluid, is the more worthy of remark from his having, at one time, strenuously asserted the great virtues of this agent. But later experiments enabled him to detect the sources of error in his first essays. Amongst these, was the asserted beneficial influence of electrifrying seeds in flower-pots, whereby they were said to germinate more rapidly than others not subjected to this process. He discovered that the flower-pots, so electrified, had been (accidentally) kept in a darker part of the room; and that the quicker vegetation was due more to the absence of light than to any vital effect of electricity. It is not meant by the writer to set up the authority of Ingenhouss against that of the proprietor of Findrassie; but it is thought that the circumstance of electricity in its relation to the growth of plants, having been 50 years ago the subject of inquiry and of repeated experiment with the learned societies of Europe, and of its having been laid aside as incapable of useful application, raises a considerable presumption against the fulfilment of the sanguine hopes now entertained. Nor must the promulgation of such expectations on insufficient grounds be considered harmless; on the contrary, great prejudice is thereby wrought in many minds against the real advancement of "science with practice;" even as a discovered imposture often casts a shadow on objects truly deserving of our charity.—*A. H.*

WHY SHOULD THE GROWTH OF FLAX BE ENCOURAGED?

HAVING inserted the names of several gentlemen in my former letters on this subject (see Nos. 15 and 16, *Agricultural Gazette*), who have, by instructions from the Belfast Flax Improvement Society and myself, grown Flax in this country and Ireland with profits ranging from 20*l.* to 50*l.* per acre, I wish to bring forward additional proof, in order to satisfy agriculturists that no crop will remunerate them like that of Flax.

Aware that theoretical observations can never entirely obliterate prejudice, I will place before those interested in the well-doing of the farmers of this kingdom, facts and experiments which I hope will be sufficient to raise the curtain that has so long covered the stage of the great agricultural theatre of Europe, and concealed from the eyes of British farmers the profits of Flax-growing derived by their Continental agricultural neighbours, from whom England derives scarcely any benefit; although it appears from the "Irish Farmers' Journal," these people have been draining annually from *us* between 10 and 12 millions sterling for Flax, oil-cake, and Flax-seed; and it appears, by the Parliamentary returns up to the 5th Jan., 1844, that this sum, drawn by our Continental friends, is very little short of the whole value of our exportation of manufactured cotton goods to all parts of the globe (16,249,268*l.*) By the same returns I observe that the whole amount of our exports in linen and yarns was 3,603,079*l.*, so that it follows we consume the agricultural produce of Belgium, &c., to the amount of from seven to nine millions sterling annually, and this sum may and ought to be kept in this country, if landholders and farmers will but study their own interest. I would just say to the calculating farmer, consider the population of Great Britain 18,800,000; deduct the inhabitants of cities, towns, and villages, who are merchants, manufacturers, and trades-people, then, on seeing what number you may allow to be farmers, ask yourself how much of this 12 millions your own share may be, and do not forget the example you have before you in the north of Ireland, where Flax-spinners declare that some of them who have paid 40,000*l.* per annum to the French, Dutch, and Russians, for Flax, now distribute those large sums annually amongst the farmers in their immediate district.

I would also call attention to the following:—An Irish gentleman, Mr. Cassidy, of Glenbrook, Magherafelt, in writing on the 26th ult. to the secretary of the Belfast Flax Society says, "I have read with pleasure and much interest the discussion on the Flax question in the 'Farmers' Journal,' and I must say the opponents of Flax do it most gross injustice; for instance, in 1843, I got 145*l.* for Flax grown on barely 6 Irish acres (or say 8 English), and I calculate, after making a liberal allowance for expenses, I had 100*l.*, or more than 16*l.* per acre clear profit by selling the Flax at 8*s.* to 8*s.* 6*d.* per stone in Cookstown;" then he adds, "this year I saved some seed of the Flax on the Courtrai system" (before this period he did not do so, the seed was as usual lost in the watering); "on applying it I find the seed excellent and nutritive food for milch cows, pigs, and horses; and to this kind of food we attribute the remarkable sleekness of animals feeding on it, and we observe that the milk of the cows improved, both in quality and quantity, immediately after we commenced giving them the bools."

Now, as this gentleman states that he had without the seed (for it appears he followed in 1843 the old system), a clear profit on the

Flax-grown on eight English acres	.	£100	0 0
We must add to this what seed he should have had according to the Norfolk farmers' calculation, 29 bushels to the acre, or 232 bushels, at 6*s.* 3*d.* per bushel		72	10 0
		£172	10 0

Therefore, had he saved the seed, even working the Flax on the old system, he would have had a clear profit of 21*l.* 11*s.* 3*d.* per acre, whereas, had he managed the whole crop on the improved method he would have got more than 8*s.* or 8*s.* 6*d.* per stone for the Flax; in all probability, 10*s.* or 12*s.* It is a well-known fact, that any uneducated ploughman can sow and reap off an acre of good land from 20 to 25 cwt. of Wheat or Barley, and obtain the highest price in the market. In this case the land gives the quality and does all, after the seed leaves the hand that sows it; but in Flax-growing the land produces the bulk, and skill and hand-management gives quality; therefore the cultivation of such a crop is certain to give pleasure and profit to a skilful practical farmer.

Having read with pleasure the letter following mine, in page 247 of the *Chronicle*, and agreeing as I do with the writer's views, and with every syllable he makes use of respecting the neglected portion of Ireland, and comparing those parts with the northern province, which is attended to by considerate landlords, such men as the late and much-lamented Marquis of Downshire, and knowing as I do the good results from the landholders in that quarter, taking up the subject of Flax cultivation, and interesting themselves in everything calculated to benefit their tenantry, I must borrow a few words from your correspondent and ask, how can it be that the newspapers are daily filled with advertisements of railway companies, joint stock companies, and many other uncertain speculations, patronised, as would appear from the prospectuses, by noblemen and other landed proprietors, yet not one company has yet started in this country to grow, or encourage the growth of Flax, an article that is consumed in such quantities, and of such vast importance to the landed interest; and above all, so certain to leave a profit for labour and money employed? I do not expect to see the Government starting model farms in every county or district in England, but I say, if the landowners of Great Britain will not be alive to their own interest, individual capitalists had far better invest their money, and try what they can do to keep in this country the 10 or 12 millions sterling now paid away annually to foreigners for Flax, oil-cake, and Flax-seed; they will find a ready market in Yorkshire and Lancashire, for all the Flax they can produce; and they will find buyers for their seed and oil-cake among those farmers who may not grow it, although they must admit, it is superior to anything yet found out for fattening cattle.

As the present prosperous state of our trade causes money to be plentiful, landowners are prevailed upon everywhere to lend their names, capital, and influence, to speculations on embankments and excavations. It might be prudent for landowners, while they sink their money in railways, to reflect on the state of the tenant-farmer, whilst the manufacturers are calling out to a man for open ports, and as by this letter I prove that a farmer can grow on eight acres of land what will leave sufficient profit to pay the rent of a farm containing 125 acres at the highest average price in England (Leicester, 26*s.* 9*d.*), it might be advisable for landed proprietors to do less in railways and use a little of their unemployed capital and influence in promoting the growth of Flax, an article that would remunerate farmers and enable them to pay their rents, regardless of the present protecting duty. This could be done by a joint stock company, with branches and model farms; such a company would command the influence and assistance of a powerful and wealthy body, the Flax-spinners of Great Britain, who are deeply interested and most anxious to see an article grown at home that they have to look to foreigners for, an article so superior to cotton in texture and durability; such a company would act as a golden link between agriculture and commerce.—*J. H. Dickson*, 29, *Broad-street Buildings, London.*

ON TOP-DRESSING WHEAT.

EXPERIMENT on the actual and comparative effects upon a Wheat crop grown on Pea-stubble, of Potter's guano, natural guano, and Rape-dust, as a winter application; also on the effect of nitrate of soda as a top-dressing for spring-sick Wheat.

Details.—Soil—very poor limestone, worth 12*s.* per acre. Prior crops—Swede Turnips (manure); Barley (Rape-dust); Peas (manure). At the opposite end of this field the experiment on Peas was made in 1842; the soil at that end, however, is of much better quality (*vide* samples) than this now experimented on.

Management.—Ribbed and sown with yellow chaff Wheat, Nov. 10, and manured as follows:—

	Section 1.			Section 2.
1. Potter's Guano.	2. Guano.	3. Nothing.	4. Rape-dust.	5. Rape-dust and Nit. of Soda.

Sect. 1. 1. ¼ acre, Potter's guano, ½ cwt., sown in the furrow with the seed, Nov. 10.
2. do. Natural guano, ½ cwt. do. do. do.
3. do. Nothing.
4. do. Rape-dust, 3 bushels. do. do. do.

Sect. 2. 5. do. Rape-dust, 3 bushels. do. do. do. Nitrate of soda, 2 stones, applied as a top-dressing upon a plot which was perishing at spring, applied May 16.

Observations.—During winter all the plots looked well—better, indeed, than the Wheat upon Clover lea, (Experiment N)—the fine tilth of the stubble land promoting the quick growth of the plant. At the end of April, however, symptoms of a falling off began to show themselves, and, by the middle of May, Nos. 1 and 4 looked very sickly and patchy; No. 3 was more backward, but still was more healthy in colour than Nos. 1 or 4; No. 2 was as yet pretty good, the colour being still fresh. At this time another rood was measured off, (alongside No. 4), which looked so yellow and sickly that it seemed scarcely a skeleton of a crop, and was, as an additional experiment, dressed with ¼ cwt. of nitrate of soda; this plot, be it remembered, was manured with

Rape-dust, same as No. 4, and the remainder of the field (with exception of Nos. 1, 2, and 3), at the time the seed was sown; the nitrate being now used as a medicine intended to stimulate the failing plant. The effect of this application was magical. In 10 days the yellow patches were lost, and, in a week more, the only trace to be found of them was in the increased luxuriance of the same places, the tillage being applied most liberally on the diseased spots. Seeing this, the sickly patches throughout the whole field were now top-dressed, not as an experiment, but for the benefit of the crop. The results were equally astonishing with those upon No. 5; the worst places in the field soon being distinguishable as the best. Indeed, those who ran could read, and I had, in no few cases, to explain how the marvel had been accomplished; few imagining that, a short time before, these were actually the worst parts of the field, the question generally asked being, why they were now so decidedly the best. During this time, the plots Nos. 1, 3, and 4, had improved a little; No. 2 was, however, decidedly best; but No. 5 had made most progress. In five weeks from the application of the nitrate, the Wheat was full 6 inches higher, much thicker, and more luxuriant in colour than No. 4. All marks were, therefore, unnecessary; setting aside the distinction in the hue, there was a perfect ridge or step formed by the superior height of the straw in No. 5, which was a sufficient line of demarcation. The ears put forth on No. 5 were also much larger than those on the unnitrated portions.

A talented chemist, who viewed the crop at this time, called the experiment a perfect illustration of agricultural pharmacy. Although, however, a tonic or an aperient may act on the digestive organs so as, in many cases, to improve health—though a stimulant may excite the languid nerves or a bitter rally the sickly appetite, they cannot in all cases succeed, nor can they remove organic infirmities; so, in this case, when harvest came, many of the ears in No. 5 were blighted. On the unnitrated portions, especially No. 4, these were, however, still more numerous. At this time, in Section 1, No. 3 (guano) looked decidedly best, Nos. 1, 3, and 4, being all bad.

August 18.—The various plots were mown, and, after standing in the field till perfectly dry, were thrashed, with the following results:—

		lbs.		lbs.		lbs.	
1. gave	110 sheaves,	yielding	415	of straw and	234	of grain, weighing	62½ p. bush.
2.	do. 114	do.	518	do.	203	do. do.	62½ do.
3.	do. 132	do.	427	do.	244	do. do.	62½ do.
4.	do. 124	do.	439	do.	230	do. do.	62 do.
5.	do. 170	do.	523	do.	320	do. do.	62 do.

Here we have the following

Final Results per Imperial Acre.

No.	Manure.	Quantity.	Gross Produce. Grain.	Straw	Cost of Manure	* Increase or † Decrease. Grain	Straw
			bush.	st. lb.	£ s. d.	bush.	st. lb.
1	Potter's guano	2 cwt.	14.97	118 8	2 0 0	†0.64	3 6
2	Natural guano	2 cwt.	19.71	148 0	1 6 0	*4.10	26 0
3	Nothing	..	15.61	122 0			
4	Rape-dust	12 bush.	14.83	125 0	1 7 9	†0.78	*3 0
5	Rape-dust and Nit. of soda	12 bush. 1 cwt.	20.64	149 6	Ex. cost. 1 1 0	*5.81	*24 6‡

‡ Be it observed that this is the gain arising from the *extra* top-dressing, and is obtained by comparing No. 5 with No. 4, where no top-dressing was used, both having had the same Rape-dust.

Conclusions.—From the above we see—

1. That winter manuring is, generally speaking, injudicious for a Wheat crop on Pea stubble, as it induces an early growth, but does not maintain it. The fine state of division in which the soil is after a stubble crop, the consequent facility with which the plant finds the nutritive matter which is in the soil, and the free access which the atmosphere has to the roots of the plant (causing the ammonia in the soil to be so readily evolved), may, perhaps, explain the proud growth of the plant in its early stages; while this quick escape, or use, of the tillage in the soil—leaving little food for the summer feeding of the plant when it requires most, and when the very luxuriance of foliage calls for a greater supply than if it had not grown so quickly at first—may explain the gradual falling off in the crop, after the winds and rains of spring, and the sun of summer, have exercised their influence on the soil. Again, the natural aversion which the Wheat plant has to a light porous soil, and the greater danger which, in such cases—and especially when it has put out such a flush of foliage at first—it suffers from winds, &c., causing damage to the root or the stem, may also have some effect in producing the results spoken of. These remarks, however, be it remembered, relate only to thin or light soils. The stiff texture of strong lands prevents the evils we speak of; and, even on light land, it is only upon stubble that the evil is common; for on Clover lea the artificial compression caused by pasturing the crop, leaves the soil in such a mechanical condition, that it acts as a safe storehouse for the manure in it (being less penetrable by the atmosphere or rain), and as a better support for the root and the stem. In such case, too, the less ready supply of manure, and the less free medium for the roots to spread in, prevent that overgrowth at first which requires afterwards such an extra supply of food, and such an extra mechanical support against winds and storms. At the same time, the roughness and firmness of soil which prevent early waste of tillage, provide for and encourage its use at a later and more important season; thus the clods (which the farmer takes care to preserve in preparing the soil), after having endured the action of winter frosts and spring showers, gradually fall to pieces, and convey fresh soil and fresh food to the roots of the plant.

2. That guano is superior to Rape-dust and artificial guano as a winter tillage on the Pea-stubble Wheat crop.

3. That nitrate of soda may be applied with the greatest success as a top-dressing for winter Wheat, which may at spring not answer our expectations.

The whole field, as well as the experimental plot, was an example of the truth of this. In every spot where nitrate was applied, its results were, to the harvest, most palpably beneficial—in some cases to a greater extent than the preceding details show. This is one instance of experimental knowledge applied to immediate practical utility; and, in evidence of its success, I may add that it is the opinion of some farmers of no mean standing, who saw the working of the experiment, that it justifies us in concluding, 1st, That in all cases it is injudicious to use manure with winter crops upon stubble until spring; and, 2d, That, by the aid of nitrate of soda, the farmer has a perfect command of the straw (and hence a high probability of grain in proportion) of his crops.

[The above extract from Mr. Hannam's prize essay in the Transactions of the Highland Society is referred to in our remarks at pages 297 and 317.]

Home Correspondence.

Prizes awarded at Periodical Agricultural Shows.—It may be advantageous to the agricultural interest to keep before the public this subject, not with the view of attempting to cast blame on societies, which have done so much good, but with a wish to render them still more extensively useful amongst the small farmers, by exciting them to additional exertions in cultivating the soil to their own profit, and, at the same time, promoting the true science of agriculture. It would be presumption in an humble individual to place himself in opposition to the opinions of great practical farmers, under whose auspices agricultural societies flourish, yet a looker-on, purely interested in the welfare of those hard-working men—the second-class farmers, in point of capital—may be permitted to draw the attention of the committees appointed to distribute prizes, to the difficulties under which the small farmer at present labours, in being unable to compete with the monied man, in surfeiting oxen, &c. The advantage of better regulated fatting-prizes would be two-fold:—1st. An improved system of production with regard to provender, of every description, for animals. 2d. Offering an opportunity to all farmers of competing for rewards, dependant upon skill and intelligence. The value of all experiments should be decided upon with reference to the return for capital expended. Ambition urges men to vie with each other in producing the largest animals at shows, without considering the waste of money in attaining celebrity as a first-rate fatter. This is an erroneous system on which to base the criterion of good feeding, which really means, not enveloping the carcass in a mass of tallow, but in putting a beast into the best eatable and wholesome condition for the market, at the most moderate cost. This should be one of the standard marks of a first-rate agriculturist. After a sheep has arrived at a certain degree of fatness, according to its breed and make, the flesh or lean meat does not grow in bulk (and this is also the case with other animals); consequently, that which becomes positively the usual nutriment of man does not increase, and the chandler and soapboiler are the only parties who can use the greater portion of the unnatural monster, whose body has been pampered up merely for the sake of exhibition, and to obtain a medal. Having stated objections to the present mode of awarding prizes, it may not be considered out of place to suggest a remedy, as a means of attracting the observation of some talented agriculturists, who may expatiate more fully on this important matter. Should these remarks fail to call forth some more able pen, the writer may, perhaps, again trouble you. The following is strongly recommended to the notice of prize committees:—Prizes to be given for oxen, sheep, pigs, &c., to be fed up to a named weight, according to size, age, and breed (not to exceed so many stones or lbs.), at the lowest cost. Dr. and Cr. account to be exhibited.—*Falcon.*

Rooks.—About four years ago, you inserted a letter from me respecting rooks, and perhaps it may be useful to farmers to repeat the information, in order effectually to prevent their depredations. Skin a few young ones (when shot or destroyed in a rookery), rub the inside of the skins with arsenical soap, or turpentine; stuff them with hay or straw. When Wheat is sown, two or three of them laid upon the field will prevent old ones from alighting on it; when taken off, lay them up for your Oat or Barley-sowing in spring, and for Potatoes; and every spring young ones can be had by the time the others are worn out. Any one who complains of the depredations of rooks before he has tried this mode of preventing them, deserves to suffer by them; and if it be not effectual, he may call me—*An Ignoramus.*

Improved Corn Drill-hoe.—As the annexed copy of a letter to Messrs. Drummond and Sons, has reference to an article which appeared in your Paper of 5th April last, I shall feel obliged by its insertion:—"I observe, in the *Agricultural Gazette* of 5th April last, a sketch and description from a specimen in your agricultural museum, of a very simple and effective improvement made by Mr. Sterling, of Glenbervie, on the corn drill-hoe. As I had the pleasure to furnish Mr. Sterling with the hoe in question, invented by myself, I think it proper to state that, in your communication, you have inadvertently, I have no doubt, omitted to mention the inventor's name, leaving it to be believed that my friend Mr. Sterling was the inventor of the machine instead of the improver. I am really not aware that this implement was invented by any one save myself; and besides, you will allow me respectfully to state, that I am decidedly of opinion that the alteration made by Mr. Sterling is not an improvement. The hoe was made by me exactly as exhibited in the cut, with this exception, viz.—Mr. Sterling has put holes in the regulator for the draught-chain: now, with deference, I think this is rather injurious than otherwise, for the front wheel is perfectly able to control the machine when turned with the regulator; and I think, by altering the line of draught, it has a tendency to drag the wheel machine side foremost, supposing the horse to keep the same line.—I am, respectfully, &c., *Thomas Sheriff, West Barns, Dunbar, 5th May,* 1844.

Bones and Sulphuric Acid.—The difficulty of procuring vessels of sufficient capacity to try experiments with mixtures of sulphuric acid and bones induces me to make known the following simple and economical method, which I have practised with good results. Take a cart off its axles, if a Scotch cart, such a one as built by Stratton, of Bristol, so much the better (its shape being preferable to the old dung-cart, with the high head and low tail-board), and chintz and pitch well the seams inside till it become water-tight. From the shallow shape of the vessel, the acid will be found to mix better than in a cask, and mould or ashes may be added, till the whole is sufficiently stiff to shovel away to any place where it may be desired to leave it till ready for use.—*W. B. G.*

Mangold Wurzel.—Being a novice in farming, to which I have very lately turned my attention, I take the liberty of troubling you, with the hope that you, or some one of your correspondents, will favour me with information on the following subjects:—In February last, I had a back garden of about ¼ of an acre dug up to the depth of 18 inches—the soil a deep rich mould, but based on the iron sandstone—then ridged in narrow ridges, and sowed with Mangold Wurzel, the sowing being completed by the end of March. As yet it has shown no sign of springing; should it therefore fail, would you advise my repeating the sowing, or shall I rather trust to Turnips this season, and if so will the ground require to be manured again? as it was well manured for the Mangold Wurzel, with a compost of house manure and rotten stable-dung. My second question is this: my farm of 16 acres is a light sandy soil, based on the iron sandstone, not affording me any spare mould in the shape of old hedges or any other form; but, about a mile distant, there is an old sod-house, now in ruins, which might be carted to the place. Pray, what is the most advisable mode of disposing of it? whether mixing it with lime, with stable manure, with house-soil and ashes, or with sea-ware, which I can occasionally obtain from the shore at a moderate expense of money and labour, or is there any other plan that I can adopt better than those?—*P. M. L.*—[Your Mangold Wurzel was probably sown too deep; it is easily buried. You had better depend on Swedes now: it will not need re-manuring. Mix the old turf with sea-ware, and then with weight for weight of hot lime.]

Mangold Wurzel.—I should not answer to my name if I neglected to thank you for setting me right (in p. 248), as to Mangold Wurzel, and referring me to those instructive paragraphs in *Gardeners' Chronicle,* 1844, pp. 188, 204, which had unfortunately escaped my notice. If my memory do not deceive me, Mangold Wurzel was first brought into notice, in this country, by the celebrated Dr. Lettsom, about 1790. He, as was his habit, puffed it off in various ways; and by him and the Abbé Commerell, who recommended it in France, its name, Root of Scarcity, or Racine de Disette, for which, after all, there is no foundation, was made the groundwork of very magnificent commendations. I prefer the old German spelling of Wurzel with a *t,* because it reminds the English reader of our cognate word *wort,* as in Birthwort, Masterwort, Saltwort, Butterwort, Moneywort, and numberless other old English names of plants.—*Orthophilus.*

Harvesting Roots.—I should esteem it a great favour if you would give me the benefit of your opinion on the question—whether Turnips, Carrots, M. Wurzel, Swedes, in fact roots in general, are better preserved when stacked in a ripe or unripe state. In two instances I have found that M. Wurzel and Potatoes have kept best when put away before the leaves and stems indicate perfect maturity; especially as this practice justified itself in the M. Wurzel heaps of this year. But my limited experience does not enable me to form a decisive opinion. I shall be grateful, therefore, if you would give me your advice on this matter.—*A. H.* [We should be glad to hear the experience of others on this point; our own practice has been to pull Carrots, M. Wurzel, &c., before their leaves by decay get too weak to pull the plant up by, and *just* before this, in order that we may not lose their growth during its last stages, which is very considerable. We have heard the practice of pulling before the roots are ripe advocated, by one who argued thus:—The condition of the plant is never stationary, its growth, ripening, and decay, are one continuous process, and the stoppage of its growth before ripening, the artificial removal of some of the stages through which this process would naturally pass, checks its progress to decay, just as the removal of some of the central stepping-stones in a succession of them from one bank to the other would hinder the progress of the passenger across a river.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover-square, on Wednesday last, the 14th of May; present: His Grace the Duke of Richmond, K. G., President, in the Chair, Duke of St. Alban's, Earl Spencer, Earl Beauchamp, Viscount Hill, Hon. R. H. Clive, M.P., R. Archbold, Esq., M.P., Sir David Baird, Bt., T. Balmer, Esq., T. R. Barker, Esq., S. Bencraft, Esq., H. Burr, Esq., Col. Challoner, J. Cheese, Esq., F. C. Cherry, Esq., J. Dean, Esq., E. W. Edgell, Esq., F. W. Etheredge, Esq., B. Gibbs, Esq., T. B. Glegg, Esq., W. L. Gower, Esq., C. Hillyard, Esq., E. Hussey, Esq., W. H. Hyett, Esq., Capt. Langley, Col. MacDouall, A. Ogilvie, Esq., E. Parkins, Esq., J. Phillips, Esq., C. Price, Esq., H. Price, Esq., P. Pusey, Esq., M.P., Capt. Rushout, S. Sandars, Esq., Prof. Sewell, R. A. Slaney, Esq., J. Smith, Esq., J. Swinburne, Esq., J. E. Thomas, Esq., T. Turnbull, Esq., T. Turner, Esq., T. Tweed, Esq., G. Wilbraham, Esq., M.P., and J. Wright, Esq.

Thomas Percival Heywood, Esq., of Claremont, near Manchester, and Hyde-park Gardens, London, was elected a Governor, and the following gentlemen Members of the Society:—

Smith, William, Gaydon, Kineton, Warwickshire
Griffiths, Henry, Brynsafydd, Swansea, Glamorganshire
Hare, Jabez, 10, Nelson-square, Southwark
Cheese, John, Castle-Weir, Kington, Herefordshire
Ayre, S., Grove End House, St. John's Wood
Grey, George A., Milfield Hill, Wooller, Northumberland
Hunt, William, Dilston, Hexham, Northumberland
Lee, Joseph, Dilston, Hexham
Stephenson, Marshall, Fourstones, Hexham
Scarth, Thomas Freshfield, Keverston, Darlington, Durham
Scarth, William Thomas, Keverston, Darlington
Scarth, Edward, Westside House, Darlington
Mansell, Thomas, Adcott Hall, Shrewsbury
Fison, Cornell, Thetford, Norfolk
Walker, Oliver Ormerod, Bury, Lancashire
Best, Rev. Francis, Flyford-Flavel, Worcester
Cooper, William Henry, Shrewsbury
Taunton, William Elias, Freeland Lodge, Ensham, Oxon
Floyd, Charles Calverly, Thurgarton Hill, Southwell, Notts
Hardcastle, Jonathan, Blidworth Dale, Mansfield, Notts
Thorpe, John Pitt, Hastings, Sussex
Knight, S. Norlington, Lewes, Sussex
Evans, William, Glascoed, Llansantffraid, Oswestry

Deep Draining.—Mr. Pusey laid before the Council the following communication addressed by the Right Hon. Charles Arbuthnot to Mr. Parkes, the consulting-engineer to the Society.

"*Apsley House, April* 21, 1845.

"You desired to be informed of the particulars of the experiment I communicated to you of laying land dry by drains 4 feet deep. I was induced to make the experiment from reading an article written by you, and which was published in the 'Journal of the Royal Agricultural Society of England,' vol. v., p. 119. Two paddocks of old Grass land, containing together seven acres, the soil being a very strong clay, and which had been attempted to be drained, but without effect, by shallow drains, appeared to be well calculated for the experiment. I sent directions to my bailiff first to pare the turf off the two paddocks, preparatory to burning it; and this being done, to sink drains in each furrow 4 feet deep, and to lay pipes at the bottom of each drain. The shallow drains had been drawn diagonally across the land, but the deep drains were laid down each furrow; the distance between the furrows varying from 45 to 25 feet. At the time that the work was in progress (commenced since January last), there was scarcely even a single drop of rain; but, when it was completed (about six weeks ago) there were some very heavy showers, and it was not long before the effect of the 4 feet drains was ascertained. I ought here to mention that the pipes in the furrows were 1½ inch, and those in the main drains were 3 inches in diameter. My bailiff wrote to me, I being in London, that after the rain the water rushed rapidly out of the new main drains, but that none came from the old shallow drains into their main drains. The paddocks soon became perfectly dry, which, as I have already said, was far indeed from being the case with the shallow drains. I am now so convinced of the efficacy of deep drainage, that although the whole of the land I occupy has been drained, partly with stones and partly with tiles, and as was thought to a tolerable depth, I intend to cross the old drains with deeper ones, in order to do all in my power to free the land from excess of water. The main drains, recently made, ceased to run as soon as the land became quite dry, which shows that it was not kept wet by springs. Instead of using pipes of 1½ inch diameter, I should have preferred those for the furrows to have been only 1 inch, being now convinced that inch pipes would have answered every desired purpose, but inch pipes were not, I believe, to be procured in my neighbourhood. Although I was from home when the experiment was made, I can answer for the correctness of my bailiff's account, as he is always most accurate in what he states; and as, moreover, he was—till the trial had been made, and had succeeded—rather startled at the notion of draining at the depth of 4 feet. The paddocks were, as I told you, old Grass originally, as it appears under the plough; and laid down in such barbarous times that the ridges were not only very high, but also very unequal in width, some being 45 feet, and others only 25 feet broad, which I mention to account for the irregular distances asunder at which my bailiff was obliged to place the deep drains.—Charles Arbuthnot."

Mr. Smith, of Deanston, took that opportunity of submitting to the inspection of the Council specimens of his new pipe-tiles, with dentated juncture, for the purpose of preventing their displacement in the drains.

St. John's Day Rye.—Mr. Pusey laid before the Council specimens of the St. John's Day Rye, with the following account of his cultivation of it.

"*On the St. John's-day Rye.* By Ph. Pusey, M.P.—The late Lord Leicester advised that no farming experiment should be published until it had been successfully tried for three years. But though I have not grown the St. John's-day Rye as yet even for two complete years, its promising appearance, and the approval of neighbouring farmers, encourage me to lay a short account of this plant before the Society. It was in 1842 that Mr. Taunton, of Ashley, near Stockbridge, first made it known to me in the following terms:—

'In your digest of the progress of agricultural knowledge you say, of early Rye, that 'some farmers do not approve of it: for while young it gives but little food, and it shoots up rapidly to a harsh stalk, which stock do not relish.' But this reproach does not apply to the variety of Rye which is the best worth cultivating: and, as I think, the only one worth cultivating to any extent for the purpose of green meat—namely, the St. John's-day Rye (*seigle de St. Jean*.) This plant, if sown in proper time, and on a suitable soil, presents itself to the scythe in a state palatable to horses for full three weeks, or more. I would sow not more than one-fourth of the ground with common Rye by the side of it, for the common Rye is a very few days earlier, and by the time when that becomes harsh and woody the St. John's-day Rye has attained its perfection. Of this latter I have had, on a suitable soil, to the extent of 11 London loads of straw per acre when left for seed; for it will grow from 6 to 7 feet high. The time to sow it is the 24th of June; at all events get it in before July. The soil for Rye ought to be a siliceous soil; it does not reject a considerable admixture of clay, but it ought to come under the description of a sandy loam. If you want such a burthen as I have described, of course the condition of the soil must not be poor, and such produce will pay for good land. The soil, too, needs to be compressed after sowing, if the land be at all light, by rolling or sheep-treading; otherwise the Rye-plant is peculiarly obnoxious to the wireworm. The mass of foliage in October would induce you to feed it then; but I would recommend you to abstain: the leaf (unlike winter Barley) is very little changed by the winter, and it so cherishes the young foliage, which shoots up in spring covered with this dense mantle, that it will repay your forbearance with ample interest. I have seen it in the end of February, or beginning of March, equal, if not superior, to the best water-meadow for ewes and lambs; for soiling in stable, the horses will eat it when the ear is fairly developed, and it may perhaps be 5 feet high (according to the soil): it will have tillered so much that the produce will be a very heavy one.'

"In June of the following year (1843) Mr. Taunton sent me another account of his further success in the growth of the St. John's-day Rye:—

'I inclose to you a stalk of my St. John's-day Rye, length 6 feet: it has not yet flowered. I began to soil eight cart-horses with it on the 13th of May, then 3 feet high, and four cows a week later. Both these kinds of stock still eat nearly the whole of it, with scarce any waste, so that it has now been 22 days in use, and I expect that they will eat it freely some days longer: thus, you see, extending its eatable state nearly to a month. If I had possessed a greater breadth of this crop in the present season, I should have begun a week earlier, not waiting till it had attained the height of 3 feet. The ground which bore this had a dressing of dung just before sowing. It succeeded Wheat, cut green into stubble; but your calcareous grit detritus is a far more favourable soil for Rye than our chalk. This plant, and, I believe, this variety, proved fatal to hundreds of our brave men on the sandy plains of Belgium, two days before the battle of Waterloo. They marched through fields of it higher than their heads. The glittering points of their bayonets marked the track of their march to the enemy's artillery, which was on an eminence, while the Rye being higher than their heads they could see no enemy, and knew not whither to direct their fire.'

"Mr. Taunton having presented me with some seed of this Rye, it was sown in the course of July, 1843, on some poor moory soil without manure, was fed off in the autumn, and again in the spring, yet produced on little more than a quarter of an acre, 13 bushels of seed. That seed was sown again last year in August as soon as harvested: it produced, on a sandy loam, very good feed in the autumn, and in this backward spring it realised Mr. Taunton's description, and established its character here by covering 4 or 5 acres with a thick coat of herbage, in which the lambs were browsing breast-high, while there was little or no other feed in the neighbourhood. I find, too, in the late Mr. Rham's "Dictionary of the Farm," a yet more favourable account of it. Under the article Rye in that convenient little book, our lamented colleague observes:—'There is a variety of Rye mentioned by Continental authors by the name of St. John's-day Rye, because it grows so rapidly that if sown about St. John's-day it will be fit to mow green by the middle of September; and in favourable seasons may be fed off again in November without preventing its giving ample feed in spring, and a good crop of grain at the next harvest. It might be advantageous to introduce this variety into England if it be not already known.' On the other hand, it is right to state that, when our seedsman, Mr. Gibbs, inquired respecting it in its native country, he was informed that its cultivation was not spreading in Belgium. But the reason assigned was its inferiority to the common Rye in yield of seed; and this objection, though valid in countries where Rye-bread is eaten, will not apply where, as in England, Rye is intended principally for green fodder. Although then, as I said, my trial of the St. John's-day Rye is incomplete, and though it has not been sown here as yet on its peculiar day, it has evidently two advantages over the common Rye. It tillers so much as to produce double the quantity of herbage on the same space of ground. Indeed, in one field where the two varieties were growing together, the common Rye, after twice feeding off, became so thin that I ploughed it up; while this new Rye covers the ground with its third crop as with its first. Besides tillering more, it is also sweeter than the common Rye when young. Where they grow together the hares and rabbits, while we had any, ate it before the other. Its principal merit, however, is its superior sweetness in advanced growth, and the consequently longer time during which it remains fit for use as spring feed. Good farmers who have seen it agree with me, that this new Rye should be tried upon such light hollow soils as we sometimes find on our southern chalk-hills. On such land, in dry seasons, farmers often lose their Turnip-crop after it is singled out; but Rye is known to bear well such looseness of soil. If it were sown instead of Turnips, or where the Turnips had missed, on a part of the Turnip-land, even one green crop in the autumn, to say nothing of two, and another in spring, might compensate for such a crop of roots as this land generally yields. If it stood for seed afterwards, it would then also take the place of the Barley-crop, the Turnip's natural successor; and the rotation would remain undisturbed. I will only add one suggestion, or rather call attention to a statement of Mr. Taunton's, that if the St. John's-day Rye be left uneaten in the autumn, it will afford feed for ewes and lambs equal to the best water-meadow, as early as the beginning of March or the end of February, an invaluable time for such feed. All that is hoped of a new plant is seldom realised in practice; but what I have myself seen of the St. John's-day Rye, and the opinions of farmers who have also watched it, make me sure that I am not rash in advising occupiers of light lands to give it a trial, either this summer, to be grown in its peculiar manner, or in the autumn as a substitute for the common Rye.—Pusey, May 12, 1845."

Mr. B. Gibbs stated that Messrs. Thomas Gibbs and Co. had given orders for a supply of the seed of the St. John's-day Rye, to be sent to them direct from Belgium, the arrival of which they were daily expecting.

Bones and Sulphuric Acid.—Mr. Kendle favoured the Council with the following communication:—

"*Fordham, Downham Market, May* 3, 1845.

"I perceive the trials which were made last year with bones and sulphuric acid, are creating more and more interest as the Turnip season approaches; I have great pleasure, therefore, in forwarding you, and shall feel obliged by your laying before the Council, an experiment I made upon an acre of fen-land for Coleseed. I put two bushels of bone-dust, not ground very fine, into a tub, with 70 lbs. of acid, and added 140 lbs. of water; it was all well stirred together, remained in the tub 24 hours, and then mixed with cinder-ashes in sufficient quantity to make it drill. I tried it by the side of bones at the rate of 8 bushels to the acre, mixed also with ashes; the superiority of the former was most striking, more particularly during the two first months. I may add, I left a few drills without any manure, which of course were throughout the season conspicuously bad. In cost there was little saving, but perhaps I ought not to have given 2*d.* a pound for the acid. I was so well pleased with the result of last year's trial, I am quite disposed to use them again; it is particularly of a cheap rate. I should not have troubled you with this communication, but not having seen an experiment upon the same description of land upon which bones are applied with greater success, I think, than almost any other, I thought perhaps it might be found acceptable. I shall be happy to answer any questions, or give any other information in my power upon the subject, should it be required.—C. J. Kendle."

Mr. Pusey also favoured the Council with the following excellent practical mode of mixing the materials, which had been communicated to him from Lincolnshire.

"*Caistor, 4th March*, 1845.

"In the event of the liquid form of application not being attainable, or in case of the compact form being preferred, the following is a very easy way of making a compost applicable by the common drill:—Make a conical heap (similar to that which is made by bricklayers in making mortar) of ashes or finely riddled light soil, using as much as can be conveniently drilled over 3 acres. Make a hole in the centre, in the form of an inverted cone, into which place three quarters of ground bones, the more finely ground the better. Give the whole heap its original conical shape, and make a hole in the centre as before, into which pour 180 lbs. of sulphuric acid (the average quantity contained in a carboy), and 9 gallons of water. Keep constantly adding bones and ashes from the sides of the hole, until the whole of the liquid is mixed with the bones and ashes, and turn the whole over once or twice to secure an intimate mixture. Let the heap stand for 12 or 14 days, after which it may be turned occasionly until required for use.—W. E."

Mr. Dobito, of Kirtling-hall, Newmarket, expressed his willingness to undertake any experiment in agriculture the Council might wish to have tried. Mr. Stace, of Berwick, near Lewes, Sussex, applied for leave to exhibit at the Shrewsbury Meeting, his mode of applying wind-power to ploughing and other agricultural operations performed by means of draught. Mr. Smith, of Lewes, informed the Council of a serious disease which has broken out among the Southdown flocks in Sussex. Mr. Bencraft explained the principles on which his patent hames were constructed. Mr. Clarke gave a detail of the advantages of making oil-cake from Linseed, from which the oil had not been taken. Mr. Hillyard exhibited several wireworms at that time infesting his crops; and Dr. Bickes appeared before the Council to express his willingness to submit his mode of preparing seeds for early germination, to any practical trial the Council might propose. The Council then adjourned to Wednesday next, the 21st May.

Miscellaneous.

On Peat Charcoal as a Manure for Turnips.—The process of charring peat is very simple, if you have only plenty of water so near your fires that it can be scooped on as soon as the heaps are nearly red, though the fires want dragging down level before the water is thrown on: it is not necessary to wet the fires above half through; it then forms a coat at the top, which stops the fires doing anything more than smothering. The fires want examining next day, to see that it has

not broken through anywhere; the top will be black from the water putting the fire out, and the bottom will be charred from the top smothering it. I have tried all ways with sods and clay, but could never succeed; the fires will be through them. I had almost forgot to tell you the chief thing, which is, not to light your fires while your pile is completed, as a shower of rain will not stop peat from burning when it once gets fire in it; and to light them at the outside, that is, not putting fire underneath your clumps (it will then eat its way into your clumps); and not to burn in windy weather the dried clumps. I think the best are about six feet wide at the bottom, rounding to the top, about six yards long, leaving a space for the man to walk and drag, as occasion requires. The first clump will want some fire, or something to start it; but still putting on the top, and setting on fire, the hot ashes will fall in amongst the peat, and start it: after that hot ashes from the first fire will be the only kindling you require, and are the best, as I have always found the longer the clumps are burning the better; but everything depends upon well-dragging the fires, not letting them get red hot, without putting it sideways. I have burnt very good ashes in this way without water at all, when it has been in the middle of a field; but should recommend the ditch sides for the process, when water is good to come at, and I think the peat would pay for leading there, as you might lead the peat to the water as soon as fetch water to the fires, without injuring so much Grass, or whatever may be wanted to grow there. I am certain, when water is not plentiful, your man must be constantly putting the fires outwards as they burn. I find the ditch sides for another reason the best; the fires will be 10 days or more in burning, and the ashes can lie on the ditch sides any length of time without stopping so much land from being sown, and wait for a convenient time to lead them away. I cannot make an estimate of the increased quantity by this process; all I can speak from is, that one waggon-load of ashes burnt this way is preferable to two burnt as long as it will burn, which is the common process. Yet by checking the fires we produce a larger quantity of ashes than by the common method. The Turnips that were drilled with dead burnt ashes two years since, were not fit to hoe when the 30-acre plot was furnished and even sown at the commencement of the field. The same year my house ashes I put on one side of the field, and black peat ashes on the other, therefore every other drill tread would be sown with them. We had to hoe all the peat-ashed sown rows first, right through the field, and both were used in the same quantities, about two waggon loads per acre. My Turnips are really excellent, and I used nothing else. I am just finishing a 30-acre field, which has been eaten off with 350 shearlings: calculating the sheep at 6*d*. per head, makes the Turnips come to 5*l*. 7*s*. an acre; all old sheep.—*W. Uppleby, in English Agricultural Society's Journal.*

Notices to Correspondents.

A JUMPING HORSE—*Anon*—Tie his two fore legs together by hobbles and a chain, so as to admit his taking very short steps only. If this will not do, connect one of his fore-legs to the corresponding hind one. If this fails, keep the horse in the stable, or sell him. We wish the Royal Agricultural Society of England would offer a prize of 10*l*. for the best method of preventing cows and heifers from jumping their fences. The nuisance is so great as to reduce the value of the animals 50 per cent. The above means, though occasionally successful with beasts, often entirely fails, and considerable damage to the Wheat crops is the consequence.—*W. C. S.*

BEER-SHOPS AN EVIL.—TEETOTALISM—*W Paine*—Though quite agreeing in what you say, we cannot insert your letter, simply because this is not the proper channel through which to address the public on the *religious* bearings of any subject. There is, however, one aspect in which we should like to see abstinence from spirituous liquors exhibited by a competent person, viz., as the means of opening up a home market for agricultural produce. The demand by the labourer for food of other kinds, and the means of commanding a sufficiency which the sacrifice of his beer or cider affords him, will raise the price of the other articles of farm-produce, so as more than to balance the injury which the farmer might sustain by any failure in his market for Barley.

BLACK LEG—*Subscriber in the South of Scotland*—The animal is generally in a dying state before the disease is observed, and thus there is little time or chance to effect a cure. If observed early, you may bleed, give a strong purgative combined with a carminative, and insert a large seton in the brisket. It is much easier to prevent than cure, which you may do by housing the young stock early in the autumn, before the wet weather comes on, and by keeping them pretty well. Oil-cake has been used with much success.—*W. C. S.*

BONES AND SULPHURIC ACID—*A Sub*—Three bushels of bones, 60 lbs. of acid, 1½ cwt. of guano, and 3 bushels of coal-ashes per acre will be a very efficient dressing for Turnips. Mix the acid and bones for a day or two first; then add the guano and ashes, and place the whole under the drills, only not so deep, just as you would ordinary farm-manure. It can be done with a drill-machine; and if it be too damp to drill, add sawdust or charcoal-dust till it be dry enough.

CLOVER SEEDS—*Trifolium* asks—In what counties in England these seeds are most grown? Also if there be any work on the mode of culture and management to be adopted? We are not aware of the existence of any exclusively on this subject.

CURB AND SPAVIN LIQUID—*G B*—It would be quite possible to give you by analysis the *ultimate* elements of which it is composed; but we do not think it possible by that means *so* to describe its composition as that you may be able to recompose it. It may consist in a mixture of vegetable extracts, &c., which the chemist would be unable to separate. However, some correspondent may perhaps assist you in the matter.

ELECTRO CULTURE—*T T*—In Dr. Forster's experiment we believe the suspended wire was parallel to the surface of the ground; in that case the poles, of course, must have been of equal heights.

EXHIBITION OF POULTRY—*Gamecock*—On referring to the programme of the Zoological Society, we are inclined to think that game-fowls must come under letter F. The numerous varieties of this breed, and the purpose for which they are extensively reared in the metropolitan districts may, for obvious reasons, have operated against its being specially named. The Corsican breed (which we do not know), will, we apprehend, show under the same letter. Letter G appears intended to encourage the valuable new sorts from the north of China, and the islands in that sea.

FARM MANAGEMENT—*J R Wiseman*—Your letter shall be published next week. The general principle you ask for seems already pretty much to guide your practice. Providing all the produce of the farm, excepting beef, mutton, &c., and grain of all sorts, the latter to be grown only on alternate years, be consumed *upon* the farm; and provided such an amount of food for cattle, as oil-cake, Linseed, &c. be brought on the farm as may balance the loss it sustains by the sale of grain and live stock, then all that is wanted to insure perfect agriculture is common energy and attention on the part of the farmer. The former to be exhibited in the proper application of labour, &c., and the latter in taking advantage of circumstances, such as weather and season; in the economical management of manure, &c.

INORGANIC CONSTITUENTS OF PLANTS—*G Sherbourn*—We must refer you to an article on this subject at page 250 of our last year's volume. If you have not got the Paper for last year, we will transcribe some of the tables given there, for you, next week.

PIPE-TILES—*T G*—Those of 1-inch bore are generally made 1 foot long; they have not socket or flange-joints in general. Indeed, excepting that afforded by the proper cutting of the drain, and care in laying the pipes, there is no security against such a displacement of any tile at its joint with another as would, by breaking the continuity of the pipe, at once render useless as a drain the whole chain of tiles in which it formed but one link; and this is the worst feature in the system. Mr. Smith, of Deanston, has, indeed, contrived some method of connecting these tiles at their joints, but it is not in general use. No precautions are taken, or indeed necessary, to prevent the joints from becoming "puddled up with clay" other than those which are taken in the case of ordinary tile-draining, viz., putting a turf upside down, or some rubbish of any kind, or a large clod, if nothing else offers, over the joint, just before filling in the drain. Provided this puddling up does not take place—and there is no likelihood of it—the closer the tiles are together the better; the joint will always afford sufficient opening for the entrance of the water. Supposing the drains to be 18 feet apart, a fall of 1 inch of rain in 24 hours will give an amount of water to be carried off by the pipe, equal to 1½ cubic feet for each joint, and this will easily pass through a very small opening in that time.

RANK WHEAT—*Kentish Subscriber*—We doubt if there be any top-dressing which will benefit you. Your remedy now is to top or flag the young Wheat; we are now doing this on most of our Wheats. Mow the broad hanging leaf off the plant; that will let the sun into the stem, and it will lose much of its herbaceous character and become stiff and woody. There is no fear of your injuring the young ear. Dissect a plant, and look for the ear; you will find it about one-tenth of an inch long, and down at the very bottom of the plant.

RED WATER IN CATTLE—*Subscriber, South of Scotland*—You may bleed, but very moderately, and give the following:—Sulphate of magnesia, 12 oz.; sulphur, 4 oz.; carbonate of ammonia, ½ oz.; powdered ginger, ½ oz.; dissolved in warm water. In the course of six hours one-fourth of the above may also be given, and repeated until purgation is established, after which stimulants and diuretics will effect a cure. The above is a disease of the digestive organs, principally of the liver, and is most prevalent in hot and dry weather, and on Mossy lands. It is also produced by sudden change from poor to rich feeding.—*W. C. S.*

SULPHATE OF AMMONIA—*A*—A liquid containing this salt will not be acted upon by another containing common salt in solution; *i. e.*, the two salts will not act on one another; so that it matters not if you intend applying both whether you mix the two or apply them separately. We would apply one cask of the former liquid—containing, you say, 90 lbs of sulphate of ammonia—per acre, and as much of the brine as would equal 1 or 2 cwt. of common salt with its proportion of saltpetre. And you may add to this, with much benefit, some hundreds of gallons of stable drainings. The proper quantity being of course entirely dependent on its degree of dilution. As regards impurities of salt, we believe that in those of the Worcestershire salt gypsum is present in greater quantity than magnesia, while in most sea salts magnesia is the prevailing impurity. The small quantity of gypsum present in salt can have no influence on its value as manure.

URINE AND GUANO—*Rusticus*—14 to 16 cwt. of human urine are equal in value to 1 cwt. of guano. See pages 322 and 342 of last year's volume.

ERRATA—In page 320, 3d col., at the 13th line from the top, for "bephospate," read "biphosphate," and at the 24th line from the bottom, for "hychosuphate," read "hyposulphate." In page 300, 3d col., the cost per acre of Mr. Davis's application of bones and acid is said to be 12*s*. 9*d*. Calculating at 22*s*. per quarter for the bones, 1*d*. per lb. for the acid, and 2*s*. a cart-load for the ashes, it should have been 32*s*. 1½*d*.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, May 12.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4*s*	0 to 4*s*	4	Best Long-wools	—	—*s* to —*s*	
Best Short Horns	3	10	4	0	Ditto (shorn)	4	4	4	8
Second quality Beasts	3	0	3	4	Ewes and second quality	—	—		
Calves	4	0	4	6	Ditto (shorn)	3	10	4	2
Best Downs & Half-breds	—		—		Lambs	5	0	5	8
Ditto (shorn)	4	6	4	10	Pigs	3	4	4	4

Beasts, 2705: Sheep and Lambs, 20,620: Calves, 73: Pigs, 315

The supply of Beasts this short to-day, and rather dearer; our highest quotations are read ly obtained for the best qualities.- Good Sheep are again very scarce, and prices have recovered the depression they experienced on Friday.—Lamb trade is exceedingly heavy, and makes less money.—Calves are a little more in demand.—Pork-trade is very heavy.

FRIDAY, May 16.

We have to-day a very brisk demand for Beef, and the best qualities are making a little more money, but it is scarcely a quotable advance.—Since Monday the dead trade for Mutton has been bad, consequently we have today a heavier trade for that article at a fall of about 4*d*. per stone on all qualities.—Lamb is more in demand, and the best qualities make nearly 6*s*. per 8 lbs.; but middling Lamb (of which there is a large quantity) cannot be said to make more money, although more readily disposed of.—Veal trade is better, a good Calf makes 4*s*. 8*d*.—Pork trade is heavy.

BEASTS, 890; Sheep and Lambs, 9630; Calves, 232; Pigs, 234.

JAMES COOPER, Salesman, 81, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 15.

Prime old Meadow Hay	105*s* to 112*s*	New Hay	—*s* to —*s*	Clover	105*s* to 120*s*
		Interior Hay	95 100	Straw	35 42

JAMES COOPER, Salesman.

CUMBERLAND MARKET, May 15.

Superior Mead. Hay	115*s* to 120*s*	Superior Clover	115*s* to 120*s*		
Inferior "	95 105	Inferior "	105 110	Straw	38*s* to 42*s*
New Hay	— —	New Clover	— —		

JOSHUA BARON, Hay Salesman.

HOPS, FRIDAY, May 16.

We hear from the plantations that the blue, during the last fortnight, has made but little progress, and in many places shows weakness, particularly on those grounds which suffered most from blight last season: the flea and wireworm are prevalent in many parts; altogether, the prospect is daily diminishing, and should we get an attack of fly, which many expect from the abundance of insects in other vegetation, he Hop crop will be in a precarious state, and consumers will stand in a worse position than for very many years past. The Market is firm, with but few crops on offer.

PATTENDEN & SMITH, Hop Factors.

COVENT GARDEN, MAY 17.—The supplies of most kinds of Fruit and Vegetables during the week have been good, and trade continues much the same as mentioned in our last report. Pine Apples are rather more plentiful than they were last week. Hothouse Grapes are likewise more abundant and considerably cheaper, the best samples bringing about 10*s*. per lb.; foreign sorts are scarce. Small quantities of Peaches and Nectarines may be bought at the prices mentioned in our last report. Cherries are offered, but the supply is still very limited. Strawberries have not altered in price since last week. Cucumbers are a little reduced in price. Among vegetables, Broccoli is not quite so plentiful, and has slightly advanced in price. The best samples of Asparagus are selling at about 7*s*. a bundle. Young Carrots fetch from 1*s*. 6*d*. to 3*s*. a bunch, and young Turnips 2*s*. to 3*s*. 6*d*. a bunch. Cabbages are very good and are becoming plentiful. Green Peas in small quantities have been brought during the week, and a few Melons have also just made their appearance. Rhubarb and Sealkale are plentiful, and Lettuces and all kinds of Salading are becoming abundant. Among Cut Flowers there is great variety; we noticed Azaleas, Clematises, Boronias, Gardenias, Calceolarias, Corrœas, Gloxinias, Amaryllises, Heliotropes, Camellias, Carnations, and Roses.

FRUITS.

Pine Apple, per lb., 8*s* to 10*s*	Oranges, per dozen, 2*d* to 2*s* 6*d*
Grapes, Hothouse, per lb., 6*s* to 10*s*	— per 100, 4*s* to 16*s*
— Spanish, per lb., 1*s* to 1*s* 6*d*	— bitter, per 100, 10*s* to 20*s*
— Portugal, per lb., 1*s* to 3*s* 6*d*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess., per bush., 5*s* to 15*s*	— per 100, 6*s* to 14*s*
— Kitchen, 4*s* to 8*s*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 5*s* to 12*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*	Cob Nuts, per 100 lbs., 120*s* to 160*s*
Pomegranates, per doz., 2*s* to 4*s*	Nuts, Barcelona, 21*s*
Strawberries, per oz., 6*d* to 1*s*	— Brazil, 20*s*
Cherries, per peck, 5*s* to 8*s*	— Spanish, 28*s*
Walnuts, per bushel, 16*s* to 20*s*	— Cob, 16*s*

VEGETABLES.

Cabbages, per doz., 1*s* to 2*s* 6*d*	Leeks, per doz., 1*s* 6*d* to 2*s*
— red, per doz., 4*s* to 12*s*	Garlic, per lb., 8*d* to 10*d*
— plants, per doz. bnch., 2*s* to 4*s*	Onions, per bunch, 3*d* to 6*d*
Broccoli, per bundle, 4*s* to 5*s*	— large, per bushel, 4*s* to 7*s*
French Beans, per lb., 2*s* to 4*s*	— Spanish, per doz., 1*s* 6 to 4*s*
Sorrel, per hf.-sieve, 9*d* to 1*s*	Shallots, per lb., 6*d* to 10*d*
Jerusal. Artichok, p. hf.-sv., 1*s* 6*d* to 2*s*	Lettuce, per score, Cab., 6*d* to 2*s*
Potatoes, per ton, 50*s* to 90*s*	— — Cos, 1*s* 6*d* to 3*s*
— cwt., 2*s* 6*d* to 5*s*	Celery, White, per bunch, 1*s* to 2*s* 6*d*
— bushel, 1*s* 6*d* to 3*s*	— Red, per bunch, 1*s* to 2*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	Endive, per score, 1*s*
— Autumn, per lb., 3*d* to 6*d*	Radishes, per doz. bnchs., 6*d* to 1*s*
— New, per lb., 1*s* 6*d* to 2*s* 6*d*	Mushrooms, per pottle, 4*d* to 6*d*
Turnips, per doz. bch., 4*s* to 4*s*	Small Salads, per punnet, 2*d* to 3*d*
Red Beet, per doz., 1*s* to 6*s*	Basil, green, per bunch, 6*d* to 9*d*
Carrots, per doz. bchs., 3*s* to 12*s*	Fennel, per bunch, 2*d* to 4*d*
Rhubarb, per bundle, 4*d* to 1*s* 6*d*	Watercress, p. 12 sm. bun., 6*d* to 8*d*
Sealkale, per punnet, 6*d* to 9*s*	Parsley, per half sieve, 1*s* to 1*s* 6*d*
Asparagus, per bundle, 2*s* to 7*s*	— Roots, per bundle, 9*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Tarragon, per bunch, 4*d*
Savory, per bunch, 9*d*	Mint, per bunch, 6*d* to 1*s*
Cucumbers, per brace, 1*s* to 5*s*	Marjoram, per bunch, 9*d*
Spinach, per sieve, 1*s* 6*d* to 2*s*	Chervil, per punnet, 3*d* to 4*d*
Parsnips, per doz., 6*d* to 1*s* 6*d*	Basil, per bunch, 2*d* to 3*d*

POTATOES.—SOUTHWARK, WATERSIDE, May 12.

THE supply to this Market far exceeds the demand, and sales are limited, even for the best fresh samples; all stale or inferior lots have been stored or sold to the cowkeepers at ruinous prices, and unless the supply becomes considerably less, thousands of tons will not pay the current expenses. Many of our quotations are nominal, as there are some samples for which no offer was made.

York Reds	30*s*	to 70*s*		Kent and Essex Kidneys	70*s*	to —*s*
Perth	35	40		Wisbeach Kidneys	55	60
Fifeshire	—	—		— Blues	45	45
Early Devons	30	40		— Regents	55	60
Late Devons	—	—		— Whites	35	40
Cornwall	30	40		Guernsey Blues	55	—
Jersey Blues	55	—		— Whites	—	—
— Whites	—	—		York—Prince Regents	55	65
Kent and Essex Whites	—	—		— Blues	—	—
Dutch	30	—		— Shaw's	60	70
Irish Whites	30	—				

MARK-LANE, MONDAY, May 12.

There was a fair show of Wheat by land carriage samples from Essex, and large from Kent, this morning; we observe no alteration in its value, but the trade was not active, and some quantity from the latter county remained unsold; business in Foreign was limited, and little progress could be made in selling the fresh arrivals, owing to the condition being bad, and the prices at which they were held being too high, compared with the home grown.—English and fine Foreign Barley maintain the prices of last week; but grinding qualities are rather cheaper.—We do not alter our quotations for Beans, but they are a very slow sale; Peas continue scarce and maintain their late rates.—The arrivals of Oats from abroad having been good, the Trade this morning ruled heavy, and Foreign must be noted 6*d*. cheaper.—The free admittance of Corn by Russia has given more firmness to the trade in most of the Baltic ports, where, as also in Hamburg, a slight advance has been paid for export thither.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk	White	42	49	Red	42	48
— Norfolk, Lincolnshire, and Yorkshire		—	—	White	—	—
Barley, Malting and distilling	25*s* to 29*s*	Chevalier	30	32	Grinding	23	26
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19	22
—— Northumberland and Scotch	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	29 to 34	Tick	30	32	Harrow	31	37
—— Pigeon, Heligoland	36 to 40	Winds	—	—	Long-pod	—	—
Peas, White	33 to 37	Maple	35	37	Grey	30	33

FRIDAY, May 16.

Including the Foreign arrivals, the supplies of Wheat, Barley, and Oats are large. The value of English and free Foreign Wheat is unaltered since Monday, but there is an inquiry for bonded for Belgium and the North of France, sales have been made at 24*s*. to 28*s*., and fine Rostock would command 29*s*. to 30*s*. per qr. in bond; purchases to some extent of cargoes f. o. b. in the different Baltic Ports and Hamburg have also been effected at 26*s*. to 30*s*. for Red Wheat, and 32*s*. for Dantzic.—English Barley remains nominally the same; the great bulk of the Foreign, being of inferior grinding quality, is depressed, whilst fine Saal commands rather higher rates.—We observe no alteration in the value of either Beans or Peas.—Oats are heavy, and many of the Foreign cargoes being out of condition and pressed for sale, might be purchased on easier terms, which also affects the disposal of Irish.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
April 5 per Quarter	42*s* 5*d*	32*s* 5*d*	21*s* 4*d*	29*s* 6*d*	35*s* 10*d*	35*s* 7*d*
— 12 "	36 3	32 5	20 9	30 6	35 5	36 6
— 19 "	45 11	31 11	21 4	32 1	34 1	36 1
— 26 "	45 11	31 6	20 11	30 2	35 9	36 1
May 3 "	46 0	31 2	21 4	29 9	36 1	36 10
— 10 "	45 10	30 5	21 6	31 4	37 1	36 8
6 weeks' Aggreg. Aver.	43 1	31 7	21 2	30 7	35 9	36 3
Duties on Foreign Grain	20 8	7 0	6 8	10 —	7	6 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 10.

PRICE.	APRIL 5	APRIL 12	APRIL 19	APRIL 26	MAY 3	MAY 10
46*s* 5*d*	—	..	..	..	..	..
— 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, May 16.

Canary	per qr	44*s* to 50*s*		Linseed Cakes, Foreign, p. ton	7*l* 10*s*	8*l*
Carraway	per cwt	44	48	Mustard, White	p. bush.	10*s*	14*s*
Clover, Red, English		40	65	— Superfine	"	12	16
— Foreign		46	56	— Brown	"	12	16
— White, English		50	80	Rapeseed, English, per last		28*l*	30*l*
— Foreign		50	60	Rape Cakes	per ton	—	—
Coriander		12	13	Saintfoin		—	—
Hempseed	per last	26	28	Tares, Essex, winter p. bush.		5	7
Linseed	per qr	52	60	— Foreign		4*s*	6*d*	6
— Baltic		33	44	Trefoil	per cwt	12	23
— Cakes, Eng., per 1000 lbs.		6*l* 10*s*		Turnip (no variable duty question).			

KINGSFORD AND LAY.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will submit to public competition, at the Auction Mart, Bartholomew-Lane, on TUESDAY, May 20th, and two following days, at 12 o'clock, a very fine Collection of DAHLIAS, comprising all the new and leading varieties; also a splendid Assortment of GERANIUMS, and other plants in bloom. The newest varieties of Fuchsias and Verbenas, Heartsease, &c. May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO GROWERS OF ORCHIDACEÆ.

MESSRS. J. C. & S. STEVENS, beg to announce they have just received notice of the shipment from Honduras of 15 Cases, containing a very choice COLLECTION OF SPECIMENS OF ORCHIDACEÆ, and which are now daily expected. These plants have been collected with great care, and comprise large and fine masses of Lælia superbiens, and L. acuminata, Barkoria spectabilis, Cattleya Skinneri, Sobralia macrantha, Cœlia macrostychum, and many other rare species, of which Catalogues will be given in due course, after arrival, when the day of Sale will be announced.—38, King-street, Covent Garden, 16th May, 1845.

TULIPS.—To be Sold, a small but choice bed of TULIPS, late the property of an Amateur, deceased. They are now on Show, and to be disposed of, for the benefit of his widow, at a very reduced price. For Cards of Admission and Catalogues, apply at BUTTEN'S Library, Clapham Common, from which place they are only distant a few minutes' walk.

TO BE LET, in the neighbourhood of Islington, Five Acres of GARDEN GROUND, walled, well stocked with Fruit-trees, &c., with Pine-house, two pits; also a small Cottage. Possession may be had immediately.—For particulars apply to Mr. BARNET, 9, Great Russell-street, Covent Garden.

ESTATE.—WANTED TO PURCHASE, containing a handsome RESIDENCE in a handsome Park.—Should a considerable Estate not be attached, a Residence and Park as above mentioned, if a nucleus for further investment, would not be an objection.—Particulars to be addressed to Messrs. HEDGER, Land Agent, 10, New Bond-street, opposite the Clarendon.

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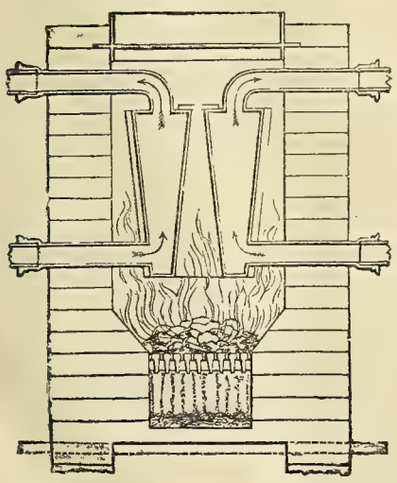
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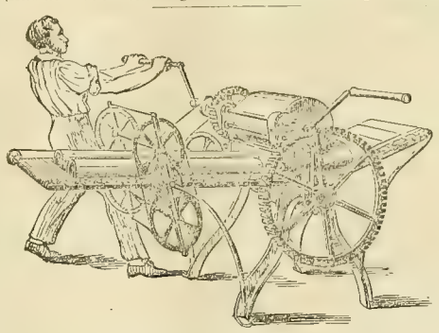
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with a reputation unparalleled, is still on the increase in public estimation. The singular virtues of this successful invention for Restoring, Preserving, and Beautifying the Human Hair, are too well known and appreciated to need comment. The very facts of the high and distinguished patronage it enjoys, its general use in all countries, together with numerous testimonials constantly received in its favour, are authorities which stamp its superior excellence and title over all attempts of a similar nature. Being universally preferred, its consequent great demand excites the cupidity of unprincipled shopkeepers, who vend the most spurious trash as the "genuine" Macassar Oil; whereas the genuine article is wholly the invention and property of A. ROWLAND and SON, and the amalgamation of its costly exotic materials renders abortive any attempt to discover its component parts—thus proving the imposition of all other articles bearing the title of "Macassar Oil." The genuine article has the words—

ROWLAND'S MACASSAR OIL,

engraved in two lines on the Wrapper; and on the back of the Wrapper, nearly 1500 times, containing 29,028 letters.—Price 3s. 6d.—7s.—Family Bottles (equal to four small,) 10s. 6d., and double that size 21s. per Bottle. Sold by the Proprietors at 20, Hatton Garden, and by Chemists and Perfumers.

*** All other articles sold under the same name are FRAUDULENT COUNTERFEITS.

THE ATRAPILATORY, OR LIQUID HAIR DYE; the only dye that really answers for all colours, and does not require re-doing, but as the hair grows it never fades or acquires that unnatural red or purple tint common to all other dyes. ROSS and SONS can, with the greatest confidence, recommend the above dye as infallible, if done at their establishment; and ladies or gentlemen requiring it, are requested to bring a friend or servant with them to see how it is used, which will enable them to do it afterwards without the chance of failure. Several private apartments devoted entirely to the above purpose, and some of their establishment having used it, the effect produced can be at once seen. They think it necessary to add, that by attending strictly to the instructions given with each bottle of dye, numerous persons have succeeded equally well without coming to them.

Address ROSS and SONS, 119 and 120, Bishopsgate-street, the celebrated Perruquiers, Perfumers, Hair-cutters, and Hair-dyers. N.B. Parties attended at their own residence, whatever the distance.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

CORNS AND BUNIONS.

Patronised by the Royal Family, Nobility, Clergy, &c.

PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances without causing the least pain or inconvenience.

Unlike all other remedies for corns, its operation is such as to render the cutting of the corns altogether unnecessary (indeed, we may say, the practice of cutting corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth); it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate corns and bunions.

Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.

Prepared by JOHN FOX, in boxes, at 1s. 1½d., or three in one for 2s. 9d., and to be had of C. KING, Napier-street, near the Albert Saloon, Hoxton, London; and all wholesale and retail medicine venders in town and country. The genuine has the name of JOHN FOX on the stamp.

A 2s. 9d. box cures the most obdurate corns.

Ask for "PAUL'S Every Man's Friend."

PATENT ELECTRO-PLATED AND GILT ARTICLES in every variety, at the Establishment of the Patentees, ELKINGTON & Co., West End—22, Regent-street, corner of Jermyn-street; City—15, Moorgate-street. The Patent Electro processes being extensively adopted under their licence, the Patentees beg to state that they confine their own Manufacture to goods of a superior and warranted quality only, which invariably bear their mark, "E. & Co.," under a crown. Old articles replated and gilt.

ELECTRO-PLATING AND GILDING.—OLD PLATED GOODS RESTORED and made equal to new by Messrs. ELKINGTON and Co.'s Patent Process. This process being carried on in London *only* by Messrs. ELKINGTON & Co., it is particularly requested that all goods may be forwarded direct to their Establishments, 22, Regent-street (corner of Jermyn-street); or, 45, Moorgate-street, City. New Goods plated upon White Metal in great variety. Books of Prices and Drawings sent to all parts of the Kingdom and abroad free.

SUPERFINE CLOTH DRESS COATS 30s. to 40s., extra quality 50s.; frock coats, faced with silk, 35s. to 45s., extra quality, 50s. to 60s.; fashionable merino and tweed, Albert, Codrington, and Chesterfield coats, 16s. to 25s.; waistcoats, new patterns, 6s. 6d. to 12s., rich satin, 8s. 6d. to 16s.; doeskin trowsers, 12s., 18s., and 21s.; shooting jackets, 9s. 6d. to 18s.; boys' and youths' clothing; office or study coats 9s. 6d. to 15s.; a suite of superfine black cloth, 3l. 3s.; extra quality 3l. 10s. to 4l. 4s., at FISHER and Co.'s, Tailors, 31, King William-street, City, ten doors from London Bridge.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLET EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, May 17, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1845.] SATURDAY, MAY 24. [Price 6*d*.

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GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given, that a General Meeting of the Subscribers to this Institution will be held at the London Coffee House, Ludgate-hill, on Wednesday, 4th June next, for the purpose of Electing Four Poor Persons to the benefit of a Pension of 18*l*. per annum, from among the following Candidates, whose Testimonials have been examined, and approved of by the Committee :—

Name.		Age.	Residence.
George Martin,	3d application,	aged 67	—Bristol.
John Adamson,	2d	,, 68	—Mortlake.
Barney Farelly,	2d	,, 68	—London.
Thomas Farmer,	2d	,, 64	—Mitcham.
John Fisher,	2d	,, 70	—Kensington.
John Garnell,	2d	,, 78	—East Ham.
Christopher Gibbons,	2d	,, 54	—Hendon.
James Stedman,	2d	,, 76	—London.
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Ann Cooper,	1st	,, 64	—Wentworth.
James Evesest,	1st	,, 64	—Bagshot.
Mary Hamilton,	1st	,, 74	—Hammersmith.
John Longhurst,	1st	,, 57	—Charlton.
William May,	1st	,, 76	—Footscray.

The Chair to be taken at half-past Eleven o'clock precisely. The Ballot will commence at Twelve and close at Two o'clock precisely. Edward R. Cutler, Secretary.

JAMES BATTEN, Florist, Brook Street, Upper Clapton, respectfully invites his friends and the public to view his TULIPS, which are now ready for their inspection daily, Sundays excepted, between the hours of 10 and 4 o'clock. Admittance, One Shilling.

J. FRANKLIN, Florist, Barford-street, Liverpool-road, Islington, informs Tulip Fanciers and others that his SUPERB SEEDLING TULIPS, famous for richness of colour and superior shape, are now in bloom, and will be in fine condition for fourteen days.—May 24.

TURNIP SEEDS.

WARNER & WARNER, Seed Merchants, 28, Cornhill, London; Established, 1720:

Beg respectfully to call the attention of the Nobility and Gentry to the following varieties, being selected from Choice Stocks, can be strongly recommended, amongst which, the Russian Swede and Purple-top White Swede will be most desirable.

W. & W. being extensive growers of TURNIP SEEDS, selecting the first-rate varieties, purchasers will not be disappointed of a genuine article.

Pomeranian White
Green Norfolk
White Norfolk
Red Norfolk
White Globe
Green Globe
Green Barrel
Green-top Stone
White Stubble
Red Globe
Red Bullock-heart
Green-top Yellow Aberdeen
Purple-top Yellow Aberdeen
Dale's Hybrid
Warner's Green-top Russian Swedish, superior to all others, possessing more saccharine matter, and producing an increased weight per acre.
Laing's Selected Swedish
Ashcroft's Purple-top Swedish
Warner's Purple-top Russian Swedish, adapted to all soils and invaluable to the Agriculturist for its fattening qualities
Tankard Yellow Swedish
White Tankard
Red Tankard
Green Tankard
Purple-top White Swedish—this kind is particularly recommended at lambing season, as affording ewes increased milk, as well as being suitable for lambs
Dwarf Rape
With every other description of Agricultural Seeds.

Wholesale Dealers supplied upon liberal terms.

THE ALSIKE CLOVER being a new and much improved variety, partaking of the character of the Red and White Clover, is a perennial, producing an immense crop, price 2*s*. 6*d*. per lb.

IMPROVED LONG RED MANGOLD WURZEL, Yellow Globe and Red Globe ditto.

STRONG DAHLIA PLANTS.

THOMAS BROWN is now sending out strong Plants of all the best Varieties in cultivation, including his two new and favourite Flowers, ARETHUSA and ORLANDO, and prompt orders are requested.—Slough Nursery, May 24.

LEANDER DAHLIA.—The brightest and best rose-colour in cultivation, is now ready for delivery at 10*s*. 6*d*., those taking 12 have the full discount.—3, Norfolk-place, Shacklewell. This flower beat all the rose-colours in class showing in 1843.

FUCHSIA "PICKWICK."

WM. JOHN CORMACK, begs to inform the Public that the above distinct and beautiful variety is now ready for sending out. The flowers are large and globose; tube and sepals light flesh-colour, with rich carmine corolla. W. J. C. flatters himself that the Dahlia he raised of the same name will be sufficient guarantee as to the properties of his new Fuchsia. Plants 7*s*. 6*d*. The usual discount if half a dozen are taken.—New Cross.

MESSRS. J. & H. BROWN are now sending out the following desirable plants, for bedding, &c. :—

Anagallis Breweri and bicolor, 8*s*. per doz.
Antirrhinums, of sorts, 6*s*. do.
Alstroemerias, 8 vars., 1*s*. 6*d*. each.
Cinerarias, 8 vars., 6*s*. per doz.
Calceolarias, 12 best vars., 18*s*. per doz.
Shrubby yellow, for beds, 4*s*. do.
New Fuchsias.—Selection of 12 plants for 10*s*. 6*d*., free by post: Albion, Attractor, Gigantea, Vesta, Reflexa, Coronet, Coccinea-vera, Kentish Bride, Pearl, Goldfinch, Desdemona, Colossus, Expansa, Neptune, Modesta, Hector, Chauverii, Decora
Other good kinds, 6*s*. do.
Geraniums. — General Tom Thumb, 2*s*. 6*d*. each.
Scarlet, variegated, and others, 6*s*. per doz.

Most of the above can be sent by post.

Rock Plants.
25 superior sorts, 15*s*.
50 do. 25*s*.
50 do., herbaceous plants, 25*s*.
100 herbaceous plants, 45*s*.
Selection left to the Purchaser.

Climbers.
Cobœa scandens, 6*s*. per doz.
Maurandyas, 3 vars., 9*d*. each.
Lophospermum, 3 do. 9*d*., do.
Calampelis scabra, 1*s*. 6*d*., do.
Ceanothus divaricatus, 2*s*. 6*d*. do.
Clematis azurea grandiflora, 24*s*. per doz.
C. Sieboldii, 18*s*. do.
C. montana, rapid climber, 2*s*. each.
Glycine sinensis, 1*s*. 6*d*. each.
New scarlet Honeysuckle, Youngii, 2*s*. do.
Jasminums, 6 vars., 1*s*. do.
Heliotropiums, 4*s*. and 6*s*. do.
Lantana crocea speciosa, fine for beds, 9*s*. do.
Lobelias, 6 vars., 6*s*. do.
New Border Pinks, 4*s*. do.
Do. Yellow Picotee, 3*s*. per pair.
Œnothera macrocarpa, fine for beds, 9*s*. per doz.
Petunias, 6 new vars., 6*s*. do.
Other good kinds, 4*s*. do.
Pentstemons, 6 best vars., 6*s*. do.
Phloxes, best vars., 6*s*. do.
Potentilla, 6 fine species, 6*s*.
Silene laciniata, fine for beds, 9*s*. per doz.
Scutellaria splendens, fine for beds, 9*s*. do.
Salvias, 6 vars., 4*s*. & 6*s*. p. doz.
Verbenas, 12 best and newest varieties, 6*s*., others 4*s*. do.
Viola arborea, or Tree Violet, 1*s*. 6*d*. each.

Passifloras, 4 vars, 1*s*. do.
Climbing Roses, one of a sort, 9*s*. per doz.
Pyrus japonica, 4 species, 1*s*. each.
Andromeda floribunda, in pots, 2*s*. 6*d*. each.

New Plants.
The following 12 for 25*s*.:
Thunbergia chrysops
Bouvardia strigosa
Buddlea Lindleyana
Pentas carnea
Achimenes picta
Achimenes hirsuta
Veronica speciosa
Tetranema mexicana
Inga pulcherrima
Columnea splendens
Lilium lancifolium album
Gesnera tubiflora

The above carefully packed and forwarded to any part of the United Kingdom. Payment by Post-office order, or reference in town. Lists of new and choice Greenhouse plants, Dahlias, &c., can be had.—Albion Nursery, Stoke Newington, London.

WILLIAM MASTERS having been employed during the last 30 years in the study and practice of Horticulture, begs respectfully to remind his Friends and the Public, that he has possessed constant opportunities of obtaining novelties, and therefore his collection of Plants contains a greater number of species than are usually cultivated in a Provincial Nursery,—especially

The genus Pinus and its allies.
Rhododendron, Azalea, and American plants generally.
Hybrid Rhododendrons, of vivid colours, many of which have stood the test of exposure during the late severe winter.
Roses of nearly 1000 varieties.
Geraniums of the finest modern kinds.
Calceolarias in great variety.
Cactus, Opuntias, and Succulents generally.
Orchidaceous Plants and Ferns, a large collection.
Cape and Australian Plants of many choice kinds.
Amaryllis, Crinums, Liliums, and other rare Bulbs.
A general assortment of Stove Plants.

In addition to these, the usual kinds of cheap plants, as Verbenas, Petunias, &c., employed for bedding, and a large assortment of the handsomest Herbaceous Plants, are cultivated for sale. Catalogues, with price attached, will be forwarded, postage free, upon application. Packages from 1*l*. and upwards forwarded free of expense to London, or plants added to compensate for carriage if preferred.

Exotic Nursery, Canterbury.

WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

NEW ROSES.—Damask Perpetual, "MOGADOR," brilliant scarlet, finely shaded with purple, well-formed, large, and very double; habit of Rose du Roi, 21*s*. each.

Hybrid Perpetual, "COMTESSE DUCHATEL," bright rosy carmine, most beautifully cupped, large and very double, retaining its brilliant colour several days after expanding, 21*s*. each.

WILLIAM WOOD & SON have the honour of soliciting the attention of their friends to the above named new and unique Roses, now offering for the first time in England, strong plants of which are ready for immediate transit, together with all the best varieties of the season.

The month of May being considered the most favourable time for planting out China, Tea-scented, Bourbon, and other Roses usually grown in pots, William Wood & Son are now prepared to execute orders from their very extensive stock at the under-named prices, the selection of sorts being left to themselves :—

L'Isle de Bourbon	per doz.	12*s*.
ditto finer varieties		18*s*. to 24*s*.
China	12*s*.	,, 18*s*.
Tea-scented		12*s*.
ditto finer varieties		18*s*. to 24*s*.
Noisette	12*s*.	,, 18*s*.
Climbing	9*s*.	,, 12*s*.

Plants will be presented with each order, to defray carriage, &c. Rose Catalogues may be had, gratis, on application.

FUCHSIA—"CONSTELLATION."

W. MILLER begs to state, in answer to the many inquiries made concerning the above FUCHSIA, that the Stock is going on favourably, and he intends to commence sending it out about the middle of June. The orders received last year are preserved and will be executed unless previously counteracted.

A List of those Nurserymen who have ordered it will shortly appear, also a List of the London Agents.

Providence Nursery, Ramsgate, May 24, 1845.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. GLENDINNING, since his residence near the Metropolis, has had the honour to be consulted by a number of Noblemen and Gentlemen in the improvement of their Parks and Gardens, and in the construction and heating of Horticultural Buildings in the most Economical as well as effectual manner. He has now made such arrangements as will enable him to devote his particular attention to these important subjects; and Noblemen and Gentlemen desirous of consulting him are respectfully requested to address him at Chiswick Nursery, near London.

NEW AND RARE PLANTS.

JAS. BACKHOUSE & SON (late T. & J. Backhouse), Nurserymen, &c., York, have now plants of the under-mentioned new and beautiful species ready for delivery :—

CHIRITA SINENSIS.—A charming greenhouse plant from China, in appearance intermediate between Gloxinia and Didymocarpus, bearing several beautiful large lilac Foxglove-like flowers on each stem . 21*s*. 0*d*.

HIBBERTIA PERFOLIATA.—A beautiful Swan River shrub, with large compact showy yellow flowers; an abundant bloomer . . . . . 10*s*. 6*d*.

RUSSELLIA MULTIFLORA.—A native of Mexico. Flowers bright scarlet, produced in great abundance in close whorls towards the extremities of the shoots 10*s*. 6*d*.

HABROTHAMNUS CYANEUS.—China. Flowers porcelain blue . . . . . 5*s*. 0*d*.

J. B. & Son can also supply good plants of

Thunbergia chrysops	2*s*. 6*d*. to 5*s*. 0*d*.
Achimenes picta	1*s*. 6*d*. to 3*s*. 6*d*.
Buddlea Lindleyana	1*s*. 6*d*. to 3*s*. 6*d*.
Pentas carnea	2*s*. 6*d*.

The usual allowance to the Trade.

PETUNIA, "PINK PET."

S. WALTERS, Florist, Hilperton, Wilts, respectfully offers to public notice the above, as being one of the best, if not the very best, novelty of the season among PETUNIAS. Colour, rich rosy pink; of good shape and substance, full size, stands erect on stems six inches long, of the best habit, and as sweet-scented as the Rose. Has been spoken favourably of by the Editors of the *Gardeners' Chronicle* and *Gazette*. Plants 3*s*. 6*d*. each, the usual discount if three or more are taken at once. Can be forwarded by post or otherwise to any part of the kingdom. Plants may be seen at the nursery in bloom to bear every description above given.

Remittance expected from unknown correspondents.

FUCHSIAS, to include such as Cormackii, Sanguinea, Eppsii, Transparens, Brockmanii, Venus Victrix, Colossus, Adonis, Britannia, Tricolor, Paragon, Exoniensis, Gem, Flora, St. Clare, Illicifolia, Magnificent, Conspicua arborea.

PETUNIAS, 12 varieties of the largest and best flowers, including several Seedlings of last year.

DAHLIAS, choice sorts. HELIOTROPIUMS.

The above well-rooted Plants, correctly named, out of pots, 3*s*. per dozen.

PHLOX DRUMMONDII, and Double Indian PINKS, 2*s*. per dozen.

J. & S. SHILLING, having a good stock of the above, beg to offer them to the public generally at these extremely low prices, package included. A Post-office order accompanying the order, to forward them by post, free, 6*d*. per dozen must be added.

Northwarnborough Nursery, near Odiham, Hants.

NEW AND BEAUTIFUL CAPE ERICAS.

T. JACKSON, Nursery and Seedsman, Kingston, Surrey, respectfully announces that he is now sending out plants of the two undernamed extremely beautiful ERICAS, which are highly deserving a place in the most select collection.

ERICA EASSONIANA, has large inflated flowers pure white, and much superior to E. jasminiflora alba; it obtained the first prize as a Seedling Erica at the Exhibition of the Royal Botanic Society of London, on the 4th of June, 1844 . . . . . 21*s*. 0*d*.

ERICA PERSPICUA ROSEA, has much of the beautiful habit of E. perspicua, with bright rose-coloured flowers . . . . . 10*s*. 6*d*.

Also the following New and Rare Plants, at the low prices quoted :—

Achimenes picta	2*s*. 6*d*.	Inga pulcherrima	3*s*. 6*d*.
Alona cœlestis	5 0	Ruellia maculata	10 6
Begonia ramentacea	5 0	Scutellaria elegans	5 0
Buddlea Lindleyana	3 6	Styphelia laurifolia	5 0
Bossiæa heterophylla	5 0	Spiræa Douglasii	3 6
Chironia floribunda	5 0	Tasmannia aromatica	5*s*. to 10 6
Chorozema spectabilis variegata	3 6	Tecoma schinifolia	10 6
Chorozema triangulare	7 6	Tetratheca, or Tremandra Hugelii	7*s*. 6*d*. to 21 0
Daviesia Hugelii	21 0	Veronica salicifolia	5*s*. to 10 6
Gesnera Gardneriana	5 0	,, speciosa	2 6
Habrothamnus cyaneus	3 6	Zichya rotundifolia	15 0
Hypocalyptus obcordatus	10 6		

T. J.'s General Catalogue, with prices for 1845, may be obtained on application, by enclosing two penny stamps.

EXHIBITION OF TULIPS.

H. GROOM, Clapham Rise (late of Walworth), by Appointment Florist to her Majesty the Queen, and to his Majesty the King of Saxony, respectfully informs the Nobility, Gentry, and Amateurs, that his superb collection of TULIPS is now in bloom, and will continue in perfection during the month of May, and can be viewed every day from 9 o'clock until 6, Sundays excepted.—Admittance 1*s*.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	Orange Tubs, Flower Boxes, &c.
Garden Edging	

Edward Beck will be happy to answer any inquiries, either personally or by post.

GENERAL TOM THUMB SCARLET PELARGONIUM.

P. CONWAY has got a few extra strong plants of the above at 5s. each, specimens of which may be seen in flower at his nursery; and he feels convinced that this most beautiful variety will fully prove all that has hitherto been said in its favour.

P. C. has also the following good varieties, viz:—Prize-fighter, extra fine, for bedding, 2s. 6d. each; Mrs. Mayler, 3s. 6d.; Little's Prince Albert, 5s.; Smith's Eclipse, 10s. 6d.; Frost's Superb, 2s. 6d.; Shrubland, 1s. and upwards; Cooperii, 1s. 6d.; King, 1s. 6d.; Queen, 1s. 6d.

P. C.'s New Calceolaria Aurantia Multiflora may be seen in flower, which he can confidently recommend as the best variety yet raised for bedding, 3s. 6d. each, 15s. the half dozen, 24s. the dozen. He has al o a splendid collection of Petunias, including Girling's new varieties, Miller's Antirrhinums, Achimenes multiflora, A. picta, A. hir-uta, &c. Thunbergia chrysops, Pentas carnea, Veronica speciosa, &c. &c., all at reduced prices. Old Brompton, near the West London Cemetery, May 24.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OE ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9s. to 7l. 10s. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

BEES, BEE-HIVES, AND HONEY.

J. MILTON has an extensive assortment of FOREIGN and ENGLISH HONEY; likewise a great variety of BEE-HIVES, both in straw and wood. He has just completed a newly-constructed Hive, "The Royal Alfred," by which the Apiarian can safely examine the Bees at work, and, with great facility, take the Honey without killing the Bees. A Sheet List is published, price 1s., being the Plates of the Hives, and other useful apparatus in Bee management, as described in "The Practical Bee-keeper," by JOHN MILTON; may be had of Messrs. PARKER, West-strand, and at J. MILTON'S Foreign Warehouse, 10, Great Marylebone-street.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

"Nutt on Bees" (5th Edition) now published.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and may be seen at their Manufactory.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,
(And at Southwark-bridge Iron Roof and Building Works.)

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices to 130, Fleet-street.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.
Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

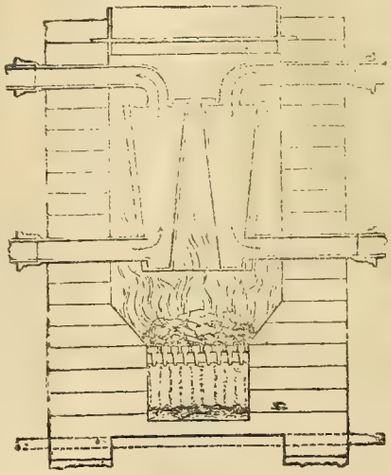
For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedesta's in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

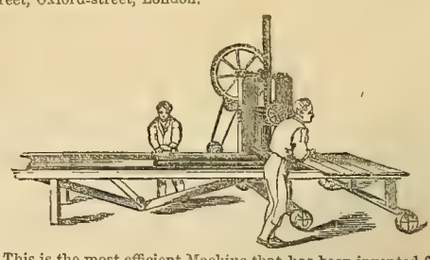
STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

HATCHER'S BENNENDEN TILE MACHINE,

Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the Machine includes free use of it.

DUTY OFF GLASS AND TIMBER.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

A. B. SMITH AND J. GRAY, GLEBE PLACE, KING'S ROAD, CHELSEA (Established Nine Years), beg to inform the Nobility, Gentry, and Horticulturists, that the duty being now off Glass and Timber, they are able considerably to reduce the price of Horticultural Buildings. From one of the Firm having been a Practical Gardener for many years, they confidently state that every building erected by them will be perfectly adapted to the purpose intended, either for the growth of Plants or Fruit.

SMITH and GRAY would also call attention to their system of HEATING, which will be found to be on the most improved and economic principles consistent with efficiency. A great variety of Models and Plans for Conservatories, Greenhouses, Forcing-houses, Pits, &c. ready for inspection, at

SMITH and GRAY'S Horticultural Manufactory, Glebe-place, King's-road, Chelsea.

CHEAP AND DURABLE ROOFING,

AND THE BEST RESISTER OF FROST FOR GARDEN USES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of IMPROVED PATENT ASPHALTED FELT, for Roofing Houses, Sheds, Verandahs, &c., and particularly for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.* It has been tested in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference can be made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

Samples, with directions for laying on, and testimonials and references of seven years' experience as to its merits, sent free to any part of the town or country.

PATENT FELT MANUFACTORY (THE ONLY FACTORY IN GREAT BRITAIN WHERE THE ABOVE DESCRIPTION OF ROOFING IS MADE), LAMB'S BUILDINGS, BUNHILL ROW, LONDON.

A Specimen Roof and Frame to be seen at the Factory, and a Discount allowed to the Trade.

PARTNERSHIP.—A PARTNER WANTED for a NEW HORTICULTURAL NURSERY ESTABLISHMENT on an extensive scale, and on an entirely new system. The Advertiser is about building a new Nursery on a novel and most magnificent plan. The Houses are to consist of one noble structure, 200 feet long by 100 feet wide, which space is to be covered with low span-roofs, with a noble dome in the centre, and the interior to be heated by Hot Water, and divided only by Glass Partitions; and laid out in various forms, for all required purposes. Horticulturists, with Money at command, whose views coincide with the Advertiser's, may see the Plans, and learn every particular, upon application to Messrs. J. WEEKS and DAY, Horticultural Architects, Gloucester-place, King's-road, Chelsea. Early applications are requested.

DISSOLUTION OF PARTNERSHIP.—All those whom it may concern, are hereby informed that the Partnership hitherto existing between ROB. WHITE and ALFRED BALSTON, as NURSERYMEN, SEEDSMEN, MAT MERCHANTS, COMMISSION AGENTS, &c., is this day dissolved by mutual consent, and will, till further notice, be carried on as usual by A. BALSTON alone, under the name of R. WHITE & Co. A. BALSTON will receive and discharge all debts due to, and owing from, the firm. The orders for Mats which have been received, will of course be executed as if nothing of the kind had occurred.—Poole Nursery, Dorset, May 24, 1845.

PURE GYPSUM, precipitated from a solution of Lime by Sulphuric Acid; being in a very finely divided state, it is better adapted for the various purposes for which it is employed in Agriculture, such as fixing Ammonia, and as a top dressing for Clover, &c., price 2l. per ton.

Superphosphate of Lime, 7l. per ton.

At Mr. LAWES' Factory, Deptford Creek.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

THE NEWEST AND VERY BEST FUCHSIAS VERBENAS, PETUNIAS, PANSIES, CHRYSANTHEMUMS CARNATIONS, AND PICOTEES.

YOUELL AND CO. continue to supply the above highly-ornamental plants per post, free, at the following prices. Their collection of the above is the most extensive and select in the United Kingdom, thus insuring to the purchaser the certainty of receiving none but first-rate varieties.

FUCHSIAS.

Youell & Co.'s 8 New and Splendid Seedlings, 42s.
12 Extra Fine Varieties of Fuchsias ..... 12s.
12 Ditto ditto, New ..... 21s.
50 Fine Varieties ..... 40s.
50 Extra fine ditto ..... 60s.

VERBENAS.

12 Extra Fine Varieties, 6s., the Selection left to Youell and Co.
12 Ditto 10s., the Selection left to the Purchaser.

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . . 10s. per dozen.
12 Extra Fine do. do. . . . . 18s. ,,

CHRYSANTHEMUMS. [Sent postage free.]

Fifty of the newest best varieties, by name, 12s. per dozen; for list and colours of which see their Advertisement of Mar. 15.

PETUNIAS, 12s. per dozen.

FLOWER SEEDS.—50 packets of the choicest and newest kinds sent per post, free, for 6s.

FINE ERICAS, 12s. per dozen.

ARAUCARIA IMBRICATA, OR CHILI PINE TREE.—Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10l. per 100, or 3s. per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60s. per dozen.

For further particulars see YOUELL & Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2s. 6d. and 5s. per packet.

Finest Double and Single Hyacinths, in pots by name, 9s. and 12s. per dozen, now coming forward for bloom.

Achimenes pedunculata, hirsuta, and grandiflora, 9s. per dozen; Achimenes picta, 18s. per dozen.

Fine plants of Pinus excelsa from Seed, 9in. to 1ft., 42s per dozen.—Great Yarmouth Nursery, May 24, 1845.

The Gardeners' Chronicle.

SATURDAY, MAY 24, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	May 28	Society of Arts	8 P.M.
MONDAY,	June 2	Entomological	8 P.M.
TUESDAY,	June 3	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	June 4	Royal Botanic Gardens	2 P.M.
FRIDAY,	June 6	Botanical	8 P.M.

COUNTRY SHOW.

FRIDAY, May 31—Hammersmith Heartsease.

BEFORE we proceed to examine the statements made on behalf of the GLASS TRADE by Mr. PILKINGTON and Mr. CHATER, it will be proper to mention who those gentlemen are. Mr. PILKINGTON, then, is a partner in the Crown, Sheet, and Plate Glass Works at St. Helens, and one of the greatest manufacturers in the kingdom; Mr. CHATER is the principal in the eminent glass-cutting firm of CHATER and HAYWARD. They are both, of course, intimately acquainted with the facts of the glass question; but Mr. PILKINGTON must be regarded as the higher authority of the two, for he makes glass, while Mr. CHATER merely cuts and sells it.

The first thing that struck us in looking over these documents was their discrepancy. Mr. PILKINGTON does not pretend that all the duty on sheet-glass and plate, whether patent or otherwise, is given to the public; but he contends that the public gets more of it than we have supposed—that we have fallen into the same error as that "committed by Sir ROBERT PEEL," in assuming "drawbacks upon exportation to be the same as duty paid"—and that allowance ought to be made for rise in wages, increase of expenses, &c. &c. And then he *justifies* the interception of duty by the glass makers by an argument derived from the sale of Pine-apples and Pine-apple plants, the force of which argument we confess our inability to discover.

But Mr. CHATER is a much bolder advocate, for he maintains that not one iota of the duty is intercepted, *except in plate-glass;* he treats with contempt the excuse that the cost of glass has been increased by the cost of coals, &c., and he proceeds to prove his case by figures and calculations.

Will any one tell us how these conflicting statements are to be reconciled, except upon the supposition that Mr. PILKINGTON, who makes the article, knows better than Mr. CHATER, who is a broker for the sale of it. We prefer Mr. PILKINGTON's evidence.

The latter gentleman, however, insists that the duty on window-glass was not 200 per cent., as SIR ROBERT PEEL alleged, and as we, adopting that statement, have also assumed. But how does this matter stand? The Right Hon. Gentleman does not make glass, he does not sell it, he is not a glazier; he, therefore, could have no personal knowledge of the facts, but derived his information from some other source. That source we have every reason to believe, was the *glass makers' own representation in writing.* If, then, the Minister was wrong, and we poor journalists are wrong too, we hope to be pardoned for the mistake, considering the excellence of the authority under which we wrote. But how *could* it be a mistake? What *could* have been the cause of the error in the calculations of the glass makers? and whence this sudden alteration of opinion as soon as the point was gained and the duties repealed? Is it traceable to the same cause as that which rendered it necessary for the patent plate-glass makers to *cancel their first tariff in less than a week from its publication?* If we are not very much misinformed, that untoward event arose from the great reduction made by the plate-glass makers in their *small sizes;* had it been otherwise, a very different amount of duty would have been intercepted.

The way in which Mr. CHATER sets about proving our statements to be erroneous, is this. We long since declared that the duty was taken off crown-glass, and that those who made that kind of material had acted fairly by the public; we afterwards ascertained that the same course had been taken by the green-bottle trade, and by some, at least, of the flint-glass makers, and we said so. But we alleged that the makers of sheet-glass, patent plate, and plate, had taken an opposite course. Mr. CHATER answers this statement by a flourish about crown-glass, concerning which there is no dispute, and he treats the duty on flint-glass as unimportant, though the flint-glass makers themselves complained bitterly of not getting back their ¾*d.* a lb.; and although the duty amounted to 50,000*l.* a year. With respect to plate-glass he denies that the duty was 2*s.* 10½*d.* a foot, says that it is now admitted that it was not so much (admitted by whom?), and finally confesses that the value of the reduction in small sizes *is added to the price of large plates!* If this is a refutation of our allegations, it would have been better for the glass-trade that Mr. CHATER should have endeavoured to confirm them.

In dealing with the patent plate question, he asserts that all our prices line for line are wrong; because "the present numbers, weights per ounce, and superficial contents, do not correspond." Our reply to this is very simple. A certain glazing firm issued in 1844 a paper headed "Prices of Patent Plate Window-glass," in which were two divisions called "Best" and "Seconds," each subdivided into three columns, respectively called No. 0, No. 1, No. 2. On April 7, 1845, the same glazing firm issued another paper, headed in the same way, and similar in all essential respects, except that a new division was introduced, and called Superior Quality, A, while Best had the letter B annexed, and Second had the letter C. The columns in B and C were no longer No. 0, No. 1, and No. 2, but are marked No. 0, No. 2, No. 3. In the new division, marked "Superior Quality, A," the old prices of "Best" quality are retained; but a reduction, such as we have stated, is made in the new divisions marked Best and Second. We compared Best and Second in 1844 with Best and Second in 1845, and the result of that comparison is given. If these statements are not comparable, then we must be driven to the conclusion that the old prices are retained; of this we are certain, that the trade intend the buyer to suppose them comparable, and if there is any mistake about it they have to thank themselves. But let us take Mr. CHATER's own statement; why, he admits that 3*s.* is still 2*s.* 6*d.*, 4*s.* is 3*s.* 6*d.*, 5*s.* 6*d.* 4*s.* 6*d.*, and so on. But then he takes credit for greater thickness, and lays vast stress upon an addition of some 3 oz. per foot. A pound of such glass costs about a farthing; however, we will say that it is worth 2*d.*; and so, because less than the value of a farthing is added to a foot of glass, a pretence is made for intercepting a large part of the duty. But in truth the increased thickness is a great gain to the maker, because the cost of patent plate-glass consists largely in the breakages that occur in the polishing process; and it is obvious that the thicker it is made the smaller becomes that risk.

However Mr. CHATER's *cheval de bataille* is the sheet-glass, in which he proposes to prove by figures that no duty is intercepted. This he effects by the ingenious contrivance of valuing 3 additional ounces of glass at 1*d.*, instead of something less than a farthing, and by charging ½*d.* for the carriage of those 3 ounces, instead of about a quarter of a farthing! When we find a man coolly setting down the carriage of an article at 33*l.* 6*s.* 8*d.* per ton, instead of 3*l.* 10*s.*; we may be well excused from going any further into an examination of his figures. Why, Mr. CHATER's glass must be sent him in first-class carriages of the mail train, or else by a special conveyance? Or, perhaps, his calculations were made by some one eminently possessing that "common understanding," which he reproaches us for wanting. However, we admit that the duties on sheet glass in crates are intercepted to a smaller extent than we at first supposed.

But we cannot pursue this subject much further, and nothing but its extreme importance would have induced us to afford it the space that it has already occupied. We shall therefore dismiss it with a very few additional remarks.

We have been blamed for using the term 'dealers,' in speaking of the glass trade; now we certainly did not do so offensively; we merely used the word as the best we could find for the glass trade collectively, that is to say for manufacturers, cutters, and glaziers; and our reason for doing so was, the difficulty of making out who is really to blame. The manufacturers declare that they have thrown off a great deal of the duty; the cutters maintain that it is *all* allowed in the price; then, since the public does not get it, the glaziers must have it; but the glaziers stoutly deny having anything to do with it, and throw all the blame upon the manufacturers. "We assure you," says one glazing firm in correspondence with us, "we are not the parties combined for the purpose of maintaining an improper price; or, in other words, not allowing the consumers the benefit of the repeal of the duty, and we beg to inform you that the *manufacturers* ONLY are the parties engaged to do so." Surely this is enough to perplex people with less common understandings than that which Mr. CHATER regrets our not possessing, and to justify the term employed by us. However, it is but fair to express our belief that, although some glaziers are beyond all doubt trying how far they can impose upon the credulity of their employers, yet that the main body are acting as fairly as the manufacturers' prices will permit.

Be that as it may, there is no doubt that better times are coming, and that the glass monopoly is in its last agonies; the creature is about to be strangled by sinewy English hands. We have now before us the most positive information that works are at this moment in the course of rapid organisation, where sheet-glass, equal to the fourth quality of No. 2 glass, and perhaps better, will be sold for 2*d.* per lb.; the present price of such glass is about 7*d.* per lb. Need we, then, again say to the glass buyers, WAIT?

The only difficulty in making glass at a low price consists in the scarcity of workmen. There is not above 300 men in the kingdom just now who can blow sheet or crown-glass; and so long as that is the case the supply must be short, and the monopoly will continue to gasp. But we safely leave the public to judge how long, in a country swarming with intelligent mechanics, such a deficiency of labour is likely to continue.

Since the foregoing observations were in type, we have received another letter, from Mr. HARTLEY, of Sunderland; it will be found elsewhere, and will close the discussion in our columns. It confirms the main part of all our statements, although it defends the glass trade, as of course it would. It is admirably written, as we should expect a letter would be from this firm; for we know the writer to be no lover of combinations; to be fully alive to the importance of cheap glass; and let us add, perhaps, the most ingenious glass manufacturer in the kingdom. It will now be seen whether or not we were right in our repeated advice to buyers to wait. Let us recommend them to put themselves into communication with Mr. HARTLEY, whose address is "Wear Glass Works, Sunderland."

WE learn, with pleasure, that Mr. HUGH LOW, Junior, was safe at Sarawak, in Borneo, on the 24th of January; he had only been there three or four days, was in good health, and had seen some most interesting plants. If he succeeds in examining the Flora of this island he will have made a very important contribution to botanical knowledge.

CRYPTOMERIA JAPONICA.

THIS was first discovered by Professor Thunberg many years ago in Japan, and was described by him in his "Flora Japonica," page 255, under the name of Cupressus japonica; more recently, however, the late Professor Don published a more detailed account of it in the "Transactions of the Linnean Society," vol. 18, page 166, with a figure, under the name of Cryptomeria japonica. It forms an evergreen tree from 40 to 50 feet in height, with numerous branches, making a rather compact head, and is an object of great interest to all persons now collecting Conifers, on account of its singular appearance, which is so like that of Araucaria Cunninghami, or the Moreton Bay Pine from Australia, that a branch of the one without the cones might very easily be mistaken for that of the other. The leaves are awl-shaped, stiff, rather incurved, distant, spiral, sharp-pointed, and of a dark-green colour. The flowers are monœcious, and are borne on different parts of the same branch, the males being in dense terminal clusters at the extremities of the principal shoots, like those of Cunninghamia sinensis, while the females are solitary and globular, with the margin of the scales deeply fringed with five strong bristle-like points on each, and are borne on the small inferior lateral shoots. The fruit is rather smaller than that of the common Upright Cypress, and certainly not so large as a Walnut, as was stated by Professor Don.

The timber is said to be white, compact, fibrous, and highly prized both in Japan and in the northern parts of China. The tree appears to be very plentiful, particularly at Shanghae, where Mr. Fortune found it

growing last year, and transmitted living seeds of it to the Horticultural Society. Coming as it does from such cold places as the mountains of Nagasaki in Japan, and from Shanghae in China, where the thermometer is sometimes within 5° of Zero, accompanied by piercing winds, I think there can be little doubt that it will prove hardy in England when fairly established, and form quite a new feature among Conifers. Some idea of its beauty may be conceived by imagining such plants as Araucaria Cunninghamii, or A. excelsa, with a less aspiring habit, growing in the open air, and capable of surviving our winters.

Cryptomeria japonica appears as if between Cupressus and Taxodium, but may be at once distinguished from Cupressus when in a seedling state, by having more than two seed-leaves (Cupressus has but two seed-leaves, while Cryptomeria has from three to five, but mostly four), and at a more advanced period, by its long, distant, subulate, spiral, incurved, dark green leaves; and, finally, by the cones having fringed scales. To Taxodium it has less resemblance, except in stature, and may be distinguished from it in a young state by its stiff, subulate, spiral, sharp-pointed leaves, which are not flat and two-rowed, as those of the Taxodium; and, finally, by the fringed scales of the cones; the cotyledons are the same in number in Taxodium and Cryptomeria. Its vernacular name in Japan is Ssugi. In cultivation it requires a light sandy loam, and a dry exposed situation.—*George Gordon.*

COMPARATIVE EARLINESS OF PEAS.

THERE are few subjects more essentially necessary for the young gardener to possess a thorough knowledge of than that of knowing how to provide a regular supply of culinary crops, but this homely part of the art is too apt to be overlooked amid the studies of what is popularly termed the higher branches, as if forsooth the branch that bears the daily bread were the last to be taken up, yet such certainly is the generally received view of this subject, for all seem to agree that the growing of rare exotics and the culture of botanical specimens are scientific employments, and even the growing of Grapes, Pines, and other fruits, and more particularly the forcing of them are respectable enough, but the moment you touch on plain kitchen garden crops, such as Peas or Potatoes, the subject is considered low or exhausted; accordingly we find few, if any really useful instructions in any work on gardening, respecting the comparative earliness of the different varieties of culinary crops, that is to say, the number of days necessary to grow one sort as compared with the rest of its family, all being sown in the best time of our growing season, or in other words, how they come in at the end of the race, all having started fairly, and from the same point. When we look, for example, at an advertisement concerning early Peas, one might easily be led to imagine that a supply of fine green Peas during the months of July, August, September, and October, was of little importance, so as they could be got early enough in May and June. Now the summer Peas, or in other words the slow growing kinds are very superior both in size and quality to most of the early varieties, and consequently it becomes very desirable to get these large fine kinds as early as possible for main crops; it is therefore of considerable importance to have correct information to guide us towards this nice point.

But there is yet another very cogent reason for having correct data in this matter, and that is, to obtain, if possible, some clue to guide us through the well-known puzzle of getting Peas to vegetate, and grow freely, when sown in hot dry weather. Now the following table will show that some fine sorts require six weeks longer to grow than others; here then you are presented with a perfect cure for the above complaint, for this slow-growing kind, if sown in May, which is generally the finest month of the year for Pea-growing, will get well established, and deeply rooted before the hottest of the season; and yet you will have the produce as late in the autumn, as if you had sown certain kinds a month or six weeks later. There exists in some old gardening books, the following excellent rule for ensuring Peas in proper succession:—"Always sow again as soon as those you sowed last are above-ground." Now this rule holds good as long as you keep on sowing the same variety of Pea; but it will be seen by the experiments detailed in the following table, that if a person were to follow this rule, regardless of the different varieties, instead of having green Peas in regular succession, there might be a gap in the supply, of a month or six weeks, during which time woe-betide the luckless wight that should have to face an angry cook, day by day, thus empty handed. Now it is perfectly easy for a man to be ignorant of the exact time required to mature one sort as compared with another, although he may have grown many varieties of Peas, and that too for years, because no comparison can fairly be made by any extent of practice, however keenly observed. If the samples are sowed in succession, they must be tried in soil and situation as similar as possible, sown on the same day, and neither early nor late, but in the best time of our growing season; for Peas sown three months before the 1st of March, may not be fit for table three days earlier than those sown on that day. It is therefore the growing days that must be counted, and not the time a crop may have been in the ground if we attempt to gain correct information on the matter; hence the value of the rule above referred to, that orders "a fresh sowing to be made when the last sown are above-ground;" for, be it observed, that rule measures its steps in succession, not by months or days, but by the scale of growth of that season, be it quick or slow.

With a view of carrying out this principle, and obtaining some data that might be depended upon, I sowed 15 samples of Peas, on 28th March, 1844, each sort on a raised bed about 1 foot higher than the general level; along the centre of each bed a drill was made, 16 feet in length, and in this drill half a pint of Peas were deposited, as evenly as possible, and the rows of Peas were 12 feet apart; the soil, a stiff loam, was deeply trenched and newly-manured with night-soil that had been disinfected with an overwhelming proportion of charred sawdust, and though this manure increases the fruit of every crop to which I have applied it, it certainly yields less straw than usual, and I was very much surprised to find the samples of Peas so short. Scarlet-runners, too, manured in the same way were not more than 4 feet in height, and loaded with pods unusually large. The order of this crop seemed quite reversed, for it is nothing uncommon to see Scarlet-runners short of fruit; but this is the first instance that has occurred with me of their being short of fodder. I find from books and observation, however, that guano and many other manures have their oddities in like manner, some tending to increase straw and some grain.

From these and other experiments, I deduce the following practical lesson in the culture of Peas, that the lines or rows should be a long way apart, say 15 feet; that the beds in which the Peas grow should be trenched if possible, 3 feet in depth, and raised at least 1 foot above the general level; this gives the earth in which they grow less rain and more sun; the land moreover should be richly manured, not only on the surface spit but also at the second and even the third spit; then if it comes a wet season your Peas lie high and dry, and in case of heat their roots will have a healthy range beyond its reach.

THE FOLLOWING TABLE SHOWS THE COMPARATIVE EARLINESS OF DIFFERENT VARIETIES.

—*Alexander Forsyth, Alton Towers.*

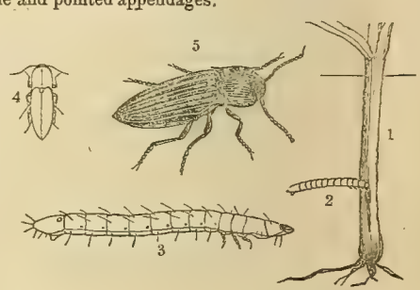
Date of Sowing.	Name or Sort.	When fit for Table.	No. of Days in Growing.	Remarks, Height, &c.
Mar. 28	Prince Albert	June 19	83	3 ft., fine early sort
	Bishop's Early Dwarf	June 26	90	3 ins., Inferior in every way
	Early Racehorse	June 29	93	3 ft., Nothing mentionable
	Shilling's Grotto	June 29	93	3 ft., most excellent
	Dwarf Green Marrow	July 10	105	3 ft., large Pea, fine quality, full crop.
	Blue Prussian	July 10	105	2 ft., good
	Matchless Marrow	July 17	112	3 ft., immense pods, large Pea, good quality, full crop.
	Lynn's Wrinkled Marrow	Aug. 1	126	6 ft., good late sort
	American Marrow	July 17	110	2 ft., fine Pea, full crop
	Blue Scymitar	July 25	118	3 ft., good bearer
	Imperial	July 20	113	—— Good Pea, full crop
	Beckham's Blue	July 17	110	2½ ft., large Pea, full crop
	Flack's Victoria	July 17	110	2½ ft., large pods
	Victoria Marrow	July 25	118	6 ft., large pods
	Auvergne	July 17	110	4 ft., fair crop
	Groom's Superb Blue	July 17	110	2 ft., thickly set with pods, full of fine Peas

ENTOMOLOGY.

THE WIREWORMS. — Repeated inquiries respecting these troublesome insects induce me to give a sketch of their economy, which is deserving the attention of every cultivator of the soil, since they visit both fields and gardens sparing neither Corn, Turnips, Mangold Wurzel, Potatoes, or pasture-land; and revelling alike upon Cabbages, and Carnations, Lettuces and Pansies. In an early number of this Paper,* the natural history of the snake-millipedes was published; they are often mistaken by agriculturists for the wireworm, but they are not even insects. The *true* wireworms are the offspring of a tribe of beetles, which are called in England skip-jacks, or spring-beetles, from the power they possess of leaping up to recover their feet, when placed upon their backs; and from the distinct snap which one hears on such occasions, they are also termed snap, or click-beetles, and also blacksmiths, but the scientific name of the genus is Elater.

Of the various species that inhabit this country, there are probably only three or four whose larvæ do much mischief; they are the Elater spectator, E. obscurus, E. lineatus, and E. ruficaudis. Their economy is similar; and as the Elater lineatus has been most frequently reared, I shall proceed to give its history. The beetles are found in fields and gardens, woods and hedges, from April to July: the females are supposed to lay their oval whitish eggs in the earth, close to the plant which is selected to supply nourishment to the future progeny; and no sooner are the larvæ hatched than they commence eating into the stem or root, not unfrequently ascending the centre of the stalk, even above the surface of the earth. They are at first very minute, but often become three-quarters of an inch long when full-grown; and it is asserted that they are five years in undergoing their transformations, which is exceedingly probable, for I have kept them 10 or 12 months without discovering any material change in their stature. As soon as they have done feeding, having cast off three skins, as they increased in size, they form an oval cell at a considerable depth in the earth, where they change about July or August, to pupæ, which exhibit the members of the future insect so perfectly, that the genus may be identified. After remaining in this state, sometimes for a few weeks only, at others for many months, the beetles issue forth rejoicing in the spring.

The wireworm has been so designated from its extreme toughness. That of Elater lineatus is very smooth and shining, of an ochreous colour, with a few hairs scattered over its body; it is semicylindrical, the head is flattened or wedge-shaped, with two little horns, and a minute eye-like dot on each side; the mouth is pitchy, and furnished with two strong horny mandibles, maxillæ, palpi, &c.; the body is composed of 12 segments, the first thoracic one being the longest, the two following the shortest; to these are attached three pairs of small bristly legs composed of four joints, terminated by a simple claw; the eight following segments have a spiracle on each side, the apical one is long and conical, with two large spiracles near the base, and a prehensile foot beneath: fig. 2, fig. 3, magnified. The pupa is of a yellowish-white colour, elliptical, the head obtuse, with two little tubercles; the tail is furnished with two moveable and pointed appendages.



The beetle named by Linnæus Elater lineatus is of a dull brown colour, with short ochreous depressed hairs; the horns are not long, but compressed, rusty, and 11-jointed, the basal joint being the largest and stoutest, the second and third the smallest, and obovate; the head is rather large and bent down, thickly and minutely punctured; the eyes are lateral, small, black, and shining; the thorax is similarly punctured, very convex and suborbicular, the front being a little truncated, the hinder angles projecting, and forming two trigonate spines of an ochreous colour; there is also a faint channel down the centre; the scutel is depressed, and rather circular; the elytra are more than twice as long as the thorax, and elliptical, the apex conical; they are minutely punctured with nine punctured striæ on each; the alternate spaces ferruginous or cinereous; the ample wings are folded beneath them in repose; the underside of the thorax is furnished with a strong tooth, which is fitted into a groove in the breast, and this forms the leaping apparatus; the female is furnished with a horny ovipositor; the six legs are small, of a rusty brown; the tarsi, ferruginous; claws, minute: fig. 4, fig. 5, magnified.

For a more detailed account of these insects, I must refer to the 5th vol. of the "Royal Agricultural Journal," where the subject is also illustrated by two plates; and the best modes of preventing their ravages are discussed. I shall, therefore, only state for the benefit of the gardener, that the wireworms are frequently introduced into his grounds with the loam from Grass and heathy-lands; consequently every little lump of earth ought to be broken before it is put on the flower-borders; and nothing can be more dangerous than to plant choice Carnations, and fine Pansies, in beds surrounded by turf, for in all probability it swarms with wireworms, which will soon quit their old haunts to partake of more delicate fare. When such is the case, the best plan is to plant Daisies, and place slices of Potato around, to decoy the wireworms. Turnips, Cabbages, Beet-root, Parsnips, Carrots, Apples, and young Lettuces, may be employed in the same way. Fig. 1, represents a Wheat plant transmitted to me the end of April, with a small wireworm eating into the stem, nearly an inch below the surface of the soil, which is indicated by a horizontal line.—*Ruricola.*

* Vol. i., p. 196.

Home Correspondence.

Glass.—I have carefully perused your several articles and correspondence relative to glass, and it appears to me you do not sufficiently bear in mind that the glass trade is complicated and highly artificial, with not less than 60 various qualities, thicknesses, &c., created in some measure by the excise laws, but fostered by the eccentricities of gentlemen, the crotchets of architects, the vagaries of builders, and the absurdities of glaziers, to all of which we manufacturers most willingly pander; in attempting, therefore, to make your readers understand the true merits of the case by going into the various trade tariffs in detail, and exhibiting a long array of figures, you deceive yourself and mystify the public. Every manufacturer, whether of glass, iron, or aught else, has a perfect right to take advantage of the various states of the market, regulated, as it must be, by the supply of an article and the demand for it; at times the profit may be excessive, it is equally certain that at other periods he must rest satisfied without any. In reference to glass the immediate effect of the repeal of the duty was the sacrifice of a large sum by the manufacturers. 1st. By the depreciation in value of buildings rendered necessary and expensive by the excise laws. 2d. By the loss of 25 per cent. on their stocks. 3d. By the comparative stoppage of their works

from the 14th February to the 5th April, during which period the workmen's wages and the general expenses of their establishments were paid out of capital. In addition to the foregoing, which were absolute losses sustained by the manufacturers, and which I contend the public ought to refund, there is also the great advance in wages, fuel, &c. ; caused, partly by the general prosperity of the country, but mainly by the increased demand for glass ; such a combination of circumstances would cause an advance in the price of any article. I am most willing to admit that in some descriptions of glass the price has not been reduced equivalent to the amount of duty repealed ; it is not, however, the correct way of putting it to say the manufacturers are pocketing part of the duty. Glass, from a combination of circumstances, advanced in price, say 5 per cent., this being independent of the repeal of the duty, the whole of which has been given up to the public. If the present scarcity of labour continues, another advance in the price of glass is inevitable ; yet, surely, you would not in that case say we were pocketing another portion of the duty ; it would be as rational to argue that the iron-manufacturers had agreed to pocket the glass-duties, because at the period of their repeal they advanced the price of iron. You need not fear our getting excessive profits; the large amount of surplus capital in the glass-trade keeps alive too keen a competition, and ample protection is thus afforded the public. Having said thus much in self-defence, I am quite prepared and willing candidly to admit that your main ground of complaint, the non-supply of a cheap glass for horticultural purposes is well founded, the cheapest glass in the market being sold at 4½*d.* per foot, weighing about 11 oz. to the foot; but what is required is a coarse thick glass, not less than 16 oz. to the foot, and from that to 20 oz., and at something like 3*d.* per foot ; at present the great scarcity of labour prevents such a desideratum from being accomplished ; all the crown and sheet-glass makers in Great Britain (and they do not exceed 300), are fully employed in working at the more expensive kinds of glass, being the most profitable employment for masters and men, and we cannot employ a single workman at a rate of wages which will be necessary before a cheap glass can be introduced into the market. To give you some idea of the state of the trade, and the difficulties we labour under, I may mention that I would gladly pay any day a bonus of 1000*l.* for 10 glass-blowers competent to make glass suitable for horticultural purposes, if they would work four days a week, of 10 hours a day, for 30*s.*, which must be admitted is ample; and I could well afford, and would at once send all they made into the market at 3*d.* per foot, and perhaps ultimately at 2½*d.* ; but till there is an ample supply of labour in the market, and upon some such terms as I have mentioned, it is childish to attack the manufacturers for keeping up the price of glass, or for failing to supply the market with every article in demand; they really have no voice in the matter, the whole being regulated by the demand and the means attainable for its supply. I trust your readers will soon get supplied with a thick cheap horticultural glass.—*James Hartley, Wear Glass Works, Sunderland.*

Glazing.—I have just completed a small stove, fitted with Burbidge and Healy's gutters for bottom-heat, which act admirably, but I strongly recommend that the space for fire be made somewhat larger than they generally recommend. The gutters are merely covered with loose tiles, and a flooring of Oak slabs, about 3 ins. above the top of the tiles, supports the plunging material. What would you recommend this to be—sawdust, tan, or sand ? [Sand.] The stove will be chiefly used for flowering stove plants. I am glazing it with sheet-glass, of the 4th quality, weighing nearly 16 ozs. to the ft., at a cost of 8*d.* per ft. less 20 per cent. discount, which brings it to little more than 6½*d.* per foot or pound. [According to Mr. Chater this glass ought not to cost more than 5½*d.* ; see p. 329.] The frames will be 36 inches by 6 inches. This is, of course, the wholesale price. I think, however, that glass may be imported from Belgium even cheaper than this. The price there of what they call half-white-and-green glass, for hothouses of any size, is 10*s.* 6*d.* per 100 feet. The box of 100 feet may, perhaps, weigh ¾ cwt., which, at 1½*d.* per lb., would be 10*s.* 6*d.* more ; add, for freight and all charges, 5*s.* per box, and you have a total cost of 26*s.* per 100 feet, or a fraction more than 3*d.* per foot for panes of any size not exceeding some 3 or 4 feet. Were the glass of the same thickness as our crown-glass, the duty would not be more than 8*s.*; with all expenses about 2¾*d.* per foot. The manufacturers in this country are able, however, to make glass much cheaper than they now offer to sell it at, and there is no reason why the glass I now buy at 6½*d.* might not be sold profitably at 4*d.*, which would be 50 per cent. more than the cost of making it in Belgium.—*B. C.*

Electric Agency applied to Horticulture.—I have been making several experiments, the results of which have been of the most satisfactory character. My application of the subtle agent has been through the medium of galvanism, and as it is generated it is totally under control, which is not the case if it is collected (as is generally the case) from the atmosphere, which is always subject to the uncertain fluctuations known to exist in telluric and atmospheric electricity. My experiments are, of course, far from matured, but yet they may not be void of interest to yourself.—*First Experiment:* I took an old 50-pair galvanic trough, and lined one-half the length of one side with zinc, and the opposite side in a similar manner with copper ; they being about 12 inches long and 2 deep, leaving a distance between the plates of 4 inches, and connected by a zinc band. The trough was filled with moist soil and Turnip-seed sown thickly upon the surface and pressed into it, but not covered, one-half being under the galvanic influence, the other in a natural state. Results : The seeds under galvanic influence swelled and sprouted many hours before the others, and twice as many vegetated ; and by the time they were all well up the galvanic ones had the advantage of 24 hours. I should tell you that they were placed in a temperature of more than 60°, and were all well up in three days ; therefore 24 hours is a most extraordinary advance. *Second Experiment:* I lined a common flower-pot, 6 inches wide at the top and 4 at the bottom, with zinc and copper, as in the last experiment, the plates being, of course, deeper ; I then sowed three Cucumber-seeds in it, and three in another pot, without galvanism, and placed both in the same temperature, as the last experiment. Results : In the course of two days, the galvanic seeds appeared 11 hours before the others ; in three days both were well up, the galvanised having greatly the advantage in strength and colour, and going a-head rapidly. After a lapse of a fortnight, the galvanised seeds seemed to have the advantage of four days' growth, were much darker in colour, and about twice as strong, healthy, and vigorous. I also tried an experiment with some Peas, which had been sown some time previously, and were just cutting the ground. A zinc plate, 1 foot square, was placed at the end of one of the double rows, and buried to an inch below its upper edge, and a similar plate of copper was buried at the other end to the same depth, and connected by a copper wire. The weather was showery, and the growth of all was rapid. In the course of 30 hours, the galvanised ones had assumed a darker appearance, and were more regularly up, than the others, and decidedly in advance ; and in the course of a fortnight they were so much forwarder than the others, as to be easily seen at a considerable distance, and were altogether much higher and stronger. I am also trying an experiment with some Potatoes, but they are not up yet. These results have been so satisfactory to me, that I intend to try the principle upon an acre of Barley, and am preparing the wires for that purpose ; and, when finished, will send you the results.—*A.*

Moss.—I have used this for many years in a variety of ways. Half-hardy plants may be effectively protected by it, and many kinds of flowers may be forced in it. In this way I have flowered Hyacinths, Lilies, Narcissus, Lily of the Valley, Cyclamens, Van Thol Tulips, Crocuses, Crown Imperials, double and single Violets, Pinks, and Carnations. The woodcut represents the smallest



plant of many Hyacinths which I have grown in balls of Moss here this season. The plant is suspended by a wire from the roof of the house. In the lower part of the ball a Beet-root is inserted with the head downwards, the beautiful red leaves of which curling up round the ball, has a very novel and interesting effect. I also use Moss as a covering for Mushroom beds ; to its use I attribute much of my success in cultivating the Mushroom.—*H. Bowers, Busbridge, Surrey.*

Labels made of Glass.—The best kind of label for marking plants is a problem that, I think, has not yet been solved. The marks on wood or iron soon become indistinct. The removal of the duty on glass drew my attention to the subject. No. 1 is a tube of glass, half-inch internal diameter, about 2 inches long from shoulder to bottom ; the name of the plant is printed or written on a piece of paper, about 1½ inch square, folded cylindrically, and introduced into the tube. The tube is then corked and sealed with resin, sealing-wax, asphalte, thick paint, or other cement. A piece of very slender copper-wire is twisted round the neck of the tube by which it may be attached to a wooden or metallic support, or to the branch of a shrub or tree. The above will probably be most generally used, as the label can be introduced or changed at pleasure. But No. 2, in which the tube is closed hermetically, will, on account of its neatness and perfection, be preferred by many. When used, the names of the plants must be sent to the glass-blower to be inserted before sealing the tube hermetically.—*Jos. C. Gamble, St. Helens, Lancashire.* [This is a very neat and excellent label ; it was, we believe, originally employed in Italy, and is mentioned in one of the volumes of Loudon's "Gardeners Magazine." Another kind, 6 or 9 inches long, is stuck into the ground at the foot of plants. No doubt the glass-blowers will soon bring them into notice.]

Truffles.—I herewith send you a specimen of what I consider to be the true English Truffle, in order to prove that the Truffle is not, as some imagine, a parasitical fungus ; although I admit that this specimen goes far to establish a contrary opinion. Since my communication appeared in the *Chronicle,* I have received many inquiries on the subject. Some of them I have answered, and I trust to the satisfaction of those who are really in earnest. To others I would briefly say, I have not leisure to enter into useless controversy. As I before stated, my principal reason for sending the inclosed specimen is to set at rest the following question :—Is the Truffle a parasite or not ? to which I answer, it is not. This Truffle was dug about eight hours ago, and, consequently, will reach you as fresh as if growing, which you will easily recognise by the peculiar and agreeable fragrance it emits. You will perceive there is a small portion of the root of a Beech-tree apparently fastened on the side of the Truffle, and to all appearance resembling the glutinous root of a parasitical fungus ; but if you separate it from the Truffle, you will find there is not the least appearance of stubborn resistance, but a clean separation takes place, leaving a little knob, or warty swelling on the root, and a flat mark only on the Truffle. This clearly demonstrates to me that it is not a parasite, for was it so, a part of the bark, or rind, of the root would come away with it when the separation took place. My conclusion is that the Truffle is not a parasite, but on coming in contact with any living substance favourable to its nature, will emit an excrementitious matter, and adhere to the roots of Beech, or other trees, and become fixed to it like a parasite. I have no doubt that occurrences like this have given rise to the opinion of many learned men that it is a parasite.—*W. Prestoe.*

Gardeners at Exhibitions—(see p. 329.)—At the outset I wish it to be clearly understood that I consider it a breach of decorum for any one to loiter in the tents, to the obstruction of the visitors at the horticultural exhibitions ; and now that ground is clear, a word to a "Fellow of the Horticultural Society." Tickets of admission are given only to those who bring objects for exhibition, and, generally speaking, these are collections. From the day that the shows of the last season ceased, these collections have been the objects of solicitous care and thought both by day and night. The filthy fumes of tobacco, sulphur, &c. have been endured whenever it has been necessary to destroy insects that would injure the beauty of the foliage of the plants ; and, at last, the eve of a new series of exhibitions arrives. From an early hour in the morning the gardener is busy with preparation, packing his plants, &c., and, in very many instances, after eating a hasty meal, and taking a little sleep, he is to be seen on the road, whilst "F. H. S." and the vast concourse of visitors are buried in comfortable repose. Arrived at the gardens he takes his turn for a place to unload. Then comes the removal of all the various appliances which have preserved his plants from injury in their transit ; there he is to be seen arranging them in the most judicious manner, here a little alteration, there another. Then there is the procuring tickets to attach to them, then the obtaining his ticket for admission, and by the time he has had a hasty walk through the tents, the appearance of the police proclaims the hour to withdraw. This is a true picture of the engagement of the bulk of the exhibitors. I myself, as one, with three men to assist my gardener, never could find time to examine the different contributions to these grand displays. Obliged, therefore, to defer doing so, until after the general admission, we cannot be surprised if sometimes the fault is committed of lingering too long before objects of peculiar interest, and I believe it is a very rare occurrence for gardeners so offending not to acknowledge it by immediately moving when spoken to in a proper manner. I wish I could say as much for some who claim superiority over the poor gardener, who, from a variety of causes, has had hitherto to content himself after his retirement from the garden with bread and cheese, porter, and an onion. Only last year some ladies requested a sight of my collection, and the space before it being fairly taken possession of by persons of high standing in society, it was with difficulty I obtained it for them, after requesting the policemen in the seedling tent to see that the rule to move on was enforced. I have had an opportunity of being acquainted with a great many gardeners for several years past ; and I maintain, that as a body, their conduct at these exhibitions is admirable, and always improving. I will conclude by an anecdote, better known on a gun-deck than at Chiswick.

"Two old tars were standing on the beech waiting to see Nelson's remains come ashore, when a well-dressed gentleman came up with a lady on his arm, and touching one of them on the shoulder said, in an imperious tone, 'stand on one side you fellows!' 'Fellows!' said the man, turning round, and pushing his low-crowned hat off his one eye, 'We're Trafalgar fellows.' Then to his shipmate, 'Jack,' said he, 'if it had not been for such fellows as you and I, this fine don and his consort, with all their fal-lals, might have slung their hammock under the lee of the best hedge Johnny Crappo would have let them have.' 'You're right,' said the gentleman, touched with the reproof, 'here's half a crown to drink the king's health.' 'Thank you, sir,' said the sailor, with an altered voice, and touching his hat, 'thank you, sir,' we can drink the king's health at our own expense; but now you had better sheer into our berth." So much for manner of speech. Is it right language to use to a deserving body of men, to call them low gardeners? "F. H. S." does so by implication, when he appeals for their exclusion as a body. How much better, when looking over the marvellous productions of their skill and industry, to exercise a little forbearance, to pay them a well-merited tribute of praise, remembering how much the Society owes to their labours in a pecuniary point of view. And how well also to remember how it is low servants are made. They are made by the low conduct of masters. No such persons issue from establishments where the employer feels it a part of his daily duty to see that all around him are morally and physically cared for, as they should be. But no more; fair-play is a jewel, and whilst I can say an honest word in favour of a meritorious class, I shall be always ready to do it. If horticulture is to flourish, the Society and gardeners must depend on each other; and the new arrangements for the comforts of the latter deserve the warmest praise.—*An Exhibitor, and also a F. H. S.*

Grafting.—It is often, in grafting upon slender stocks and branches, very inconvenient to attach and support a great lump of clay, which, in spite of the greatest care and attention, will, either in very wet or very dry weather, crack and fall away. Last spring I made trial of sheet India-rubber, cut into narrow strips or bandages, from ½ to ¾ of an inch broad, which I applied to the graft—having first fixed the graft with bast—and with success. The India-rubber presents all the requisites sought for in clay; it is air-tight and water-tight, and, moreover, it will not fall away; and it is elastic, which admits of the swelling of the scion in its growth, and it is applied with perfect ease and quickness. After wrapping the bandage round the graft and stock, as you would a linen bandage on a cut finger, the last turn only requires securing by tying with a bit of thread or thin bass; and it has a very light and neat appearance, when the operation is completed.—*G. L.*

Toads.—Your entomological authority "R." states in a late Number of the *Chronicle*, that he has "no longer any doubt that toads, under certain circumstances, become viviparous." Now as this is a question of very considerable importance in a physiological point of view, I should be particularly obliged by a detailed statement of the facts upon which this extraordinary statement is founded. Has "R." conducted such a series of well-considered experiments as would justify so novel and interesting a conclusion? For it must be recollected that an exception so important as this, to a known law, in the history of a whole group of animals, cannot be admitted, nor ought to have been advanced on slighter grounds than an absolute *experimentum crucis*.—*Thomas Bell, Selborne.* [We have no doubt that "R." will publish his evidence as soon as he is in possession of what he regards as sufficiently strong. At present his hint must be taken as a hint, and no more.]

Nurserymen's Advertisements.—Payment in advance, as often required in advertisements of florists and nurserymen, is a plan sometimes liable to abuse, however convenient, if fairly and punctually acted upon by the advertisers. There is a Kentish nurseryman (I do not now more particularly point to him), advertising, with the above condition, sometimes in the *Chronicle*, to whom, on March 26th, a daughter of mine sent a list of plants required, and a post-office order for their amount. Nothing being heard for near a month, I wrote myself a civil letter, stating as above, and requesting to hear in explanation. Still hearing nothing, I wrote, I think, on the the 1st May, but certainly about that time, to the post-office in which the order was made payable, to ask if there really was such a person as Mr. ——? and whether they knew the person to whom the order (describing it by its No. and amount) had been paid? May 4th, I had the postmaster's reply, "that they knew Mr. ——, who was in considerable business, and considered a respectable person, and that they had had an opportunity of mentioning the inquiry to him, when he replied, that he had mislaid (!) the lady's order—but would write." I waited till the 7th or 8th (I am not now sure which), still in vain, and then wrote a sharp letter, enclosing a renewed order, and intimating the probability of legal proceedings; and this at last brought, on May 15th, a part of the order. Some of the plants ordered (and which being advertised in March, might then, no doubt, have been had), they could not send, having sold them out; and the value of these last was returned. I should perhaps not now have related these circumstances, had not accident brought me acquainted with the fact, that another person, a tradesman, fond of flowers, in a town near my residence, had had very similar treatment to complain of from the very same person, who seems to think he may be careless of his character, if only his customers live far enough off; my neighbour and I are nearer 200 miles away than 100.—*W.*

Combustible Green Wood.—Having been informed by our woodman that Ash timber will burn equally well just cut, as when seasoned, I have frequently tried the experiment on fires consisting entirely of it, and found him to be perfectly right. If, therefore, you will have the kindness to acquaint me, in the *Gardeners' Chronicle*, what property it contains to burn well in its green state, I will be greatly obliged.—*A Sussex Subscriber.* [We do not know.]

Societies.

ROYAL INSTITUTION.

Friday, May 16.—The Rev. E. Sidney on the Electricity of Plants, and influence of Electricity on Vegetation. In introducing the subject of his lecture, Mr. Sidney took occasion to draw attention to the important nature of the inquiry, its high interest as a branch of natural science, and the valuable practical results which might possibly be brought to light in its investigation. The attention of electricians, he stated, had been drawn to the subject so long back as 1746, when a Mr. Maimbray, at Edinburgh, announced that electrified plants grew more rapidly and vigorously than those that were not so treated; about the same time the Abbé Nollet discovered that electrified seeds germinated with increased facility; and these observations were confirmed and extended by the experiments of Bertholon and Jalabert, the former of whom attributed very marked effects to the use of electrified water. The truth of these experiments was supported by some electricians, but denied by others, who, upon repeating them, could not perceive any effect produced on the electrified plants; amongst the latter class stands the name of Sennebier; but on reading the account of how his experiments were performed, it is no longer surprising that he failed to perceive any effect from electricity as he placed the seeds which were to be electrified inside an electrified vessel, a situation in which it is evident they would not be exposed to the electric influence. After briefly adverting to the more recent observations of Davy, Pouillet, and others, Mr. Sidney drew attention to the recent progress of the subject, and the high interest it was at present exciting. The first point which the lecturer insisted on, was, that electricity appears to exercise a powerful influence on growing plants; in support of which he quoted a number of experiments and observations, all tending to show that plants, under the influence of electricity, grow with increased vigour, and more especially when negatively electrified. The manner in which drooping plants have been observed to revive, on the artificial application of electricity, was also noticed; and, lastly, the effects which are found to be produced by thunderstorms were described. The rapid growth of plants during thunderstorms might, no doubt, in part be attributed to other causes; but, at the same time, it was a very fair inference that the electric condition of the air had something to do with the phenomena, as such a conclusion was borne out by numerous experiments, on a small scale, made with artificial electricity. Electricity of low, like that of high tension, has been found to affect germinating seeds and growing plants in a remarkable manner; it was noticed by Davy, that seeds germinated more freely at the negative pole of the voltaic battery than at the positive, and since his time numerous experiments have been made, all tending to prove that voltaic electricity powerfully affects plants. Mr. Sidney next drew attention to the facility with which fresh vegetable matters conduct electricity, in consequence of the good conducting power of the fluids which they contain; this was illustrated by placing a small blade of Grass in contact with the conductor of a powerful electrical machine, when it was proved, that the whole of the electricity generated by the machine was quietly carried away by the blade of Grass. It was also shown that the pointed forms of the leaves and other parts of plants, combined with their good conducting power, fitted them most admirably to receive or disperse electricity; and and hence electricians sometimes employed vegetable points in place of metallic ones for those purposes. To show this, a large Leyden jar was quickly and silently discharged, by bringing the pointed blades of Grass near its outer surface, and the brass knob at the top. In consequence of the high electric powers of plants, as might be supposed, they exerted a marked effect on the electric condition of the atmosphere, so that when an electroscope indicated abundance of electricity in the free open air, it indicated none in the vicinity of a tree with pointed leaves. In illustration of the good conducting power of vegetable matter, Mr. Sidney stated that it was impossible to give an electric shock to a circle of people standing on a lawn, as the electricity invariably took the shorter and better conducting course through the Grass; whilst there was no difficulty in giving a shock to any number of persons standing in a circle on gravel. 3dly. The apparent adaptation of the various parts of plants to different electrical uses, was pointed out. Thus, the first leaves of many plants are pointed and acute; others rounded or globose. The buds of most plants are pointed, or covered with a strong pubescence. Some plants, more especially those which grow rapidly, have an immense number of sharp points, or pointed hairs; whilst those which grow less rapidly, or are intended to meet the variations of the seasons, are less pointed, but often provided with dry thorns or prickles. As plants come into flower, they generally tend more to a globose form; the flower-buds are generally rounded, and the fruit, or seed-vessels, are seldom provided with acute points. It may, therefore, possibly be the case, that though electricity is favourable to plants at one stage of their growth, it is hurtful to them at others, just as is well-known to be the case with light, which is essential to them when full-grown, but is hurtful to them in the embryo state. The general phenomena of vegetation were then considered in relation to electrical agency. It would prove an interesting subject of inquiry, to examine in how far the rise of the sap in spring is influenced by electricity; it is certain that in spring, and before the leaf-buds are opened, whilst they still retain their pointed form, the air is dry, and in the most fitting state for electrical effects. Mr. Sidney then adverted to the singular powers which plants have of precipitating moisture from the atmosphere, an effect which he suggested might possibly be of electric origin, and endeavoured to strengthen this view by a number of ingenious arguments; amongst others, the remarkable cases described by Mr. Weekes and other electricians, in which showers of rain were brought down by the use of uninsulated kites. The lecturer next endeavoured to show that the forms and geographical distribution of certain species of plants indicate a relation to their electrical properties. Thus, for example, the numerous Pine and Fir trees which abound in high latitudes, present most admirable extensive discharging apparatus for receiving or dissipating electricity; and, supposing the preceding observations correct, such trees would exert most important and beneficial influence in equalising the electric condition of the atmosphere, and tending to produce a greater uniformity of temperature. Lastly, the subject was considered as a purely practical one, and the prospect which there exists of electricity being advantageously applied to stimulate or assist vegetation inquired into. Mr. Sidney seemed to think it very questionable whether electricity could ever be usefully applied to the improvement of agriculture, but, in horticulture (in forcing flowers and fruits), he thought there were prospects of decided benefit; and, therefore, that this branch of the subject was well deserving a careful experimental investigation. Electricity, both common and voltaic, might probably be advantageously employed in assisting the germination of old and dry seeds; and likewise, applied with caution, in the culture of exotics and other hothouse plants, its use might be productive of good results. The lecturer exhibited several plants which he had caused to grow in earth under the influence of a feeble current of voltaic electricity, generated by a plate of zinc and another of copper, connected together, buried in the soil beside the roots of the plants; and in the case of plants of Potato, Cineraria, and Mustard, which he exhibited, a very marked effect appeared to have been produced, as the galvanised plants were larger and much more vigorous than those without the plates. He stated that he had also produced a very good effect on Pines, Cress, and Fuschias, but had found plants of Pelargoniums killed by the application of the zinc and copper plates. The well-known experiment of Dr. Forster, on Barley, was then described, and shown to be a decidedly unphilosophical arrangement, so that it appeared very doubtful whether electricity had anything to do with the large increase of crop said to have been obtained by that gentleman. At the same time, the experiment was highly deserving of attention; and Mr. Sidney suggested that it would be well worth while to try experiments on electro cultivation, describing several which have been commenced in Norfolk and elsewhere, on more accurate principles; he also gave a brief sketch of some of the experiments on this subject, at present being made by Mr. Edward Solly, in the gardens of the Horticultural Society. The lecture was, throughout, worded in the most guarded and cautious language, the whole subject being new, and but very little understood; it was, therefore, brought forward rather with a view to excite attention, and induce further research, than to propound theories, or make startling assertions. Mr. Sidney very justly observed, that putting all theories aside, there appeared to be sufficiently numerous well-authenticated facts to warrant further inquiry and experiment.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

May 21.—The Second Meeting for the season took place in the Surrey Zoological Gardens. The Exhibition contained several objects well worthy of notice; and evinced a slight advance in plant culture. The following are its leading features:—Mr. Coppock's prize of 5*l.* was awarded to Mr. Pawley, of Bromley, for a collection of 18 plants, among which were several handsome Azaleas; a good Gompholobium polymorphum; Columnea gracilis, covered with small pink star-like flowers; Hardenbergia macrophylla, decorating, with multitudes of blossoms, a cylindrical trellis, about 6 feet in height, the showy Pimelea spectabilis; Ixora coccinea; and several Heaths.—In the *Nurserymen's Class*, in which there was no competition, Mr. Pamplin was awarded a prize for a group of 18 miscellaneous plants among which were Cytisus racemosus, a complete mass of blossom; Prostranthera violacea; Gompholobium polymorphum; a good Corræa ventricosa, and other plants evincing equally good management. — From Gentlemen's Gardeners there were four collections of 18 miscellaneous plants. The best group was from Mr. Young, of Camberwell, who sent a large Eutaxia myrtifolia, a good plant of the white Indian Azalea, and several well-grown Heaths, among which E. Humeana, covered with small cream-coloured star-shaped blossoms, was conspicuous. The second prize was awarded to Mr. Hamp, whose collection contained a well-bloomed Azalea indica alba; two good

plants of Pimelea spectabilis; the blue Leschenaultia biloba, and a well-grown Erica hybrida. The third prize was awarded to Mr. Jones, who sent among other plants a good Tropæolum tricolor, and a well-managed Chorozema spectabile. And, finally, the fourth prize was awarded to Mr. Kay, of Norwood, who sent a small Azalea variegata, in a lovely condition; a good Cytisus canariensis, a well-grown Statice mucronata, and two Cape Heaths. Mr. Fairbairn, of Clapham, sent a beautiful Erica ventricosa coccinea, and two small, but well-grown plants, of Leschenaultia formosa. Two small collections of Cape Heaths were produced by Mr. Doran, and Mr. Pawley, of Bromley; in that of the former were good plants of hybrida and Hartnelli; Mr. Pawley sent Williamsii, and a ventricosa coccinea, in good condition. Mr. Kay contributed a group of Roses, in pots; it comprised, among others, Emile Courtier, Ande. Hermosa, Eugene Jovin, Bréon, Gloire d'Anslem, and Desiree Rousselle.—Six specimens of Orchidaceous Plants were produced from the garden of J. H. Schroder, Esq., among them were Dendrobium densiflorum, with four handsome spikes of bright orange blossom; Calanthe veratrifolia; Vanda cristata; and the well-known Trichopilia tortilis.—Groups of four Specimen Plants were produced by Mr. Pawley and Mr. Allnutt, of Clapham. Those of the former, which won the first prize, were, a good Ixora coccinea; Erica Cavendishii, in luxuriant growth; Pimelea spectabilis; and a fine Aphelexis humilis. Mr. Allnutt sent Erica propendens, a large Zichya coccinea, and a good Epacris grandiflora.—For Single Specimens the first prize was awarded to Mr. Fairbairn for a noble Erica Cavendishii, about 3 feet in height and the same in diameter; and the second to Mr. Pawley for Stephanotus floribundus, covering a wire trellis 5 feet in height and 4 feet across, with snow-white blossoms, which contrasted well with the dark-green foliage. Mr. Kay also contributed a well-managed Mahernia incisa, about 3 feet in diameter, and covering the pot with its pendent branches.

In the *Amateurs' Class*, the large Silver Victoria Medal was awarded to Mr. Venables for 12 Tulips, four of each class; this stand contained La Tendresse, Washington, Sanzio, Lawrence's Friend, Ali Pacha, Manteau Ducal, Walker's King, Fleurs des Dames, Violet Alexandre, Rosa Bianca, Transparent Noir, Roi de Navarre. Second, Large Linnean Medal to Mr. C. Smith, Camberwell, for Queen Boadicea, Sanzio, Catalani, Transparent Noir, Addison, Man of Kent, Surpasse Catafalque, Milton, Aglaia, La Plus Belle, Triumph Royal, Violet Triumphant. A fine stand was disqualified, from an imperfection in one of the flowers, and other stands were exhibited of inferior merit. 12 finely-grown Pelargoniums were exhibited by Mr. Gaines, for which the first prize was awarded: the sorts were—Gaines's Lady Sale, Lady J. Douglas, Albina, Ivanhoe, Cyrus, Madaline, Nymph, Coronation, Victory, Emperor, Una, and Lord Mayor. The display of Heartsease was more numerous, and better than usual, and was well supported both by Amateurs and dealers. The first prize for Amateurs—the Small Silver Victoria Medal, for a stand of 24 blooms, was adjudged to Mr. Parsons, of Ponders-end, for Jehu, Princess Royal, Mulberry Superb, Gold Lace, Regulator, Black Bess, William Tell, Attila, Exquisite, Ceres, Duchess Richmond, Cyclops, Rufus, Warrior, Jewess, Mrs. Hooper, Duchess of Beaufort, Masterpiece Surpassed, Flora, Fancy, Curion, Hale's Dark, Sulphurea elegans, Delight. Second, Small Linnean, to J. Edwards, Esq., Holloway, for Hannibal, Regulator, Fanny, Cyclops, Charter, Pilot, Pizarro, Unique, Mulberry Superb, Eclipse, Warrior, Cotherstone, Jehu, Exquisite, Mary Jane, Venus Victrix, Isabella, Black Bess, Arethusa, Victory, Hale's Dark, Curion, Vivid, and The Prior. In the *Nurserymen's Class*, for stands of 48 blooms, the first prize, small Victoria Medal, was awarded to Mr. Hart, of Guildford; this was a very fine stand of flowers, and contained the following sorts:—Mulberry Superb, Jehu, Hale's Dark, Rufus, Queen of Whites, Mary Jane, Eclipse, Imogene, La Valliére, Success, Rival Yellow, William Tell, Fair Maid, Curion, Magna Charta, Pizarro, Romeo, Maid of Lodi, Warrior, Black Bess, High Admiral, Isabella, Dorothy, Nestor, Magicienne, Jason, Rob Roy, Pilot, Cream, Maid of the Mill, Beauty of Bucks, Princess Alice, Grand Duke, Bridesmaid, Wallace, Exquisite, King of Darks, Duchess Richmond, Regulator, Black Prince, Sulphurea elegans, Nymph, Trafalgar, Prince of Wales, Dark Perfection, Beauty, Cotherstone; and an extra prize was awarded to Mr. Agate, of Croydon, for a stand of 48 blooms; and several other collections were exhibited, not for competition. The seedlings were not numerous; Mr. Dalton contributed a stand of 12 seedling Tulips, from which two were selected; the first, a Byblomen received a first-class certificate, named Princess Alice; and second, a seedling Bizarre, named Prince of Wales. Both are delicate flowers, with but little marking; and from the state of the weather, the cups were too much closed to enable us to judge of the general form of the flowers. In Heartsease, a second-class certificate was given to Mr. Hart for a seedling named Consolation; a purple flower, of good form and substance, having a small white centre; and the same to Mr. Henbery, for a very dark self. Several others were exhibited, but the two above-mentioned were the only varieties selected by the judges. A second-class certificate was awarded to the Hon. and Rev. R. Wilson, for a green-edged Auricula, named Atlas; a flower with good paste, rather too little colour, the green very good, but the divisions of the corolla too pointed. The same gentleman exhibited several very good seedling Polyanthus. Several Cinerarias were shown, but they wanted novelty to recommend them to the judges. Among Miscellaneous articles were some dwarf Cacti; a collection of named Alpines from Mr. Wood, of Norwood; Black Hamburgh Grapes, from Mr. Chapman; and some Cucumbers and Vegetables from Mr. Gaines.

CHEMICAL SOCIETY.

May 5.—A short notice was read by the President (Prof. Graham), "On the presence of Phosphoric Acid in the Deep-well Water of the London Basin." This is the water from the chalk below the London clay. It is highly soft and alkaline, and remarkable for the predominance of soda salts over earthy salts among its solid constituents, as appears from their composition in the case of the well of the Castle-street Brewery, Longacre, which gave from 100 parts—carbonate of soda 11, sulphate of soda 53, chloride of sodium 22, carbonate of lime 11, carbonate of magnesia 2, silica 1, phosphate of lime 0·34, and phosphate of iron 0·43. The author was led to look for phosphoric acid in this water from the extremely rapid growth of green confervæ often observed in it; and he suggests the inquiry, whether the value of some waters for irrigation may not depend upon their containing phosphoric acid, this constituent having been hitherto overlooked in waters.

Reviews.

The Gardeners' Receipt Book: containing methods for Destroying all kinds of Vermin and Insects injurious to the Garden; with Preventives and Cures for the different diseases of Plants; and Directions for the Preservation of Trees, Fruit, Flowers, &c. &c. By William Jones. Groombridge. 12mo.

Essentially the greater part of these Receipts are to be found in the *Gardeners' Chronicle*, in which likewise the efficacy of many of them has been the subject of discussion. Receipts relating to insects and animals destructive of horticultural productions occupy the principal part of the work. We think it a great pity that these should not have been better arranged; for example, there is a preventive for red spider, p. 25, followed by how to make fire-proof mortar; then to kill thrips on Cucumbers; and the red spider occurs again at pages 43, 77, 80, and 88. This sort of higgledy-piggledy style is very objectionable. The work, however, has its use, and may be referred to with advantage by the gardener.

Sowerby's Supplement to English Botany.

(Continued from p. 294.)

Pl. 2873.—*Jungermannia calycina* (Tayl.) has been very wisely distinguished from the *J. epiphylla* by Dr. Taylor, by whom it was found in the county of Kerry, and it has recently been noticed in Cheshire. Described by Mr. Wilson.

Pl. 2874.—*Jungermannia Ralfsii* (Wils.) is a new species discovered in Cornwall by Mr. Ralfs, and named in his honour. It is nearly allied to *J. hibernica* (Eng. Bot. Suppl. t. 2750); considered by Mr. Wilson, its describer, as quite distinct.

Pl. 2875.—*Scrophularia Ehrharti* (C. A. Stev.). A plant confounded with *S. aquatica* in this country, but very distinct. It has long been known on the Continent, where it is taken for the true *S. aquatica* (Linn.), and the real plant of Linnæus is named *S. Baibisii*. Mr. Stevens ascertained from the Linnæan Herbarium that the Continental authors were in error, and accordingly named this species as above. It inhabits wet places, and is apparently rare in Britain. Described by Mr. Babington. Bab. Man. p. 218.

Pl. 2876.—*Fumaria micrantha* (Lag.) is probably to be found in many parts of Britain, although it has not as yet been noticed in many. It is very plentiful near Edinburgh, where it has been called *F. densiflora* and *F. calycina*; the former denominating a very different plant, and the latter being a synonyme of the present. This is one of our most beautiful species, but the plate of it, which we understand is considered by artists as of high excellence, does not come up to our ideas of a botanical figure. It is, indeed, the only plate in these six Numbers with which we are prepared to find fault. Described by Mr. Babington. Hook. Br. Fl., 14; Bab. Man. 14.

Pl. 2877.—*Fumaria Vaillantii* (Loisel.) is another Fumitory which is but little known to English botanists. This is frequently a troublesome weed on cultivated land, and from its very small flowers is devoid of any particular beauty. Described by Mr. Babington. Bab. Man. 14.

Pl. 2878.—*Hypnum cæspitosum* (Wils.), a new species of Moss found near Warrington in Cheshire, and described by Mr. Wilson.

Pl. 2879.—*Conferva Brownii* (Dillw.) was discovered many years since by the eminent botanist Mr. R. Brown. Described by Mr. Wilson.

Pl. 2880.—*Atriplex rosea* (Linn). The genus Atriplex is of so much difficulty, and so little attractive in appearance, that few botanists have studied the plants included in it. This is a common species on the sea-coast, but has been almost universally confounded with the *A. patula*. It is a most variable plant, but when once known will always be distinguished, without much difficulty, from its allies. The plate is very complete. Described by Mr. Babington. Hook. Br. Fl. 278; Bab. Man. 253.

(To be continued.)

Miscellaneous.

The Academy of Sciences.—The following curious letter from a wood-cutter, named Terebolt, of Brienne, was read at a late meeting of the Paris Academy of Sciences:—"Since it appears to be the fashion to make the Academy acquainted with everything at all extraordinary that is witnessed for the first time, a poor wood-cutter may be permitted to communicate an observation which has certainly been made also by some of my comrades, but which I have some reason to believe will be entirely new to *Messieurs les Academiciens*. I have remarked that whenever a flock of sheep passed near the place where we were occupied in stripping the Oaks of their bark for tan, it was absolutely impossible for two or three hours, and by the means which we usually employ, to strip off the bark of a diameter of more than three or four centimetres. My comrades attribute this strange fact, which I remarked for the first time more than five years ago, to the volatile sweating of the sheep, which has the property of coagulating instantaneously the sap near the bark, and to prevent its free circulation for two or three hours."—*Daily Paper.*

Foreign Potatoes.—A new article of import has been introduced by the Trent steamer, from the West Indies, in New Potatoes, which have been successfully cultivated in the Bermudas, for the early supply of the English market, grown from the best seeds. The climate and soil is well suited for their growth, and about a ton has been brought over as a sample by the above steamer. In boiling they are said to be even of superior quality to those of home produce, being less watery. The same vessel has also brought over a quantity of Pine-Apples, preserved in their juice in bottles, which are likely to be a very valuable addition to the kitchen.—*Daily Paper.*

Bees.

Weight of Hives.—"B. T." inquires in what position, and under what circumstances, bees can be kept during the winter, with the least consumption of honey? Is the following result *above* or *below* the average?—

Hive. No.	Weight, Aug. 21, 1844.	Weight, March 1, 1845.	Decrease.
1	40½ lbs.	27½ lbs.	13 lbs.
2	20 „	12¾ „	7¼ „
3	25 „	15 „	10 „
4	15 „	9 „	6 „
5	42 „	31 „	11 „

The following Table will show that the same hives increased more in the week ending April 24, than the whole decrease from August 21 to March 1:—

Hive, No.	Weight, April 17.	Weight, April 24.	Increase.
1	26 lbs.	39¾ lbs.	13¾ lbs.
2	11½ „	20 „	8¾ „
3	15⅝ „	28 „	12¾ „
4	8¼ „	15 „	6¾ „
5	29 „	43¾ „	14¾ „

Weather fair. Mornings cold.

How much of the above increase may be considered honey? and is so large an increase usual?—*Ans.* These statements are very interesting, and would have been more so, if the ages of the hives, and the pasturage for the bees had been given. However, there seems to be a fair average weight of honey, and possibly bees could not be kept during winter with less food. At page 227 it will be found that "Este's" hives decreased much more in weight than these; but that might be owing in some measure to the difference of the periods in which the weights were taken. "B. T.'s" hives might have increased a little in weight after the 21st of August. Besides the weight of pollen and of the larvæ, must be considered both in the rise and fall in the weight of the hives. The increase of brood would add materially to their weight before the 1st of March, especially in strong hives; otherwise it would appear that the bees collected more in one week than they ate during the winter.—*W.*

Nutt's Hives.—When any new discovery is made, it usually meets with its opposers. Thus, when Lavoisier proved that the Phlogiston Theory in Chemistry was false, it did not satisfy many persons who did not like to be found in error. Among these were Dr. Watson and Dr. Priestly. The former burnt his chemical books, and the latter strenuously defended the old theory to his last moments. When Sir H. Davy discovered that the oxy-muriatic acid did not contain oxygen, and named the substance chlorine, it was a long time before this discovery was generally received. Thus it is with Nutt's system of bee management. Persons in particular who have published books on bees, are unwilling to allow what they have given to the public is wrong. The honey exposed for sale which has been raised upon Nutt's plan, sells for more money than honey upon the old system. Such honey is to be seen in Mr. G. Neighbour's shop, in Holborn. What more satisfactory proof can there be that the new system of bee management does answer?—*C. A. A. Lloyd.*

——"W" states (p. 243), that the plan of side hives and boxes has been fairly tried, and proved to be defective; and at p. 274, "C. Lloyd" says the failure is attributable to the persons, and not to the system. Now I have frequently been informed by persons who have tried the above plan, that the swarming of the bees cannot be prevented by it—that the queen cannot with certainty be kept from depositing eggs in the side boxes—and that no such quantities of pure honey can be regularly obtained from each family of bees as have been stated in different periodicals during the past few months. Your correspondent, "C. Lloyd," would therefore, I have no doubt, much oblige apiarian readers if he would give the name and address of a few persons

who have effectually overcome the above-mentioned difficulties; and if he or they would furnish the details of management which have proved most successful in their practice with the system, so that those who have hitherto been unsuccessful may see wherein they have erred, and be enabled to pursue a more certain course in future. I have been recently informed by an apiarian friend, to whom Mr. Nutt is well known, that success cannot always be secured on the above points by following the directions given in his book, and who says that Mr. Nutt does not himself practise the same system of management which he has recommended—one variation being, that he does not confine his bees in the boxes during the winter; and 2dly, that he does not remove his boxes to a northern aspect in autumn. We are consequently led to presume that there are some peculiarities connected with the practical and successful working of the system that are not yet generally known. —*Philomela.*——If ventilating is the only new principle claimed for Nutt's hives, I ventilated with perforated tin plates on the tops of side boxes nearly 30 years ago, regulating the admission of air by means of wooden slides. In a book entitled "The True Amazons, or, the Monarchy of Bees," in my possession, published in 1712, and written by Joseph Warder, M.D., it is stated, that a Mr. Geddy obtained a patent in the reign of King Charles, for keeping bees in colonies in side boxes, with glass windows, without killing the bees, as in the old method. The same system has been practised with various modifications up to the present time. Some years since, instead of placing boxes at the sides, or on the top, I removed the stock-hive back, and placed an empty one in front made of wood. These stock-hives were made of straw, both round and square, and stood upon square frames an inch in thickness, having a door both in back and front; they answered admirably.—*G. L. Smartt.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stoves.—The increase of temperature previously recommended, and absolutely indispensable, to ensure the higher attainments in this kind of cultivation, will bring upon us, unless under the greatest vigilance, that formidable enemy of gardens—the red spider; unless a keen eye is kept upon every plant, in fact on every leaf, it will soon destroy the foliage. The best cure is prevention, therefore ply the syringe daily, especially in fine afternoons, and this will do much in preventing the enemy making a breach, but after he has really done so, sulphur and other effective applications must be had recourse to without delay. A rule in gardening which ought always to be acted upon at the spur of the moment is, never to allow an hour, much more a day, to pass without making an attack upon some kind of insect on the very first discovery. The amazing rapidity with which their multiplication proceeds, and of which all gardeners are well aware, should prompt us to immediate action. Clean plants is a great recommendation to a gardener; it proves his vigilance and his taste, and is half the battle in the cultivation of all plants under glass, for unless great application and attention were bestowed upon them daily, they would soon betray bad management. For further direction, see former Calendars.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The more tender kinds of plants newly planted out, should be protected from sun and wind and cold nights; if mats cannot be had, Laurel boughs will answer the purpose admirably. When the various beds are filled, the overplus plants will be invaluable for planting on rockwork and for mixing with herbaceous plants in borders; arranging each plant according to the height it will ultimately attain, and keeping the very dwarf kinds in front. Examine choice Roses, in order to ascertain that their buds are not injured or destroyed by maggots, and water with manure-water during dull weather. Divide and transplant Neapolitan Violets into rich borders, and shade with a few boughs until the plants are rooted. Sow Brompton Stocks, Sweet Williams, single Wallflowers, fringed Pinks, &c. Tie up Pinks and herbaceous plants as they require it. Rake and clean shrubbery borders. *Pits and Frames.*—As these structures are partly emptied by the removal of many plants to the flower garden, they must still be kept in constant use, for the nursing of Balsams, Cockscombs, and other choice annuals that are tender; also for many kinds of rare greenhouse plants, China and other Roses, which will grow freely if shaded and properly attended to; they succeed better in pits than in greenhouses during summer.—*B.*

III.—FLORISTS' FLOWERS.

The late cold winds have not allowed the blooms of the Tulip to make such rapid advances as they usually do at this season; they should be kept carefully sheltered from the prevailing winds, at the same time keeping up the canvass (where shaded) on the opposite side from which the wind blows. Generally speaking, Tulips are coming out of character this season. Attend to the directions given last week as to tying the blooms, impregnation, &c. &c. *Carnations.*—Continue to tie them up as they spindle, occasionally examining the knot, easing it when required. Keep the pots free from weeds, watering with soft, or pond water, when the plants require it; it is injudicious to give what is termed "a little and often;" when it is applied, give sufficient to moisten the whole mass. *Pinks* are rapidly advancing; tie to neat thin sticks; reduce the spindles, or flowering shoots, to one or at most two; supply the plants liberally with water as the buds appear. *Pansies.*—Continue to propagate as before recommended, transplanting seedlings as they get large enough. *Ranunculuses.*—A top-dressing of very rotten cow manure will be highly beneficial.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—The young stock in dung-pits will now be growing fast, and will require abundance of air to keep them firm—giving it early and taking it off early in the afternoon, at which time a powerful top heat may be indulged in, with a liberal use of the syringe. See that plenty of soil is in readiness for shifting, as a good deal of the stock will soon require a very liberal one. Repeat former directions as to those in houses, giving a slight shade for an hour or two, on very bright days, where circumstances permit. *Vineries.*—Take care to stop, tie, &c., where needed, those in the late houses, and to thin the berries very considerably of those Hamburghs, St. Peters, &c., intended to be kept through December and January. They will be found to keep much better if, when full swelled, no two berries touch: the bunches may not look quite so well on the dish, but damp in winter will be more easily dispelled, and rotting berries will not so readily infect their neighbours. Do not crop too heavily; be under rather than over the mark, if good keeping, well-swelled fruit be desired. Follow up as before with regard to Peaches and Figs, giving manure-water liberally to the latter, if not luxuriant; but if they are so, clean water in very moderate quantities, and rather frequently. Peaches in full crop and nearly finishing the stoning process, should also be liberally supplied with liquid manure. Cherries will in all probability be all gathered; if so, feed the plants well with manure-water, and give all the air possible.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

If wall trees of the stone-fruit kinds have been hitherto well managed, they will exhibit a regular development of foliage throughout. No time should be lost in removing superabundant shoots from any place where there are indications of an excessive flow of sap. It is in vain to suppose that a branch already too strong will exhaust itself by throwing out a number of vigorous young shoots; on the contrary, the latter, if suffered to remain, will establish fresh channels for a flow of sap adequate to maintain their excess of vigour; and this appropriation must of course take place at the expense of the weaker portions of the tree. The fruit of Peach and Nectarine trees may now be partially thinned; that of Apricots should be finally regulated. Raspberries usually send up many more shoots than are ultimately required; the weakest should be removed. *Kitchen Garden.*—As soon as the cutting from any of the Asparagus beds is discontinued, they should be manured with common salt. Prepare trenches for Celery, and plant Lettuces in the beds formed between. Attend to the thinning of plants in seed beds. Make fresh sowings of Kidney Beans, for, owing to the cold, those above-ground are not much to be depended on. Some Curled Endive may now be sown; also Knight's Protecting Broccoli; it is perhaps the hardiest and best late white variety.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—The late prevailing cold winds have, in many districts, retarded the barking of Oak. As the season for this important operation will soon be past, extra exertions will be required. The cleaning of new plantations, hedge-rows, and draining, must not be lost sight of, as opportunities occur. *Nursery.*—Secure newly-grafted plants, and last year's buds from the effects of winds by stakes; attend particularly now to the destruction of weeds in seed-beds and elsewhere; mulch and water newly-planted choice trees or shrubs.—*F.*

State of the Weather near London, for the week ending May 22, 1845, as observed at the Horticultural Garden, Chiswick.

May	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 16	10	30.238	30.234	63	45	54.0	N.	
Sat. 17	11	30 138	30.115	57	31	44.0	N.	.06
Sun. 18	12	30.056	29.851	59	42	50.5	W.	.07
Mon. 19	13	29.854	29.802	59	38	48.5	N.	
Tues. 20	14	29.849	29.841	59	41	50.0	N.	.27
Wed. 21	○	29.764	29.534	58	42	49.0	N.W.	.26
Thurs. 22	16	29.789	29 694	59	41	50.0	N.	.02
Average		29 957	29.870	49.4	40 0	49 4		.68

May 16—Overcast; cloudy; overcast and mild at night
17—Uniformly overcast; cold rain in afternoon; slight frost at night
18—Cloudy and cold; showery
19—Cloudy, with cold north wind
20—Cloudy and cold; showers and sunshine; hail shower between 2 and 3 P.M.; rain at night
21—Cloudy; cold, with heavy rain; very boisterous at night
22—Cloudy; showery; evening very fine.
Mean temperature of the week ½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending May 31, 184⁵

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 25	66.1	55.7	55.7	6	0.64 in.	1	9	—	1	1	4	3	—
Mon. 26	66 6	55.2	55.2	8	0.22	1	8	3	1	1	2	3	—
Tues. 27	68 2	56.9	56.9	10	0.44	1	7	4	1	1	3	1	1
Wed. 28	68.2	56.9	56.9	5	0.39	—	4	5	1	3	4	2	—
Thur. 29	66.0	55.8	55.8	8	0.97	1	7	1	2	1	4	3	—
Fri. 30	67.5	57.1	57.1	6	0.22	1	5	4	—	2	4	2	1
Sat. 31	68 8	57.9	57.9	7	0.38	—	5	2	—	3	4	4	1

The highest temperature during the above period occurred on the 25th, 1833, and 27th, 1841—therm 82°: and the lowest on the 25th, 1839—therm. 29°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ANIMAL OATS—We have again to thank some kind correspondents for supplies of these and similar seeds: we are more than abundantly provided.

ASPARAGUS—*W C*—No doubt it is best if cut early in the morning, and immediately removed to a cool, dark place till cooked.

BOOKS—*W C*—Rivers' "Rose Amateurs' Manual," and "The Tree Rose," reprinted from the *Gardeners' Chronicle*, with additions.——*A Young Gardener*—Paxton's "Botanical Dictionary."——*A Subscriber at Norwich*—Mrs. Loudon's "Gardening for Ladies." Use liquid guano, often applied in weak doses while the plants are growing. Make it by steeping a double-handful of the guano in *putrid* urine, stirring it frequently for a day or two, and diluted with twice its quantity of water.——*B C*—Loudon's Catalogue is more complete than any.

CACTI—*T S*—Your Cacti are not of importance; they are very inferior to Sir Philip Egerton's.

CAMELLIAS—*M A B*—The spot is very peculiar. Will you send us several specimens of leaves, including those least affected as well as some of the worst?

CELERY—*An Anxious Inquirer*—We regret to say we have not at hand any analysis of Celery.

CHICORY—*A W*—The manner of managing this has been fully described at p. 169 of the present year.

GARDENERS—*Bp. Auckland*—The paper has not been preserved, and we can give no information concerning it. As no names are mentioned we do not see how any one can say that the inquiry related to himself. It might have related to a person in the Hebrides; and was merely a general question, to which a general answer was returned.

INSECTS—*Valisneria*—I am obliged by the materials transmitted, as they enable me to inform you that the troublesome little animals are not insects, but two species of animalcules. Put some unslaked lime into the water, adding fresh portions daily until the animals are killed. You can best judge whether it will be injurious to the plants. *R.*——*W Prestoe*—It is a beetle named Leiodes cinnamomea, figured and described in Curtis's "British Entomology," fol. & pl. 251. If you will favour us with a Truffle when the maggots are in them, we will make it a subject for an entomological paper. *R.*——*A Tinsley*—By all means, let us have the receipt. Gardeners will be much obliged to you for it, if effectual.

LATIN—*R W S*—There is no necessity for a gardener to learn Latin; and he may generally employ his time much better. If, however, he has leisure and aptitude it may be useful; for all knowledge is useful in one way or other. He had better study botany and natural philosophy.

MORPHOLOGY—*G M Elliott*—Your Calceolaria is a return to regular structure from that peculiar irregularity which the Calceolaria habitually produces. The case is well-known; and is analogous to the "Peloria" of the common Toad-flax. All irregular flowers are deviations, either accidental or habitual, from a regular type.——*W H*—Your Auricula is very curious. The inverted corolla is of the same nature as the inverted involucrum of Armeria. The scales at the base of the ovary are the five stamens which are commonly abortive; the circumstance of their bearing ovules is a proof of their being of the nature of carpels as well, and that carpels and stamens have one common origin. In the other specimen the axis is lengthened preternaturally, owing to some disturbing cause, and the sepals are disunited and reverting to their typical state of leaves.

MUSHROOMS—*A Lady*—Mushrooms that grow to a large size have, when young, the white part thick, and the stems large, such as you describe is the case with yours. If you, therefore, allow them to grow a little older, the gills will increase in size, and the disparity which at present exists between them and the white part will diminish.‖

NAMES OF PLANTS—*L Stat*—It is only a pale variety of Ranunculus bulbosus; and of no importance as far as we can discover.——*Anon*—Dendrobium moschatum.——*G B*—Arthropodium cirrhatum. Probably you keep it too cold.

OYSTER PLANT—*T D*—We do not know this plant. If you wish to know what it is you must send a specimen in the autumn, with flower and ripe fruit upon it.

RED SPIDER—*F B*—This pest may be destroyed by means of sulphur; the best way of applying it is to heat your flues or hot-water pipes, and then, while they are quite hot, to wash them with lime and flowers of sulphur. It may also be destroyed by means of the fumes of bruised Laurel leaves—see page 765 of our last years' volume.‡

ROSES—The Tree-Rose is now ready, neatly done up in cloth, price 4*s.* 6*d.*——*S S*—Some spring Damask Roses are called Perpetuals; but the real Perpetuals seldom flower earlier than June.

SEEDLINGS—*A Constant Reader*—Schizanthus is pretty, and very like Pressii; but it is not to be kept constant, and is therefore of no real value.

SPOT ON PELARGONIUMS—*W E*—The spot on the leaves of the Pelargonium is caused by cold and damp. It has been stated that plants have been recovered by watering them with a dilute solution of nitro-muriatic acid; but no sure remedy has probably yet been discovered. In the meantime, we would refer you to last years' volume, where the subject has been treated of in detail.‡

TOADS—*F B's* note is gone to "Ruricola."

WARD'S CASES—*G*—You *may* grow Mustard and Cress in a Ward's case in the dark, but it must be cut very young, or it will become mouldy. A much better plan is to put the case on the deck or in the main-top, and keep it closed while the salad is growing. It may be made the means of supplying a ship's crew with fresh vegetables for a long voyage; and you may raise small Lettuces, Spring Onions, Lamb's Lettuce, and young Parsley, as well as Mustard, in such a place. If you have room on board, you would do well to have two or three such cases, so as to ensure a succession. In sending seeds to sea, pack them loosely in coarse canvas bags, and hang them to a nail in a cabin or somewhere between the decks, where they may be constantly ventilated. On no account put them into bottles or tin cases. They only require to be kept dry and well exposed to the air.

MISC—*Sub*—Tacsonia mollissima is a greenhouse climber; the Petunia, although not strictly speaking an annual, is usually regarded as such; the Cineraria is a herbaceous plant. The quantity of hen-house refuse to mix with 50 gallons of water altogether depends on the purposes for which it is to be applied, and we cannot give you any specific directions in the absence of that information.‡——*P H*—You will find a select list of hardy Annuals given at p. 133 of the present year.‡——*A W*—Received; the Grass is some Panicum, and we fear will not be willing to hybridize with Wheat.——*T Bishop*——We do not think that it is fair to say that better cultivation is found near London than in the provinces; but it might be fair to say that there is less bad cultivation near London. Where are plants better grown than at Bromley, in Kent; or Heaths than in Edinburgh; or Orchids than at Manchester; or vegetables than in Cornwall? No, no; the Londoners are good gardeners, but there are quite as good in the country. ——*J H*—Several articles on the management of gold fish have been given in previous Nos. of our volume for this year, particularly at pp. 70 and 188.‡——*R D*—Much obliged for the suggestion.——*Novice*—Latter's Victory of England is a black spine Cucumber.‡——*A B C*—The charge is 6*s.* 6*d.* per quarter if paid in advance. Our agent will supply you.

SEEDLING FLOWERS.

CACTUS—*Y Y*—No. 7 is a handsome seedling; fine in colour, having the purple tinge confined to the bottom of the flower.*

CALCEOLARIAS—*J B*—A spotted variety of good form, with nothing uncommon in the marking.*——*C M*—a large and handsome flower—too flat for its size.*——*C N*—The spotted varieties have been so frequently produced by different growers, that some peculiarity, either in colour or marking, is necessary in new varieties, to make them worthy of general cultivation. Your collection is composed entirely of flowers of different degrees of yellow and brown. Some are too faint in colour, others too much resemble each other; for instance 13 and 3 are too much alike, but inferior to 16; and 14 is much better than 10. The following numbers in your collection have bright yellow grounds, with the spotting very distinct and varied, and are well worthy cultivation, viz.:—4, 5, 7, 14, 15, and 16.*

CINERARIAS—*C M*—Both your seedlings are high-coloured flowers. The crimson, with purple points to the petals, is very superior to the other in form, and more uncommon in colour; a very good variety.*——*C A*—3 and 4 are the best specimens among your seedlings; these are flowers of good colours; they all bear a strong resemblance to others sent us during the season.*——*A P*—All your seedlings are clear and distinct in colour. 5 is irregular in the growth of the petals, which also are too much notched at the termination; 6, 7, and 8 are too starry; and 9, though too starry, is an improvement upon Waterhousiana, which it resembles in colour. 1 is rather too small; 2, 3, 4, and 10 are all good in colour, and with the exception of 3, which has the points of the petals too much divided, they show an evident improvement in the form of the flower.*

FUCHSIA—*R P*—Your seedling is a pretty and showy variety, a little coarse in the sepals, and with rather too much colour in the tube.*——*H M*—The seedling having a white tube, appears to be a coarse and ill-proportioned flower; the seed-vessel and tube being too stout, and the sepals too small; otherwise the colours are good. The variety with a pink tube is a good flower, but too much like many others.*——*W B & Co*—Your light-coloured seedling is a large and handsome flower, having a vermillion corolla tinged with purple; it has rather too much colour in the tube.*

PANSIES—*Y & Co*—No. 3. Pure white ground, with light-purple margin to all the petals; this is very pleasing in colour and promises a little novelty; at present it wants size, but the bloom is evidently young and cramped in its growth. 4. Too coarse and undecided in its marking. 5. Very pleasing in colour, but the marking on the bottom petal requires to be more decided and perfect for a show-flower. 6. Large and good dark self.*——*B F*—The double Pansy is a curiosity only, and the beauty of the flower is not increased by having two additional lips decreasing in size and filling up the centre of the flower; we have never before seen a double Pansy so large or so well formed, but we consider it of no value.*——*Inquirer*—The specimen sent is a first-rate variety.*

RHODODENDRON—*J D*—The qualities we admire most in your seedling is the shallow cup-like form of the flowers, and the compact form of the head of bloom; the colour of the flowers wants brilliancy.*——*X Y Z*—Your hybrid from *campanulatum* is a large and handsome flower, white ground, having the margin of the segments tinged with delicate lilac, and the interior of the upper division of the corolla strongly spotted with maroon; the single blooms sent indicate a very ornamental variety.*

ERRATUM.—In the article "Oncidium sanguineum," at p. 313, col. *a*, line 43 from bottom, for "O. Hernhauseni," read "O. Huntianum."

POTTER'S GUANO SUPERIOR TO PERUVIAN proved by the following TESTIMONIAL just received :—
"Arthurstown, April, 1845.—Last season I distributed a large quantity of Guano, principally Peruvian, to the tenantry, to induce them to get into the green cropping system. I also ordered two tons of yours, through a Waterford house. It proved a good article, indeed, *much superior to the best Peruvian*.—Yours most obediently, WM. LUMSDEN."
"To Mr. Potter, 28, Upper Fore-street, Lambeth."
The price of POTTER'S GUANO is now much under that of Peruvian, and those who study economy will give it the preference. Mr. POTTER has also testimonials from Lord Zetland, Mr. C. Porcher, of Cliffe, Weymouth, and others, proving the superiority of his Manure over the Peruvian Guano, which commands so high a price
Orders addressed as above instantly attended to, and a very considerable allowance made when a quantity is taken.
POTTER'S LIQUID GUANO, sold by Chemists and Seedsmen, 1*s.* 9*d.* per Quart Bottle, with directions.

The Agricultural Gazette.

SATURDAY, MAY 24, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	May 28	Agricultural Society of England.
THURSDAY,	May 29	Agricultural Imp. Soc. of Ireland.
WEDNESDAY,	June 4	Agricultural Society of England, Highland and Agricultural Society.
THURSDAY,	June 5	Agricultural Imp. Soc. of Ireland.

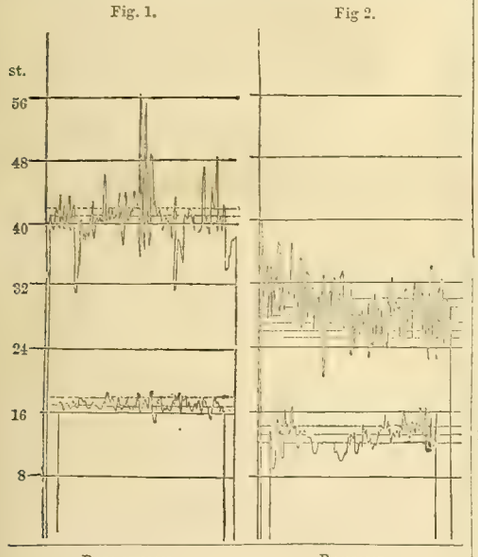
FARMERS' CLUBS.

May 26	W. Market	
May 27	Bromsgrove	
May 29	Ottery St. Mary	
June 2	Stewponey, Usk, London	
June 7	Collumpton	

THE DRAUGHT OF A PLOUGH is obviously made up of two parts, one of which is owing to the mere WEIGHT OF THE IMPLEMENT, and the other to the work done by it. If, for instance, the draught of a plough when at work be 30 stones, and if, when merely drawn along the empty furrow, it be 10 stone, then, it is plain, that of the whole force—30 stones—required to work the plough, 20 only are spent in the operation of ploughing, and as much as 10 in merely overcoming the weight of the implement. And this is greater than the proportion which, in general, obtains between the really useful and effective part of the horse-labour spent in ploughing, and that part—in some measure, of course, a *necessary* evil—incurred in the mere movement of the tool by which the work is done. The subjoined figures illustrate this :—In the case of BARROWMAN'S swing-plough (fig. 1), the whole draught being 41 stones, that of the implement drawn along an empty furrow (lower line in fig. 1), amounts to 17, or 12 out of every 30; and in the case of RANSOME'S one-handled one-wheeled plough (fig. 2), the whole draught being 28 stones, that of the implement drawn along an empty furrow amounts to 13, or nearly 14, out of every 30; in other words, in the latter case, 46 per cent. of the labour of ploughing is spent in the mere movement of the machine by which the operation is performed.

FURROW 4 × 9

Fig. 1. Fig 2.



BARROWMAN. RANSOME.

Now, with regard to machines of carriage, it haslong been a problem of *acknowledged* importance, how, in their manufacture, to unite the greatest lightness with the requisite strength. In these, when loaded, rarely more than 30 per cent. of the horse-labour in drawing them is spent on the weight of the implement; at least 70 per cent. of it is *usefully* applied. Thus we have one-horse carts, weighing only 8 cwt., capable, on a road, of carrying 25; and we have waggons, calculated for a load of 2 tons, weighing only 18 cwt. In these cases the foolishness of using a clumsy and heavy implement is sufficiently palpable; how much more so ought it to be in the case of the plough, the draught-labour of which (when empty) is not, as it is of the cart, only 16 or 18, but, as we shall shortly see, as much as 90 or 100 per cent., on the weight of the implement.

Before exhibiting the bearing of the following diagrams on this subject, let us notice the conclusions connected with it, which previous observers have arrived at. The editor of Bürger's "Economy of Farming" states, that DOMBASLE found the influence of the weight of the plough on the power required for its progress to be wholly insignificant, "since the dynamometer showed no difference when the same plough, weighing 107 to 114 lbs., was gradually loaded with from 89 to 113 lbs., if the weight was always laid on *the point of weight of the plough*," *i.e.*, we suppose, if the added weights were so arranged that the plough remained balanced. This fact can only be used now as an illustration of how necessary it is to the usefulness of all such experiments, that a trustworthy instrument be employed to measure the draught of the implements tested. We *know* now, from Mr. PUSEY'S experiments, that the power required to draw a plough *does* depend *greatly* on its weight; and the reason why DOMBASLE did not come to the same conclusion must have been that his dynamometer did not indicate the truth.

The following are the results of Mr. PUSEY'S trials on this point :—

	1. Gross draught in furrow, 5 × 9.	2. Surface draught, which is to be deducted.	3. Weight of ploughs in stones.
1 Ferguson's	19 stones	12	15
2 Clark's	17	12	15
3 Hart's	12	3	12
4 F. F. wheel	13	8	13
5 F. F.	16	10	10
6 King's swing	15	8	8
7 Do. wheel	17	5	10
8 Rutland	16	8	0
9 Old Berkshire	21	8	15

What enormous per-centages of the whole horse-labour here exerted do these results exhibit as being swallowed up in the mere movement of the implement employed. In one of these cases not 30 per cent. of the horse-labour spent was really useful to the farmer; nearly three-quarters of it was occupied in merely moving the plough!

Mr. PUSEY'S experiments on this subject were the first in this country that attracted the attention of plough-makers, and they have thus exerted a very useful influence. But even here, comparing the 2d and 3d columns in the above table, we see some anomalous discrepancies which indicate either the inaccuracy of the dynamometer employed, or the incompetency of the ploughman; the draught of the plough in an empty furrow is simply owing to the friction of a surface of iron on one of soil, and as friction is known to be directly proportional to the weight which occasions it, either the indication of the dynamometer must have been inaccurate, or there must have been some cause of draught besides friction to make one plough (HART'S), weighing 12 stones, require only 3 stones of draught, while another plough (CLARK'S), weighing 15 stones, required draught-labour to the amount of 12 stones. We mention this because of the striking manner in which the testimony of the following diagrams on this subject is borne out by calculations on theoretical grounds; this not only gives confidence in the accuracy of our results, but indicates the superiority of self-recording dynamometers over all in previous use.

The following diagrams will occupy so much room that we must be as short as possible in any further remarks we have to make, and we shall, therefore, exhibit at length the bearing of only one set of figures on this subject, and simply publish the others, leaving any, who may be sufficiently interested to study them, to draw their own inferences. The figures at the bottom of the page (3 to 7), exhibit the draught of the BEVERSTONE plough—weighing 9 stones—when in a furrow 4 inches deep and 9 wide, empty (lower line in fig. 3), when at work (fig. 4), when loaded to weigh 16 stones (fig. 5), when loaded to weigh 25 stones (fig. 6), and lastly when loaded to weigh 37 stones (fig. 7).

Now, it appears from fig. 4, that the working draught of the BEVERSTONE plough at this depth, was 26½ stones, and as its draught when empty (fig. 3) was 9 stones, the difference between the two, *i. e.* the labour of turning over the furrow-slice by this implement, must be put at 17½ stones. Well then, as the draught of the plough, weighing 9 stones, was just 9 stones, its draught when it was weighted to 16, 25, and 37 stones, should just have been 16, 25, and 37 stones respectively; add to these the 17½ stones representing the difficulty of the work done, and you have, under the circumstances represented in figs. 4, 5, 6, and 7, the draughts respectively of 26½, 33½, 42½, and 54½ stones, as those, which, according to calculation on theoretical grounds, should have been represented by these diagrams. The fact is, these diagrams represent the draught of this plough thus gradually weighted, to have been successively 26½, 28½, 40, and 52 stones; and, considering that there was no security, except what was afforded by the skill of the ploughman, that the implement was held at a uniform depth during the continuance of these experiments, there is a sufficient agreement here between fact and theory to warrant confidence in our results. We have published the rest of our diagrams on the next page, and simply tabulated their evidence upon this interesting subject without comment. It will be understood that wherever two lines are engraved on the same figure, the upper one refers to the draught of the plough at work, and the lower one signifies the draught of the plough in an empty furrow.

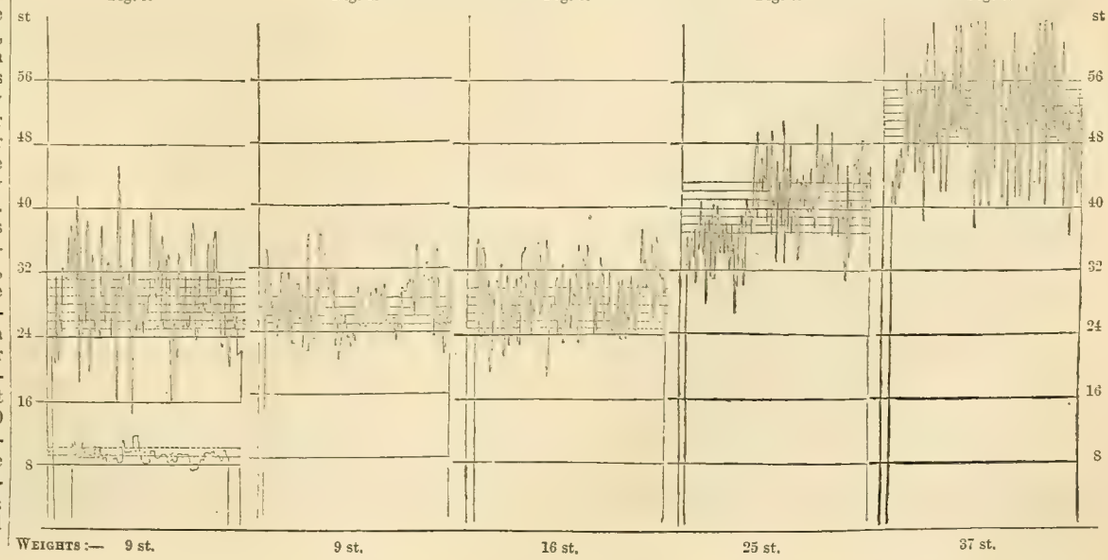
The last six figures are not mentioned in the Table on the next page—they refer to a different depth of ploughing—but our readers will see that *they* also exhibit the influence of the weight of the plough upon its draught. The latter is increased upon every increase of the former.

Our remarks have already reached too great a length; we must bring them to a close; and this we do by simply calling the attention of the manufacturers of ploughs to the results of the subjoined Table. It there appears that a force of from 70 to 100 per cent. of the weight of the plough is required simply to move it. How important, then, that the necessary strength of the implement should be united with as little weight as possible! And how neglected must this point hitherto have been, when we find, so far, at any rate, as the plough is concerned, that from 30 to 50 per cent. of the whole horse-labour of cultivation is lost in the mere movement of the machines by which it is effected!

The next point for consideration will be the influence of the depth on the labour of ploughing; to this we shall soon direct attention.

BEVERSTONE WHEEL PLOUGH. FURROW 4 × 9.

Fig. 3. Fig. 4. Fig. 5. Fig. 6. Fig. 7.



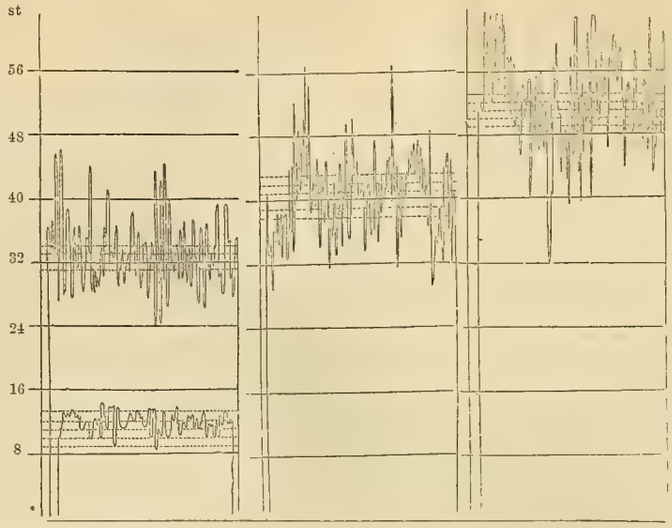
WEIGHTS :— 9 st. 9 st. 16 st. 25 st. 37 st.

FURROW 4 × 9

1. Reference to Figures	2&4	5	6	7	8	9	10	11	12	Totals.
	BEVERSTONE'S.				FERGUSON'S.			BARRETT'S.		
2. Whole Draught of Plough	263	285	40	52	33	40½	52	stones. 25	stones. 30	stones. 3274
3. Part of Draught owing to work done	17½	17½	17½	17½	21½	21½	21½	15	15	164½
4. Part of Draught owing to weight of Plough	9	11	22½	34½	11½	19	30½	10	15	163
5. Weight of Plough	9	16	25	37	15½	31½	43½	9½	16	194
6. Proportion of that part of the Draught caused by weight to the weight drawn; putting the latter at 100	100	168.8	90	98.2	74.2	60.3	70.1	105.2	93.1	84

FERGUSON'S SWING PLOUGH. FURROW 4 × 9.

Fig. 8. Fig. 9. Fig. 10.



WEIGHTS :— 15½ st. 31½ st. 43½ st.

BARRETT'S D. P. FURROW 4 × 9.

Fig. 11. Fig. 12.

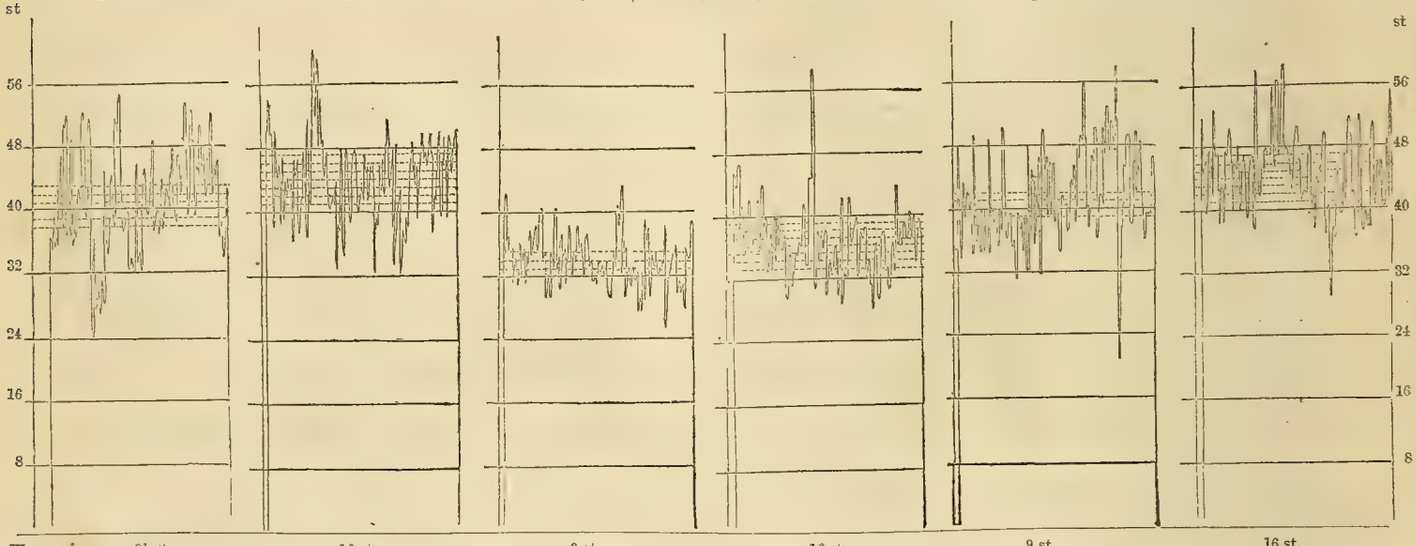


9½ st. 16 st.

FURROW 6 × 9.

WILKIE'S SWING PLOUGH. BEVERSTONE WHEEL PLOUGH. BARRETT'S WHEEL PLOUGH.

Fig. 13. Fig. 14. Fig. 15. Fig. 16. Fig. 17. Fig. 18.



WEIGHTS :— 9½ st. 16 st. 9 st. 16 st. 9 st. 16 st.

EXPERIMENTS ON PURPLE-TOP ABERDEEN TURNIPS.

TEMPLEMOYLE FARM, 1844.

Manures.	Quantity applied per Cunningham Acre.	Cost of Manure per Cun. Acre. £ s. d.	Produce of Bulbs topped and tailed, per Cun. Acre. ton. cwt. qr. lb.	Value of Bulbs, at 10s. per ton. £ s. d.	Increase in Weight per Acre, above no Manure. ton. cwt. qr. lb.	Increase in Value per Acre, above no Manure. £ s. d.
Common Guano	6 cwt.	4 2 6	25 0 0 0	12 10 0	12 6 2 7	6 3 3½
Potter's Guano	5 cwt.	3 15 0	26 1 1 12	13 5 2	13 16 3 19	6 18 6½
Bones	40 bushels.	4 0 0	25 0 0 0	12 10 0	12 6 2 7	6 3 3½
Law's Superphosphate of Lime	5 cwt.	1 15 0	21 15 0 22	10 17 7	9 1 3 1	4 10 10½
Bones, dissolved in Sulphuric acid	80 lbs. } 40 lbs. }	0 8 2	16 12 1 12	8 6 2	3 18 3 19	1 19 5½
Farmyard Dung	30 tons.	4 10 0	12 13 1 21	6 6 8½	.. .. ..	.. .. ..
No Manure	..	..	30 0 0 0	15 0 0	17 6 2 7	8 13 3½
Farmyard Dung and Bones	15 tons. } 20 bush. }	4 5 0	25 0 0 0	12 10 0	12 6 2 7	6 3 3½
Farmyard Dung and Common Guano	15 tons. } 3 cwt. }	3 15 0	26 1 1 12	13 5 2	13 16 3 19	6 18 6½
Farmyard Dung, and Potter's Guano	15 tons. } 2½ cwt. }	4 2 6	25 0 0 0	12 10 0	12 6 2 7	6 3 3½

The soil on which the above manures were tried is a heavy clay, incumbent upon a retentive clay subsoil, drained and subsoil-ploughed in 1843; and this being a rather unfavourable combination for the growth of Turnips, will in some degree account for the smallness of the produce. The seeds were sown and manures applied on the 15th June. The bones were dissolved in the sulphuric acid, after it had been diluted with three times its bulk of water. The two last were manured in the ordinary manner, before the application of the guano's.

EXPERIMENTS IN TOP-DRESSING CUP POTATOES.

TEMPLEMOYLE FARM, 1844.

Manures.	Quantity applied per Cunningham Acre.	Cost of Manure per Cun. Acre. £ s. d.	Produce in tons, &c., per Cunningham Acre. ton. cwt. qr. lb.	Value of Produce at 2½d. per stone. £ s. d.	Increase in tons, &c. above no top-dressing. ton. cwt. qr. lb.	Increase in value above no top-dressing. £ s. d.
Farmyard Dung alone	20 tons.	4 10 0	7 10 0 0	12 10 0	... ...	... ...
Farmyard Dung and Soot	30 tons. 40 bush. }	5 6 8	10 7 0 16	17 5 3	2 17 0 16	4 15 3
Farmyard Dung and Common Guano	30 tons. 3 cwt. }	6 0 0	11 7 3 12	18 19 9	3 17 3 12	6 9 9
Farmyard Dung and Potter's Guano	30 tons. 2½ cwt. }	6 7 6	9 7 0 16	15 11 11	1 17 0 16	3 1 11

The Potatoes were planted the 7th May, with the farmyard manure, in the usual manner, and the guanos and soot applied as a top-dressing before the first moulding in June.

—John Campbell, in Londonderry Sentinel.

[To this we add the following, exhibiting an important inference from the above experiments :]

TURNIPS.

1. Manures.	2. Cost of Manure per acre. £ s. d.	3. Increased Value of Produce above no Manure. £ s. d.	4. Difference between cols. 2 & 3. £ s. d.
Common Guano	3 0 0	4 11 7	1 11 7
Potter's Guano	3 15 0	4 10 6	0 15 6
Bones	4 0 0	6 3 3½	2 3 3½
Law's Superphos. of Lime	1 15 0	4 10 10½	2 15 10½
Bones dissolved in Sulphuric Acid	0 8 2	1 19 5½	1 11 3½
Farmyard Dung	4 10 0	8 13 3½	4 3 3½
No Manure	...	...	...
Farmyard Dung & Bones	4 5 0	6 3 3½	1 18 3½
Farmyard Dung & Guano	3 15 0	6 18 5½	3 3 5½
Farmyard Dung & Potter's Guano	4 2 6	6 3 3½	2 0 9½

POTATOES.

1. Manures.	2. Cost of Top-dressings per acre. £ s. d.	3. Increase in Value above no Top-dressings. £ s. d.	4. Difference in columns 2 and 3. £ s. d.
Farmyard Dung alone	...	...	...
Farmyard Dung and Soot	0 16 8	4 15 3	3 18 7
Farmyard Dung and Common Guano	1 10 0	6 9 9	4 19 9
Farmyard Dung and Potter's Guano	1 17 6	3 1 11	1 4 5

BONES AND SULPHURIC ACID.

FROM what has been said and written lately on this subject, it is probable that not a few farmers will be dabbling in solving these hard fertilisers ; and for fear many in doing so will get their fingers burnt, we may venture to suggest a few hints for consideration before the experiments are made. First, perhaps a more dangerous chemical agent than sulphuric acid, better

known as oil of vitriol, can scarcely be conceived. Few farmers possess the requisites for performing the process, and not a few will allow the solution—the best portion (?) to escape—and allow the residuum to remain.

The great saving to be effected, and the cheapness of the substance, will be a great temptation to dabbling—but what prospects, may it be asked, are there of success?

Mr. Hannam has selected the experiments of Mr. Williams, Mr. Geddes, Dr. Monson, the Duke of Richmond, Mr. Fleming, Mr. Finnies, and his own.

Mr. Williams' experiments are evidently unfair. The 20 bushels of bones are drilled, while those with the sulphuric acid are placed in the furrow and ridged, thus evidently increasing the depth of the soil where the latter was used; why, this plan is adopted in light and weak soils for this very purpose! In his second experiment, he says, the bones and sulphuric acid gave a good crop for the quality of the ground—no weight given—while nothing gave a very inferior crop. No wonder.

Mr. Geddes' experiment does not mention how the application was made, but most probably it was made in the same manner, and is worth as much.

Dr. Monson's experiment does not mention the mode of application.

The Duke of Richmond's experiments do not give the information beyond this, that 8 bushels of bones and 83 lbs. of sulphuric acid, sown, give 11 tons; the same as 16 bushels of bones alone. 2 bushels of bones, with the same quantity as before of sulphuric acid, give 12 tons 4 cwt. Most probably the smaller quantity was ridged, while, when they were sown on the ground, less quantity of Turnips is produced where more bones are used, and no advantage is shown over bones alone. Nothing is said of the weight the duke's rich soil produced when nothing was applied.

Mr. Fleming and Mr. Finnie's experiments do not give the information.

In Mr. Hannam's, 16 bushels of bones were drilled with the seed; in all the other cases of the solutions they are carefully ridged. Here, evidently, there is no comparison calculated to meet the question.

The conclusion, therefore, is anything but correct, for it is manifestly utterly useless to make an experiment or series of experiments, and not place the trials on an equal footing. The difference in depth of soil between Turnips sown level and Turnips ridged is from 4 to 6 inches—and every farmer knows the very great difference in a crop this will make.

The prize Essay of the Highland Society, by Mr. Robert Russell, of Kilross, sets this matter probably more nearly right than anything before given in fair comparison; and it is by no means favourable to the nostrum, which perhaps as much deserves the name of quackery, as anything yet introduced. His carefully made, and philosophically described, experiments—when a comparison is fairly instituted, are, in effect, as regards the raw and dissolved bones this:—

On sandy Oats.	bush.	lbs.
112 lbs. of bone-dust produced	72	20
26 lbs. of sulpuric acid 20 lbs. of bones	61	30
Difference in favour of bones 11 bushels.		
On Hopetoun Oats.	bush.	lbs.
20 lbs. of sulphuric acid 20 lbs. of bones	34	36
Nothing	38	12
Sulp. acid 4 bushels worse than nothing.		
On Turnips 1-7th acre.	cwt.	lbs.
Bones (quantity not given) produced	19	14
Dissolved bones as above	10	52
Difference in favour of bones 8½ cwt.		
On Turnips ¼ acre.	cwt.	lbs.
Bones 3 bushels	34	12
Dissolved bones (13 bones, 9 sul. acid)	22	40
Difference 12 cwt. in favour of bones.		

It may be mentioned, by the way, that Mr. Russell repudiates very properly Dr. Madden's notion, that the continued application of bones tends to injure the land.

Much caution is evidently necessary in risking a crop on evidence, the positive part of which is so very vague and unsatisfactory; and the negative part of which casts so much doubt on the conclusion, as to render it folly to risk any further trial than a mere small experiment; or leave it to those who do not care about a crop to make it, and not for those who have rent to pay.

That the action of sulphuric acid alone on soils may be very beneficial, I doubt not. It may be a manure—a very dangerous one—but its action on some soils, in converting the lime and magnesia in them from carbonates to sulphates, and in assisting in dissolving many material constituents of some soils, it is impossible to doubt; but to suppose it effects anything by merely dissolving the bones is far-fetched, and unworthy of credit.—*W. E. W.*

We have also received another communication on this subject, entitled "A Mare's-nest found by the Royal Agricultural Society," from a correspondent who signs himself "D.—One who calculates as he goes." He writes as follows:—"The best experiment ever made in agriculture," as Mr. Pusey calls it, "has resulted in this—that 1 quarter of bones, macerated and dissolved in its weight of sulphuric acid and 1 ton of water, is equal, for the Turnip crop, to 2 quarters used dry. Wonderful! I am astonished! not, however, at the fact that 1 quarter of bones so dissolved and mixed should, in immediate effect, equal 2 quarters used dry, but at the Council of the Royal Agricultural Society not having seen that in the purchase of the acid, the cost of the labour expended (1st, in macerating the bones; 2dly, in adding the acid and water; and 3dly, in carrying out and applying the mixture over the land), and in the expense of carts and tanks (which must be made on purpose), the saving of half the bones will be swallowed up; and also at their not having taken into account that, whilst dissolved bones can be of use only to the first crop, the dry bones are serviceable to the corn afterwards; so that the use of the former deprives the land of the portion of the 2 quarters which would remain for the benefit of the succeeding crops.

"I am puzzled to account for so serious a mistake as the application of the terms 'important discovery—economical use of bones,' to such experiments. Was there not one practical farmer, versant in figures, among the Council, to calculate charges, and prevent such misleadings. For mistakes, as these, involve serious consequences; and their mischief extends over considerable time. Let us suppose a farmer of 300 or 400 acres made anxious by his losses from the Tariff and new Corn-laws—he has found no remuneration, in consequence, in feeding of stock—and looks to other means than the rearing or fattening of cattle to create the manure his land requires. He sees Mr. Pusey's report, and his landlord and others having told him the great things science and chemistry will do for him, he sets to work—he provides the necessary tanks and water-carts, lays on the water, and buys the acid; but, then, should he find his expenses not diminished, and his corn crops dwindled for the want of manure, he will have wasted his money, impoverished his farm, and rail at all improvement the rest of his life.

"Pray make haste to let this appear, that my view of the matter may be known in time to prevent much mischief from this important discovery."

[We shall very shortly consider this subject in the leading section of the Paper; meanwhile, we may just say that the cost of dissolving bones, though considerable, cannot be so great as "D." would have us infer from his remarks. If we want a tank, we have only to dig a basin-shaped hole in the ground, 4 feet across, and puddle it with clay; and those who have not water-carts need not apply the manure in a liquid form at all: the solution may be dried up with saw-dust, dry earth, ashes, &c., and applied as a powder.]

AGRICULTURAL INCONSISTENCIES.

PREJUDICE and error generally go hand in hand; a man may be allowed to indulge in obstinacy for his own gratification, but when society is affected by it, the sooner a new light breaks in upon him, the better. Ask 19 farmers out of 20, who hold strong clay land, and they will tell you it is of no use placing deep four-feet drains in such soils, the water cannot get in—a horse's-foot hole (without an opening under it), will hold water like a basin, and so on. Well, five minutes after, you tell the same farmers you propose digging a cellar, well bricked, 6 or 8 feet deep. What is their remark? "Oh! it's of no use your making an under-ground cellar in our soil, you can't keep the water out!!" Was there ever such an illustration of prejudice as this? What is a drain-pipe but a small cellar full of air? Then again, common sense tells us, you can't keep a light fluid under a heavy one. You might as well try to keep a cork under water as to keep air under water. Oh! but then our soil is not porous. If not, how can it hold water so readily? I am led to these observations by a strong controversy I am having with some Essex folks, who protest that I am mad or foolish for placing one-inch pipes at 4 feet depth in strong clays. It is in vain I refer to the numerous proofs brought forward last Wednesday by Mr. Parkes, Engineer to the Royal Agricultural Society, and confirmed by Mr. Pusey. They still dispute it. It is in vain I tell them I cannot keep the rain water out of socketed pipes 12 feet deep, that conveys a spring to my farm-yard. Do, sir, try and convince this large class of doubters; for it is of national importance. Four feet of good porous clay would afford a far better meal to some strong Bean or other tap-root than the usual 6 inches. And a saving of 4*l.* to 5*l.* per acre in drainage is no trifle. Another glaring inconsistency is the subject of tillage. I proposed subsoiling my heavy land for Beans, so as to admit the action of frost and air abundantly. A demurrer was instantly raised by a farmer present. Oh! we always plough shallow for Beans. Well, I know you do. Do you ever double-spit your gardens? Oh, certainly we do. Do you ever grow Beans in your garden? To be sure, capital ones. What, and that on double-dug ground? Impossible, surely. It would puzzle a conjuror to tell why a farmer always digs his garden 20 inches, and ploughs his land only 5 inches. Docks, Thistles, Couch, and other strong deep-rooted weeds, are not to be found in his garden. What reason can a farmer give for drilling his Beans at 7 inches in his field and 27 in his garden? Does the former mode give him a larger or earlier produce? Again, a farmer will caution you against sitting in a draught, or lying on a damp bed—of course, he takes care not to do so himself; but whilst he practises this for himself, and recommends it to his friends, he pursues an entirely different plan with his cattle. They must be exposed to both; as if their sensations and physiology differed in that respect from our own. Let us keep our cattle warm, dry, and well-fed, and we shall seldom feel the cramp in our pockets.

I could enlarge on these matters, but will not trespass further on your valuable space at present. If I am wrong in my views and proceedings, I shall be happy to stand corrected.—*I. J. Mechi, 4, Leadenhall-street, May 5, 1845.* [From the *Chelmsford Chronicle.*]

THE DISEASE AND FAILURE OF THE POTATO CROP EXPLAINED.

[THE following are portions of a paper on this subject, by A. Patullo, Esq., of Edinburgh, read before the Highland and Agricultural Society, on the 7th instant. It has since been published as a separate tract.*]

As to the early history of the Potato plant, it appears to have been imported into Ireland from South America more than 200 years ago, and introduced into this country from Ireland about the year 1740, which was a year of scarcity, when a few were brought over to Scotland; but their culture was then confined to the garden, till about the year 1753 or 1754, when they were raised in the field; but the plant has not been extensively cultivated in this country more than seventy years. There are great varieties of the Potato; and the kinds first known in this quarter were the Kidneys, the Leather-coat (called from the roughness of its skin), the Blackamoor (that is, the dark-coloured Virginia), and the Killimancas (query, the Dons), which appears to have been a cross between the white and red. The prevailing kinds in our day are, the Kidney, Perthshire Reds, Dons, and Buffs; the two latter being at present most extensively planted in this neighbourhood. There is also another species called the Surinam, or Hog Potato, or Yam: this variety is not eaten by the human species, at least in this country, but it has two valuable properties to recommend it, as it is very productive, and has never yet been known to fail; as also the American Early, which always succeeds.

The first symptom of degeneracy of the plant in Scotland appeared about the year 1780, when the distemper, called the curl, first appeared in the crop; but it then occurred so rarely, that very little notice was taken of it; but the evil gradually and extensively increased, when, about the years 1784-5, the whole crops of the Lothians were seriously affected by it. A remedy, however, was accidentally discovered, by changing the seed from the high country; and this was and has been the only remedy for the disease of the curl to the present day. At this early period, the seed procured from the high country had to be changed every three or four years; but it was found, as the cultivation of the plant increased so did this disease; and from about the year 1820 up to the year 1835, it was customary to change the seed every other year; and from 1835 to the present year, 1845, the whole seed had to be changed yearly, as it was found that a new disease appeared in the fields: the seed only partially germinated—great blanks or failures took place—and many farmers almost lost their whole crops. This disease in the seed was called the wet and dry rot; and, in many instances, seed from all situations, high and low, has now also failed. These two kinds of disease, which destroy germination, are variously accounted for. Some ascribe the cause to maggots and flies who feed upon and destroy the seed-plants; but this is a consequence, and not a cause; for maggots or flies are only to be found on diseased or putrid vegetables: they riot and banquet on putrefaction: it is their natural food, and there they are only to be found. Plant, then, a sound potato in a good soil, and properly treated, it will find its way to the surface, and produce a good crop in defiance of all maggots and flies. The seeds of disease, then, must be in the constitution of the plant.

In examining a diseased potato, which has, as commonly called, blind eyes, and will not germinate, it is plain that there is canker on the skin, and plague spots all over it. This, if planted, will certainly be attacked by the maggots and flies; but the plant is in a state of decay or putrefaction—in fact, a *caput mortuum*—and it properly belongs to the flies and maggots by right of inheritance. The great object to be attained, then, is, to plant sound seed, and the maggots and flies will not relish it. As the crops on the high lands are early checked by frost, and the tops or haulm soon destroyed, they do not fully ripen; and this circumstance has induced farmers in the low districts to take up their crops for seed in a green or unripe state, in order to imitate the operations of nature on the hill grounds; but this plan has also failed. Seed has been often raised from the apple, but in two or three years it curls and degenerates.

It is now generally allowed, and the idea long entertained, that it is quite impossible to raise seed potatoes without being affected with curl in a low situation, or in a high temperature free of degeneracy or curl; but at an altitude of 400 feet, it then entirely disappears. In this there appears to be a very remarkable peculiarity in the nature and constitution of the plant; but in looking to its origin, general history, cultivation, and general management in this country—its success and failure—I have been led to a far different conclusion. Indeed, from what I have already stated, it must clearly appear to every one, that there can be only one cause for the failure of the plant, viz., over-cultivation. The crop too often repeated on the same soil, and too much stimulus applied to the plant, has weakened or destroyed its vital energies, and rendered it incapable of reproduction. In the cultivation and general management of the plant, we have entirely lost sight of nature, which always follows the moderate or middle course; and, by a long train of mismanagement, we have nearly lost this most valuable root; and if we shall persist much longer in following the present unnatural and inconsiderate course of treating it, we shall certainly lose it. Who can contemplate a luxuriant crop of growing Potatoes in full bloom, but must reflect on the immense stimulus applied to produce such a mass of stem, foliage, and blossom, and, at the same time, how much the roots or tubers must be enfeebled and exhausted in producing it? The first practical experience of failure which I met with on my own farm struck me most forcibly. In the year 1837, I had

* Bell and Bradfute, Edinburgh.

a small quantity of potatoes for seed, which I had received from the high grounds (the farm of Bonally, in the high part of the parish of Colinton). I thought them very fine; and having selected the best for seed, I manured the ground heavily in the drill with the richest and best dung on the farm, in order to have as many as possible for planting the succeeding year. The extent of ground was about an acre, and I certainly obtained an excellent crop; but as I never planted a whole field in the same way without some variation, by way of experiment, I planted a few drills of similar seed next to them, very moderately manured, and at the time of taking up the crop, this acre was still green in the tops, and we commenced to take up the crop at the opposite side of the field, making them the last to be taken up. The few drills already mentioned were pitted on the end of a pit not meant for seed, and the produce of the acre was pitted by themselves. Next season I planted the greater part of the produce of the acre in the ordinary way, and lost one-third of the crop. I also planted the produce of the few drills in the ordinary way, and had a little curl, but not a single blank. I was very particular in all the operations of pitting and cutting, and I am quite sure that the seed was not injured in that way; and in looking around me, I found that all my neighbours had suffered in proportion to the condition of their farms: only what puzzled me most were the many contradictory opinions and statements. The truth is, that blanks in the fields, or partial failures of the crops, were maintained by some to be quite unaccountable, and some of Nature's freaks when she was inclined to be mischievous; such as, part of the crop so different—and planted at different times of the day—one hour's planting had failed and become blank—while the others were a fair crop. I can easily conceive, however, that degenerate or delicate seed could be easily injured when planted in a very dry or wet ground, or by any exposure or variation of temperature. A few drills not covered by the plough, when the weather was too dry and the plants exposed to the sun and air during the time of the servant's breakfast or dinner, was quite sufficient to produce failures or blanks in the drills. *(To be concluded next week.)*

Home Correspondence.

Electro-Culture.—It appears to me, as the recent originator of the electro-cultural science (for of the former efforts in this field of inquiry I was not cognizant, as mentioned, under the title of the "Electro-vegitometer"), important to set you and your readers right on some points. 1st. It was not an insulated experiment that was made by me here—for there were three plots electro-cultured, and evidently benefitted; and, further, one of these three, with short (4 feet) poles, after the green colour produced by the wire, &c., had ceased to be evident—had the darker-green colour partially restored by means of taller poles and two wires: thus, without any other thing, proving the fact indubitably; also making a fourth experiment. 2d. Most of the facts are mentioned in Mr. Mechi's Letters, accessible to all; and the statements in them made are equally certain, and susceptible of proof. 3d. It is not alone in the Horticultural Garden at Chiswick that my mode of employing the free electricity of the air is this year to be tried, but on about 700 acres in all parts of the United Kingdom. I am, however, glad to find that in another spot, near London, there will be an attempt in the same direction. 4th. I will not hold myself answerable for any experiments that are, or may be conducted, on any other plan than that which was employed here, and mentioned in the Electro-cultural Circular, quoted by Mr. Mechi. This is necessary, from its having been made to me evident that variations are employed, moreover, by men not competent to make them.—*R. Dewey Forster, of Findrassie, Elgin, N.B.*

Silicate of Soda as a Top-dressing for Wheat.—I perceive in your Paper of the 3d May a Leading Article on the top-dressing of Wheat, which is resumed again on the 10th; but in neither do you even mention the silicate of soda, which has both surprised and disappointed me; for, if there be one more important constituent for cereal crops than another, that one is, in my opinion, soluble silica; for, to say nothing of my own experiments (which have been from time to time recorded in your Paper, and which I regarded as very satisfactory), we have the expressed opinion of Liebig that "a time will come when fields will be manured with a solution of glass (silicate of potash), with the ashes of burnt straw, and with salts of phosphoric acid, prepared in chemical manufactories, exactly as at present medicines are given for fever and goitre." (Liebig's "Chemistry of Agriculture," 1st Ed., p. 187.) It is not true by any means that guano is "a universal manure;" its effects on some soils being to produce an inferior sample in the grain, and a very poor and discoloured straw, exceedingly similar to that described by the writer in your Journal, who gave some months ago a series of articles on the "Geo-Agriculture of Middlesex." He described it as now very difficult to grow good Wheat, and that the straw was discoloured and infected with mildew. I attributed this to an excess of nitrogenous manures, and a deficiency of soluble silica, as precisely the same effects were exhibited in my experiments with guano alone; but when I combined it with silicate of soda, I had as fine straw as ever was seen. I suggested the trial of this to your Middlesex readers some time ago, and if any of them have made the experiment, they will no doubt find the benefit of so doing; but if they have not done so already, I fear it is now almost too late in the season to apply it; 60 lbs. of it to an acre, combined with the same weight of sulphate of magnesia, and twice the weight of common salt, they will find to improve both grain and straw wonderfully; in fact, without good straw, it is impossible to grow good Wheat.—*T. G., Clitheroe.* [Our correspondent is quite right: soluble silica ought to have been mentioned as a most valuable top-dressing on soils already overloaded with nitrogenous manures. But the fact is, we referred all along in those articles to poor land, or land that has been out of condition, and on all such we may safely reassert our opinion, that guano is "a universal manure."]

Wheat.—I took the liberty, in October last, of asking your advice under the following circumstances:—My Clover-layer of 1½ acres having failed, owing to the drought of last year, I determined upon ploughing it up, and setting the land with Wheat. This was done in the early part of November; the seed-Wheat (Spalding's Red) being dibbled in 6 inches apart every way from hole to hole, and about three or four seeds dropped in each hole; but as I had no means of manuring my land with farm-yard manure at the time of setting, I applied for your advice as to the best top-dressing I could give it in the spring, and following your instructions, I sowed upon it, on the 8th of last month, 4 cwt. of guano, being at the rate of nearly 3 cwt. per acre, which I immediately afterwards harrowed in, and a fine rain succeeding, the guano was soon well washed into the earth. I may add here that the guano was sown with an equal weight of dug earth. From the severity of the winter, and my land being light, the crop, previous to the sowing of the guano, looked very thin and sickly; and, I am sorry to say, that in spite of its top-dressing this appearance still continues, so much so that I am strongly inclined to plough it up, and prepare it for a Turnip crop. As an amateur farmer, however, I do not like to do so without asking you if you would advise my reserving the best stetches (I mean where the plant is tolerably regular, for in some parts it has failed almost altogether), and applying to them a second top-dressing of nitrate of soda, at the rate of 2 cwt. per acre, as I observe in your Paper of yesterday, page 335, it has, as a top-dressing, been most successfully used. My Wheat is a bad colour, and the ends of the blades are, in many instances, quite yellow; but notwithstanding this discouragement, I should like to persevere with the best portions of it, if in your opinion I can do so with any prospect of success.—*H.* [If your land is drained—but from the colour of your plant we suspect it is not—you need not fear to leave Wheat, though it should look *very* thin at this season, and in that case you may as well leave the best portion of your field, and sow the nitrate as you propose; but if it be not drained, it is probably to this cause and not to the attack of wireworm, or the severity of winter that you must attribute your disappointment; and in that case we would plough it all up, *i. e.* if all of it really looks very badly.]

Farm Management.—I am a very young farmer, only three years at it, and am working 150 acres of my own property, within about 5 miles of Cork. I study the agricultural portion of your Paper as soon as I get it every week; there are undoubtedly many good remarks in it, but to a person like me who is no chemist, having been brought up for the army, there is a great deal written which I cannot make applicable to the working farmer. I am very well aware that it is utterly impossible to lay down any general rules for working land, as the quality differs so much even in two sides of a field, and in using any of the new manures, such as guano, kelp, gypsum, &c., what would answer one field might injure another. But the fault I find is, that there is no standard given by which a working farmer may generally be guided. [The standard is this:—Get good crops to begin with; force them—you can easily do that, if you only put on sufficient manure and cultivate well; and then consume them all on the land. The manure from their consumption will thus, every year, reproduce itself, and keep the land in heart.] For instance, I had last year a field containing 10 acres, off which I cut three crops of Red Clover and Rye-grass, for soiling for my dairy stock (25 cows) and six horses (four farm-horses and two hunters). Now, some time ago, I saw in a Number of your Paper that Clover reduced the lime, magnesia, and sulphuric acid, which might have been in the ground; the field alluded to is now set with Potatoes, and, in addition to 80 loads of farm-yard manure, I applied 2 tons of gypsum per acre; I did it for the best, but I may have been wrong in so doing. I have now cut my Rye, and am putting down 25 loads of compost, containing 12 bushels of dissolved bones, per acre, for Swedish Turnips. My cow-houses are at the top of my farm-yard, and I have a pit made outside of them which receives all that runs from the channels in the houses, and into this pit every morning I have the manure of the stables, &c., put; and over it a cover of dry marl and bog stuff well pulverised; the dung from the cow-houses is then put on the top, and every morning this pit is emptied, and carted out to a heap in whatever field it will be wanted in. When put on the heap, it is again covered with a covering of earth, generally adding about 5 yards to the heap at a time; by this means I can make 15 loads of manure every morning. But I may here also be working on a wrong principle. Perhaps you would, at your convenience, have the kindness to give me a hint under this head. Your English farmers may object to my plan; but, believe me, if some of your great farmers of the present day improved on my plan, and carried out its principle, namely, to make your own farm-yard provide manure for all the crops on your land, the new manures—very excellent in their way—would be in much less demand than they are. I do not at all object to some of them for top-dressing, or such like; but, if a man wants to put real substance in his ground, he will find his best plan is proper attention to his farm-yard manure.—*Jos. Rogers Wiseman, Cloughfodda House, Cork.*

Stall-Feeding of Sheep.—Among the articles I see in your valuable Paper, on the subject of soiling or stall-feeding horses and cattle, I have been disappointed at not observing an article on the advantages (if any) on the stall-feeding of sheep. I am inclined to think that if once brought into practice it would be generally adopted, particularly when it is the intention to draft off any of the old ewes and lambs early in the spring; as they would surely come on quicker than those exposed to the wet and cold of our variable climate. As I am a young beginner, and anxious to try the above, would you, or any of your numerous correspondents, kindly inform me, through the columns of your *Gazette*, as to the best plan to adopt with regard to the most desirable and economical sort of food, &c. By doing this you will not only oblige me, but a few of my neighbours; I am sorry I cannot say all, as they are, with a few exceptions in this part of the world (Glamorganshire), so bigoted to the old style of (I will not say their fathers) but great grandfathers, that should they not soon be convinced or find out their errors, there is little doubt that they will very soon most effectually drain (not their land) but the miserable remains of their pockets.—*A Subscriber.* [This subject was discussed at considerable length in our last year's volume (see pages 25 and 29). We believe this plan of converting food into mutton to be the most economical that can be employed, and as we have generally every winter 200 sheep or more under sheds in yards, we can speak from experience. The sheep are certainly liable to lameness; but in dry winters they do not suffer much from this cause, and if their litter were removed at shorter intervals, risk from this cause might be diminished. The food they receive is Swedes *ad. lib.*, and Oats 1 pint per day.]

Poultry.—Theory and Practice.—Your correspondent "N. N.," trusting too much to ocular observation, and in himself exhibiting the difference between theory and practice, has fallen into an error, likely to mislead inexperienced persons. He says that for pip or gapes, "a friend of his pulled off the tip of the tongue, which was white and dead." He should have described the operation thus: "With the assistance of a needle, gently and slowly pick or strip away the horny scale from off the under part of the tip of the tongue. The point of the tongue swells very much for a few days, and to a casual observer appears as though the tip had been cut or pulled off; but soon afterwards it gets quite well as before. The servant of my neighbour having witnessed the success of the operation on two fowls, very sillily fancied himself competent to the performance without further instruction, and tried it on several, which all died, blaming me and the operation, having, no doubt, stupidly cut or pulled off the tips of the tongues instead of the scale. Experience and tact are requisite to hold the tongue and the fowl in proper positions; and practice, with great patience alone, can enable any one to perform this rather neat operation skilfully. But it by no means follows that the pip and the gapes are the same disease, being quite different, or that gaping always indicates this complaint in particular. The fact is, that gaping is a symptom in several disorders, the same symptom often belonging to many. This scale under the tongue originates with fever, arising from various causes; taking cold, to which poultry are very liable, if not well protected; puddle water, or unwholesome food, and want of green food, which is quite as essential as corn. Having kept poultry for some time (some are seven years old) in a populous neighbourhood, which is very difficult, and nearly impossible where too confined, I shall be happy to give you the results of my experience in future communications. [Thank you.] From a multitude of opinions the truth may at last be gleaned; therefore, if fanciers and others would, from time to time, enable you to record their discoveries and observations, even when sometimes erroneous, inquiry will eventually lead to the truth.—*D. S. E., Lambeth.*

Geo-Agriculture of Middlesex.—Having sent Nos. 4 and 5 of the *Gazette* to a farmer residing in Harmondsworth, which Nos., at pages 59 and 74, have a special reference to the Geo-Agriculture of that part of Middlesex, he writes me:—"The greater part of the common land in this and the neighbouring parishes has been chalked—it is considered good to check the growth of weeds. I have not tried it on the good ground, considering the London manure most to our advantage in the main. I crop with Potatoes once in seven or eight years, and having seen them very scabby on ground chalked, particularly when fresh chalked, and not so on ground which has never been chalked, I conclude that chalking is the cause of the evil. Articles must look well, as well as eat well, for the London markets." Perhaps you will favour me with your remarks on the above communication.—*C. W., Bognor, May 7, 1845.*

Allotment System.—I am so much interested in the account which you have given your readers of Sir H. E. Bunbury's experience of the working of the allotment system that I am induced to ask through the medium of your Paper, if he would favour the public with such particulars of his plan and rules as would guide those who, like myself, may find themselves recently come to reside amongst a set of country people,

clever, but ignorant, and on a soil that is much like the people—not bad, but miserably neglected; the consequences are great poverty and frightfully high poor's-rates. I have the power to let land very near the habitations of the poor, but it is much out of condition, and I know not how best to set about it; I shall be truly grateful for advice from some practical person.—*Ignoramus.*

Inclosure from the Sea.—I should be much obliged if any one of your numerous correspondents, or yourself, could give me any advice or information on the following subject:—I have about 10 acres of low ground adjoining the river, and over which, some years ago, the sea used to flow; for some years it was rough pasture, nearly covered with Furze. For the last six or eight years it has been ploughed, but is very unproductive; the surface is Moor or Bog-grass; the soil under that is a rough sand, mixed with flint-stones, here and there a little clay (evidently the remains of alluvial deposit), mixed with Carr-stone (no depth of it), apparently a layer only of about a foot. What I propose doing is to trench it two spits deep (20 inches), turning the moor down, and bringing the substratum on the top; and as I believe lime is proved to be the best manure for Peat or bog-land, I propose putting on six chaldrons per acre. Would you advise me to put it on the moor, and turn it into the bottom, or lay it on the surface when dug, and either scale it in, or leave it to time and the rains, to become incorporated with the soil. I should observe, I mean to sow Cole-seed, and feed off with sheep in autumn, and think of applying the lime then, unless you can advise me better. Practical agriculturists here, say lime has a tendency to "work down." I do not quite understand the term, unless they mean that it does not readily mix with soil; but works down in lumps, in loose soils. Any information you can give will very greatly oblige.—*Thomas Davies, Snekisham, Lyme Regis, Norfolk.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SPECIAL AND WEEKLY MEETINGS of the Council were held at the Society's House, in Hanover-square, on Wednesday last, the 21st of May; present, his Grace the DUKE OF RICHMOND, K.G., President, in the chair. Earl Spencer, Viscount Hill, Lord Portman, Lord Camoys, Hon. R. H. Clive, M.P., Hon. Capt. Spencer, R. Archbold, Esq., M.P., Sir D. Baird, Bt., D. Barclay, Esq., M.P., F. Burke, Esq., Col. Challoner, F. C. Cherry, Esq., H. Colman, Esq., C. Cure, Esq., F. W. Etheredge, Esq., A. E. Fuller, Esq., M.P., W. L. Gower, Esq., G. F. Heneage, Esq., C. Hillyard, Esq., Sir H. Hoskyns, Bt., E. Hussey, Esq., J. Johnson, Esq., Sir J. Johnstone, Bt., M.P., J. Laycock, Esq., Sir C. Lemon, Bt., M.P., Col. M'Douall, T. W. Mayer, Esq., J. I. Mechi, Esq., W. Miles, Esq., M.P., A. Ogilvie, Esq., E. Parkins, Esq., E. W. W. Pendarves, Esq., M.P., E. G. C. Pole, Esq., H. Price, Esq., R. W. Purchas, Esq., P. Pusey, Esq., M.P., F. Pym., Esq., W. Roddam, Esq., W. Shaw, Esq., R. A. Slaney, Esq., W. R. C. Stansfield, Esq., M.P., C. Stokes, Esq., E. Thomas, Esq., J. H. Tremayne, Esq., T. Tunno, Esq., T. Tweed, Esq., G. Willbraham, Esq., M.P., J. L. Wight, Esq., and H. Wilson, Esq.

The following new Members were elected:—

Taylor, Henry Thomas, Holmer Hall, Hereford.
Jones, Dr., Lancych, Newcastle-Emlyn, Cardiganshire.
Propert, John, Llaenpistill, Cardiganshire.
Dickson, Francis, Chester.
Dickson, James, Chester.
Carleton, Hon. and Rev. Richard, 25, Bruton-street, London.
Lorel, Richard, Edgecot Lodge, Banbury, Oxon.
Foulis, Sir William, Bt., Ingby Manor, Stokesley, Yorkshire.
Mickleburgh, Charles, Montgomery.
Partridge, Rev. William Edward, Horsenden House, Risborough, Bucks.
Gwynn, Edward, Wem, Salop.
Smith, Richard Wycherley, Wem.
Hanmer, Sir John, Bart., Bettisfield, Whitchurch, Salop.
How, William Wyburgh, Shrewsbury.
Griffiths, John, Cound, Shrewsbury.

The names of 28 candidates for election at the next meeting were then read.

A letter was read from Captain Stanley Carr, an honorary member of the Society, residing at Tüschenbeck, near Lübeck, introducing to the meeting a gentlemen named Kotschetow, at present travelling, by command of the Emperor of Russia, for the purpose of collecting such agricultural information as may qualify him, on his return to Charkow, to fill the agricultural Professor's chair at that place.

The President informed the Council that it was with great regret that he had received from Mr. Hudson an intimation of his wish to resign the office of Secretary of the Society.

Mr. COLMAN communicated to the Council a statement of the occurrence in the United States, of green sand, or New Jersey marl, which had been found to operate as a most powerful and beneficial manure in the soil of that State, increasing the crops from 10 to 60 bushels of Indian Corn on an acre, and other crops in proportion. The principal constituent of its fertility was supposed to be potash. The Council referred this communication, and the specimens of sand, on their arrival, to Mr. Pusey and Dr. Buckland. Mr. Fuller, M.P., communicated the results of stone-drainage, obtained by Mr. Meyrick, of Bodorgan, on a piece of land in Anglesey. Mr. Stirling exhibited, and explained, the construction of his culverts for drains or sewers.

Mr. PURCHAS, Secretary of the Monmouth Farmers' Club, detailed to the Council his results in the manipulation of sulphuric acid and bones; and their application as a manure for the Turnip crop under different circumstances.

Mr. RAMSAY suggested prizes for wool to be given next year, at the Newcastle-upon-Tyne Meeting.

Mr. STOKES recommended that it be referred to the General Shrewsbury Committee, to consider the propriety of giving a free ticket to any member residing within 20 miles of the Annual Country Meeting, to admit working mechanics to the exhibition of implements.

Messrs. WARNER, of Cornhill, presented various samples of foreign Turnip-seed for the acceptance of the Council, for which, and the communications then received, the Council ordered their best thanks to be returned.

The COUNCIL agreed to the following Report to the General Meeting to be held on the following day:—

REPORT OF THE COUNCIL.

THE attention of the Council, during the last half-year, has been directed principally to the following points:—

1. The revision of the List of Members, and a scrutiny into the several cases of Members who claim exemption from the liabilities of their election, on the ground of the peculiar circumstances under which their election took place.
2. The consideration of the arrears of subscription, and of the mode by which their collection may be facilitated.
3. The adoption of a more general plan for the nomination and selection of the Judges of Stock and Implements.
4. An extension of the trial of implements, beyond the place and period of the Country Meetings; and lastly,
5. A chemical analysis of the ashes of plants grown on different soils, and in different localities, throughout the kingdom.

1. The Finance Committee have reported the details—of which a statement is now laid on the table—connected with the number of members, the amount of arrears, and the investment of capital. At the last General Meeting in December, the Society consisted of 6827 Members; since that date 314 members have been elected, while 161 have been struck off the list, and 47 have died; so that the Society at present consists of 96 Life Governors, 204 Annual Governors, 495 Life Members, 6123 Annual Members, and 15 Honorary Members; making a total of 6933 Members. It appears from the statement of arrears, that on the 1st day of the present month, 35 Governors, and 2281 Members were in arrear of subscription, the sum amounting to 5730*l.*; that at the General Meeting in December last the amount of such arrears stood at 6609*l.*, a reduction of 879*l.* having been effected during the last six months. The present amount of invested capital is 8200*l.*—a purchase of 500*l.* stock in the 3¼ per cents. having been made during the last month. The current cash balance in the hands of the Society's bankers at the present time is 2038*l.*, not including the sum of 1000*l.* contributed by the town of Shrewsbury, towards the expenses of the ensuing Country Meeting, und already paid over to the credit of the Society's account.

2. A Committee has been formed for the purpose of considering the best mode in which the collection of subscriptions can be effected by means of paid collectors, and, on their report, the Council have resolved to try the experiment of such local collection within districts comprised by the counties of Bedford, Buckingham, Cambridge, Essex, Hertford, Huntingdon, and Northampton; the Committee, accordingly, having arranged the practical details by means of which such resolution may be systematically carried out.

3. The Council have invited the members at large to nominate, at the General May Meeting, such Judges for the Country Meetings as they recommend for the several classes of stock and implements; and they have appointed Committees for each of those departments respectively to examine such lists of nomination, and report the result to the Council, by whom the appointment will be finally made. As no exhibitor will be allowed to take any part in the nomination or appointment of Judges, for the classes in which he competes, the Council trust that this extended mode of selecting their Judges will meet with the approbation of the exhibitors.

4. The Committee to whom the Council confided the consideration of the mode by which a trial of tile-machines, ploughs, and drills, subsequently to the period of the country meeting, under circumstances best adapted to the testing of their respective merits, could be most advantageously effected, have reported the following recommendations, which the Council have adopted:—

(1.) That the tile-machines shall be tried by the Judges at Shrewsbury; and such of them as the Judges may think worthy, shall be selected by them for further trial; such trial to be made by a visit, on the part of the Judges, to some one tile-yard pointed out by each inventor respectively, and subsequently elsewhere, as the Judges may see fit.

(2.) That the Judges shall select, at the Shrewsbury trial, so many ploughs as they think fit for subsequent trial; and the ploughs so selected shall be at the disposal of the Stewards and Judges.

(3.) That the Rules for the selection and trial of ploughs shall apply also to drills.

(4.) That the winning implement of the previous year shall be included in these subsequent trials.

(5.) That the makers and inventors of the implements shall be entitled to attend, at their own expense, at some one of the trials, of which notice shall be given to them.

(6.) That if the Judges select for trial at the Shrewsbury Meeting the plough of any exhibitor, and the exhibitor wish to substitute for it any other plough exhibited by him at the same Meeting, such other plough shall be tried at the Shrewsbury Meeting, but not elsewhere (unless the Judges think fit); but the Judges shall also try (if they think fit), the plough originally selected by them.

(7.) That the Judges shall report on the reserved implements to the first Council in November.

5. At the suggestion of the British Association for the Advancement of Science, the Council have resolved that a chemical analysis of the ashes of plants, grown in different localities, and on different soils throughout the kingdom, shall be made at the expence of the Society, and they have voted the sum of 350*l.* towards carrying out that desirable and important object. At the request of the Stalham Farmers' Club, the Council have instructed their consulting chemist, Dr. Playfair, to analyse, at the expence of the Society, specimens of the soil and subsoil of a Wheat-field in Norfolk, remarkable for its productiveness.

6. The Journal Committee have reported the following awards to the authors of Prize-Essays, and schedule of the subjects of Prizes, amounting to 310*l.*, for the Reports and Essays of next year.

AWARDS.

The Prize of 20 sovs. to Mr. H. White, of Warrington, for his Essay on the Details of Making Cheshire Cheese.

The Prize of 50 sovs. to Mr. R. W. Corringham, of Bolham Hill, near Retford, for his Report on the Farming of Nottinghamshire.

The Prize of 50 sovs. to Mr. W. F. Karkeek, of Truro, for his Report on the Farming of Cornwall.

The Prize of 50 sovs. to Mr. G. Buckland, of Benenden, for his Report on the Farming of Kent.

The Prize of 20 sovs. to Mr. J. Watson, Junr., of Kendal, for his Essay on Reclaiming Heath-land.

The Prize of 10 sovs. to Mr. E. Bowly, of Cirencester, for his Essay on the Advantages of One-horse Carts.

The Prize of 20 sovs. to Mr. J. Grigor, of Norwich, for his Essay on Fences.

The Prize of 10 sovs. to Mr. G. Dobito, of Kirtling Hall, Newmarket, for his Essay on Fattening Cattle.

The Prize of 20 sovs. to Mr. F. W. Etheredge, of Park-street, Westminster, for his Essay on the Cheapest and Best Method of Establishing a Tile-yard.

The Prize of 20 sovs. for an Account of the Best Experiment in Agriculture, to Mr. J. Hannam, of North Deighton, near Wetherby, for his Essay on the Theory and Application of Bone-manure.

SCHEDULE.

On the Agriculture of North Wales	50*l.*
On the Agriculture of the West Riding of Yorkshire	50*l.*
On the Agriculture of Cambridgeshire	50*l.*
On the Advantages and Disadvantages of Breaking-up Grass-land	50*l.*
On the Improvement of the Condition of the Agricultural Labourer, so far as it may be Promoted by Private Exertion, without Legislative Enactment	30*l.*
On Keeping Farm Accounts	10*l.*
On Employment by the Piece	20*l.*
On Peat-charcoal as a Manure	10*l.*
On Sulphuric Acid and Bones	10*l.*
On White Mustard	10*l.*
On St. John's Day Rye	10*l.*
On Draining Running Sands	10*l.*

The Council have received from the Journal Committee a highly favourable opinion of the character of the Essays sent in this year to compete for the various Prizes offered by the Society.

The Council have reason to anticipate, from the extensive entry already made of implements, and the numerous applications for certificates of Stock, that the Country Meeting of the present year, to be held at Shrewsbury, for the North Wales District, in the week commencing the 14th of July next, will be fully as large and satisfactory as on former occasions.

The Council have accepted the invitation of a public meeting, convened at Newcastle-upon-Tyne, to hold the Country Meeting for the Northern District, at that town, in the year 1846.

The Council, in conclusion, have the satisfaction, at the close of the 7th year of the establishment of the Society, of congratulating the members on the steady advance of the Society in the accomplishment of its various practical objects, and the gradual development of its prospects and resources: among which the Council cannot help alluding to the establishment of local societies for the discussion of agricultural subjects, which they feel have mainly originated from the attention which the exertions of this Society have attracted to the improvement of agriculture, and which the Council are confident will lead to the most beneficial results.

The Council then adjourned over the 28th of May to Wednesday, the 4th of June.

Farmers' Clubs.

Halesworth.—I have great pleasure in handing you the resolutions passed at the two last meetings of this Club, held respectively on the 14th March and 18th April, to the following effect:—March 14—The subject, "The Nature and Properties of different Manures, their adaptation to particular crops, and the fittest time for applying them," having received the fullest consideration of the members present, they are unanimously of opinion that, amongst all the various manures, none can be so safely depended upon as well-prepared farmyard manure, both as respects certainty in respect to the produce on an average of crops, and on the score of economy as regards expense. That this opinion, which has been held by the best practical agriculturists in all ages, is fully borne out in this district by the individual experience of the members present. That the true interest of the British farmer is to husband his home resources, and to that end his best attention should be devoted to the due preparation of farmyard manures, so as to produce the best quality and the greatest quantity. That although the members are fully sensible of the great value of many artificial manures, yet they

consider that such ought not to be depended upon as principals, but only to be used as auxiliaries whenever a deficiency of farmyard manure exists, or local circumstances point out the propriety of their employment. At the meeting held on the 18th April, to discuss the relative merits of Corn Rents and fixed Money Payments, the following is the substance of the resolution agreed to :—That a more general adoption of corn rents, in connection with permanent and modified leases, would place the tenant-farmers of this district in a comparatively better position than when under the liability of fixed money payments.

Miscellaneous.

Feeding of Animals (*Boussingault, vol, ii , p.* 399).—The state of moisture or dryness in which food is administered is of great consequence as regards nutrition. Some of its properties may be completely evaporated, and the nutritive value in consequence diminished. Analysis cannot foretel these accidental circumstances, and in consequence the equivalents may be overrated. Graziers have long been of opinion that green food is the most nutritious. And this is apparently reduced to certainty, by the experiments of those able observers, Messrs. Perrault de Iotemps, who have ascertained that in the feeding of rams, four parts of green Lucern are equal to one and a half when dry. They have obtained from a number of experiments the following mean results :—

	Brought from the field as hay.	Thoroughly dried.	After fermentation in the stack.
100 parts of Lucern, or Clover, when first flowering are reduced to	27,90	25,66	23,42
100 parts of Clover more advanced in flower, and beginning to shed its lower leaves.	35,27	32,44	29,69
100 parts of Clover still more advanced.	41,95	38,59	35,31

Both Lucern and Clover in drying lose a large portion of leaves and flowers, which is the more vexatious as they are the most nutritious parts of the plant. Making allowance, then, for the loss in the field, for fermentation, and for the detachment of the more brittle portions in cocking and trussing, M. Perrault de Iotemps admits that 100 parts of green Lucern or Clover give 23 of hay ; 4 parts, then, of green Lucern=,92 of dry, after making the above-mentioned allowances ; and since 1½ of Lucern hay were required to be substituted for 4 of green Lucern, it follows that in giving 1½ of dried and fermented hay, we are really giving after the rate of 6,52 of green food. These data are of great importance, as they show the great advantage arising from feeding off the crop when green, an advantage, indeed, of which the practical farmer is well aware. Besides, the expense of haymaking is saved, and the risk of bad weather prevented. But because 100 parts of green Clover or Lucern are equivalent to 23 when dry, it does not follow that the respective nutritive value is in the same ratio. Messrs. Perrault de Iotemps find that the ratio is 8:3. Assuming the produce of 100 parts of the green herb to give 32,5 of hay, a result obtained from drying it when in flower, the ratio becomes 8:2,6, which is very near the above-mentioned result. The importance of the question respecting green food induces me to copy the excellent observations of Messrs. Perrault, the mean result of experiments made at Bechelbronn, on the haying of Clover. The Clovers of 1841 yielded enormous crops ; the plant of the second year attained the height of almost 40 inches ; and we have seen that green Clover may be considered as consisting of—

Dry Clover . .	29,85
Water . . .	70,15
	100,00

As the extremes, we have—

	maxim.	minim.
Dry Clover . .	35,7	24,0
	64,3	76,0
	100,0	100,0

Analysis gives as the nutritive equivalent of Clover hay, 75. Taking 76 as the moisture dissipated by drying, it becomes 312 for the same food when green, meadow hay being represented by 100. Practice is not however, here accordant with theory. Clover hay is supposed generally to have nearly the same nutritive value with meadow hay, and its equivalent when green is stated as between 425 and 500. What takes place in our stables tends also to make one think that the equivalent of Clover is overrated. I find from four experiments that 17 cows consumed 2506 lbs. of green Clover, that is about 147,3 lbs. a day each. The usual allowance of one cow is 33,09 of good hay. The equivalent of green Clover then must be 445. But this allowance of green food fattens the animal far more than the stated equivalent of hay. In accordance with theory each would have the equivalent of 47,4 lbs. of hay in 147,3 of green Clover. If, however, we reflect that they have green food almost at discretion, we shall easily understand that they are in reality taking more than their usual allowance of food. New experiments, then, are necessary to determine whether green food is really more nutritious than when converted into hay. I should not be surprised should accurate experiment prove that dry food, properly administered, and previously moistened, is really the more nutritious. Very watery food has often a purgative tendency, which must retard nutrition ; on the other hand, when animals are fed on dry food, greater pains are requisite than are usually bestowed as regards watering. The need of sufficient moisture for facilitating digestion sanctions the practice of steeping the hay in water, and shows why it is so beneficial to combine moist food, as roots and tubers, with hay.—*M. J. B.*

Notices to Correspondents.

RURAL CHEMISTRY -By E. Solly, Esq., F. R. S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all booksellers, price 4*s.* 6*d.*

DAIRY PRODUCE—*Emily*—You will find in the fourth volume of the "English Agricultural Society's Journal," that at King William's-town Dairy, the Ayrshire breed yielded at this season, on the average, 9 quarts of milk per day a-piece, and that 10½ quarts of their milk produced 1lb. of salt butter ; the Kerry breed, again, averaged 7¼ quarts a day, and 8¾ quarts of their milk produced 1lb. of butter ; and, lastly, the Galloway breed yielded daily 6¼ quarts a-piece, and 9½ quarts produced 1lb. of butter. A great deal, it thus appears, depends on the breed.

ELECTRO CULTURE—*R*—Thank you : it will be as well not to foster any discussion on this matter till we have a more numerous body of facts to appeal to.——*P H*—The wire employed by Dr. Forster was *iron* wire. Copper is better, but more expensive.——*Semirusticus*—Wire of the ordinary size of bell-wire will perfectly answer ; *i. e.* as well as any other size.

GEESE—*A Goose-fancier* says he has had two geese set with 12 eggs each, out of which only five were hatched, none of them strong birds. What can have been the cause of this ? There is only one gander. Two of the five have died, and being anxious to rear more, he would be obliged by being informed of any means of making one of the geese lay again and having another brood.

GLASS MILK PANS—*H Doro*—These have been advertised at p. 442 of our volume for 1844.

GOLD OF PLEASURE, MYAGRUM SATIVUM—*X ; To Correspondents*—1. What is the soil best suited to it ? 2. When should it be sowed ? 3. What quantity per acre ? 4. Whether in drills or broadcast ? 5. Is it an exhausting crop ? 6. What is the best manure ? 7. When should it be cut ? 8. Is it possible to cut it as green food more than once ? 9. Is the cake used as food after the oil is expressed, or the seed itself ? 10. What animals eat it most readily, and is it best adapted for ? 11. Any general remarks on the culture ? 12. Any general remarks on the application of the crop.

GYPSUM—*P H*—Spread one ton per acre mixed well with two cwt. of guano. This can be done by hand, with a large scoop, out of a cart. Spread it broadcast over the land if possible in wet weather, as soon as your Swede seed is in.

INCLOSURE FROM THE SEA—*T Davies*—Your letter shall be published next week. Lime certainly "works down," as it is termed, *i. e.* if a layer be put on a pasture field now, 10 years hence that layer will be found some 5 or 6 inches below the surface. Worms have a good deal to do with this transposition. You had better merely harrow or scarify the lime in upon the surface—not plough or dig it under.

LUCERNE—*Brecon*—The soil best suited for it is a deep dry loam. Sow early in April 12lbs. of seed per acre, in rows 14 inches wide. The land must be kept clean by hoeing, and kept in good heart by annual top-dressings. You may cut it the first year probably in August, and afterwards the first cutting may be as early as the middle of April. Cut always before the blossom appears. 80 to 100lbs. a day will feed a cow ; and 40 or 50, along with its corn, will satisfy a horse.

MILDEW—*G R C*—Our correspondent asks for a remedy for mildew on his Thorn Quicks. Is he right in calling the disease mildew ?

POTATOES—*Solomon*—Scatter, broadcast if possible, in wet weather, two cwt. of guano, mixed with two cwt. of common salt, per acre, and hoe it. This is as good a top-dressing as you can give the young crop.

SUPERPHOSPHATE OF LIME—*J M R*—The quantity of water which your water-cart will spread over an acre when drawn over it at the ordinary rate of a horse-walk is, we will suppose, 500 gallons. Well, then, dissolve the quantity of superphosphate you intend applying per acre, say three cwt., in that quantity of water.

*** As usual, many communications have come too late.

Markets.

SMITHFIELD, MONDAY, May 19.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4 to 4s 8	Best Long-wools	—s	—s to —s
Best Short Horns	4	2 4 6	Ditto (shorn)	4	4 4 8
Second quality Beasts	3	4 3 10	Ewes and second quality	—	— —
Calves	4	0 4 8	Ditto (shorn)	3	3 4 2
Best Downs & Half-breds	—	—	Lambs	5	0 5 8
Ditto (shorn)	4	6 4 10	Pigs	3	8 4 6

Beasts, 2496 : Sheep and Lambs, 26,560 ; Calves, 89 ; Pigs, 332

Our supply of Beef is exceedingly short to-day, and prices have advanced fully 4d. per 8 lbs ; and in some few instances 2d. per 8 lbs. more than our top quotations has been obtained.—There are more Sheep to-day, but the quality of the supply is still very inferior, and our best descriptions are making about the same. We have a great many plain Sheep, several of which remain unsold.—Lamb-trade is a little brisker at the same rates.—Good Veal is rather dearer.—Pork-trade is rather better, owing to the cold weather.

FRIDAY, May 23.

The demand for Beef is quite as large, and the supply but small. Prices are a shade higher. Some few very fine Scots have made very nearly 5*s.* per 8lbs. ; but the average remains about the same as on Monday.—Good Sheep are in request, at about the same as on Monday, but Lambs dearer ; the best qualities are worth a little over 6*s.* ; there are, however, a great many very middling Sheep and Lambs, which are heavy sale ; notwithstanding, they are all disposed of in consequence of other things being so dear.—Veal-trade is brisk, a choice Calf is worth nearly 5*s.* ; but the average for good Veal cannot be quoted at more than 4*s.* 8*d.*—Pork-trade is brisk at from 3*s.* 8*d.* to 4*s.* 8*d.*

BEASTS, 2965 ; Sheep and Lambs, 8420 ; Calves, 318 ; Pigs, 231.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 22.

Prime old Meadow Hay	105s to 115s	New Hay	—s to —s	Clover	100s to 120s
		Inferior Hay	95 100	Straw	38 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, May 22.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 120s		
Inferior	95 105	Inferior ,,	105 110	Straw	38s to 42s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, May 23.

Fine Old Hay	105s to 112s	Old Clover	—s 126s		
New Hay	90 100	New Clover	110 120	Straw	36s to 42s
		,, Inferior	— —		

POTATOES.—SOUTHWARK, WATERSIDE, May 19.

THE supply to this Market during the past week has been less than in several of the preceding, yet the immense stock on hand was more than sufficient for the present demand. There was considerable business done in the low-priced goods, especially in the state and inferior Scotch and York Reds, which were sold at from 30*s.* to 35*s.* per ton. Several fresh and better samples of Scotch realised 40*s.* per ton, and 45*s.* was asked for two or three very superior and fresh samples, but there was not a sufficient quantity sold to justify a quotation at that price.

York Reds	30s to 70s	Wisbeach Kidneys	55s to 65s
Perth	30 40	— Blues	40 —
Fifeshire	— —	— Regents	50 60
Early Devons	— —	— Whites	40 45
Late Devons	— —	Guernsey Blues	50 55
Cornwall	— —	— Whites	— —
Jersey Blues	50 55	York—Prince Regents	30 50
— Whites	— —	— Blues	60 —
Kent and Essex Whites	— —	— Shaws	50 70
— Kidneys	60 70	Irish Whites	— —
Dutch Whites	20 25		

COVENT GARDEN, MAY 24.—The supply of almost all kinds of vegetables has been good ; hothouse fruit is also more plentiful and of superior quality. Trade on the whole has been much brisker than during the preceding week. The price of Pine-apples is a trifle higher than in our last report, the best specimens bringing about 12*s.* per lb. Many excellent samples of Black Hamburgh Grapes are offered at about 10*s.* per lb. Peaches and Nectarines are not plentiful ; they fetch from 18*s.* to 30*s.* a dozen. The supply of Cherries is still limited. Pears are scarce, and fetch high prices. The supply of Apples has been tolerably good ; the prices both of dessert and kitchen kinds are the same as in our last report. Strawberries are rather more plentiful, and there is no scarcity of Cucumbers, which are offered at low prices. Among vegetables Broccoli is not plentiful, and Asparagus is also less abundant. Cabbages are good and sufficient for the demand. Rhubarb and Seakale are abundant. Mushrooms are also plentiful. Lettuces are sufficient for the demand ; good Cos varieties may be bought for 2*s.* 6*d.* a score. Other salading is also becoming more plentiful. Amongst cut flowers we observed Eutaxia myrtifolia, Chorozema Henchmanni, Boronia pinnata, Cape Heaths, Calceolarias, Gardenias, Gloxinias, Heliotropes, Tulips, Camellias, Carnations, and Roses.

FRUITS.

Pine Apple, per lb., 7*s* to 12*s*	Walnuts, per bushel, 16*s* to 20*s*
Grapes, Hothouse, per lb., 6*s* to 10*s*	Oranges, per dozen, 1*s* to 2*s* 6*d*
— Spanish, per lb., 1*s* 6*d* to 2*s*	— per 100, 6*s* to 16*s*
— Portugal, per lb., 1*s* to 4*s*	— bitter, per 100, 8*s* to 20*s*
Apples, Dess., per bush., 8*s* to 15*s*	Lemons, per dozen, 1*s* to 2*s*
— Kitchen, 4*s* to 8*s*	— per 100, 6*s* to 16*s*
Pears, Dess., per half-sv., 5*s* to 12*s*	Almonds, per peck, 6*s*
— Baking, per half-sv., 2*s* to 2*s* 6*d*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Pomegranates, per doz., 2*s* to 4*s*	Cob Nuts, per 100 lbs., 120*s* to 160*s*
Strawberries, per oz., 6*d* to 1*s*	Nuts, Barcelona, 24*s*
Apricots, green, per pottle, 1*s* 6*d* to 2*s*	— Brazil, 20*s*
Currants, green, per pottle, 9*d* to 1*s*	— Spanish, 20*s*
Gooseberries, green, p. hf. sieve, 4*s* to 6*s*	— Cob, 16*s*
Chesnuts, per peck, 6*s* to 8*s*	

VEGETABLES.

Cabbages, per doz., 1*s* to 2*s* 6*d*	Leeks, per doz., 1*s* 6*d* to 2*s*
— red, per doz., 4*s* to 12*s*	Garlic, per lb., 8*d* to 10*d*
— plants, per doz. bnch., 2*s* to 4*s*	Onions, per bunch, 3*d* to 6*d*
Broccoli, per bundle, 1*s* to 3*s*	— large, per bushel, 7*s* to 12*s*
French Beans, per 100, 2*s* to 4*s*	— Spanish, per doz., 1*s* 6*d* to 4*s*
Sorrel, per half-sieve, 3*d* to 1*s*	Shallots, per lb., 6*d* to 10*d*
Jerusal. Artichoke, p. hf. sv., 1*s* 6*d* to 2*s*	Lettuce, per score, Cab., 6*d* to 2*s*
Potatoes, per ton, 40*s* to 90*s*	— — Cos, 1*s* to 3*s*
— cwt., 2*s* to 5*s*	Celery, White, per bunch, 1*s* to 3*s*
— bushel, 1*s* 6*d* to 3*s*	— Red, per bunch, 1*s* to 2*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	Radishes, per doz. hands, 6*d* to 1*s*
— Autumn, per lb., 3*d* to 6*d*	Mushrooms, per pottle, 4*d* to 9*d*
— New, per lb., 1*s* 6*d* to 3*s* 6*d*	Small Salads, per punnet, 2*d* to 3*d*
Turnips, per doz. bch., 3*s* to 4*s*	Basil, green, per bunch, 6*d* to 9*d*
Red Beet, per doz., 1*s* to 6*s*	Fennel, per bunch, 2*d* to 4*d*
Carrots, per doz. bchs., 8*s* to 12*s*	Savory, per bunch, 9*d*
Rhubarb, per bundle, 4*d* to 1*s* 6*d*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Seakale, per punnet, 6*d* to 2*s*	Parsley, per half sieve, 1*s* to 1*s* 6*d*
Asparagus, per bundle, 2*s* to 7*s*	— Roots, per bundle, 9*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Tarragon, per bunch, 4*d*
Cucumbers, per brace, 1*s* to 5*s*	Mint, per bunch, 6*d* to 1*s*
Spinach, per sieve, 1*s* 6*d* to 2*s*	Marjoram, per bunch, 3*d*
Parsnips, per doz., 6*d* to 1*s* 6*d*	Chervil, per punnet, 3*d* to 4*d*
	Basil, per bunch, 2*d* to 3*d*

HOPS, FRIDAY, May 23.

THE Market remains firm, and the accounts from the plantations state the cold weather keeps the bine back, and that the fly has made its appearance in some places.

PATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, May 19.

There was a moderate supply of Wheat this morning from Essex, Kent, and Suffolk ; picked samples realised an advance of 1*s.* per quarter on the prices of last week, but the general runs cannot be written dearer ; free Foreign meets a limited retail demand at late rates ; in bonded and Baltic offers f.o.b. business to some extent has been done for Belgium and France, at a rise of 1*s.* to 2*s.* upon their free value of this day se'nnight, less the duty ; a few parcels apparently have also been taken on speculation here. There is scarcely any English Barley at market ; fine Malting Saael commands rather higher prices, and we observe an increased inquiry for grinding. The show of Beans and Peas was small, and our quotations are fully supported. Oats meet a fair sale on late terms.

BRITISH, PER IMPERIAL QUARTER,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk . White	42	49	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling, 28*s* to 29*s* Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . . Polands	20	23	Feed	19	22
—— Northumberland and Scotch . . Feed	20	22	Potato	21	24
—— Irish . . . . . Feed	20	22	Potato	21	23
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new 29 to 34	Tick	30	36	Harrow	31	37
—— Pigeon, Heligoland . 36 to 40	Winds	—	—	Longpod	—	—
Peas, White . . 33 to 37	Maple	35	37	Grey	30	33

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	6257 Sks. — Brls.	10557	681	6605	2290	—	848	143
Irish .	122 ,, — ,,	—	—	17	12551	—	—	—
Foreign	6379 ,, — —	4746	14426	—	19777	—	3230	260

FRIDAY, May 23.

The weather since Monday has been wet and very boisterous, which may in some degree account for the smallness of arrivals. The inquiry for English Wheat is less active than on Wednesday, although an advance of 1*s.* per quarter is generally obtained ; free Foreign is unaltered in value ; a large business has been done in bonded during the week—it is still in demand, but less so than last day, many buyers having supplied themselves, and the high rates at which it is held preventing others from purchasing. English Barley is nominally unaltered in value ; Foreign, both malting and grinding qualities, are held for rather more money, and there is some inquiry for bonded for export. Beans and Peas remain as last quoted. The show of Oats being small, factors hold for an advance, and they are decidedly the turn dearer.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	3260	110	1090	2230 Sks
Irish . .	—	—	4290	—
Foreign . .	2180	3870	4080	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
April	12 per Quarter.	48*s* 3*d*	32*s* 5*d*	20*s* 9*d*	30*s* 6*d*	35*s* 5*d*	36*s* 6*d*
—	19 . . .	45 11	31 11	21 4	32 1	35 1	36 1
—	26 . . .	45 11	31 6	20 11	30 2	35 9	36 1
May	3 . . .	46 0	31 2	21 4	29 9	36 1	36 0
—	10 . . .	45 10	30 5	21 6	31 4	37 1	36 18
—	17 . . .	45 9	30 0	21 9	29 7	37 3	37 0
6 weeks' Aggreg. Aver.		45 11	31 3	21 3	30 7	36 1	36 6
Duties on Foreign Grain		20 0	7 0	6 0	10 6	6 8	6 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 17.

PRICS.	APRIL 12	APRIL 19	APRIL 26	MAY 3	MAY 10	MAY 17
46*s* 5*d*	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
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SEEDS, May 23.

Canary . .	per qr	44*s* to 50*s*	Linseed Cakes, Foreign, p. ton	7*l* 10*s*	to 8*l*
Carraway . .	per cwt	44 48	Mustard, White - p. bush.	10*s*	14*s*
Clover, Red, English .	40	65	— Superfine ,, .	12	16
— — Foreign .	46	56	— Brown ,, .	12	16
— White, English .	50	80	Rapeseed, English, per last	26*l*	30*l*
— — Foreign .	50	80	Rape Cakes . . per ton	—	—
Coriander . .	12	18	Sainfoin . . .	—	—
Hempseed . . per last	35	36	Tares, Eng. winter p. bush.	5	7
Linseed . . per qr	52	60	— Foreign ,, .	4*s* 6*d*	6
— Baltic . .	36	44	Trefoil . . per cwt	18	23
— Cakes, Eng. per 1000	11*l* 0	11*l* 10	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AMATEURS, & OTHERS.
A SUPERIOR COLLECTION OF FINE TULIPS.

MR. JAMES IZOD, will Sell by Auction, on the Premises of Mr. WM. ALEXANDER, Florist, Lea-bridge-road, on MONDAY, June 2d, 1845, at 12 for 1 o'clock, precisely, without reservation, A Superb Collection of TULIPS, comprising the most esteemed varieties, among which may be named Brulante, Eclatante, Rose Brilliant, Lavinia, Camaze, Princess Sophia of Gloucester, Claudina, Madame Vestris, Dutch Poncau, Lady Louisa, Thalia, Musidora, Parmegiana, Louis the XVIth, Superbens, Noir, Violet Alexander, Duke of Devonshire, Fabias, Shakspeare, Rembrandt, Leonardi di Vinci, Carlo Dolci, Lady Collingwood, Duke of Bedford, and many splendid new-broken flowers, only to be found in this Collection, with a quantity of Selected Breeders, GREENHOUSE PLANTS, DAHLIAS, FUCHSIAS, VERBENAS, &c.—May be Viewed four days previous to the Sale, and Catalogues had on the Premises, the place of sale, of Messrs. Hurst and M'Mullen, Seedsmen, Leadenhall-street; Warner and Warner, Cornhill; R. Fennessy, Newington-causeway; at the Auction Mart; and of Mr. Izod, at his Offices, the Sheriff's Sale Rooms, 46, Watling-street, City.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on Tuesday, May 27th, Thursday, 29th, and following day, at 12 o'clock each day, about ONE THOUSAND DAHLIAS, comprising all the new and leading varieties of the season; also a splendid assortment of Geraniums and other Plants in bloom: the newest varieties of Fuchsias, Verbenas, Heartsease, &c. May be viewed the morning of sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

MR. BROWN'S SUPERB TULIPS.—Mr. GLENNY, who is instructed to sell these by Auction, without reserve, on Tuesday the 3d of June, on the premises, at Slough, will forward Catalogues, by return of post, in answer to all applications addressed to him at the *Gardeners' Gazette* Office, 2, Tavistock-street, Strand.

SALE OF FINE TULIPS.

TO BE SOLD BY AUCTION, in the MONTEITH ROOMS, BUCHANAN-STREET, GLASGOW, by Messrs. BARCLAY & SKIRVING, on the 5th of June next, at 12 o'clock, that select collection of TULIPS which belonged to the late Mr. Matthew Auld, Strathbungo. The principal bed at Bunhouse, Partick, and the offset bed at Strathbungo, may be viewed on Monday 2d, Tuesday 3d, and Wednesday 4th of June. Printed Catalogues may be had on prepaid application—in Glasgow, to Mr. A. CURRIE, 354, High-street; Mr. JOHN CALDER, College: or to Mr. JOHN WATERSTON, Florist, Paisley.—Glasgow, May 24.

MAIDENHEAD, BERKS.

TO BE SOLD, and entered on at Midsummer next, THE LEASE OF NURSERY GROUNDS,
With a GOOD SEED TRADE well established, and doing a considerable business; with a good stock of Fruit, Forest Trees, Shrubs, Greenhouse, Pits, &c. The reason for disposing of the above is the unexpected death of the late proprietor.
For further particulars, apply to the Widow, Mrs. WAKERILL, Maidenhead.

TO SEEDSMEN AND OTHERS.

TO BE DISPOSED OF, in consequeuce of the death of the Proprietor, THE LEASE and GOODWILL of a first-rate established BUSINESS in the above Line. The Premises are in excellent repair, a large sum having been recently expended on them, consisting of Good Dwelling House, Shop, Counting House, and Warehouse about 150 feet deep, in an excellent situation and doing a very large business. For Particulars, apply to Messrs. GODDEN and GODDEN, 16, Great James-street, Bedford-row.

WANTED, by a Gardener, for 14 or 21 years, on Lease, a SMALL HOUSE, with One or Two ACRES of LAND attached, with a supply of water; not to exceed three miles from London.—Address to J. S., Mr. Barker's, Whipmaker, 3, Pitt's-place, Old Kent-road.

Farms to Let.

HODDESDON, HERTS.

TO BE LET, with possession at Michaelmas next, a FARM, consisting of about 235 acres of land, with a convenient Homestead, ½ mile from the Broxbourn Railway Station.—Direct to Mr. WILLIAM CHAPMAN, Bailiff, Broxbournbury.

KENT.

TO BE LET.—A FARM, with Country Residence, within 7 miles of London, and within 10 minutes' drive of a railway station. The FARM is most desirable, containing 212 acres of good Arable and Meadow Land, in a fine state of cultivation, with all the necessary appendages of a Farm. The House is modern built—a Villa, situate on an eminence, commanding extensive and beautiful views, with Garden and Pleasure-Grounds: the whole forming comfortable accommodation, and is admirably adapted for an Amateur Farmer. With immediate possession.—For further particulars apply for cards of address at the "Mark-lane Express" Office, 24, Norfolk-street, Strand.

GUANO.—Genuine GUANO (Peruvian and African) on SALE, at SWAYNE and BOVILL'S Bonded Warehouses, Mill-wall, Poplar, where the stock may be inspected as imported.—Apply as above, or at 19, Abchurch-lane, City.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 18, Rood-lane, Fenchurch-street.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, May 24.

GUANO.—GENUINE PERUVIAN and ICHABOE GUANO, of the finest quality, is now selling from the Importer's Bonded Warehouses, and will be shipped coastwise or forwarded by land carriage in quantities to suit the convenience of farmers upon application to Mr. T. N. KERR, 57, Lime-street, London. The genuineness of the article may be confidently relied on, but samples and analysis will be forwarded if required.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.
The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.
The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.
40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

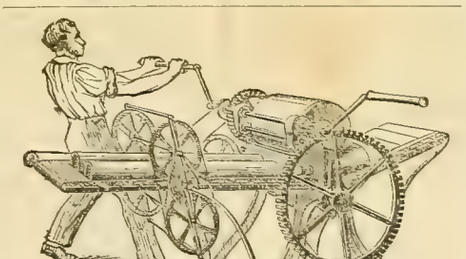
The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.
GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.
Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.
Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

BRAIN'S GYPSUM, 23*s.* per Ton, Good and Cheap.
No. 397. April 24, 1845.—This is to certify that we have examined a sample of Gypsum sent by Mr. BRAIN, of Thomas-street, Stamford-street, and find it contains

Sulphate of Lime	94·10
Water	5·00
Carbonate of Lime	·90
Animal Matter and Soda	Traces.
	100·00

(Signed) MITCHELL & FIELD.
5a, Hawley-road, Kentish-town, London.
Delivered free of Cartage to any Wharf or Railway in Town.

THE PATENT ECONOMIC TILE MACHINE having been on view, at work, in London, for five weeks, is now removed to Mr. BAILEY DENTON'S offices, No. 9, Gray's-inn-square, where it can be seen daily, between the hours of 10 and 4; price, 20*l.* Orders received by Mr. DENTON, Gray's-inn, by Mr. CHARNOCK, or the Makers, Wakefield. The "A" Level for Draining, can also be seen at the above address; price 30*s.*



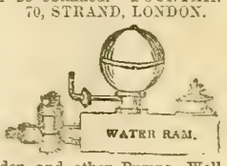
AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.
These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.
By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.
The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.
PATENT DRYING PROCESS.
Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.
A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.
Alperton Tile-works, Acton, Middlesex.

HAY-MAKING SEASON.—Mrs. MARY WEDLAKE, widow of the late Thomas Wedlake, of the Fairkytes Original Iron Works, Hornchurch, Essex, and 118, Fenchurch-Street, opposite Mark Lane, London, begs to remind Agriculturists she continues making that most useful Implement for which her late husband obtained a patent, and received a Silver Medal at the Derby Show, the Double-action Hay-maker, so much admired; also the Horse Hay-rake; they may be inspected daily at the City Repository for Agricultural and Colonial Implements, 118, Fenchurch-street, opposite Mark Lane, London. N.B. To prevent disappointment at this season, an early application for these Implements is solicited.

MUSPRATT AND CO.'s PATENT MANURE.—The Farming Public is most respectfully informed that a "PATENT MANURE" is manufactured by us according to the principles and directions of PROFESSOR LIEBIG. This Manure being a Mineral Manure, and being composed according to the proportions of the mineral elements found by the analysis of the ashes of our various Plants of culture, and by a careful examination and comparison of the best stable and other efficient Manures, is of course of a different description according to the kinds of Plants for which it is to be used. We have consequently prepared four sorts of Manures.
No. 1, for Wheat, Oats, Rye, Barley.
— 2, for Potatoes, Mangold Wurzel, Turnips, Beet-root, Carrots.
— 3, for Grass, sown and Meadow.
— 4, for Beans, Peas, Tobacco.
The great object which the inventor of this Manure had in view, was the Manufacture of Compounds which should possess all the fertilising power of Guano, and supply what is deficient in the latter; especially for those plants which require Alkaline Carbonates, without possessing its too great solubility, by which its effects in this country is in some cases and seasons reduced to almost nothing. It is well known how much the contents of the Guano in efficient elements vary—not two sorts are alike; and it is, therefore, quite obvious that no dependance can be placed upon it, if a quantitative analysis be not made beforehand. The Patent Manure is always equal in its proportions of efficient elements, and the farmer is sure of obtaining just what his lands require, the quantity to be recommended being the exact amount of what a heavy crop demands. By applying this manure, it is thought that no rotation of crops will be required. As this must have always been regarded as the grand problem of agriculture, the art of farming may, by its use, undergo an entire revolution.
As regards the price of the Patent Manure, it is obvious that the farmer being obliged to pay only for what he actually requires for his crops, he will find its use more economical than any other manure. On account of the advanced season, when the discovery of the manure was communicated to us, we have only been able to prepare a few tons of No. 2 for trial; and we beg those wishing to apply it, to favour us with their orders as soon as possible. A printed pamphlet containing full particulars of the way in which it is to be used, will be given with it. Price of the Manure No. 2, 10*l.* per ton, net cash, delivered in Liverpool, 400 lbs. weight to the acre.—JAMES MUSPRATT & Co., Newton, Lancashire.
Application in London to our sole Agent, JOHN K. HUNTLEY, 4, John-street, Minories.

DRAINING OF LAND.—THE WORKMANS' A LEVEL, invented by Mr. BAILEY DENTON, is made and sold, as approved by him, by Messrs. JONES, Opticians, 30, Lower Holborn, London, price 30*s.*

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.
F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



TO COLONISTS, EMIGRANTS, &c.—Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles made in a very superior manner, are kept on sale at the London Warehouse, viz.—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double-action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

LINGHAM, BROTHERS, BIRMINGHAM.—MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.
The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to any thing of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Hortulan purposes.
Sole Agents in London:—GEORGE and J. DEANE, Horticultural Implement Warehouse, 46, King William-street, London-bridge.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1*s.* An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Holles-street.
Caution—Beware of the words "From Metcalfe's," adopted by some houses.

HEAL AND SON'S LIST OF BEDDING, containing a full description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding. Sent free by post, on application to their Establishment, the largest in London exclusively for the manufacture and sale of Bedding (no bedsteads or other furniture being kept). HEAL & SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

SUPERFINE CLOTH DRESS COATS 30*s.* to 40*s.*, extra quality 50*s.*; frock coats, faced with silk, 35*s.* to 45*s.*, extra quality, 50*s.* to 60*s.*; fashionable merino and tweed, Albert, Codrington, and Chesterfield coats, 16*s.* to 25*s.*; waistcoats, new patterns, 6*s.* 6*d.* to 12*s.*, rich satin, 8*s.* 6*d.* to 16*s.*; doeskin trowsers, 12*s.*, 18*s.*, and 21*s.*; shooting jackets, 9*s.* 6*d.* to 18*s.*; boys' and youths' clothing; office or study coats 9*s.* 6*d.* to 15*s.*; a suite of superfine black cloth, 3*l.* 3*s.*; extra quality 3*l.* 10*s.* to 4*l.* 4*s.*, at FISHER and Co.'s, Tailors, 31, King William-street, City, ten doors from London Bridge.

AN ADDRESS TO LANDLORDS, on the Advantages to be expected from the general Establishment of a Spade Tenantry from among the Labouring Classes. By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, and Professor of Botany in the University of Cambridge. Price 1s.
London: R. GROOMBRIDGE and SONS, Paternoster-row.

TO LANDOWNERS, COUNTRY GENTLEMEN, & OTHERS. MR. EDWARD RYDE, LAND AND ENGINEERING SURVEYOR, Sunbury, Middlesex, will send free, on the receipt of 14 Postage Labels, his COMPLETE READY RECKONER, for Measuring and Valuing Hay Ricks: with very plain instructions for taking the dimensions and for judging the density of the Hay.
London: SAMUEL GILBERT.

PROFESSOR LINDLEY'S WORKS.
Recently published, One large vol. 8vo. with Six Copperplates, and numerous Wood Engravings, 18s.,
INTRODUCTION TO BOTANY. By Professor LINDLEY, Ph.D. of University College and the Royal Institution. 3d Edit. with Corrections and numerous Additions.
"We have no hesitation in pronouncing this 'Introduction to Botany' to be the most valuable and perfect in any language we are acquainted with."—*Medical Gazette.*
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THE THEORY OF HORTICULTURE. 12s. 8vo.
SYNOPSIS OF THE BRITISH FLORA. 12mo. 10s. 6d.
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THE FARMER'S MEDICAL DICTIONARY for the DISEASES of ANIMALS. By CUTHBERT W. JOHNSON, Esq., F.R.S., &c. &c. &c.
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4. The YOUNG FARMER'S CALENDAR. Price 1s.
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6. SINCLAIR on GRASSES and the WEEDS of AGRICULTURE. Coloured plates, price 30s.
JAMES RIDGWAY, Piccadilly.

This day, price 4s. cloth lettered,
MANUAL of AGRICULTURAL ANALYSIS. By JOHN MITCHELL, M.C.S.L. Describing the Apparatus used, the best methods of obtaining Accurate Results, the Reagents requisite, their Purity and Preparation; the Classification, Composition, and Physical Properties of Soils. With an Appendix, containing Results of Experiments with Manures. Illustrated with numerous Woodcuts and Tables.
London: SIMPKIN, MARSHALL, & Co.; JOHN WARD, 79, Bishopsgate-street Within.

Now ready, price 4s. 6d.,
RURAL CHEMISTRY.
By EDWARD SOLLY, Esq., F.R.S.,
Experimental Chemist to the Horticultural Society of London, Hon. Mem. of the Royal Agricultural Society, and Lecturer on Chemistry, at the Royal Institution.
&c. &c. &c.
Extracts from the Introduction:—
"A knowledge of the chemical composition of soils and the various substances employed as manures enables us to comprehend the mode in which the latter act; and a knowledge of the nature of these substances which plants require, points out the best and most economical methods of restoring to the soil, by manures, those substances which plants remove from it."
"If the farmer knows what it is that gives the fertilizing powers to manure, and is aware of the nature of those substances, he will soon learn the best method of preserving and using them: he will then understand how to make the most of the various sources of manure at his disposal, and he will be enabled readily to save much, that, for the want of such knowledge, would otherwise be lost."
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22.—1845] SATURDAY, MAY 31. [PRICE 6*d.*

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GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given, that a General Meeting of the Subscribers to this Institution will be held at the London Coffee House, Ludgate hill, on Wednesday, 4th June next, for the purpose of Electing Four Poor Persons to the benefit of a Pension of 16*l.* per annum, from among the following Candidates, whose Testimonials have been examined, and approved of by the Committee:—

Names.		*Age.*	*Residence.*
GEORGE MARTIN,	3d application,	aged 67	—Bristol.
JOHN ADAMSON,	2d	,, 68	—Mortlake.
BARNEY FARELLY,	2d	,, 63	—London.
THOMAS FARMER,	2d	,, 64	—Mitcham.
JOHN FISHER,	2d	,, 70	—Kennington.
JOHN GARNELL,	2d	,, 78	—East Ham.
CHRISTOPHER GIBBONS,	2d	,, 59	—Hendon.
JAMES STEDMAN,	2d	,, 76	—London.
RICHARD STOYLES,	2d	,, 78	—Liskeard.
ANN COOPER,	1st	,, 64	—Wentworth.
JAMES EVEREST,	1st	,, 64	—Bagshot.
MARY HAMILTON,	1st	,, 74	—Hammersmith.
JOHN LONGHURST,	1st	,, 57	—Charlton.
WILLIAM MAY,	1st	,, 76	—Footscray.

The Chair to be taken at half-past Eleven o'clock precisely. The Ballot will commence at Twelve and close at Two o'clock precisely. EDWARD R. CUTLER, Secretary.

A GRAND FLORAL AND HORTICULTURAL EXHIBITION, under the Patronage of the Right Rev. LORD BISHOP OF ROCHESTER, and the Nobility and Gentry of the Neighbourhood, will be held in the Grounds of the White Hart Hotel, Bromley, Kent, on Tuesday, the 10th of June, 1845, in aid of the Funds of the GARDENERS' BENEVOLENT INSTITUTION. The Bands of the Royal Artillery and Sappers and Miners will be in attendance.

P.S. Tickets 2*s.* 6*d.* each until the 7th of June, after which they will be charged 3*s.* 6*d.* May be had at the White Hart Hotel, Bromley; the Crown Hotel, Sevenoaks; the Crown Hotel, Tonbridge; the Kentish Hotel, Tonbridge Wells; the Bull Hotel, Dartford; the Green Man Hotel, Blackheath; the Greyhound Hotel, Croydon; the King's Arms, Kent-road; the King's Arms, Westerham; the Tiger, Foot's Cray; and at Mr. Beaver's Library, Nelson-street, Greenwich. S. OSBORN, Secretary.

ROYAL BOTANIC SOCIETY, REGENT'S PARK. The SECOND EXHIBITION of PLANTS and FLOWERS for Prizes offered by this Society, will take place in the Inner Circle of the Regent's Park, on

WEDNESDAY NEXT, JUNE 4TH,

When the Bands of the 1st and 2d Life Guards, and of the Royal Horse Guards, have permission to attend, and will play alternately from 2 to 7 o'clock. At 3 o'clock they will perform, in CONCERT, the "Overture to Zampa" (Herold); at half-past 4 they will again join, and perform the "Diamans de la Couronne" (Auber); and at 6 o'clock the "Gazza Ladra," by Rossini.

Gates open at 2 o'clock. Carriages to enter the Circle from the road opposite York Gate, and leave it by the road to Chester Terrace.—By order of the Council, J. DE C. SOWERBY, Sec.

EXHIBITIONS OF PLANTS, FLOWERS, AND FRUIT, in the Gardens of the ROYAL BOTANIC SOCIETY, Inner Circle, Regent's Park, on WEDNESDAY next, June 4th, and WEDNESDAY, July 2. Preparations are made by opening two gates on the north side of the Circle immediately into the suite of spacious Marquees, which will insure the Company access to, and departure from, the Exhibitions, without danger from wet in case of rain. Fellows, Members, and the Bearers of Ivory Tickets, are admitted free.

Tickets for Visitors may be had at the Gardens, price 5*s.* each, except on the days of exhibition, when they will be 7*s.* 6*d.* each; but no ticket can be issued except to the order of a Fellow or Member of the Society. A ticket will admit one person to either of the Exhibitions.—J. DE C. SOWERBY, Secretary.

LEANDER DAHLIA.—The brightest and best rose-colour in cultivation, is now ready for delivery at 10*s.* 6*d.*; those taking 12 have the full discount. This flower beat all the rose-colours in class showing in 1843.—5, Norfolk-place, Shacklewell.

GRAND EXTRA HORTICULTURAL FETE AT CAMBRIDGE, on Friday, the 26th of June, 1845, during the meeting of THE BRITISH ASSOCIATION. In addition to the List of Prizes offered in the Annual Circular of the Cambridgeshire Horticultural Society (the competition for which is limited to its members), the following EXTRA PRIZES, OPEN TO ALL ENGLAND, will be offered, viz.:—

For the best collection of 50 plants in pots—1st prize, 4*l.*; 2nd prize, 2*l.* Entrance, 7*s.*

For the best collection of 20 plants in pots—1st prize, 2*l.*; 2nd prize, 20*s.* Entrance, 5*s.*

For the best single specimen of a plant in a pot—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of 36 Roses in bunches—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best 6 Roses in pots—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Fuchsias—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Ranunculuses—1st prize, 20*s.*; 2nd prize, 15*s.* Entrance, 2*s.* 6*d.*

For the best collection of cut flowers, in a basket or otherwise—1st prize, 15*s.*; 2nd prize, 10*s.*; 3d prize, 5*s.* Entrance, 2*s.* 6*d.*

For the best collection of Pelargoniums—1st prize, 30*s.*; 2nd prize, 20*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of cut Pansies (24 varieties)—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.* Entrance, 1*s.*

For the best 12lb. of Strawberries—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.*

For the best Melon—1st prize, 15*s.*; 2nd prize, 10*s.*

For the best basket of Vegetables—1st prize, 20*s.*; 2nd prize, 15*s.*; third prize, 10*s.*

For the 3 best Cauliflowers—1st prize, 5*s.*; 2d prize, 3*s.*

For the 3 best Lettuces—1st prize, 5*s.*; 2nd prize, 3*s.*

Entrances for Fruits and Vegetables, 1*s.* each class.

Each Exhibitor will be required to certify that the articles shown by him are of his own growth, or have been in his possession at least six weeks; and no articles can be removed from the Show till 8 o'clock in the evening.

Entrances to be made three days before the Show, and money paid to the Honorary Secretary, Sidney-street, Cambridge, where rules for exhibitors, with other particulars, may be had on prepaid application. W. G. ASHTON, Hon. Sec.

GRAND FLOWER-SHOWS AT GRAVESEND. Exhibitors and the Public are respectfully informed, that Two Shows upon a large scale will take place this season:—The first, at the Royal Terrace Gardens, on the 17th day of June; and the second, at the Rosherville Gardens, on the 9th day of July next.

A List of Prizes, amounting to upwards of 100*l.* for each Show, may be obtained by application to W. A. Coombe, Esq., Town Hall, Gravesend, Hon. Sec., or at the respective Gardens.

Exhibitors will be required to give Three days' notice of the number of Plants intended to be exhibited, in order that sufficient preparation may be made for their reception.

Gravesend, May 31, 1845.

WILLIAM MASTERS having been employed during the last 30 years in the study and practice of Horticulture, begs respectfully to remind his Friends and the Public, that he has possessed constant opportunities of obtaining novelties, and therefore his collection of Plants contains a greater number of species than are usually cultivated in a Provincial Nursery,—especially

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*Veronica salicifolia..	0	7	6	†Spiræa Douglasii....	0	3	6
Ditto New unnamed species.....	1	1	0	Gesnera Gardneriana	0	5	0
Jocroma tubiformis..	0	3	6	Taconia molissima..	0	3	6

* These Veronicas are natives of New Zealand, quite shrubby, and desirable greenhouse plants.

† The colour of this hardy plant approaches scarlet.

Chiswick Nursery, May 31.

PETUNIA "PINK PET."—See S. WALTERS' Advertisement of last week. Messrs. HURST and M'MULLEN, 6, Leadenhall-street, will supply Plants of the above.

H. MAJOR cannot execute any more orders this year for parcels of Unbloomed SEEDLING CALCEOLARIAS; nor till the autumn for his Seedling Pansies—Purity, Bridal Ring, Duke of York, and Bridegroom. There still remains on hand a few sets of his New Seedling Calceolarias. First set of eight, 2*l.*; Second, 1*l.* 10*s.*; Third, 1*l.* Also a few plants of his Calceolaria, Duke of York, separately, at 7*s.* 6*d.* each—the richest dark variety out.

Knesthorpe, near Leeds, May 31.

NEW AND SUPERB CHRYSANTHEMUMS.

YOUELL AND CO. are now forwarding per post free with the utmost punctuality, to any part of the United Kingdom, fine strong well-rooted plants of the following beautiful CHRYSANTHEMUMS, at 12*s.* per doz., the selection being left to the purchaser or to YOUELL and Co., and will ensure a fine Autumnal bloom.

Achmet Bey, lilac
Annie Salter
Arago, buff and red
Beauty, pale lilac
Beauté de Versailles
Belladonna, pink
Bethula, lilac
Brunette
Campestroni, purple [son
Casimer Perrier, small crim-
Chancellor, white and pink
Changeable, yellow
Christopher Colombe, lilac
Competitor
Colonel Combe's, salmon
Conspicuum
Defiance, white
Diana
Duc de Conigliano, crimson
Duchess de Montebello
Duke, extra fine
Elegans, rose
Expanded, purple
Empress, lilac
Flechier, dark rose
Formosum, white and yellow
Golden Lotus-flowered, yellow
Gem, pink and white
Goliath, white
Gouvain St. Cyr, orange
Hardy
Hero
Incurved, pink
Insigne, pink and red
Imperial, pale lilac
King, pale rose
Louis Philippe
Lucidum, white
Marchioness, white
Madame Pompadour, dark rose
Marechale Messina, yellow and
Marie, red [red
Marie Antoinette
Magnet, yellow
Memnon, pink
Minerva, pink and white
Mirabile, white and buff
One of the Ring
Peter, creamy
Perspicuum, pink
Prince Albert
Princess Marie, light pink
Pulcherrimum, rose
Queen Victoria
Queen, deep rose
Queen of Gipsies
Quilled, yellow
Rosalind, pink
Saladin
Salters, white
Success
Sulphurea
Sultana, rose
Superb, clustered yellow
Surprise, white
Starry, purple
Tasselled, lilac
——— yellow
Titian
Triumphant, pink and buff
Two-coloured Incurved, yellow
Uterpe [and brown
Vesta, white
Wheelerianæ
Zelinda

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, and PANSIES.

YOUELL AND CO. continue to supply the above highly-ornamental plants per post, free, at the following prices. Their collection of the above is the most extensive and select in the United Kingdom, thus insuring to the purchaser the certainty of receiving none but first-rate varieties.

FUCHSIAS.

YOUELL & Co.'s 8 New and Splendid Seedlings, 42*s.*
12 Extra Fine Varieties of Fuchsias ..... 12*s.*
12 Ditto ditto, New ..... 21*s.*
50 Fine Varieties ..... 40*s.*
50 Extra fine ditto ..... 60*s.*

VERBENAS.

12 Extra Fine Varieties, 6*s.*, the Selection left to Youell and Co.
12 Ditto 10*s.*, the Selection left to the Purchaser.

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . . 10*s.* per dozen.
12 Extra Fine do. do. . . . . 18*s.* ,,

PETUNIAS, 12*s.* per dozen.

FLOWER SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

FINE ERICAS, 12*s.* per dozen.

ARAUCARIA IMBRICATA, OR CHILI PINE TREE.—Four-year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see YOUELL & Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

Achimenes pedunculata, hirsuta, and grandiflora, 9*s.* per dozen; Achimenes picta, 18*s.* per dozen.

Fine plants of Pinus excelsa, from Seed, 9in. to 1ft., 42*s.* per dozen.—Great Yarmouth Nursery, May 31, 1845.

TURNIP SEEDS.

WARNER & WARNER, SEED MERCHANTS, 28, CORNHILL, LONDON; ESTABLISHED, 1720;

Beg respectfully to call the attention of the Nobility and Gentry to the following varieties, being selected from Choice Stocks, can be strongly recommended, amongst which, the Russian Swede and Purple-top White Swede will be most desirable.

W. & W. being extensive growers of TURNIP SEEDS, selecting the first-rate varieties, purchasers will not be disappointed of a genuine article.

Pomeranian White
Green Norfolk
White Norfolk
Red Norfolk
White Globe
Green Globe
Green Barrel
Green-top Stone
White Stubble
Red Globe
Red Bullock-heart
Green-top Yellow Aberdeen
Purple-top Yellow Aberdeen
Dale's Hybrid
Warner's Green-top Russian Swedish, superior to all others, possessing more saccharine matter, and producing an increased weight per acre.
Laing's Selected Swedish
Ashcroft's Purple-top Swedish
Warner's Purple-top Russian Swedish, adapted to all soils and invaluable to the Agriculturist for its fattening qualities
Tankard Yellow Swedish
White Tankard
Red Tankard
Green Tankard
Purple-top White Swedish—this kind is particularly recommended at lambing season, as affording ewes increased milk, as well as being suitable for lambs
Dwarf Rape
With every other description of Agricultural Seeds.

Wholesale Dealers supplied upon liberal terms.

THE ALSIKE CLOVER being a new and much improved variety, partaking of the character of the Red and White Clover, is a perennial, producing an immense crop, price 2*s.* 6*d.* per lb.

IMPROVED LONG RED MANGOLD WURZEL, Yellow Globe and Red Globe ditto.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDEN,
May 24th, 1845.

AWARD OF THE JUDGES.

THE LARGE GOLD MEDAL.

1. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for a collection of 40 Stove and Greenhouse Plants
2. To Mr. Mylam, Gardener to Sigismund Rucker, Esq., Jun., F.H.S., for 20 species of Exotic Orchidaceæ.

THE GOLD KNIGHTIAN MEDAL.

1. To Mr. Barnes, Gardener to G. W. Norman, Esq., of Bromley-common, Kent, for a collection of 40 Stove and Greenhouse Plants
2. To Mr. Frazer, of Lea-bridge-road, for a collection of 20 Stove and Greenhouse Plants
3. To Mr. J. Robertson, for 20 species of Exotic Orchidaceæ
4. To Mr. Don, Gardener to F. G. Cox, Esq., F.H.S., for 12 species of Exotic Orchidaceæ
5. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for 20 varieties of Cape Heaths
6. To Messrs. Fairbairn, Nurserymen, Clapham, for the same
7. To Mr. Dodd, Gardener to Sir George Warrender, Bart., F.H.S., for a miscellaneous collection of Fruit.

THE GOLD BANKSIAN MEDAL.

1. To Mr. Green, Gardener to Sir E. Antrobus, Bart., F.H.S., for a collection of 40 Stove and Greenhouse Plants
2. To Mr. Hunt, Gardener to Miss Traill, of Hayes-place, Bromley, for a collection of 20 Stove and Greenhouse Plants
3. To Mr. Bruce, Gardener to Boyd Miller, Esq., of Collier's-wood, Mitcham, for a collection of 12 Stove and Greenhouse Plants
4. To Mr. Dobson, Gardener to Mr. Beck, F.H.S., for 12 new varieties of Pelargonium
5. To Mr. Gaines, of Battersea, for the same.
6. To Mr. R. Staines, of Middlesex-place, New-road, for 12 varieties of Pelargonium
7. To Messrs. C. D. Smith, of Elizabeth-street South, Pimlico, for the same
8. To Mr. Dobson, for 12 varieties of Roses in pots
9. To Messrs. Lane & Co., of Great Berkhampstead, for 25 varieties of Roses in pots
10. To Messrs. Rollisson, of Tooting, for 20 species of Exotic Orchidaceæ
11. To Mr. Williams, Gardener to C. B. Warner, Esq., F.H.S., for 12 species of the same
12. To Messrs. Veitch & Son, of Exeter, for six species of the same
13. To Mr. Green, for 12 varieties of Greenhouse Azalea
14. To Mr. Hunt, Gardener to Miss Traill, for 12 species of Cape Heaths
15. To Messrs. Veitch & Son, for the same
16. To Mr. John Green, for Tall Cacti in flower
17. To Mr. M. Henderson, Gardener to Sir George Beaumont, Bart., for a miscellaneous collection of Fruit.

THE SILVER GILT MEDAL.

1. To Mr. W. P. Ayres, Gardener to James Cook, Esq., F.H.S., for a collection of 20 Stove and Greenhouse Plants
2. To Mr. Pawley, of Bromley, Kent, for a collection of 12 Stove and Greenhouse Plants
3. To Mr. May, Gardener to E. Goodheart, Esq., of Langley-park, Beckenham, Kent, for a collection of six Stove and Greenhouse Plants
4. To Mr. Pawley, for six Stove and Greenhouse Climbers
5. To Mr. W. Cock, F.H.S., for 12 new varieties of Pelargonium
6. To Mr. Dobson, for 12 varieties of Pelargonium
7. To Mr. Gaines, for the same
8. To Mr. J. Slowe, Gardener to W. R. Baker, Esq., F.H.S., for a collection of 12 Roses in pots
9. To Mr. Eyles, Gardener to Sir George Larpent, Bart., F.H.S., for six species of Exotic Orchidaceæ
10. To Mr. May, for a collection of 20 species of Cape Heaths
11. To Messrs. Rollisson, for the same
12. To Mr. G. Plumbley, Gardener to C. J. Dimsdale, Esq., of Essenden-place, Herts., for a collection of 12 species of Cape Heaths
13. To Mr. Frazer, for the same
14. To Mr. Bruce, for a collection of six species of Cape Heaths
15. To Mr. Dawson, of Brixton-hill, for the same
16. To Mr. Falconer, Gardener to Archdale Palmer, Esq., of Cheam, for 12 Greenhouse Azaleas
17. To Mr. Frazer, for six Greenhouse Azaleas
18. To Mr. Roe, Gardener to J. J. Blandy, Esq., of High-grove, Reading, for Saccolabium guttatum
19. To Mr. Falconer, for Azalea variegata
20. To Mr. Bassett, Gardener to R. S. Holford, Esq., for Aerides odoratum
21. To Mr. Smith, of Norbiton, for 11 Rhododendrons
22. To Mr. Dodd, Gardener to Sir G. Warrender, for Grapes
23. To Mr. Davis, of Oak-hill-gardens, East Barnet, for Pine-apples.

THE LARGE SILVER MEDAL.

1. To Mr. Epps, of Maidstone, for a collection of 12 Stove and Greenhouse Plants
2. To Mr. G. Stanly, Gardener to H. Berens, Esq., F.H.S., for a collection of six Stove and Greenhouse Plants
3. To Mr. Gaines, for six varieties of Pelargonium
4. To Mr. Kinghorn, Gardener to A. Murray, Esq., F.H.S., for six Calceolarias
5. To Mr. Gaines, for the same
6. To Mr. A. Kendall, of Stoke Newington, for 12 varieties of Fuchsia
7. To Alexander Rowland, Esq., F.H.S., for a collection of Roses, in 12 varieties
8. To Mrs. Stedman, of Isleworth, for a collection of Roses, in 25 varieties
9. To Mr. Pawley, for a collection of 20 varieties of Cape Heaths
10. To Mr. Evan Jack, Gardener to R. G. Lorraine, Esq., of Wallington, Surrey, for a collection of six varieties of Cape Heaths
11. To Mr. Bruce, for Tall Cacti in flower
12. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for 12 Greenhouse Azaleas
13. To Mr. R. Plant, Gardener, to I. H. Schroeder, Esq., for 6 species of Exotic Orchidaceæ
14. To Mr. Robertson, for Erica propendens
15. To Mr. John Spencer, Gardener to the Marquis of Lansdowne, F.H.S., for a miscellaneous collection of Fruit
16. To Mr. S. Barnes, Gardener to Thomas Whitmore, Esq., for Grapes
17. To Mr. Henderson, Gardener to Sir George Beaumont, Bart., for the same
18. To Mr. G. Wortley, Gardener to I. F. Maubert, Esq., F.H.S., for the same
19. To Mr. Mitchell, of Kemp-town, Brighton, for the same
20. To Mr. M. Henderson, for Pine-apples.

THE SILVER KNIGHTIAN MEDAL.

1. To Mr. Cole, Gardener to C. Lewis, Esq., of Blackheath-park, for a collection of six Stove and Greenhouse Plants
2. To Mr. Frazer, for a collection of six Stove and Greenhouse Climbers
3. To Mr. G. Stanley, for a collection of six Calceolarias
4. To Mr. Gaines, for a collection of 12 varieties of Fuchsia
5. To Mr. W. Taylor, Gardener to J. Coster, Esq., of Streatham, for a collection of six Cape Heaths
6. To Mr. Ivery, of Peckham, for a collection of Cinerarias
7. To Mr. J. Dobson, for a specimen Rose, in a pot
8. To Mr. Plumbley, for a specimen of Cape Heath
9. To Mr. W. May, for Chorozema Henchmanni
10. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for Hydrangea japonica
11. To Mr. Cameron, of Birmingham, for Chlorœa chrysantha
12. To Messrs. Veitch & Son, for Franciscea Pohliana
13. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for the best named collection
14. To Mr. W. Walton, Gardener to Capt. Hart, of East Hoathly, Sussex, for Grapes
15. To Mr. Brewin, Gardener to R. Gunter, Esq., F.H.S., for Pine-apples
16. To Mr. Thomas Mac Laurin, Gardener to Sir G. Sitwell, Bart., of Renishaw-hall, near Sheffield, for Peaches and Nectarines
17. To Mr. Fleming, Gardener to His Grace the Duke of Sutherland, F.H.S., for the same
18. To Mr. D. Judd, Gardener to W. H. Whitbread, Esq., F.H.S., for Melons
19. To Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., F.H.S., for Strawberries
20. To Mr. Toy, Gardener to Col. Challoner, F.H.S., for the same
21. To Mr. Wells, Gardener to A. Glendinning, Esq., F.H.S., for Citrons
22. To Mr. Gadd, of Betchworth Castle Gardens, Dorking, for Melons.

THE SILVER BANKSIAN MEDAL.

1. To Mr. Jack, for a collection of six Stove and Greenhouse Plants
2. To Mr. R. Glendinning, F.H.S., for the same
3. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for a collection of six Stove and Greenhouse Climbers
4. To Mr. Milne, Gardener to C. Snell Chauncey, Esq., for a collection of Roses in 25 varieties
5. To Mr. J. W. Dawson, for Erica mundula
6. To Mr. Gaines, for 12 Greenhouse Azaleas
7. To Messrs. Lane & Son, for a collection of Cinerarias
8. To Mr. Beck, for a Seedling Pelargonium of 1844 (Rosy Circle)
9. To the same, for a Seedling Pelargonium of 1844 (Arabella)
10. To Mr. Catleugh, of Hans-place, Chelsea, for a Seedling Pelargonium of 1844 (the Pearl)
11. To Messrs. Veitch & Son, for Eriostemon buxifolium
12. To Mr. Robert Pool, for Boronia serrulata
13. To Mr. Bruce, for Ixora coccinea
14. To Mr. R. Forrest, F.H.S., for Statice macrophylla
15. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for Daviesia cordifolia
16. To Messrs. Rollisson & Co., for the second-best named collection
17. To Mr. Mylam, for the third-best named collection
18. To Mr. Spencer, for Grapes
19. To Mr. Toy, for Pine-apples
20. To Mr. Dodd, for Nectarines
21. To Mr. Spencer, for Strawberries
22. To Mr. G. Wortley, for the same
23. To Mr. John Hill, Gardener to Thos. Davis, Esq., of East Acton, for Melons.

THE CERTIFICATE OF MERIT.

1. To Mr. W. Taylor, Gardener to J. Coster, Esq., for a collection of six Stove and Greenhouse Plants
2. To the same, for a collection of Cinerarias
3. To Mr. Kinghorn, for a Seedling Calceolaria (Exemplar)
4. To Messrs. Smith, of Pimlico, for a Seedling Calceolaria (Smithii)
5. To Mr. Hoyle, of Guernsey, for a Seedling Pelargonium of 1845 (Mount Etna)
6. To the same, for a Seedling Pelargonium of 1845 (Isabella)
7. To Mr. J. Hill, Gardener to Thomas Davis, Esq., F.H.S., for Kennedya monophylla
8. To Mr. Hunt, for Boronia serrulata
9. To Mr. Cole, for Brugmansia Knightii
10. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for Gastrolobium spinosum
11. To Messrs. Booth, of Hamburgh, for Odontoglossum cordatum
12. To Messrs. Veitch & Co., for Tropæolum Lobbii
13. To the same, for a species of Siphocampylus
14. To Mr. Green, for Thunbergia chrysops
15. To Mr. J. Robertson, Gardener to Mrs. Lawrence, F.H.S., for the same
16. To Mr. Pawley, for the fourth-best named collection
17. To Mr. May, for the fifth-best named collection
18. To Richard Brook, Esq., F.H.S., for Apples
19. To Mr. Mc Ewen, Gardener to Col. Wyndham, for Lemons
20. To the same, for Melons.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON respectfully solicit attention to their superb and extensive Stock of FUCHSIAS and VERBENAS, Collections of which will be sent at the following prices, the selection of sorts being left to themselves.

FUCHSIAS.

12 fine varieties for ..... 6s.	12 new vars. for exhibition 18s.
12 superior do. ..... 9s.	50 fine ditto. ..... 30s.
12 superb ditto ..... 12s.	50 new ditto for exhibition 50s.

VERBENAS.

12 fine varieties for ..... 5s.
12 superior ditto ..... 9s.
12 superb ditto ..... 12s.

PETUNIAS.

12 fine varieties for ..... 6s.
12 superb ditto ..... 9s.
12 new ditto of the present season ..... 12s.

A FEW SELECT PLANTS—Extracted from General Catalogue.

	s. d.		Per Plant—s. d.
Achimenes, 8 sorts, one of a sort, for	9 0	Gompholobium polymorphum	3 6
Per Plant		Grindelia viscosa	1 6
Alstrœmeria Errembaultii	3 6	Inga pulcherrima	3 6
,, flava	1 6	Lilium lancifolium album	3 6
,, nemerosa..	7 6	,, ,, punctatum	5 0
Brugmansia floribunda	5 0	,, ,, rubrum ..	15 0
Buddlea Lindleyana ..	2 6	Mandevilla suaveolens..	2 6
Centradenia rosea.....	1 6	Pimelea spectabilis	3 6
Corræa bicolor	2 0	Podostylus sphœricus ..	3 6
Dillwynia cinerascens..	1 6	Polygala Dalmaisiana, new	10 6
,, clavata	2 6	Scutellaria japonica....	1 6
Drymonia punctata	5 0	Statice Dickensonii	3 6
Franciscea latifolia	3 6	,, Reinwardtii	2 6
Gesnera Cooperi	1 6	Tetranema mexicana ..	5 0
,, discolor	5 0	Veronica speciosa.....	2 6
,, elongata.....	1 6		

W. WOOD AND SON'S Descriptive Catalogue of FUCHSIAS and VERBENAS, also lists of Petunias, Anagallis, Miscellaneous Greenhouse and hardy Herbaceous Plants, Shrubs, and Climbers, may be had *gratis* on application.

Plants will be presented to defray the expense of carriage; a remittance or reference is respectfully solicited from unknown Correspondents.

FUCHSIA—"CONSTELLATION."

W. MILLER begs to state, in answer to the many inquiries made concerning the above FUCHSIA, that the Stock is going on favourably, and he intends to commence sending it out about the middle of June. The orders received last year are preserved and will be executed unless previously counteracted.

A List of those Nurserymen who have ordered it will shortly appear, also a List of the London Agents.

Providence Nursery, Ramsgate, May 24, 1845.

FUCHSIAS, to include such as Cormackii, Sanguinea, Eppsii, Transparens, Brockmanii, Venus Victrix, Colossus, Adonis, Britannia, Tricolor, Paragon, Exoniensis, Gem, Flora, St. Clare, Illicifolia, Magnificent, Conspicua arborea.

PETUNIAS, 12 varieties of the largest and best flowers, including several Seedlings of last year.

DAHLIAS, choice sorts. HELIOTROPIUMS.

The above well-rooted Plants, correctly named, out of pots, 3s. per dozen.

PHLOX DRUMMONDII, and Double Indian PINKS, 2s. per dozen.

J. & S. SHILLING, having a good stock of the above, beg to offer them to the public generally at these extremely low prices, package included. A Post-office order accompanying the order, to forward them by post, free, 6d. per dozen must be added.

Northwarnborough Nursery, near Odiham, Hants.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OE ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	11s. 0d.	20 inches	22s. 6d.
15 inches	12 6	22 inches	25 0
16 inches	16 0	24 inches	32 0
18 inches	19 0		

Slate Works, Isleworth, Middlesex

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9s. to 7l. 10s. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a post-age stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

"Nutt on Bees" (5th Edition) now published.

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is prepared expressly for drying Botanical specimens, for which purpose it is peculiarly adapted; and has received the most unqualified approval of our most eminent Botanists. Sold by the Manufacturers, W. and T. BENTALL, Halstead, Essex; and by their Agents, E. Newman, 9, Devonshire-street, Bishopsgate (sole Agent for London); G. Davey, Broad-street, Bristol; H. Whitmore, 119, Market-street, Manchester; R. T. McIntosh, 12, Catherine-street, Edinburgh. For particulars see *Gardeners' Chronicle*, April 5, 1845; see also the Leading Article of the same Number.

BRITISH SHEET OR HORTICULTURAL GLASS. In consequence of the entire removal of the duties, J. WELSH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

NEW CACTI.

YOUELL & CO beg to announce they intend sending out in August next, the following four new and extremely beautiful SEEDLING CACTI. They have been submitted for the opinion of Dr. LINDLEY and other competent judges of this fine and interesting tribe of plants, and beg to refer to the following opinions in the *Gardeners' Chronicle*, May 17 and 24, 1845, under the initials of Y. Y.

No. 4, SPECTABILIS.—"No. 4, the inside of the flower possesses the purple tinge visible in C. speciosissimus, with a crimson red tint through the centre of the petals; it opens well and is very showy."

No. 3, AMABILIS.—"No. 3, a flower in size and form similar to 4; it is of a uniform bright red colour."

No. 7, SUPERBIENS.—"No. 7 is a handsome seedling; fine in colour, having the purple tinge confined to the bottom of the flower."

LATERITIA.—"A most distinct and beautiful variety, the flowers being of the precise colour of Azalea latesitia, expanding well, and of fine habit."

The above are most abundant bloomers, and of fine habit. Price 2*l.* 2*s.* the set. The Stock being very limited no discount will be allowed to the trade unless two or more sets are ordered.

Great Yarmouth Nursery, May 31, 1845.

The Gardeners' Chronicle.

SATURDAY, MAY 31, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	June 2	Entomological	8 P.M.
TUESDAY,	June 3	Horticultural	8 P.M.
		Linnean	8 P.M.
WEDNESDAY,	June 4	Royal Botanic Gardens	2 P.M.
		Society of Arts	8 P.M.
FRIDAY,	June 6	Botanical	8 P.M.
SATURDAY,	June 14	Regent's-park Zoological Gardens	9 A.M.

COUNTRY SHOWS.

TUESDAY, June 10—Gardeners' Benevolent Institution.
THURSDAY, June 12—Stamford Hill Horticultural Society.

WHOEVER had the good fortune to be present at the EXHIBITION of FLOWERS and FRUIT, last Saturday, in the GARDEN of the HORTICULTURAL SOCIETY, must, if he was at all acquainted with gardening, have been most especially struck, not only by the great quantity of beautiful specimens, but also by the general absence of bad ones. Only a few years ago exhibitors were proud of one single finely-grown plant in a collection of forty; now they are ashamed of an indifferent one in the same number. In the beginning of these annual meetings, people claimed credit for that sort of skill which consisted in producing a few forced Kalmias and a dozen miserable Roses flowering in pots; no gardener could now venture to face the ridicule which their exhibition would produce.

As this change has been visibly connected with the competition at Chiswick, it shows conclusively how important are the effects eventually produced by a judicious distribution of rewards to deserving men; and that public bodies should not be discouraged if their first attempts at producing improvements are unattended with all the success which sanguine persons might anticipate. It is evident that the true course to take in all such cases is, first to determine what it is desirable to accomplish, and then to persevere in offering premiums until the object sought for shall have been gained. Doubtless, money is apparently wasted in this operation; and sums may at first be paid which are far beyond the merit which they reward. But the mere fact that moderate success gains in public immoderate distinction is sure to excite ambition, and to stimulate to the utmost whatever talent the country may contain.

But this is very far from being the only great result. It may be doubted whether it is even the most important. Another effect is to render common that kind of skill which, without public competition, would continue to be confined to a few, as it always was before the system of great annual exhibitions was acted upon. Publicity is fatal to the laggards who abound in all walks of life. A dull-witted or incapable gardener, who goes on in the ancient fashion, letting alone what he calls "well," and never striving after improvement, is either ruined by the activity and skill of his neighbours, or is roused into exertion, and bestirs himself to equal them. A country gentleman who finds his fruit and his flowers, and his vegetables, inferior to those of his friends, will naturally take means to call forth his gardener's capabilities, or, finding none, he exchanges him for a better man. Under the influence of causes like this improvement spreads like the circles formed in water when disturbed by a blow. At first there is a little agitation exclusively at the point of displacement, but, the tranquil fluid once set in motion, the ripple spreads, and its circumference is quickly extended till it embraces the whole breadth of the stream.

Of this too ample proof was offered on Saturday. The prizes were no longer confined to a few great exhibitors, with whose skill men have been afraid to contend; but a large number of very meritorious persons, previously unknown at these Shows, entered the lists with remarkable success. The three finest single specimens of cultivation in the garden were a variegated Chinese Azalea, from the garden of Mr. ARCHDALE PALMER, a spotted Saccolabium from that of Mr. BLANDY, and a sweet-scented Aerides from that of Mr. HOLFORD. Of the gardeners of these gentlemen, Mr. FALCONER, indeed, is well known for his unvarying success; but Messrs. ROE and BASSETT are new men. The excellence of their plants was such, that the judges awarded to each of them the highest Medal at their disposal, although one only was offered by the Society. Upon looking over the list of other prizemen we find seven more gardeners whose names are new to the Chiswick shows; and we have no doubt that each succeeding exhibition will produce an addition to their numbers. To use the words of one of the best of our London gardeners, "the quality of the productions brought by new men intimated in significant language, that the old exhibitors must either march along in double quick time, or fall out of the ranks altogether."

The Exhibition, regarded as a whole, has never been equalled in this country, either in the abundance or beauty of the objects displayed upon the tables. For a detailed account of the merits of the various collections, we refer to the report in another column. Some idea of the extent of the Exhibition may be formed from the fact that although a new tent* 100 ft. long, and containing about 300 ft. of tables, was added to those used on former occasions, yet it was found necessary to construct additional staging for a large number of plants. This extraordinary assemblage was doubtless produced in some measure by the railways and other steam communications. Messrs. VEITCH and SON, for example, brought up per rail, in perfect safety, from Exeter, a caravan filled with rare plants, and there was even a successful contribution from Mr. BOOTH, of the Flotbeck Nursery, near Hamburgh.

Fine, however, as was the appearance of the plants on this, beyond all former occasions, yet we quite agree with our reporter as to the art of cultivation being still a long way from the perfection which may be hereafter anticipated. We are glad to quote his opinion upon this subject as that of a very skilful gardener, thoroughly acquainted with the possibilities of horticulture. "The art of high cultivation can only be regarded as being still in its infancy, escaping from the trammels of bygone prejudices. The time will yet come when instead of admiring specimens supported by a multitude of sticks, we shall see them, as nature intends they should be, assuming their own natural forms, and not, as is too generally the case, forced artificially into most inelegant positions. Neither is it likely that mere size will much longer be considered a test of high cultivation; on the contrary, clean, compact, dwarf, luxuriant specimens, such as the Boronia serrulata exhibited by Messrs. FRAZER, of the Lea Bridge-road, will be taken as the model to be imitated. Let us suppose, for example, that all the Azaleas had possessed the compact dense form of the specimen of a variegated Chinese Azalea, from Mr. FALCONER, or the Azalea Danielsiana, from Ealing Park, no one would tolerate the tall, half-naked plants too frequently seen. We gardeners may assure ourselves that, although we have accomplished much, especially within the last few years, there is still abundant room for improvement."

The garden itself was beautiful, from the unimpaired freshness of the green foliage and soft elastic turf. The sun shone, the air became warm, carriages crowded the London-road, and 3622 gaily-dressed visitors thronged the tents, and amused themselves with the marchings, counter-marchings, and music of the military bands. But at 5 o'clock the clouds, which had been gathering all day long, assisted by an envious south-west wind, began to discharge their contents upon the scene; in a few minutes the promenade was deserted, and from that time forward *sauve qui peut* was the only cry. No disasters, however, occurred beyond wet feet, soiled stockings, and an occasional cold or two by way of souvenir of what, as long as it lasted, was certainly one of the most agreeable meetings which the members of the Horticultural Society have ever had.

HEATING AND VENTILATING.

[THIRD NOTICE.]

CONSERVATORIES constructed upon the old plan, with opaque roofs, were usually ventilated by simply moving the front sashes up and down, as is done in the windows of dwelling-houses. The air thus admitted was always found quite sufficient to lower the temperature; the surface of glass presented to the sun's rays being so trifling, that the atmosphere very rarely becomes sensibly influenced. Hence, in such structures the Orange-trees, for which they were principally designed, retained their foliage, as the heat of the climate never exceeded temperate, and they consequently answered the purpose of merely preserving some kinds of plants, which were intended to be placed in the open garden during summer. These kinds of houses are still to be met with in old places, and are in great repute on the Continent for the purpose I have just stated.

Gardening, both as an art and as a science, was destined to undergo at the conclusion of the war a great revolution. Light, as an agent necessary to the growth of plants, began to be recognised and understood, and the massive architectural buildings of the days of the famous De la Quintinye and Evelyn began to be superseded by more elegant, and in some respects less suitable structures. Not less suitable generally because they admitted more light, but from the fact that heating and ventilating were neither understood nor regarded by those to whom the erection of these houses were in general confided. The classical architectural elevation, with the opaque roof, gave way to the elegant curvilinear, and in some instances representing large bell-glasses, which during sunshine became so intolerably hot as to be unapproachable by man, and certain death to plants. It is no exaggeration, but a fact, that gardeners have on many occasions lost their situations from the deplorable appearance which the plants very soon presented; no expostulation from him could ever avail, as the plea urged was, that the house was light enough and hot enough. Why! the plants would have just as good a chance of succeeding perfectly in a tolerably light coal-cellar, or a moderately warm bakehouse. The question is not the best manner of admitting light into such buildings, but how to render them in all respects completely suitable for the perfect well-being of plants, an attainment in this kind of architecture much to be desired—indeed of overwhelming importance, hitherto but little understood and less attended to. The lean-to houses usually erected in kitchen-gardens are not generally deficient in ventilation, as the gardener insists upon having a certain number of moveable sashes, and the elevation does not admit of enriched entablatures; for this reason, therefore, the teeming vineyard, subject only to the skilful control of the gardener, presents a very different appearance to the houses above referred to. The gardener knows practically how fruitless would be the result in all his operations of exotic gardening if he had not perfect control over the ventilation. It is an easy matter to design elegant-looking hothouses and conservatories, and of any conceivable dimensions, but it most assuredly does not follow that their usefulness depends upon their architectural proportions or embellishments, or on the number of roods or acres they may cover, but the contrary is always the case; because, the larger the house so in proportion does ventilation become of greater consequence, in fact its necessity and importance is exclusively governed by this circumstance. The ventilation afforded to small houses is generally sufficient, as the space enclosed is so small, and the moveable sashes so numerous, that complete command is obtained over the temperature; not so, however, in those immense glass balloons, or rather as they may be well termed, mausoleums in horticulture, as their occupants commonly show them to be. The vegetation under them, in spite of every effort, looks as if a pestilence had swept through them. Take, for example, a small house where luxuriant vegetation prevails, calculate the number of cubic feet of air this building contains, and compare that with the ventilation. Let this calculation and comparison be brought into juxtaposition with that of a large curvilinear hothouse, and the conclusions deducible from such evidence will prove quite startling, indeed it will appear marvellous why we should ever think of thrusting a valuable collection of plants into the very jaws of death, for neither professional talent or the most laborious application can prevent this, and yet we annually see large houses rising before our eyes, with all their faults multiplied just in proportion to the means lavished upon them.—*R. Glendinning.*

* This tent, constructed by Mr. Edgington, will be found worth examination. It is by far the best that has yet been constructed for this Society. The roof has been strengthened by tar-ropes, which take from the seams the violent strain to which the canvas is exposed in bad weather, and very much improve the appearance of the tent.

ACCUMULATIVE SYSTEM OF CULTIVATION.

(*Continued from page* 209.)

In May, 1843, 18 plants of greenhouse climbers, including Zichyas, Kennedyas, Brachysemas, &c., were again potted in the same method, removing them from 3 and 5 to 9, 11 and 12-inch pots. The only difference observed was, in the altered position of the plants in the pots, a position which, for several years past, the writer has practised, and found remarkably well adapted for the removal of small plants of climbing habit to large pots. Instead of placing the small plant in the centre, as in ordinary cases, it was planted as close to the margin, or side of each large pot, as the ball would permit, thus averting much of the risk arising from the slow circulation of moisture when surrounded with a large amount of soil, and acting as a safeguard from the legion of causes producing an impeded circulation, whether arising from unskilful management in potting, deficient exposure to light, &c., or from the many casualties attending a succession of persons being appointed to the charge of plants. An important precaution is requisite in adopting this mode, namely, that when the plant is established, the position of the pot should be so as to prevent a direct action of the sun upon the side on which the plant is placed. The result of the present experiment was more successful than in the case of the foregoing, only two plants being lost out of the whole number. Of these, specimens were sold at 40*s.* and 30*s.* each; amongst them, plants of Zichya (Kennedya) coccinea, in 9-inch pots, remarkable for uniform growth and bloom, were sold for 25*s.* and 30*s.*

The foregoing instances of cultivation prove the possibility of attaining a greater vigour of growth,

and of uniform bloom, in a shorter period than by any other method at present practised. No ultimate success can be gained, however correct the soil and conditions to which the plants are exposed may be, apart from the treatment essential to accelerate the progressive circulation of sap, by a uniform removal of the foreshoots by which lateral growth is obtained.

The imperfect or abortive growth of plants generally, and of those of climbing habit particularly, may, in part, be attributed to permitting an extent of continuous growth and abortion, which their conditions in potting, exposure, &c., are unable to mature proportionately. This error arises from two causes; first, from a mistaken opinion that the trellis or support upon which such plants are trained, should, to a great extent, be covered previously to obtaining a due formation of the primary leaf-buds; secondly, from a supposition that such an attenuated growth in plants is equal to their highest fertility, apart from a progressive accumulation of sap, by causing a full development of each bud. This evil can be removed only by a practical application of the conditions essential to uniform growth and bloom, as they relate respectively to each. Plants are endued by Nature with a capability of forming buds in the axil of each leaf, and it is on the progressive advance of every such leaf-bud to a mature branch, that the bloom or fertility of plants generally depend; therefore it may be assumed, that the conditions favourable to the production of bloom, (as a general rule), will be in proportion to the multiplicity of such branches; and, *vice versâ*, when produced within a given period prior to the season of bloom, and exposed to the modified influences of light, heat, &c., upon which the maturity of growth depends.

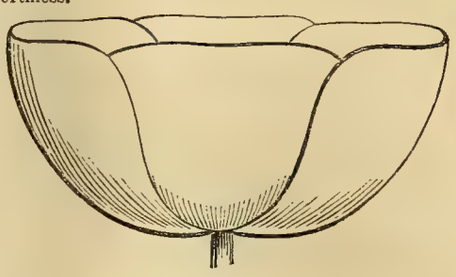
In relation to the successful cultivation of plants, the previous observations suggest an inquiry as to what are the conditions (physiological and practical), most favourable to the production of such branches, by uniform growth, which is essential to the highest fertility. An answer to this inquiry implies an admission of three important principles of vegetable physiology; 1st. Every system of cultivation is imperfect in proportion as it involves a loss of vigour in the functions of plants during their progressive growth. 2d. As the respective causes which operate in the formation of growth and of flowers are opposite in their effects, it follows that a mature and accumulated vigour of the former is essential to the highest fertility of the latter—a premature or excessive development of either being destructive of an ultimate effect in both. 3d. For the perfect condition of plants maturity of growth should be antecedent to or contemporaneous with bloom.

The conditions, then, most favourable to the production of branches (conducive to flowers) are involved in that method of culture which tends to secure the most vigorous and uninterrupted growth:—1stly, by placing plants in an amount of soil equal to their comparatively mature growth and bloom; 2dly, where a re-accumulated vigour is wished from a plant of the previous season's growth, requiring a pruning back of its exhausted stems, by such an operation being performed either a given period before its removal, or, when partially established, after being potted; 3dly, by an exposure to intense light, heat, &c., during the first stages of growth, in proportion to the amount of soil required for each plant; 4thly, by adopting a circular or horizontal mode of training the growth, in preference to an upright one; 5thly, by shortening each leading, or foreshoot, above the second or third axil, or joint, at stated periods during the progressive growth, until a given time previous to the natural season of bloom; 6thly, when shifted into larger pots, by a strict observance of the second rule, in not removing the fore-shoots until each plant is again equal to bear a vigorous circulation of sap; 7thly, by substituting syringings for the ordinary watering, after each general stopping of the fore-shoots, until a recommencement of growth; 8thly, by special care (when shifting is employed) that the last operation of potting is regulated by the period at which plants are expected to bloom; and 9thly, by exposure to a drier and less intense temperature, as mature growth is being attained, other conditions being equal.

It is not unusual to allow an attenuated growth to be carried on of five, six, or even more, leaf-buds, previously to stopping, and the natural result is, that not more than one-half the number are duly matured for bloom; and admitting the vigour of such plants to be equal to an active growth in the number of buds referred to, it is seldom that such an extent of growth is equal to more than a solitary raceme of bloom from each bud, whilst, in many of the specimens to which these remarks refer, the leaf-buds were matured into entire branches of flowers. Where an attenuated growth is permitted, the lowest buds on each stem remain abortive; and thus, instead of being able to present uniform growth and vigour, such specimens only deteriorate from year to year. The detailed management above stated is strictly applicable to the second season (1843). In May, 1842, the weather was favourable for maintaining the requisite temperature (in the absence of artificial heat), but in 1843 the same month was specially noted by a continued absence of sunlight (excepting at intervals), until the first week in June. Under such conditions the difficulty and risk was strictly in proportion to the absence of solar heat. By transferring the treatment stated for 1842 to the results given for 1843, it will be seen that the most favourable result was obtained under the most unfavourable circumstances, the general evidence remaining the same in either case.—*W. Wood, Pine-apple Place.*

THE TULIP.—No. 1.

PERHAPS more has lately been written on the Tulip than on any other florists' flower; and I am happy to find that a more correct taste, regarding this ornament of our gardens, is diffusing itself throughout the country. Greater attention, however, has been paid to "purity" near the metropolis, than in the provinces; and it is only within these few years, that the florists of the midland counties have become thoroughly alive to this important point. Stained flowers are, I believe, however, yet grown, in these counties, to a considerable extent, though purity of the base is now considered a primary point. In noticing the properties of the Tulip, I will first observe, that I consider all foul-cupped flowers out of the pale of censorship, purity of the base, as before observed, being indispensable; there being many otherwise attractive flowers which have this defect; and, however beautiful they may be exteriorly, or even if they should be quite up to the mark in other respects, still as show flowers they will be comparatively worthless.



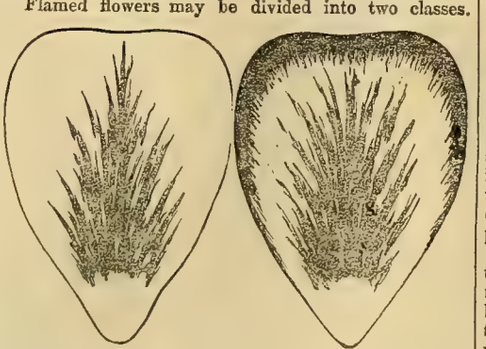
Form.—I would have the shape of the cup approach, as nearly as possible, the half of a hollow globe, if a trifle more or less I should not object to it, only requiring that when in its prime, the interior of the flower may be seen at a glance. Well-formed flowers will have their six petals of the same size, obtuse, without notch, fringe, or serrature, narrowing towards the base; but even there of sufficient breadth to prevent the interstices from appearing, as seen in an old flower called Queen of May; they must also be of good substance, thick, and waxy in texture, which will assist in retaining form.

The following are a few flowers that have the various defects which militate against this property:—Specimens of long cups may be seen in Duc de Savoy, Violet Wallor, Duc de Bronte, Hero of the Nile, Rose Cammellius; and even Queen Charlotte, a flower highly esteemed in the north, has this serious drawback. Varieties with petals the reverse of obtuse, are Count de Virguines, Ozarriune, and several of the long-cupped flowers before enumerated. These sorts are familiar to most growers, though, doubtless, the majority of them are now discarded from collections of any pretensions. There is yet another defect which will disqualify a flower, namely, having cracked petals; when this is the case it is not considered perfect.



Harmony, or the proper disposition of the various markings, whether feather or flame, is the second property to be considered. The annexed woodcut represents a petal having the simple feather; the pencilling is generally deeper at the apex, gradually getting thinner on each side till it reaches nearly the bottom. Some sorts have a much thicker, or heavier feather than others. The two well known varieties, Sir S. Smith, Biz., and Washington, Byb., are of this class; and I need only say that, whether heavy or light, the colour must be laid on evenly and regularly, each petal in this respect being as nearly alike as possible.

Flamed flowers may be divided into two classes.



The simple, having a beam striking from the lower part of the cup, upwards through the centre of each petal, as shown in the woodcut. This style of flame, though extremely handsome, is not generally so much admired as the other, and I believe in the northern counties Tulips possessing it are not considered worth a place in collections; in fact, in awarding prizes, the censors would overlook such flowers, whilst those with feather and flame combined were in competition. A really fine flamed flower ought not to exhibit any of the original or breeder colour, all of which ought to be, technically speaking, broken out. At the lower part of the cup of each self or breeder Tulip is a circular ring, which in Roses and Byblomens ought to be pure white, and in Bizarres unstained yellow or orange. From this point, when a flower breaks (or becomes rectified), the flame begins, and as in the variety above alluded to, strikes upward, being broadest at the lower part, and rising nearly to the top of the petal, branching off regularly on each side, without actually mingling with the feather either at the sides or apex. This is shown in the woodcut below, and it will be evident that this style is superior to the flame going completely through the petal, and amalgamating with the feather, which has its admirers in Lancashire, Nottinghamshire, and surrounding counties, where what is termed "a good beam" is indispensable. Flowers which usually strike through are Captain White, Lord Milton (Nottingham variety), Sable Rex, and Rose Cammellius. The following woodcut represents a petal which I consider defective. The harmony of the flower will be seen in a fair proportion of the ground-colour being apparent on each petal, and the nearer these correspond in marking, &c., with each other the better.



Judges will not only look at the beauty of the blooms which may come under their inspection, but most assuredly they will not close their eyes to imperfections. Defective marking in feathered flowers are omissions or interruptions in the pencilling, and when that is unequal or laid on in patches, though the edging be continuous, and therefore as a feathered flower perfect, still that style loses in comparison with those in which the pencilling is regular. Occasionally the feather will strike down too low in the centre of the petal, and this again in competition with those where it is more confined to the edge, will lose by comparison.

In flamed flowers having only a single beam, it must not reach the top of the petal; and in those where there is a union of flame with feather, if the flame breaks out through the top, or strikes into the feather on either side, these certainly are losing points. Another defect which will sometimes occur is an apparent suffusion of colour, and affects both flamed and feathered flowers; this, of course will not be overlooked by careful judges. —*W.*

BEGONIAS.

IT is a matter of surprise to me that the beautiful tribe of Begonias should be so almost universally neglected; for it is rare indeed to see anything like a good collection, even in first-rate establishments. Yet they are plants of the easiest culture, and may help to furnish a conservatory or sitting-room during the winter and spring months, when gay flowers are particularly acceptable.

The greater part of Begonias in their native countries inhabit moist, shady, secluded situations, where they are partially sheltered from the direct rays of the sun, and from cutting winds. They are all, with one or two exceptions, stove plants, and require a temperature rather moist than dry, with a slight shade in hot sunny days. Though these plants naturally delight in a soil composed almost entirely of decayed vegetable matter, yet I have found them very liable to rot off at the base of the stem, if put in a soil in which decayed vegetable matter predominates. Nearly two-thirds of light fibrous loam, and the remainder leaf-mould or peat, suits them very well. In potting, small potsherds or stones should be introduced into the soil rather plentifully; and, besides securing a perfectly porous and well-drained soil, the stem of the plant should never be buried, and if, in the more delicate species, it be slightly elevated in the centre of the pot, the life of the plant will be better secured; for though natives of moist situations, I know of few plants more impatient of moisture.

A genus like this, where all the plants require much the same treatment as regards temperature, moisture, light, &c., ought not to be scattered about amongst other plants, excepting they may, while in flower, be wanted in the conservatory or other places. They should, therefore, have a corner to themselves; and if in a rather shady situation during the summer so much the better; but in winter, the more light and airy and dry the situation, the greater is the probability of the plants being preserved from rot.

To bring out the beauties of this genus requires treatment of the highest order; for though the plants may exist when cramped at the root, and otherwise badly treated, yet it is only under liberal culture that they appear in their true colours. Many of them throw up strong shoots from the root every year, and when that is the case the old stems should be cut clean away, as they flower but badly a second year. Otherwise the knife has little business amongst these plants, for they do not like pruning, and there are very few of them which will even bear topping; it should, therefore, be an object to make the plants develope their side-shoots by liberal treatment, rather than by any kind of pruning.

There are a few, like octopetala, Evansiana, and diversifolia, which form tubers, and die down every year after flowering. From these, as soon as they exhibit signs of cessation of growth, water must be entirely

withheld, and when the stems have decayed, the pots may be put away in a dry and cool place for 4 or 5 months, when the tubers may be repotted in fresh soil, and again started. These are three very handsome summer flowering species—Octopetala, from its large white flowers and fine foliage; Evansiana (better known as discolor), on account of its numerous large pink flowers and reddish leaves; and diversifolia, from its graceful habit and large rosy flowers, which it produces freely. The greater number of species, however, are not herbaceous, and many of them will require to be replaced by young plants every third or fourth year, as they do not flower well when old, or become inconveniently large. Plants of this class grow more or less all the year round; the greater part flowering in winter and spring, when a temperature of 60° is necessary to their developing their flowers freely.

Begonias, though many of them are very showy, do not present any great diversity or brilliancy of colour in their blossoms, being mostly of different shades of rose-colour, rose and white, or pure white. Rubra (coccinea) is a beautiful deep red, not only in the petals, but also in the capsules, and, for the sake of the contrast afforded by such a colour, one plant in every 10 ought to be rubra. A good plant or two of sanguinea ought never to be wanting, for its fine dark-purple leaves (which constitute its chief beauty) relieve the green foliage of other plants. Fischeri also ought to have a place on account of its elegant habit, and delicate semi-transparent reddish leaves. Evansiana (which does very well in the stove) ought to be cultivated if only for the same purpose as the two preceding. Barkeri, which produces immense leaves and a large head of odoriferous white flowers, well deserves a place. Hydrocotylifolia is, perhaps, the most interesting of the whole group; its low habit, and dark-green Ivy-like leaves, thickly clustered together, and only a few inches high, from amongst which are thrown up its delicate pink blossoms, render it one of the most desirable of the tribe.

Any of them may be grown from cuttings; but I consider seedlings the best, as not being so liable to rot off at the base of the stem. The seeds should be sown as soon as they are ripe; if they are scattered upon the surface of a little peat earth, and a bell-glass placed over them until the plants appear, there will be a greater probability of raising the plants than by covering the seeds with soil.

The following are amongst the best and most showy, either on account of their flowers or leaves. There are about sixty species in cultivation, but the following will form a good private collection. Those which I consider as best worthy of consideration, are marked *; those which flower in winter and spring are marked thus †—

Pink or Rose.	Hydrocotylifolia * †	Barkeri * †
Papillosa * †		Fagifolia * †
Dipetala †	Semperflorens	Homonyma
Insignis * †	Punctata	Meyeri * †
Picta * †		Odorata †
Diversifolia *	*White.*	
Heracleifolia * †	Sanguinea * †	*Deep Red.*
Incarnata * †	Fischeri * †	Rubra * †
Nitida * †	Octopetala *	*Pink and White.*
Vitifolia †	Monoptera	Geraniifolia *
Evansiana *	Parviflora *	Platanifolia * †
Manicata * †	Digitata * †	Crassicaulis †

—*Observator.*

Home Correspondence.

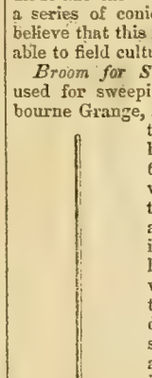
Spring Crop of Mushrooms.—I live in the south of the West Riding of the county of York, and during the last 10 days our neighbourhood has been inundated, I may say, with Mushrooms, many persons being able to gather 2 pecks at dawn of day, where none apparently existed the previous evening. The crop is now fast disappearing, if it has not altogether done so, as I offered a good price on Monday, and have not yet received any quantity. Can any of your subscribers inform me of the like occurring with them.—*Omega.* P.S. The crop seems to exist only on those pastures the soil of which is of a loamy nature; there are pastures on sandy soil, but I cannot learn that any have been found there. I find on inquiry that it is about 30 years ago since a spring crop was found in this neighbourhood; as for myself when I was first told of Mushrooms being gathered in the open fields a fortnight ago, I took it as a hoax: facts are stubborn things; I am now convinced to the contrary.—*May 27.*

The Weather.—The vicissitudes of weather, in this our capricious climate, have been latterly most singular; while in the midland counties, and especially round London, you have been deluged with rain, we (in the neighbourhood of Bideford) have, for the last 17 days, experienced but two slight showers—one on Saturday evening last, and the other early on Sunday morning. The surface of the earth is parched and cracked, while both field and garden suffer from the absence of that moisture which has elsewhere been superabundant. We have no railway; can this have been instrumental in causing so unequal a distribution of vapour?—*R. S.*

Viviparous Toads.—Our friend "Ruricola" having had the courage to defend my race against the cruel insults and persecutions to which we have been subjected from the days of Æsop, allow me to assist in establishing his hypothesis, that we, under certain conditions, become viviparous. There does not seem to be anything in this theory so difficult to admit, when it is remembered that the aphides, and some flies (Muscidæ) are endowed with the same power; and, moreover, the German naturalists have ascertained that some lizards, and, I believe, snakes, become viviparous when they are confined to very dry situations. I am, therefore, not surprised that these truths, combined with the various conflicting statements that have been published, should have impressed "Ruricola" with the idea that toads, if secluded from water, are no longer oviparous. Many of your readers cannot even now believe that toads ever existed, like our cousin-germans the frogs, in the tadpole state; and it is a notorious fact that our little ones are found not bigger than Peas, where it is said to be impossible they could ever have undergone such metamorphoses; and here let me inquire how is it that these toads are smaller than those bred in the water? and are found at various periods of the year, which would not be the case if they had been tadpoles, as the eggs are deposited in March, as stated by learned zoologists, and in two or three months they assume their perfect form; and it will not be questioned that our spawn or eggs, like those of frogs, must perish if not deposited in the water. I am not a little surprised to see it stated also that we only crawl, as it is most certain that we have the power of leaping, although, it must be admitted, not with the harlequin agility of the frog. Not being able to refrain from joining in the general croak, I now leave it to those philosophers who have taken so much interest about us, to solve these knotty points, and harmonise the discordant notes which have so long vibrated on my musical organs, by carefully studying our economy; and, probably, at a future concert, I may be permitted to give you a few more ambiguous notes.—*A Dutch Nightingale.*

Cultivation of Carrots.—Having heard of a successful mode of growing Carrots, used by some intelligent gardeners in the neighbourhood of Stratford-on-Avon, and applicable to heavy soils, and the soil in my garden being of this character—a clayey marl on the keüper, or variegated marl—I tried it last summer, and with sufficient success to induce me to continue it, though the season was highly unfavourable to this, as to most other crops. The ground having been double-dug, holes were made in rows 8 or 10 inches apart, and the same distance between the rows, with a crowbar, thrust about 18 inches deep and worked round, so as to form a clear hole in the form of an inverted cone; the holes were then filled with good light mould, and a few seeds sown on the top of each. It being intended that one plant only should occupy each hole, all the young plants were, in due time, drawn from each, save and except one, and that of course the strongest. The seed used was the red Altringham, and many of the plants were very strong, and all perfectly straight—a quality seldom obtained in heavy soils, and the crop far superior to others sown and treated in the usual way. I regret that the crop was not weighed in comparison with the others. However, it has satisfied me that I can grow good straight Carrots upon a soil which is almost tenacious enough to make bricks; and in reality this mode has the effect of converting the ground into a series of conical pots, and very cheap pots too. I believe that this method is, in point of economy, applicable to field culture.—*G. L.*

Broom for Sweeping Lawns.—There is a broom used for sweeping short Grass, leaves, &c., at Leybourne Grange, Kent, that requires only to be known to be generally adopted; it is made of birch, the handle may be of any light wood, 6 feet in length. The accompanying woodcut will give the best idea how it is to be made. Two flat strips of board, about 1 inch in breadth, and 12 inches in length, are nailed to the top of the handle, one on each of the two sides, which allows a space between them, through which the birch branches are drawn, and tied with tar chord to the strips and on the handle of the broom at A, to keep them from swagging. It is then a fine broad, flat, fan like broom, with which one man would do more work, and more cleanly, than two men could do with the short-handled, thick, heavy brooms generally used. The birch should be cut, wetted, and laid under some heavy board, or any other weight, to make it lay flat, for 24 hours before it is used. Any man in a garden could make one in 10 or 15 minutes.—*William Keane, Chelsea.*



The Cuckoo.—The common cuckoo depositing its eggs in the nests of other birds, is not so much a practice peculiar to the "genus Cuculus" as dependant upon circumstances, and the shortness of its visit to our island. The yellow-billed American cuckoo is known to rear its own young, and build its own nest, in which have been found, at the same time, birds of various ages, with an unhatched egg. It appears, from observation, that this singular bird differs from others in laying only a single egg at long intervals. It comes to us in April and leaves the country in July; if, therefore the parents did not take advantage of the assistance of the feathered tribe in bringing their progeny into the world, they would, in ordinary seasons, scarcely have time to see one of their children fledged. This will, in some measure, account for the seeming unnatural conduct of our cheerful friends. It would be interesting to inquire if the "cuculus canorus," which is found in almost all parts of the world, ever brings up its own offspring, or forms its own nest, or whether it practises deception on its neighbours, as in this country?—*Falcon.*

Walcheren Cauliflower. — Last year I purchased some Walcheren Cauliflower, advertised in the *Chronicle* by a well-known house, warranted to be genuine and stand the winter. From the name of the parties from whom I ordered the seed I considered I was safe, and took great trouble both in sowing and transplanting, and the result has been, both a failure in the summer crop of 1844 and the buttoning of the few plants I was able to save through the winter. Really some remedy should be devised for exposing this abominable system of deception. The simple plan of not again dealing with individuals, and laying out 2*s.* 6*d.* in seed, offers no protection to the public. What is to be done? Must we amateurs continue to submit to annual disappointments, and have our experiments frustrated?—*Falcon.*

Root Protection.—Bearing in mind Hannah Moore's maxim, "Extensive prospects are seen through small openings," I send you the following:—The Chelone barbata I have usually had increased by cuttings, in summer, for winter protection, and the old plants being left to their fate, have usually been destroyed by frost. During the last severe winter I had observed the uninjured appearance of a plant of this species, in a pot, which had flowered in the autumn, and been left fully exposed to the weather. As it still appeared healthy, in April it was turned out of the pot to be planted in a mound, when it was observed to have occupied one of Brown's patent double-sided pots, which is described under section 212, in the Auctuarium of Maund's "Botanic Garden." The cistern of the pot was empty, but closed by pegs. Further examination showed the whole of the roots of the plant to be healthy and uninjured, which certainly could not have been the case had the plant occupied a common flower-pot, for not once had it been protected, watered, nor even had the shelter of another pot standing near it. It was completely neglected for six months, including a severe winter, in which the thermometer within a few yards of it several times indicated 14° of frost, at 8 o'clock in the morning. I leave every cultivator to draw his own conclusions, contenting myself with merely stating the facts.—*B. M.*

Mildew.—Can your correspondent "J. P. H." be right in supposing "the seeds of the mildew upon the roots of his Roses were taken up by their absorbing vessels and deposited by the sap in the branches, especially where the circulation happens to be languid?" My opinion as regards my own is, that the superabundance of nourishment supplied to the roots, and from them to the plants, is more than is necessary, and more than the plants can dispose of, in consequence of which the leaves and young shoots become overcharged with sap—mildew follows. This does not show in mine in the spring; for, as I exhibited to you last year, the superabundant sap was spent in the formation of countless Roses from the pistils, every embryo seed growing into a Rose; and after they were exhausted, petals and diminutive Roses broke out from the cup, which should have been a hip. I believe I sent you some as evidences of morphological truths. After this curious growth had exhausted its powers, my Rose-bushes became white with mildew. Another circumstance that favoured the latter appearance is the absence of the sun from the spot from a little before noon. I imagine the supply of nourishment must be very excessive that would cause mildew where the sun shines all day.—*A. W.*

The Petunia.—Of the many good flowering plants of modern introduction, Petunias rank second to none for their brilliancy of colours, size of flowers, profuseness of blooming, the length of time they continue in flowering, and for their easy propagation and cultivation. Although Petunia violacea, the first parent of the large progeny that is at present in existence in this country, was introduced from Buenos Ayres in 1830, it is sufficiently hardy to luxuriate in our beds and borders in the open ground. Planted out in a good sandy soil, about the middle of May, Petunias flower the latter end of June, and continue to expand their beautiful blossoms until winter. They seed freely, and by cross-impregnation some good varieties have been obtained; they are trailing quick growing plants, and should be planted in a bed by themselves, which they will soon cover, producing flowers at every joint; they form a large mass of rich colours beautifully contrasted with their fine glaucous leaves. Trained to a wall or on a trellis, or around the stems of tall standard Roses, they look gay and ornamental. In winter they are best preserved in a dry pit, frame, or greenhouse, and by attention to watering and removing the dead leaves they will flower early in the spring. Liquid manure I have given in moderate quantities, but I generally observed it to excite them into a luxuriant growth, when they did not produce flowers in the same abundance as others growing with less luxuriance, all equally sheltered, as is necessary, from high winds, and exposed to the genial influence of sun and air. Cuttings can be taken and be very easily propagated in each and every month of the year.—*Reuben Reginald.*

Pruning Forest-trees.—I am just enough of a planter to feel an interest in the course pursued by others, in the valuable, nay, patriotic, endeavour to adorn the country—to employ the labourer—to ensure that which must, at all times, be the defence and the source of the wealth of our country—good shipping—and to repay the high-minded gentleman, the planter, for his undertaking, though by a late and distant return of interest for the money he has expended, yet by an immediate conviction that he is doing good in his generation. I commence my remarks by saying that I have not been of that class of planters who could lay claim to any of these enumerations, but I have just had sufficient

experience to enable me to estimate the value of those who are of that class. In that number, I think, may be enumerated the planter of the Nerquis Mountains, in Flintshire, if the letters I have read in your Paper, from time to time, do not mislead me. If I rightly recollect, the Mountains of Nerquis - an exposed, unprofitable district—were planted by Dr. Thackeray, of Chester, some 30 years ago (probably 400 acres, I speak only from recollection), and are now exhibiting a beautiful testimony as to what such a district may be converted by judicious management; I conclude Dr. Thackeray planted it with such trees as he hoped might best thrive in that wild quarter; and having done so, studied how best to ensure their growth by pruning, &c. I remember many years back being in that neighbourhood, and I visited the spot, and thought it, in the language of my profession, "a forlorn hope." I made a visit to the same district again about four years ago, and could not but be agreeably surprised at the successful results which had followed. The woodman explained to me, as far as I could understand him, the course pursued in the management of these forests, particularly as regarded the pruning of them. On the subject of pruning, the limited field in which I had been engaged has caused me to be wholly ignorant; but the success which I witnessed in these mountains has interested me much on this subject. If I am a convert to Dr. Thackeray's plan of pruning, it is not only from that which I witnessed, but from what I have read in your Paper. An invitation on his part for all to visit and examine his course as minutely as they may please, accompanied, or not accompanied by his woodman, so that no opportunity should be lost by examiners, to come to a right judgment respecting his system, was a proposal which could come only from one who was desirous that that which is right should be followed. By this offer it is evident that he does not wish to mislead; and, therefore, so far as his system is under consideration, all must agree his desire is that "truth should prevail." I have been led into a longer introduction than I had intended, but I will not erase any part of it, as it serves to illustrate what I am about to say. If I have a correct remembrance of Dr. Thackeray's system of pruning, Mr. Hamerton, of Yorkshire, has not understood it, not only not understood it, but directly misunderstood it. I will quote a passage which, I think, proves this: Mr. Hamerton says, Dr. Thackeray takes off the lower tier of living branches; now if I have not misunderstood Dr. Thackeray's course, it is this: to take off the longest and strongest, beginning always at the top; and that his has been uniformly his system. In another passage Mr. Hamerton says, Mr. Billington condemns pruning. Now if I remember rightly his views (though he did not agree with Dr. Thackeray), he declares himself friendly to pruning. Mr. Billington's paper on the subject of pruning has been written some years ago, probably when the subject of pruning did not much engage planters. At all events we need not to inquire what might have been the system then, when we can ascertain which is the best course at present—and which is now pursuing—pruning or no pruning. I am glad you do not approve of the suggestion of Mr. Hamerton, to establish an arboretum. The Government have paid establishments sufficient already on their hands, and I do not wish an increase, particularly when it seems only necessary for the Commissioners of Woods and Forests, to send out some of their officers to examine the different systems now pursuing; and if they please to adopt all in their forests, until they discover which is the best (the course, if I mistake not, that Dr. Thackeray, or some of his approvers, have strongly recommended). If I am right in the view I have taken of Dr. Thackeray's system, Mr. Hamerton must be wrong—I mean in regard to his mode of pruning; and I would suggest to that gentleman (as the question is one involving points, beneficial or otherwise, to future generations, even more than the present), that he re-examine the subject, and if he find himself under a mistake, to correct it without delay, that planters and pruners may not be misled—particularly that no new commissions may be formed at the expense of the public.—*Sylvanus, Wicklow.*

Pruning Forest trees.—I have read with interest the papers on the management of plantations; and, copious as the discussion has been, there is one point of great importance, which has been but slightly touched upon. I allude to the management of trees of various stages of growth, which have been utterly neglected during the whole period of that growth—say Oak, Elm, Ash, and Beech. As far as I am myself concerned, I solicit information as to the treatment of such trees, of from 25 to 30 years' growth, averaging 6 to 8 inches in diameter, in a tolerably thriving condition, with rather bushy heads, and having branches projecting nearly half the diameter of the trunk, from 10 to 15 feet from the ground, growing in narrow slips of coppice and in hedge-rows. Should these limbs be amputated? and if so, at what distance from the trunk, and at what period of the year? Should the heads be thinned out? and if so, should it be done at the same time as the branches are lopped, or in the succeeding year? Should this be done boldly and unsparingly, or gradually and with caution? If the large branches are lopped, should the cut part be protected, and by what means? No doubt others will be glad of information as to the treatment of neglected trees at a more advanced age; but such correspondents as have had experience in arboriculture, would easily, at a glance, see through the whole range embraced by this inquiry.—*Silvanus, Crawley.*

American Blight of Apple Trees.—Wishing to save the time and trouble of my horticultural brethren, allow me to address them and point out a very easy method of effectually attacking this destructive mealy bug by which our Apple-trees are so constantly infested. If you will provide yourself with a small flat brush, shaped like a diamond, and measuring about 5 inches in length by 2 inches in width, and whenever you pass an injured tree will use this brush in scrubbing the infected part, you will find the bug disappear, and with very little exertion on your part. Unquestionably, some of the insects which lie more immediately under the rough bark, may subsequently appear, but, if when you have half an hour to spare, you will repeat the process, and attack your new enemies as often as they display their downy bed, you will soon feel that your espaliers and dwarf standards will give you no further concern. I say nothing as to tall standards, as in these it is commonly too difficult to reach the disease, but here we have the consolation of knowing, that such large trees are seldom, if ever, very seriously injured by this aphis. When first I became acquainted with the above nuisance I resorted, as is common, to sulphurous and other fluid mixtures; but these are applied with much trouble and answer no one purpose which is not effected in half the time by my friend the brush. I have only to add, that a small brush, called a spoke brush, may also be used with advantage, where access to the insect is difficult from the range of the branches. Before this plan occurred to me, I lost many Espaliers of Nonpareil, and other Apple-trees, but since that time I have lost none. Be prepared with the brush every spring.—*B. F.*

Age of Trees in Greenwich Park.—An inquiry was made some weeks ago respecting the age of the Elms and Chesnuts in Greenwich Park, to which a correspondent replied, on the authority of Mr. Jesse, that they were supposed to have been planted in the time of Sir John Evelyn. As, with a few exceptions, the royal parks have been supplied for a period of 160 years from this nursery, I have been induced to refer to some of the early records of our establishment, and find that on the 17th and 26th of October, 1717, a large quantity of English Elms, Chesnuts, and Scotch Firs, were supplied to Greenwich Park. As this information seems to have been unattainable, even through the indefatigable exertions of the late Mr. Loudon, I hope what I have now stated will be serviceable to those who are interested in such matters.—*Robert Hogg, Brompton Park Nursery, London.*

Cropping a Kitchen Garden.—It has occurred to "B. D." to offer the following statement of practical gardening in Grey's Rectory Gardens, for the columns of the *Chronicle*. "B. D." spares no expense in inquiring after and in purchasing the choicest seeds and plants for cultivation at Grey's, wherever they can be procured. "B. D." has arranged his list alphabetically, in order to facilitate reference to the articles enumerated in it, and it seems to him possible that some of the distant readers of the *Chronicle* may derive instruction from its perusal; and, perceiving a statement of the best seeds and plants, known at the present day, may avail themselves of the proffered experience of "B. D." in effecting purchases, after his list, and in extending their Kitchen Garden cultivation, as far as "B. D." does, from the sole delight he takes in the several processes of horticulture.

Cropping Practised in a Private Garden.—Artichoke — The Globe. *Aubergine* (or Melongène), in forcing pit—Blue Egg Plant. *Asparagus*—Battersea, Giant and Reading sorts. *Beans*—Mazagan, Windsor Bread, Sword Long Pod, Scarlet Runner, Foreign Striped, name not known; White Haricot, Brown Dwarf, Marshall's Prolific. *Beet*—White's Fine New Deep Red. *Broccoli*—Brimstone, Walcheren, Malta, Chappell's Cream, Early Purple Cape, Fine Early Imperial, and the Winter White. *Cabbages*—Portuguese Couve Tronchuda, Victoria, Sugar Loaf, Waite's Hardy Colewort, a most useful vegetable; the Penton, Early York, Matchless, Nonpareil, New Early Dwarf, Brussells Sprouts, the seed genuine and direct from the Netherlands. *Cauliflower*—Large White, abundance of plants saved from the late severe weather. *Capsicums*—Raised in pots in the forcing-pit. *Celery*—Seymour's Red Giant, the White Solid. *Carrots*—Scarlet Studley, Long Orange, James's Fine New, Short-topped, German Short Sweet, seed direct from Germany; the Surrey Carrot. *Cucumbers*—Allen's Victory, the Crowsley Long, Craig's Prolific, Short Prickly, Wood's Fine Ridge, Mason's Ridge, the Sion, the Henley Long, an early and quick growing Cucumber. *Endives* — Batavian, White Curled, Green Curled. *Leeks*—Seed Bed, for planting out. *Lettuces* — Chinese, Dutch Brown, Large White Cos, the Asiatic, Ady's Fine White Cos, the Union Cabbage. *Melons*—Greek Winter and Greek Summer (seed from fruit raised in Cephalonia), the Cabul, Water Melon from Bombay, the Beechwood, Netted Cantaloupe, French Rock, Calderstone, and Wyfo'd Green Flesh, both first-rate; Snow's Prolific Green Flesh, the Conservative, Fine Scarlet Flesh, high flavour and rich. *Mushrooms*—Two beds, on the floor of forcing-pit. *Nasturtium*—(or Indian Cress), two varieties, one deep red. *Onions*—Large Spanish White, Portugal Onion, Silver-Skinned for pickling; the Reading, the Large Deptford, James's Fine Large Keeping Onion, the Strasburg, and the Welch, both invaluable for winter growth, defying the frosts. *Parsnips*—Common and Large Swelling, Guernsey, Hollow-Crowned, Turnip-Rooted. Siam (See Loudon's Encyclopædia). *Parsley*—The Curled, the Double, the Hamburgh. *Peas*—Morgan's Superb or Wonderful (Torquay, Devon), a magnificent Pea, Knight's Tall Marrow, Knight's Dwarf Green, Scymetar, the British Queen, Prince Albert, Roncevalle, Thompson's Early Dwarf, New Victoria, tall; the Matchless, Shilling's Early Grotto. *Potatoes*—Ash-leafed Kidney, Walnut-leafed Kidney, Black Lancashire Kidney, Jersey Blue, Cork Red Apple, direct from Ireland; Grey's Red, Winter-keeping ditto, Grey's Red Kidney, Black Nigger, Dutch, to serve for young Potatoes in winter; Red and Whites (with large tubers), from the chalky upland districts of South Oxfordshire, and much esteemed. *Pot Herbs*—(*Jardin Potager*), Sage, red and white, Winter Savory, Tarragon, Borage, Pot-Marigold, Mint, spear and pepper, Thyme common and lemon, Sweet Marjoram, Fennel, Tansey, Camomile, Pennyroyal, Horse radish. *Radishes*—White Turnip, Salmon Red Long, Short-top, Spanish, black and hot, Chinese, seed bad. *Raspberries*—Fastolff, the Beehive, Early Prolific, Large Red Antwerp, White Antwerp. *Rhubarb*—Myatt's and Early Red. *Savoys*—The Green and the Yellow sorts, the latter a very delicate vegetable. *Salsify*—Scorzonera, small Salading, Mustard and Cress, &c. *Shallots*—grown with the most perfect success according to the mode prescribed in the *Gardeners' Chronicle* of the present year. *Spinach*—The New Zealand, well soaked, and in pots in forcing-pits, the Triangle, the Round. *Seakale Beds*—never over forced, and therefore very strong and prolific. *Strawberries*—Scarlet, the Old Hautbois, a delicious fruit; the Emperor, Keen's Seedling, on the open borders, and in pots in forcing-pit; the Elton, the British Queen, the Alpine, of which I picked a plateful at the end of December last; Wood Strawberry, abundant; Large white and red sorts on old beds. *Turnips*—(garden, for table), sown with mixed soot and coal-ashes, finely sifted, and occasionally dressed with this mixture, to keep off the fly when growing. *Tomatoes*—sown in pots, in the forcing-pit, for planting out against a warm south wall, sheltered well from cold winds.—*B. D., Greys.*

Mode of Renovating Fruit-trees.—I am not aware whether the following experiment has ever been tried by others, but it may be the means of preserving many a valuable tree from otherwise inevitable destruction, and I can answer for its complete success. Seven years ago I had under my care a very old Green-gage Plum-tree; the heart of the tree was completely gone, and nothing remained but a few poor sickly branches, quite unable to bear fruit; it was, in appearance, a total decay of nature; and it was evident, unless some immediate remedy could be applied, that life must quickly depart. I procured two barrowsful of rich loam, one of common road-sand or scrapings, and three of fresh cow-dung; incorporating them well and applying the whole mixture to the tree; covering up the trunk and branches to the height of 3 feet, but placing it on the surface of the border, so as not to disturb the old roots: this was done in April, and on examining the tree the following summer, I found that the old branches had sent out roots so strong, and in such quantity, as to have completely filled the compost, and even to have pushed through it into the border; the branches also made some strong young wood, and continued to grow and bear some of the finest Green-gages I ever saw. The mixture gradually works its way down, and in a year or two is no detriment to the appearance of the border; and even if it were some slight eyesore, it would, in the opinion of many, be amply compensated by the renewed vigour of an old and valuable tree; which, under other circumstances, must be removed and replaced by a young one, which would, in all probability, be many years in coming to a bearing condition. I am again trying the same experiment with every prospect of a favourable result.—*J. L. Snow, Swinton Gardens, Bedale.*

Rock Plants.—In a recent short list of select rock-plants with which you furnished a correspondent, it occurred to me that one might have found a place, to which, for its many most desirable qualities, I would give a place were I limited to ever so few plants; I mean the Welch Saxifrage, Saxifraga oppositifolia. It flowers almost as early as the winter Aconite, is evergreen, hardy, compact, most lovely when in flower, continues in flower for weeks, is indifferent to soil, if it have but some chips of micaceous sandstone, and equally indifferent to aspect if it have but the sun. It bears frequently dividing—indeed, does the better for it. There is a Scotch variety, which is of more robust habit, and merits all the praise I have ventured to bestow on the other. —*Gilpinetto.*

Labels.—Something was said in the *Chronicle* some weeks ago about labels for fruit-trees. As I have never seen anything so well suited, in my opinion, to the purpose, as the one I inclose, which has been in the open air ten years, and is cut out of waste zinc, I send it for your approval.—*H.* [This is a circular piece of zinc struck out by a steel punch, secured by a copper wire, and stamped with a number. The objection to it is that it renders necessary a reference to a book or list, in order to ascertain what the number means; which we agree with "H." is no objection at all in *private* gardens.]

Potatoes.—Early in January last I planted a plot of ground with Soden's early Oxford Potatoes; half of the plot I planted with cut sets, the other half with whole Potatoes. They were all planted 5 inches in depth, and were not covered with any manure or litter of any kind. The frost has not injured the whole Potatoes in the least, as they have all come up and are looking very healthy; but it has entirely destroyed the cut sets; they were all planted in a stiff damp soil, which was frozen for several inches below them.—*C. J. Perry, Handsworth.*

Nurserymen's Advertisements.—"What a rascal!" we all exclaim, when we read the article headed as above in last week's *Chronicle*. Not only is such conduct dishonourable, however, but it is the worst policy a man can pursue; and now we have condemned this unworthy tradesman, let us say a word on the side of some who receive orders where no puffing advertisements are resorted to. How often, after goods are duly sent, and commissions faithfully executed, are we kept out of our money? How many respectful applications do we make representing that the terms agreed upon were for cash? How often do we call, and find "Not at home?" The writer of this has walked for half an hour before the door of an officer of high rank in the army, and has not even been asked to take a seat in the servants'-hall, though he has sent in his card; and then, when an audience has been granted, has been dismissed with—"I'll send you a check!" which check has, of course, never been sent. Now, let any one tell me the difference between the dishonour of the nurseryman and the dishonour of the purchaser? Little is thought of the latter, compared with the former case; but, to my mind, there is not the slightest distinction.—*A Tradesman.*

Strawberries.—The following is my method of obtaining these early:—In the beginning of July, or as soon as plants can be obtained from laterals or runners, I place 3-inch pots filled with good strong loam under each

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

The Agricultural Gazette.

SATURDAY, MAY 31, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 4 { Agricultural Society of England. Highland and Agricultural Society.
THURSDAY, June 5—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, June 11—Agricultural Society of England.
THURSDAY, June 12—Agricultural Imp Soc. of Ireland.

FARMERS' CLUBS.

June 2 { Stewponey / Usk / London
June 4—Monmouth
June 7—Cullumpton
June 9 - Darlington
June 13 { Wrentham / Stoke Ferry / Cardiff
June 14 { Cardiff / Swansea

THE influence of the *depth* upon the *labour* of ploughing, which is the next branch of our subject to which we ought to direct the attention of our readers, is one on which there is obviously so much to say, that in the absence of sufficient space, we are obliged to postpone it; and, therefore, at present, we shall publish what evidence our dynamometer has given as illustrative of THE INFLUENCE OF VELOCITY UPON DRAUGHT IN PLOUGHING.

Mr. PUSEY found that the rate at which the horses walked exerted no influence upon the draught of the plough; and this is in accordance with the result, as given in books, of experiments upon friction, which indicate the entire independence of friction on velocity. We extract the following table from Mr. PUSEY's report on this subject:—

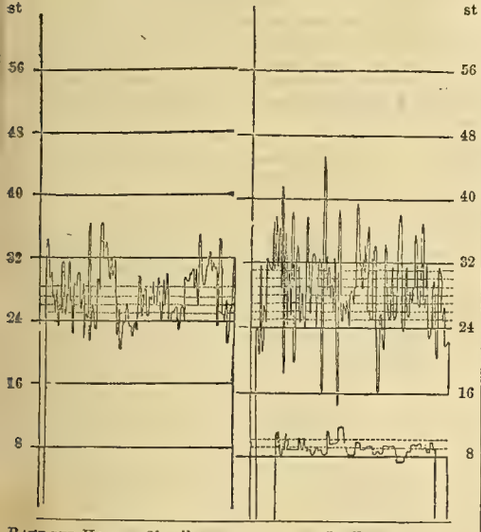
Rate of going per hour. Miles.	Time required to plough an acre. Hrs.	Min.	Draught of Plough. Stones.
1½	7	20	23
1¾	6	30	23
2¾	4	0	22
3½	3	8	24

The following figures, it will be observed, indicate the same truth:—

BEVERSTONE WHEEL PLOUGH.

FURROW 4 × 9.

Fig. 1. Fig. 2.

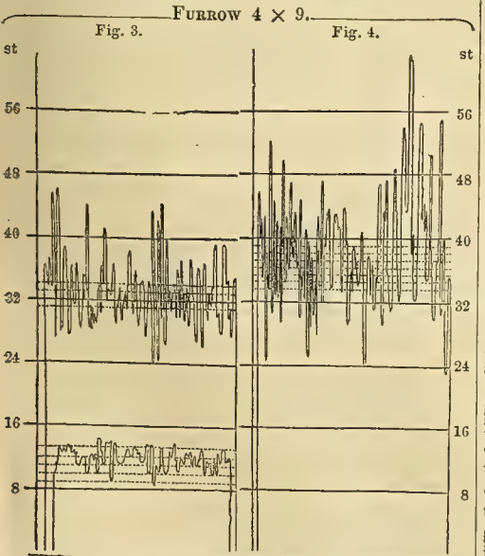


RATE PER HOUR:—2½ miles. 5 miles.

FERGUSON'S SWING PLOUGH.

FURROW 4 × 9.

Fig. 3. Fig. 4.



RATE PER HOUR:—2½ miles. 5 miles.

Two ploughs were tried, the one a swing and the other a wheel plough; the draught of each, as represented in Figs. 1 and 3, was taken when at work in the ordinary manner; the horses in each case were then made to double their speed, in fact to draw the plough through the ground at a trot, and the results are indicated in Figs. 2 and 4. There is certainly, in each case, a slight increase in the draught of the ploughs, but *so* slight, when we consider that their velocity was *doubled*, that what increase there is may, with justice, be attributed to the inability of the ploughman to preserve the depth at which he was ploughing.

One point, however, which indeed might have been expected, is well indicated by these figures, viz., the great increase of *irregularity* in the draught, consequent on an increase of velocity; a stone in the soil, on which the point of the plough-share should impinge with double the ordinary velocity, would obviously cause a momentary strain upon the dynamometer of double the ordinary intensity; and accordingly we find from these figures, that while the *average* draught, represented by them, is scarcely at all affected by the rate at which the ploughs were drawn, *the oscillations* in draught were *doubled* in extent.

The independence of the draught of any agricultural implement on the rate at which it is drawn through the ground, is a matter of great importance; it indicates the importance of employing draught animals which *naturally* walk at a rapid pace. Such animals with *the same effort*, get through double the work of those of more sluggish movement:—*with the same effort;* and, therefore, at no greater expense to the farmer. The employment of active animals is, obviously, one of the most influential methods of diminishing the expense of horse-labour.

WE called the attention of our readers last year about this time, to the importance of MOWING OR FLAGGING THE WHEAT CROP in the early stages of its growth, wherever from over-luxuriance it is liable to be beaten down by heavy rains. The necessity and advantage of this operation are doubly great this year—last season was a very dry one, and few Wheats grew too much to leaf; this season, on the other hand, has been of late more than usually wet.

On walking through our Wheat-fields yesterday, the advantage of flagging the plant, where it has been done, was so apparent, and the necessity of the operation where it remains to be performed was so obvious, that we cannot avoid again alluding to the subject. The advantage derived from the practice is twofold. In the first place the removal of its broad overhanging leaves destroys the ability of the plant to carry rain-water, and hence renders it no longer liable to be overloaded with it; and in the second place, the removal of these leaves lets the light in upon the stem of the plant, and thus places it in circumstances favourable to the development of woody fibre, and therefore favourable to the increase of that stiffness of straw upon which the crop at harvest so much depends.

No fear need be entertained that in the performance of this operation the ear is liable to injury. Before undertaking it one of the plants should be cut open, and the position and length of the young ear ascertained; excepting in very forward plants, it will not be half an inch long, and it cannot be hurt, if the scythe be only set so as to cut off the leaves just at the place where they begin to bend. What is cut off should be allowed to lie on the field; its value as fodder will not compensate for the injury done to the crop in its removal, and it will soon wither, so as to be out of the way of the growing plant.

As was stated in a previous Number of this Paper, the diffusion amongst farmers generally of what is already known and practised by the few of them in our best cultivated districts is, in all probability, the most efficient METHOD OF IMPROVING BRITISH AGRICULTURE. More good will probably be done thus, and with greater economy too, than by increasing the number or encouraging the industry of the numerous labourers now working on the junction lines of agriculture with the sciences by which it is surrounded. It is true, that the farmer has of late years become deeply indebted to the chemist and geologist for important suggestions and explanations of practice; and there is still, no doubt, room for great improvement in our best systems of farming—improvements which have been, and probably will continue to be, indicated by scientific men; but there is such a vast difference between the practice of those who farm well and that of the many below them on the scale of excellence, that great national good would undoubtedly arise from an improvement in the management of the latter class, though that of the former should for a long time remain stationary.

This is precisely the opinion of M. J. E. DEZEIMERIS, a writer in one of the February Numbers of the "Transactions of the French Academy of Sciences;" while, however, his clever paper "On the most Economical Methods of Improving Farm Management" rightly indicates experience as the only safe guide for the farmer to follow, it is certainly wanting in justice to the exertions of scientific men, from which, as we have said, agriculture has already derived much benefit. The following passage from this paper exhibits the author's opinion on this subject:—"On looking at the best works with which our agricultural literature has been lately enriched, it appears as if agriculture were not considered to be the art of drawing from the soil the greatest value of produce, but as the art of explaining the mode of this production. The explanations, too, which are given, certainly exhibit great ability, and each is very plausible when examined by itself, but they have the misfortune of being contradictory, and this hinders us from believing any of them, excepting the latest. For example—one kind of plant has grown 12 or 15 years, and dies; another, of the same species, planted in its place, will not grow, but one of another kind will succeed perfectly. Why is this? If you would know—science will give you ten reasons for the one you demand, of which, of course, nine are not true. A practical man cannot tell you *why*—but he knows the fact, and when opportunity offers will not fail to take advantage of it. Again, land which the first year will yield an admirable crop of Peas, will yield but a poor one on the second, and a miserable one, if you force it to grow the same crop, on the third year. Why is this? We may have felt sure of the reason one year, but the experience of the next proves it untenable. Again, grain crops do not affect land which has previously yielded grain. Well—here is a theory to explain the circumstance to you. But, patience!—the statement is not absolutely true. Experience throws doubts upon it. Wheat, indeed, comes badly after Wheat; very badly if the crop be repeated; and miserably if insisted upon. Rye will not grow well after Rye, nor will Oats succeed after Oats. Barley, however, succeeds after Wheat, though the latter will not grow well after Barley. Well, says theory, here is the explanation, or rather here are two, four, six different explanations; choose for yourselves." All this merriment upon the imperfect state in which the theory of agriculture still exists, is for the purpose of fastening the attention of readers more entirely upon *experience*, as the only safe guide to agricultural improvement. But experience in farming, it may be objected, is as variable as its theory; and were it not that there are one or two well-established points which *all* experience sanctions,—and on which, by the way, M. DEZEIMERIS, you will find scientific men to be even more entirely agreed than those whose knowledge is only practical—it would certainly be as ill fitted to guide us as the other. Indeed, as regards the passage translated above, the assertion with which it commences is not true, so far as this country is concerned, nor, unfortunately for the author's argument for the superiority of experience over theory as a guide to improved agriculture, would his illustrations of agricultural practice be admitted as true by *English* farmers. Seed-producing crops ought not to follow one another in successive years on the same land, and we are not aware that Barley and Wheat are exceptions to this general rule. And as regards our agricultural literature, we think it testifies perfectly to the importance of correct practice, as well as to the advantage of obtaining the true theory of it. The object of late writers on agriculture, in *this country* at any rate, has been two-fold. Some have endeavoured to *explain* farm-practice, and others to *describe* it. The writings of JOHNSTON, PLAYFAIR, SOLLY, and others, exhibit the efforts of the former class, and the reports of local farming, elicited by the patronage of our national agricultural societies, witness the endeavours of the latter. Farmers, doubtless, benefit from both of these classes, though, as we stated at first, probably no agricultural work possesses such usefulness as a true report of the details and results of farming in a well-cultivated district.

It is from an examination of such reports of districts in various countries, and in various ages, that M. DEZEIMERIS makes the following deduction:—He says, "if any one should take the trouble to examine the agricultural reports of travellers in various countries, or in different provinces of the same country, he will be struck, not only with the extreme variety in the details of their cultivation, but also with the extreme uniformity of one result which everywhere prevails, and which may be summed up in a few words. Everywhere and always the produce of a farm is proportional to the quantity of manure produced upon it, and therefore to the extent of it which is set apart for the food of stock,

compared to that of the portion occupied by exhausting crops." This statement is illustrated by reference to many instances, and there can be no doubt of its truth. M. Dezeimeris, speaking of these instances, says, "all these facts are truths so palpable, so simple, that one would suppose there is no one who does not know them, and act upon them. Such an idea, however, would be most erroneous. Were these principles generally recognised and acted upon, agriculture would everywhere be excellent. Is it, then, everywhere so good? For one well-cultivated district, on the contrary, are there not 20 where the farming is miserable? And yet, what is required to remodel and perfect that of the worst? Just one thing—so simple it seems; let the farmer devote to the cultivation of food for his stock at least one-half of his occupation."

This, doubtless, is the true basis of any general agricultural improvement. M. Dezeimeris promises in a future article, to illustrate his argument by a comparison of French and British agriculture. Should we have an opportunity of doing so, we shall not fail to bring his remarks under the notice of our readers.

ELECTRO-CULTURE.

I am obliged to you for having inserted, and to your correspondent, "A. H.," for having written the letter that appears in your *Gazette* of the 17th inst., for these reasons:—1st. It affords me an opportunity of laying before your readers a few of the facts and experiments, both ancient and modern, for and against the assertion that plants are influenced by electricity, artificially applied. 2dly. It enables me to give some rules to be observed in the height of poles and size of plots, &c.; and lastly, to correct errors that have crept into the various papers and journals, when speaking on this subject.

Your correspondent, "A. H.," places much importance on the period of Ingenhousz's experiments and book (with a variation, however, in so short a letter, of 10 years). If your readers will refer to the "Encyclopædia Britannica," vol. vii., pages 800 and 801, they will find that one of the earliest experimenters on plants with electricity was Mr. Maimbray, of Edinburgh, in 1746; and as far as he went, they were decidedly in favour of its utility in promoting growth and earlier development; also, see "Priestley's History," Part 8, section 4. The next of the earlier savans who studied this subject was the Abbé Nollet, as detailed in his "Recherches," and in "Priestley's History." He made "some comparative experiments on the germination of seeds," with the electric fluid and without it, and the result was "similar to that of Mr. Maimbray's." Then, continues the same Encyclopædia—"Similar experiments were made by M. Achard, of Berlin, and several other philosophers, but still with the same result; until Dr. Ingenhouss instituted a very complete set of experiments," &c., "which were attended with very opposite results,"—on which alone "A. H." is disposed to rely, although they were at the time opposed, and severely animadverted upon by M. Duvernier.

"A. H.'s" statement that Dr. Ingenhouss found "that electricity, even in its most concentrated form—that is, as lightning conducted by iron—produced no sensible effects on vegetation," requires comment; for we are admitted to the belief that a too powerful and too transient application of this vital fluid was employed—similar to the mode of Nairne, Banks, and other members of the Royal Society, except that they produced very sensible effects—decay and death—which analogy would have predicted by referring to the evil of the superabundance of stimuli on all creatures.

To resume, Dr. Carmoy, the Abbé D'Ormoy, after Ingenhouss's caveat, and subsequently, and with great force, the Abbé Bertholon, give further coincident testimony from their experiments of the value and benefit of this agent. How is it that these seven, and several others, are to be disbelieved? and Ingenhouss, and his echo, M. Swankhardt, believed? The presumption, I humbly suggest, is that the use of this agent was not laid aside as incapable of useful application, but that, by a reference to the time, it was swept from the memory of man, and many of its early experimenters from the face of the earth, by the French Revolution and its consequences—want of free communication between countries and individuals, and the high prices of the succeeding struggle.

Having cited many of the older experimenters, I will now give a few of the later ones, who, from experiment, favour my opinions:—Messrs. Crosse, of Broomfield, near Taunton; Pine, of Maidstone; Weekes, of Sandwich; Walker, I understand, of the "Electrical Magazine;" M. Wyatt, your correspondent on Onions electro-cultured, as in your Paper of the 10th inst., signed "Beta;" and many others experimenting with the fluid obtained by the galvanic arrangement, amongst whom the Dutch Tulip growers, in giving richness of colour to the flower, &c., should not be omitted.

Your readers will forgive me if I again recite my distinct experiment made last year on the Eastern eight-pole plot. It was electro-cultured with poles 4 feet high; when the Barley was 6 inches high it was very decidedly of a darker green colour than the surrounding Barley. On reaching a foot in height it lost this deeper colour, as its points collected all the electricity within the reach of the suspended wire's power of attraction; and the colour was partially, but equally clearly restored to it by two suspended wires, and more lofty poles being adjusted. This fact was to me the most conclusive of all, and many persons saw it beside myself.

If I add the evident benefit effected by electricity this year on six plots of one-third and one-fourth of an acre each, in the front and back lawns of this house, which any person may see, and any "mortal" has the power of equalling; if he possess also the necessary command of ground, seed, and firmness of purpose, the matter may safely be left to the discerning agriculturist.

Lastly, as to the proper height of the poles, or rather of the lowest suspended wire, where more than one is employed. The rule is to have the lowest wire fully 6 to 8 feet above the highest probable altitude of the vegetable under experiment, when at its full growth; and if more than one wire is required for wider or larger plots, there ought to be a space of 3 feet in elevation between them. The reason for these proportions depends on the relative attractive powers for the electric fluid that many electricians have proved to exist between the points of plants, and points or edges of metals; the former being three to four times more powerful than the latter. And the preference given for one line of wires arises from the convenience of being then enabled to harrow and plough without removing any of the arrangement and of having far larger areas in one plot. This removes the doubt expressed by your correspondent "Beta" as to it being most likely that electro-culturing will only be found possible in narrow plots. As to using the fluid obtained from zinc, copper, &c. in agriculture, the expense alone would suggest their inappropriateness.

The following are the areas for plots as given by me. Many errors having been observed in periodicals on this point, it may be advisable to send them to you:—

For a plot of 2 acres	129 by 75 yards	(this is deficient 5 yds).
1 acre	88	55 exact.
¾ of an acre	82¼	44 ditto.
½ ditto	75⅔	33 ditto.
¼ ditto	55	22 ditto.
⅛ ditto	36	16½ ditto (wants 3 yards).

And similar proportions for larger areas, in which, of course, it will be necessary, as suggested above, to have two, three, or more suspended wires.

By referring to pages 87, 88, and 89 of Mechi's "Series of Letters on Agricultural Improvement," except as above corrected, it is possible to pursue experiments this year with accuracy, and, I believe, a certainty of success. Even "A. H." may be induced to try, in spite of Ingenhouss's startling discoveries. That such may be the result is the expectation of your early and constant reader—*R. Dewey Forster, Findrassie, May* 21.

THE DISEASE AND FAILURE OF THE POTATO CROP EXPLAINED.

(*Continued from page* 352.)

I come now to state an instance, and one of many that can be adduced, which most clearly and satisfactorily supports my assertion, viz., that a heavy crop, grown in in any situation or soil, will always be found to produce, in a certain degree, degenerate and tainted seed. The following is a letter I lately received from Mr. Cunninghame, tenant, Harlaw, in the parish of Currie. This farm is situated near the foot of the Pentland Hills, at an elevation of more than 500 feet above the level of the sea. Mr. Cunninghame was born and bred on the farm (his late father being the proprietor). He is well known by his improvements of the plough, &c.; and he is very particular and careful in all his farming operations, taking a great interest in them, personally superintending all the operations; and I may also add, that his statements can be implicitly depended on. The experiment (if I may call it one) might have been more minutely described; but as the broad feature of the case—the cause of failure—is what I aim at, it is of much less importance. It may be asked, How is the failure now so universal under all systems of management, even extending to the uplands? I answer, that the system of management is now nearly alike in all places, soils, and situations, both at home and abroad; that the cultivator of the root finds that excessive manuring produces heavy crops; and the same pernicious system is now followed by the hill-farmers, as many find the seed-trade a profitable one; and the quantity cannot be increased without the requisite stimulus—*the dunghill;* and the late discovered manures have enabled them to increase their stock of manure for the Potato-crop. The following is a copy of Mr. Cunninghame's letter:—

"Harlaw, May 5, 1845. My dear Sir,—The new land in the Bog-park was never in crop in my remembrance, either white crop or green. I drained the land every furrow: they were old round-about ridges. I ploughed the land, and part of it I sowed with Oats, and harrowed the Potato land along with what was intended for Oats. In the spring of last year—about the end of April, the 20th or 24th of the month—I employed two men to plant them, and put them in with the spade: they put the line across the furrows, and made a rut on each side of the line; turned out the sod, put in the dung about 12 tons per acre, and then returned the sod. I employed a boy with a hoe after them, to blind any of the chinks; and after the crop was well brairded, I dug or rather scraped with a spade betwixt the drills, which were 28 inches wide, and about 20 days after I drew the scrapings to the plants with a hoe. I measured several drills at lifting-time, and the produce was nearly as possible 100 *bolls per acre.* I planted one drill with Irish Cups, and the crop was good; one drill with Buffs—they were also good; one drill of Reds, from Ratho (the low country), which turned out a bad crop; the rest was from Biggar-shiel, all Dons. My other Potatoes were planted in the field adjoining. About the middle of May I gave them about 20 tons of dung per acre. I began about the first week of October to lift them, and lifted the bog-crop first, and they were all pitted on the same plan; the pits about 4 feet wide, and about 5 inches taken out of the bottom, the Potatoes put in, covered with straw, and afterwards about 4 inches of earth. I put in wooden ventilators, square boxes made of paling-rail, with openings at the bottom, about 2 feet down amongst the Potatoes, and the other end above the pit. I let them (the ventilators) stand this way for four or five weeks, and then put on about 10 inches of earth; as soon as I saw an appearance of frost I stopped them with straw. I may add that the boxes ran short, and I finished with straw, which seemed equally well to answer the purpose. I have just put the last of the Potatoes in the barn to-day, to cut for seed. Those from the new land and great crop do not appear to be so good seed as my other Potatoes, which were not half the crop: there seems to be more blind-eyes amongst them. My going or cropping land has lain twice in pasture during the last 15 years. I do not think it possible that any of the seed which I planted could be heated after cutting; and I had no opportunity of knowing whether those planted had been heated before I received them: of course they have not been heated this season. I forgot to mention that the bog-land, before draining, was all naturally wet. The reason I gave it so little manure was, that the cattle had lain in that part of the field, and the land was enriched from that circumstance.—I am, &c., John Cunninghame. P.S.—My brother at Kenleith got some seed Potatoes from the west country—nine bolls from new land, and one from going or cropping land—and he says that the latter is the best seed, having fewer blind-eyes."

The above completely confirms what I have already advanced, viz., that a heavy or over-grown crop of Potatoes, in any soil or situation, will always yield bad seed Potatoes; and that over-cultivation is the sole or chief cause of the degeneracy of the plant.

It seems self-evident, then, that the crop first degenerated in the rich and cultivated districts of the low country, producing curl in the plant; that as the cultivation of it increased the curl increased, and a change of seed was found necessary from the high country; that within these 10 years past, in addition to curl, that blanks or entire failure of the plant has taken place in our fields, and the disease of curl, and the complete or partial failure, has kept pace with the extended cultivation of the plant, and in the exact ratio of the quantity of stimulus or manure applied; and that the first blanks in the fields have appeared to have continued since the manure has been so much increased to the crops, viz., during the last 10 years, the quantity of manure applied to the crop having been increased one-fourth generally all over the country, as the increased quantity of manure (when the crop has succeeded) has in a very remarkable degree increased the return, to the extent, in many cases, of one-third more Potatoes; and in some instances the crop has been doubled. But as the crop is increased in quantity, so does it decrease in quality; and very nearly in the same ratio.

The Potato is a native of a warm climate; and I am fully impressed with the idea that it should thrive best in an early soil, and in warm and sheltered situations, allowing it at the same time sun and air; and whoever has observed the immense crops raised in the low country, the superior quality of the produce, and the vigorous growth of the plant in almost all early soils, must come to this conclusion; although, at the same time, I will allow that a change of seed from the high grounds, and from every variety of soil and climate, may still be of advantage to the farmer of both the high and low districts of the country. That the plant has continued longer in the hill-districts free of curl and failure, is no argument against my theory, as it is the poverty of the soil and the want of manure that have saved it. It not only has received less manure—for they have little to give it—but it has not received at its roots so much of that heating and stimulating article, horse-dung or stable-manure; which I attribute as the cause of assisting materially in the deterioration of the root. The crops also, until of late years, have not been so often repeated on the same soil; and a change of crop is of great advantage to the health and well-being of any plant.

I come now to the cure or remedy of the disease, or the best means of procuring and raising good seed—as I do not yet despair of seeing good seed, and the best that can be raised, to be found in the early and highly cultivated districts. It must, of course, be obvious to all, that, if possible, seed should be obtained from South America; but as it would not be possible to procure more than a very limited quantity, we ought to try what can be done to improve those of our own country. I would recommend to select the best varieties, and raise from the apple; but, in the mean time, to have the best and soundest seed for present planting—always, of course, avoiding the produce of a great crop, grown in any situation or soil. The land intended for seed should be ploughed deep in the autumn, and, if possible, by the trench-plough. The drills to be 30 inches wide, and manured moderately with, if possible, a mixture of earth; and if earth is not previously mixed with the manure, a little may be drawn into the drills above the manure, and before planting the seed. Mr. Dickson, Saughton, near Edinburgh, who has been very successful in raising good crops of Potatoes, is very judiciously,

this year, mixing all the manure intended for Potatoes with earth. The ground intended for seed should be planted with whole Potatoes, and about 14 inches apart; or the Potato cut in two, and planted at 10 inches—(both may be tried), the plants to be placed near the the surface, and never highly earthed up by the plough, as it is natural for the tubers of the plant to run upwards; and the more of them, in ripening, that may be exposed to the sun and air (greened), they will make so much the better seed. To be taken up rather green or unripe than otherwise, but approaching to a ripe state. To be placed in pits (in an airy situation), at about 2½ feet at bottom: they may be carried up pretty high, and the pits may be made of a tolerable length. They should have first a little earth thrown over them—say half an inch—and then a good covering of straw, finishing with a few inches deep of earth, as it is the straw which will defend them from frost; and a few straw funnels, at short distances, is all that is necessary.

The seed Potatoes should be planted by the 1st of May at farthest. In the late districts, as the seed may be injured by the frost before taken up, they could be well earthed up by the plough a short time before the frost may be expected; and the same may be done in the low country; but of course they do not run an equal risk so early in the season, although we all know that a very slight degree of frost will injure the Potato. Those not meant for seed ought to be managed much in the same way; giving the land, however, more manure, and planting deeper; as the Potato, if greened, will of course be unfit for food. I would advise the experiment of topping or cutting the Potato-tops when too luxuriant. It may be done in this way:—A person, with a common harvest reaping-hook, about the time of the decay of the blossom, should be employed to go along the drills and cut off the tops, about 2 inches or so below the blossom: this will not only prevent them from seeding, but will check the luxuriance of the stems, and save the exhausted roots or tubers.

I have always thought that the produce of any overgrown or luxuriant white crop produced inferior seed; and I suspect that it will be found that all white and green crops may be too highly cultivated. It is well known that Turnip-roots rot and decay prematurely from the application of too much manure. I have also long entertained the idea that smut in Wheat, Barley, and Oats, has always arisen from over-cultivation; and if we shall find out the cause, we can have less difficulty in finding a remedy. I therefore hope that agriculturists will assist me in exploring the field of over-cultivation, which has seldom or never been thought of, as almost every farmer has gone on upon the principle that too much stimulus could not be applied: the crop may have been too luxuriant to be profitable, but the degeneracy of the seed or root has been invariably lost sight of. We must, then, bear in mind, that Dame Nature may be assisted or followed with success; but if we shall attempt to deviate from her law, we are sure to fail.

Note.—The author of "The Problem Solved," in a very ingenious treatise on the subject, has pointed out the probable effects of cutting the Potato in the spring or bleeding season, and also on producing and raising seed from the apple. In planting the Potato whole, of course this objection would be obviated.

I have mentioned that the American Early, and the Surinam Potato or Yam, have not been known to fail. Neither of these has been extensively cultivated; and although not an absolute failure, yet it is well known that they have degenerated; and the Yam, for this and other causes, has nearly disappeared from our fields. My plea is, that long-continued and extensive cultivation will finally destroy the plant; and the Surinam and American Early form no exception to the theory advanced.

DRAINING.

At the meeting of the Council of the Royal Agricultural Society April 30, the following communication was read from Mr. Dixon, of Witham, on the subject of draining:—

"*Witham, April 29, 1845.*

"Dear Sir,—The subject of draining is now frequently adverted to and discussed at your council meetings, and as I entertain views adverse in some respects to those propounded by Mr. Parkes, I take the liberty of stating them by letter, as no other mode of communication seems open to me. The two prominent advances necessary to agricultural improvement, are obviously draining and deepening the cultivated soil; these must be preliminary to all others. The former especially requires great practical knowledge of soils, and skill and ingenuity in execution, far more than I believe is usually given to it; hence the common complaint of failure, even where large expense has been incurred in the work. As a member of the Royal Agricultural Society, I am anxious that this subject should continue to be freely discussed, so that we may thus get at the practice in different districts, that in due time the Society may be able to advocate a sound practical system for the guidance of all interested. It seems to me that at present the inquiry before you is rather how cheap the work can be done than how well? Most certainly the statement made by Mr. Parkes at your last meeting is not borne out by experienced farmers in this county, nor can I find an advocate, amongst the many I have conversed with, for the inch pipes recommended by you and Mr. Parkes at the discussion of the Council before referred to. Draining with pipes has been a practice here for 25 or 30 years, and the practical result seems uniformly to have been that the security and durability of the work is very much in proportion to the strength and size of the pipe employed, and that no pipe of less than 2 inches in the diameter of the bore, offers either one or the other. I intend to apply this remark to surface-draining of sound land; spring draining is quite another matter, although claiming equal attention and requiring in execution much more skill. I will briefly state some of the prominent points which appear to me to be especially important:—

"'That drains should be placed as deep as the nature of the soil will permit, and the fall of the outlet will allow. The deeper the less frequent they need be. That in all cases where practicable, they should be worked in parallel lines up to the face of the hill or highest point of the field, and not across the incline of the fall. That the size of the tile or pipe should not be regulated by any ascertained quantity of water which falls upon a given space, but that they should be sufficiently large not only to let out water but also to admit a free circulation of air. That the eye of a drainer is not sufficiently accurate for safety, and that in undulating surfaces, and in fields which have several natural outlets, the work should be set out by a man capable of managing a spirit level or a theodolite. That tiles and pipes should be well examined before they are used, to ascertain whether they are sufficiently burnt and made with good clay. That the tile or pipe where the soil is wet and soft should be placed as quickly as possible after the trench is made, and that no thick water should be allowed to pass into them, in order to prevent a deposition of silt. That durability and efficiency can be arrived at in no other way than by using substantial well-made tiles and pipes, which will bear force and pressure to give them firmness and accuracy of position, without which no drain can be considered secure. That well-made drains may last for ages, and that 15*s.* or 20*s.* per acre in extra cost for good pipes or tiles is not worth consideration. That no material subject to decay should be used in the construction of drains.'

"To these few suggestions I wish to add a remark or two, on pipe and tile making. Sufficient caution is not commonly practised in selecting proper clay. The very stiff tenacious clays will not keep in shape, and will crack in turning, and then also as you approach the 'red brick' clays they will be found to be too porous; pipes or tiles made with this material will not stand the combined action of frost and water; stoney clay is also highly objectionable from the difficulty and expense of cleaning it. We are greatly indebted to machine-makers for their ingenuity, but they are apt to promise more than they can perform, and gentlemen are thus misled and become disgusted. I have had considerable as well as expensive experience in this matter, and I have found no advantage in making the articles faster than they can be dried and put into the kiln. A rapid production is no saving of expense. I find that by admeasurement that 16 of my 2-inch pipes, without sockets, fill a space in my kiln equal to 36 of your 1-inch. The difference is a material one in regard to cost. I shall take an opportunity in a few days of sending to Hanover-square a hamper of the various sized tiles and pipes made in my yard, both for surface as well as deep spring draining, and such as have been and are used extensively here. I have received at present no intimation that they are too large.

"I am, dear Sir, yours very faithfully,

"P. Pusey, Esq., M.P. "Henry Dixon."

Communications having been also read from Mr. Raymond Barker, Mr. Allnutt, and Mr. Fuller, M.P., on the draining of land, an interesting discussion ensued on the general condition, particular anomalies, and details of practical experience connected with that subject.

ON THE WASTE OF TOWN MANURE.

"The neglecting to make the supply of water operate on the town drainage prevents the application of valuable refuse for productive use as manure. In two instances only, that of Preston and Bury, are there attempts made to apply the refuse of the towns to agricultural purposes; but these attempts are very feeble, and produce more evil than good. This is mainly owing to the want of dilution of the refuse, which not only would prevent the escape of odour, but also render the manure more fit for reception by the plants.

"It is a recognised principle of agriculture, that the excreta of those animals which subsist upon a certain kind of food, form the manure best adapted for the production of the same food; and hence the refuse of a town is the best productive manure for the food of the residents of that town. The enormous pecuniary value of this refuse should not be lost sight of, for the revenue derived from its proper application would form ample funds for the liquidation of all expenses incident to the sanatory improvements of the town, and leave a surplus which might be devoted to architectural or other improvements. The lowest sum obtained per Scotch acre for meadows in the vicinity of Edinbugh, irrigated with the refuse of that town, is 20*l.*, and the average amounts to about 40*l.* In Manchester so much is the excreta of the town valued by the farmers in the neighbouring county of Cheshire, that they are at the great expense of carting away about 1500 tons weekly of this valuable refuse, as ascertained by an enumeration of the carts laden with this manure which pass the Cornbrook tollbar; and the annual return of Potatoes from this source, according to the evidence of Mr. Moore, 'may be safely taken at 300,000 loads.'

"Now, when the transport of this manure by cartage is found to be remunerative, the profit must be much more considerable if the transport were effected by water, in a manner similar to, but, according to the improved state of science, more efficient than that in operation in Edinburgh; the difference in the rate of transport, according to the evidence of Mr. Hawksley, being in the proportion of 4*s.* for cartage and 2½*d.* for conveyance by suspension in water. (5432.)

"A few facts with reference to the economic value of the excreta of a town should be kept in view in considering this question. Human excrements contain (with the exception of one ingredient—silicate of potash) all the conditions essential to fertility. Estimating the amount of the solid and liquid effete matter of one man, at an amount so low as 547 lbs. per annum (1½ lb. urine, 1¼ lb. fæces per day), so rich is this manure in phosphates, that the collected excrements of *two* men would suffice to manure an acre of Wheat or of Peas; or that of one man a whole acre of Turnips, supposing the green herbage were returned to the soil. In fact, when we recollect that a pound of urine contains all the ingredients necessary for the production of a pound of Wheat, it seems incredible folly to allow all the valuable refuse to run to waste in our large towns, and to send whole fleets to Ichaboe and the Incas for what we are wasting at home. In Flanders, where much manure is used, the collected excrements of a man for one year are valued at 1*l.* 17*s.*; but even supposing their productive value to be only 10*s.*, or less than one-third the value as ascertained by the practice of Flanders, the manure obtained from the refuse of a population of 100,000 would amount to more than three and a half times the sum necessary for the introduction of all the requisite sanatory improvements in a town of a like population, which according to the estimates I have already laid before you, would not exceed 14,000*l.* per annum.

"The application of such refuse, therefore, while it would facilitate the introduction of sanatory measures, by affording the money necessary to defray the cost of improvement, would at the same time offer the means of removing the putrid and decaying matter which at present renders towns so unhealthy. The local acts at present in operation in Lancashire do not seem to have contemplated this application, for they generally contain clauses prohibiting the removal of the refuse from the streets by means of the sewers."

[From the Report on the state of large towns in Lancashire, by Dr. Lyon Playfair, one of the Commissioners appointed by Her Majesty for inquiring into the state of large towns and populous districts in England and Wales.—Extracted by permission.]

EXPERIMENTS WITH MANURES.

I send you the results of a few experiments with artificial manures on Swedish Turnips and Carrots, made last year on land where, from early sowing, the crop was sufficiently regular to admit of a fair comparison. Supposing that a farmer had not sufficient farm-yard dung to go over the whole of his Turnip quarter without stinting it too much, it would be an object to him to know what is the most remunerating dressing that he could apply to the unmanured residue. If he is situated at a distance from any large town, the least bulky material will be the most convenient with respect to carriage; and even in the vicinity of a town, it will still be a question whether he cannot supply his needs at less expense than by purchasing stable-yard dung. The following experiments are a contribution of evidence towards the determination of this point; the quantities weighed were the produce of 4 perches:—

Quantity and Description of Manure per Acre.	Produce per Acre. tons	cwt.	lbs.	Expense of Manure. £	s.	d.
1. 15 loads of farm-yard dung .	12	16	8	3	10	0
2. 4 cwt. guano, 4 bush. charcoal, and 4 of ashes . .	11	9	32	2	12	6
3. 20 bush. of bone-dust . . .	12	0	0	2	5	10
4. 8 cwt. urate, 12 bush. of ashes	13	0	0	2	4	6
5. 4 bush. of bones dissolved in 24 lbs. of sulphuric acid and 12 galls. of water; 12 bush. of ashes . . .	13	7	56	0	18	0

It is remarkable that in No. 5, where the expense is least, the produce is greatest, and as the expense increases the produce diminishes, except in No. 1, where, however, the expense is so much more that it can scarcely claim the superiority, unless from the greater slowness of its decomposition that manure spreads its fertility over a greater length of time; this is a point that wants further examination. In another field the produce was greater, although the manures were applied in smaller quantities; but the comparison is defective, because the dryness of the weather stopped the sowing, and the experiment was interrupted.

Quantity and Description of Manure per Acre.	Produce per Acre. tons.	cwt.	lbs	Expense per Acre £	s.	d.
4 cwt. of urate and 8 bushels of ashes	14	13	104	1	3	0
3 cwt. of guano and 8 bushels of ashes	15	10	0	1	19	0
20 bushels of ashes	16	15	80	0	7	6

Here, again, it so happens that the least expensive manure was the most successful, and 3 cwt. of guano produced 4 tons more of Turnips than 4 cwt. in the former instance; but two fields under a different course of treatment cannot be compared together, and as an example of this, in a third field the produce of four similar experiments fell short of the above amount by

about two-thirds, from want of moisture, but being less defective than the others in that respect, farm-yard dung gave about 1 ton more in weight than any of them; but the failure was so complete that it is needless to go into particulars. For the same reason 14 experiments with Mangold Wurzel are not worth recording; the seed came up with extreme irregularity, and the spaces were filled up with plants which never prospered much; but where guano was applied some of the roots, here and there, grew to a very large size; and the best crop, on the whole, was that produced by 8 bushels of bones dissolved in 48 lbs. of sulphuric acid. The Globe sorts maintained the same superiority which I had occasion to observe last year. The white Carrots, although late in their growth, yet eventually came up with very tolerable evenness and regularity, and therefore, though only 3 perches in each experiment underwent the test of weighing, the produce may be fairly compared, in order to show the value of each sort of manure in promoting their growth.

Description and Quantity of Manure per Acre.	Produce per Acre.	Expense p. Acre.
	tns. cwt. lb.	£ s. d.
Without any special manure	10 14 31	
1¼ cwt. sulph. of ammonia, 20 bush. ashes	11 0 0	1 8 9
8 cwt. urate, and 16 bush. of ashes	11 7 69	2 6 0
4 cwt. Croll's ess. of guano, 16 bush. ashes	11 9 58	2 14 0
4 cwt. guano and 16 bush. of ashes	12 8 10	2 14 0
1¼ cwt. phos. of potash, 20 bush. ashes	12 17 69	1 7 6
8 bush. bones in 42 lbs. sulph. acid, 16 bush. ashes	15 6 74	1 2 6

From this last experiment I conclude that the sulphuric acid was of use not only by liberating the phosphoric acid from the bones, but also by entering into combination with the alkalies in the wood-ashes; its various salts seem to be great promoters of fertility, and at less expense than most of the artificial manures; but their action is still involved in much obscurity, which can only be cleared away by many and accurate experiments. The last experiment I have to mention is merely one of ordinary cultivation; the use of the double mould-board plough is scarcely known in this chalk district, from the prevalence of an opinion that the soil is too stony and too light, and that so much larger a surface being exposed by it to the action of the sun, the plants would be scorched from want of moisture. Doubting the soundness of this opinion I determined to give it a fair trial, and the crop on which it was tried was Skirving's Swedish Turnip, which for early feed, but for that purpose only, is preferable to the old Swede. In the field of this experiment, for instance, the produce of the former exceeded that of the latter under the same circumstances by almost 2 tons.

	Tons. cwt. lbs.
Drilled on ridges, but not earthed up afterwards	11 13 104
Drilled in the same way, but earthed up afterwards	12 0 0

This tends to show that the free admission of atmospheric air to the roots of plants supplies, in some degree, the lack of moisture from the clouds, which last year inflicted so much injury upon the farmers, and that improved cultivation may partially at least correct the defects of the seasons.—*Vernon Harcourt, West Dean.*

Home Correspondence.

Allotments.—If you think that these remarks can afford "Ignoramus" any available information, I hope you will use them. I have let allotments of 1 rood each for 15 years; they have answered beyond my expectations in improving the physical and moral condition of the poor. The rent is 10*s.* per rood, or 2*l.* per acre, which is higher—by the rates and taxes which tenant farmers usually pay—than what it would be let to a farmer. I pay the rates, &c., and consequently obviate the difficulties which would attend their being collected from each individual holder. They never crop more than half the rood with the same crop the same year, so that they are enabled to place all the manure made during the year from their pig, and other sources, on half the rood at a time. I do not limit them to particular crops, but I always advise their growing a fair quantity of culinary vegetables, and, I am happy to say they have been lately very generally following my advice. The land was in very bad condition when they first took it; it is now in excellent condition, so that I am often told that the rent is too small; if such is the case, as it has been caused by their own exertions, I am willing that they should enjoy the benefit of it; though I fear it has not raised them much above the general scale. The rules I enclose will shew that I make their moral behaviour a guarantee for their holding their land; as yet, however, I have had no occasion to enforce them.—Your obedient servant, *D., Northamptonshire, May* 26. [The following are the rules alluded to:—1. The land shall be let for one year only, the right of occupation ceasing at Michaelmas in each year. 2. The rent shall be 10*s.* per rood. 3. The rent shall be paid, half yearly, on the 25th of March, and on the 29th of September. 4. The land shall be cultivated after the best manner of spade-husbandry. 5. There shall be no system of underletting. 6. Every occupier shall keep to the proper road in going to and from his allotment. 7. If any occupier dig potatoes, or do any work on a Sunday, he shall be deprived of his allotment. 8. If any occupier be detected in any act of dishonesty, he shall be liable to be deprived of his allotment. 9. The general bad conduct of an occupier shall, after due warning, disqualify him from holding his allotment. 10. If any occupier be declared to have forfeited his right of occupation, he shall be deprived of his land at Michaelmas, then following, without any notice to quit, or any other proceeding whatever.]

Manures.—I do not see why English guano, *i. e.*, the dung of pigeons and chickens, should not be more used. Farmers are, I believe, generally averse to liquid manure, on account of the expense connected with its use. However, if farmers would but dig two tanks contiguous to their farm-yards—one for the liquid farm manure, and into the other put their domestic guano, with water, and when well mixed and settled, mix the two manures together, with a proportionate quantity of water, they would have a most valuable liquid manure. If averse to use it in a liquid state, pour it upon the heap excavated from tanks; add ashes, road-scrapings; and continually saturating the heap, a cheap and excellent compost would be formed. The guano-tank would, likewise, be useful for bones and sulphuric acid; and, by adding ashes, road-scrapings, and cleaning of ditches, near to the tanks, they have constantly a material to mix with the bones and sulphuric acid, or for the before-mentioned manures.—*Rus in Urbe.*

Poultry.—Naturalists differ in the names they have assigned to the different genera and varieties. Dickson enumerates 19 (I believe), appending the names of some of them in use by several naturalists, and states that there are many more he has not mentioned. In every country names vary; in every locality also. According to the Portuguese and Spanish naturalists, the breed—the favourite with the old Spanish painters—with a muff on the neck, and tufted crest (we call it Poland), is a native of South America, and was introduced into Europe after the discovery of that country; as also the turkey (Gallina turcica),—Meleagris (Buffon). There is another species, which is called Spanish (black), named by Dickson, likewise seen in old Spanish paintings, which I should be inclined to believe is the true one if, as is said, it produces the other by a cross of a hen with either a (thorough) game cock, or *vice versâ*. I know not which—I mention this by way of inquiry. Another speculation: the wild turkey, or bustard, which is common on the Continent, and was formerly so in Britain, I have often shot in Portugal and Spain. The hen lays two spotted eggs, which leads me to inquire whether this must not be the bird described by ancient Greek writers, into which the fabulous Meleagrides, the sisters of Meleager, were metamorphosed, that Aristotle describes as laying two spotted eggs, and not the Guinea fowl, or turkey, as is supposed by Buffon and others, both of which lay many more than two spotted eggs. The English name turkey is derived, it is said, from the Latin Gallina turcica; but I have supposed that the Latin may have been derived from the close resemblance of the head of a turkey to the head of a Turkish soldier, as represented in old drawings; a sort of blueish-coloured coat-of-mail over his head and shoulders, with red lappels; the English name Poland, from the resemblance of the tufted crest of those fowls to the square or spreading crown of the cap or helmet worn by Polish soldiers. The name Hamburgh fowl, from the circumstance of that breed being said to be mostly imported thence? I have heard them called Dutch fowls, possibly for the same reason. As one derivation may suggest another, I will mention that the name Black (Hamburgh) Grape, which is imported from Portugal and Spain, has often puzzled me. Inquiries into the origin of names may help us to ascertain the difference between species and mere varieties, and above all, by what crossings they may be produced. Why should not the breeds of poultry be improved as well as those of cattle.—*D. S. E., Lambeth.*

Rats.—Will you inform me what chemical compound laid in the runs of rats, in barns and buildings, will drive them away? something is used of this nature by rat-catchers, when paid by the year, to clear the buildings from these vermin; what I mean by this explanation is that the rat-catchers, when paid by the rat, use Aniseed, which attracts them, and thus they are enabled to capture a great number; but when, as I said before, they are paid by the year, they use something which drives them effectually away.—*A Subscriber.* [Can any one assist our correspondent?]

Disease of Poultry.—As several of your correspondents seem to have an idea that the pip and the gapes are the same thing among fowls, I think it may be as well to state they are totally different diseases. The seat of the former is on the tip of the tongue and is comparatively easily cured, as in the instance of your correspondent's cock in No. 19 of the *Gazette*, though done in rather a rough way. The latter, however, is in the windpipe, and is occasioned by a number of small worms adhering to the sides, and increasing until they cause suffocation—but by no means so easily cured—though one or two of your readers speak as if they found no difficulty in the matter. I myself have had considerable experience in this particular disease; having, for four or five years previous to last year (when I gave up keeping fowls), lost about 150 chickens per annum by it. Had I been able to have given any satisfactory remedy for it I should have done so ere this. I have tried putting the feather down the trachea, salt, brandy and salt, and many other, said to be effectual, remedies, but with no success; indeed, the very few cases that recovered I consider to have done so more from natural causes than from any remedy applied. A relation of mine tells me he has met with tolerable success by fumigating them with tobacco until they were nearly dead, but this remedy seems to be nearly as bad as the disease; and is, at all events, a very hazardous one. The only remedy I ever found to be effective was, to have chickens as early as possible; for, I remarked, I always reared all my chickens hatched in March and beginning of April, but after that lost four out of five. Although at first no one could have finer or stronger chickens until they began to feather, when the gapes appeared, and they lingered on sometimes for four or five weeks until death put an end to their sufferings. They were of the game breed, and had an excellent situation, it being high dry sandy soil with plenty of fresh water, a large wood with Grass paddocks, and farmyard to run in. As a proof of the healthiness of the place in other respects I never lost one by any other disease, and could never account for this. I may as well remark that, on my coming to town, I gave my whole stock away to a friend, who had them last year without its appearing among them; therefore, I think it must be something in the locality.—*Gamecock.*

Guano and Salt.—The following Schedule, issued in connection with the Bromsgrove Farmers' Club, has been forwarded to us. It is intended, when filled up, to exhibit the result of experiments with salt and guano, used as manure, on growing Wheat, in the spring; and should any one be disposed to try the experiment we shall be happy to publish the results of his experience.

On.....Farm, in the Parish of.....

Signed.....

Ten square yards to be allotted to each experiment, and manured as follows:—	Weight of Sheaves when carried. lbs.	Weight of Corn when winnowed. lbs.
No. 1. Sown over with 4 lbs. 10 oz. of Salt, being at the rate of 2 cwt. on an acre.		
No. 2. Sown over with 9½ lbs. of Salt, being at the rate of 4 cwt. on an acre.		
No. 3. Sown over with 4 lbs. 10 oz. of Guano, being at the rate of 2 cwt. to an acre.		
No. 4. Ten square yards, to which no manure was applied.		

It is recommended that a part of the field be chosen for the experiment where the crop is regular, and that nine long stakes be firmly fixed in the ground, 10 yards apart, in the following position:—



These will inclose the four portions to be weighed at harvest time.

Mention the kind of Soil, ...

Date when the manures were applied, ...

State of the weather immediately after this date, ...

General appearance of those portions of the crop where the manures were applied, ...

Mr. Maund will present every member of the Bromsgrove Farmers' Club, who will undertake to carry out the above experiment, with a blank form and the requisite quantity of guano for the purpose.

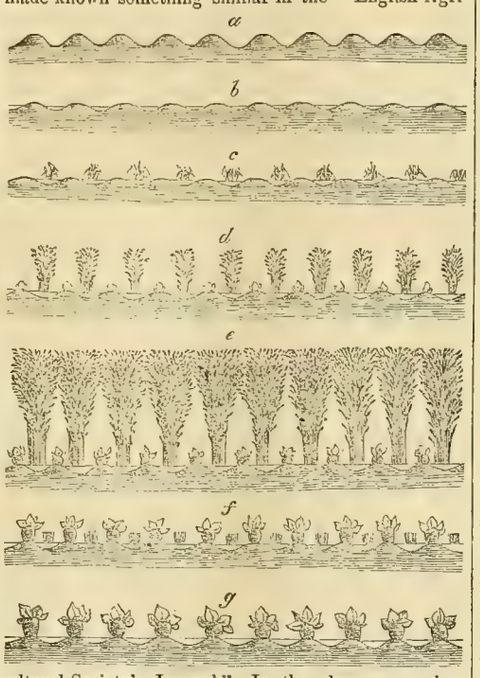
Variable Value of Cattle Manure.—"Proteus" has lately heard it affirmed by a neighbouring farmer that pastures are deteriorated by breeding stock—that is, by cows suckling calves, and ewes suckling lambs. He (the latter) holds that the dung of such animals must be deficient of the phosphate of lime which, through their milk, goes to the growth of their young; that, therefore, their excrements must be inferior as a manure to those of feeding stock, which, feeding on the same pastures, must also form or secrete phosphate of lime—which, as they have no young to nourish, they must return to the land, inasmuch as there is no addition to, or increase of, their bony structure. It led to an interesting discussion, which resulted in a desire for an authoritative elucidation of the subject. Such would be a communication in the *Agricultural Gazette.* [It is generally understood that the manure of fatting cattle of full growth is more valuable than that of growing cattle or milch kine. Manure is just the food of an animal after those portions required for its sustenance have been extracted: and, obviously, that which remains of food after the earthy constituents of bones or milk have been abstracted, cannot be so valuable a fertiliser as that which is left after the abstraction of oily matter, or of that which goes to the formation of such matter, which, almost alone, is the portion secreted by full-grown fatting animals.]

Improved Corn-drill Hoe.—You will oblige us by inserting the enclosed copy of a letter to Mr. Sheriff, of West Barns, in reply to one from him respecting a communication from us, as given in your *Agricultural Gazette* of 5th of April.—*W. Drummond and Sons, Stirling,* 20 *May. To Mr. Sheriff, West Barns.*—In reply to your letter of 5th inst., received only last week, we enclose a copy of a letter from Mr. Stirling, of Glenbervie, and beg to add that in so far as our description of the corn-drill hoe might have left undefined the precise extent of the improvement made by that gentleman, it was wholly, as you candidly judge, "inadvertently," and might have been avoided had we thought of showing the notice to him before sending it to the *Gazette.* With pleasure we acknowledge all that you have done as a previous improver. We are also ready on authentication to recognise all that has been done by earlier improvers, as well as the original invention and application of the implement, although that will probably lead us across the border among our English neighbours; but we must protest against being called upon in noticing any stage of advance, to give the whole genealogy. You are aware that the value of an improvement is not to be measured by the amount or complexity of alteration made, but by its efficiency for the end proposed, the simpler the better, and the more easily tested.—*W. Drummond and Sons.* The following is Mr. Stirling's letter alluded to above: *To Messrs. Drummond and Sons.*—I have received a letter from Mr. Sheriff, of West Barns, complaining that in a notice from you published in the *Agricultural Gazette,* of a corn-drill horse-hoe, which I sent to your museum, you

have not mentioned that he was the original inventor: and also stating that the small alteration which I had made on it, viz., the power of altering the point of draught, by attaching it behind the front wheel was quite the reverse of an improvement. On the first point, I am quite willing to take Mr. Sheriff's word; but on the second I must beg leave to use my own judgment. I arrived at the conclusion by theory, but practice has satisfied me that the theory was right. I found the greatest difficulty with the machine as sent me by Mr. Sheriff, in saving the drills, if the horse made the smallest deviation from the right line, whereas with the improved machine he may go from 20 to 30 inches on either side of the middle drill, and I can still keep the machine in its place. I would not recommend that a horse which is so little under control should be selected for this work, but mathematicians say that "the greater includes the less." There is one thing which is not sufficiently visible to a cursory observer of the sketch in the *Gazette*, viz., that the guide should be carried straight back from the front wheel as far as it is intended to be used as the point of draught. Mr. Sheriff will probably try the alteration, and I shall be happy if he can suggest any farther improvement.—*Signed, S. D. Stirling, Glenbervie, May* 16.

Foreign Correspondence.

Vienna.—I have the honour to transmit to you, as illustrated in the following figures, the following description of a mode of culture which has been published by me under the title of "System of Agriculture," being the result of many years' personal experience in husbandry. This mode of culture consists of alternating planted rows of grain crops, &c., which ripen in summer, with green crops, which come to maturity in autumn; the cultivation of which may be effected even by the inexperienced in a simple manner, without the assistance of a sowing-machine, or any such expensive instruments, but merely with the common plough and harrow drawn by one horse. The ploughing of the field is done by a plough drawn by one or two horses, (or with the common draw-plough cultivator) into parallel drills (Balken) 2 feet apart, as if Potatoes were earthed up. This mode of drill-ploughing (Balken pflügen) is represented in fig. 2. [This figure we have not engraved; it merely exhibits the surface of the land after being drilled or bouted up; and it shows what a ploughman will easily understand, that this may be done by ribbing with the common plough as well as by the more perfect work of the double mould-board plough.] The field ploughed in this manner remains now undisturbed until the sowing, therefore the drill-ploughing for autumn-sowing of Rye or Wheat, has to be done a few weeks previously for spring-sowing; however, it must be done before winter. This is all the preparation necessary for this mode of culture. At the ordinary time of sowing of winter grain, as well as summer grain, the seed is sown broadcast in the ordinary way, only one-half of that seed being required which would otherwise have been used in the usual broadcast manner. By sowing in this broadcast way, the grains fall of themselves into the cavities between the furrows, in drills together. Then follows the harrow with which the field is harrowed along the rows; the edges, with the seed grain remaining upon them, are broken, and thrown into the furrows of the drills; the field is then levelled by one or more harrowings if it should be necessary. By this simple and beneficial proceeding, the cultivation of the most equal drill-sowing is performed. As soon as the seed-rows have made their appearance, the empty space between them is loosened with a one-horse "loosening machine," [a drill harrow, or horse hoe] the breadth of which corresponds with the distance between the rows. This labour, most beneficial to the drill crop, of which four acres may be done daily with one horse, without great exertion, is at the same time the means of promoting the most luxuriant vegetation, for which reason this labour, during the growth of the rows, must be repeated two or three times until the shooting into ear. For such cultivation, the loosening machine which has been invented some years ago, and has, by its inventor, been called row or drill-harrow (*Reihen Egge*), has proved itself for many years the most simple and appropriate. Upon the appearance of the ears a second sowing is made in the well-loosened spaces, as, for example, of Potatoes, Beetroot, &c.—a crop which will come to maturity in autumn. The first crop is coming to maturity; the second has, in the meantime, germinated in the shade of the former, made roots, or has already grown. The harvest of the first crop is done, as usual, with the scythe or sickle, as with broadcast sowings. Immediately afterwards the stubble of the first crop is destroyed with the row-harrow, which, at the same time, is a loosening for the second crop. The further labour of the second crop is done in the usual way, as if it had been grown by itself upon another field. In the autumn this crop also is taken in. This system of husbandry yields, therefore, in one and the same year, upon one and the same field, a crop which ripens in summer, and another crop which comes to maturity in autumn; it gives the soil a garden-like cultivation in the simplest, quickest, and cheapest manner, and with a saving of one-half the seed necessary for broadcast sowing; it gives at the harvest of the first crop a higher produce than any other broadcast method of culture. By this double use of land, landed property is in a certain manner doubled, and agriculture is elevated to the higher and worthier rank of horticulture. Whatever may be the different opinions of this system of husbandry, on the first idea of it, it is certain that only continued trials, made at the same time, and under the same conditions, in opposition to the usual mode of culture, can give a competent judgment of it; and if anywhere one or the other advantage has been gained from this simple and close-drill culture, and if also, setting aside any other advantages, only one grain more has been gained, I may trust that my theoretical and practical labours, made for many years, have been fruitful.—*J. E. Hölbling.* [The double advantage thus taken of land—if in practice the method of culture here advocated really amounts to this—is not unknown to the English reader. The Earl of Lovelace has made known something similar in the "English Agri-



cultural Society's Journal." In the above engraving, *a* represents a section of the land when drilled up; *b* exhibits the same land with the drills somewhat flattened by cultivation, and with grain sown in the drills: in *c* the grain is represented as having brairded; in this stage the Turnip or any other green crop is sown, and it soon sprouts and appears in rows between the grain as represented in section at *d*: in *e* the corn is represented in ear: in *f* it has been cut, and the turnips have now the benefit of air and light; the spaces between them are now cultivated by the horse-hoe, and fig *g* represents it in section as a Turnip crop alone.]

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY.

A monthly meeting of this Society, the last for the season, was held in their Museum, George IV. Bridge, on May 7th—J. M. Hog, Esq., of Newliston in the chair. The first papers submitted to the meeting, which were read by W. Scot, Esq., of Craigmuie, related to the merits of spade, as contrasted with plough husbandry, in certain circumstances; one of them by Mr. Ainslie, Elvingston, East Lothian, the other by Mr. Scott, Kirkham, Lancashire. Mr. Ainslie states, in reply to questions which had been put to him by Mr. Milne, that the first piece of land on which he tried trenching, consisted of about 4½ Scotch acres, the soil being for the most part a rather soft loam on a hard bottom, a portion of it rather wet. The soil was trenched to the depth of 18 inches, and care was taken that no subsoil properly so called, should be turned up. The cost of the operation was 5*l.* per acre. The result was not satisfactory. The second trial was made on two Scotch acres, forming part of a field of 20 acres, consisting of fine deep soil, rather dry, and on a somewhat hard bottom, the land lying in stubble after a crop of Oats succeeding two years' pasture. The work was executed in June, at an expense of about 7*l.* per acre, the soil being turned up to the depth of 20 inches. The stones thrown up were then taken off, the ground harrowed, and manured at the rate of 22 carts per acre. The rest of the field was ploughed five times, harrowed down after every ploughing, and manured in the same manner as the trenched portion. At the end of September the whole field was sown with Hunters' Wheat, at the rate of 10 pecks per acre. The trenched portion showed an unhealthy braird, and, when ripe, the crop was thinner on the ground, but the straw harder and taller than in the rest of the field; the grain also was coarser in quality. The whole produce amounted to 288 bolls, the trenched part yielding 24¾ bolls, the rest 263¼ bolls. In 1835 and 1836 the field was in pasture Grass, when the trenched portion was very inferior; so also in 1837, when the latter fell short of the rest of the field, in yielding Oats, by 6 bushels per acre. When tried with Potatoes, the produce was found to be equal with that of the ploughed land adjoining. Subsequently no difference in favour of the trenched portion of the field has been observable. Mr. Ainslie's experiments have not, therefore, impressed him with the advantages of trenching, at all events to such a depth as to bring to the surface any of the inferior soils. Mr. Scott's object in trenching was to supersede the necessity of summer fallowing clay lands, for he states his conviction to be, that summer fallowing is only beneficial in clearing the land and preparing it for the seed. He does not believe that the land derives any benefit from the year's rest; nay, the land seems to receive more injury than benefit from exposure to the summer's sun. He therefore conceived that the best plan was to trench the land immediately on the crop being removed, and thus accomplish all that was gained by summer fallowing. The author's experiments in trenching were successful on clayey lands, but not on lighter loamy lands, though naturally much more valuable. In one respect, however, he completely failed even on the former description of soil, inasmuch as it was found that burying the weeds at the bottom of the trench by no means killed them, and the land was not left in the same condition with respect to cleanness as it would have been after a summer fallowing. The author is of opinion that on clay lands that have been thoroughly drained, trenching would be a very excellent and economical preparation for a green crop at the commencement of the rotation. It may be asked if trench ploughing would not have the same effect, and at a much cheaper rate? Trenching with the spade is certainly by far the more perfect operation of the two: in order that trench ploughing might at all approximate to it, it would require to be done twice, so as to cut the first furrow across, which would greatly increase the expense, and, in winter, poach the land to a prejudicial extent. The expense of trench ploughing is generally greatly underrated. But the greatest advantage, in Mr. Scott's opinion, of preparing the green-crop land with the spade, would arise from the practicability of working a farm with half the number of horses otherwise necessary. Upon the whole, he is led to the conclusion, from his own experience in trenching clay lands, that it is the most efficient and economical practice, by cultivating green crops upon them, as a substitute for plain summer fallow.—The next communication was a notice from J. S. Hepburn, Esq., of Colquhalzie, regarding a simple means of increasing the accommodation of farm-buildings; read by Dr. Mercer. The author's object was to point out an easy method of turning to account the considerable space which is commonly left unoccupied in many kinds of farm-buildings, on one or both of the walls, and a portion of the roof. In the case of a low range of buildings, consisting of single-headed, or one-stalled byres or stables, having the side-walls 7 feet high, he proposes to place on the unoccupied wall a set of upright spars, at the distance of 5 or 6 feet from each other, the foot resting on the ground, and the top fixed to the roof-scantling or couple. Upon these spars, at the height of 6½ feet from the ground, a row of stout brackets should be fixed, to support a shelving of inch deals or stout spars, 2½ or 3 feet broad. Above these, at the distance of 2½ or 3 feet, a second row of brackets may be fixed to the couples, and supported from the first row. When the side-walls of the building are 9 or 9½ feet in height, there may be two rows of shelving on the wall, besides the one under the roofing; and, in the case of buildings which have both walls unoccupied, such as straw-barns, there may be a double row of shelving on each wall. For the trifling expense at which this plan may be adopted, excellent accommodation is obtained, not only for the smaller implements of the farm, but even for some of those of the larger class; such as Bean and Turnip-drills, harrows, and even ploughs. [Excellent sheep-sheds might thus be cheaply erected.]—Several varieties of pipe drain-tiles were then described, and specimens exhibited. The first variety, suggested by Adam Rolland, Esq., of Gask, was explained by Mr. Slight. It forms a conical tube, having a longitudinal slit on one side. These tubes fit into each other, thus rendering the whole length of the drain, as it were, one continuous pipe from end to end. The water enters by the joints and the lateral opening. The inventor recommends (although this is not absolutely necessary) that these pipes should be laid among gravel, or small stones, especially in mossy or boggy land, situations where he thinks they will be of vast importance. They can be made from about 27*s.* to 30*s.* per thousand, the expense being diminished, as compared with many other kinds of draining-tiles, by the necessity for soles being completely superseded. Edmund Jones, Esq., then explained two machines of his invention, the one for forming couplings to draining-pipes, the other for moulding soles. By means of the former, pipes (which may be made by any machines now in use) are severed into four parts or couplings, each coupling being pierced with eight or more holes. The pipes being partially severed, may be burnt in the whole length as made, or separated before being taken to the kiln. Mr. Jones stated that a boy might be instructed in a few minutes in the use of this machine, so as to enable him to form and perforate 10,000 couplings per day. This is effected simply by placing the pipe on a porter (or horse), and pressing the two ends through the slides, and then reversing the porter and pressing as before, by which means the pipe is brought into contact with the perforators and cross-cutters. The perforated couplings unite the pipes, so as to form one continued chain of connection throughout the drains, thus effectually preventing any accidental derangement. The sole machine consists of a box or trough, in which the clay is moulded, as in forming a common brick; a frame, fitted with a series of wires, which work transversely, is then drawn from one end to the other, and the mass divided into eight soles. The inventor esti-

mates that a single workman may easily mould, by this machine, from 12,000 to 20,000 soles per day. They may be dried on hacks, in the same way practised with bricks. A third variety of pipe drain-tile, proposed by James Smith, Esq., late of Deanston, and W. G. Jolly, Esq., Catter, Dumbartonshire, was briefly described by Mr. Slight. A working model of a new application to the pugmill, for the purpose of producing tiles, pipes, and bricks, the invention of Mr. Campbell, of Islay, was exhibited by Mr. Carrick. The meeting was much gratified at witnessing the accuracy and expedition with which this machine performed its work, producing at the same moment beautifully-moulded pipes and drain-tiles.

—G. E. Frere, Esq., then read a short notice regarding a simple process of preparing Gorse or Whin as food for stock. Having observed it stated in the "Transactions of the Highland Society," and elsewhere, that cattle would not feed on Furze shoots, unless they were crushed and reduced to a half-pulpy state, Mr. Frere was desirous of making known a simple mode of preparation which he had seen practised in the south of England, where no crushing process was employed. The machine necessary for crushing Furze is expensive; the cost of one exhibited at the Southampton meeting of the Royal Agricultural Society of England was 25*l*. In the present instance, nothing more is necessary than a common chaff-cutter, by means of which the Furze shoots, and the hay or straw with which they may be intermixed, are cut into small pieces, and in this state given to the cattle. Mr. Burrell, Hanham, near Bristol, in a communication on this subject to Mr. Frere, states, that he experienced some difficulty at first in getting the cows to take it, but after a fortnight they ate it with very great avidity. It was at first mixed with very good hay-chaff. He has at present six cows eating it, and he has seen none of them after a short time refuse it. He is of opinion that Furze, in certain localities, would be the most profitable winter crop that could be raised for feeding cattle, as it is particularly good for milk. Dr. Mercer then begged to make a few remarks on a subject which had for many years, and which was at present engaging much of the attention of practical agriculturists, as also of the country at large, namely, the structure of the Potato, healthy, and morbid, as explanatory of the liability of the seed used at present to disease, with the probable cause and prevention of the very common evils, blanks and curl, in this plant. He stated that having some time ago directed the attention of the Society to the changes in the structure produced by "greening" them for seed, he had, at the request of the Society, extended these microscopic researches into the healthy and morbid structures of Potatoes generally. At present he had found that a great proportion of those tubers used for seed exhibited a very considerable degree of structural derangement, the peculiarity of which consisted of an atrophy, or deficiency of development of the germinal discs of the offsets or eyes. This difference he had found to vary much in the different "sets" of the same plant, from that of complete destruction or atrophy of structure, to that of complete development; and according to the germinating structure of these offsets when planted, so should their vitality be either that of activity, or of complete or partial dormancy, as exhibited by blanks or curl. He did not, however, wish at present to enter on the discussion of these structural differences, being rather desirous that they should be submitted to the test of practical experience. With this purpose, he and some of his immediate friends had submitted to experiment plants that had been grown at the same altitude, in the same soil, and reared under similar processes of tillage, the results of which, he hoped, at an early period, to bring under the notice of the Society. In the mean time, however, he begged to request, through the Society, that if any gentlemen in the neighbourhood had the disease manifested, either in the form of blanks or curl, in the ensuing season, they would be so good as intimate the occurrence to him, and give him permission to examine along with them such appearances on the land. This the meeting unanimously agreed to recommend, and they hoped that every facility would be given to Dr. Mercer by farmers and landed proprietors for carrying on his investigation. After the business of the meeting, as announced in the printed programme of their proceedings, had concluded, a lengthened and interesting paper, on the cause of the disease or failure of the Potato Crop, with suggestions as to the means of remedy, was read by the author, Alexander Pattullo, Esq., Bellfield, near Duddingston. [We shall take an early opportunity of publishing portions of this paper.]

ZOOLOGICAL SOCIETY.

The Exhibition of Domestic Poultry, under the auspices of this Society, to which we alluded some weeks ago, was advertised to commence on Thursday the 29th of May. "All specimens," it was stated, "must be delivered at the gardens, in baskets fitted for the exhibition, on Tuesday, the 27th, or Wednesday, the 28th of May;" but on proceeding to the gardens on Thursday, we found the specimens only just arriving; and even late in the afternoon they had not all made their appearance. The exhibition will remain open till the 14th of June. The award of prizes is to be made on May 31st (this day). The judges are Mr. Yarrell, Mr. Bayley, Sen., and another gentleman, whose name we did not learn. The following is a portion of the advertisement issued by the Society:—

The Society offers Medals, with the option to the Successful Candidates of receiving 2*l*. for the First Prizes and 1*l*. for the Second Prizes, for the several subjects mentioned in the List below. All persons, whether Members or not, will be at liberty to exhibit and compete for Prizes; but in case of any Prize being awarded to a Member, he shall receive, instead of Medal or Money, an Honorary Certificate only.

First and Second Prizes will be given from Class I. to Class VI. inclusive.

CLASS I.—DOMESTIC FOWLS bred in 1844.—A Male and two Females to be exhibited.

A. White, Speckled, or Grey Dorking. *B.* Surrey. *C.* Old Sussex or Kent. *D.* Gold or Silver Spangled every-day layers (Hamburgh). *E.* Spanish. *F.* Polish, Gold or Silver Spangled, Black or White. *G.* Malay or other Asiatic. *H.* Half-bred, cross of Asiatic with any other. *I.* Any other good variety.

CLASS II.—BANTAMS bred in 1844.—A Male and two Females to be exhibited.

K. Gold or Silver Spangled. *L.* Black or White. *M.* Any other good variety.

CLASS III.—DUCKS bred in 1844.—A Drake and two Ducks to be exhibited.

N. Aylesbury Ducks or any other white variety. *O.* Any other good and large variety.

CLASS IV.—GEESE bred in 1844.—In couples.

P. Common Geese. *Q.* Asiatic or Knob Geese. *R.* Any other good species.

CLASS V.—PIGEONS bred in 1844.—In pairs.

S. English Dove-cote Pigeons. *T.* Spanish Leghorn, or Roman Runts, or crosses of the same. *V.* Any other good and large variety.

CLASS VI.—PHEASANTS.—A Male and Female.

W. Gold Pheasants. *X.* Silver Pheasants. *Y.* Any other species, excepting the common Brown and the Ring-necked.

First Prizes only will be given in Classes VII. and VIII.

CLASS VII.—TURKEYS bred in 1844.—Single Birds.

Z. White Turkey (Male). *A A.* Turkey of any other colour, (Male). *B B.* Turkey of any colour (Female).

CLASS VIII.

C C. Any species of Gallinaceous Birds not hitherto bred in this country. *D D.* Any species of Water-fowl not hitherto bred in this country.

When we left on Thursday afternoon there were still a few specimens absent, of which notice had been given; the appearance of which was, doubtless, delayed by the extremely unfavourable weather which had set in during the morning; but even making allowance for these, the exhibition as a whole was extremely defective, and of very much less interest than we had anticipated. Thus, under the letter *A.*—the Dorking breed—*no specimens* were exhibited! and we understood no entries had been made; neither were there any exhibited under the letter *B.* There were two lots under the letter *C.* One entry we understood had been made under *D*, but it was not forthcoming. One beautiful set of specimens of black Spanish fowls was exhibited under the letter *E*, decidedly the finest fowls of large size that we saw. No specimens were to be seen under the letter *F.* Several specimens were exhibited of Malay and other Asiatic breeds; these are birds of large size, standing very high on their legs; they are not of much value to the farmer, their flesh being coarse and dark-coloured. Other two lots of birds were exhibited—one from Friesland—white, of ordinary size, but apparently in pitiable condition, their feathers ragged and ruffled as if they were moulting; and the other of small size, white, with black skin, from China. Decidedly the most elegant part of the exhibition was under the letters *K* and *L.* Several lots of beautiful gold and silver spangled bantams—a breed which originated with Sir J. Sebright, Bart., were exhibited, and we also saw two lots of black bantams. There were some very large specimens of Aylesbury ducks, and others of cross-breed varieties were also exhibited; and we saw two lots of geese, one of a domestic, and the other of a wild variety; and many lots, including several varieties of pigeons, were to be seen.

As a whole, and so far as we could judge of the exhibition on Thursday afternoon, when it was yet incomplete, we have certainly been disappointed in it. Neither in number, nor excepting letters *E*, *K*, *L*, and *N*, in quality did it at all equal our expectations.

Farmers' Clubs.

London.—The monthly meeting of the Committee took place on May 5th. Mr. Baker, of Writtle, opened the business of the evening by stating, that the time had arrived for them to enter upon the discussion of the disadvantages of growing hedge-row timber on farm lands. Mr. Knight proposed to look at the question as it affected both landlord and tenant. He was not disposed to quarrel with the practice of growing hedge-row timber in meadows and pasture lands, but all would agree with him in believing, that in the case of arable land there was much injury done to the interests of the farmer by hedge-row timber. He believed that with regard to the tenant farmers, this subject came next in importance to game. He regarded game as nuisance number one, and hedge-row timber as nuisance number two. In order to show the disadvantages to the landlord from growing hedge-row timber, let them take for example 100 acres of land, divided into enclosures of from 5 to 15 acres each, and suppose the land to have 200 trees growing on it; granting them at the end of 50 years to be worth 30*s*. each, they would realise the sum of 300*l*. Now, there was no tenant who would object to pay a shilling an acre more for the land, on condition that no timber was grown in the hedge-rows, and this would answer the purpose of the landlord very well; for in the course of 50 years, this additional rent put to compound interest would amount to a much larger sum than the timber would realise, and the tenant would at the same time be greatly benefitted. The additional 1*s*. per acre (supposing that the landlord swept away all his trees), annually invested at 3 per cent. per annum, would, in 50 years, realise 560*l*.; showing a balance in favour of the landlord of 260*l*. Then go a little further and double the number of trees, their period of growth, and, of course, the additional rent which the tenant would pay to get rid of them; presuming 400 trees in 100 years to be worth, at the rate of 5*l*. each, the sum of 2000*l*., and valuing the land cleared of the timber at an additional rental of 2*s*. per acre per annum, the balance at the end of the 100 years would be upwards of 4000*l*. in favour of the landlord. From this it would be seen that as a pound, shillings, and pence consideration, the landlord would be benefitted by getting rid of his timber. It might be argued by some that it was not desirable entirely to get rid of the timber from a farm, as a certain quantity was required for repairs and other such purposes; but the fact was, that it was much cheaper in the end to buy whatever timber you wanted for repairs, than to cut timber from the hedge-rows and work it up. He was himself under a repairing lease, and was allowed what timber he wanted; but he rarely cut any, except in the way of knocking down an old tree which might happen to stand in the way. Another advantage in getting rid of timber was, that you also get rid of a very great obstacle to draining presented by the roots, which frequently choked the drain up altogether; and good draining was a permanent advantage to the landlord. He now came to the consideration of the second part of the subject, namely, the interests of the tenants; and, in approaching that, he had no hesitation in saying that there were very few who would not readily meet their landlords upon the question of a small increase of rent for getting rid of so great a nuisance. He would refer to two or three letters which he had received from friends in the country upon the subject. One of them was from a friend in Norfolk, who stated that he had often reflected on the loss incurred upon a field of 20 acres, surrounded by Ash-trees: out of a field of 1400 yards (*land* yards), nearly 400 were entirely lost in consequence of the spreading of the roots of these trees, and the average loss, on the four courses of crops, he estimated at the rate of 6*l*. an acre, and such a loss upon 20 acres of land was a very serious matter for the tenant. This was, however, unfortunately, only half the actual amount of loss sustained, because the same amount of damage was done on the other side of the hedge as that which he had reckoned. Another disadvantage, and one independent of the loss of ground is, that the trees encouraged flocks of birds, which destroyed the corn in considerable quantities. It was found, he said, at harvest time, that the corn on about 5 poles of land from the hedge-rows was worth little or nothing, and if the trees stood to the south-west they shaded the ground so much that the corn grown upon it was small in the head and weak in the stem. There was, moreover, a third loss, which resulted from this custom, and that was, the breakage and damage done to ploughshares. Many of the farmers in Yorkshire had set to work and grubbed up their hedgerows of timber altogether, substituting for them young quick-set hedges. He next begged to call the attention of the meeting to the work of Mr. Newman, of Hayes, a gentleman whom he had had the pleasure of knowing for the last 35 years. The title of the book was, "Practical Hints upon Land Draining." Mr. Newman took the same view, as to the injury done to the farmer by timber, as he (Mr. Knight) did; he stated, however, that although he objected to both Elm and Ash, he considered the latter the most prejudicial, on account of the manner in which its roots spread. He had also received a small pamphlet from Mr. Grant, upon the Hedge-rows and Enclosures of Devonshire; it would appear that, of all the counties in England, Devonshire was the farthest behind in regard to good farming. The lands appeared to be perfectly choked up with hedge-row timber. This gentleman stated that he had taken 10 parishes in that county, and gone into a calculation of the number of acres of hedge-rows of timber they contained, the result of which was to show that there were no less than 36,976, being an average in round numbers of 3700 for each parish, equal to 1651 miles in length, about half as long again as the great wall of China, and sufficient to hedge round the whole of England. He thought he had said quite enough to show them that in a pecuniary point of view the landlord was a very great loser by this practice, and he was quite sure it required no argument to show that the tenant was also.

Mr. Shaw felt some difficulty in reconciling the two positions which he thought Mr. Knight had attempted to establish, namely, that the landlord was injured by growing hedge-row timber, but the tenant more so. He conceived this was a landlord's question; he trusted the time was rapidly approaching when the question of advantage or disadvantage, with respect to occupation of farms, would become a mere matter of contract between landlord and tenant, and when rents would be commensurate with the advantages or disadvantages of the position of the tenant, game, timber, and all similar causes of loss being duly considered.—Mr. Wyatt observed, there were some parts of Sussex, Surrey, and Kent, where the land was more favourable to the growth of timber than anything else; and there was frequently a very considerable profit upon the growth of timber, but it should be confined to soil which was fit for nothing else, or if grown at all, there should be an allowance to the tenant for the injury done to his farm thereby.—Mr. Anderson stated that he had discussed the subject with the late Lord Spencer and the present Duke of Bedford, when Marquis of Tavistock. On the Duke of Bedford's estate the rule was to cut down the timber every 10 years. On each side of the rows were a hedge and ditch; and what was the consequence? Why, that there was an

plant, with a stone upon the surface for the double purpose of fixing the plant in the pot and of keeping the soil moist. In less than a fortnight the young plants will have become sufficiently rooted to bear separation from the parent; they are then finally shifted, placing each plant singly into an 8-inch pot filled with loam and abounding in humus, and slightly mixed with superphosphate of lime, and the plants are set in a shaded situation. In a few days they will have sufficiently recovered the check, and will be able to bear full exposure to the light and air, which is essentially necessary at this stage of their growth; I give them copious waterings when required with a weak solution of ammonia (hartshorn) and sulphuric acid. Before winter they are plunged in a dry border, and are slightly covered with litter, if the frost is severe, for the sake of preserving the roots and pots; they are started towards spring by giving them a top-dressing of loam and superphosphate, which they like, sprinkling on the surface a little charcoal. They are then placed in a Peach-house, on shelves, near the light, where they have the same temperature as the Peaches, viz., 50° by night and never exceeding 75° by day; I keep up a humid atmosphere, watering the plants frequently with weak solutions of ammonia and sulphuric acid. As soon as the fruit becomes so large that the stem is not able to bear it, it is propped up or tied to sticks. By attending to these things I am able to gather from 40 to 50 full-grown and average-sized fruit from each plant.—*J. Elliot, Norton Conyers, Ripon, Yorkshire.*

To Keep Rabbits from Barking Trees.—In order to keep fruit-trees safe from these depredators take one spadeful of hot slaked lime, one do. of clean cow's-dung, half do. of soot, one handful of flowers of sulphur, and mix all together with soft-water or cow's urine until they acquire the consistency of thick paint, then paint the trees from the ground sufficiently high to be beyond the reach of these vermin. The trees should be gone over in the beginning of winter or on the first appearance of frost, choosing a dry day if possible for the operation. The sulphur and soot, I presume, are the principal ingredients. The cow-dung is added merely to make the others stick to the trees. I have not tried sulphur matches, as recommended at p. 117, but I have no doubt of their efficacy. With the above mixture I have protected numbers of Laburnums near the sides of walks here, for 16 years, with the greatest success, where there are multitudes of hares, and rabbits also frequently make their appearance; except when the mixture has been washed off by heavy rains before being properly dry, one application has served for a whole year.—*J. Drummond, Blair Drummond Gardens.*

Raising Seedling Fruits.—With the raising of new sorts of fruits, as with all other experiments, if a beginning is once made, the interest taken in the subject excites a desire for investigation, which increases as we approach the period of ascertaining the results; if these are satisfactory, and we have obtained an improved variety, we are encouraged to proceed in such an interesting and useful employment; but if the results are fruits of inferior quality, the disappointment has given a gain of knowledge, whereby we are the better enabled to enter upon another series of experiments with greater probability of success. There is something so fascinating in such experiments, that if once we have commenced them, we are sure to be led by the pleasure, interest, and mystery with which they are accompanied, until the results are produced. For Gooseberries, Raspberries, and Currants, it does not require to provide one's self with a great stock of patience; as seeds of them sown in autumn will produce fruit the second season. If seedling fruits show any features indicative of an improved breed, it would be well to give them a further trial to the third season, when their natural qualities will be sufficiently matured to be retained or rejected, according to their merits or demerits. Seeds of the above-named fruit produce varieties of the parent plant most frequently inferior to the original stock, but by selecting one sort valuable for its habit of growth, productiveness, or size, to be impregnated with another sort valuable for its flavour, the offspring would be likely to inherit the good qualities of the parents in a superior degree. It is possible, by the cross-impregnation of two sorts—one of them deficient of some good quality that the other possesses—to obtain an improved variety, inheriting some share of the good qualities of the parents. What is found to be true in cross-breeding for an improved race of animals is equally true when applied to the improvement of fruits and vegetables.—*W. Keane.*

Hybridising.—Four or five years ago I impregnated a yellow Picotee (Martin's Victoria) with the pollen of a red Picotee, supposing that I might possibly obtain a yellow Picotee with a better petal. I got a very few seeds, which did not all germinate; and of the remainder all the produce, except two plants, was destroyed by the maggot. The surviving plants had the foliage of the female parent, and I was anxious to preserve them. However, one of them went off in the spring of the second year, and the other, which was affected with a clubbing or gouty thickening of the stalk where it emerged from the earth, died in the autumn without blooming, but not until I had secured a layer and two pipings from it. These plants came into bloom in August or September last, when I found that, instead of a yellow, I had got a white-ground red Picotee, with a petal somewhat less serrated than its female parent, which it also resembled in form, and with a very good pod, but by no means smooth enough in petal for the stage in these days. I presume that I ought to have employed the pollen from a rose-leaved yellow Picotee, if any such exist. About the same time I attempted to impregnate three flowers of Ely's Criterion, red light-edged, with the pollen of Sharp's Wellington, red heavy-edged Picotee. The anthers, however, were not removed, and one of these flowers seems only to have produced seedlings. In the others I believe the impregnation to have been completed, the plants raised from them resembling the male parent. In the whole batch there are some pleasing varieties, from delicate rose to very heavy-edged scarlet.—*O.*

Marine Glue a Substitute for Putty in Glazing.—The abolition of the duty upon glass will undoubtedly have a most beneficial effect upon the horticulture of this variable climate; but though the first cost of the glass will be greatly reduced, there still remains a perpetual charge upon every garden for breakages arising from various causes, against some of which an experiment I have tried during the past three or four months, offers considerable protection. It is notorious that glazed lights inclined at any angle are exposed to much damage from water lying upon them, and insinuating itself first under the dried paint, and subsequently beneath the putty, which sooner or later becomes separated from the glass—a process rapidly hastened by frost—and to guard against which it is necessary to renew the paint at short intervals; some, indeed, recommend one coat annually. In those frames the lights of which are moved up and down directly by the hand, and are frequently lifted off the frame, it is almost impossible to avoid frequent breakages or crackings of squares from the bending of the frames and the rigidity of the putty. Whilst occupied in an experiment of another kind, with Jeffry's marine glue, it appeared to present some qualities which would be well adapted to glazing instead of putty, and accordingly I had two lights of a Cucumber-frame of 5 ft. 10 in. by 3 ft. each, made purposely so slender that they would by their pliability be unsafe for glazing with putty. The glue was melted in a common glue-pot with oil instead of water in the outer vessel, and according to the printed directions given by the inventor, and when perfectly melted the glue was applied by an iron spoon as quickly as possible; the superfluous glue which flowed over the glass being pared off neatly with a knife and chisel, leaving an edging of about three-eighths of an inch in breadth, and the thickness about one-quarter of an inch next to the wood, and sloping to about one-eighth of an inch on the glass. It is evident that this material is proof against the action of water, and the frost in February and March had no effect upon it; and so far as the heat of the sun has hitherto been the softening of the glue has been trifling, and its elasticity in preventing breakage from lifting the lights about, even with carelessness and some degree of violence, is a quality of the highest importance; and on the whole I can confidently recommend its adoption. The marine glue is more costly than putty; but this is of no importance, since it is almost imperishable, and does not require the expense of frequent painting.—*G. L.*

Fungi.—In my wanderings, I lately observed a circle, some 12 feet in diameter, formed by a belt of white Fungi—about 10 inches in width, thickly studded together, so close indeed, that the finger could scarcely be inserted between them; the circle was perfect, and the belting regular in breadth. I have attempted to find out the cause of this, but I am unable; could you assist me?—*A Fifeshire Florist.* [Such Fungi spring from spawn; that spawn radiates from a centre, and produces its fructification (the Toadstool or Mushroom) at the circumference only.]

Fruit-trees.—It is quite clear that the main secret as regards ripening of wood in fruit-trees is an early maturity. The stopping the autumnal growth, thinning out, and taking off superfluous leaves, and abstaining from over-manuring will do much; but the grand battle to fight is against the wet autumns, which keep the trees growing. Has any one tried, with a really well-drained border, to keep off by shutters or glasses all wet after September from the soil? If not, is not some experiment of this kind worth trying? I recollect some plan Sir Joseph Banks had with a Grape-house, for turning the drain of a dung-heap under it, so as to feed the roots with moisture and manure, with some arrangement for making the house dry as soon as the wood was perfected. —*Dodman.*

The Cuckoo, it is now well known, deposits its egg in the nests of several birds. They have been found in those of the hedge-sparrow, or rather the hedge warbler, the robin, the redstart, whitethroat, willow warbler, pied wagtail, meadow pipit, rock pipit, skylark, yellow bunting, chaffinch, greenfinch, linnet, and blackbird, and from the circumstance of a pair of red-backed shrikes having been seen breeding a young cuckoo, it is probable that the cuckoo sometimes deposits its eggs in the nest of those birds. See Mr. Yarrell's "British Birds." It may be added, for the information of "Quercus II.," that cuckoos have been known to form a nest themselves, and sit upon and hatch their own eggs. In cases where they select a foster-mother, it is supposed that the cuckoo keeps near the nest, and takes charge of the young cuckoo when it leaves it. The robin certainly has one brood before the arrival of the cuckoo, but it as certainly has one or two afterwards, and it is by no means an uncommon thing to find a young cuckoo in a robin's nest. Indeed, a cuckoo has been seen to take possession of a robin's nest for the purpose of depositing an egg in it. A cuckoo will lay four and five eggs. This has been ascertained by dissection. The whole history of the cuckoo is curious. It is the largest of our insectivorous birds, and if she hatched all her own eggs, she probably would not be able to feed them all. I have seen a pair of wagtails employed from morning till night in providing food for a ravenous young cuckoo. There is now but little doubt of cuckoos dropping an egg near a nest so placed that they could not get into it, and after removing the eggs which were already in the nest, taking up her own egg in one of her feet, and then depositing it there. In this way they are supposed sometimes to introduce their egg into a wren's nest.—*L. L. D.*

Varnished Coverings for Wall-trees.—Last March I was induced, by the representations published in the *Chronicle*, to try the effect of these coverings, and having stretched fine calico upon light wooden frames, and coated it with a mixture of oil, resin, and sugar of lead, which rendered the calico perfectly transparent, the frames were inclined against the wall over an Apricot-tree, and were not removed till the first week in June. The foliage of this tree appeared to be rendered more luxuriant, and the fruit set earlier, and continued in advance of another tree immediately adjoining, till the covers were removed; but ultimately the ripening of the fruit could scarcely be regarded as having been hastened, certainly not more than a week, if so much. But the advantage in the employment of these covers was not so perceptible last spring, a season unusually free from sudden changes from rain to frost, as may be looked for in the average of that proverbially changeable season. I also covered a Peach-tree in the same manner, excepting that instead of calico I used coarse gauze, and the result in this case was most discouraging, as the tree was far more infested by the aphis than those which were uncovered, and so much so that both leaves and fruit were nearly destroyed, a misfortune of which I observed others complain. Still, I think one failure should not deter us from repeating the trial of an experiment, unless the principle be shown to be in itself bad, which I have not yet discovered, and accordingly shall try it again.—*G. L.*

True Highland Pine.—I observe that so far as he has inquired, "Pinus Sylvestris" has found my statements with regard to this tree to be correct; and I wait with patience for his confirming or rejecting the other points in my communication. When and from what country the soft-wooded variety was introduced into Britain is a matter, so far as I know, of pure conjecture; but it seems that "Pinus Sylvestris" himself accounts for its continued propagation, to the exclusion of the better variety; for he asserts that the majority of the members of the Highland and Agricultural Society plant chiefly of the common sort, which, of course, produces common white wood. I am glad to hear that your correspondent can refer to several instances like that related of Beeston Park and Stratton Strawless; and my impression is, that as the Highland Pines now planted become of mature age, the cases will increase in an equal ratio.—*A Highlander.*

Oyster Plant.—By this I suppose is meant the Lithospermum maritimum of Smith, Steenhammera maritima of Reichenbach and Babington (Man. 207), the leaves of which have a flavour resembling that of oysters. It is called "Oyster-plant" on some of the coasts where it abounds.—*Charles C. Babington, St. John's College, Cambridge.*——*R. Hogg.*—[This is not our correspondent's at p. 348 *c*. His is some Umbellifer allied to Scandix, and is from Canada; we cannot recognise the fragments he has sent us.]

The Transparent Apple.—When at Reval, many years ago, I made particular inquiries as to the mode of cultivation of the transparent Apple; I learned that the soil of the Apple orchards there is almost a pure sand, but that it is customary to add to it so much stable manure, that half the bulk of ground may be said to consist of manure. The friend with whom I was staying, had some of these Apples at dessert; they were transparent, not in blotches, but throughout, so that held to the light, the pips might be seen from every part; these Apples were juicy as a Peach, about the size of a large one, and of very agreeable flavour and texture. The transparent Apple of Reval is thought to be the best of its kind.—*M. S.*

Morphology.—I have forwarded a specimen of morphology in the shape of Fuchsia Venus victrix, in which the transition, from one of the leaves to flowers is very apparent and conclusive; I once observed a flower-bud of Epiphyllum Ackermanni, which, after it had become partially coloured, was placed in a moist stove in a shaded situation, when, in a few days, instead of expanding, it lost its pink colour, and in a short time produced a shoot about 3 inches in length, of a roundish form, slightly imbricated at the base, and afterwards alternately ribbed till it showed a tendency to assume its usual flattened form; such shoots are often observed on forced Epiphyllums, and are no doubt over-excited flower-buds. —*B. B. Billington.* [Fuchsias are very subject to disturbances of this sort.]

The Wild Primrose.—Some time ago I noticed a remark by a correspondent that pleased me; it drew the attention of gardeners to the habit of the wild Primrose, which, whilst flowering early in the spring, is fully exposed to the influence of the sun, but afterwards it takes shelter from the more powerfully-increased rays by hiding itself amongst the long Grass that then surrounds it. Could we not, in practice, take a hint from this; we who have no north border under a south wall or hedge? Might we not sow annuals to the south; and, close adjoining, one row of double Primroses or Polyanthuses? They would grow, and, when needed, form a shade during the heat of summer; if so, what annuals would answer the purpose?—*Anon, Gosforth.*

Societies.

HORTICULTURAL SOCIETY OF LONDON, CHISWICK.

May 24.—The general remarks upon this Wonderful Exhibition, to which a Leading Article has been devoted, render all introductory observations superfluous; and, therefore, we at once proceed to describe the scene in detail, commencing with the large collections of 40 Stove and Greenhouse Plants. Here the competitors were Mr. Robertson, gr. to Mrs. Lawrence, of Ealing Park; and Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley. We may venture to assert that these two collections were matchless, as far as good cultivation was concerned. The large Gold Medal was awarded to Mr. Robertson, and as the plants at Ealing Park were fully described at p. 330, it is not necessary to do more than mention some of the more prominent features of attraction. The collection consisted principally of showy plants, of large size. At the back stood two huge specimens of Acacia alata, and Cytisus racemosus; and supporting them were large bushes of Azalea indica alba, and A. indica phœnicea; some huge specimens of Chorozema varium, and of C. cordatum, the latter 6 feet in height, and fully as much in diameter, the head drawn into a globular form, with the small spray gracefully drooping from it. Near this was a fine plant about 4 feet in height, and the head 3 feet in diameter, of the elegant Cytisus filipes, the branches drooping gracefully, and loaded with small white odoriferous flowers. From the same collection were fine specimens, 6 or 7 feet in height, of Eriostemon myoporoides, and cuspidatum, and a very promising young plant, studded with its small star-like flowers, of E. buxifolium. A lovely Azalea indica lateritia was an object of peculiar attraction; and a fine plant of Azalea sinensis, with its bright orange flowers, was not less deserving of notice. In addition to these was a large Pimelea spectabilis, and also a smaller, but much better specimen of the same showy species. He had, moreover, a fine P. incana, and two luxuriant young plants of P. decussata; the collection likewise contained two pretty specimens of Erica propendens and depressa; a lovely plant of E. perspicua nana; and several others. In front was a very handsome Daviesia; a remarkably luxuriant, but badly-bloomed Pentas carnea; a fine Manettia glabra, in good bloom, trained on a hemispherical trellis; with a large plant of Leschenaultia formosa, 3 feet in diameter, but not in good bloom; and a very promising young plant of Gnidia pinifolia. In addition to these was a tolerable plant, Aphelexis sesamoides, with Tabernæmontana coronaria flore pleno, in fine bloom; and a pretty, but badly-coloured Gesnera Cooperi.—Mr. Barnes's collection contained many very remarkable plants, but, owing to the dullness of the weather, several of his best specimens were not sufficiently in bloom. In the centre, at the back of the stage, stood a noble plant of Daviesia saligna, 4 feet in height and 6 feet in diameter, the branches drooping nearly to the pot, and loaded with bloom; supporting it on one side, was Erica grandinosa, literally one dense mass of white flowers, 4 feet in height and the same in diameter; and on the other side was an immense bush, in excellent bloom, of Epacris grandiflora; another remarkable plant was Podolobium staurophyllum, 5 feet in height and 4 feet in diameter, and loaded with flowers; scarcely less interesting was a noble plant, not quite in bloom, of Oxylobium Pultenæa, about 4 feet in height and 6 feet in diameter; and a dense bush of Polygala oppositifolia, literally one mass of bloom, 4 feet in height and 6 feet in diameter, contrasting well with the yellow flowers which surrounded it. Of the genus Aphelexis, Mr. Barnes had two wonderful plants—one, A. humilis, represented in the woodcut, may be regarded as



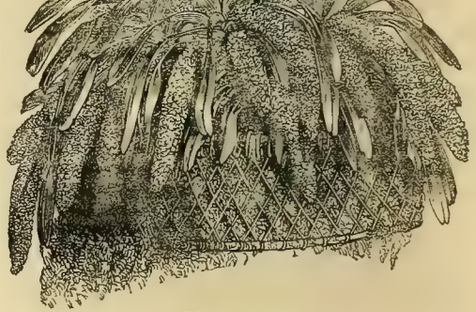
a masterpiece of cultivation; it was one mass of flowers, but the day was, unfortunately, not sufficiently bright to induce it to open its flowers. Another plant, not quite so profusely covered with bloom, was A. sesamoides, nearly 4 feet in height, and 3 feet in diameter; and Mr. Barnes had another capital Aphelexis called A. macrantha purpurea, which is certainly the finest of the genus; it had deep purple or plum-coloured bracts shaded with bright pink or rose, exposing when open a deep straw-coloured or yellow disk; closely allied to this was an immense specimen, two feet in height, and about 4 feet in diameter, of Phœnocoma prolifera, which will probably be more generally recognised under the old name of Helichrysum proliferum; this plant was a complete thicket, but not sufficiently in bloom; other two remarkable plants were Dillwynia rudis and clavata, but though plentifully covered with flower-buds, few of them were expanded; these excellent specimens were from 3 to 4 feet in height, and proportionately bushy; from the same collection were fine plants of Dillwynia ericifolia and pungens; Gompholobium tenellum, Pimelea Hendersoni, Leschenaultia formosa, and Clerodendrum splendens—the four last were remarkably good specimens; the Gompholobium was about 3 feet in height, and 2 feet in diameter, but not in full bloom; Pimelea Hendersoni was 18 inches in height, and 2 feet in diameter, in fine bloom, and the Leschenaultia was of about the same size, trained hemispherically, and one complete sheet of flowers. Of Ericas the collection contained the following: Thunbergia, a yard in height, and as much in diameter; intermedia, very large, and in excellent bloom; Hartnelli, a fine plant; daphnæflora, in a beautiful state; fastigiata lutescens; favoides elegans, very admirable, but smaller; specimens of elegans, in fine bloom; odora rosea, good; prægnans coccinea minor, in a fine state; and lovely plants of dilecta and Sprengelii; a plant of Statice macrophylla, with a fine spike of blue flowers, excited much admiration; and the rare Luxemburgia ciliosa was shown for the second time since its introduction into this country: in addition to the preceding was a good plant, with nearly 30 heads of bloom upon it, of Ixora grandiflora; and large specimens of Azalea indica alba, A. indica splendens, A. indica Gladstanesii, the latter dwarf and good; and a pretty A. indicata lateritia. In the same group were, moreover, fine plants of Zichya inophylla floribunda, Polygala cordifolia, Daviesia saligna, Boronia denticulata, Eriostemon cuspidatum, Pimelea decussata (very large), and Podolobium trilobatum.—Mr. Green, gr. to Sir E. Antrobus, contributed a third collection; it was not so rich as the preceding, but contained very beautiful plants. Among them was a dwarf and pretty specimen of Pimelea decussata, with remarkably well-coloured blooms; a neat Boronia serrulata, in nice bloom; a good plant of Dillwynia ericifolia, and a small pretty Erica propendens. In the same collection was, moreover, a pretty Aphelexis humilis, a good Ixora grandiflora, and fine plants of Daviesia saligna, Pimelea tenuifolia, dwarf and compact; Eriostemon buxifolium, Brachysema latifolium, and Coleonema pulchrum. The collection also contained some fine Azaleas—among them was A. indica variegata, densely covered with bloom; a tall and fine specimen of the double red, and a good A. indica alba.

Collections of 20 Stove and Greenhouse Plants were contributed by Messrs. Frazer, of Lea-Bridge-road; Mr. Hunt, gr. to Miss Traill, Bromley; and Mr. Ayres, gr. to J. Cook, Esq., Brooklands-park, Blackheath. The collection of Messrs. Frazer contained some remarkable plants—among them was Podolobium staurophyllum, a dense bush, 2 feet in height, and the same in diameter; Erica propendens, particularly neat; E. campanulata, famously managed; Pimelea linifolia, an admirable plant, 4 feet in height and 5 feet in diameter; P. nivea, very neat; and a remarkably well-grown and finely-coloured P. spectabilis. In the same group a lovely plant, not quite in bloom, of Boronia serrulata, was about 18 inches in height and the same in diameter, and as compact and thickset as could possibly be desired; a good plant of Polygala acuminata, with Daviesia latifolia, 4 feet in height and 2 in diameter; Epacris grandiflora, Chorozema Henchmanni, Coleonema rubrum, Aphelexis speciosa, Chorozema varium, and a most admirable plant of Boronia pinnata, loaded with delicate pale-pink waxy blossoms; with some good Azaleas.—Mr. Hunt's collection contained a noble Gompholobium polymorphum, covering beautifully a shield-formed trellis, 4 feet in height and the same in width; an immense bush of Erica gemmifera, 3 feet in height and as much in diameter; E. perspicua nana, a most remarkable plant; and E. translucens rosea, in admirable condition. In the same group was, also, a splendid plant of Leschenaultia formosa, in fine bloom; Zichya villosa, two good plants; Erica Hartnelli, very large; Boronia serrulata, and Gardoquia Hookeri, in fine bloom; with excellent plants of Ixora grandiflora, Phœnocoma prolifera, and several Azaleas.—Mr. Ayres was an exhibitor only in this class, and though his plants were small they were neat and compact; we noticed among them a richly-coloured specimen of Pimelea spectabilis, Azalea indica alba, a compact round bush in good bloom; A. variegata, in good bloom; and a well-coloured Podolobium staurophyllum, 3 feet in height; Poivrea coccinea, producing several strong spikes of rich flowers; Erica propendens, a pretty bush, measuring 1 foot in height and 18 inches across; Erica Hartnelli, in good bloom; and a small plant of E. perspicua nana. In the same collection was a dwarf pretty bush of Ixora grandiflora, remarkable for the high colour of its flowers, with Gardoquia Hookeri, Chorozema angustifolium, Leschenaultia formosa and Baxterii; Polygala oppositifolia, and the sweet-scented Gardenia radicans.

In the collections of 12 plants, Mr. Bruce, gr. to B. Miller, Esq., of Mitcham, was first. He had finely-bloomed plants of Azalea Gladstanesii and variegata, the latter very fine; Aphelexis humilis and sesamoides, two very good plants; Adenandra speciosa, very pretty; with Chorozema Henchmanni, and C. varium; Pimelea spectabilis, and a tall Ixora grandiflora.—Mr. Pawley, of Bromley, was a contributor in this class, and had fine plants of Aphelexis sesamoides; Azalea variegata, dwarf and pretty; A. phœnicea, fine; Pimelea spectabilis, rather past its best; Ixora grandiflora, in a good state; Coleonema rubrum and Euphorbia splendens; and fine plants of Erica perspicua nana and E. ventricosa stellata.—Mr. W. J. Epps, of Bower Nursery, Maidstone, sent a collection containing a fine Ixora grandiflora, in good bloom; Leschenaultia formosa, very pretty; Erica Hartnelli; Azalea indica alba, very large and in fine bloom; Begonia parviflora, or obliqua, a remarkably well-grown plant; and a large specimen of Podolobium Chorozemæfolium, but rather past its best.

Collections of six plants were numerous, and principally from new exhibitors. Mr. May, gr. to E. Goodhart, Esq., of Beckenham, contributed a noble Ixora grandiflora, with remarkably large heads of bloom; a handsome plant of the beautiful Hovea Celsi; Polygala acuminata, and an admirable specimen of Erica mundula in splendid condition.—Mr. Cole, gr. to C. Lewis, Esq., Blackheath Park, sent a beautifully managed Pimelea spectabilis, with very large heads of flowers; Gesnera Cooperi, in fine bloom; Polygala acuminata; Epacris grandiflora; and Corræa speciosa major.—M. Stanley, gr. to H. Berens, Esq., Sidcup, contributed a noble Leschenaultia formosa, scarcely in bloom; Tropæolum grandiflorum, pretty; a species of Tropæolum from Peru, evidently a bad variety of T. brachyceras; with Gompholobium polymorphum, and Azalea indica alba.—Mr. Jack, gr. to G. H. Loraine, Esq., produced a fine Gesnera zebrina in good bloom; Azalea Gladstanesii; and very pretty plants of Bossiæa linifolia, and Aphelexis humilis.—Mr. Glendinning, of Chiswick Nursery, sent a nice plant of Pimelea spectabilis, with immense heads of bloom; Boronia pinnata, pretty; and a large plant of Erica rubro-calyx.—Mr. Taylor, gr. to J. Coster, Esq., of Streatham, was also a contributor in this class.

The collections of Orchidaceæ, though numerous, were scarcely so rich in fine specimens as in May 1844, a difference, no doubt, attributable to the impossibility of getting them forward during the late cold and sunless weather; we must except, however, a single specimen of Saccolabium guttatum, represented in the woodcut, and perhaps the finest specimen of the kind ever



seen. It was sent by Mr. Roe, gr. to J. J. Blandy, Esq., of High Grove, near Reading, and was growing in a circular wire basket, 3 feet in diameter, and about 1 foot deep. This basket was filled with Sphagnum, in the centre of which the plant was placed, spreading gracefully to the sides, its elegant flowers reclining upon the Moss. This was possibly the most remarkable feature of the Exhibition.—Mr. Basset, gr. to R. S. Holford, Esq., contributed a beautiful plant of the lovely Aerides odoratum; Mr. Green, a Dendrobium pulchellum, quite a mass of flowers, and Messrs. Booth, of the Flotbeck Nurseries, Hamburgh, a small plant, not remarkable for its beauty, of the rare Odontoglossum cordatum.—From Mr. Cameron, of the Birmingham Botanical Garden, was a rare plant, blooming for the first time in Europe, of Chloræa chrysantha, a plant inhabiting the hills of Chili. It has bright rich yellow flowers, and the habit of a European Orchis.—In the large collection sent by Mr. Mylam, gr. to S. Rucker, Esq., was a fine specimen of the lovely Sobralia macrantha, producing several of its handsome flowers; also Chryseis bractescens, Vanda teres, Odontoglossum citrosmum, the singular Anguloa Clowesii, and Coryanthes macrantha. In the same group was also an immense plant of Acanthophippium bicolor, whose flowers covered the entire surface of the pot; Saccolabium guttatum, a promising young plant, with three spikes of bloom; S. præmorsum, Dendrobium densiflorum, Oncidium pulchellum, Cattleya Mossiæ, Bifrenaria, tyrianthina, Cymbidium lancifolium, Oncidium pumilum, with yellow flowers; O. leucochilum, Lycaste Déppii, Stenia pallida, with pale-yellow flowers; and Epidendrum macrochilum.—A second collection of these curious plants was produced by Mr. Robertson, gr. to Mrs. Lawrence, and contained, among other things, the lovely Dendrobium Cambridgeanum, D. densiflorum, a fine plant, but nearly out of flower; Saccolabium guttatum, and præmorsum, with several spikes of

bloom; Epidendrum bicornutum, E. vitellinum, and Bifrenaria tyrianthina.—Messrs. Rollissons, of Tooting, sent the curious Trichopilia tortilis, Cattleya Mossiæ, Acineta Barkeri, Maxillaria Deppii, aromatica and vitellina, Aerides crispum, Cælogyne undulata, with Brassia maculata, and Maxillaria tenuifolia.—Collections of 12 Orchidaceæ were sent by Mr. Don, gr. to G. F. Cox, Esq., of Stockwell; and Mr. Williams, gr. to C. B. Warner, Esq., of Hoddesdon.—In Mr. Don's collection we noticed three small plants of Aerides crispum, A. crispum pallidum, Brassia maculata, a new species of Oncidium, resembling O. papilio, but with the lip beautifully fringed, Lycaste Deppii, Bifrenaria aureo-fulva, very pretty, and Acineta Barkeri.—The collection of Mr. Warner contained Dendrobium cærulescens, D. moschatum, Cattleya sp., very handsome, Epidendrum macrochilum and variegatum, and Aerides crispum. In the same group were also small plants, sent for exhibition only, of Maxillaria tenuifolia, Zygopetalum rostratum, and Stanhopea saccata.—In the collections of six Orchidaceæ, Messrs. Veitch and Son, of Exeter, sent fine plants of Dendrobium calceolaria, 4 feet in height, Cattleya Mossiæ, very fine, Oncidium ampliatum majus, in fine bloom, and Odontoglossum hastatum.—Mr. Eyles, gr. to Sir George Larpent, sent Vanda Roxburghi, and V. Roxburghi cærulea, Camarotis purpurea, rather past its best, with Oncidium altissimum and luridum, and Cattleya Mossiæ.—Mr. Plant, gr. to J. Schroder, Esq., of Brixton, produced a beautiful small specimen of Dendrobium densiflorum, with four spikes of bloom, Trichopilia tortilis, Vanda cristata, very pretty, with Cattleya Skinneri, and Calanthe veratrifolia.—Mr. Hunt produced an Oncidium from Honduras, with curious dark brown, variegated flowers, O. luridum guttatum, and a large plant, not much in bloom, of Cymbidium aloifolium.

The Azaleas were next in point of interest, and of these there were several collections. The plants from Mr. Green, which demand our attention first, consisted of A. indica pallida, lilac, 4 feet in height and about 2 feet in diameter at the foot; A. Gladstanesii, 4 feet in height and 3 feet in diameter; A. lateritia, of the same size; A. variegata, 3 feet through and the same in height; Double Red, 6 feet in height and 4 feet in width, in splendid bloom; and a semi-double scarlet, very fine. In addition to these were A. indica alba, 6 feet in height and the same across; A. splendens, 4 feet by 6; and A. Rawsonii and speciosissima, very fine.—A collection from Mr. Falconer, gr. to A. Palmer, Esq., of Cheam, was scarcely less interesting, and consisted of A. Danielsiana, very fine; Double Red, 6 feet in height and 3 feet in diameter, in good bloom; A. pulchra, very fine; with A. Rawsonii and lateritia. Mr. Falconer had moreover small plants of the following desirable kinds: A. Bianca, a good white; A. Agnes, Theresa, and Emmelina.—Mr. Robertson sent a collection containing a very beautiful plant of A. Danielsiana, in first-rate condition; A. phœnicea, very large; A. splendens and pulchra, A. Rawsonii, and A. speciosissima. In the same group were also smaller plants of the following desirable varieties:—A. conspicua purpurea, A. amabilis, and A. leucomegiste, a very fine white.—Mr. Gaines, of Battersea, had also a large collection, but they were in small pots, and not very remarkable.—Mr. Smith, of Norbiton, sent several small plants, among which we noticed A. Edmondsii, a semi-double purple, and A. modesta, semi-double pink.—A small collection was also sent from the Lea Bridge Nursery; it contained a very beautiful A. sinensis, A. lateritia, remarkably pretty, 1 foot in height and 2 feet in diameter, and densely covered with bloom; A. coccinea superba, very beautiful; and a magnificent plant of A. indica alba.—A seedling called A. Palmerii was exhibited by Mr. Falconer, and some seedlings from Mr. Ivery.—Messrs. Knight and Perry sent A. exquisita, spotted with rosy purple on a light ground.

Collections of Cacti were sent by Mr. Green and Mr. Bruce, but they were not so fully in bloom as could have been desired. Mr. Green's plants consisted of a fine Epiphyllum speciosum, E. Ackermanni and Ackermanni grandiflorum, and E. coccineum cæruleum.—The most remarkable plant in Mr. Bruce's collection was Epiphyllum speciosum, the other not being in full bloom.

Of Heaths, a great number were present, some of which were most extraordinary plants. Mr. Robertson sent a noble E. Cavendishii, loaded with its beautiful yellow flowers; depressa, very fine; persoluta alba, 2 feet 6 inches in height and 2 feet in diameter; Linnæana nova, and mirabilis; Humeana, very pretty; ampullacea vittata, fine; pinea; Thunbergia; vestita alba; Westphalingia; propendens, very good; perspicua nana, a neat plant; and the following varieties of E. ventricosa, viz., v. coccinea; v. c. minor; v. carnea; and v. superba.—A second collection came from Mr. May, and contained some immense specimens. Among them we noticed Humeana, 3 feet in height and 4 feet in diameter; propendens, very large; aristata major, a wonderful plant, but thinly-bloomed; Hartnelli, a splendid bush; fastigiata lutescens, in prime order; mundula, covered with bloom; grandinosa, and ventricosa alba, fine; with odora rosea, perspicua nana, and elegans, in admirable condition; hybrida, not quite in bloom; rubro-calyx; Willmoreana; mirabilis; and a small, but pretty plant of Sprengelii.—In the Nurserymen's Class, a collection of 20 plants was sent by Messrs. Fairbairn, Clapham, containing Cavendishii, in admirable health, 3 feet in height and as much in diameter; intermedia, very fine; metulæflora, splendid; with very remarkable plants of ampullacea tricolor, and suaveolens. In the same collection were also good plants of ampullacea nana, vestita coccinea, Humeana, dilecta, vestita alba, and ventricosa carnea; v. alba, and v. coccinea minor.—Another collection came from Messrs. Rollisson, and contained promising specimens. Among them were mundula, very pretty; dilecta, good; Humeana; nitida, with clear white bells; fulgida superba, a fine kind; vestita blanda; and Beaumontiana; with propendens and fragrans.—Mr. Pawley also contributed 20 Heaths; among them was a fine Cavendishii; perspicua nana, very fine; prægnans, coccinea minor, pretty; dilecta, neat; with Halicacaba; nitida; hybrida, very pretty; and vestita coccinea minor.

In the group of 12 plants, contributed by Mr. Hunt, were Sprengelii in fine condition; suaveolens, 3 feet in height and as much in diameter; ventricosa prægnans, very fine; odora rosea, a promising plant; vestita coccinea, very large; Hartnelli, 3 feet in height and 4 feet in diameter; ventricosa superba, very remarkable; with sulphurea, and ampullacea rubra.—A second collection came from Mr. Plumbley, gr. to C. J. Dimsdale, Esq., and contained a magnificent specimen of depressa, in remarkably fine bloom; hybrida and melastoma, very good; Hartnelli, pretty; translucens and vestita fulgida, not quite in bloom; and plants of mirabilis and perspicua, good.—Messrs. Veitch sent good plants of Cavendishii, Alberti, and vestita coccinea; with suaveolens, Clowesiana, and gemmifera, in good condition.—Messrs. Frazer also contributed a dozen kinds, among which were fastigiata lutescens and Bergiana, fine; ventricosa coccinea minor, in fine condition; with several others equally good.—In the collections of six plants, Mr. Barnes produced elegans, a beautiful plant in fine bloom; fastigiata lutescens, a fine specimen; dilecta, compact and well bloomed; mundula, in a fine state; with propendens and a large plant of daphnæflora.—Mr. Bruce contributed pretty plants of Cavendishii and princeps, together with fastigiata, propendens, and grandinosa.—From Mr. Jack was a nice plant of suaveolens, vestita alba, perspicua, and sulphurea.—Mr. Taylor produced, among others, ventricosa coccinea minor, nigrita, and a small plant of propendens.—Mr. Dawson, of Brixton-hill, sent fine plants of mirabilis and dilecta, with hybrida, odore rosæ, and campanulata.—Of single specimens of superior cultivation, Mr. Robertson sent a large propendens; Mr. Curtis, gr. to J. Allnutt, Esq., of Clapham, a smaller plant of the same species; Mr. Plumbley, a good suaveolens; Mr. Dawson, a very compact mundula; and Messrs. Rollisson, a finely bloomed Sprengelii.

Of Rhododendrons, we must not omit to notice a splendid collection of 11 yellow varieties from Mr. Smith, of Norbiton; they were remarkable for their strong growth and immense trusses of blossoms. The flowers individually, even when the plants are growing in pots, were considerably larger than those of the generality of Rhododendrons. The finest of them were R. Burlingtonium aureum, lemon colour, with dark orange spots; flavum superbum, nearly of the same colour, but a trifle darker; ornatum, of the same colour, slightly tipped with rose; Jenkinsoni, shaded with pink; aureum superbum, very large; cupreum ochræ, shaded with purple; Lindleyanum, an immense truss of dull pink flowers with brown spots. These were the most distinct kinds, but there are several others which may be cultivated in large collections.

Of Single Specimens of superior cultivation, a great number of plants were exhibited; some displaying first-rate management.—From Mr. Falconer was the noble Azalea indica variegata represented in the woodcut—a



complete sheet of bloom, the branches drooping over the sides of the pot, and forming a depressed cone 2 feet in height and 4 feet in diameter.—Messrs. Veitch sent an admirable Eriostemon buxifolium in fine bloom; Mr. Robertson, a Hydrangea Japonica, with Gastrolobium spinosum, and Thunbergia chrysops; the latter does not promise to bloom freely.—From Mr. Beck was a luxuriant specimen of Achimenes picta, but scarcely in bloom, and the pretty Gloxinia Cartonii.—Mr. Poole, of Leyton, sent a small but very pretty Boronia serrulata; Mr. Hunt a large plant of the same in fine bloom; Mr. May, a pretty Chorozema Henchmanni; Mr. Bruce, a large Pimelea spectabilis, not quite in bloom, and a fine Ixora grandiflora; Mr. Cole, Brugmansia Knightii, a double variety of B. suaveolens, but not near so valuable a plant; Mr. Jack, Clerodendrum infortunatum; and Mr. Hill, Chorozema varium. There was, moreover, Chorozema varium from Mr. Curtis; Crotalaria elegans, a promising plant, from Mr. Reid, gr. to E. Wigram, Esq.; with Epacris pulchella from Mr. Pamplin, and three fine plants of Statice macrophylla from Mr. Forrest, of Kensington Nursery.

New Plants were neither numerous nor very remarkable. A new species of Siphocampylus, with bright red flowers, was sent by Messrs. Veitch, who also sent Franciscea Pohliana, with lilac flowers, and specimens of their Tropæolum Lobbii.—Mr. Robertson sent Daviesia cordifolia, a pretty flower, but possessing a straggling habit.

In the collections of Creepers, Mr. Pawley produced an admirably-bloomed Stephanotis floribunda, Gomphobium polymorphum, Clerodendrum splendens, a fine plant; and Zichya inophylla.—Messrs. Frazer contributed Hardenbergia longi-racemosa, Chorozema spectabile, Zichya inophylla and villosa, and a nice Tropæolum grandiflorum.—From Mr. Robertson were Hardenbergia monophylla, Tropæolum edule, Stephanotis floribunda, very large; and a tolerable plant of Gomphobium polymorphum.

The Roses in Pots attracted much attention. Mr. Beck's collection contained admirably-managed plants, and some very large specimens. Among them were—Nemesis, fine rose; Belle Allemande, large creamy yellow; Augustine Marget, salmon-coloured; Caroline, light blush; Pauline Plantier, creamy white; and Reine Carmine, beautiful rose.—Mr. Slowe, gr. to W. R. Baker, Esq., sent among others, Bougère, Safrano, very fine; Antheros, creamy white; Romaine, white with yellow centre; Triumphant, fine, rose; and Caroline.—Mr. Lane, of Berkhampstead, contributed 25 varieties in good bloom. Among them were Abbé Morland, tea, blush; Argo; Cramoisé supérieure, very fine; Wm. Jesse, having immense blooms of fine colour; Eliza Sauvage; Armosa; Marjolin, very double; Bougère; and Eugène Beauharnais, very dark.—A. Rowland, Esq., and Mr. Stedman, of Isleworth, sent collections containing some fine varieties.—Of single specimens only one plant was sent, and that was Armosa, from Mr. Dobson, gr. to Mr. Beck, of Isleworth. It was a fine plant, but over-sticked, as were most of the plants produced.—A box of cut blooms, containing 25 varieties, was sent by Mr. Milne, gr. to C. S. Chauncey, Esq., and also a collection in pots; among the latter were, Victor Hugo, Las Casas, Nephites, large creamy white; Eliza Sauvage; Wm. Jesse, large, deep rose; Bourbon Queen; and Taglioni.—From Mr. Ayres, was a cut specimen of Noisette Cloth of Gold, a remarkably fragrant Rose, of immense size and fine substance; but as it had been bloomed in a forcing house temperature, it was not so deep a yellow as was generally anticipated.

Taking into consideration the backwardness of the season, we were not prepared to meet with so fine a display of Pelargoniums; the tent appropriated to these elegant flowers was completely filled, and one collection had to be accommodated in the large iron tent. The gay and lively appearance of these well-cultivated collections appeared to afford unqualified gratification. The superiority of the appearance of those collections, where care and judgment had been exercised in the selection, was very manifest; and we hope to see this plan become general, of introducing those varieties with fine floral proportions, which are the best adapted for exhibition, and which truly represent the improved state of this favourite plant.—For collections of 12 new and first-rate varieties, the Gold Banksian Medal was awarded to J. Dobson, gr. to Mr. E. Beck, of Isleworth; this collection contained Foster's Sir R. Peel, Sultana, Pulchellum, Conflagration, Beck's Hero, Zanzummim, Lurida, Leonora, Resplendent, Favourita, Bella, and Susanna.—The collection which competed with these was from Mr. Cock, to whom was adjudged the large Silver-gilt Medal; it contained Madeline, Angelica, Cyrus, Wizard, Sir R. Peel, Madame Taglioni, Rosetta Superb, Queen Philippa, Unit, Eliza Sauvage, Erectum, and Pre-eminent. These were the only exhibitors in this class among Amateurs; and in the same class, for Nurserymen, Mr. Gaines had no competitor; he received the Gold Banksian Medal for Cotherstone, Queen of Beauties, Akbar, Augusta, Lady Prudhoe, Excelsum, Saxon King, Druid, Princess Alice, Pirate, King of Beauties, and Lady Mildmay.—For collections of 12 varieties the Gold Banksian in the Amateur's Class was awarded to Mr. Staines for 12 compact and finely-grown sorts: they were—Duke of Cornwall, Superbum, Lady Sale, Sunrise, Roulette, Erectum, Madeline, Enchantress, Alice Gray, Symmetry, Hebe, and Duchess of Sutherland; and Mr. Dobson received the large Silver Gilt for the following sorts: Matilda, Luna, Sir R. Peel, perfect specimens of cultivation, Majestic, Erectum, Sarjeant, Flora, The Purple, Susanna, Sir R. Peel, Cleopatra, Larna, Matilda, Dido, and Lord Chancellor. For the same among Nurserymen, the contest was between Mr. Gaines, of Battersea, and Messrs. C. and D. Smith, of Pimlico; the latter obtained the Gold Banksian Medal, for Grand Duke, Coronation, Grand Monarch, Madeline, Arabella, Mrs. Stirling, Cyrus, Gypsy, Hebe, Fair Maid of Devon, Queen of Fairies, and Lady Sale. To Mr. Gaines was awarded the large Silver Gilt Medal for Cotherstone, Queen of Beauties, Rising Sun, Lady Prudhoe, Pilot, Coronation, Lady J. Douglas, Hermione, Enchantress, Akbar, Madeline, and Lady Sale. For six varieties, Mr. Gaines received the large Silver Medal; this collection contained large specimens of Nymph, Madeline, Lady Sale, Lady J. Douglas, Albina, and Juba. An evident improvement was apparent among the Calceolarias, not only in the better sorts which are now brought to the Exhibition, but in the growth and

health of the plants: these were exhibited in collections of six varieties. The large Silver Medal was awarded to Mr. Kinghorn, gr. to G. A. Murray, Esq., Twickenham, for the following sorts, which were well covered with bloom:—Grand's, Marquis of Bute, Vesta, Mary Queen of Scots, Saxony King, and Queen Victoria.—The Silver Knightian was voted to Mr. G. Stanley, gr. to H. Berens, Esq., who showed Lane's Monarch, Fairy Queen, Magician, Rival King, Duke of Wellington, and Henrietta.—Mr. Gaines, in the Nurseryman's Class, received the large Silver Medal; his sorts were Standishii, Desirable, Vivid, Napoleon, Eclipse, and Conductor.

For Cinerarias, in 12 distinct varieties, the first prize, the Silver Knightian Medal, was won by Mr. Ivery, of Peckham, who showed Nosegay, Beauty of Wonham, Compacta, Wee Pet, Regina Victoria, Red Rover, Captivation, Criterion, Fanny Ellsler, Pride of Peckham, Beauty of Systin, and Hendersonii.—The Silver Banksian Medal was awarded to Mr. Lane, for Regina Victoria, Enchantress, Carmine, Mello Park, Conspicua, Unique, Spectabilis, Eclipse, Lanestonea, Diana, Splendens, and Fulgida; and for the third collection, a Certificate was awarded to Mr. Taylor, gr. to J. Costar, Esq.

Seedlings were not numerous in any class. In Pelargoniums, the following, of 1844, received Banksian Medals:—Rosy Circle, a flower of good shape, with short well-formed petals, smooth on the edge; lower petals large and broad, of a rosy pink, with the centre nearly white; top petals rich, with the dark blotch softening to the edge, and terminating in the centre without the feather; the flower is stout, retains its form well, is of good habit, and an abundant bloomer; this will make an excellent show variety.—Arabella, Mr. Beck, a good sized flower, with a decided white centre, the lower petals terminating with a fine rosy colour; the upper petals have a large dark spot gradually softening towards the edge; this is a handsome and showy variety, clear and attractive in appearance.—The Pearl, Catleugh: good white Pelargoniums are much wanted, and we look upon this flower as an acquisition; it possesses the colours of Una, with a flower of good shape; the spot is small and too feathery, but the white is pure, and altogether we consider it the best flower of its class we have yet seen.

Among the Seedlings of the present year two were selected and awarded Certificates; they were from Mr. Hoyle, of Jersey. Mount Etna was one, a flower of extraordinary brilliancy and richness of colour; the lower petals are of a deep rosy-red; the top petals, which are velvety in texture, have the spot surrounded by a broad margin of crimson scarlet; the flower is well formed and of considerable substance. Isabella was the other flower, having remarkably fine top petals of a deep velvety maroon, with a narrow margin of pink; centre light, with the remaining portion of the lower petals of a rosy purple.—We were gratified to see an evident improvement among seedling Calceolarias; the spotted sorts appear to predominate, but the variety is endless, and many of them are very beautiful. Mr. Kinghorn showed several seedlings of great merit; the variety selected by the Judges was named Exemplar, a flower of fine form and novel in colour; the ground colour is a bright canary-yellow, small spots of which are seen only, the surface of the flower being nearly covered by bright-brown and still deeper brown spots. The form of the Calceolaria is much improved, the flatness in front of the flower is disappearing.—The Cinerarias, likewise, are yielding to the perseverance of the florist; they are becoming less starry, the petals are becoming broader, and the circle better filled up. A specimen, named Smithii, received a Certificate; the colour was novel, being of a bright rosy-purple, with an improvement in the form; this seedling was raised by Messrs. J. and D. Smith, Pimlico.

Among collections of Fruit, that shown by Mr. Dodd, gr. to Sir George Warrender, was the best. It contained some admirably-swelled specimens of Providence Pines, with splendid Black Hamburgh Grapes, admirably coloured Nectarines, good Peaches, six Cantaloupe Melons, and excellent Currants, and Keen's Seedling Strawberries.—Mr. Henderson, gr. to Sir George Beaumont, sent four handsome Queen Pines, four small Cabul Melons, with two dishes of excellent Black Hamburgh Grapes, and some fine Keen's Seedling Strawberries.—Mr. Spencer, gr. to the Marquis of Lansdowne, sent three Ripley, two Black Jamaica, one Providence, one Queen, and one Puckley Cayenne Pines; some of them too far gone, and others not quite ripe; beautiful Sweetwater Grapes, with some good Black Hamburgh; Butler's Hybrid Melon, and fine dishes of White Carolina, British Queen, and Keen's Seedling Strawberries.—Admirable Nectarines came from Mr. Fleming, gr. to the Duke of Sutherland, Mr. Dodd, Mr. M'Laurin, gr. to Sir George Sitwell, of Renishaw, and the same exhibitors severally produced fine dishes of Peaches.—Black Hamburgh Grapes in wonderfully fine condition, were sent by Mr. Dodd, and Mr. Stephen Barnes, gr. to G. Whitmore, Esq., the latter remarkable for the compactness of their bunches and intensity of colour, though considerably damaged by packing. Excellent Grapes were also sent by Mr. Henderson, and Mr. Wortley, gr. to J. G. Maubert, Esq.; fine ones by Mr. Waller, gr. to Capt. Hind, East Hothley, and Mr. Spencer; and good ones by Mr. Beard, gr. to H. Perkins, Esq., and Mr. Toy, gr. to Colonel Challoner; Mr. Toy had also some fine Stillward's Sweetwater. Mr. E. Mitchell, of Brighton, also sent a basket of beautiful Black Hamburgh Grapes.—Of Pines, Mr. Henderson sent some handsome and well-swelled Queens; Mr. Toy two small Black Jamaica; Mr. Brewin, gr. to R. Gunter, Esq., several Queens; and Mr. Davis two Queens; and Mr. M'Ewen, gr. to Col. Wyndham, a small Otaheita and Queen.—The Melons exhibited were not remarkable for size, with the exception of a collection, the Cantaloupe, from Mr. Gadd, of Betchworth.—Mr. Judd, gr. to W. H. Whitbread, Esq., sent some small green Cabul Melons; and Melons were also sent by Mr. M'Ewen; Mr. Hill, gr. to T. Davis, Esq., of East Acton; Mr. Carson, gr. to C. Farmer, Esq., Nonsuch Park; and Mr. Davis, of Oak Hill.—Some very fine Strawberries were sent by Mr. Ewing, gr. to O. F. Meyrick, Esq., and Mr. Toy; and also by Mr. Spencer and Mr. Wortley.—Some Mayduke Cherries were sent by Mr. Ewing; Citrons, of prodigious size, from Mr. Wells, gr. to R. Glendinning, Esq., of Sevenoaks; and Lemons, very good, by Mr. M'Ewen.—From R. Brook, Esq., was a collection of Apples and Pears, in admirable state of preservation; among them we noticed Beurré Rance and Winter Orange Pears, with the Old Nonpareil, Nonpareil Russet, and Aromatic Russet Apples. Coe's Golden Drop and Golden Harvey Apples were also sent by Mr. Slowe. Some handsome Cucumbers came from Mr. Ivery, of Betchworth.

We cannot close the Report without mentioning, for the information of exhibitors who were not present, that breakfast was provided in the garden for all who contributed to the Exhibition. This consideration and accommodation on the part of the Society is worthy of all praise, and those who have been subjected to the miserable accommodation and exorbitant charges of the tavern-keepers in the neighbourhood will fully appreciate the favour conferred. It is not, however, as a mere matter of eating and drinking that we are led to admire this accommodation; but also for the rich intellectual repast which it affords all concerned. We would, however, suggest that a table for pens, ink, and paper, where gardeners and nurserymen might transact their business matters, would be another accommodation.

CALEDONIAN HORTICULTURAL SOCIETY.

May 16.—This competition meeting proved eminently successful, the weather being propitious, and the attendance of company great. On this occasion there were offered for fine shrubby Exotics in flower separate prizes to nurserymen and to practical gardeners, each class competing among themselves. The Nurserymen's Prize Silver Medal was voted to Messrs. Dickson and Co., for Kennedya coccinea, Statice macrophylla, Pimelea Hendersonii, and Chorozema varium. The Silver Medal as first Practical Gardener's Prize, was assigned to Mr. Young, gr. to T. Oliver, Esq., for Chorozema varium, Kennedya monophylla, Elichrysum splendens, and Boronia serrulata; and a second premium was voted to Mr. Stirling, gr. to Lord Viscount Melville, for Aphelexis humilis, Cytisus rhodopnœa, and Justicia carnea major.—For recent Fuchsias of merit, the Silver Medal was awarded to Mr. Oswald, the kinds being Exoniensis and Edina.—For the finest Cape Heaths there were four competitors, all producing admirable specimens. The Silver Medal as first prize, was voted to Mr. Reid, gr. to Professor Syme, for E. odorata, inflata rubra, ventricosa tricolor, and vestita alba; and a second premium to Mr. Young, for E. vestita alba, a variety of vestita, Beaumontiana, and Willmoriana.—For fine Chinese Azaleas, two prizes were given, the first to Mr. Reid, for A. lateritia and variegata; and the next to Mr. Hopkirk, gr. to Mrs. Wilson, for A. indica alba and phœnicea Smithii.—For beautiful specimens of Tropæolum tricolor two premiums were also awarded; the first for a plant trained in the balloon form, to Mr. Oswald; and the next for a plant trained in the pyramidal shape, to Mr. Reid.—For two fine specimens of Cacti, in flower, a premium was voted to Mr. Fargie, gr. to Mrs. Gregory, the kinds being C. speciosus and Ackermanni.—Many extra articles of merit were produced, for several of which premiums were awarded, particularly the Silver Medal to Mr. Reid, for two fine seedling Azaleas, and the Bronze Medal to Mr. Gibson, gr. to J. M. Hog, Esq., for a beautiful and nicely trained specimen of Tropæolum edule.—For a collection of Alpine and Rock Plants, in pots, a premium was awarded to Mr. Stirling. Many fine plants were sent for exhibition only, both from private gardens and from public nurseries.—Mrs. Haig contributed Kennedya monophylla, Chorozema Henchmanni, Nerium Oleander var. Tanglee, a tray of early turban Ranunculuses, &c.; Professor Dunbar, Rhododendron hyacinthoides, several varieties of Camellia japonica, Erica Beaumontiana and regerminans, Azalea tricolor, &c.; Mr. Broughton, a capital Fuchsia exoniensis, &c.; Mrs. Stark, a large Polygala oppositifolia; Mr. Cushnie, Rhododendron Glennianum; Mr. Thyne, flowers of seedling Calceolarias, some of them finely marked.—Miss Broughton, Messrs. Handasyde, and Mr. Addison, exhibited seedling Cinerarias; and Mr. Symington, and Mr. Logan, seedling Pansies of their own raising; and Mr. Sharpe, beautiful named Pansies.—From the Royal Botanic Gardens were two magnificent plants—an Orange-tree in full bearing, and a very large Fuchsia.—The Leith Walk Nurseries furnished a splendid show of Calceolarias, both named sorts and seedlings, with some charming Cape Heaths.—The Inverleith Nurseries likewise contributed many fine plants, including Æschynanthus parasiticus, Kennedya inophylla, Justicia carnea major, Erica florida campanulata, Begonia coccinea, &c.; and Messrs. Carstairs, Kelly, & Co., sent a rich collection of Calceolarias, being the varieties raised last season by Mr. Anderson; also Cape Heaths, Cacti, &c.—Amongst the articles exhibited from the Society's Garden were Cattleya Skinneri, Oncidium microchilum, and Cyrtopodium Andersonii, the latter having two very long spikes of flowers.

LINNEAN SOCIETY.

May 24.—The Anniversary Meeting was held at 1 o'clock, the Bishop of Norwich in the chair. An extensive collection of Fruits of North American Plants was presented by Dr. Morton, President of the Academy of Sciences of Philadelphia. A large specimen of a Fern, belonging to the genus Acrostichum, found by Mr. Hugh Low in the island of Penang, was presented to the museum by that gentleman, as also two pitchers of Sarracenia Drummondii, from Mobile.—The Treasurer read the accounts. The receipts during the past year were 984*l.* 13*s.* 3*d.*; the expenditure 845*l.* 7*s.* 8*d.*; leaving a balance in the Treasurer's hands of 138*l.* 5*s.* 7*d.* The Secretary gave a brief notice of Fellows who had died during the past year; their names were as follows:—F. Bailey, L.L.D., C. Cordeaux, M.D., Rev. Dr. Goodenough, W. Griffith, J. L. Guillemard, R. Hill, J. Hurlock, Sir J. Jamison, M.D., J. L. Knapp, the Earl of Mountnorris, the Marquis of Sligo, John Wedgwood, R. Harlan, M.D., M. S. G. de St. Hilaire, C. B. Trimius. The following five members of the present Council were removed:—J. Janson, Esq., W. H. Lloyd, Esq., D. Sharpe, Esq., A. White, Esq., W. Yarrell, Esq. The following five Fellows were elected into the Council in the room of the above:—C. C. Babington, Esq., Professor Bell, B. Clark, Esq., E. J. Quekett, Esq., R. H. Solly, Esq. The following officers were re-elected.—President, Edward, Lord Bishop of Norwich, D.D.; Treasurer, E. Forster, Esq.; Secretary, J. J. Bennett, Esq.; Under-Secretary, R. Taylor, Esq.

MICROSCOPICAL SOCIETY.

May 21.—J. S. Bowerbank, Esq., in the chair.—A letter was read from Dr. Carpenter, presenting to the Museum of the Society a collection of 64 specimens of sections of various shells. The Chairman spoke of the value and beauty of this collection of specimens.—A paper was read on the structure and uses of the flabella in the Crustacea. These organs occur only in the higher forms of Crustacea, as the crab and the lobster, and were supposed by Cuvier, Milne Edwards, and others, to perform the function of bringing fresh currents of water to the branchiæ, directly over which they are placed. The author on examining the structure of the flabella in a large series of crabs, found that they were clothed with hairs, and that on the external edge of these hairs was a series of hooks. On examining the branchiæ also, he found in the centre of each a small hook, and the hooks of the flabella and branchiæ were arranged in such a manner that the hooks of the former would catch those of the latter when passing over them, and from this Mr. Quekett inferred that the object of the hooks on the flabella was to separate the branchiæ, so as to allow of a more free access of water to them. The structure of the flabella of the lobster differed in some measure, but the functions performed by them were of the same nature.—A letter was read from Mr. Boys, describing his method of mounting objects in Canada Balsam. Mr. Edwin Quekett stated that he had never succeeded in mounting objects well in liquid Canada Balsam.—Mr. Powell gave a description of a portable compound microscope he had just erected. It was available for the use of the highest powers, and when contained in the case was about the size of a large octavo volume. The price was 24 guineas.

Country Shows.

Middleton Tulip Show, May 24.—The following are the principal prizes which were awarded on this occasion:—*Feathered Bizarres.*—Premier, Mr. Luke Ashmole, with Waterloo; 1 and 2, Mr. Holland, with Royal Sovereign and Crown Prince; 3, Mr. J. Smithies, with Trafalgar; and 4, Mr. Holland, with Surpass Catafalque. *Feathered Byblomens.*—Premier, Mr. J. Etches, with Beaufaite; 1, Mr. Holland, with Buckley's Beauty; 2, Mr. J. Smithies, with Beaufaite; 3, Mr. Holland, with Black Baquett; and 4, Mr. Ashmole, with Surpassant. *Feathered Roses.*—Premier, Mr. L. Ashmole, with Count de Virginius; 1, Colonel Lee, with ditto; 2, Mr. D. Mores, with Dolittle; 3, Mr. L. Ashmole, with Lady Crewe; and 4, Mr. J. Smithies, with Manon. *Flamed Bizarres.*—Premier, Mr. Holland, with Sanzoe; 1, Mr. Holland, with Albion; 2 and 3, Mr. L. Ashmole, with Charbonnier and Sanzoe; and 4, Mr. L. Ashmole, with Unknown. *Feathered Byblomens.*—Premier, Mr. J. Schofield, with Beaufaite; 1, Mr. D. Moores, with Maitre Partout; 2, Mr. J. Schofield, with Beaufaite; 3, Mr. Etches, with Grand Cid; and 4, Mr. L. Ashmole, with Czarinne. *Flamed Roses.*—Premier, Mr. L. Ashmole, with Unique; 1, Colonel Lee, with ditto; 2, Mr. J. Taylor, with La Vandyken; 3, Mr. L. Ashmole, with Triumph Royal; and 4, Mr. J. Taylor, with Vesta.

Newcastle Botanical and Horticultural Society, May 14.—This was the first meeting for this year; it was superior to any former Show at this season. The Florists' Flowers were abundant, and of superior quality. Of Hyacinths there were nearly a hundred flowers in full beauty. A first Prize was awarded to Mr. Deans, for a collection of Cinerarias, containing Prince Albert, Challenger, Apollo, Thyrsa, King of Prussia, Queen Victoria, and some seedlings. Several well-grown plants

were sent from the garden of Mrs. Surtees; they included Azalea lateritia, Hovea purpurea, Chorozema Henchmanni, and others.—A collection of Pansies were sent from Dissington Hall Gardens; among them were Thompson's Warrior, Waltham Abbey, Maid of Milan, King of Yellows, Royal Standard, Victory, White Perfection, Goldsmith, Thompson's Eclipse, Black Prince, Yellow Defiance, and some fine seedlings. Of Orchidaceous plants, a pretty specimen of Maxillaria aromatica, was produced from the garden of Mr. Coulthard. Several Prizes were awarded; but we have only received a list of awards without the names of the flowers for which they were given.

Peckham Amateur Tulip Society, May 23.—On this occasion 18 stands were exhibited, and although a great proportion of the flowers had not attained full perfection, yet the leading stands contained some fine specimens. The awards were as follows:—1, S. Sanders, Esq., for Milton, Shakspeare, Dutch Catafalque, Rosa Blanca, Triomphe Royale, Count Virginius, Ambassadeur de Hollande, Violet Rougeatre, and David; 2, The Rev. Thos. Jephson, for Milton, Polyphemus, Enterprise, Triomphe Royale, Madame Vestris, Manteau Ducale, Ne Plus Ultra, Franciscus Primus, and Maitre Partout; 3, Mr. C. L. Crook, for Milner's Bizarre, Fredericus, Aker's Emperor, La Tendresse, Rosa Blanca, Fleur des Dames, Winifred, Violet Blondeau, and New Byblomen, like Royal George. A Prize was also awarded to Mr. Crook, for a seedling Bizarre, broke this year.

Ipswich Cucumber Society, May 22.—The following is the Judges' Description of the Prize Specimens:—

No.	Exhibitors.	Prize.	Sort.	Mode of Growth.	Length.	Form.	Size.	Colour.	Neck.	Spine.	Rib.	Bloom.	Blossom.	General Appearance.
24	Mr. T. Lawton, gr. to Capt. Alpin, Melton Lodge, Suffolk.	Second	Lawton's Victory of England.	Hot-water pit.	21½ & 21½ in	Straight	2 in. diam.	Dark Green	Short	Black	Slight	Well covered.	Perfect	Handsome Fruit.
21	E. Leathes, Esq., Normanstone, Lowestoft, Suffolk.	First.	Browston Hybrid.	Mill's Improved pit.	20 & 20	Ditto	2 in.	Very Dark	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto.
14	Mr. J. Hamilton, gr. to F. A. Phillips, Esq., Thornfield, Stockport.	Third.	Hamilton's New Hybrid.	Hot-water pit.	24 & 21	Ditto	2 in.	Dark Green	Short long	Ditto	Ditto	Ditto	Ditto	Ditto.
17	Mr. Chapman, gr. to Ransome, Esq., Rushmere, Suffolk.	Fourth	Latter's Victory of England.	Dung bed.	19 & 17	Ditto	2 in.	Ditto	Small	Ditto	Ditto	Ditto	None	Middling.
23	Mr. R. Bones, gr. to J. Cobbold, Esq., Holy Wells, Ipswich, Suffolk.	Fifth.	Standard.	Ditto.	18¼ & 17¼	Not quite straight.	13 in.	Dark Green	Long	Ditto	Ditto	Ditto	Ditto	Ditto.
10	Mr. T. Wind, Ipswich, Suffolk.	Sixth.	Latter's Victory of England.	Tank house.	13 & 14	Straight	13 in.	Ditto	Short	Ditto	Ditto	Ditto	Perfect	Ditto.

The Judges were, George Cant, Thomas Charge, Robert Cornish.—Thomas Wild, Hon. Sec.

Reviews.

Sowerby's Supplement to English Botany.
(Continued from p. 347.)

Pl. 2881.—*Polysiphonia pulvinata* (Aresch.), and Pl. 2882.—*P. thuyoides* (Harv.), are two beautiful and newly-discovered British sea-weeds, described by the Rev. M. J. Berkeley.

Pl. 2883.—*Rubus glandulosus* (Bell.) is an addition to our Brambles, discovered by Mr. R. Spruce in Yorkshire, and described here, in great detail, by Mr. Borrer.

Pl. 2884.—*Epipactis ovalis* (Bab.) A very beautiful Epipactis, allied to *E. latifolia*, to which it would be referred by many botanists. It was, however, distinguished from that plant by the old botanists, such as C. Bauhin and Ray, and possesses technical characters by which it may, in Mr. Babington's opinion, be satisfactorily distinguished from all the other species. It inhabits the slopes of rubbish at the foot of cliffs of limestone, near to Settle, in Yorkshire. Described by Mr. Babington. Bab. Man. 295.

Pl. 2885.—*Carex Buxbaumii* (Wahl.) is a plant discovered by Mr. D. Moore in an island in Lough Neagh, Ireland. It is very distinct from the other British species, and is considered by Dr. Boott and Sir W. J. Hooker as *C. canescens* (Linn.). Described by Mr. Babington. Hook. Br. Fl. 425; Bab. Man. 339.

Pl. 2886.—*Eriophorum gracile* (Koch.). This is, botanically speaking, one of the most beautiful plates in the Supplement; representing the parts of this curious Cotton-grass in the greatest detail. The name of *E. gracile* is well known to English botanists, but the plant usually so named, and described as such even by Smith, is quite different from the true *E. gracile* represented upon this plate. It is only a variety of the *E. polystachyon* (Linn.), and is common, whilst the true plant has only been found in two places, viz., near Croft in Yorkshire, by Mr. J. Woods, and near Guildford, in Surrey, by Mr. Borrer, who has furnished the description for this plate. Bab. Man. 334.

Pl. 2887.—*Phascum Floërkeanum* (Web. and Mohr.), and

Pl. 2888.—*Grimmia orbicularis* (Bruch), are two recent additions to the list of British Mosses, of which the former is "perhaps the very least of all known Mosses." They are both described by Mr. Wilson.

Pl. 2889.—*Callithamnion barbatum* (Ag.). A very elegant sea-weed from the south-west coasts of England, described by the Rev. M. J. Berkeley.

Pl. 2890.—*Arenaria uliginosa* (Schlech.), is a highly interesting discovery, made in the summer of 1844 by Mr. Jas. Backhouse and a small party of botanical friends on the wild moors of Teesdale. It is a slender and inconspicuous plant, much resembling *A. verna*, but quite distinct in structure. By some botanists it is named *Alsine stricta*. Described by Sir W. J. Hooker.

Pl. 2891.—*Saxifraga umbrosa* δ *serratifolia* (D. Don). This is a representation of that variety of the London Pride which deviates in the greatest degree from the typical form of the species as found in the Pyrenean mountains, in Yorkshire, and, recently, by Mr. Andrews, in Ireland. It is accompanied by representations of the leaves of several other varieties. Described by Mr. Babington. Bab. Man. 116.

New Plants.

Warrea cyanea. Blue-lipped Warrea. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—When, in the year 1843, I proposed to establish a new genus upon the Maxillaria Warreana, it certainly did not occur to me that two new and quite distinct species would be added to it in the course of as many years. Such, however, has been the fact; in the beginning of 1844 this beautiful species blossomed with Messrs. Loddiges, and a few months since another appeared in the collection of Mr. Rucker. Both the latter are from the Spanish Main, and it is not improbable that others may lurk in the unexamined forests of that vast region. Warrea cyanea is remarkable for the intense porcelain-blue colour of its lip, to which it is not easy to find a parallel in the Order; for pure blue is scarcely known among Orchids. The plant has quite the habit of Warrea tricolor, but is very much smaller in all its parts. Its most distinctive character is found in the form of its lip, which has a distinct point, and five ribs, not three, near the base. Messrs. Loddiges imported it from Columbia, and it is No. 860 of their last catalogue. Being a terrestrial species this requires treatment very similar to Phaius maculatus. The soil best suited is turfy heath-mould, with a mixture of silver sand; nor is it necessary to have the soil elevated above the brim of the pot, for it will not succeed well if the roots are too much exposed. In summer it requires an ample supply of water and a moist atmosphere, at a temperature of 80° or 85° by day, and about 70° at night. Like all Orchidaceous plants this should be kept rather dry in winter, and repotted in spring as soon as it shows any symptoms of growth. While in a dormant state the temperature should never be raised above 65° with fire-heat.—*Botanical Register.*

Lupinus ramosissimus. Branching Lupine. (*Half-hardy Annual.*) Leguminosæ. Diadelphia Decandria.—This is a pretty shrubby species, growing 3 or 4 feet high in any good garden soil, and well suited for cultivation in the open border, if treated as a summer annual. The seeds should be sown early in February, and afterwards potted singly; and when the danger of late spring frost is over, they should be planted out, where they will bloom freely from June to October. The plant was raised in the garden of the Horticultural Society, from seeds collected by Mr. Hartweg, on Chimborazo, at an elevation of 13,000 feet above the level of the sea. The flowers smell like those of the Sweet Pea.—*Botanical Register.*

Bees.

How to make Bees!—Your classical readers will at once attest, that I am bringing forward no novelty, but that nearly 2000 years ago Virgil gave a recipe for the above, and says, that in Egypt and the East it had been the making of bee-keepers time out of mind. My own observation brings me to the conclusion that it is more valuable than it may at first appear. The mysterious secret, as a matter of course, involves a good amount of cruelty, and begins after the approved formula of Mrs. Glasse, first catch (not your bees) but a young calf, sew up his mouth and nostrils, and pummel him to death, smashing every bone in his body; you are then to build, in a retired place, a little hut with an opening to each of the four winds, in which you are to deposit the skin and its contents, and in due time it will swarm, first with maggots, and then with bees. Now, as to the origin of this superstition, commentators are divided; some make the bees merely a mare's-nest, by supposing that certain Roman or Egyptian cockneys could not distinguish between flies and the more noble insect; others justly trace it to the fact that bees are known frequently to take possession of the carcass or skeleton of a dead animal. They instance the case of Samson and the lion, and the skull of Onesilus, which, as recorded by Herodotus, being fixed over the gate of some city or other, was taken possession of by a swarm of bees, for which prodigy the oracle was of course consulted. I once heard an amusing comment on this latter instance from an old African trader, who told me, that being at Cape Coast, a swarm of bees caused great consternation amongst the blacks (till he under cover of night profanely broke the *fetish* with a squib of gunpowder), by making their habitation in the skeleton of some murderer or murdered person in the bush. But that this is the right clue to the riddle, I have stronger evidence, and nearer home. Many years ago I was a party concerned in getting a large box-trap made to set for vermin, and on two distinct occasions this trap having been baited with a dead rabbit, and left in the same woods in Shropshire till it was almost or quite forgotten, was found occupied by a swarm of bees, both which were successively transferred to more savoury hives. I have since resided constantly in the neighbourhood of London, or I think I should have repeated the experiment. Virgil says that the Egyptians made this secret their great resource for replenishing their stocks, and my belief is that it may be of practical utility. I have always supposed that a wild or stray swarm must have brought their wanderings to a close in the localities above named; but as Virgil describes maggots (truncæ pedum animalia) I should wish to know whether it seems possible that bees' eggs could be deposited and matured under such circumstances.—*Aristæus.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—Continue to stimulate the plants, repot any that may again require it: attend to the training and stopping of such as are making rapid growth, syringing every afternoon, and letting everything be kept clean and in perfect order: as the weather still continues changeable, take especial care that the young shoots do not get checked or injured by cold draughts, or scorched by sudden beams of sunshine. *Greenhouse.*—Camellias should now be placed in a little warmth, to make wood, and set their flower-buds: be particular in never allowing them to suffer for want of water. Keep up a gentle moisture by occasional syringings. Azaleas, as they go out of flower, may also be similarly treated; indeed all kinds of greenhouse plants are benefited by being kept rather close and warm when making their wood. Rhododendron arboreum, and its varieties, should be fully exposed to the sun under glass, if you wish to have perfect foliage and abundance of flower-buds. Partial shading to these are their ruin, both as regards their foliage and the forming of their flower-buds. *Conservatory.*—Keep this shaded and cool to prolong the flowering of all plants brought here, and no plant should be permitted to remain after it begins to fade. Keep the borders slightly moist, which will assist in prolonging the bloom.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The different kinds of climbing Roses must be carefully tied or nailed, to prevent them from being injured by wind. Plant out Dahlias, Salvias, Ten-week Stocks, Asters, Convolvuluses, Nolanas, Campanulas, Kaulfussias, Nemophilas, Indian Pinks, &c., into borders, or flower-beds, and likewise a few on rock-work; pot a portion for planting out into beds later in the season, to replace such as have gone out of bloom. Hoe and rake borders, and cut off dead flowers as they appear. Divide Campanula carpatica, and plant it for edgings, or in borders of herbaceous plants. Remove any shading from plants that have been recently planted out, and if the weather again set in hot, shade for a few days. *Pits and Frames.*—Shift and carefully attend to such plants as are intended to form specimens; sprinkle with water, and shut up closely late in the afternoons of hot days. Put in cuttings of choice greenhouse and herbaceous plants, in order that they may be rooted before the pits are again wanted for cuttings to supply the flower-garden next year.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas will still require shading from hot sun, and the seed-pods ought to be protected from rain, either with hand-glasses or some other contrivance. Any seedlings sufficiently large to transplant should be pricked out in pans, put into a cool frame for a few days, and then placed in a shady situation during the summer months. *Polyanthuses* must be kept from the hot weather, which is extremely prejudicial, engendering red spider, and often causing the death of the plants. *Tulips.*—As this is now the height of the season, the growers of these favourite flowers may be seen searching with indescribable ardour for new and choice varieties. Mark fresh sorts, which you have purchased, or what is perhaps more satisfactory with so uncertain a flower as the Tulip, get them up, when paid for, and bring them home with you; this will obviate many of the little differences which occasionally arise amongst Tulip-growers. *Ranunculuses* will next demand almost exclusive attention: keep the beds free from weeds, occasionally watering between the rows, with rain-water; avoid wetting the foliage as much as possible.

Pinks.—Having watered a collection in pots with Erain's liquid guano, the plants have consequently made rapid progress, throwing up strong blooming stems, and are looking remarkably green and healthy. *Carnations.*—Continue to tie up, as they spindle for blooming, and attend to the directions previously given. *Dahlias* ought all now to be planted out; where the plants are weak, a few small Fir boughs stuck round them would prove serviceable.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Pursue unremittingly the same principles before recommended as to heat and moisture. A very considerable shift will soon take place under the most general modes of culture, therefore let well-prepared soils be ready. Those Pines which were early shifted, and which have made corresponding progress, will now be well supplied with roots, and will, of course, take manure-water freely; take especial care, however, that this is perfectly clear, or it will do more harm than good; the reason is obvious—thick manure-waters close the interstices of the soil, and of course, so far, render it impervious to the atmosphere, and this is at variance with a fundamental principle, on which all successful culture must ever depend. *Vineries.*—Those who grow the West's St. Peters, for a very late crop, will do well to pay some attention to their setting when in bloom. These are well known to be "shy setters;" and, therefore, require a little pains. Mr. Paxton, if I remember rightly, was amongst the first to draw attention to the propriety of maintaining a dry and lively atmosphere, together with a somewhat high temperature, while flowering; and he was most undoubtedly right. However, it is well to have recourse to the pollen of the Hamburgh, or other free-setters, which may be in bloom at the time, and to employ artificial impregnation. The Muscat of Alexandria requires this as well as the St. Peters. *Peaches.*—As soon as the early-house has finished stoning, my practice is to stop every shoot all over the tree, except those which are what may be termed "below par." I do this as soon as I perceive the fruit in the last stage before ripening; the necessary consequence is, a greater concentration of the energies of the tree, as well as an approach towards the equalisation of the sap. The inferior shoots are left growing until autumn.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The leading shoots of Peach, Nectarine, and Apricot trees will require to be tacked in, taking care to allow plenty of room in the shreds. In thinning out surperfluous shoots, it is necessary to foresee what portions of wood will require to be removed at the ensuing winter pruning, and the most appropriate shoots must be accordingly reserved for succession, and encouraged throughout the summer. If any shoots laid in for bearing have failed in producing, they may be gradually removed in order to afford more space for successional young shoots. In regulating the vegetation of these trees, commence at the base and proceed successively along each branch, but do not dress the lower part of the tree and leave the upper untouched even till next day. Whilst the trees are being gone over, insects must not be overlooked. The aphis seems to delight in healthy foliage; but the red spider prefers such as is less thriving, particularly from dryness at the root. It has been stated of this pest that "water is its bane and certain destruction;" it, however, requires to be applied to the roots as well as to the top. Apple and Pear-trees are about this time subject to the ravages of caterpillars—those of the lackey-moth (Clisiocampa neustria) described vol. I, p. 352. They are easily destroyed whilst they remain in groups, and this they do till after their third moulting; they then dissolve partnership, their united efforts in the formation of a web being no longer necessary, and, dispersing over the tree in all directions, their capture becomes almost impossible. Examine grafts and re-clay if necessary. *Kitchen Garden.*—Attend to hoeing and otherwise stirring the soil. Weed and thin crops. Draw earth to early Potatoes. Sow a few Onions for drawing young. Plant out Cauliflower, Celery, and Lettuces; also Capsicums in a warm situation. Sow Turnips, Radishes, and Peas.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—When the operations before recommended respecting the peeling of Oak, securing of bark, &c., have been accomplished, preparations for autumn planting may be commenced, as trenching, draining, &c.; also the cleaning of young plantations and hedge-rows. *Nursery.*—Cuttings of Laurels and similar evergreens may now be planted with advantage; regulate the summer shoots of choice trees and shrubs; continue to secure from the effects of winds newly-planted trees and shrubs; destroy weeds, &c.—*F.*

State of the Weather near London, for the week ending May 29, 1845, as observed at the Horticultural Garden, Chiswick.

May		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	23	17	29.834	29.798	60	44	53.0	N.W.	.16
Sat.	24	18	29.822	29.803	61	45	53.0	W.	.54
Sun.	25	19	29.783	29.635	57	46	51.5	E.	.10
Mon.	26	20	29.685	29.610	59	36	47.5	S.	.27
Tues.	27	21	29.778	29.758	67	48	57.5	N E.	.08
Wed.	28	22	29.799	29.772	67	49	58.0	N.E.	.01
Thurs.	29	23	29.692	29.682	55	48	51.5	N.E.	.07
Average			29.769	29.729	60.9	45.1	53.0		1.23

May 23—Thickly overcast; fine; heavy rain
24—Hazy clouds; cloudy and fine; heavy rain commenced 5 P M.
25—Cloudy; rain; densely overcast; rain
26—Overcast, heavy rain between 12 and 1 P M.; showery; cold at night
27—Very fine: cloudy; clear; rain
28—Hazy and damp; rain; thickly overcast
29—Thick haze; cold drizzling rain; uniform'y overcast.
Mean temperature of the week 5 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending June 7, 1845.

June		Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun.	1	70.0	47 3	58.7	10	0.27 in.	3	3	—	—	5	5	—	3
Mon.	2	68.4	47.7	58.1	7	0.33	—	3	—	2	2	4	5	3
Tues.	3	69 6	46.6	58.1	6	0.91	—	—	1	1	4	6	3	4
Wed.	4	70.0	46.5	58.3	8	0.76	1	2	—	2	3	4	4	3
Thur.	5	69.8	46 1	58 0	10	0.64	2	2	1	—	3	3	5	3
Fri.	6	68.1	47 4	57.7	11	0.58	3	3	1	1	3	3	2	3
Sat.	7	67.1	47.1	57 1	6	0.53	3	4	—	2	3	2	3	2

The highest temperature during the above period occurred on the 2d, 1834—therm 85°; and the lowest on the 3 I, 1837—therm. 35°.

Notices to Correspondents.

Auriculas—*E K*—The pips sent are from Leigh's Col. Taylor.*

Banana—*O F G*—The fruit ripens in succession from the bottom to the top of the bunch. As soon as the lowest fruit begins to change or colour a little, gather it; and afterwards you will have a succession as long as any remains. We forget the weight of the heaviest bunch of Musa that has been seen; but we believe it was produced by Mr. Scott, Sir Geo. Staunton's gardener.

Bulbs—*Amateur*—Your Belladonna Lily, Guernsey Lily, and Ixias, may be kept in a cold pit during summer.§

Cineraria—*A*—See a list at page 624 in the vol. for 1844.*

Drying Plants—*Anxious*—Display your specimens carefully between the leaves of a sheet of paper. When that is filled, lay an empty sheet upon it and fill it in like manner. Thus proceed until all your specimens are laid out. Then place the sheets between two boards, and cord them up tight; or, if you can, lay the sheets under the mattress of the bed you sleep upon. In 12 hours shift the specimens into fresh sheets, and proceed as before. The emptied sheets may be hung up till dry. Follow this plan till your specimens are quite dry.

Fuchsias—*J G R*—If you destroy their blossom-buds now they will flower stronger and better in the autumn. The Fuchsia, is not, however, a plant that suffers much—if at all—from blooming, unless the branches are weak and drawn.

Glass—*Johannes Britannicus*—If anything were required to satisfy us that the course we have taken in this matter is the right one, that thing would be your letter. We have forwarded it to Mr. Hartley.

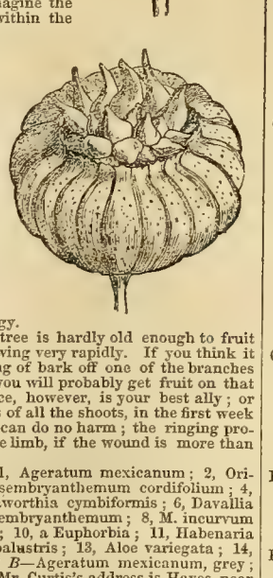
Grapes—*H W*—Moderately strong fires, and night air, will tend to flavour Grapes; but the colouring of them depends on more remote circumstances. It is impossible to impart colour if the quantity of fruit be disproportionably great, in comparison with the extent of foliage, although light and air may be afforded, especially if the foliage of the preceding season has been imperfectly grown.‖

Insects—*H H*—Your moth is the Adela viridella. *R.*——*G W J*—It is the Aphis cerasi which infests your Morello Cherry. *R.*——*A Young Gardener's* insect is the Oxytelus rugosus; it breeds in horse-dung principally, and will perhaps feed on other decomposing vegetable substances. We think if he were to look carefully he would find some maggot which first causes the mischief. How large are the Garlic-plants, and would you do us the favour to transmit us that portion at least of the plant which has been attacked? If the plants be very young, send us two or three in a little damp Moss, or inclosed in quills. *R.*——*J H*—The Millipedes destroying your French Beans are the Julus pulchellus. Salt the ground well and turn to their history in the "Royal Agricultural Journal," vol. 5, p. 228; or the *Gardeners' Chronicle*, vol. 1, p. 196. *R.*——*S W S*—We think if the remedies you enumerate were persevered in, they would eventually succeed. Nothing can withstand the fumes of sulphur, or the evaporation of spirits of turpentine, if the frame be air-tight. But the doses should not be strong enough to kill the plants, and be often repeated. Any wash is useless unless applied to the underside of the leaves, in which case soft soap lather has proved very beneficial. *R.*——*F K*—Your interesting letter would require a long answer; but if you will refer to the 5th vol. of the "Royal Agricultural Journal," p. 228, you will find all that is known respecting the economy of the Snake millipedes, and the only remedies known. Yours is named Julus Londinensis. You will also find the history of one or two of the species in the 1st vol. of this Journal, at p. 196. If you make any further experiments, we shall feel obliged by your communicating the results. *R.*——*H H*—We will shortly attend to your request regarding the cockroaches. *R.*

Manures—*A B*—Wood-ashes and soot, both useful to the garden, are best kept dry till required to be applied.‖

Morphology—*W S G*—Certainly. It is a case in which the carpels are increased by the addition of a second ring of incomplete ones within the usual ring. Oranges are very subject to this sort of disturbance, two examples of which are given in the following cuts. The upper figure represents the young fruit of an Orange, in which eight carpels are seen in a ring surrounding a central pistil consisting of several other carpels consolidated in the usual way. If such a monster were to ripen, you would have eight fleshy lobes standing round a common Orange, and adhering to it by their faces. Suppose them to adhere completely by their sides, and that the central Orange were to be paralysed in its growth, the latter would then be covered over by the former; which is nearly your case. *Or*, take the lower figure, which represents an Orange in which the outer carpels do adhere by their sides into a fleshy cup; but here that pistil which in the upper figure was composed of many carpels in a state of complete combination is composed of many carpels in a state of separation. In this instance imagine the central carpels to shrink within the outer cup, and you have again a structure something like yours. You can easily understand the possibility of many modifications of this arrangement.——*P W S*—We are well acquainted with such a malformation as that of the Wallflower you have been so obliging as to send; such a plant lived for many years in the Apothecaries' Garden at Chelsea; and it was one of the first instances which drew the attention of botanists in this country to the subject of Morphology.





Mulberry—*Inquirer*—Your tree is hardly old enough to fruit yet, especially as it is growing very rapidly. If you think it worth while to take a ring of bark off one of the branches near the main stem, *now*, you will probably get fruit on that branch next year. Patience, however, is your best ally; or you may pinch off the ends of all the shoots, in the first week in September. The latter can do no harm; the ringing process will eventually kill the limb, if the wound is more than half an inch broad.

Names of Plants—*A J S*—1, Ageratum mexicanum; 2, Origanum Dictamnus; 3, Mesembryanthemum cordifolium; 4, Gasteria verrucosa; 5, Haworthia cymbiformis; 6, Davallia canariensis; 7, some Mesembryanthemum; 8, M. incurvum roseum; 9, M. coccineum; 10, a Euphorbia; 11, Habenaria bifolia; 12, Pedicularis palustris; 13, Aloe variegata; 14, Berberis dulcis. §——*H C B*—Ageratum mexicanum, grey; Ager. conyzoides, white. Mr. Curtis's address is Hayes, near Uxbridge.——*F F R*—Your little plant is Saxifraga oppositifolia, a charming little Alpine. It suffers from the dry atmosphere of the Lowlands, and requires the north side of rockwork in a shaded situation, or else to be kept in a pot in a cold frame. It forces well.——*C Sclater and Son*—Cereus crenatus.——*A Gardener*—Amelanchier canadensis, propagated by grafting or budding on the Whitethorn. It is a common tree.——*Y Y*—Some Nicotiana, but the species cannot be ascertained from such a specimen, or without some account of its native country.——*J S S*—Amygdalus incana; the yellow flower cannot be named without a better specimen.——*B W*—1, Ribes triflorum; 2, R. orientale; 3. R. cereum, 4, R. divaricatum.¶——*J M G*—A bit of some Typha; probably T. angustifolia.——*Botanica*—Luzula, not Luciola, campestris. The second way of spelling was a little crotchet of Smith's.——*N W*—Some hybrid Rhododendron; but we cannot name such varieties; in fact they have no fixed names.——*W D F*—French Sorrel—Rumex scutatus.——*B H*—The Buckbean, Menyanthes trifoliata.——*R D*—Myosotis palustris and Rumex acetosella.——*Modesta*—1, Spiræa ulmifolia; 2, S. chamædrifolia.

Peaches and Nectarines—*H W*—When the fruit of these drop at the time of stoning, the trees must be weak from overbearing, bad pruning, or the effects of insects; or, the evil may arise from injury caused to the embryo by frost.‖

Peas—*An Old Subscriber*—The leaves of your Prince Albert Pea are covered with mildew. There is no effectual remedy. Better look forward to the successions, and use preventives, such as thinning, if they have been too thickly sown; and do not allow them to get even once too dry at the root.‖——*N W H*—Either frost or drought must have got at the roots of your Peas, after planting them out from the greenhouse.‖

Pelargoniums—*A*—Procure Frogmore, Compactum, Shrublands, Brighton Hero, Waterloo, and Bath Nosegay.*——*Amateur*—It is probable that the cause of your plants shedding their petals is owing to their having been kept in too moist an atmosphere. They should never be syringed while in flower.§

Petunias—*A*—Beauty, Fulgida, Lady of the Lake, Medora, Prince Albert, Crimson Perfecta.*

Phlox—*A*—See page 260 of the present volume.

Rosary—*A K*—As it is too late to plant a Rosary now, we will make your inquiry the subject of a special article very soon.

Seeds, &c.—*Simplex*—You may sow your seeds from the Cape immediately, in shallow pans, in a soil consisting of peat, loam, leaf-mould, and sand, in nearly equal proportions. Place them in a gentle bottom-heat, and keep them perfectly dry for a week or ten days after sowing; then begin to water them slightly, and afterwards treat them as greenhouse plants. The bulbs may be potted in a rich light soil.‡

Statice arborea—*J M S*—Your plant seems to have been treated properly; and the loss of a few of its lower leaves is of no consequence. They are probably the old leaves of last year dying off as the new ones form, all of which is quite *en règle*.

Strawberries—*P Q*—You are right in supposing that without blossom there can be no fruit; but had you allowed your plants to remain they would, in all probability, have fruited next year. Runners from plants, having no flowers on them, will do equally well for forming new beds with those from plants producing blossoms and fruit.‡

Thrips—*W C*—Dust the leaves of your Calceolarias over with flowers of sulphur, and let it remain for a few days; then give them a good washing with the syringe. ‡

Verbenas—*A*—Procure Melindres Major, Catleugh's Ne Plus Ultra, Youell's Princess Royal, Boule de Feu, Purpurea Perfecta, and Amethystina.*

Vines—*W C E*—The leaves from your Black Hamburgh Vine have become spotted from drip.‖——*A Constant Reader*—The growth of a tendril, and that of the stalk of a bunch of Grapes, is similar. Both proceed from the part of the node opposite the base of the leaf-stalk. A bunch of Grapes, or rather the rudiments of one, which goes "blind," assumes, in a great measure, the character of a tendril. This is apt to be the case when the wood is immature, and too low a temperature is maintained. When the bunches begin to show, you must raise the temperature to 75°.‖——*R W F*—Your Vine-leaves appear to have been scorched, but by what means, in ignorance of the treatment they have received, we cannot say. We have seen a similar effect produced by steam rising from a hot surface; and the fact of the young and tender leaves suffering the most, favours this opinion. In this case, although those affected cannot be cured, the evil may be easily prevented in future.‡——*A B C*—The green excrescences on your Vine-leaves are produced by excessive growth. You have kept the house too damp and hot, and have forced the leaves too fast, with too little light. Such exuberant growth is unsightly, but of no other importance‡——*A B*—Although a case was recorded, at p. 166, vol. iv., of Vines breaking better in an upright than in a horizontal position, yet it appears to have been a solitary instance, and may have been influenced by other causes. It is a common practice to incline the shoots to a horizontal position, in order that the buds may break with greater certainty; and that they do so, experience has proved beyond a doubt. You cannot err in planting opposite the centres of the arches.‖

Violets—*J M B*—The cold nights are your enemy; the leaves were formed quickly in rich soil and a warm border, and are now unable to bear the effect of a very low temperature.

Misc—*Pastor*—The abundance of wasps this year is probably owing to the late autumn having been peculiarly hot and dry, and therefore very favourable to the production of such insects. Cuckoos, it may be presumed, are kept away by the continued cold weather.——*J—s.*——*A*—For good sorts of the following flowers, Antirrhinum, Calceolaria, and Mimulus, suitable for the border, you cannot do better than order of some respectable florist, stating your object, and the qualities you desire them to possess.*

SEEDLING FLOWERS.

Calceolarias—*F P*—Your seedlings are well formed and pretty specimens of the spotted varieties, with yellow grounds. No. 2 is the most novel, the others are produced by every one who raises these sorts; in No. 7 the blotch wants a clear edge.*——*H H*—Your seedling possesses no properties to distinguish it from many others.*——*T A*—No. 1 is the favourite buff ground, with a well-defined blotch; 2, deep yellow ground, with defined blotch; 3, spotted upon a buff ground; in form they are rather flat, but they will make showy specimens.*——*G R*—three good varieties: No. 1 pale yellow, with large spots, is very distinct and showy; 2, dark-mottled, like a leopard, is more common, but a good flower; 3, good delicate white——*J H*—Your seedlings are large, showy, and well-grown specimens, but destitute of the properties of florists' flowers.*

Cinerarias—*A C*—No. 3 is the clearest and brightest flower, but it appears loose, from the length of the petals. 4 is better formed and more compact; and though not so bright in colour, is the better flower of the two.*——*Y Y*—No. 1 is a very fine specimen of a creamy white, dark disk, very broad petals, and the flowers unusually large, measuring 1½ inch in diameter. No. 2 pure white, as large as No. 1, but the flowers are too starry.*

Fuchsias—*R P*—Both the flowers now sent are handsome and showy varieties; the darker seedling differs but little from similar coloured flowers in cultivation; the lighter one is the more attractive specimen; they are both a little coarse in the sepals.*

Pansies—*A Constant Reader*—A, a large and very finely-formed flower, flat and of good substance; it is rather rough on the edges of the petals, and there appears a little indistinctness where the margin joins the ground-colour. This is difficult to judge of correctly, as both blooms are much bruised and injured by the way in which they were packed. *B*, deep mulberry self; good, both in form and substance.*——*A W*—Pansies do not travel well unless packed up in something damp; blotting-paper or wet Moss should be put inside the box, or they soon shrivel. Your blooms are in this condition, so that it is impossible to judge of the size or form; 2 and 3 are remarkably powerful in colour; they are flowers of good substance, with fine dark eyes; the marginal colour of No. 1 is too indistinct.*——*An Amateur*—No. 1 is a very fine flower, a little rough on the edges of the petals, but in other properties first-rate. The fault in No. 2 consists in the indistinctness of the ground-colour where it unites with the purple border; compare the two in this quality.*

Pelargoniums—*Orford*—Neither of your seedlings are of any value; they want substance, and in colour and marking are very inferior to the flowers of the present day.*——*F P*—A pretty little flower for bouquets, of good substance, strong in colour, and rather novel, but neither in size nor properties equal to rank as a show variety.*——*G R*—Your seedling is rather coarse and bad in form, petals all too long.*

Picotee—*J C*—Your seedling possesses good substance, the petals are well-formed, white pure, with good deep edging; the barring slight; but the number of petals are insufficient to form a full flower.*

absolute loss of land on both sides. He remembered Lord Spencer stating his objection to hedge-row timber. His lordship stated that 1½ pole or 2 poles of land were always injured. He (Mr. Anderson) regarded as the greatest curse which could be inflicted upon the tenant farmer was the growing hedge-row timber. It might be thought that, connected as he was with the interest of the landlord, he was advocating the rights of the tenant too strongly; but he thought that, in speaking up for the tenant, he was doing the greatest service to the cause of the landlord. If the mutual interests of the landlord and tenant were properly looked to, it would be a great advantage to all parties.—Mr. Ellman thought Mr. Wyatt would have some difficulty in establishing as a fact his statement that there was some land better adapted to growing timber than anything else. In some parts of Surrey and Sussex so much timber was grown that draining was impossible. He had had some experience in the tenacious lands, which were supposed best for growing Oak; but by removing the timber and draining the land, the soil was completely changed. Mr. E. dwelt strongly on the prejudicial effect of copyhold tenure in increasing the growth of hedge-row timber.—Mr. Forster said he had seen the principle, which they all appeared to think so desirable, carried out to some extent in Yorkshire. Many of the landlords there had consented to allow their tenants to clear away their timber, and knock down the hedge-rows; they made, first, fences by putting in railings and quickset hedges, but they had not been charged any more in the shape of rent.—Mr. Dixon observed that a relation of his paid his landlord 30 per cent. more for his farm since the removal of the timber.—Mr. Fisher Hobbs with regard to hedge-row timber thought that when a landlord let a farm, he ought not to allow more timber to grow upon it than was necessary for repairs; he thought that five out of every six trees growing in hedge-rows might with advantage be levelled with the ground. He thought there ought to be some rule laid down as to the number of trees which should be allowed in a given number of yards; he was of opinion that, if this club came to some conclusion on the subject, it would be doing a great deal of good, and the landlord would see that it was to the interest of the country at large that the great portion of the trees should be levelled on land applied to farming purposes.—Mr. Wood said he agreed with all who had spoken as to the disadvantages from growing hedge-row timber; but with regard to the substitution of quickset hedges, he thought it very desirable that some sort of fence should be used which would draw less from the soil; for his own part he highly approved of iron fences.—Mr. Baker, in summing up the proceedings of the evening, remarked that the custom of copyholds stood seriously in the way of the destruction of hedge-row timber; for, by the law of copyhold, no person could cut timber unless he procured a licence from the lord of the manor, without running the risk of forfeiting the estate. He objected to timber grown in hedge-rows. It was very easy to leave trees for protecting, ornamenting, and gracing the country, without interfering with the interests of the farmer. The maxim should be, "Get rid of the useless timber, and preserve only the very best."—Mr. Knight wished to say a word or two in reply to Mr. Shaw. That gentleman had said this was a landlords' question. He would admit that in many points it might be a landlords' question; but he contended that it was a tenants' question also. Farmers were in a great measure tied to the landlord by lease or some other covenant which they could not easily get rid of. This meeting, if they could bring about the removal of hedge-row timber, would confer a great benefit on the landlord as well as the farmer. Mr. Knight concluded by proposing the following resolution:—"That it is the opinion of this meeting that the growth of hedge-row timber, especially in small inclosures, is highly detrimental to cultivation, and exceedingly injurious to the occupier; that the benefit obtained therefrom by the landlord is quite inadequate to the damage accruing to the tenant, who would be enabled to compensate for its removal by an increase of rent; that in scarcely any instance is the growth of timber equivalent to 2*s.* per acre as rent, and that on the average it does not exceed 1*s.* per acre; and that, upon the whole, the growth of hedge-row timber is highly injurious to the interests of both landlord and tenant, as well as to the country at large."—Mr. Smith seconded the resolution, which was carried unanimously.—*Abridged from the Mark Lane Express.*

Wakefield.—On Friday, May 16, this Society took into its consideration the question of corn rents. Mr. Stringer said he was decidedly in favour of corn rents, the average of which, in his opinion, should be taken every four years, or else the farmer would have to pay high rents for a bad crop, and low rents when the crop was good.—Mr. T. Wordsworth thought corn rents could not be applicable to all districts, as he occupied a farm in two townships, the poor-rates of one was four times as large as in the other. West Ardsley poor-rates were twice as much as Thorp, and he would ask, could a corn rent be applicable to these districts? If in one township the poor-rate upon 100 acres was 5*l.*, and in another 20*l.*, he would like to know how could the landowner make a corn rent suitable for both places.—Mr. Briggs was in favour of corn rent, but he could not suppose that that alone should regulate the price. There were several other things the produce of the farm, which, in his opinion, ought to be taken into account as well as Wheat. Oats, Barley, and cattle were as much produce as Wheat. He thought the principle of regulating the rents by the produce was all right enough. He thought the landlords were entitled, in the shape of rent, to one-third of the overplus of every well-managed farm, after paying the necessary farming expenses, and the tenant to the remaining two-thirds. Landlords had, in his opinion, been very unreasonably abused by many parties. It had been said, if it were not for rents Wheat would be much cheaper. The landlord was entitled to a fair remuneration for his land He, with respect to striking the average of rents, thought one year too short a period, whereas three or four years would not fluctuate so much.—Mr. W. Barratt said corn rents did not appear to him to be either effectual or satisfactory. When they had got the price of Wheat they would be as far off fixing the amount of rent as ever. Cattle and all kinds of agricultural produce ought to be taken into account. The farmer, under corn rents, in his opinion, would have most rent to pay when he had least to pay it with. In Scotland, where the principle had been tried, the farmer was little else than a mere bailiff [?] upon the farm. He would ask what was the legitimate rent of land? This was a question of some importance in such an inquiry. He could scarcely agree with Mr. Briggs on this subject. Instead of corn rents he would recommend leases, which would rectify many of the ills complained of in the present system.—Mr. Brackenridge objected to corn rents. First, they tend to degrade the business of farming from an adventure of speculation requiring capital and skill, to that of an artisan or mechanic. Secondly, corn was only one item in the products of a farm, from which rent and other outgoings were raised. Thirdly, it generally happened that the high price of corn was in consequence of a failure in the crops, and under a corn rent the tenant had the highest rent to pay in seasons when he had the least to pay it with, and *vice versâ*. Fourthly, the main objection and unequal working of a corn rent would be best illustrated by the following case, which he put from instances within his own knowledge:—Supposing the price of Wheat governing the rent for the year is 54*s.* per quarter, and other corn in proportion; then suppose a farm containing 200 acres of good land, worth, under these prices, 30*s.* per acre; and another farm in the same district, about half a mile nearer the same market, containing exactly the same number of acres of inferior land, which, at 14*s.* an acre, was fully as high rented as the other at 30*s.* The rent of the first was 300*l.* per ann., and of the latter 140*l.* The capital required was about the same in either case; the one requiring a larger amount of feeding stock, and the other for working stock, implements, and tillage. The risk of failure and loss of crops, &c., being much greater on the inferior than on the other. Now, again, suppose during the course of the year the price of Wheat to have fallen from 54*s.* to 45*s.* per quarter, or one sixth, the rent of these two farms being governed by the price, would, for the next year, be 250*l.* and 116*l.* 13*s.* 4*d.*, the best farm being relieved to the amount of 50*l.*, and the other, though in most need of it, being relieved to the amount of 23*l.* 11*s.* 8*d.* only. These were a few of the objections to the corn rent system, which in every instance where it had been tried within his knowledge, had rendered it an utter failure.

Wisp Club.—The Spring Meeting of the Wisp Club was held April 18th, and was as numerously attended as on any former occasion. The following are the averages struck by the meeting for stock sold last year, and reared in Scotland South of the Frith of Forth:—

Short Horned Stirks . .	(each)	£5	10 0
Do. Two year olds . . .		8	5 0
Galloway Stirks		4	0 0
Do. Two year olds . . .		5	15 0
Sheep sold rough.			
Cheviot Wethers		1	3 0
Do. Dinmonts . . .		0	17 6
Sheep sold in Autumn.			
Cheviot Wethers		1	5 0
Do. Two year olds . . .		0	19 6
Cheviot Draught Ewes . . .		0	14 0
Blackfaced do.		0	10 6
Cheviot Tup Wether Lambs .		0	8 9
Do. Midd. do. . .		0	6 6
Do. Midd. Ewe do. . . .		0	7 3
Blackfaced Top Wether Lambs .		0	8 3
Do. Midd. do. . . .		0	6 3
Do. Midd. Ewe do. . . .		0	7 6
Cheviot Tarred Wool.			
24lb per stone		0	17 6
Do. Buttered and Oiled . .		1	3 6
Do. Pure White		1	7 6
Blackfaced Washed Tarred . .		0	9 6

Wingerworth.—The monthly meeting of this club was held on the 22d April. The subject for discussion was "On the breed of Sheep most adapted to this country, and the best method of treating them during the year."—Mr. Riggott, of Walton, opened the debate. As a young farmer, and not having much practical knowledge of sheep, he should only state what his opinion amounted to from his own experience. He considered a cross from the long-woolled Leicestershire and South Downs very suitable for this part of the country, as calculated to produce both wool and mutton in a moderate degree, for we could not expect, upon our wet clay soils, to excel in both—the more wool we got and less bulk of mutton. A clip from 6 to 8 lbs, hogs and ewes, was a fair average. There was a great difference in sheep with respect to the age at which they became profitable, some breeds came to profit much earlier than others; this was an object with small farmers who kept but a few sheep. It was much better to be understocked than have too many, especially at the spring season, when keep is scarce. He did not consider the highest bred sheep suitable for our wet soils, they required good keep and a great deal of care, and were more apt to be fly-galled, foot-sore, &c. Ewes ought to be in good condition when put to the ram, but not to be kept in a heated state; they require housing about lambing time; when a ewe had two lambs they often gave preference to the strongest, and the weakest lamb frequently had to be reared by the bottle; he always took the strong lamb away until the other got strength, when the ewe would then take kindly to both. The best lambs were in general the fattest, and it was not wisdom at all times to sell the best ewe lambs when fat, especially where improvement of breed was an object. Fat sheep required to be washed and clipped much earlier than stores and breeding ewes. Great care and attention was required after Midsummer to guard against the fly. Towards autumn a little salt should be given in troughs, and in winter they ought to have a mixture of chopped hay, barley, bran, Peas, &c., given them occasionally, and more frequently when they have fewer Turnips.—Mr. Bacon said that it was a great folly to keep too many sheep in spring upon wet soils; light-woolled sheep generally had the greatest weight of carcass; had shepherded thousands of all sorts, and preferred ewes not being too fat when put to the ram, but had sometimes known fat ewes very prolific, and rear three lambs a piece. He considered the land about here not calculated for very high bred sheep, nor for continuing any sort to breed from four successive years; it was more profitable to feed and sell off and buy again of a good sort; there was less risk of the rot, which was a serious drawback to wet farms—that perfection upon wet soils ought not to be tried; the greatest amount of profit from a hardy breed more desirable than perfection without profit.—Mr. S. Denham highly approved of Mr. Riggot's observations about the condition of tupping ewes, rearing of lambs, and treatment in winter, and advised a frequent change of pasture, and a wide range, as calculated to keep them sound; always had his inlambed ewes so marked that he could separate them at lambing time; generally found his best lambs get fat the soonest, and persons desirous of having a good flock ought not to sell them; he considered the long-woolled sheep not so hardy as the short-coated; many farmers in the Peak clipped their lambs to make the wool grow thicker, and by clearing them of vermin they improved in growth of carcass; wool and mutton were rarely combined in these parts, and weight of carcass was in general more profitable; thought the Leicestershire breed were deteriorating in both fleece and mutton; after clipping always drafted his stores to inferior pastures, and pushed on the feeders as fast as possible.—The Secretary said too little attention was paid to paring their feet, which would prevent inflammations of the hoof, foot-rot, warts, &c.; that timely cutting in spring was often neglected; sheep ought to be looked over twice a day, especially in fly-time.

Reviews.

Practical Hints on Land Draining, illustrating its Importance, with some Suggestions on Agriculture, addressed to the Young Farmers. By Charles Newman, Member of the Royal English Agricultural Society. J. Ridgway & Sons, Piccadilly.

Mr. Newman, in this work, in the first place, publishes a number of testimonials to the efficiency and permanence of a method of drainage which he terms "Subsoil Drainage," and which we are informed was invented forty years ago by Mr. Lambert, late of Wick Kissington, Gloucestershire. He then describes his own experience of the benefits and expense of draining wet lands on various plans, the drains being at various intervals. And he contrasts with this a description, including statements of the expense and efficiency of Mr. Lambert's "Subsoil Drainage." This system is known in some districts by the name of "plug draining." A trench is dug in the usual manner, and a jointed plug or core, to lie in the bottom of the drain, being introduced, earth is filled in and rammed down upon it; the plug is then drawn along, more earth is filled in, and again rammed down, and so the work proceeds, leaving a tunnel 24 or 30 ins. below the surface, and perhaps 4 ins. by 8 in section, to act as a drain through the soil. The cost of this work per acre, the drain being 30 ins. deep, Mr. Newman puts at 64*s.*, when the drains are 18 feet apart, and 48*s.* 10*d.*, when the drains are 24 feet apart. This method of draining answers perfectly well in subsoils of a certain texture and *in pasture lands*; in Gloucestershire the depth of such drains rarely exceeds 2 feet, and the expense of *labour* connected with it amounts to only 40*s.* per acre; we could point to many farms where such drains, formed 20 years ago, are in perfect action now. But that on arable lands they are incompatible with the proper cultivation of the soil must be obvious to every one; though they were 30 inches deep, they would even then be liable to injury from the subsoil plough and from the poaching of the animals employed in pulling it.

In subsequent pages of this work Mr. Newman gives some instances of the profitable nature of drainage operation to be performed at the landlord's cost, as an following is a striking case, in which, however, the profitable character of the results arises from the union on the same estate of several kinds of ment. The following details permanent improvement of the "English Agricultural Society's Journal":—

"The extra-parochial place of Teddesley Hay, in Staffordshire, is the residence of Lord Hatherton, and contains 2586 acres. It was originally part of the forest of Cannock, and with the exception of two anciently enclosed parks, it continued unenclosed until 1820, when the whole became, either by allotment or purchase, the property of his lordship. The extent of the farm lands is 1832 acres, comprising a range of high and dry hills to the east, adjoining Cank Chase, which hills were formerly an extensive rabbit warren covered with heath or fern; having heard this tract of land below the hills mentioned as exhibiting in a striking manner the results both of judicious draining and employment of the water so obtained, I visited the place in the latter end of May, 1841. I was conducted over it by Mr. Bright, the respected land steward, who gave me the following statement, and in riding through the farm which then presented the appearance of the most luxuriant vegetation, described to me the condition of the land in 1820. The larger park, which had been long divided into fields, was ill cultivated, and the lesser park might be fairly viewed as one bed of Rushes, and in the lower parts Alder; the whole consisted generally of a light soil, rather inclined to peat, the subsoil being chiefly a stiff clay. Some very deep drains were made in the larger park, which was effectually drained, and from which large volumes of water now issue; as soon as the enclosure was completed, other deep drains were made, and for the most part with excellent effect; things were in this state when Mr. Bright became agent to Lord Hatherton; he immediately conceived the notion of putting a portion of the waste allotments and the whole of the lesser park, containing a surface of nearly 600 acres, through a regular course of thorough drainage, and afterwards collecting the whole of the drain water into two main channels, with the double intention of conducting one of them through the farm-yard, for the purpose of obtaining by it a water power for various objects connected with the estate, and then employing it, in conjunction with the other stream, in making an extensive tract of upland water meadows. It must, however, be acknowledged to have been a bold attempt, which could only have been conceived by a comprehensive mind and a man of great practical knowledge; but it was liberally seconded by his noble employer, and has been accomplished with admirable success, as the following statement of the improvement by drainage, and the expenditure during 10 years preceding 1841, upon such parts of the estate as have been drained, will sufficiently explain,—the original value of 467a. 0r. 9p. was 254*l.* 10*s.* 9*d.*—expenditure, 1508*l.* 17*s.* 4*d.*—improved value, 689*l.* 13*s.* 1*d.*—shewing an improved annual value of 435*l.* 2*s.* 4*d.* These lands having been effectually drained, Mr. Bright's next object was to collect so much of the drain water as the levels permitted into two main carriers, for the purpose of employing them as a power to turn a mill-wheel, and afterwards to be applied in irrigation. For the former object, a small reservoir has been constructed, at a favourable level, about half-a-mile distant from the farm; here, at the farm-yard, a mill has been built, which does infinite credit to Mr. Bright; the stream of water was of course not sufficiently powerful to turn an undershot wheel, and to enable it to act with force it was necessary to bring it out to the upper part of a wheel of 30 feet diameter; this wheel has been placed in the rock 35 feet deep, and the headway has been carried from the bottom through the rock, and comes out in a valley below, at the distance of 500 yards. The mill and this channel for the water cost very little more than 1000*l.*; it works a threshing-machine, cuts hay and straw, and kibbles oats and barley for the stock, consisting of about 250 horses and cattle, grinds malt, and also turns a circular saw which does great part of the sawing for a large estate. The annual saving by this machine has been carefully estimated at about 400*l.*, and it is still intended to apply the power to other purposes. From this wheel, and from another small carrier which is made to pass immediately under the farm yard (where all the urine and moisture that runs from the manure is carefully collected in a reservoir which overflows into the carrier), the water has been conducted over lands, principally uplands, containing altogether 89 acres, at an expenditure of only 224*l.* 4*s.* 10*d.*, by which an improvement of 2*l.* an acre has been effected, or 178*l.* per annum. This is Mr. Bright's calculation, but it is difficult to estimate the importance of such an acquisition as 89 acres of productive water meadow to a large farm like this, on which there is (especially on the upper part of it) a great quantity of very dry and thin soil. I know no other place in which drain-water has been turned to such good account. Luckily the water is all soft and good for irrigation.

SUMMARY OF TOTAL EXPENDITURE.

	£.	s.	d.
Underdraining as per Statement	1508	17	4
To erecting Water-wheel and Machinery .	1000	0	0
Irrigation	224	4	10
	£2732	2	2

TOTAL INCREASE IN VALUE COLLECTED.

Lands Underdrained, present Value 689 13 1			
Original Value	254	10	9
	435	2	4
Estimated Saving by the Mill	400	0	0
Increase in Value of Water Meadows ..	178	0	0
Being an Increased Annual Value of	£1013	2	4

resulting only from draining 467 acres, and employment of the drain-water over 89 acres of land; affording a clear annual interest on the outlay of full 37 per cent."

Towards the end of this work Mr. Newman offers, chiefly in the shape of advice to the young farmer—and very good advice it is—some practical suggestions on several agricultural topics: thus, the importance of not taking a farm too large for one's capital—the injury to the land of hedge-row timber and small enclosures—the advantage to the farmer of looking after the comfort and well-being of his labourers—the influence of the connection between landlord and tenant on the cultivation of the land—are discussed with ability; and among other topics of a practical nature the difficulties of Potato cultivation are alluded to.

Miscellaneous.

Relation of Soil to Plants.—It was seen that, on the same soil, the application of the same substance—for the sake of simplicity, suppose it a saline substance—promoted the growth of one crop and not of another. If Clover and Wheat, for example, grew on different parts of the same field, it was seen that gypsum or common salt would greatly increase the luxuriance of the one, while it caused little or no change in the appearance or produce of the other. Something, therefore, must depend upon the kind of plant which is grown upon it, as well as upon the chemical constitution of the soil itself. There must be some as yet unknown chemical relation between the crop to be grown and the manure which could be beneficially applied to it. What was the nature of this relation? If discovered, might it not be brought to bear advantageouly upon practice? These new questions gave rise to new, refined, and tedious chemical investigations into the nature and composition of plants, and of their several parts. A new field was open to the view, on which much labour has already been expended, from which much knowledge has been reaped, but by far the largest proportion of which is as yet wholly unexplored. We shall briefly glance at the points which may already be considered as in some degree established. 1. All plants, like all productive soils, consist of an organic or combustible, and an inorganic or incombustible part. The difference, in this respect, between the plant and the soil is, that the latter contains only from 3 to 10 parts, the former from 90 to 98 parts of combustible matter. 2. That the incombustible part or ash of the plant contains a sensible quantity of from 8 to 11 different substances—these substances being the same exactly as are found in all fertile soils. 3. That though these substances are all present in all our cultivated crops, yet that some of them are more abundant in some plants than in others—and in some parts of the same plant than in other parts. Thus in some vegetables lime abounds; in others, magnesia; in others, potash and so on; while in one part of a plant much silica, in another much bone earth may be uniformly present.—*Progress of Scientific Agriculture; "Edinburgh Review," January*, 1845.

French Agriculture.—The *Presse* publishes some extracts from a work presented to the Agricultural Congress now sitting at the Palace of the Luxembourg, by the author, M. Catineau Laroche, and entitled, "France and England compared with respect to Agricultural, Manufacturing, and Commercial Industry, and the consequences to be deduced from this comparison." It appears from this work that England, in comparison with the extent of its surface, possesses four times more cattle than France. And as it is not possible to pursue a judicious system of agriculture without manure, and as the feeding of cattle is the most productive of supplying manure, it follows that before France can compete with England in agricultural wealth, she must increase her stock of cattle, but in order to do so she must increase her pasture-lands or meadows. "France," ssay M. Laroche, "possesses but 4,200,000 hectares of natural meadows, or only 1-16th of her cultivated soil. From this calculation it may be easily comprehended how insufficient is her supply of green food, and that it becomes absolutely necessary that she should substitute another to the triennial system at present in use." M. Laroche concludes by stating, that "if the alternate system of cultivation pursued in England was introduced into France, the produce of corn would be doubled within 20 years. 55 years since the produce of Great Britain was estimated by Arthur Young at 3 milliards. At present it is estimated at 5 milliards—725,000,000. —*Daily Paper.*

Notices to Correspondents.

Linseed Jelly—*Subscriber*—Boil 4 lbs. of Linseed in every gallon of water; when it cools it will form a jelly.

Making Manure—*Constant Reader*—You should get it turned twice, and filled into carts when made, for 3*d.* per cubic yard, as it is in the heap, a fortnight after the last turning.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, Monday, May 26.—Per stone of 8 lbs.

Best Scots, Herefords, &c. 4s 4 to 4s 6	Best Long-wools - - —s to —s		
Best Short Horns - 4 2 4 4	Ditto (shorn) - 4 4 4 6		
Second quality Beasts - 3 4 3 8	Ewes and second quality — —		
Calves - - - - 4 0 4 8	Ditto (shorn) - 3 8 4 2		
Best Downs & Half-breds — —	Lambs - - - - 5 0 6 0		
Ditto (shorn) - 4 6 4 8	Pigs - - - - 3 8 4 6		

Beasts, 2744; Sheep and Lambs, 26,350; Calves, 131; Pigs, 333.

The late high prices have had the effect of bringing together many Beasts of middling quality, and the increase of numbers has caused a slight reduction in price, although, we think, there is still a large deficiency in the weight of meat. A few of the choicest Scots have, however, made 4s. 8d.; other descriptions are decidedly lower.—In Sheep we have rather a better show, both as regards numbers and quality; and there is a consequent reduction in most qualities of about 2d. per 8lbs. Good old Downs are, however, still scarce, and some have made quite 4s. 10d.—Veal is a brisk trade at late rates.—Lamb trade is hardly so brisk, but prices are nearly the same.—Pork trade is brisk.

Friday, May 30.

We have an average supply of Beef to-day, and of pretty good quality; there is a depression in the trade, although the best qualities make very little less than on Monday. Second-rate are not so saleable, and make about 2d. per 8lbs. less.—Good Sheep are not more plentiful, and make the same as on Monday.—Lamb is lower; the best qualities 5s. to 5s. 4d.; but a large proportion of the supply is very interior, and sold at low prices.—Veal trade is hardly so good, still a choice Calf makes 4s. 8d.—Pork is lower, owing to the weather being warmer; prices range from 3s. 4d. to 4s. 4d.

Beasts, 950; Sheep and Lambs, 8360; Calves, 251; Pigs, 800.

4*l*, West Smithfield.

COVENT GARDEN, May 31.—The market this week has been pretty well stocked with garden produce of better quality, and trade has been somewhat brisker. Pine-apples, of good quality, are offered at last week's prices. Grapes are good and more abundant, and the supply of Peaches and Nectarines has also been larger than that of last week, the prices being slightly reduced. Cherries are still far from being plentiful; they may be bought at from 8*s.* to 15*s.* per lb. A few Melons have been offered, the best of which brought about 12*s.* each. Good dessert Apples fetch 21*s.* per bushel, and the best samples of Pears about 10*s.* per bushel. Gooseberries are much larger, and there are some Currants in a few of the stalls. Oranges are somewhat scarcer. Among Vegetables, the chief novelties are a considerable quantity of new Potatoes from Lisbon, which are said to be of good quality; some good samples of Cauliflower; and a small quantity of Green Peas, the latter fetching about 6*s.* a punnet. Carrots and Turnips of the present year are now getting of a tolerable size; a considerable quantity of the latter has been supplied from Cornwall. Broccoli is not very plentiful, and Asparagus is also less abundant. Cabbages are sufficient for the demand. Rhubarb is scarcer, and Seakale is not quite so plentiful. Mushrooms have not altered in price since last week. Lettuces and other salading are pretty well supplied. Among Cut Flowers we noticed Stephanotus floribundus, Clerodendron fragrans, several varieties of Erica, Boronia denticulata, Rhododendrons, Tulips, Verbenas, Lily of the Valley, Heliotropes, Forget-me-Not, Calceolarias, Carnations, and Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 12*s*	Gooseberries, green, p. hf. sieve, 4*s* to 6*s*
Grapes, Hothouse, per lb., 2*s* to 3*s*	Chesnuts, per peck, 6*s* to 8*s*
— Spanish, per lb., 1*s* 6*d* to 2*s*	Walnuts, per bushel, 16*s* to 20*s*
— Portugal, per lb., 1*s* to 4*s*	Oranges, per dozen, 1*s* to 2*s* 6*d*
Peaches, per doz., 10*s* to 24*s*	— per 100, 6*s* to 16*s*
Nectarines, per doz., 10*s* to 24*s*	— bitter, per 100, 8*s* to 20*s*
Cherries, per lb. 8*s* to 15*s*	Lemons, per dozen, 1*s* to 2*s*
Apples, Dess, per bush., 12*s* to 21*s*	— per 100, 6*s* to 15*s*
— Kitchen, per bush. 7*s* 6*d*	Almonds, per peck, 6*s*
Pears, Dess., per hf.-sv., 7*s* to 10*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*	Cob Nuts, per 100 lbs., 120*s* to 160*s*
Melons, 6*s* to 1.*s* each	Nuts, Barcelona, 24*s*
Pomegranates, per doz., 2*s* to 4*s*	— Brazil, 20*s*
Strawberries, per oz., 6*d* to 1*s*	— Spanish, 2*s*
Apricots, green, per pottle, 1*s* 6*d* to 2*s*	— Cob, 16*s*
Currants, green, per pottle, 9*d* to 1*s*	

VEGETABLES.

Cabbages, per doz., 1*s* to 2*s* 6*d*	Leeks, per doz., 2*s* to 3*s*
— red, per doz., 4*s* to 12*s*	Garlic, per lb., 3*d* to 10*d*
— plants, per doz. bnch., 2*s* to 4*s*	Onions, per bunch, 3*d* to 6*d*
Broccoli, per bundle, 1*s* to 4*s*	— large, per bushel, 7*s* to 12*s*
Cauliflowers, per doz., 6*s* to 8*s*	— Spanish, per doz., 1*s* 6*d* to 4*s*
French Beans, per 100, 3*s* to 4*s*	Shallots, per lb., 6*d* to 10*d*
Sorrel, per hf.-sieve, 9*d* to 1*s*	Lettuce, per score, Cab., 6*d* to 1*s* 6*d*
Jerusal. Artichok, p. hf.-sv., 1*s* 6*d* to 2*s*	— Cos, 1*s* to 2*s* 6*d*
Potatoes, per ton, 40*s* to 90*s*	Celery, White, per bunch, 1*s* to 3*s*
— cwt., 2*s* to 5*s*	— Red, per bunch, 1*s* to 2*s*
— bushel, 1*s* 6*d* to 3*s*	Radishes, per doz. hands 6*d* to 1*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	Mushrooms, per pottle, 4*d* to 9*d*
— Autumn, per lb., 3*d* to 6*d*	Small Salads, per punnet, 2*d* to 3*d*
— New, per lb., 1*s* to 2*s*	Basil, green, per bunch, 6*d* to 9*d*
Turnips, per bch., 9*d* to 2*s* 6*d*	Fennel, per bunch, 2*d* to 4*d*
Red Beet, per doz., 2*s* to 6*s*	Savory, per bunch, 2*d*
Carrots, per doz. bchs, 3*s* to 12*s*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Rhubarb, per bundle, 4*d* to 1*s* 6*d*	Parsley, per half sieve, 1*s* to 1*s* 6*d*
Seakale, per punnet, 6*d* to 2*s*	— Roots, per bundle, 9*d*
Asparagus, per bundle, 3*s* to 8*s*	Tarragon, per bunch, 4*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Mint, per bunch, 6*d* to 1*s*
Cucumbers, per brace, 1*s* to 4*s*	Marjoram, per bunch, 9*d*
Spinach, per sieve, 1*s* to 2*s*	Chervil, per punnet, 3*d* to 4*d*
Parsnips, per doz., 6*d* to 1*s* 6*d*	Basil, per bunch, 2*d* to 3*d*

MARK-LANE, Friday, May 30.

The arrivals of English Wheat up to our market this week having been again very moderate, the show of samples of that grain here was small. Selected qualities commanded a steady sale, at fully Monday's quotations, but the middling and inferior kinds were a slow inquiry. In fine Foreign Wheat rather more business was transacted, at extreme quotations. The best parcels of Barley moved off steadily, other kinds slowly, at late rates. Malt was a dull sale, yet prices were generally supported. Oats, Beans, Peas, and Flour were quite as dear.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	42	49	Red .	42	48
—— Norfolk, Lincolnshire, and Yorkshire .	—	—	White	—	—
Barley, Malting and distilling 25s to 29s	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . .	Polands	20	23	Feed	19	22
—— Northumberland and Scotch . .	Feed	20	22	Potato	21	24
—— Irish	Feed	20	23	Potato	21	23
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new 29 to 34	Tick	30	36	Harrow	31	37
—— Pigeon, Heligoland . 36 to 40	Winds	—	—	Longpod	—	—
Peas, White . . . . 33 to 37	Maple	35	37	Grey	30	33

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	3850	1310	2330	4560 Sks
Irish . .	—	—	10,950	—
Foreign . .	3790	4410	13,400	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
April 19 per Quarter.	45s 11d	31s 11d	21s 4d	32s 1d	35s 1d	36s 1d
— 26 . . .	45 11	31 6	20 11	30 2	35 9	36 1
May 3 . . .	46 0	31 2	21 4	29 9	36 1	36 0
— 10 . . .	45 10	30 5	21 6	31 4	37 1	36 8
— 17 . . .	45 9	30 0	21 9	29 7	37 3	37 10
— 24 . . .	45 3	32 5	20 9	30 6	35 5	36 6
6 weeks' Aggreg. Aver.	45 11	31 3	21 3	30 7	36 1	36 6
Duties on Foreign Grain	20 0	7 0	6 0	10 6	6 6	6 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 24.

Price.	April 19	April 26	May 3	May 10	May 17	May 24
46*s* 5*d*	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 11 —	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..

POTATOES.—Southwark, Waterside, May 26.

The weather during the past week has been cold and stormy, and the arrivals to this Market limited; notwithstanding, the stale and ordinary lots of Scotch and Yorks were sold at from 35*s.* to 40*s.* per ton, but at the close there was an advance on the best fresh samples of Perth Reds, and some cargoes were selling at from 50*s.* to 55*s.* per ton; but, in consequence of there being several cargoes of stale goods forced upon the Market, there was but few sales effected at the advanced prices.

York Reds - -	30*s* to 75*s*	Wisbeach Kidneys -	-	55*s* to 65*s*	
Perth - - -	35	55	— Blues -	-	40 —
Fifeshire - -	—	—	— Regents -	-	— —
Early Devons - -	—	—	— Whites -	-	40 50
Late Devons - -	—	—	Guernsey Blues -	-	60 —
Cornwall - - -	—	—	— Whites -	-	— —
Jersey Blues - -	60	—	York—Prince Regents	-	50 55
— Whites - -	—	—	— Blues -	-	— —
Kent and Essex Whites -	—	—	— Shaw's -	-	— —
— — Kidneys	70	—	Irish Whites -	-	— —
Dutch Whites - -	—	—			

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 30.

Prime old Meadow Hay	110*s* to 115*s*	New Hay —*s* to —*s*	Clover	100*s* to 120*s*	
		Inferior Hay 95 105	Straw	38	42

John Cooper, Salesman.

CUMBERLAND MARKET, May 29.

Superior Mead. Hay	115*s* to 120*s*	Superior Clover	115*s* to 120*s*		
Inferior - 97	108	Inferior „ 105	110	Straw	38*s* to 42*s*
New Hay - —	—	New Clover —	—		

Joshua Baker, Hay Salesman.

WHITECHAPEL, May 29.

Fine Old Hay -	108*s* to 112*s*	Old Clover	126*s* to 130*s*		
New Hay - 90	100	New Clover —	—	Straw	36*s* to 42*s*
		„ Inferior 110	120		

HOPS, Friday, May 30.

The Market is very firm. The accounts from the plantations state the fly gradually increases, but that the wet and cold rots the progress of both bine and vermin.

Pattenden & Smith, Hop Factors.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on TUESDAY, JUNE 3d, THURSDAY 5th, and following day, at 12 o'clock each day, about ONE THOUSAND DAHLIAS, comprising all the new varieties of the season. Also a splendid assortment of GERANIUMS and other Plants in bloom; the newest varieties of FUCHSIAS, VERBENAS, HEARTSEASE, and a great variety of other plants for turning out in clumps. May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, Leytonstone.

TO GENTLEMEN, FLORISTS, AMATEURS, and Others.

MR. JAMES IZOD will sell by Auction, on the premises of Mr. WM. ALEXANDER, Florist, Lea-bridge-road, Upper Clapton, on MONDAY, June 2, at 12 for 1 precisely, without reserve, a SUPERB COLLECTION OF TULIPS IN BLOOM, comprising the most esteemed Varieties; among which may be named Brulante, Eclatante, Rose Brilliant, Lavinia, Princess Sophia of Gloucester, Claudina, Madame Vestris, Dutch Poneau, Lady Louisa, Thalia, Musidora, Parmegiano, Louis XVI., Superbeu Noir, Violet Alexander, Leonardi da Vinci, Carlo Dolci, Lady Collingwood, Duke of Bedford, and many splendid new-broken flowers only in this collection, with a quantity of selected Breeders, Greenhouse Plants, &c. &c. May be viewed, and Catalogues had on the premises, at the place of sale, of Messrs. HURST and McMULLEN, Seedsmen, Leadenhall-street, WARNER and Co., Cornhill, R. FENNESSEY, Newington Causeway; at the Auction Mart, and of Mr. IZOD, at his offices, the Sheriff's Sale Rooms, 46, Watling-street, City.

MR. BROWN'S SUPERB TULIPS.—Mr. GLENNY, who is instructed to sell these by Auction, without reserve, on Tuesday the 3d of June, on the premises, at Slough, will forward Catalogues, by return of post, in answer to all applications addressed to him at the *Gardeners' Gazette* Office, 2, Tavistock-street, Strand.

TO FLORICULTURISTS.

TO BE SOLD, by Private Contract, a valuable Collection of TULIPS, comprising the finest specimens; also plants of CACTUS MONSTROSUS, ALOES, &c.; situate at Islington, the property of an eminent connoisseur, deceased. May be viewed by cards, with descriptions, to be had on application to Mr. E. E. STONE, Auctioneer, 83, St, John-street, near West Smithfield. Letters for cards to inclose a postage stamp.

MAIDENHEAD, BERKS.

TO BE SOLD, and entered on at Midsummer next, THE LEASE OF NURSERY GROUNDS, With a GOOD SEED TRADE well established, and doing a considerable business; with a good stock of Fruit, Forest Trees, Shrubs, Greenhouse, Pits, &c. The reason for disposing of the above is the unexpected death of the late proprietor.

For further particulars, apply to the Widow, Mrs. WAKERILL, Maidenhead,

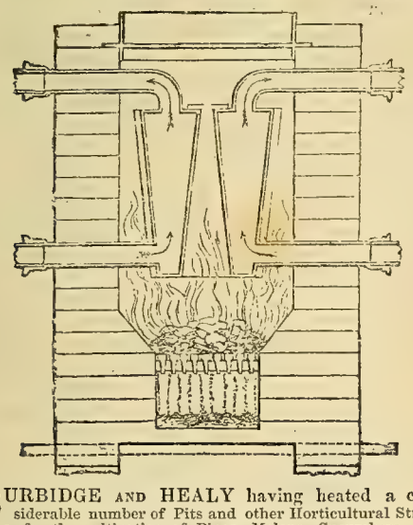
TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

For Particulars, apply to F. and A. MACKIE, Norwich.

TO FARMERS, AGRICULTURISTS, AND OTHERS.

NOTICE.—£30,000 to be lent on MORTGAGE of ELIGIBLE LANDED SECURITIES, Freehold, Copyhold, and Leasehold Property; also on good personal security. Livings, &c., in sums not less than 150*l*.—Apply (by letter, post-paid, stating full particulars) to Mr. JOHN E. BENNETT, Accountant, 36, Throgmorton-street, London.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,
(And at Southwark-bridge Iron Roof and Building Works.)

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

GUANO.—Genuine GUANO (Peruvian and African) on SALE, at SWAYNE and BOVILL'S Bonded Warehouses, Mill-wall, Poplar, where the stock may be inspected as imported.—Apply as above, or at 19, Abchurch-lane, City.

GUANO.—GENUINE PERUVIAN and ICHABOE GUANO, of the finest quality, is now selling from the Importer's Bonded Warehouses, and will be shipped coastwise or forwarded by land carriage in quantities to suit the convenience of farmers upon application to Mr. T. N. KERR, 57, Lime-street, London. The genuineness of the article may be confidently relied on, but samples and analysis will be forwarded if required.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London;—or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, May 24.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully,
J. W. KELSEY.

The price 9*d*. per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s*. 9*d*. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s*. per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s*. per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition. Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

BRAIN'S GYPSUM, 23*s*. per Ton, Good and Cheap.

No. 397. April 24, 1845.—This is to certify that we have examined a sample of Gypsum sent by Mr. BRAIN, of Thomas-street, Stamford-street, and find it contains

Sulphate of Lime	94·10
Water	5·00
Carbonate of Lime	·90
Animal Matter and Soda	Traces.
	100·00

(Signed) MITCHELL & FIELD.
5a, Hawley-road, Kentish-town, London.
Delivered free of Cartage to any Wharf or Railway in Town.

POTTER'S GUANO SUPERIOR TO PERUVIAN, proved by the following TESTIMONIAL just received:—

"Arthurstown, April, 1845.—Last season I distributed a large quantity of Guano, principally Peruvian, to the tenantry, to induce them to get into the green cropping system. I also ordered two tons of yours, through a Waterford house. It proved a good article, indeed, *much superior to the best Peruvian*.—Yours most obediently, WM. LUMSDEN."

"To Mr. Potter, 28, Upper Fore-street, Lambeth."

The price of POTTER'S GUANO is now much under that of Peruvian, and those who study economy will give it the preference. Mr. POTTER has also testimonials from Lord Zetland, Mr. C. Porcher, of Cliffe, Weymouth, and others, proving the superiority of his Manure over the Peruvian Guano, which commands so high a price.

Orders addressed as above instantly attended to, and a very considerable allowance made when a quantity is taken.

POTTER'S LIQUID GUANO, sold by Chemists and Seedsmen, 1*s*. 9*d*. per Quart Bottle, with directions.

THE URATE of the LONDON MANURE COMPANY.—Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

PURE GYPSUM, precipitated from a solution of Lime by Sulphuric Acid; being in a very finely divided state, it is better adapted for the various purposes for which it is employed in Agriculture, such as fixing Ammonia, and as a top-dressing for Clover, &c., price 2*l*. per ton.

Superphosphate of Lime, 7*l*. per ton.

At Mr. LAWES' Factory, Deptford Creek.

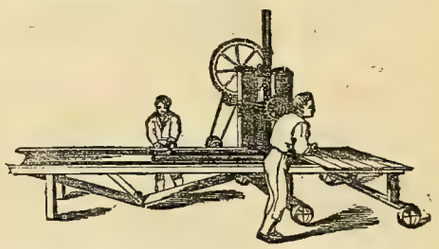
LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

HATCHER'S BENNENDEN TILE MACHINE Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the Machine includes free use of it.

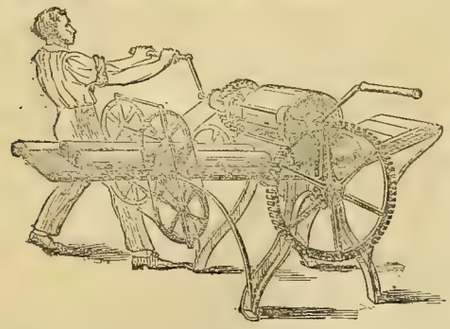
HAY-MAKING SEASON.—Mrs. MARY WEDLAKE widow of the late Thomas Wedlake, of the Fairkytes Original Iron Works, Hornchurch, Essex, and 118, Fenchurch-Street, opposite Mark Lane, London, begs to remind Agriculturists she continues making that most useful Implement for which her late husband obtained a patent, and received a Silver Medal at the Derby Show, the Double-action Hay-maker, so much admired; also the Horse Hay-rake; they may be inspected daily at the City Repository for Agricultural and Colonial Implements, 118, Fenchurch-street, opposite Mark Lane, London. N.B. To prevent disappointment at this season, an early application for these Implements is solicited.

PATENT HAND PIPE AND TILE DRAINING MACHINE, invented by WILLIAM BULLOCK WEBSTER, Esq., of Hounsdown, near Southampton. This machine is made entirely of iron, weighs about 8 cwt., occupies a small space, is very simple, easily moved between the hacks, turned by a man or boy, and will make tiles or pipes of any shape, size, thickness, or length, of the most perfect description. It has two receptacles for clay; while the tiles are being forced out of one side the other is filled, so that no time is lost, the piston acting both ways, and from its peculiar construction, the confined air does not injure the tiles, therefore requires less care in filling. One or both sides may be used as a pug-mill, freeing the clay from all stones and roots, and in the winter season will be found serviceable for preparing clay, and other purposes, on a farm. By the simple cutting apparatus, each tile is made exactly the same length.

One of the machines may be seen, with specimens of tiles, at the Polytechnic Institution, Regent-street, or in constant work at the Inventor's Tile-yard, Hounsdown, near Southampton where any further information can be obtained, by application to the foreman, John Ives, or by letter to the Inventor.

Webster's Draining Levels manufactured and sold by J. COX, Optician, 128, Holborn Hill.

THE PATENT ECONOMIC TILE MACHINE having been on view, at work, in London, for five weeks, is now removed to Mr. BAILEY DENTON'S offices, No. 9, Gray's-inn-square, where it can be seen daily, between the hours of 10 and 4; price, 20*l*. Orders received by Mr. DENTON, Gray's-inn, by Mr. CHARNOCK, or the Makers, Wakefield. The "A" Level for Draining, can also be seen at the above address; price 30*s*.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l*. No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l*. The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s*. to 3*s*., or 3*s*. 6*d*. per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

THE BEST AND MOST DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THOMAS JOHN CROGGON, of 2, INGRAM-COURT, FENCHURCH-STREET, LONDON, begs to call the attention of Noblemen, Gentlemen, the Trade, and the Public, to

THE PATENT ASPHALTE FELT, FOR ROOFING,

as improved by the original Inventor and Patentee, and patronized by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland. The New Committee Rooms of the House of Commons are entirely covered with it; and it has been used for several years at the

ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK.

This Felt is greatly superior to every other description of Felt in the market, being principally made of Hair, and saturated entirely with Asphalte, without any mixture of Pitch, Tar, or Rosin, and is consequently much more durable, and a much better non-conductor of Heat, and is guaranteed to be the only "PATENTED ASPHALTE FELT."

The PATENT ASPHALTE FELT, for ROOFING, is perfectly impervious to Rain, Snow, and Frost, and a non-conductor of Heat, and has been proved, by a long and extensive experience in all climates, to be superior to all other descriptions of Roofing, not only on account of its Elasticity, Lightness, Economy, and Durability, but also because it is the only perfectly weather-tight covering, and can be laid on with so much facility by Farm Servants, or any unpractised persons.

Of the many purposes for which the Patent Asphalte Felt has been used, the following may be mentioned:—For Roofing Churches, Houses, Cottages, Verandahs, Farm Buildings, Cattle and Sheep Sheds, and every description of Building, in lieu of Slates, Tiles, Thatch, &c., and for lining Granaries and Stories (as rats or mice will not touch it), and the inside and outside of Walls and Wooden Buildings, and for protecting Ceilings under Flooring from Wet and Damp, at the same time deadening sound. For covering Conservatories, and Garden Sheds and Frames, being (from its imperviousness to frost) a protective material for Plants, Seeds, Flowers, &c., and for Thatching Corn and Hay Ricks, making a permanent covering for many years, and thereby effecting an annual saving of Straw; and for Exportation to the Colonies, being, on account of its portability and cheapness, indispensable to the Emigrant.

The price of the Felt is only 1*d*. per Superficial Foot, or 9*d*. the Square Yard, being considerably less than half the price of Slates, Tiles, Thatch, &c. There is also a very great saving in the wood-work, as the Felt, from its lightness, does not require half the weight of timber that slates or tiles do, nor does it require nearly so much fall or descent; and there is a further saving in the expenses of carriage and labour—in the latter particularly, as a moderate-sized house can be roofed in with the Felt in a few hours; nor is it like slates, &c., liable to breakage. The Felt can be manufactured of any required length by 32 inches wide, and parties sending to No. 2, INGRAM-COURT, FENCHURCH-STREET, LONDON, can have it cut off from the machines to suit the dimensions of their roof.

THOS. JNO. CROGGON.

*** There is no other Patent Asphalte Felt Company in the United Kingdom.

SHETLAND LIVE STOCK.—The OXEN are very hardy, and good feeders; the beef of the finest quality; weight, when fatted, 50 to 70 stone. The COWS are pretty little creatures for small family dairies; they are about 40 inches high, and give rich milk. They are imported at a very moderate price. Apply to EDWARD STANDEN, 28, High-street, Oxford; where, and at the Shetland Warehouse, 112, Jermyn-street, London, the many articles of Clothing knitted by the Shetlanders, may be obtained.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

MESSRS. DANIELL, HUTCHINSON & CO., having completed their extensive works for manufacturing

DANIELL'S PATENT CORNWALL WHITE MANURE,

respectfully announce that they are delivering the same for the present Turnip season. The experiments upon various White and Green Crops of the preceding year have established its title to one of the first Manures of the day, to which fact several eminent Agriculturists testified at the late East Penwith Agricultural Meeting. Besides its possessing all the essential qualities of Bone-dust, with the advantage of being capable of application to the soil with great ease and expedition, it exerts an important chemical action upon clays. Such soils disintegrate and liberate their potash with much less facility than silicious soils; the Patent Manure renders it more soluble, and hence proves a valuable dressing after subsoil ploughing. It hastens the decomposition of peat, leaves, and all other vegetable matters, converting them into humus or mould, and this again is resolved into carbonic acid, and is thus fitted for immediate assimilation by the young plant. It neutralises the acids forming salts of lime. It also decomposes certain salts of iron injurious to vegetation, such as the protosulphate of iron (so abundant in many soils), forming the sulphate of lime of gypsum, and liberating the iron as an harmless oxide. It reacts upon salts of alumina, potash, soda, magnesia, and ammonia; and its action upon slate, felspar, &c., developes alkalies and soluble silicates, so essential to Wheat and other corn crops; and, above all, it furnishes the plants with lime in its purest form, and phosphoric and silicic acid, so necessary to the perfection of the grain and straw. When acted upon by rain, it forms a solution which is destructive of animal life, destroying the germ of the Earth, Flea Beetle (the Turnip-fly), and other noxious worms, thus rendering it the most valuable Manure for the Turnip crop.—Agent, THOS. JNO. CROGGON, 2, Ingram-court, Fenchurch-street.—London, May 31, 1845.

Price 40*s*. per ton.

DRAIN TILE MACHINE.

MR. H. CHAMBERLAIN, of Bredicot, near Worcester, having lately invented a small TILE MACHINE, the sale of which has hitherto been principally confined to large practical Manufacturers (a strong testimonial of its efficiency), and is considered well calculated for all the small yards of the kingdom, has been advised publicly to invite the attention of those gentlemen to it who wish to have the most economical and effective yet introduced, and to test its capabilities by sending a small box of their Clay, with a competent person to inspect its performance. This Machine is portable, and so simple in construction, that any man can, in a few minutes, proceed to work as readily as though he had been long accustomed to it; and another important peculiarity is, it possesses ample power and makes a better Tile, at less expense of labour, than any other; as any boy of 16 can express the tiles or pipes through the dies without being laborious, as quick as four or five others can remove them, and uniformly cut the same length. Some of these Machines were purchased, and are now successfully working in the same yards with the most costly and popular Patents of the day, with their seignorages. The above will make from 12,000 to 14,000 Pipes per day, of one inch bore, and 8000 of one inch and a half. Price of Machine, all iron, with Dies and Mandrells complete, 20*l*. It can be seen daily at his Tile Works, adjoining the Spetchly Station of the Birmingham and Gloucester Railway.

AYRSHIRE COWS, now having their first calves, the property of a gentleman for whom they were selected in the autumn. They are very handsome, and recommended as particularly good for private families. Any of them will be sold with a warranty at 14*l*. each; there are 20 of them. Apply to JAMES WHITE, Spring Park, near Croydon.

ORNAMENTAL WIRE-WORK.

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*** Rye differs from Wheat in having very small narrow glumes, and the centre floret of each spikelet constantly imperfect.

HORDEUM.

Spikelets in pairs or threes, 1-flowered. Glumes 2. Paleæ 2, the lower awned at the apex. Scales obtuse, fringed. Styles feathery. Ovary villous at the end.

1. H. *hexastichon* (*Six-rowed Barley, Winter Barley, Bere, or Bigg*). Spikelets all fertile, arranged in 6 rows. Grain adhering to the paleæ. ——— *Fields.*

2. H. *distichum* (*Two-rowed or common Barley*). The middle spikelets only fertile, the two lateral of each cluster barren and beardless. One palea of the middle florets furnished with a very long awn. Grain adhering to the paleæ. ——— *Cornfields.* This is the sort of barley commonly grown in England. It prefers light land. Bread is sometimes made from its flour; but it is chiefly used for malting, previously to being fermented for beer. Malt is the grain of barley forced to germinate, by which it acquires sweetness, and then kiln dried.

3. H. *murinum* (*Wall Barley*). Lateral flowers barren. Glumes of the intermediate ones lanceolate, fringed. Grain adhering to the paleæ. ——— *Walls and waste places.* A worthless weed.

*** Barley differs from Rye, which it somewhat resembles, in having its spikelets one-flowered only, and constantly



Fig. CCXLI.



Fig. CCXLII.

Fig. CCXLI. Hordeum distichum with 3 spikelets separate, of which the two lateral are sterile, and the central only perfect.
Fig. CCXLII. Secale Cereale with a spikelet separate.

umbel, while the involucels at the base of the partial umbels consist of many bracts.

The manner in which flowers are arranged is called their *inflorescence.* It is a sort of branching, and has different names, according to the manner



Fig. XXXVII.



Fig. XXXVIII.



Fig. XXXIX.

in which the branches are arranged. The principal kinds are these:—1. The *capitulum*, or *flowerhead*, when all the flowers are sessile upon a broad plate called a *receptacle*, as in the Daisy (Bellis perennis). 2. The *umbel*, when the pedicels all radiate from one point, as in the Cherry (Fig. XL.); this is called compound, when each ray of the umbel is itself umbellate, as in the Fool's Parsley (Æthusa Cynapium, Fig. XXXIX). The *spike*, when the flowers are sessile along a common peduncle, or axis, as in Ribgrass (Plantago lanceolata). 4. The *raceme*, when the flowers are all stalked along a common axis, as in the Currant. 5. The *corymb*, when the flowers of a raceme are all on the same level, as in Candy Tuft (Iberis). 6. The *panicle*, when the pedicels of a raceme are themselves branches, as in the Fiorin Grass (Agrostis stolonifera). 7. The *cyme*, when a panicle is corymbose and irregularly contracted, as in the Elder-tree (Sambucus nigra, Fig. XLI.) A *spadix* is the inflorescence inclosed in a spathe (Fig. XXXVIII.;) an *amentum*, or *catkin*, is a



Fig. XL.

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ROWLAND'S ODONTO, OR PEARL DENTRIFICE, patronised by Her MAJESTY, H.R.H. Prince ALBERT, the Royal Family, and the several Courts of Europe. A FRAGRANT WHITE POWDER, prepared from Oriental Herbs of inestimable virtue, for strengthening, preserving, and cleansing the teeth. It eradicates the factitious formation of tartar, and, by the removal of that extraneous substance, lends a salutary growth and freshness to the gums. It removes from the surface of the teeth the spots of incipient decay, polishes and preserves the enamel, substituting for discolour and the aspect of impurity, the most pure and pearl-like whiteness; while, from its salubrious and disinfecting qualities, it gives a sweetness and perfume to the breath, bestowing at once cleanliness, and the appearance and reality of health. Price 2*s.* 9*d.* per box, duty included.

CAUTION.—To protect the public from fraud, the Hon. Commissioners of Her Majesty's Stamps have authorised the Proprietors' Signature to be engraved on the Government Stamp, thus,—A. ROWLAND and SON, 20, Hatton Garden, which is affixed to each Box. Ask for ROWLAND'S ODONTO. Sold by them, and by Perfumers and Chemists.

*** All others are SPURIOUS IMITATIONS.

ELECTRO-PLATING AND GILDING.—OLD PLATED GOODS RESTORED and made equal to new by Messrs. ELKINGTON and Co.'s Patent Process. This process being carried on in London *only* by Messrs. ELKINGTON & Co., it is particularly requested that all goods may be forwarded direct to their Establishments, 22, Regent-street (corner of Jermyn-street); or, 45, Moorgate-street, City. New Goods plated upon White Metal in great variety. Books of Prices and Drawings sent to all parts of the Kingdom and abroad free.

PATENT ELECTRO-PLATED AND GILT ARTICLES in every variety, at the Establishment of the Patentees, ELKINGTON & Co., West End—22, Regent-street, corner of Jermyn-street; City—15, Moorgate-street. The Patent Electro processes being extensively adopted under their licence, the Patentees beg to state that they confine their own Manufacture to goods of a superior and warranted quality only, which invariably bear their mark, "E. & Co.," under a crown. Old articles replated and gilt.

MEEN FUN, the celebrated Chinese Cosmetic, Patronised by the Queen and the Royal Family.—The great value of this Cosmetic is, that the ingredients being solely herbaceous the most delicate complexion can apply it without injury, while rough, red, and moist skins speedily experience beneficial results. Another most important feature is that of repressing, without detriment to the sanatory condition of the user, the truly unpleasant sensation accompanying too copious perspiration. Travellers and residents in warm climates, subject to the enervating influence of tropical heat, will, when the skin becomes moist and heated, experience inconceivable comfort by resorting to this Cosmetic, as it will both allay and avert discoloration and coarseness. Sold retail by all respectable perfumers, chemists, &c., in boxes price 3*s.* 6*d.* and 7*s.* 6*d.* each, and wholesale by the Proprietors, FABIAN and Co., late Watson, Fabian, and Co., 24, Mark-lane, London. Country agents required.

A FRIGHTFUL CASE OF A BAD LEG CURED BY HOLLOWAY'S OINTMENT AND PILLS!
Mr. Thomas Clarke, a retired Captain from the South Sea Trade, residing in Globe-lane, Mile-end, had a bad leg for five years. There were about twenty holes in it; several pieces of bone had come away. The limb was often the size of a child's body; it had frequently caused the most excruciating pain. The Captain was told that his leg must be amputated; but he, like hundreds of others, has just got it soundly healed by means of these surprising remedies, which are infallible in the cure of all Wounds, Sores, and Ulcers. Sold at Professor HOLLOWAY'S Establishment, 244, Strand (where advice may be had gratis); and by all respectable vendors of medicine throughout the civilised world.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLET EVANS of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office No 5 Charles-street, in the parish of St Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, May 31, 1845.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1845.] SATURDAY, JUNE 7. [Price 6*d.*

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A GRAND FLORAL AND HORTICULTURAL EXHIBITION, under the Patronage of the Right Rev. Lord Bishop of Rochester, and the Nobility and Gentry of the Neighbourhood, will be held in the Grounds of the White Hart Hotel, Bromley, Kent, on Tuesday, the 10th of June, 1845, in aid of the Funds of the GARDENERS' BENEVOLENT INSTITUTION. The Bands of the Royal Artillery and Sappers and Miners will be in attendance.

P.S. Tickets 2*s.* 6*d.* each until the 7th of June, after which they will be charged 3*s.* 6*d.* May be had at the White Hart Hotel, Bromley; the Crown Hotel, Sevenoaks; the Crown Hotel, Tonbridge; the Kentish Hotel, Tonbridge Wells; the Bull Hotel, Dartford; the Green Man Hotel, Blackheath; the Greyhound Hotel, Croydon; the King's Arms, Kent-road; the King's Arms, Westerham; the Tiger, Foot's Cray; and at Mr. Beaver's Library, Nelson-street, Greenwich. S. Osborn, Secretary.

GRAND EXTRA HORTICULTURAL FETE AT CAMBRIDGE, on Friday, the 20th of June, 1845, during the meeting of THE BRITISH ASSOCIATION. In addition to the List of Prizes offered in the Annual Circular of the Cambridgeshire Horticultural Society (the competition for which is limited to its members), the following EXTRA PRIZES, OPEN TO ALL ENGLAND, will be offered, viz.:—

For the best collection of 30 plants (either hardy, greenhouse, or stove varieties) in bloom in pots, exhibited with names—1st prize, 4*l.*; 2d prize, 2*l.* Entrance, 7*s.*

For the best collection of 20 plants (either hardy, greenhouse, or stove varieties) in bloom in pots, exhibited with names—1st prize, 2*l.*; 2d prize, 1*l.* Entrance, 5*s.*

For the best single specimen of a plant in a pot—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of 36 Roses in bunches—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best 6 Roses in pots—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Fuchsias—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Ranunculuses—1st prize, 20*s.*; 2nd prize, 15*s.* Entrance, 2*s.* 6*d.*

For the best collection of cut flowers, in a basket or otherwise—1st prize, 15*s.*; 2nd prize, 10*s.*; 3d prize, 7*s.* Entrance, 2*s.* 6*d.*

For the best collection of Pelargoniums—1st prize, 30*s.*; 2nd prize, 20*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of cut Pansies (24 varieties)—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.* Entrance, 1*s.*

For the best 1½lb. of Strawberries—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.*

For the best Melon—1st prize, 15*s.*; 2nd prize, 10*s.*

For the best basket of Vegetables—1st prize, 20*s.*; 2nd prize, 15*s.*; third prize, 10*s.*

For the 3 best Cauliflowers—1st prize, 5*s.*; 2d prize, 3*s.*

For the 3 best Lettuces—1st prize, 5*s.*; 2nd prize, 3*s.*

Entrances for Fruits and Vegetables, 1*s.* each class.

Each Exhibitor will be required to certify that the articles shown by him are of his own growth, or have been in his possession at least six weeks; and no articles can be removed from the Show till 8 o'clock in the evening.

Entrances to be made three days before the Show, and money paid to the Honorary Secretary, Sidney-street, Cambridge, where rules for exhibitors, with other particulars, may be had on prepaid application. W. G. Ashton, Hon. Sec.

SUPERB NEW CINERARIA, named "TRIUMPH." The Subscribers respectfully intimate that they possess the entire Stock of the above, grown by Mr. J. Addison, gardener to the Earl of Wemyss, Gosford, and for which, at the Spring Meeting of the C. H. S., the Committee awarded the Silver Medal, and pronounced it as of "intense brilliancy." It has also met with the entire approbation of the editor of the "Gardeners' and Land Stewards' Journal," who says it is the finest he has yet seen (*see* Third Number). An extra prize has also been awarded by the North British Professional Gardeners' Society. Plants 5*s.* each, for which early orders are requested. The usual discount allowed to the Trade when Six plants are taken.

Carstairs, Kelly, & Co., Warriston Lodge, Edinburgh.

RARE AND BEAUTIFUL COLUMBINE, &c.—The Subscribers beg to intimate that they have saved Seeds of a superb variety of AQUILEGIA GLANDULOSA. This splendid Columbine is a hardy perennial, and forms one of the most gay border plants in cultivation; it grows to the height of from 12 to 18 inches, abounding in two-coloured blossoms (blue and white), of the size and shape of the common Passion flower. Packages of about 150 seeds will be sent, free, at 1*s.* each, or for stamps of that value. Packages of Seeds of the TRUE NATIVE, or RED-WOODED PINE OF SCOTLAND, at the same rate.

John Grigor and Co.'s Nurseries, Forres, N. B.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON respectfully solicit attention to their superb and extensive Stock of FUCHSIAS and VERBENAS, Collections of which will be sent at the following prices, the selection of sorts being left to themselves.

FUCHSIAS.

12 fine varieties for ..... 6*s.* | 12 new vars. for exhibition 18*s.*
12 superior do. ..... 9*s.* | 50 fine ditto. ..... 30*s.*
12 superb ditto ..... 12*s.* | 50 new ditto for exhibition 50*s.*

VERBENAS.

12 fine varieties for ..... 5*s.*
12 superior ditto ..... 9*s.*
12 superb ditto ..... 12*s.*

PETUNIAS.

12 fine varieties for ..... 6*s.*
12 superb ditto ..... 9*s.*
12 new ditto of the present season ..... 12*s.*

A FEW SELECT PLANTS—Extracted from General Catalogue.

	s.	*d.*		Per Plant	*s.*	*d.*
Achimenes, 8 sorts, one of a sort, for	9	0	Gompholobium polymorphum		3	6
Per Plant			Grindelia viscosa		1	6
Alstrœmeria Errembaultii	3	6	Inga pulcherrima		3	6
,, flava	1	6	Lilium lancifolium album		3	6
,, nemerosa..	7	6	,, ,, punctatum		5	0
Brugmansia floribunda	5	0	,, ,, rubrum ..		15	0
Buddlea Lindleyana ..	2	6	Mandevilla suaveolens..		2	6
Centradenia rosea.....	1	6	Pimelea spectabilis		3	6
Corræa bicolor	2	0	Podostylus sphœricus ..		3	6
Dillwynia cinerascens..	1	6	Polygala Dalmaisiana, new		10	6
,, clavata	2	6	Scutellaria japonica....		1	6
Drymonia punctata	5	0	Statice Dickensonii		3	6
Franciscea latifolia	3	6	,, Reinwardtii		2	6
Gesnera Cooperi	1	6	Tetranema mexicana ..		5	0
,, discolor	5	0	Veronica speciosa.....		2	6
,, elongata.....	1	6				

W. Wood and Son's Descriptive Catalogue of FUCHSIAS and VERBENAS, also lists of Petunias, Anagallis, Miscellaneous Greenhouse and hardy Herbaceous Plants, Shrubs, and Climbers, may be had *gratis* on application.

Plants will be presented to defray the expense of carriage; a remittance or reference is respectfully solicited from unknown Correspondents.

TURNIP SEEDS.

WARNER & WARNER, Seed Merchants, 28, Cornhill, London; Established, 1720;

Beg respectfully to call the attention of the Nobility and Gentry to the following varieties, selected from Choice Stocks, which can be strongly recommended, and amongst which, the Russian Swede and Purple-top White Swede will be most desirable.

W. & W. being extensive growers of TURNIP SEEDS, selecting the first-rate varieties, purchasers will not be disappointed of a genuine article.

Pomeranian White
Green Norfolk
White Norfolk
Red Norfolk
White Globe
Green Globe
Green Barrel
Green-top Stone
White Stubble
Red Globe
Red Bullock-heart
Green-top Yellow Aberdeen
Purple-top Yellow Aberdeen
Dale's Hybrid
Warner's Green-top Russian Swedish, superior to all others, possessing more saccharine matter, and producing an increased weight per acre.
Laing's Selected Swedish
Ashcroft's Purple-top Swedish
Warner's Purple-top Russian Swedish, adapted to all soils and invaluable to the Agriculturist for its fattening qualities
Tankard Yellow Swedish
White Tankard
Red Tankard
Green Tankard
Purple-top White Swedish—this kind is particularly recommended at lambing season, as affording ewes increased milk, as well as being suitable for lambs
Dwarf Rape
With every other description of Agricultural Seeds.

Wholesale Dealers supplied upon liberal terms.

THE ALSIKE CLOVER being a new and much improved variety, partaking of the character of the Red and White Clover, is a perennial, producing an immense crop, price 2*s.* 6*d.* per lb.

IMPROVED LONG RED MANGOLD WURZEL, Yellow Globe and Red Globe ditto.

WILLIAM MASTERS having been employed during the last 30 years in the study and practice of Horticulture, begs respectfully to remind his Friends and the Public, that he has possessed constant opportunities of obtaining novelties, and therefore his collection of Plants contains a greater number of species than are usually cultivated in a Provincial Nursery,—especially

The genus Pinus and its allies.
Rhododendron, Azalea, and American plants generally.
Hybrid Rhododendrons, of vivid colours, many of which have stood the test of exposure during the late severe winter.
Roses of nearly 1000 varieties.
Geraniums of the finest modern kinds.
Calceolarias in great variety.
Cactus, Opuntias, and Succulents generally.
Orchidaceous Plants and Ferns, a large collection.
Cape and Australian Plants of many choice kinds.
Amaryllis, Crinums, Liliums, and other rare Bulbs.
A general assortment of Stove Plants.

In addition to these, the usual kinds of cheap plants, as Verbenas, Petunias, &c., employed for bedding, and a large assortment of the handsomest Herbaceous Plants, are cultivated for sale. Catalogues, with price attached, will be forwarded, postage free, upon application. Packages from 1*l.* and upwards forwarded free of expense to London, or plants added to compensate for carriage if preferred.

William Masters having had the honour to be engaged for several years as Landscape Gardener and Garden Architect by many of the Nobility and Gentry, begs again to offer his services in that capacity.—Exotic Nursery, Canterbury.

W. PRESTOE begs to inform his friends that he can now supply a limited quantity of MOREL SPAWN, at 10*s.* per basket. Dried specimens attached to some of the cakes whereon it grew, and a Treatise on the Cultivation.—N.B. Improved MUSHROOM SPAWN as usual.

Shirley Nursery, near Southampton.

GARDENIA STANLEYANA AND OTHER NEW PLANTS.

R. GLENDINNING has plants ready to send out of this Magnificent New GARDENIA, which may be seen coming into flower at his Nursery.

	£	*s.*	*d.*		£	*s.*	*d.*
Gardenia Stanleyana	3	3	0	Napoleona imperialis	2	2	0
Whitfieldia lateritia	1	1	0	Cereus crenatus	0	10	6
°Veronica salicifolia..	0	7	6	†Spiræa Douglasii....	0	3	6
Ditto New unnamed species.....	1	1	0	Gesnera Gardneriana	0	5	0
Jocroma tubiformis..	0	3	6	Tacsonia molissima .	0	3	6

° These Veronicas are natives of New Zealand, quite shrubby, and desirable greenhouse plants.

† The colour of this hardy plant approaches scarlet.

Chiswick Nursery, June 7.

MESSRS. J. & H. BROWN are now sending out the following desirable plants, for bedding, &c.:—

Anagallis Breweri and bicolor, 8*s.* per doz.
Antirrhinums, of sorts, 6*s.* do.
Cinerarias, 8 vars., 6*s.* per doz.
Calceolarias, 12 best vars., 18*s.* per doz.
Chrysanthemums, 12 new distinct vars. 8*s.*
Shrubby yellow, for beds, 4*s.* do.
New Fuchsias.—Selection of 12 plants for 10*s.* 6*d.*, free by post: Albion, Attractor, Gigantea, Vesta, Reflexa, Coronet, Coccinea-vera, Kentish Bride, Pearl, Goldfinch, Desdemona, Colossus, Expansa, Neptune, Modesta, Hector, Chauverii, Decora.
Other good kinds, 6*s.* do.
Geraniums. — General Tom Thumb, 2*s.* 6*d.* each.
Scarlet, variegated, and others, 6*s.* per doz.
Heliotropiums, 4*s.* and 6*s.* do.
Lantana crocea speciosa, fine for beds, 9*s.* do.
Lobelias, 6 vars., 6*s.* do.
Petunias, 6 new vars., 6*s.* do.
Other good kinds, 4*s.* do.
Pentstemons, 6 best vars., 6*s.* do.
Phloxes, best vars., 6*s.* do.
Scutellaria splendens, fine for beds, 9*s.* do.
Salvias, 6 vars., 4*s.* and 6*s.* do.
Verbenas, 12 best and newest vars., 6*s.*, others 4*s.* do.
Viola arborea, or Tree Violet, 1*s.* 6*d.* each.

Most of the above can be sent by post.

Rock Plants.
25 superior sorts, 15*s.*
50 do., 25*s.*
50 do., herbaceous plants, 25*s.*
100 herbaceous plants, 45*s.*
Andromeda floribunda, 2*s.* 6*d.* each.
Hardy Summer Climbers, *see* former Advertisement.
Selection left to the Purchaser.

New Greenhouse Plants.
Achimenes picta, 2*s.* 6*d.* each.
Achimenes hirsuta, 1*s.* 6*d.* each.
Bouvardia strigosa, 2*s.* 6*d.* do.
Buddlea Lindleyana, 2*s.* 6*d.* do.
Cloth of Gold Rose, 5*s.* do.
Thunbergia chrysops, 3*s.* 6*d.* do.
Inga pulcherrima, 2*s.* 6*d.* do.
Pentas carnea, 2*s.* 6*d.* do.
Tetranema mexicana, 1*s.* 6*d.* do.
Spiræa lancifolia, 2*s.* do.
Veronica speciosa, 1*s.* 6*d.* do.
Scutellaria elegans, 3*s.* 6*d.* do.
New White Gesneria, 2*s.* 6*d.* do.

The above carefully packed and forwarded to any part of the United Kingdom. Payment by Post-office order, or reference in town. Lists of new and choice Greenhouse plants, Dahlias, &c., can be had.—Albion Nursery, Stoke Newington, London.

NEW AND RARE PLANTS.

JAS. BACKHOUSE & SON (late T. & J. Backhouse, Nurserymen, &c., York, have now plants of the under-mentioned new and beautiful species ready for delivery:—

CHIRITA SINENSIS.—A charming greenhouse plant from China, in appearance intermediate between Gloxinia and Didymocarpus, bearing several beautiful large lilac Foxglove-like flowers on each stem . 21*s.* 0*d.*

HIBBERTIA PERFOLIATA.—A beautiful Swan River shrub, with large compact showy yellow flowers; an abundant bloomer .. .. 10*s.* 6*d.*

RUSSELLIA MULTIFLORA.—A native of Mexico. Flowers bright scarlet, produced in great abundance in close whorls towards the extremities of the shoots 10*s.* 6*d.*

HABROTHAMNUS CYANEUS.—China. Flowers porcelain blue .. .. 5*s.* 0*d.*

J. B. & Son can also supply good plants of

Thunbergia chrysops .. .. 2*s.* 6*d.* to 5*s.* 0*d.*
Achimenes picta .. .. .. 1*s.* 6*d.* to 3*s.* 6*d.*
Buddlea Lindleyana .. .. 1*s.* 6*d.* to 3*s.* 6*d.*
Pentas carnea .. .. 2*s.* 6*d.*

The usual allowance to the Trade.

TO BOTANISTS.

W. PAMPLIN begs to announce that he has lately received the following Collections of DRIED PLANTS for sale, which may *now* be obtained, but an early application is recommended, to avoid disappointment.

1st. From FLORIDA.—CHAPMAN'S FLORIDA PLANTS, (see "Hooker's London Journal of Botany") containing from 400 to 500 species, all named.

2d. From CAROLINA.—BUCKLEY'S PLANTS OF CAROLINA AND ALABAMA, (see "Torrey and Gray's Flora") from 400 to 500 species, rich in Carices, all named.

3d. From VENEZUELA.—FUNCKE'S PLANTS OF VENEZUELA, 120 to 150 species, chiefly from the provinces Cumana and Santa Martha.

4th. From COLUMBIA.—LINDEN'S PLANTS OF COLUMBIA, chiefly New Granada; one small set of these only remains.

5th. From SANT 'YAGO DE CUBA.—LINDEN'S PLANTS OF CUBA, (rich in Ferns); one set of these only remains.

6th. From MEXICO.—JURGENSEN'S PLANTS OF MEXICO will be ready next week; they contain most interesting Plants, principally from the Sierra San Pedro, Nolasco, Talea, &c. This Collection (being his first and second consignments) comprises about 700 to 800 species, and the plants have been well approved by the botanists who have seen them.

William Pamplin, 45, Frith-street, Soho-square, London.

SLOUGH NURSERY.

THOMAS BROWN having retired from business, his Successor, W. C. BROWN, begs to solicit a continuance of that patronage so kindly given to this establishment, and to assure his customers that no effort shall be spared to make it one of the first in the kingdom. His stock of Dahlias and Pansies already are unrivalled; also the Verbenas, Petunias, Carnations, and Liliums, are selected from the newest and best. Geraniums, Calceolarias, and Camellias, will also form a leading feature; and Fruit-trees of all the new and good kinds. Seeds, Mats, Mushroom-spawn, Cut Flowers, Bulbs, &c. &c.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

LIST OF PRIZES AWARDED AT THE EXHIBITION

ON WEDNESDAY, JUNE 4.

For Collections of 30 Stove and Greenhouse Plants.—1st prize to Mr. Barnes, gr. to G. W. Norman, Esq., Bromley; 2d to Mr. Hunt, gr. to Miss Traill, Hayle-place, Bromley.

For Collections of 15 Stove and Greenhouse Plants.—1st prize to Mr. Fraser, Nurseryman, Lea Bridge-road, Leyton; 2d to Mr. Pawley, White Hart, Bromley.

For Collections of 10 Stove and Greenhouse Plants.—1st prize to Mr. Green, gr. to Sir E. Antrobus, Bart., Cheam; 2d to Mr. May, gr. to E. Goodheart, Esq., Beckenham; 3d to Mr. Kyle, gr. to R. Barclay, Esq., Leyton; 4th to Mr. Bruce, gr. to B. Miller, Esq., Tooting; extra to Mr. Clarke, gr. to W. Block, Esq., Muswell-hill; extra to Mr. Slowe, gr. to W. R. Baker, Esq., Bayfordbury Park; extra to Mr. Ayres, gr. to J. Cook, Esq., Brooklands, Blackheath; extra to Mr. Cockburn, gr. to Earl of Mansfield, Caen Wood.

For Specimen Ornamental Plants.—1st prize to Mr. Roe, gr. to J. J. Blandy, Esq., Reading, for Aerides odoratum; 2d to Messrs. Lucombe, Pince, & Co., Nurserymen, Exeter, for Cyrtoceras reflexum; 3d to Mr. Pawley, for Stephanotus floribundus; 4th to Messrs. Veitch & Son, Nurserymen, Exeter, for Erica Cavendishiana, extra to the same, for Xanthosia rotundifolia; two extras to Mr. Bruce, for Pimelea spectabilis and Aphelexis humilis; extra to Mr. Franklin, Hampstead, for Pelargonium Frankliana; two extras to Mr. Barnes, for Aphelexis humilis and Leschenaultia formosa; extra to J. B. Crasswell, Esq., Newport, Topsam, for Pavetta Caffra; extra to Messrs. Lucombe, Pince, & Co., for Erica intermedia.

For New or Rare Plants in Bloom.—1st prize to Messrs. Lucombe, Pince, & Co., for Dipladenia crassinoda; 2d to the same for Vesalia floribunda; also a 2d to Messrs. Veitch & Son, for Fuchsia serratifolia; and two 3d prizes to the same, for Vesalia floribunda and Siphocampylus sp.; also a 3d to Mr. Jack, gr. to R. G. Loraine, Wallington Lodge, Carshalton, for Dipladenia crassinoda; extra to Mr. Barnes, for Luxemburgia ciliosa; extra to Mr. Plant, gr. to J. H. Scroder, Esq., Brixton, for Lianthus nigrescens.

For New or Rare Plants not in Bloom.—1st prize to Messrs. Lucombe, Pince, and Co., for Drimys Winterii; 2d to Mr. Slowe, for Veronica speciosa.

For Collections of 24 Rare Alpine Plants, in pots.—1st prize to Mr. Wood, Nurseryman, Norwood.

For Collections of 6 Cactaceous Plants (tall sorts).—1st prize to Mr. Green; 2d to Mr. Bruce.

For Collections of 4 Cinerarias.—1st prize to Messrs. Lane, Nurserymen, Berkhamstead; 2d to Mr. Gaines, Nurseryman, Battersea; extra to Messrs. Henderson, Nurseryman, Pine-apple-place, Edgware-road.

For Collections of 15 Cape Heaths.—1st prize to Mr. May; 2d to Mr. Barnes; 3d to Mr. Taylor, gr. to J. Costar, Esq., Streatham.

For Collections of 12 Cape Heaths (Nurserymen).—1st prize to Mr. Fairbairn, Clapham; 2d to Mr. Fraser.

For Collections of 8 Cape Heaths.—1st prize to Mr. Hunt; 2d to Mr. Green.

For Collections of 6 Cape Heaths.—1st prize to Mr. Bruce; 2d to Mr. Roser, gr. to J. Morris, Esq., Streatham; extra to Mr. Reid, gr. to E. Wigram, Esq., Walthamstow.

For a Collection of 10 Azaleas.—1st prize to Mr. Green.

For a Collection of 12 Azaleas.—3d prize to Mr. Gaines.

For Collections of 10 Orchidaceæ.—1st prize to Mr. Mylam, gr. to S. Rucker, Esq., Wandsworth; 2d to Mr. Robertson, gr. to Mrs. Lawrence, Ealing Park.

For Collections of 10 Orchidaceæ.—1st prize to Messrs. Veitch and Son; 2d to Mr. Don, gr. to F. G. Cox, Esq., Stockwell; 3d to Messrs. Henderson.

For Collections of 6 Orchidaceæ.—3d prize to Mr. Plant.

For Collections of 4 British Ferns, in pots.—1st prize to Mr. Smith, gr. to J. Anderson, Esq., The Holme, Regent's-park; 2d to Mr. Taylor, gr. to J. Coster, Esq., Streatham.

For Collections of 6 Calceolarias.—1st prize to Mr. Garrod, gr. to R. B. Forman, Esq., Hampstead; 2d to Mr. Wren, gr. to J. Huskisson, Esq., Upper Holloway; 3d to Mr. Kinghorn, gr. to A. Murray, Esq., Twickenham.

For Collections of 6 Calceolarias (Nurserymen).—1st prize to Messrs. Henderson; 2d to Mr. Gaines.

For Collections of 12 Fuchsias.—1st prize to Messrs. Lane & Son; 2d to Mr. Gaines; extra to Mr. Kendall, Nurseryman, Stoke Newington; extra to Mr. Robinson, gr. to J. Simpson, Esq., Thames-bank, Pimlico.

For Collections of 12 New Pelargoniums in 24s.—1st prize to Mr. Dobson, gr. to Mr. Beck, Slate-works, Isleworth; 2d to Mr. Staines, Middlesex-place, Lisson-grove; 3d to Mr. Cock, Chiswick.

For Collections of 12 New Pelargoniums in 24s (Nurserymen).—1st prize to Mr. Gaines.

For Collections of 12 Pelargoniums in 12s (Amateurs).—1st prize to Mr. Parker.

For Collections of 12 Pelargoniums in 12s (Nurserymen).—1st prize to Mr. Gaines; 2d to Mr. Pamplin, Walthamstow.

For Collections of 8 Pelargoniums.—1st prize to Mr. Coysh, gr. to R. Hudson, Esq., Clapham-common; 2d to Mr. Bell, Royal Hospital, Chelsea.

For Seedling Pelargoniums of 1844.—1st prize to A. Beck, for "Aurora;" 2d to the same, for "Arabella;" 2 extras for "Rosy Circle" and "Bellona."

For Seedling Pelargoniums of 1845.—Certificate of Merit to Mr. Beck, for "Caliph."

For Seedling Calceolarias.—1st prize to Mr. Kinghorn, for "Exemplar;" Certificate of Merit to Mr. Garrod, for "Lacerta;" Certificates of Merit to Mr. Gaines, for "Climax" and "Louis Philippe."

For Collections of 20 Roses in pots.—1st prize to Messrs. Paul and Son, Nurserymen, Cheshunt; 2d to Mr. Lane; 3d to Mr. Laing, Nurseryman, Twickenham; extra to Mrs. Stedman, Florist, Isleworth.

For Collections of 10 Roses in pots.—1st prize to Mr. Dobson; a Certificate of Merit to A. Rowland, Esq., Lewisham.

For Collections of British Plants (exogenous) cut.—1st prize to Mr. Smith, gr. to J. Anderson, The Holme, Regent's-park; 2d to Mr. Sprigings, at Francis's Nursery, Hertford. N.B. Several other collections were much admired, but from incorrectness in classification, were disqualified.

For Collections of British Plants (endogenous).—1st prize to Mr. Smith; 2d to Mr. Williamson, Royal Botanic Gardens, Kew.

For a Device illustrating the principles of arrangement, and combination of colours.—1st prize to Mr. W. Burton, Fitzroy-place.

For a Collection of 24 Verbenas.—A prize to Mr. Turner, Florist, Chalvey.

For Collections of 36 Pansies.—1st prize to Mr. W. C. Brown, Nurseryman, Slough; 2d to Mr. Turner; extra to Mr. Bragg, Florist, Slough; extra to Mr. Parsons, gr. to A. George, Esq., Enfield.

EXTRA AWARDS were given for the following Miscellaneous Exhibitions.—To Mr. Keller, Elham, Canterbury, for a Collection of British Orchidaceæ; to Mr. Pearson, Nurseryman, Hampstead, for a seedling Cineraria "Paragon;" to Mr. Henchman, Nurseryman, Edmonton, for 10 Primulas; to Mr. Bunney, Nurseryman, Stratford, for seedling Rhododendrons, "Medora" and "Coronet;" to Mr. Banks, gr. to W. Banks, Esq., New Kent Road, for a Collection of Ferns (dried specimens); also for a Collection (dried) Miscellaneous.

W. C. BROWN, of SLOUGH NURSERY, near WINDSOR, is desirous of engaging an active, clever man, of good address, to superintend his Florists' Flowers and attend Exhibitions. It will be necessary that he should be able to cultivate them, and understand their properties.

STANHOPE NURSERY, GLOUCESTER ROAD, OLD BROMPTON.

JAMES RIGBY, NURSERYMAN, FLORIST, & SEEDSMAN, has for sale a most splendid scarlet GERANIUM, named "THE QUEEN'S PERPETUAL," remarkable for the size, brilliancy, and constant succession of its bloom, being the very best scarlet Geranium ever yet grown. It is of dwarf habit and well suited for the conservatory or for turning out. A house 70 feet in length may now be seen at the Stanhope Nursery full of this beautiful plant in flower. Very fine plants 24s. per dozen; fine ditto, 18s.; ditto, strong small ditto, 12s.

J. R. has, in addition to his general stock of Camellias, Heaths, and other Greenhouse Plants, Dwarf and Standard Roses, Shrubs, &c., several Plants of that splendid Ornamental Evergreen the ARAUCARIA BRASILIENSIS, from 1½ to 4 ft. high. A remittance or reference in London is requested from country correspondents.

NEW AND BEAUTIFUL CAPE ERICAS.

T. JACKSON, NURSERY and SEEDSMAN, KINGSTON, Surrey, respectfully announces that he is now sending out plants of the two undernamed extremely beautiful ERICAS, which are highly deserving a place in the most select collection.

ERICA EASSONIANA, has large inflated flowers pure white, and much superior to E. jasminiflora alba; it obtained the first prize as a Seedling Erica at the Exhibition of the Royal Botanic Society of London, on the 4th of June, 1844 .. .. 21s. 0d.

ERICA PERSPICUA ROSEA, has much of the beautiful habit of E. perspicua, with bright rose-coloured flowers .. .. 10s. 6d.

Also the following New and Rare Plants, at the low prices quoted:—

Achimenes picta ..	2s. 6d.	Inga pulcherrima ..	3s. 6d.
Alona cœlestis	5 0	Ruellia maculata ..	10 6
Begonia ramentacea .	5 0	Scutellaria elegans ..	5 0
Buddlea Lindleyana .	3 6	Styphelia laurifolia ..	5 0
Bossiæa heterophylla .	5 0	Spiræa Douglasii ..	3 6
Chironia floribunda .	5 0	Tasmannia aromatica 5s. to	10 6
Chorozema spectabilis variegata	3 6	Tecoma schinifolia ..	10 6
Chorozema triangulare	7 6	Tetratheca, or Tremandra Hugelii 7s. 6d. to	21 0
Daviesia Hugelii ..	21 0	Veronica salicifolia 5s. to	10 6
Gesnera Gardneriana .	5 0	,, speciosa ..	2 6
Habrothamnus cyaneus	3 6	Zichya rotundifolia ..	15 0
Hypocalyptus obcordatus	10 6		

T. J.'s General Catalogue, with prices for 1845, may be obtained on application, by enclosing two penny stamps.

AMERICAN PLANTS.

KNAP-HILL NURSERY, NEAR BAGSHOT, SURREY.

HOSEA WATERER begs to announce the American plants are now in bloom, and may be seen any day except Sunday. Admittance gratis. Knap-hill Nursery is 2½ miles from the Woking Station, South-western Railway, where conveyances may always be had on application to J. Moore.

HABROTHAMNUS FASCICULATUS.

MR. L. VAN HOUTTE, NURSERYMAN, at GHENT, finds himself under the unpleasant necessity of declaring that, on the 15th day of June, 1843, he acquired from Mr. VANDER MAELEN, of Brussels, the sole property of the HABROTHAMNUS FASCICULATUS; that the whole Stock delivered to him by Mr. VANDER MAELEN amounted to the number of 75 strong Plants (*all apparently alike*); that all the multiplications from the above have been sold by him to different parties indiscriminately, and that he now finds himself painfully disappointed in discovering by the floration, that some specimens of the said produce only the CESTRUM ROSEUM. In consequence of such event, equally prejudicial to his interests as disappointing to those purchasers of this Plant who have cultivated it carefully since the period of purchase, Mr. L. VAN HOUTTE declares himself ready to return the amount to the parties of all such of the above Plants as may be found to be the CESTRUM ROSEUM; and further, that he will give gratuitously double the number of the true HABROTHAMNUS FASCICULATUS for each and every plant that may have been in mistake delivered by him, and now found not to be, as warranted, the true HABROTHAMNUS FASCICULATUS.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9s. to 7l. 10s. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a post-age stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

"Nutt on Bees" (5th Edition) now published.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.

Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

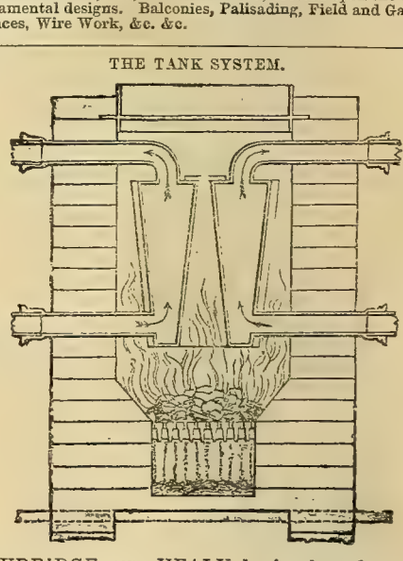
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at this time for winter forcing, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.

The SECOND MEETING will take place on SATURDAY, the 21st of June. Tickets are issued to Fellows at this Office, price 5*s.* each; or at the Garden, in the afternoon of the days of Exhibition, at 7*s.* 6*d.* each; but then only to Orders from Fellows of the Society.

N.B. No Tickets will be issued in Regent-street, on the day of Exhibition. 21, Regent-street.

SEEDLING PELARGONIUMS OF 1844.—It may save inquirers and myself some trouble if I take this means of informing the public of my intention to send out my finest seedlings of 1844 direct from this place. Exhibiting as I do in the Amateurs' Class, I have not felt justified in disposing of any plants, though often applied to; neither can I receive any orders until the series of Exhibitions are closed, after which I will afford every information in the usual manner.

EDWARD BECK, Worton Cottage, June 7.

CHRYSANTHEMUMS.

CHANDLER & SONS, NURSERYMEN, VAUXHALL, London, have now ready to send out good plants of all the best and most desirable varieties of the CHRYSANTHEMUM at 12*s.* per dozen. The plants are in small pots, well-rooted and healthy, and such as will make strong flowering plants for the autumn.

The Gardeners' Chronicle.

SATURDAY, JUNE 7, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 11—Society of Arts . . . . 8 P.M.
SATURDAY, June 14 { Royal Botanic . . . . 4 P.M. / Regent's-park Zoological Gardens 9 A.M.
TUESDAY, June 17—Linnean . . . . . 8 P.M.
WEDNESDAY, June 18—Microscopical . . . . 8 P.M.
SATURDAY, June 21—Horticultural Gardens . . 1 P.M.

COUNTRY SHOWS.

TUESDAY, June 10—Gardeners' Benevolent Institution.
THURSDAY, June 12—Stamford Hill Horticultural Society.
THURSDAY, June 19—Wingham Horticultural and Floral.
FRIDAY, June 20—Cambridge Horticultural.

IN the year 1843 some discussion was introduced into our columns concerning the LUMINOSITY OF PLANTS; but as it had no apparent bearing on gardening, it was discontinued. A very curious and unexpected circumstance leads us to revive the question.

A luminous appearance in certain plants, while living, is clearly made out. DELILE found it in the Agaric of the Olive-grounds near Montpellier, and strange to say, observed that *it would not manifest itself in darkness during the day.* The Fungi of the coal-mines near Dresden have been celebrated for their luminosity, and are said to emit a light similar to that of bright moonshine. Lately our correspondent, Mr. PRESTOE, has stated that the spawn of the Truffle is luminous, and may so be collected at night in the Truffle-grounds. But these are all cases belonging to Fungals, as is the greatest part of those, the truth of which can be relied on; and they occur in the living plant, disappearing with life. DELILE, for example, found that the Olive Agaric would not retain its luminosity for more than seven or eight days.

Other cases of luminosity are reported of plants in a state of putrescence, such as rotten wood, half-decayed Potatoes, &c. But the most singular instance of all, and that on account of which this subject is now brought forward, was mentioned a few weeks since at a meeting of the Royal Asiatic Society, and reported at p. 243 of this volume. On that occasion a dead fragment of a plant, sent from the Madras presidency, and supposed to be a Cardiospermum, was produced, and with it an account of its having been discovered in Jungle, in consequence of its casting a blaze of phosphoric light over all the Grass in the vicinity. The plant was moreover shown, by quotations from Indian writers, to be celebrated for its luminous qualities. It was added that the dried fragment, being moistened, was found to regain its phosphorescent appearance, shining in the dark like a dead fish, or similar putrefying substance.

By favour of Mr. NORRIS, the librarian of the Royal Asiatic Society, we have had the opportunity of examining this plant, which proves to possess exactly the property assigned to it, gleaming in the dark, with all the vividness of a glow-worm, or the electric Scolopendra, after having been moistened with a wet cloth applied to its surface for an hour or two; and it does not seem to lose this quality by use, becoming lustreless when dry, and lighting up again whenever moistened.

But the specimen does not belong to Cardiospermum, as was supposed, nor has it any relation to that genus. It is the rhizome of some Endogen with equitant leaves, and looks more like the fragment of a Cymbidium or Eulophia, or, perhaps, a Marica, than anything else. If the account which has been sent home to England can be relied on, its discovery among Grass would render it more likely to be a Eulophia than a Cymbidium. It may not, however, be either, nor even an Orchid, but a Marica, or something of that sort.

It is, however, not at all improbable that it, or something having similar qualities, may exist in our English collections; and it is for that reason that we now mention it. We therefore advise gardeners to be on the look-out for this curious phenomenon, and to examine all such rhizomes as they may have in their possession, in the hope of finding it, for assuredly they would hardly hit upon a thing of more interest. Plants habitually luminous, and constantly so at night, and retaining their properties years after they are dead, and capable of being cultivated, as this Madras plant most certainly is, would form quite a new feature in our gardens, and are well worth any degree of trouble that may attend their discovery.

We would also take the opportunity of asking our Indian readers to procure the plant, and take means for sending it home alive. It is reported to have been brought, in the first instance, to a place called Trevandrum, and is known to Dr. WIGHT, the intelligent and active superintendent of the Botanic Garden, Madras. The man who found it is a Tahsildar in the service of Captain BEAN, and could easily be induced to procure it. Fresh roots, wrapped in oiled silk, would probably reach England alive, by the overland mail; or, if not, would reach home with certainty by sea, if packed in a Ward's case.

Surely, this is worth the attention of gentlemen connected with India.

UNTIL we concerned ourselves with the GLASS QUESTION, we had no idea of the copiousness of the English language. We now, however, learn from the anonymous correspondents who have done us the honour to show their temper, that our home vocabulary is rich beyond all others in the epithets of vituperation. We have discovered, too, another thing, which is much more important; and that is, that the exposure of the glass system is telling upon the trade, and driving them to the alternative of lowering their prices, or losing their customers.

It has already been shown that English glass will ere long find its way into the market, at an infinitely smaller price than that which is now demanded; and this is the best of all justifications of our advice to buyers that they should WAIT. The advantages which the English manufacturer possesses over all others are so great that it will be hopeless to contend against him eventually; and we have no doubt that he will undersell the whole world, and profitably. But in the meanwhile he does not, and apparently cannot, until his establishment is adjusted to the new order of things. It is, therefore, very important for those who cannot wait, to know at what price foreign glass can be imported; and for their satisfaction we have now to make the following statement:—

Four boxes of glass, fit for horticultural purposes, were ordered from Hamburgh, and have been received. They are all of excellent quality, although not fit for drawing-room windows, or places where the clearest and smoothest glass is required. The following are their sizes, weights, and the actual cost incurred in importing them.

No. 1, in squares measuring 17 × 16 inches, and weighing 2 lb. 1 oz.; *cost* at Hamburgh 5¾*d.*; *add* duty 3*d.* and a small fraction = say 9*d.*; the price of such glass in London is 1*s.* 3*d.*

No. 2, in squares measuring 18 × 17 inches, and weighing 2 lb. 4oz.; *cost*, at Hamburgh, 5*d.*; *add* duty 3½*d.* = 8½*d.*; the price of such glass in London is 1*s.* 5*d.*

No. 3, in squares measuring 16 × 12 inches, and weighing 1 lb. 3oz.; *cost*, at Hamburgh 2¼*d.*; *add* duty 1¾*d.* = 4*d.*; the price of such glass in London is 11*d.*

No. 4, in squares measuring 14 × 12 inches, and weighing 1 lb.; *cost*, at Hamburgh 1¾*d.*; *add* duty 1½*d.* = 3¼*d.*; the price of such glass in London is 9*d.*

The Hamburgh price is the wholesale charge for large quantities; the London price is furnished by a glazier who has matched the quality as nearly as he could.

It is evident from this statement that it will answer the purpose of any one having much demand for glass to import it; or for several persons to join in doing so, until the English charge has fallen to something reasonable; unless, indeed, some of the great foreign houses should establish an agency in London, which we have reason to believe is not unlikely to happen.

Doubtless glaziers will assert that the foregoing comparison of prices is unfair, because to the cost of foreign glass has to be added freight, landing and wharf charges, and other items. But such expenses are not of so much moment as might be supposed, when glass is imported in large quantities, although they are heavy upon small importations; and a very small addition to the cost of each square will defray them. Certainly a penny per square would be allowance enough. But on the other hand we have no reason to suppose that Hamburgh is the cheapest market; on the contrary Belgium, rather than Germany, is the country to look to for low-priced glass. It is true that Belgian glass has a bad reputation, and is declared to be of very indifferent quality. But as the poet says,

> Whenever with thirst we languish,
> And no delicious fruit is nigh,
> The sourest Apple, to assuage our anguish,
> We pluck and swallow greedily.

Moreover, in little more than another 12 months, the import duty falls to ¾*d.* a lb., and then the cost of such glass as is above mentioned will be, No. 1, 7½*d.*, No. 2, 7¼*d.*, No. 3, 3¼*d.*, No. 4, 2½*d.*

All that we want to show in this instance is, the folly of persons who have much occasion for glass, paying the English glass-makers whatever they may think fit to demand, under the idea that the trade combination cannot be broken through. The public may depend upon it that if they will but hold off purchasing, the glass monopoly will prove as brittle as the miserable commodity hitherto manufactured under the name of the Crown.

As we promised last season to give a good method of preventing the calyx of Carnations and Picotees from bursting, we proceed to do so:—

Dissolve some isinglass, and spread it on silk, (green will be the best colour), cut this in thin strips, and when the buds are sufficiently large, after having moistened it, envelope the calyx.

The silk need not be more than the eighth of an inch in width. It must, however, be borne in mind, that flowers intended for exhibition must have all ligatures, &c., removed previous to staging; but this will be found the neatest, as well as the most expeditious tie, yet used.

WE understand that the HORTICULTURAL EXHIBITION at CAMBRIDGE, which has already been advertised in our columns, is to be under the patronage of the British Association for the Advancement of Science, and will be held in the grounds of Downing College.

THE TULIP.—No. II.

Intensity, or brilliancy of colour, is the next point for consideration, and in so bold and striking a flower as the Tulip this is of considerable importance.

Taking Bizarres first; it is allowed on all hands that the blacker the feathering, the more it is esteemed; and in contradistinction, the nearer it approaches red, as in Goud Beaures and Yorkshire Trafalgar, the less it is prized. In flamed flowers, dark with scarlet, on a bright yellow ground, is strikingly beautiful; an example of this style may be seen in a well-bloomed Titian. And though this class is highly esteemed in England, on the Continent, and especially in Paris, they are scarcely cultivated; flowers with white grounds alone being admissible into the most choice collections.

Byblomen, feathered and flamed, on a white ground with black or dark purple, also ranks in the estimation of florists according to its depth or intensity. Louis XVI., David, Buckley's Beauty, and Lawrence's Friend, may be cited (when well grown), as splendid illustrations of the black feather. In flamed flowers, violet with pale purple and black are in most requisition, though some Byblomens when young are occasionally exhibited in the Rose class. These, though fine and attractive as bed flowers, will lose in comparison with either of the classes to which they may approximate.

In the next class, *Roses*, depth of colouring is not so much required or insisted on as in the two preceding, a lively brilliant tint being indispensable. A dark red feather would look dull and heavy in comparison with a rosy-scarlet or bright pink, and in flames, rose and crimson, or pale pink, contrasted with carmine, have the most beautiful effect.

These colours above enumerated must be clearly marked on their respective grounds, yellow in Bizarres, approaching, if possible, that brilliant and glossy hue so beautifully apparent in the common Buttercup (*Ranunculus acris*) through all the intermediate tints of orange to pale yellow; and it is absolutely necessary that it should be alike without shade, stain, or blemish.

In Byblomens and Roses the white ground should be purity itself, and any discoloration at the base of the petals forming the cup would infallibly condemn them. Defective colouring may also be adduced in those flowers where the exterior of the cup is of an inferior character to the interior; some Bizarres have a creamy, pale yellow outside, which detracts much from the appearance of the bloom. Some Byblomens and Roses have a saffron tinge, and though it may and does bleach out in some varieties, still it is a sad drawback.

Again, in all three classes there are some sorts whose filaments, supporting the anthers, are more or less stained, and this occurs very often when the lower part of the petals is perfectly pure, and consequently brings these flowers under the ban of impurity, though I believe they are still allowed to take prizes in some parts of the country.

Size is the fourth point. Tulips are occasionally overgrown, and I imagine that much of this depends on the previous year's cultivation; for at that time, should the bed be too rich, the bulb (which is the reservoir of the current year's sap, and in which, if cut in two, the embryo flower may be detected) becomes gross, and calculated the next blooming season to produce monstrosities; such, for instance, as several flowers on one stem, or the bloom being composed of more than six petals, and sometimes having a nondescript appendage—half leaf and half petal—formed just below the cup, indicative, I believe, of the bulb containing an excess

of nutriment. When this is the case, even should the blooms be well formed, they are apt to come coarse and out of character; and it is a well-established fact, that blooms from maiden bulbs (those flowering the first year from the offset) are most steady in their markings, and in the proper distribution and harmony of their colours, and I have always found that roots of medium size produce the best flowers. Size can only take precedence when all other points in the competing flowers are equal.

In concluding this article, I may observe that, when collections come under the cognizance of judges, it will be well for them to adopt the same preliminaries as recommended for the Auricula; and certainly, unless special directions are given to the contrary, they should, on looking them over, disqualify all impure cupped flowers; and though I well recollect the time when such sorts as Triomphe de Lisle, Duc de Bronte, Duc de Savoy, Goud Beaures, Cato, Princess Charlotte (Pearson's), *cum multis aliis*, were amongst the winning varieties in some parts of the country, now we are advancing with the progressive state of everything around us, and the "march of mind" appears to be exerting its full influence on our collections, these showy sorts are now only grown as border varieties.

I would not for a moment insult our "fathers in floriculture" by supposing or insinuating that we have clearer ideas of what a flower ought to be than they had; for it is a well-established fact that roundness of form in blooms of every description was, by even octogenarians, esteemed before those of an inferior shape. True, they had not so many varieties from which to make their selection, but certainly they considered form of primary importance; and from the immense number of breeders broken into colour during the past 20 years, which have pure cups, we have necessarily become more particular, and consequently we find long and impure cups consigned to "the tomb of all the Capulets;" and the florist is now deficient in taste, indeed, who advocates stained or inferior flowers.—*W.*

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

XIV.—*Cuttings of Leaves.*—A single leaf cut near the stem and planted, is sufficient, in some plants, to produce new individuals. The leaves intended for this operation ought not to be pulled off the stem; there is no need of taking away the eye which shows itself at their axil; in this method of striking by cuttings it is not the eye which developes itself, as many people imagine; the effect which takes place is similar to that produced when cuttings are struck from the branch of Abies (see fig. 16). It is upon the cluster of small bulblets which form on certain parts of the leaf, that the shoot shows itself.

Fig. 17.

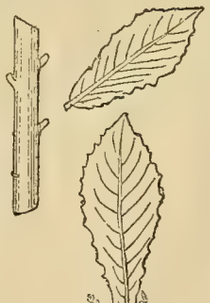


Fig. 18. Cuttings of leaves of Theophrasta latifolia.

Fig. 17 indicates at what place we may cut the leaf without hurting the plant; the leaf being placed in the earth forms a callus at its base, fig. 18, whence the roots, and consequently more shoots spring up.

Leaves intended for cuttings should be taken about the middle of a branch; the result is more certain than if we chose the lower leaves. Gloxinia, Bryophyllum, Lilies, &c., multiply well by such cuttings.

If we wish to get on very quickly, the midrib on the lower face of the leaf may be broken in several places, without injuring the limb, and so lightly that the broken places can scarcely be distinguished; the lower face of the leaf is then placed on the earth of a pot. Soon at each fracture a little callus developes itself, which gives rise to roots, as is seen in fig. 19.

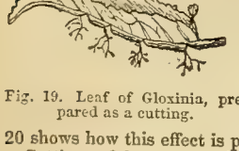


Fig. 19. Leaf of Gloxinia, prepared as a cutting.

Some leaves, when employed as cuttings, send out roots and buds at each incision, as, for example, in Hemionitis palmata, Bryophyllum, &c. Fig. 20 shows how this effect is produced.

Cuttings of leaves are often a long time before they show any sign of succeeding; the care which they require is in consequence of their delicate nature; most especially, must attention be paid to burying the end of the petiole, or the base of the leaf. When their buds are strong enough they may be accustomed, by degrees, to the free air of the greenhouse, in which they are to remain, then treating them like cuttings from branches.

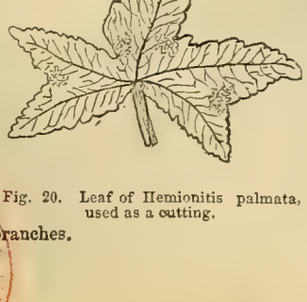


Fig. 20. Leaf of Hemionitis palmata, used as a cutting.

Having succeeded with the leaves, of which I have just spoken, I tried, in 1839, to multiply Theophrasta latifolia with its leaves cut in two, with which I made two cuttings; these portions took root and developed buds, as is seen in fig. 21. This experiment evidently proves that some plants may be reproduced by cuttings of the midrib of their leaves. The primitive bud, as I have remarked, rises from the callus above the root which first shows itself, and about 1-16th of an inch from the base of the midrib. The dotted part, shown in the upper half of the annexed leaf, was removed in order to put the leaf into a little pot, but this did not prevent the success of the cutting.

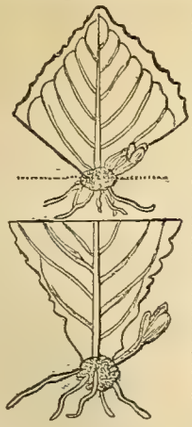


Fig. 21. Theophrasta latifolia, struck from cuttings of a leaf.

Scale-cuttings. — These cuttings are made with the scales of Liliaceous plants; such scales are planted either upright or flat, and are covered with about 1-16th of an inch of earth, and are placed in an atmosphere neither too dry nor too moist: it is in this manner that quantities of Japan Lilies are multiplied. Liliaceous plants are also propagated by cutting their leaves in two or three places along their length; such leaves do not send out roots, but they give birth, at their mutilated parts, to little scaly bulbs which, the following year, are separated, and afterwards managed like the cloves of bulbs.

Cuttings in Water.—This kind of propagation demands constant care and minute attention. We employ ripe wood, as in cuttings of branches. As soon as the roots commence lengthening, which we can easily see through the sides of the bottle in which the cutting is placed, we immediately take it out, and plant it in a pot, where it is treated as if it had no roots, until we see that they have reached the sides of the pot. The cutting is then sufficiently strong to be gradually accustomed to the atmosphere in which it is to live. I have thus made plants take root, which I have not been able to multiply by any other means. In consequence of the difficulties which this proceeding offers, I do not advise the practice of it, except for Pine-apples, when it is rather an amusement than a truly useful thing. A sucker, or better, a crown of a Pine-apple, previously dried, and put into a decanter or bottle-full of water, and placed upon the stove of a greenhouse, or of a room, and exposed to light, will grow and produce a small fruit, which will have as much fragrance as one grown in earth (fig. 22).

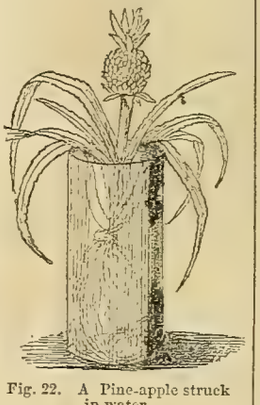


Fig. 22. A Pine-apple struck in water.

Cuttings in Trenches.—The plan of striking cuttings in trenches is generally adopted in the Colonies for Sugar-canes and Bamboos. For propagating the Cane we use cuttings 10 or 12 inches long (fig. 23), which we lay horizontally in a little trench 9 inches deep. We then cover them with a little earth, and in a short time they send forth roots and buds at each joint. The Bamboo is multiplied in the same manner. If we lay a long stem in a trench, the young buds which come out of each of the joints will soon make a little plant. In greenhouses, where the space does not allow of cuttings of this sort, Bamboos are multiplied quite as well by placing them upright in the ground.

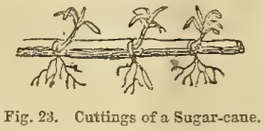


Fig. 23. Cuttings of a Sugar-cane.

HARDY YUCCAS; THEIR PROPAGATION AND TREATMENT.

FEW plants are more ornamental than the different kinds of Yucca when in bloom, during the months of July, August, and September; yet they are seldom to be found decorating the flower-borders, although they form a striking feature in the scenery of the garden, giving some idea of those exotic forms which are only to be found in climates milder and dryer than that of England; besides, they are quite hardy and evergreen, and within the reach of every one who has a small garden.

The different hardy kinds should be managed in the following manner. About the beginning of March procure some good sandy loam and a small portion of well-decayed cow-dung, and mix these well together; then open a hole a foot in depth and two across, and fill it with the mixture, allowing the loam, when gently pressed, to form a small mound above the level of the ground. Then provide yourself with either a well-established plant or a strong sucker, and plant it in the centre of the hole, pressing the soil firmly round its stem; afterwards it requires but little trouble except to make it secure against winds, and in very dry weather to water it. When first planted Yuccas grow but slowly, and they take from three to five years before they bloom, particularly the arborescent kinds; but when well established they generally bloom every year if kept in good health, which is easily secured by cutting away the old flower-stems directly they have done blooming (in the herbaceous kinds to the ground, and in those that are arborescent to the first strong side-branch), and by putting a little fresh sandy loam round the base of the stems, and among the young suckers, taking care, however, that none but the strongest suckers or side-branches are allowed to remain; the weaker ones may be removed either in autumn or early in spring, and may be planted in a nursery-bed, where in a year or two they will furnish a fresh supply of well-established plants. The following are some of the most ornamental sorts:—

Yucca gloriosa is arborescent, growing from 3 to 5 feet in height, with a flower-stem from 5 to 7 feet in height, and producing multitudes of large white bell-shaped flowers. Yucca superba is only a variety having a tinge of purple on the outside of the flowers, with rather brighter green leaves. It is the most ornamental of all the kinds; the leaves are not thready.

Y. crenulata (or conspicua) is also arborescent, with long pointed glaucous green leaves, and possessing a robust habit. It grows taller than the preceding, and has a flower-stem 5 or 6 feet in height, with numerous side-branches, and multitudes of flowers, which are somewhat large and white. It is the hardiest and most robust of all; the leaves are not thready.

Y. Draconis (or recurva, recurvifolia, acuminata), is strong-growing and arborescent, reaching a height of from 4 to 5 feet, and very much resembling Y. crenulata, but differing in the leaves, which are recurved about the middle and rather broader; it produces numerous large white flowers, and is very handsome when in bloom; the leaves are not thready.

Y. angustifolia.—A very distinct, small arborescent kind, growing 2 or 3 feet high, with very narrow long greyish-green leaves, and a flower-stem 3 feet high, with large whitish-green flowers. The Y. stricta is only a variety, with the leaves more erect and thready.

Y. filamentosa, is herbaceous or stemless, with a flower-stalk about 3 feet in height; it has large white flowers, and rather broad thready leaves. It is a free flowerer, and generally blooms the second or third year after planting. There is a variety of this very beautifully variegated; and another, having fine broad leaves.

Y. glaucescens (or glauca), also belongs to the stemless division, with long, slender, glaucous recurved leaves, and a flower-stalk about 3 feet in height; the flowers are rather large, and of a greenish white, but not very numerous. It is very distinct; the leaves are not thready.—*George Gordon.*

Home Correspondence.

New Pelargoniums.—At the ensuing Chiswick Show we shall expect to find in letter A, the new varieties of Pelargoniums which have appeared in the advertising columns, and I hope the Judges will bear in mind that the gold medal has been offered purposely to induce the exhibition of flowers of the highest class. It will be frustrating the object in view entirely, if this point is overlooked. Not that I think ill-grown specimens, even if all new, and of first-rate properties, should receive the highest medal,—they certainly should not; neither should even such fine specimens of old varieties. Quality of bloom, not quantity, must be the rule for judgment in this letter. My plan of examination will be this: I shall go to the seedling tent, with my memoranda of winning flowers of last year. Those plants that re-appear in 5-inch pots I shall examine and compare with my memoranda. I shall then examine the seedlings of 1845, in order to ascertain if any and what advance has been made. After satisfying myself on this point, I shall go to the exhibition in letter A, where I shall hope to see well-grown specimens of many of the advertised varieties; and from these and the seedlings of 1844, I shall make my notes for purchases. This may be depended upon as a rule. If a flower is really fine, there is no difficulty in showing it in a 6-inch pot, for the SK medal, come from where it will. If it belongs to a florist, its exhibition will procure him orders; if to an amateur, it will procure him fame. If neither in the 2-year old seedling class or letter A, I for one shall not be influenced to purchase what I may read about but cannot see.—*Veritas.*

Electric Agency applied to Horticulture.—I have lately made some experiments nearly similar to those described by "A." in a late Number, but with very different results:—1st, Having selected two well-rooted Fuchsia cuttings of exactly the same size, &c., growing in 5-inch pots, in one of them I placed a plate of copper and a plate of zinc, each 3 inches square, bent so as to fit exactly the opposite sides of the pot, and connected at the top by a copper wire soldered to their upper edges; I then placed them side by side in a small forcing-house, and took care that they should be treated in every respect the same. At the end of the first week there was no perceptible difference between the two plants, but at the end of a fortnight the ungalvanised plant was evidently in advance of the other, and continued so for four weeks, when it was an inch taller and appeared rather more healthy. On turning the galvanised plant out of the pot, I found that no roots had grown through that side of the earth on which the zinc plate was. 2dly, In the earth on the top of one of Rendle's tanks, I placed, 10 inches apart, a zinc and and copper plate, each 9 inches square, with their

upper edges level with the surface, connected by an arch of copper wire. On one side, and touching their edges, I placed a pane of glass 14 inches in length and of sufficient depth to reach to the bottom of the earth, and 2 inches above the surface. On each side of the glass I sowed some common Cress seed. The seeds came up on both sides of the glass at the same time; and at the end of 10 days there was not the slightest difference in their height or appearance, except that a few plants which were close to the zinc looked a little unhealthy. 3dly, I placed the same plates in the open ground about 5 inches apart on each side of some Peas that were just breaking the ground. They have been there eight days, but I cannot perceive that the Peas between them are either better or worse than the rest of the row.—*A. W. G.*

Electro-Culture.—The following extract from Fénélon's "Traité de l'existence de Dieu" seems to me to bear with so much force upon the influence of electricity on vegetation, that I make no apology for forwarding it to you:—"*Le Fluide electrique est, le soleil des Pôles:* une main prodigue l'y a repandu par torrens; l'atmosphère en est tellement remplie, que le poil des animaux petille au plus léger frottement. *Le soleil éclatant n'a pas plus de puissance que ce Fluide invisible:* il anime, il fleurit les campagnes, et il vivifie le cœur de l'homme." It is common to hear the remark, after a thunder storm, "How rapidly the gardens and fields have improved!" May not this in a great measure be owing to the electricity conducted to, and equally dispersed over the surface of the earth, by the rain? If so, it would be very desirable to produce an artificial thunder shower; and this, I think, may be accomplished conveniently, and without much expense, as follows:—A, a copper watering can; B, a zinc one, both made same size and half round, so that when soldered together they will form a round can, with a separate spout to each, a little inclined towards each other, so that the water may unite from each when falling, and thus complete the electric circuit.—*Wm. Ellis*, 109, *Moseley-road, Birmingham.*

Gardening Directions.—I have heard some ladies—I mean some such rational and useful beings as consider attention to their domestic duties as no degradation to their sex or station — exclaim energetically against certain fashionable cookery books, and other recipients, which present such latitudinarian directions as puzzle rather than instruct, and bewilder rather than enlighten —such, for instance as, "a pinch of salt," "a shake of pepper," "a dredge of flour," "a squeeze of lemon," or "sweeten to your taste." Now, these are all bad enough, but only tend to spoil a particular dish, or sauce, or pudding, for a day; but when we come to affairs of a higher science than what concerns direct and mere *gastromanie*, we really expect a somewhat higher order of ratiocination and correctness. Your by no means uningenious correspondent, "J. Elliot, Norton Conyers, Yorkshire," whose letter on Strawberries, I read with much benefit, and greater hope, in your last Number (May 31st), has fallen into that terrible error of inaccurate descripton, which has elicited in some otherwise excellent cookery books, &c., the reprobation of the intelligent ladies I have above alluded to. *Par exemple*, he tells us to choose the best and strongest runners, to fill 3-inch pots with good strong loam, and place them under the plant, (meaning, I presume, under the incipient roots of the runners); in less than a fortnight, he tells us these plants, separated from the parent, are to be shifted into 8-inch pots filled with loam, and abounding in humus, and slightly mixed with superphosphate of lime, &c. Now, Sir, what imaginable ideas do the words, "abounding in humus," and "slightly mixed," &c., convey to the understanding of any one who, like myself, is in the predicament of the ladies we have alluded to before? We are afterwards told to give "copious waterings, when required," with a "weak solution of ammonia and sulphuric acid!" What is a weak solution of ammonia and sulphuric acid? Is it so many drops of the one, and so many drops of the other, to a pint of water? or is it a matter of hap-hazard, and left like the "pinch of salt," or the "squeeze of lemon," to the taste or fancy of the operator? How many hundreds of plants may be destroyed before we arrive at any conclusion from such very vague experiments! Again we are told that the "plants are started before spring, by giving them a top-dressing of loam and superphosphate, sprinkling on the surface a little charcoal." What! two top-dressings! and when, and how much of each? "They are then placed in a Peach-house"—(Why not any house?)—"at a temperature of 50° at night, and 75° in day." We are finally told to "water the plants frequently with a weak solution of ammonia and sulphuric acid." Again I ask, How often? how strong? as well as how weak? These questions answered, your otherwise intelligible, and certainly intelligent correspondent, will have conferred a very agreeable wrinkle on a very humble amateur, who is also your obliged correspondent.—*S. J. Walton.*

The Ancient Timber of Ireland.—As I was passing a place called Lavey Strand, on the road from Cavan to Dublin, I observed the bottom of an ancient canoe lying on the shore of the lake, close to the road. I immediately went to examine it, and heard that it had been raised about a year ago from the bottom of the lake. When discovered, there was a gunwale above a foot in height along the sides, which, when I saw it, was almost entirely broken away. It was of very rude manufacture, hollowed out of the stem of an Oak-tree. The dimensions are gigantic. The bottom is 4 feet 3 inches across at one end, and about 3 feet at the other; the length is 40 feet. The diameter of the tree could not possibly have been less than 7 feet 6 inches at the bottom, and at least 5 feet, or 5 feet 6 inches, at 40 feet high. This would allow only a very moderate bulge for the sides of the canoe. What could have been the use of so large a canoe, made with great toil, on so small a piece of water (not containing 200 acres), I cannot conjecture. There are two islands in the lake, which were found to be artificial, when the proprietor was planting them about 10 years ago. The earth is supported by a frame-work of enormous Oak-beams, morticed into each other, and this is supported on piles driven into the lake-bottom. Some brass Celtic hatchets, ring-money, and four brass swords, were found above the frame-work; and there is another canoe, of smaller dimensions, lying partly exposed and partly in the mud, in about 6 or 7 feet water, near where the large one was found. The modern Oak of this part of Ireland is not at all remarkable for size.—*Cavanensis.* [What species of Oak was this? Q. sessiliflora. We should much like to see a bit of the sound timber]

Deformity of the Peach-leaf.—I have some Peach-trees growing on a very low lying ill-drained soil, which are excessively liable to have blistered leaves, and in some instances it extends to an unnatural thickening of the upper parenchymatous plate of the leaves, of which I inclose a specimen. Some young newly-planted trees, whose roots are consequently more near the surface, are not affected with this deformity. I am, therefore, inclined to the opinion that this disease arises from an excess of moisture being imbibed by the roots. An effort is made by the tree to enlarge its leaves for the elaboration of this excessive and diluted supply of sap, and in the effort the parenchyma of the leaves extends more rapidly than their ribs. Contortion is thus unavoidably induced. In a similar mode the pulp or parenchyma of the Plum and Cherry cause their cuticles to burst in wet weather. There are some acari upon the leaf inclosed; but I think these are attendants upon vegetable disease, not the cause. Thorough underdraining I hope will prevent a recurrence of the evil.—*G. W. Johnson.* [There can be no doubt that these leaves are deformed and blistered in consequence of an excessive influx of sap; and it is difficult to imagine that it can be caused by anything except a wet soil].

The Bee Ophrys.—A correspondent asked you lately how to preserve the Bee Ophrys in cultivation. I wish he would tell me how to preserve it in its native place without cultivation. Two years ago I observed three in a pasture in Bedfordshire, which I had shut up and planted with Larches about three years before. I took up one and carried it with me into Yorkshire, where I potted it. Last summer it produced two flower-stems, and has now three healthy shoots, and of course as many tubers; but, having marked the two which I left, hoping that they would multiply, I looked for them last July, but they had entirely vanished, and so had a single Orchis bifolia which I had left and marked with the same hope. The dry season had made such havoc amongst the Orchideæ, that in one pasture where there had been thousands of O. morio mixed with mascula, not one of either was to be found, and conopsea, maculata, and latifolia were greatly diminished in number; but I lost only one in cultivation that season, viz., a white conopsea. O. conopsea and maculata, if well cultivated, will produce spikes of flowers 9 inches long at least, and they like a little help from liquid manure. Those which I keep in pots are plunged in coarse sand. The soil should be rather strong, and may be advantageously mixed with a little powdered chalk or limestone. I have the fine Orchis fusca both in a pot of such compost, and on a sloping bank where half a bushel of the compost was inserted, shooting this spring very strong. Ophrys araneifera, which is identical with fucifera, is growing very well in pots, and looks more vigorous and healthy than apifera, muscifera, or arachnites. O. conopsea and maculata are very beautiful garden plants, when well grown, but they will be exceeded by fusca, if it should continue to flourish as well as it now promises. Three, which are together in a large pot, are vigorous and uninjured, having had no protection through the severe winter, which is still unmitigated while I am writing, amidst frost and snow in March; but two, which were plunged beside it in smaller pots, were found to have been completely destroyed by frost under ground, though the leaf-shoot above ground remained untouched. I am doubtful whether the frost penetrated the ground more easily by the pores of the pot, or whether the tubers were nearer the surface, or whether the mischief was done by my gardener's having injudiciously watered the earth to settle it when loosened by alternations of frost and thaw, which often tends to throw roots out of ground. It should have been merely pressed down. I observed this morning one of the vigorous plants of Ophrys araneifera, of which I have several in a large pot, thrown quite out of the ground, and, although the glass was 9° below the freezing point the preceding night, and 3° during the whole day, and may have been 20' since the root was heaved out of the ground, the tuber and fibres seemed to be quite uninjured. I had two plants of arachnites; one of them has perished without shooting; the other has formed two shoots. O. latifolia being a swamp plant, that is to say thriving where the land is water-logged and wants draining, should of course be less exposed to drought than such as grow like O. pyramidalis on dry ground. It is remarkable that last summer, when Ophrys apifera had disappeared from its upland position on my land in Bedfordshire, I observed two where I had never seen such before, in a low meadow near a brook, within a few yards of the spot where Orchis latifolia had flourished the preceding year, of which there is only about a sixth part, and those in the wet spots. From that and some other observations, I apprehend that the mature development of seedling Orchideæ must, in some cases, under favourable circumstances, be very rapid. I have answered your correspondent's question, with such additional matter as it suggested, and I will only add, that I shall be much obliged to him or any other person who will send to my gardener's care some living plants of Orchis militaris and macra, and of Orchis (otherwise called Herminium) monorchis, the latter with two quarts of its native soil; and I would gladly pay any gardening man for the trouble of procuring them, or the milk-white O. pyramidilis. Since the above was written, I have observed that two plants of Spiranthes autumnalis (lady's tresses) in a small pot in the sand-bed, were entirely destroyed by the frost under ground, though the whorl of leaves was uninjured. It appears, therefore, that the sod, in which it grows naturally, saves it from severe frost. I had long ago found that Neottia nidus-avis was killed in a pot by exposure to a very moderate degree of frost, being protected in its wild state by overhanging branches and withered leaves. It will, therefore, be safest to sprinkle a few leaves very lightly in winter over all Orchideæ cultivated here in the open air. The little wren is killed very speedily by exposure to frost in a cage, though in freedom its activity enables it to brave the severities of winter.—*W. Herbert, Spofforth, Wetherby, March 7*, 1845.

Labels.—Observing in a late Number, a few lines from a correspondent on the subject of labels, one of which you describe, may I be allowed to offer a word of caution, not, perhaps, especially directed against the label, but against the mode of securing it—the result of sad experience? That zinc is a good material for labels I believe; but where is it to be purchased? I doubt very much if it is so serviceable as lead; but by no means secure a label to a plant by means of wire of a different metal. In the case you mention, the label is zinc and the wire copper. These are precisely what, in my own thoughtlessness, I employed a few years back for my Standard Roses; but in two seasons half my labels had dropped off, and in another scarcely 1 in 50 remained. How could it be otherwise? Are not these two metals the most familiar, because the most powerful objects in exciting a galvanic current? Bethink yourselves, ye scientific gardeners, ere ye trust them together. By the way, as electricity is now being employed as an agent in promoting vegetable growth, what would probably be the effect of a mixture of zinc and copper filings in a compost; not in the heap, where its effects, if any, would be lost, but at the time of potting? —*Wm. Moates.* [Salts of zinc or copper are poisonous to plants, and must not be introduced into composts.]

Nurserymen's Advertisements.—Like your correspondent "W," I have availed myself of the same convenient mode of supplying myself with plants, and for that purpose I have weekly looked over the advertisements in the *Chronicle*, and I do not now recollect to have seen more than one Kentish nurseryman advertising the transmission of plants by post. I have dealt with that party, and if he be the person alluded to, I must in justice to him say that my experience of his conduct in business is very different to that related by your correspondent "W," I have sent money-orders to him twice this season, and in both instances they have been answered well and promptly; in fact, by return of post. I live nearer 700 miles than 100 from Ramsgate. Whilst on the subject of sending plants by post, I may mention that all I have received have arrived safe and done well; and those who live remote from nursery-grounds are indebted to those tradesmen who have adopted this novel way of supplying their country customers. The greatest drawback to the system is the want of proper catalogues; at present we must select plants without in the least knowing their worth or worthlessness.—*H. G., Elgin.*

Drainage for Pots.—I am but a novice and amateur; yet little as my experience is, I have found in it the incalculable good effects of perfect drainage, and have long used a material that I have not anywhere seen noticed, although amongst the wise men of the profession it may be quite familiar—that of using the round cinder that falls from steam-engine furnace-fires. It is clean and half vitrified, and agrees with the health of plants. I first place a few crocks to keep the hole free, then 1 or 2 inches of these ashes—then a little Moss, and, lastly, the lumpy soil, &c.; by which I effect in a superior way all that is needed. The advantage that the plan possesses is, that no worms will go through these ashes, and they make a most perfect drainage. I remember, a few years ago (I think it was recommended by Mr. Shepherd, of the Liverpool Botanic Garden), to have used a weak solution of corrosive sublimate in water, to kill aphides. Is it now ever used; and if so, in what proportion? — *Anon., Gosforth.* [Weak gas-water is much better, and not dangerous.]

Guano.—This is said, in the "Florists' Journal," to have killed all the plants in pots to which it was applied dry, mixed with the soil at the time of potting. But, would it have injured them had it been made into a compost three months before the time of potting, and exposed to the weather all the time?—*O.*

The Frog.—I was much amused the other day, watching the dexterity with which a large frog seized its prey, viz., large worms. It invariably took the worm at the extreme point of the head; after a number of unsuccessful bobs and attempts to get hold of it in the

right place, it always succeeded eventually. I was highly delighted with its ingenuity, but more particularly with its delicacy as regards cleanliness; for the worm being smeared over with dirt, the creature sat on its hind legs, and by taking the head first in its mouth, which was the only clean part about it, was enabled to pass the body leisurely through the divisions of its fore-feet, and so scraping off every particle of dirt as it continued swallowing each cleansed portion of the body, until the whole disappeared.—*J. R.*

A Word to the Judges of Seedling Pelargoniums.—I hope I shall not be considered out of order if I offer a word or two to those who have to decide upon the merits of the seedling Pelargoniums at the ensuing June meeting at Chiswick. I consider it to be their duty to study well the properties of this favourite flower before that time, as a good deal depends upon their judgment as respects both raiser and buyer. It is a peculiar hardship upon the former, if a really fine flower pass unrewarded, the expense of obtaining such being greater than ever, and increasing every year; whilst, if a poor flower be awarded a prize, those who purchase on the strength of such judgment are subjected to expense and disappointment. In my opinion, and I dare say the judges will think the same, those raised in 1844 should be examined first; then those of the present season. From inspection of several collections, I am enabled to state that some handsome varieties of 1844 will be submitted to the judges on the 21st of this month. I am not prepared to say that a large distribution of prizes is to be expected. If florists themselves are not strong enough, amicable enough, or enthusiastic enough, to establish and maintain an efficient Floricultural Society, let them suffer for it, say I. It is no business of the Horticultural Society of London to expend its funds on their productions beyond a judicious liberality. —*Veritas.*

Miscellaneous.—We are informed, that in the notice of the Exhibition of the Peckham Amateur Tulip Society, the Society has been wrong named; it is not the "Peckham Amateur Tulip Society," but "The Amateur Tulip Society," its members not being confined to so limited a *locale*, but spread over three or four counties.——*Mr. Miller, of Ramsgate*, observes, "In the notice of Chiswick Show, Mr. Hoyle is said to be of 'Jersey,' he is from 'Guernsey.' I state this because some persons may think, when I advertise his flowers, that they do not belong to the same person."

Societies.

HORTICULTURAL SOCIETY.

June 3.—Sir O. MOSLEY, Bart., in the chair. The Marquis of Breadalbane, C. C. Cook, F. G. Cox, W. Wood, F. Yates, and J. Rusken, Esqs., were elected Fellows. Of NEW PLANTS a very pretty variety of the handsome greenhouse plant Hindsia violacea was produced by Messrs. Henderson, of Pine-apple-place. There was no material difference between this and the species just mentioned, except in the flowers, which instead of being of a fine porcelain blue were white, a colour into which blue is very liable to change. It was said to be very fragrant, and will no doubt form a very interesting variety. From the same collection was also a yellow variety of Gompholobium polymorphum, a pretty twining New Holland plant. A Certificate was awarded for the Hindsia.—Messrs. Veitch and Son, of Exeter, sent Calceolaria floribunda, a Peruvian species, having small yellow flowers, and a cut specimen of a Eucalyptus, bearing little tufts of white blossoms. The latter was said to have been taken from a tree 14 ft. in height, and was stated to have stood the winter, such as it is in Devonshire, without injury, for six years in an exposed situation, in their nursery at Exeter. All the kinds that have been tried having proved too tender to stand the severity of the weather without protection in the Society's Garden at Chiswick, and some Eucalypti being much more hardy than others, it is worth ascertaining in different parts of the country what sorts are best adapted to our climate. A Certificate was awarded for the Calceolaria.—From Mr. Piper, gr. to A. Ward, Esq., was an exceedingly well-grown plant of the Calceolaria Lady Constable, covered with flowers, and three Schizanthus retusus. A Certificate was awarded for the Calceolaria.—Mr. Conway, of Brompton, sent a plant of his Cactus called Conway's Giant, a kind distinguished for the large size of the flowers, and for the bright red colour which they possess.—From Mr. Jackson, of Kingston, were Ononis rotundifolia, an Epidendrum from Guatemala, and two plants of Comarostaphylis, a nearly hardy Mexican shrub closely related to Arbutus. In the fruiting season it is covered with pretty dark purple berries, which give the plant a remarkable appearance.—From the garden of Sir T. D. Acland, Bart., was a bundle of Asparagus which weighed 11 lbs. 13 oz. The heads were from 9 to 10 inches in length, thicker than the thumb, and, unlike the samples usually found in the London markets, they were eatable nearly all the way down. A Banksian Medal was awarded for it.—From the garden of the Society were Stanhopea oculata, remarkable for its strong odour, Cypripedium barbatum, the useful Epidendrum gladiatum, a fine Brassia guttata, three Begonias, a good Erica intermedia, and several well-grown Cinerarias, together with Glossocomia ovata, a hardy Indian herbaceous plant, producing pretty pale-coloured bell-shaped flowers which are elevated on long stalks above the foliage. Along with these was the Persian annual Cochlearia acaulis, a species of stemless Scurvy-grass, which forms little green patches closely studded with small pale starlike flowers.—Finally a Hyacinth bulb was produced which had been grown in water, and which had had the base all rotted away. On the decayed part being removed, however, and the bulb placed under circumstances favourable to vegetation, nearly all the remaining portions of the scales produced young bulbs; thus showing with what facility such things may be increased by any part of the scales, even when the portion from which the young bulbs usually grow has been removed.

ROYAL BOTANIC SOCIETY.

June 4.—THE SECOND EXHIBITION for the season was held in this Society's Garden, Inner Circle, Regent's Park. The day was not so fine as could have been wished, slight showers falling during the afternoon. Her Majesty and Prince Albert honoured the Exhibition with a private visit previous to the opening of the gates at 2 o'clock. During the afternoon several thousand persons visited the Garden. The plants were in beautiful order, exhibiting great skill in cultivation. As the greater number of them, however, were present at the last Chiswick Show, we shall not repeat the description of those again brought forward, but shall confine our remarks to the leading features of the Exhibition, and to such as were not then shown, or which displayed any peculiarity not before alluded to.

In collections of 30 STOVE and GREENHOUSE plants there were two competitors, Mr. Barnes, gr. to G. W. Norman, Esq., and Mr. Hunt, gr. to Miss Traill. Mr. Barnes's group, which gained the first prize, contained some remarkably well cultivated plants, among which may be classed a noble Aphelexis humilis, richly ornamented with multitudes of fully-expanded blossoms; a fine specimen of Erica odore rosæ; Pimelea Hendersoni, a handsome species, thickly covered with rose-coloured blossoms; the larger variety of Aphelexis purpurea, and a good plant of the yellow Gompholobium tenellum.—Mr. Hunt sent, among others, fine specimens of Achimenes grandiflora and longifolia, a tall Ixora coccinea, Cattleya Forbesii in luxuriant health, but not well bloomed; Pimelea spectabilis, 5 feet in height and 4 feet in diameter; a beautiful Boronia serrulata, Kennedya villosa, and several exceedingly well grown Cape Heaths.—Collections of 15 Stove and Greenhouse Plants were produced by Mr. Fraser, of the Lea Bridge-road Nursery, and Mr. Pawley of Bromley. Mr. Fraser sent a very fine Azalea sinensis, in full bloom; Boronia pinnata, loaded with pink blossoms; Erica Bergiana, in remarkable health, and producing multitudes of small purple flowers; the best variety of Chorozema varium, and a finely-managed Boronia serrulata.—The second prize was awarded to Mr. Pawley, whose plants were inferior to those of his competitor. —Prizes were awarded for groups of 10 Stove and Greenhouse Plants—1st to Mr. Green, 2d to Mr. May, 3d to Mr. Kyle, and 4th to Mr. Bruce. Among Mr. Green's plants were Coleonema pulchrum, an immense bush, whose gracefully pendent branches were covered with a profusion of pink starlike flowers; Calanthe veratrifolia, producing 10 spikes of snow-white blossoms; a large and well-grown Azalea Gladstanesii, and a fine Pimelea decussata, about 2 feet in height and 3 feet in diameter. Among Mr. May's plants were Ixora coccinea, very tall and finely in flower; a beautiful Hovea Celsi, and a pretty Erica splendens, together with a small but good Pimelea spectabilis. Mr. Kyle and Mr. Bruce also contributed handsome specimens. Mr. Cockburn, gr. to the Earl of Mansfield, who likewise exhibited in this class, sent a remarkable plant of Epiphyllum fulgidum, about 4 feet in height, and 3 feet in diameter, literally covered with flowers, many of which were, however, not open. And Mr. Ayres, gr. to J. Cook, Esq., sent, among other plants, a large Pentas carnea, loaded with blossoms; a small but good Pimelea spectabilis, and a beautiful Erica propendens.

The collections of ORCHIDACEÆ were a decided improvement on the last Exhibition. The plants shown, however, were nearly the same as those produced at Chiswick on the 24th ult. In groups of 15 plants, the competitors were Mr. Mylam, gr. to S. Rucker, Esq., and Mr. Robertson, gr. to Mrs. Lawrence. The first prize was awarded to Mr. Mylam, who sent, among others, Cirrhæa atropurpurea, bearing multitudes of blossoms; Stanhopea tigrina, with four blooms; and Sobralia macrantha, producing eight fully expanded flowers. Among Mr. Robertson's plants we noticed the pretty Saccolabium præmorsum, with three spikes of blossoms, S. guttatum, and several Dendrobia.—Groups of ten Orchidaceous plants were sent by Messrs. Veitch and Son, of Exeter, Mr. Don, gr. to G. F. Cox, Esq., and Messrs. Henderson, of Pine-apple Place.—Messrs. Veitch sent Barkeria spectabilis, with handsome lilac blossoms, Stanhopea saccata, and the rare Anguloa uniflora.—Mr. Don contributed Stanhopea oculata, having a fine spike on which were nine expanded flowers, and a good Aerides crispum.—Messrs. Henderson sent Stanhopea oculata, producing three large spikes of blossoms, and S. tigrina with four blooms.—Mr. Plant, gr. to J. H. Schroder, sent Calanthe veratrifolia, and Aerides odoratum. Finally, of SINGLE SPECIMENS, Mr. Roe, gr. to J. J. Blandy, Esq., sent the same Aerides odoratum exhibited at Chiswick, for which a first prize was awarded.

Although a number of HEATHS were present, the display was inferior to the May Show. In collections of 15 the competitors were Mr. May, Mr. Barnes, and Mr. Taylor. In Mr. May's group, we observed a fine mundula, and an exceedingly well-grown propendens. Mr. Barnes sent good plants, among which were several varieties of ventricosa. Mr. Taylor produced ventricosa coccinea, and splendens, whose large scarlet flowers made a brilliant display.—In the *Nurserymen's Class*, the competition was between Mr. Fraser and Mr. Fairbairn, of Clapham. Among Mr. Fairbairn's plants, which were awarded the first prize, was a remarkable specimen of Cavendishii, and several varieties of ventricosa. Mr. Fraser sent a fine Bergiana, a good Thunbergia, and a very fine propendens. Groups of 8 were sent by Mr. Hunt and Mr. Green, the former producing, among others, good plants of Wesphalingia and odore rosæ. In collections of 6, Mr. Bruce was first; he sent propendens, Bergiana, and Cavendishii, in fine condition.—Of SINGLE SPECIMENS, displaying superior cultivation, Messrs. Lucombe, Pince and Co., of Exeter, sent Cyrtoceras reflexum, a fine plant in luxuriant health; Mr. Pawley, a large Stephanotus floribundus; Messrs. Veitch and Son, Erica Cavendishii; and Mr. Crasswell, of Exeter, a large Pavetta caffra.—For NEW PLANTS, the first prize was awarded to Messrs. Lucombe, Pince and Co., for a fine specimen of the beautiful stove-twiner Dipladenia crassinoda. From the same collection was also Vesalia floribunda, a small Bushy-growing plant, with long rosy-pink tube-shaped flowers. This received a second prize; and Messrs. Veitch and Son were also awarded a second prize for their new Fuchsia serratifolia.—Mr. Jack, gr. to G. Loraine, Esq., received a third prize for Dipladenia crassinoda.—For NEW PLANTS, not in bloom, the first prize was awarded to Messrs. Lucombe, Pince and Co., for Drimys Winteri; and the second to Mr. Slowe, gr. to R. W. Baker, Esq., for a large Veronica speciosa. —Beautiful collections of tall Cacti were sent by Mr. Green and Mr. Bruce. In that of the former was a magnificent plant of C. speciosissimus, upwards of 7 feet in height. Mr. Bruce's plants were also finely in bloom, and made a rich display.

The ROSES IN POTS were very fine, and commanded much attention; as a whole, however, they were rather past their best. There is no greater task than the production of a fine exhibition of the Queen of Flowers. Their generally transitory character points out the only method of obtaining this desideratum, viz., quantity to select from. La Reine, of which we have heard a very high character, we saw and hope to see again, as it is evidently a very fine Rose. Among nurserymen the competitors were Messrs. Paul, Lane, and Laing. The collection of Messrs. Lane contained of *Hybrid Perpetual*, Comte de Paris, lilac; Lane, shaded crimson; La Reine, brilliant rose; and William Jesse, crimson. Of *Bourbon*, Acidalie, white; Armosa, rosy blush; Augustine Margot, delicate rose; Emilie Courtier, crimson; Phenix, red; Proserpine, crimson; Psyche, crimson; Thérésita, bright carmine. Finally, of *China* it contained Henry the Fifth, scarlet; Marjolin, red; Caroline, pink; Eliza Sauvage, straw coloured, and Theresa Isabelle, white. The collection of Messrs. Paul and Son contained fine specimens, and 10 plants from Mr. Beck, of Isleworth, were admirably managed. The uninitiated would have pointed out Armosa in this collection, covered as this large plant was with 36 fully-expanded blooms, as perfect; but the experienced eye at once detected that a week ago it had possessed a rosy freshness of colour which had passed away. An extra prize was awarded to Mrs. Stedman, of Isleworth, and A. Rowland, Esq., of Lewisham, received a certificate of merit for a small collection.

The show of PELARGONIUMS was remarkably fine; the majority of the flowers exhibiting a decided advance in quality. The first prize for 12 new and distinct varieties was awarded to Mr. Dobson, gr. to E. Beck, Esq., of Isleworth, for the following, viz.—Favorita, Sultana, Susanna, Lurida, Sir R. Peel, Matilda, Lord Chancellor, Pulchellum, Leonora, Zanzummim, Marc Antony, and Conflagration. Mr. Staines received the second prize for Adonis (seedling 1844), Enchantress, Superbe, Duke of Cornwall, Sunrise, Lady Sale, Hebe, Sunbeam (seedling 1844), Erectum, Madeleine, Alice Grey, and Roulette. This collection would have had the first prize there is no doubt, had the quality of the latter flowers not been so much inferior to Mr. Beck's. Mr. Cook took the third prize with Cyrus, Duke of Cornwall, Erectum, Emma, Unit, Sir Robert Peel, Eliza Sauvage, Rosette Superb, Angelica, Jubilee, Hector, and Symmetry. An excellently grown collection of eight, shown by Mr. Coysh, gr. to R. Hudson, Esq., Clapham, was deservedly placed first. Mr. Bell, of Chelsea Hospital, took the second prize. Mr. Parker, gr. to — Oughton, Esq., obtained the highest award for 12 large and handsomely grown well-flowered specimens, in 11-inch pots. These were much superior to the plants of the two Exhibitions in this number in the nurserymen's class.

The first prize for six CALCEOLARIAS was obtained by Mr. Garrod, gr. to R. B. Forman, Esq., Hampstead. The second by Mr. Wren, gr. to J. Huskisson, Esq., of Holloway. In the nurserymen's class, Messrs. Henderson, of Pine-apple-place, and Mr. Gaines, of Battersea, were the successful exhibitors; the former first, the latter second.

Of CINERARIAS, for collections of four varieties, Mr. Kay, gr. to B. D. Colvin, Esq., was the only candidate as an amateur; and Messrs. Lane and Son first, and Mr. Gaines second, as florists.

For collections of 12 FUCHSIAS, the first prize was awarded to Messrs. Lane and Son for exceedingly well-cultivated plants; and a second prize to Mr. Gaines, whose group contained some fine varieties. Messrs. Kendall and Robinson also contributed good plants, for which extra prizes were awarded.

PANSIES, in stands of 36, were shown by Mr. Brown, of Slough, and had a first prize; and an extra award was made to Mr. Bragg.—SEEDLING CALCEOLARIAS, of the spotted varieties, were exhibited in abundance.

Amongst them, one shown by Mr. Kinghorn, named Exemplar, was distinguished for size, shape, and beauty of colour, in excellent combination. It was awarded the highest prize.—Mr. Gaines's Climax, and Mr. Garrod's Lacerta, were awarded certificates of merit. Let us, whilst spotted Calceolarias are all the rage, recall to the remembrance of our readers the beautiful selfs and blotches of former days, and entreat that some one will attempt the obtaining something extraordinary in this way again.—SEEDLING PELARGONIUMS were exhibited by Mr. Beck; those selected for prizes of the season 1844 were—Aurora, first prize; Arabella, second do.; Rosy Circle, extra prize; Bellona, the same. Of the present season's productions, the first prize was given to Competitor, and a certificate of merit to Caliph. We shall not dwell on these flowers, as we understand the first four are to be exhibited again at Chiswick on the 21st, which is a grand day for these interesting productions; and the 10 latter will have to be shown in 1846, to test their real merits. We will merely add that, in our opinion, the Judges in their award wisely remembered that seedlings are not exhibited one against the other, but against varieties already out, except so far as those of the present ought to be in advance of those of the last season. Should the weather prove favourable, a large exhibition of seedling Pelargoniums may be expected at the Horticultural Society's *fête*, the generality of collections being very backward this season.

Among MISCELLANEOUS OBJECTS were two collections of Ferns, several groups of British plants, and collections of British Orchidaceæ and other plants.

Reviews.

Practical Treatise on the Cultivation of Orchidaceous Plants. By John Henshall. 8vo. Groombridge.

A BOOK so full of absurdity as this, it is not very often our misfortune to take up. In fact, we believe that such works are unknown, except among gardeners. Want of knowledge is in itself a misfortune, and we should never make it a reproach, except to men who have not sense enough to be conscious of it, and who have moreover the vanity to believe that, notwithstanding their ignorance, they are capable of becoming the instructors of others. For such persons we have no pity.

Mr. Henshall, in his very first page, takes care to acquaint his readers that he regards geographical knowledge as of great importance; indeed, as "the most useful kind of information, it must be acknowledged, that can be acquired in relation to cultivatable objects;" and he proceeds elsewhere to display his geographical knowledge, by describing Malacca as "a country of India, beyond the Ganges, formerly a large peninsula, *growing upon the Tamarind and other lofty trees;*" placing Sierra Leone in the south-western parts of Africa; making Ceylon one of the Philippines; and then again converting Sierra Leone into an island. By way of further acquainting his readers with all that can be required in this important question of geography, he also applies it botanically, and claps the East Indian genus Eria into the new world, Catasetum and all its allies into India, Epidendrum into "the islands of South America"! and Dendrochilum, a genus unknown out of the Indian Archipelago, into these same islands, where he assures us that the Indian Trias also grows. And then, in order to be still more scientific, he groups his genera, and tells the reader how each group is to be managed. Of course one would expect to find plants with similar habits and constitutional peculiarities associated in this case. Not a bit of it. Isochilus and Tetrapeltis, Scaphyglottis and Geodorum, Pleurothallis and Polystachya, Burlingtonia and Trias, and other things about as much alike as cockatoos and eagles, are directed to be managed in the same way! Need we go on?

Miscellaneous.

The late Mr. Griffith.—We extract from the Annual Report of the Royal Asiatic Society, the following interesting observations:—"It may not be thought unfitting that to the melancholy list of these most valuable members of the Society who have in the year under review been taken from us, and who have most justly been mentioned with honour, the Council should add the name of William Griffith, whose death at Malacca, on the 9th of February last, has been announced by the last Mail from India, and whose loss will be a subject of deep sorrow to all who either regard the general interests of science, or the local and particular interests of India, and above all, to those who were personally acquainted with him, and could appreciate his great acquirements and his admirable qualities. Mr. Griffith was one of the most accomplished botanists of our day; with the most accurate and extensive acquisition of learning in his department, he combined a spirit of activity and enterprise, such as has been rarely equalled, great talents, and a very remarkable power of labour, arrangement and application. He was born in the year 1810, and was educated at the London University. He went out to India as an assistant-surgeon on the Madras Establishment, where he arrived on the 24th September, 1832, and was shortly afterwards selected by the Bengal Government for the examination of the botany of the Tenasserim Provinces. He was, in 1835, deputed to Assam, with Dr. M'Clelland, for the purpose of assisting Dr. Wallich in his inspection of the growth of the Tea plant in Assam, and from thence he proceeded, in company with Dr. Bayfield, to the then unexplored tracts which lie between Suddiya and Ava, upon the extreme frontier of our eastern territory. In 1837 he accompanied Captain Pemberton on his mission to the wild countries of Boutan. In 1839 he was sent with the army of the Indus, to prosecute inquiries into the botany of Affghanistan. In 1841 he was appointed to the Medical duties of Malacca. In 1842, upon Dr. Wallich's absence, from illness, at the Cape, he was intrusted with the superintendence of the Botanical Garden at Calcutta, and with the duties of the Botanical Professor in the Medical College; and, upon the return of Dr. Wallich from the Cape, he resumed his place at Malacca, where he was seized with disease of the liver, and died at the early age of 34, having already acquired a distinguished reputation,—having in every capacity in which he served the Government received its approbation and its thanks; and having given a promise of such further services to botanical science as few have had either the opportunity or the talent of affording. In all his varied and extensive journeys, his courage and his energy never failed him; whether in the jungles of Assam or the hills of Affghanistan, he still pursued his researches, undeterred by danger, either of disease or of violence; and if disabled, as he was more than once by fever and debility, his first convalescence found him ever ready for fresh exertions. He had thus, by the application of extraordinary powers of observation, and in perquisitions extending through the vast regions which have been enumerated, formed large and valuable collections, and brought together materials for a great botanical work; and he looked with impatience to a period of repose for compiling a scientific Flora of India, when he sunk under his last fatal illness. Perhaps no more impressive picture of the energy of this extraordinary man, and of his devotion to his favourite science, can be given than that which may be drawn from the following extracts from a letter which was dictated by him on his death-bed, and addressed to Dr. M'Clelland:—'I write this by deputy, being seriously ill of hepatitis; the attack has been very severe, and the treatment necessarily active, so that I am reduced to an extreme state of weakness. Although my adviser does not despair, still the issue is doubtful, and under this impression I commence a few lines to you on business. Mrs. Griffith (supposing the result of this illness to be fatal to me) will bring up with her all the collections at Malacca, and they being added to those at the export warehouse, and all having been previously cleaned and packed, I leave to you to present to Government, for the Honourable Court of Directors, to be sent home without any delay. As you know the trouble I have taken with these collections, and the hopes I had of making them subservient to a general scientific Flora of India, I need not impress on you how much I am interested in their proper disposal, and their being brought properly before the scientific public; and I would say the same regarding my drawings and manuscripts, which will accompany my wife to Calcutta, should it so happen that I leave her. In all the plans which I have consigned to your execution, both regarding my wife and collections, I am confident your own feelings will prompt you to every exertion on my account. Asking God's blessing on you and your wife, I bid you good bye.' 'Thus far,' continues Dr. Moorhead, his medical attendant, 'was written at Mr. Griffith's dictation, but I grieve to say the fatal result came to pass yesterday evening, Sunday, 9th February, at half-past seven o'clock.' *Memoranda on the above by Dr. M'Clelland.*—'To the above details, furnished by Dr. Moorhead, I may remark that Mr. Griffith's constitution for the last two or three years seemed greatly shattered, his energies alone remaining unchanged. Exposure during his former journeys and travels laid the seeds of his fatal malady in his constitution, while his anxiety about his pursuits and his zeal increased; he became care-worn and haggard in his looks, often complaining of anomalous symptoms marked by an extreme rapidity of pulse, in consequence of which he had left off wine for some years past, and was obliged to observe great care and attention in his diet. In Affghanistan he was very nearly carried off by fever, to which he had been subject on his former travels in Assam. No government ever had a more devoted or zealous servant, and I impute much of the evil consequences to his health, to his attempting more than the means at his disposal enabled him to accomplish with justice to himself.' Although Mr. Griffith's researches were directed primarily to Botany, he neglected no opportunity, during his visits to various parts of India, of attending also to other departments of natural history. Of his zeal and success in zoology, the collections which he made afford abundant proof; they consist chiefly of mammalia, birds, fishes, and insects. While attached to the army of the Indus, he made, on account of Government, large collections of mammalia and birds, which have been transmitted to the Honourable Court of Directors, and which constitute a valuable addition to the museum at the India House. In mammalogy he collected a considerable number of the smaller animals of Affghanistan, among which are several new to science; but his ornithological collections are more extensive, having brought together about 600 specimens, not only from the route of the army, but from several separate excursions to the ranges of mountains north of Cabul. Besides the discovery of a considerable number of new species, the interest of these collections consists in their affording, perhaps, the most extensive and instructive illustration of the geographical distribution of the several species of birds found in India, which has as yet been attempted. Mr. Griffith has also been zealous and successful as a collector of the fresh-water fishes of India, during his various travels: the importance and extent of these is detailed in a paper on the subject, printed in the second volume of the 'Calcutta Journal of Natural History;' and some of his discoveries in entomology have been communicated to the public by the Rev. F. W. Hope, in the eighteenth volume of the 'Transactions of the Linnæan Society of London.' He was most especially remarkable for the philosophical spirit in which he invariably prosecuted his researches, and for the patience with which he watched the most minute phenomena which appeared to him connected with the subjects of his investigation. Some of his published papers, especially those on Vegetable Impregnation, and the Progressive Development of Organs, have never been excelled and rarely equalled. The merits of this accomplished naturalist and devoted labourer in the field of scientific discovery, were appreciated and fostered by the noble president of this Society while at the head of the Government of India, and it is to his lordship's kindness that the Society are indebted for some of the most interesting parts of the foregoing communication. His loss has also been recently noticed in terms of deep regret by the present Governor-General, Sir Henry Hardinge, in his Excellency's Address at the annual distribution of honours and prizes at the Bengal Medical College. As it is understood that the whole of the valuable materials prepared and collected by Mr. Griffith are consigned to the Directors of the East India Company, the most confident hopes may be cherished that the expectations of the scientific world will not be disappointed of the full benefit which they are calculated and were intended by him to confer on botanical and zoological knowledge, and that the irreparable loss entailed on his widow by his early death, and the sudden extinction of all those hopes of fortune, honour, and reward, which his extensive knowledge and indomitable energy were so well calculated to raise, will meet with such alleviation as, to the enlightened liberality of the Honourable Court, the great value of his labours, and the forlorn and ill-provided state of his widow and family, may be considered to merit."

Bees.

ANSWERS.—*J. Smartt.*—Many bee-keepers know that it is not "a rare occurrence to see young bees from the beginning of August to the 1st of April." And likewise that maggots, or young bees, are troublesome while they are extracting honey from the combs in autumn. The age of working bees is only about 6 or 7 months. Supposing a hive in summer to contain 26,000 bees, their deaths during winter, according to Bevan, would amount to 23,000. By your account it would be nearly 8 months before others were bred to fill their places: if so, how could a colony exist? The fact is, when bees are in good condition, they rear brood at all periods of the year, but, of course, much less during cold weather. Although bees draw much closer together in winter, still the heat in the hive does not exceed from 60° to 75°, whilst in summer it ranges from 90° to 100°, and in very hot weather to 130°. When the heat is greater the combs melt, and if the brood-cells were not coated with a tough substance they would collapse sooner, being in the centre of the hive. Much has been said respecting that substance being the cocoons from the brood. But the larvæ of bees form no cocoons, or chrysalis at all (I mean no outward covering, and not the change of the grubs to the insects), like those of wasps, they only close the opening of the cells; more protection is not wanted. If it were, when the grubs are so tight in the cells, how could they form cocoons round their bodies? which become bees, leaving the cells of the same size for the next generation.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Orchidaceous House.—Continue to maintain the maximum temperature here, with copious supplies from the syringe. Some of the free-growing kinds will be benefited by increased pot-room, and those on blocks of wood, and in wire baskets, may have a little additional Moss applied over the roots. When vigorous growth is going on, never allow the young and succulent roots to perish for want of moisture, which at this season they are apt to do; gradually expose plants coming into flower, to a colder temperature if you desire to enjoy them for any length of time. *Geranium House.*—Shade the blooms as they expand, and lower the temperature as far as practicable to prolong their beauty; those desirous of obtaining new varieties with greater certainty, should protect them with canvas from bees and other insects which are likely to intermix the kinds. Much care is requisite in this respect, for even at best the hopes of the most assiduous are frustrated. Supply them generously with water, and occasionally with liquid manure. *Forcing Pit.*—This pit may be profitably filled with numerous ornamental plants requiring the aid of additional warmth to bring them kindly into bloom; among these may be classed Balsams, Cockscombs, Hydrangeas, Gardenias, &c. &c. Propagation of Geraniums may be also carried on at the same time in this pit, as well as of many kinds of soft-wooded plants.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The Banksian Rose under glass is now going out of bloom, and should be pruned at once quite close to the old wood, in order to insure a good bloom next year, carefully leaving all the strong young wood of this year, that is well placed. Plants out of doors must not however be cut until the blossoms make their appearance, when all weak wood should be removed. Early-planted beds in the flower-garden would be much improved by hoeing them slightly over to loosen the surface, after the heavy showers of rain, but do not rake them for a few days. Thin out annuals, and transplant choice kinds. Mow Grass lawns regularly during this growing weather. Clip edgings, and endeavour to render the whole neat in appearance. Where the soil is poor and the lawn looks bad, a thin dressing of nitrate of soda would have an astonishing effect; apply it in moist weather. Plant out into borders Salvias, Lupines, scarlet and other Pelargoniums, Fuchsias, or any of the overplus plants after the beds are filled up, taking care not to crowd too much. *Pits and Frames.*—Shift specimen plants as often as they require it, shade a little during the middle of the day if the sun is hot, and attend carefully to watering; give manure-water to such plants as have filled the pots with roots, but not too frequently. Let the liquid not be too strong, and let it be as clear as possible; many plants are destroyed by too frequent an application of manure-water.—*B.*

III.—FLORISTS' FLOWERS.

Polyanthuses and *Auriculas* must have the same attention and management as directed last week. *Tulips.*—When out of bloom, the top cover may be removed, and let the plants have all the weather; break off the capsules where seed is not required. *Carnations.*—Tie these carefully as they advance. Seedlings may be pricked out in beds, when they have attained sufficient size. *Pinks.*—Where intended for exhibition, the buds must be removed, and only two or three allowed to each stem. Prepare beds for pipings, &c. *Pansies.*—Continue to put out seedlings, this showery weather being peculiarly congenial to the young plants. *Ranunculuses.*—Keep the beds free from weeds; occasionally examining the plants, see the soil is not cracked, so that the crowns are exposed to the air. *Dahlias.*—Put all the stakes down, and as the plants lengthen, tie them with matting.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Those who want a continual succession, and more especially those who want very early fruit in the ensuing year, will do well to give a few of the forward and strong successional Queens, or other kinds, a shift into full-sized fruiting-pots at this time. They may be expected to have filled their pots with roots by the end of October, and will, under proper treatment, prove "good shows" in the end of December and through January. Much of the difficulty in getting Pines to show arises from not giving the final shift in due time, or from being guided by rules without a principle. *Vineries.*—Those late vineries which have now set their crops, will require a return to humidity, and other matters, suspended on account of the blooming period. Suffer the leaders to ramble for the purpose of keeping in action a considerable volume of new root, but keep the laterals frequently stopped on those side-shoots or spurs carrying the principal fruit. Persist in the use of sulphur, for fear of the red-spider: I do, and I never find the red-spider troublesome. I will shortly return to the sulphur subject. Peaches as before. Beware of insects; take care of inside roots as regards moisture; as the fruit approaches maturity, increase the air. *Figs.*—Stop young wood as before, as well as other matters.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Hardy Fruit and Kitchen Garden.—Proceed with thinning the superabundant shoots of wall trees, and nail those that are necessary to be laid in. By frequently going over these trees, confusion is prevented, and on the whole a saving of time will be the result. The fruit must be well thinned, otherwise it cannot be fine. This applies to the fruit of Pears as well as to that of stone-fruit, taking care to leave those that may now be seen to take the lead in swelling. The shoots of Pears should not yet be cut back, otherwise the buds that ought to remain as such to form fruit-spurs will be induced to break into shoots. They ought, however, to have as much light as possible; and, therefore, the most advanced of the fore-right shoots should be stopped by merely cutting off an inch or two from their points. It is now a good time to scrub the stems of fruit-trees infested with scale, for the young broods are issuing from their fastnesses, and are as naked and tender as mites. *Kitchen Garden.*—Dress Asparagus beds with manure-water or common salt: 5 lbs. of the latter to a rod will do good, and there will be no danger from the application of double the quantity. Sow some early long-pod Beans, and top those in flower. Sow also Kidney Beans, Peas, Cabbages, Lettuces, Spinach, Endive, Broccoli, and Cauliflower. Plant out Cauliflowers, German Greens, Celery, Lettuces, and other crops from the seed-beds as the plants become fit. Earth up Potatoes, thin Cardoons, Parsnips, Carrots, Beet.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—See last week's directions. *Nursery.*—Remove the clay from growing grafts, and retie and stake them where necessary; remove suckers from grafted and budded stocks; destroy weeds; and diligently guard against the depredations of birds and vermin.—*F.*

State of the Weather near London, for the week ending June 5, 1845, as observed at the Horticultural Garden, Chiswick.

May		Moon's Age.	Barometer.		Thermometer.			Wind.	Rain
			Max.	Min.	Max.	Min.	Mean.		
Frid.	30	24	30.045	29.751	64	29	51.5	N.	
Sat.	31	25	30 181	30.166	69	43	56.0	S.W.	
June									
Sun.	1	26	30.133	30.042	72	43	57.5	S.W.	
Mon.	2	27	29.951	29.761	81	46	63.5	S.	
Tues.	3	28	29.630	29.367	81	44	62.5	S W.	.06
Wed.	4	29	29.647	29.516	70	49	59.5	S.W.	.05
Thurs.	5	●	29.597	29 513	68	55	61.5	S.W.	.08
Average			29 876	29.735	72.1	45.5	58.8		.19

May 30—Cold and overcast; fine, with few clouds; clear at night
31—Very fine; cloudless, with slight dry haze; partially overcast
June 1—Overcast and fine throughout
2—Very fine; sultry; partially overcast
3—Slight fog: very fine; sultry; thickly overcast: rain
4—Overcast; heavy clouds and showers; slightly overcast
5—Slight rain; cloudy; showers; fine in afternoon; boisterous at night.
Mean temperature of the week ½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending June 14, 1845.

June	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 8	70.3	47.5	58.9	6	0.10 in.	3	4	1	—	4	2	4	1
Mon. 9	71.8	48.8	60.3	8	0.60	1	3	1	1	3	5	3	2
Tues. 10	72.7	49.2	60.9	8	0.34	1	4	—	1	2	5	4	2
Wed. 11	72.3	50.5	61.4	7	0.47	—	5	1	1	3	4	5	—
Thur. 12	72.6	49.2	60.9	8	0.00	—	5	1	1	5	5	1	1
Fri. 13	73.2	50.3	62.1	7	0.56	1	2	3	—	2	5	4	2
Sat. 14	74.0	51.1	62.5	7	0.00	1	1	2	1	3	5	5	1

The highest temperature during the above period occurred on the 12th and 13th, 1842—therm 90°; and the lowest on the 9th, 1838—therm. 35°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

AURICULAS—*J M R*—Six fine show Auriculas are, green-edged: Page's Champion, and Lee's Col. Taylor. Grey-edged: Kenyon's Ringleader, and Oliver's Lovely Ann. White-edged: Taylor's Glory, and Leigh's Bright Venus.✲

BISHOP AUCKLAND—*W S, Darlington*—We are not at liberty to give you the information you desire.

BOOKS—*R H C*—All the information that can be required upon the cultivation of the Pelargonium is to be found in the first volume of this Journal. There is no work specially on the subject that we can recommend.——*J B L*—Try Knight's "Guide to Service, the Gardener," lately published. You will hardly get more information within the price you name. Add Paxton's "Cottagers' Calendar," and you will be set up, as a beginner.

CAMELLIAS—*M A B* and *G D*—This disease appears in both cases to be connected with the cultivation of the plants under canvass. It is not of common occurrence, but appears to be traceable to over-watering and a low temperature; our cold spring without sun will account for the latter, and we can hardly doubt that you will find the drainage of your pots completely out of order. Just compare the balls with the statement made by "Duro" a few weeks since.

COMPOSTS—*G D*—Certainly quicklime will rid you of your grubs, and improve your compost into the bargain.

COTTON—*T G*—We agree with you as to the importance of this subject; and are obliged to you for the letter. But are you not aware that the East India Company has recently incurred large charges in bettering the Cotton cultivation in India, by sending out American seeds and American planters? and that the quality of Indian Cotton has become very greatly improved in consequence? You will find plenty of information on the subject in the proceedings of the Agri-Horticultural Society of India.

EXHIBITIONS—*D Murray*—Such inquiries as yours can only be answered after actual inspection at the time when the award was made. Your 36 plants may have been inferior in point of cultivation to your neighbour's 17. The result a month afterwards may have been reversed, and yet be just; for your plants may have improved, and his deteriorated. It would be absurd to call Melia Azedarach an out-door plant in this country; but it may be so in the milder climate of Cork. It is hardy in the Mediterranean, although a native of the East Indies. If the judges rejected it as a greenhouse plant they were certainly wrong, because, although capable of living out-of-doors, it only flourishes under glass.——*A Novice*—Gardeners are admitted gratis, and by the order of any Fellow of the Society, at the Chiswick Shows, before half-past 8 in the morning, and are allowed to remain till 10. We presume that no difficulty exists in the matter at other Exhibitions. At Chiswick any respectable man, who is *known* to be a gardener, is admitted before half-past 8, even although he has not an order from a Fellow of the Society. All the good gardens round London are accessible to respectable gardeners.

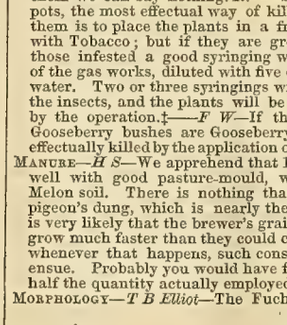
FUNGI—*S F W*—We will make inquiry, and tell you next week. We never met with such a case.

GREENHOUSES—*A Constant Reader*—We presume that for such purposes as you name you will have heat enough; to work such tanks you should have one of the full-sized boilers. The arrangements are good, provided you have side-lights; but if not, the glass roof is too far off the beds for forced flowers. We fear that your freestone tanks will be too damp for winter service, and therefore it would be advisable to carry an iron pipe round the house for the purpose of drying the air if necessary. Experience shows that in general all permeable materials employed in tank-building are too damp except where there is plenty of light and a high temperature. You have not provided ventilation; can't you open passages in the wall just below the tanks, and adapt doors to them, so as to open or shut them at pleasure? We do not know how galvanised iron gutters stand; it is said that they give way at the joints.

INSECTS—*M W K*—Sprinkle the holes from whence the crickets issue with plenty of spirits of turpentine, and tell us the result when you have repeated it for a fortnight. *R.*——*W L*—Worms are so numerous in the earth that it is not easy to subdue them, neither is it desirable at all times, as they are very useful; hand-picking is the best remedy, if they be inconvenient; soot, lime, and salt are also good applications. The Centipedes you sent need cause you no alarm; they never injure healthy crops. Your garden, in all probability, wants draining, and the vegetation of many seeds has been greatly retarded by the cold spring. Trench your land well next autumn. *R.*——*Thorpelands*—The worms are the larvæ of the Elater lineatus, and of some gnat of the genus Tipula. *R.*——"—"—Your Copper Beech appears to be infested with aphides, but your unprotected leaves were so crushed, it was impossible to speak with certainty. If it be an aphis, great trouble and perseverance will be required to get rid of it, viz., repeatedly dusting the leaves with powdered Tobacco. *R.*——*G W P*—Your Lettuces are attacked by the true wire-worm, whose history, &c. you will find in p. 344. *R.*——*W R*—It is the Coccus Rosæ which infests your tree. Nothing will extirpate it but scraping the insects off and burning them. The tree should then be painted over with a thickish coat of Tobacco-water, lime, soot, and clay. *R.*——*W W T*—If you will send us some of the beetles infesting the Larch trees we shall be enabled to answer your inquiries; without them we can say nothing. *R.*——*Sub*—If your Roses are in such effectual way of killing the green-fly infesting them is to place the plants in a frame, and to smoke them with Tobacco; but if they are growing in the open air, give those infested a good syringing with the ammoniacal liquor of the gas works, diluted with five or six times its measure of water. Two or three syringings with this will effectually kill the insects, and the plants will be refreshed and invigorated by the operation.‡——*F W*—If the insects attacking your Gooseberry bushes are Gooseberry caterpillars, they may be effectually killed by the application of white Hellebore powder.‡

MANURE—*H S*—We apprehend that 1 lb. of good guano, mixed well with good pasture-mould, would make an excellent Melon soil. There is nothing that Melons like better than pigeon's dung, which is nearly the same thing as guano. It is very likely that the brewer's grains caused your Melons to grow much faster than they could consolidate their tissue, for whenever that happens, such consequences as you describe ensue. Probably you would have found *benefit* by using only half the quantity actually employed.

MORPHOLOGY—*T B Elliot*—The Fuchsia is very subject to derangement of the floral organs, and often affords excellent Morphological evidence. Such a case is found in the annexed cut, which is something like yours. In this case the calyx is dislocated, and has altogether lost one of its sepals; two are in the usual condition, or nearly so; but the fourth, thrown out of its place, is exactly half-way back to the condition of a leaf. Such a case is what is called retrograde metamorphosis. If the change had gone much further, the flower would have been converted into a branch, with a few straggling petals at the upper end.



NAMES OF PLANTS—*C F*—Your so-called scarlet Laburnum has produced one of its usual sports, in the form of a branch of Cytisus purpureus. You will find the history of this production at p. 325 of our volume for 1841.——*A E*—1, Lapeyrousia anceps; 2, Saponaria ocymoides, perfectly hardy. Limetrees will begin to flower in six or seven years after being planted; or even sooner in warm dry soil.——*J S S*—Tecoma velutina, a fine thing, quite new, and worth money.——*W W W*—Ajuga reptans.——*A Novice*—Asarum europæum.

PANSIES—*S*—Some varieties appear to be constitutionally weaker than others; but we have seen *this season* many which have been affected in a similar manner to those you describe. The evil arises from the extremely cold winds and dry weather we have had up to the middle of May, and the plants you mention are evidently of more delicate habit than the others; and it singularly happens that five out of the seven are similarly affected in our own collection. We have begun to use an infusion of sheep-dung in rain-water, which has evidently a good effect, acting as a gentle stimulant. *W.*

PAULOWNIA—*W*—This plant is hardy, and in a cold part of Warwickshire will doubtless flourish without the protection of a wall, but in very hard winters it will have its flower-buds killed, as happened this year at Paris.

PINKS—*J M R*—Norman's Henry, Defiance, Brown's Garland, Eclipse, Acre's Lord Brougham, Creed's President, Garret's Alpha, Ibbet's Triumphant, Barret's Conqueror, Hodge's Gem, Legg's Prince Albert, and White's Warden.✲

POLYANTHUS—*J M R*—Procure the following six varieties: Pierson's Alexander, Buck's George the Fourth, Hufton's Squire Ray, Cox's Regent, Hufton's Lord Rancliffe, and Clegg's Earl Grey.✲

STOCKS—*Modesta*—We have sown the seeds of Brompton stocks at different ages, and have always considered the three or four-year-old seed the best. We have raised plants from seed nine years old, but the plants never grow luxuriantly; the seed should be perfectly ripened, and left in the pods until it is wanted for sowing. *F.*

TRUFFLES—*J L S*—Next week.

MISCELLANEOUS—*Nescia* will find full and authentic information upon all matters connected with the natural history of the Bible in the "Bible Cyclopædia," a most useful book. The locusts were probably the insect so called; some think they were the pods of the Carob tree; but there is no ground for saying that they were any kind of root. It is impossible to say what the forbidden fruit was; possibly the Orange; for the region in which Eden was placed is close to the native country of that fruit. We do not understand the question about rain. Animalcules are animals living in water, and too small to be seen without the aid of a microscope.——*H G*—The complaint of "W." is not the only one we have received. We rarely see cut flowers exhibited at Chiswick, except in the case of Roses and florists' flowers. They are there shown in pipes or in jars of water. But by far the best effect is produced by displaying them in shallow pans of glass. A good deal of taste is, however, required to arrange them well in that way. As to the *floristes ambulantes*, we have done our duty to the public by exposing them; and if the public will not do its duty to itself by discountenancing them we cannot help it. Surely an Aberdeen man is too wary to be done.——*Querist*—No Stock has yet been discovered on which the Chinese Wistaria can be grafted; it would probably take on the North American species. Your Laburnum is a curious variety, called in the nurseries by the absurd name of the "scarlet;" it is continually sporting. Wall-trained Pear-trees are always too much pruned; we should do nothing with them during summer, except pinching off the ends of their new shoots in the middle of August. Crocuses, &c. may be advantageously grown in pots, plunged in the open border while in flower, and afterwards removed to make room for other plants. Divide Gentianella in the early spring. Layer Rhododendrons when the wood is ripening. Cloacine is best disinfected by sulphate of iron in solution; see p. 555, 1844.——*Sub*—Melons require to be set in the same way as Cucumbers. Too much moisture and too little heat is, possibly, the cause of their damping off after they have been set. In either case the remedy is apparent. ‡——*G H N*—If you have set your Melons, they have been kept too cold and damp, which is no doubt the cause of the evil. ‡——*A H A*—We never name florists' flowers.✲——*J T*—Green's Duchess of Sutherland Calceolaria has been described as a large flower, with white ground, pink eye, and rather inclined to be spotted.✲——*G D*—Parsley forms the best garnish and the best edging for a kitchen-garden; but it is not used for dessert. We can suggest nothing better than Strawberry leaves.

SEEDLING FLOWERS.

CALCEOLARIAS—*C M*—Nos. 9, 11, 16, 17, 26, 45, 46, 47, 99—these are very common sorts, such as every person is in the habit of obtaining from seed. 2, 4, 6, 7, 80, 107, 205, 210, 213, 10, 12, 90, 100, 105, 115, 200, 201, are spotted varieties all upon yellow grounds, large, handsome, and very varied in their markings, the latter eight numbers being the choice sorts. 15 is very good and novel in colour. 95 is also a good dark self; and 29 and 43 are good varieties with blotches, but not new. These seedlings have been finely grown, many of them are very large, measuring an inch and a half in diameter. They exhibit no improvement in the general form; they are a little too flat in front, and in the larger sorts the bottom of the flower is too much indented. The chief merit in these seedlings consists in their size and brilliancy.✲——*J T*—The seedlings you have sent are extremely pretty specimens of the spotted sorts; they do not differ materially from others we have seen. No. 1 *G W* is beautiful in form, colour, and marking. 2, 3, and 4, the dark sorts, are very good; and 5, 6, 7, the light flowers, make a pleasing contrast to the others.✲——*W W W*—6 and 12 are dingy and colourless varieties. 24, 7, and 10, are much better; but in these the blotches of colour want decision at the edge. 1, 11, 9, are better still, the edge of the blotches being cleaner and more decided. 8 is a delicate flower, not good in form; 3, showy; 5, good in everything but the outline, which is too indented; these are most of them showy greenhouse varieties, generally too flat in front of the bloom.✲——*J W*—No. 1 is your best seedling, a clear yellow, of good shape. Next to this No. 3; 2 and 4 not uncommon.✲——*A H A*—Your seedlings are common sorts of the spotted varieties; similar flowers have been repeatedly raised by different growers.✲——*H A S*—Your seedling is a very good flower; but so similar to others in colour and marking, that without comparison it is impossible to describe the difference.✲

CINERARIAS—*J J F*—No. 2 is the only seedling worth saving among those sent; 3 is very pretty, but this, with 5, are too small; 4 and 1 are common.✲——*W W W*—No. 1 is pretty, but a repetition; 2, which is a rich crimson, with broad petals, has the petals placed irregularly round the centre; 3 is too small.✲

PANSIES—*F C*—The Pansies you have sent are poor flowers compared to those now grown. No 2 is the best; 3 and 1 want substance and form.✲——*H T S*—Your seedling has rough edges to the petals, the union of the margin round the lower petals with the ground colour is too blurry, and the sugar-loaf points of colour in the lip run into the lower mark of the eye: form and substance good.✲——*G R*—In the specimen you have sent the flower is defective at the union of the side petals above the eye, the margin in one of them leaving off too soon; the pencilling from the eye also mixes too much with the marginal colour on the lip; it also wants roundness.✲——*L*—A uniform rich yellow, with striated centre, fine in colour, but rough on the edges, and the flower altogether wants roundness.✲——*J C*—Your dark velvety-purple self is a first-rate flower, in form, colour, substance, and texture.✲——*G R*—There are many flowers out similar to your seedling, better in substance, form, and in the character of the eye.✲——*C F*—The serrated character of the edges of the petals of your seedling are fatal to it as a show flower, and the marginal colour also appears to be uncertain; in other qualities it is a good flower.✲——*C M*—Your seedling is too faint and undecided in colour; it is of no use.✲

PELARGONIUMS—*C K*—Your seedling is a pretty little flower for a bouquet, but for no other purpose.✲——*Flos*—There is nothing uncommon in the colour of your seedling, and it is deficient both in form and substance.✲——*A Reader*—*D* is common in colour, and the petals turn back too much. *M* is a better flower, but the upper petals want substance and flatness; they are too crumpled, the colour wants steadiness, and both flowers have the top petals thin and uneven at the edge.✲

PETUNIAS—*J D*—In form and colour your dark seedling is a very fine variety, superior to the white, which wants purity and substance.✲

RHODODENDRON—*J D*—Neither of your seedlings are good specimens; the flowers are small, common in colour, not well formed, and deficient in brilliancy.✲——*J D*—the great drawback to your seedling Rhododendron is the badness of its form, the divisions in the corolla being too deep, and the segments too narrow; the colour is good, and the marking in the upper part very dark and showy.✲



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The Agricultural Gazette.

SATURDAY, JUNE 7, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 11—Agricultural Society of England.
THURSDAY, June 12—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, June 18—Agricultural Society of England.
THURSDAY, June 19—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

June 9—Darlington
June 13—Wrentham, Stoke Ferry
June 14—Cardiff, Swansea
June 16—Wenlock, W. Hereford, Cirencester
June 16—Halesworth, Yoxford
June 17—Rochford Hundred, Framlingham, Isle of Thanet
June 19—Grove Ferry, Blofield and Walsham

THE attention of the agricultural public has lately been attracted to THE ACTION OF BONES DISSOLVED IN SULPHURIC OR MURIATIC ACID as an economical fertiliser of the Turnip crop.

Several interesting papers on the subject have appeared in late Numbers of the Journal of the Royal Agricultural Society. In one of these, Mr. PUSEY calls attention to the experiments of the Duke of RICHMOND, himself, and others, as bearing promise that the application offers us one of the most important savings ever held out in the use of manure. And in a paper on the Action and Application of the Manure, Mr. HANNAM discusses the theory upon which the practice is based; the experiments by which it is supported; and the means of making it generally useful.

The subject has, however, been brought still more prominently forward at a meeting of the Council of the Royal Agricultural Society a few weeks ago. On this occasion Mr. PUSEY called attention to the Prize Essay of Mr. HANNAM "On the Theory of the Action and the Practical Application of Bones as a Manure for the Turnip Crop," as containing the results of "the best experiment ever made in agriculture, and some points of so much importance, at the present season when the time for sowing Turnips was at hand, that he felt anxious that not a moment should be lost in communicating the facts to the members for their guidance." Mr. PUSEY then adverted to the discovery of the economical and efficient employment of bones as a manure, when dissolved by maceration in sulphuric acid; and stated that Mr. HANNAM's inquiries not only illustrated many important questions connected with the *theory* of the action, and the *practical economy* of bone manure generally, but also fully confirmed the truth of previous investigations as to the benefit to be derived from using dissolved bones; and, at the same time, elucidated several points bearing upon their preparation and efficient use which it was highly essential to know. Mr. HANNAM's Essay not being published, Mr. PUSEY then proceeded to read extracts from it, illustrative of its superiority in economy and effects; of the sort and quantity of bones to be used; the sort of acid; and the proportion of water to be employed with best results; and drew particular attention to the facts that the quantity of acid, and the proportions of water hitherto employed might be diminished without injurious effects; that a perfect solution of the particles of the bone was not absolutely necessary; and several other conclusions, deduced from Mr. HANNAM's investigations, all of which materially promote the economy and the efficiency of the application.

Communications which appeared lately in our columns, condemning alike the theoretical and practical deductions come to on the subject, render an exposition of this subject in both of these aspects the more necessary; and this we shall now attempt to give.

The *theory of the action of dissolved bones* is thus stated by Mr. PUSEY, (Roy. Journal, vol. iv. p. 408):—

"Bones may be roughly stated to consist of fat, of jelly, and of an earthy matter called phosphate of lime. When they were first employed as manure it was doubtful, of course, to which of these substances they owed their beneficial effect, and many persons were unwilling to purchase bones which had been boiled, and had consequently lost their grease. It was soon found, however, that boiled bones were as good manure as those that were unboiled. There still remained in the boiled bones two substances either of which might be their active principle. But SPRENGEL states that he found bones which had been burnt still act as manure; and Mr. HANNAM has tried the same experiment with the same result. Now, as fire drives out of the bone the solid jelly which holds it together, there remains only the earthy matter behind, thus proved to be the manuring substance. This being phosphate of lime, chemistry suggested that, since lime was in so small a quantity, the phosphoric acid united with it must be the true manure contained in bones, and that if that lime was taken from it by sulphuric acid the phosphoric acid, thus set free, would be greatly strengthened in its immediate activity."

With this view, so far as *burnt* or *dry* bones are concerned, Mr. HANNAM, in the prize Essay we have already alluded to, fully concurs. Where fresh bones are to be employed, the beneficial effect is, he says, still greater. In fresh bones he proves that both the animal matter, and the earthy phosphates are, if used separately, potent fertilisers; but yet, if used in natural union, their conjoint effect is not only not equal to the sum of both their individual effects, but in many cases less than would arise from the use of one constituent of the bone alone. This we, in our last volume, showed to be the case, by a reference to experiments. To account for this anomaly, which his own experiments have often developed, Mr. HANNAM contends that the union of the fat with the earthy part of the bone, prevents the access of the water and the organic acids of the soil, into the structure of the bone, and thus retards alike the decomposition of the gelatine, and of the phosphates. In support of this, he instances the fact that bones, however long they have been buried, do not begin to disintegrate or lose their form until the oil has escaped from them; and that this, in many cases, is not till after very many years. Another point which he cites as evidence is the form in which common practice has proved to be the best in which to apply bones—fine dust; in which form the particles are so small, that the atmosphere, water, and the other agents of decomposition in the soil can overcome the presence of the oil, and render the earthy constituents speedily soluble. Upon these grounds he argues that "a means by which the animal and the earthy part of bone-manure may each be made to serve its own peculiar purpose in the vegetable economy without injury to the other, so as to prevent the waste of the animal part in order to prepare it for the crop, or of the phosphates by their not being ready for the roots, is highly necessary. And as our present use of crushed bones is an advance towards this end, compared with our previous practice of using large quantities in an unbroken state, so by the use of sulphuric acid he argues that we may make still further advance and a still greater saving; for by its aid "the bones may be reduced to the finest state of division, and used in such a form that the earthy parts may be readily assimilated, and the animal matter set at liberty to mingle in the soil and to perform its part in promoting vegetation, so that a great saving may be effected in the quantity used, owing to the nature of the mixture rendering it not necessary to apply more than the plant requires—which is but a small proportion of the quantity applied in their crude state."

This saving of quantity is fully borne out by the fact that 66 lbs. of bones contain sufficient phosphates for three crops; and it is for the phosphates that we employ bones chiefly, as the other matters contained in bone can be found elsewhere and obtained cheaply; and by the use of an acid solvent we not only promote the *activity* of the phosphate in bones, as stated by Mr. PUSEY, but we also encourage the decomposition of their gelatine, and render it not only unnecessary to burn, boil, or by other means destroy the animal oil in bones, but we actually convert it to our use without allowing it to interfere with the action of the earthy part of the manure; and thus we are enabled to obtain an increased crop with a less bulk of manure. For by promoting the activity of the manure that we apply, and by having no useless ingredients, no counteracting influences in operation, "we economise that portion of the tillage which, owing to its being unfit for the use of the vegetable, remains in the ground at the expense of our fixed capital until it wastes, or is required by another crop."

"During the process of this maceration of the bone, the earthy part," says Mr. HANNAM, "is extracted from the animal, the acid combines with a portion of the lime (forming gypsum), while the remainder of the acid, and the remainder of the lime originally composing the phosphate, are dissolved, and form a double phosphate. This solution therefore contains a biphosphate of lime, in which the phosporic acid exists in a much greater quantity than in the ordinary phosphate of lime which exists in bone.

With muriatic acid a muriate of lime and a biphosphate, is formed in a similar manner. This muriate of lime is a salt which attracts moisture greatly. Thus the bone-earth is rendered in a fine state of division; the free acids unite with the bases contained in the earth, and form other salts beneficial to vegetation; and the *whole of* the fertilising constituents of the bone are reduced to a state best adapted to afford the Turnip an immediate supply of food."

The practical experiments which support these views are many and influential. The first batch to which public attention has been specially drawn appeared in the current part of the Journal of the Royal Agricultural Society. These experiments consist of several made by Mr. M'WILLIAM, Dr. MANSON, and Mr. GEDDES (reported to the Morayshire Farmers' Club), by the Duke of RICHMOND, Mr. PUSEY, Mr. PURCHAS (reported to the Council of the Royal Agricultural Society of England), by Mr. FLEMING, of Barochan (inserted in Professor Johnston's lectures), by Mr. HANNAM, Mr. GARDINER, and Mr. FINNIE (reported in their respective prize Reports to the Highland and Agricultural Society), "On the Effects of Special Manures."

We cannot pretend to give an abstract of the results obtained in these trials. In order, however, that an idea may be entertained of the decided and clearly-developed results which were obtained in *all* the trials, we subjoin the three following; being the first trials made by Mr. M'WILLIAM, the Duke of RICHMOND, and Mr. HANNAM. We also add a few short extracts, showing the peculiarities observed by each of the remaining experimenters. These show most strikingly the similarity in result which every trial has elicited; and as there cannot be a uniform effect developed in a variety of instances, without some strong and constantly-operating cause, were there no other evidence to offer in support of the theory we have urged, this uniform experience as regards the practice, under such a variety of circumstances, would be strong evidence of its truth. And it happens that all the experimenters are too well known in the agricultural world for either their ability or their inclination to *observe correctly*, to require any further confirmation than their labours afford.

MR. M'WILLIAM'S EXPERIMENTS.

Date.	Manures and Quantity.	Application.	Produce per acre.	Cost per Scotch acre.
			ts. cwt. lb.	£ s. d.
1842.	Bones . . 20 bush.	Drilled . . .	12 4 3	3 3 0
	Bones . . 4 bush. Sul. acid . 116 lbs. Water . . 224 lbs.	In 6400 lbs. or 640 gls. of water in furrow	17 4 5	1 8 6
	Bones . . 20 bush. Sul. acid . 76 lbs. Water . . 126 lbs.	,, ,,	13 0 52	3 12 6

Peculiarities.—Difference between the applications and bone-dust applied in the usual way was "most marked"—"the sulphuric solution brought the Turnips to the hoe 10 days earlier than the bones alone, and 4 days before the bones sprinkled with acid."

EXPERIMENT BY THE DUKE OF RICHMOND.

Date.	Manures and Quantity.	Application.	Produce per acre.	Cost per acre.
			ts. cwt. lb.	£ s. d.
1843.	Bones . . 16 bush.	In ridges . .	11 0 0	1 16 0
	Bones . . 2 bush. Sul. acid . 83 lbs.	With 400 gallons of water.	12 4 0	0 11 6
	Bones . . 8 bush. Sul. acid . 83 lbs.	Acid spread over bones and sown in drills.	11 0 0	1 5 0

Peculiarities.—"The Turnips came into rough leaf sooner on that (the sulphuric acid) acre than on any of the others." (Letter of the Duke of Richmond, Roy. Journ. Agr., vol. iv. p. 408). "Turnips taken up and weighed, Nov. 3d, before they came to full maturity, as it was wished to ascertain the result while the Duke was at the castle."—(Farm-steward's Report to Royal Society of Agriculture.)

Experiment by Mr. JOHN HANNAM.—*Details: Soil*, thin limestone, worth 20s. per acre. *Former crops:* Seeds (depastured), Wheat (Rape-dust), Oats (no manure, in order to test the efficacy of the tillages used for Turnips).

Management.—Ridged at 24 inches wide, and

drilled June 29, 1843. White Globe Turnips—manured (20 applications), as follows, *vide* "Essay on *Special* Manures." The following abstract of results, &c., so far as refers to dissolved bones, will suffice; and is what appears in the Journal of the Royal Agricultural Society, vol. v. page 460:—

Manures and Quantity.	Application.	Produce per Acre.	Cost p. Acre.
1843		tns. ct. lb.	£ s. d.
Bone-dust 16 bush.	Drilled with seed	15 3 4	1 13 0
Bone-dust 8 bush. Sul. acid . 168 lbs. Water . . 604 lbs.	Diluted with water, equal to 50 times the weight of the acid, and applied in the furrow-ridge, ploughed up, and then seed drilled	17 9 1	1 15 0
Bone-dust 8 bush. Mur. acid 168 lbs. Water . . 604 lbs.	Diluted & applied as above	17 7 1	1 19 6
Bone-dust 8 bush. burnt to half original weight . . . Sul. acid . 84 lbs. Water . . 252 lbs.	Diluted & applied as above	13 7 6	1 6 0
No manure	.. ..	7 0 6	..

Peculiarities.—The sulphuric acid plots "started off with the lead, which they continued to increase, being at hoeing time full a week in advance of every other except the muriatic acid, which followed them up very closely. They almost touched each other on the ridges, while the plants on the plot with no manure could scarcely be seen." At hoeing time "the most remarkable feature was the decided lead taken by the dissolved bones." In "September the plants on the dissolved bones appeared to stop growing in the top, and to form a quicker bulb than the other lots."

The following are the peculiarities noted by the other experimenters (*vide* Roy. Jour. Agr., vol. v., Part 1):—

By Mr. GEDDES. *Peculiarities.*—"Sulphuric acid Turnips made appearance first"—"the rapidity of growth continued to be maintained, and they came to hoeing 10 days before the dibbled bones, and 7 before the dung and bones." "The superiority of the sulphuric acid was visible at a great distance." "The warm season pushed *all the sorts* too rapidly."

By Mr. FLEMING. *Peculiarities.*—"Plants from the acid keeping the lead, and are a heavier crop to-day (Oct. 20th), though not looking quite so healthy in the blade, having come earlier to maturity."

By Dr. MANSON. *Peculiarities.*—"None noted, except that the "crops brairded well," and that the applications "which show the greatest weight, kept the lead of the others all the season."—(Appendix to Johnston's Lectures, p. 55.)

By Mr. PURCHAS.—"The Turnips on lot 2 (sul. acid) came into rough leaf before those on any of the other lots."

By Mr. WAGSTAFF (in Journal of Royal Agricultural Society). *Peculiarities.*—"There is no deception in this statement of its effects, and there appear to be other advantages than the small cost of the liquid, viz., the quick starting and growth of the plants, which have here on all occasions come to the hoe 9 or 10 days sooner than from other manures."

Since these trials were made, Mr. M'WILLIAM has conducted another series which completely corroborate the former.

Mr. HANNAM also states, in the Appendix to his Essay on the Action of Dissolved Bones, the experience of Mr. TENNANT, of Shields, Ayr, who dissolved, and used with success, 26 bushels of bones in 1842; 200 bushels in 1843; and 600 bushels in 1844. His conclusion is that, "had not guano been discovered, the dissolving of bones would have been already considered an invaluable boon."

Our Journal also has contained several statements in conformity with those already quoted; amongst which we may mention those by the Hon. and Rev. VERNON HARCOURT; and, in addition, we are informed by Mr. PUSEY that the later trials of Mr. HANNAM, as reported in his prize Essay on the Theory of Bone Manure, fully confirm previous investigations, and settle several other points of interest in the practical use of the manure. Thus, amongst other conclusions, it is proved that 8, 4, and 2 bushels are similarly augmented in effect; but that 4 or 6 bushels are a safe mean to employ—that sulphuric or muriatic acid will answer equally well—that half the weight of the bone has hitherto been taken as the proper weight of acid, but that one-third or one-fourth the weight will answer, and that as little water as 25 times the weight of the acid may be used, though four times that quantity was first used.

Since Mr. PUSEY drew attention to these facts, many other interesting communications, announcing the success of trials with the mixture, have been read to the Council; and many suggestions offered to facilitate the preparation and application of the manure. To these our space will not allow us to advert; nor is it necessary, as they merely confirm what has already been stated.

We shall next week, however, examine the *practical advantages* which are said to belong to the discovery, and also the objections which have been urged against it.

BONES AS A MANURE.

YOUR correspondent, "W. E. W." has certainly misrepresented my view of the action of bones. The only sentence I have written, that I can recall, that at all bears him out in his statement upon the point, occurs in the "Quarterly Journal of Agriculture," vol. x. p. 383 (1839-40); but there it certainly refers to the constant repetition of bones to the exclusion of farm-yard dung, and even under these circumstances refers more to the bones ceasing to be as valuable, and to raise as good crops, than to any directly injurious effect they can have on the soil, which, indeed, I do not think they have.—*Henry R. Madden, Brighton.*

P.S.—I have tried bones and sulphuric acid, and certainly, as far as my experiment went, I cannot recommend the mixture. [We transcribe the passage alluded to; and as the whole article, so far as this manure is concerned, possesses much interest, we transcribe the whole of it].

"I shall consider the value of its various components in detail; and first, the animal matters. In speaking of animal manures, I have already had repeated occasion to remark, that these are at all times the most powerful, both on account of their containing a large quantity of azote (nitrogen), and likewise from their greater tendency to decomposition: of course, therefore, the presence of 38 per cent. of such substances must of itself render bones very useful as manures. But, moreover, the peculiar kind of animal matter in this instance, increases still more their fertilising effects; for the combination of gelatin and albumen with various fatty matters, such as occur in bone, possesses the property of entering very speedily into the putrescent fermentation, the result of which is, that putrefaction takes place very rapidly, whenever they are placed under anything like favourable circumstances, the important consequences of which are the following:—1. That the animal matters of bone will enter into putrefactive fermentation so rapidly after they are ploughed into the soil, that no previous preparation is required. 2. That from this property, the animal matters of bone may be said to act the part of a ferment when added to soil; for there is no doubt of the fact, that when a very putrescible substance is mixed with other matters in which this tendency is much less powerful, the former acts upon the latter in such a manner, that putrefaction goes on much more rapidly in the whole mass, precisely in the same manner as yeast excites the vinous or spiritous fermentation in all fluids capable of undergoing that change; but which, of themselves, would have required a much longer time to effect it, or probably would never have fermented at all. And 3d, a practical deduction from the above facts, of considerable consequence, is, that since these valuable properties of bone belong in a greater measure to the fatty matters and gelatine, than to the albumen, any process by which they are deprived of a part of these ingredients, lessens, in a very great degree, their value to the farmer.

"So much for the animal matter of bone; now let us see in what respect its earthy constituents render it valuable in the estimation of the agriculturist. We see that it contains six different compounds, one only of which is not well known to act beneficially, viz. the fluate of lime, and as it occurs in very small quantities, it may be neglected altogether; of the five others, four have already been treated of, viz. carbonate of lime, sulphate of lime, carbonate of soda, and common salt. We have, therefore, to say a few words concerning the remaining one, viz. phosphate of lime. This substance evidently acts as a specific manure; or, in other words, will be beneficial by adding to plants a substance which is essential to their nourishment; for chemical analysis has proved, that, next to the carbonate of potass and lime, this salt constitutes one of the commonest constituents of vegetable saline matter—for example, among the cultivated plants, Wheat, Barley, Oats, Peas, and Beans, besides a great many garden plants, contain this salt in considerable quantities, and, consequently, to all these phosphate of lime is absolutely necessary. We thus perceive that the earthy matter of bone contains no less than five valuable mineral manures, and that the animal matter is of the best possible kind. There is one circumstance, however, of considerable consequence, which must be borne in mind in reference to bone manure, which is, that if repeated upon the same land for a series of years, it will gradually lose its effect. The cause of this is obvious. Bone-manure, as already stated, owes its importance to two distinct circumstances; 1st, its earthy constituents being almost entirely specific manures; 2d, its animal matter acting as a ferment. With regard to the first of these, viz. bone-manure, being capable of acting specifically upon many crops, it must be remembered that these specific substances are required in very small quantities, and hence the repeated use of bone-manure would, in time, produce a useless accumulation of these substances, and, consequently, would lose its effects in this respect. And 2d, as its animal matter owes its fertilising powers not only directly to its nutritive properties, but likewise indirectly to its reaction upon the organic matter previously existing in the soil, it must, of necessity, be in this respect an exhausting manure; and hence, of course, the land will be gradually rendered poorer by its constant use, and the good effects of the manure itself will consequently diminish in the same proportion. I may, however, here observe, that, in all probability, Turnips will be the very last crop by which its good effects will be experienced; or, in other words, that it will continue to produce good Turnip crops, after it has begun to fail in its good effects upon all the others to which it has been applied.

"Whenever this unpleasant effect should occur, the remedy is obvious and simple. Bone-manure must be discontinued for a few rotations, and its place supplied by some rich organic manure, of which farm-yard dung will always be found the most valuable. By this precaution, the land will be revived, and bone-manure may be again applied with the confident assurance of its wonted success."

ON DRAINAGE AND SHELTER.

THE letters which Mr. Mechi has so widely circulated amongst agriculturists contain such startling propositions, such an onslaught on some of the principles of science, such a confident overturning of much that time and experience have grafted on our practice, that I am induced to examine one or two of the more important matters contained in them. At the same time I must observe that my object is to elicit truth, and not idly cavil at novelty. I have no predilection for the time-hallowed errors of our forefathers.

My practical experience has not been long, and this may not seem to warrant a large share of confidence; but, on the other hand, the older the farmer the worse his authority is often considered; and we are therefore compelled to decline all confidence in mere authority, and take the more philosophic course of demanding full and satisfactory proof of all that is advanced by agricultural writers, and ascertain the principles on which they recommend such bold changes of practice, so that we may be enabled to carry them into effect with a due regard to our own peculiar circumstances.

1. Mr. Mechi's letters contain much that is good, and his example is greatly to be commended; but would it not have been better if he had advanced his views with less decision? Individuals who are not in the habit of using the brains that nature has given them, or have not accumulated the facts necessary to form a correct judgment, will for the most part adopt as truth that which is most confidently asserted. Luckily it required both time and large capital to carry his recommendations into effect, and the time was given for acquiring personal experience; and his representation of the profits to the landowner (some 4 per cent.), was not a sufficient inducement for the outlay, or we might have had many engaging in the speculation at great risk to themselves. What margin is left, at this low scale of remuneration, for depression of prices, or for the competition to be encountered by a general improvement in husbandry? Four per cent. is but small reward for skill and enterprise, and for capital spent on property subject to depreciation.

Mr. Mechi has candidly acknowledged his previous principles and practice of draining to be wrong. I need not therefore take the trouble to prove them so; he has now taken up and advocates others the most opposite. Let us consider what object we have in draining, and then we shall have a guide to safe principles in its execution. In winter, no crop being on the ground, water produces little effect as regards temperature, because little evaporation takes place; but the land being saturated, the air, absolutely necessary to produce beneficial chemical changes, is excluded. It also brings the particles of soil into close contact, and renders it, when dried by the summer's heat, almost impervious to the air and the roots of plants. In spring and summer, when vegetation is active, too much water is chiefly injurious by lowering the temperature of the soil by evaporation; but in the water itself there is nothing noxious. What we want in draining is to prevent water remaining stagnant in the land after its carbonic acid, ammonia, &c. are used up. These are the chief sources of damage, but there are many very important collateral ones that I need not here mention. Anything that involves greater expense than what is necessary to effect this will not be economical. It may be injurious to take water off too fast; what use would it be for the genial shower to convey fertilisers to the earth, if the drains took them away as fast as they arrived? Mr. Mechi's drains being more than sufficient to effect this, it seems rational to conclude that he would benefit by taking up half of them; but it by no means follows that his new light is the true one. I have not read the whole of Mr. Parke's paper; but taking for granted that he has quoted the most forcible parts of it, I must say I can see little or nothing to warrant conclusions so strongly expressed. To try experiments on land previously drained to considerable depth, and probably dried even below the level of the drains, is not the way to test the system. Nor is the quantity of water delivered from two adjoining drains any proof, as the deep would naturally rob the shallow in such ground. Having had the pleasure to inspect Mr. Mechi's farm lately, I inquired about the drain he makes mention of, as proving the drawing power of deep drains, and the answer was, "that the spring had never been tainted, except from the fold-yard, and arrangements in consequence had been made to run back the water when necessary from the yard." But even if it was tainted (which did not seem likely to happen sensibly, from the quantity of water), there is nothing to show that it became so where the drain is 6 ft. deep, and not where it is only 2 ft. I do not object to the distance apart, or to the depth of the drains; one must evidently regulate the other, and other things being equal, the deeper the

better ; but I do object to Mr. Parkes' method of filling them in as very inefficient. Are 1-inch pipes not subject to destruction ? Is it impossible for them to be silted or furred up by the deposit of lime, iron, &c.—more especially when any irregularity may cause a pipe to be below its proper level ?—and if so, what becomes of the drain above ? I have seen 4-inch square pipes reduced to an aperture of about 1-inch square by mineral deposit. I believe that such drains filled in immediately after cutting, would on some land never run water. But I repeat that if they drew water ever so well, still they could not be depended on as a permanent work. The 3*l.* per acre will be tempting to many, and so far the promulgation of such unproved theory is likely to do mischief. Why, even on Mr. Mechi's farm, the water sometimes runs off the surface, as I distinctly saw, though the drains are only 12 ft. apart, and well filled with gravel. It is true that this is owing to that gentleman still pursuing the wretched "rig and furrow" system, and to his land being indifferently subsoiled ? but the chance of this evil would be very greatly increased by Mr. Parkes' plan. Why is draining comparatively ineffective without subsoiling, and how far will your subsoil plough be off your 1-inch pipes? My advice is to fill well up above the tiles or pipes somewhat larger than 1-inch, with clean gravel or broken stones, and then reliance can be placed upon the durability of your work.

2. But I will now refer to Mr. Mechi's recommendation regarding trees and fences, and think it will not be difficult to show that his practice is at variance with his own principles. I will plead in favour of what has long given to England a pre-eminence in beauty, and endeavour to prove that it is in strict accordance with utility and economy. He enforces the necessity of keeping the live stock warm ; to expose it to cold is to incur a certain loss, and he is right. But do plants hold their existence on different principles ? Does not the same cold, the same intense heat, alike injure them ? In this climate we are more injured, generally, by cold and exposure, and every farmer appreciates a gentle inclination to the sun. Ask the gardeners, who may be considered as refined farmers. Who has not seen the crops retarded in the spring by the cold east wind, and their superiority when sheltered ? Is it no advantage to keep the dew as long as possible on the ground, and has the unchecked breeze no tendency to dry it up ? Haymakers well know that wind is far more effective than sun, drying the Grass in half the time. The frightfully ugly posts and rails will cost as much, or more, than hedges, and have no collateral advantages worth mentioning, compared to their disadvantages. The loss from want of shelter is great and certain, and the same remarks apply to trees as hedges. I am no advocate for crowding the hedgerows with them ; the evil then becomes great, and more than balances the benefit. But the injury a tree does is seen, while its benefit is general. Plantations, generally speaking, do not afford the same comparative shelter as trees more dispersed. A fair proportion of wood does much to ameliorate the climate, and what is there in Nature without its apparent drawbacks ? We have always failed in our attempts to strike a better balance than she herself has afforded us. On one occasion, in a certain district in America, the crows were considered a nuisance, and were destroyed or driven away ; but the policy was short-sighted. The crops were eaten up by insects, and the farmers were glad to have the crows again. On another, it is recorded that a gamekeeper killed all the weasels, but the rats accumulated and did more mischief. Whenever we remove a natural agent, we must take care artificially to supply its place. Hedges may be considered as an artificial and convenient arrangement of the bushes which naturally occupied the land before its cultivation. There is no necessity that hedges should be 6 yards wide ; 2 feet will suffice ; and they will more profitably occupy the ground than anything else, by the shelter they afford. I will ask one question more. Has mere beauty no utility ? If it has not, why decorate our houses with the ornaments of architecture—why dress our wives and daughters in silks, when a common stuff would do as well for use ? Why, but that it all contributes to the civilisation and progression of mankind ; and the principle can no more be laid aside on a farm than anywhere else. Meanwhile I must apologise for the length of my letter, and request from any of your numerous readers refutation, if I have laid down erroneous principles, and beg to refer them for further information to the admirable letters on Shelter by Mr. Donald Bain, in the "Edinburgh Quarterly Journal of Agriculture."—*Henry Chaytor, Croft, near Darlington, May*, 1845. [We leave it to correspondents to illustrate how entirely an opinion on this subject—so cleverly discussed above—must be dependent on the circumstances under which it is formed. Mr. D. Bain, doubtless, every day witnesses the immense improvements effected around him in Scotland by the growth of sheltering plantations ; and others have every day before them the immense improvement effected on land by the entire removal of hedgerow and hedgerow timber. Seven years ago, on 250 acres of land, 1600 timber trees grew in hedgerows and brakes on our farm : now there are neither hedges nor timber ; and to this, in *part*, as portion of a general system of improvement which it has undergone, may be attributed the immensely increased fertility of the land. Obviously, a farmer in a thickly-wooded English county cannot agree on this subject with one occupying land in the bleak districts 5° or 6° north of him.]

Home Correspondence.

Electro-Culture.—The extraordinary effect of Electro-culture, as stated by Dr. Forster on his Barley crop, has induced me to make an experiment precisely according to the plan and diagram given in your Number of the *Agricultural Gazette* for April 12th ; but as I only put the wires down so lately as the 23d inst., after the Barley was above ground, it is too soon yet to expect any difference, and none is yet visible ; but as I purpose making two or three more experiments on other crops, and I observe in your last Number that the experiment of Dr. Forster's plan is described as not being a very scientific one, and that experiments are now in progress in Norfolk and elsewhere on more scientific principles, I shall feel greatly obliged to you if you can furnish me with the particulars of such experiments, or of any one that you consider more likely to bring out the best results for my guide, before putting down any more diagrams on this interesting subject.—*X. Y. Z., A Subscriber.* [The effect, or rather the *tendency* of any metallic connection between the soil and the air, some 15 or 20 feet above, clearly must be to induce a similar electric condition between the two—to hinder any irregularity in the distribution of electric influence—simply because metals are good conductors of electricity. Whether such a result is desirable as regards the crops growing on the soil remains to be ascertained ; but certainly, in order to obtain it that arrangement of wires must be best, in which there is the most perfect connection by conductors between the soil and the air. Perhaps other purposes may be answered by Dr. Forster's arrangement of wires; but so far as they tend to connect by electric conductors the soil and the air, we do not by any means think it the best that could be suggested. We have had since February a copper wire 120 yards long, studded with upwards of 1200 metallic points, suspended in a direction magnetically north and south, in a somewhat elevated position, at a distance from trees, and at an elevation of 20 feet from the ground ; and this wire is connected with the ground by another, which, when it meets the ground, branches out and spreads over an extent of about the 8th part of an acre, on which Wheat is growing ; but the plants have not *in appearance* benefited the least from it. Dr. Forster declines to be responsible (and justly so) for the results of experiments performed otherwise than as he has directed ; but we cannot see what influence his arrangement of wires possesses that ours has not in a greater degree.]—The following is another communication on this subject, just received :—Since I communicated my trial of Dr. Forster's plan of electrical cultivation, a plot of Potatoes, similarly treated, has been followed by similar effects. The rows within the wire are distinctly visible, those without only partially appearing. In both cases, the row adjoining the buried wire is favourably affected, though not included in the square. This lateral influence every electrician would expect ; the great wonder is, how the electricity is so perfectly confined within the wires. Though, of course, the theory is nearly a mystery at present, we must infer that the aërial wire collects the fluid and the buried wire distributes it to the ground, through which it percolates and stimulates the vegetation. Of course if you extend the inclosed area too much, the supply of electricity would become inadequate. If you increase the number of aërial wires you would obtain more electricity but fail in its gradual and equal distribution. For these reasons, which I think Dr. Forster has misapprehended, I still recommend future experimenters to try long narrow parallelograms, and avoid large areas. What has hitherto been done on this subject is of small moment : the attempts have been merely trifling and theoretical. Dr. Forster has the sole merit of first suggesting a useful and economical application of this wonderful agency. In fact, the great objection to the success of his system is, that such a sudden advance in cultivation as this promises has never been made before, and seems almost contrary to the laws of Nature.—*Beta.*

How to lay Pipe-draining Tiles.—Having a piece of land which required draining, and which, though of a light description, was very wet in particular portions of the field, and the subsoil of various textures, I determined upon draining it on the parallel furrow system, at 36 feet distance, and 3 feet deep, and to use 1-inch bore cylindrical pipe, and I would now beg to add my testimony in favour of the use of the simple tools for levelling the bottom of the drains for the reception of the pipes, and laying the pipes in the drains, described and recommended by one of your correspondents some few weeks ago, which certainly answer the purpose admirably, and save both time and labour in placing the pipes in the drain, and prevent the displacement of earth, which often occurs in the drainer's laying in the pipes by hand and rubbing his arms against the sides, and thereby impeding his work till the drain is re-emptied of the earth that has fallen in. I allude to the instruments in the form of an inverted ⊤, or of an ⌊, for taking up the pipes and laying them. I prefer the form of an inverted ⊥, as it enables the drainer to take up the pipe from either side of him, and however placed, more readily than with an instrument of the form of an ⌊ ; and to the instrument resembling an inverted ⊤, with its top of the size of the pipe, and its length about that of 3 pipes, for the purpose of pressing the bottom of the drain, and levelling its inequalities, and giving the pipes a firmer bed to lay on. The cost of the instruments is very trifling ; two broom-handles are what I used, one having a piece of ½-inch iron rod about 10 inches long, let cross ways at its centre with a shank into the handle, and the other a piece of wood of the size of the pipe similarly affixed to the other handle. The drainer I employed had never laid any pipes except in the old way of placing them in the drains with his hands, but he very soon discovered how much quicker he could lay the pipes, and that with greater ease and comfort to himself, with the use of this simple instrument than on the old plan, besides running the much less risk of disturbing the sides of the drains in laying in the pipes, a point of much importance where the soil is a loose one, and liable to fall in with the slightest touch, as mine was. In using the instruments, the drainer stands across the drain, walking forwards as he proceeds in laying the pipes. The drains I have thus made have been working admirably, and a very large quantity of water has already passed through them.—*T. E. W.*

Agricultural Improvement.—The agricultural population of the kingdom are, generally speaking, a well-conducted and industrious race of men, ready and anxious for employment, even at the lowest wages on which a family can exist ; and too often they are obliged to toil for a sum which barely keeps their limbs together, and is quite inadequate to clothe their bodies, and preserve their starving frames from the inclemency of the weather. This is a most discreditable state of things in a rich country like England, where money is positively a drug in the market. If there were no visible means of improving the condition of the husbandman, and of obtaining a profit on capital laid out, the prospects of the country would be most lamentable to contemplate ; but, thanks to the progress of intelligence amongst landowners and farmers, a light is dawning upon them, which, it is hoped, will spread its benign influence over the soil, and render it sufficiently productive to meet the increasing wants of our island. The application of science to tillage must be gradual to be useful ; it requires patient investigation, and will not admit of jumping to results, as is the case in other pursuits. Although experiments remain problematical for months, and may eventually fail, yet there are certain rules and principles, which are allowed on all sides to be absolutely necessary to be observed for the better cultivation of the soil ; men of small capital will consult their own interest by studying particularly draining, tapping springs, and saving manure—taking advantage of the experience of their more opulent neighbours with regard to the value of foreign and chemical preparations. When first the advantage of draining became evident, it was supposed to be a panacea for all the evils attendant upon an unproductive farm, and hence it was used without much discrimination as to the depth of the drains and the nature of the land to be operated upon ; and was frequently practised where tapping would have been more judicious in every point of view. The quantity of rain which falls is seldom injurious to vegetation, provided it is not permitted to rest about the roots of plants and trees, and then become sour. Drains should, therefore, be made deep enough to carry off the superfluous moisture after it has performed its office of nourishing the fibres, &c. Shallow drainage has the effect of hardening the surface of the soil, and preventing the water from filtering through, and carrying with it the food contained in the lower portions of the earth. These truths should be recollected, which will save both labour and expense. About well-rotted farm-yard manure there can be no mistake : it is suited for every crop, and never fails, if properly administered ; the only difficulty being in procuring it in sufficient quantities, to preserve the ground in generous and constant tilth. There are neglected sources at home, from which this desideratum could be amply supplied—a compost far more nutritious, and better able to increase vegetation, than any foreign guano, or other import. Draining and manure being the essential and prominent features in farming, it is requisite that a man should consider well how far he can carry these out before he enters into treaty for a certain number of acres ; otherwise, he can neither repay himself, nor act justly towards his landlord. A farmer ought to have capital according to the land he holds, which is calculated at somewhere about 7*l.* per acre, at the lowest, without which a proportion of his land must remain fallow, from the want of means to dress and crop it. A vain attempt has been made to prove that only large farms remunerate ; this is most decidedly an error, and is only true when backed by a long purse. Of what use are a parcel of half-cultivated fields to any man ? Nothing but a burden and disgrace ! In travelling through the country, the eye rests too often on half-tilled inclosures producing more weeds than grain, and evincing too palpably the folly of the large farm and small capital systems. Gardens are a convincing proof of what may be accomplished by tough sinews, cold iron, and a plentiful supply of manure ; and though we cannot expect farms to arrive suddenly at such perfection, yet, if the population gradually increases in the present ratio, they must also advance with onward steps, if human beings are to live, and have anything to eat. It is lamentable to observe the quantity of waste land throughout the kingdom, capable of supporting many thousands of our fellow-creatures, but now only offering a scanty pasture to a few half-starved sheep, and one or two of Pharaoh's lean kine, whereas it might, by the application of a little hoarded gold, be converted into a mine of wealth. —*Falcon.*

Mildew or Blight on Thorn-quicks.—Will you or any of your numerous readers acquainted with this withering blight on the Thorn crop give me some advice as to preventive or cure ? I have suffered more or less every

season from it. Last season I lost fully half my crop from this cause; it has this season made its appearance on some of my transplanted Thorns, since the few weeks of dry weather have set in, (drought, if not the cause, facilitates much the disease). I have, however, 2 acres of fine seedlings, as yet quite free; I would, if possible, keep them so, or be prepared in case the blight shows itself. I have tried lime in powder, and also flowers of sulphur, neither of which were of any sensible use. Your making public this inquiry, through the columns of your valuable Paper, will much oblige an *Irish Thorn Grower*.

Yeast as Manure.—I have learnt from your last *Chronicle*, that Yeast very much diluted is a good manure for Mangold Wurzel. To this use I am now about applying the produce of my brewing. It has hitherto been thrown away, as the bakers say they cannot use it on account of its bitterness.—*R.* [The yeast should be putrid.]

Butter, &c.—Can any of your correspondents inform me if they lost their butter of last week, that is from Saturday 17th, to Saturday 24th inst.? or can you account for my butter not coming? We were churning from 8 until 5 in the afternoon. The cream had no bad smell, was perfectly good and sweet. Do you think the thunder had any effect upon it? This happened to me once before, in the cold weather, in winter; but I can account for it then by putting an over dose of nitre in the cream, to destroy the smell of the Turnips; and nitre being so very cold itself, I think it must have prevented the butter from coming. All my Potatoes, dibbled in about 2 inches deep, are 5 or 6 inches high, whilst those set three weeks before, 4 or 5 inches deep, and covered with dung, are only now peeping out. In the very dry weather of last year, all my field Potatoes, instead of being set at the bottom of the furrow, were put nearly on the top of the furrow-slice, and barely covered; and though they scarcely had a shower after they were set, my crop was a very good one, and with scarcely a failure, though some of my neighbours lost whole ranks from dry rot. Do not you think they are generally set too deep?—*J. D. W., Downton.* [Yes: we are suffering now in places from this cause. The appearance of this crop generally in the country promises well.] N.B. One third of my Cabbage plants, put in in November last, are gone to seed; last year the gardeners told me it was owing to the mild weather, but this year they are not able to account for it; it seems to be the general complaint in the southern part of Hants. [Has any one any suggestion to make on this subject? In the case of Mangold Wurzel and Carrots, new seed and thorough cultivation between the rows, as well as not too early sowing, are considered preventives of this evil.]

Jumping Cattle.—A Correspondent on this subject will find the best way of keeping beasts in their own pastures, is to see that the fences are made good in the first place, and in the next that they have plenty of good food in them. It is from want of keep and sometimes of water that beasts are first induced to break out. If they get a habit of it, it is often incorrigible, and then the sooner they are fatted and killed the better.—*X.*

Pipe Draining Tiles.—In draining with pipe tiles, I have experienced, with many other persons, some difficulty in keeping the ends well united in filling up the drains. I am aware that this is of little consequence provided I put 8 or 10 inches of clean flints or chalk over the tiles. But it occurs to me, that if tiles are used of different sizes, viz., 1 inch and 1½ inch diameter, alternating with each other, the ends of the smaller one might be so fitted into the largest as to render displacement by fair means next to impossible. The tile-making machines now at work can make any size or shape required.—*A Subscriber, Bearsted House, Maidstone.*

The Pip or Gapes.—The gapes arise from a worm (I believe of the genus fasciola), which fixes itself in the windpipe of birds, and by the irritation produced is frequently, if not mostly, the cause of inflammation, ulceration, and eventually death of the bird. It attacks small as well as large birds. The remedy is almost as bad as the disease—fumigation by tobacco. The bird should be secured in a box, into which the fumes of tobacco should be blown, until a state short of suffocation is produced. The parasite is consequently killed. —*Wm. Rayner, Surgeon, Uxbridge.*

Poultry (Misnomer). — Your correspondents, "T. H. C." and "N. N.," in your No. 16; and "M. P." in your No. 18, have been guilty of a common error—a misnomer—when they say, pip or gapes. The gapes, or gaping, is, properly speaking, not a disease, but a symptom of several. Fowls gape in the pip, chip, roup, and others. The pip often arises from want of grit or sand, and green food, with caged birds in particular; it is that disease which consists of inflammation of the rump-gland. "The tumour," says Clater, "must be opened with the point of a needle, and the collected matter removed." But most books agree in classing the above disorder under the head of the roup—to which, however, Dickson objects—and apply the name, pip, to the fever which causes the scale to form under the point of the tongue. Books are not at all agreed upon the names of diseases—chip, pip, roup, and gapes, are all confounded. Books differ, too, very widely in the descriptions and names of the different species and breeds of fowls; this circumstance, no doubt, arises from the great variety of crossings and mixtures, which make it difficult to distinguish species. It would, therefore, be very desirable that the Zoological Society would take these matters in hand, and furnish a more definite standard than we at present possess.—*D. S. E., Lambeth.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A MONTHLY COUNCIL was held at the Society's House, in Hanover-square, on Wednesday last, the 4th of June, present: The Right Hon. Earl Spencer, in the chair, Marquis of Downshire, Earl Beauchamp, Viscount Torrington, Lord Portman, Lord Bridport, Lord Hatherton, Hon. R. H. Clive, M.P., Hon. Capt. Spencer, R. Archbold, Esq. M.P., D. Barclay, Esq. M.P., Sir D. Baird, Bart., T. R. Barker, Esq., S. Bennett, Esq., W. Blacker, Esq., G. J. Bosanquet, Esq., W. R. Browne, Esq., Col. Challoner, F. C. Cherry, Esq., W. A. Cherry, Esq., H. B. Clayton, Esq., E. D. Davenport, Esq., T. Dunne, Esq., R. Edwards, Esq., C. Eyre, Esq., J. H. H. Foley, Esq., A. E. Fuller, Esq. M.P., R. W. Gaussen, Esq., H. Gibbs, Esq., B. T. B. Gibbs, Esq., C. Hillyard, Esq., W. Fisher Hobbs, Esq., J. Hudson, Esq., S. Jonas, Esq., G. Kimberley, Esq., J. Kinder, Esq., Sir F. Lawley, Bart., J. Laycock, Esq., Col. M'Douall, M. Marisco, A. Ogilvie, Esq., E. Parkins, Esq., Sir R. Price, Bart., P. Pusey, Esq., M.P., F. Pym, Esq., J. A. Ransome, Esq., J. W. Scott, Esq., Professor Sewell, W. Shaw, Esq., J. V. Shelley, Esq., R. A. Slaney, Esq., Professor Solly, T. H. S. E. Sotheron, Esq. M.P., C. W. Spooner, Esq., W. R. C. Stansfield, Esq., M.P., E. Thomas, Esq., T. Turner, Esq., F. R. West, Esq., J. T. Wharton, Esq., and G. Wilbraham, Esq., M.P. The Marquis of Downshire, of Hanover-square, London, and Hillsborough Castle, Ireland; Henry Hippisley, Esq., of Lambourn-place, Hungerford, Berkshire; and Edward Rose Tunno, Esq., of Warnford Park, Bishop's Waltham, Hampshire, were elected Governors, and the following gentlemen Members of the Society:—

Bourne, William Kemp, Fisherwick, Lichfield, Staffordshire
Morris, Philip, The Hurst, Ludlow, Salop
Colley, John, Osbaston, Wellington, Salop
Pardoe, Rev. George, Hopton Castle, Ludlow, Salop
Cowdell, Rev. Henry, Shelderton, Ludlow, Salop
Williams, Cyril, Falcymerau, Pwllheli, Carnarvonshire
Walmsley, John, Creamore, Wem, Salop
Jones, Joseph Owen, Park, Llwydiarth, Can Office, Montgomeryshire
Brand, Henry, Glynde, Lewes, Sussex
Witney, William, Hillingdon, Uxbridge, Middlesex
Wall, James, Sheffield, Yorkshire
Dickin, John, Shrewsbury
Hoff, William, Halston, Spilsby, Lincolnshire
Anstruther, Sir Ralph Abercromby, Bart., Balcaskie, Leven, Fifeshire
Stable, Robert Scot, Cranbrook, Kent
Boulton, Rev. William, Wem, Salop
Clay, J., Sutton, Shrewsbury
Archbold, James, Newcastle-on-Tyne
Timms, William, J.P., Cadley Hill, Burton-on-Trent
Bennion, Edward David, Summer Hill, Oswestry, Salop
Jebb, John, Stanwardine, Baschurch, Salop
Woolrich, Abraham, Little Ness, Shrewsbury
Davies, John, Fronhanlog, Corwen, Shrewsbury
Mousley, Isaac, Sandwell, Birmingham
Williamson, Isaac, East Orielton, Pembroke
Pitcher, Robert, Mayor of Lynn, Norfolk.

The names of 43 candidates for election at the next meeting were then read.

MR. HUDSON on being informed of the resolution of the Council not to increase the salary of the Secretary, withdrew his resignation.

FINANCES.—Mr. RAYMOND BARKER, Chairman of the Finance Committee, reported to the Council the state of the Society's accounts on the last day of the month just ended, from which it appeared that the amount of invested capital was 8200*l.* Stock, and the current cash-balance in the hands of the Society's bankers, 3049*l.* (including a special balance of 816*l.* on the Shrewsbury account).

The Council unanimously confirmed the recommendation of the Committee, that Messrs. Burton, Lloyd and Co., of Shrewsbury, should be appointed the bankers of the Society for the period of the ensuing Shrewsbury Meeting.

JOURNAL.—Mr. PUSEY, M.P., Chairman of the Journal Committee, reported that the June Number of the Journal would appear in about a fortnight; but that many good papers were necessarily postponed until the Christmas Number, which would come out before the General Meeting in December.

SHREWSBURY MEETING.—The noble chairman reported from the Committees for the selection and recommendation of judges for the Shrewsbury meeting, that among the nominations delivered in by Members at the recent General Meeting, none occurred for judges of mountain sheep, and only an imperfect list for judges of implements; but that the committee of judges for stock had decided on the names of the gentlemen to act as judges in the other classes, which the committee abstained, from obvious reasons, from reporting to the Council till nearer to the time of the Show.

The Council unanimously referred to the Committees the completion of the list of judges to be recommended by them for appointment by the Council.

Mr. MANNING, the Contractor of Works for the Shrewsbury Meeting, presented a favourable report of the progress of the works. He also transmitted to the Council a statement connected with the subject of conveyance to Shrewsbury by canal, which was referred to the General Shrewsbury Committee.

COUNTRY MEETINGS.—Mr. GIBBS having laid before the Council his suggested points of inquiry, previously to deciding in future on the place of any Country Meeting, the details were referred to the consideration of the Yard Committee.

Mr. FISHER HOBBS gave notice that he should move at the next Monthly Council the adoption of a renewal of the existing rotation of districts for the Country Meetings, for the period of nine years following the year 1847, when the present schedule of rotation ended.

The Council then adjourned to Wednesday next.

Farmers' Clubs.

Tarporley.—At the Annual Meeting of this Club, Mr. Dumville (Secretary) read the minutes of the discussions at the last meeting; and then announced the questions to be taken into consideration on the occasion. 1. *What is the Best and Cheapest way of Wintering Dairy Stock?* Mr. Palin answered generally—to feed them with hay, straw, Turnips, and Mangold Wurzel.—Mr. Vernon had proposed the question in consequence of the circumstances in which he was placed last winter from the want of fodder, consequent on the dry summer. He had very little fodder by him when the winter commenced, and had been obliged to sell off part of his stock, and he found that one portion of his cattle eat up the other. What then were they to do when hay failed? —Mr. Harding said Mr. Corbett had collected 300 bushels of acorns, and used them during the winter for the cattle. They were not crushed, and some difficulty had been experienced in keeping them from sprouting, but they answered remarkably well. Mr. Corbett had weighed the fodder for his horses; he gave them half a cwt. of clover hay, a bushel of oats, and a little cut straw, per week, and the horses appeared to be in capital condition, and did their work well. With respect to steaming fodder, he was of opinion that if the article was coarse, steaming was necessary; but if the hay was good and well harvested, it appeared to be a needless expense.—Mr. Palin agreed with Mr. Harding in his remarks on steaming fodder. Cattle were very nice in their eating, and if they found a bad lot of hay, they would reject it. When steamed, a pleasant flavour was imparted to the inferior sort, and the cattle would eat it. Of course there was considerable expense in this process, and in years when fodder was good, he thought the outlay was not called for. He should recommend them to have plenty of Turnips at hand for the cattle to eat with the straw, and a few with the hay and corn. The last winter he had boiled linseed, cut the straw, and given them a little corn with it. It was rather expensive, but he had thus managed to get through the winter.—The Vice-President recommended the using up of the bottoms of the stacks, which, he understood, after being cut and steamed (though mouldy before) were as good and as fresh as ever.—Mr. Plain dissented from this.—Mr. Burgess objected to the use of linseed, as it acted as a purgative.—Mr. Vernon had principally fed his cattle, in his extremity, with cut straw, ground Barley, and Potatoes.—Mr. Stones mentioned a plan adopted by Mr. Corbett, of which he had seen the good results. That gentleman used two-thirds of straw, one-third of hay, with a little ground barley, and a few kibbled oats, well steamed. It thus swelled out and made a deal of good fodder; and if it was beneficial in a time of scarcity, he did not know why it was not also beneficial at other times as well.—The President said a neighbour's cows looked better on hay than on straw and Turnips. —After a few more observations, the result of the conversation on the first question was recorded in the following resolution:—"That straw and Turnips are the best and cheapest for the early part of the winter; and as the season progresses, half the quantity of Turnips with hay and a little corn; and in a season of scarcity, or after a bad harvest, ordinary fodder with steaming and cutting is recommended."—On the suggestion of Mr. Davies, it was deemed advisable to recommend farmers "to sow all the land intended for green crops early in the autumn with Rye and Vetches, for spring cutting."—Question 2. *What is the best and cheapest method of erecting a tank for receiving liquid manure?* —Mr. Palin thought that on clay land, where they merely wanted a tank to pump out of, it would be sufficient to cut a hole, cased with bricks, to prevent the sides from falling in; but if on an elevated situation and on sand, the bottom should be made substantial. Stone well cemented might then be used, and the tank so constructed that the cart could be backed up to it to draw off the liquid, without the labour of pumping.—Mr. Harding thought that in the erection of tanks all depended on the situation. If there was a decline so that the top of the cart could be brought to a level with the bottom of the tank, it would be very useful; but the expense of pumping swallowed up a great portion of the profit. It was always well to have the tank near land over which the liquid could run without carting. He was sorry to say, that in going through the country a great deal of valuable manure was to be seen running down ditches, &c., which with a little trouble might be profitably used up.—The President understood that in many parts of the Continent, every farmer had a liquid manure tank. Grates were made in the shippon into which the manure ran, and it was carried thence by sewers to a general reservoir; rain or external water being carefully excluded. The carcasses of the dead cattle were cut up and placed in a situation over which the water passed, and the "strength" was thus imbibed in its passage. He understood that by one dressing of this description of manure bad land was completely resuscitated.—After Mr. Davies had warned them of the probability of the land being scalded by applying the manure without dilution, it was resolved in answer to the question:—"That stone or brick is the best material where practicable; the situation should be elevated, so that the bottom of the tank may be level with the top of the cart; the tank should be covered in."—Mr. Palin then observed, that landlords were in the habit of giving premiums for the construction of the best liquid tanks: but he thought it would be better if landlords would make the tank themselves, and give the premiums to those who made the best use of it

Tanks were very expensive, and when made they were a permanent improvement to the property; and therefore he thought that the suggestion he had offered was the fairest and most equitable.—Question 3. *To what crop is it most advisable to apply liquid manure?*—Mr. Davies replied to Grass land; Mr. Burgess said to green crops; Mr. Palin to both, if used at the proper season. The general opinion of the meeting appeared to be, that in certain cases, and properly mixed, it was useful to Grass lands, but there were no farmers present who had fairly tested the utility of its application to green crops. Upon the conversation, therefore, it was resolved:—"That it is at least advisable to apply it to Grass lands."—Question 4. *Have any experiments been tried with guano within the limits of the Society; and if so, what are the results as compared with bone manure?*—Mr. Warburton said he had tried it on Potatoes, Turnips, and Grass land, against bones. On the Potatoes he had put 5 lbs. of the African guano to the square rood (64 yards), and the produce was about 3 cwt. 39 lbs. to the statute acre more than on manured land. On the Grass land he put the same quantity of guano, and double the value in bone manure. The crop of hay was small: where the guano was put there was a little, where the bone manure was laid there was none at all. This scarcity arose from the dryness of the season. The after Grass where the guano had been applied, was three times as much as that on the land dressed with bone; and the cattle gave a decided preference to the Grass grown from the guano. With respect to the present appearance of the land, he had no hesitation in saying that the portion of the field manured with guano looked much better than that manured with bone.—The President mentioned a case where an experiment had been made with guano on clay land, and the results were quite equal to bone.—Mr. Burgess had used guano on Wheat without benefit; he had also tried it on Clover; the first crop there was no rain, and he perceived no beneficial results; but the second crop was better than on the manured land.—Mr. Palin had expected great results from guano, but on the whole had been disappointed. He tried 100 lbs. of guano mixed with farmyard manure, against 300 lbs. without mixing it, on Turnip-land. The Turnips from the guano alone were not above two-thirds of the weight of the others. He had also tried it on meadow-land with Turnips; they grew and thickened rapidly, but when drawn the bulbs were small, and the crop was anything but a heavy one. Last year he tried it on an acre of Carrots—2 cwt. of guano to the acre; he drilled the ground, and shut the guano up. The season was unfavourable, and the Carrots were hardly worth drawing. He had made another experiment between farm-yard manure and guano, on Mangold Wurzel, and the crop of the Mangold Wurzel was three times as heavy from the farmyard manure as from the guano. On the whole, Mr. Palin seemed to think guano a very dangerous manure in unskilful hands.—The members did not record any resolution on this question.

North Cornwall.—At a late meeting of this Club, Henry Badcock, Esq., of St. Stephens, read a highly interesting lecture on the defects of farming in this district. He began by illustrating the injurious effects produced to the crops of this neighbourhood by not being attended to in their proper seasons, viz.—on pasturing meadows, placing manure on hay lands too late, allowing Potatoes and Turnips to grow too long before hoeing. All these defects were visible every season in the husbandry of this country, which were attended with great injury to the crops. He advised the farmer, prior to his cropping a field, first to consider the state of the soil, whether best adapted for Wheat, Barley, Oats, or green crops; and stated that Barley cannot be grown to advantage at any great height above the level of the sea; Wheat can be sown much higher, and Oats still more elevated. Wheat peaty lands should be ploughed in the beginning of July or August—the earlier the better, so that the furrows may be exposed to atmospheric influence some time previous to sowing the seed. He recommended an Oat stubble for Wheat, which should be ploughed down immediately after the preceding harvest; clay should then be put over the furrows, which should remain until July, and then ploughed in ridges. Wheat grown in this manner is often the best; seed often fails in lands where the atmosphere has not had sufficient influence on the surface of the furrows. Clay that has remained in a wall for ages, were it to be applied to the soil, would prove a very productive fertiliser. All Wheat stubble should be turned immediately after harvest, and ploughed again by Christmas, weather permitting. Land managed in this manner will be brought into a state to receive the seed with one-tenth the labour it would take on the old system; the longer argillaceous soils are ploughed, the more pulverised they get. All composts for Wheat should be applied at midsummer, and the land finished ploughing by Michaelmas, and no Potatoes set after April.—*Western Times.*

East Cornwall.—The members of this Club dined together at Launceston, on the 4th March, G. Gurney, Esq., in the chair. An interesting discussion took place on reports of experiments made with organic and inorganic manures, by Francis Rodd, Esq., the High Sheriff of the county, and may be relied on, as coming from a gentleman so well known for the zeal and accuracy with which he conducts agricultural experiments.

Experiments made in a Field of 5 acres, at Trebartha, on Dale's hybrid Turnips, with different manures, 1844. Subsoil—Spar and Slate. Value—25*s.* an Acre. Aspect—North-west, facing the Moors.* State of Field—Three Years Ley. Treatment—Ploughed January, 1844, and Manured throughout with a Compost of Liquid Manure and Earth. Field further Manured in the following manner, and Turnip Seed sown by Drill, July 9th. Turnips appeared above ground July 13th. In rough leaf about the 26th. Taken up and weighed in December following.

Manures.	Quantity per Acre.	Cost p. Acre exclusive of labour. £. s. d.	Weight of Turnips.	Per Acre. tns. cwt. qrs. lbs
Peruvian Guano	2½ cwt. at 12*s.*	1 10 0	Tops only	21 11 1 20
			Turnips with Tops and without roots	6 8 2 8
Old Dung	25 cart-loads at 3*s*	3 15 0	Tops only	23 0 0 0
			Turnips only	17 12 3 12
			Turnips with Tops and without roots	5 18 2 8
Bones and Peruvian Guano	1¼ quarter at 21*s.* 1 cwt. at 12*s.*	2 8 0	Tops only	21 2 3 12
			Turnips only	16 0 0 0
			Turnips with Tops and without roots	3 12 1 26
Bones (only)	2½ quarters at 24*s.*	3 0 0	Tops only	4 5 2 24
			Turnips only	4 8 2 8
			Turnips with Tops and without roots	8 12 2 24
New Dung	25 cart-loads at 2*s.*	2 10 0	Tops only	13 5 2 24
			Turnips only	20 8 2 8
			Turnips with Tops and without roots	4 16 2 8
Peruvian Guano	2 cwt. at 12*s.*	1 7 9	Tops only	13 1 1 20
			Turnips only	8 2 3 12
			Tops and Turnips without roots	2 5 2 24
Vitriol	30 lbs. at 1½*d.*			
Water	10 times the quantity of vitriol			
Bones	2 quarters at 24*s.*	2 11 9	Tops only	17 11 1 20
Vitriol	30 lbs. at 1½*d.*			
Water	10 times the quantity of vitriol			
			Turnips only	17 11 3 12
			Tops and Turnips without roots	5 18 2 8

Reviews.

Domestic Cattle: Portraits of the Principal Breeds reared in Great Britain and Ireland; with characteristic descriptions of their peculiarities and comparative merits. By William Macgillivray, A.M. L.L.D., Professor of Natural History in Marischal College and University, Aberdeen, &c. &c.

THE three Parts, yet published, of this work, are illustrated by portraits of the Short horned and Kyloe breeds, the truest to nature of any that we have anywhere seen. The descriptive portion of the work, so far as it has yet appeared, is very interesting; in proof of this we need but refer to the introduction to the series of articles which are to be forthcoming on the various breeds of the domestic breeds.

From the character of its three first Parts, we may fairly judge that the whole work, when completed, will do great credit to all concerned in its production. Independently of the great elegance of the work generally, and of its illustrations, which will justly recommend it to very many, their accuracy, and that of the editorial remarks and descriptions, will insure its agricultural utility. It is a work specially addressed to farmers and breeders, and will, doubtless, be extensively patronised by them. That they may judge of its character we extract the following passage from the introductory address in Part I.:—"The portraits will be taken with the greatest attention to individual and general character. Descriptions, not less carefully elaborated, will include the peculiarities of the breed, the pedigree of the individual selected, a correct measurement of its parts, according to the scale considered the most suitable, and such other details as may be thought directly useful, or in any way interesting. In drawing up the description of the particular animal of which the portrait is given, the editor will receive the assistance of some of the most eminent breeders in the country. Whatever practical directions, or physiological statements may be given, will be in accordance with the experience of enlightened breeders, and scientific observers. Neither the mere farmer on the one hand, nor the mere man of science on the other, could reasonably hope to render such a work truly useful; and, therefore, recourse will be had to both, when the occasion requires their aid."

The Farmers' Medical Dictionary, for the Diseases of Animals. By Cuthbert W. Johnson, Esq., F.R.S. J. Ridgway, 169, Piccadilly. Small 8vo. Pp. 280.

THE plan of this book is excellent; simply because the Dictionary form which it possesses is so much more suitable than any other for a work of reference. The work itself, we are informed in its preface, "contains the recipes for the cure of the diseases of domestic animals, long successfully employed, in an extensive practice in the South of England;" and when authorities are referred to they appear to be trustworthy. As illustrating the importance of correct information and practice on the subjects treated of in works such as Mr. Johnson's Medical Dictionary, we give the following interesting extract on the Diseases of Animals:—

"Although since the establishment of the Veterinary College very considerable advances have been made towards the more successful treatment of the diseases of animals, yet it is only very recently that the general attention of the farmers of England has been directed to the subject; few, in fact, of these are aware of the aggregate value of the horses, the cattle, the sheep, and the other live stock, which now tenant our islands. The calculation of Mr. M'Culloch makes the horses of Great Britain amount to between 1,400,000 and 1,500,000; the cattle to 5,100,000; and the sheep to 32,000,000.

"The amount of live stock sold at Smithfield in the last nine years, as given in the subjoined table, will afford some idea of the great value of a portion only of the domestic animals of our country (*Johnson and Shaw's Farmers' Almanac*, vol. ii., p. 216):—

	Beasts.	Sheep and Lambs.	Calves.	Pigs.
1835 ..	172,919	1,647,316	24,853	43,134
1836 ..	158,438	897,068	22,981	34,224
1837 ..	179,761	1,540,666	20,259	36,325
1838 ..	183,617	1,467,574	15,705	45,283
1839 ..	188,535	1,464,383	18,576	51,740
1840 ..	180,041	1,521,093	14,194	50,314
1841 ..	175,318	1,444,597	16,287	50,461
1842 ..	188,157	1,636,826	19,296	39,213
1843 ..	188,268	1,854,320	18,876	36,320

"And if the public are, generally speaking, but little acquainted with the value of these noble races of domestic animals, to a still greater extent are they unacquainted with the amount of the annual mortality which, through neglect, or ill-treatment of their diseases, or the incurable nature of them, so materially thins the ranks of these invaluable tenants of the farmers' lands. As information on this head can hardly be too much diffused, in order to excite still greater exertions towards the prevention of so great a national loss, I will here collect together a few facts from my note-book, bearing on the question.

"According to Mr. Youatt ('Cattle,' p. 2), one-tenth of all the lambs and sheep of our island die annually of disease; of cattle one-fifteenth of their number die annually by inflammatory fever and milk fever, red water, hoose, and diarrhœa. Of the great amount of property thus lost, of which very few persons are aware, he gives the following calculation:—"160,000 head of cattle are sold in Smithfield alone, without including calves or the dead market—the carcasses sent up from various parts of the country. If we reckon this to be a tenth part of the cattle slaughtered in the United Kingdom, it follows that 1,600,000 cattle are sent to the butcher every year, and, averaging the life of the ox or the cow at five years, the value of British cattle, estimated at 10*l.* per head, will be 80,000,000*l.* sterling. 1,200,000 sheep, 36,000 pigs, and 18,000 calves are also sent to Smithfield in the course of a year, and if we reckon these to be one-tenth of the whole number, and allow only two years as the average duration of the lives of sheep and pigs, and value the calves at 2*l.* 10*s.* each, the pigs at 2*l.*, and the sheep at 1*l.* 10*s.*, we shall arrive at the additional sum of nearly 40,000,000*l.*; so that we may safely compute the actual value of cattle, sheep, and swine, to be nearly 120,000,000*l.* sterling."

"If, therefore, one-fifteenth of all the cattle of England are annually lost by disease, more than 5,000,000*l.* worth of cattle thus perish every year, and with these also die of disease about 3,500,000*l.* worth of sheep."

Miscellaneous.

Feeding of Animals (*Boussingault, vol. ii. p.* 405).—Oily grains contain a large proportion of animal matter, similar in its composition and properties to caseine from milk. Oil-cake retains the whole of this azotised principle; the proportion of azote, which amounts generally from 0.05 to 0.06, indicates about 42 per cent. of animal matter. Theory indicates so high a nutritive value, that 100 parts of hay may be replaced by from 22 to 27 of oil-cake. Its general use in cattle-feeding is ample proof of its nutritious qualities. One of our most skilful farmers in the south of France has even succeeded in keeping sheep almost exclusively on this food. Being at the head of extensive oil-works in the department of Herault, and finding it difficult to dispose of the oil-cake, he determined to connect with his establishment one for feeding cattle, which he keeps on Linseed-cake and the refuse of Grapes. Cows subjected to this regimen give, on an average, nearly 2 gallons of milk a-day. Their food is about 15½ lbs. of oil-cake per head, taken at three meals, immediately after which they are supplied with water. Each cow has, besides, 13½ lbs. of straw or corn-chaff. The cake is broken into fragments, moistened, and kneaded with water till it is of the consistence of dough. Cows sometimes refuse it; it must then be given in balls about the size of the fist; and, in general, two or three trials are sufficient to reconcile them to their diet. Supposing them to be properly nourished with 33 lbs. of hay and that 6 of straw are equal to 1.4 of hay, we find that 15½ of oil-cake take the place of 30 of hay; the equivalent of oil-cake then becomes 51.5, a very different result from 22, which is given by analysis. It must, however, be remarked that the equivalents are very differently stated by authors, as 42, 57, and 108. M. Perrault de Iotemps has found, from observations made on four milch cows, that 500 parts of Rape-cake, given in the form of gruel, are equal to 1370 of hay. The equivalent, then, is 36.5; analysis indicates 23. We see, then, that results obtained in practice, though very different, agree in giving to oil-cake a nutritive value lower than that which is indicated by theory. I am the more inclined to dwell on this disagreement, because it seems to me to depend on a circumstance which it is highly important to observe. I mean the influence of bulk as distinguished from quality. Vegetable food has, for the most part, nearly the same specific gravity, one, viz., slightly above that of water; the bulk, therefore, of the meal de-

* A tract of uncultivated land, of a mountainous character, extending from Kingston Down, near Callington, to the sea, near Boscastle, and occupying a considerable portion of the north-eastern part of the county.

pends on its weight. A regimen, then, formed of some extremely nutritious food, and, consequently, of very small bulk, would present serious inconveniences. A cart-horse of ordinary size requires from about 26½ lbs. to 33 lbs. of solid food, and 26½ lbs to 31 lbs.* of water in 24 hours. The bulk of this allowance, reduced by mastication, to the ordinary consistence of the contents of the stomach, is about a cubic foot. Now, if for the ordinary food, one five times more nourishing is substituted, as oil-cake for example, the dry ration, according to the law of equivalents, would be reduced to about 6½ lbs., and its total bulk would be about 10 inches cubed. The animal would not be filled, and would, without doubt, experience the pains of hunger. If, on the contrary, food of low nutritive powers be substituted, as Wheat-straw, which has an equivalent of 500, the 33 lbs. of dry food would become 165 lbs., and be too bulky to admit of their being consumed in a day. In feeding, then, the bulk of food is a material element. The stomach must be properly filled; the bulk, whatever be the food, must be sufficiently great; and hence arises the difference above mentioned in the nutritive equivalents. The exact appreciation of the limit beyond which any substance ceases to be nutritive is very difficult. When we add to a regimen, known to be sufficient for the support of an animal, a new portion of food, the effect of the addition is scarcely perceptible; so that in practical observation we are subject to underrate the nutritive value of food, when administered in too large quantities. This has been proved to us by a series of experiments on the feeding of milch cows. A cow, which had in Jerusalem Artichokes and dry fodder, the equivalent of 33 lbs. of hay, had in addition to this allowance 6½ lbs. of rape-cake, so as, in fact, to double its nutriment. The cow took half only of the cake, and notwithstanding this addition, she did not yield more milk. According to this observation, the equivalent of the cake, though one of the most nutritious substances, was in effect zero.—*M. J. B.*

Experiments in Farming.—As the Turnip season is now fast approaching, I beg leave to send you the undermentioned list of a few experiments which I tried last year. I shall give no opinion, and make no comment, but merely state the facts, and leave others to form their own ideas. The field in question was part of a farm taken into my own possession, because the late tenant was an obstinate prejudiced blockhead: he had tiles given him, but owing to his absurd idea of draining, that method was stopped. As soon as I got possession I commenced draining; that accomplished, I put four horses to the plough, and turned up the land, so as it had never been turned before; the general depth was 10 inches; hitherto it had only been scratched over about 3 inches deep. Previous to my sowing the Turnips I put 10 tons of real good manure, and a quarter of shank bones ground down to half-inch, upon every acre, in ridges 27 inches apart; the field was 9 acres, and upon every acre I drilled along with the seed the following compositions:—

Bones.	Sul. Acid.	Salt.	Wood Ashes.	Gypsum	Peruvian Guano.	Whale Oil.
1 qr.	1¼ cwt.	1 cwt.	...	...	...	...
...	...	...	...	...	1½ cwt.	...
...	0¼ ,,	...	...	...	1½ ,,	...
—	0¼ ,,	1 ,,	1½ cwt.	...	1½ ,,	...
0½ cwt.	0¼ ,,	1 ,,	1½ ,,	0½ cwt.	1½ ,,	...
0½ ,,	...	1 ,,	1 ,,	...	...	...
0½ ,,	..	1 ,,	1 ,,	0½ cwt.	...	..
			Coal Ashes.			
90 lbs.	45 lbs.	...	7 bush.	...	...	4 galls.
					English Guano.	
...	...	...	...	...	1½ cwt.	...

Now for the result. Many times previous to the Turnips being consumed, I took different individuals to look at them, and after the inspection I asked them to decide upon the best part of the field; the general answer was, "I cannot, the whole field is good." Such is a plain statement of the fancy I tried.—*A Subscriber in the Farmer's Journal.*

* An imperial gallon of water weighs 10 lbs., and contains 277,274 cubic inches. Taking, therefore, the water at 30 lbs., its bulk will be 831,822 cubic inches, and assuming 33 lbs. of food, when masticated, to be nearly of the same bulk, we have 1,663,644 cubic inches, which is something less than a cubic foot.

Notices to Correspondents.

ALSIKE CLOVER—*To Readers*—Will any one be kind enough to give us his *experience* of this plant?

BONES—*D H L*—Water will not slake them, as you have doubtless found out by this time. The slaking of hot lime depends upon its strong affinity for water, such a quantity of which it will absorb as breaks asunder and destroys the attraction between its particles, and thus causes it to assume the form of a powder. Bones have no such affinity for water. Any means by which you can give them a finely disintegrated condition are valuable. There are such means.—See Leading Article of this day.

BONE OIL—*Querist*—We do not know the substance, but oily matters generally may be considered almost useless as manure.

BUTTERCUPS—*W M B*—Try pasturing the land with geese. We never heard any other remedy suggested, unless it were the common-sense, but expensive one, of cutting the plants out whenever they appeared.

COMMON ASPECT OF SOILS—*Oxford*—We have a short paragraph on this subject in type: will the author be kind enough to send us the continuation of it?

DISSOLVED BONES—*W E*—Notwithstanding the concluding sentence in your letter, we have set it in type, and hope you will permit its publication. It is too late for this week.

DRAINS—*N S M*—We should be inclined to put a greater depth of stones in deep drains than in shallow ones—in fact, to fill all drains up to within 2 feet of the surface. You must not make them wider than you can help; it is unnecessary, and will cause expense by increasing the quantity of stones required

FILTERING WATER—*G L E*—Will you or any of your correspondents, conversant in such matters, give me some information respecting the best mode of filtering water for domestic purposes? I have a large stone filterer, and I wish to have two cisterns as reservoirs for the water, both previously to its being filtered, and after it has undergone filtration. What material is best to make the cistern of? I should not wish a leaden one, as the nature of the water is highly chalk, and am desirous of knowing whether iron would answer, or whether there is any compost with which the cistern might be lined, perfectly free from deleterious qualities if the chalky water remained in it for two or three days; for in the event of being able to use a compost for lining, I might make the cistern itself of brick, slate, or stone: but it must be of a material not affected by weather, as it will be exposed to the outward air, which, perhaps, would be the case with slate.

FIXER OF AMMONIA—*An Old*—Every 100 lbs. weights of undiluted urine may be considered to contain that which in the process of putrefaction will form 2lbs. weight of ammonia, and this will require for its fixation about 5 lbs. of sulphate of iron.

GAS LIME, &c.—*Querist*—We will ascertain the usual prices for you. They are both certainly well worth the trouble of carriage a considerable distance. There is no help for wireworm, unless it be in trampling and firming the land, as by Croskill's crusher, for instance.

NAMES OF PLANTS—*L D, Shelley*—Panicum miliaceum, or cultivated Millet, sometimes grown for its seed, of which poultry are fond: we do not know if it has ever been grown for fodder.

POND—*Anon—Bawgh*, i. e. alluvial clay, is not necessarily of a very adhesive character: it may be so, but, in your case, from its failing to keep your pond full of water, we should suspect it was not. You want some stiffer clay, and puddle it well 8 or 10 inches deep. It is a singular thing you can neither drain your pond nor fill it!

POULTRY—*Constant Sub*—See "Societies."

SMALL FARM—*Pastor*—As you cut your Vetches, you should manure the land, and dig it in; and then the best thing you can do will be to transplant into it Drumhead Cabbage plants; they will be ripe by October, and may then be removed in time for Wheat sowing. You might reserve a small portion of the land for Potatoes, the produce to be used for seed; they would hardly be ripe by autumn, and would on that account, it is said, be the better for that purpose.

SPOILED HAMS, &c.—*Subscriber*—"What is the cause and nature of the white spots seen in some hams when cut?" If you will furnish us with your address, the Index shall be sent by post.

SORRELL—*Reader*—Try a dressing of 80 bushels per acre of slaked lime, the most magnesian lime you can obtain; apply it by itself broadcast in wet weather in autumn.

ST. JOHN'S DAY RYE—*Querist*—It appears to be a distinct variety, and common Rye, though sown as early, would not equal it in quality in spring. You may sow rather less than the usual quantity of seed.

TURNIP CULTURE—*A R G*—You will find excellent instruction in Low's "Elements of Practical Agriculture," a work which all learners in farming ought to have.

WARPING—*To Readers*—Will any of your readers and correspondents on the coast of Lincolnshire or Norfolk, or about any of the inlets of the eastern coast, have the goodness to mention any particular spot where operations are now in progress for "warping up" newly redeemed mudlands? The inquiry has reference more particularly to such flats as—though covered by the daily tide, and a good distance inland—have no great run of river waters through them. The inquirer is well acquainted with the project of the great inclosure of "the Wash," to which the information he seeks has no reference, but to the applicability of the same means of improvement on the Hampshire coast.

WHITE MUSTARD—*Querist*—Can any one give us their *personal experience* of this crop?

WIRE-WORM—*R*—There is no help for you. When the land is lying fallow before the crop is sown, it should be ploughed, cultivated, and harrowed and worked about: that might injure the grub; and when the plant is growing, rolling is said to hinder their activity.

YEAST—*R*—Is there any way of taking off the extreme bitter from highly-hopped yeast, so as to render it useful for the baker?

ERRATUM—In page 372, col. c. at the 25th line from the top, for "Ten square yards," read "Ten yards square." [Thanks to "Z."]

N.B.—We have received a small sample of Red Wheat, endorsed—"Victoria Wheat—sown in 1844, on June 16, and ripened in this country. This is the Wheat that yields four crops a year in the West Indies." We shall be happy to parcel this sample out amongst any, applying next week, who may have curiosity enough to test the truth of the extraordinary statement which accompanies it.

**** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, June 2.—Per stone of 8 lbs.

	s. d. s. d.		s. d. s. d.
Best Scots, Herefords, &c. 4s 2d to 4s 4		Best Long-wools	— to —
Best Short Horns	3 10 4 2	Ditto (short)	4 0 4 4
Second quality Beasts	3 0 3 6	Ewes and second quality	— —
Calves	4 0 4 6	Ditto (shorn)	3 8 4 0
Best Downs & Half-breds	— —	Lambs	5 0 5 8
Ditto (shorn)	4 4 4 6	Pigs	3 8 4 4

Beasts, 2835; Sheep and Lambs, 23,390; Calves, 164; Pigs, 300.

We have to-day a larger number of beasts, and for the most part of superior quality. The increase of weight, as well as numbers, has had a decided influence on the trade, which is considerably worse, being affected also by the suddenly setting in of hot weather. 4s 4d. is an extreme price for the best Scots, and 4s. about the average for the best Short Horns. Almost everything is disposed of at these reductions.—Although the supply of Sheep is less, the demand having also decreased in a still larger proportion, our trade is worse, and prices are fully 2d. per 8 lbs. lower. The weather being hot, big Sheep and Ewes are very unselling.—Lamb is rather more in request, but at no higher prices.—Veal-trade is heavy.—Pork-trade is steady.

FRIDAY, June 6.

The weather is a little cooler, and the demand rather increased since Monday, consequently our trade for Beef is brisk; 4s. 4d. for the best Scots, and 4s. 2d. best Short Horns, are readily obtained, and in some few instances rather over those prices is realised for something of choice quality. Second-rate 3s. 2d. to 3s. 8d.—Mutton-trade is also more active, and the best Downs, &c., make from 4s. 4d. to 4s. 8d.; Long-wools, 4s. 2d. to 4s. 6d.; Ewes &c., 3s. 8d. to 4s. 2d.—Good Lamb is scarce, and makes about 6s. We have still much middling Lamb, which is selling at 5s. to 5s. 6d.—Veal-trade is rather better; a choice Calf makes 4s. 8d.—Pork 3s. 8d. to 4s. 6d.

Beasts, 797; Sheep and Lambs, 9749; Calves, 262; Pigs, 280.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, June 2.

AT the commencement of the present week we had a continuance of stormy weather, and the wind appeared to be unfavourable to the arrivals from the northern districts, which caused a firmness with the holders of fresh samples, and an advanced price was asked; but the dealers held back and the weather becoming more genial, and there being several fresh arrivals from Scotland, which were immediately commenced and offered for sale at 5ss. to 60s. per ton, completely threw into the shade any parcels of former arrivals, and those in store were unsaleable except to the cowkeepers or country dealers at from 35s. to 40s. per ton. The trade generally was languid, and the tendency downwards.

York Reds	60s to 80s	Wisbeach Kidneys	60s to 65s
Perth	50 60	— Blues	40 50
Fifeshire	— —	— Whites	40 45
Early Devons	— —	— Regents	— —
Late Devons	65 70	Guernsey Blues	60 —
Cornwall	— —	— Whites	— —
Jersey Blues	60 —	York—Prince Regents	20 50
— Whites	— —	— Blues	— —
Kent and Essex Whites	— —	— Soam's	— —
— Kidneys	60 70	Irish Whites	— —
Dutch Whites	— —		

HOPS, FRIDAY, June 6.

The accounts received from the Hop districts during the last week speak of a gradual increase of fly throughout the plantations—as many as 10 to 20 are to be seen on a leaf, and lice are already showing themselves. The market is more active in consequence, and several lots are withdrawn from sale.

PATTENDEN & SMITH, Hop Factors.

COVENT GARDEN, JUNE 7.—The late fine weather has greatly improved the quality of most of the articles brought during the week; the supply of most things has been large, and the demand brisk. Almost every description of forced fruit may be obtained, of superior quality; and excellent vegetables are abundant. Pine-Apples are rather on the increase, and the prices are, in consequence, slightly reduced; the kinds are Providence, Black Jamaica, and Queen. Hothouse Grapes are excellent in quality, and as regards quantity they are sufficiently abundant for the demand. Peaches and Nectarines are on the increase, and Cherries are pretty plentifully supplied. Some handsome Melons, of English growth, have been exhibited during the week; Strawberries are sufficient for the demand; and Gooseberries and Green Currants are tolerably plentiful. A few Apples and Pears may still be procured; Cucumbers are abundant and cheap. Of Vegetables, Peas have become more plentiful, and the quality is improving; they are, however, still very dear. Excellent Cauliflowers are plentiful, and the supply is still increasing. Good Kidney Beans are also tolerably abundant. Carrots and Turnips are good, and sufficient for the demand. Broccoli is becoming very scarce, and Asparagus is also less abundant. Rhubarb and Seakale are scarce, especially the latter. Mushrooms have not altered in price since last week. Salading of every description is good and plentiful. New Potatoes are a little cheaper. Of Cut Flowers there is a fine display; we noticed among them Cattleya Forbesii, Stephanotus floribundus, Clerodendron fragrans, several varieties of Erica, Gardenia radicans, Pelargoniums, Calceolarias, Cinerarias, Lily of the Valley, Heliotropes, Carnations, Moss, Provins, and other Roses.

FRUITS.

Pine Apple, per lb., 6s to 10s	Chesnuts, per peck, 6s to 8s
Grapes, Hothouse, per lb., 3s to 8s	Walnuts, per bushel, 16s to 20s
— Portugal, per lb., 1s to 4s	Oranges, per dozen, 1s to 2s 6d
Peaches, 6s to 20s	— per 100, 4s to 16s
Nectarines, per doz., 6s to 20s	— bitter, per 100, 8s to 20s
Cherries, per lb., 2s to 15s	Lemons, per dozen, 1s to 2s
Apples, Dess., per bush., 11s to 18s	— per 100, 6s to 16s
— Kitchen, 7s to 10s 6d	Almonds, per peck, 6s
Pears, Dess., per hf.-sv., 7s to 10s	Sweet Almonds, per lb., 2s 6d to 3s
— Baking, per hf.-sv., 2s to 2s 6d	Cob Nuts, per 100 lbs., 130s to 150s
Melons, 6s to 10s each	Nuts, Barcelona, 24s
Strawberries, per doz., 6d to 1s	— Brazil, 20s
Apricots, green, per pottle, 1s 6d to 2s	— Spanish, 20s
Currants, green, per pottle, 6d to 9d	— Cob, 16s
Gooseberries, green, p. hf.sieve, 2s to 3s 6d	

VEGETABLES.

Cabbages, per doz., 9d to 2s	Leeks, per doz., 2s to 3s
— red, per doz., 4s to 12s	Garlic, per lb., 6d to 10d
— plants, per doz. bnchs., 2s to 3s 6d	Onions, per bunch, 3d to 6d
Broccoli, per bundle, 1s to 4s	— large, per bushel, 10s to 15s
Cauliflowers, per doz., 2s to 24s	— Spanish, per doz., 1s 6d to 4s
French Beans, per 100, 2s to 4s	Shallots, per lb., 6d to 10d
Sorrel, per hf.-sieve, 6d to 9d	Lettuce, per score, Cab., 6d to 1s 6d
Jerusal. Artichok., p. hf.-sv., 1s 6d to 2s	— — Cos, 1s to 2s
Potatoes, per ton, 40s to 80s	Celery, per bunch, 1s to 3s
— cwt., 2s to 3s	Radishes, per doz. hands, 6d to 1s
— bushel, 1s 6d to 2s	Mushrooms, per pottle, 4d to 9d
— Kidney, per bsh., 2s to 2s 6d	Small Salads, per punnet, 2d to 3d
— Autumn, per bsh., 3d to 6d	Basil, green, per bunch, 6d to 9d
— New, per lb., 6d to 2s	Fennel, per bunch, 2d to 4d
Turnips, per bch., 5d to 1s 2d	Savory, per bunch, 9d
Red Beet, per doz., 2s to 6s	Watercress, p. 12 sm. bun. 6d to 8d
Carrots, per doz. bchs., 6s to 24s	Parsley, per half sieve, 1s to 1s 6d
Rhubarb, per bundle, 4d to 1s 6d	— Roots, per bundle, 9d
Asparagus, per bundle, 2s to 3s	Tarragon, per bunch, 4d
Horse Radish, per bundle, 1s 6d to 2s	Mint, per bunch, 6d to 1s
Cucumbers, per brace, 1s to 6s	Marjoram, per bunch, 9d
Spinach, per sieve, 1s to 1s 6d	Chervil, per punnet, 3d to 4d
Parsnips, per doz., 6d to 1s 6d	Basil, per bunch, 2d to 3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, June 5.

Prime old Meadow		New Hay	—s to —s	Clover	110s to 125s
Hay	110s to 118s	Inferior Hay	100 105	Straw	28 . 42s

JOHN COOPER, Salesman.

CUMBERLAND MARKET, June 5.

Superior Mead. Hay	115s to 125s	Superior Clover	118s to 126s		
Inferior .	100 108	Inferior ,,	110 115	Straw	38s to 43s
New Hay .	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, June 6.

Fine Old Hay .	105s to 112s	Old Clover	—s to 126s		
New Hay .	95 105	New Clover	— —	Straw	36s to 42s
		,, Inferior	110 120		

MARK-LANE, MONDAY, June 2.

The weather since Friday having been fine, has had its usual influence on the trade, and notwithstanding a short supply of Wheat this morning from Kent, Essex, and Suffolk, the market opened heavily; a few picked samples obtained about the prices of this day se'nnight; secondary and inferior qualities are 1s. to 2s. cheaper; free Foreign Wheat was in limited demand, but its value is unaltered from Monday last; in bonded there did not appear to be any inquiry, or a slight reduction would probably have been submitted to.—Barley, of all sorts, finds a moderate sale on late terms.—Beans obtain our quotations; and Peas, being scarce, command extreme rates.—The supply of Oats was good; Irish, Scotch, and fine Foreign meet a steady sale on the terms of last week; but out-of-conditioned parcels are 6d. cheaper.—Flour maintains the late advance.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	44	50	Red .	43	49
— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 28s to 33s	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . .	Polands	20	23	Feed	19	22
— Northumberland and Scotch .	Feed	20	22	Potato	21	24
— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new 21 to 36	Tick	32	37	Harrow	33	38
— Pigeon, Heligoland . 37 to 42	Winds	—	—	Longpod	—	—
Pease, White . . . . 35 to 38	Maple	36	38	Grey	32	35

FRIDAY, June 6.

The arrivals of Corn and Flour, British particularly, have been moderate during the week, and the attendance at market thin, with little business doing.—Wheat, either English, free Foreign, or bonded, is held firmly at Monday's prices.—We observe no alteration in Barley, Beans, or Peas.—The Oat trade is inactive, but not cheaper.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
April 26 per Quarter.	45s 11d	31s 11d	21s 4d	32s 1d	35s 1d	36s 1d
May 3	45 11	31 6	20 11	30 2	35 9	36 1
— 10	46 0	31 2	21 4	29 9	36 1	36 10
— 17	45 10	30 5	21 6	31 4	37 1	36 8
— 24	45 9	30 0	21 9	29 7	37 3	37 0
— 31	46 3	29 5	22 5	30 1	37 2	36 7
6 weeks' Aggreg. Aver.	45 11	30 5	21 8	30 4	36 10	36 9
Duties on Foreign Grain	20 0	8 0	6 0	10 6	6 6	6 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 31.

PRICE.	APRIL 26	MAY 3	MAY 10	MAY 17	MAY 24	MAY 31
46s 8d	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, June 6.

Canary . . per qr	44s to 50s	Linseed Cakes, Foreign, p. ton	7l 10s to 8l
Carraway . . per cwt	44 48	Mustard, White - p. bush.	10s 14s
Clover, Red, English	— —	— Superfine ,, -	12 16
— Foreign	— —	— Brown ,, -	12 16
— White, English	— —	Rapeseed, English, per last	28l 30l
— Foreign	— —	Rape Cakes . . perton	— —
Coriander . . .	12 18	Saintfoin . . .	— —
Hempseed . per last	35 36	Tares, Eng. winter p. bush.	4 6
Linseed . . per qr	52 60	— Foreign - - -	3 5
— Baltic . . .	36 44	Trefoil - - per cwt	18 23
— Cakes, Eng. per 1000	11l 0 11l 10	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on TUESDAY, June 10th, and THURSDAY 12th, 1845, at 12 o'Clock each day, a very fine collection of DAHLIAS, comprising all the new varieties of the season. Also a fine assortment of GERANIUMS, and other plants in bloom, the newest varieties of FUCHSIAS, VERBENAS, &c., and a great variety of plants for turning out in clumps. May be viewed the morning of sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

GRAND COLLECTION OF STOVE AND GREENHOUSE PLANTS FOR SALE BY AUCTION.

MR. GLENNY has been instructed to submit for sale by auction, on Thursday, the 19th June, in the pleasure grounds of the White Hart Hotel, Bromley, all the noble specimens in the collection of Mr. Pawley, comprising some of the finest GREENHOUSE, STOVE, AND ORCHIDEOUS PLANTS in the country; also two close and two covered vans with moveable tilts; Mr. Pawley having declined growing for exhibition. Particulars and Catalogues may be had on the Premises, and at the *Gardeners' Gazette* Office, 2, Tavistock-street, Strand.

MAIDENHEAD, BERKS.

TO BE SOLD, and entered on at Midsummer next, THE LEASE OF NURSERY GROUNDS,

With a GOOD SEED TRADE well established, and doing a considerable business; with a good stock of Fruit, Forest Trees, Shrubs, Greenhouse, Pits, &c. The reason for disposing of the above is the unexpected death of the late proprietor.

For further particulars, apply to the Widow, Mrs. WAKERILL, Maidenhead.

TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

For Particulars, apply to F. and A. MACKIE, Norwich.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,
(And at Southwark-bridge Iron Roof and Building Works.)

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

PURE GYPSUM, precipitated from a solution of Lime by Sulphuric Acid; being in a very finely divided state, it is better adapted for the various purposes for which it is employed in Agriculture, such as fixing Ammonia, and as a top dressing for Clover, &c., price 2*l.* per ton.

Superphosphate of Lime, 7*l.* per ton.
At Mr. LAWES' Factory, Deptford Creek.

GUANO.—Genuine GUANO (Peruvian and African) on SALE, at SWAYNE and BOVILL'S Bonded Warehouses, Mill-wall, Poplar, where the stock may be inspected as imported.—Apply as above, or at 19, Abchurch-lane, City.

GUANO.—GENUINE PERUVIAN and ICHABOE GUANO, of the finest quality, is now selling from the Importer's Bonded Warehouses, and will be shipped coastwise or forwarded by land carriage in quantities to suit the convenience of farmers upon application to Mr. T. N. KERR, 57, Lime-street, London. The genuineness of the article may be confidently relied on, but samples and analyses will be forwarded if required.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, June 7.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

MESSRS. DANIELL, HUTCHINSON & CO., having completed their extensive works for manufacturing

DANIELL'S PATENT CORNWALL WHITE MANURE,

respectfully announce that they are delivering the same for the present Turnip season. The experiments upon various White and Green Crops of the preceding year have established its title to one of the first Manures of the day, to which fact several eminent Agriculturists testified at the late East Penwith Agricultural Meeting. Besides its possessing all the essential qualities of Bone-dust, with the advantage of being capable of application to the soil with great ease and expedition, it exerts an important chemical action upon clays. Such soils disintegrate and liberate their potash with much less facility than silicious soils; the Patent Manure renders it more soluble, and hence proves a valuable dressing after subsoil ploughing. It hastens the decomposition of peat, leaves, and all other vegetable matters, converting them into humus or mould, and this again is resolved into carbonic acid, and is thus fitted for immediate assimilation by the young plant. It neutralises the acids forming salts of lime. It also decomposes certain salts of iron injurious to vegetation, such as the protosulphate of iron (so abundant in many soils), forming the sulphate of lime of gypsum, and liberating the iron as a harmless oxide. It reacts upon salts of alumina, potash, soda, magnesia, and ammonia; and its action upon slate, felspar, &c., developes alkalies and soluble silicates, so essential to Wheat and other corn crops; and, above all, it furnishes the plants with lime in its purest form, and phosphoric and silicic acid, so necessary to the perfection of the grain and straw. When acted upon by rain, it forms a solution which is destructive of animal life, destroying the germ of the Earth, Flea Beetle (the Turnip-fly), and other noxious worms, thus rendering it the most valuable Manure for the Turnip crop.—Agent, THOS. JNO. CROGGON, 2, Ingram-court, Fenchurch-street.—London, June 7, 1845.

Price 40*s.* per ton.

BRAIN'S GYPSUM, 23*s.* per Ton, Good and Cheap. No. 397. April 24, 1845.—This is to certify that we have examined a sample of Gypsum sent by Mr. BRAIN, of Thomas-street, Stamford-street, and find it contains

Sulphate of Lime	94·10
Water	5·00
Carbonate of Lime	·90
Animal Matter and Soda	Traces.
	100·00

(Signed) MITCHELL & FIELD.
5A, Hawley-road, Kentish-town, London.
Delivered free of Cartage to any Wharf or Railway in Town.

POTTER'S GUANO SUPERIOR TO PERUVIAN, proved by the following TESTIMONIAL just received:—

"Arthurstown, April, 1845.—Last season I distributed a large quantity of Guano, principally Peruvian, to the tenantry, to induce them to get into the green cropping system. I also ordered two tons of yours, through a Waterford house. It proved a good article, indeed, *much superior to the best Peruvian.*—Yours most obediently, WM. LUMSDEN."

"To Mr. Potter, 28, Upper Fore-street, Lambeth."

The price of POTTER'S GUANO is now much under that of Peruvian, and those who study economy will give it the preference. Mr. POTTER has also testimonials from Lord Zetland, Mr. C. Porcher, of Cliffe, Weymouth, and others, proving the superiority of his Manure over the Peruvian Guano, which commands so high a price.

Orders addressed as above instantly attended to, and a very considerable allowance made when a quantity is taken.

POTTER'S LIQUID GUANO, sold by Chemists and Seedsmen, 1*s.* 9*d.* per Quart Bottle, with directions.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

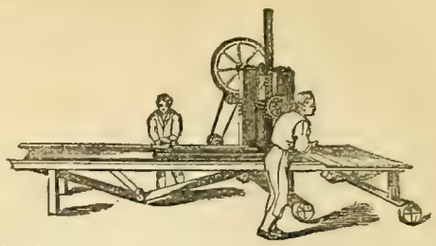
Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition. Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.

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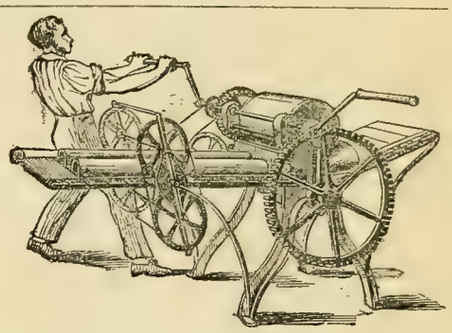


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*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

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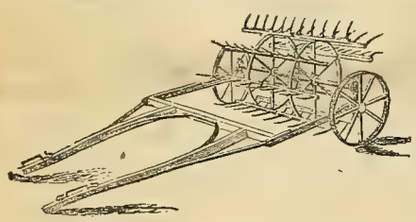
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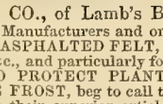
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GARDENERS' BENEVOLENT INSTITUTION.

At a General Meeting of the Subscribers to this Charity, held at the London Coffee House, Ludgate-hill, on Wednesday, 4th June, for the purpose of Electing Four Persons as Pensioners, the following was the result of the Ballot:—

Name.		*Age. Residence.*	Votes.
George Martin,	3d application,	67—Bristol	276
John Adamson,	2d ,,	68—Mortlake	28
Barney Farelly,	2d ,,	68—London	23
Thomas Farmer,	2d ,,	64—Mitcham	132
John Fisher,	2d ,,	70—Kennington	158
John Garnell,	2d ,,	78—East Ham	58
Christopher Gibbons,	2d ,,	59—Hendon	26
James Stedman,	2d ,,	78—London	131
Richard Stoyles,	2d ,,	78—Liskeard	175
Ann Cooper,	1st ,,	64—Wentworth	18
James Everest,	1st ,,	64—Bagshot	43
Mary Hamilton,	1st ,,	74—Hammersmith	189
John Longhurst,	1st ,,	57—Charlton	43
William May,	1st ,,	76—Footscray	30

The Meeting then declared that George Martin, Mary Hamilton, Richard Stoyles, and John Fisher, having the greatest number of votes, were duly elected Pensioners on this Charity. E. R. Cutler, Sec., 97, Farringdon-street.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Under the Patronage of Her Most Gracious Majesty the Queen.

The THIRD EXHIBITION for the season will be held in the Royal Surrey Zoological Gardens, on Wednesday, June 25th, 1845. Open to all Exhibitors, when Prizes will be awarded for the following collections, viz., Miscellaneous and Orchidaceous Plants, Cape Heaths, Pelargoniums, Roses, Heartsease, Fuchsias, Ranunculuses, Pinks, Calceolarias, Fruit, Vegetables, &c. The following Exhibitions will also take place in the above Gardens:—On Wednesday, July 23d, and on Wednesday, September 17th, 1845. List of Prizes and the rules of the Society may be obtained from John Taylor Neville, Ebenezer House, Peckham. Secretary.

GRAND EXTRA HORTICULTURAL FETE AT CAMBRIDGE,

on Friday, the 20th of June, 1845, during the meeting of THE BRITISH ASSOCIATION. In addition to the List of Prizes offered in the Annual Circular of the Cambridgeshire Horticultural Society (the competition for which is limited to its members), the following EXTRA PRIZES, OPEN TO ALL ENGLAND, will be offered, viz.:—

For the best collection of 30 plants (either hardy, greenhouse, or stove varieties) in bloom in pots, exhibited with names—1st prize, 4*l.*; 2d prize, 2*l.* Entrance, 7*s.*

For the best collection of 20 plants (either hardy, greenhouse, or stove varieties) in bloom in pots, exhibited with names—1st prize, 2*l.*; 2d prize, 1*l.* Entrance, 5*s.*

For the best single specimen of a plant in a pot—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of 36 Roses in bunches—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best 6 Roses in pots—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Fuchsias—1st prize, 20*s.*; 2nd prize, 15*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Ranunculuses—1st prize, 20*s.*; 2nd prize, 15*s.* Entrance, 2*s.* 6*d.*

For the best collection of cut flowers, in a basket or otherwise—1st prize, 15*s.*; 2nd prize, 10*s.*; 3d prize, 7*s.* Entrance, 2*s.* 6*d.*

For the best collection of 12 Pelargoniums—1st prize, 30*s.*; 2nd prize, 20*s.*; 3d prize, 10*s.* Entrance, 2*s.* 6*d.*

For the best collection of cut Pansies (24 varieties)—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.* Entrance, 1*s.*

For the best 1½lb. of Strawberries—1st prize, 10*s.*; 2nd prize, 7*s.*; 3d prize, 5*s.*

For the best Melon—1st prize, 15*s.*; 2nd prize, 10*s.*

For the best basket of Vegetables—1st prize, 20*s.*; 2nd prize, 15*s.*; third prize, 10*s.*

For the 3 best Cauliflowers—1st prize, 5*s.*; 2d prize, 3*s.*

For the 3 best Lettuces—1st prize, 5*s.*; 2nd prize, 3*s.*

Entrances for Fruits and Vegetables, 1*s.* each class.

Each Exhibitor will be required to certify that the articles shown by him are of his own growth, or have been in his possession at least six weeks; and no articles can be removed from the Show till 8 o'clock in the evening.

Entrances to be made three days before the Show, and money paid to the Honorary Secretary, Sidney-street, Cambridge, where rules for exhibitors, with other particulars, may be had on prepaid application. W. G. Ashton, Hon. Sec.

HAMPSTEAD FLORISTS' AND HORTICULTURAL SOCIETY.

The first Exhibition for 1845, by the kind permission of J. Jackson, Esq., will be held in his Gardens on Hampstead Heath, on Tuesday the 17th of June. The Exhibition will be open to the public at one o'clock, who will be admitted by tickets; to be had of Mr. Thomas, Holly-bush Tavern; Mr. Hutt, High-street; Mr. Watson, Heath-street; Mr. Cutbush, Highgate; and at the door on the day of Exhibition.

A Band will be in attendance.—Admission 1*s.*; Children, 6*d.*

By order of the Committee, Jas. Miller, Secretary.

WOOLWICH FLORAL SOCIETY.

—The First Exhibition for the present year will be held at the Town-hall, on Monday, June 23. The following are open classes:—

CLASS A.—Nurserymen and Growers for Sale. For Stands of 12 dissimilar blooms of Pinks—1st prize, value 1*l.* 10*s.*; 2d, 1*l.*; 3d, 15*s.* Entrance to non-members, 5*s.*

CLASS D.—Seedling Pinks of 1844 (three blooms of each variety). Entrance to non-members, 1*s.* each variety.

CLASS E.—Ditto of 1845, single blooms. Entrance to non-members, 6*d.* each bloom.

CLASS G.—Seedling Pansies. Entrance to non-members, 6*d.* each bloom. Prizes according to merit, at the discretion of the Committee.

CLASS H.—Nurserymen. Collections of Stove or Greenhouse Plants, not fewer than 12 varieties—1st prize, value 2*l.*; 2d, 1*l.* 5*s.*

CLASS I.—Gentlemen exhibiting in their own or their gardeners' names. Prizes as above. Entrance to non-members (in each class), 2*s.* 6*d.*

N.B.—The prizes (articles of plate), will be presented to the successful competitors on the day of Exhibition. Persons intending to exhibit, to enter notice of their intention on or before Friday the 20th inst., with Mr. Newhall, Powis-street, of whom any further information may be obtained.

NEW AND SUPERB CHRYSANTHEMUMS.

YOUELL and CO. are now forwarding per post free with the utmost punctuality, to any part of the United Kingdom, fine strong well-rooted plants of the following beautiful CHRYSANTHEMUMS, at 12*s.* per doz., the selection being left to the purchaser or to Youell and Co., and will ensure a fine Autumnal bloom.

Achmet Bey, lilac
Annie Salter
Arago, buff and red
Beauty, pale lilac
Beauté de Versailles
Belladonna, pink
Bethula, lilac
Brunette
Campestroni, purple [son
Casimir Perrier, small crim-
Chancellor, white and pink
Changeable, yellow
Christopher Colombe, lilac
Competitor
Colonel Combe's, salmon
Conspicuum
Defiance, white
Diana
Duc de Conigliano, crimson
Duchess de Montebello
Duke, extra fine
Elegans, rose
Expanded, purple
Empress, lilac
Flechier, dark rose
Formosum, white and yellow
Golden Lotus-flowered, yellow
Gem, pink and white
Goliath, white
Gouvain St. Cyr, orange
Hardy
Hero
Incurved, pink
Insigne, pink and red
Imperial, pale lilac
King, pale rose
Louis Philippe
Lucidum, white
Marchioness, white
Madame Pompadour, dark rose
Marechale Messina, yellow and
Marie, red [red
Marie Antoinette
Maguet, yellow
Memnon, pink
Minerva, pink and white
Mirabile, white and buff
One of the Ring
Peter, creamy
Perspicuum, pink
Prince Albert
Princess Marie, light pink
Pulcherrimum, rose
Queen Victoria
Queen, deep rose
Queen of Gipsies
Quilled, yellow
Rosalind, pink
Saladin
Salters, white
Success
Sulphurea
Sultana, rose
Superb, clustered yellow
Surprise, white
Starry, purple
Tasselled, lilac
——— yellow
Titian
Triumphant, pink and buff
Two-coloured Incurved, yellow
Uterpe [and brown
Vesta, white
Wheeleriana
Zelinda

THE NEWEST AND VERY BEST FUCHSIAS VERBENAS, PETUNIAS, and PANSIES.

YOUELL and CO. continue to supply the above highly-ornamental plants per post, free, at the following prices. Their collection of the above is the most extensive and select in the United Kingdom, thus insuring to the purchaser the certainty of receiving none but first-rate varieties.

FUCHSIAS.

Youell & Co.'s 8 New and Splendid Seedlings, 42*s.*
12 Extra Fine Varieties of Fuchsias ..... 12*s.*
12 Ditto ditto, New ..... 21*s.*
50 Fine Varieties ..... 40*s.*
50 Extra fine ditto ..... 60*s.*

VERBENAS.

12 Extra Fine Varieties, 6*s.*, the Selection left to Youell and Co.
12 Ditto 10*s.*, the Selection left to the Purchaser.

PANSIES. [Sent postage free.]

12 Fine Show Varieties, by name . . . . 10*s.* per dozen.
12 Extra Fine do. do. . . . 18*s.* ,,

PETUNIAS, 12*s.* per dozen.

FLOWER SEEDS.—30 packets of the choicest and newest kinds sent per post, free, for 6*s.*

FINE ERICAS, 12*s.* per dozen.

ARAUCARIA IMBRICATA, or CHILI PINE TREE.—Four year-old plants, in 60-sized pots, 8 to 10 inches, 10*l.* per 100, or 30*s.* per dozen.

Extra fine ditto, five years, 10 to 12 inches, in 48-sized pots, picked plants, 60*s.* per dozen.

For further particulars see Youell & Co.'s Advertisement of Jan. 11.

FUCHSIA SEED, saved from the newest and best varieties in cultivation, 2*s.* 6*d.* and 5*s.* per packet.

Achimenes pedunculata, hirsuta, and grandiflora, 9*s.* per dozen; Achimenes picta, 18*s.* per dozen.

Fine plants of Pinus excelsa, from Seed, 9in. to 1ft. 42*s.* per doz.

For Particulars of Youell & Co.'s SEEDLING CACTI, see their Advertisement of May 31st, page 359.

Great Yarmouth Nursery, June 14, 1845.

GARDENIA STANLEYANA AND OTHER NEW PLANTS.

R. GLENDINNING has plants ready to send out of this Magnificent New GARDENIA, which may be seen coming into flower at his Nursery.

	£	*s.*	*d.*		£	*s.*	*d.*
Gardenia Stanleyana	3	3	0	Napoleona imperialis	2	2	0
Whitfieldia lateritia	1	1	0	Cereus crenatus	0	10	6
*Veronica salicifolia..	0	7	6	†Spiræa Douglasii	0	3	6
Ditto New unnamed species.....	1	1	0	Gesnera Gardneriana	0	5	0
Jocroma tubiformis..	0	3	6	Tacsonia molissima .	0	3	6

* These Veronicas are natives of New Zealand, quite shrubby, and desirable greenhouse plants.

† The colour of this hardy plant approaches scarlet.

Chiswick Nursery, June 7.

SLOUGH NURSERY.

THOMAS BROWN having retired from business, his Successor, W. C. BROWN, begs to solicit a continuance of that patronage so kindly given to this establishment, and to assure his customers that no effort shall be spared to make it one of the first in the kingdom. His stock of Dahlias and Pansies already are unrivalled; also the Verbenas, Petunias, Carnations, and Liliums, are selected from the newest and best. Geraniums, Calceolarias, and Camellias, will also form a leading feature; and Fruit-trees of all the new and good kinds. Seeds, Mats, Mushroom-spawn, Cut Flowers, Bulbs, &c. &c.

SEEDLING PELARGONIUMS OF 1844.

—It may save inquirers and myself some trouble if I take this means of informing the public of my intention to send out my finest seedlings of 1844 direct from this place. Exhibiting as I do in the Amateurs' Class, I have not felt justified in disposing of any plants, though often applied to; neither can I receive any orders until the series of Exhibitions are closed, after which I will afford every information in the usual manner.

Edward Beck, Worton Cottage, June 14.

FUCHSIA—"PICTA."

J. PIPER, of Parkstone, near Poole, begs leave to announce the above-named Seedling, which will be ready for delivery on the 20th of June next, at 8*s.* per plant, package included; it was submitted to Professor Lindley for inspection, and was pronounced by him to to be a good flower. (See *Gard. Chron.*, p. 650. Sept. 28, 1844.) It is large in size, the tube and sepals of a delicate but bright pink, the latter tipped with green, the corolla of a rich rosy crimson, slightly tinged with lilac; the flower is well developed; of admirable form and substance, and is a free bloomer.—June 14.

NEW AND FRAGRANT-FLOWERED STOVE SHRUB.

MESSRS. HENDERSON, Pine-apple Place Nursery, respectfully offer plants, at 30*s.* each, of HINDSIA LONGIFLORA ALBA. This beautiful plant is of a medium size in growth. Its flowers are trumpet or funnel-shaped, the lower tubular part nearly 2 inches long, expanded at the tip; pure white in colour, exceedingly fine in odour, and produced in large and elegantly-diverging racemes of 15 to 25 blossoms each, upon plants not exceeding 16 inches in height. In habit it is much more robust than its prototype (H. longiflora), and possesses none of its obvious defects in cultivation. Its clearness of colour, neatness of habit, and exquisite fragrance, render it far superior to any species of Jasmine hitherto known.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) to the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

HENRY HUNT'S PATENT GARDEN POTS and STANDS.

For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	.. ..	11*s.* 0*d.*	20 inches	.. ..	22*s.* 6*d.*
15 inches	.. ..	12 6	22 inches	.. ..	25 0
16 inches	.. ..	16 0	24 inches	.. ..	32 0
18 inches	.. ..	19 0			

Slate Works, Isleworth, Middlesex

BRITISH SHEET or HORTICULTURAL GLASS.

In consequence of the entire removal of the duties, J. Welch, Jun. (late with Mr. Drake, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

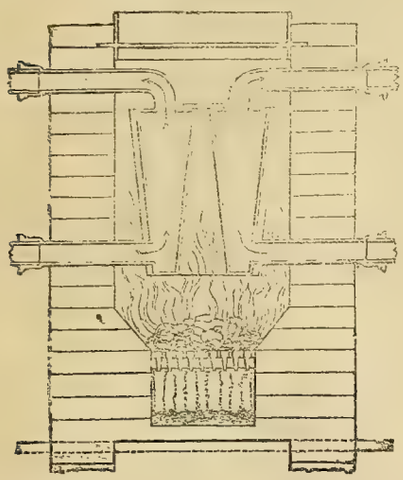
12, Panton-street, Haymarket.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the Kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



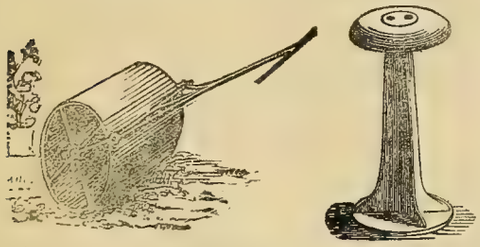
BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,
(And at Southwark-bridge Iron Roof and Building Works.)



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedesta's in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

GUANO.—Genuine GUANO (Peruvian and African) on SALE, at SWAYNE and BOVILL's Bonded Warehouses, Mill-wall, Poplar, where the stock may be inspected as imported.—Apply as above, or at 19, Abchurch-lane, City.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, June 14.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition. Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

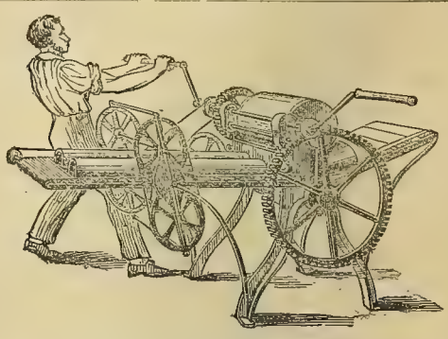
THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

HORTICULTURAL IMPROVEMENTS.

J. READ begs to inform Ladies, Amateur & Practical Gardeners, that he has just sealed a NEW PATENT for improvements in Garden Engines, Machines, and Syringes, which can be worked with half the usual labour, and which for power and portability surpass anything of the kind ever offered to the public. The valves are warranted to be kept in repair during the term of the patent. May be seen and proved at 35, Regent-circus, Piccadilly. N.B. None are genuine except stamped with the words "Read's Patent."

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is prepared expressly for drying Botanical specimens, for which purpose it is peculiarly adapted; and has received the most unqualified approval of our most eminent Botanists. Sold by the Manufacturers, W. and T. BENTALL, Halstead, Essex; and by their Agents, E. Newman, 9, Devonshire-street, Bishopsgate (sole Agent for London); G. Davey, Broad-street, Bristol; H. Whitmore, 119, Market-street, Manchester; R. T. McIntosh, 12, Catherine-street, Edinburgh. For particulars see *Gardeners' Chronicle*, April 5, 1845; see also the Leading Article of the same Number.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 80*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

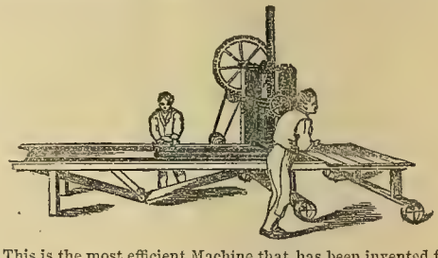
PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

HATCHER'S BENNENDEN TILE MACHINE. Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

THE PATENT ECONOMIC TILE MACHINE having been on view, at work, in London, for five weeks, is now removed to Mr. BAILEY DENTON'S offices, No. 9, Gray's-inn-square, where it can be seen daily, between the hours of 10 and 4; price, 20*l.* Orders received by Mr. DENTON, Gray's-inn, by Mr. CHARNOCK, or the Makers, Wakefield. The "A" Level for Draining, can also be seen at the above address; price 30*s.*

SHETLAND LIVE STOCK.—The OXEN are very hardy, and good feeders; the beef of the finest quality; weight, when fatted, 50 to 70 stone. The COWS are pretty little creatures for small family dairies; they are about 40 inches high, and give rich milk. They are imported at a very moderate price. Apply to EDWARD STANDEN, 28, High-street, Oxford; where, and at the Shetland Warehouse, 112, Jermyn-street, London, the many articles of Clothing knitted by the Shetlanders, may be obtained.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.

The SECOND MEETING will take place on SATURDAY, the 21st of June. Tickets are issued to Fellows at this Office, price 5*s.* each; or at the Garden, in the afternoon of the days of Exhibition, at 7*s.* 6*d.* each; but then only to Orders from Fellows of the Society.

N.B. No Tickets will be issued in Regent-street, on the day of Exhibition. 21, Regent-street.

The Gardeners' Chronicle.

SATURDAY, JUNE 14, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 18	Microscopical	8 P.M.
SATURDAY, June 21	Horticultural Gardens	1 P.M.
WEDNESDAY, June 25	South London Floricultural	1 P.M.
SATURDAY, June 28	Regent's-park Zoological Gardens	9 A.M.

COUNTRY SHOWS.

TUESDAY, June 17—Gravesend.
THURSDAY, June 19—Wingham Horticultural and Floral.
FRIDAY, June 20—Cambridge Horticultural.
WEDNESDAY, June 25—Surrey Horticultural and Floral.
THURSDAY, June 26—Liverpool Botanic and Horticultural.

OUR attention has been drawn to the EARLY APPEARANCE OF MUSHROOMS THIS SEASON, by a correspondent who inquires whether this has been generally the case, or whether it is at all uncommon; and from another quarter we learn that during the last month large quantities of very fine Mushrooms have been gathered from spots on the barren Mendip hills, on which, heretofore, they were only to be found in the autumn season.

Will our correspondents permit us to inquire, what is the species they have observed? Is it the true Agaricus campestris? Or is it the larger and coarser species Agaricus arvensis, which may often be recognised by its being stained with yellow, and which though really an excellent species is often rejected as unwholesome. This is not at all uncommon as early as May, and has therefore been supposed, though erroneously, to be the St. George's Agaric. It is figured under that name by SOWERBY; but the true species, which is also good for food, and which, with one or two closely-allied forms, is more or less common in pastures at this season, or a little earlier, is at once distinguished by its not having the slightest shade of pink in the gills, in consequence of its reproductive organs being white instead of a purplish-brown. After the first spring rains, some one or other of the species may usually be found forming rings in exposed pastures, growing often very close together, and in consequence much distorted with a white somewhat glazed pileus, and a heavy rather oppressive smell.

These Mushrooms are much prized in some parts of France under the name of Mouceron, and are strung upon threads and hung up in the kitchen to dry. We cannot speak of them from actual experience, but there is no doubt that they are wholesome if used in moderation. There is, however, a species (Agaricus oreades), which is now extremely abundant, which we can most strongly recommend for use as superior even to the common Mushroom; it is sometimes known by Mushroom-gatherers, under the name of Champignon; or Champenies in Norfolk; the gatherers, however, seldom are acquainted with the real species, and gather frequently for it very suspicious, or decidedly unwholesome kinds.

The genuine Agaricus oreades is very easily distinguished, and when once ascertained, there is no danger of confounding it with anything else. It forms rings often of immense magnitude, in which it grows closely packed, supported by a slender tough stalk, which, when accurately observed, is found to have a woolly bark. The colour of the cap is a pale ochraceous white, the gills are of the same colour, and very distant from each other, and the whole plant is much tougher than the common Mushroom. The best way to gather it is to cut off the caps, which prevents their being gritty, care being taken to reject those which are old or at all decayed. If stewed gently it makes a most excellent dish, and has the advantage, when mixed with anything in which it is desirable to have the colour as pure as possible, of not imparting any dark hue, in consequence of its spores being perfectly white. It is curious that so abundant and excellent a species should be so little prized. It is easily dried and will keep for a long time, if hung up in little bags in a dry place.

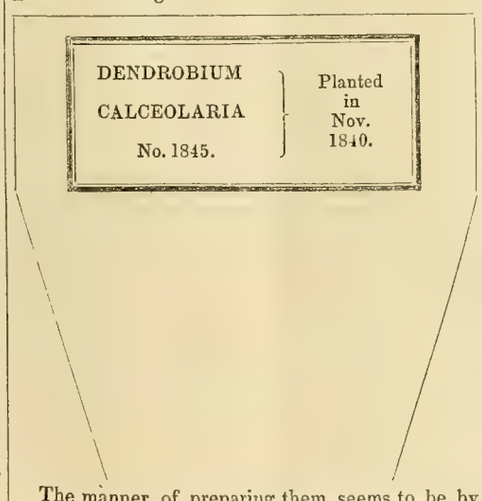
To return, however, to the subject of the common Mushroom: it is very possible that our correspondents' species may have been the A. campestris, for a few isolated individuals have made their appearance already in our pastures. We have this year seen, in a Grapery, an admirable crop of Mushrooms, consisting entirely of Ag. arvensis. The house was originally made for Pines and Grapes; but Pines have not been grown in it for years. The pit in the centre is nearly filled with spent tan, which has been topped up with stable manure, with a view of giving the Vines a little encouragement, and this has been inoculated with some spawn from a spot near a Yew-hedge, where Ag. arvensis has grown for years. The spawn ran very rapidly, and in a short time produced a most abundant harvest.—*M. J. B.*

SOME of the GLASS TRADE have ridiculed SIR ROBERT PEEL's idea that water-pipes and watch-springs might be made of glass. But it is impossible to say where the application of *cheap* glass will stop; and as for water-pipes we entertain no doubt that we shall soon have nothing else employed for the conveyance, in direct lines through the earth, of water intended to be drank. The action of water on lead is so injurious indeed, besides being powerful in proportion to the purity of the fluid, that even if glass should cost more than lead, instead of very much less, it would still be worth while to use it. The only difficulty would consist in the jointing of glass-pipes; and this, like many other difficulties with which the lag-behind race alarms itself, is quite imaginary. JEFFERY's marine glue is a perfect cement for glass.

The knowledge of this fact has led our ingenious correspondent, Mr. GRANT, of Woolwich, to suggest a new mode of applying glass to the construction of labels for Horticultural purposes, which labels we incline to believe are the best that have yet been thought of. He speaks of the plan in the following manner.

"In a recent Number it was suggested that hermetically-sealed glass tubes with the names or numbers of the plants inclosed in them, might be employed as labels, the originator of the plan observing that it would be necessary to send the names or numbers to the glass-blower, which would be attended with inconvenience and expense. I also fear that when completed, the insertion of one end of the tube in the ground, while the other was exposed to the great heat of the sun in summer, would injure, if not destroy, the written or printed labels. Having made several experiments in joining glass with JEFFERY's marine glue, it has occurred to me that very neat, simple, and most endurable labels, might be formed by any gardener during his leisure hours, at a comparatively nominal expense, the marine glue being only 8*d.* per lb., and the glass the fragments or waste of the kind used for common windows. I send you three specimens, one written, one partly written and partly printed, and one wholly printed, attached to the fragments of glass in the manner I have alluded to; and I am convinced they would prove imperishable for the purpose for which they are intended. The marine glue at that part of the glass which is inserted in the earth, would contract; while the part exposed to the sun would expand, and each end would suit itself to the circumstances under which it might be placed without the least injury to the labels; for moisture has no effect whatever upon the composition invented by Mr. JEFFERY."

These labels are all that can be desired, except that the glass with which they are made is too thin, being of the common crown quality. One of them has the following form.



The manner of preparing them seems to be by pasting a paper label to the face of a piece of glass, then smearing another piece of the same form and size with JEFFERY's marine glue, and immediately afterwards pressing the two pieces together. This appears to be all that is required: but we have no doubt that Mr. GRANT will oblige us with the exact description of his manner of proceeding.

The strength of these labels is such, that although, as we have stated, the specimens sent us are made with common crown-glass, they will bear as smart a blow as they are likely to encounter. Indeed, when struck sharply with a hammer and cracked, the fragments of glass are very unwilling to separate. If such labels come into use, as we do not doubt it will be worth the while of printers to strike off decorated blank tickets, within which names may be written, and, even the very names of common things, so that they may be cut out and pasted upon the glass, without any writing being required. But we need not dwell upon this, for the manner of varying the application of the invention will suggest itself to everybody.

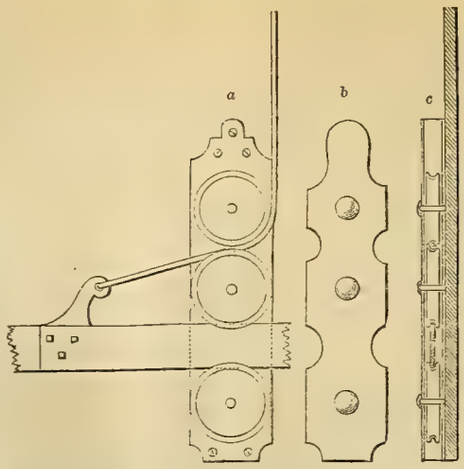
THE ROSETUM.

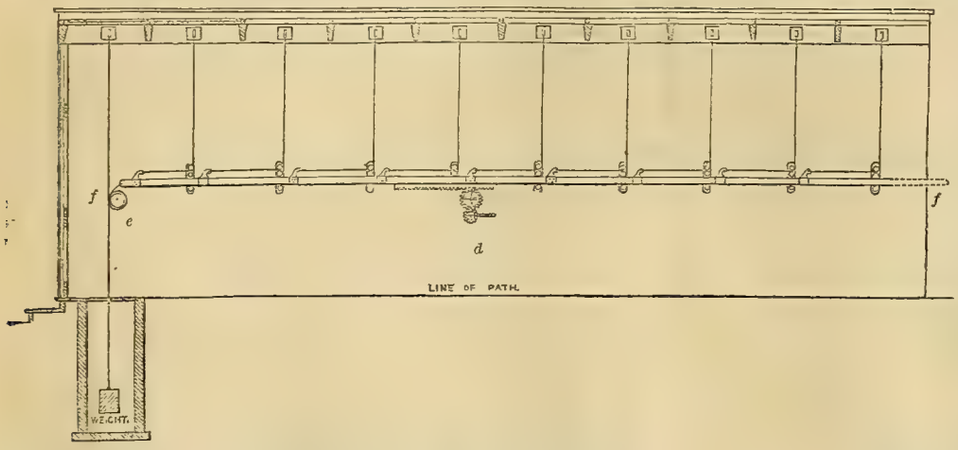
THE remarks on the culture of the Rose which have already appeared in the *Chronicle*, have rendered it unnecessary for further details on that head. The observations which follow will therefore have reference more particularly to the effect which can be produced by an assemblage of kinds grouped together in masses, with some regard to colour and class, as well as habit, so as to accomplish prolonged bloom. Our national emblem is surely not unworthy of a distinguished place in the flower-garden; a portion, therefore, appropriated as a Rose-garden may be constituted an object of no mean interest to all lovers of flowers. Indeed a Rose-ground judiciously planned and planted with some regard to classification, may be rendered, six months in the year, a place of great attraction. There is not within the whole range of the vegetable kingdom another genus containing within itself such a vast combination of beauty, variety, and perfume. The Rose-garden should be designed geometrically, in order that groups of the various tribes may be brought together; for what can surpass a mass of the old Cabbage race? Nothing, indeed, unless it be a similar bed of the common Moss; all the others will produce far greater effect by arranging and contrasting them in this way; and no figure can surpass the circle, to give really grand effect to this tribe of plants. Hence, a combination or series of circles, reduced to a plan, will afford great scope for a display of Roses. The various sorts should be arranged in circles separately:—Hybrid Perpetuals, for example, should follow some summer-flowering kind; again, a circle of Bourbons may be succeeded by another of Moss or Provins, and so on; due regard should be had in grouping to bring those together of nearly similar growth. A Rose-garden, to be enjoyable in all weathers, should have the walks of gravel. The fragrance of the Rose after a shower is well known, and if the Rosetum is formed exclusively on turf, the morning and evening dews will, at all events, prevent ladies from approaching it at those times when flowers and flower-gardens can be most enjoyed. The edgings to these beds may be of Box or turf; and in some cases the dwarf kinds of Roses may be used in this way. Turf, however, will contrast better than any other kind of edging; turf may also constitute a portion of the parterre, under judicious arrangement. That class of Roses suitable for pillars can be introduced with great propriety in a garden of this description; thus affording an opportunity of displaying to the greatest advantage a most beautiful and extensive tribe of this gorgeous flower. The introduction of pillars must, of course, be governed by the arrangements in the plan, and nothing can be easier than the production of a magnificent spectacle in this way. Some of these pillars may be planted with scarlet kinds, some with blush, and others with pure white varieties; indeed, all the different shades of colour may be brought into admirable contrast, and exhibited to the very greatest advantage on pillars. At the various approaches to the Rosetum, arcades with the creeping kinds may with excellent effect and propriety be formed, still planting them, as in the former cases, with an eye to colour and ultimate effect. No flower-garden, nor yet, indeed, any part of it, ever can produce any other effect on the mind than that of the most unsatisfactory and perplexing kind, unless distinct combinations are produced, both as regards colour and proportion. The Rose-garden, from the variety in the genus alone, affords ample means of introducing clearness and distinctness in the grouping and contrasting of the various colours and habits of this truly magnificent shrub, in opposition to the want of arrangement and confusion which so frequently prevails in many of our best flower-gardens.

Standard Roses will form no unimportant feature in the Rose-garden; and when skilfully appropriated, these give an artistical character to a garden, and form a progression which the Rose may be said to have made from a state of nature. When placed, therefore, in a garden of high artificial pretensions, standards become then objects of indispensable utility. When arranged by the sides of walks, standard Roses elevate the character of these; so also in terrace-gardening their fitness cannot be disputed. Wherever gardens are geometrically planned, and especially where sculptured objects constitute a portion of the decoration, all such artificial objects tend to increase the interest and dignity of such a garden, just in proportion to the distance they are removed from nature; that they are apart from a natural production in a twofold manner is quite evident—first, in the artificial importance which they attain by being budded standard high; and secondly, in double flowers produced by the aid and skill of the gardener, which point out their peculiar fitness in all geometrical gardens. Thus, then, these different modes by which every description of Rose may be brought together and rightly appropriated, will give us some idea of the value and interest of such gardens, and the sources of pleasure derivable from what, with great propriety, may be designated the right arm of Flora.—*Duro.*

MODE OF VENTILATING HOTHOUSES AT TRENTHAM.

I OBSERVED a very workmanlike arangement for ventilating the beautiful new forcing-houses lately erected here. The value of this invention is much enhanced by the fact that the whole apparatus is so simple that the village blacksmith made it so perfect as to answer admirably on the first trial. Before proceeding further, however, I would beg to mention why I consider this arrangement so useful, and where it will be found so valuable. To those who have hothouses having inclinations like those of the old Pine houses in the Royal Gardens at Kensington, which were wont to figure as the pinnacles of perfection in fruit-growing, with roofs at an angle of, perhaps, 10° or 12°, this invention will be of no service, for a house thus set with a slope so low can never have the sun shining on it at right angles, excepting, perhaps, for a fortnight about Midsummer. Therefore houses thus erected are, for obvious reasons, very unsuitable to plants, very late, very dark, very damp, and having an atmosphere stagnant from a want of the motive power which higher levels would create in the circulation of the heated air. For these reasons it must always be more attributable to chance than good management, that eatable fruit can be grown in such houses at all, not to speak of the time lost. In Pine growing, for example, such houses will require two summers to do the work of one, and though these facts are well known, it is strange that they are so seldom reduced to practice.





Reference to Plan.—*a*, Front section of pulley and rollers. *b*, Front plate lifted off to show the working of the pulley and rollers. *c*, End section of pulley and rollers. *d*, Toothed wheel and wrench. *e*, Iron rope and pulley for the linker under ground. *f f*, Horizontal iron bar with annealed iron ropes attached.

"That the sun is a prime agent and a potent one in the production and perfecting of fruits will be readily granted, and it must be borne in mind that to fruit a plant requires a higher degree of art than is necessary to flower it; therefore I may safely lay it down as a general rule that all fruiting-houses, and more especially forcing houses, should be "sun-traps" to catch every ray, if possible, and should therefore be seldom under an angle of 30 and often above 40 degrees; but it must likewise be borne in mind that if houses thus set high were to be ventilated with the crook and pike on the end of a pole, the intensity of the sun's rays, acting so directly upon clear glass, would assuredly burn tender foliage before the lights could be got down with the crook; and, again, the cutting blast would chill the house before the lights could be closed by such a slow process. Early forcing requires the aid of every moment that is serene, and the absence, if possible, of all weather that is stormy and unfavourable. The young gardener, therefore, in charge of early forcing-houses must have his thoughts frequently turned to the sources of heat and cold, since he may have to open and shut such houses where Vines are in flower, in March, not less than 20 times in the course of six or eight hours, if the day be changeable. And this is not an imaginary idea, but a useful lesson that must be practised by every one who has clear glass set high enough for early forcing, and who determines, if possible, to have a full crop of fine Grapes ripe early in May. This is the sort of spur that sets the wits of forcing gardeners to work, and it is on those who are thus resolutely bent that Mr. Fleming's improvements in ventilating, as represented in the woodcut, will tell to advantage. On entering one of the hothouses I saw the working of this system, when, by turning a wrench, a dozen lights moved upwards or downwards with the greatest precision and regularity; you could regulate to a hair's breadth a whole house of 50 or 100 feet in length instantly, and without any more violent exertion than would be required to turn an ordinary-sized grindstone; and, instead of every light having half a hundred weight of cast-iron suspended by a hempen cord, neither hempen string nor chain nor weight is to be seen, but annealed iron rope attached to an iron bar, and this iron bar is moved horizontally by means of a toothed wheel and wrench, the iron bar having about 4 feet of its lower edge toothed to fit the wheel, and, to save friction, small rollers, about 6 feet apart, are fixed in pairs, one above and one below the bar. The lights are guided up and down the inclined plane by ropes made of iron-wire, which ropes are made to turn from the line of the inclined plane to that of the perpendicular, parallel to the back wall of the house, by means of a pulley, and to turn again to the horizontal line parallel to the iron bar, around another pulley, fixed about 6 inches above the iron bar; the ropes are then attached to studs, standing out of the iron bar about 3 inches. The lights now move sympathetically with the movement of the iron bar; and to maintain the equipoise and save the immense strain requisite to raise a dozen lights 3 or 4 feet up an inclined plane, there is a provision made by having a sinker under the ground-level attached by an iron rope and pulley to the lower edge of the horizontal iron bar; but, forsooth, the setting of houses so high as to require attention so close, and ventilation so quick, is not to be tampered with by easy-going people, for high-set houses have a much greater share of all weathers than low ones; and as the clouds move, so must the man in charge bestir himself; and since the supplies of light and heat from the sun are at all times above our power to create, and are generally bestowed in early spring in a very capricious manner, it becomes, therefore, a matter of the highest importance, and one never to be lost sight of by the practical gardener, to turn these powerful agents, when they are supplied, to the greatest possible advantage.—*A. Forsyth, Alton Towers.*

ENTOMOLOGY.

THE YELLOW-ROCKET MIDGE (*Cecidomyia Barbareæ*).—This group of minute Diptera or two-winged flies, is rendered interesting to the naturalist as well as to the agriculturist, from many of the species forming what are termed false galls upon various plants, and a few of them affecting the corn crops. As the natural history of these will be fully discussed in the forthcoming volume of the "Royal Agricultural Journal," I shall merely confine my remarks to the economy of the insect before us, which I discovered the second week of May last year, infesting the flowers of the bitter Winter-cress, or Yellow-rocket, (*Barbarea vulgaris*). Some of the flowering spikes, instead of running up and expanding, were stunted in their growth, and the base of the leaves was evidently gouty and diseased: on opening several I found about a dozen little whitish silken coccons, containing bright-red pupæ. Some of the buds were likewise distorted (fig. 1), and in them I detected ochreous larvæ more or less inclining to an orange colour (fig. 2); they were formed of 12 segments, producing a few short scattered hairs, and at the tail was a pitchy patch slightly tuberculated (fig. 3 magnified). The cocoons were of the finest texture imaginable, and resembled silk paper; they were variously attached, being distributed over the insides of the calyx and petals as well as upon the pistil and filaments, which were all more or less enlarged and changed in their form, as were also the anthers, but no part of the flowers had been consumed. I concluded they would produce a species of Cecidomyia, which they did in multitudes, from the 16th of May, only five days after I discovered them, to about the 10th of June. It is remarkable that I did not breed a single parasite from these flowers, as the larvæ of the Wheat-midge and the Hessian-fly are punctured by a Platygaster * and other minute Hymenoptera to an enormous extent. It is also evident that the larvæ do not enter the earth to undergo their transformations, which is an interesting fact in relation to the economy of the Wheat-midge: like that species, however, the males appear to be far less abundant than the females, for amongst all the specimens I bred and caught, only one of the former sex was detected.

Withering in his arrangement observes, that "a minute species of Tipula or Gall-gnat, sometimes renders the flowers of the bitter Winter-cress like a Hop-blossom; but this metamorphosis does not strictly partake of the nature of galls, as it originates not from the egg, but from the larva; which, in the operation of extracting the seed, in some way imparts a morbid action to the juices, causing the flower to expand unnaturally." This I imagine is our species, but as it does not agree with any of Meigen's or Macquart's, and appears to be a nondescript, I have named it Cecidomyia Barbareæ. This minute insect is ochreous when first hatched, but afterwards becomes black, with a few ochreous short hairs scattered over the body; the antennæ of the male are longer than the animal, and composed of 14 little hairy globules, strung like beads upon a thread, at distinct intervals.† The eyes appear to be large; the thorax is oblong, with two or more longitudinal series of hairs. The abdomen is small, dull black; the edges of the segments are pale; the apex is conical; the wings are ample and incumbent in repose, rather of a smoky tint, but iridescent, covered with longish dark depressed hairs; the costa is formed of a stout dark nervure, the subcostal not very distant, and uniting with it before reaching the tip; the other nervure is longitudinal, with a transverse branch at the middle, extending to the inferior margin, which is ciliated with long hairs. The halteres are dirty yellowish-white; the club is tolerably large; the legs are long and not very slender, they are shining and hoary beneath with down; the tibiæ are a little clubbed at the apex; the tarsi are 5-jointed, the basal joint being minute, the second by far the longest; claws very minute; pulvilli distinct. The female has 13-jointed antennæ which are not longer than the thorax; the joints are subovate and contracted round the middle, but are not separated by a thread. The abdomen is elongate-ovate and 7-jointed, being flesh-coloured beneath when alive, and is terminated by a long, jointed, telescopiform oviduct (fig. 5), the cross lines showing the natural size; and fig. 4 exhibits the inside of a calyx-leaf with a larva inclosed in a cocoon.



I have elsewhere observed, it is remarkable that insects of the same natural group should vary so exceedingly in their economy; for some of the species form downy gall-like excrescences upon the leaves of various plants, as the Ground-ivy, Speedwell, Wormwood, and the common Campion; others inhabit the leaves of the Scotch Fir and the buds of Sallows, whilst, as we have shown, some species infest the flowers; and amongst these are the Corn-midges, but they form no excrescences, yet they render the flowers abortive; and there are a few which are said to inhabit decayed Tulip and Hyacinth roots, and half decayed cow-dung.—*Ruricola.*

HEATING CUCUMBER AND MELON PITS.

DESIROUS of constructing a pit without the aid of stable manure for procuring heat, I was tempted, last winter (1844), by the account given of the killogie by Mr. Forsyth, to construct one after his plan; and after some correspondence with him on the subject. I built an under-ground cavern, or killogie, 25 feet in length and about 5 in height, and arched it over with common bricks set edgeways, the arch being made as flat as was consistent with its safety. The pit, or rather house—for it is formed so as to allow a passage of 2 feet in width along the inside at the back, and is in that part about 8 feet in height, and with a bed 5 feet 8 inches in width, extending the whole length—is divided inside into three parts by two glazed partitions on the bed, and two wooden doors in the passage. Upon the arch was spread several inches in thickness of clean pebble stones, and upon these the soil rested. I contrived a method of moving the ingle, or fire-place, to any part of the chamber by fixing it upon four wheels and attaching a long chain to the front, so that it might impart more or less heat to either of the three divisions of the house above as might be desired, by allowing it to remain in one place for a lengthened period. By this means I obtained an excellent, though dry, bottom-heat; and moisture could at all times be obtained by pouring water through tubes let into the soil to conduct it to the hot bricks below, which soon returned it in the form of

* Curt. Brit. Ent., fol. & pl. 309.

† Curt. Brit. Ent., fol. & pl. 178, for dissections, &c.

steam; but though numerous pigeon-holes were left in the brick-work supporting the sides of the bed, both in front and back, top-heat could not, with hard firing and good coal, be obtained, in dark and cold weather, sufficient to keep the Melon and Cucumber plants in a vigorous state of growth. Nor could bottom-heat be well maintained by cinders alone, or when mixed with coal—and the latter I found very expensive—and this, with the annoyance to my gardeners in going into the smoky chamber to replenish the fire, determined me to abandon the killogie, and adopt the tank; though last season I grew some good Cucumbers and Melons of various kinds, American Pine-apple, Hybrid Persian, Cabul, and Red-fleshed Bokhara, but they were slow in growth and rather late. I have no doubt that had a mere pit, instead of a small house, been built, there would have been plenty of heat of both kinds, but I cannot imagine it would be economical in fuel excepting when applied to a pit of small dimensions.

I have now, without any alteration of the building, inserted a tank 18 inches only in width, and 6 inches in depth, covered by roofing slates, and attached to an upright boiler of a cylindrical form outside, but conical within, and ribbed so as to enlarge the heating surface, and entirely unconnected with brick-work; the fuel is supplied at the top of the boiler by a short inclined close iron trough, which passes through the outer wall, and is closed by an iron door, through which the coke or breeze is passed from the outside, so that neither dust or smoke may escape into the interior of the house. By having the boiler inside, and disconnected from brick-work, all its radiant heat is made available.] [Throughout the cold weather from the 1st of January, a top-heat of 70° to 75°, without sun, and a bottom heat of 70° to 80° has been maintained. The soil is supported upon tiles not fitted very closely, which rest upon light iron rafters, and a space of 3 or 4 inches between the rafters and the slate covering of the tank is left. There is a large space under the bed, where a great volume of air is heated, which circulates through the pigeon-hole openings through the house. The expense in fuel, with breeze from the neighbouring gasworks, is, in severe weather, as near as possible 10*d.* per week. Cinders from the house will answer well, excepting in very cold and still weather, in which case, from their dusty nature and propensity to clinker or fuse into masses on the bars, the draught of the fire is materially checked. I consider the boiler so admirably adapted for its purpose, that it is but due to mention that its contrivers' names are Messrs. Smith and James, of the Eagle Foundry, Leamington. I should add, that the killogie or cavern under the house has been found, since its abandonment as a source of heat, a most excellent place for forcing Sea-kale and Rhubarb, as it derives sufficient heat through the brick arch from the tank above. Instead of loose mats for covering the house at night, I find the greatest advantage in the use of light frames covered with coarse calico and varnished with the oil and resin varnish (which by the way I do not find so destructible as some of your correspondents have done), and adapted to each light, and made to fit close and fastened down with wooden or iron buttons, through which covers neither the most insinuating north-easter, nor the most pelting south-wester, can gain admission; and the breakage of glass in fixing and removing these covers is far less than with loose mats, and the usual means of retaining them in their place.—*G. L.*

Home Correspondence.

Transmutation of Corn.—In the "Annual Register" for 1759, it is stated that a countryman in Sweden having sown Oats, and wanting provender for his horses, mowed the young shoots soon after they came up. He repeated the mowings three times before winter. Next year the grain shot up and was permitted to grow. It proved to be a crop of good Rye. This came to the ear of a good naturalist, Mr. Job Born Vergin, who suspected deception, and in 1756 repeated the experiment exactly as the countryman had done by chance, and with exactly the same result. A circumstantial account was sent to their high mightinesses, the States-General, by Mr. Martiville, their envoy in Sweden. Mr. Syperstein of Haarlem, president of the Society for the Improvement of Arts and Sciences, sowed a handful of Oats on the 21st of June, 1757, and another on the 26th of July. The first he cropped three times, viz. 29th of July, 8th of September, and the 18th of November: the last he cropped twice, viz. on the 13th of September, and the 18th of November. The winter was very severe, and almost all died; five shoots, however, came up and produced "good, large, full ears of Rye," which he reaped the 7th of August. The utmost care was taken in this experiment to prevent the mixture of any grains of Rye in the seed, or from falling on the spot of sown ground. Mr. Syperstein proposed to repeat the experiment, and also sowed the Rye produced from the Oats, but I cannot find the result anywhere stated in the "Annual Register." In the "Annual Register" for 1765, p. 100, there is a letter signed "R. S. M.," the writer of which says, that being anxious to test the truth of the former statements, he sowed on the 9th of March, 1763, on a piece of good ground, well sheltered from the north and east winds, about a handful of Oats, which he cropped on the 21st of the same month, the 17th of June, and the 3d of July. He then discontinued cutting, and had the spot well protected from injury. Next season not a single shoot came up; this too in a country enjoying a milder winter than Sweden. I can find no notice on the subject in the "Annual Register" of a later date than this. The experiments are far from decisive; but as the question excited attention more than 80 years ago in Sweden, in Holland, and in England, and then appears to have been dropped, and as men are less prone to publish experiments which fail than those which are successful, the inference from this evidence appears unfavourable to the doctrine of transmutation. —*J. C. Moore, Hertford-street, May Fair.* [We wait with much curiosity the result of the experiments on this subject instituted last year. As we have repeatedly stated, we think that no man should undertake to affirm, *ex cathedrâ*, what is possible or impossible in nature. Experiment alone can decide this question.]

Early Potatoes.—I have this morning forwarded by mail-train a basket of new Cornish Kidney Potatoes, produced this season out-of-doors, without the least protection. This is a most valuable sort, and ought to be generally known. Owing to the very severe winter we have had, they are this season much later than usual; they are some years produced as early as April.—*William E. Rendle, F.H.S., Nursery, Plymouth, June* 5. [This is a sample of great excellence, quite equal to the finest in Covent-garden market.]

The Cuckoo.—The fact of the cuckoo laying in a season at least six eggs, has been proved by various observers. As this bird has, of course, six different nests to seek of other birds, all of which must be suited to her purpose and fit to receive the egg, that Being whose unerring wisdom directs everything for the benefit of his creatures, has endowed the cuckoo with the extraordinary property of retarding the necessity of laying the egg after it has arrived at maturity, a qualification not possessed by other birds. This property must tend materially to ensure a continuation of its species, and to obviate the difficulties it otherwise would have to encounter. When we consider that the weight of a cuckoo exceeds 5 oz., and that the little fragile nest in which its eggs are deposited are those of birds which weigh only a few drams, it is supposed that the cuckoo never gets into these nests for the purpose of depositing her egg, but conveys them into it by means of either her claws or mouth. This is the more probable, as the egg has been found in a nest built in a small hole in a wall, under the eaves of a house, and in the nests of wrens, into none of which could the cuckoo, whose length is 14 inches, and its breadth from wing to wing 25 inches, by any possibility enter. This is the opinion of many eminent German naturalists, and some facts to prove it were mentioned in Weidmann's "Feierabende." The feet of the cuckoo are well adapted to enable it to take up its egg and deposit it in the nest, having its toes like those of the woodpecker, disposed two backwards and two forwards. Now, we know that the cuckoo never runs up the sides of trees like the woodpecker, and as we may be quite sure that this peculiar formation is given the bird for some wise and good purpose, we may fairly infer that it is to enable it to place its eggs in the nests of the smaller birds. This disposition of the toes must give it a very powerful grasp. The eggs, also, being very small in proportion to the size of the bird, are thus more readily taken up. It is also remarkable that the eggs, though larger than those of the selected foster parent, do not stand in need of a longer period of incubation. It may further be mentioned that the winter retreat of this bird has never yet been satisfactorily ascertained. Having made these remarks I may mention that some persons are prone to wonder at, and disbelieve, anything seemingly out of the common course of nature, forgetting that our contracted comprehensions and confined ideas are limited within a very small compass. To deny well-attested facts because we are not able to see into the wisdom of an infallible Being, shews equal ignorance and obstinacy. I make this remark because I happen to know that some incredulous persons have doubted or disbelieved the possibility of some of the previous facts, I had communicated to you on the natural history of the cuckoo. Let me, in conclusion, remark that it is a joyous bird—the harbinger of spring and fine weather—and that its notes add much to the pleasure of our country walks. Spenser calls it "the merry cuckoo, messenger of spring." And Shakspeare—"the plain song cuckoo grey." It is also associated with our pretty spring flowers—

> "When Daisies pied, and Violets blue,
> And cuckoo-buds of yellow hue,
> Do paint the meadows much bedight."

—*L. L. D.*

Stocks.—Those who desire to have 10-week Stocks in flower at this season must sow them about the last week in this month or beginning of July, in poor exhausted soil. Keep them in a cold frame till they are fit to transplant three into a 5-inch pot; return them to the frame until they begin to grow, then place them under a north wall and keep them dry rather than wet until October, then stand them on the ashes under the back shelf in the frame, and keep them as dry as possible all winter. In February or March turn the contents of each pot out, and plant each Stock in as wet a compost as you can procure, and you will be rewarded for your trouble by the sight of flowers like small Roses, for such now ornament our garden.—*X. X.*

Nurserymen's Advertisements — once more. — The "Tradesman" and I, are, I think, agreed. We think the trader who cheats, or tries to cheat, and the customer who will not pay, equally "a rascal:" and we also, I believe, agree in thinking that the trader is, of the two, the greater fool, inasmuch as he probably has to live by his trade, while the *soi-disant* gentleman has, in all likelihood, something else to live by. "H. G., Elgin," however, seems to have made the mistake of thinking I wrote about plants sent by post, whereas my subject of complaint was not the mode of sending, but the apparent unwillingness to send at all: in respect to which I have told a plain tale, with dates and circumstances—everything but my name and residence—and they are at the service of whoever cares to ask for them. With respect to any "Kentish" individual—and I, be it remembered, have pointed out no one—I must say that "H. G.'s" defence is much like the evidence to character frequently heard in a court of justice; where, after a fellow's guilt has been proved, a person—possibly a very respectable person, as "H. G." I make no doubt is—is brought forward to say "I have known the accused — years, I never knew any harm of him, and he certainly never cheated me." "The better luck yours" think, probably, all who hear him: and so say I to "H. G." To whom, however, I beg to say quite seriously, that I mean towards him no disrespect whatever; for I am convinced that he, I, and the "Tradesman" agree as to the sound policy of sound honesty, and in the wish to see it universally practised.—*W.*

The Oyster-plant.—Can it be the garden Salsafy your correspondent means for the Oyster-plant? It is well-known that the root of the Salsafy, when cooked, has a strong flavour of Oysters. In New York and Philadelphia, where it is very much used, it is not known by any other name than the Oyster-plant.—*R. Reid, Noble Thorp.*——The enclosed seeds of the Tragopogon porrifolius were sent from Kentucky under the title Oyster-plant, as a specimen of the vegetable grown in that district—perhaps the same as that mentioned at p. 348; and amongst some old recipes for cooking one was entitled Oyster-soup, made from the roots called Salsafy.—*An Old Subscriber.*

Truffles.—I have taken much interest in the various papers that have appeared respecting the Truffle; but not residing, in what may be termed a Truffle locality, there are one or two points on which a little information would be very acceptable. Will you be kind enough to say whether only one particular kind of dog can be employed in hunting for them; in what way they are trained to the "sport," and whether, if only one kind of dog will do, the breed be a common one, and easily procured? in the second place, I would wish to inquire, whether there is no practicable means of discovering Truffles (where known to exist) without the assistance of a dog. My reason for wishing to know these things is this: I have several times found in the pleasure-grounds here, a fungus which, I believe, to be the true Truffle, of which I enclose the largest specimen I have found for your examination; when I have met with them they have been in holes about 3 inches in depth, and partly eaten by some animal, as you will perceive is the case with the one sent. Mr. Prestoe says (p. 287) that he has a relation who "has hunted Truffles 29 years, and never found but one above-ground; and this he supposes was scratched out by a pheasant." Now, with regard to those found by me, they did not appear to have been either scratched out or eaten by pheasants, the holes were dug (if I may so express myself) entirely round, and the Truffle had been bitten by some quadruped, not pecked by a bird's beak; and if the Truffle be so rarely met with exposed, is it not a little singular that I should have found several within a few months in a district so far north as this, and in a locality where they were never before observed, or known to exist? they were found, too, quite casually, and I make no doubt if I were acquainted with some certain mode of searching for them, I should find many more; hence the reason of my inquiries. I also submit to your inspection, another fungus which I find in abundance at the roots of some old Beech-trees, and which I imagine to be the "Puff-ball Truffle" mentioned at p. 271 of the present year's volume.—*J. L. Snow, Swinton, Bedale.* [The fungus is Elaphomyces granulatus of English authors, a plant agreeing with Truffles in its organisation, and not with Puff-balls. It is curious that though the species of this genus are abundant so near to us as Paris, we have but three species in England. The animal that had scratched up the Truffle was probably the squirrel].

Wasps.—The mother-wasps, which are now becoming very active, and not readily got or taken by surpise, may easily be destroyed by firing at them with a gun or pistol charged with a small quantity of powder, which singes their wings and occasions them to fall to the ground, when they may be easily taken. I have known this remedy tried with great effect; and when it is considered that every wasp now destroyed would otherwise form a nest, a little trouble and attention now given for for their destruction will save considerable annoyance and vexation when it becomes too late and difficult to apply a remedy.—*G. Wood, Rochford, Essex.*

Watering Orchidaceous Plants.—I have no doubt many persons, like myself, are anxious to cultivate a few of these beautiful exotics, among a general collection of plants, but the great difficulty appears to be in getting an atmosphere sufficiently moist, without making it too much so for other plants. I have long tried the plan of suspending a bottle against the plant which requires to be kept moist, and inserting a piece of common woollen list, one end of which remains in the bottle and the other hangs down over the plant. The force of capillary attraction will occasion the list to act like a syphon, and discharge the water over the plant drop by drop; if the quantity is found too great, reduce the list, and if too small, add one or two more pieces; but a little practice will soon regulate the supply. I have found the same plan to answer well in the cultivation of the Droseras and Pinguiculas. During periods of wet

the list should be wholly withdrawn, but when in use, the bottles will require to be replenished almost daily. —*George Wood, Rochford, Essex.*

Propagating Plants by Leaves.—The possibility of most leaves eventually forming plants will, I think, be readily admitted by most people at all acquainted with vegetable physiology. I was much struck when I first read that Mr. Newman had produced plants from the leaves of Theophrasta (Clavija) latifolia, and Theophrasta Jussieui, and was thereby induced to examine their structure more minutely. I therefore placed some leaves to macerate in water, by which means the cellular matter, or parenchyma of the leaf is decomposed, leaving only the vascular tissue and the cuticle. I inclose a specimen of Theophrasta Jussieui, which possesses, in addition to the ordinary reticulated tissue constituting the veining of the leaf, another series of tissue, both on the upper and under side of the leaf, totally distinct and separated from the central series, running in nearly parallel lines from the midrib to the margin. Theophrasta latifolia possesses the same structure. The surprise that such a leaf should produce a plant vanishes when we find that it possesses a higher development than ordinary leaves, or rather an approach nearer to the character of a flattened stem. It may, therefore, not be unreasonable to infer that the apparent leaves of such plants as Oxalis fruticosa, Xylophylla, and all the Acacias that possess the character of longifolia, and similar plants, would readily produce plants, they being, in fact, simply flattened stems. Phyllanthus emblica has leaves that may be considered deciduous branches, as they continue for some time to produce fresh pinnæ at the points; its leaves would probably produce plants. A macerated leaf of Vanilla aromatica, now before me, which appears one of the simplest forms of endogens, exhibits simply one series of cellular tissue with the cuticle; it is questionable if such a leaf could even produce roots.—*B. B. Billington, Elmham Hall Gardens.* [Although we do not by any means acquiesce in Mr. B.'s opinions about flattened stems, &c.; yet we must say that the structure which he points out in Theophrasta is quite new, and in a physiological view of the very highest interest].

Guano.—Have any of your correspondents, in their experience with this, found it to have any influence on the scent of flowers? I have used Potter's liquid guano, about once a week, to Pelargoniums and the more choice of the Tea-scented Roses. The foliage and flowers have been most luxuriant in their appearance; but the fragrance of the Rose seems, in some instances, to have been changed even to a most unpleasant odour. Can that arise from the use of guano?—*F. S. A.*

Drying Plants.—In reply to "Anxious," who wishes some hints about drying plants, I strongly recommend the use of Bentall's botanical drying-paper. I have tried it with various plants, and find it succeeds far better than blotting-paper, as the colours are much better preserved, and the specimens dried with less trouble, as the paper so seldom requires changing. I have had a good deal of experience in drying plants for the last few years, and think the best plan is to have sheets of millboard, and having laid one or two old newspapers, perfectly smooth, upon the millboard, put a sheet of the drying-paper, and spread the plant carefully upon it, taking care that the petals and leaves are properly placed. Then put another sheet of drying-paper on the plant, and one or two newspapers again, to absorb the moisture, and upon these a sheet of millboard; and so proceed with as many layers as you require, always putting millboard between every set of plants. Put very heavy weights on the top, if you have not a screw-press, and do not change the paper for two or three days, or more, unless the plant be very succulent. Let the plants remain under pressure till perfectly dry. The paper, when dried, will be fit for use again. The most useful size I find to be 16 inches by 10. The drying-paper is not dearer than blotting-paper, and I have seen several botanists who all speak highly in its praise.—*Georgiana.* [In Dr. Lindley's "School Botany" is this remark, p. 5: "The proper paper for this purpose is manufactured by Messrs. Bentall & Co., of Halstead, *and is the best that is known.*"]

Miscellaneous.—"Mark" writes that, in looking over the list of fruits exhibited at the Chiswick Show, May 24th, he was surprised at the absence of Figs, as he had expected to have had the gratification of seeing them brought to great perfection by the latter end of May. He considers that a good dish of Figs would be of more importance than some of the fruits at present brought for exhibition, and trusts that his hopes may yet be realised.——"R. D." says, in reply to a correspondent, that assafœtida, if put in small fragments into the track of rats and mice, is believed to repel these vermin.

Societies.

LINNEAN SOCIETY.

June 3.—EDWARD FORSTER, Esq., in the Chair. Benjamin Clarke, Esq., was elected a Fellow. Specimens of the fruit of Loquat (Eriobotrya japonica, Lindley), imported from the Azores, under the name of Näproo de Japao, were presented to the Museum by Mr. Kippist. A collection of dried plants, from Port Stephenson, New South Wales, collected by Mr. Alexander Burnett, was presented by Joseph Janson, Esq. They consisted principally of Leguminosæ, Proteaceæ, and Myrtaceæ. A paper was read by the Secretary, entitled, "Descriptions of some unpublished Plants from North Western India," by M. P. Edgeworth, Esq., of the Bengal Civil Service. During the author's residence in India, he collected a large herbarium of plants; on his return he forwarded specimens to botanists who were studying particular groups, as the Scrophulariaceæ, Labiatæ, and Leguminosæ, to Mr. Bentham; the Gramineæ, to Ruprecht and Meyer; the Carices to Dr. Boott, &c. The remaining new plants he described himself. Some of those now published are remarkable as offering new forms, as for example, a Clematis with bearded filaments and introrse anthers, a Smila with white flowers and the habit of an Aster, and a Commelyneous plant with a twining stem; others as being Indian species in genera hitherto considered exclusively American, as Adenocaulon and Oxybaphus. Amongst the Umbelliferæ, the author describes eight new genera from the Himalayas, and believes that other generic forms still exist there. He describes several new species of Impatiens, and takes a different view of the structure of the vexillum from Kunth and others. From an examination of a large number of species, he feels justified in considering the vexillum as a single petal, and not as composed of two sepals united. In some species the two upper sepals are present with the vexillum. A paper was read from Dr. Boott, describing 17 new species of Carex, nine from the East Indies, six from America, one from New Zealand, and one from the Falklands.

Country Shows.

Bromley Exhibition, June 11.—This Exhibition was held in the grounds attached to the White Hart Hotel, Bromley, for the benefit of the Gardeners' Benevolent Institution. The day was everything that could be wished; the sun shone briliantly from morning to night; the turf being green and fresh from the recent rains, the company seemed thoroughly to enjoy it. Two bands of music were in attendance, which greatly enhanced the interest attached to such an exhibition. Bromley, and its neighbourhood, have long been celebrated for collections of first-rate cultivated plants; and when the whole strength of the district was brought forth on this occasion, unanimously, and for a benevolent purpose, we state with perfect confidence, that no other locality could produce such a magnificent assemblage of plants, displaying equal cultivation. We trust, however, that the enterprising skill evinced by the gardeners of Bromley, will extend itself far and wide. Spacious marquees were arranged, in the commodious grounds, for the reception of the plants and fruit, of which there were large collections. Mr. Barnes obtained the first prize for 50 stove and greenhouse plants; and Mr. Hunt the second. It is scarcely possible to conceive two more splendid exhibitions.—Mr. Pawley was awarded the first prize for his collection of 24 plants. Mr. May, first for 12, and Mr. Epps came off first with his collection of 8 plants.—Mr. Parker, gr. to G. H. Oughton, Esq., Roehampton, had the prize for 12 Geraniums; and at no former exhibition have we seen 12 better grown plants, if as good.—Mr. May was first for the best 12 Heaths, and Mr. Malyon, gr. to T. Brondan, Esq., came in for the 6 best.—Mr. Hanwell, gr. to the Bishop of Rochester, obtained the first prize for 12 Fuchsias, and Mr. Barnes for the 12 best Calceolarias.—Mr. Pawley came in first for the 6 Orchidaceæ, and F. Perkins, Esq., also obtained the first prize for 36 cut Roses, in different varieties, exhibited in single trusses.—F. Perkins, Esq., was assigned, by the judges, to the first award, for a single specimen of Acrophyllum venosum. There was also a good display of fruit and vegetables. Mr. Wortley was first in Grapes, which were extremely fine; and Mr. Ayres was the successful competitor for Strawberries, of which he exhibited a capital dish of British Queen.—There was also exhibited a dish of Apples, by Mr. Ford, gr. to A. Perkins, Esq., of Bromley, in a state of most excellent preservation; this Apple was named the White Stone Pippin.—*G. R.*

Heartsease Society, May 30.—This, the Annual Exhibition of Heartsease was held at the Thatched House Inn, Hammersmith. Owing to the late and unfavourable season, the competition was not so great as on former occasions; but some of the stands of blooms exhibited great skill and pains in their cultivation. The following are the principal prizes awarded:—In the Amateurs' Class, of 24 blooms, the 1st prize was awarded to Mr. Hunt, of Wycombe; 2d, to Mr. Hall, of Enfield.—In the Nurserymen's Class, of 36 blooms, the 1st prize was awarded to Mr. Turner; 2d, to Mr. King, of Iver.—From the seedlings, four were selected by the judges as being worthy of a prize, viz., Mr. Hart's Conflagration, and Mr. Bragg's Elizabeth, both 1st class varieties; Mr. Turner's Perseus, and Mr. Mountjoy's Purple Perfection, both 2d class varieties. It was, however, the opinion of most of the growers that the four seedlings are all equal.—Messrs. Backhouse, of York, exhibited their seedling, Dr. Wolff; and the Rev. W. H. Molineux, Brynalyn, near Mold, Flintshire, exhibited three blooms of a seedling, called Princess Alice Maud (not for competition), a very pretty white, edged with blue, but the edges of the petals much too rough to become a Show flower.—A very fine stand of flowers, and five fine seedlings, from Mr. Read, of Roundway Cottage, near Devizes, did not arrive till 5 o'clock, consequently they were too late for competition. —Mr. Turner, of Chalvey, near Windsor, has offered 2*l.* for the ensuing year, to be awarded to the Amateur who produces the best stand of 12 new varieties of the Pansey, viz., such as are sent out in the autumn of 1845, or spring of 1846. Mr. Bridges, of Carshalton, also gives 10*s.* for the best seedling produced at the next Exhibition.

Reviews.

Hortus Cantabrigiensis; or, an accented Catalogue of Indigenous and Exotic Plants, &c. 13th Edition. By P. N. Don. 8vo: Longman.

THIS is a beautifully printed volume, consisting of 772 pages in 8vo, and professes to be a list of plants cultivated in this country, brought down to the present time. The plan is essentially the same as that of the original Donn's Catalogue; the parent of all the other useful compilations of a similar kind which we now possess; and it is still aranged according to the system of Linnæus. As lists of names are only employed for reference, it matters little how they are classed, and in that view the Linnean, or alphabetical, or natural methods, are almost equally useful; unless, indeed, the alphabetical should be considered the best of the three, which perhaps it is. Dismissing, then, that part of the matter presented to us for criticism, and looking at the book only as a catalogue, we are happy to be able to say that it possesses merit of a high order; for it is extremely full, and is admirable as regards typographical accuracy, one of the first qualities in such publications. Whoever has "read" the sheets as they passed through the printing-office has done his duty well. Among the few errors that have caught our eye is Variesia for Vriesia, Celasine for Gelasine, reginum (p. 216) for reginæ, &c. In the accentuation—a more difficult task—we have not discovered a single mistake. Less care has been shown in settling the gender of the Latin adjectives; and thus, at page 217, we have major, lugubris, amabilis, instead of majus, lugubre, and amabile; but that kind of blemish is very unfrequent, and little affects the utility of a very valuable Catalogue.

Plain Rules for Cottage Walls are given on one side of a sheet of paper so that they may be pasted up in cottages. They contain useful practical directions teaching poor people what to do in the case of common diseases, or ordinary accidents, when there is no doctor at hand. We can recommend them to charitable people for distribution among the peasantry. They are published by Mr. Renshaw.

New Plant.

DENDROBIUM KINGIANUM. Captain King's Dendrobium. (*Stove Epiphyte*). Orchidaceæ. Gynandria Monandria.—We have selected this species partly on account of the interest which is invariably attached to anything novel, but more for its own intrinsic loveliness. For its introduction we are indebted to Mr. Bidwill, who obtained specimens two or three years ago in New Holland. A large mass of the pseudo-bulbs were purchased at the sale of that gentleman's collection, by the Messrs. Loddiges, of Hackney, in whose nursery a few flowers were produced in 1844. In February of the present year, the character and beauty of the species were more fully revealed, by a copious display of blossom, and through the additional vigour and health which the plants had acquired since the former period. In this species we are presented with a pseudo-bulbous stem, crowned with a few leathery leaves, and elongating in the form of a spike of flowers; a familiar instance of which is afforded in D. speciosum. Our plant, however, is by no means possessed of the huge size and stoutness for which D. speciosum is remarkable; on the contrary, it is comparatively rather diminutive—the pseudo-bulbs seldom exceeding a few inches in length. On Messrs. Loddiges' plants they form an exceedingly crowded mass, and appear as if they had been squeezed together. This enables the flowers, which are rather loosely arranged, and only a few on each spike, to make a more showy appearance than might be imagined from an individual pseudo-bulb. The lively markings of the lip are particularly engaging. The New Holland Dendrobia flourish in less heat than is demanded by the greater part of other species, and this renders them more suitable for transferring to the drawing-room whilst the flowers are expanded. The present, moreover, is especially adapted for the purpose, from its size and appropriateness for basket or pot culture; but, if suspended, it should be in a low situation, where it may be readily viewed. It will probably succeed in a greenhouse; till this be ascertained, however, it will be advisable to consider it as a denizen of the intermediate house.—*Paxton's Mag. of Botany.*

Garden Memoranda.

Messrs. Hendersons', Pine-apple-place.—As is usual at this Nursery the show-houses are beautifully decorated with flowering plants, consisting of Roses, Kalmias, Rhododendrons, Cacti, Calceolarias, &c., which, being grouped closely together, produce a brilliant effect. After passing through the show-houses, to the right is a house on whose west-side platform stand many fine plants of Calceolarias in splendid bloom. Among spotted varieties, the handsomest we noticed were Standishii, Lady Sale, Prince of Wales, Surprise, Staffordii, Target, Cutbushii, Lady Constable, and Queen Victoria. Of blotched kinds, we remarked Magician, bright purple on a cream-coloured ground; Rosea grandiflora, having a fine rose-coloured spot on a pale ground; Albert Superb, somewhat resembling Magician; Andromache, dark maroon on a pale ground; Queen of Beauties, a distinct variety, having a pale-brown spot on a sulphur ground; together with several

other good kinds. In the stove was the white Hindsia violacea mentioned at p. 386. This is a fine thing, and will doubtless prove a very easily cultivated greenhouse plant, whose heads of long funnel-shaped, snow-white blossoms surpass even the Jasmine in sweetness, and are equalled only in beauty by the blue-flowering species of which it is a variety. In the same collection were in bloom Costus nepalensis, the white distended flowers of which contrasted well with the crimson sheaths from which they issue; and a plant of Sinningia guttata, whose flowers covered with innumerable brown spots distinctly depicted on a delicate cream-coloured ground render it perhaps the best of the genus. The beautiful climbing shrub Combretum purpureum trained along the roof, was just coming finely into bloom, and Stephanotis floribunda, one of the best of stove climbers, planted out in a bed, and extending over a large portion of the roof, will soon present a rich display of sweet-scented blossoms. In the house formerly the Orchidaceous house, was a large plant of Clerodendron splendens trained along the roof. We were informed that this, by being pruned back every alternate month, has been induced to produce flowers from December up to the present time, when it is still in bloom. By this means, therefore, this handsome stove twiner may be rendered an object of great beauty almost throughout the whole year. The Heath-house was gay with many species of that beautiful tribe, and the house, a span-roofed one, being well ventilated, and otherwise well adapted to their growth, the plants looked very healthy, and exhibited good cultivation. A house formerly employed for other purposes has been much altered and rendered well adapted for the growth of Orchidaceæ, as the health of the plants amply proved. It is a span-roofed structure, about 35 feet in length, and nearly 25 feet in width, and is heated by means of hot-water flowing in iron tanks put up by Messrs. Burbidge and Healy. These have been in operation for some time, and are found to work well, notwithstanding that the boiler is fixed under some disadvantage from the circumstance of a drain running immediately under it which prevented it from being properly set. The tanks, passing round the house below the stage between the pathway and the glass, have small openings on the top for the escape of steam, immediately from the surface of the water. These can be kept open or shut, thus affording either moist or dry heat as required. The bed in the centre of the house is also heated by means of hot-water from the same boiler flowing in open tanks, the vapour from which enters the house through a number of finely perforated zinc plates which are level with the surface of the bed. The whole has a neat appearance, and the plants enjoying a very congenial climate, look remarkably healthy.

Miscellaneous.

Extraordinary Destruction of Wasps.—The Earl of Traquair has for several years past given a liberal reward to the children in the neighbourhood for destroying those destructive insects during the months of April and to the middle of May, as it is understood that at that period every wasp is the parent of a whole nest, amounting to some thousands. Owing, it may be supposed, to the limited fall of rain or snow last winter, these noxious creatures are unusually numerous this season, as the following account will show. The children, about 50 in number, were desired by his lordship to attend at Traquair House with their spoil every Saturday afternoon, where they were counted by his lordship's gardener, and each one paid so much per dozen. The following has been the result:—April 26, 756 dozen, weighing 2 lbs. 1 oz.; May 3, 114 dozen, weight 6 ozs.; May 10, 59½ dozen, weight 2½ ozs.; May 17, 643½ dozen, weight 11½ ozs. Total, 1573 dozen, weight 4 lbs. 9½ ozs.; making the incredible number of 18,876 wasps' nests destroyed in four weeks, and in one parish. It may be presumed, if each of these had been allowed to multiply, however favourable the season may prove, there would be little fruit or honey left for miles round.—*Caledonian Mercury.*

The Oak Planted by Squirrels.—"The general truth that nothing is created without some wise purpose is beautifully illustrated in the case of the squirrel. It is a singular but well-authenticated circumstance that most of those Oaks which are called spontaneous are planted by this animal, in which way he has performed the most essential service to mankind, and particularly to the inhabitants of England. It is related in some English work that a gentleman walking one day in the woods belonging to the Duke of Beaufort, near Troy-house, in the county of Monmouth, his attention was diverted by a squirrel which sat very composedly on the ground. He stopped to observe his motions; in a few moments the squirrel darted to the top of the tree beneath which he had been sitting. In an instant he was down with an Acorn in his mouth, and after digging a small hole he stooped down and deposited the Acorn; then covering it, he darted up the tree again. In a moment he was down again with another, which he buried in the same manner. This he continued to do as long as the observer thought proper to watch him. This industry of the little animal is directed to the purpose of securing him against want in the winter, and it is probable that his memory is not sufficiently retentive to enable him to remember the spot in which he deposited every Acorn. The industrious little fellow no doubt loses a few every year; these few spring up, and are destined to supply the place of the parent tree. Thus is Britain, in some measure, indebted to the industry and bad memory of a squirrel for her pride, her glory, and her very existence."—*Sturtevant's Lectures on Preaching, p. 296, note.*

Another Guano Island.—The Colooney, Captain M'Conochy arrived at Greenock, from the coast of Africa, on the 17th inst. Left Colooney island 2d April with a cargo of guano on board, being the first from that island. The Gloucester, of Liverpool, had loaded previously, but foundered at sea; the crew were picked up and landed at Rio Janeiro, from whence the Colooney took the master and part of the crew and proceeded to the island: it contains a large quantity of guano, which appears to be of equal quality with that of Ichaboe.—*From our City Correspondent.*

Caledonian Horticultural Society.—We understand that the meeting of this Society, on Thursday last, passed the following resolution:—Messrs. J. Dickson and Sons, Inverleith, having sent a splendid collection of show plants (including a magnificent Gesnera fauciali, with 18 flower-stems, some of them 3 feet high, and the plant measuring 9 feet around the stems; and a flowering specimen of the rare and curious Hypocyrta strigillosa), the Silver Medal was voted to the company as a mark of approbation.—*From the Scotsman.*

Bees.

Nutt's Hives.—I have seen, in the *Chronicle* for May 24, a challenge to the Rev. C. Lloyd to name any person who has succeeded in obtaining honey, to a large amount, upon the plan of collateral boxes. Though I have the pleasure of being acquainted with Mr. Lloyd, he is not sufficiently informed of the particulars of my success to name me, in answer to the challenge. For 10 years I have used boxes upon this principle; and in two summers only, during that time, have the bees swarmed. From one set of boxes (the only one where the bees have been undisturbed by experiments), I have usually reaped an abundant harvest. At the time I am now writing, one of the collaterals belonging to to that set is nearly full. Every attempt at super or nadir hiving has (with me) produced disappointment. I have tried it with a straw hive upon a box, and a box upon a straw hive; and the result has led to a determination never to try it again. In the course of the last winter I had an opportunity of proving the power of enduring cold by a small cluster of bees, which may be interesting to some of your readers. A collateral box placed upon a straw hive, during the autumn of last year, had been partially filled with comb. It contained no honey or brood, and appeared to be inhabited by a very small cluster of bees. Wishing to restore this box to its proper place in its set, I opened the ventilator, and wedged up the box to the height of several inches. The bees, however, would not be dislodged; and they remained in this exposed state during the last very severe winter. When it became absolutely necessary to take the box away, I placed it over a piece of ignited fungus, and then found among the suffocated bees a very fine queen; she was placed with the rest in a glass upon the straw hive, and very soon disappeared. Perhaps the most important part of the management of bees in painted boxes is ventilation in winter. If an empty glass is placed over the open hole on the top of the box, the bees will be kept dry. This precaution is not necessary with bees in hives; because the exhalation from their bodies finds a ready escape through the straw. The proof of endurance of cold mentioned above makes it unnecessary to discuss the risk of adopting this precaution against the bee's greatest enemy, damp. While bearing the strongest testimony to the advantage of collateral boxes for yielding quantity of honey, I am bound to speak in more qualified terms upon the subject of its flavour. It is true, as Mr. Lloyd remarks, "The honey exposed for sale which has been raised upon Nutt's plan, sells for more money than honey upon the old system." Its appearance, and the guarantee for its purity from animal matter, sufficiently accounts for this. But it certainly does not possess that aroma which is peculiar to honey taken from a brood hive or box. The high temperature of the brood box, or the vicinity to the pollen with which that box abounds, may account for the difference. Your correspondent expresses a desire for hints from any successful apiarian who uses the collateral boxes. My experience teaches me that the grand secret of what is vulgarly called "meddling with bees" consists in not letting them know that they are meddled with. Upon this principle I vary a little from Mr. Nutt's instructions for taking away a full box. Instead of shutting up the bees until they become excited, it is better to open the aperture at the back, as soon as the dividing tin is inserted. The bees may be longer in leaving the box, but there is less chance of their being aware that something unusual is taking place. It is under the latter circumstance that the instinct of preserving their store prompts them to become, what we call, "robbers." The most common complaint is the difficulty of preventing swarming. This will be found to arise in most cases from a too strict observance of Mr. Nutt's directions about glasses. Top glasses are no necessary part of the collateral system: and the latter would have stood a better chance of success, if the former had not been mentioned in connection with it. Handsome glasses may always be obtained from stock hives. The slight delay in swarming produced by the largest top glass, will prove the truth of what has been stated above, as to the cause of disappointment in working with collateral boxes. In answer to the challenge addressed by your correspondent to Mr. Lloyd, I beg to name my friend the Rev. Mr. Davies, of Penegoes, near Machynleth, as a most successful worker with collateral boxes. During the summer, Mr. Davies took a quantity of honey from his boxes, which has established beyond a doubt the superiority of the collateral system.—*C. T. C., Luxmoore, Guilsfield, Welshpool.*

To prevent the Queen Bee entering Side Boxes.—In answer to "Philomela's" inquiry, I beg to state that the above may be easily effected. Instead of having a number of apertures for the bees to pass through from the stock box, let there be but one, which should be made by cutting away the bottom of the two adjoining sides, so as to form a passage ¾ of an inch in depth, and extending nearly from the front to the back of the boxes. When managed thus I have never known the queen to enter the side box; nor did I ever, in any instance, find sufficient pollen in it to half fill a lady's thimble. So effectually does this arrangement prevent the queen from entering the side box, that in an instance where I wished her to do so, and used all sorts of expedients for that purpose, I could not accomplish my object. The passage way in each box is effectually closed by a tin slide, sliding in the substance of the wood, it having been sawn down to the depth of an inch for the same to work in. As to preventing them from swarming, no contrivance will invariably prevent this. The best way is to give them the extra room in time enough. By no means delay it after the first appearance of the drones.—*A Worcestershire Apiarian.*——At pp. 243 and 331, "W." has written against the collateral system of bee management, as practised by Mr. Nutt, which he says, "has been sifted by some of our best Apiarians, who have found much dross;" and "that it has, after many fair trials, proved defective." Still, I observe that, in answer to a correspondent (p. 274), he has stated that "collateral hives are good," and "that the bees may be put into a box 10¾ inches clear each way," which is not far from the dimensions recommended by Nutt, according to the situation, pasturage, &c. It appears rather singular that "W." should state that a system is good, which he had a fortnight previously stated to be defective; and that he should again, in three weeks, turn round and attack the kind of hive, and system of management, which he had publicly recommended. "W." has given the names of those writers who, he says, "had found much dross;" but it is very probable that most, or all of those persons, (except Dr. Bevan), wrote before the collateral system had arrived at its present state of perfection. Has "W." fairly tried Nutt's hives against other kinds? if so, will he state in what they are defective, when judiciously and impartially carried out. Will he also give a description of the collateral hive, and routine of management, which he has recommended as good. Your correspondent "G. L. Smartt," recommends the use of large bell-shaped straw hives; and as his plan will be tried by several persons in different parts of the kingdom, he will much oblige by stating the size of hives which he considers best for the purpose; also what sized glasses he considers best for placing over the side holes which are recommended by him; and how many of them he allows the bees to have access to at one time? I trust that many of your readers will give the system of side hives and boxes a fair trial during the ensuing summer; and that they will communicate the results at the close of the season. I recommended, some time ago, the Melilotus leucantha, as a flower of which bees appear to be exceedingly fond, and which may be had in bloom from June to November. If any of your Apiarian readers wish to give it a trial, I shall feel pleasure in sending them a small packet of the seed, on receiving their names and address, accompanied with stamps to cover the postage.—*E. Briggs, Swinstead, by Bourne.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—The principal thing in this house is to attend to the climbing plants; see that they are all properly trained either to stakes or trellises; some of them may require stopping, to cause them to throw out a greater profusion of shoots. The beauty of these useful plants depends much upon the training they receive during the period in which rapid growth is going on; many of them are ruined for the want of timely attention in this respect. Keep down the green fly by fumigation, the red spider by syringing, and the mealy bug with the finger and thumb. The thrips, one of the worst of enemies to gardeners, may be subdued by constant smoking and occasional syringing with lime and soot water in a perfectly clear state; but this, and all other insects, when once they make their appearance, must be followed up in right earnest until they are completely routed out. *Greenhouse and Conservatory.*—Many of the Chinese Azaleas, indeed, most of them, are now gone quite out of bloom; place them, as formerly directed, in a close and rather warm house, and promote their growth by all possible means; those that require shifting should have it without delay, and observe particularly that the ball of earth is thoroughly wet in all parts; the foliage of Azaleas frequently drops off for the want of moisture at this season; syringe them in the afternoons, and keep them at it until they mature their growth. Let former Calendars guide your other proceedings.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Attend to tying up herbaceous plants that are tall or showing flower, such as the different kinds of Rockets, Pæonias, double and single Lychnis, &c., in order to prevent them from being injured by wind. Take up Anemone pavonina roots as soon as the foliage begins to die off; clean them, and store them away in an airy cool shed or loft to dry; collect seed of the Poppy Anemone as it ripens, and sow it at once in a seed bed; the plants will bloom next season if sown during this month. Dog's-tooth Violets will succeed well if taken up, parted, and replanted as soon as the foliage is matured. Mow Grass lawns often during this growing weather. Hoe and rake borders; remove dead blooms, and water any of the recently-planted beds in which the plants have not got sufficient hold of the ground. *Pits and Frames.*—Put in cuttings of the most choice kinds of Phloxes, or other herbaceous plants, to get them rooted before the frames are again required for autumn cuttings; shade during the day; sprinkle and shut up early in the afternoon.—*B.*

III.—FLORISTS' FLOWERS.

Tulips.—If the tops of the roots on the off beds assume a yellow tint, they may be taken up and put away in the shade to dry gradually. The best bed must be kept free from weeds, and if the late winds have blown the stems of the flowers, so as to make cavities in the soil, these must be filled up. Shade the

advancing seed-pods or capsules from wet, which is occasionally apt to lodge in the crown and cause decay. *Ranunculuses* are in bloom in early localities; shade from the powerful rays of the sun, and occasionally water with soft water between the rows; look sharply after a green caterpillar exactly the colour of the stem; it will generally be found just under the blooms. *Pinks.*—Pinch off laterals, and thin the buds, in order that those intended for exhibition may increase in size. Water those grown in pots during the evening, and tie the pods (with waxed thread) of those which are sufficiently in advance. *Carnations and Picotees* will now require considerable attention; examine the ties, and see that no stems are pinched or contracted; continue to fasten others as they elongate; remove laterals, and use every means to encourage robust growth, and do not let those plants in pots suffer for water this hot weather. *Pansies* for exhibition should have a light awning over the bed; water now and then copiously, and examine the plants by candle-light for slugs, &c., which just now are very destructive. *Dahlias.*—Continue to fasten these as they advance.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—Where Pines are grown in houses, under Vines, those intended for next year's fruiting should have their final shift earlier than those in pits appropriated to Pines alone, and in which a much higher and moister atmosphere can be maintained. The final shift may be given, in June, to those required to show next January and February; whilst for those required to show in March and April, the succeeding month will be more proper; such strong successions as are very full of roots, however, should be shifted forthwith. Use the turfy soil as before recommended, with a very moderate supply of manure; relying considerably on liquid manure for the support of those grown in pots. Give abundance of air to strong and free-growing successions; and syringe freely on most afternoons, shutting up early, at 85° or 90°. See that the latest Grapes are duly thinned and stopped; stop rather closely whilst the first swelling is proceeding, and when that is completed, suffer them to ramble rather freely for a while, to create new roots, and consequently invigorate the general system of the plant for the ensuing year. Water your Figs very freely where the earliest crop is gathered, and make a most liberal use of the syringe. Continue to stop the young wood as before recommended. Take every means to complete a perfect growth in the early-forced Cherries; water and syringe freely, with abundance of air night and day.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Particular attention will now be required with regard to wall-trees planted last season. In the case of Pear-trees, it will be desirable that a central shoot be trained upright, and one on each side to form the lower tier; but in order that the latter may acquire greater vigour, they should not yet be brought to a horizontal position. If they appear of equal strength, they should diverge at the same angle; but if unequal, the weakest should be allowed the greatest elevation. The lowest side-shoots of Peach and Nectarine trees should also be encouraged by as much elevation as can be afforded consistent with the possibility of bringing them to their ultimate position, that of an angle of about 45° for a little distance from their origin, and then nearly horizontal. If the central shoot exhibit too great luxuriance, its point may be inclined to either side; a few of its laterals may yet be permitted, lest by stopping them the lower eyes should break prematurely. *Kitchen Garden.*—Prepare ground for planting out Savoys, Brussels Sprouts, Borecole, Cauliflower, and Broccoli. Sow Knight's Marrow Peas; if dry weather continue, the drills for Peas, Kidney Beans, &c., should be rendered moist before sowing; and if the seeds are previously steeped in water for 8 or 10 hours, a rapid vegetation will be insured at this period of the season. Take advantage of the first cloudy weather to sow a portion of the main crop of winter Turnips. These should be sown, whilst the ground is freshly prepared, in drills, wherein the seeds may strike root immediately, in a compost of rotten dung, and thus get sooner out of reach of the fly.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—As soon as the Oak bark is taken up, or housed, let the woods be cleared of all loppings, disposing them according to the uses to which they are suited; take care that young seedling trees are not injured by the surrounding undergrowths and herbage; continue to prepare for planting in autumn. Now is a good season for paring and burning such lands as are benefitted by that operation. *Nursery.*—Shade and water seed-beds of young Evergreens, if necessary, and layer hard-wooded shrubs, destroy weeds, &c.—*F.*

State of the Weather near London, for the week ending June 12, 1845, as observed at the Horticultural Garden, Chiswick.

June	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 6	1	29.800	29.575	67	50	58.5	S.W.	
Sat. 7	2	29.664	29.736	67	57	57.0		.25
Sun. 8	3	30.200	29.847	68	41	54.5	S.W.	
Mon. 9	4	29.365	29.325	72	40	56.0	S.W.	
Tues. 10	5	30.365	30.269	76	46	61.0	E.	
Wed. 11	6	30.235	30.151	78	50	64.0	N.E.	
Thurs. 12	7	30.165	30.141	85	54	69.5	E.	
Average		30.142	30.002	73.3	46.8	60.0		.25

June 6—Cloudy and windy
7—Very fine; slight shower; cloudy; showery
8—Dense clouds and boisterous; fine; clear
9—Very fine throughout
10—Very fine; sultry, with dry haze; clear and fine
11—Very fine throughout
12—Fine, with slight haze; sultry; very hot; clear and fine at night.
Mean temperature of the week ½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending June 21, 1845.

June	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 15	74.0	50.5	57.2	8	0.30 In.	1	2	1	1	4	3	2	4
Mon. 16	72.3	50.4	61.4	3	0.17	1	2	3	1	4	4	2	2
Tues. 17	73.3	51.1	62.2	12	0.80	1	3	1	—	5	4	3	2
Wed. 18	74.2	52.1	62.7	10	0.25	1	1	2	1	3	4	5	2
Thur. 19	70.2	50.5	60.3	11	0.57	—	2	1	1	—	—	10	5
Frl. 20	72.1	51.2	61.6	9	0.21	1	1	—	1	4	5	6	1
Sat. 21	73.7	52.5	63.1	9	0.68	1	2	1	1	1	9	4	—

The highest temperature during the above period occurred on the 21st, 1831—therm 91°; and the lowest on the 20th, 1843—therm. 39°.

Notices to Correspondents.

ACHIMENES LONGIFLORA—*Maria perplexa*—You may shift your plants of this, which are an inch in length, at once into the pots in which you wish them to bloom, and treat them in very same manner as the old Trevirania coccinea. The temperature of a warm greenhouse suits them admirably. In winter keep the bulbs in dry sand in a warm closet or in some place where they will be out of the reach of frost, and towards the end of February start them into growth in a warm Cucumber frame. We know of no plant of more easy cultivation. Lilium lancifolium is quite hardy; you may, therefore, either grow it in the open border or in a pot; if in the latter, put it into one of large size at once.‡

APRICOT TREE—*A M S*—This kind of tree is apt to go off, for no assignable cause; but in your case we fear that the bullock's blood did the mischief. You had better try to remedy the bad effects by top-dressing with lime, and pricking it in, watering copiously afterwards.

BOOKS—*C C C*—You had better next take Lindley's "Elements of Botany," unless you wish to confine your attention to systematic matters; in that case you would do well to spend the summer in the study of wild plants, with the aid of any of the British Floras arranged according to the Natural System. Nobody thinks about the Linnean System now-a-days. By the end of August, the "Vegetable System" will be ready.——*A Beginner*—Study "School Botany." Apply the pollen of one variety to the stigma of another, the moment the flower in which the latter is inclosed, is ready to expand. ——*R P L*—First "School Botany," and then some book on wild plants, arranged according to the Natural System. We never give prices; that is the business of booksellers.

BISHOP'S AUCKLAND—*J X, Selkirk*—We know nothing about the party to whom you refer, and we cannot make this paper the medium for libels. At the same time we are free to admit that if any person should feel that the description suits himself, that is to say, if his conscience pricks him so severely as to convince him that he is the man, we should much incline to the idea that he must be such a person as was meant; and in that case our remarks were not severe enough.

CACTI—*C B*—The chief point in managing these plants is to allow them an alternate period of growth and rest. They should be grown in a mixture of lime rubbish and loam with a little cow-dung, and in well-drained pots. In summer they should be fully exposed to the sun and well watered, but from October to March they should be kept perfectly dry. We would not advise you to water much with liquid manure, as that may produce over-luxuriance and thereby prevent them from blooming well. You possibly treat them too kindly.‡

CALCEOLARIAS—*H W*—The sport is not likely to be permanent; and if it were, wherein consists the use of it?

COTTON IN INDIA—*T G*—We of course could not know that you had procured all the information you really have. Such being the case, we will give your papers full and early attention; but we must make inquiries. Certainly the subject is one of high importance.

CUCUMBERS—*A Subscriber*—You will find your case explained in the "Theory of Horticulture," p. 83, and in a Leading Article next week. We have no room for it to-day.

DISEASE—*Ignotus*—Your leaves are injured by a wet, ill-drained border, and the cold spring; the remedy is thorough drainage.

EXHIBITIONS—*A Contributor*—We publish the reports of the Caledonian Horticultural Society upon official authority. We never insert such reports upon anonymous information.

INSECTS—*J W S*—The weevils attacking your Apple-trees are the Curculio (Otiorhynchus) picipes; but the objects you supposed were their chrysalids are the pupæ of some two-winged fly. *R.*——*Shamble-Ash*—Pour small quantities of boiling-water daily upon the nest where the ants are the thickest, until they are subdued, or spirits of turpentine may be used instead. *R.*——*A Disciple*—We must refer you to p. 344 of this Journal, and to the *Royal Agri. Journal*, vol. 5, for the remedies against wire-worms; but you should have sent us some to determine the species. You had better sprinkle spirits of turpentine over the emmet's nest, and repeat it daily until they disappear. *R.*——*Ballindoney* cannot clear her Phillyrea of the insects she complains of, and the plants generally recover from their attacks the following year. The name of the species is Aleyrodes Phillyreæ. *R.*——*W Masters, Jun.*—I have seen the scale insect before which you were so obliging as to forward to me. It seems to be closely allied to the coccus which infests the Vine. *R.*——*A Gardener's Wife*—The animals are not centipedes, but millipedes; the larger one is named Julus terrestris; the smaller ones are called Polydesmus complanatus. *R.*——*M B, Chester*—We are much obliged for the interesting packet you sent, which will enable us to give the history of the weevil attacking your Larch-trees, which is named Hylobius Abietis.——*A Ross-shire Gardener* has transmitted specimens of the same insect, which has caused much mischief to the Larches there. We know of no remedy, for the beetles stick so close, it is impossible to dislodge them by shaking, and they undergo their transformations in the wood. Hand-picking seems to be the only mode of destroying them. *R.*

MANURE—*A Visitor*—Soak good light earth with the drainings of your stable, add to the heap some of Mr. Lawes's precipitated gypsum, a most excellent article, and leave it for a couple of months. The mass will be as good as half the guano that is sold, and will suit anything that wants manure; not, however, Rhododendrons or resinous trees. We do not like to publish your note respecting the R. B. S. for reasons which you will understand; but we have sent it to the R. B. S.—— *A Subscriber*—You should not use liquid manure often, once a week is too frequently, unless it is extremely weak. Once a fortnight while plants are growing is often enough, and not at any other time.

MANURE TANKS—*Alpha*—You cannot retain ammonia by any means short of condensing it, or fixing it. By soaking earth with it, especially black earth, peat, or charcoal, you will effect the first object; the second may be most conveniently done by a solution of sulphate of iron (see our vol. for 1844, p. 555), or by the addition of sulphuric acid. If you employ either take care to go to the *wholesale* market, or you will find a very cheap operation a very expensive one. In case the sulphate of iron is used, dissolve it in water and add the solution till the smell diminishes very perceptibly. If you take sulphuric acid, mix it in the first instance with half its bulk of water, and then pour it very gently into the tank; effervescence will ensue, and then subside; go on adding the acid and water till there is no more effervescence. If you pour much sulphuric acid suddenly into a manure tank violent action takes place, and the fluid may fly in the face of the operator, which would be rather unpleasant. An asphalte or other roof is useless for any purpose, except keeping out water.

MELON-BEDS—*S F W*—We do not know of any way of destroying the Fungi in your Melon-beds, without at the same time injuring your Melons. The whole mass of dung is evidently so impregnated with spawn, that mere disturbance can be of no use. Your method of forming your Melon-beds with tan, on which hot dung is placed, is so well adapted for the production of Fungi that you will be always liable to their intrusion. With well-rotted dung your annoyance would probably cease. We recollect some years since being much annoyed by a similar circumstance; but in this case there was some compensation, as the Fungi were beautiful specimens of Agaricus campestris.—*M. J. B.*

NAMES OF PLANTS—*E Tom*—Lycaste Deppei.——*D*—Genista anglica.——*Hurst*—Apparently Waldsteinia geoides, an outcast from some garden.——*M*—A Myoporum; should not *you* address the inquiry elsewhere? We shall consider what can be done about the "Vegetable Kingdom."——*A Sub*—Your Moss is a Dicranum and not a Sphagnum; it is quite unfit for the purposes to which the latter is applied.——*F B*—Mesembryanthemum brevifolium.——*L W D*—Escallonia illinita.

RED SPIDER—*N D H N*—Sulphur should never be burnt in a house; its fumes destroy everything, and we wonder you should have escaped so easily. Whenever you want to use it, mix flowers of sulphur with lime and water, and with the mixture paint your flues or hot-water pipes, or some other heated body; in this way the red spider will perish and your plants be saved; or if you cannot do that, dust the plants with flowers of sulphur; but the last is an unneat and disagreeable operation. Your Achimenes and Gloxinias will, perhaps, recover. You must cut back your Vines pretty closely, and get as much new wood as you can; as the season is not very far advanced, there is still time to ripen some wood with good management and fires up to the end of November.—— *A Sub*—You have experienced the same disaster as our last correspondent. Pinch back the Achimenes below the dead parts, and put it into a little damp heat for a fortnight, to recover it. If by the time you receive this, you find that the ends of the shoots have not died back, still it will be as well to cut them back, in order to get some strong new shoots from the base. Your chemical friend was certainly no conjuror. It is very likely that you will get flowers notwithstanding the accident.

TANK-HEATING—*Constant Reader*—You would probably find it worth your while to buy Mr. Rendle's book on Tank-heating. It will give you good advice as to the use of wooden tanks. We never saw them employed; but there is no doubt that they answer the purpose completely. It is not, however, necessary to line them with metal. Make them 9 inches deep. We think that a No. 3 will do very well. Where there is no tank, carry the iron-pipes one above the other, along the front if you want only a little heat, along the sides also if you want more, or an arm which may be the return along the back also, if you require a great deal of heat.

THE DEODAR—*Conifer* asks our correspondents who possess the information, to favour us with correct statements of the height, circumference of the stem at 3 feet from the ground, and general appearance of the most forward plants of the Deodar Cedar? It would be interesting to ascertain the kind of soil in which they thrive best; also if they should be exposed or sheltered, planted in high or low situations, and any other particulars of a tree which seems suited to our climate, and which is very ornamental and valuable for timber.

TREE PÆONY—*Wm. Young*—Your seedling Pæonia Hankiniana is a very pretty variety, of a clear pale pink, much in the way of Banksiæ. If you send up the Conifers we will do what you request.

TRUFFLES—*K T*—We have seen these raised artificially by Mr. Prestoe, as he assures us. They were of different ages.

VOL. FOR 1844—*A Subscriber from the commencement of this year* is informed that several of the Nos. for 1844 are out of print, but the vol. may be had, price 30*s.* bds.

MISC—*G S Wintle*—The cause of your Early Warwick Peas coming into blossom a second time, after having produced pods, is, no doubt, owing to the changeable weather which we have had lately, and not owing to the sort, which, being a good Early Pea, under ordinary circumstances, may generally be depended on. ‡——*Sub*—We believe the raiser of the scarlet Pelargonium, "General Tom Thumb," was Mr. W. P. Ayres, Brooklands, Blackheath. ‡——*Ballindoney*—There is no doubt that one variety of Fuchsia may be budded or grafted on another; but we have never seen it done, and fear little is to be gained by the operation. ‡——*B H*—The true "Rosa Devoniensis" is of a pale cream colour ‡——*An Amateur*—Plant your Belladonnas at the foot of a south wall, in a thoroughly drained border, and they will require no other care. Guernsey Lilies must be grown in a greenhouse, with plenty of warmth and moisture, but fully exposed to the brighest sun when their leaves are fully formed. They must be kept cool and dry when at rest. What is Amaryllis Grahami?——*Indiana Meta*—We are unacquainted with the triple yellow Datura; the purple one is probably D. fastuosa; if so, it will require the same treatment as a garden Balsam; that is to say, it must be raised and managed like a very tender annual.——*G B*—We have applied to Mr. Elliot on the subject.——*D O*—Why do you want to drive away the poor Daisies? Unless there is too many of them, they will do no harm: and if there *is* too many, why, then, we know of no remedy except relaying the turf. If the insects you mention be the caterpillar, you will remove it by dusting it with *good* white hellebore powder.——*T G*—The fluid you remark on the Clerodendron is a natural secretion, proceeding from a pair of glands near the leaf-stalk. Such things are not at all uncommon.——*X X*—It is too late for Balsams now, if you want them to seed; but if you manage well you may still get them to flower late; but it is a pity to waste your seed.—— *T. Davis*—You had better apply again to your agent; we have no connection with the party.——*R H T H*—Yes.

SEEDLING FLOWERS.

CACTUS—*F G*—Your seedling is a handsome variety, bright in colour, large, and showy.*

CALCEOLARIAS—*W H H*—Your seedling Calceolarias are extremely pretty, and more valuable from having white grounds; they are all good with the exception of the one with a run-ground. We cannot refer to the numbers, as they were all detached from the flowers. They are small compared to the yellow-spotted sorts raised this season.*——*J F*—The yellow seedling with small dots has a common appearance, and is not so good in form as either of the spotted flowers, which are very handsome and worthy cultivation.*——*A Z*—Your spotted seedlings upon yellow grounds are all good flowers; 1 and 6 are the most uncommon.*

CINERARIAS—*J B*—No. 3, rich crimson, is the best of your well-grown seedlings; the petals are broad and round at the points, and the colour is fine. 1 and 2 are flowers with narrow petals, and not so decided in colour.*

PANSIES—*Y Y*—No 2, First-rate in form, substance, and texture. The side-petals in the bloom sent are a little defective above the eye; colours very fine; pure white ground, with deep bright top petals, and a broad margin of the same round the lower petals. 7, Creamy white, large round flower, not good in texture. 9, Large round yellow self, fine in form and substance, but not disposed to lie flat. 10. A good flat flower, stout, but rather rough on the edges of the petals; the lines from the eye break through to the margin, which is a great defect. 11, A fine large Mulberry self, a little rough on the edges. 23, S.S. The circular form of this flower is perfect; fine also in substance and colour; its defect consists in the uncertain mottling of the margin in the lower petals.* ——*Amateur*—A very pretty and bright seedling, novel in its appearance; the narrow edging of gold colour round the top petals gives neatness and finish to the flower: it is rather undersized for a show variety.*——*H M*—Your seedling is a flower of good properties, but on a very small scale.*——*C T* Your seedling contains a very agreeable combination of colours, and very much resembles its parent in the flatness and particular set of the petals; its floral excellence is much deteriorated by the deeper yellow of the lip compared with the side petals, and the edges of the petals are also rather serrated; it is very novel and pretty.*——*J C*—We prefer the former dark self to the one now received; this is a round and fine flower, and very flat, but the lower petals are small compared to the upper ones. The *Merry Monarch* is a fine seedling, with rich yellow ground, and bronzy purple top petals, with a broad margin of the same colour round the lower.*

PELARGONIUMS—*W M*—These specimens of seedling Pelargoniums are rather under the size we are in the habit of seeing them. *Vespatian* is no improvement upon many flowers of the same colour already in cultivation, and *Augustin* wants brilliancy; there is a purple tinge pervading the entire flower, which gives it a very dull appearance. *Criterion* is a flower of good form and substance, fine top petals, white centre with veined under-petals; a neat flower, but this would also be considered small. The *Duke of Orleans* is the best, being a rich-coloured variety; the blotch on the top petals is surrounded by crimson, which on the edge becomes of a bright rosy-salmon, the same tint as the under petals which are veined; the flower is of a good shape and the petals set well, the edges to which are rather uneven. They would all be considered too small for show varieties.*

PETUNIAS—*W H H*—No. 1 a showy variety, brilliant in colour and good in form; 2 is rather small and not equal to some varieties similar in marking and already out. The bloom of 3 was quite decayed.*——*S G*—Several of the seedlings in your collection are very pleasing and ornamental varieties, but a selection requires to be made; occasionally three or four have so slight a difference, that the best only is worth cultivating, and others are not sufficiently decided in marking to warrant a recommendation. We consider the following seven varieties very distinct and pleasing flowers:—*B*, violet veins upon a light lilac ground, is a fine showy flower; *D* is singular from its peculiar colour; *H*, dark violet centre, with veins upon a light ground, very striking, but the form not so good as some of the others; *Æ*, light lilac ground with crimson-purple centre and veins; *U*, crimson-purple centre with veins, very fine; *S*, nearly white, with bright violet centre and veins, the most beautiful flower in the collection; *Z*, light grey; with pale violet centre and veins.*

BY HER MAJESTY'S ROYAL LETTERS PATENT.

MESSRS. DANIELL, HUTCHINSON & CO., having completed their extensive works for manufacturing

DANIELL'S PATENT CORNWALL WHITE MANURE,

respectfully announce that they are delivering the same for the present Turnip season. The experiments upon various White and Green Crops of the preceding year have established its title to one of the first Manures of the day, to which fact several eminent Agriculturists testified at the late East Penwith Agricultural Meeting. Besides its possessing all the essential qualities of Bone-dust, with the advantage of being capable of application to the soil with great ease and expedition, it exerts an important chemical action upon clays. Such soils disintegrate and liberate their potash with much less facility than silicious soils; the Patent Manure renders it more soluble, and hence proves a valuable dressing after subsoil ploughing. It hastens the decomposition of peat, leaves, and all other vegetable matters, converting them into humus or mould, and this again is resolved into carbonic acid, and is thus fitted for immediate assimilation by the young plant. It neutralises the acids forming salts of lime. It also decomposes certain salts of iron injurious to vegetation, such as the protosulphate of iron (so abundant in many soils), forming the sulphate of lime of gypsum, and liberating the iron as a harmless oxide. It reacts upon salts of alumina, potash, soda, magnesia, and ammonia; and its action upon slate, felspar, &c., developes alkalies and soluble silicates, so essential to Wheat and other corn crops; and, above all, it furnishes the plants with lime in its purest form, and phosphoric and silicic acid, so necessary to the perfection of the grain and straw. When acted upon by rain, it forms a solution which is destructive of animal life, destroying the germ of the Earth, Flea Beetle (the Turnip-fly), and other noxious worms, thus rendering it the most valuable Manure for the Turnip crop.—Agent, THOS. JNO. CROGGON, 2, Ingram-court, Fenchurch-street.—London, June 14, 1845.

Price 40*s.* per ton.

The Agricultural Gazette.

SATURDAY, JUNE 14, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 18—Agricultural Society of England.
THURSDAY, June 19—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, June 25—Agricultural Society of England.
THURSDAY, June 26—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

June 16: Wenlock; W. Hereford; Cirencester; Halesworth; Yoxford
June 17: Rochford Hundred; Framlingham
June 17—Isle of Thanet
June 19: Grove Ferry; Blofield and Walsham
June 23—W. Market
June 24—Bromsgrove
June 26—Ottery St. Mary

In the last section of our report on DRAUGHT IN PLOUGHING, the importance of employing draught animals of a naturally quick pace was illustrated by the fact that the resistance to the motion of the plough is not affected by the rate at which it is drawn; that, indeed, however paradoxical it may seem, no more labour, so far as the implement is concerned, is spent in ploughing one acre in six or eight hours, than would be spent in doing half the work in the same time. We say, so far as *the implement* is concerned. Supposing the rapidity of motion in the former case to be much beyond the natural walking pace of the animals employed, they would, of course, be much more distressed after their task than when their pace was below that at which they naturally walked; but this would be owing, not to any increased difficulty in the operation of ploughing, but simply to the increased effort necessary, in order to carry *their own weight* along at the greater rapidity.

It would be very interesting if we could ascertain what portion of the horse's effort is spent, and, of course, lost to the farmer, in the mere carriage of its own weight. That a very considerable portion of it is thus spent may be seen in the fact, that of two horses, one reasonably loaded, and the other free, the latter will not in a series of days travel twice the distance traversed by the former. And that this portion must vary according to the weight of the animal employed is very obvious; and thus the importance of employing light-built and active horses is very clear.

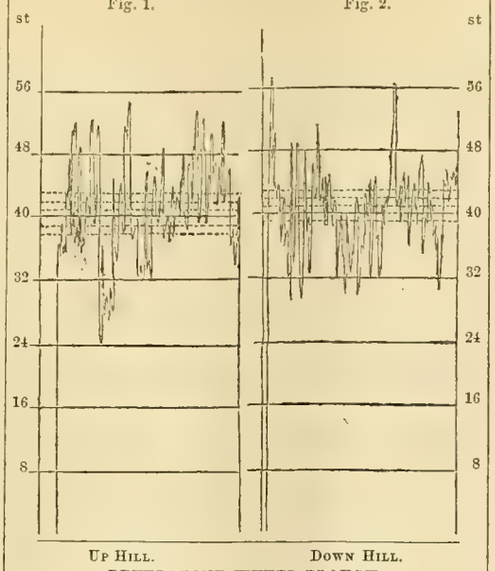
Perhaps there is no better illustration of the influence of the animals' own weight, on the effort they are forced to put forth in the operation of ploughing, than that afforded by working them on hilly land. Their exertion when ascending the hill is many times greater than when descending, and yet, strange as it may seem, the resistance to the motion of the plough in the two cases, scarcely varies at all.

The following figures explain themselves; the ascent on which the ploughs were tried was not very steep, but still sufficiently so to try the horses.

A part of the increased effort put forth by a horse in the plough when ascending a hill, is doubtless owing to his disadvantageous position for overcoming any resistance, as compared with that which he occupies when descending; but a very large portion, both then and at all times, is owing to the labour of transporting his own weight; the inference as to the activity and lightness of the animals best suited for farm-work is too obvious to need comment.

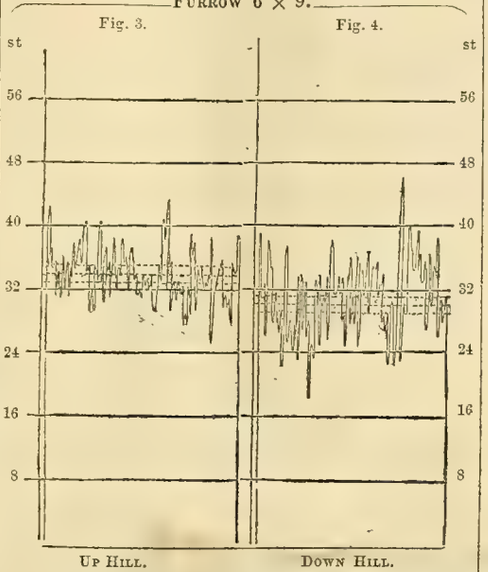
WILKIE'S SWING PLOUGH.

FURROW 6 × 9.



BEVERSTONE WHEEL PLOUGH.

FURROW 6 × 9.



FRAUDULENT MANURE DEALERS.

SOME months since a sample of what was called guano was forwarded to me through the post, with an initial address to the Post-office, Swansea, and with an intimation that if I would recommend it, three or four tons would be at my disposal. Upon examination, as I mentioned to you privately at the time, I found that it did not contain more than five per cent. of real guano, the remainder being composed of a powdered sandstone. It is true that since that time no adulteration of so flagrant a kind has fallen under my notice, although some of the samples recently submitted to me for examination have been, to use a trade phrase, "doctored," *i. e.* mixed, not only with guano of an inferior quality, but with other substances of no very fertilising properties. Of this the public should be informed, as well as that guano is not the only adulterated manure now attempted to be palmed on them. I have now in my possession a sample of what is sold as prepared night-soil, but which is totally unlike the article which name it bears. It came under my notice in the following manner:—being offered in the way of business to a gentleman as chemically prepared night-soil, and purporting to contain all the fertilising properties of that most valuable manure in the most convenient form for use, he applied for a sample, which he forwarded to me for analysis. The article when received was in a moist state, had the peculiar smell of night-soil, but seemed to be mixed with a quantity of earthy matter, limestone, and ashes. The following is the result of my examination:—

Water separable at 212	27·0
Organic matter yielding traces of ammonia	6·5
Soluble saline matter, principally common salt, with a little sulphates	7·0
Residuary matter, consisting of earth with carbonate of lime and phosphates	59·5
	100·0

Upon this report a quantity of this manure was ordered for trial, but when received it had a very different appearance from the sample sent, so much so indeed that it was objected to. This was explained by the manufacturer, who stated that the difference in appearance arose from the night-soil having its ammonia fixed by oil of vitriol and gypsum, and dried on hot iron plates in order that it might not contain too much water—that the volatile portion was completely fixed by the gypsum and vitriol, but that it contained the sulphate of ammonia in its stead; the manufacturer also inclosed the analysis, which I presume was intended for the wet sample. This, however, did not quite satisfy the purchaser, who forwarded me a portion of the bulk for further examination. This sample was dry to the touch, devoid of smell, and when placed under a low power of a microscope, was found to consist of fragments, carbonate of lime, burnt earth, and silicious sand, and mixed with a powder of a grey colour, the whole sample bearing the appearance of garden soil, such as would be found resting on the chalk formation or Bath-stone of the Oolite. In order that the public may appreciate the genuineness of the article, I append a copy of the analysis of the wet sample as supplied by the manufacturer, an analysis of human excrements by Berzelius, and the analysis which I have made of a sample taken from the bulk of the dried article supplied. Analysis said by the manufacturer to be the analysis of the prepared night-soil:—

Carbonate of lime	16·50
Sulphate of lime	12·0
Sulphates of soda, ammonia, potash, and magnesia	14·50
Phosphate of lime and magnesia	4·25
Chloride of sodium	3·0
Organic animal matter yielding ammonia	10·50
Moisture	26·25
Earthy matter	13·0
	100·0

Analysis of excrements of a healthy man by Berzelius:—

Water	73·3
Solid matters	26·7
	100·0

100 parts of dry excrements contains:—

Albumen, bile, and other animal matters, with a portion of undigested food	86·8
Carbonate of soda	0·8
Sulphate of soda, with a little sulphate of potash and phosphate of soda	0·8
Phosphate of lime and magnesia, and a trace of gypsum	10·0
Silica	1·6
	100·0

Analysis of the article sent as dried night-soil:—

Carbonate of lime	19·0
Sulphate of lime (gypsum)	2·8
Sulphates of soda, potash, and magnesia	traces.
Do. of ammonia	do.
Phosphate of lime and magnesia	5·2
Chloride of sodium (common salt)	1·0
Organic matter, principally vegetable, yielding only a minute trace of ammonia	9·5
Moisture	6·0
Earthy matter, consisting of sand, burnt earth, oxide of iron, &c.	56·5
	100·0

In order to bring the comparison more clearly under the comprehension of the reader, I have reduced the three previous tables into one, as nearly as the different descriptions of ingredients will permit:—

	ANALYSIS BY		
	Berzelius, of dried human excrements.	The Manufacturer of the prepared night-soil.	Myself, of the article supplied.
Moisture	0,	26,25	6,0
Carbonate of lime	0,	16,50	19,0
Carbonate of soda	0,8	0,00	0,0
Sulphate of lime	trace	12,00	2,8
Sulphate of soda, potash, ammonia, and magnesia	10,8	14,50	traces
Phosphate of lime and magnesia		4,25	5,2
Chloride of sodium (common salt)	0,	3,00	1,0
Silex	1,6	...	...
Earthy matter	...	13,0	56,5
Albumen, bile, and other animal matters	86,8	...	...
Organic animal matters	...	10,50	...
Organic matters chiefly vegetable	...	...	9,5
	100,0	100,00	100,0

The manufacturer's analysis shows this cheap and efficient manure to have been prepared by mixing with a small quantity of night-soil a small portion of common salt and gypsum, which were dried with ashes and earth, so as to bring the compost into a marketable state. But the manure does not seem to be the only article made up. The analysis is a very ingenious compound for the purpose of disposing of this efficient manure, and certainly a very useful manure it would have been had it contained the weight of ingredients stated in the analysis, although in composition very unlike the analysis of the genuine article as given by Berzelius. But we find that the bulk when delivered bore a very different appearance from the sample, and this fact caused some doubts as to its genuineness—

doubts which were answered by the manufacturer in a manner calculated to satisfy the suspicion of most persons, though in the present case they were not removed, and a portion of the bulk of the dried night-soil was forwarded to me for analysis; the result of which at once proves that its composition, as sent out, is totally unlike the analysis offered as its composition, and also unlike the composition of genuine night-soil; for had the moist sample contained the ingredients stated in the analysis offered by the manufacturer, the fact of drying it on iron plates, by which 20 per cent. of water was evaporated, would have increased the solid constituents in the manure in the same ratio. This we do not find to be the case; on the contrary, the manure as sent out is far inferior to the moist sample. 56,5 of earthy matter with 13 of carbonate of lime is not a very valuable manure; 75,5 per cent. of the ingredients are to be found in many very poor soils; and yet it is offered to the public at the moderate price of 5*l.* 5*s.* per ton, with the additional liberal offer of delivering it at any wharf or railway station in London.—*Alfred Gyde, M.R.C.S.E., Painswick.*

ON THE GROWTH OF TURNIPS AND BEANS TOGETHER.

THE inclosed is in answer to a letter I addressed to Mr. H. Davis for information on this subject. I think many of your readers would be, as I have been myself, benefitted by a perusal of the contents.

I fully intend to try the plan, though Mr. Davis seems to think I shall do so under unfavourable circumstances in respect of the sort of Beans and width of the intervals. Should it succeed with me I shall be most happy to let you know the result.—*A South Lincolnshire Farmer.* [Thank you].

"3, *Frederick's Place, Old Jewry, London, 29th May*, 1845.

"In reply to your inquiries, I grew this winter a Russian Bean, which is planted in September and October; they ripen much sooner, and admit of being sown on lighter soil than the spring Bean; they are drilled in rows 27 inches apart, and are carefully horse-hoed two or three times in the spring, prior to the Turnips being sown in May; these are likewise drilled in rows 27 inches apart, in the centre of the Beans. In this way I never fail to grow perfect crops of Turnips; and a month after the Beans are cleared off, the Turnips cover the ground, and are as clean as the best fallow-grown ones, for the horse-hoe, as soon as the Beans are off, is passed between the Turnips, taking up the Bean-stubble and all weeds left on the former hoeings. Your Beans, I expect, are spring Beans, and if so you are in time for sowing, although mine are up. I should use the Clover-seed barrow to sow the Turnip-seed in your case, arranging it as well as I could to drop the seed between the rows. I formerly did mine so; but as you cannot have properly horse-hoed your land, the rows being too close, I fear you have little chance of succeeding well. I sow the quickest growing Turnip (the Stone or the Six-weeks White), because I want to feed off for Wheat. I do not think Swedes would do, as little progress is made whilst the Beans are on the land.

"The aroma from the Bean-bloom, which is said to contain much carbonic gas, appears to keep the fly away, for, unless in places where the Beans are faulty, I never see a fly. I assure you I have grown in this way 90 acres of Turnips in a season, and without a fault. This information may be useful to other readers of the *Agricultural Gazette*, I therefore beg, when done with, it may be forwarded to the Paper office, and with an explanatory letter.—*Hewitt Davis.*"

EXPERIMENTS AT ROTHAMSTED FARM, HERTS.

Soil heavy, not suitable for Turnips. Previous crops since manure—Wheat, Clover, Wheat. Description of seed—Norfolk Whites. Manures and Seed drilled on ridges 25 inches between the rows. The pieces of ground allotted to each Experiment, about one-third of an acre; and the Experiments of the second season were made on the same spaces as those of the first, having the same numbers; the first crop having been entirely carted off. The crop of *clean Bulb per acre* is given, calculated from the weighed quantity taken from measured portions of land, consisting of about one-eighth of an acre for each lot, and extending all across the series in three different places. The Analyses, which were made in my Laboratory by Dr. Gilbert and Mr. D. Campbell, refer only to the crop of 1843, as also do all the calculations depending upon them.

No.	Season.		Bulb per Acre in Tns. cwt. qrr. lbs.	Crop compared with No. 2 as 1000.	Average weight of Bulbs.	Number of Plants p. Acre.
1	1843	Farm-yard dung, 12 tons	9 9 2 9	2262	1,36	15,571
	1844	Farm-yard dung, 12 tons	10 15 1 0	4875	1,19	20,096
2	1843	No manure	4 3 3 2	1000	0,52	17,940
	1844	No manure	2 4 1 0	1000	0,36	13,736
3	1843	6½ cwt. Rape-cake	8 4 3 12	1967	1,08	17,043
	1844	7 cwt. Rape-cake	0 13 0 0	294	0,27	5,488
4	1843	5½ cwt. Rape-cake; yeast 2 bushels	8 1 1 11	1926	1,16	15,467
	1844	4 cwt. super-phosphate of lime; ½ cwt. phosphate of ammonia	6 18 2 0	3138	0,92	16,768
5	1843	8 bushels yeast	10 19 2 19	2622	1,21	20,240
	1844	4 cwt. super-phosphate of lime; ½ cwt. sulphate of ammonia	5 10 1 0	2498	0,87	14,256
6	1843	2½ cwt. sup.-phosph. of lime; 12 lbs. sulph. of ammonia; 4 bus. yeast	11 14 0 22	2796	1,33	19,573
	1844	3 cwt. super-phosphate of lime; 15 lbs. phosphate of ammonia	6 6 2 0	2867	0,65	21,632
7	1843	56 lbs. sulphate of ammonia	6 18 1 25	1653	1,03	14,996
	1844	3 cwt. ground apatite	3 1 0 0	1382	0,38	17,864
8	1843	2½ cwt. super-phosphate of lime; 3¾ cwt. Rape-cake	12 2 1 21	2894	1,69	16,096
	1844	3 cwt. of apatite, decomposed by sulph. ac., containing 200 lbs. apatite	6 15 3 0	3076	0,71	21,232
9	1843	1¼ cwt. super-phosphate of lime; 5½ cwt. Rape-cake	10 8 2 5	2490	1,52	15,295
	1844	As No. 8, with 56 lbs. hydrochloric acid added (sp. g.), 1125	7 6 2 0	3320	0,80	20,392
10	1843	3¾ cwt. super-phosphate of lime; 1 cwt. Rape-cake	12 14 3 6	3042	1,58	18,009
	1844	4 cwt. super-phosphate of lime; 4 cwt. Rape-cake	7 0 0 0	3173	1,18	13,256
11	1843	Refuse matter, containing much precip. phosph. lime, Rape-cake, &c.	11 9 0 5	2734	1,42	17,928
	1844	4 cwt. sup.-phosph. lime; 4 cwt. Rape-cake; 15 lbs. phosph. ammonia	5 19 0 0	2697	1,29	10,320
12	1843	2½ cwt. sup.-phosph. lime; 2 cwt. Rape-cake; 20 lbs. sulph. ammonia	11 7 3 7	2720	1,48	17,112
	1844	5 cwt. super-phosphate of lime; land dug 9 ins. deep	8 15 1 0	3968	0,97	20,152
13	1843	1¾ cwt. sup.-phosph. lime; 40 lbs. sulph. ammonia; 1 cwt. Rape-cake	10 12 0 5	2531	1,42	16,617
	1844	4 cwt. sup.-phosph. lime; 4 cwt. Rape-cake; 2 cwt. common salt	1 1 1 0	482	0,30	7,952
14	1843	1¾ cwt. sup.-phosph. lime; 3¾ cwt. Rape-cake; 10 lbs. sulph. ammonia	9 15 3 25	2340	1,23	17,790
	1844	5 cwt. sup.-phosph. lime; land trenched with the spade 18 ins. deep	5 18 1 0	2683	0,99	13,360
15	1843	3¾ cwt. sup.-phosph. lime; 2¾ cwt. Rape-cake; 20 lbs. sulph. ammonia	11 17 3 18	2841	1,75	15,088
	1844	1 cwt. super-phosphate of lime; 4 cwt. phosphate of soda	6 13 0 0	3013	0,76	19,504
16	1843	3¾ cwt. super-phosphate of lime; 1½ cwt. phosphate of magnesia	12 9 0 15	2974	1,39	19,975
	1844	1 cwt. super-phosphate of lime; 4 cwt. phosphate of magnesia	6 13 2 0	3024	0,70	21,336
17	1843	3¾ cwt. super-phosphate of lime; 150 lbs. phosphate of potass	11 14 3 19	2804	1,36	19,228
	1844	1 cwt. super-phosphate of lime; 4 cwt. phosphate of potass	6 2 2 0	2775	0,66	20,552
18	1843	3¾ cwt. sup.-phosph. lime; 84 lbs. phosph. magnesia; 75 lbs. phosphate of potass	11 17 2 0	2835	1,35	19,642
	1844	2 cwt. sup.-phosph. lime; 1 cwt. each of phosph.pot., soda, & magnesia	5 13 2 0	2572	0,68	18,624
19	1843	3¾ cwt. super-phosphate of lime; 84 lbs. phosphate of magnesia; 75 lbs. phosphate of potass; 30 lbs. sulphate of ammonia	12 5 0 13	3045	1,49	19,113
	1844	Same as No. 18, 2d year; with 15 lbs. phosphate of ammonia	6 13 1 0	3107	0,73	20,352
20	1843	¼ cwt. sup-phosph.lime; 1½ cwt. Rape-cake; 16 lbs. sulph. ammonia	11 19 1 23	2860	1,58	16,916
	1844	2 cwt. sup.-phosph. lime; 4 cwt. Rape-cake; 56 lbs. sulph. ammonia	2 7 3 0	1084	0,78	6,832
21	1843	Unburnt bones, decomposed by sulphuric acid, 7 bushels	11 14 3 19	2804	1,48	17,675
	1844	374 lbs. apatite decomposed by sulphuric acid, containing 104 lbs. sulphur, 270 lbs. apatite	7 3 1 0	3247	0,85	18,728
22	1843	4½ cwt. super-phosphate of lime	12 3 2 8	2908	1,47	18,446
	1844	5 cwt. super-phosphate of lime	7 14 3 0	3503	0,81	21,205
23	1843	15 bushels of Weed-ashes	11 1 3 21	2650	1,32	18,745
	1844	2 cwt. sup.-phosph. lime; 56 lbs. sulph. ammonia; 1½ cwt. nit. soda	3 15 0 0	1700	0,83	10,072

EXPERIMENTS UPON ROTHAMSTED ESTATE, HERTS. SEASON, 1843. SUBJECT, NORFOLK WHITE TURNIPS.

TABLE showing the Quantity and Composition of the Produce taken from each Acre.

Nos.	Parts of Plant.	Quantity taken from each acre in lbs.	Produce per Acre, consisting of: Water of Product in lbs.	Dry organic matter in lbs.	Inorganic constituents in lbs.
1—	Leaf	10,618	9,608	853	156
	Bulb	21,233	19,279	1,841	113
	Root	424	386	37	2,3
	Total	32,274	29,273	2,731	271,3
2—	Leaf	4,691	4,245	377	69
	Bulb	9,382	8,520	813	49
	Root	188	170	16	1
	Total	14,261	12,935	1,206	119
3—	Leaf	9,232	8,355	760	117
	Bulb	18,464	16,765	1,619	80
	Root	369	335	32	1,6
	Total	28,065	25,455	2,411	198,6
4—	Leaf	9,036	8,177	744	115
	Bulb	18,071	16,408	1,578	85
	Root	361	338	32	1,7
	Total	27,468	24,923	2,354	201,7
5—	Leaf	12,302	11,133	1,005	164
	Bulb	24,603	22,339	2,152	112
	Root	492	447	43	2,2
	Total	37,397	33,919	3,200	278,2
6—	Leaf	13,115	11,869	1,070	176
	Bulb	26,230	23,837	2,264	129
	Root	525	477	45	2,6
	Total	39,870	36,183	3,379	307,6
7—	Leaf	7,755	7,018	630	107
	Bulb	15,509	14,082	1,355	72
	Root	310	281	27	1,5
	Total	23,574	21,381	2,012	180,5
8—	Leaf	13,577	12,887	1,115	175
	Bulb	27,153	24,655	2,356	142
	Root	543	493	47	3
	Total	41,273	37,435	3,518	320
9—	Leaf	11,679	10,569	951	159
	Bulb	23,357	21,208	2,028	121
	Root	467	424	40	2,4
	Total	35,503	32,201	3,019	282,4
10—	Leaf	14,269	12,913	1,168	188
	Bulb	28,538	25,912	2,494	132
	Root	570	518	49	2,6
	Total	43,377	39,343	3,711	322,6
11—	Leaf	12,826	11,607	1,052	167
	Bulb	25,651	23,291	2,241	120
	Root	513	466	45	2,4
	Total	38,990	35,364	3,338	289,4
12—	Leaf	12,758	11,546	1,049	163
	Bulb	25,515	23,167	2,222	126
	Root	510	463	44	2,5
	Total	38,783	35,176	3,315	291,5
13—	Leaf	11,875	10,746	976	153
	Bulb	23,749	21,564	2,070	115
	Root	475	431	41	2,3
	Total	36,099	32,741	3,087	270,3
14—	Leaf	10,975	9,932	900	143
	Bulb	21,949	19,929	1,908	112
	Root	439	398	38	2,3
	Total	33,363	30,259	2,846	257,3
15—	Leaf	13,323	12,057	1,089	177
	Bulb	26,646	24,194	2,330	122
	Root	533	484	46	2,4
	Total	40,522	36,735	3,465	301,4
16—	Leaf	13,952	12,626	1,141	185
	Bulb	27,903	25,336	2,419	148
	Root	558	507	48	2,9
	Total	42,413	38,469	3,608	335,9
17—	Leaf	13,156	11,906	1,079	171
	Bulb	26,311	23,890	2,299	122
	Root	526	478	46	2,4
	Total	39,993	36,274	3,424	295,4
18—	Leaf	13,300	12,036	1,096	168
	Bulb	26,600	24,153	2,312	135
	Root	530	483	46	2,7
	Total	40,430	36,672	3,454	305,7

EXPERIMENTS UPON ROTHAMSTED ESTATE—*Continued.*

Nos.	Parts of Plant.	Quantity taken from each acre in lbs.	Produce per Acre, consisting of: Water of Product in lbs.	Dry organic matter in lbs.	Inorganic constituents in lbs.
19—	Leaf	14,287	12,929	1,171	187
	Bulb	28,573	25,944	2,443	186
	Root	571	519	49	3,7
	Total	43,431	39,392	3,663	376,7
20—	Leaf	13,415	12,140	1,102	173
	Bulb	26,829	24,360	2,327	142
	Root	536	487	46	2.8
	Total	40,780	36,987	3,475	319,8
21—	Leaf	13,156	11,906	1,075	175
	Bulb	26,311	23,890	2,296	125
	Root	526	478	46	2.5
	Total	39,993	36,274	3,417	302.5
22—	Leaf	13,640	12,344	1,116	180
	Bulb	27,280	24,770	2,374	136
	Root	546	496	47	2.7
	Total	41,466	37,610	3,537	318,7
23—	Leaf	12,429	11,348	924	157
	Bulb	24,857	22,570	2,167	120
	Root	497	451	43	2,4
	Total	37,783	34,369	3,134	279,4

Explanatory remarks respecting the data from which the Table is arranged.—In estimating the crop of the season 1843, to which the table refers (*all* being carted off), the clean bulbs only were weighed, but the tops were *very much* larger than in the succeeding year, when actual experiments, taking several hundred plants, gave the relation in weight of leaf to bulb, as 1 to 3,13 ; and the quantity of leaf removed from the land, in the year 1843, is therefore supposed to be equal to half the weight of the bulb. The quantity of root removed is estimated as equal to 1-50th the weight of the bulb, this being very nearly the relation indicated by the careful cleaning and weighing of the roots and bulbs of more than 200 plants, just as picked up from the land. The composition of the root is, for the purposes of this Table, considered as the same as that of the bulb. The quantity of water in the leaf is taken from the published results of others, at 90,5 per cent ; and that in the bulb at 90,8, being the mean indicated by the loss of weight of about 20 different lots, exposed to a temperature of 150° in a stove, until no further loss was sustained ; this last number may be a little too low, as the temperature, though as high as was practicable, was lower than could have been wished ; it was, however, sustained daily for more than a week, and the result does not differ much from that arrived at by others. The water being deducted from the entire produce and the *actually ascertained* quantity of inorganic matter, in each case, from the remainder, the quantity of dry organic matter was known. The inorganic constituents are calculated from the actual analyses in each particular case. These statements are given that due dependance, and that only, may be placed in the results.

It will, probably, be remarked that the weight of Turnips obtained in these experiments is very small, compared with that obtained in general, but it must be remembered that the land is not a Turnip soil, and that it was purposely impoverished, for the object of these experiments was not to ascertain what manure will grow the largest crop, but to determine what substance is actually removed from the soil by a crop of Turnips, and how much is obtained from the manure. The experiments distinctly show the great importance of phosphate of lime for the growth of Turnips, and also that the principle of supplying a manure according to the analysis of the ash of the plant is false ; and although a manure has lately come before the public, founded on this idea, and manufactured under the direction of so high an authority as Dr. Liebig, I do not hesitate to give my opinion that a manure containing only the mineral constituents of a large crop will fail in effect.

In the next Table, the statement of the supply of matter to the soil by manure, has been arranged for the convenience of comparing the produce with the artificial and other supply of constituents, according either to the known synthetic composition of the manures, or to the indications of actual analyses, as the case might require ; not having regard always to the known or supposed state of combination, but merely to the actual per-centage convertible contents of the composts. Thus the superphosphate of lime manure is represented as containing so much of the bone-phosphate of lime, and sulphuric acid, and not the acid-phosphate of lime, and sulphate of lime. The composition of the dung is deduced from the analyses given by M. Boussingault ; and that of Rape-cake from an actual proximate analysis made for the purposes of this Table. The yeast was, of course, used more as an agent than a constituent ; but a small quantity of organic matter is allowed to have been supplied by it.

TABLE, SHOWING THE ENTIRE PRODUCE PER ACRE, SOURCE OF CONSTITUENTS, AND RELATIVE CONDITION OF THE LAND AFTER THE CROP WAS REMOVED.

(The quantities are given in pounds and tenths of pounds.)

Nos.	Parts of Plant.	Ammonia. Supplied by Manure.	Dry Organic Matter. Supplied to the Soil by Manure.	Dry Organic Matter. Taken off in Produce.	Dry Organic Matter. Derived from Normal Sources.	Dry Organic Matter. Supplied but not taken off in Crop.	Earthy Phosphates. Supplied by Manure.	Earthy Phosphates. Taken off in Produce.	Earthy Phosphates. Derived from Normal Sources.	Earthy Phosphates. Supplied but not taken off in Crop.	Lime. Supplied by Manure.	Lime. Taken off in Produce.	Lime. Derived from Normal Sources.	Lime. Supplied but not taken off in Crop.	Magnesia. Supplied by Manure.	Magnesia. Taken off in Produce.	Magnesia. Derived from Normal Sources.	Magnesia. Supplied but not taken off in Crop.	Potass. Supplied by Manure.	Potass. Taken off in Produce.	Potass. Derived from Normal Sources.	Potass. Supplied but not taken off in Crop.	Soda. Supplied by Manure.	Soda. Taken off in Produce.	Soda. Derived from Normal Sources.	Soda. Supplied but not taken off in Crop.	Chloride of Potassium. Supplied by Manure.	Chloride of Potassium. Taken off in Produce.	Chloride of Potassium. Derived from Normal Sources.	Chloride of Potassium. Supplied but not taken off in Crop.	Chloride of Sodium. Supplied by Manure.	Chloride of Sodium. Taken off in Produce.	Chloride of Sodium. Derived from Normal Sources.	Chloride of Sodium. Supplied but not taken off in Crop.	Sulphuric Acid. Supplied by Manure.	Sulphuric Acid. Taken off in Produce.	Sulphuric Acid. Derived from Normal Sources.	Sulphuric Acid. Supplied but not taken off in Crop.
1	Leaf	:	:	3763	:	1206	:	107,5	52,8	:	:	20,6	29,6	:	:	1,4	61,8	:	:	10,2	95,4	42,4	:	:	1,1	1,8	25,5	:	30,7	37,0	16,9	:	34,9	29,0	:	:	4,5	39,5	16,9	:
2	Bulb	:	:	9731	:	3537	:	14,0	27,6	:	:	37,2	39,0	:	52,4	:	:	:	:	8,6	74,8	74,8	:	:	0,3	2,3	:	:	11,7	19,7	11,7	:	:	16,9	:	:	3,8	24,9	26,0	:
3	Root	:	:	3131	:	3131	:	8,4	45,2	:	:	59,8	59,8	:	:	1,2	61,8	:	:	1,4	6,4	6,4	:	:	0,3	2,3	:	:	16,4	19,7	16,4	:	:	16,9	:	:	3,8	24,9	26,0	:
4	Leaf	:	130,2	3517	3354	1206	107,5	52,8	14,0	:	20,6	39,7	39,0	:	:	1,2	0,4	2,2	1,9	74,8	42,4	42,4	:	1,1	1,8	2,3	:	11,7	19,7	11,7	:	4,5	39,5	16,9	:	38,5	41,8	16,9	:
5	Bulb	:	:	3537	3354	3537	14,0	27,6	8,4	:	37,2	39,0	37,2	:	:	:	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
6	Root	:	:	3131	3131	3131	8,4	45,2	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
7	Leaf	12,3	3570	3354	1206	:	106,4	48,0	:	:	67,1	53,9	38,9	:	:	1,3	0,5	2,2	1,9	100,6	95,4	42,4	:	1,1	1,8	2,3	:	10,2	14,7	5,1	:	56,6	46,0	29,1	:	33,5	41,8	29,1	:
8	Bulb	:	25	3150	1857	:	123,3	57,9	23,0	:	94,3	76,8	47,7	:	:	1,1	1,3	2,5	1,9	115,8	74,8	74,8	:	0,3	2,3	4,0	:	14,7	23,1	5,1	:	53,0	41,0	29,1	:	33,5	41,8	29,1	:
9	Root	:	3200	3200	3150	:	80,9	42,2	:	:	56,8	47,6	47,7	:	:	1,1	1,3	2,5	1,9	115,8	74,2	74,2	:	0,3	2,3	4,0	:	14,7	23,1	5,1	:	53,0	41,0	29,1	:	33,5	41,8	29,1	:
10	Leaf	12,3	3570	3338	3192	:	165,0	54,8	:	:	110,2	62,8	41,4	:	:	1,9	0,8	4,2	2,2	100,6	97,0	97,0	:	1,1	1,8	2,3	:	10,2	14,7	5,1	:	56,6	46,0	29,1	:	33,5	41,8	29,1	:
11	Bulb	:	25	3200	3150	:	123,3	57,9	23,0	:	94,3	76,8	47,7	:	:	1,1	1,3	2,5	1,9	115,8	74,2	74,2	:	0,3	2,3	4,0	:	14,7	23,1	5,1	:	53,0	41,0	29,1	:	33,5	41,8	29,1	:
12	Root	12,3	3570	3338	3192	:	165,0	54,8	:	:	110,2	62,8	41,4	:	:	1,9	0,8	4,2	2,2	100,6	97,0	97,0	:	1,1	1,8	2,3	:	10,2	14,7	5,1	:	56,6	46,0	29,1	:	33,5	41,8	29,1	:
13	Leaf	4,4	3475	3354	1206	:	107,5	52,8	14,0	:	20,6	39,7	39,0	:	:	1,2	0,4	2,2	1,9	74,8	42,4	42,4	:	1,1	1,8	2,3	:	11,7	19,7	11,7	:	4,5	39,5	16,9	:	38,5	41,8	16,9	:
14	Bulb	8,8	306,8	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
15	Root	2,2	327,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
16	Leaf	4,4	306,8	3354	1206	:	107,5	52,8	14,0	:	20,6	39,7	39,0	:	:	1,2	0,4	2,2	1,9	74,8	42,4	42,4	:	1,1	1,8	2,3	:	11,7	19,7	11,7	:	4,5	39,5	16,9	:	38,5	41,8	16,9	:
17	Bulb	8,8	306,8	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
18	Root	2,2	327,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
19	Leaf	6,6	173,6	3354	1206	:	106,4	48,0	:	:	67,1	53,9	38,9	:	:	1,3	0,5	2,2	1,9	100,6	95,4	42,4	:	1,1	1,8	2,3	:	10,2	14,7	5,1	:	56,6	46,0	29,1	:	33,5	41,8	29,1	:
20	Bulb	3,3	306,8	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
21	Root	:	327,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
22	Leaf	4,4	306,8	3354	1206	:	107,5	52,8	14,0	:	20,6	39,7	39,0	:	:	1,2	0,4	2,2	1,9	74,8	42,4	42,4	:	1,1	1,8	2,3	:	11,7	19,7	11,7	:	4,5	39,5	16,9	:	38,5	41,8	16,9	:
23	Bulb	8,8	306,8	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
24	Root	2,2	327,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
25	Leaf	2,6	190,0	3475	1206	:	107,5	52,8	14,0	:	20,6	39,7	39,0	:	:	1,2	0,4	2,2	1,9	74,8	42,4	42,4	:	1,1	1,8	2,3	:	11,7	19,7	11,7	:	4,5	39,5	16,9	:	38,5	41,8	16,9	:
26	Bulb	3,5	130,2	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
27	Root	:	238,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
28	Leaf	:	173,6	3354	1206	:	106,4	48,0	:	:	67,1	53,9	38,9	:	:	1,3	0,5	2,2	1,9	100,6	95,4	42,4	:	1,1	1,8	2,3	:	10,2	14,7	5,1	:	56,6	46,0	29,1	:	33,5	41,8	29,1	:
29	Bulb	:	306,8	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
30	Root	:	327,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
*31	Leaf	6,6	173,6	3354	1206	:	106,4	48,0	:	:	67,1	53,9	38,9	:	:	1,3	0,5	2,2	1,9	100,6	95,4	42,4	:	1,1	1,8	2,3	:	10,2	14,7	5,1	:	56,6	46,0	29,1	:	33,5	41,8	29,1	:
*32	Bulb	3,3	306,8	3537	1857	:	27,7	36,1	8,4	:	37,2	39,0	37,2	:	:	1,1	0,8	2,2	1,9	74,8	74,8	74,8	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:
*33	Root	:	327,7	3131	3131	:	27,7	36,1	45,2	:	59,8	59,8	59,8	:	:	1,2	1,4	3,5	2,9	6,4	6,4	6,4	:	0,3	2,3	4,0	:	16,4	19,7	16,4	:	3,8	24,9	26,0	:	38,5	41,8	26,0	:

N.B.—There are other and very elaborate Tables of analysis, connected with these experiments, copies of which I shall be happy to forward gratis to any gentleman interested in such inquiries, who will inclose a twopenny-stamp to cover the postage, addressed to me at Rothamsted, near St. Alban's, after Wednesday next.—*J. B. Lawes, June* 12, 1845.

* The composition of the manures of plots 11, 21, and 23, was not known, but an idea can be gathered by reference to the Table of Manures, Crops, &c.

Home Correspondence.

Destruction of Rats.—If your correspondent will refer to the "Farmers' Magazine" of August, 1844, p. 128, he will there see a recipe by Dr. Ure ; let him get that made up by some druggist, and that will settle them.—*N. N.*

Mildew on Thorn-quicks.—The mildew which has proved so destructive to Thorn-quicks is unfortunately too common, and is of precisely the same character as that of the Peach-tree on which so much has been written. Our correspondent will, therefore, do well to consult the documents that have appeared in our Paper on the subject, but we cannot flatter him with the hope of any beneficial result.—*M. J. B.*

Yeast.—The bitter taste may, in great measure, be removed by mixing with it a little carbonate of soda and a few lumps of sugar.—*M. J. B.*

Bones and Sulphuric Acid.—I have purchased sulphuric acid from two different chemists. A portion of the first sample I poured pure over half-inch bones, and a day or two afterwards added water of about equal weight with the acid. This succeeded so well that I desired my servant likewise to pour the second sample pure over some fine dust, which I was then using in preference to the half-inch bones. Arriving on the spot a few hours after this had been done, I found the shed full of a noxious vapour, and the surface of the bones and sides of the tub encrusted with a black greasy substance, looking rather like coal tar. By forcing water over the mixture and stirring it, I got it to a good "wort," which was, however, somewhat brown and discoloured. I then made fresh trials of mixing the bones and acid. I put water to the acid of about equal weight (which alone made it blacken and boil up), I hollowed out a basin in the middle of the bones to pour the fluid into, keeping more bones in reserve to throw over the mixture, and finally I moistened all the bones before they came in contact with the acid. By these means I first partially, and finally completely stopped the formation of any noxious vapour, or black fluid. The tub was enveloped instantaneously in a dense cloud of steam, but it was such as arises from boiling water, and quite inoffensive, whilst the bones were not at all discoloured. When the vapour passed off, the bones looked like stiff half-made mortar ; there was not much appearance of continuous fermentation such as the first acid produced, although on adding more water a vapour was again formed and great heat evolved. What is your opinion of the value of this second sample of acid ? It was cheaper than the former, costing 1½d. per lb. instead of 1½d. Its specific gravity was said to be 1.850, and I have no reason to doubt that it was so. My man thought it much stronger than the first I had, and they had some practical proof of it on their hands—still I am not so well satisfied at the ebullition being so violent at first, and then fermentation not remaining as continuously active. It can hardly have been as pure a product as the former sample, but for agricultural purposes this may be of little moment if care be taken in the application. In this respect these hints may perhaps be of service to other experimenters ; whereas my bailiff felt inconvenience and loss of appetite from the effect of the sulphurous vapour during the whole day ; when I succeeded in making a good "brew," to stand over the tub was only like being in a laundry.—*Socius, Cambridgeshire, June* 3*d.*—[Specific gravity 1.850 is that of very strong sulphuric acid.]

Inorganic Manures.—Liebig says, a compost which will furnish the inorganic matters to Wheat, Oats, and Barley, may be made (and render unnecessary animal manures), by mixing equal parts of bone-dust, and a solution of silicate of potash, 10 or 12 parts gypsum, and 16 parts common salt (2d edition, page. 204). Perhaps some of your readers may have tried it ; can you state the result, and the best way to prepare gypsum when lime is near at hand, and how silicate of potash can be best got ?—*George Sherborn, Ashford.*

Poultry.—Four golden rules or secrets. In your No. 18, "A Subscriber" wishes that some one "would supply a few plain and practical directions," or rules, which, agreeably to a former promise, I will attempt by giving the results of my experience, in or near towns in particular. My object is to instruct others and prevent cruelty. The economy of poultry may be classed under three heads ; first, in their natural state, which is the department of the naturalist ; second, in their domestic state in the country with a full range of the farm-yard and fields in which the poultry-keeper is concerned, for his profit ; and third, in their artificial state in or near towns, in pens or yards, which will chiefly engage my attention in the present article. The best and cheapest method of feeding I must leave to be detailed by those who keep poultry in large quantities. *Shelter.*—Fowls should always be kept in a dry, warm sheltered situation—a southerly aspect is to be preferred—for they enjoy and benefit greatly by the "warms in the sun," as well as requiring protection from its scorching rays, and a secure (storm) shed for rainy weather. The roosting-house and laying-house, if separate, should communicate, that early layers may have early access to the nests, and also communicate with the storm-shed for the fowls to run in in security if they should leave their roosts early in the morning. The nests should be numerous, either in boxes or baskets, not too deep but roomy, some situated high some low, and as independent of each other as possible ; each supplied with sweet, short, and soft straw, and a small nest-egg or two of chalk, the size of a pigeon's egg. If the nests be too deep they break the eggs in jumping in and out, and if the

nests are not roomy setting hens have no room to turn easily, and consequently break the eggs by not being able to get to them softly. They then eat the broken eggs, which gives them the habit of doing so at other times. They should roost warm at night, the perches high from the ground and of easy access by means of lower ones or ladders. The more lightsome the house the better for promoting dry air and a free circulation; besides, fowls cannot see at all, being quite stupified and helpless in the dark, consequently the feather tribe always retire to roost before the sun goes down. Shutters to the glazed windows are unnecessary, except for better security, or to prevent fowls from leaving their roosts too early in the morning, to disturb ticklish neighbours, otherwise they come out almost as early as daylight begins to appear. The feeding-places, if under cover, so much the better, as a precaution for wet weather, and as far as possible removed from the nests, that the hens which happen to be laying at the time, or which may be setting, may not be disturbed and enticed off their nest and eggs at improper times. Being evidently natives of a warm country, they are scarcely yet perfectly acclamatised in our variable and colder regions; although so widely diffused from times immemorial over the whole face of the globe, they have retained a peculiar susceptibility of damp and chilliness, most of their diseases arising from rheum, or catarrh—catching colds. The lungs of fowls are particularly tender; the finer the species, the less is it hardy. *Cleanliness.*—Fowls being cleanly by nature, thrive when regularly attended, but degenerate and sicken if neglected. In an artificial state of existence, they require to be supplied by art with what in nature they would obtain for themselves. For this purpose they should have a regular supply, in some convenient part of their shed, of sifted cinders daily to roll in and cleanse themselves, and which should be often changed. This precaution will keep them entirely free from vermin of any description. *Green Food.*—This being quite as necessary for health as corn, to supply this requirement of nature, they should have daily a good supply of (sweet and fresh) green vegetables. Cabbage, Lettuce, and Endive are the best—Turnip-tops and Watercresses—but on no account any sour plants, which scour them, as do Spinach, the cuttings from Grass-plats, and most sorts of garden seeds, as their instinct does not serve them to chose the wholesome from the noxious weeds, more than it does animals that happen to stray into a Clover field, or happen to receive too large a quantity in their stables. I have known them to burst. Green food with fowls is an astringent, the very reverse of what vegetables are with us. This fact will not appear so surprising, when it is recollected that one takes them raw, and the other cooked. *A plentiful supply of clean water*, in daily well-cleansed vessels, and wholesome food. Frequent changes, and mixtures of Corn, improve the appetite. Barley is decidedly their staple food in this country; Indian Corn, or sometimes Rice, mixed for a change. Oats occasionally, but in too large quantity, are apt to scour. Occasionally Buckwheat and Hemp-seed, as a stimulant, mixed with the Barley for a change, are very beneficial, particularly whilst moulting. One meal may be composed of boiled or steamed Potatoes, well mashed up whilst hot, with a portion of Barleymeal, or Oatmeal for a change, but which must be allowed to remain till cold. Books copying errors from one another, make a great mistake in advising food to be given hot. It is unnatural, they have no good cooks amongst them in their own state; and it is decidedly injurious to their digestive organs, except when fattening, when they are doomed soon to be killed for table. Feed twice a day at least, or three times if not too fattening; morning early, before the usual hour for laying, if possible; at noon, the noontide meal may be the Potatoes as above directed, and before sunset—not later than 4 o'clock—that they may go to roost by daylight, or they will go without their food. Regularity greatly tends to health, and disturbance of any sort is very hurtful. Rice, occasionally boiled in a cloth, greatly increases its bulk, and they are very fond of it. Reaumur says, that great economy is derived from steeping or boiling the Barley, to increase its bulk, when they will be satisfied with one-third less quantity. But I cannot speak of this from my own experience, nor can I say that beneficial effects are produced by giving them much flesh, raw or boiled. But fat, as advised in books, produces scourings; spiced or salted meats, and kitchen stuffs, are certainly pernicious to their stomachs. In fattening for the table, when they are not required to live long, or show fine feather, this may not be of any consequence. Will some of your practical correspondents enlighten us? They require in pens, or small yards in towns, to be well supplied with grit, sand, and small gravel; slaked lime, and old mortar pounded is very beneficial, and serviceable, in assisting to make the pen or yard dry. I will add to the above, that there is no economy in keeping poultry in towns, in small quantities, which is always exceedingly expensive, if well fed and taken care of; which, however, is compensated for, to those who wish to make certain that the eggs are quite fresh and newly laid. All calculations of expense must be erroneous, there being so many contingent expenses. As a source of trade, much depends upon rearing the best breeds, to be early in the season, laying in stock and store at proper times, having a ready sale for produce, and to "buy cheap, and sell dear." Diseases and cures will next come under consideration.—*D. S. E., Lambeth, June*, 1845.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's House in Hanover-square, on Wednesday last, the 11th of June, present: T. R. BARKER, Esq., in the chair; Earl of Lovelace; Sir Francis Lawley, Bart.; Sir John V. B. Johnstone, Bart., M.P.; J. Baines, Esq.; D. Barclay, Esq., M.P.; G. R. Barker, Esq., F. Burke, Esq.; F. C. Cherry, Esq.; R. C. Clayton, Esq.; G. Cottam, Esq.; C. Cure, Esq.; T. Dunne, jun., Esq.; R. Edwards, Esq.; C. Eyre, Esq.; A. E. Fuller, Esq., M.P.; B. Gibbs, Esq.; J. B. Glegg, Esq.; J. C. Hayward, Esq.; E. Holland, Esq.; W. H. Hyett, Esq.; J. Kirsopp, Esq.; R. Knight, Esq.; Dr. Knox; Capt. Langley; J. H. Langton, Esq., M.P.; Dr. Macdonald; Col. Mac Douall; A. Ogilvie, Esq.; E. Parkins, Esq.; H. Price, Esq.; Prof. Sewell; W. Shaw, Esq.; R. A. Slaney, Esq.; S. Solly, Esq.; S. Staffurth, Esq.; W. B. Stopford, Esq.; C. Tawney, Esq.; E. Thomas, Esq.; J. H. Tremayne, Esq.; T. Turner, Esq.; T. Tweed, Esq.; J. Walker, Esq.; W. W. Whitmore, Esq.; and G. Wilbraham, Esq., M.P.

The following new Members were elected:—
De Tabley, Lord, Tabley-house, Northwich, Cheshire.
Dickinson, Joseph, Westbury, Salop.
Midgley, Thomas, Buersill, Rochdale, Lancashire.
Stephenson, William, Throckley, Newcastle-on-Tyne.
Henderson, Matthew, Haydonbridge, Northumberland.
Watson, Jacob, Allendale-town, Northumberland.
Wellings, Thomas, Muckleton, Shrewsbury.
Ireland, Philip, Muckleton, Shrewsbury.
Powell, Thomas, Muckleton, Shrewsbury.
Osborn, George, Glanbrogan, Llanfechan, Oswestry.
Smith, Sir Edward, Acton-Burnell, Shrewsbury.
Anslow, William, Eyton, Wellington, Salop.
Baddeley, William, Brutton, Wellington, Salop.
Trotter, Robert, Twyford, East Grinstead, Sussex.
Arden, Hon. Richard Pepper, Pepper-hall, Catterick, Yorks.
Smith, Charles P., Southrop-house, Fairford, Gloucestershire.
Mansfield, Earl of, Scone-palace, Perth.
Greene, John, Greenville, Kilkenny.
Baker, Thomas, Jun., Chilton, Rushyford, Durham.
Clark, Nathaniel, Jun., Urpeth, Chester-le-street, Durham.
Bulmer, Charles, Hereford.
Clement, W. J., Shrewsbury.
Griffiths, Thomas J., Bishop's-castle, Salop.
Minnett, William, Crumpwell, Oswestry, Salop.
Williams, Martin, Bryngwyn, Oswestry.
Clark, Thomas, Jun., Derndale, Hereford.
Lanwarne, Nicholas, St. John's-street, Hereford.
Young, Allen, Orlingbury, Wellingborough, Northamptonsh.
Stallard, William, Blankets, Worcester.
Overman, Henry Robert, Weasanham, Rougham, Norfolk.
Dickinson, Henry, Severn-house, Coalbrookdale, Shiffnal, Sal.
Beckwith, Rev. Henry, Eaton-Constantine, Shrewsbury.
Smith, Henry, Wilford, Nottingham.
Dinning, John, Elford, Belford, Northumberland.
Vaughan, Sir Robert Williames, Bt., Hengwrt, Dolgelle, Merionethshire.
Smith, Augustus, Ashlyn's-hall, Berkhampstead, Herts.
Hoskins, J., Crewkerne, Somerset.
Napier, Edward Berkeley, Pennard-house, Shepton-Mallet, Somerset.
Wingfield, Richard Baker, 2, Lowndes-square, Middlesex.
Roberts, John, New-hall, Rhuabon, Denbighshire.
Fernie, George, Fron, Oswestry, Salop.
Smith, T. W., Greenfield-lodge, Oswestry.
Daniell, Frank, Camborne, Cornwall.

The names of 19 candidates for election at the next Meeting, were then read.

DEEP-DRAINING.—Mr. PARKES, Consulting-Engineer to the Society, transmitted to the Council a letter addressed to him by Mr. Spencer, of Park Farm, near Wrotham, Kent, containing the results of that gentleman's experience on the point of deep-drainage. Mr. Parkes regretted that his professional attendance on a Parliamentary Committee prevented his being present at the meeting of the Council, for the purpose of answering any inquiries that Mr. Spencer's letter might suggest. He, however, begged it to be stated from his own knowledge of Mr. Spencer (who was considered to be the "father" of deep-draining in Kent), and many of his neighbours who had adopted his system of deep-draining, that perfect reliance might be placed on the accuracy of every statement he made.

"*Park Farm, Wrotham, Kent, June* 10, 1845.

"I see by the newspapers that you are advocating the system of deep-draining. Now, as there is a great deal of draining about to be done throughout the country, I think the land-owners and farmers should pause a little before they go into this work to any great extent, and should endeavour to ascertain the best and most effectual mode of doing it. Practice and experience have taught me to have the drains from 42 to 52 inches deep, and from 24 to 34 feet apart, in the strongest clays; and from 48 to 60 inches deep, and from 50 to 60 feet apart in soil of a more porous character. Such draining will lay the land perfectly dry, and no one can conceive the benefit arising from deep drains as compared with shallow ones, unless they have experienced it both in crops and tillage. I will endeavour to explain to you how I have been draining for these last 30 years, and what the results have been. My idea at first was that I could not go too shallow; and accordingly I put my drains from 20 to 24 inches deep; but finding very little benefit from so doing, I was induced in the year 1830 to drain a field 3 feet deep, that had previously been already drained only 2 feet. To my surprise, I found that the shallow drains became useless. I then tried a drain of 4 feet in the same field, and found that this deepest drain, after rain, always ran the first and the longest, carrying off more than double the quantity of water. This convincing fact made so strong an impression upon me, that for the last 15 years I have been draining my land, that was formerly drained 2 feet deep, over again 4 feet, and with the same satisfactory result as in the instance just cited. I put my drains perpendicular, that is to say, up and down the field, to bring both sides into action; and although I was at first much censured by many for pursuing this plan, the same parties are adopting it, being convinced by the stubborn facts they have witnessed as my results. Before my land was deep-drained, it had always furrows to take the top water away; now, however, I have none, for by taking the bottom water away, the top will follow I could give you volumes of proof on this subject, having done a great deal for landowners at several places. I will mention a gentleman in Hertfordshire, who came to inspect my drains last year, and saw their good effects. He wished me to drain one of his farms: I did so, taking a man with me who understood the work. I met some farmers there who said I must be insane to think that the water would get through so strong a soil into a drain so deep; and yet I have now the tenant's letter in my possession, informing me that the plan had perfectly succeeded; that the deep drains ran like a pump, and that one of his neighbours had sent to borrow his draining-tools for the purpose of making similar drains. I should be happy to receive a visit from yourself, or any other gentleman, and show the benefit of deep-draining compared with that of shallow. About 3 years ago, the subject of drainage was brought forward at the Maidstone Farmers' Club, when I stood almost alone in advocating deep-draining; it was again introduced a short time since, when many had become converts, and stated that they would not lay their drain-tiles shallow, even if their landlords would give them leave to do so. —THOMAS SPENCER."

AGRICULTURAL BUILDINGS.—Mr. CHARLES MILES, of 15, St. James's-square, communicated to the Council a paper containing a review of building and mechanical appliances for agricultural purposes, and various plans and drawings illustrative of his proposed arrangements; his suggestions having reference to the following topics:—

1. The internal and external drainage of the land on which the farm-buildings, &c. are erected.
2. The collection of rain-water in a tank.
3. The conveyance of liquid manure into tanks by means of water-tight drains.
4. The adoption of concrete walls where good brick and stone cannot be obtained on reasonable terms.
5. Durable and water-tight asphalte floors throughout.
6. New construction of weather and fire-proof roofs.
7. Application of heat to water in the preparation of food, and warmth and ventilation to the air in all situations where required.
8. The employment of horse or engine-power for general purposes.
9. Improved modes of separating and storing grain.
10. General arrangements of the farmstead, and of the farmers' and labourers' houses; plan for carrying off smoke and removing soot; new mode of hanging doors, so as to allow ingress and egress with ventilation, but without draught.

In reference to an inquiry made by Mr. Ricardo, of Gatcombe, near Minchinhampton, as to the best mode of laying down an asphaltic or bituminous flooring in his pigsties, Mr. Parkins informed the Council that he had found the following composition very useful for that purpose, namely, lime or pounded chalk mixed with so much coal-tar from gas works as will leave the mixture in a state not too soft for ramming; adding a sufficient quantity of sand or fine gravel to bind the whole. Mr. Parkins stated that these materials not only formed a hard basis for pigsties, farmyards, &c., but made good walks on which weeds would not grow, and answered the purposes generally for which asphalte was commonly employed.

LORD ST. JOHN informed the Council that the plans of his farm-premises, at Melchbourne, presented by him to the Society at a former meeting, referred to an occupation of 500 acres of land, about half of which was under the plough.

Col. ELWOOD, of Clayton Priory, near Brighton, favoured the Council with some suggestions in reference to Captain Scobell's plan of cottages at High Littleton, in Somersetshire, presented to the Society at the general meeting.

CHINESE CABBAGE.—Mr. LANGDALE, of Gower-street, Bedford-square, presented to the Council some of the seeds of Endive-Cabbage, from Chusan, as the only supply which, up to the present time, had been received in this country. From the report of Mr. Boyd it appears that this vegetable is very prolific, grows lofty, and requires a warm aspect; being serviceable both for the cottager and farmer. The Council referred the trial of these seeds to the Horticultural Society and Messrs. Thomas Gibbs and Co., with a request that they would respectively report to the Council the result of their cultivation.

RUSSIAN TURNIP.—Mr. WELLS, of Botley, Hampshire, presented specimens of plants grown from Russian (Swedish) Turnip-seed imported last year, and sown on the 22d June. The Turnips were hoed on the 25th July, formed miniature bulbs early, and soon completed their growth. Mr. Wells considered that on these accounts, this new variety of Swedish Turnip would be found well adapted for late sowing. The seed-plants presented by Mr. Wells stood about 5 feet high.

GURNEYISM.—The Rev. DANIEL GWILT, of Ickligham Rectory, near Mildenhall, Suffolk, reported to the Council the success with which he had adopted the plan of cultivation recommended by Mr. Gurney; and he ventured from practical experience to recommend the system most strongly, his success under it having greatly exceeded his expectations. He thought it might be carried out with great advantage to a certain extent upon most farms in any district; but more especially in the sandy districts of Norfolk and Suffolk, where

Heather, Broom, Larch-trimmings, &c., may be had in such abundance, and at a small expense.

St. John's Day Rye.—Mr. Gwilt also informed the Council, that for the last three years he had been cultivating a variety of Rye very similar to that named the St. John's Day Rye. It was known to him as the Giant Rye, and seemed from the experience he had had of its qualities, entirely to answer the description given of its merits, in Mr. Pusey's communication to the Council.

Flax-seed.—Mr. Taylor, of 314, Regent-street, communicated to the Council analyses made by Dr. Ryan, of the Royal Polytechnic Institution, of common Linseed, and the seeds of the "Gold of Pleasure" Flax. It appears from these results that Linseed gave 82½ per cent. of a peculiar gum, and Gold of Pleasure 83¾ per cent. of a mucilage, which on further analysis yielded 61¾ parts of a soluble, and 22 parts of an insoluble gum. The elementary analysis showed the Gold of Pleasure mucilage to contain 7 p. ct. more nitrogen than the Linseed-gum, and 6 per cent. less oxygen. Dr. Ryan considered the amount of nutriment in the seeds of the Gold of Pleasure, the excellent quality of the oil, and the small quantity of inorganic matter they contained, as points greatly in their favour for the production of oil-cake of a nutritious character.

Analysis of Manure.—Mr. Shaw laid before the Council the analysis made by Messrs. Balmain and Parnell, of the manure manufactured by Messrs. Daniel, Hutchinson, and Co., of Camborne, Cornwall; from which it appeared that the manure in question consisted chiefly of 45 per cent. of silicate of lime, 19 per cent. of carbonate of lime, 28 per cent. of caustic lime, and 3¾ per cent. of magnesia and alkaline salts. Messrs. Balmain and Parnell remark: "The efficiency of the manure is, no doubt, owing principally to the silicate of lime and the alkaline salts. The lime is useful alone, but the silicate of lime (and more especially that variety of it present in this manure) is valuable as a constant source of lime and soluble silica, the lime being progressively supplied from a latent source. The silicate of lime gradually yields both its silica and its lime to the action of water; but until the lime is separated from the silica it is not active or caustic, and not all at once presented in a caustic state. The alkaline salts, though so small in quantity, are still important; possibly, in many cases all the more useful because they are so small in quantity, as an excess of them is more to be dreaded than a dearth."

Agricultural Education.—Mr. Warry, of Shapwick, near Glastonbury, Somersetshire, expressed his willingness to place at the entire disposal of the Society (on terms of nominal acknowledgment only of his proprietorship) a school and master's house, with a farm of a great variety of soils attached to them, for any experiment the Council might wish to make in reference to the education of those who depend upon the soil for their support.

Mr. Turnor, of Abbot's Bromley, near Rugeley, Staffordshire, transmitted copies of the Society's Tract (from the journal) on Cottage Economy and Cookery, and Mr. Blacker's essay on the cultivation of small farms, both translated into the Welsh language, and printed in a cheap form for extensive distribution among the farmers of North Wales. The following directions for the butter-making had also been extensively circulated throughout that part of the principality.

Preparing Butter for the London Market.—"The following is the most approved method of making and preparing butter for the London market, and is submitted for the advantage of farmers and dairymen throughout Ireland. Butter made on this system, with care and quick dispatch, will insure high prices and quick returns. The agent's comment on each dairy's butter, and improvement, are still going on. The best land is old pasture, as free from weeds as possible, with abundance of good water. The cows should not be heated or tormented in any way; housed at night, and fed on green food, and the pasture changed when practicable. In milking, take saltpetre in the pail, one-eighth of an ounce to 8 quarts of milk. The dairy should be perfectly clean, airy, of equal temperature (say 50°), very little light, and completely shaded from sun, by trees or otherwise; and in winter a stove may be required. Strain the milk into coolers, sweet and dry, (never mix warm and cold milk,) keep it from two to four days, then put the whole of the milk and cream into a clean churn, which is not to be used for any purpose, except during the time it is in operation. Boiling water to be added to raise the temperature to about 68° or 60°, if horse or water-power be used. The time occupied is from one to two hours, depending on the size of the churn; but churning should not be continued beyond the proper time. After churning put the butter into two bowls or pans of pickle, made from pure water and fine-stoved salt (as common gives the butter a bad flavour). It should be well washed, and the pickle changed frequently, until all milk is extracted, working with the hand the two pieces alternately, until the grain becomes quite close and firm; when it is to be cured with the finest dry-stoved salt and sugar. The proportion to be one ounce of refined sugar to one pound of salt, to be well worked into the butter with the hand; but the quantity of curing materials will depend on the time and labour given by the dairy-woman, in working and beating the butter (after the salt and sugar are applied), which should continue until all pickle is driven out. The butter should be finished the day it is churned, and then be pressed as closely as possible into the cask. The cask should be well seasoned for some days previous, with strong pickle, frequently changed, or hot pickle; and must be strong and air-tight; the size is of no consequence, if filled and sent off in one week. If not filled at one churning, the butter is to be covered with pickle until the next; but no cask to contain more than one week's butter. If butter should, at any time, appear pale in colour, after churning has commenced, a little grated Carrot-juice may be put into the milk, and will not injure either milk or butter. All butter should be at the place of shipping one day prior to the steamer leaving, so as to run no risk of going forward to the agents."

Garden Allotments.—Mr. Dean laid before the Council copies of the third half-yearly Report of the Garden Allotment Committee established in the parish of Tottenham; and such, he stated, had been the beneficial result of the system, that although the past winter was an unusually severe and long one, no application had been made by the labouring class for a supply of coals or other assistance, heretofore usually granted in the winter season: a fact attributed mainly by the committee to the aid which the poor had derived from the advantages of their garden allotments.

Ploughing.—Mr. Kirsopp, of the Spital, Northumberland, called the attention of the Council to the meritorious conduct of Mr. Richardson, farm-steward to St. Mary's College, near Birmingham, in having introduced into that neighbourhood the plan of ploughing with two horses and one man, instead of with four, five, or six horses, and two men, as it had been the custom in that part of the kingdom from time immemorial.

The Duke of St. Alban's presented to the Society a bridle of his own invention, intended, by the application of the principle of leverage, to force open at will, on drawing a particular rein, the mouth of a vicious runaway horse, and thus stop his career.—Mr. G. Turner, of Bayswater, presented an iron model of a draining-machine invented by himself.—Mr. Curtis transmitted, on the part of M. Guerin-Mèneville, of Paris, copies of his own work, and that of M. Robert, on the subject of Insects Injurious to Agricultural Crops.—Mr. Sandars, of Lockers, Hemel-Hempstead, communicated the results of his inquiries on the subject of Agricultural Statistical Returns. — Mr. Dickson, of Broad-street-buildings, transmitted papers on Flax Cultivation.

The Council having ordered thanks to be returned to the authors and donors of the various communications then made to the Society, adjourned to Wednesday next, the 18th of June.

ZOOLOGICAL SOCIETY.

Now that the Exhibition of Poultry at the Regent's-park gardens is more perfectly developed, we have to add to our former notice of it a few further particulars. The following is the award of prizes according to the classification which has been adopted (see page 374):—

I.—*A.* 1st prize awarded to Rev. G. C. Gillett for his spangled Dorking fowls.
B. 2d to Mr. A. D. Bartlett for his Surrey.
C. 1st to Miss L. A. Cooper for her old Sussex breed of fowls.
D. 1st to T. Edgar, Esq., for his silver spangled fowls. 1st to Messrs. Baker for their gold ditto.
E. 1st to Messrs. Baker for their black Spanish.
F. 1st to Mr. Tyler for his Polish fowls.
G. 1st to Messrs. Baker for their fowls from China. 2d to Mr. Nolan for his Malay. 3d to Messrs. Baker for Madeira.
I. 2d to the Right Hon. Lord Saye and Sele for his Belvidere spangled.

II.—*K.* 1st prize awarded to Capt. Green for gold spangled bantams. 2d to Mr. Redmund for ditto. 1st to Capt. Green for silver ditto. 2d to Messrs. Baker for ditto.
L. 1st prize awarded to Messrs. Baker, for their feather-legged Bantams. 2d to Mr. Sims, for his black Bantams. 3d to Messrs. Baker, for gold-hackled Bantam.

III.—*N.* 2d prize awarded to Messrs. Baker, for their Aylesbury Ducks.
O. 1st to Messrs. Baker, for their Aylesbury and Rouen Ducks. 2d to Mr. C. Gillett, for large common Ducks.

GEESE.

IV.—*P.* 1st prize awarded to Mr. Nolan, for common variety. 2d to Mr. Bartlett, for grey-legged.
R. 2d to Right Hon. Lord Saye and Sele, for Barnacle.

PIGEONS.

V.—*T.* 1st prize awarded to Mr. Nolan, for his Rouen Runts. 2d to Messrs. Baker, for Spanish ditto.

TURKEYS.

VII.—*AA.* 1st prize awarded to Mr. Bartlett, for his Spangled Turkey.

The Exhibition has much increased, both in the number and quality of its specimens since our former visit.

Farmers' Clubs.

Darlington.—At the Monthly Meeting of the Darlington Farmers' Club, held on Monday last, at the offices of Mr. Dixon, Land Agent, Edmund Backhouse, Esq., of Polam Hall, Darlington, was elected a member of the club. The subject under discussion was, "The best method of destroying Coltsfoot, and other deep-rooted weeds." In the absence of the Chairman, Henry Chapman, Esq., who has been for some time prevented by illness from attending the meetings, the vice-chairman presided, and on introducing the subject observed, that Coltsfoot, he believed, was a weed which was very difficult to eradicate, for however well certain descriptions of land might be cultivated and cleaned, yet, if addicted to the growth of this weed, it would frequently make its appearance in the crops, in spite of everything that could be done; and, therefore, if any member present could throw any new light upon the subject, which would assist in its eradication, he would certainly render a very desirable service to the meeting. After an animated conversation, of a considerable length, the meeting was of opinion that Coltsfoot being a perennial, and very deep-rooted weed, and one which the members believe is propagated, both by seed and by the division of the roots, very small portions of which, when separated, will grow,—it was unanimously resolved that the most effectual mode known of keeping down Coltsfoot, and other deep-rooted weeds was, to plough deep, and cultivate the land thoroughly and well, taking care to gather off every particle of the roots which can be found; and in growing crops, or wherever Coltsfoot makes its appearance on the land, always to take care to hoe it up, or cut off the flower, to prevent it from seeding. The following subjects were then adopted for the next three months' discussion:—June 23d, On the hoeing and management of the Turnip and Potato crop. July 21st, Lime and Common Salt; their uses and application as manures, either singly, or in combination with other substances. August 18th, The comparative advantages, and profitable cultivation, of old Grass Land, as compared with arable land of similar quality.

Wortley.—At a late meeting of this Club, Mr. Wright read an essay—from which the following passages are extracted—On Growing Swede Turnips:—Upon the success of this the whole of the following crops have, in a great measure, to depend. Formerly, it was considered necessary to give the land a rest, or naked fallow, every fourth year, and even now in many districts where Turnips may be grown with proper draining, this old and expensive system is still carried on. The introduction of the drill and horse-hoe now enables us to keep the land equally as clean with a crop of Swede Turnips as when fallowed, and the resting of the land (or an equivalent) is obtained by the alternate sowing of green and white crops, and thus rendering the naked fallow both unnecessary and ruinous. The varieties of the Swede Turnip are so very numerous, that it is impossible to give a list of the whole; I will, therefore, only name Skirving's, Matson's, and Laing's improved, as being the most extensively cultivated. Too great attention cannot be given to the selection of the seed; and I should recommend every Turnip-grower to raise his own, always planting the roundest, and not the largest bulbs, with fine necks; carefully avoiding all those with a coarse and forked root, at the same time observing that too great a deficiency in the fibrous part of the root indicates a delicacy of growth, which must always be avoided. Light soils are the most adapted to the growth of the Swede Turnip, but owing to the introduction of draining, they may be grown on almost every soil except stiff clays. Tull says—"All sorts of land made fine by tillage, or by tillage and manure, will serve to produce Turnips, but not equally." Although Turnips can be grown to advantage on lands that vary in their texture and quality, it is always necessary to have those soils reduced to as fine a state as possible, not only for the growth of the Turnip, but also in promoting the growth of the seeds of weeds, which are in this state more easily eradicated. The usual practice in obtaining this fine surface is gained by giving four or five ploughings, with cross-dragging, rolling, harrowing, &c., the first ploughing being given in the autumn, leaving the ground as rough as possible, so as to have a greater surface exposed to the action of the winter's frost. Any further remarks on the usual routine of working or pulverising the soil will be unnecessary, as it is so generally known; but in clearing the land of twitch, which is so prevalent in this neighbourhood, I strongly recommend the broad share plough, or scarifier, to be used about 4 inches deep, as soon as the Wheat-crop is taken off, and the land harrowed and dressed before autumnal ploughing. By this means, the broad share of the plough, being kept under, but still as near to the roots of the weeds as can be, the whole of them are kept on the surface, and one-half the expense of cleaning is, consequently, saved, and one dressing will clear out the whole when well-managed; whereas, by the general and present method of ploughing first, the whole get buried, and several dressings are required before they can be picked out. On some of the stronger soils, where Turnips are grown, I often notice water standing in large pools through the winter; this ought to be carefully looked after and avoided, as it is certain to increase the expense of working the land, and check the growth of the Turnip in its youngest and most precarious stage. After pulverising and working the soil, the next consideration is the application of manure, to supply which the greatest economy of the fold-yard manure is necessary, for it has always been found that the Swede Turnip grows better with this than any other manure. In order to save, and increase this as much as possible, I have always found it the best plan to prepare a bottom, or foundation of soil, about 12 or 14 inches thick (in or as near the Turnip-field as may be), on which to make the manure-heap, carefully avoiding any carting on this bottom before a covering of manure is first thrown on, as the wheels of the carts will compress the soil too much to allow it to absorb the liquid that drains from the manure. When the manure is not wanted to be used soon, as much of it should be carted on the heap as possible after securing the soil at the bottom from the pressure of the cart-wheels, as this prevents the heap from heating and wasting; the whole should then have

a covering of soil about 3 inches thick. About three weeks before wanted, the manure and soil should be turned over and mixed, when the soil will be found to have absorbed the whole of the drainage and evaporation of the heap, and equal in quality to the rest of the manure, as well as having increased the quantity one-third. Unfortunately, it generally happens, even after the strictest economy, that most Turnip-growers find a scarcity of fold-yard manure, and are compelled to resort to bones, Rape-dust, guano, butchers' manure, and ashes, &c. The latter compost (costing about 12*s.* per acre, besides labour of turning, riddling, &c., and about 12 loads of fold-yard manure) I have seen drilled on one farm for 16 years successively, and producing an average crop of about 28 tons of Swedes per acre. Another compost (easily made by every Turnip-grower, and now strongly recommended) is a mixture of the refuse of whale-oil and ashes, or common soil, applying at the rate of 14 gallons per acre, and costing 10*s.* 6*d.* besides carriage. This mixture, used with fold-yard manure, I have no doubt will answer for the Swede Turnip, and I intend giving it a trial this season. This manure I remember having seen applied to some cold Grass-land in Leicestershire, when, from all appearance, the crop of hay was doubled, or nearly so. And in referring to the "Farmers' Magazine" for February, 1843, I find that at the annual exhibition of the Sussex Express Root Show, two samples of Swede Turnips among the extra productions were the subject of considerable inquiry: one was grown by R. Gray, Esq., at Barcombe, with bran as a manure; the other by T. Richardson, Esq., in the same parish, with oil as a manure, &c. After going on at some length, the same report states, that "it should be borne in mind that fish-oil, until it has undergone a chemical change, is injurious to both seed and plant; it is consequently applied after having been incorporated with wood-ashes, in which there is a quantity of potash; this immediately changes the oil into soap, and the manure, therefore, actually is soap, and not oil, when thrown upon the land. When wood-ashes are not readily to be obtained, the oil mixed with soda, dissolved in water, will produce the change necessary for its becoming a useful and active manure, and may then be incorporated with road-scrapings, or other materials to fit it for drilling." Bones for many years have been employed as the principal bought manure for Swede-turnips, and such has been their success on every soil on which they have been tried, that the preference is generally given them before every other bought tillage, and particularly so, as the following crops are invariably found to receive the greatest benefit from them; this is more distinctly visible after a failing crop of Turnips. The application of sulphuric acid and bones has lately been tried in Scotland, and the results communicated to the Royal Agricultural Society by the Duke of Richmond, from whence it appears that this mixture not only increased the weight of the crops of the Swede very materially, at a cost of one-third less than manures tried at the same time, but also forced the young Turnip into rough leaf, and ready for hoeing from 4 to 10 days before the others. Rape-dust by many has been reported to have answered uncommonly well for Swede Turnips. The quantity generally used is from 4 cwt. to 5 cwt. per acre. There has been a great difference in opinion as to the most proper method of applying this manure; some advocating the cakes only to be broken into small lumps, whilst others very justly contend that if ground into dust it is preferable, as it will go farther. The best plan is to sow it broad-cast before splitting the drills, as by this means it becomes more evenly mixed with the soil, which ought always to be the case with all the most powerful manures, as many of them, when drilled and placed in immediate contact with the seed, I have no doubt destroy vegetation instead of promoting it. Guano, another powerful manure, has recently been introduced, and is perhaps used to a greater extent than any other manure for this crop. The many reports of the immense weight of Swedes, after an application of from 2 to 3 cwt. per acre, are a convincing proof of its importance. Still in a great many instances I have heard bitter complaints of its failure, and this I attribute chiefly to the method of applying it. Last year in one field, with 12 loads of fold-yard manure, I had Swedes drilled with 2 cwt. of guano per acre—the guano mixed with a fair cart-load of ashes to the 2 cwt. The land was apparently in a beautiful state, with every prospect of a good crop. Yet, throughout the whole field scarcely any of the Turnips got into rough leaf. The same occurrence I noticed in 1842, which, I have no doubt, was owing to the guano being in too great a body, and in contact with the seed; for in passing through Wentworth last September, I noticed a large field sown with Swedes, and varying very much in appearance—a small portion with as good a crop as I almost ever saw—the remainder very thin. On inquiring the treatment, I found the guano was sown broad-cast before the drills were split on the better part, and drilled with the seed on the larger and worst part, thus showing very plainly that the most advisable and best plan is to distribute this manure evenly in the soil, and not confine it in the drills too close to the seed. The quantity of seed necessary to be sown may vary on different soils, but the best plan is to sow plenty, as the cost is very trifling. Two pounds are, in every instance, considered plenty. I would never sow less. The time of sowing the Swede Turnip depends upon the soil as well as the climate. In this neighbourhood I should recommend sowing as near to the 20th May as possible; as here I have always found the earliest sown the best, whilst in Nottinghamshire, on the south of the Trent, I have invariably found all Swedes sown before June were taken by the mildew when about half grown. The depth of drilling the seed requires more attention than is generally paid to it. In a dry season, if put in too shallow, there is always a deficiency of moisture to force the plant into rough leaf; and if drilled too deep, there is a risk of the seed growing or not coming up evenly. I think the most advisable depth is about an inch, not less. The best system of sowing is with the drill, as upon this plan the Turnips, being in rows, are left more evenly, on the land with the hand hoe; and the horse hoe (with very little expense) keeps the intermediate space between the rows perfectly clean. The usual distance between the rows is about twenty-seven inches, as this allows the cart wheels to get between the ridges with the manure without carting on to the fine mould. Another advantage by working on this plan is, the manure being placed at the bottom of the drill is completely buried, which is never the case on the old broadcast system. The hoeing of the Swede Turnips requires great care, always giving them plenty of room, and leaving the strongest and healthiest plants; the best distance to leave them will vary from 10 to 14 inches apart in the rows, where they are drilled at about 27 or 28 inches; but instead of leaving the plants even in distance, for mere form, I would have the strongest, or master plants, always left, if nearer, but so that the general average be not less than 10 or 14 inches. The proper time for first hand-hoeing or thinning, is as soon as the Turnips get into rough leaf. Many farmers advocate leaving much thicker the first time over, as the plant is so very precarious in its first growth, and this is a point that requires a deal of judgment, according to the season, &c, because in a dry season there is great risk, whilst in a moist one little or none. The horse-hoe should always precede the first hoeing or thinning, as it saves much hand labour and the work gets better done. The after-hoeing every farmer ought to regulate according to the season and state of his land, for if he will make a point of keeping his Turnips free from weeds, and by frequent horse and hand hoeings, keep the surface of the land in a pulverised state, instead of allowing it to get set hard, he can never get far wrong.

Notices to Correspondents.

ALLOTMENTS—To "Ignoramus"—If he will address Mr. Hood, secretary to the Society for the Improvement of the Labouring Classes, No. 20, Exeter Hall, he will be furnished by any information he may require.

BONES AND SULPHURIC ACID—*S S E*—Bones 4 bushels, acid 48 lbs., water sufficient to wet all the bones, say 8 or 10 gallons, will be sufficient, and dry after two or three days with turf ashes; 12 bushels of the latter will be abundant, and the whole will make a sufficient dressing for an acre.

CHARCOAL DUST—*Ignoramus*—It is one of the very best things you can use to absorb the liquid manure, and thus apply it to the land. We have just emptied a tank, 8 feet in diameter and 9 feet deep, upon a heap of imperfectly burnt ashes standing upon about 30 square yards, and the ashes have taken all the water up—none has run from it: we attribute this absorbent power to the charcoal it contains. Three or four cart-loads of charcoal dust per acre, thus saturated, would be a powerful dressing.

POUNDING—*Justus*—We can only say that the custom in our part of the country sanctions the apparent injustice of which you speak. The pound-keeper, however, is bound to supply the animals with food, sufficient in quantity and quality, as long as they remain in his keeping. We are unable now to give legal advice, and do not know the date or title of the Act now in force on the subject.

ERRATA—At page 391, col. *a*, in line 18 from the top, for "It is" read "Is it"; and at page 393, col. *b*, in line 55 from the bottom, cancel the words "breeds of the".

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, June 9.—Per stone of 8 lbs.

	s.	d.	s.	d.		s.	d.	s.	d.
Best Scots, Herefords, &c.	4s	8 to	4s	10	Best Long-wools	4s	6 to	4s	8
Best Short Horns	4	4	4	8	Ewes and second quality	4	0	4	4
Second quality Beasts	3	4	4	0	Lambs	5	4	6	0
Calves	4	0	5	0	Pigs	3	4	4	4
Best Downs & Half-breds	4	8	5	0					

Beasts, 2304; Sheep and Lambs, 30,500; Calves, 160; Pigs, 280.

Our supply of Beef is very short, and there is a great rise in price; in some instances the choicest Scots have made 5*s.* per 8lbs. Sheep are unusually scarce, and readily disposed of at our quotations, and some of the very best qualities have made a little over.—Good Lamb is not very plentiful, and maintains its price; there is still a large supply of middling quality, which are a heavy sale although rather improved in price.—Veal-trade is more active.—Pork is heavy.

FRIDAY, June 13.

We have a good show of Beef to-day, including some very fine cattle from Holland and many Scots. The trade is fully 4*d.* per stone worse than on Monday; indeed, it is more difficult to realise 4*s.* 8*d.* to-day than it was 5*s.* on Monday for the choicest Scots. Best Short Horns hardly make 4*s* 6*d.*—Mutton-trade is also considerably worse; the best Downs, however, of which there are very few, still make nearly 5*s.*; best Long-wools about 4*s.* 6*d.* We have mostly Ewes, which make about 4*s.* 2*d.*—We have a large supply of Calves; trade worse; the best Veal scarcely makes 4*s.* 8*d.*—Pork-trade is very bad, the weather being so warm.

Beasts, 1037; Sheep and Lambs, 11,320; Calves, 445; Pigs, 310.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, June 9.

The first two days of the past week the weather was fine and warm, and our last quotations were barely supported, but the last four days the weather was very cold with occasional storms; and the wind blowing stormy from the south prevented arrivals from the northern districts, yet there was some arrivals from Yorkshire and Lincolnshire, the Channel Islands and Devonshire, but the quantity was inconsiderable, in consequence of which there was a considerable clearance made in many samples, especially in the Perth Reds.

York Reds	70*s*	to	80*s*	Wisbeach Kidneys	60*s*	to	—*s*
Perth	55		60	— Blues	40		50
Fifeshire	—		—	— Whites	40		50
Early Devons	—		—	— Regents	—		—
Late Devons	65		70	Guernsey Blues	60		—
Cornwall	—		—	— Whites	—		—
Jersey Blues	60		—	York—Prince Regents	30		50
— Whites	—		—	— Blues	—		—
Kent and Essex Whites	—		—	— Shaw's	—		—
— Kidneys	70		—	Irish Whites	—		—
Dutch Whites	—		—				

COVENT GARDEN, JUNE 13.—The market has been well supplied during the week with most articles; but trade is not very brisk. Hothouse Grapes are more plentiful, and continue to improve in quality; and Pine-Apples are sufficient for the demand—they are cheaper than they were last week. Apples and Pears are scarce, particularly the latter. Green Gooseberries are more plentifully supplied, and Currants are also becoming more abundant. Oranges are tolerably good in quality; but they are becoming scarce, and are in consequence a little advanced in price. Strawberries are sufficient for the demand, and Cherries are pretty well supplied, but they do not meet with a ready market. Peaches and Nectarines of excellent quality are sufficient for the demand, and good specimens of English grown Melons may also be obtained at pretty reasonable prices. Walnuts and other nuts remain much the same as last week. Vegetables are for the most part pretty plentiful, and are generally speaking good in quality. Peas are yet supplied but scantily from the neighbourhood of London, but they are brought from Cornwall in considerable quantities, which has had the effect of bringing down the prices; the best samples still fetch, however, about 18*s.* per half sieve. Carrots and Turnips are selling at nearly the same prices as last week. Cauliflowers are becoming more plentiful, as are also Cabbages; the latter are slightly reduced in price. Asparagus and Rhubarb are plentiful, and the supply of French Beans is sufficient for the demand. Mushrooms are cheap and good, and Salading of every kind is abundant. Among Cut Flowers there is a fine display of Pelargoniums, Cinerarias, Lily of the Valley, Cacti, Heliotropes, Carnations, Heaths, Epacrises, Moss, Provins, and China Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 8*s*
Grapes, Hothouse, per lb., 4*s* to 7*s*
— Portugal, per lb., 1*s* to 4*s*
Peaches, per doz., 6*s* to 20*s*
Nectarines, per doz., 6*s* to 20*s*
Cherries, per lb. 3*s* to 15*s*
Apples, Dess., per bush., 9*s* to 15*s*
— Kitchen, 2*s* to 9*s*
Pears, Dess., per hf.-sv., 6*s* to 9*s*
— Baking, per hf.-sv., 2*s* to 2*s* 6*d*
Melons, 4*s* to 8*s* each
Strawberries, per oz., 6*d* to 1*s*
Apricots, green, per pottle, 1*s* 6*d* to 2*s*
Currants, green, per ht.-sv., 2*s* 6*d* to 3*s* 6*d*
Gooseberries, green, p. hf. sieve, 2*s* to 3*s*
Chesnuts, per peck, 6*s* to 8*s*
Walnuts, per bushel, 12*s* to 20*s*
Oranges, per dozen, 1*s* to 2*s* 6*d*
— per 100, 6*s* to 18*s*
— bitter, per 100, 14*s* to 20*s*
Lemons, per dozen, 1*s* to 2*s*
— per 100, 6*s* to 14*s*
Almonds, per peck, 6*s*
Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Cob Nuts, per 100 lbs., 120*s* to 160*s*
Nuts, Barcelona, 24*s*
— Brazil, 20*s*
— Spanish, 30*s*
— Cob, 16*s*

VEGETABLES.

Cabbages, per doz., 9*d* to 1*s* 6*d*
— red, per doz., 4*s* to 12*s*
— plants, per doz. bnch., 1*s* 6*d* to 2*s* 6*d*
Broccoli, per bundle, 1*s* to 4*s*
Cauliflowers, per doz., 2*s* to 13*s*
French Beans, per 100, 2*s* to 3*s* 4*d*
Sorrel, per hf.-sieve, 6*d* to 9*d*
Jerusal. Artichoke, p. hf.-sv., 2*s* to 2*s*
Potatoes, per ton, 80*s* to 90*s*
— cwt., 2*s* to 5*s*
— bushel, 1*s* 6*d* to 3*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*
— Autumn, per lb., 4*d* to 6*d*
— New, per lb., 6*d* to 1*s* 6*d*
Turnips, per bch., 3*d* to 8*d*
Red Beet, per doz., 2*s* to 6*s*
Carrots, per doz. bchs, 8*s* to 24*s*
Rhubarb, per bundle, 4*d* to 1*s* 6*d*
Peas, per hf. sv., 12*s* to 18*s*
Asparagus, per bundle, 2*s* to 7*s*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*
Cucumbers, per brace, 1*s* to 6*s*
Spinach, per sieve, 9*d* to 1*s* 6*d*
Parsnips, per doz., 6*d* to 1*s* 6*d*
Leeks, per doz., 2*s* to 3*s*
Garlic, per lb., 4*d* to 10*d*
Onions, per bunch, 3*d* to 1*s*
— large, per bushel, 10*s* to 15*s*
— Spanish, per doz., 1*s* 6*d* to 4*s*
Shallots, per lb., 6*d* to 10*d*
Lettuce, per score, Cab., 6*d* to 1*s* 6*d*
— Cos, 9*d* to 1*s* 6*d*
Celery, per bunch, 1*s* to 3*s*
Radishes, per doz. hands, 6*d* to 1*s*
Mushrooms, per pottle, 4*d* to 9*d*
Small Salads, per punnet, 2*d* to 3*d*
Basil, green, per bunch, 6*d* to 9*d*
Fennel, per bunch, 2*d* to 3*d*
Savory, per bunch, 4*d* to 6*d*
Thyme, per bunch, 4*d* to 6*d*
Watercress, p. 12 sm. bun. 4*d* to 6*d*
Parsley, per half sieve, 6*d* to 1*s*
— Roots, per bundle, 9*d*
Tarragon, per bunch, 4*d*
Mint, per bunch, 2*d* to 3*d*
Marjoram, per bunch, 3*d*
Chervil, per punnet, 3*d* to 4*d*
Basil, per bunch, 9*d*

HAY.—Per Load of 36 Trusses.

SMITHFIELD, June 12.

Prime old Meadow Hay	110*s* to 118*s*	New Hay	95*s* to —*s*	Clover	110*s* to 126*s*
		Inferior Hay	93 105	Straw	38 44

JOHN COOPER, Salesman.

CUMBERLAND MARKET, June 12.

Superior Mead. Hay	115*s* to 120*s*	Superior Clover	116*s* to 126*s*				
Inferior	98 108	Inferior	,, 105 110	Straw	38*s* to 42*s*		
New Hay	80 90	New Clover	— —				

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, June 13.

Fine Old Hay	108*s* to 118*s*	Old Clover	110*s* to 126*s*		
Inferior Hay	95 105	New Clover	— —	Straw	34*s* to 42*s*
New Hay	65 70				

HOPS, FRIDAY, June 13.

The accounts from the plantations continue to speak of an increase of both fly and lice, which causes a much greater inquiry for Hops of all kinds.

FATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, June 9.

The supply of Wheat from Essex, Kent, and Suffolk, was small this morning, and sold at the prices of this day week; free Foreign was not inquired much after, and is unaltered in value; a parcel of Dantzic, good mixed in bond, was sold at 42*s.* per qr.; the accounts from the Baltic Markets come higher—in Stetting, Wheat was difficult to purchase at 32*s.* to 34*s.* per qr., f.o.b.; and in Dantzic, 39*s.* 3*d.* had been paid for 61 lbs. mixed for Russia.—There was not much doing in Barley, but our quotations are maintained.—Beans and Peas are each very scarce, and fully 1*s.* dearer.—Oats meet a fair sale on the terms of this day se'nnight.

BRITISH, PER IMPERIAL QUARTER,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	44	50	Red	43	49
—— Norfolk, Lincolnshire, and Yorkshire	—	—	—	White	—	—
Barley, Malting and distilling 25*s* to 29*s*	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed	19	22
—— Northumberland and Scotch	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	32 to 38	Tick	32	39	Harrow	32	40
—— Pigeon, Heligoland	39 to 44	Winds	—	—	Longpod	—	—
Peas, White	36 to 39	Maple	36	39	Grey	33	36

FRIDAY, June 13.

The arrivals of Wheat during the week have been good, and the value of all descriptions remains nominally the same as on Monday, with a limited extent of business.—In Barley, Beans, or Peas, we observe no alteration.—Having a very small supply of Oats, dealers refrain from purchasing, and there is consequently little doing.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May 3 per Quarter	45*s* 11*d*	31*s* 6*d*	20*s* 11*d*	30*s* 2*d*	36*s* 1*d*	36*s* 1*d*
— 10	46 0	31 2	21 4	29 9	37 1	36 10
— 17	45 10	30 5	21 6	31 4	37 3	36 8
— 24	45 9	30 0	21 9	29 7	37 5	37 0
— 31	46 3	29 5	22 5	33 1	37 2	36 7
June 7	47 7	30 2	22 2	38 0	38 0	38 1
6 weeks' Aggreg. Aver.	46 2	30 3	21 10	30 9	37 2	37 1
Duties on Foreign Grain	20 0	8 0	6 0	10 6	5 6	5 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 7.

PRICE.	MAY 3	MAY 10	MAY 17	MAY 24	MAY 31	JUNE 7
47*s* 7*d*	..	..	..	..	..	..
46 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..

SEEDS, June 13.

Canary	per qr	44*s* to 50*s*		Linseed Cakes, Foreign, p. ton	7*l* 10*s* to 9*l*	
Carraway	per cwt	44	46	Mustard, White - p. bush.	10*s*	14*s*
Clover, Red, English	—	—		— Superfine ,,	12	16
— Foreign	—	—		— Brown ,,	12	16
— White, English	—	—		Rapeseed, English, per last	26*l*	30*l*
— Foreign	—	—		Rape Cakes - per ton	—	—
Coriander	12	18		Sainfoin	—	—
Hempseed - per last	36	36		Tares, Eng. winter p. bush.	4	6
Linseed - per qr	52	60		— Foreign	3	5
— Baltic	35	44		Trefoil - per cwt	18	22
— Cakes, Eng. per 1000	11*l* 0	11*l* 10		Turnip (too variable for quotation).		

KINGSFORD AND LAY.

WOOL.—BRITISH, FRIDAY, June 6.

Our Market continues firm, both in demand and price. The unremunerating prices of Yarns is still a matter of complaint with the manufacturers, and while this exists we cannot expect any material advance in the prices of Wools; but we are of opinion that the supply of Wools on the Market bears such proportion to the consumption as will prevent a decline in the price of the new clip.

JAMES PERRIN, Wool Broker.

ENGLISH TIMBER AND BARK.—June 10.

	Round Timber, per load.	Plank, per foot cube.	Inch board, p. ft. sup*e*.
Oak	5*l* 10*s* to 8*l* 0*s*	3*s* 0*d* to 5*s* 3*d*	4½*d* to 6*d*
Ash	5 0 7 10	3 0 4 0	3 4
Elm	3 0 4 0	1 9 2 3	2 3
Beech	2 10 3 0	1 6 2 0	2 2½
Lime	3 10 4 0	2 0 2 3	2½ 3

Oak Bark (per load of 45 cwt., hatched), 14*l.* to 16*l.* J S.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed by the Executrix of the late C. FARLEY, Esq., to submit to public competition, by auction, on the Premises, 32, Kennington-street, Walworth, the first week in July, the very rare and valuable Collection of CACTI and other Succulent Plants, which have been collected at a very great expense. Also two newly-erected Greenhouses, Hot-water Apparatus, Pits, several two and three-light Boxes, Hand-lights, a Bed of rare Tulips, choice Auricula, Tulip Stage, and iron Hoops, an excellent Summer-house, Iron Roller, a Quantity of Box-edging, Garden Utensils, &c. May be viewed three days prior to the sale, when Catalogues may be had of the principal Seedsmen, of Mr. FRYER, Clarendon Nursery, Camberwell, on the Premises, and of the Auctioneers, American Nursery, Leytonstone.

WINDING-UP SALES.
DAHLIAS, GERANIUMS, FUCHSIAS, VERBENAS, AND OTHER PLANTS.

MESSRS. PROTHEROE & MORRIS beg to inform their friends and the public, that the last Sales of the season, at the Mart, are on Tuesday, June 17th, 1845, and two following days, at 12 o'clock each day, when splendid collections of the choicest plants will be submitted to competition, containing all the best varieties; not a few new ones. May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

IMPORTANT TO COLLECTORS AND EXHIBITORS OF PLANTS.

TO BE SOLD BY AUCTION, without reserve, on Thursday next the 19th inst., at 12 o'clock, on the premises, the pleasure-grounds of the White Hart Hotel, Bromley, Kent, Mr. PAWLEY'S SUPERB COLLECTION OF SPECIMEN, STOVE, GREENHOUSE, AND ORCHIDACEOUS PLANTS, together with four excellent Plant Vans, for one and two horses; and Exhibitors are respectfully reminded that many of these matchless specimens will not only enrich the finest Collections, but would be found to be formidable opponents in the hands of rivals. Catalogues will be forwarded, post-free, to all applicants, and may be had at the principal Seed-shops, and the Offices of the *Gardeners' Gazette* and *Gardeners' Chronicle*.—G. GLENNY, 2, Tavistock-street, Strand.

AMERICAN SEEDS AND HOPS.

FOR PUBLIC SALE, at Monument-yard, on Monday, 16th June, 1845, at 12 for 1 o'clock precisely, 34 casks AMERICAN PINE, ASH, BEECH, and FLOWER SEEDS; and 100 bales AMERICAN HOPS. To be Viewed at Monument-yard, the Saturday previous and Morning of Sale, and Catalogues to be had at the same time of

KEELING & HUNT, Brokers, Monument-yard & Pudding-lane.

FOR PUBLIC SALE, at 39, Mincing-lane, on Monday the 16th June, at 3 o'Clock precisely, *without reserve, to settle a dispute*, about 300 tons of GUANO, of three qualities, per Fair Arcadian, from Ichaboe, now discharging in the West India Export Dock.

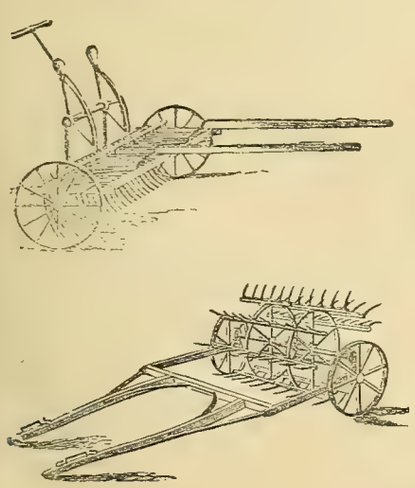
H. S. FLOUD & Co., Brokers, 39, Mincing-lane.

PATENT HAND PIPE AND TILE DRAINING MACHINE, invented by WILLIAM BULLOCK WEBSTER, Esq., of Hounsdown, near Southampton. This machine is made entirely of iron, weighs about 8 cwt., occupies a small space, is very simple, easily moved between the hacks, turned by a man or boy, and will make tiles or pipes of any shape, size, thickness, or length, of the most perfect description. It has two receptacles for clay; while the tiles are being forced out of one side the other is filled, so that no time is lost, the piston acting both ways, and from its peculiar construction, the confined air does not injure the tiles, therefore requires less care in filling. One or both sides may be used as a pug-mill, freeing the clay from all stones and roots, and in the winter season will be found serviceable for preparing clay, and other purposes, on a farm. By the simple cutting apparatus, each tile is made exactly the same length.

One of the machines may be seen, with specimens of tiles, at the Polytechnic Institution, Regent-street, or in constant work at the Inventor's Tile-yard, Hounsdown, near Southampton, where any further information can be obtained, by application to the foreman, John Ives, or by letter to the Inventor.

Webster's Draining Levels manufactured and sold by J. Cox, Optician, 128, Holborn Hill.

HORSE HAY-RAKE.



HAY-MAKING SEASON.—Mrs. MARY WEDLAKE, widow of the late Thomas Wedlake, of the Fairkytes Original Iron Works, Hornchurch, Essex, and 118, Fenchurch-Street, opposite Mark Lane, London, begs to remind Agriculturists she continues making that most useful Implement for which her late husband obtained a patent, and received a Silver Medal at the Derby Show, the Double-action Hay-maker, so much admired; also the Horse Hay-rake; they may be inspected daily at the City Repository for Agricultural and Colonial Implements, 118, Fenchurch-street, opposite Mark Lane, London. N.B. To prevent disappointment at this season, an early application for these Implements is solicited.

ORNAMENTAL WIRE-WORK.

G. B. THOMPSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 330, Oxford-street, their large stock of ORNAMENTAL FLOWER-STANDS, TRAINERS, ARCHES, and fancy Wirework, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements. Also their Improved WATER-POT, with finely-perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

LINGHAM, BROTHERS, BIRMINGHAM.—MANUFACTURERS of the IMPROVED MENOGRAPH, or PERMANENT LABELS, for Garden-borders, Flower-pots, &c. In Boxes of One Hundred each.

The above Labels have been manufactured by LINGHAM, BROTHERS, for the last five years with increasing demand, and acknowledged by those parties who have used them as superior to any thing of the kind before offered to the Public, and for neatness, durability, and cheapness, have superseded all other kind of Labels for Horticultural purposes.

Sole Agents in London:—GEORGE and J. DEANE, Horticultural Implement Warehouse, 46, King William-street, London-bridge.

MEEN FUN, the celebrated Chinese Cosmetic, Patronised by the Queen and the Royal Family.—The great value of this Cosmetic is, that the ingredients being solely herbaceous, the most delicate complexion can apply it without injury, while rough, red, and moist skins speedily experience beneficial results. Another most important feature is that of repressing, without detriment to the sanatory condition of the user, the truly unpleasant sensation accompanying too copious perspiration. Travellers and residents in warm climates, subject to the enervating influence of tropical heat, will, when the skin becomes moist and heated, experience inconceivable comfort by resorting to this Cosmetic, as it will both allay and avert discoloration and coarseness. Sold retail by all respectable perfumers, chemists, &c., in boxes price 3*s*. 6*d*. and 7*s*. 6*d*. each, and wholesale by the Proprietors, FABIAN and Co., late Watson, Fabian, and Co., 24, Mark-lane, London. Country agents required.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a post-age stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

"Nutt on Bees" (5th Edition) now published.

Now ready, price 4*s*. 6*d*.,

RURAL CHEMISTRY.

By EDWARD SOLLY, Esq., F.R.S.,

Experimental Chemist to the Horticultural Society of London, Hon. Mem. of the Royal Agricultural Society, and Lecturer on Chemistry, at the Royal Institution.
&c. &c. &c.

Extracts from the Introduction:—

"A knowledge of the chemical composition of soils and the various substances employed as manures enables us to comprehend the mode in which the latter act; and a knowledge of the nature of those substances which plants require, points out the best and most economical methods of restoring to the soil, by manures, those substances which plants remove from it."

"If the farmer knows what it is that gives the fertilizing powers to manure, and is aware of the nature of those substances, he will soon learn the best method of preserving and using them: he will then understand how to make the most of the various sources of manure at his disposal, and he will be enabled readily to save much, that, for the want of such knowledge, would otherwise be lost."

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1845.] SATURDAY, JUNE 21. [Price 6*d.*

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ROYAL BOTANIC SOCIETY, REGENT'S PARK. The last EXHIBITION OF PLANTS AND FLOWERS for the season, in the Gardens of this Society, will take place on Wednesday, July the 2d. In addition to the usual display of Plants, there will be an Extensive Collection of FRUIT, for which Prizes are offered.

Tickets of Admission may be had at the Gardens, price 5*s.* each, until the day of Exhibition, when they will be 7*s.* 6*d.* each. No Ticket can be issued except on the production of an order from a Fellow or Member of the Society.

Carriages may set down or take up at the entrances to the suite of Marquees on the north side of the Garden, under protection against the weather in case of rain. The Gates to open at 2 o'Clock. J. De C. Sowerby, Secretary.

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The Committee have to mention that Prizes will be, at the Autumnal Meeting, offered to Cottagers, or weekly Labourers, within seven miles of Chichester, whose wages range from 10*s.* to 15*s.* per week, for the productions of their Gardens; and they hope for the co-operation of the Clergy and Gentry of Country Parishes in making this known in their neighbourhood.

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Edward Beck, Worton Cottage, June 21.

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HIBBERTIA PERFOLIATA.—A beautiful Swan River shrub, with large compact showy yellow flowers; an abundant bloomer .. .. 10*s.* 6*d.*

RUSSELLIA MULTIFLORA.—A native of Mexico. Flowers bright scarlet, produced in great abundance in close whorls towards the extremities of the shoots 10*s.* 6*d.*

HABROTHAMNUS CYANEUS.—China. Flowers porcelain blue .. .. 5*s.* 0*d.*

J. B. & Son can also supply good plants of

Thunbergia chrysops	2*s.* 6*d.* to 5*s.* 0*d.*
Achimenes picta	1*s.* 6*d.* to 3*s.* 6*d.*
Buddlea Lindleyana	1*s.* 6*d.* to 3*s.* 6*d.*
Pentas carnea	2*s.* 6*d.*

The usual allowance to the Trade.

NEW AND BEAUTIFUL CAPE ERICAS.

T. JACKSON, Nursery and Seedsman, Kingston, Surrey, respectfully announces that he is now sending out plants of the two undernamed extremely beautiful ERICAS, which are highly deserving a place in the most select collection.

ERICA EASSONIANA, has large inflated flowers pure white, and much superior to E. jasminiflora alba; it obtained the first prize as a Seedling Erica at the Exhibition of the Royal Botanic Society of London, on the 4th of June, 1844 .. .. 21*s.* 0*d.*

ERICA PERSPICUA ROSEA, has much of the beautiful habit of E. perspicua, with bright rose-coloured flowers .. .. 10*s.* 6*d.*

Also the following New and Rare Plants, at the low prices quoted:—

Achimenes picta ..	2*s.* 6*d.*	Inga pulcherrima ..	3*s.* 6*d.*
Alona cœlestis	5 0	Ruellia maculata ..	10 6
Begonia ramentacea .	5 0	Scutellaria elegans ..	5 0
Buddlea Lindleyana .	3 6	Styphelia laurifolia ..	5 0
Bossiæa heterophylla .	5 0	Spiræa Douglasii ..	3 6
Chironia floribunda .	5 0	Tasmannia aromatica 5*s.* to	10 6
Chorozema spectabilis variegata	3 6	Tecoma schinifolia ..	10 6
Chorozema triangulare	7 6	Tetratheca, or Tremandra Hugelii 7*s.* 6*d.* to	21 0
Daviesia Hugelii ..	21 0	Veronica salicifolia 5*s.* to	10 6
Gesnera Gardneriana .	5 0	,, speciosa ..	2 6
Habrothamnus cyaneus	3 6	Zichya rotundifolia ..	15 0
Hypocalyptus obcordatus	10 6		

T. J.'s General Catalogue, with prices for 1845, may be obtained on application, by enclosing two penny stamps.

CHOICE GERANIUMS AT LOW PRICES.

LUCOMBE, PINCE and CO. have for Sale fine Strong Plants of the following select sorts of GERANIUMS.

Angiola	Admiral, (Beck's)
Cleopatra, (Beck's)	Conflagration, (Foster's)
Dido, (Foster's)	Duke of Cornwall, (Lyne's)
Evening Star, (Beck's)	Fulgida, (Beck's)
Fairy Queen, (Thurtell's)	Favorite, (Foster's)
Leonora, (Beck's)	Lucy, (Beck's)
Martha, (Beck's)	Meteor, (Beck's)
Nestor, (Foster's)	Oberon, (Hodge's)
Phosphorus, (Thurtell's)	Pluto, (Thurtell's)
Princess Royal, (Thurtell's)	Stella, (Beck's)
Sunrise, (Lyne's)	Sir Robert Peel, (Foster's)
Theresa, (Beck's)	The Purple, (Beck's)

The whole of the above 24 fine varieties delivered carriage-free at the Paddington Station, or at any Station on the Great Western Railway; and a plant of that celebrated flower, BECK'S "ZANZUMMIM," will be added to the above, for 5*l.* 5*s.*

Twelve plants selected from the above, including "Zanzummim" *gratis*, 3*l.* 3*s.*

N.B. Beck's "Zanzummin," gained Seedling Prizes at the London Horticultural Society, and at the Royal Botanic Society of London; and has again this season been successfully exhibited by Mr. Beck at both of these places.

Strong plants of Beck's "Zanzummim" may be had s parat ly at 21*s.* each; small plants, ditto, at 10*s.* 6*d.* each.

Exeter Nursery, June 21.

SEEDS.—CORNER OF HALF-MOON-STREET.
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OE ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

HENRY HUNT'S PATENT GARDEN POTS and STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

Edward Beck will be happy to answer any inquiries, either personally or by post

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. Neighbour & Son, that they have prepared, for this season, an extensive supply of their various improved Bee-Hives; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

"Nutt on Bees." (5th Edition) now published.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding-knife we have seen. The ivory handle is shaped like the blade of a curved penknife, sharp, and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—Opinion of Prof. Lindley, in the *Gardeners' Chronicle*, July 29, 1843.

George Plum, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above new and desirable article, manufactured solely by him. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3*s.* 2d.

LEPUS TIMIDUS, WITH LEPUS CUNICULUS; OR, GENUINE HARE RABBIT.

THIS very large and scarce variety have much bone, great length and depth of carcass, furnished with a considerable dewlap, long and beautiful erect ears, with large projecting eyes, precisely resembling those of the Hare; its size is equal, weighing at six months' old 12 to 14 lbs; its flesh is highly flavoured, substantial, very savoury, and cooked as the hare, few would distinguish the difference. A few pairs may be had, by addressing to Mr. John Brett, Market-place, Great Yarmouth, on the following terms:—4 to 5 months' old, 20*s.* per pair; 2 to 3 months, 15*s.*; 1 to 2 months, 10*s.* per pair, including package. A post-office order will be required from unknown correspondents.—Yarmouth, June 21.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

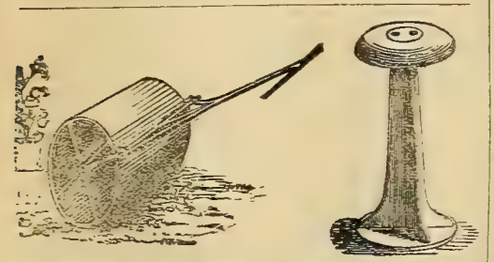
The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,
(And at Southwark-bridge Iron Roof and Building Works.)

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority, or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedesta's in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

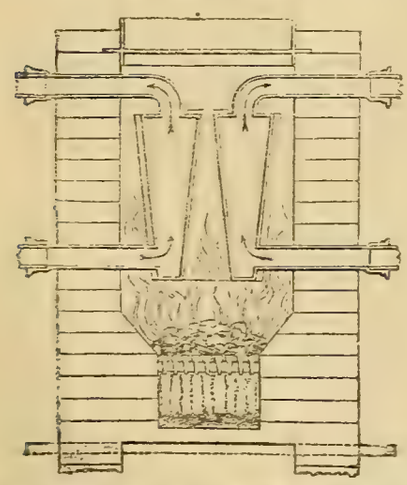
HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place: and in more than one hundred other places.—139, Fleet-street, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

MESSRS. DANIELL, HUTCHINSON & CO., having completed their extensive works for manufacturing

DANIELL'S PATENT CORNWALL WHITE MANURE,

respectfully announce that they are delivering the same for the present Turnip season. The experiments upon various White and Green Crops of the preceding year have established its title to one of the first Manures of the day, to which fact several eminent Agriculturists testified at the late East Penwith Agricultural Meeting. Besides its possessing all the essential qualities of Bone-dust, with the advantage of being capable of application to the soil with great ease and expedition, it exerts an important chemical action upon clays. Such soils disintegrate and liberate their potash with much less facility than silicious soils; the Patent Manure renders it more soluble, and hence proves a valuable dressing after subsoil ploughing. It hastens the decomposition of peat, leaves, and all other vegetable matters, converting them into humus or mould, and this again is resolved into carbonic acid, and is thus fitted for immediate assimilation by the young plant. It neutralises the acids forming salts of lime. It also decomposes certain salts of iron injurious to vegetation, such as the protosulphate of iron (so abundant in many soils), forming the sulphate of lime of gypsum, and liberating the iron as a harmless oxide. It reacts upon salts of alumina, potash, soda, magnesia, and ammonia; and its action upon slate, felspar, &c., developes alkalies and soluble silicates, so essential to Wheat and other corn crops; and, above all, it furnishes the plants with lime in its purest form, and phosphoric and silicic acid, so necessary to the perfection of the grain and straw. When acted upon by rain, it forms a solution which is destructive of animal life, destroying the germ of the Earth, Flea Beetle (the Turnip-fly), and other noxious worms, thus rendering it the most valuable Manure for the Turnip crop.—Agent, THOS. JNO. CROGGON, 2, Ingram-court, Fenchurch-street.—London, June 21, 1845.

Price 40s. per ton.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation: it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9l. per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1s. 9d. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23s. per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 28s. per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition. Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, June 21.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO, of the best quality, in bags.—PERUVIAN 16l. 10s. to 17l. per ton; ICHABOE 6l. 5s. to 7l. per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship: in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 139, Fleet-street.

THE BEST AND MOST DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THOMAS JOHN CROGGON, of 2, INGRAM-COURT, FENCHURCH-STREET, LONDON, begs to call the attention of Noblemen, Gentlemen, the Trade, and the Public, to

THE PATENT ASPHALTE FELT, FOR ROOFING, as improved by the original Inventor and Patentee, and patronized by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland. The New Committee Rooms of the House of Commons are entirely covered with it; and it has been used for several years at the

ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK.

This Felt is greatly superior to every other description of Felt in the market, being principally made of Hair, and saturated entirely with Asphalte, without any mixture of Pitch, Tar, or Rosin, and is consequently much more durable, and a much better non-conductor of Heat, and is guaranteed to be the only "PATENTED ASPHALTE FELT."

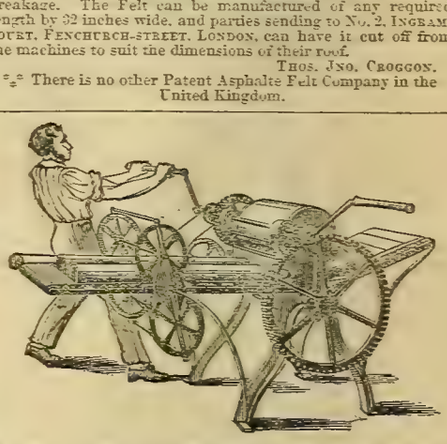
The PATENT ASPHALTE FELT, for ROOFING, is perfectly impervious to Rain, Snow, and Frost, and a non-conductor of Heat, and has been proved, by a long and extensive experience in all climates, to be superior to all other descriptions of Roofing, not only on account of its Elasticity, Lightness, Economy, and Durability, but also because it is the only perfectly weather-tight covering, and can be laid on with so much facility by Farm Servants, or any unpractised persons.

Of the many purposes for which the Patent Asphalte Felt has been used, the following may be mentioned:—For Roofing Churches, Houses, Cottages, Verandahs, Farm Buildings, Cattle and Sheep Sheds, and every description of Building, in lieu of Slates, Tiles, Thatch, &c., and for lining Granaries and Stories (as rats or mice will not touch it), and the inside and outside of Walls and Wooden Buildings, and for protecting Ceilings under Flooring from Wet and Damp, at the same time deadening sound. For covering Conservatories, and Garden Sheds and Frames, being (from its imperviousness to frost) a protective material for Plants, Seeds, Flowers, &c., and for Thatching Corn and Hay Ricks, making a permanent covering for many years, and thereby effecting an annual saving of Straw; and for Exportation to the Colonies, being, on account of its portability and cheapness, indispensable to the Emigrant.

The price of the Felt is only 1d. per Superficial Foot, or 9d. the Square Yard, being considerably less than half the price of Slates, Tiles, Thatch, &c. There is also a very great saving in the wood-work, as the Felt, from its lightness, does not require half the weight of timber that slates or tiles do, nor does it require nearly so much fall or descent; and there is a further saving in the expenses of carriage and labour—in the latter particularly, as a moderate-sized house can be roofed in with the Felt in a few hours; nor is it like slates, &c., liable to breakage. The Felt can be manufactured of any required length by 32 inches wide, and parties sending to No. 2, INGRAM-COURT, FENCHURCH-STREET, LONDON, can have it cut off from the machines to suit the dimensions of their roof.

THOS. JNO. CROGGON.

⁂ There is no other Patent Asphalte Felt Company in the United Kingdom.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1, Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30l. No. 2, To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35l. The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2s. to 3s., or 3s. 6d. per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

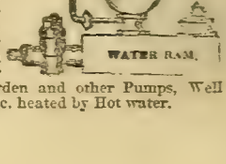
Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton: also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber. JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



CHOICE FLOWER SEEDS, suitable for Sowing this Month, which can be confidently recommended. :—

	Per paper—*s. d.*		Per paper—*s. d.*
Aconitum chinensis (new)	0 6	Pansy, saved from the choicest named flowers, by Thomson and other eminent growers	1 0
Aquilegia glandulosa (most beautiful)	1 0	Stocks, Brompton, 3 colours, separate (each)	0 6
Antirrhinum, 3 beautifully pencilled vars., mixed	0 6	Sweet William, dark crimson (double)	0 6
Calceolaria, saved by an amateur from the most splendid show flowers	1 0	Wallflower, German (double), 4 colours, mixed, very beautiful and distinct	1 0
Campanula grandiflora	0 6	CABBAGE, WARNER'S, INCOMPARABLE, the earliest and finest flavoured grown	0 6
Delphinium, 3 handsome vars., mixed	0 6		
Geum grandiflorum	0 6		
Hollyhock, double, many colours, mixed (fine)	0 6		
Papaver grandiflora	0 6		
Pentstemon splendens	0 6		

WARNER AND WARNER, SEEDSMEN AND FLORIST, 28, CORNHILL, opposite the Royal Exchange, London.

NURSERIES, GREAT BERKHAMPSTED, HERTS.

MESSRS. H. LANE & SON'S Collection of ROSES will be in FULL BLOOM at the end of the present month, and continue so during the remainder of the season. The Collection is so much more extensive than in former years, that the real admirer of this truly national flower will find six or eight hours barely sufficient time to complete a satisfactory inspection of the thousands that will be presented to the view.

The Nurseries are about a quarter of a mile from the Berkhampsted Station of the London and Birmingham Railway, a Time Table of which will be forwarded, on receipt of a stamped envelope, with the address of the applicant.—June 21.

The Gardeners' Chronicle.

SATURDAY, JUNE 21, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 25—South London Floricultural . 1 P.M.
SATURDAY, June 28—Royal Botanic . . . . 4 P.M.
Regent's-park Zoological Gardens 9 A.M.
TUESDAY, July 1—Horticultural . . . . 3 P.M.

COUNTRY SHOWS.

MONDAY, June 23—Woolwich Floral.
WEDNESDAY, June 25—Surrey Horticultural and Floral.
THURSDAY, June 26—Liverpool Botanic and Horticultural.
Chichester Horticultural.

ONE of our correspondents has been perplexed at finding on his CUCUMBER-PLANTS a great abundance of barren (or male) flowers, and very few fertile (or female) flowers. If he had been a Morphologist he would have been at no loss to account for the phœnomenon.

The late Mr. ANDREW KNIGHT, who was one of the most faithful of all observers, and who was never guilty of forming an opinion upon any other than what he considered conclusive evidence, used to maintain that when plants have the stamens in one flower, and the pistil in another, it was possible to compel such plants to yield one or the other of such flowers at the pleasure of the operator. He found, in fact, by experiment, that the effect upon such plants of a preternaturally high temperature, was to cause them to produce male flowers only; while a preternaturally low temperature was favourable to the production of female flowers only. A Water-Melon plant was grown in a house, the heat of which was sometimes raised to 110° during the middle of warm and bright days, and which generally varied in such days from 90° to 105°, declining during the evening to about 80°, and to 70° in the night; the air was kept damp by copious sprinkling with water, of nearly the temperature of the external air, and little ventilation was allowed. The plant, under these circumstances, grew with great health and luxuriance, and afforded a most abundant blossom; but all its flowers were male. This result, he says, did not in any degree surprise him; for he had many years previously succeeded, by long continued very low temperature, in making Cucumber-plants produce female flowers only; and he entertained little doubt that the same fruit-stalks might be made in this and the preceding species, to support either male or female flowers "*in obedience to external causes*." This, be it remembered, was the experience of a quiet skilful observer, who had no theory to support, and probably never heard of the word Morphology; but who carefully noted facts which came under his observation, without proceeding further.

This singular circumstance is explicable upon morphological principles, and does not seem to be touched by any others. When the Cucumber plant is ready to blossom, a part of the nascent leaves of some of the buds destined to become flowers will, under ordinary circumstances, form pollen in their cells, and become anthers, the central body being then destroyed by the operation; while in other buds whose leaves form no pollen in their cells, the organising power is directed to the development of the central body, which then becomes a young fruit, bearing the rudiments of seeds. In that case, which is the common and natural state of things, each kind of flower assumes its habitual condition. But let the balance of organising forces lose its equipoise; so arrange things, that, of the powers which mould the foliage while in its plastic condition, some one or other shall acquire an undue preponderance, as is most especially likely to happen to plants growing in an artificial climate, and the usual structure of the flower will be interfered with. It would seem that in the order of Cucurbits, or at least in some of them, the power to form pollen in the cells of the plastic leaves is increased by heat; and that being so, to raise the temperature unduly, will have the effect of forming male flowers instead of females; on the contrary, cold seems to interfere with the formation of pollen, and in that case a low temperature must produce females in preference to males. In what precise way a high temperature acts upon the Cucumber, we cannot judge of. We see the effects, but we cannot perceive the immediate operation of the cause.

It is, however, notorious that there is something at work in nature which does influence the fashioning of leaves into stamens or carpels; and there is reason to believe that the former are often the result of increased vigour. Thus, in the Hemp plant, the males may be known from the females by their larger size, and greater strength; and Fir trees will bear cones in the feebleness of youth, but not their clusters of stamens, till the tree is in the prime of its age. And it may very well be, that in the case of the Cucumber, the application of unwonted heat may have, and probably does have, the effect of so increasing the vital force, as to throw into the nascent leaves of the flower buds, that quality which results in the development within their cells of the highly organised material called pollen.

Changes of this sort are, in truth, of common occurrence. Deprive a plant of the repose which is demanded for the development of flowers, and all those buds which would have been decorated with a corolla and stamens become viviparous, or, in other words, are converted into clusters of green leaves. When a flower is half organised, suddenly apply to its atmosphere excessive heat and moisture, and the floral organs become dislocated, and are forced onwards into a body of which the upper half is a branch, and the lower the remains of a flower.

Gardeners of intelligence cannot reflect too steadily upon cases of this kind; for they are, much more frequently than might be expected, of great importance in practice. One man finds his plants refusing to produce flowers, and always putting forth branches instead; another throws his plants into excessive bloom, and half destroys them in the operation; a third contrives to maintain them in a state of healthy foliage and copious but not exuberant blossom. These different results come from differences in the external circumstances to which the plants are exposed; which external circumstances greatly influence the organs of plants when in a nascent and plastic state, and inevitably determine whether the organs are finally to become one thing or another.

Is it possible for a reasoning being to study the nature of the action of such external circumstances with too much attention?

THE daily papers have mentioned an importation of GLASS TILES, by the use of which light may be admitted into sheds, without the necessity of making sashes, or introducing skylights. By favour of Messrs. HAYTER and HOWELL we have had the opportunity of examining one of them, and as they seem adapted for potting-sheds, or even for glazing buildings in which plants may be grown under particular circumstances, we proceed to describe them.

Their colour is that of common window-glass;—In shape they are like the common earthenware-pantiles generally employed for covering out-houses and rough buildings. Each weighs 24 ounces, measures 9 inches in width, by 12 inches in length, and is rather more than the eighth of an inch thick. They cost 9*s.* a dozen, in cases of 100, including the duty on each, which is 2¼*d.* Their form is such that they can be worked in among common earthen tiles of the same description.

We think it may be worth while to use such tiles where light through the roof is required; in which case it is, we presume, intended to place them here and there among the other tiles, when they will act like so many small windows. It is more especially to old sheds, where more light is wanted, that they will be applied with advantage; because they require no carpenter's work in order to fix them in their places, but may be at once substituted for such pantiles as are removed.

It is, however, not impossible, by the aid of this contrivance, to convert into a rough Vinery any old shed facing the south, east, or west, by merely removing the earthen tiles, and substituting those of glass. The quantity of air admitted between their laps and edges would be no disadvantage when late Grapes only are required; on the contrary, they might serve as effectual ventilators, and render a special provision of that kind superfluous.

And now that we are once more speaking of glass, we may as well add the PRICE OF GLASS IN PARIS. The large glazing houses of Paris sell, for gardening purposes, what they call *demi blanc ordinaire*, and it is found quite good enough. Their prices are by the square metre, containing $10\frac{81}{144}$ square feet, and they allow a discount of 3 per cent. for ready money.

In one house, that of GIRARD & LEYGUES, No. 15, Rue des deux Ecus, the prices, per square metre, are as follows :—

		Weight about	English duty
Demi blanc ordinaire,		11 lb. = 1*s.*	10½*d.* + 1*s.* 4½*d.* = 3*s.* 3*d.*, or about 3½*d.* per foot.
„	*fort*	16 lb. = 2*s.*	11*d.* + 2*s.* 0*d.* = 4*s.* 11*d.*, or about 5¾*d.* per foot.
„	*double*	22 lb. = 4*s.*	2*d.* + 2*s.* 9*d.* = 6*s.* 9*d.*, or about 7½*d.* per foot.

Another wholesale house, that of BITTERLIN AINÉ, Boulevart poissonière, No. 14, sells as follows :—

		Weight about	Duty
Demi blanc ordinaire,		12 lb. = 2*s.*	6*d.* + 1*s.* 6*d.* = 4*s.*, or about 4½*d.* per foot.
„	*fort*	18 lb. = 3*s.*	9*d.* + 2*s.* 3*d.* = 6*s.*, or about 6¾*d.* per foot.
„	*double*	24 lb. = 5*s.*	0*d.*, + 3*s.* 0*d.* = 8*s.*, or about 9*d.* per foot.

The cost of transport from Paris to Boulogne, by waggon, is about 5*s.* per 200 lbs.; and by the Seine to Havre something less.

We have not as yet received our samples of this French glass; but when we do, we will return to the subject. The principal use of the information in the meanwhile, in its present form, is to guide buyers as to what they need to pay at home.

GARDENIA.

THIS is a lovely and well-known genus of plants, which are extensively cultivated for their odoriferous properties, as well as for their beauty. It is scarcely possible to single out a more attractive tribe than this, or one that is a greater favourite with the public. Gardenia radicans, G. florida, and f. plena (the well-known Cape Jasmine), are inhabitants of every hot-house, and during summer, we may add, of almost every drawing-room. In the bouquet, also, the addition of a flower of this plant diffuses a most delicious fragrance. According to Thunberg, the notable Cape Jasmine is highly esteemed with the Japanese; they form hedges of it round their dwellings, and introduce it with great profusion in their gardens. Gardenia Rothmannia is a spotted species of considerable beauty; its fragrance is most sensibly diffused during night. It is a plant of great excellence, and, like the following, deserves a place in all choice collections. G. amœna is an interesting stove shrub, of dwarf habit, retaining its natural spines very often under cultivation in this country. All the species are more or less prickly in their native state, but they apparently lose this when they are subjected to a higher degree of artificial cultivation. There are eight other species of Gardenias known to our gardens, although not generally cultivated, being either less remarkable for their beauty or their fragrance. This interesting genus has lately received a most remarkable addition by the exertions of that industrious collector, Mr. Whitfield, who has recently brought from Sierra Leone the extraordinary Gardenia Stanleyana, a beautiful shrub of easy cultivation, with flowers at least 9 inches in length, and spotted like those of Lilium lancifolium speciosum.

The propagation of the Gardenia is exceedingly simple; half-ripened shoots of the current season planted in sandy peat, and placed in bottom-heat under a hand-glass or bell-glass, will root with certainty in a short time. They should then be gradually exposed to the air of the house; and when well established, they should be potted into 3-inch pots; then plunge them into bottom-heat, with partial shade, and promote their growth in a rather high temperature, keeping up an abundance of moisture.

By pursuing this system, fine bushy, flowering plants may be produced the second season; but the cultivation of this lovely plant must not rest here. We ought not to content ourselves with merely producing plants in 6-inch pots, such as are brought to Covent-garden market; for there is scarcely anything more attractive or more desirable than a well-grown specimen, in full flower, of either of the Gardenias. The soil most suitable for their successful culture is a part of our subject of great importance, for to the want of due attention to this may be ascribed many of those miserable-looking objects which disgrace our collections. A suitable compost may be made of the following materials; one-third turfy peat, one-third leaf-mould, and one-third thoroughly decomposed cow-dung; let these be well intermixed with an addition of one-sixth of the whole of pure silver-sand. Let the principles of draining and potting, pointed out in former articles, be strictly adhered to, and let the following directions be put into practice, and the result will be satisfactory. Supposing a plant is required in all its beauty in summer, and this is only the natural season when any plant can be brought to perfection, place the plant in a close pit in early spring after being potted, and plunge the pot in a genial bottom-heat of 80°; maintain a temperature of 60° in the pit by night; keep up a moderate but constant moisture, as the Gardenia delights in a warm and humid atmosphere, and with such encouragement the growth will be kindly and luxuriant. As the season advances, increase the temperature of the pit a few degrees until it reaches 75° or 80° by night, and increase the size of the pot, should such appear to be necessary. This will scarcely, however, be requisite, as one good shift in a season will generally be sufficient for Gardenias.

Keep the soil in the pots moderately supplied with *tepid* water, but as vapour is constantly escaping, the supply of water to the roots must be carefully and relatively administered. A little liquid manure may also be beneficially applied during the period of rapid growth, and until the flowers make their appearance. This will be the time to begin to expose the plant gradually to a lower temperature, for it is only in the temperate climate of a greenhouse or drawing-room that this plant can be sufficiently estimated and enjoyed. When the flowering season is past, it should be followed by a season of repose, and the supply of moisture in some measure withheld, and this partial suspension of the active functions of the plant will advance the ripening and hardening of the young wood, which has been produced in an extremely excitable atmosphere, and this at the same time will promote the accumulation of resources for future elaboration and development. No plant can, with impunity, undergo constant and uninterrupted hard forcing without producing constitutional debility, disease, and death. In nature every plant has its season of rest, and if we in artificial management drive cultivation to its utmost limits, we must on no account alter the immutable laws which maintain and perfect every vegetable production. Should our object be to have these desirable plants in beauty in early spring, we should commence in November following with the system previously detailed, and those plants which were earliest excited the previous season will be the most suitable to commence with.—*Duro.*

ROCHEA FALCATA (*Crassula falcata*).

I HAVE frequently been asked by gardeners how I manage to flower this beautiful succulent? and I learn from the communications of "Isaac Tomkins" that even about London it is not often seen in flower. It appears to me surprising that such a beautiful plant, with its dazzling scarlet and gold-coloured heads, should be so much neglected, as there is no difficulty in its management; at least I find none in flowering it in abundance every season. Cuttings will root freely in sand without a glass; even when lying in a damp shady place they will emit roots freely; the common mixture of loam, peat, and sand suits it perfectly. I have tried richer materials, but could not perceive any improvement either in growth or flowering. The principal thing to be attended to in growing this plant is the situation: it loves a full exposure to sun-heat, and to be near the glass; therefore I always keep it on shelves till in flower. By this means the plants acquire a strong stiff habit, and produce large heads of flowers. Cuttings struck early in the spring, and well grown through the summer, should flower strongly in the following spring. I begin late in autumn to gradually withhold water, and in winter I give none. When quite dry the leaves will become shrivelled; but when I begin to start the plants into growth early in the spring, they become quite plump in a few days. Sometimes these plants will show flower late in the autumn; when this is the case I withhold water till the spring, as when they flower late in the season, the flowers will be green instead of scarlet, being a strong proof of the plant requiring a bright sunny situation in which both to grow and flower it.

When a young plant flowers for the first time, it generally produces only one head of flowers, which, if the plant be well grown, will be large and fine; when done flowering, young shoots will begin to make their appearance in the axils of the leaves on different parts of the stem. The plant should now have a good shift, and these young shoots encouraged to grow as speedily and as strongly as possible; and for this purpose, placing the plants for a few weeks on a shelf in the hothouse will be of the greatest benefit; taking care, however, not to let them remain there too long, or they will begin to draw up weakly with too strong a heat, which they will not bear for a length of time.

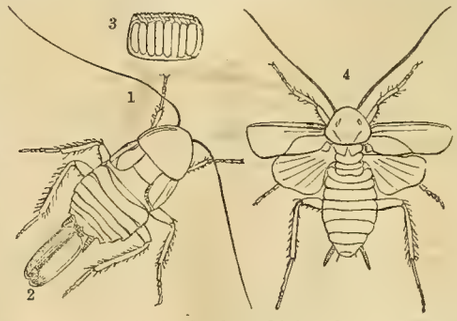
In the second time of flowering, the heads of the flowers will not be so large as in the first instance when there was only one head; but still, if well managed, the plant will present a splendid appearance with seven or eight heads all in flower at one time. After flowering three or four times, and having received repeated shifting, the plant becomes naked and unsightly. In this case I reduce the ball sufficiently small for a 6-inch pot, prune the plant, leaving a few of the most healthy and strongest shoots, place it in gentle heat for a few weeks, when it soon recovers and makes a handsome plant; at the same time it is a good plan to keep putting in a few cuttings every season to keep up a succession of young flowering plants; and early in the spring to plant as many of these strong young plants as would conveniently go into a 12 or 15-inch pot; they should be picked as near of a size as possible, place them in a pit close to the glass, and, if managed nicely, they will produce an astonishing mass of bloom.—*R. Reid, Noblethorpe.*

ENTOMOLOGY.

THE COCKROACH, OR BLACK-BEETLE (*Blatta orientalis*).—This too well known insect sometimes overruns dwelling-houses, warehouses, mills, and bakehouses, and even ships at sea, to an extent which renders them almost untenable. The same species which infests our habitations is also a complete pest in Russia and Finland, and has made its way from thence into Sweden. The Cockroaches are very active creatures, and being nocturnal, exceedingly voracious, omnivorous, and endowed with a surprising fecundity, they become a great annoyance where they take up their quarters. When in excess, their scent is very sickly and disagreeable, and besides defiling whatever they touch in the kitchen or larder, they will nibble the leather of boots and shoes, the binding of books, and even wearing apparel, especially if they be old and dirty. The casks of biscuits and cheese on board ships, are greatly injured by the inroads of these vermin; this, however, is frequently the work of another species, the B. Americana, which is fortunately confined at present to the storehouses along the banks of the Thames; and a smaller species named B. lapponica * is equally destructive. Even man is not secure in his person from their assaults, for in the West Indies the larger species have been known to eat the toes and fingers to the quick during the period of sleep, and after death they will prey upon the human body like vultures, as may be seen when the charnel-houses at Naples are opened for the daily reception of the dead!

It is undeniable that Cockroaches delight in warmth, preferring kitchen grates, bakers' offices, mills, &c., and we never meet with them during the winter or cold months of spring, and although it is impossible to ascertain from what country the B. orientalis was first imported, it no doubt has been migrating from a hotter climate than our own; in all probability it came from the east, and such seems to have been the opinion of Linnæus, from the name he assigned to it. Cockroaches also detest the light, and for that reason we seldom see them in the day time, and as soon as a candle is introduced into a dark kitchen, they scamper off into holes and crevices to hide themselves.

The males have wings, of which the females are destitute; indeed they do not require them, as their province is to rear their young: their bodies, moreover, are often so large and heavy that they would stand in need of much more ample organs of flight than their male companions, which cannot often use them, for I never saw one flying. The females are frequently seen moving about with a large oval mass of eggs, as represented at fig. 1, it is said sometimes for a week, until they can find a convenient spot to deposit them: this leathery case (fig. 2) is of a pitchy colour, with a sharp serrated ridge along the back, consisting of 16 points, and on dividing one of these bags longitudinally, it will be found to contain about the same number of elliptical cells (fig. 3); each of these produces a young Cockroach, which is able to run about as soon as it issues from the egg through the serrated suture, which splits for that purpose, and from that time to its death it is feeding, growing, and passing through its different stages of larva, pupa, and imago, with very little change of aspect compared with most of the other orders of insects.



Blatta orientalis is of a deep shining chestnut brown; the orbicular head is bent down and concealed beneath the thoracic shield; the mouth is furnished with an upper and under lip, two strong-toothed jaws, and four feelers †; the eyes are kidney-shaped, and excessively finely reticulated, and close to the inner margin is an ochreous membranous spot; the antennæ are like two pubescent bristles, as long as the animal, composed of numerous joints, and inserted in little cavities close to the inner margin of the eyes; the thorax forms a large shield, somewhat triangular, with the angles rounded; in the males (fig. 4) there is an incurved indentation on each side of the disc with a ferruginous line down the centre; the scutellum is broad and undefined; the elytra sometimes extend almost to the apex of the abdomen; they are coriaceous, elliptical, and rough, with numerous nervures, the inner edge of one lying over the other in repose, beneath these are folded the wings, which are often shorter, membranous, with numerous branching nervures, and reticulated; the abdomen is depressed, elongate-ovate, and composed of eight segments; from the base of the last arise on each side two spear-shaped processes, formed of short joints, and to the under side of the same are attached two slender curved appendages; the six legs are strong and longish, the coxæ and thighs are stout; the tibiæ are spiny; the tarsi are more slender and 5-jointed, the basal joint being long, the fourth minute, and the fifth terminated by two curved sharp claws. The female (fig. 1) is generally larger, and the thorax smoother; instead of wings there is only a rudimentary elytron on each, with two broad thoracic segments between them; the abdomen is more elliptical before the egg-bag is excluded, and although it has the jointed appendages at the apex, the two little thread-like ones are wanting, and this at once distinguishes the sexes.

The female is very similar to the pupa, and indeed it seems to remain in that state, except that it has the little elytra, which are altogether wanting, I believe, in the pupæ. I may state that the egg-bags often have a hole on one side from which a parasitic fly had issued, called Evania *, which possibly we may treat of hereafter.

Of all the remedies, a hedgehog, I know, from my own observations, is the most efficacious, and wool or tow dipped in spirits of turpentine and thrust into their habitations, will kill and expel them, but this unfortunately is attended with danger; sprinkling over by day the spots they frequent would be safer, and probably attended with equal success if persevered in.—*Ruricola.*

* Curtis's Brit. Ent., fol. & pl. 556. † Ib., pl. 256.

Home Correspondence.

Pinus Douglasii.—Some years ago, plants of this beautiful and scarce Pine, and also of the P. ponderosa, were purchased in pots at the sale of the Horticultural Society, at Chiswick. Some time afterwards they were planted out in Rockingham Forest, in Northamptonshire, the beauty and vast extent of whose woodlands, scarcely known as they are, stand unrivalled in any part of the kingdom. An avenue nearly half a mile long was formed of these and other Pines, as P. Cembra, Pinaster, taurica, nigricans, maritima, and in a wood called King's-wood, near the high road, between Kettering and Rockingham. This avenue, although exposed, as it still is, to the attacks of numerous enemies in the shape of deer, hares, and rabbits, is in a flourishing state, and begins to assume an imposing appearance. The largest of the Pinus ponderosa is 24 feet 10 inches in height, and of the Pinus Douglasii, also 24 feet 10 inches, the circumference of the latter being 41 feet. The soil, which is stiffish, seems to suit both well, particularly the latter, whose delicate green tint, odoriferous fragrance, and widely-spreading branches, present a most beautiful appearance. On two of these trees, which are, perhaps, equal to any specimens in the kingdom, are cones for the first time. Am I correct in stating that the Pinus Douglasii attains in the Rocky Mountains the extraordinary height of 250 feet?—*A Forester.* [The greatest ascertained height was, we think, 193 feet.]

Calamintha sylvatica (Bromfield)—a British species deserving the notice of Floriculturists.—This plant was discovered by my excellent friend Dr. Bromfield, in a picturesque copse on Apes Down, about three miles to the west of the celebrated ruins of Carisbrook Castle in this island, in August 1833. Several notices of it appeared in the botanical periodicals of the day, and I transcribe the following from the "Phytologist" for November of that year, from the pen of its discoverer. He says—"Our Calamintha is a highly beautiful plant, with flowers of a fine pale rose colour, spotted with purple or even blood red. The corolla is nearly an inch long, and three times the length of the calyx. Besides the vastly larger size of the flowers and leaves, which last are of a brighter green (pointed, and much more closely and acutely serrated), than in the usual form of C. officinalis; the whole plant is taller, more slender, and much less branched; the stems are lax, ascending or reclining." The rest of the description being purely botanical, I need not pursue it. It was then, as the quotation above shows, unnamed, and not clearly distinguished from the common species. It has subsequently received the name given above, and several other communications have appeared respecting it in botanical works, principally in the "Annals of Natural History," and in the "Phytologist," and its claim to be considered a new species is now fully established. It is, however, not botanically, but as a plant worthy of cultivation that I am desirous of bringing it before the notice of the readers of the *Chronicle*. Charmed with its beauty and elegance as growing in its native picturesque copse, I was tempted at once to try to take it into cultivation. Its general appearance is so far described in the quotation above, that I need say nothing on this score, except to add my testimony to the opinion of its finder, and to observe, that at all events he has not exaggerated its graces. It is a plant naturally loving shade, with some degree of warmth and protection, and when placed in a garden which is damp, and with only a moderate portion of sunshine, it maintains its original character, and flourishes freely. If cultivated in a more sunny position it becomes somewhat changed, the colour is deeper, and the proportion of inflorescence is increased; but the plant loses much of its natural elegance and soon passes off, probably the effect of increased evaporation. When, however, the plant is placed in a situation where it can have an increased amount of light without subjecting it to a greater degree of evaporation, as in glass cultivation, its inflorescence is much increased, and its duration not only not diminished, but actually much increased also,—the same verticillasters continuing to produce fresh flowers again and again for many weeks,—so that the number of individual flowers produced from one plant is truly immense. Planted in a pot of good mould it thus grows freely, is a light and elegant plant, having at a distance much the appearance of a Heath, and remains for a very long time very ornamental, the bright rose-coloured flowers never fading until after they have fallen, and at a season—August and September—when flowers for the stand are getting scarce. With respect to its propagation, my best plan will be to offer my remarks on this subject in connection with some account of the habits of the plant. It is not suffrutescent like the common Calaminth, C. officinalis, but stoloniferous, *i. e.* it increases by runners, some of which are under-ground, and some above; and these continue growing from the time the plant comes into flower till stopped by the frost. The runners which are above-ground, are generally killed by the

* Curtis's Brit. Ent., fol. and pl. 557.

winter; but those which are under-ground send up innumerable plants in the spring, so that where one had been the previous summer, an immense number come up the following year, in a patch fully a foot in diameter; and these may be divided, or any portion, or a young branch will root freely, and at once run up to flower; so that the plant is both readily propagated, and easily managed. I may add, too, that the upper runners which if left would die in the winter, may be rooted in the autumn, and preserved as plants, as they too in that case send up new shoots in the spring. In all probability any plan found to succeed with the common Musk plant, would also suit our Calaminth. It not being unlikely that by seed some variety in colour may be obtained, it may be well to add that numerous seedlings spring up in the neighbourhood of a plant which has been suffered to remain after flowering, but that the seeds are apt to lose their vitality by being kept dry. To propagate by seed, therefore, it would be best with this, as with some species of Impatiens, and other plants, to sow in autumn, in a pot sunk in the ground, out-of-doors; and afterwards take it up and place it where it will have a little heat in the spring.—*T. Bell Salter, M.D., Ryde, Isle of Wight.*

Gum or Bladder Blight on Peach and Nectarine-trees.—This is the subject of many surmises as to the true cause or combination of causes of its appearance. The soil, if imperfectly drained, is supposed by some writers to be the productive parent of mischief; branches laid in too thickly and imperfectly ripened, are supposed by others to introduce the disease. The many attentions, such as summer-pruning, thinning fruit, mulching in dry weather, and keeping the borders free from heavy crops of deep-rooted and luxuriant vegetables, are all necessary to produce a continuous healthy state of the trees. The disease is of a peculiar formation—the tissue swells, blotched distortions, like wens of a waxy appearance, commence and rapidly increase until the leaves become wholly deformed; the bark of the twigs is also affected, gum exudes, and the parts finally perish. But sometimes it appears in a mitigated and partial manner; when only a few blotched excrescences are visible in the topmost shoots, these are generally displaced by the foliage produced in July. As these appearances commence with the spring when vegetation is generally exposed to sharp frosts at night, succeeded by some very hot sun-bursts in the day, is it not probable that cold may rupture the tissues of the young tender leaves or shoots? whereby their functions, such as perspiration and absorption, would be disordered, and the sun acting on the diseased parts, the distortions described would be produced. By protecting them from frost during the night, and slightly shading them during the hottest part of the day, a preventative to the disease may be the result. It is well worthy of experiment to subject them to different modes of treatment, leaving only branches sufficient to be maturely ripened in the autumn; on others more branches to be retained with the probability of not ripening so well, the soil and all other particulars of management being the same; if the disease appears on the latter and is entirely absent on the former, the true cause is discovered; if it appears in both we may reasonably conclude the cause to be produced by atmospheric influences. The sudden alternations of heat and cold, the cold and frosty air suddenly stopping the absorption and perspiration of the leaves, expanding the aqueous tissues, and rupturing the young tender vessels; the heat succeeding excites the rising sap to the parts affected, where it is impeded in its course; there it seeks an outlet, the ascending sap urging its onward course with some degree of force, produces the gummy and dropsical appearance of the disease described.—*William Keane, Chelsea.*

Deformity of the Peach-leaf.—In regard to this I beg to differ from the opinion of Mr. Johnson, p. 385, as well as from that of the editor, in the note annexed, where the deformity is ascribed to a wet soil. I have had young Peach-trees suffer to a ruinous extent from this disease, though planted against a south wall, in a very high soil, only 15 inches in depth, resting on a limestone gravel. The shoots of the trees most affected seldom indicated any rankness of growth. Indeed, on looking over them some seasons, at the end of May, when that month happened to be dry, I have been led to believe that the deformity was caused by want of moisture, rather than by too much of it; but I think the fact of many trees on the same wall growing to the end of the season without losing a leaf from this cause, will satisfactorily prove that this deformity cannot proceed from a superabundance of wet in the soil. I incline to agree with a friend of mine, a shrewd observer, in the opinion, that the deformity is caused by the action of cold winds and frosts on the tender shoots. I have no means of determining whether the sudden flow of such an accumulation of sap on the return of warm weather, as must necessarily collect in a healthy young shoot, on receiving such a check, could cause it. We know that when there is too much juice in our own systems, it very often finds its way out in the form of cutaneous eruptions.—*H. H., Cork.* [We retain our own opinion, and next week will state why. The blister of the Peach leaf will, however, prove something like the colour of the Chamæleon]

Potting.—It is generally agreed that the great defect in pot-culture is the small amount of earth from which the roots of plants can derive their food, and yet by means of crocks and Moss that little is made less; and in many instances scarcely more than two-thirds of the pot is filled with soil; is such a proceeding consonant with reason? I think not. When I am about to pot a plant, I first ascertain what sort of root it has—that is, whether it be fibrous, tap-rooted, tuberous, &c., and then proceed accordingly; but before going into details I will explain what I mean by "drainage," as I shall have to use that word frequently. I mix on my potting table one part silver sand, one part charcoal, pounded moderately fine, four parts peat earth (separated from the fibrous part) and fibrous part also, four parts vegetable mould, and six parts clayey loam. All the materials excepting the loam must be dry and well mixed; the loam is then made rather moist, and is well chopped up with the rest. When all the materials are well mixed, they are placed in a sieve which is worked backwards and forwards until the loam which will not pass through the wires has taken the form of large comfits. The pieces are then placed in the sun, or near a fire, for a few days, and they become nearly as hard as brick, and contain the large charcoal, half-decomposed leaves, small stones, sticks, &c. The pots must be quite clean; on the bottom strew a little white sand over the hole, over which place a small piece of glass, covering about two-thirds of the opening, and strew a little sand over the glass; then put in drainage, afterwards a layer of well decomposed horse or cow dung, then a mixture of two-thirds friable loam, one-third vegetable earth, with a little sand well pressed down, and lastly to the top of the pot the siftings of the drainage. The following is the *rationale* of the above practice: the pots after using should be soaked several days, and then scrubbed; for if the interstices be filled with slime or earth, how can superabundant moisture escape, or air enter to the roots. Sand is strewed over the bottom to prevent the glass from adhering to the pots, and because water can percolate through it. I use glass instead of a crock because the sharp edge prevents the ingress of worms; and in winter, I am better enabled to see the state of moisture or dryness of the earth at the roots; the sand strewed over it shews the latter more clearly. By the time that the roots have reached the bottom of the pots, the plants generally are nearly flowering, and therefore I place a layer of my richest compost immediately over and among the drainage. The loam mixture should be made firm with the bottom of a small pot; and the intention is to fix the plant firmly, and obviate the use of so many sticks as supports. The sifting being a poor light soil, and not retentive of moisture, cause the plants with which it is in immediate contact to form numerous mouths or roots. In the autumn of last year I bought some Verbenas and Cinerarias; I put them in my frame (see p. 169), and up to March they did very well. They then began to droop, and soon became quite black. One is sometimes said to doubt the evidence of the senses, and such was my case, when I saw by the side of these dead plants thumb-pots containing Primulas, Pelargoniums, &c., sown in September, not only alive, but looking healthy and well. I was sorely puzzled; but as cogitating would not restore my plants to life, I set about removing them from the pots. While thus employed, the appearance of one made me suspect that the drainage was at the root of the evil; I, therefore, laid a pot on a table, cracked, and removed it without disturbing the contents, and then felt that my conjecture was correct. The roots had got among the crocks, were frozen, and as brittle as glass. I then proceeded with some plants of my own potting in the same way, and found the juices in the roots fluid, and the roots looking healthy and strong. Now, my knowledge in chemistry is very small, but I should say that the action of the oxygen on the decomposing dung, leaves, &c., produced fermentation; and we know that during that process, heat, although latent, is given out; and may not that have preserved the roots during the late very severe winter? There is also another advantage I find in my drainage, and that is, that where it is used, plants never suffer from drought, or over-watering; but they do suffer if a sprinkling only be given them. I water till the fluid runs freely through the bottom. The interior of the drainage not being wetted, absorbs and retains the moisture from the surrounding parts; and when they again become too dry, the moisture, by capillary attraction, is again restored to the soil.—*X. X.*

Luminosity of Plants.—Your notice of this brings to my recollection the statement of a Maltese boatman that Garlic influenced the compass. I treated this very lightly; but I afterwards found that the Ionian sailors also believed, that with a cargo of Garlic the compass was of little use. I never had an opportunity of testing it, therefore my information is of little value further than to draw attention to the subject.—*Forester.*

Reproduction of Plants.—There is an article written by the Rev. Dr. Fleming, headed, "Remarks on a supposed Law of Vegetable Life, limiting the Duration of Plants obtained by Cuttings to the Natural Term of Life of the Stock whence they were taken." The Doctor says, "It not unfrequently happens, when a hypothesis is proposed which in appearance serves to connect a series of imperfectly understood phenomena, that it is embraced rather as an apology for ceasing to investigate, than a firm conviction of its accordance with truth." He then mentions several authors who appear to have believed that there was such a law as that noticed above. Marshall says, that "engrafted fruits are not permanent—they continue but for a time." Mr. Knight, in his Treatise on the culture of the Apple and Pear, gives it as his opinion, that "the continuance of every variety appears to be confined to a certain period, during the early part of which only it can be propagated with advantage to the planter." Mr. Bucknall says, "When the first stock shall, by mere dint of old age, fall into actual decay, a nullity of vegetation, the descendants, however young, or in whatever situation they may be, will gradually decline, and from that time it would be imprudent in point of profit to attempt propagating that variety from any of them." And Sir J. E. Smith considered it as established, that "propagation by seeds is the only true reproduction of plants." The Rev. Doctor appears to differ in his opinion from the authors mentioned, respecting the "supposed law;" and he refers to the "Philosophy of Zoology," where he has "pointed out its defects." Perhaps it may be interesting to some gardeners to know if anything has been done of late to confirm the opinions of such men as Knight and Smith, or if any register of improved varieties of Apples and Pears is kept, that may tend to throw light on the subject in future years.—*Peter Mackenzie.*

Fungi in Melon-beds.—I, like "S. F. W.," have been very much troubled with fungi in my Melon-beds. The plan I have adopted, for the last five years, with great success, is to dust the fungi well with hot lime; it kills them immediately, and does no injury to the Melons.—*J. Robertson, Clifton House, Workington.*

Highland Pine.—Without entering into a discussion as to the merits of the true Highland Pine, or whether its good qualities are transmitted by seed to its offspring, I beg to make a few remarks tending to show that its true character may be sometimes misrepresented, and that its distinguishing qualities are more permanent than "Pinus Sylvestris" is inclined to believe; at all events I think it rather premature to recommend the "gentlemen in England and Wales to plant but sparingly of this variety of Pine." Some 25 years ago, when a boy, I was much employed in gathering forest-tree seeds, and on one occasion I was sent with others to procure "fir-cones" from a particular plantation in the lowlands of Perthshire, the produce of seeds from Braemar Forest. This plantation was surrounded with others of less valuable varieties of Pinus sylvestris, and we all knew that seeds from trees from the Highland forest were very difficult to procure, both from the cones not being so accessible and also because there were fewer on the trees, wondering that our master would force us to climb up such trees when plenty of seeds could be procured from low-spreading varieties beside them; however we had to obey, and to the woods we went, resolved to earn an honest sixpence if we could, but it happened otherwise, for we had only got there when it came on a tremendous rain, which continued all day without intermission. This drove us under some low-spreading trees for shelter in a plantation adjoining, and fearing to go home without any cones, which would also amount to minus our day's wages, we were tempted to gather some of the forbidden fruit, which hung in beautiful profusion over our heads; and these were delivered over, of course, when we went home, as seeds from the true Pine, and no doubt were nursed with peculiar care by way of experiment! Since that period, having had considerable experience in the management of timber-trees, and learning that the same person who then ordered these seeds to be gathered is still agent for the estate, and well known as a scientific arborist, and from his long experience and extensive practice, likely to give a sound opinion as to the merits of the Highland Pine, I wrote to him some time ago respecting the plantation alluded to, and I extract the following from his letter now before me:—"The moor on which the Scotch Fir grew that you allude to is about 500 acres in extent, and before it was planted was a very worthless heath, incumbent on gravel, let to a tenant at a nominal rent, and was given up, when the proprietor was induced to plant it with Scotch Fir, which was cut down at 50 years' growth, being sold on the ground in lots at from 35*l.* to 130*l.* per acre, the average being about 60*l.*; besides a great deal for thinnings in the course of its growth. There are many varieties of the Pinus sylvestris, or Scotch Fir; I knew seven very distinct, all growing at that time in these woods, some of these varieties were very superior to the others. The wood called the 'North Park' was planted with seeds from the Forest of Braemar, on Dee side, and was very superior to the other woods; it was what I called the best variety, and very peculiar in its habit of growth, from the less valuable sorts. The Scotch fir is much degenerated, from seeds being saved from the coarse-trees which bear most seed, and are easiest got at by the gatherers. The different plantations were all planted about the same time, the difference in the quality was in consequence of the better or worse variety of trees, the soil being very nearly the same." It appears from the above that the plantation called the North Park, which was planted with seeds from the Highland forest, was believed by the writer to be the best variety for timber, and before it can be shown that we possess better varieties of Pinus for profitable planting, I would recommend gentlemen to plant the Highland Pine, taking care that it is the true one, and not a spurious variety.—*J. Finlay, Chilworth, near Guildford.*

Fairy Rings.—Some time ago, in answer to an inquiry similar to that of "A Fifeshire Florist" (p. 363), I related an accidental circumstance that occurred to me on a journey to visit the far-famed and beautiful Monastery of Batalha, in Portugal, which may assist your correspondent, as well as others, in their future observations. On our road we were overtaken by one of those tremendous thunder-storms incident to hot climates, and which bear no comparison to the slight movements of the elements in our colder atmosphere. Whilst taking shelter from the fury of the storm, the forked lightning struck several objects not far from us.

Soon afterwards I observed several rings of smoke or gas floating slowly in the air, which, preserving their circular form, enlarging and diminishing alternately until they ultimately settled in that form on the sward before us. In a day or two afterwards, on passing the same spot, I observed on the sward several rings, densely green, 2 or 3 inches wide; the grass of which (circumferences or rings) had grown full an inch in that short time, and Fungi were beginning to make their appearance. There must have been some very highly fertilising property in the gas; and it has struck me, that the same may take place in the new experiments for promoting vegetation by electric rods and wires. In the country I have always observed that these rings make their appearance after thunder-storms; and I never yet met with a better solution of the phenomenon, than that which accident afforded to me, as above related. Nor have I ever seen any one who had seen a fungus, or fungi, spring up, and a ring to radiate from it. But I have observed these rings to last for two or three years, and to enlarge in the course of time, which is not sufficient to establish the truth of the mere theory, that these rings are caused by spawn that radiates from a common centre. —*D. S. E., Lambeth.*

"*In re Crickets.*"—When I first came to this place the houses swarmed with crickets. The Vines are, for the most part, planted in the houses, and I used liquid manure copiously. The second year the crickets left, and not one has been seen since. Perhaps this fact may be useful to "M. W. K."—*J. Aikon, Conisheud Priory, Ulverston.*

Early Mushrooms.—Having observed (p. 399) the fact, that Mushrooms have appeared unusually early this season, and, as some doubts have arisen as to their being the Agaricus campestris, I beg to state that I have gathered the A. campestris several times lately in this locality; I had no doubt of its being the true variety, by its white colour, and cobweb-like veil, covering the fleshy gills. I have also gathered another variety of Mushroom, one of which measured 11¼ inches in diameter, and another 9 inches in diameter; the colour of the convex part was pale yellow, and the gills a livid brown. I make these remarks in confirmation of what has already appeared on the subject.—*Joseph Holmes, Amport House, Andover.*

The Cuckoo.—I have read with interest "L. L. D.'s" articles on the cuckoo, and I have had this season ocular demonstration of the truth of his statement, that the cuckoo deposits her eggs in small birds'-nests by means of either her claws or mouth. I found a pied wagtail's nest in a small hole in the garden wall; at the time I discovered it, there were three eggs in it, one cuckoo's egg, and two of the wagtail. The latter then laid other two, and began to sit. As I had never seen a cuckoo's egg previous to that time, from the size of the bird, and the smallness of the egg, I could scarcely believe that it was one; I was also puzzled at the time to know how she could deposit her egg in the nest, the latter being too small to admit of a bird of her size. I watched the nest daily, in order to learn if the egg would produce the little "harbinger of spring," which it certainly did on the 22d of May, the young wagtails coming forth on the 23d of the same month. To my surprise, however, scarcely had the light of day shone on them, when they were deprived of life, but by whom or what means I do not know. Does the cuckoo return to the nest and destroy all but her own offspring? I went to the nest in the following morning, and discovered that two of the young wagtails were gone; I went again in the afternoon, when I found the young cuckoo the sole inhabitant of the nest; the other two young wagtails I found laying dead at the bottom of the wall. As the young cuckoo became fledged he became too large for the place allowed him, so I put him into a cage and kept him there for 10 days; during his confinement I could not help admiring the care and assiduous attention which the two foster parents paid to their adopted offspring; the cage being sufficiently large to admit of their entering it, I several times found both beside him. I once thought of trying to rear him, but not exactly knowing the natural habits of the cuckoo and what food they required, I was afraid I should lose him; I therefore gave the little harbinger his liberty, hoping next spring to hear his welcome voice re-echoing through the woods. —*D.*

Ash Timber.—Having been informed by our woodman that Ash timber will burn equally well just cut, as when seasoned; I have frequently tried the experiment on fires consisting of it, and found him to be perfectly right. Will you tell me what property it contains to burn well in its green state?—*A Sussex Subscriber.* [We do not know.]

The Green Bird, or Green Linnet.—(Loxia chloris.)—This is often ranked among those birds that are injurious to field and garden crops. It is blamed for destroying seedling plants, and for disbudding fruit-trees and shrubs. Although it is classed among the "decidedly destructive hedge birds," yet I have a great respect for this species. I cannot say that I have suffered much injury by them; but for 16 winters in one place I have had much pleasure in watching their evening and morning habits. About the middle of October they begin to assemble in small bodies in the evening, on the top of some tall Poplars; the flock may not exceed ten or a dozen at first, but evening after evening it is increased by other small additions, until about the 1st of November, when they amount to several hundreds; they begin to meet half an hour before sunset, but they do not all come at once to their place of rendezvous, but come betimes in small parties, from every point of the compass. When they are all mustered, perhaps to roll-call, the trees in the grey of the evening have the appearance of being newly clothed with leaves, and like the aspen leaves, they are almost constantly in motion; they are continually shifting their position, and shortly after the sun has sunk behind the Campsie hills, they prepare for bed. Beneath the Poplars there are some large Evergreens, and in these they find a dormitory; the trees are about 50 or 60 feet in height, from the top of which they appear to watch the ruler of the day descending behind the hills. They do not all go to bed at the same time, but begin hopping downwards 20 or 30 feet, keeping towards the extremity of the branches, and when they think themselves far enough down, drop one by one from the trees into the Laurels, as if they were so many stones. These birds help to enliven the upper regions of the flower-garden during the short afternoons of wintry days, when other favourites are away or mute; when little of the feathered families are seen or heard, except the noise of the pheasant going to roost, or the blackbird and rabies rustling among fallen leaves in search of a supper. The linnets do not always go quietly to bed, nor so soon as they would like to do. Sometimes when they are met in crowds on the trees, it may be watching the last rays of the sun, or waiting until the curtains of evening are drawn a little closer; in a moment a feathery circle is formed, rising higher and higher, and wider and wider, until it is separated into fragments, and the birds return in small parties to the place from whence they set out; they will scarcely have all met when the same thing is repeated, and done several times in the course of the evening. It was some time before I could find out the cause of their sudden flight; but after examination it turned out to be an evil spirit, in the shape of a hawk, that disturbed their repose; it often comes lurking beneath the trees and shrubs on which the birds had alighted, ready to pounce upon one to make a meal of. Sometimes it would follow them and take one on the wing; at other times it would remain out of sight until they had sunk to rest, and shortly after it would be seen skimming along the top of the Evergreens, but woe to the poor bird that slept in the attic story—it soon became a helpless victim, borne away from its leafy bower never to rejoin the green feathered band again, or help the gardener in destroying chick-weed and groundsel, or feed on Gooseberry blossom or Cherry buds.—*Peter Mackenzie.*

Wasps.—I have practised the following method of destroying these pests this spring with great success. It is cheap, simple, and effective; instead of pistol and powder, as mentioned in a late Number, my deadly missiles consist only of a good strong patent garden syringe, and a pot with some water. Wherever I find a wasp, either in-doors or out, I ply the syringe upon it, which, if done with good force, will soon bring them to to the ground. This, of course, does not kill them; they are merely stunned by it; therefore, no time should be lost in placing the foot on them, or giving them a squeeze between the thumb and finger. In the event of any of them attempting to get up before you get at them, should you have the water close at hand, the syringe can be re-loaded in an instant, when you may give them a second charge; however, with a little activity, in 19 cases out of 20, the first will prove effectual.—*D.*

Pruning Forest Trees.—I have observed several notices in your paper lately, on the subject of pruning forest trees; and being of opinion that pruning is wholly unnecessary, and that no lopping of trees should ever take place, I presume to occupy a small space of your paper, to state the theory, or rather the system I advocate. Any person may observe that plants thickly planted shoot rapidly upwards, and that when they find more side room, they incline the more to produce branches. In the wild forests of America, as described by Humboldt, there are neither planters, pruners, nor loppers; the seeds of the trees are sown by nature—thickly sown; a scramble takes place for the uppermost station; the more vigorous gain the contest; the weaker wither and perish under the shade of the strongest, which in every case of plants rise towards light and heat, and with their tops form a canopy which completely excludes the sun from the inferior ones, and constitute a crop such as the land is able to bear. The beautiful forests of fir in Strathspey in North Britain are a most striking illustration of the principle here advanced; the seeds are mostly sown by nature, the trees have grown without care or culture, and the carpenter when working the timber can tell if the tree has been self-sown or planted. In planting trees of all kinds, except the forest trees, the number per acre should not be under 10,000, and the latter should be planted, not exceeding two feet apart. The original cost may be grudged; but it is afterwards expended in pruning and mangling the timber, which always shows a blemish where the knife or chisel has been applied. All trees that send up shoots from the root should be cut over by the ground the second year after being planted, as a quicker growth and a more vigorous stem are procured. The Duke of Athol in Scotland, and the Duke of Portland in England, two of the most extensive planters in Britain, follow this plan, and with great success. Sometimes the inferior trees are thinned out to be used for fencing, at one or two different times, but the preferable way is not to thin at all, but leave the whole to Nature's operation, the best plants going on for a crop, and the inferior ones gradually dying out. —*John Donaldson, Hoddesden.*

Pruning Forest trees.—I observe that the management of forest-trees is still a disputed point. This is surprising, seeing there can be no self-interest in the case. I have no idea that any individual would wilfully lead another astray on a subject of so much importance. I should think that the late Mr. Pontey firmly believed that his system was the very best that could be practised, and so I think of every writer from Pontey's days to the present time. The cause of disagreement would seem to lie more with the writers and the readers than with really practical men, some of whom might, probably, have been brought up in a nursery, and have been taught how to turn a Crab-tree stock into an Apple-tree standard, for the orchard, &c.; and when such men come into woods they naturally imagine that they can turn the bushy forest-trees into standards by a similar process. But new discoveries are made, and an inventor of them comes and says, "If you serve your trees in that manner you will entirely ruin them." And here the battle of argument begins. "And pray in what way shall I ruin them?" says A. B. says, "You cut the branches off too closely to the stem, making a large wound, which will either not heal over, or if it does, there will be a knot in the tree when sawn up into planks or boards; and, as it is now well known that branches assist the growth of timber, the more branches the faster will the tree increase in useful wood; therefore any system of pruning is an evil, but close pruning, above all, is most likely to bleed the tree to death." A. "To your first objection I would reply, that I never make a larger wound than what I can heal with the help of a good plaster; and to your second that, better have very small branch knots all within a few inches of the heart of the tree, than have very large knots all through the tree from centre to surface, like buffalo horns, and nearly as hard (in the Firs at least). It is true that branches assist the growth of timber, but these branches should be all up near the top of the tree, and not down the stem, as Pea-sticks will not fetch so much money as Hop-poles (weight for weight), and neither of them will fetch so much as timber fit for building, or for ship masts; as to bleeding, I confess that I have caused many deaths, but such patients were as well dead as alive, for if I had not killed them they would have killed their neighbours, and they brought their value as stakes, &c." B. "Speaking of ship masts, do you know that the best are brought from forests that have never been touched by the hand of man till the day they were felled?" A. "Yes, but they are only chance trees; you may buy whole forests in some parts of the world at a dollar per acre, and only one chance tree on the acre will repay the purchase-money; the remainder I would advise setting fire to as to a Gorse-bush or fox-cover, to make room for profitable crops of either Hops or Hop-poles." B. "I perceive that you are a staunch disciple of the Old School; but as you have admitted that branches assist the growth of timber, and as you confess having killed many trees by over-pruning, why do you not adopt the true system, that is, the plan of foreshortening? you would then be sure of doing no harm, and probably of effecting much good, or at all events you might adopt the system of thinning instead of pruning, which would save all trouble, and the lower branches would drop off as soon as they had performed the functions which Nature had intended them to effect in assisting the formation of timber." A. "If foreshortening is the true system, or indeed a system at all, I adopt that system every day of the year, but not for the purpose of improving the timber: I do it to improve the form of the tree, and keep it within bounds, as I would a Beech or Holly-hedge; I also foreshorten the large boughs of trees that overtop promising neighbours. As to thinning instead of pruning, I call it bad economy to cut down young trees for firewood, where so many waggon loads of prunings want burning, or putting into drains, &c.; and as to saving trouble, the reverse will be found to be the fact: you have first to prune the tree partially before you can get a blow at it with the axe, and then to prune it completely when on the ground, turning it over, &c., and what a mass of rubbish is on the ground all at once for the faggoters! they grumble to begin to it as reapers would at laid and twisted corn, saying it is worth double the money, &c. But now for the branches dropping off of their own accord, after having performed the office assigned them by Nature: all trees and all living creatures do that—they all drop off; but the question is, when? Never, until killed by more luxuriant brethren, which have kept off the sun and air. Here is a Scotch Fir-tree growing on the outskirts of the wood; it is very full of branches, one of which measures ten feet from the ground, but the points droop down nearly to the ground. I have counted the knots or annual growths on the tree, and they amount to fifty-three, and the bough being ten feet up the stem, I conclude that the tree must be about sixty years of age, and upon inquiry of old men I find this to be the very date of the plantation. Again, I have found skeletons of trees left or forgotten in woods, with all the sap-wood rotted off, and only a small portion of heart or red wood remaining sound and hard as horn; every branch had come direct from the centre like the stumps on a fore-shortened tree. I have also seen many trees fair to the eye and sound on the outside, within, hollow as a churn, except the stumps of the once thriving branches; these protruding inwards reminded me of a wire rat trap, where the vermin might crawl in, but could not crawl out; others, the Larch for instance, reminded me of the barrels drove full of nails in which witches were put in days of yore to be rolled down hills; all these pegs were firmly embedded or embalmed in coats of the old trees, and some had even the bark on them, but it was pressed or squeezed so thin as to be no thicker

than fine paper, and quite black; then, what benefit had the timber derived from such spike-nails after the first few years of its growth? I maintain that abundance of healthy branches are not the cause, but the effect of a healthy-growing tree."—*John Howden.*

Societies.

CALEDONIAN HORTICULTURAL SOCIETY.

June 5.—This, the first summer collection of plants and promenade of this Society, took place at their garden, Inverleith. On this occasion prizes were awarded as follows:—For the best 24 Pansies, the Silver Medal, as first prize, was voted to Mr. Downie, gr. to J. Russell, Esq., for Ne plus ultra, Van Amburgh, Daniel Defoe, Exquisite, Coronation superb, Heroine, Miracle, Japhara, Rob Roy, Great Britain, Miss Stainforth, Beauty of Blackburn, Purity, Lord Montgomery, Venus, Curion, Surpass, Imogene, Undine, Azuren, Regulator, Pizarro, Little Alice, Heriot, and Duke of York; and the Bronze Medal, as second prize, was assigned to Mr. Rutherford. For the best 12 Tulips (Byblomens, Roses, and Bizarres, four of each class), the Silver Medal, as first prize, was gained by Mr. Young, gr. to T. Oliver, Esq., with Louis XVI., Washington, Scipio Africanus, Roi de Siam, biblomens; Wakworth, Montano, Memnon, Triomphe Royale, roses; Waterloo, Dutch Catafalque, Charbonier Noir, General Blucher, bizarres. The Bronze Medal, as second premium, was awarded to Mr. Forester, gr. to Captain Falconer. For fine Brompton Stocks, three red and three white, a premium was given to Mr. Dunn, gr. to J. Bridges, Esq. For Hardy Herbaceous Plants, a premium was voted to Mr. Stirling, gr., Melville Castle, the kinds being Hyacinthus amethystinus, Ramonda pyrenaica, Dodecatheon Meadia, Primula farinosa alba, Scilla verna, and Globularia cordifolia. An additional award was also made to Mr. Stirling, for several small plants, in pots, some of them Alpines of great rarity.—For the best brace of Cucumbers, a first prize was voted to Mr. Macdonald, gr., Drummond Castle, the kind being Hamilton's Black Spine; and a second prize to Mr. Gardiner, gr. to the Earl of Stair, for Long Irish Cucumber.—Messrs. Dickson and Co. having offered a prize of 2 guineas for the six finest varieties of Calceolaria produced by a practical gardener, there was a rich display of that favourite flower. The prize was voted to Mr. Pousty, gr. to J. Giles, Esq.; the kinds being Standishii, Lady Constable, Duchess of Buccleuch, Beauty of Tweeddale, Mr. Giles, and Mrs. Giles (the last a seedling). The second prize was voted to Mr. Young, gr. to Mrs. H. N. Ferguson, for Standishii, Ne plus ultra, Leith Walk Beauty, Marchioness of Breadalbane, Prince of Wales, and Captivation.—Messrs. J. Dickson and Sons having also offered a prize of 2 guineas for the best three hybrid Rhododendrons, and best three hybrid Azaleas, produced by a practical gardener, the award was made to Mr. Thomson, gr., Craigiehall; the kinds being—of Rhododendrons, Catawbiense var., hybridum, purpureum var.; and of Azaleas, ne plus ultra, bicolor, and ardens.—A Silver Medal was voted to I. Anderson, Esq., for a collection of seedling Calceolarias, raised during last season, some of which were considered of high merit, particularly Sir Isaac Newton, Cleopatra, and Aristocrat.—For a remarkably well-grown and finely-flowered specimen of Achimenes grandiflora, and for three seedling Cinerarias, an extra premium was voted to Mr. Young. Another extra award was made to Mr. Tod, Greenside Garden, for very large stalks of the Albert Rhubarb, a sort remarkable for its earliness, and which stews excellently when the outer-ribbed rind is completely pared off.—Messrs. Dickson and Co. exhibited a rich collection of exotic plants, including 40 named Calceolarias, and 12 seedlings not before shown, and had the Silver Medal awarded to them.—Messrs. J. Dickson and Sons also sent a collection of plants, including the magnificent Gesnera faucialis, and Hypocyrta strigillosa, mentioned at p. 403.—Messrs. Lawson and Sons, besides a very large Statice macrophylla, communicated nine varieties of garden Radish, among which the new scarlet oval-shaped and the rose oval-shaped were regarded as very superior sorts; and an extra premium was awarded for these.—Messrs. Carstairs, Kelly and Co. sent several plants, including the dark variety of Leschenaultia formosa, admirably grown, and densely set with flowers; for this specimen another extra premium was voted.—From the Society's Garden were Oncidium flexuosum, and Bilbergia nudicaulis, suspended without soil for the last six years, and now in flower, with two large plants of Kalmia latifolia in full bloom.—Mrs. Haig, View-park, sent several plants, particularly a specimen of Oncidium divaricatum of great beauty; Cattleya intermedia; and a well-grown Campanula grandis.—Some beautiful plants were from the garden of D. Anderson, Esq., including Erica Beaumonti, rubida, and prægnans major, Epacris pulchella major, and Gardoquia Hookeri.—A large and well-flowered specimen of Calanthe veratrifolia, and Epidendrum aromaticum, with its fragrant blossoms, were from the garden of Dr. Neill, Canon-mills.—The display of Pansies was brilliant: Mr. Logan exhibiting two stands of choice sorts, one stand consisting of seedling flowers of the present year; Mr. Symington, very select kinds; Mr. Douglas, forty fine varieties; and Messrs. Handasyde, very beautiful sorts. Mr. Sligh, Lauriston Castle, sent 20 double Anemones, and cut flowers of seedling Calceolarias. Mr. Holmes contributed a fine plant of Saxifraga pyramidalis in full flower. Mr. Cushnie produced a very good specimen of Cactus flagelliformis, having numerous flowers. Mr. Baxter, gr. to Sir J. G. Craig, exhibited some large and well preserved Uvedale's St. Germain Pears. At the general meeting (Mr. M. Rhind in the chair) it was unanimously agreed to adopt a recommendation of the Council, that the proceeds of the next exhibition and promenade (on the 27th inst.) should be applied towards paying off the balance of the debt contracted in erecting the New Hall in which the meeting was then assembled, and that members should be requested to waive their privileges of free admission for that day. It was also resolved that the offer of premiums for Ranunculuses and for Pelargoniums, and which, owing to the backwardness of the season, had not been competed for on the 5th, should be repeated for the 27th. On the motion of Professor Dunbar, a committee was appointed for considering the best mode of commemorating, in the Experimental Garden, the memory of Dr. Duncan, senior, the Father and Founder of the Horticultural Society. The following communications were then read:—On the necessity of admitting air to the roots of plants, by Mr. Anderson, Maryfield; on the application of guano to onion crops, by Mr. Morrison, Golden Acres; on flowering Tulips in water-glasses, by Mr. Reddoch, Falkirk; and on the employment of leaden boilers for tank heating, by Mr. Carstairs, Warriston. At this meeting 18 new members were enrolled.

LINNEAN SOCIETY.

June 17th.—E. Forster, Esq., in the chair. Dr. Leman presented a collection of specimens from the late William Griffith, Esq. Amongst other things there were the fruits of Dammara loranthifolia, a new species with narrower leaves than the D. orientalis; fruits of Pinus excelsa, P. longifolia, P. Gerardiana, P. Smithiana; also of Durio oxlyanus, and of a species of Neesia; pitchers of Nepenthes ampullacea, and N. Rafflesiana, and the fruit of a new species of Artocarpeous plant from Malacca, called Ipoo. The Rev. J. Barrington, L.L.D., was expelled from the Society by ballot for non-payment of his subscription.—Mr. Hankey exhibited specimens of Genista pilosa, from Ashdown Forest, Sussex.—A continuation of Dr. Boott's paper on new and rare species of Carex was read.—A paper was read from Francis Walker, Esq., on the characters of some undescribed species of British Chalcidites.—A continuation of Dr. Joseph Hooker's paper on the Gallapagos Islands, was also read. These papers were entirely descriptive. The meetings of the Society closed for the session with this evening's meeting.

Reviews.

A Practical Treatise on the Management of Orchidaceous Plants. By J. C. Lyons. 8vo. Ridgway, London; Hodges and Smith, Dublin.

The little book by Mr. Lyons, of which we formerly gave some account (see 1843, p. 343) was the herald of the present work, which is really a very useful *vade mecum* for the grower of Orchids. It contains the result of the experience of the author, who is a very zealous, and, we believe, successful collector of them, and explains in a rational and intelligible manner all that can be learned from books. Mr. Lyons gives sketches of his stands and pots, a plan of his house—of which, by his permission, we have already published the description (see p. 294, of the present volume)—and a complete calendar of all the work that is done during every month of the year. In addition to this, we have an alphabetical catalogue of about a thousand species, giving in detail the colours of each; a translation of their technical names, and a good account of the peculiar treatment demanded by each genus, or even species. To the beginner or inexperienced gardener this will be of much value. In short, we are of opinion that Mr. Lyons's work is one of those useful productions which enable modern gardeners so much to outstrip their predecessors in the art of cultivation. There are a few technical mistakes, such as assigning the genus Stenorhynchus to Linnæus, instead of L. C. Richard; but they are of no practical importance.

Mitchell's Manual of Agricultural Analysis (Simpkin) is a good account of the manner in which chemists perform the analysis of soils. All that such a book can pretend to is perspicuity and accuracy, and those qualities it appears to possess in an eminent degree. We can, therefore, say that those who wish to occupy themselves with the chemical examination of soils, will find this a safe guide in the operation.

Garden Memoranda.

Dropmore.—It will be very satisfactory to those who are interested in the cultivation of Conifers to know that the past winter has done little damage in this, their favourite home. Of the Mexicans, Pinus patula has suffered most, and may now be regarded as being tender; but P. apulcensis (not acapulcensis, as some write the word), promises to be as hardy as a Scotch Fir. Of the two trees of P. insignis, one has not a leaf browned, the other is a little touched here and there, but nothing to signify. Deodars and Araucarias are literally rushing upwards into trees; of the latter, a variety? or new species? from Chilian seed, is beginning to show a peculiar habit. Pinus monticola has a good many cones on it; but the glory of the collection just now is Abies Webbiana, many of whose cones, of the *richest indigo colour*, stud the branches, and, having been well powdered with pollen by Mr. Frost, may be expected to yield a crop of seed. As to Abies Douglasii, and those others which formerly were objects of so much interest, it is sufficient to say that they have now become as much at home in the woods of Dropmore, as if they were still inhabiting the mountain side in Oregon. Nothing, in short, can exceed the beauty of the whole place, under the excellent management of Mr. Frost. We find, however, that grafted Deodars are going off, as we long ago predicted would be the case, and this may serve as a general warning to buyers of Conifers.

Haggerstone Castle, the Seat of Lady Massey Stanley.—There is growing at this place a splendid tree of the Eugenia malaccensis, 20 ft. in height, and 12 ft. through, with branches nearly touching the ground. It is now in full blossom—covered with bright dazzling scarlet flowers, and beautiful green foliage, the leaves measuring from 10 inches to 12 in length, and 6 inches over; the tree altogether forms a most magnificent appearance.—*June* 18, 1845.

Bees.

Answers.—*W.*—The age of my hives noticed at p. 347 is, Nos. 2, 3, 4, 5, one year old, No. 1 two years old. The pasturage is composed of small inclosures of meadow and pasture, with about one-fourth of arable land, if taken at a diameter of three-fourths of a mile: increase the diameter and the proportion of arable land is greater. There are many trees of almost every description. The hedges are composed of Hazel, Willow, Maple, Black and Whitethorn, &c. During the week ending April 24, the Willows were in bloom to an uncommon extent. These appeared to be the favourites of the bees. Flowers were backward. The hives did not increase in weight after August 21. I have never known them do so in this neighbourhood. And what is somewhat extraordinary, such was the forward state of the last season, that the bees gradually declined from July 30, the period at which the Lime trees ceased to yield their sweets. These trees, of which there are many very fine ones, conclude the honey season in this vicinity. Under peculiarly favourable circumstances, a strong hive of bees will collect 3 lbs. of honey in a single day from the Lime trees. I think no increase in weight could have taken place prior to the 1st of March. With regard to the decrease in hive No. 4, it should be 8 lbs. instead of 6 lbs., as I inadvertently omitted to state that assistance to that amount was rendered. Shortly after the commencement of winter, I carefully wrapped the hives in bands made of hay, and having closed the doorways with sticks that would admit air, and nothing more, I allowed them to remain till spring. The aspect is east, with a high hedge westward and northward. I think a southern aspect objectionable. Are stock hives queenless between the first and second swarms?—*B. T.*——*Sub.*—At p. 344 of Loudon's "Gardeners' Magazine," are given the rules of the Oxford Apiarian Society, for the encouragement of bee-keeping amongst cottagers. For further particulars, you might apply to Mr. Kirtland, at the Oxford Museum; or to Mr. Payne, Bury St. Edmunds: the latter can put you in the right way to encourage cottagers to keep bees. *W.*——*Quill.*—Do you mean drone bees? Groves mentions king bees. He observes that "the king bee is of a darker colour, thinner, and larger than the queen; the queen is easily known from the king, being of a larger size, and not so dark; she has red rings round her body. A difference of opinion exists; some say there is no king in the hive, but only a queen. I have now embalmed in a small phial, kings, queens, drones, and workers, old and young." There are only three kinds of bees in a hive, but as regards sex only two. Drones are males, queens and working-bees are both of the other sex. There is a difference, however, between them; the workers being imperfect queens, or what is called sterile females. The fact that there is no difference in the eggs that produce queens and working-bees, proves that they are both of the same sex; and it is recorded, on good authority, that working bees have been known to lay eggs. It may be urged that they were small queens, or workers in a more perfect state; let it be so, still that does not affect the point at issue, nor would the great difference in the age of the two insects, for the period of life may be shortened in the working bees by their incomplete growth in the larva state. Some queen-bees have yellowish-tinted stripes on their sides, but I cannot conceive how "G." could call them red rings; if so, queen-bees would be more readily detected. *W.*——*W. A. C.*—Your bees knew before they left the stock that they could take possession of your neighbour's weak colony. Had your neighbour's bees been dead he would possibly not be justified in retaining your swarm. If he urges that your bees destroyed his very weak colony, which might have gained strength during the summer, try to obtain the value of yours, or at least a part of it, or another swarm instead. When strange bees take possession of valuable empty hives, the latter way is the best to settle the matter; for they cannot be dislodged without some injury and trouble, and of course nobody likes to part with such hives. About the middle of April is the proper time to put glasses on strong stocks, but you must be guided in some measure by the season. A small bit or two of fresh comb fixed into the glasses may tempt the bees to enter them, but in general such hives are more bent on increasing new colonies than storing up treasure. Much more can be done with strong swarms, of which you seem to be well aware. *W.*——*J. W. L.*—Want of room caused your bees to cluster outside the hives, but it is very unusual for them to lie out so long, and more especially in two seasons. More space would have prevented, though not altogether, their idleness; for—even with bees after swarming, there is often the same idleness inside the hive. Your bees being in

good condition, and the weather fine, their delay in swarming must have been owing to the young queen's not being in a forward state. The old queen would not quit till within a few days of the birth of the latter. In order to excite bees to swarm, use hives rather under the common size, and if nothing particular occurs your stocks will increase fast enough; indeed most bee-keepers complain of that propensity. See Wighton or Bevan on bees.—*W.*

CALENDAR OF OPERATIONS
For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouse.—This will now be a good time to increase many of the valuable sorts of stove-plants, they now being in a free-growing state; take off short and rather firm shoots, plant them in sand in bottom-heat under a hand-glass, and most of them will root in a few days. The Luculia, of which so much has been written, will root with certainty and freedom. The principal thing is to catch the wood in a proper state—select short young shoots—and the difficulty of propagating it ends. *Heath-house.*—Remove all the young plants into frames or pits; if to frames, make them to face the north, when little shading will be required; place the plants on a bottom of coal-ashes, and supply them liberally with water. As many of the specimens which flower freely are apt to go off without giving warning, pay particular attention in watering that the ball is quite moistened through. This tribe of plants suffers more at this season for want of an abundant supply of this element than from all other causes combined; many of them, also, from the long confinement under glass, when succeeded by hot and dry weather, suffer extensively from mildew;—when this is perceived sulphur them well, and place them in the open air, under a wall; or better, behind a hedge in a north aspect. In a few days the sulphur may be syringed off, first laying the pot upon its side, and then plying the syringe in all directions.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

All recently planted beds should be regularly watered, observing to stir the surface as soon as it again gets a little dry, to keep the earth moist beneath, and to prevent the ground from cracking. Rockets, Phloxes, and other herbaceous plants, now coming into bloom, should also be watered, if the weather continues hot and dry. Dahlias would be greatly improved by a slight mulching of rotten dung during very hot and dry weather. Do not mow Grass lawns too frequently, if the weather continues hot, but ply the Daisy rake during the heat of the day. Gentian edgings should be regularly attended to with water; nothing injures this beautiful plant so much as drought. *Pits and Frames.*—All late struck cuttings, if not wanted for turning out, should be potted off for store plants, or for filling beds late in autumn. Continue to shift any plants that require it; a little air should be given during night, if the weather continues hot, to prevent plants from getting drawn; shade during the heat of the day, and water copiously.

III.—FLORISTS' FLOWERS.

Auriculas.—Seedlings which have been pricked out in store-pans, must be protected from heavy drenching rains, at the same time taking care that they do not suffer from extreme drought. Occasionally look over the old plants, keep them free from weeds, and carefully notice whether the drainage is free. No plant suffers so soon as the Auricula from deficiencies in this respect. *Tulips.*—Attend to the directions given last week; and in early situations, where the foliage has begun to fade, the roots may be taken up, but this varies so much in different parts of the kingdom, that the amateur must in a certain degree use his own discretion. *Ranunculuses.*—Shade from intense heat, where it is wished to prolong the bloom, or where the flowers are intended for competition. Flowers intended for cross breeding ought not to be shaded. *Pinks* are in the various localities unusually late this season, but are now making rapid progress. Tie up the buds with waxed thread, retaining only one or two on weak plants. Pipings may now be advantageously put in, inserting them under a hand-glass on a spent hotbed, or in a bed of prepared sandy soil. *Carnations and Picotees.*—It will be advisable to begin to entrap earwigs, destroying them if possible before the flowers get too forward, so as these sad florists' pests cannot injure them, bearing in mind that "prevention is always better than cure."—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Early-potted successions, that have been treated on the quick-growth system, and kept free from root burning, will now be full of active roots, and require much water, especially in hot and sunny weather: take care that the water is warmed to a temperature of 80° or 90°, and use constantly weak liquid manure, as clear as wine, if possible. I find a mixture of stale cow's urine, guano, and soot, excellent for Pines; indeed, for any plant that is a gross feeder; I merely colour the tepid water with this strong mixture. Those successions, or fruiters, that are going to be shifted shortly, should be well soaked in this way about three days previous to their shift. *Vineries.*—Those early Grapes now ripe, or ripening, should have abundance of air, with a dry atmosphere; the remaining laterals, or any superfluous growth that may shade—not the fruit, but the principal leaves, may now be, in great part, removed, to allow the solar light to complete the elaborative process; giving flavour to the fruit, and furnishing a plump bud for the ensuing year. The late St. Peters, Hamburghs, or others intended for use in December and January, will now be finished thinning in the berry. Keep laterals closely stopped until the first swelling is completed, with a warm and moist atmosphere, especially through the day, moderating considerably both heat and moisture through the night. Take care to give back air only in the morning, say 7 o'clock; many leaves and berries, in a young state, are scalded through want of it. *Figs.*—As before, viz., stopping at about four eyes, constant syringing in the swelling stage, and a cessation of the same at the ripening periods, with, generally, abundance of water at the roots.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The ground having acquired its usual summer warmth, with abundance of moisture, wall trees are making rapid growth, and prompt attention must accordingly be given with regard to their regulation. The foreright shoots of Pear-trees will require to have their points cut or clipped off, but not yet cut back to the extent usually practised. Two or three inches off their points will generally be sufficient; and if they then appear crowded in places, they may be thinned by cutting some out close to the base, and others to about 3 inches from it. If any shoots are overtopping the wall, they should be reduced in the first instance. The fruit of Peach and Nectarine-trees should be finally thinned. Laterals must be stopped above the second bud. Advantage should be taken of moist weather to remove the clay from grafts, where the growth of the scion requires the matting to be loosened; but this must, at all events, be attended to before there is danger of the scion being galled by the ligature, which will be the case in proportion to the quantity of foliage that the shoot has made. Lay Strawberry runners in pots for forcing. Keens' Seedling and Myatt's British Queen are two of the best forcing varieties. *Kitchen-garden.*—Plant out Broccoli, Cauliflowers, Savoys, Cabbages, Brussels Sprouts, and Celery; from the latter all suckers must be completely removed. Sow Cauliflowers on a rich border, and so as they may be thinned out, to attain perfection without transplanting. Sow Cabbages for planting out as Coleworts. The last sowing of Knight's Marrow Pea should be made; some of the earlier kind should also be sown. Sow Lettuce thinly in rows 1 foot apart; and transplant from seed-beds before the plants become too large. Plant out Capsicums. Earth up main crops of Potatoes.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—We beg to refer to the directions given last week. *Nursery.*—See that all newly-transplanted trees are firm at the surface, treading or filling in any spaces with dry soil. Attend to grafts, and remove suckers; destroy weeds and vermin.—*F.*

State of the Weather near London, for the week ending June 19, 1845, as observed at the Horticultural Garden, Chiswick.

June		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	13	☽	30.157	30.106	84	57	70 5	N.E.	
Sat.	14	9	30.120	30.050	82	53	67 5	E.	
Sun.	15	10	30.038	29 905	84	60	72.0	S.E.	
Mon.	16	11	29 814	29 794	75	50	62.5	S.	
Tues.	17	12	29 814	29.771	80	59	69.5	N.E.	.19
Wed.	18	13	29.857	29.739	70	44	57.0	N E.	.05
Thurs.	19	○	30.039	29 994	78	48	63 0	S.	
Average			29 981	29 901	79	53	66 0		.24

June 13—Fog; heavy dew; sultry, with slight dry haze; clear and fine
14—Sultry; hot; clear and fine
15—Sultry, with slight haze; very hot; partially overcast and fine
16—Overcast and fine throughout
17—Overcast and fine; sultry, with slight dry haze; thunder, 5 P.M.; dark thunder cloud, with rainbow at 7 P.M.; clear
18—Very heavy rain at 4 A.M.; rain in forenoon; very fine; clear
19—Hazy; sultry and very fine throughout; partially overcast.
Mean temperature of the week 4½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending June 28, 1845.

June	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 22	71.9	48.9	60.4	10	0.54 in.	1	1	1	—	2	8	5	1
Mon. 23	67.8	48.5	58.2	3	0.40	1	1	2	1	3	6	4	1
Tues 24	73.0	49 6	61.3	6	0.49	—	2	3	1	2	5	5	1
Wed. 25	71.0	49.8	60.4	10	0.72	1	1	5	1	2	4	3	—
Thur. 26	71.8	49.9	60.8	8	1.00	1	2	4	—	1	5	5	1
Fri. 27	69.1	48 0	58.5	9	0.30	2	2	1	2	3	3	6	—
Sat. 28	72 3	50.8	61.6	5	0.65	2	1	3	1	1	3	2	4

The highest temperature during the above period occurred on the 28 h, 1834, and 23d, 1814—therm 91°: and the lowest on the 22d, 1830—therm. 39.

Notices to Correspondents.

ADVERTISEMENTS—*S J W*—We are much obliged to you for your counsel. The mode of action which you recommend is precisely that which we follow, as far as prudence and fairness will permit. You will perceive that the prices which we give are sometimes wholesale; and of course when small quantities are bought the price rises. As to marine glue, the price we gave was the retail, because it is not likely to be bought largely for garden purposes. We have no doubt that you are cheated occasionally by dealers; but it is impossible for us to prevent that entirely. That we are willing to go great lengths in putting down fraud, our columns testify; but buyers should be true to themselves. If those who have commodities to sell, will not acquaint the public with that fact, it is not to be expected that we should volunteer to do so, unless there is some very great object to serve—as in the case of glass. Buyers should occasionally advertise for themselves. In your own case you say that you are compelled to pay 2*l.* per ton for a bad article, the market price of which is 1*l.* per ton. Why not spend 5*s.* in advertising for a tender for the article you want; you would then get the information you seek. We quite agree with you as to the injurious tendency of advertisements in disguise; no such thing has ever appeared in this Paper, or ever will appear. No sum of money, no influence, could procure the insertion of an advertisement in it, except among the advertising columns.

BOOKS—*Anxious*—Whether or not a person can legally compile and publish a work, by getting a portion of his information from various authors, but adding original matter of his own, and so forming one good volume on the subject, will depend upon the length of his extracts. If the compilation is fairly done, it is both legal and customary.——*A B N*—"School Botany" will probably teach you all the most important terms; if not you must procure books with higher pretensions—such as the "Elements of Botany."——*A Subscriber*—Hooker's "British Flora," last edition, will, perhaps, suit you best. We think meanly of the work you mention.——*An Old Sub*—The "Gooseberry Grower's Register," published at Manchester, will afford you the information you require respecting the size, colour, &c. of Prize Gooseberries.‖——*Rus*—Macintosh's work will answer your purpose.‡

CEDAR TREE—Secure your lead with copper nails. All you need do is to keep the wet out of the hollow. Remember that the dead centre can never be replaced by the tree.

CELERY—*J H M*—Good rotten dung is the best manure for Celery, and it may be applied 6 inches thick if it can be afforded, mixing it with soil in the bottom of the trench.‡

CHICORY—*H M*—You will find full information upon the cultivation of this at pp. 293 and 294, 1844.

FUCHSIAS—Halley's Sanguinea, Youell's Countess Tyrconnell, Exoniensis, Erecta elegans, Barkway's Norfolk Hero, and Ivery's Pride of Peckham.*

FUCHSIA CORYMBIFLORA—*A C K*—Whenever this or any other plant sheds its foliage, the cause is the unequal rate of growth of the bark and the leaves. The probability is that in your case the leaves are suffering by the dryness of the atmosphere to which they have been suddenly transferred, and syringing with *warm* water is the obvious remedy. Are you *sure* that there is nothing the matter with the ball of the root, or the drainage?——*Polyphyllus*—Your flowers wither because the plant cannot support them. It is unable to do that because it does not get food enough out of the ground, either because there is not enough there, or because from want of warmth the branches, or perhaps the roots, are unable to suck it up fast enough. Very likely the roots are too cold; try the effect of giving them tepid water every evening for a week, provided your drainage is right.

GARDENIAS—*G*—Your questions are answered in detail in another column.

GLASS—*J R B*—An agency for the sale of cheap foreign glass is in course of organisation; and as soon as it is established we will take care to make it public enough.

GUANO—*J H M*—Four cwt. of this manure per acre is reckoned a good dressing; but Drumhead Cabbages are such gross feeders, you may give them more than double the above quantity.‖

INSECTS—*W X Q*—All the scales must be collected and burnt: in the autumn peel off the bark of the old Vines, and then wash the clean stems and branches with soft soap made into a lather, and used tolerably warm. If you do this your young Vines will escape the infection. *R.*——*A Galomdian*—Your Cauliflowers are infested with the maggot of a fly called Anthomyia Brassicæ, described and figured in the "Royal Agricultural Journal," vol. iv. p. 128. Dip the roots when you are planting into a thick mixture made of 1 gallon of soot and 1 lb. of saltpetre mixed with water, and top-dress with lime and soot, or wood ashes. *R.*——*W P*—No. 1 is the larva of a two-winged fly, and not of the Truffle-beetle; No. 2 was so completely dried up from not being put into a tin box with some damp Moss, that nothing could be discovered but the mutilated atoms of a minute larva. Be so good as to send us some of the wireworms in their different stages, which change to the beetles you sent; and if at any time you can furnish us with living specimens of the insects attacking the Truffles, we shall be happy to publish them. *R.*——*A Constant Reader*—Hang up some phials with a little honey or treacle in them, or lay them at the base of the plants frequented by the ants: they will congregate in them, and may then be destroyed by boiling water. When you write again, please to send specimens. *R.*——*Bucks*—The history of the black-beetle will appear very shortly in our columns. *R.*——*A T* must be content, and persevere with the Potato-traps, for there is no better mode of catching the wireworms and preserving the Carnations. *R.*——*β δ*—The maggots destroying your German Stocks are the larvæ of a fly. A top-dressing of lime and soot, or wood-ashes, will be the best remedy. *R.*——*A Constant Reader*—If you refer to the 3d vol. of this Journal, p. 907, you may probably get some hints to assist you in destroying the weevils. The malt should not be allowed to remain many days without being turned over. *R.*——*W E E*—It is the Julus pulchellus, and we know of no remedies excepting those proposed in the 1st vol. of the *Gardeners' Chronicle*, p. 196. It is doubtful whether saltpetre or salt would preserve crops from their attacks, unless employed in such quantities as to injure vegetation; but you should try the remedy you suggest on a small scale. *R.*——*J T*—You will find figures and all that is known concerning the economy of the Otiorhynchi in the 1st and 2d vols. of this Journal. There is no remedy but hand-picking by day, and collecting the beetles at night by shaking the plants over a sieve. *R.*——*A Young Beginner*—From your not putting a cork into the quill, it was crushed and all the insects had escaped; it is, therefore, impossible to say what has eaten your Roses. *R.*

LAWNS—*Villager*—Mow once or twice, according to the strength of the sward, and in wet weather; but not oftener, nor later than the end of September. The plant is apparently a seedling Yarrow, a mere weed.

MELONS—*Sub*—Melons will now require very little artificial bottom-heat; this should not exceed 75°. Train the shoots thinly and regularly. If the dung-bed has been composed of well-worked and sufficiently moist materials, the plants will require little or no water. If the roots of Cucumbers can strike into a bed of rather moist, half-rotten dung, and if their shoots be occasionally stopped and regulated, they will produce abundantly.

NAMES OF FRUITS—*J B L*—Your Apple appears to be the Gooseberry Pippin.‖

NAMES OF PLANTS—*A Constant S.*—Medicago denticulata is the plant you have sent; the Shamrock is Oxalis acetosella.——*A B*—Cerasus serotina.——*S W*—Apparantly a young specimen of Arabis Turrita.——*N O*—Gilia tricolor.——*T Davis*—Your flowers were all shrivelled up. One is Acropera Loddigesii; the other we can make nothing of.——*H W*—With every wish to oblige our correspondents, we really cannot sit down to name seeds.——*Reader*—Clitoria Ternatea.——*A M*—Malpighia coccifera, Angelonia salicariæfolia.——*Vicariensis*—Your Gladiolus seems to be byzantinus. We think there must be some mistake.

NURSERYMEN—*Fairplay*—If you wish to know who the person is we will tell *you*; the time has not yet come for publicly mentioning his name; but it may come if the warning already given should be disregarded. We will not press more hardly unless future misconduct should render it necessary.

PEACHES—*F X*—There are two letters this week in another column on the subject of the blistering of Peach leaves. Next week we will address ourselves to the subject, and give you what we conceive to be the cause. The rest of your question is sent to the Agricultural Editor.

REEDS—*F P B M*—Elymus arenarius and Carex arenaria are the two plants most used for holding together sea-banks. Other creeping-rooted coast-plants are, however, often intermingled. We believe it to be penal by English law to destroy these plants, which are or were called Marrum Grasses.

SAWDUST—*G L*—Fir sawdust decays very slowly; and, until decayed, is quite unfit for manure. We gave the other day all the information worth having that can be collected respecting the wireworm.

TAXES—*J B H*—We have not heard what the intentions of Government are.

VINES—*Dublin*—Give them their head; *i. e.*, let them grow as long as they like, only give them plenty of light and air, so as to secure the ripening of the wood.

VINE TOWERS—*E H* put up last autumn one of the towers recommended by Mr. Hoare for Vines out-of-doors, and, for fear of accident, put in two strong healthy Vines four or five years old. One he wrapped up in flannel, with a quantity of mould, and one without; they both started in May, and had two or three shoots each, but the shoots appeared to dwindle off in about a fortnight after they moved. He is fearful of losing them, although the canes are full of sap. He thinks the reason of this must be, that the bones he put inside the tower were quite fresh from the knackers, and were, perhaps, too strong for the plants, the roots of which are receding, instead of drawing nourishment from them. And he asks for advice in the matter. Can any one give it him? We cannot. All that we can say is, that at the Horticultural Society's Garden, the Vines, planted and treated exactly as Mr. Hoare recommends, will not grow at all.

MISCELLANEOUS—*Any*—We presume that your pump is not yet clean. All cast-iron pumps stain water red at first; but that disappears after a little use. If it does not go off you will have to ascertain what your water contains, which continues to rust your iron; and that must be done by a chemist.——*Mr. Plumbly*—Thanks.——*Amateur*—Most Pansies are more or less scented.*——*R O*—Not received.——*Sub*—Laurels may be propagated freely by cuttings put in in autumn. Rhododendrons are not propagated from cuttings, but may be freely increased by layering or grafting; they may be also raised plentifully from seeds, but they require a much longer time before they bloom, and then it is uncertain whether they come true to the variety from which you saved the seed.¶——*A Lady*—Your Agapanthus should be kept warm and damp during the growing season. It is either cold or drought when the foliage is young that causes the injury of which you complain.¶

SEEDLING FLOWERS.

CALCEOLARIAS—*J R K*—Your seedlings are three very pretty spotted varieties, fine in form, and varied in the markings.*

FUCHSIA—*R R R*—Your seedling appears to be a prolific bloomer, and a showy variety; but the flowers do not possess the superior qualities in form and texture of a fine flower; the sepals are coarse, and the corolla wants colour.*

PANSIES—*A Constant Reader*—Your little flower named the Prince of Orange is of no value.*——*J R*—The seedling with a yellow ground and the rest of the flower of a bronzy purple, is flat, round, and of good substance, but rather small. The purple self has a bad centre, and the large seedling with a white ground is a fine showy garden variety.*——*R R R*—Your seedlings are quite second-rate flowers in form, substance, and size; for instance, 6 and 4 are bad in form, 5 and 1 irregular in the ground-colour; 8 and 2 are the best; but the latter flower is too small, and the white self does not surpass others that are already out, of the same character.*

PELARGONIUMS—*M H*—Your seedling is a very bright and high-coloured variety; if the petals set well, and the flower retains its form while blooming, it will be a good addition to our show flowers; it is impossible to form a correct judgment from a single pip, the petals had separated from the calyx.*——*R R R*—The seedling sent is bad in form and colour also.*——*G & T*—No. 1 is the best seedling; the top petals are steady in colour, and the edging very good, but the three flowers are small, nor are any of them equal to similar varieties in cultivation.*——*H M*—Your seedlings are very inferior to those raised in the present time; they are deficient in substance and colour, the light flower is the best.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.

Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

The Agricultural Gazette.

SATURDAY, JUNE 21, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 25—Agricultural Society of England.
THURSDAY, June 26—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, July 2—Agricultural Society of England.
THURSDAY, July 3—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

June 23 { W. Market / Darlington
June 24—Bromsgrove
June 26—Ottery St. Mary
June 30—Chepstow

WE are happy to hear that THE ROYAL AGRICULTURAL COLLEGE AT CIRENCESTER is receiving the support it so richly deserves. His Royal Highness Prince Albert has recently become Patron and a Governor of the College; and we consider that it behoves every friend of an improved education for Agricultural pursuits to rally round this attempt to found such an Institution as will be adequate to the wants of the great interest, it is intended to serve.

We understand that the buildings and preparations are so advanced, that the College is expected to open for the reception of students in the course of the present year.

THE ACTION OF DISSOLVED BONES places within our reach the following *direct advantages*—a saving in the cost, and a gain in the produce of the Turnip crop.

The saving of cost arises from 4 bushels of dissolved bones producing a better crop than 16 bushels in their ordinary condition. Fact, as has been shown by the evidence of a host of experimenters, proves this; and Theory, as has also been shown, explains it.

It has, however, been assumed that, supposing 4 bushels of bones be required to supply the phosphates for one crop, 16 bushels are necessary for a rotation of four crops; and, consequently, after we have grown our Turnips with 4 bushels of dissolved bones, we ought, according to good husbandry, to give each succeeding crop 4 bushels also; and therefore, on the four-course system, we shall, if we adopt the suggestion, gain nothing by dissolving the bones but extra trouble and expense; for 4 bushels per acre, on the whole of our arable land, is just the same in amount as 16 bushels per acre upon one-fourth of it. This argument looks startling; there is no flaw in the reasoning; but, unfortunately for its stability, the premise upon which it is based is erroneous. Four bushels of bones (160 lbs.) contain phosphates more than sufficient not only for the crop of Turnips, but for a rotation of four crops—66 lbs. of bone, according to Liebig, being equal in the amount of its phosphates to the supply of three ordinary crops. To be sure, if our land be poor, it may be supposed that 4 bushels will be a very inadequate manuring for a rotation. And this is true; it is not, however, inadequate so far as concerns the supply of *phosphates;* and 16 bushels would, therefore, be an equally inadequate manuring, as it would supply little of anything else but phosphates; *these* it would afford in excess, but they would not enrich a soil deficient in *organic matter*. On the other hand, if we save 12 bushels of bones, containing that which is not required, this economy will allow us to add those fertilising matters which *are* needful. Knowing that vegetable life requires a great many sorts of food, it is not economy to apply more than is required of one ingredient, and none of others equally essential.

Bones, it is true, contain animal matter which the soil may require; but in order to supply this, we have no occasion to purchase and apply fourfold *the phosphates* required. Let us apply, in a free state, so much of the earthy constituents as are essential, and then we can purchase the other matter, in other forms, more cheaply.

No practical farmer would think of giving 20*s.* per quarter for bones, if he thought that the 33 per cent. of animal matter and water which they contain was their only useful ingredient. Yet he does so when he applies 12 bushels of bones per acre, in addition to the 4, which alone are required to supply all the phosphates that are necessary.

Even in the poorest of soils, therefore, is it not an advantage to give all the phosphates it may require in a prepared or soluble state, and thus save three-fourths of the quantity usually applied, converting the *saving* into a much larger supply of animal and other necessary matters, than the whole quantity of bones would afford? And upon Turnip soils, which are already rich in organic substances, and where the earthy part of bones alone is needed, the saving which we advocate is a positive money gain. In such places 4 bushels of the soluble bones, properly applied, will afford all that is required, and effect all that the most liberal dressing of ordinary bones could possibly accomplish.

The gain in the amount of produce, from a proper use of soluble bones, is supported by the evidence already collated; and it is not difficult to account for. When we give the Turnip plant a ready supply of its essential food, its growth, *from the commencement*, is active; its organs of nutrition are sooner developed, and more powerful in their operation; and its broad leaf, through which it inspires the whole, or a large share, of the carbon in its structure, is more speedily put forth. The growth of the plant is thus facilitated,—it suffers less from the attacks of its insect enemies, and attains an earlier and more prolific maturity. The advantage which the application gives us over the fly, is an obvious and most important agent in producing this increase of crop.

The amount of crop, however, may often be increased by the facility which the preparation affords of being used in a compost with other matters, suitable to the present and anticipated wants of the soil. It may also be mixed with any "slow-working" manure, and thus a fertiliser may be compounded, calculated both to act speedily, and to maintain fertility for a length of years.

Setting aside, however, the efficacy of dissolved bones in encouraging vegetation when the state of the soil or the season would make a *slow manure* worthless, it enables us, whether applied separately or in compost, to secure either a *late* or an *early* crop at pleasure. And the importance of this discretionary power has been thus illustrated:—

"The advantages of an *early crop* are well known when we want food for sheep in the autumn. An early crop of Turnips, too, will give more food than a crop of Rape, and let us get a crop of Wheat after it quite as well. By *sowing late* occasionally, we are able to get a *weedy* fallow *clean;* and this is of importance to a *whole* rotation. Weather also, and other circumstances, may make us in some cases later with sowing than usual. The means of hastening and securing a crop are therefore of some value."

Sufficient has now been said, we hope, to induce our readers to inquire further into the theoretical and practical evidence connected with the subject, instead of treating it with scornful doubtings, or bold denial based merely on preconceived opinions.

Good as both the theoretical and practical authorities, which sanction a method so novel and striking, may be, we do not expect that it will in all cases meet with that consideration which its arguments, on their own merits, are entitled to. There are many motives which make it difficult for anything that is contrary to cherished opinions to obtain a *fair footing* in our minds. Reason is often shut up within the fortifications of prejudice or vanity, lest preconvictions should be assaulted and taken by storm.

The value of guano was at first *denied*, and after two years' experience as generally *doubted;* yet at this moment it is welcomed alike in the cotter's garden and the conservatory; and the cit who farms a Mignonette box, vies with the lord of a thousand acres in praise of its efficacy.

On the other hand, there are those who seize upon a new theory with the alacrity that an exquisite adopts the newest cut. A minnow in their eyes becomes a whale. Their mountain, however, very often brings forth a mouse, and consequently their opinion adds little weight to any cause.

Both these classes—the sceptic and the enthusiast—retard the progress of that which, though new, is really true. They are, however, possessed of counteracting influences, and thereby, perhaps, produce less positive evil than might be imagined. If the one sometimes demolishes a foolish project, the other as often saves a good idea from perishing by neglect. The only evil which the really useful discovery encounters from these opposite and equally erroneous influences is that of delay. One class cares not for argument, the other does not wait to be convinced, and it is only when the combatants have exhausted themselves, or found a fresh *Casus belli*, that sober judgment comes in and decides according to reason and to fact.

Upon these grounds we cannot expect to meet with unanimity of sentiment on the subject which we have now gone over. On the contrary, it is now undergoing the probationary contest to which we alluded, and we are not surprised that the evidence which supports the theory is doubted by some of our correspondents, or that the advantages which are claimed for the practice are denied by others.

ON THE SEMINAL LEAF-STEM OF WHEAT.

IN the *Agricultural Gazette* of the 3d May, an advantage is ascribed to the dibbling of Wheat over the drilling of it, in its depositing the seed at a more regular depth, which I can scarcely conceive to exist, if it is carefully done; but the writer also ascribes to the depositing the seed at a proper depth, the more complete development of what he calls the neck, but which I think might be appropriately termed the seminal leaf-stem, which in many cases, more or less developed, proceeds from the seed to the coronal, and to which he attaches much importance, both as serving to support the plant, and as proving the necessity of securing a proper depth for the seed. While, singular enough, on the 14th of May, Mr. Sproule, the talented Editor of the *Irish Farmers' Journal*, in his Paper of that date, considers not only the elongation but the very existence of this neck or stem as detrimental, and a consequence of "the undue covering of the seed." At the same time, each is contending for a proper covering of the seed, and the subject is brought forward with this view. (As to the exact depth at which seed should be deposited, very many experiments would be required to determine it, and more knowledge than we at present possess; much must depend upon soil, upon the season of the year, and the more or less wet state of the ground.) Again, a writer in the *Agricultural Gazette*, of the 10th May, ascribes this property of elongating the stem, or rather its very existence, to the seed being sown in autumn, and says that spring Wheat (qy. spring-sown Wheat) "does not develope two sets of roots, but taps at once." And they all appear to believe that the tillering process takes place at the surface. "H. W." also says: "If sown or drilled stubbles be examined carefully, there will be found necks of every length, from 3 to 4 inches long to almost nothing at all, and it will appear that their different lengths will be owing, not to any capriciousness in the plants themselves, but solely to variation in the deposition of the seed, for it will be shorter or longer in exact proportion to the depth at which grain shall be placed in the soil."

Now I have dug up a short row of Wheat, in all 70 plants, sown this year, on the 20th February (from the succeeding frost and cold weather it was very long before it came above the ground) in drills, carefully drawn with a garden hoe, at a depth of about 1½ inch, so that the whole of the seed was deposited as nearly as possible at the same depth, which I should think cannot be considered either too great or insufficient. Of these 70 plants 20 had the neck or seminal leaf-stem from ½ inch to 1½ inch long; of these 20, there were only one strong plant, one middling one, and the remaining 18 were all very weak; 10 plants had this stem under ½ inch long, and of these 10 plants, four were strong, one middling, and five weak; 34 plants had no perceptible development of this stem, and of these 17 were strong plants, 13 middling, and four weak. The remaining six plants the seed had fallen on the surface, and was scarcely covered; there was no neck or stem from these, and two were strong plants, three middling, and one weak. The general depth at which the coronals of these plants were under the surface, and at which they tillered, was from 1½ to 1½ inch; indeed the whole of those that were without the development of this stem tillered at that depth, with the exception of those six that had fallen on the surface.

There are instances of these plants tillering direct from the seed, and also from a stem proceeding from it; there are others with a very short development of this stem from the seed to a first coronal, a further development to another coronal, and again another to a third coronal. I send four plants as specimens of these varieties. No. 1. The seed deposited 1½ inch deep, with a development of stem ¼ inch long, in a horizontal direction to the first coronal, a further elongation of stem of ⅝ of an inch directly upwards to the second coronal, and each of these coronals send up three shoots. No. 2. The seed deposited 1¼ inch deep, or scarcely perceptible development of stem to the first coronal, with a farther development of ¾ of an inch in a curved horizontal direction, both coronals being nearly at the same depth, 1¼ inch below the surface, the first coronal sending up three shoots, the second four (this is the only plant that can be called a strong one in the 20 plants with stems of from ½ to 1½ inch long). No. 3. The seed deposited 2 inches deep, with a development of this stem of nearly 1½ inch, the coronal being brought to about ½ inch of the surface. No. 4. The seed deposited 2 inches deep, no development to the first coronal which sends out two shoots, a curved upright development of this stem of 1¼ inch to a coronal with one shoot and a further upright elongation of stem of ⅝ of an inch to a coronal with two shoots, this coronal being brought within ⅝ of an inch of the surface.

Now it will be seen that the whole of the 20 plants, with two exceptions, having this stem or neck over ½ inch long, are very weak—that one-half of the

10 plants, with a less development, are also weak—and that in the 34 plants, where there is no stem or neck, there are but four weak plants, and that all these 34 plants are much superior to those with this stem, and as the seed was sown as nearly as possible to the same depth, and on the 20th of February, I conclude that this development of neck or stem does not originate from depth of covering, or from autumnal sowing; that it is not a normal growth of the plant, but an injurious capriciousness of it, and that its cause has not yet been explained, although I think with Mr. Sproule, that undue covering does tend to augment this disposition to throw out a seminal leaf-stem. It may here be worthy of inquiry in what way a deep covering is opposed, as Mr. Sproule says, "to the processes of nature;" but so long as we retain confused ideas of the functions that the leaf and the root have to perform, we can arrive at no satisfactory end to this inquiry. We have somehow or other got it into our heads that a plant grows from its root, and that the root sends up a plumule. Were this the case, as moisture and darkness are the proper mediums of the root, to deep covering there could exist no objection; but as, on the contrary, the plumule is the first to start, and that therefore the root grows by and from the leaf, and as light and air are the proper mediums of the leaf, by an undue covering we should exclude these, and thus preventing the growth of the leaf, consequently prevent that of the root. We find a seed will not vegetate in vacuum, at least not perfectly, and we therefore fancy that air is necessary for the root; whereas, it is the leaf only that requires it; and as the leaf also requires light, a writer in the *Gardeners' Chronicle* has even gone a step further, and would apply light to the root as well as air. One of the great advantages supposed to be derived from thorough draining and subsoil breaking, is the admission of currents of air to the roots; while possibly the fact is that the admission thus afforded to the air, acts solely in assisting chemical changes in the soil for the service of the leaf. While this confusion exists, we cannot arrive at truth; and this confusion does exist, because we draw our deductions from some false data instead of diving into Nature's bosom. The leaf, then, of a plant, its seminal leaf, requires light and air, and the root which it sends out, water and darkness (till the root is formed to supply the leaf with water; the latter, however, absorbs it, for moisture is at all times necessary to the leaf) Hence the covering should be as light as is consistent with securing a sufficient moisture; and the nature of the soil, the time of the year, and the existing state of moisture of the soil, as well as the expectant state, must all be considered, when we would give a due covering to seed.

A very simple exemplification of roots growing from leaves, is seen in a Turnip cut across, and the upper half planted; in a very short time a crowd of young roots will be seen pushing down their thirsty mouths all round the Turnip, from between the skin and the body of it.

The first-formed roots of plants must necessarily be weak; the plumule itself is a delicate being, and from such a parent we cannot expect a robust progeny. The autumn-sown Wheat sends out its roots horizontally; probably from the state of the earth at that time of the year, it will then be found more moist at the surface than beneath; but in the spring when the subsoil has become saturated by the winter rains, and the drying March winds have swept over her bosom, the surface becomes drier than the under soil, and the thirsty roots plunge deeply into the ground to seek their life-draughts; and if Mr. Towers recollects that every leaf sends down its root in quest of this *eau de vie*, he will cease to think it strange "that in this backward season, this second process is far more inert;" the second series of roots cannot emerge till their parent leaves are in existence.

In the top-dressing of Wheat which has been referred to, as well as in top-dressings of Clovers, &c., the application of specific manures do not call for the extent of chemical and geological attainments that their application to the interior of the soil do, as they are not applied to supply deficiencies in it, but solely to furnish the plants with their constituent parts. We know that chemical affinity only acts at insensible distances; all chemical action must, then, have ceased in a soil that has not been stirred for six months, and the specifics applied can only act on the superficial particles of the soil in which they come in immediate contact; the effects on the plants must, then, be solely from this very slight action; and from the elements of which the specifics are formed, these effluvia can only be absorbed by the leaves; to suppose they reach the roots, is too great an absurdity. An analysis, then, of the plants and the specifics will alone be required, with a knowledge of their actions on the water, or its components in the plants, formed by the operation of the atmosphere and its contents, with light, heat, and electricity, &c. —*J. W. M. Goodiff, Granard, June* 2, 1845.

THE SPRING-SOWN CROPS OF 1845.

THE regular and vigorous vegetation exhibited this season by spring-sown crops, is a matter of general remark, and the phenomenon presents a subject for useful and entertaining inquiry. The vigorous growth of lent crops is, in my humble opinion, ascribable to two causes; namely, the fineness of tilth in all soils in consequence of the severe and protracted frosts of the past winter; and the congenial nature of the late harvest, having enabled farmers to secure their crops free from the deleterious effects of drenching rains. I shall briefly detail the reasons on which I ground this opinion, and this because I think that the phenomenon affords matter of much instruction regarding the relationship subsisting between the vegetation of seeds and the condition of the soil, and of the seed itself.

It is obviously essential, that seeds when placed in the soil should, in order to their being properly exposed to the vegetative stimuli of heat and moisture, be brought in contact with it; and it is further obvious that such contact can only be properly effected in the case of small seeds, when the soil is in fine tilth. The experimental investigations of philosophers have taught us that heat in passing through material bodies, passes from particle to particle of their mass, and there is reason for supposing that those bodies whose constituent particles are in closest contact conduct heat quickest, and I presume we may justly apply this reasoning to the soil, and assert that the finer and closer its particles exist, the better is it fitted to convey to the seeds it covers the calorific influence of the solar rays. The soil may further be regarded as a capillary instrument, through which water, like heat, percolates from particle to particle of the mass, and it is plain that seeds will receive more moisture, as well as more warmth, *cæteris paribus*, when their entire external surface is in contact with the soil. Such a contact as that here spoken of is of course only compatible with an extreme fineness of mould, but the nearer in practice we can approximate to such a state of things, the better shall we be enabled to secure a regular vegetation of our seeds. The agencies employed by nature for the comminution of the soil, have this season, by their severe and protracted action, secured a fine tilth for the farmer, and it becomes him to follow as he may, and to profit by the operations of his great instructress. This he may do by the proper and timely application of mechanical means; and, above all, by early autumn ploughing, to expose his soil freely, and for as long a period as possible, to the subduing influence of the winter frosts.

I come now to the discussion of what appears to me to be the second cause of the vigorous vegetation of our spring-sown crops; namely, the absence of drenching rains during the progress of last harvest. It must have been frequently observed by practical men, that both autumn and spring-sown crops vegetate most vigorously after a good harvest, and if this has been presented to our observation this season more prominently than is usual, it appears to me to have been occasioned by the good harvest of last year having been succeeded by a severe winter, and consequent comminution of the soil, and to the conjoint action of the two causes.

The vigorous vegetation of seeds after a good harvest, is probably most satisfactorily explained by supposing it to be occasioned by the seed containing unimpaired those elements of which drenching rains, when exposed in the shock, or swathe, may be supposed to be capable of depriving it, its saccharine matter—its most soluble constituent—being thereby washed out, and the vegetative power weakened. It is true that sugar is developed in the seed only after vegetation has to a certain extent begun; but grain vegetates in the shock with facility in wet weather, and even when uncut if the weather prove very humid; and it is probably unnecessary that vegetation should proceed so far as to sprout the seed to enable sugar to be formed, and if not, then the repeated drenching and evaporation to which grain crops are exposed in uncongenial harvests, may be supposed to weaken the seed by depriving it of its sugar, and so most probably produce that want of vigour which distinguishes vegetation in the succeeding season.

If the above inference is a true one, it is yet difficult to direct a knowledge of it to a practical end, though it may lead to greater care in conducting harvest operations, and more particularly to the abandonment of the practice too prevalent of leaving grain-crops in swathe, in which they are much more liable to injury than when bound in sheaves and shocked; and such knowledge may further show the farmer that a careless exposure of his crop in wet weather may subject him to loss greater than he generally supposes, and may redound to his disadvantage in the quality of a future crop, as well as in the sample of the present.—*Headland, Kingswood, Surrey.*

BONES AND SULPHURIC ACID.

THE assumption of your correspondent "W. E. W." in your paper of the 24th ult., that in the experiments made by Mr. M'William, Mr. Geddes, Dr. Monson, and the Duke of Richmond, on bones dissolved in sulphuric acid, the portion manured with bones alone was drilled on the level, while in the portion manured with dissolved bones the Turnips were sown on ridges, is unsanctioned by the account of the manner in which the experiments were conducted by the respective parties, and is, I believe, contrary to the fact; the practice of sowing Turnips on ridges being almost universal in that part of the country, while drilling them on the level is seldom practised. In the language of the farmers in that part of the country, the word "drill" is synonymous with "ridge."

Although I was in the neighbourhood at the time when the experiments in question were in progress, and had some conversation with Mr. Geddes on the subject, I had not an opportunity of seeing any of the crops alluded to. I had, however, opportunities of seeing the results of a great number of experiments made in precisely the same way, in which the treatment of the crop differed in nothing except in the quantity of the manure used, and in every instance the produce after dissolved bones was manifestly greater than that after two, three, or even four times the quantity of undissolved bones.

Last season I recommended trials on a small scale to several farmers in this neighbourhood. In every case they were eminently successful. Two of the gentlemen who tried six acres each last year intend manuring in the same way from 100 to 150 acres each this year. They did not apply it in the liquid state, which I consider inconvenient, if not impracticable on a large scale; but by drill as a compost with ashes or riddled soil. I have this year recommended muriatic acid instead of sulphuric acid on chalky soils, and it will be tried extensively, one farmer having provided 30 carboys of muriatic acid for the purpose.

The objection of your correspondent "D." is easily met. Allowing the virtue of the dissolved bones to be exhausted in one crop, what is there to prevent the dose being repeated with the next? Uncooked provisions will remain longer undigested in the stomach than those that have been cooked. Are we, therefore, to eschew the aids of cookery in order to extend the period between meals? It may, however, be safely presumed, wherever a good crop of Turnips is raised, and consumed on the ground, there will be manure sufficient for the remainder of the rotation, even should every particle of the bones be exhausted.

I inclose a printed paper drawn up by me for circulation among the farmers of this neighbourhood, compiled partly from Mr. Hannam's paper in the Journal of the Rl. Agri. Society, and in part derived from my own observations.—*Wm. Ellis, L.L.D., Caistor, Lincolnshire.*

The following is the printed paper alluded to:—"The high price now demanded for bones renders any practicable method of increasing their efficiency, and thereby economising the expenditure of that tried and valuable manure, of the utmost consequence to the farmer. The mixing of bones with sulphuric acid has been found to answer this purpose to a degree far exceeding the expectations of all who have made the trial. The first suggestion of this mode of application is in Professor Liebig's work on 'Organic Chemistry, in its application to Agriculture and Physiology,' which was published in 1840; and the writer of these remarks, when in Scotland, in 1842, saw the results of a number of experiments, made in accordance with Liebig's suggestion, on Turnips, all of which were successful, and proved that heavy crops of Turnips could be raised at a considerably reduced expense. Since that time it has been extensively followed up, chiefly in Scotland, and last season also in several parts of England, with uniform success. It has been used in all states, from the simple sprinkling to the complete solution of the bones in the acid, and in all cases with beneficial results. Liebig states that 40 lbs. of finely-powdered bone-dust, dissolved in half their weight of sulphuric acid, diluted with three or four parts of water, allowed to stand two or three days, and then mixed with 100 parts of water, and sprinkled over the land, before the plough, is sufficient for an acre. A greater quantity of bones, with less of acid in proportion, has met with the approbation of most of those whose recorded trials have come under my notice. It has been chiefly applied as a liquid manure, and when that mode of application is convenient, it seems to have a decided preference. Several methods of forming a compost, applicable by the common drill have been devised, and have answered in most instances. To prepare the liquid manure on the large scale, several casks should be provided, each holding say from 60 to 70 gallons. Into each of these put four bushels of ground bones, the more finely ground the better; then weigh out 84 lbs. of acid, and immediately pour it and 25 gallons of water into one of the casks. Each will contain manure for an acre of land. When this is wanted for use, for which it will be ready in the course of two or three days, the casks may be taken to the field. Supposing the cask to contain 50 gallons, $2\frac{1}{2}$ gallons of the mixture, with 21 gallons of water added, will be the quantity required for one-twentieth of an acre. Any larger portion of the mixture, corresponding with a larger fraction of an acre, with a proportional increase of water added, may be adopted, according to the size of the water cart employed in the distribution of it. In the event of the liquid form of application not being attainable, or in case of the compact form being preferred, the following is a very easy way of making a compost applicable by the common drill. Make a conical heap (similar to that which is made by bricklayers in making mortar) of ashes or finely riddled light soil, using as much as can be conveniently drilled over three acres. Make a hole in the centre, in the form of an inverted cone, into which place three quarters of ground bones, the more finely ground the better. Give the whole heap its original conical shape, and make a hole in the centre, as before, into which pour 180 lbs. of sulphuric acid, (the average quantity contained in a carboy,) and 9 gallons of water. Keep constantly adding bones and ashes from the sides of the hole, until the whole of the liquid is mixed with the bones and ashes, and turn the whole over once or twice, to secure an intimate mixture. Let the heap stand for twelve or fourteen days, after which it may be turned occasionally, until required for use. Before being used, it should be turned and riddled, and as much slaked lime added as will take up as much of the acid as may remain uncombined. The quantity of lime necessary for that purpose will be readily ascertained by the mixture ceasing to effervesce on the application of lime. The heaps may be prepared at convenient distances, one for every three acres, in the field. The salt which results from the combination of muriatic acid and lime being one of the most powerful attractors and absorbers of moisture, and otherwise a more valuable fertiliser than that which is produced from the union of sulphuric acid and lime

(which is common gypsum), it may be fairly presumed that on high and dry chalky soils, muriatic acid, although it costs a little more, will prove a more beneficial solvent for bones than sulphuric acid. This view has been confirmed by experiment. When sulphuric acid is used, but not otherwise, 1 cwt. of common salt may be advantageously added, before mixing with the acid, to each quarter of the bones. In all cases the liquid from farm-yards, collected in tanks or otherwise, will answer much better, either in whole or in part, to dilute the acid than common water. Sulphuric acid also affords the readiest, the most certain, and the cheapest means of fixing the ammonia in tanks of liquid manure collected from farm-yards. The many and varied experiments made all tend to prove that the direct advantage in using sulphuric acid as a solvent for bones is twofold; the first consisting in the saving in the quantity and cost of the manure, the second in the gain in the quantity of produce; both these telling directly into the pocket of the user. There are, besides, other indirect advantages of great importance to the farmer, among which are the quickness of growth of the plant during its earlier stages—Turnips, manured in this way, coming to the hoe 8 or 10 days earlier than by any other mode of cultivation. The next important advantage is, that Turnips, so treated, are found to have a continued quick growth and tendency to form bulbs. This tendency to early maturity may be made available in two ways; by applying this mode of cultivation to Turnips sown on land which it is desirable should be soon cleared of that crop, for instance, as in that intended for autum-sown Wheat, a good early crop is secured; while, in the event of the time of sowing being delayed by unfavourable weather, a good late crop is secured by the same means. With respect to the application of liquid manures on the large scale, there are different opinions. It is certainly in many cases attended with difficulties, but these may be found out to be not unsurmountable. As plants require their food to be in a state of solution, any extra trouble from such an application will most likely be repaid by the extra benefit to the crop. It is probable that mechanical arrangements may be made so as to apply the mixture to the soil with uniformity and ease. Mr. Crosskill, of Beverley, has undertaken to fit his water carts with an apparatus to deliver dissolved bones in drills. All the experiments show that the early progress of the plants is greater when the liquid has been used. The farmer need not be alarmed at the names of the acids, and suppose that a chemist is wanted to superintend the details of their application. In fact no more chemistry is wanted in the matter than is required to mix seidlitz powders, or a common effervescing draught. In the whole process much may be left to the practical man, who will be able to devise ways and means of effecting his purpose, that will vary according to the conveniences which he may possess. A very valuable article on the application of sulphuric and muriatic acids with bones, will be found in the last number (Vol. V. Part II.) of the 'Journal of the Royal Agricultural Society of England.'—*W. E., Caistor, Lincolnshire.*"

MANAGEMENT OF POULTRY.

The management of poultry, whether as forming part of farm or domestic economy, is an affair of some consequence. Whatever the breed—and there are many varieties, more or less valuable—there is a proper and an improper mode of treatment, the consequences of which are speedily felt. The Dorking breed of fowls is very beautiful, and it is the favourite of Surrey. The game breed is highly spoken of for the richness of the eggs, but it is not very prolific. For the barn-door, the winter-laying gray-spotted fowl is perhaps the most desirable for general purposes. I have kept all the common varieties, and have succeeded with all, having had, in general, a very abundant supply of eggs, and excellent broods of chickens with little trouble and few casualties; but of all the sorts I ever possessed, none equalled those obtained from a cock and hen descended at two removes, from the genuine American game breed.

A pair was sent from Wiltshire, and I was assured that the grandfather of the cock was so tall that, standing on the floor, he could with ease take a crumb or corn from a table of ordinary height. My bird afforded an example of the deteriorating effects of "breeding-in and in," for though still of noble dimensions, he could not compare with his grandsire. However, this American pair brought me a September brood of chickens, which I kept for some weeks in a barn; and thus all not only survived the winter, but became beautiful pullets, and the hens fine layers by the following autumn. This fact also confirms another, namely, that as almost all fowls (save the winter-layers) moult, and cease to furnish eggs from Michaelmas till January, the only certain way to obtain a winter supply is to procure a fine and healthy brood of chickens prior to November, in every year.

As persons must possess themselves of fowls before they can obtain eggs or chicks, it is natural to turn one's attention to the subjects of food and protection, first premising that for small homesteads one really good cock and six or seven hens at the utmost, are amply sufficient; and, admitting that, with good management, each hen ought to bring at the different periods of laying—allowing intervals—about 100 eggs a year, a family may thus be well supplied throughout. The Polanders, with tufts on the head, are noted layers; Mowbray observes that they are the least inclined to sit; whence they are called everlasting layers. From five Poland hens he tells us that he had 503 eggs between October and October; one of them only sitting within that period.

The hen-house should be secured from rain; it should be furnished with firm and rather high perches; which, if the number of fowls be great, ought to rise in a sloping direction from the front toward the back wall, leaving space sufficient to permit the droppings from each fowl to fall on the floor, which ought by all means to be covered with free-sand blended with some powdered gypsum—a substance which appears to possess affinity sufficient to attract the ammonia that is speedily developed in warm weather.

This covering, enriched by the droppings, should b removed weekly and deposited in some shed, where it would speedily be converted into a manure little inferior to the best foreign guano. Every hen-house should also be lime-whited annually, to destroy any offensive animal effluvia. Cleanliness is so essential, that in farms where large broods have been huddled together, without lime-whiting the hen-house, the destruction from contagion has been frightful. Chloride of lime might be used as a remedial wash in such cases. A hen-house should be dry, warm, airy, and cleanly. Security from vermin ought also to be borne in mind, for weasels, stoats, and rats, are bitter enemies of the younger broods.

As to Food—provided there be free egress to a common or pasture—nothing, perhaps, can be more suitable than a liberal supply of really good Barley; if fowls will not pay for good keep, at all events they will become the cause of much loss if their treatment be penurious. But, besides Barley, I have proved that they delight in the seeds of the Sunflower. In 1831 I cultivated the plant by hundreds for the express purpose of poultry-feeding; but it being found that half of the seed was devoured by small birds, the cultivation was discontinued. I then grew Indian Corn—that variety of Zea Mays, which Cobbett claimed as his own; it prospered exceedingly, and we had the green spikes or cobs for the table in abundance, as well as ample store of ripe ones for the yard. At first the fowls were startled by the gloss and size of the grain, but after venturing on a taste they devoured it with voracity, preferring it to every other kind of food. This vegetable is of easy culture, its growth is beautiful and interesting, and its absence from the garden is much to be regretted; it would form a capital experimental subject for electro-culture. [Buckwheat is excellent food for poultry.]

In Raising Broods of Chickens, the eggs for setting ought never to be more than a month old, and the newer the better; from 10 to 15, according to the size of the hen, is the usual number, and each egg should be marked with a circle of ink, in order to detect any other egg that may be laid to the nest. Some hens will persist in choosing their own nests; but in general they are sufficiently under control, and then should be placed above the floor of a shed (not the roosting-house), employing fine and soft straw in lieu of long straw or hay. The same material ought never to be used a second time, as cleanness and freedom from vermin require that a new bed should be given to every hen that sits. The period of incubation occupies about 21 days, and some hens sit so close that it becomes necessary to place some corn and water within their reach. The habit of each fowl ought to be carefully observed, in order to prevent accidents: some hens set so pertinaceously, that is requisite to lift them off the nest, and lay food before them.

At the time of hatching persons are, in general, but too apt to interfere, to the great injury of the brood. Nature has provided each chick with a supply of aliment within itself, amply sufficient to secure its nutrition for 40 hours; and during that time every chick that emerges from the shell will gain strength from the genial heat of the mother; therefore, to remove it prematurely is in fact to induce debility and future disease. A few hours will, in most instances, determine the number of the brood; and then the eggs remaining may be shaken, one by one, for if there be any sensible fluctuation that egg is defective, and cannot contain a chick.

The brood being completed, the hen must be placed in a coop upon a dry bottom of sand or gravel, sheltered from rain, but open to the air. The cruel and utterly needless practices of picking off the little scale that attaches to the tip of the chicken's beak, and forcing a Peppercorn down its throat, should be abandoned, and nothing should for a time be given as food but small or split grits; after a time bruised Barley or fine tail Wheat can safely be substituted. Water must never be withheld, but it ought to be placed in a proper chicken-pan made of ringed channels, by which the feet can never be soddened with water, nor any risk of drowning incurred.

Ducklings are raised and carefully attended to by a hen; better, some assert, than by the natural mother; and the reason is obvious. A duck is an aquatic bird, and is therefore apt at too early a period to conduct her brood to the water; a hen, on the contrary, shuns water. But her care is rather a cruel task upon her endurance, since a week more of hard sitting is required; and by the time of hatching, there frequently is not a feather left upon her breast. In every case water of any depth should be kept from access till the ducklings acquire strength.

Situation of the Poultry-yard.—In farms, the common straw-yard is the place of ordinary resort for all kinds of poultry; but in private establishments, a good expansive yard, the foundation of chalk, covered or mixed up with sandy gravel, is to be preferred. There should be a considerable slope, with good drainage, to carry off rain-water; and no dripping eaves or thatch should be allowed; for puddles of water are destructive to young chickens. The yard ought to be fenced, so much as to prevent the egress of a chicken through any cranny at the bottom, with the single exception of a trap-hole, which may, or should lead, to some common or orchard of short Grass; and this trap ought to be closed every night, and indeed during the greater part of the day, excepting at those hours when the birds are naturally inclined to stroll. It is curious and interesting to watch their instinctive movements, which as the state of the weather may indicate, frequently takes place, as it were, by signal, at a given moment.

Nothing can be more favourable to the health of poultry than a free range about twice a day, over short Grass, when the dew is off. If no such range be at command, the yard ought to be the more spacious; so as, according to Mowbray, to admit of a considerable plot being sown with wild Glover, Burnet or Star-Grass. It is also advisable to let fowls have access to heaps of dry sand or ashes, wherein to roll and cleanse the feathers by dusting off that vermin and impurity which the skin and feathers soon contract. If, however, there be a common with a sandy lane near at hand, there will be no need of artificial contrivances; the fowls will find ample supply of green food, and means to dust and cleanse their plumage at their own free-will.

Our simple arrangements consisted of a good gravelled yard, with an outlet to a lane, leading to an expansive common. The birds generally took a ramble soon after sunrise; they afterwards reposed at noon, perching on some convenient fence or rail; issued forth a second time about four or five in the afternoon during the long days and went to roost soon after the afternoon meal; and never were fowls more healthy, or in all respects prosperous. Everyone, however, who has the means at command, should exclude them from a garden, and the best fencing to prevent flight is a light trellis of pointed laths placed above a wall or wooden paling.

Poultry kept on the large scale, as they well may be in large establishments, prosper exceedingly in some selected portion of a park, hedged and fenced off to the extent of an acre or two, the space being interspersedly planted with tall Fir and other trees. Herein every species may be kept with safety: turkeys, geese, pintadoes, ducks, and barn-door fowls. Such a place admits of a bailiff's or manager's dwelling, with requisite offices attached; an apparatus for steaming Potatoes to be mixed with meal and pollard; breeding-houses and roosting-sheds for each species; and all within a single ring fence. I have seen in one such establishment turkeys in vast numbers, and other domestic fowls, with broods of young, at all ages, apparently intermixed; but yet, in reality, apart and separate. The great space, needful appliances, and admirable system of management, admitting of this wide intermixture. But in confined premises it would be folly to attempt a general collection; or, at all events, turkeys and guinea-fowls must be excluded, otherwise the smaller species of poultry will be subjected to an endless system of cruel persecution.—*T.*

Home Correspondence.

Electro-culture.—A late Number, containing a statement of your mode of supplying the electric fluid to plants, appearing to you as good an arrangement as that which I, after much and years of thought directed to the subject, adopted, and which has been since promulgated, will I hope be a sufficient excuse for giving some of the reasons why it is not as yet with you attended by beneficial effects. Both the north and the south end of the wire suspended and collecting the electric fluid ought to be in metallic communication with the buried wires, otherwise the circulation of the electricity is intercepted, or nearly so, for I find that the corners of my plots do not affect the magnetised needle similarly; thus, although the south end of the suspended wire attracts the south pole of the needle, and the north end of the wire the north pole of the compass-needle even at some distance, the south-eastern and north-eastern corners of the buried wire both attract the north end of the needle, while the south-western and north-western attract the south pole of the needle; and as this result cannot be obtained with the wires buried and disposed as in your experiment, so also the result cannot be similar to that which it is in my arrangement. Besides, the electric tension of the air has, until the last few days, been so low, that any very perceptible beneficial influence for the last two months could not have reasonably been expected, any more than that a windmill would be of use when there exists little or no wind. Experiment on eight acres in one plot has already proved that large areas may be electro-cultured, although as at first advised by me the parallelograms should be longer north and south than they are wide from east to west in the proportion of one to two or three, and every increased width of about 30 to 40 yards, beyond the first 30, should have at least one additional suspended collecting wire. "Beta" observes, that the effect of the electricity extends without the plot surrounded by the buried wire. My observations lead me to believe that it does so in a very limited degree to the eastward, the line of corn improved on that side being concave, or receding from the east in the mid-length of that side, which it was in about the same degree convex, or tending beyond the wire to the west, on that side. The explanation given above why the diverging wires had not the same influence when supplied with electricity as the circumventing wires, also indicates the reason why the effect is so nearly confined to the plot, or area, included by the latter. I would also advise your floricultural readers to have the whole of the buried wires,

poles, &c., arranged at once, if not previously done, but not to erect the suspended wire until the flower-buds are beginning to be formed, otherwise the plants will thrive to an unusual extent, as I have seen this year they did in the hands of a friend, and the flowers will in consequence be injured in a degree, while if the additional power is added just as the flower-buds are formed, nearly the whole of the increased supply of fluid will be employed in the development of the flowers, which are in consequence, larger, more perfect, and the colours more brilliant.—*R. Dewey Forster, Findrassie, near Elgin.*

Chaytor versus Mechi.—In reply to Mr. Chaytor's remarks, allow me to say, a just judge always reviews the favourable and unfavourable side of a cause—a mere partisan only advocates his own case. Mr. Chaytor evidently went to my farm to find fault (for he would find nothing that pleased him); he, like a great many more unreasonable persons, forgets that it is not quite practicable to remove one's banks and fences, cut new ditches, drain the land, subsoil it, and grow the crops all at one and the same time. I might have waited some three or four years till the land was in condition before I spoke of it; but I did not, for my own gratification, choose to lose the earliest opportunity of stimulating agricultural improvement. A critic who can discern (or fancies he can discern) a fault, but has not the ability to suggest an amendment, ranks very low in my estimation. My drains act admirably; but that does not blind me to the fact that had I followed Mr. Parkes's recommendation (as I am about to do on some 45 acres), they would have been more perfect, because deeper and cheaper. It appears to be, however, in Mr. Chaytor's eye, a crime to admit and correct one's errors or omissions. If all the land in this country were drained as well as mine at Tiptree, there would not be much reason to complain. On the general subject of timber and fences I may hereafter trouble you with some remarks. To advocate their existence in our inland districts is an inconsistency of which there is an abundance in Mr. Chaytor's letter, too evident to require comment. By referring to my letters, p. 6, he will find I have said (and this answers his objections), "In cold and elevated districts, well-regulated plantation belts are essential, but cannot be required in our midland and southern counties where there should be well-arranged homesteads, through which no north or east wind should be permitted to breathe, much less blow." Mr. Chaytor's presumption in venturing a sweeping condemnation of Mr. Parkes's most erudite, scientific, and universally-approved paper on drainage, without giving proper reasons for it is a hardihood that will obtain for him a most infelicitous singularity.—*J. J. Mechi*, 4, *Leadenhall-street.*

Bitter Yeast, &c.—I wish to inform "R." that he may render the most bitter yeast perfectly sweet by the use of the common Stinging-nettle. Our family is small, and a part only eat home-made bread, threfore the quantity made is small. A quartern of flour was this morning thus converted into two light well-flavoured loaves. Four tops of Nettles, about 6 or 8 inches long, were put into a basin. A teaspoonful of good thick yeast was mixed with about a pint of lukewarm water, and poured on the nettles, and was allowed to remain a few minutes. The flour, and about a table-spoonful of finely powdered salt were, in the meantime, well mixed, a hole made in the middle, and the yeast and water poured through a sieve into the hole in the flour, and sufficient flour stirred in to make it of the consistence of thick batter. This was done at 11 o'clock; it was mixed, and well kneaded, about one, put in the tins, and was ready for the oven about half-past two—of course from the small quantity of yeast used, it would take a longer time rising. Some flour will absorb a much larger quantity of water than others, therefore it is impossible to say exactly how much will be required, but about 1½ pints to a quartern are sufficient. If the oven has been well heated during the morning, the loaves will take about one hour to bake; they should be turned out of the tins as soon as baked. I have been thus minute in my directions, because I believe many persons in delicate health would be greatly benefitted by eating home-made bread.—A useful crust for fruit pies and meat is made, by taking a piece of dough, and after chopping up some mutton fat, or beef suet, well kneading the fat and dough till it is well mixed, roll it out, cover the fruit or meat, and let it stand in a moderately warm place till it is sufficiently raised, then bake. *Vegetable Marrows.*—Those persons who have sufficient space should plant some for their tops only, which, with a few inches of their stems, are fully equal to the fruit in delicacy of flavour; and, should this summer prove a dry one, may be very useful.—*X. X.*

Sulphuric Acid.—The results obtained by bones dissolved in sulphuric acid promise to give us one of the best and cheapest of fertilisers, besides economising the consumption of that valuable article. The greatest drawback and objection to its general use is the price of the acid, and also, as is the case with us, the distance from a manufactory of the same; and there are but few carriers who like to have anything to do with its conveyance. We are charged 2*d.* per lb. as the wholesale price by the druggist, taking two or three carboys at a time; this appears to be too much by one half. This has put the notion in their heads of a few neighbouring farmers clubbing together to make our own acid; and an acid for the purpose of dissolving bones, as it requires no further process of concentration, &c., than bringing it to a given strength in the lead chamber, appears to be a very easy process. Will you, or some of your kind chemical readers, have the kindness to give us the help of your best advice as to the size of the lead chamber, and the price we ought to pay per ton for sulphur and per cwt. for nitrate of potassa. Any other hints of advice on the subject will be acceptable, and if they be not of immediate use to us, they may possibly be so to some of your agricultural readers; for what should hinder the farmer, after having received a little direction and instruction from making his own acid? which is, in fact, a less difficult process in chemistry than making a cheese, only one takes a longer time in the process than the other.—*T. B.*

[You will find the attempt to end in disappointment and loss, besides involving considerable danger to those ignorant of the requisite processes. It appears that the size of the leaden chamber is essential in some way to the success of any attempt to produce sulphuric acid by the mixture of sulphurous acid and nitric oxide gases in common air, and accordingly the leaden chambers actually employed are of enormous dimensions.]

Sulphuric Acid and Bones.—The following recipe I tried on parts of three fields last year mixed with 80 bushels to the acre of burnt turf ashes, put on with a drop drill (Hornsby's, of Grantham) and ridged 27 inches wide, and had as good a crop of Turnips as I had from 12 two-horse cart-loads of cake muck to the acre; drilling this preparation with the seed, mixed with any quantity of ashes you choose, saves a world of inconvenience that would be experienced by putting it on in a liquid state, as hitherto recommended; and as all the bones are never fully macerated, the nozzle is apt to get stopped in the liquid cart. My sulphuric acid cost me 1*d.* per lb. in Hull this year. *Receipt:*—Put 12 bushels of bone-dust or ½-inch into an old brewing tub (the one you use to wash sheeps' locks in will do), damp them with two pails of water and stir up well; then pour the contents of a carboy of sulphuric acid on them (about 183 lbs. on an average), stir well together for half an hour; let them remain in the tub five or six hours, or longer if you like; then add eight pails of water, stir it well up until it looks like gruel; then ladle the whole contents out into dry ashes, and turn over two or three times until ready for drilling. Use what quantity of ashes you please. This will do for four acres.—*G. Gillat, Horncastle.*

Warping.—In answer to your correspondent's inquiry as to "where operations are now in progress for warping lands," &c., I beg to refer him to the parish of Goole, and the adjoining one of Swinefleet, in Yorkshire, where extensive improvements have been effected, and are still in progress, by leading the water of the Ouse several miles inland from it, and inclosing the lands requiring to be warped by high banks.—If your inquirer is interested to any extent in the question, a journey to look at the concern would no doubt well repay him, and he will easily get every information he wants from the manager of the warping concern of Ralph Creyke, Esq. —*A Constant Reader.*

Dairy Experience.—My dairy-maid tells me that this month (June) and July are the worst butter months; is this a fact? The return of butter last month from six cows was 129 lbs., 63 quarts of milk per day being appropriated to calves, &c. Was this fair play? The cows are excellent milkers, and the breed a cross of the old Irish and Durham. If any of your correspondents interested as I am in their dairy, will be so very good natured as to answer my questions, I shall feel myself much indebted, being unable personally to superintend my dairy at present.—*Emily.*

Mr. Lawes' Experiments.—I perceive a communication from Mr. Lawes in your last, who seems to have taken considerable trouble in some experiments relating to the Turnip crop; but the conclusion he arrives at, that "the principle of applying a manure according to the analysis of the ash of the plant is false," I think from his experiments he is not justified in, because, in his first season, 1843, he puts certain inorganic substances to heavy land not naturally suited to Turnips; but instead of putting a portion of every inorganic substance contained in the ashes, he puts only three or four out of the eleven or twelve (according to Sprengel) and throughout the whole of his experiments I do not see that he has once put the four principal ones, viz, lime, potash, soda, and phosphoric acid, to say nothing of the minor ones, which by-the-bye, are as necessary as the large. To give a popular example; how can Mr. Lawes expect to make a good bowl of punch without he puts the whole of the materials; it will be useless his putting a large quantity of brandy, water, and sugar, without he puts one of the lesser ingredients, a slice of lemon, and even then to get it perfect he must put a dash of rum, a nutmeg, a clove, a stick of cinnamon; so after all his trouble I do not consider his conclusions fair.—*G.*

[We shall be glad to hear your opinion on the "bones and acid question."]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's House in Hanover-square on Wednesday last, the 18th of June, present His Grace the Duke of RICHMOND, K.G., President, in the chair, Viscount Torrington, Sir J. V. B. Johnstone, Bart., M.P.; R. Archbold, Esq., M.P.; J. Baines, Esq.; T. R. Barker, Esq.; J. B. Browne, Esq.; F. Burke, Esq.; H. Burr, Esq.; W. W. Burrell, Esq.; Col. Challoner; F. C. Cherry, Esq.; W. A. Cherry, Esq.; E. D. Davenport, Esq.; J. E. Denison, Esq., M.P.; T. Dunne, Jun., Esq.; F. W. Etheredge, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; J. B. Glegg, Esq.; S. Grantham, Esq.; G. Heneage, Esq.; C. Hillyard, Esq.; J. Kinder, Esq.; J. J. Mechi, Esq.; A. Ogilvie, Esq.; J. Parkes, Esq., C.E.; Rev. T. Pennant; R. W. Purchas, Esq.; W. Pyne, Esq.; J. G. Rebow, Esq.; Prof. Sewell; W. Shaw, Esq.; W. Simpson, Esq.; T. Spencer, Esq.; T. Manners Sutton, Esq.; E. Thomas, Esq.; T. Turner, Esq.; and T. Tweed, Esq.

The EARL OF EUSTON, of Clarges-street, Piccadilly, was elected a Governor, and the following gentlemen Members of the Society:—

Farrer, Edmund, Sporle, Swaffham, Norfolk.
Abbott, Stephen, Jun., Castleacre, Swaffham, Norfolk.
Bateman, Henry, Asthally, Witney, Oxon.
Gardner, Robert, Leighton-hall, Shrewsbury.
Lawson, W., Longhirst-hall, Morpeth, Northumberland.
Harris, Henry, High Ercal, Wellington, Salop.
Pearson, Rev. John, Rector of Suckley, Worcester.
Bent, William, Chilton, Shrewsbury.
Nash, Joseph, Walesby, Market Rasen, Lincolnshire.
Kirman, Thompson, Walesby, Market-Rasen.
Jones, J. Robinson, Brithdir Hall, Welshpool, Montgomery.
Mytton, Rev. D. F. Glynn, Llandyssill, Montgomery.
Downes, Thomas, Brynich, Brecon.
Digby, Rev. Kenelm, Tettenhall Rectory, Litcham, Norfolk.
Taylor, William, Showle Court, Stoke-Edith, Hereford.
Racster, William, Thingehill, Hereford.
Elliott, William, Brick House, Burghill, Hereford.
Macdonald, Rev. Douglas, West Alvington, Kingsbridge, Devon.
Drinkwater, Richard, Sen., Shrewsbury.
Twort, Tyler, Horsemonden, Kent.

The names of 17 candidates for election at the next meeting were then read.

DEEP DRAINING.—Mr. PARKES exhibited a diagram, explanatory of the action of the 4 feet deep drains, described at a previous meeting in a letter from the Right Honourable C. Arbuthnot. Since that period, and during the recent heavy rains, a hole had been dug 5 feet deep, near the crown of one of the ridges of land, about 24 feet wide between the drains. The object of this experiment was to test the depth at which the water might stand after rain had ceased, and had passed off through the drains, and it appeared that free water pretty uniformly existed in the hole at a depth of 4 feet 2 inches from the surface. The rise of the ridge, at the crown, was 15 inches above the level of the surface of the furrows, so that the level of the water, at the half way between the drains, was 13 inches higher than the bottom of the drains. Mr. Parkes called the attention of the council to the important phenomena elicited by this experiment, and as bearing particularly on the drainage of ridged land. Mr. Arbuthnot had described the field to have been drained 2 feet 6 inches deep previously, but that it remained constantly wet, whereas it was now thoroughly dry; and the singular fact appeared that drains laid in the furrows 4 feet deep removed the stagnating water to a depth of 4 feet 2 inches below the crown of the ridge. He hoped to be able at a future period to lay before the Council the result of similar tests applied to the ridges 45 feet in breadth. Mr. Arbuthnot had furnished him with particulars of the cost of this drainage, which amounted to 18*l.* 15*s.* for the seven acres, or 2*l.* 13*s.* 7*d.* per acre, which would be considered very moderate, when it was known that the small pipes had cost 30*s.*, and the 3-inch mains 40*s.* per 1000. Mr. Parkes would caution those who might practice deep draining, not to expect in all cases such immediate beneficial results as had occurred in this, and in many other instances where land had been long drained previously, though at shallow depths. It was well known in the Weald of Kent clays, that drains laid 3 and 4 feet deep in undrained lands, rarely produced their full effect, till after two or three seasons; yet in most cases with which he was acquainted, where deep drains had been placed in the same soil, previously shallower drained, they acted at once, and efficiently. He would again bring to the recollection of the members, the facts stated by Mr. Pusey, viz, that drains laid in some clay land of his had scarcely acted, or very imperfectly, till after the long drought of last year, when recently made drains also produced an immediate effect.

Mr. SPENCER, whose letter to Mr. Parkes was read at the previous meeting of the Council, favoured the members on the present occasion with a detailed statement of his plan of deep draining, the circumstances of soil under which it had been executed, and the beneficial results with which it had been attended. He submitted to the inspection of the Council various plans, calculations, tiles, and specimens of the soil in which his operations had been conducted. He also furnished a copy of the following letter, addressed to him out of Hertfordshire, by the tenant referred to in his former communication:—

"*Hadham, June 7*, 1845.

"I am happy to inform you that the drains act in every way as you told us. Since I wrote to you, the shallow drains in the next field have not run for three weeks together, but the 4 feet ones have never stopped running since they were done. Mr. Randolph came up last week, after the rain, and was very much pleased to see them run so freely, and no water standing on the land. Most of my neighbours approve of the plan, but do not like the expense, as corn is at a low price. I do not find any difference in those that had bushes in them. My man says the land ploughs better now, and I think more good will be done in a year or two. My neighbours say I am ploughing too deep, but I don't mind what they say, as I have been told so before, but afterwards found the benefit of it.—JOHN SMITH."

Mr. DENISON, M. P., called the attention of the Council to various important points of consideration, in reference to the conditions under which the system of drainage found successful in his own case by Mr. Spencer, and advocated on theoretical grounds by Mr. Parkes, could be adopted generally, and without a more

specific inquiry into the principles on which Mr. Spencer's land had been drained, and a careful consideration of the question, how far those principles would render the system effective under other circumstances, in which the nature of the soil, the depth of the strata, and the position of the water itself in the land, would materially influence the results.

Veterinary Practice.—Mr. Turner, President of the Royal College of Veterinary Surgeons, transmitted a report of the proceedings of the Council of that body during the past year.

Mr. Faulkes suggested that the Society should publish "a work comprising the best method of prevention and cure of the common diseases of horses, neat cattle, and sheep; clearly pointing out such cases of a more dangerous class, where veterinary surgeons ought to be called in."

Prizes for Cattle.—Mr. Hillyard stated, that as he considered the great object in offering prizes for different breeds of cattle was to ascertain which breed produced the best beef, with the least amount of expense in the feeding, he should on a future occasion propose that the Society take into consideration the propriety of offering two prizes of 10*l.* each for oxen of any breed under five years old in one case, and under four in the other; the restrictions as to feeding, being the same as in class 2 of the Smithfield Club.

Draught on Uneven Ground.—Mr. Beaumont informed the Council that having completed the model of his contrivance for the draught of carriages, or the working of ploughs on uneven ground, it might be seen by the members at Mr. Frasi's, engineer and millwright, 158, Goswell-street. The Council directed information to be conveyed to Mr. Beaumont that, when his machine was completed, he would be at liberty to exhibit it at any of the country meetings of the Society.

Draught by Wind-Power.—Mr. Fuller, M.P., laid before the Council various interesting statements connected with the experiments of his tenant, Mr. Stace, residing at Berwick, near Lewes, in Sussex, in the application of the power of windmills to the general purposes of agricultural draught, especially in the operation of ploughing. Mr. Stace remarks, "We believe we are prepared to show, by our rude and imperfect apparatus, that we have invented means of applying wind-power to the purpose of working agricultural implements effectively, cheaply, and, therefore, profitably. We have considered it useless to attempt more than to bring our apparatus to that state in which we can show the efficiency and applicability of the power, and thus defend the invention from piracy; leaving it for completion to the application of the skill of the practical machinist. The facts that we have ploughed, and ploughed well, several acres of land whilst making our experiments—that we have mole-ploughed several acres—and that we have drawn Pearson's draining-plough—are sufficient to convince us of the utility of the invention; and even though it were not susceptible of greater improvements than we can apply, *we* should use it; for the advantages of being able to plough land at some seasons, without treading it with horses, are so great, that it would be worth doing at even a greater expense; but we can, I believe, plough by wind at less than half the expense of horses. It has been considered desirable to substitute mechanical for manual power in the plantations of the West Indies, and it appears to me that in hot countries, where the wind is tolerably certain, our power might be very advantageously applied, as the labour attending the ploughs is very trifling, and the mills might be taken to pieces in a few minutes in the case of a storm."

Mr. Stace furnished a sketch of the arrangements by which his trial ground was ploughed, from which it appeared that, supposing the field to be a square, the two windmills were so relatively situated to each other, that the one would occupy one corner of the square, and the other windmill the other, where the same diagonal would terminate in opposite directions, the furrows being parallel to two of the sides of such square, and made by ploughs attached to an endless rope passing round the wheels of the mills for its prime movement, and over upright rollers placed along the other two sides of the field for the regulation of the lines of draught, and moved onward over the unploughed portion as each furrow was successively completed. A man was required to each plough. In a moderate wind three ploughs, and in a strong wind five might be used at the same time.—Mr. Denison doubted whether wind-power would be found equally advantageous with that of steam; and he had understood that in the marshes the wind-mills had been given up for steam-engines.—The President stated, that in company with the Earl of Chichester, he had seen Mr. Stace's apparatus at work on an 8 acre field, when two ploughs were going at the time. They were much struck with the clever way in which the sails were shifted. He knew Mr. Stace as an intelligent practical farmer, and as the author of one of the Prize Essays of the Society, namely, that on the rotation of crops best suited for heavy lands.

Morocco Wheat.—Sir Arthur de Capell Broke, Bart., of Oakley Hall, near Kettering, presented to the Society a supply of Barbary Wheat, grown 14 years ago in Morocco, and brought by himself from that part of Africa. The cultivation of it on his return to England, had been tried by his tenants in Northamptonshire, but whether owing to the unsuitableness of the soil, or an unfavourable season, it came to nothing. Thinking that some portion of the Wheat might still be found good, and that on further trial its cultivation might be attended with better success, he took that opportunity of laying it before the Council accordingly. Sir Arthur stated, that the attention of travellers had often been attracted to the "Matamores," or granaries of Morocco, on account of their simplicity and efficacy, being merely pits dug in the ground and lined with straw at the sides and bottom; and that in these receptacles, owing to the nature of the soil and the dryness of the climate, grain was preserved uninjured for many years.

Bridles.—The Duke of St. Alban's having presented to the Council, at the previous meeting, a bridle for the effectual control of a strong and vicious horse, in which the principle of leverage was conjoined with punishment effected by a sharp rectangular curb-chain, Mr. Shaw thought it might not be unacceptable for the Council to receive also a bridle intended for a horse of similar propensities, but less vicious and powerful, invented by Mr. Martin, and of which the principle introduced was that of impeding the horse's respiration. This was effected by a leather strap, each end of which is attached to the ring of the upper end of the bit-iron, and being crossed forms a loop which passes over the horse's nose. On drawing the curb-rein, the upper ends of the bit-iron are projected forward, and carrying with them the two ends of the nose-band, the loop is drawn tightly over the nose; the muscles which regulate the expansion of the nostrils rendered ineffective, and the horse consequently unable to draw his breath with that freedom which is essential to the increased respiration his going off, or continuing at, speed would occasion. Col. Challoner remarked that he had observed, when in Italy, that the Neapolitan cab-horses were driven without bridles, by a similar contrivance, of the nature of a cavesson, commonly used in England for breaking horses, being a leather band passing over the nose, lined inside with sharp studs, and furnished outside with two short projecting ring-stems, to which the reins were attached, and the horse driven without the slightest inconvenience.

Mr. Cadogan Williams presented specimens of preserved vegetables, and concrete formed of Glamorganshire lias lime and gravel; and Mr. Turner communicated the results of his experience in barking trees.

The Council ordered thanks to be returned for the various communications presented them, and adjourned to Wednesday next, the 25th of June.

Farmers' Clubs.

Cardiff.—Mr. David read a paper on the Use and Abuse of Lime. He said, "My remarks shall apply more immediately to the abuse than the use of lime. It is true that lime has hitherto been considered as the staple manure of this county, and almost the only artificial manure used until very recently, for in most of our old leases, covenants are introduced to require the frequent application of it; but I am inclined to think that at a more remote period marl was the general manure used. At what period the change took place it is difficult to say, but I should think at least a couple of centuries ago. We have had many marl pits in this country, which appear to have been worked very extensively. I have several on my own farm, containing marl of excellent quality; and in these excavations, trees of large dimensions have grown, such as Oak, Beech, Elm, &c., but decayed inside; and as they could not have stood there during the period of working, I conclude the pits must be of the age mentioned, while our lime-kilns and quarries do not present the same evidence of antiquity. Farmers are proverbial for clinging to old habits and deep-rooted prejudices, and more tardy in the adoption of improvements than any other class. Perhaps there are few subjects which evidence this feeling in a stronger manner than the use of lime by the farmers of this country. I am willing to admit that in some degree this feeling is praiseworthy, so far at least as it proceeds from a desire to keep the land in good heart; but when it is entertained and acted upon, to the exclusion of all other manures, and to the neglect and waste of many equally as valuable, it becomes an evil, and an evil of a very expensive nature. How often do we witness heaps of dung left to lie about the small farmyards throughout this country for two or three years, frequently on sloping ground, exposed to the washings of the winter's rain, and again the absorption of the summer's sun, until scarcely any traces of it remain; while at the same time the owner may be expending no inconsiderable sum in procuring lime from a distant part of the country, which occupy his teams at a season of the year—generally May or June—when they might be far more beneficially employed in fallowing or cleansing his land for Turnips. I would investigate beforehand the expense of summer-fallowing and liming with the same degree of research which they evince in valuing these operations when they become outgoing tenants. I have made an estimate of the cost of 10 acres of summer-fallow, with lime in the usual way, and also for another for 10 acres fallowed for Turnips, with dung or other manure. These estimates I shall be happy to submit to the meeting, hoping that I shall have the opinions of other members upon it. Expense of 10 acres of naked fallow limed:—

	£	s.	d.
10 acres ploughed 4 times, at 8*s.*	16	0	0
Dragging and harrowing 5 times, at 2*s.*	5	0	0
Rowling, scuffling, &c., at 3*s.*	1	10	0
220 crannocks of lime, hauling, spreading and covering, &c., at 3*s.* 6*d.*	38	10	0
1 year's rent, and parochial rates, at 30*s.*	15	0	0
Do. tithe rent charge, at 4*s.*	2	0	0
Fencing, mole-catching, &c., at 2*s.*	1	0	0
Total cost, exclusive of sowing the Wheat	£79	0	0

"N.B.—When the lime is mixed with earth in the headlands, the expense is increased 1*l.* or 2*l.* per acre.

Expense of fallowing 10 acres for a crop of Turnips:—

	£	s.	d.
10 acres ploughed 5 times, at 8*s.*	20	0	0
Dragging and harrowing 6 times, at 2*s.*	6	0	0
Rowling and scuffling, at 5*s.*	2	10	0
Raking Couch, &c., at 3*s.*	1	10	0
259 loads of dung, at 1*s.* 2*d.* (or 1½ ton of guano, at 8*l.* per ton.)	14	11	8
Spreading dung, at 3*s.* 4*d.* per load	0	15	0
Drilling Turnips and cost of seed, at 8*s.* 6*d.*	1	15	0
Horse-hoeing the Turnips twice, at 5*s.*	2	10	0
Thinning out the plants, at 5*s.* 6*d.*	2	15	0
1 year's rent and parochial rate, at 30*s.*	15	0	0
Do. tithe rent charge, at 4*s.*	2	0	0
Fencing, &c., at 2*s.*	1	0	0
	£70	6	8
Deduct the average value of 10 acres of Turnips, at 4*l.*	40	0	0
	£30	6	8
Extra expense of 10 acres of summer-falllow	£48	18	4

"According to these estimates, the cost of 10 acres of summer-fallow would, after deducting the value of the Turnip-crop, be 48*l.* 18*s.* 0*d.*, or just 4*l.* 18*s.* 0*d.* per acre more than with a green crop. This is at the end of the first year before any corn is set in either position; and I am of opinion that provided the Turnip crop has been consumed on the land, that this is in far better order for the ensuing crops of Corn, Clover, &c., than the land after naked fallow, manured only with lime, I do not believe that I have strained any item to produce this result; I have only charged 22 crannocks per acre for lime, when it is well known that 25 or 30 crannocks are frequently applied; and for swelling out the bill by an outgoing tenant, the lime is often mixed with earth, and a second hauling out is charged for. I beg that I may not be misunderstood as objecting to pay the fair claims of an outgoing tenant; on the contrary, when nothing improper has been done I wish to pay them liberally, otherwise we should find that farms would be wholly neglected towards the end of the holding, and be left without either manure or fallow. I am also of opinion that valuers are in general too niggardly in valuing the condition of land after Turnips; and it often happens that it would have been better for the outgoing tenant that his Turnip crop had failed, in order that he may have the land valued as naked fallow. A notion prevails that artificial manures will produce Turnips only, and that the succeeding crops will derive little or no advantage from them. With respect to guano, my experience of it extends only to about three years. The first time it was brought to public notice was at the annual meeting of the Royal Agricultural Society in Liverpool, in 1841, by Mr. Skirving, and therefore the period is too short to give any opinion of its effects beyond Turnips, Barley, and Clover, which have all been good. But I have had upwards of 10 years' experience of bones with the most satisfactory results. After a dressing of 22 bushels per acre, I have had a fine crop of Turnips, which were fed; second year a good crop of Barley; third year, excellent Clover, and the fourth year, a better crop of ley Wheat than I had ever grown on that piece before, which was 15 acres, and the soil naturally weak, and not manured for three or four years previous. This is not an isolated case; I might refer to many others, as I have annually for the last 10 or 12 years dressed from 20 to 25 acres with artificial manure." Some members having remarked that the price charged for the dung was too low, for if purchased it could not be had at that sum, or if made on the farm there was scarcely any allowance for it. The Chairman fully admitted the objections made, that the price he had named was not sufficient to purchase dung, and haul it to the farm, but he begged to remind them that this was now wholly unnecessary, for other manure might be had in abundance below that price, and therefore he saw no reason for charging a higher rate for manure than it might be procured for. He had recently purchased 20 tons of guano at 7*l.* 10*s.* a ton, and 3 cwt. per acre would be a good dressing, amounting for the 10 acres to 11*l.* 5*s.* instead of 14*l.* 11*s.* 8*d.* charged for the dressing of dung. Besides, he could not value the dung made on the farm at anything, as it was the produce of the land, and should not be sold, and 1*s.* 2*d.* a load would be more than ample to remove it to any part of the farm. Artificial manures had produced this great revolution in farming, by making us independent of farm dung, and reducing the cost of manuring, almost in any situation, to a moderate and a defined sum. With regard to the best mode of using guano, the chairman stated that charcoal ashes possessed the quality of attracting the ammonia from the air, and fixing it in the soil, and he recommended it in the proportion of 2 bushels to 1 of guano, where it could be procured. Burnt turf from the sides of hedges was an excellent mixture, as it was in itself a rich manure. In the absence of either of these, coal ashes, sifted fine, would be found a good substitute. Mr. Evan Edwards stated that he had paid some attention to the subject of liming land, as he had always considered it one of very great importance to the farmers of this county. He should be glad to know the opinion of the chairman as to the most judicious mode of application, whether in a caustic state or otherwise; also the best period of applying it if the summer fallow system was to be discontinued.—The Chairman said that the points referred to

by Mr. Edwards were of great importance. He considered it useless applying lime to land unless you could incorporate it well with the soil, which could only be done when the land was in fallow. The plan recommended by Mr. Lewis, of applying it in small doses and frequent, to the Turnip land, had this objection—that the operation must be done at a very busy period of the year. The most satisfactory way he had applied it under these circumstances was by fallowing the Clover ley in the autumn, and dressing it with lime. With regard to the state it should be applied, he strongly recommended it in a caustic state, by drawing it out over the field into small heaps, covering those immediately over and spreading them about as early as possible after slaking then ploughing it in. One of the most valuable properties of lime was, that it decomposed any vegetable substance in the soils which it came in contact with, bringing it sooner to a state of putrefaction, and rendering it in a proper state as food for plants. Now this could only be effected when the lime was in a caustic state, for after exposure to the weather it reverted back to an effete state, and was inefficacious for the purposes he had named.

Wingerworth.—The monthly meeting of this Society was held on the 19th May. The subject for discussion was "The utility or inutility of summer fallows, and the best method of making a good fallow." The following is a brief sketch of the opinions given on the subject by the different speakers:—It was admitted that on dry soils summer fallows might be completely dispensed with, that on those of a more adhesive nature they occurred more frequently than was consistent with good farming, but that on strong wet soils they were indispensable. But even on the last-mentioned soils they would not so frequently happen (namely, every three or four years), if the land was effectively drained. When land required a fallow it was advisable to plough it in October, if possible, in the following manner, viz.—draw two furrows together to form a ridge, let the field remain so till the following February, and then cross-cut it. Others thought it more advisable to plough it in lands, reverse the ridges, and cross-cut the third ploughing; when the weather was sufficiently dry, break the soil down with a heavy roller, afterwards harrow and get off the couch Grass, which must be led away and mixed with manure, to form a compost for another season; burning the Couch Grass and other kinds of rubbish not in seed was considered very wrong. The banks, &c., round the field, to be cut down close to the fences, so as to afford no harbour for weeds or vermin. More ploughings, draggings, &c., would be required to get the soil quite clean, but the number would depend in a great measure on the season. If lime was intended to be used, it should be got on in a quick state in June or July, but not later than August, that it might get well incorporated with the soil before sowing the Wheat. When manure was used, it ought to be ploughed down at least three weeks before sowing. It would be found advantageous to adopt the following plan of fallowing on some kinds of land, in the general run of seasons:—When a field is sown with Oats at spring, and it is not much overgrown with weeds, but yet would require a fallow the next year, sow Rye Grass, Trefoil, and some other early artificial Grasses at the same time with the Oats. These would afford early cropping for sheep and calves till the middle of May; it should then be broken up, and by proper working there would be plenty of time to make a good fallow. Land intended for Turnips should be ploughed as soon as the last crop of corn is carted from it. No land should be selected for Turnips that was exhausted by cropping, or that was overrun with Couch Grass, Kedlocks, Coltsfoot, or any kinds of weeds. After the debate on fallows had closed, there was some very interesting conversation on the application of clay from drains when land is in fallow. The chairman had seen wonderful crops from burnt clay, when used at the rate of 30 tons per acre; but great caution was required to burn it properly, and he thought that in a country like this, so abounding in clay soils, it ought to have a trial. It was stated that a gentleman well known to several in these parts, had by way of experiment, applied 20 cartloads of good horse manure to an acre of arable land that was a complete bed of Couch Grass. The dung was spread and ploughed down early in spring—then sown with three bushels of good lentils. The crop was very great, and scarcely a weed could be found when ploughed for Wheat at Michaelmas. The crops have been heavy, and the land in good condition ever since.

Miscellaneous.

Feeding of Animals (*Boussingault*, vol. ii. p. 409).—The hard and horny seeds which are given to beasts and horses frequently pass off undigested; this circumstance has a tendency to cause their nutritive value to be underrated. To obviate this inconvenience, it is usual to crush them, especially in the case of Tares, Peas, and Beans. Oats and Barley are sometimes steeped in warm water. They, however, scarcely require any preparation; for careful experiments instituted by the veterinary commission appointed by the Minister of War, show that the portion of Oats which escapes digestion is quite trifling. Tubers and roots are substituted for a portion of hay with great advantage, especially as regards horned cattle. From a long series of experiments at Bechelbronn, it appears that horses are easily reconciled to mixed food, and that the plan is likely to prove economical. The roots are first cut by a machine, and it is found to be a good plan to mix them with chaff or corn husks. The chaff absorbs the moisture and prevents the escape of the juices, which would otherwise be partially dissipated. Beet-root, Turnips, Carrot, Ruta-baga, Jerusalem Artichokes, are always used raw. Potatoes are often previously cooked. Raw Potatoes, however, are far from useless. At Bechelbronn they are always given raw, except in the case of horses and pigs. The best way is to cook them by steam; it is not however requisite to boil them so much as when used by man. When cooked they are crushed between two cylinders, or simply with a shovel, and then mixed with chaff. When dressed by steam their weight is not sensibly altered, whence it may be concluded that the equivalent remains almost the same in either case. It is, however, possible that when boiled the amylaceous matter is more easily assimilated, and that in consequence they appear more nutritious. Some feeders cause their Potatoes to be baked; and in this case, as they contain far less water, they must, weight for weight, be more nutritious. Doubtless, when the object is to fatten beasts and pigs, this mode of dressing is preferable. Roasted Potatoes may doubtless be brought to such a state as to be an advantageous substitute for corn and meal in the feeding of animals. Only in that case expense of fuel must be deducted.—*M. J. B.*

American Hops, &c.—Of 100 bales American Hops offered at public sale by Keeling and Hunt; 50 bales bought in at 65*s.* per cwt. in bond; 50 bales at 60*s.* American brooms bought in at 12*s.* per dozen; ditto whisks, copper-bound, 8*s.* per dozen; ditto, wire-bound, 6*s.* 34 casks American Pine, Beech, Fir, Acorn, and flower-seeds, from 6*s.* to 13*s.* per cask; Bermuda Potatoes, from 23*s.* to 26*s.* per cask.

Notices to Correspondents.

AGRICULTURAL EDUCATION—*Ceres*—East Lothian, Berwickshire, or Lincolnshire; any of them afford sufficient opportunity for acquiring the practice of arable farming. In Ayrshire, Cheshire, or Gloucestershire, you would be best able to acquaint yourself with the details of pasture farming. There are, doubtless, good farmers in any of these districts willing to take pupils into their families.

BONES—*F P V*—The quarters you refer to are 8 bushels each.

BOOKS—*Constant Subscriber*—Stephen's "Book of the Farm" is a whole library of "practical works" in itself.

CHARLOCK—*Cymro*—It is an indigenous plant. Immediately after harvest, plough or scarify the stubble—the plants will immediately grow; as soon as they are strong enough to cover the land plough them in; they will have grown strong again by April—plough them in again. They will, probably, be up again by the end of May—plough the land again, and prepare it for Turnips, drilled 30 inches apart, and keep horse-hoeing the intervals as long as you can. That is the way to get rid of them.

GAS LIME—*Querist*—7*s.* 6*d.* per waggon-load for gas-lime is a great price; at extensive works, with which we are acquainted, 1*s.* per load is the price demanded. Our opinion is that you may invest your money in manure more usefully than by purchasing gas-lime at the price you name. The ammoniacal liquor is what you should take. Get some earthy ashes, charcoal-dust, gypsum, &c. &c., obtain some waste place near the works to heap them on; you can then soak this with the liquor, and in a week or two it will be valuable manure.

INDIA-RUBBER PAVEMENT—*Villager*—We understand that it answers perfectly.

ONIONS—*F*—What is it causes some lands in some seasons to "blatter" the Onion crop? [Correspondents should not use provincial terms.—What is the meaning of this word "blatter?"]

RED CLOVER—*A Hall*—Trifolium pratense perenne—Perennial red Clover.

VICTORIA WHEAT—Very many of our correspondents will unavoidably be disappointed. We have divided all that we received among the first dozen of the applications that have been received.

WEEDS—*G*—If they are marsh-weeds, you must drain the land; if they are annual weeds, you must keep the pasture closely cropped by sheep—or mow the leaves off as soon as they appear. With regard to the Ranunculus sent, geese are *said* to be fond of its bulbous root; you might, therefore, try pasturing geese on the land. The simple and, in general, only effectual mode of extirpating weeds is by removing them bodily from the land.

WHEAT—*J Spencer*—It is certainly a very fine sample, of good colour, form, and substance, resembling Chidham Wheat in its general appearance.

YEAST—*Old Subscriber*—How has it hitherto been applied as a manure?

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, June 16.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4*s*	4 to 5*s*	6	Best Long-wools	4*s*	4 to 4*s*	6
Best Short Horns	4	0	4	2	Ewes and second quality	3	8	4	0
Second quality Beasts	3	0	3	8	Lambs	5	4	6	0
Calves	4	0	4	8	Pigs	3	4	4	4
Best Downs & Half-breds	4	6	4	10					

Beasts, 2395; Sheep and Lambs, 25,570; Calves, 193; Pigs, 320

The exceedingly hot weather having, during the past week, spoiled a vast quantity of Meat, the butchers have come to Market to day with the determination of buying very little; so that, although the supply of Beef is but small, trade is very heavy at a considerable reduction from last Monday.—The same cause has operated prejudicially with respect to the Mutton trade, we have also an increase in the supply.—The best Lamb maintains its price, but middling qualities are very unsaleable.—Veal and Pork trades are very heavy.

FRIDAY, June 20.

The Beef-trade to-day has a little more briskness, there being very little on hand; but the arrivals of fresh Beasts to-day are considerable, comprising some importations of good Dutch, several of superior quality from Newcastle, and many Scots in excellent condition. Some few of this latter quality made 4*s.* 8*d.* per 8lbs., but in others there is but little alteration from Monday.—We have a fair average supply of Sheep and Lambs; the trade is rather better than on Monday.—Veal-trade is better: a choice Calf makes nearly 5*s.*—Pork-trade is very heavy.

Beasts, 1022; Sheep and Lambs, 10,140; Calves, 426; Pigs, 205.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, June 16.

At the commencement of the past week there was one arrival from Scotland, which was sold at an advanced price, but at the middle of the week there were other arrivals which were commenced at 60*s.* per ton; and the supply being sufficient for the season, and the weather excessively hot, Scotch were sold at the close at from 55*s.* to 60*s.*, but the latter price is nominal except in cases of very superior fresh samples. There was some arrivals from most of the shipping districts, and a considerable depression prevails throughout the Market.

York Reds	70*s*	to	80*s*	Wisbeach Kidneys	60*s*	to	—*s*
Perth	55		60	— Blues	—		—
Fifeshire	—		—	— Whites	—		—
Early Devons	—		—	— Regents	—		—
Late Devons	70		—	Guernsey Blues	55		60
Cornwall	—		—	— Whites	—		—
Jersey Blues	55		60	York—Prince Regents	40		45
— Whites	—		—	— Blues	—		—
Kent and Essex Whites	—		—	— Shaw's	—		—
— — Kidneys	70		—	Irish Whites	—		—
Dutch Whites	—		—				

COVENT GARDEN, JUNE 21.—The market has been well supplied with both fruit and vegetables during the week. Pine-apples are both good and plentiful; we remarked among them some excellent specimens of the Providence and Queen. Grapes are also good in quality, and have been pretty abundantly supplied. Peaches and Nectarines have not altered in price since last week. Of green Currants and Gooseberries there is a good supply, which has had the effect of lowering the prices. Cherries are also cheaper and more plentiful, a considerable quantity having arrived during the week from France. The best specimens of Melons may be obtained for about 8*s.* each. Strawberries are very good, and are becoming more abundant; a few from the open grounds have been produced during the week, which fetch from 2*s.* to 4*s.* a small pottle. Oranges are becoming scarcer. Vegetables continue to be well supplied. Cauliflowers are considerably reduced in price, as are also Peas, the latter being now supplied in considerable quantities. Carrots and Turnips are good in quality; the former are a trifle cheaper. The price of Cabbages is also a little reduced. Asparagus is good, and sufficient to meet the demand; and the same may be said of French Beans, which are rather cheaper than they were last week. Rhubarb is plentiful, and Lettuces and almost all kinds of salading are abundantly supplied. Mushrooms are scarce, and are in consequence much dearer than they were last week. Among Cut Flowers, we noticed Pimeleas, Heaths, Pelargoniums, Gardenias, Pinks, Lily of the Valley, Fuchsias, Verbenas, Cacti, Moss, Provins, and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 8*s*
Grapes, Hothouse, per lb., 4*s* to 7*s*
Peaches, per doz., 6*s* to 20*s*
Nectarines, per doz., 6*s* to 20*s*
Cherries, per lb. 4*s* to 8*s*
Apples, Dess, per bush., 10*s* to 15*s*
— Kitchen, 10*s* to 12*s*
Melons, 4*s* to 8*s* each
Strawberries, per oz., 6*d* to 1*s*
Apricots, green, per pottle, 1*s* 6*d* to 2*s*
Currants, green, per hf.-sv., 2*s* to 2*s* 6*d*
Gooseberries, green, ph.sieve, 2*s* to 2*s* 6*d*
Chesnuts, per peck, 6*s* to 8*s*
Walnuts, per bushel, 12*s* to 20*s*
Oranges, per dozen, 1*s* to 2*s* 6*d*
— per 100, 6*s* to 18*s*
— bitter, per 100, 14*s* to 20*s*
Lemons, per dozen, 1*s* to 2*s*
— per 100, 6*s* to 14*s*
Almonds, per peck, 6*s*
Sweet Almonds, per lb, 2*s* 6*d* to 3*s*
Cob Nuts, per 100 lbs., 120*s* to 150*s*
Nuts, Barcelona, 24*s*
— Brazil, 20*s*
— Spanish, 2*s*
— Cob, 16*s*

VEGETABLES.

Cabbages, per doz., 9*d* to 1*s* 2*d*
— plants, per doz. bnch., 1*s* to 2*s*
Cauliflowers, per doz., 2*s* to 9*s*
French Beans, per 100, 1*s* 6 to 3*s*
Sorrel, per hf.-sieve, 6*d* to 9*d*
Jerusal. Artichok, p. hf.-sv., 2*s* to 3*s*
Potatoes, per ton, 40*s* to 90*s*
— cwt., 2*s* to 5*s*
— bushel, 1*s* 6*d* to 3*s*
— Kidney, per bsh., 2*s* to 2*s* 6*d*
— Autumn, per lb., 4*d* to 6*d*
— New, per lb., 4*d* to 1*s* 6*d*
Turnips, per bch., 3*d* to 6*d*
Red Beet, per doz., 2*s* to 6*s*
Carrots, per doz. bchs., 6*s* to 24*s*
Rhubarb, per bundle, 4*d* to 1*s* 6*d*
Peas, per sieve, 4*s* 6*d* to 7*s*
Asparagus, per bundle, 1*s* to 5*s*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*
Cucumbers, per brace, 1*s* to 3*s*
Spinach, per sieve, 2*s* to 1*s* 6*d*
Leeks, per doz., 2*s* to 3*s*
Garlic, per lb., 3*d* to 10*d*
Onions, per bunch, 3*d* to 1*s*
— large, per bushel, 10*s* to 15*s*
— Spanish, per doz., 1*s* 6*d* to 4*s*
Shallots, per lb., 6*d* to 10*d*
Lettuce, per score, Cab., 6*d* to 1*s* 6*d*
— — Cos, 6*d* to 1*s* 6*d*
Celery, per bunch, 1*s* to 2*s* 6*d*
Radishes, per doz. hands, 6*d* to 1*s*
Mushrooms, per pottle, 9*d* to 3*s* 6*d*
Small Salads, per punnet, 2*d* to 3*d*
Basil, green, per bunch, 6*d* to 9*d*
Fennel, per bunch, 2*d* to 3*d*
Savory, per bunch, 4*d* to 6*d*
Thyme, per bunch, 4*d* to 6*d*
Watercress, p. 12 sm. bun., 4*d* to 6*d*
Parsley, per half sieve, 6*d* to 1*s*
— Roots, per bundle, 9*d*
Tarragon, per bunch, 4*d*
Mint, per bunch, 2*d* to 3*d*
Marjoram, per bunch, 3*d*
Chervil, per punnet, 3*d* to 4*d*

HAY.—Per Load of 36 Trusses.

SMITHFIELD, June 19.

Prime old Meadow Hay	103*s* to 112*s*	New Hay	80*s* to 90*s*	Clover	110*s* to 120*s*
		Inferior Hay	— —	Straw	38 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, June 19.

Superior Mead. Hay	115*s* to 120*s*	Superior Clover	115*s* to 126*s*		
Inferior —	93 105	Inferior —	100 110	Straw	29*s* to 44*s*
New Hay —	60 86	New Clover	— —		

JOSHUA BARER, Hay Salesman.

WHITECHAPEL, June 20.

Fine Old Hay	—*s* to 112*s*	Old Clover	110*s* to 126*s*		
Inferior Hay	90 100	New Clover	110 120	Straw	35*s* to 42*s*
New Hay	60 70				

HOPS, FRIDAY, June 20.

The accounts from Worcester, Farnham, and Mid-Kent, speak of a considerable quantity of both fly and live, which causes our Market to be very firm; there is nothing doing on duty worthy of notice.

PATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, June 16.

The arrivals of Wheat last week were considerable, but the greater part having been previously sold f.o.b. did not appear on the market. This morning there was a small supply from the near Counties, and the market opened heavily, a very few of the very finest samples were selected at the prices of this day se'nnight, but a great part remains unsold late in the day, holders being unwilling to accept lower terms; the value of free Foreign is nominally the same, being scarcely inquired for; in bonded very little doing, although we understand 32*s.* was refused for a cargo of Rostock in moderate condition.—We observe no alteration in the value of Barley.—Of Beans there are rather more offering, but the sale is slow.—Peas are nominally unaltered, having no fresh samples at market.—Oats meet a moderate inquiry only, and the turn is rather in favour of the buyer.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk . . White	44	50	Red .	43	49
—— Norfolk, Lincolnshire, and Yorkshire . — —	—	—	White	—	—
Barley, Malting and distilling 25*s* to 29*s* Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . . Polands	20	23	Feed	19	22
—— Northumberland and Scotch . . Feed	20	22	Potato	21	24
Irish . . . . . Feed	20	22	Potato	21	23
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new 32 to 38	Tick	32	39	Harrow	34	40
—— Pigeon, Heligoland . 37 to 44	Winds	—	—	Longpod	—	—
Peas, White . . . 36 to 39	Maple	36	39	Grey	33	36

FRIDAY, June 20.

The arrivals of Grain and Flour during the week have been moderate, and the weather being fine with improving accounts from the country, caused a dull market this morning for every description of Corn; the prices of each remain nominally the same as on Monday.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May	10 per Quarter	46*s* 0*d*	31*s* 2*d*	21*s* 4*d*	29*s* 9*d*	37*s* 1*d*	36*s* 10*d*
—	17 . . .	45 10	30 5	21 6	31 4	37 1	36 8
—	24 . . .	45 9	30 0	21 9	29 7	37 3	37 0
—	31 . . .	45 3	29 5	23 5	33 1	37 5	36 7
June	7 . . .	47 7	30 2	23 2	33 0	38 2	38 1
—	14 . . .	48 2	30 3	22 8	31 4	38 1	37 0
8 weeks' Aggreg. Aver.		46 7	30 1	22 1	31 1	37 6	37 1
Duties on Foreign Grain		20 0	8 0	6 0	10 6	5 6	5 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 14.

PRICE.	MAY 17	MAY 24	MAY 31	JUNE 7	JUNE 14
48*s* 2*d*	..	..	..	..	..
47 7	..	..	..	..	..
46 3	..	..	..	..	..
— 0 —	..	..	..	..	..
45 10	..	..	..	..	..
— 9	..	..	..	..	..
— 8	..	..	..	..	..
— 7	..	..	..	..	..
— 6	..	..	..	..	..
— 5	..	..	..	..	..
— 4	..	..	..	..	..
— 3	..	..	..	..	..

SEEDS, June 20.

Canary	per qr	44*s* to 50*s*		Linseed Cakes, Foreign, p. ton	7*l* 10*s* to 9*l*	
Carraway	per cwt	44	48	Mustard, White - p. bush.	10*s*	14*s*
Clover, Red, English	— —	—	—	— Superfine ,, -	12	16
— — Foreign	— —	—	—	— Brown ,, -	12	16
— White, English	— —	—	—	Rapeseed, English, per last	26*l*	30*l*
— — Foreign	— —	—	—	Rape Cakes - per ton	—	—
Coriander - -	-	12	18	Saintoin - - -	—	—
Hempseed -	per last	35	36	Tares, Eng. winter p. bush.	4	6
Linseed - -	per qr	52	60	— Foreign - - -	3	5
— Baltic - -	-	36	44	Trefoil - - per cwt	18	23
— Cakes, Eng. per 1000		11*l* 0	11*l* 10	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed by the Executrix of the late C. FARLEY, Esq., to submit to public competition, by Auction, on the Premises, 32, Kennington-street, Walworth, on Thursday July 3d, the very rare and valuable Collection of CACTI and other Succulent Plants, which have been collected at a very great expense. Also two newly-erected Greenhouses, Hot-water Apparatus, Pits, several two and three-light Boxes, Hand-lights, a Bed of rare Tulips, choice Auricula, Tulip Stage, and iron Hoops, an excellent Summer-house, Iron Roller, a Quantity of Box-edging, Garden Utensils, &c. May be viewed three days prior to the sale, when Catalogues may be had of the principal Seedsmen, of Mr. FRYER, Clarendon Nursery, Camberwell, on the Premises, and of the Auctioneers, American Nursery, Leytonstone.

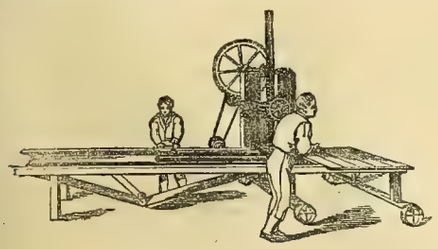
GARDEN ORNAMENTS, &c. &c.

TO BE SOLD BY AUCTION, by Mr. JOHN DAWSON, on Wednesday, June 25, at 11 o'clock, A COLLECTION OF VASES, FIGURES, SMALL FOUNTAINS, and Miscellaneous Items, Manufactured by Messrs. AUSTEN & SEELEY, on that part of their premises situate at the corner of Cleveland-street, New-road. *Note.*—The object of this sale being to clear a part of the premises which has become much dilapidated, and to effect a clearance of surplus stock—the accumulation of about 20 years—an unusual opportunity is offered for the purchase of Ornaments for Gardens and Grounds at comparatively trifling prices. There are many articles worthy the notice of Builders, and the Catalogue will also include some highly interesting and valuable objects, such as Tazza-Fountains, the Medeci Vase, various Grecian, Etruscan, French, and Oriental Vases; Foliage Boxes and Stands for Flowers; a pair of Caryatides, the Gladiator, and other Figures; Animals and Birds; two enriched Gothic Altars, Church Ornaments; with numerous other varied objects after the best models, or of good original design. To be viewed, by application on the premises, where Catalogues may be had a few days before the sale; also at Mr. JOHN DAWSON'S Auction and Agency Offices, 21, Old Jewry, and Kingston-on-Thames.

TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

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1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

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One of the machines may be seen, with specimens of tiles, at the Polytechnic Institution, Regent-street, or in constant work at the Inventor's Tile-yard, Hounsdown, near Southampton, where any further information can be obtained, by application to the foreman, John Ives, or by letter to the Inventor.

Webster's Draining Levels manufactured and sold by J. Cox, Optician, 128, Holborn Hill.

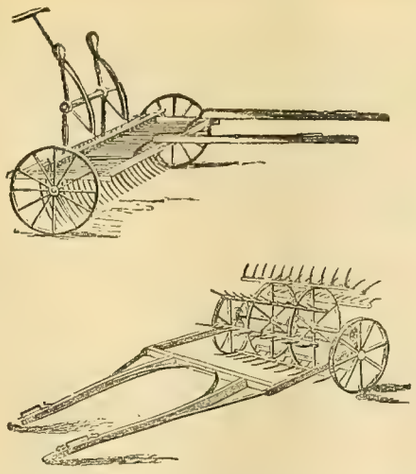
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HORSE HAY-RAKE.



HAY-MAKING SEASON.—Mrs. MARY WEDLAKE, widow of the late Thomas Wedlake, of the Fairkytes Original Iron Works, Hornchurch, Essex, and 118, Fenchurch-Street, opposite Mark Lane, London, begs to remind Agriculturists she continues making that most useful Implement for which her late husband obtained a patent, and received a Silver Medal at the Derby Show, the Double-action Hay-maker, so much admired; also the Horse Hay-rake; they may be inspected daily at the City Repository for Agricultural and Colonial Implements, 118, Fenchurch-street, opposite Mark Lane, London. N.B. To prevent disappointment at this season, an early application for these Implements is solicited.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1845.] SATURDAY, JUNE 28. PRICE 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S-PARK. The last EXHIBITION this season, consisting of PLANTS, FLOWERS, and FRUIT, will take place in the Gardens of this Society, on WEDNESDAY NEXT, the 2d of JULY. The Bands of the 1st and 2d Life Guards, and of the Royal Horse Guards, have permission to attend, and will play alternately from two till seven o'clock. At three o'clock they will perform in concert the overture "Du Duc D'Olonne," Auber; at half past four they will again join and perform "Guillaume Tell," Rossini; and at six o'clock "Fra Diavolo," by Auber.

The new gates on the north side of the gardens will be opened, as well as the front gates, and carriages will enter the circle by the road from York-gate, go round the west side, and leave by the road to Chester-terrace.

Tickets for visitors may be had at the Gardens, price 5*s*. each, except on the day of Exhibition, when they will be 7*s*. 6*d*., but no Ticket can be issued except to an order of a Fellow or Member of the Society. A Ticket will admit one person only.

J. D. C. SOWERBY, Secretary.

GRAND FLORICULTURAL AND HORTICULTURAL EXHIBITION.—The Annual Floricultural and Horticultural Exhibition in the grounds of the YORKSHIRE PHILOSOPHICAL SOCIETY, will be held on Tuesday, the 19th day of August next, under the patronage of the principal Nobility and Gentry of the county, and upon the same extensive scale as on former years. The Schedule of Prizes may be had after the first day of July, of Mr. SUTHERAN, Bookseller, Coney-street, York, Secretary to the Committee of Management; or of Mr. BAINES, at the Museum.—Museum, York, June 28.

JESSOP'S NURSERY, CHELTENHAM, established in 1815, from its extensive connection, offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm-bailiffs of established skill and reputation. All communications promptly attended to.

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Ditto	CHRYSANTHEMUMS	12*s*. do.
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Ditto	PANSIES	10*s*. do.

For particulars, see former Advertisements.
Great Yarmouth Nursery, June 28.

ROSES.

A. PAUL & SON'S Collection of ROSES, which are now in bloom, may be seen any day except Sundays. THE WALTHAM-CROSS STATION of the Northern and Eastern Counties Railway is the nearest, and an omnibus runs to the Nurseries from each train.—Cheshunt Nurseries, June 28.

ROSES.

EDWARD DENYER begs respectfully to invite Noblemen, Gentlemen, and his Friends in general, to an inspection of his ROSES, which are now in full bloom, and he is pleased to say, are finer this than any previous year, consisting of 500 sorts (of the finest and newest varieties), planted on each side of a walk upwards of 700 feet in length; they are particularly recommended to amateurs, blowing freely within three miles of the metropolis.

Orders taken for the plants when in bloom, and delivered in November next.—Admission gratis, daily (Sundays excepted).

Loughborough Nursery, Brixton, within three miles of London.—June 28.

R. LAING'S COLLECTION OF ROSES are now in full Bloom, and in fine perfection. May be seen any day, Sunday excepted. The Nursery is about half a mile from Richmond-bridge.—Twickenham, Middlesex, June 28.

ROSES.

T. RIVERS informs his Friends and the Public, that his collection will be in Bloom on and after the 30th inst. As the ROSES occupy many acres, and will require several hours to view them, he begs to recommend the morning trains per Eastern Counties Railway as the most eligible; these start from Shoreditch, stopping at the Harlow and Sawbridgeworth stations, each about one mile from the Nursery, at eight, ½ past 9, and ½ past 11 o'clock. Sawbridgeworth, June 28.

LANDSCAPE GARDENING.

YOUELL & Co. beg to inform their Friends they have made arrangements for devoting a portion of their time for the purpose of Laying Out, Planting, and Improving Estates, Flower-gardens, &c., as well as Heating Horticultural Buildings upon an economic system. The Terms will be One Guinea per day, and Travelling expenses.

Great Yarmouth Nursery, June 28.

ROSES.

J. COLE begs respectfully to inform Noblemen, Gentlemen, and his Friends in general, that his collection of ROSES will be in beautiful Bloom in the first week in July, and continue so during the Rose season. The Nursery is about half a mile from the London, Birmingham, and Midland Counties Railways.—Rugby Nursery, Warwickshire, June 28.

GARDENIA STANLEYANA.—This magnificent new GARDENIA was awarded the highest Medal given for a new plant at the great meeting of the Horticultural Society of London, on Saturday last. Its free-blooming tendency, and easy cultivation, will recommend it to all plant-growers. Good established plants are now ready for delivery at 3*l*. 3*s*.

Chiswick Nursery, near London, June 28.

T. & C. LOCKHART, 156, CHEAPSIDE, LONDON, beg to offer fine strong healthy plants of CRASSULA FALCATA just coming into flower, at 4*s*. each. As the above have been consigned to them by a foreign house, they will only be disposed of for ready money.

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E. P. FRANCIS solicits attention to his COLLECTION OF ROSES, which will be in Bloom on and after the 30th of June. Upwards of 1000 varieties may be here seen in a few minutes' walk, as the the Rose-grounds are contiguous to the house nursery. Trains direct to Hertford from Shoreditch Station. No admittance on Sundays.

NEW AND FRAGRANT-FLOWERED STOVE SHRUB.

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MESSRS. H. LANE & SON'S Collection of ROSES will be in FULL BLOOM at the end of the present month, and continue so during the remainder of the season. The Collection is so much more extensive than in former years, that the real admirer of this truly national flower will find six or eight hours barely sufficient time to complete a satisfactory inspection of the thousands that will be presented to the view.

The Nurseries are about a quarter of a mile from the Berkhampsted Station of the London and Birmingham Railway, a Time Table of which will be forwarded, on receipt of a stamped envelope, with the address of the applicant.—June 28.

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Aconitum chinensis (new)	0 6	Pansy, saved from the choicest named flowers, by Thomson and other eminent growers	1 0
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Calceolaria, saved by an amateur from the most splendid show flowers	1 0	Wallflower, German (double), 4 colours, mixed, very beautiful and distinct	1 0
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Delphinium, 3 handsome vars., mixed	0 6		
Geum grandiflorum	0 6		
Hollyhock, double, many colours, mixed (fine)	0 6		
Papaver grandiflora	0 6		
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HORTICULTURAL IMPROVEMENTS.

J. READ begs to inform Ladies, Amateur & Practical Gardeners, that he has just taken out a NEW PATENT for improvements in his Horticultural Machines, and Domestic Fire Engines, particularly in the Valvular Action, which are now so perfect that he will warrant to keep the valves in repair during the term of the patent. The above Engines may be worked with half the labour required for any other Engines for the same purpose, which the Patentee, from 31 years' experience in the science of Horticulture, can safely warrant.

May be seen and proved at 35, Regent-circus, Piccadilly.

N.B. None are genuine except stamped "READ'S PATENT."

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Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDEN.

JUNE 21st, 1845.

AWARD OF THE JUDGES.

THE LARGE GOLD MEDAL.

1. To Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley-common, Kent, for a collection of 40 Stove and Greenhouse plants.
2. To Mr. Mylam, gr. to Sigismund Rucker, Esq., Jun., F.H.S., for 20 species of Exotic Orchids.

THE GOLD KNIGHTIAN MEDAL.

1. To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for a collection of 40 Stove and Greenhouse plants.
2. To Mr. Frazer, of Lea-bridge-road, for a collection of 20 Stove and Greenhouse plants.
3. To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for 20 species of Exotic Orchids.
4. To the same, for 20 varieties of Cape Heaths.
5. To Messrs. Fairbairn, Nurserymen, Clapham, for the same.

THE GOLD BANKSIAN MEDAL.

1. To Mr. W. P. Ayres, gr. to James Cook, Esq., F.H.S., for a collection of 20 Stove and Greenhouse plants.
2. To Mr. Bruce, gr. to Boyd Miller, Esq., of Collier's-wood, Mitcham, for a collection of 12 Stove and Greenhouse plants.
3. To Messrs. Rollisson, of Tooting, for 20 species of Exotic Orchids.
4. To Mr. Don, gr. to F. G. Cox, Esq., F.H.S., for 12 species of Exotic Orchids.
5. To Mr. Eyles, gr. to Sir George Larpent, F.H.S., for six species of Exotic Orchids.
6. To Mr. Dobson, gr. to Mr. Beck, F.H.S., for 12 new varieties of Pelargonium.
7. To Mr. Staines, of Middlesex-place, New-road, for 12 varieties of Pelargonium.
8. To Mr. Green, gr. to Sir Edmund Antrobus, Bart., F.H.S., for 12 varieties of Cape Heaths.
9. To Messrs. Veitch & Co., of Exeter, for the same.
10. To Messrs. Lane & Son, of Great Berkhampstead, for 25 varities of Roses in pots.
11. To Mr. Green, for Tall Cacti in flower.
12. To Mr. Dods, gr. to Sir George Warrender, Bart., F.H.S., for a miscellaneous collection of Fruit.

THE SILVER-GILT MEDAL.

1. To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for a collection of 12 Stove and Greenhouse plants.
2. To Mr. May, gr. to E. Goodheart, Esq., of Langley-park, Beckenham, Kent, for a collection of six Stove and Greenhouse plants.
3. To Messrs. Paul & Son, of Cheshunt, for 25 varieties of Roses in pots.
4. To Messrs. Veitch & Co., of Exeter, for six species of Exotic Orchids.
5. To Mr. Cock, of Chiswick, F.H.S., for 12 new varieties of Pelargonium.
6. To Mr. Gaines, of Battersea, for the same.
7. To Mr. Dobson, gr. to Mr. Beck, F.H.S., for 12 varieties of Pelargonium.
8. To Mr. Gaines, for the same.
9. To Messrs. Rollisson, for 20 varieties of Cape Heaths.
10. To Mr. Barnes, gr. to G. W. Norman, Esq., Bromley-common, Kent, for 12 varieties of Cape Heaths.
11. To Mr. Frazer, for the same.
12. To Mr. May, gr. to E. Goodheart, Esq., for six varieties of Cape Heaths.
13. To Mr. Dawson, of Brixton-hill, for the same.
14. To Mr. Falconer, gr. to Archdale Palmer, Esq., of Cheam, for Tall Cacti in flower.
15. To Mr. May, gr. to E. Goodheart, Esq., for Erica vestita coccinea.
16. To Mr. Glendinning, of Turnham-green, F.H.S., for Gardenia Stanleyana.
17. To Mr. S. Barnes, gr. to Thomas Whitmore, Esq., F.H.S., of Apley-park, Salop, for Grapes.
18. To Mr. Turnbull, gr. to his Grace the Duke of Marlborough, F.H.S., for the same.
19. To Mr. Toy, gr. to Colonel Challoner, F.H.S., for Pine-apples.
20. To Mr. J. Macintosh, gr. to the Marquess of Exeter, F.H.S., for Peaches and Nectarines.

THE LARGE SILVER MEDAL.

1. To Mr. Evan Jack, gr. to G. Loraine, Esq., of Wallington, Surrey, for a collection of 12 Stove and Greenhouse plants.
2. To Mr. Falconer, gr. to Archdale Palmer, Esq., for a collection of six Stove and Greenhouse plants.
3. To Mr. Evan Jack, for a collection of six species of Achimenes.
4. To Mr. Staines, for 12 new varieties of Pelargonium.
5. To Mr. Cock, F.H.S., for 12 varieties of Pelargonium.
6. To Mr. Gaines, for six varieties of the same.
7. To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for a collection of six varieties of Calceolaria.
8. To Mr. Gaines, for the same.
9. To Messrs. Tyso & Son, of Wallingford, for 24 varieties of Ranunculus.
10. To Mr. W. Taylor, gr. to J. Coster, Esq., of Streatham, for 12 varieties of Cape Heaths.
11. To Mr. Bruce, gr. to Boyd Miller, Esq., for six varieties of Cape Heaths.
12. To Mr. Epps, of Maidstone, F.H.S., for the same.
13. To Mr. Laing, of Twickenham, for 25 varieties of Roses in pots.
14. To Mr. R. H. Betteridge, of Abingdon, for a collection of Roses in 50 varieties *.
15. To Mr. Laing, for the same.
16. To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for Tall Cacti in flower.
17. To Messrs. Lane & Son, for 12 varieties of Fuchsia.
18. To Mr. May, gr. to E. Goodheart, Esq., for a specimen Cape Heath.
19. To Mr. Bruce, gr. to Boyd Miller, Esq., for a specimen of Aphelexis humilis.
20. To Mr. Evan Jack, gr. to G. Loraine, Esq., for Dipladenia rosea.
21. To Mr. Eyles, gr. to Sir George Larpent, Bart., F.H.S., for a species of Aerides, allied to A. affine.
22. To Mr. Spencer, gr. to the Marquis of Lansdowne, F.H.S., for a miscellaneous collection of Fruit.
23. To Mr. Dods, gr. to Sir George Warrender, Bart., F.H.S., for Grapes.
24. To Mr. M'Ewen, gr. to Colonel Wyndham, of Petworth, for Pine-apples.

THE SILVER KNIGHTIAN MEDAL.

1. To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for a collection of 12 Stove and Greenhouse plants.
2. To Mr. Epps, of Maidstone, F.H.S., for a collection of six Stove and Greenhouse plants.
3. To Mr. Evan Jack, gr. to G. Loraine, Esq., for six varieties of Cape Heaths.
4. To Mr. Glendinning, of Turnham-green, F.H.S., for the same.
5. To Mr. G. Stanly, gr. to H. Berens, Esq., F.H.S., for six species of Pelargonium.
6. To Mr. Bromley, gr. to Miss Anderdon, the Mall, Hammersmith, for six varieties of Pelargonium.
7. To Messrs. Cobbett, of Cobham, for a collection of Moss Roses, in 12 varieties.
8. To Mr. Parsons, gr. to A. George, Esq., of Enfield, for a collection of Roses, in 50 varieties.
9. To Messrs. Cobbett, for the same.
10. To Mr. G. Wemyss, gr. to J. H. Slater, Esq., of Newick-park, Uckfield, for a collection of Roses, in 25 varieties.
11. To Mr. Francis, of Hertford, for the same.
12. To Mr. Willmer, of Sunbury, for a collection of Pinks.
13. To Mr. Betteridge of Abingdon, for a collection of Ranunculuses.
14. To Mr. Beck, for a Seedling Pelargonium of 1844 (Aurora).
15. To Mr. Gaines, for 12 varieties of Fuchsia.
16. To Mr. J. Hill, gr. to Thos. Davis, Esq., F.H.S., East Acton, for Pimelea decussata.
17. To J. B. Cresswell, Esq., of Newcourt, near Exeter, for Cyrtoceras reflexum.
18. To Mr. Eyles, gr. to Sir George Larpent, Bart., F.H.S., for a species of Aerides allied to A. crispum
19. To Messrs. Veitch and Son, of Exeter, for Gardenia Rothmannia.
20. To Mr. Green, gr. to Sir Edmund Antrobus, Bart, F.H.S., for Chorozema ovatum.
21. To Messrs. Rollisson, for the best named collection of plants.
22. To Mr. Davey, gr. to G. Smith, Esq., of Colney Hatch, for Grapes.
23. To Mr. Davis, gr. to A. Smith, Esq., F.H.S., for Muscat Grapes.
24. To Mr. Brown, gr. to C. W. Packe, Esq., M.P., F.H.S., for a Pine Apple.
25. To Mr. A. Parsons, gr. to A. George, Esq., for Pine Apples.
26. To Mr. Baggs, gr. to J. Schneider, Esq., F.H.S., for the same.
27. To Mr. Hamp, gr. to J. Thorne, Esq., of Mawbey House, South Lambeth, for the same.
28. To Mr. Dods, gr. to Sir George Warrender, Bart., F.H.S., for Peaches.
29. To Mr. M'Ewen, gr. to Colonel Wyndham, Petworth, for Melons.
30. To Mr. Foggo, gr. to the Marquess of Abercorn, F.H.S., for Figs.

THE SILVER BANKSIAN MEDAL.

1. To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for a collection of six Stove and Greenhouse Plants.
2. To Mr. Dawson, for Erica pulverulenta.
3. To Messrs. Paul and Son, for a collection of Moss Roses in twelve varieties.
4. To Mr. Williams, gr. to Alexander Rowland, Esq., F.H.S., for a collection of Roses in 50 varieties.
5. To Messrs. Paul and Son, for the same.
6. To Mr. Terry, gr. to Lady Puller, of Youngsbury, Herts, for a collection of Roses in 25 varieties.
7. To Mr. Henbrey, of Croydon, for a collection of Pinks
8. To Mr. Thomas Starr Airzee of 25, Vaughan Terrace, City Road, for a collection of Ranunculuses.
9. To Mr. Beck, F.H.S., for a seedling Pelargonium (Desdemona).
10. To Mr. J. Robinson, gr. to James Simpson, Esq., Thames bank, Pimlico, for a collection of Fuchsias.
11. To Mr. W. P. Ayres, gr. to James Cook, Esq., F.H.S., for Achimenes multiflora.
12. To Mr. W. Barnes, gr. to G. W. Norman, Esq., for Aerides odoratum.
13. To Mr. Parker, gr. to J. H. Oughton, Esq., of Roehampton, for a specimen Pelargonium (Priory Queen).
14. To Mr. J. Green, gr. to Sir Edmund Antrobus, Bart., F.H.S., for Lisianthus Russellianus.
15. To Messrs. Veitch and Co., for Hoya trinervis.
16. To Mr. Elliott, gr. to J. B. Boothby, Esq., F.H.S., for Plumieria acuminata.
17. To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for the second best named collection of plants.
18. To Mr. Fleming, gr. to His Grace the Duke of Sutherland, F.H.S., for Grapes.
19. To Mr. Toy, gr. to Colonel Challoner, F.H.S., for the same.
20. To Mr. Davis, of Oak Hill, East Barnet, for the same.
21. To Mr. Spencer, gr. to the Marquess of Lansdowne, F.H.S., for Peaches and Nectarines.
22. To Mr. Kemp, gr. to P. Grillion, Esq., of East Acton, for Peaches and Nectarines.
23. To Mr. G. Leslie, gr. to Mrs. Fleming, of Stoneham Park, Southampton, for Melons.

THE CERTIFICATE OF MERIT.

1. To Mr. W. Cole, gr. to C. Lewis, Esq., of Blackheath Park, for a collection of six varieties of Stove and Greenhouse plants.
2. To Mr. W. Barnes, gr. to G. W. Norman, Esq., for Cypripedium spectabile.
3. To Messrs. Mountjoy and Son, of Ealing, for Lilium testaceum.
4. To Messrs. Veitch and Son, for six dwarf Erica depressa.
5. To Mr. G. Stanly, gr. to H. Berens, Esq., F.H.S., for a specimen of a species of Thysanotus.
6. To Mr. Beck, F.H.S., for a Seedling Pelargonium of 1844 (Mustee).
7. To the same for the same (Sunset).
8. To the same for the same (Juno).
9. To the same for a seedling Pelargonium of 1845 (Shiner).
10. To the same for the same (Rosetta).
11. To Mr. H. M'Conach, gr. to E. Vines, Esq., F.H.S., for a seedling Pelargoninm of 1844 (Gulnare).
12. To Mr. Pearson, Nurseryman, Hampstead-road, for a seedling Verbena (Hampstead Lily).
13. To Mr. Henbrey, of Croydon, for a seedling Pink (Beauty).
14. To Mr. Standish of Bagshot, for a seedling Calceolaria (The Pet).
15. To Mr. Gaines, for a seedling Calceolaria (Compacta).
16. To Messrs. Rollisson, for Pitcairnia punicea.
17. To Mr. Barnes, gr. to G. W. Norman, Esq., for the third best named collection.
18. To Mr. Mylam, gr. to S. Rucker, Esq., Junr., F.H.S., for the fourth best named collection.
19. To Mr. Dodemeade, gr. to W. Leaf, Esq., F.H.S., for Melons.

* N.B. It is the opinion of the Judges that No. 4, from Mr. J. Mitchell, of Piltdown, Maresfield, Sussex, was the best collection, but it was disqualified by not being shown according to regulations.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

Grove Iron Fence Works, Southwark,

(And at Southwark-bridge Iron Roof and Building Works.)

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

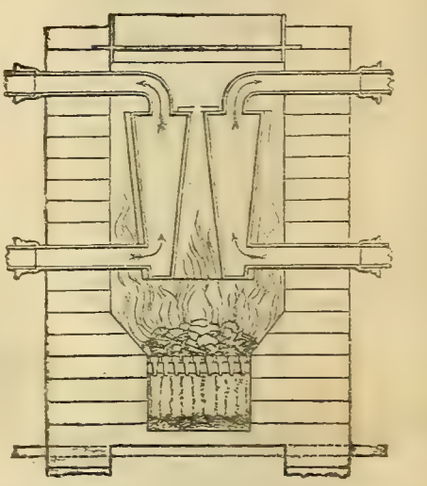
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

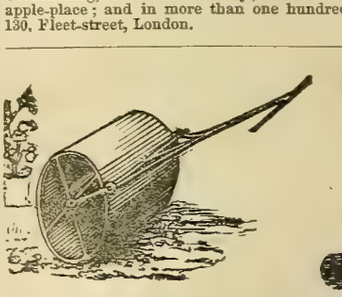
D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1l. 8s. Garden-Lights made and glazed from 1s. per foot, at JAS. WATTS's Sash Manufactory, Claremont-place, Old Kent road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.

The THIRD MEETING will take place on SATURDAY, the 12th of July, on which occasion, HIS GRACE THE DUKE OF DEVONSHIRE, the President of the Society, has kindly directed the Grounds of Chiswick House to be opened for the reception of the visitors to the Society's Garden.

Tickets are issued to the orders of Fellows of the Society ONLY, at this Office, price 5s.; or at the Garden, in the afternoon of the 12th July at 7s. 6d. each: but then also ONLY TO ORDERS SIGNED BY FELLOWS OF THE SOCIETY.

N.B. No Tickets will be issued in Regent-street, on the day of Exhibition. 21, Regent-street.

WOOD AND SON'S SPLENDID EXHIBITION OF ROSES WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour most respectfully of announcing to the Nobility, Gentry, lovers and amateurs of Roses, and their friends, that

THE WOODLANDS COLLECTION

of the above favourite flower is now in fine perfection, and will continue in bloom during the Rose season.

W. W. & S. take the present opportunity of stating that their IMMENSE STOCK OF ROSES has been considerably increased during the past season; the Collection has also received many valuable additions, neither pains or expense having been spared to enrich it with all the novelties that have proved worthy of being introduced from the Continent, and it is now unsurpassed by any other collection in Europe.

In addition to the foregoing claim on public patronage, the NURSERY, which extends over an AREA OF 40 ACRES, will be found to abound in every description of Ornamental Trees, Evergreens, and Flowering Shrubs, and indeed every article connected with the business.

Visitors are respectfully informed that the carriage-road through the grounds is in excellent order, and arbours have been fitted up at convenient distances for their accommodation.

Finally—WM. WOOD & SON beg leave to intimate that they do not intend to exhibit Roses at any of the Horticultural Shows this summer; consequently, visitors need not apprehend the disappointment occasionally experienced by those Ladies and Gentlemen who, in former seasons happening to visit the grounds on the eve of a grand Horticultural Fête, have found the Nursery partially stripped of its choicest favourites.

ADMITTANCE GRATIS, DAILY (*Sundays excepted*).

Maresfield is 12 miles distant from the Hayward's Heath station on the London and Brighton Railway, from which place conveyances may be obtained.

Coaches from London to Maresfield every Tuesday, Thursday, and Saturday from the Golden Cross, Charing Cross.—Also light Vans and Coach from Brighton to Tunbridge Wells, passing through Maresfield.

The Gardeners' Chronicle.

SATURDAY, JUNE 28, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	July 1—Horticultural	3 P.M.
WEDNESDAY,	July 2—Royal Botanic Gardens . . .	2 P.M.
SATURDAY,	July 5—Regent's-park Zoological Gardens	9 A.M.
SATURDAY,	July 12—Horticultural Gardens . . .	1 P.M.

COUNTRY SHOW.
WEDNESDAY, July 9—Gravesend.

ON the 21st of June TWELVE THOUSAND THREE HUNDRED AND FIFTY-FIVE Fellows of the Horticultural Society and their friends assembled at Chiswick to enjoy the second of those agreeable afternoons which everybody who knows anything, knows to be unrivalled in this country. The weather was propitious; the Exhibition of Flowers and Fruit magnificent; and the visitors what the cream of London society may be supposed to be in the month of June.

The critical eye could discover, indeed, that the beauty of the flowers was not quite equal to what it had been in May; but when was it ever otherwise? or how is it possible that it should be? for who is to preserve till June the delicate bloom of the Chinese Azaleas, the charm of all good gardens in May? or by what means can the freshness of any flower be preserved for 12 hours in hot dry weather, as it may be when the air is cool and damp?

But, if the Azaleas had passed away with the season, there were Roses to take their place, and the gorgeous Cacti, of which one bank was almost too brilliant for the eye to rest upon with pleasure. Then the Pelargoniums, wonderful for the richness and gayness of their colours, were far more beautiful than their earlier representatives; and as to Orchids, they were, if possible, more varied and remarkable than ever.

But of these and a hundred other things our reporter must be left to give his own account elsewhere.

The next, and last meeting for the year, will be held on the 12th of July, on which occasion His Grace the DUKE OF DEVONSHIRE, the noble President of the Society, once more throws open the gates of Chiswick House to the visitors. We understand that measures will be taken to give the fullest effect to this most liberal arrangement, which adds to the attractions of the Horticultural meetings the charming scenery of the prettiest little park in England.

THE BLISTER OF THE PEACH LEAF, a vernal malady of the existence of which all gardeners are too well aware, has just given rise to a little discussion, in which we must take leave to join.

Mr. JOHNSON, at p. 385, assigns it to an excess of moisture, imbibed by the roots; and in a note to his communication, we ventured to add the following words:—"There can be no doubt that these leaves are deformed and blistered, in consequence of an excessive influx of sap; and it is difficult to imagine that it can be caused by anything except a wet soil."

Mr. KEANE, a very sensible and experienced gardener objects to this hypothesis, and adopts the usual opinion that the disease is to be referred to a low temperature acting on the young and tender tissue of the foliage (see p. 417). In this he is followed by "H. C.," of Cork, who first states that he has been sometimes led to think that the deformity is caused by want of moisture; and then, at the end of his letter seems to change his mind, observing that "we know that when there is too much juice in our own systems, it very often finds its way out in the form of cutaneous erruptions." Much more decided in his opinion is Mr. J. TOWERS, of Cookham, who has sent us the following letter upon the subject:—

"I have perused with interest the various articles concerning the blotching and disfiguration of Peach and Nectarine leaves; and hope that the following remarks may tend to prevent the adoption of erroneous conjectures:—Having known the soil of this property long, from personal investigations by trenchings, and repeated analyses, during the course of above fourteen seasons, I feel that my remarks must bear the stamp of, at least, local authority.

"This property, like the whole of Maidenhead Thicket, rests upon *chalk over gravel*: the soil itself is a close, binding, gritty loam, hazel-brown until it becomes tinged by the surplus charcoal, (carbon), which results from manure, after the primary processes of the laboration of its organic elements have been completed. Hence, such a soil resting upon chalk and gravel,—varying in thickness and depth,—can never retain moisture. It is in fact *too dry*; and, as a proof of perfect drainage, during the course of six weeks rainy weather, which has produced winter floods of a similar duration in the neighbouring river vallies, I have had the sanded floor of my latest Vinery dry to dustiness in the middle of January. My Peach-border was prepared in 1835, after the erection of a wall, which further exposed at its foundation the character of the soil; and since that time, with the exception of two or three seasons, the first leaves of two Nectarine trees have been destroyed by the *bladder blights*. This year (1845) they have comparatively escaped, and now have but few bloated leaves upon them; nor did these appear till after the hail and cold rain, of the latter end of May, followed by a night of almost frosty temperature.

"That able gardener, and superior wall-fruit cultivator, Mr. ANDREW PATRICK, of Stoke-green, near Slough (who certainly knows his soil intimately, *having trenched and reformed his borders* to the depth of 3 or 4 feet), told me, years since, that the disease, beyond question, originated in a check of transpiration, by which the young foliage of spring—full of juices—finds itself gorged; and hence becomes, as it were, dropsical. If, in fact, the transpiratory orifices be, by frost, put out of office, the results seem inevitable; and, indeed, the disease never occurs after midsummer, although the ground may be then absolutely deluged by July rain.

"The spring, on the contrary, produces a state of disease, so violent as not only to destroy nine-tenths of the foliage, but the entire tissue of the first tender shoots.

"Persons are apt to ascribe the malady to aphis; and it is quite true that hundreds of the Peach green-fly nestle in the cavities of the under surface of a diseased leaf; as do likewise the Aphis Ribis in the puckerings of the terminal currant leaves. In both instances, however, they are secondaries in the work of destruction. Every fact, it appears to me, direct and analogical, tend to prove that frost, spring-frost, and not soil, is the direct cause of bladder-blighting."

We wonder that it should never have occurred to our correspondents that the disease may be owing to both circumstances combined; and that the action of cold upon the surface of leaves, which action we have never denied, is only able to take effect when the part to be acted upon is distended with fluid. Is it not quite probable that the primary cause of the blister is excess of sap, and that cold is a mere secondary agent, not producing but aggravating the disease.

In order to understand this matter rightly we must begin at the beginning, and first inquire into the true nature of that curious organ which we call a leaf.

Some persons talk of leaves as if they were pieces of green paper snipped into various forms; and others, without talking of them so, treat them as if they were of no more importance. But a leaf is in reality a most curious apparatus, consisting of innumerable bladders filled with fluid, inclosed within an external layer of empty bladders joined together in the form of a skin, holding together but little, and thus forming a labyrinth of passages among themselves. The skin is pierced with pores (stomates), through which superfluous water is allowed to fly off in the form of vapour, or insensible perspiration. The fluid contained within the bladders is derived from the veins of the leaf, which veins receive it from the stem, into which it is originally thrown by the roots, whose, young points suck it out of the ground. All the watery matter, then, which a leaf contains, must of necessity be derived from the roots; and, therefore, any surplus of watery mattery in a leaf is clearly traceable to the soil. This seems plain. (For the sake of simplyfying the subject, we leave out of consideration the small quantity of water absorbed by the leaves themselves directly from the atmosphere; because it is of no importance to the question before us.)

When a plant remains in a healthy state, but its leaves are excessively distended with watery matter, the first thing that happens is an increase in size, or number, or perhaps in both, of the green bladders that lie between the veins of the leaves, and which, growing faster than the veins that bound them, form, as Mr. JOHNSTON has stated, excrescences and expansions, presenting the appearance of blisters. This happens continually in Vineries to Vines growing with great vigour, whose leaves will then present innumerable green bags, or bladders, springing up from their surface and deforming them.

The disease of the Vine-leaf in a Vinery is of the same nature as the blister of the Peach-leaf in front of a south wall. There is no essential difference between them; it is only one of degree, that of the Peach being the more severe. In both instances the cause is the same; namely, the accumulation in the leaves of watery matter derived from the soil. If this be so, it can hardly be said that cold is the primary cause of the mischief; for no cold is experienced in those Vineries where the malady is the most conspicuous.

It is argued that because diseased leaves appear in well-drained borders, it is impossible that wetness of the soil should have anything to do with the mischief. But soil may be wet temporarily as well as permanently, and we have not said that the disease was caused by stagnant water. It must be remembered that when leaves are organising themselves, water is sucked out of the ground with great force and rapidity, and any undue preponderance of watery matter will rapidly bring on disorganisation of the tissue. Mr. TOWERS admits that the blisters of his leaves first made their appearance this year *after the hail and cold rain of the latter end of May*; a fact which, we conceive, puts the matter to rest in his particular case. Indeed he admits that it is because the young leaves are "full of juices" that they are blistered; so that his inference is at variance with his own premises: unless, indeed, he means to say that cold has the power of filling plants "full of juices;" which would be quite a new discovery in vegetable physiology.

We do not, however, entirely deny the evil influence of low temperature. It is very possible that it does injure the delicate tissue of young leaves, and render it incapable of performing its allotted office. We believe, moreover, that the evil attendant upon an accumulation of watery matter in the foliage is aggravated by cold, which, no doubt, interferes with the great function of perspiration; for, in a warm climate, the Peach would probably throw off its superfluous watery particles as fast as the leaves received them. What we contend for is, that cold must be regarded at most as a mere secondary cause; and that no such mischief as we see produced would arise if the wet of the soil did not overcharge and distend the leaves. It is, therefore, to the border that we should look; and our great object should be to guard the soil of newly-sprouting Peach-trees from being suddenly filled with water, even although it is quickly drained off again. In the absence of this, we shall no more, by shades or coverings, prevent the leaves from blistering than we do in the case of Vines by glazed roofs; and we doubt much whether, if the border were kept permanently clear of sudden and excessive accessions of water, any considerable amount of blister would appear, even although the leaves were left unguarded to the cold of radiation, dangerous as that action is to plants so tender as the Peach-tree.

ACCUMULATIVE SYSTEM OF CULTIVATION.

VERBENAS.

(*Continued from page* 360.)

EARLY in the spring of 1844, I was requested to cultivate a collection of Verbenas, with the view to produce fine specimen plants, but delaying the operation until the second week in April, I was severely censured, it being then considered too late to ensure superior growth, with early bloom. To redeem the time, and to obtain the highest possible vigour, within a limited period, the following treatment was observed:—36 plants, principally from cuttings of the current year, in 3 and 4-inch pots, were selected in the second and third weeks of April. The leading or fore shoots were

cut back in proportion to the health of each plant, in order to make the axillary buds start into growth, and the bottom cavity of the pots was enlarged by inverting each in the hand (retaining the plant in its position), and breaking each cavity with an iron wedge, to admit a quicker circulation of moisture and to stimulate the plants to a more vigorous growth. This operation is essential when the soil has become too compressed, either from excessive watering, inattention to proper soils, deficiency of drainage, or when the bottom cavity is so covered with flat potsherds as to prevent a due circulation of water, or access of air. As a remedy against the evils of the ordinary routine of potting, where method, in the arrangement of soil, &c., is generally either forgotten or disregarded, the above simple precaution is perhaps the only effectual way (in connection with an increase of light, &c.), by which an additional stimulus can be given to plants, apart from disturbing their vital organs.

These remarks suggest an important inference in respect to cultivation generally; namely, that the excitability of plants in their early periods of growth, should be in proportion to the vigour which they are ultimately intended to acquire. For example, take two plants of Pimelea, Fuchsia, or of any other genus, and let one of them be intended to mature its growth and bloom in a 9-inch pot, and the other in a 16-inch pot. No intelligent cultivator will for a moment suppose that the same treatment, either in regard to soil, drainage, or exposure, is required to produce these opposite results. The greatest effects in growth are invariably the results of the highest agencies, and *vicé versa*. Ordinary effects are but the result of ordinary means. Let a stranger visit any great plant establishment, and he will observe thousands of plants uniform in size and vigour. Should a reason be sought for such an effect, the answer would probably be, that the plants having been subjected to uniform treatment, produced uniform results. But after the lapse of a season, if the same individual should have an opportunity of comparing the same plants in the collections of private growers, he would find different results under the management of their respective owners, and the question would naturally arise, what produced such opposite results, under apparently equal advantages as to situation, &c. Many different reasons would probably be assigned, such as a deficiency of pure air, suitable soil, good water, &c. Admitting the importance of these, it is now generally known that, apart from the requisite aids afforded by nature—as air, soil, &c.—the skill and appliances of art are proportionately essential for successful cultivation.

The evil of neglecting any essential means of growth in plants can scarcely be over-rated. Suppose an indifference be manifested to the fact that all soil should be pulverised, and porous, in proportion to the amount used in potting, then the result would be a general counteraction of all other means employed. The chief causes which produce a disparity of growth in plants, which naturally attain equal vigour under equal circumstances, may in part be accounted for as follows:—The most important agencies upon which plants depend for their highest perfection, and by which, perhaps, all agencies affecting their growth are regulated, may be regarded, 1st, as stimulative, and 2d, as elaborative, in their effects—the former acting mechanically, by a relative arrangement of the soils in which plants are grown; and the latter atmospherically and chemically, by an adaptation of such agencies to the structure and conditions in which they are placed. As an illustration of the former, suppose a plant to be potted in ordinary soil, without any regard to its texture, quality, or arrangement (that is, without drainage), and thus exposed to the open air, or arranged with other plants (oppositely treated), to receive similar attention. Thus circumstanced, after a few waterings, it would be found that a gradual compression of the soil had completely prevented the circulation, either of air or water! And why? simply because the pores of the soil were not capable of remaining at a given distance from each other! But remove from a plant thus circumstanced the lower portion of the soil, and replace it with material which does not admit of compression, or so modify the soil by any contrivance, either externally or internally; either by lessening the ball or by increasing the distance or porosity of its parts (by drainage); so that air, water, &c., may circulate freely, and it will then be found that the plant is stimulated to growth exactly in proportion to the degree of mechanical agency acting upon it, in connection with light and heat, &c. Hence it may be assumed that the difference of vigour in plants during their successive periods of growth, and under different circumstances, may be chiefly traced to the ability with which cultivators maintain a stimulated growth for a longer or shorter period, previous to their season of bloom, by a knowledge of the requisite texture, quality, and arrangement of soil, in connection with light and heat.

The Verbenas after being prepared, as previously stated, by enlarging the bottom cavity of each pot, were placed upon inverted 4 and 6-inch pots, on the front platform of a forcing-house, (west aspect), in which a temperature was maintained of 70° by day, and 60° by night, where they remained until the third and fourth weeks in April, when, after a due formation of axillary growth, they were shifted into 5 and 6-inch pots, preparatory to the final shift. The soil used was nearly equal parts of friable yellow loam, and highly pulverised manure, the former was passed through a sieve, 5-8ths of an inch in the mesh, and the latter through the hands, to avoid refuse, adding 1-6th of white sand to the whole. A substratum of coarse, half decomposed, dry, friable manure was used over the bottom drainage. The plants were thus replaced upon the inverted pots, and shaded from intense sunlight, from eleven o'clock in the morning until three in the afternoon. Air was admitted more freely, previously to the shade being given, and for a time after its removal. previously to being watered; and they were closed up with as humid an atmosphere as the house would admit. Syringing was applied, after air was admitted, in the morning, and previously to the house being closed in the evening. The latter operation was dispensed with in cool dark weather, and *vice versa*. As the growth increased, the foreshoots were shortened, one or two joints back, according to their vigour, and uniformly arranged from the centre, outwards, by securing the shoots upon the surface of the soil, by hooks, or pegs, the axillary, or side shoots, being also kept clear by similar means; and in the most luxuriant specimens, a slight sprinkling of soil was added over the stems after being thus treated. By the second week in June, the plants were extremely vigorous, extending over the margin of the pots, 6 and 9 inches.

As the ultimate success was foreseen to depend upon a previously accumulated vigour, extreme attention was paid towards inducing the formation of growth from the central joints, before they received another shift. Having obtained side shoots, or branches to the extremities, by a second stopping of the leading stems, in their present position, each pot having required 10 to 15 hooks, to maintain a prostrate habit, the plants were prepared for the last and principal shift, by a copious supply of water. Pots measuring 11½, 12, and 13 inches, inside diameter, were prepared by placing 1½ inch of coarse potsherds, as bottom drainage, in the two first sizes, and full 2 inches of the same for the last size; over which was again placed, as intermediate drainage, 3 and 4 inches of the coarse knobs, and flakes of highly pulverised dung, carefully selected from a large heap, and rather firmly pressed. The plants were then potted in equal portions of friable yellow loam (the coarse turfy part being rejected as unpulverised), and highly pulverised dung, the latter of such a friable texture, as to appear at a short distance like loose black soil. The materials for potting were separately passed through the hands in preference to a sieve, to avoid refuse, &c. The process of potting was as follows:—the coarsest of the compost or soil was first added to a given depth over the sub-drainage, and the general soil was again added, admitting the ball of each plant to stand within a quarter of an inch below the rim of each pot; the soil was (with one exception) made firm by repeated shaking of the pot upon the potting-table, and not with the hands. On the ball or plant being placed in its intended position, a few handfuls of the coarse pulverised dung was added round the sides of the pot, and slightly pressed, the middle portion of soil was placed firmly round the ball of each plant with the hands, to prevent an undue level afterwards, but the general filling up of the soil received no pressure beyond its repeated weight by lifting upon the table or bench; consequently, the plants were not potted "firmly" in the ordinary sense of the word.

After this shift, from the first week in June, the plants were removed to a cold frame, forming one of a S.E. range, elevated upon four bricks flat at the back, and two at the front. The plants were placed upon large inverted dishes to admit of exposure to stronger light and quicker evaporation, by standing upon a dry surface, and also to admit a copious supply of water upon the surface beneath to maintain a humid temperature when required. The following treatment was observed during the first week: the ball of each plant having been well moistened previous to being potted, no regular watering was needful till the third day. Air was admitted early by pushing down the lights from the back about 6 inches, for an hour, after which the lights were drawn off, an ample supply of water poured upon the surface of ashes, and around the sides (syringing being omitted the first day), and the frame again closed from 7 until 9; the lights were then tilted 2 inches in the centre (sideways), the air in all cases being admitted contrary to the current of wind. From 10 until 1 or 2 o'clock, a slight but uniform shade from intense sunlight was given. About the latter hour the shade was removed, the ventilation increased for an hour, and about 3, or earlier, if cool, the lights were drawn off, the morning treatment repeated, and the plants closed with a temperature from 70° to 80°. The third day after potting they were supplied with the first morning watering, equal to the whole amount of soil, the plants remaining exposed for half an hour, and closed as before until June, after which air was admitted more freely to cause evaporation. On the usual removal of the shade, air was also more freely admitted from 1 until 2 or 3 o'clock, the usual exposure for half an hour, and thus closed without any additional moisture either by sprinkling the surface or syringing, until the partially dried surface of the soil again indicated the necessary quantity of moisture, which is essential within a given period, whatever be the amount of soil, or the means of absorption to which plants are exposed.

It will be seen that the foregoing treatment is in character with the previous remarks on stimulative agencies of growth; the greater the disproportion of soil in which plants are artificially placed—to their mean or existing vigour—the more powerful should be the agencies of light, air, heat, &c. to regulate or balance the amount of moisture, with the assimilative power of the plants to absorb it.

A similar management, with the addition of daily syringing in clear warm weather, was continued until the first week in July, the temperature of the frame being lowered as the growth advanced, by longer exposure (when calm). The terminal or end buds of the strong axillary shoots were removed (generally two joints) four times during the last or final shift into large pots, and the lateral or side shoots pegged down to the surface, in some cases curving the last period's growth but one around the inner rim of the pot.

An idea may be formed of the attention they required when it is stated that the writer and an assistant was often engaged whole days in arranging the growth, so as ultimately to admit of a uniform effect when in bloom. The plants were exceedingly luxuriant, each requiring from 50 to 70 hooks, to preserve a prostrate habit until the last growth. In the second week of July, the plants having been partially prepared by a free admission of air, were removed to their final position for bloom (on a border of east aspect, sheltered to the west), where, by the third week in July, the last extent of lateral growth was formed for the bloom.

Tying up the growth appeared at first rather difficult, from the varied length of the branches as they extended over the margin of the pots, from 6 to 12 inches in length; but this was readily obviated on finding each branch or stem admit of a gentle curve without breaking. Accordingly, each plant was tied out to an hemispherical outline, similar to the beautiful Pelargoniums at the Chiswick Exhibitions, by bringing each longest prostrate stem, and the most backward in bloom, to the centre, and graduating the shorter ones towards the margin. When thus finished, 24 of the plants averaged 2 feet in diameter (upright growth), with a degree of vigour comparatively equal to any lesser extent of growth, each containing from 50 to 70 flower-stems. As the bloom-buds began to appear prominent, each pot was placed within a dish, from which the plants were amply supplied with water at the roots, twice a week, throughout the remaining period of their growth, and syringed daily until the full expansion of the flowers. During the preparation of the plants for bloom, it was hinted that the plants would never make a due return for their cost, and also that the open ground cultivation could not be exceeded, to both of which points, I, in ignorance of the ultimate effect to be produced, assented; but as the plants attained their full maturity, the illusion was dispelled, and it was freely acknowledged that for interest and uniform growth and bloom, they were far superior to the general instances of open ground cultivation. Though purposely grown for exhibition, one or two exceptions were made wherein the plants were sold for 7*s*. 6*d*., and 10*s*. 6*d*. each; a selection, also, from them was made for the purpose of ornamenting her Majesty's dining-table at Windsor Castle. The above instance was the only one in which I undertook the cultivation of Verbenas. Were I asked for a reason of the success attending it, it would be attributed to a correct preconception or theory of that perfection of growth which I deemed the plant capable of attaining, under a correct application of the agencies essential to the growth of plants generally. It is not theory (simply as such) that leads men from the truth; but the speculative error which too often attends it. He who adopts practice apart from a knowledge of the theory upon which it is based, is but a mechanic in his profession; he who combines both is an artist.—*Wm. Wood, Pine-apple-place.*

THE PINK.

THIS is a flower that is cultivated and admired by everybody, and now that a better system of saving seed is adopted than formerly, we may expect a rapid advance; in fact a visible improvement has taken place within the last few years. There appears to be some difference of opinion in various parts of the country as to what really ought to be the properties of a good Pink. Lancashire and Yorkshire exhibit them much thinner than the southern growers, and especially at Sheffield, where it is by no means requisite that a flower should possess more than 8 or 10 petals, whilst they deride the fuller flowers of the metropolis and its vicinity as "mops." I am aware that the Pink has been descanted on by many florists, and that different views have been taken as to the essential and requisite properties. In my opinion the Pink ought, in the first place, to be rose-leaved, whether it is plain or laced. This I take to be a *sine qua non*, for however long we have been without them, scarcely any florist would advocate a ragged-edged flower against such sorts as Creed's President, Jones's Huntsman, and Beauty of Blackburn. It will also be conceded that a perfectly laced flower, each petal truly and neatly margined with red or purple, or any other perfectly distinct colour, contrasting well with the pure white of the ground colour, will be preferable to one in which some of the petals are margined, others only partly so, whilst some may be without it altogether, forming an imperfect and irregular flower. Neither do I imagine that amongst florists there would be two opinions as to dull or impure flowers, contrasting with those of brighter colours. Now these are points known and acknowledged by professed florists during the past half century, however they may be brought forward and laid down as this or the other person's.

Of the Properties of the Pink.—Form takes precedence, and in order to ensure so desirable a quality, the petals composing the flower should be without any of the fringe or serrature so common amongst them; in fact they should be as smooth on the margin as those of a Carnation or Rose. They should also be thick in

texture, the lower ones largest, spreading horizontally out of the pod, and forming a circular base, over which the succeeding petals should imbricate tier above tier, gradually decreasing in size till the flower assumes the appearance of a flattened cone. The number of petals retained in a flower will depend in a great measure on the regularity of its lacing, and the fancy of the exhibitor, but there certainly ought not to be less than 15, and as many more as can be symmetrically arranged. The petals should lie perfectly flat, or nearly so, some sorts are inclined to reflex, whilst others will incurve, two decided bad qualities. Harmony or distribution of colour is the next point for consideration. Pinks are usually shown in three classes, occasionally four. They are red, purple, and brown laced, and black and white; there being fewer good flowers in the last than in the other classes. The plain Pink should have the centre of a fine dark crimson or maroon, on a white ground of dazzling purity, and which should cover at least one-third of each of the petals, the colour of each petal corresponding so as to make the circle of dark complete in each tier; this I believe to be the opinion of all good florists, whether in the north or south. In laced flowers, the nearer the margin corresponds with the centre the better; it should be laid on evenly, that is to say, of the same width in each petal, and as the centres of each tier of petals correspond with each other, so ought the margins, thus forming a symmetrical whole. In some parts of the country the edging is most admired when it covers the extreme margin of the petal, whilst others contend for a slight lacing of white outside the dark edge—this I consider to be a mere matter of taste. Intensity is the third point, and here again, as in most other florists' flowers, brightness and brilliancy of the markings of whatever shade they may be, with purity in the body colour, must certainly have the preference to those flowers in which these essential properties are defective; on this point I need not expatiate, as the amateur will soon be able to arrive at just conclusions by comparing the different varieties. Size is the fourth and last point to be taken into consideration. Some of the best Rose-petalled flowers are not large, but their form will always give them pre-eminence, where the opposing varieties are serrated.

Need I enumerate what comprise disqualifications? After having stated what is required, it will be well for all to endeavour to work up to the points here laid down, and though as florists we may not have been quite alive to the importance of saving seed from smooth-petalled sorts, still "better late than never," and I trust we shall soon have all thick short pods, serrated petals, confused colours, and impure grounds, known only by name, and their places supplied with flowers nearer to what we know they ought to be. I would just remark, in conclusion, that flowers with split pods are considered out of the pale of censorship, and in addition to the above, would disqualify a stand.—*W.*

GARDEN MECHANICS

Gardening at the present day appears to have put on its "seven-league boots," and those who intend to keep pace with the times must shake off dull sloth. Those men who, ten or twenty years ago, thought themselves perfect in every department, must, if they have made no advance since that time in their gardening knowledge, be lagging behind at a great distance. We are informed by those who have made observations on the education of the working classes, that there is no class of men in the same station of life equal in information with gardeners; but that is not enough to make us rest satisfied with what knowledge we may have acquired. Although it should have been obtained, perhaps, under difficulties, if it is insufficient for the work in which we are engaged. One thing I have learned, which I find to be very useful, and which may be worth communicating; it is this: In order to understand consequences we must know principles; now this is a very short lesson, but short as it is it is sometimes forgotten, or if it is not forgotten, it is not acted upon; yet the knowledge of one fact often leads to the discovery of others.

If we turn to Garden Mechanics, we shall find that there are certain fixed laws for the proper construction of a wheelbarrow, as certain as those that keep the planets in their orbits. I have observed, and perhaps many have done the same, who have worked in different places, that every place has its own make for a wheelbarrow; some of them are well made for the work they are intended to do; others are constructed in direct violation of mechanical laws. In working with a bad made wheelbarrow, there is a vast amount of force made use of that might have been saved; it is a loss to the employer, and of no advantage to the mechanic. A very little knowledge of the mechanical powers, namely, the lever, the wheel, and axle, might have prevented the evil which the carpenter ignorantly may have occasioned. The workmen in the garden must bear an unnecessary load, or the employer must have less work performed than he otherwise would have got done had the machine been properly made. Now, I think it cannot be doubted for a moment that some knowledge of Garden Mechanics would be of essential service to gardeners: there is scarcely an operation performed, from the using of a dibble to a steam-engine, in which some one of the mechanical powers is not required, and to be ignorant of the laws that would teach us how to employ these powers to the best advantage, is a thing which ought not to be.

Many of us view things through a misty medium, and what ought to be clearly and distinctly seen appears refracted and distorted. This may proceed from a deficiency in our education, or from an obtuseness of our intellects. Many pride themselves in having served their apprenticeship in a lord's garden; they may also have worked in nurseries and botanic gardens, and yet during all that time may not be able to tell whether the spade they used was a lever, or a wedge, or an inclined plane, or a combination of mechanical powers; and in using a wheelbarrow they know as little whether the effect goes before the cause or the cause before the effect, as the marble deity placed on a pedestal.

Many young gardeners would take it amiss to be placed on a level with ploughmen, and yet many ploughmen who never had a foot within a walled garden could give them some useful lessons in the usage of their profession. Take as an example the spade and the plough. Do the most of gardeners who try rough-digging know the proper angle at which to place the soil, so that the greatest surface may be exposed to the influence of the atmosphere? I doubt some of them would be puzzled how to do it, or tell how it should be done; and yet some old carle crowned with a Kilmarnock bonnet, and wearing a graw-grey coat of his wife's spinning would, by circular figures, triangles, and a few letters of the A, B, C, demonstrate to them, by the principles of elementary geometry, or perhaps by the differential and integral calculus, if they understood it, that in the turning up of his soil to the influence of the weather the isosceles right-angled triangle is the best. It is perhaps not necessary for gardeners to become profound mathematicians, but there are many garden soils improved by being exposed in a rough state to the influence of the atmosphere; and how to do it in the best way is surely worth knowing.

The farmer knows that the coulter of his plough should be inclined at an angle of about 45 degrees to the plane of the plough's sole, and he can regulate his line of draught by mechanical principles. Does the gardener know how to use his hoe or his rake by such principles, so as to perform his work to the best advantage? Perhaps a little said on motion and moving powers, their nature and laws, with their effects in machines, would not be without its use to some of the readers of the *Chronicle*. We are informed by those who have made Mechanics their study, that there are three kinds of levers. In the first kind of lever "the fulcrum is disposed between the power and the weight;" in the second kind, "the weight is placed between the power and the fulcrum;" and in the third kind of lever "the power is placed between the weight and the fulcrum." These different kinds of levers may be seen in the spade, the wheelbarrow, and the hoe; and for the gardener to know how these are governed by the law of virtual velocities, or the golden rule of Mechanics, is something worth knowing. Some such things may be more fully dwelt upon in another article.—*Peter Mackenzie.*

Home Correspondence.

Clerodendrons.—The free-blooming scarlet species of this fine genus are now, if they have been properly treated, approaching perfection; and it is scarcely possible to conceive more splendid objects when brought out in all their glory. It may not, however, be known to everyone that these may be retained much longer in bloom, if treated more as greenhouse than stove-plants when they are approaching perfection. A warm and a moist temperature are indispensable during the period of their growth, to bring them to a fine flowering condition; but to enjoy them for any time they must be gradually exposed to a much lower atmosphere than that of a warm moist stove. In the greenhouse they will continue blooming three months at least, when, in fact, there is little else to decorate it. In the conservatory, also, they will form useful and beautiful objects; and for such purposes they should be chiefly grown. Many of these plants cease to be cultivated, because it is almost universally understood and admitted that they can only be seen in perfection in houses that would positively broil any ordinary European in a summer day. Therefore, to render all such and similar plants enjoyable is to bring them into a temperature where they can not only be retained for a length of time in their utmost perfection, but where also they can be visited and admired without inconvenience or suffocation from heat. This is a subject of great importance to cultivators of plants, and one that should be kept continually before them; for of what use is it to grow and bloom plants, and let them "waste their sweetness on the desert air?" Rather let us discard them from our collections, and cultivate such as can be enjoyed, provided there is no alternative. But of this I am quite certain, that all the race of Clerodendrums, Gloxinias, Gardenias, besides the immense multitude of beautiful Orchids, can be brought into a lower temperature, and their beauty prolonged, without injury to them—in fact, with advantage to the plants themselves, by giving them rest, and enabling them to mature the succulent growth produced in a close and warm hothouse.—*Duro.*

Pruning Forest-trees.—A little learning is a dangerous thing. I did not intend again to have occupied your pages on this subject, had not "Sylvanus, Wicklow," made such free use of my name relative to pruning. He begins by saying on the subject—"The limited field in which I have been engaged has caused me to be totally ignorant." These are his very words; there is no misunderstanding them. He adds that Mr. Billington's book was written some years ago, when the subject of pruning did not much engage planters. "Sylvanus" does not even say whether he has ever read this book. Mr. B. is a man of observation, and states facts within his own knowledge worth more than hearsay testimony. The fact Mr. B. has given us is, that Larches increase considerably more in bulk (the branches remaining) than those from which the lower branches had been taken off, and this experiment was made to prove the rule. I wish "Sylvanus" to buy and read this book, and he will find me correct; and I have yet to learn that fashion will alter botanical laws.

God never made his works for man to mend.—*Pope.*

Mr. B. has given us drawings of his mode of pruning, to produce particular results, viz., knees for ship-building, and other purposes, and has shown what may be done by science and art, and lost by ignorance and neglect. Mr. "Sylvanus" further says—"If he has a correct remembrance of Dr. Thackeray's system of pruning Mr. Hamerton has not understood it, not only not understood it, but directly misunderstood it. Mr. Hamerton asserts that Dr. T. takes off all the lower branches." I have not seen Dr. T.'s plantations, but I have good information from a gentleman, whom I was to have accompanied, who saw them only last year, and has given me the dimensions as underneath, and which prove that the assertion I made was correct; the Doctor has cleared away all the lower branches as far as one-third, one-half, and two-thirds the height of the trees.

	Girth. ft.	in.	7 feet high. ft.	in.	Height to 1st branch.	
Silver Fir	2	7	1	7	18 feet	30 to 40 feet high.
Spruce do.	3	6	2	4	15 do.	
Sycamore	2	10	2	2	18 do.	
Ash	3	0	1	9	20 do.	
Oak	3	0	1	10	20 do.	

What would "Quercus" say to see trees stripped of all their branches one-half and two-thirds of their height. If this is not mutilation, I know not what is—if a tree is to get its living by obtaining carbon from the atmosphere through the leaves. This is the prejudice with which I ventured to battle in a late publication: I thought Pontey had been dead many years ago. Before "Sylvanus" had advanced so recklessly that Mr. Hamerton must be wrong, he should have given the subject more consideration, and been guided by the experience of others. If transverse sections of Dr. T.'s trees were given, as I have in a late publication, by engravings from my own and others, some improvement might be effected, but for want of an Arboricultural Society this information cannot be afforded to the world. It does not by any means follow that if a branch is taken off, that the nourishment given by the root to that branch goes afterwards to the support of the whole bole of the tree; I believe the contrary: this kind of anatomy might form a great consideration for any Arboricultural Society, and I scarce believe that England would be more benefitted by any society than the one I contend for. In an article given lately in the *Chronicle*, by Dr. Thackeray, on the subject of pruning, by way of illustration, he states, that if a man has lost a leg he increases in bulk. Now, if a limb is diseased cut it off; if the branch of a tree is decayed, or likely to die, cut it off; but I will deny again and again, and prove by examples that healthy branches should not be taken away as a general rule; but to all general rules there are exceptions. I have taken off healthy branches sometimes. "Quercus" asked some years since where all this pruning was to terminate, and which I again ask. I can understand pruning to be good when the tree is young, as I would train up a child in the way he should go; but if this perpetual pruning is to end only with the life of the tree, I will affirm that its life will be only of short duration, and while it lives it will obtain only small increase of wood. This would appear to demonstration, if the Doctor would afford us engravings of transverse sections of his trees which he cuts down. They will not, I suspect, increase after the rate of 15, 20, and 25 per cent., as I have proved that healthy trees will, having the use of their legs.—*James Hamerton.*

Strawberries.—At the request of the public I forward the proportions of the substances employed by me in the cultivation of the Strawberry:—The loam for potting and top-dressing, containing one-third decayed vegetable matter (humus) is mixed with eight per cent. of the superphosphate of lime, in bulk. For watering, to the ammonia is added one-half its weight of sulphuric acid, and the whole is diluted in 2000 parts rain water, irrigating twice a week during summer and autumn, and whenever the soil requires moisture in spring, preserving a humid atmosphere. The kind of Strawberry is Keen's Seedling.—*J. Elliott, Norton Conyers, Ripon.*

Absurdities.—The following is an old-world plan for raising Kail, and similar seeds, by burying the leaves or blades in the earth:—Take withered leaves of Cabbage, Curlies, Turnips, or other Kail; tie them up in a cloth, and bury them knee-deep in the earth where it is dry (*i. e.*, not too wet), on St. Katharine's Day, which is generally on the 25th of November, and raise them again on St. Gregory's Day, which happens commonly on the 12th of March, and you will find Kail seeds which will grow and come to perfection. The above was found in a book in High Dutch, printed at Riga, in the year 1688, entitled "Lieflandische Œconomia;" the author was Salmon Gubert. See "Select Transactions of the Society of Improvers in the Knowledge of Agriculture in Scotland," pp. 269 and 300. In a letter from a scientific farmer in Aberdeenshire, of 5th April, 1824, he says—"I caused the above experiment to be tried here, and raised the leaves on the 27th of March; the result was a good quantity of large, full, ripe seeds, as hard as lead; there were long lines along the veins or ribs of the leaves, similar to a string of beads, shining

such as common good seeds of the sort should do. The seeds were afterwards sown in a hotbed." In a letter from the same gentleman, it is stated—"It is more than 30 years ago that I first heard of Lord Colvill's experiment with Kail blades, which I thought little of at the time, till I found ripe Turnip seeds among the leaves in a Turnip field, under deep snow, in the severe season of 1795. I observed the same in 1799, and the like in 1809, under deep snow also. All those three winters were very remarkable for severity, and in all the cases the snow was very deep and compressed on the Turnips where the seeds were found." The above was found among some old papers which have not been disturbed for 20 years.—*A.* [*Query*—What were the bodies which these observers call seed?]

Labels.—I submit to your inspection a specimen of a label which I have used both for pots and in the open ground for some years with as much convenience or more than any other I have met with. It fully answers the purpose intended, and every consideration of economy. The specimen sent is the smallest size I use, and has been in use four years, but of course the size can be varied to any extent. I use them from 3 to 8 inches in length, and of suitable width. They are cut with a pair of strong brazier's small shears out of a plate of zinc, and being cut intersectionally, a 2 foot plate will produce a great many, which being painted with white paint and well-dried, may be written on with a pencil when wanted. The writing may be renewed at pleasure by applying a coat of the same paint. I used to paint them all over, but I find it better to merely paint enough of the top to carry the writing; for by the constant action of wet upon the paint in the earth it blisters and corrodes as is the case with the one I send.—*J. K.* [This was a thin triangular zinc label, measuring 3 inches in length and 1 inch in width at the top, where a small piece had been clipped off each corner to give the label a neat appearance.]

Floricultural Societies.—Having observed occasionally the formation of central societies for the exhibition of florists' flowers, and more especially for the attesting the merits of seedlings, strongly advocated, allow me to suggest to the florists of Lancashire, Cheshire, Staffordshire, and the neighbouring counties, the following plan of an association, whereby the various cultivators, renowned in their separate localities, and oftentimes bearing off the palm year after year almost without opposition, may meet in friendly contest, and compete with antagonists, whose skill would require their utmost care and attention to surpass. The Society to be called the Association for the Promotion of Floriculture. The meetings to be held at Crewe station (this place is most admirably adapted for such a purpose, railroads branching to Manchester, Liverpool, Chester, Stafford, &c.). The subscription to be 1*l.* annually, and 5*s.* entrance for each class, or pan, of flowers exhibited. Dealers and amateurs to compete in separate classes. Auriculas to be shown in pans of 4, viz., green, grey, white, and self, and not less than 5 pips on each truss. Tulips in pans of 6 (or 12?) one feathered and one flamed of each class. Pinks in pans of 6, two of each class. Carnations in pans of 10, two of each class. Picotees in pans of 10, two heavy and two light-edged red and purple, and one heavy and one light rose edged. Ranunculuses in pans, Dahlias in pans, Pansies in pans; number to be fixed by committee. The committee to be 12 in number, one-half amateurs and one-half dealers, or nurserymen, to be elected (for each year after the first) on the last day of meeting. The principal difficulty in forming a society similar to the above, lies in so arranging the time of the various shows as to suit all parties; for even in this neighbourhood, a distance of a few miles will cause nearly a difference of a fortnight in the time of flowering. The only method which suggests itself to me is this, viz., to ascertain from the various societies around the days on which their shows were held during the last three years, and by taking a mean between the two extremes, to approximate to a time which may be made to suit all situations. I have merely noticed a few regulations; the committee would, doubtless, adopt those usually enforced. Should the attempt be made, I feel convinced the exhibitions would amply repay a journey even from London to witness.—*W. H. Molineux, Brynalyn, near Mold, Flintshire.*

Nurserymen's Advertisements.—Being an old gardener, or rather buyer of plants for my garden, I am a little put out by the lists of plants, rare and common, which I see advertised in catalogues in your Paper, and other similar periodicals. Going with the times, and not having opportunity of visiting the nurseries, and having a new gardener who is always eager for the novelties, I have been often tempted, especially this season, into the purchase of newly advertised plants, and have received them per post, or otherwise packed; but this mode of advertising has led to opposition and to underselling, and the result is that one rarely or ever gets a plant of any age or size. A miserable specimen in a thumb-pot, or in a pill-box wrapped up in cotton, with a fine name; cheap, comparatively, it is true, but dear in the end, for it probably has not been struck above a week, and is dragged out of a hot-bed frame, or a forcing-house, and withers and dies before every care can effect its recovery from the change. I purposely last week sent to a nurseryman near London, who I saw by his catalogue charged nearly double for the plants advertised by others, sagely supposing that from him, at least, I should have good established flowering plants; but I reasoned quite without my host; and where I expected to find good flowering bulbs, I received the usual specimens—invalided offsets, which, if I can keep alive, may flower two years hence! I wish you would help us elderly gentlemen gardeners, and recommend that there should arise a new set of advertisers, who would guarantee the furnishing "good, well-rooted, blooming plants," at an advanced price. Herr Dobler himself could not keep alive some I receive per post. Whilst I am on this subject, I will give a caution as to M. Van Houtte's catalogues. I was tempted to order some 25 or 30 Roses, seeing that they were cheaper than those I found in the catalogues of Rivers, Paul, &c.; but, alas, I find it is the custom of the Ghent nurseryman to send out little spindling stocks, with the bud inserted last season, and I made but a dear bargain, for some of the buds are now as dormant as when I had them, and not one of those which have grown will ever make such plants as one buys in the English nurseries. I do not say this out of any disparagement of M. Van Houtte, but merely to show that such is the custom. Nothing could be better than the plants of Azaleas and other kinds which I received from him—the packing and early deliveries excellent; and as he contracts to deliver the parcel in London duty free for a fixed price, no trouble or disappointment is experienced.—*Dodman.*

Tiger Spider.—In the early part of a summer I spent in the classic island of Ithaca, among many rambles to the tops of the hills which surround the deep bay of Vathi, one day after exploring the ancient town which is perched up high among the rocks, I was scrambling still higher over the rugged surface, each step bringing my face within a foot or two of the ground, when I suddenly felt almost fascinated for an instant by two bright flaming eyes, whose brilliancy was heightened by issuing from a dark circular hole in the ground. I believe I am not peculiar in a shuddering inquisitive feeling about snakes. After quickly withdrawing, taking for granted I had just escaped the dart of one which was evidently on the watch, I gave the fatal stab with my stick so as to hit the supposed reptile perpendicularly on the head. I now examined the nature of the fiery-eyed enemy, when I too late discovered my cruel haste had totally destroyed an insect which I would have anxiously preserved. I had not deranged the entrance, as I had noticed its peculiar neatness; I found a beatifully smoothed rounded hole, which, with a few inches in front of it, was kept clean of every blade of Grass with the greatest nicety. I then carefully extracted the mangled creature, but instead of a long lengthy snake, with its peculiarly odious smell when bruised, I first brought out a long hairy leg, then several more, and after them a broad brown-and-white flattish back exactly the colour and marks of a piece of tiger or leopard skin; this part was little injured, but of such a soft fragile nature that I could only examine it on the spot. I found it to be some sort of a large spider, with a large body and very long legs; as I was not aware that there was such a kind of spider my surprise and regret were unbounded. On examining its back I found it was literally swarming with young ones about the size of a Mustard-seed. It seemed to have been a most prolific mother, and no less bountiful nurse, for on squeezing it a quantity of white substance exactly like milk issued from it. The head with the eyes, which had so startled me, was destroyed; but instead of the six or eight eyes which some kinds of spiders, I since find, have, these seemed in this case to be concentrated into two of surpassing power. I could make nothing more of it, and returned, deploring my hasty violence, determining another time to examine first and put a mark till I obtained proper means of capture. I find that it was a tiger spider common in South America; that the smoothed hole and part in front is a sort of decoy for insects to feed, when these glistening eyes, ever watchful, fascinate; the long hairy legs draw in the victim. It is said they are so large in South America, that they sometimes catch birds. The hole in which the spider lived was just of a convenient size, and was neatly smoothed as a protection to its soft pulpy body. I failed in ever finding another. There is another curious ground spider in the Ionian Islands which makes a sort of covering for itself of a substance very like that of a wasps' nest, only much stronger, and at its entrance it is not only quite hard, but is closed by a beautifully fitting hinged valve door.—*Forester.*

Manure.—I have a long brick drain carefully set in compo, which runs through a field for some 300 yards, for the carrying off the waste soil from the house cesspool; the Grass over this drain, and for a good space on each side, is not only much forwarder but is of a finer sort, at least half as high again as that in the surrounding parts, and very much fewer weeds; and the drain not being open, the manure can only be the gases which escape through the brick-work, showing that in fact it is merely from such exhalations that the virtue of manure is obtained. This in theory we all admitted; but I have found this actual result, so plainly shown, a very convincing proof to the sceptical, who are rather apt to smile at ammonia, &c. &c. This result is in nowise to be attributed to the mere fact of draining; the other parts adjoining are equally well drained.—*Dodman.*

Retention of Moisture by Leaves.—When rain falls during the night, or when there happens to be heavy dews, and when, to all appearance, the plants of the earth receive a complete drenching, if a fine day follows, it will be found that some plants and flowers retain their moisture much longer than others; and at this season of the year, even although the day be fine, the clear drops will be found in abundance on many leaves, and the surface of others will be quite dry. For instance, the water will be found all day upon the leaves of the Swedish Turnips, while the leaves of the common garden Turnip will be dry; the leaves of the Hollyhock will be dry, while drops will be seen upon the calyx and corolla; the leaves of the common Bramble, with the stem trailing upon the ground, in the neighbourhood of the Wood-sorrel, will be dry, when the small leaves of the latter will be full of moisture; the leaves of the Ajuga cæspitosa, growing promiscuously with the Dactylis glomerata, will be quite dry, while those of the latter will be full of dew drops; the small leaves of the Mouse-ear Chickweed will be moist, while the much larger leaves of the Red Dead-nettle will be dry. Many other plants might be named if necessary. I have been endeavouring to find an explanation of these circumstances, but doubt much whether I have succeeded at present. I am of opinion that it proceeds from various causes. In the first place, I find some of those leaves on which moisture remains long to have surfaces which botanists would call pubescent, villose, tomentose, silky, &c. According to Dr. Wells, the finer the fibre, the more moisture it will attract. He found more dew precipitated upon fine raw silk, unwrought cotton, and flax, than the wool he employed; and the reason given why the wool had less dew upon it than the other substances was, the longness of its fibres; so, in like manner, perhaps, those leaves that have a downy or cottony appearance will attract more moisture than some others with a smoother surface, and, consequently, it will take a greater degree of heat to dry the downy leaves than the others, and when the heat is equal in both cases, the downy leaves will remain longer moist than those that are hirsute or polished. It has been ascertained that dew does not form in like quantities on different substances, under the same circumstances; and that radiation of heat, without an equivalent return, produces cold, and that cold is the cause of dew and not the effect of it, as was supposed to be the case at one time. I do not know if it has been ascertained whether downy leaves radiate heat quicker than leaves with polished surfaces; but from facts that are known respecting either substances, it is probable that they do, and it may be of use to gardeners to ascertain the truth of this. If it turn out to be true, they will instantly perceive the advantage it will prove to be of in preserving tender plants in spring and autumn, by preventing the heat from escaping by radiation from the surface of the leaves. In the second place, there are leaves, on the surface of which I cannot see a downy or cottony substance, and yet water remains long upon them. The leaves of the Swedish Turnip, Cabbage-leaves, and the leaves of the garden Pea, may be taken as an example; these leaves have on them what is sometimes called a bloom, and by others, a resinous exudation. If we examine a leaf of the common Turnip, we will find it to have a different appearance from that of the Swedish Turnip—it wants the bloom that the other has; and I imagine that there exists a greater degree of cohesive attraction between the moisture and the surface of the common Turnip-leaf than there is between the surface of the leaf of the Swedish Turnip; and I imagine also that the attraction of gravity acts more easily upon the exudated leaves; and that the power that keeps the planets in their orbits may form the pearly drops with greater facility upon the leaf where there is the least resistance to overcome. If I am wrong, I hope some one will set me right. I imagine that if the subject was more fully investigated, some practical benefits, of use in gardening, might spring from the inquiry.—*Peter Mackenzie.*

Begonias.—In addition to what has already been published on Begonias (p. 360), allow me to mention that Begonia bulbifera, Martiana, diversifolia, monoptera, discolor, parvifolia, and perhaps some others, produce a number of minute bulbs at the axils of their stem leaves in autumn: these bulbs, if taken off just before they begin to drop, may be put into papers and stored away along with seeds during winter. If sown thinly in spring in a light soil with a slight covering, they will soon vegetate and make plants more rapidly than those obtained from seeds. They also offer a ready means of disseminating the species to other gardens, and this has been taken advantage of for many years in the Berlin Royal Botanic Gardens.—*D. C.*

Amygdalus argentea.—The Amygdalus argentea (Lamarck) of this garden, which does not remain true raised from seed (inasmuch as a hybrid form of it is found among the nurserymen under the name of A. tomentosula, and can therefore only be propagated by grafts), has a dry drupe, and is certainly distinct from A. incana of Pallas. The latter has a fleshy drupe, and and can well be placed under Prunus, standing next to Prunus prostrata (Labillardiere) but differs from it in its upright habit, and three times longer leaves. Prunus prostrata (Labill.) grows scarce 2 feet in height, and bows itself stiffly to the earth. A. incana (Pallas) grows straight upwards.—The foregoing is an extract from a letter from Mr. Dieffenbach, head gardener in the Imperial Botanic Garden at Vienna, attached to the university.

Societies.

HORTICULTURAL SOCIETY OF LONDON, CHISWICK.

June 21.—THE SECOND EXHIBITION of the season took place in the Garden at Chiswick, on Saturday last, and fully maintained all that was said of the grand display

in May. The day was brilliant, and the appearance of the garden all that the most fastidious could desire. In the large collection of 40 Stove and Greenhouse Plants, the competition was again between Mr. Barnes, gr. to G. W. Norman, Esq., and Mr. Robertson, gr. to Mrs. Lawrence, and on this occasion the second prize was awarded to the collection from Ealing Park. The group contributed by Mr. Barnes was an extraordinary production, and was allowed, by every cultivator who saw it, to be one of the best specimens of horticultural skill ever produced in the gardens. Among the most remarkable plants in this collection was a dense thicket of Phœnocoma prolifera, 2 feet in height and about 4 feet in diameter, the branches hiding the pot and profusely covered with flowers; closely allied to this genus were two magnificent plants of Aphelexis humilis, about 18 inches in height and 3 feet in diameter, and densely clothed with bloom, which, on this occasion, owing to the brightness of the day, expanded beautifully. Another plant was Aphelexis sesamoides, 4 feet in height and 3 feet in diameter, forming a perfect cone, and there was a smaller but very admirable specimen of A. grandiflora purpurea. Of the genus Clerodendrum, Mr. Barnes had several plants, all remarkable specimens; one, C. paniculatum, represented below, had a spike of



flowers 3 feet in height and 4 feet in circumference at the base, and the extreme circumference was nearly 20 feet. From the same collection were also noble specimens of C. Kæmpferi, with bright scarlet flowers, C. squamatum, splendens, and fallax, all in very admirable condition. A fine plant of Ixora rosea was very much admired, as were also two admirable dwarf and compact specimens of I. grandiflora. Not less remarkable were two immense bushes of Pimelea decussata and Epacris grandiflora, in admirable bloom; and a plant of Polygala oppositifolia, 4 feet in height and .6 feet in diameter, densely covered with flowers, was all that could be desired. There were, moreover, two fine plants of Polygala cordifolia, with Statice macrophylla, Dillwynia pungens, Stephanotis floribunda, on a flat circular trellis, well bloomed; two grand plants of Rondeletia speciosa, in fine condition; with Boronia denticulata, and a smaller plant of Phœnocoma prolifera. In the genus Erica the collection was very rich, it containing fine specimens of odore Rosæ, in admirable bloom; vestita coccinea, and vestita alba, very fine; Thunbergia, a fine bush, with small orange flowers; intermedia, large; elegans, in admirable condition; the singular Plukenetii, a bush 3 feet in height and 4 in width; with dilecta, ventricosa carnea, rosea, tricolor, and superba, in fine condition, and also tricolor and tricolor elegans; an admirable plant of splendens, and several others. In this collection, we must not omit to notice two splendid plants, in excellent bloom, of Leschenaultia formosa. In the group from Ealing Park, the plants were considerably larger than those to which the first prize was awarded, but being overgrown, and to some extent what cultivators call "leggy," they were not considered so fine as Mr. Barnes's compact specimens. The collection also contained too many soft-wooded plants. Among them, however, were several specimens of great excellence, especially Pavetta caffra, eight feet in height, and four feet through, forming a rich cone of verdure, prettily covered with white flowers, but not quite sufficiently in bloom. Clerodendrum Kæmpferi was also very fine, having a spike of flowers eighteen inches in height, and four feet in circumference; and C. squamatum and fallax, though rather too much drawn, were also very fine. A dwarf bush of the simple but pretty Stylidium fasciculatum, with its small white flowers, was very neat, as were also compact bushes in fine bloom of Erica depressa, and Eriostemon buxifolium. Mr. Robertson had also a large standard plant of Polygala oppositifolia, with Acacia pulchella, a dwarf standard, the singular Medinilla erythrophylla, with the flowers protruding all over the stem; a small compact



plant of Pimelea decussata, and a larger one of the same kind, but in rather a declining state. There were, moreover, a fine specimen of Stephanotis floribunda; two tolerable plants of Rondeletia speciosa; with Statice arborea; Acrophyllum venosum; Leschenaultia formosa, large, but not in good bloom; with Azalea variegata; Erica ventricosa superba; E. inflata, very large, but naked; Pentas carnea, and several other plants. Very neat collections of twenty plants were contributed by Mr. Frazer, of the Lea Bridge Road, and Mr. Ayres, gr. to James Cook, Esq. In Mr. Frazer's collection was a fine plant of Erica Bergiana, three feet in height, and four feet in diameter, most profusely bloomed, but not quite so well coloured as it ought to be; Erica ventricosa carnea, fine; E. brevifolia, very pretty; and a good E. tricolor elegans. In the same collection were also Pimelea hispida and decussata, dwarf, and good; Aphelexis humilis, small; Dillwynia floribunda, very pretty; Boronia serrulata, an admirable specimen; Gompholobium splendens, a small shy-growing plant, with bright yellow flowers; Statice arborea, large, but rather destitute of foliage; Aphelexis speciosa, pretty; Burchellia capensis, well managed, but short of colour; Coleonema tenuifolium, delicately pretty; with excellent specimens of Gloxinia Youngii; and a fine variety of Polygala acuminata. In this group moreover, was a neat dwarf bush of Chorozema rotundifolia, and several soft-wooded plants. In Mr. Ayres' collection we noticed a finely bloomed Crowea saligna, 4 feet in height and 3 in width; Viminaria denudata, a singular plant, with long hair-like foliage, and spikes of bright yellow flowers; Leschenaultia formosa, a dense bush in fine bloom, 2 feet in height and 2 in width; Aphelexis sesamoides, large but past its best; Ixora grandiflora and crocata, dwarf and good, the latter with remarkably large flowers; Clerodendrum splendens, fine; C. fallax, very dwarf, with three spikes of flowers; C. Kæmpferi, dwarf, and good, with two spikes; Gloxinia cerina, in fine condition; and a very pretty specimen of Achimenes Beatonii. In the same group were also fine plants of Pimelea decussata, but not quite sufficiently in bloom; P. hispida, very neat, with Polygala oppositifolia; Erica tricolor, E. perspicua nana, E. ventricosa rosea, and E. ventricosa carnea.

Collections of 12 plants were numerous; that to which the first prize was awarded was from Mr. Bruce, gr. to Boyd Miller, Esq., and contained several very admirable specimens. Among them we noticed Ixora grandiflora, a fine plant; Aphelexis humilis, rather declining; Adenandra fragrans, exquisitely beautiful; Eutaxia pungens, dwarf, dense, and good; Euphorbia splendens, dwarf and well bloomed; Boronia serrulata, pretty; with Aphelexis sesamoides, Erica ventricosa nana, and E. v. superba.—Another collection was produced by Mr. Green, gr. to Sir E. Antrobus; it contained Coleonema pulchrum, a large plant beautifully bloomed; Leschenaultia biloba grandiflora, trained to a globular trellis, large but badly covered; Pimelea decussata, well coloured; Stephanotis floribunda, a pretty plant; Boronia denticulata; with Hibbertia Cunninghami, Erica ventricosa breviflora, and Achimenes longiflora.—Collections were also contributed by Mr. Jack, gr. to R. G. Loraine, Esq., and Mr. Slowe, gr. to W. R. Baker, Esq.; in the former collection was a fine plant of Gesnera zebrina, in fine condition for the time of the year; Achimenes longiflora, well bloomed; Aphelexis humilis, a promising plant; and a good plant of Cereus speciosissimus.—Mr. Slowe's collection contained a well-grown plant of Veronica speciosa; Rondeletia speciosa, very neat; Boronia denticulata, tolerably good; Aphelexis humilis, small; and a handsome trained plant of Sollya linearis.

In the collections of six plants we always expect to find some good specimens, and on this occasion we were not disappointed. The plants produced by Mr. May, gr. to E. Goodheart, Esq., were very fine, especially a fine Ixora grandiflora, with Rondeletia speciosa, very pretty; Sprengelia incana, large but rather declining; Aphelexis purpurea grandiflora, very promising, with Erica ventricosa superba, fine; and a beautifully bloomed plant of Leschenaultia formosa.—Mr. Falconer, gr. to A. Palmer, Esq., sent a group of fine plants, comprising Coleonema pulchrum, Azalea lateritia, still in fine bloom; Leschenaultia formosa, very pretty; L. biloba grandiflora, large, but thinly bloomed; with Pimelea decussata, and a beautiful specimen of Erica depressa, in good condition.—A third collection from Mr. Epps, of the Bower Nursery, Maidstone, in which we noticed Eutaxia pungens, a promising young plant; Pimelea decussata, large, but past its best; Boronia serrulata, small, but promising; with Leschenaultia formosa, a good plant; and Clerodendrum fallax.—Mr. Stanly, gr. to H. Berens, Esq., contributed, among others, Leschenaultia formosa, certainly a fine plant; Boronia serrulata, small, and thinly-bloomed; with Clerodendrum speciosissimum variety; and Achimenes longiflora.—A collection of 6 plants was also contributed by Mr. Cole, gr. to C. Lewis, Esq., among which was a fine Polygala acuminata; with Euphorbia splendens; Clerodendrum fallax, and Leschenaultia Baxterii.—Groups of 6 plants were also sent by Mr. Glendinning and Mr. Taylor, gr. to J. Coster, Esq. The best plant in the former group consisted of Aphelexis humilis and sesamoides; Pimelea hispida; and Erica Cavendishii.—Among the plants produced by Mr. Taylor was, Azalea Danielsii, a spreading flat bush; Pimelea decussata; and Cereus Ackermanni major.

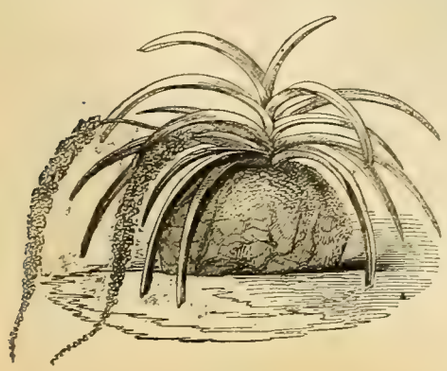
We now come to the Cape Heaths, of which, both in point of quantity and quality, we never saw so fine an exhibition. The first prize for 20 plants was awarded to Mr. Robertson, who sent E. radiata, a fine bush not quite in bloom, 3 feet by 3; Cavendishii, very good; tricolor, very pretty; ventricosa carnea, very fine; a fine depressa; with ovata grandiflora, very fine; perspicua nana, a pretty bush; vestita coccinea, fine; and good plants of ventricosa superba, ventricosa alba, and tricolor elegans. In the Nurserymens' Class the best collection was contributed by Messrs. Fairbairn, of Clapham. The most conspicuous plant was a noble



specimen of Cavendishii, shown in the woodcut, 4 feet in height, and nearly as much in diameter, beautifully furnished with its yellow blossoms. In the same collection were also fine plants of ventricosa breviflora, ventricosa tricolor, good; Savileana, pretty; Halicacaba, with pale-green flowers, very pretty; jasminiflora alba, eximia, and tricolor breviflora.—A third collection of 20 Heaths was contributed by Messrs. Rollisson, of Tooting. It contained Coventryana, small, but very pretty; tricolor elegans, fine; tricolor elegans superba, very beautiful; metulæflora, very neat; ventricosa globosa, and ventricosa superba; Humeana, depressa, daphnæflora, and several others.—In the collections of 12 Heaths Mr. Green showed propendens, large; tricolor, good; ventricosa alba, a pretty bush; with Cavendishii, a good plant; and a large plant of Beaumontia.—Mr. Barnes was also a contributor in the same class. His collection contained gemmifera, a fine dwarf plant; tricolor, very fine; with tricolor major, and tricolor coronata, a superb variety. He had also a large plant of Westphalingia, impulsa, very elegant; with mundula, dilecta, densa, and Cavendishii, thinly bloomed.—Mr. Taylor also exhibited in this class, among which we noticed viridiflora, with its green flowers, very fine; tricolor nova, very pretty; tricolor Leeana, Humeana, with Solandroides, ovata, and several varieties of ventricosa.—Collections in the Nurserymen's Class came from Messrs. Veitch, of Exeter, and Mr. Frazer; the former group contained a most magnificent Cavendishii, densely covered with bloom, but badly coloured; cupressina, equally fine; tricolor, a superlative specimen; metulæflora, very pretty; densa, neat; vestita rosea, and alba, fine plants; with Alberti rosea; metulæflora; Halicacaba; and ventricosa breviflora, and globosa. These plants were potted on the system practised with success in Devonshire, but which will not answer in the neighbourhood of London; elevating the collar of the plant considerably above the rim of the pot.—In Mr. Frazer's collections of 12 we noticed a fine daphnoides; tricolor dumosa, good; tricolor, fine; Westphalingia, pretty; with ventricosa tricolor, superba, and tenuiflora; and good plants of Bergiana and spuria.—In the

groups of 6 Heaths some excellent specimens were contributed by Mr. May, who had splendens admirably bloomed and coloured; Massoni, a fine plant, in beautiful bloom; elegans, very beautiful; with ventricosa alba, odore Rosæ, and a fine tricolor.—Mr. Bruce also contributed Cavendishii, in fine bloom; tricolor, very pretty; Bergiana, neat; vestita coccinea, well coloured; with eximia and ventricosa superba.—Mr. Jack sent gnaphaloides, a singular kind, appearing as covered with cobwebs; tricolor; Westphalingia, with ventricosa globosa and carnea.—A beautiful group was also contributed by Mr. Dawson, nurseryman, of Brixton-hill, which contained a fine Massoni; prægnans minor, very pretty; campanulata, good; with odore Rosæ, and a neat tricolor.—Mr. Epps also contributed ventricosa breviflora, coccinea minor, rosea, superba, and perspicua nana; these plants were compact and well grown.—Mr. Glendinning sent suaveolens, well coloured; Cavendishii, vestita rosea, and albicans grandiflora.—For a single specimen of superior cultivation the first prize was awarded to Mr. May, for Massoni, a magnificent plant; and the second to Mr. Dawson, of Brixton-hill, for pulverulenta, a singular pyramidal plant, 4 ft. in height, and about a foot in diameter at the base.—Mr. Wells, of Walthamstow, contributed flammea; and Messrs. Veitch, a group of six small plants of depressa multiflora, a free blooming variety of depressa, and of more rigid and robust habit; and Mr. Jules Barnard sent a tolerable plant of Humeana.

The collections of ORCHIDS presented a wonderfully rich display. As usual, Mr. Mylam, gr. to S. Rucker, Esq., jun., produced the finest plants, and, on this occasion, they were neatly grouped. In the centre supported by a rail, were several specimens of the dark variety of Stanhopea tigrina, one with 14 fine flowers upon it; and at each end were fine plants of Aerides odoratum and A. odoratum majus, one with 24 spikes of its delicate flowers upon it. In the same group was also a fine Saccolabium guttatum, with nine spikes of beautiful flowers; Cycnoches chlorochilon, with singular pale green blossoms; Cirrhæa fuscolutea, with curious pale green flowers hanging over the sides of the pot; Lycaste cruenta, very pretty; Promenæa stapelioides, curious; Cycnoches maculatum; the rare Mormodes luxatum; Aerides affine; and Paphinia cristata. Mr. M. had, moreover, Cattleya intermedia in a fine state; Galeandra Baueri, very pretty; with Oncidium pulvinatum and leucochilum; Brassia Wrayæ; Odontoglossum grande; Aerides pulchellum variety, very pretty; Dendrobium sanguinolentum; Brassia Lanceana; the curious Anæctochilus setaceus, with its singular foliation, and several other plants.—A second collection came from the garden of Mrs. Lawrence, and though not so rich as the preceding, contained several very fine plants. Amongst the most remarkable may be enumerated Dendrobium moschatum and cupreum, two very large plants, but not quite in bloom; Cymbidium Devoniense, very pretty; Aerides odoratum, in fine health; A. affine, with five fine spikes of bloom; and the curious Cycnoches chlorochilon.—Mr. Robertson had, moreover, fine plants of Epidendrum cinnabarinum; Cattleya Mossiæ, variety; Aerides affine, variety; and Lycaste tyrianthina.—A third collection was produced by Messrs. Rollisson, and contained Stanhopea oculata, with nearly 40 flowers upon it; Cattleya intermedia, very pretty; Vanda teres, remarkably beautiful; Sobralia macrantha, a fine bush, not much in bloom; Scuticaria Steelii, with long rush-like leaves and lemon-coloured flowers spotted with brown, very curious; Aerides affine and maculatum; Huntleya violacea; with Catasetum atratum and Cattleya Mossiæ.—A group of 12 small plants was contributed by Mr. Don, gr. to F. Cox, Esq., of Stockwell, among which were Stanhopea quadricornis; Sobralia macrantha; Cattleya superba, very pretty; Cirrhæa viridi-purpurea, very curious; Anguloa sp., unnamed; Schomburgkia tibicinis; Cattleya Harrisoniæ; Barkeria spectabilis, small, with two flowers; and Aerides odoratum.—Collections of six plants came from the garden of Sir George Larpent, and from the Nursery of Messrs. Veitch, of Exeter. In the former collection were Vanda Roxburghii and Roxburghii rubra, two neat plants; with Brassia Lanceana and Oncidium pictum. Messrs. Veitch sent a fine plant of the best variety of Oncidium Lanceanum, having very fine flowers; with Stanhopea tigrina, and several varieties of Oncidium.—Of single specimens, Mr. Barnes produced a plant with fine flower spikes of Aerides odoratum, and that very beautiful N. American plant, Cypripedium spectabile. And of new plants, Mr. Eyles produced an



Aerides allied to crispum; and another, with long spikes of rich violet-purple flowers, allied to A. affine. This is a very beautiful plant.

The collections of tall CACTI, though not so numerous as on former occasions, produced a rich display.—Mr. Green produced finely-bloomed specimens of Epiphyllum speciosum, a dense mass of flowers; E. coccineum majus, and Jenkinsonii multiflorum, with Cereus speciosissimus, flagelliformis, and concolor.—Mr. Falconer's collection was not less interesting; it contained fine specimens of Epiphyllum speciosum and Jenkinsonii, very fine; E. Ackermanni, with Cereus speciosissimus and Mallisonii roseus.—Mr. Robertson contributed a third group, in which we noticed two fine plants of Cereus speciosissimus; Epiphyllum Jenkinsonii and Jenkinsonii majus; with Epiphyllum speciosum and Vandesii.

A collection of six Achimenes was contributed by Mr. Jack, gr. to G. Loraine, Esq., and six small, but beautiful, species of Cape Pelargoniums were sent by Mr. Stanly, gr. to H. Berens, Esq.

Of NEW or extremely RARE PLANTS, the finest thing present was Gardenia Stanleyana, from the nursery of Mr. Glendinning; though having but one flower open, and that a partly deformed one, it was shown to considerable disadvantage. Gardenia Rothmannia, a rare plant with several fine blooms, remarkably fragrant, was exhibited by Messrs. Veitch; and from the same nurserymen came a species of Hoya, with dull lemon-coloured flowers called H. trinervis.—Mr. Elliott, gr. to J. B. Boothly, Esq., a singular, but very beautiful succulent plant, with a bunch of rich flesh-coloured flowers, called Plumieria acuminata.—Mr. Jack sent Dipladenia crassinoda, a climbing plant of considerable beauty; Messrs. Rollisson, Pitcairnia punicea, with bright crimson flowers; Mr. Robertson, Dipladenia crassinoda, and Messrs. Veitch, Morina longiflora. Of single specimens, of superior cultivation, several plants were exhibited, and the first prize was awarded to Mr. May, for an immense plant of Erica vestita coccinea, in splendid bloom. Aphelexis humilis, an admirable plant, splendidly bloomed, came from Mr. Bruce; and Pimelea decussata, a superb specimen, from Mr. Hill, gr. to — Davis, Esq.—A plant allied to Hoya, with bunches of pale green and lemon-coloured flowers, and called Cyrtoceras reflexum, came from J. B. Cresswell, Esq, of New Court, near Exeter. The plant was in excellent health, and is represented by the figure below.—A



fine pot of the lovely Achimenes multiflora, profusely covered with its pale lilac flowers, was sent by Mr. Ayres; Chorozema ovatum, trained on an oval shield trellis, and prettily bloomed, from Mr. Green; Lisianthus Russellianus from the same grower; Lilium testaceum from Messrs. Mountjoy, of Ealing; and a species of Thysanotus from Mr. Stanly.—Mr. Barnes communicated Blandfordia grandiflora in fine health, and a fine plant of Clerodendrum squamatum. Mr. Robertson sent Echites splendens, a large plant with two flowers just expanded, but badly coloured; and also Scutellaria splendens; Bilbergia zebrina was sent by Mr. Rènè Langelier, of Jersey; Tremandra Hugelii, badly bloomed, by Mr. Green; and Ixora grandiflora, a fine young plant not quite in bloom, by Mr. May. There was, moreover, Dorycnium sericum, a singular plant, from Mr. Cameron, of Birmingham; Dillwynia floribunda, from Mr. Pool, of Leyton; Pterodiscus speciosissimus, a pretty plant, from Messrs. Veitch; Dipladenia crassinoda, from J. B. Cresswell, Esq.; and that very rare British plant, Pyrola uniflora, cultivated in a pot, under a bell-glass, from Mr. Cameron, of the Botanic Garden, Birmingham.—A species of Gasteria was communicated by Mr. Masters, of Canterbury; and Fuchsia Hercules, by Mrs. Stedman, of Twickenham. Nor must mention be omitted of a charming Hydrangea japonica, placed on the table, from Mr. Donald, of the Society's Garden, and of which the following is a sketch. This plant, at first considered to be very inferior to the common Hydrangea, seems to be, in fact, much handsomer, on account of the agreeable contrast between its violet and rose-coloured central flowers and the bold pure white sterile flowers of the ray.



FUCHSIAS were not numerous, neither were they, in point of cultivation, so fine as the collections exhibited last season. The great error is they are too much *sticked*, and in some instances the branches are drawn to a face, as was the case with those sent by Mr. Gaines, of Battersea, which entirely destroys the graceful symmetry of this elegant tribe of plants.—Messrs. Lane and Son, of Berkhampstead, sent a collection of small but neat specimens; among them we noticed Achilles, Venus Victrix, Tricolor, Groochillii (a beautiful light variety), Norfolk Hero, Mrs. Lane, Paragon, and Rogersiana.—In Mr. Gaines's stand were some large plants, and the best varieties were, Cassandra, Vesta, Duchess of Sutherland, Coronet, Pearl, Expansa, Duke of Wellington, and Gigantea.—A third collection was sent by Mr. Robertson, gr. to — Simpson, Esq., Pimlico. The best varieties were, Prima Donna, Coronet, Eppsii, Hope, Exoniensis, Vesta, Formosa elegans, and Modesta. Mr. Robertson also sent a single specimen of Exoniensis.

Collections of ROSES IN POTS were sent by Messrs. Lane, Mr. Paul, of Cheshunt; Mr. Laing, Twickenham; and Mr. Dobson, gr. to Mr. Beck, of Isleworth. Taken as a whole they were not so fine as usual, but after the late scorching weather, the wonder is that they were exhibited at all. In Mr. Lane's collection we noticed Bourbon Psyche, Tea Antinöus, Mirabilis, Marie, Abbé de Lamballe, General Vallée, Princesse Marie, Augustine Hersente, Silene, Malmaison, with H. C. Duke of Devonshire, and Bride of Abydos.—Messrs. Paul's collection comprised *Gallicas*—Celestina, and Grain Duke; *Alba*—Sophie de Marcilly; *Hybrid Perpetual*—Antinöus, Aubernon, Princesse Hélène, and William Jesse; *Hybrid Chinas*—Blairii No. 2, Chenédolé, Madelina, and Velours Episcopal; *Bourbons*—Armosa, Bouquet de Flore, Céliméne, Emile Courtier, Madame Aude, Queen, Proserpine; *China*—Madame Desprez, Mrs. Bosanquet; *Thé*—Bride of Abydos, Caroline, Clara Sylvain, Don Carlos, and Madame Roussel.—Mr. Laing produced 25 varieties, among which were several half standards. The best varieties were Mr. Ward, Coupe d'Amour, Blairii, Celestine, Aurora, and Belle de Segur.—In Mr. Dobson's collection the best varieties were Bouquet de Flore, Fulgorie, Queen of Bourbons, Aimée Vibert, Velours Episcopal, Madame Laffay, Belle Marie, Blanchefleur, and Fabvier. Mr. Dobson also sent a single specimen of Blanchefleur.—Collections of Cut Roses were very numerous, and some splendid flowers were produced; but, owing to the great heat of the day, they soon became withered.—In the collections of 50 varieties, the first prize was awarded to Mr. Laing, of Twickenham. His collection contained *Hybrid China*—George IV., Pompon Bicolor, La Majestueuse, Belle Marie, Triomphe de Laqueue, Las Casas, Brennus, Belle de Rosney, Coupe d'Amour, and General Allard; *Gallicas*—Octavie Coquerelle, Reine des Francais, Bonaparte, Aurelie Lamare, and Queen Adelaide; *Provence*—Cristata, and La Fiancée; *Damask*—Densiflore, and Belle d'Auteuil; *Hybrid Perpetual*—Coquette de Montmorency, and Madame de Laffay; *Perpetual*—Princesse Hélène, and Preval; *Belgic*—Felicité Parmentier, and Princesse Lamballe.—Messrs. Cobbett, of Woking, exhibited a fine collection, among which we noticed, *Hybrid*—Fimbriata, Brown's Superb, Miralba, Great Western, Brennus, Bland, Comtesse de Lacepede, Prince Albert, Lady Alice Peel, Charles Louis, General Christiana, and Fulgens; *Provence*—Noir, or Royal, and Unique; *Perpetual*—Robin Hood, Madame Laffay, Bernard, and Rose du Roi, striped; *Damask*—Madame Hardy, Painted Lady, and La Ville de Bruxelles.—Messrs. Paul and Sons also contributed 50 kinds, comprising *Yellow Briars*—Harrisonii, and Persian Yellow; *Hybrid Chinas*—Belle Marie, Blairii No. 2; Brennus, Carre de Boisdeloup, Colonel Combes, Coupe d'Amour, Devigne, Eynard Fimbriata, George IV., General Kleber, Henri Barbet, Madeline, La Grandeur, Madame Plantier, Malton, Lady Fitzharris, Petit Pierre, Princesse Augusta, and Volnay; *Alba*—Felicité, Perpetual, and La Lamballe; *Damask*—Densiflore, and La Noyeuse; *Gallicas*—Aspasie, Belle Rosine, Duchesse d' Angoulême Duchesse d' Orleans, Fanny Bias, Latone, Léon le Dix, Malesherbes, Octavie, and William IV.

Hybrid Perpetuals—Aubernon, Mrs. Elliott, and Wm. Jesse; *Bourbon*—Armosa and Queen; *Indica or China*, Cramoisé supérieure; Madame Bréon, and Reine de Lombardie. A fourth collection was communicated by Mr. Mitchell, of Piltdown, which contained some remarkably fine flowers; but owing to some error in putting the flowers up, they were disqualified, and therefore lost the prize. Among them we noticed *Noisette* Lamarque Superb, a very beautiful Rose, and yellow; *Hybrid Chinas*—Charles Louis, Marshal Soult, Fulgens, Las Casas, Brilliant, Athalie, Duke of Devonshire, Celestial, Ancelin, Coutard and Camuset carnea; *Tea*—Leda, Belle Allemande, Odorata, Delphine Gaudet, De Valmage, Taglioni, Bride of Abydos, Nitida, and Original; *Hybrid Perpetual*—Fulgore, Princess Hélène, Madame Laffay, Comte de Paris, and Prince Albert; *Bourbon*—Madame Newman, Acidalie, Belle Hélène, and Lord John Russell, with the Persian Yellow, Tuscany, and several others.—Mr. Rivers, of Sawbridgeworth, also showed a collection in this class, containing most of the new and most esteemed varieties.—In the Amateur's Class of 50 varieties, collections were shown by Mr. R. H. Bullendge, of Milton-hill, Abingdon; Mr. Parsons, gr. to A. George, Esq., and Mr. Williams, gr. to A. Rowland, Esq.; but as they did not contain any varieties which have not been enumerated, we need not repeat them.—In the collections of 25 varieties, a very beautiful collection was sent by Mr. Francis, nurseryman, of Hertford. Among these were *Gallica*—Bonaparte and Thé Agène; *Hybrid Provins*—Blanchefleur La Vestale, and Adéle de Lænanges. *Hybrid China*—Brennus, Blairii No. 2, Belle Parabere, Belle Marie, Charles Louis, Duchesse de Montebello, Fimbriata, General Kleber, La Grandeur, and Triomphe de Laqueue; *Hybrid Bourbon* — Great Western, Las Casas, President Mole; *Alba*—Princesse de Lamballe. *Perpetual*—Bernard; *Hybrid Perpetual*—Duc d'Aumale, Lady Fordwich, and Madame Laffay. Collections in this class were also sent by Mr. Wemyss, gr. to J. A. Slater, Esq., and Mr. Terry, gr. to Lady Puller.—Moss Roses, in collections of 12, were sent by Messrs. Paul, Mr. Mitchell, Mr. Rivers, and Messrs. Cobbett.—Messrs. Paul's collection comprised—A feuilles d'Agathe, Alice Le Roy, Angelique Quetier, Cristata, De Meaux du Luxembourg, Eclatante, Louis Colet, Oscar Foulard, Pourpre de Laffay, Princess Royal, and Unique de Provence. The other collections were nearly the same.

Among Miscellaneous Subjects were a box of Ghent Azaleas, from Messrs. Lane and Son.

The Pelargoniums formed an important feature in the exhibition, and on no former occasion have we seen so splendid a display of this elegant flower; excellence of cultivation, with a profuse display of bloom we have noticed on former occasions, but the superiority of the flowers brought to the present exhibition showed the important improvements that have been made of late in this beautiful class of flowers. Class A, established expressly to bring before the public the new flowers annually produced, has never been so well supplied, nor the intentions for which it was instituted so well responded to by the exhibitors; and we should deem it an act of injustice not to point attention to the varieties supplied by Mr. Dobson, gr. to Mr. Beck, of Isleworth, whose collection contained 12 specimens, selected from the seedlings raised at Worton Cottage in 1844; they were finely grown, many of them displayed novelty in character, combined with fine qualities in form, substance, and colour.—Messrs. Staines' and Cocks' collections were also enriched with many new varieties, and we trust that the desirable object contemplated in the establishment of this class being now felt and understood, it will continue to be supplied with the new and fine sorts annually produced by the spirited growers of the country. There was a larger display of flowers at this than at the former meeting, and a larger portion of the iron tent, in addition to that appropriated solely to the exhibition of Pelargoniums, had to be taken for their accommodation. In collections of 12 new varieties in pots of 24 to the cast, the Gold Banksian Medal was awarded to Mr. J. Dobson, gr. to Mr. E. Beck. This collection, as before noticed, was composed of seedlings raised in 1844, and comprised the following sorts:—Rosy Circle, Mustee, Arabella, Desdemona, Zenobia, Aurora, Isabella, Favorite, Mark Antony, Bellona, Hero, and Sunset.—The Silver Gilt Medal was received by Mr. Cock, for Magog, Hector, Cora, Emma, Cyrus superb, Queen Philippa, Duke of Cornwall, Pulchellum, Sarah, Eliza Sauvage, Shepherdess, and Vixen; and the Large Silver was awarded to Mr. Staines for Staines' Cedric, Sir W. Scott, Superbum, Staines' Adonis, Witch, Sunrise, Staines' Andromache, Fair Maid of Leyton, Sir R. Peel, Emperor Nicholas, Staines' Merry Monarch, and Duke of Wellington. In this class, the only nurseryman who exhibited was Mr. Gaines, whose collection consisted of the following varieties: Don Juan, Rose of Arragon, Princess Alice, Prince of Wales, Ackbar, Princeps, White Surrey, Pirate, Fire King, Oberon, Mogul, Lord J. Russell.—For Pelargoniums, in 12 varieties, in pots of 24 to the cast, the Gold Banksian Medal was awarded to Mr. Staines, for Enchantress, Erectum, Alice Gray, Nestor, Lady Sale, Achilles, Roulette, Madeline, Sunbeam, Hebe, Superbum, and Duke of Cornwall; the Silver Gilt to Mr. Dobson, gr. to Mr. E. Beck, whose collection contained—Matilda (a superb specimen), Duke of Cornwall, Lucy, Zenobia, Favourite, Conflagration, Pulchellum, Bella, Arabella, Rosy Circle, Constellation, and Amazon; and the Large Silver was received by Mr. Cock, whose flowers were: Pre-eminent, Duke of Cornwall, Mulberry, Milo, Queen Philippa, Rosetta Superb, Wizard, Black Dwarf, Tristram Shandy, Shepherdess, Nameless, and Constellation.—Mr. Gaines, in the Nurserymen's Class, was awarded the Silver Gilt Medal for Floridum, Gaines's Lady Sale, Hermione, Prince of Wales, Albina, Albert Prince of Wales, Witch, Sylph, Duchess of Sutherland, Coquette, Madeline, Cossack.—Pelargoniums in 6 varieties in 8-sized pots were exhibited by Mr. Bromley, who received the Silver Knightian for Juba, Sylph, Annette, Ophelia, Lellia Jones, and Grand Duke. Mr. Gaines was awarded the Large Silver in this class for Mrs. Stirling, Matilda, Sylph, Erectum, Kinghornii, and Lady J. Douglas.

The Calceolarias were not so numerous as we anticipated, nor do we find the new and splendid varieties that have been raised forming part of the collections exhibited. The Large Silver was awarded to Mr. Stanly, for Fortune-teller, British Queen, Othello, King of Surrey, Sylph, and Emperor of Russia; and among Nurserymen Mr. Gaines received the Large Silver, for a neat and well-grown collection, containing, Flash, Lady Ann Chartres, Prince of Wales, Beauty of Vellore, Prince Alfred, and Tigrida; there was another collection, but this was destroyed by a long journey. The Pinks were not so good as usual; they were small, and did not display the beauty usually seen in stands of this flower.—Mr. Willmer, of Sunbury, received the Silver Knightian for his collection, and the Silver Banksian was awarded to Mr. Henbrey, of Croydon, for Mellona, Neville's Earl of Stanhope, Wilson's Jack, Gem, Henbrey's Beauty, Prince Albert, Sir R. Peel, Diamond, Coronation, Marshall's Defiance, and 13 seedlings.

Two collections of Ranunculuses were exhibited by Amateurs, and Mr. Betteridge, of Abingdon, received the first prize, Silver Knightian, for Rival, Hippolita, Melange des Beautés, Beauty Brenda, Ponceau pourpre, Nomias, Queen Mab, Cedo Nulli, La Blanchisseuse, Oidet d'Anvers.—The Silver Banksian was awarded to Mr. T. Starr Airzee, whose flowers consisted of Tyso's Edgar, Aust's Mirabelle, Dr. Franklin, Kilgom's Lucia, Emperor, Lightbody's Emancipator, Tyso's Felix and Attractor, Aust's Milo, Lightbody's Dr. Gardner, Rob Roy, and Harold. — Mr. Tyso was the only florist who exhibited Ranunculuses. He showed a stand of very fine and perfect specimens, and, in addition, a collection of 100 blooms; these were greatly admired for their extreme delicacy and beauty, and the excellence of the varieties. The stand of 24, to which the large Silver Medal was awarded, contained the following flowers: — Apollo, Belle Agreeable, Financier, Burns, Glacia, Mirabelle, Niobe, Passe Cour de France, Philocles, Kilgom's Princess Royal, Queen Victoria, Alexis, Arbitrator, Attractor, Cathcart, Champion, Dilectus, Edgar, Glenelg, Innocent, Vendome, Victor, and Tippoo Saib. The large collection, containing 100 flowers in addition to the above list, had the following sorts:—Ada, Albinus, Saladin, Orlando, Amadis, Basilica, Comptroller, Creon, Laureate, Jubal, Grand Roman, Imbert, Herbert, Gippins, Felix, Flaminius, Arbrisseau, Bishop Van Lima, Delphinum, Fête Nocturne, Marquis of Hertford, Louisette, Horatio, Hercules, Henrietta, Comtesse de Plaisance, Condorcet, Costar's Coronation, Melpomene, Nestor, Naxara Rosney, Semiramis, Oressus, Overwinnaar, Pourpre, Roi des Rénoncules, Rosney, Sir Sydney Smith, Sophia, Surpasse tout, Temeraire, &c.

Several seedling Pelargoniums were exhibited; those raised in 1844 were shown as specimens, an advantage seldom before enjoyed, where the flower could be seen, and the habit and character of the plant brought immediately into notice. The Silver Knightian was awarded to Mr. Beck for his specimen of Aurora, a seedling raised in 1844; this was a remarkably rich and highly coloured variety, dark upper petals, light centre, and lower petal of a rosy crimson hue. The Silver Banksian was also awarded to the same for his specimen of Desdemona, a very attractive flower, on account of the opposition between the delicate under petals and the rich bright maroon top petals, covered with colour, excepting a narrow edging of pink—a profuse bloomer, and new in character. Certificates were also awarded for Mustee, Sunset, and Juno, seedlings of last season; these were three desirable flowers, of good habit, and quality in the bloom, also from Mr. Beck. Mr. M'Conack received a Certificate for a specimen named Gulnare, a flower having light rosy under petals, white centre, with dark top petals. In seedlings of the present year, two were selected by the Judges, named Competitor and Rosetta, two very promising flowers, from Mr. Beck.—There were several seedling Calceolarias from different growers; two named Compacta and the Pet, flowers of good form, received Certificates, the former from Mr. Gaines, and the latter from Mr. Standish. Mr. Pearson, of Hampstead, showed a white Verbena, a profuse bloomer, very compact in habit, named the Hampstead Lily; this received a Certificate, and the same reward was given to Mr. Henbrey, of Croydon, for a seedling laced Pink named Beauty. Mr. Parker, gr. to J. H. Oughton, Esq., Roehampton, received the silver Banksian Medal for a finely grown specimen of the Pelargonium named Priory Queen; it was a mass of bloom, and must have measured 4 feet in diameter.

Of Fruit the display was not so extensive as might have been expected, but some most wonderful productions were present. Perhaps the gem of the fruit exhibition was some Peaches and Nectarines from the garden of the Marquess of Exeter, at Burleigh, Rutlandshire, sent by that nobleman's gardener, Mr. Macintosh. To call them large is not to describe them; as some of the Peaches must have been a foot in circumference, while the Nectarines were as large as forced Peaches generally are. They were also admirably coloured, and perfectly ripened; for these the Silver Gilt Medal was awarded.—Peaches were also sent by Mr. Dods; Grosse Mignonne Peaches, and Violet Hâtive Nectarines by Mr. Spencer; and fine Peaches by Mr. Kemp, gr. to P. Grillion, Esq., East Acton.—In the collections of Fruit, the first prize was obtained by Mr. Dods, gr. to Sir George Warrender, who produced four splendid Providence Pines, fine Melons, Peaches and Nectarines very good, British Queen Strawberries, and some magnificent Black Hamburgh and White Muscat of Alexandria Grapes.—A second collection was sent by Mr. Spencer, gr. to the Marquess of Lansdowne, and contained Providence and Moscow Queen Pines, Black Hamburgh and Sweetwater Grapes, the latter beautifully ripened, Royal George and Grosse Mignonne Peaches, six dishes of Violette Hâtive Nectarines, with Beechwood, Succade, and Hybrid Green Fleshed Melons.

Of Grapes there was some very remarkable productions. Three bunches sent by Mr. S. Barnes, gr. to G. Whitmore, Esq., Apley Park, Bridgenorth, were most wonderful, being large bunches, large berries, perfectly ripened, and as black as a coal.—Scarcely less excellent was a box of Black Hamburgh, from Mr. Turnbull, gr. to the Duke of Marlborough, at Blenheim; they were most admirably finished, and had a bloom as fresh as if they were growing on the Vines.—Very fine Black Hamburghs were sent by Mr. Dodemeade; and excellent specimens of the same variety by Mr. Davey, gr. to A. Smith, Esq., Colney Hatch; Mr. Toy, gr. to Colonel Challoner, sent some beautifully ripened Stillward's Sweetwater and Black Hamburgh; and good Sweetwater, and Black Hamburghs, came from Mr. Fleming, gardener to the Duke of Sutherland. These Grapes were packed on a new system, the main stalk being made fast to strong iron pins, which are again made secure to the sides of the box. The bunches rest on a little cotton wool, and thus packed they will travel any reasonable distance with fair play, without any risk of being injured, and the great beauty of the fruit, the bloom, is preserved uninjured. Some well ripened Muscats and Black Hamburghs were sent by Mr. Davis, gr. to A. Smith, Esq., Woodhall, and fine ones by Mr. Davis, of Oak Hill, East Barnet. Mr. Umpleby, gr. to H. Benyon, Esq., sent some of the Black Hamburghs, as did also Mr. Walker, gr. to Capt. Hart; Black Hamburghs, badly coloured, came from Mr. Smith, gr. to S. Ricardo, Esq.; Sweetwater, from T. Ashby, Esq.; Muscats, from Mr. Brown, gr. to R. Gunter, Esq.; Cannon Hall Muscats and Black Hamburghs, from Mr. Hamp, gr. to J. Thorn, Esq.; and very good Hamburghs were sent by Mr. Chapman, of South Lambeth, and Mr. Mitchell, of Brighton.

Of Pines, a small, but very nicely grown specimen of the Queen was produced by Mr. Toy; a similar one by Mr. M'Ewen, gr. to Col. Wyndham, at Petworth; a fine Providence by Mr. Brown, gr. to J. W. Pack, Esq.; eight Queens, pretty, but not well swelled, by Mr. Baggs, gr. to — Schneider, Esq., of Southgate; some pretty Providence, by Mr. Parsons; two pretty Queens, by Mr. Hamp; Ripley Queen, by Mr. Carmichael, gr. to Mrs. Hawkins, of Petworth; and a small Black Jamaica, by Mr. Bland, gr. to V. Morris, Esq., of the Retreat, Battersea.

Melons were not large, but some very pretty fruit were contributed; Mr. M'Ewen sent the Beechwood and Benares; Mr. Dodemeade, fine fruit of the Hybrid Cabul; and Mr. Leslie Young's Green Flesh; Cabul Melons were sent by Mr. Davey; Green Flesh by Mr. Smith, gr. to S. Ricardo, Esq., and a variety called the Early Occupation Melon by Mr. Taylor.

Among Miscellaneous Fruit were some fine Figs from Mr. Foggo, gr. to the Marquis of Abercorn; Morello Cherries, very fine, from Mr. Ewing, gr. to O. F. Meyrick, Esq. May Duke Cherries, from Mr. Leslie; three kinds of Strawberries, viz., Princess Alice Maud, Brewer's Superb, and Keen's Seedling, from Mr. Halley, nurseryman, of Blackheath. Oranges and Citrons were sent by Mr. Kay, gr. to A, Colvin, Esq., of Norwood. Some Cucumbers by Mr. Smith; fruit of the Opuntia vulgaris by Mr. Williams, of the Botanic Garden, Sheffield; and seed-pods of the Stephanotis floribunda, from Mr. Gowan's gardener.

We observed, attached to one of the poles of a large tent, a very fine specimen of Wheat in ear, stated to be the average produce of a single grain of Chidham Wheat taken from a piece planted in October, 6 inches apart in the row, and 1 foot row from row. The straw was four feet long, and 33 stems proceeded from one root. We could not learn from whom it was received.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

June 25.—The second meeting for the season took place on Wednesday in the Surrey Zoological Gardens; want of space, however, prevents us from giving a report of it before next week.

BOTANICAL SOCIETY OF EDINBURGH.

May 8.—The monthly meeting of this Society was held in the Royal Botanic Garden. Dr. Seller, V.P., in the chair. A collection of British specimens was announced from the London Botanical Society; and fresh specimens of a Primula, regarded as the P. elatior of Jacquin, from Dr. Dewar, Dunfermline, were placed on the table. The following papers were read:—1. On some species of Cuscuta. By C. C. Babington, M.A., F.L.S., &c., Cambridge. 2. On the genus Diodium (Breb.) By J. Ralfs, M.R.C.S., Penzance.

June 12.—The President in the chair. Mr. T. M'Nab, Edinburgh, was elected an associate of the Society. The following communications were read:—1. List of the rarer Lichens found in the neighbourhood of Oswestry and Ludlow, with occasional observations, by the Rev. T. Salwey. This list will shortly appear in the "Annals and Magazine of Natural History." 2. Dr. Seller read part of a paper entitled "Observations on some Plants obtained from the shores of Davis' Straits." With these plants Dr. Seller was presented by Mr. Sutherland, a student of medicine, who, last summer, had been medical officer in a whaler. There are about 25 species in all, and some of them are of considerable interest to the botanist. Among them are Cochlearias, a Draba, a Lychnis and some other Caryophyllaceæ, Potentillas, Epilobiums, Saxifrages, an Arnica, a Ledum, a Pyrola, a Pedicularis, a Statice, a Polygonum, Empetrum, some Salices and Eriophorums. All of them were gathered within or close upon the Arctic circle on the shores of Davis' Straits, adjacent to the usual course of whale fishing vessels, and such collections might often be obtained by holding out a slight inducement to some of the many young men who go out annually in the same capacity with Mr. Sutherland. The advantage of encouraging such collections in arctic latitudes would be an improved knowledge of the nature of the variations to which certain species are liable under different circumstances of soil, situation, and climate. Without such a knowledge, the definitions of these species are likely to continue local instead of being rendered universal, that is, applicable to certain localities only, and such as renders it difficult and often impossible to recognise them in new situations without other assistance, while the want of the same knowledge is a fruitful source of the unnecessary multiplication of species. Sir William Hooker had some excellent observations on the extreme variations which some species, known in the temperate parts of Europe, undergo in the arctic regions, and Wahlenberg had spoken strongly of the errors introduced when the study of a species is confined to one locality or latitude. Some of the plants in this small collection afforded a striking illustration of the justness of their sentiments. These variations must take place in obedience to fixed general laws. If these laws were discoverable, it must be by the multiplication of facts, such as were presented in some of the species now exhibited. In the meantime, as the definitions of some species were nearly useless under a change in the natural circumstances of their growth, the only course left was to adopt prolix description when varieties are met with of species known to undergo much alteration. And this Dr. Seller made his apology to the Society for giving some particulars of this kind in regard to a few of the species now before them. He then proceeded to offer some particular observations on the specimens exhibited of Cochlearia anglica, Cochlearia fenestrata, Draba hirta, and Epilobium latifolium, in comparison with the accounts given of these species by different authorities. His observations of the same kind on some of the other species were deferred till next meeting. 3. On Datura tatula, as a specific for relief of asthma, by Mrs. H. N. Ferguson, of Biel. In this communication (which is an extract from a letter), the Datura tatula is described as most efficacious in relieving asthmatical complaints, while the D. Stramonium, the species commonly used, was found quite inert by the writer. The following directions regarding the preparation of the plant may be deemed useful:—"The proper time for taking up the roots is towards the end of October, when the seed pods are ripe; the plants should be drawn from the ground, and the roots cut off, with an inch or two of the stalk. They should then be freed from soil, and dried in the shade. When required for use, the root should be torn into small shreds, and put into a clean tobacco-pipe." "The smoke causes no nausea, so that the most delicate lady may use it."

Country Shows.

Bury Floral and Horticultural Society, May 28.—This was the first Meeting for this year. The Tulips were remarkably fine. The prizes were awarded as follow:—*Feathered Bizarres*: 1, R. Dixon, Esq., for Royal Sovereign; 2, Mr. T. Smith, for Surpass Catafalque; 3, Mr. Slater, for Mansola; 4, Mr. Lodge, for Trafalgar. *Flamed Bizarres*: 1, Mr. Holland, for Sanzoe; 2, Mr. Hardman; 3, J. Etches, Esq., for Unknown; 4, Mr. Slater, for Rufus. *Feathered Byblomens*: 1, Mr. Dixon, for Surpassant; 2, J. Etches, Esq., for Bienfaite; 3, Mr. Dixon, for Baguette; 4, Mr. Holland, for Buckley's Beauty. *Flamed Byblomens*: 1, Mr. Slater, for Professor; 2, Mr. Henshaw, for Sable Rex; 3, Mr. Hardman, for Violet Winner; 4, Mr. Dixon, for Louis XVI. *Feathered Roses*: 1, Mr. Smith, for Lady Crewe; 2, Mr. Dixon, for Compte des Vergennes; 3, Mr. Slater, for La Belle Nanette; 4, Mr. Hardman, for Duchess of Newcastle. *Flamed Roses*: 1, Colonel Lee, for Unique; 2, Mr. Slater, for La Vandyken; 3, Mr. Hardman, for Thalisterees; 4, Mr. Dixon, for Lord Hill. *Bizarre Breeders*: 1, Mr. Slater, for Catafalque. *Byblomen Breeders*: 1, Mr. Slater, for Seedling. *Rose Breeders*: 1 and 2, Mr. Slater, for Seedlings; 3, Mr. Dixon, for Queen Eleanor. *Yellow Self*: Mr. Smith, for Min d'Or. *White Self*: Mr. Smith, for Flag, *Stove Plants*: 1, Miss Grundy, for Cactus splendens. *Greenhouse Plants*: 1, J. Haslam, Esq., for Tropæolum tricolorum. *Ericas*: 1, J. Haslam, Esq., for E. odorata. *Pelargoniums*: Mr. Haslam, for Duke of Cornwall. *Calceolarias*: J. W. Swanwick, Esq., for Standishii. *Hardy Herbaceous Plants*: Miss Grundy, for Cypripedium Calceolus. *Hardy Shrubs*: Mr. Haslam, for Rhododendron Russellianum. *Stove Plants*, Nurserymen: 1, Mr. Lodge, for Gesnera Douglasi. *Pelargoniums*: Mr. Lodge, for Vanguard. *Calceolarias*: Mr. Lodge, for Standishii.

Cornwall Horticultural Society, May 15.—The following are some of the more remarkable plants exhibited on this occasion.—The Bronze Medal was awarded to F. Passingham, Esq., for a remarkable plant of Gloxinia Cartonii. J. P. Major, Esq., received a first prize for Gesnera tubiflora, Vinca alba, Achimenes grandiflora, and Columnea Schiedeana. Mr. Passingham was voted a second prize for Achimenes grandiflora, A. longiflora, Pentas carnea, Cyrtoceras reflexum, Gloxinia magniflora, and G. maxima. The third prize was won by Mr. Simmons, with Columnea Schiedeana, Euphorbia splendens, Ruellia formosa, and Gesnera Douglasi.—Of Orchidaceæ, Mr. Major contributed Oncidium luridum, Dendrobium fimbriatum, Calanthe veratrifolia, Brassia maculata, Cymbidium aloifolium, Cattleya Forbesii, Dendrobium pulchellum, Saccolabium guttatum, Gongora atropurpurea, and Epidendrum cochleatum. G. C. Fox, Esq., sent Oncidium altissimum, O. carthaginense, Cyrtopodium Andersonii, Epidendrum cochleatum, and Cattleya Forbesii.—Of single specimens, Mr. Major sent Dendrobium nobile; Mr. Fox, Oncidium carthaginense. Mr. Passingham sent Pimelea spectabilis, Azalea indica alba, Chorozema varium elegans, Statice pseudo armeria, Erica cylindrica.—From the garden of Sir C. Lemon, Bart. M.P., were Pimelea decussata, Chorozema varium, Polygala latifolia, and Candollea tetrandra.—Of Pelargoniums, Mr. Major sent Priory King, Enchantress, Acme of Perfection, Incomparable, Anna, and Bridesmaid. Mrs. Sampson sent Diana, Queen of the West, Prince of Waterloo. From W. Daubuz, Esq., were Model of Perfection, Duke of Cornwall, Pride of Penair, Alice Grey, Enchantress, Le Grand; best specimen, Priory King. Mr. Major. Of Cinerarias, Mr. Daubuz sent Princess Alice, Regina Victoria, Splendissima, Rival King, Azurea, and Triumph. Mr. Fox contributed Enchantress, Imperial Blue, Splendens, Coronet, Prince Albert, Royal purple. Of Calceolarias, Mr. Daubuz sent Gem, Magnificent, Grand Monarch, Lass of Richmond Hill, Queen of the West, Admirable. Of Roses, from Mr. Fox, were Caroline, Anna Maria, High Clere seedling. Some fruit and vegetables were also produced, for which several prizes were awarded.

Hampshire Horticultural Society, May 27.—This was the second Meeting for this year, at which there was a fine display of flowers and fruit. Fine specimens of Mushrooms were exhibited by Mr. Prestoe. The following are the principal awards:—Oncidium crispum, B S m, Miss Garnier; Cattleya Mossiæ, B S m, J. Fleming, Esq.; Pimelea spectabilis, G S m, Rev. G. C. Rashleigh; Stove Plants, in collections, B S m, Rev. F. Beadon; Greenhouse Plants, ditto, D S m, Rev. G. C. Rashleigh; Pelargoniums, B S m, Rev. Mr. Henville; Roses, G R B m, Rev. F. Beaden; Cacti, G R B m, R. Wright, Esq.; Pine Apples, D S m, H. Holloway, Esq.; Strawberries, G S m, R. Wright, Esq.

Reviews.

Sowerby's Supplement to English Botany.

(*Continued from p.* 367.)

Pl. 2892.—*Saxifraga elegans* (Mack.) This little-known kind of London Pride was detected many years since in the south-west of Ireland, by Mr. J. T. Mackay, by whom it has ever since been cultivated in the College Botanical Garden, at Dublin. From the close and regular rose-like form which its leaves assume in a garden, it is peculiarly well fitted for edgings, and has a very elegant appearance—far more so than the S. umbrosa, or common London Pride. Its flowers have all the beauty of those produced by its ally. Described by Mr. Babington. Bab. Man. 116.

Pl. 2893.—*Saxifraga Geum* (Linn.), was formerly figured in "English Botany," but is here again beautifully represented, "in order to convey a clearer idea of the Irish plant. It is very common in the counties of Cork and Kerry, and is well deserving of a place in gardens, especially on rockwork. Described by Mr. Babington. Hook. Br. Fl. 127. Bab. Man. 117.

Pl. 2894.—*Callithamnion Pluma* (Ag.) A most beautiful little sea-weed, described by the Rev. M. J. Berkeley.

Pl. 2895.—*Carex irrigua* (Hoppe). This plant will interest our agricultural readers rather than the gardener. The Sedges are usually more deserving of extirpation than encouragement, but in the plant before us we find an exception to the general rule. Not that we are able to say anything of it from our own experience, but we have the very high authority of Fries, the eminent Professor at Upsala, for stating that in Sweden this plant is found to make "most excellent hay," in the boggy fields, and is therefore considered as highly valuable. We therefore hope that some owner of deep peaty bogs in the north will try it in this country. Its earliest observer in Britain was Mr. John Thompson, the miller, of Crowhall-mill, near Ridley Hall, in Northumberland (a highly deserving and enthusiastic botanist), who detected it in a deep morass near his residence, in considerable abundance. It has since been found near Dumfries and on the mountains at the head of Loch Lomond, and is probably not uncommon in similar places. Its leaves are rather broad and flat, soft and flaccid—thus differing considerably from most other Carices. The root is stoloniferous, and it would probably soon fully occupy a spot of bog land, after the present vegetation had been removed. Described by Mr. Babington. Bab Man. 346.

Garden Memoranda.

Flottbeck Nurseries, Hamburgh.—In the Orchidaceous house here I observed a great many plants in fine bloom. Stanhopea tigrina superba was an object of great beauty, having on it 14 large flowers, all open at the same time; S. oculata was producing 19 blooms, another 12, and aurea 10 flowers. Large plants of Cattleya Forbesii, Dendrobium chrysanthum, Maxillaria stapelioides, and several fine Gongoras, Acroperas, and Cirrhæas, were also in fine flower. Aerides odoratum was producing three splendid flower-spikes, and along with it were small but very healthy plants of Saccolabium guttatum, Aerides crispum, and another Aerides having striped leaves, one-half being of a clear yellow, and the other of a very deep green, with seven beautiful flower-spikes, similar to those of affine, but the flowers were larger and of a much finer colour. All the Orchids were in luxuriant health, and had a clean and healthy appearance. Of stove plants in flower, I remarked Ardisia picta, and hymenandra, a very fine plant, with red and grey flowers; Franciscea villosa, Medinilla erythrophylla, and Cyrtoceras reflexum. In this collection were also several large plants of the different species of Achimenes, some measuring from 3 to 4 feet across. The climbers planted out in the beds were splendid objects. Dipladenia crassinoda covered a trellis, 5 feet in height, and 3 feet across, with pretty rose-coloured flowers; and along with it was Allamanda cathartica, producing very large flowers; Clerodendrum splendens, a complete mass of the brightest red, together with Aristolochia grandiflora, and galeata, which are remarkable for their curious flowers. In the greenhouses I observed large specimens of Leschenaultia biloba and biloba grandiflora, some measuring from 3 to 5 feet in height, and nearly as much in diameter, quite covered with bright blue flowers. The Heaths, though not large plants, were very healthy, and many of the species presented a rich display of bloom, especially Erica ventricosa coccinea minor, which was about a foot in height, and quite covered with flowers. I saw here, for the first time near Hamburgh, large specimens of Clerodendrum infortunatum, squamatum, Kæmpferi, affine, and hastatum, flowering in a greenhouse; Lilium lancifolium album, punctatum, and speciosum, promise to be very fine, the latter showing more than 50 flower-buds. Of Geraniums and Calceolarias there was a most splendid display of the finest and newest varieties, some specimens measuring from 3 to 4 feet in diameter.—*A. A.*

Miscellaneous.

Botanical Nomenclature.—No one who has had experience in the progress of botany, as a science, can doubt that it has been more impeded in this country by the repulsive appearance of the names which it employs than by any other cause whatever; and that, in fact, this circumstance has proved an invincible obstacle to its becoming the serious occupation of those who are unacquainted with the learned languages, or who, being acquainted with them, are fastidious about euphony, and Greek or Latin purity. So strongly has the author become impressed with the truth of this view, that on many occasions he has endeavoured to substitute English names for the Latin or Greek compounds by which the genera of plants are distinguished. Upon turning over the late volumes of the "Botanical Register" many such instances will be found; as, for example—

Peach-Myrtle	*for*	Hypocalymma,
Swan-neck	„	Cycnoches,
Gritberry	„	Comarostaphylis,
Red-coat	„	Erythrochiton,
Pouch-bell	„	Glossocomia,
Snow-wort	„	Niphæa,
Glory-tree	„	Clerodendron,
Stylewort	„	Stylidium,
Hair-orchis	„	Trichosma,
Reed-orchis	„	Arundina,

and so on, in imitation of the well-known and usual English words, Houndstongue, Loosestrife, Bugloss, Soapwort, Harebell, &c. He cannot, however, boast of any success in these feeble attempts at reforming a great evil, nor, perhaps, ought he to have expected it. If such English names are not universally adopted, it is to be suspected that the circumstance is traceable to the indifference of the public to partial and inconsiderable changes, which are unseen in the ocean of Botanical nomenclature. That they are important must be admitted; that the person most careless as to the difficulties of articulation would prefer to speak of a Fringe-Myrtle rather than of a Chamælaucium, or of a Gritberry than of a Comarostaphylis, will probably be allowed on all hands; and therefore the author does not confess discouragement at failure; but would rather invite suggestions as to the most probable means of success. His own opinion is in favour of a very carefully considered catalogue, which should contain all the names of all the plants either wild or in cultivation in this country, the first name being in good English, and the second in the usual Latin or Greek. If this were accomplished, there would at once be a recognised standard to which reference could always be made in cases of uncertainty; and which might be consulted by buyers and sellers, with whom the difficulty of exchanging Latin names for English ones is found in practice to be very great. Among nurserymen it is almost invariably the custom to sell plants by their Latin names, because such names are settled, and precise, and moreover because plants are almost always asked for by those names; and it is doubtful whether it would be possible to buy the Comarostaphylis arbutoides by its

English name of Arbutus-like Gritberry. But this difficulty would be at once overcome by such a catalogue as is here suggested. It may be said that the object is already attained by Catalogues like those of Loudon, Sweet, &c. But the slightest examination of such works shows that they do not meet the difficulty in any considerable degree; for example, at p. 48 of Loudon's "Hortus Britannicus," Exacum is translated Exacum, Coutoubea Coutoubea, Microcale Microcale, Pladera Pladera, Mitrasacme Mitrasacme, and so on; Penæa marginata is called the marginated Penæa, Manettia Lygistum is Englished by the Lygistum Manettia. Such instances, and all our so-called English catalogues are filled with them, are so absurd, that the unwillingness of the public to adopt them is a proof of the public good sense. Not that translation is either necessary or desirable in all cases. Many Latin names have, from custom, been adopted into the English language, and no wisdom would be shown in attempting to alter such words as Dahlia, Crocus, Ixia, or even Orchis. Others again are so easily sounded, and so much in harmony with the English tongue, that nothing could be gained by interfering with them; such as Penæa, Hugonia, Parkia, Mimosa, Arbutus, &c. And, finally, there is a large class of scientific words which are best Englished by an alteration of their foreign terminations; for example, Melanthium might be changed to Melanth; Desmanthus to Desmanth; Lecythis to Lecyth; Myrospermum to Myrosperm; and such an alteration would at once possess the great advantage of rendering English plural terminations possible; Melanthiums, Desmanthuses, Lecythises, &c., sound offensively to classical ears; Melanthia, Desmanthi, Lecythides, are, if not pedantic, at least beyond the skill of uneducated readers; but Desmanths, Melanths, and Lecyths, are formed by the ordinary English plural termination without difficulty. It is, however, to be feared that a long time will elapse before these views are carried out in such a manner as to insure their adoption. But in the meanwhile a commencement of the plan is practicable, and the author hopes will meet with support. The names by which the great groups of plants are known are few in number, and very often in use. There is certainly no reason why we should not at once English them; the practice, indeed, is already adopted to some extent by the substitution of the words Monocotyledons, Dicotyledons, Exogens, Endogens, Cryptogams, Phænogams, &c., for Monocytledones, Dicotyledones, Exogenæ, Endogenæ, Cryptogamæ, Phænogamæ, &c. It is even carried further by speaking of Rosaceous plants instead of Rosaceæ, Orchidaceous or Orchideous plants instead of Orchidaceæ, or Orchideæ, &c. But these amended names are still too long, and too un-English in sound to be in favour with the world which lies without the narrow circle of systematic botanists; and no valid reason seems to exist for not immediately reforming that part of the nomenclature of botany. The attempt has been already made in the author's "School Botany," where it will be found that by availing himself of well-known English names, or of the English word "wort," or by merely remodelling the terminations, a uniform English nomenclature has been secured for all the common European natural orders of plants. Thus for Nymphæaceæ, Ranunculaceæ, Tamaricaceæ, Zygophyllaceæ, Elatinaceæ, are substituted Water-Lilies, Crowfoots, Tamarisks, Bean-Capers, and Water-Peppers; for Malvaceæ, Aurantiaceæ, Gentianaceæ, Primulaceæ, Urticaceæ, Euphorbiaceæ, are employed Mallow-worts, Citron-worts, Gentian-worts, Prim-worts, Nettle-worts, Spurge-worts; and the terms Orchids, Hippurids, Amaryllids, Irids, Typhads, Arads, Cucurbits, are taken as English equivalents for Orchidaceæ, Halorageæ, Amaryllidaceæ, Iridaceæ, Typhaceæ, Araceæ, and Cucurbitaceæ. The principles kept in view in effecting those changes have been also observed throughout the present work, so that standard English names for classes and orders are now no longer wanting. The author confidently believes that every intelligent reader will admit that such names as Urn-mosses, Taccads, False Hemps, Pepper-worts, Bristle-worts, Chenopods, Hydrocharads, Scale-mosses, Birth-worts, and Fringe-Myrtles are preferable to Brya-ce-æ, Tac-ca-ce-æ, Da-tis-ca-ce-æ, E-la-ti-na-ce-æ, Che-no-po-di-a-ce-æ, Des-vaux-i-a-ce-æ, Hy-dro-cha-ri-da-ce-æ, Jun-ger-man-ni-a-ce-æ, A-ris-to-lo-chi-a-ce-æ, Cha-mæ-lau-ci-a-ce-æ, and other sesquipedalian words. —*Lindley's Vegetable Kingdom—unpublished.*

Bees.

Singular Mode of taking Honey in India.—I lately witnessed an operation of this kind, which appeared to me extraordinary. A large swarm of bees had fixed their abode on the ceiling of a verandah, and in due time, when their honey was deposited, we wished to collect it, but were for some time at a loss for means. Hearing, however, that there was a gardener who possessed a peculiar art of doing it unhurt he was sent for, and desired to bring down the honey. I watched him closely through the whole process, and was told by him, and believe, that he used no other precaution than the following:—He took some of the plant called Toolsy, and rubbed it over his body, face, arms, and hands; he then chewed a little, and held a sprig of it in his mouth. With no other than this apparently slight defence, he mounted a ladder, a large dish in one hand, and a sharp knife in the other; and though as thinly clad as his class usually are, with thousands of bees swarming about his naked body, he with the greatest *sang-froid* cut immediately through the upper part of the comb, where it was suspended to the roof, and receiving the whole of it in his dish, brought it down without having suffered from a single sting! This appeared to me so singular and novel a manner of proceeding, that I assure you had I been the sole spectator I should have hesitated to have written it; but two other gentlemen of this station were also witnesses of the fact, and will confirm my statement, if necessary, by their testimony. I know not how to account for this phenomenon, though if experiment prove it to be constant, it cannot but be ascribed, I should think, to the bees being deceived by the strong odour of the plant, and misled by instinct, deeming it useless to attack with their stings what they suppose to be a vegetable. The courage displayed by the man, though it may aid, is surely of itself not sufficient to produce this effect; for the stings of bees have never been considered as of a similar nature with those of Nettles, of which latter it is said, "grasp them like a man of mettle, and they soft as silk remain." But, whatever may be the cause, if such shall always be found to be the result, it is a process which ought to be known and practised in Europe. The present mode of taking hives by destroying all the bees with smoke, is certainly both cruel and ungrateful, and every owner of an apiary would rejoice at being enabled to spare the lives of his useful and highly valued insects. On the score of profit, too, he would be glad to adopt such an innocent measure; for then, instead of losing them entirely, as he at present does, at every gathering of the honey, he might, with the greatest ease, again swarm them, and place them in new hives, there to recommence their operations. The plant which I have above mentioned is the black Ocymum of botanists. Its aromatic odour is perhaps the strongest there is. I know that some of the species of this genus are cultivated with success in England; this, therefore, might be in all probability, if it is not so already. Sir William Jones addresses it in one of his poems,

Hail! sacred Toolsy, pride of plains!

This epithet he has given to it from its particular prevalent use in the Brahminical rites; indeed, the extraordinary sanctity attached to it, is evinced by its forming, with the Ganges' water, the basis of the Hindoo's most solemn oath; his mode of swearing is the touching these. The legend respecting it in the Sanscrit records is, that it was once a most beautiful nymph of the same name, passionately beloved by Chrisna, who to perpetuate her memory, transformed her into this plant, and ordained that no worship to him should be availing or complete which was not graced by her presence; hence, it is invariably used in all Poojahs made by the followers of Vishnu. On such a metamorphosis, with the circumstance of the bees still paying so deep a respect to her charms, how beautiful an Ovidian tale might be formed.—*Extracted from Indian Reminiscences, by the late G. A. Addison, Esq.*

Drone Bee.—The name drone bee is familiar to every body, but very few know anything about that harmless insect which is held as an emblem of indolence. Even the curious are at a loss to account for the use of drones in a hive, except they are males; but when and how they meet with the queens, or females, to insure the increase of their species, is as yet uncertain. The honey bee is the only one amongst the different species of bees or wasps that destroys the male. Most likely this gives rise to the belief that drone bees are useless. It is urged that drone wasps are spared because they search for their own food, but they and the queen wasps are not bred till autumn, therefore destroying the drones in a vespary would be contrary to their mission. In general, drone and queen bees are bred in May and June. Their numbers bred in a hive, during a season, vary from 500 to 2000, while the queens range only from 4 to 24. Part of the drones leave the hive with the swarms, and are destroyed in about six weeks afterwards by the bees. Their massacre did not escape the notice of early naturalists. Pliny observes that the "drones are stung to death by the bees." Huber and others say that their death takes place in the hive; but as Bevan justly observes, "the working bees may frequently be seen worrying them, and great struggles ensue in front of the hives." Drones have no manner of defence except by flight, and even then they quickly return to the hive to be again dragged out, when they fall to the ground with extended wings. Prior to the conflict they crowd together for safety in less frequented parts of the hive; their assemblage led Huber to think they were asleep, and others to exclaim "drowsy drones." But the fact is, panic had seized them—the bees having begun their attacks, whose fury increases and extends even to the brood and eggs that produce the drones. Previous to their crowding together they mingle freely with the other bees. It sometimes happens that the slaughter of drones does not take place; in such cases it is alleged that some misfortune has befallen the queen bee, and that their presence is wanted till another is bred. And it likewise occurs, though rarely, that drones are bred in autumn. I think this accords with what we are told respecting bees in hot countries repeatedly swarming during the year; but evidence is wanted concerning the time that elapses between the swarming periods. If the Rev. W. Cotton is successful with his bees in New Zealand we may expect some information on these subjects. In the meantime, it is worthy of remark that the precise age of the drone bee is not known. Purchas says that the "drones are but short-lived insects did they live their utmost date; not one will outlive October." I have known them, however, alive at the end of November, but that was a rare occurence; still, I think that their age is equal to that of the working bees. And, perhaps, in hot countries, the drones might live till the next swarming time, at least those that have been late hatched. In some first swarms there are no drones, perhaps that is owing to none being bred at the time the bees left the hives. I mention this more particularly, for there are doubts about it; indeed, I had some myself, but last season I examined carefully two first swarms, in which I could not find a drone. Huber speaks of a small drone being bred in workers' cells. Mr. Golding, who is ever anxious on these subjects, kindly furnished me with a piece of comb which clearly proved Huber's assertion, and likewise that the growth of insects is affected, in some measure, by room while in the larva state. All blame drone bees for being idle, but in well-stocked hives many bees appear to be indolent also, even in good weather. Their presence is wanted to increase heat for the brood; it may be said, why not spare the drones for nurse-bees; indeed, they have ceen called so. But there is no proof that the drones attend to the brood, and it is well known that the greater part of the bees are reared during their absence from the hives. I have forgotten to mention that the drones appear abroad only in the middle of warm days, and buzz about awhile as if sunning themselves, returning to the hives without noticing flowers. However indolent or useless drones may be, hives do not long prosper without them.—*W.*

Answers.—*Mr. Briggs.*—When I recommended collateral hives, I did not mention that they should be according to Nutt's plan. If you understand his theory of bee-keeping, you must have perceived the force of Mr. Golding's remarks, which I gave respecting it. The persons whom I named are acquainted with the collateral system, at its present state of perfection. Perhaps Mr. Payne wrote before Nutt's book appeared; he once observed to me that the only hint that Nutt had given us was ventilation. I thought so too, but afterwards found that we were both wrong, for several apiarians had tried that before Nutt. Mr. Golding is one, and a friend in Norwich showed me a very old bee-hive, on the top of which he had put a lid of a tin pepper-box, that served the purpose better than N.'s tin tubes, being placed over the opening between two combs. While Nutt's ventilators are placed so that the bees form their combs over them, and, of course, this renders them useless. Perhaps Mr. Luxmore's account of bee-keeping may serve your purpose. Like Mr. Nutt, however, he finds fault with the simple storefying plan, but the glasses on his collateral hives are on the same principle, and his inverted hive is both storefying and nadiring to a great extent. Now, Mr. Luxmore says, that "every attempt at super and nadir hiving has, with me, produced disappointment." If so, how comes he by the handsome glasses, which he states may always be obtained from stock-hives? "A Worcestershire Apiarian's" reply to you respecting the plan of preventing the queen-bee entering side-boxes is incorrect. You may try Nutt's plans, however, and then you will see how far I have gone from the truth.—*W.*——I find after trial of different sized hives, that the stock-hive for my 40-inch cases should be 12 inches wide, and 8 inches in height inside measure, and bell shaped; the hole in the floor over which the stock is to be placed, should be the same size as the hive, two or three pieces 3 inches deep, of ½ inch deal, should be fixed on the bottom floor, under the stock-hive, as a ready means for the bees to ascend by. In establishing a colony of this description, besides a strong stock, I have added two or three casts, that the lower department may the sooner be filled up. Pieces of plate-glass, about 4 inches square, I now place over the side-holes; these may be bought as waste at the warehouse, at 3*s.* per dozen. I generally use glasses on neat straw hives 6 inches in width, and the same in height, and two such may be used at once in a strong colony; on one 8 inches in height and width.—*C. T. C. Luxmore.*——Honey is not finer or worth more from collateral boxes than that upon the "old system;" no honey can be finer in colour or flavour than the produce from second or third swarms on the cottage principle. The "old system" must be old indeed, for collateral boxes were in use in Charles the First's time. In removing full glasses on hives, I place them in a shady spot at some little distance, under a hand-glass, having a small hole in the top, through which the bees escape; the hive may be laid bottom upwards. I agree with "A Worcestershire Apiarian," that a number of apertures from the stock to the side boxes is very detrimental; the passage at the bottom is a judicious one, but three-eighths is better than three-fourths in height. The queen will enter the side boxes when the latter are well secured from draught; two or three holes should be made in the top of the brood-hive, through which a good draught may pass.—*G. L. Smartt.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouses.—Many of the plants which have been excited and which are coming into flower, such as Clerodendrons, Gardenias, &c., may be gradually exposed to a lower temperature, until they bear with impunity the temperature of the greenhouse, where they may remain some months in flower; when they are done flowering they may be laid upon their sides, and kept in a comparitively dry state during winter, or until they are excited in early spring. *Greenhouses.*—The principal part of the New Holland plants may now be placed in a shady situation in the open air, where they will mature and ripen their growth. In this hardened state they will be much better fitted for winter confinement. The wood of greenhouse plants matured in the open air is less likely to suffer from damp or long confinement than that which has been produced during summer under glass. The juices are much better elaborated, and the young wood altogether assumes a firmer and closer texture, and the foliage a more persistent character; indeed, these truths are obvious to most growers; some however may be benefitted by these hints.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

As soon as the leaves of Tulips, Hyacinths, Narcissus, &c., have begun to show signs of decay, the bulbs should be at once taken up, and placed in an airy situation to dry, and the beds in which they have been growing should have a good soaking of water, if they are very dry, then dug and re-planted immediately. The earliest-planted beds should be kept well watered, if the weather continue dry; fill up all vacancies, and cut off dead flowers from Pæonias, Rockets, &c. Sow Brompton Stocks for the last time this year, and also Ten-week Stocks for next spring. Transplant Sweet Williams and other biennials that are now ready; hoe and rake borders, and sweep and clean as often as required. *Pits and Frames.*—Prepare a frame for Pink pipings, which like a mild heat to strike in. Silver-sand, mixed with road-scrapings, sifted fine, is an excellent thing for striking them in. The frame should face the north, and shade but little during the middle of the day; if a frame cannot be had, hand-glasses will answer equally well. Continue putting in cuttings of new or rare Verbenas, &c. &c.; water freely and shade during the heat of the day.—*B.*

III.—FLORISTS' FLOWERS.

Tulips.—Seedlings will now be dying down; it will be best to allow them to remain in the seed pans, placing them in a place of safety from the ravages of mice, &c. All old bulbs may now be taken up, if ready, placing them with the increase attached to them, in their respective compartments in the boxes; or the bulbs may be wrapped in thin paper, and placed in a dry, shady situation. It will not be advisable to remove the roots or loose skin which usually envelopes the bulb yet, as soon as the bed is cleared, remove all stalks, leaves, &c., and throw it up in ridges to get full exposure to sun and air. *Ranunculuses.*—After blooming, and when the Grass begins to assume a yellow tinge, the beds ought, if possible, to be protected from rain, as the Ranunculus is extremely apt to emit fresh fibres; when this is the case, it is absolute ruin, if not killing them, proving sadly injurious to next year's bloom. Seedlings also should be taken up, and carefully and gradually dried.—*Pinks.* The main crop of pipings may now be put in; with common care not one in ten ought to fail. *Carnations and Picotees.*—Tie advancing buds; the best ligature where flowers are for competition is bees'-waxed thread; strips of bladder, or silk coated with isinglass will be found excellent.—*C.*

IV.—PINERIES, VINERIES &c.

Pineries.—Follow up successively with the final shift some of the strongest successions intended to show early next spring. In fact, the groundwork of a constant supply is no doubt to be sought in frequently putting out suckers, and in frequent final shifts, during the growing season. Now is perhaps the period for the most rapid growth; at least, the period in which rapid growth will do the least harm, as considerable doubt exists amongst practical men as to the propriety of encouraging a rapid growth late in autumn. Such growth will be in some degree immature; rapid growth, however, should be accompanied with plenty of room. The same law prevails here as in the planting of Potatoes, or almost any other crop, viz., the more room, the greater equalisation of light, and by consequence the more perfect elaboration of the sap, on which latter principle, the fructifying process principally depends. *Vineries.*—Follow up last week's directions, and when the latest Grapes have completed their first swelling, suffer their leaders—ay, and their laterals—from the fruit-bearing shoots, to ramble for a while, to increase the volume of roots in the border, thus increasing the energies of the general system of the plant for following seasons. *Cherries* will now be going to rest, to gather excitability for another campaign. Do not drive them to rest, but apply water freely while any action remains in the leaf. *Figs.*—As last Calendar. An error occurred in last week's Calendar, which should be corrected:—"Take care to give back air *only*," &c., should be "Take care to give back air *early*," &c.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Fruit.—The foreright shoots of espalier fruit-trees should now be shortened, precisely as directed to be done last week, in the case of wall-trees. This is the most essential step in a system of pruning by which these trees may be made to bear from the stem almost to the extremities of the branches. When such can be easily effected, surely existing prejudices against this mode of training ought to give way, and doubtless they will. The utility of espaliers, particularly as regards many of the new varieties of Pears, is unquestionable; and the best and cheapest mode of constructing and maintaining their supports deserves consideration. It is now a good time to shorten the shoots of dwarf trees. These trees may be well regulated and judiciously cut within their assigned limits at the winter pruning; but an abundant supply of shoots instead of fruit, is the usual result, unless the summer pruning is properly attended to. Let a vigorous shoot go on untouched till winter, then cut it back to a few buds, and the general consequence will be the production of three similarly fruitless shoots in the following season; whereas, by shortening such a shoot at the present time, the formation of fruit-buds is almost certain. Therefore, with the exception of some that may be required to fill vacancies, all the shoots of dwarf-trained Apple, Pear, Plum, and Cherry-trees, should now be more or less shortened. One-third of their length may be taken off. *Kitchen Garden.*—Continue to plant out crops as the plants become fit. If watering be at all necessary, let it be liberally supplied. Sow Endive, Peas, Kidney Beans, Lettuces, and some early Cabbages.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Continue to clear away all loppings, clean open drains and hedgerows, mow the drives, &c. *Nursery.*—The destruction of weeds, and regulating summer growths of young stock are the most important things required here.—*F.*

State of the Weather near London, for the week ending June 26, 1845, as observed at the Horticultural Garden, Chiswick.

June		Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	20	15	30.117	30.083	74	49	61.5	N.E.	
Sat.	21	16	30.082	29.931	80	51	65.5	E.	
Sun.	22	17	30.014	29.935	73	48	60.5	N.E.	
Mon.	23	18	30.126	30.094	73	51	62.0	S.W.	
Tues.	24	19	30.031	29.797	74	52	64.0	S.W.	.21
Wed.	25	20	29.808	29.798	74	52	63.0	S.W.	.09
Thurs.	26	☾	29.856	29.776	74	49	61.5	W.	
Average			30.005	29.925	74.5	50.3	62.4		.30

June 20—Very fine; cloudless, with slight haze; sultry; cloudy and fine
21—Very fine, with light clouds; sultry; partially overcast
22—Very fine throughout; clear at night
23—Exceedingly fine throughout, cloudy at night
24—Fine; uniformly overcast; heavy rain commenced at 1 P.M.; showers; clear at night
25—Cold and dry; cloudy; rain
26—Cloudy; fine, with few clouds; slightly overcast.
Mean temperature of the week 1½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending July 6, 1845.

June	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 29	72.6	49.9	61.2	4	0.20 in.	2	5	2	—	—	6	4	2
Mon. 30	73 3	50.6	62.0	6	0.80	—	3	3	1	4	3	3	2
July													
Tues 1	72.2	52.7	62.5	9	0.38	1	1	1	—	4	3	5	1
Wed. 2	74.3	52.3	63.3	6	0.78	1	1	1	2	—	4	5	5	1
Thur. 3	75.2	52.4	63.9	8	0.78	—	2	2	2	1	1	6	6	1
Fri. 4	76 6	53.8	65.2	8	0.24	—	1	3	—	3	6	6	—
Sat. 5	77.0	53 1	65 0	9	0.59	—	3	—	4	1	5	5	1

The highest temperature during the above period occurred on the 5th, 1833—therm 94°; and the lowest on the 1st, 1837—therm. 37.

Notices to Correspondents.

BEAUMONTIA GRANDIFLORA—*M C Y*—This is a hardy greenhouse climber, notwithstanding what the London nurserymen have told you. It is best, however, to treat it as a stove plant for the first year or two, or till it is 10 or 15 feet in length, and then to turn it out into a well-drained border. Do not stop the leading shoot till the plant has filled the space allotted for it; and during this time, keep the side shoots pruned to one eye from the old wood; thus spurs will be formed, on which the flowers are formed in terminal heads. Unfortunately the Echites and Allamanda do not unite freely with the Beaumontia, as I once thought they would. You will see at p. 607, vol. 1843, that the London growers keep the Beaumontia in the stove, but no one can flower it under such excitement. My plant of it will soon be in fine bloom here, on the cold system.—*D. B.*

CACTI—*A Constant Reader*—We cannot judge of the merits of a plant by mere description; and we never publish anonymous descriptions of wonderfully fine plants.

CHERRIES—*A Sub*—The fruit of your Cherry-tree has been injured by frost. You will find the kernels dead; and they have been so for a considerable time back. When such is the case, the fruit is sure to drop in stoning.‖

COUNTRY SHOWS—*W B* says a prize is given for the best seedling Calceolaria. In the autumn he buys from a nurseryman a lot of seedling Calceolarias; and asks if he can compete for such prize with them, or must he raise them from seed himself. In our opinion no one ought to show seedlings for a prize, unless they are raised by himself. For. Why are prizes offered for seedlings? Surely to offer encouragement to the raisers—not buyers—of them.

CUCKOO—*J C L*—Do you forget the old stanza?

"In the month of May, he sings all day.
In the month of June, he changes his tune.
In the month of July, he gets ready to fly.
In the month of August, go he must."

We quote from memory, and if inaccurately, beg to be corrected.—*R.*

DISEASE—*Z*—It is difficult to say what is the matter with your Peach-tree; but we presume that it is suffering from the cold weather of the early spring. Probably, by the time you get this, it will be recovering.

GLADIOLI—The Gladiolus from the hills near Graham's Town, South Africa, which never loses its foliage, and produces rose-coloured flowers in November or later, concerning which an anonymous correspondent inquires, is certainly G. Mortonius, figured some years ago (but of too pale a colour) in the "Botanical Magazine," and mentioned in a subsequent note as flowering in the winter season. A bulb of it would be very acceptable. *W. H.*, 11, *Hereford-street.*—The writer's absence on the Continent has prevented this answer being given earlier. ——*Rusticus*—Your Rex rubrorum is a very fine variety, and the darkest we have yet seen.

GREENHOUSES—*Bathoniensis*—It is not desirable to select for a house any point to the west of south west, for the purpose of growing Grapes, and forcing flowers, and for general uses; but, if circumstances render it necessary, such a house may be built; provided you take care to use large squares of glass, and very light wood-work.

HERBACEOUS PLANTS—*Dodman*—These are in general cultivated so very easily, that special directions seem hardly necessary. We will, however, see what may be worth doing. As to Irises, the best way of treating the coarse and handsome kinds is to let them alone.

INSECTS—*Entomon*—The bees perforating your Grass-plat are the Eucera longicornis: the long-horned specimens being the males, the others the females. *R.*——*C M*—I am much obliged for the Rhododendron galls, as they are unknown to me, and I hope to breed the flies from them. *R.*——*S W*—It is the Thrips which has attacked your Melon plants, and we know of no better remedy than fumigating with Tobacco, which must be repeated, and washing the leaves with soft-soap and water. *R.*——*B H R*—Your insect may be the Cynips Quercus-folii, but the leaves were so crushed and dried in their transit, that it is impossible to determine the species with certainty. *R.*——*W S*—It is the larva of an aphidivorous fly, but we cannot tell you the species. *R.*——*T C*—Your worm is a Filaria, and would not change to an insect. *R.*——*K*—Your box contained galls of the Cynips Quercus-pedunculi, C. ramuli, and probably, C. Quercus-folii, all of which you will find described and figured in the 4th and 5th vols. of the *Gardeners' Chronicle.* We are not aware that the Oak-galls of England are applicable to any manufacturing purposes. *R.*——*J C L*—It is the larva of a Thrips which has injured your Dendrobia; it is not in our power to suggest any better remedy than that you have tried, and which we recommend you to repeat. *R.*

KITCHEN GARDEN—*Bradley*—We are much obliged for the hint. Our opinion is the same as yours; but it is wonderfully difficult to get good information on such points. Now, however, that we are reminded we will try again.

LAW—*W H*—Your question is one for a solicitor, if the matter cannot be arranged amicably. We entertain no doubt that if your neighbour's tree pushes down your wall, your neighbour must repair all damage so caused.

NAMES OF PLANTS—*Appinensis*—Didymodon purpureum.§—— *O*—1, Saxifraga stellaris; 2, Draba confusa; 3, Carex ovalis; 4, Salix pentandra; 5, Orchis maculata; 6. Coronopus Ruellii; 7, Polytrichum urnigerum.§——*Sub*—A new and very desirable variety of the common Oak, if it prove to be evergreen.¶ ——*Sub*—Seems to be Benthamia fragifera.——*Reader*—A bleached specimen of some Epipactis or Cephalanthera. ——*G Wolsey*—1, Lilium pyrenaicum; 2, large variety of the same; 4, small variety of ditto; 3, spectabile; 5, Spiræa aruncus; 6, Melittis grandiflora; 7, some species of Nepeta, which cannot be ascertained without some of the radical leaves.¶——*W S S*—Argemone mexicana; if it came from Sierra Leone, it was carried there in the first instance.—— *J D*—Stanhopea grandiflora and Epidendrum costatum, the latter quite new.——*J C L*—Epidendrum diotum.——*L W D*—It is Elæagnus fusca, to all appearance.——*Y Y*—Some Podotheca, a weed.——*A Regular Reader*—Knautia orientalis. We really cannot waste time in puzzling out the names of foreign Grasses; how does yours differ from Poa compressa? ——*Glasnevin*—Callistemon salignum.——*Flora*—We cannot name heaps of miserable fragments of weeds and common garden flowers, with which every gardener is or ought to be acquainted.——*R*—You must excuse us. It is quite out of the question that we should undertake to name heaps of dried specimens, which can be determined by anybody of ordinary perception. Our rule is to assist our correspondents in doubtful and difficult cases; but not to go any further. The specimens are left for you at our office.

N. S. WALES—*Chemical Jack*—All our European flower seeds are useful in this colony; and very often the commonest, those which revive old feelings in the emigrant's heart, are the most dearly prized. A Lily of the Valley, or a Primrose, would be more valued on the banks of the Darling, than the gaudiest stranger that could be sent there.

PEACHES—*W S E*—The disease, affecting both varieties sent, is mildew. The trees should be profusely dusted over with sulphur.‖

PEAR-TREES—*J Sanders*—The leaves have been attacked by the Pear moth.‖

PENNETTYA ANGUSTIFOLIA—*A K*—Plant this in good peat soil in the American border, and in a situation where it will be entirely screened from the mid-day sun. In April cover the surface of the ground round the plant an inch thick with fresh cow-dung. It is the dry atmosphere in summer that injures it—the plants are increased by layers.¶

PITS—*J B*—Such a pit as yours will answer very well; but place hot-water tanks under the bed, and carry a hot-water pipe all round. Do not use a flue if you can help it. If it were not for your Melons and Cucumbers, you might dispense with the tanks under the bed, and merely use one row of iron tanks fitted with close movable covers, which tanks might go along the front and end walls.

ROSES—*J J G*—We have not received any such communication as you speak of—or perhaps we threw it away as being illegible. Your Rose is the old double yellow in a miserably deformed condition, owing, perhaps, to the cold spring.—— *Sussex*—The monstrosity in the Rose is too common, and we are sorry to say that no one has discovered a remedy for it. It is probably owing to the coldness of the spring. Some sorts, especially the varieties of R. gallica, are very subject to it.

VINES—*G R*—Your Vine-leaves are affected by a species of fungus. Give a freer circulation of air.‖

WEEDS—*T*—If your Cat's-tail is either Hippuris or Equisetum, thorough and deep draining, with a little breaking up of the ground, and extirpation by hand or harrow, will destroy it. The best mixture for filling up wounds in trees is made with cow-dung 1 bushel, old lime-rubbish ½ a bushel, wood-ashes ½ a bushel, and a little river-sand, well worked together by spade, or beaten until it is of the consistence of fresh plaister, such as is used for ceiling rooms.

MISC.—Two shillings will be given for No. 15, 1842.——*C G*—Your Potatoes are not worth converting into starch; they are of no value except for food. It would be better to sell them, or give them away, than to spend money in useless experiments. Don't allow Rhubarb to seed if you want very fine leaves next year. The roots, if left in the ground will require no care; if forced, it is only necessary to transfer them from the open ground to a warm and rather dark greenhouse.——*J R*—To preserve Everlastings, gather them before they are in full flower; then hang them up bottom upwards in a dry and shady place; that is all. You would not spoil them by dyeing them would you?——*C M*—One of the best budding-knives with which we are acquainted is that advertised at p. 413 of last week's Paper.‡——*J Marshall*—If you refer to p. 368 you will find that your question has been answered.‡——*L Q Z*—All Ericas are pretty; the following are good, and may be easily procured, viz.: Hartnelli, pink; aristata major, red; acuminata longiflora, purple; tenuiflora, white, with pink shade; inflata, white; Archeriana, scarlet; depressa, yellow; elegans, light purple; Cavendishii; mutabilis, light purple; retorta major, pink; Lamberti rosea, flesh coloured; hiemalis, purple, tipped with white; tricolor, red; Linnæoides superba, purple, with white tip, and all the varieties of ventricosa. It is to be feared your Pergularia will not succeed well in the border of a very cool conservatory.‡——*W B*—Cold and damp are no doubt the cause of your Mignonette perishing at the root, as the specimens sent have done. You had better give it a warm situation if you can, and watering it with care, you may possibly recover it.‡——*G. Archer*—Your so-called scarlet Laburnum has produced one of its usual sports in the form of Cytisus purpureus. You will find the history of this production at p. 325 of our volume for 1841.‡

SEEDLING FLOWERS.

CACTUS—*H K*—Your seedlings are fine varieties, particularly C. Maynardii, which, from its size, colour, and mode of growth, forms a handsome object for a conservatory; 1, 2, and 3 are also good varieties, but similar sorts have been produced by several growers.*

CALCEOLARIAS—*P J* Dr. Robison and Nulli secundes, are two pretty varieties; the striped specimens are small and too undecided to be of any use.*——*H I M*—The spotted sorts with yellow grounds are similar to other varieties we have seen; 21 is rather under-sized. Those with cream-coloured grounds and crimson blotches are worth preserving; the same with brown blotches upon lemon-coloured grounds; 3 and 6 are too undefined in the blotches; 30, a good yellow self; 20, a showy brown self; most of these flowers were separated from the calyx, that the numbers to which they belonged was unknown.*

FUCHSIAS—*T A*—1, 2, 4, are stout and showy flowers, rather coarse in the sepals; these are good flowers, but they do not surpass similar varieties in cultivation. 3, a light variety, with vermilion corolla; and 5, having a large purple crimson corolla, with short sepals, are the best; but they are not superior to sorts already out.*

PANSIES—*C H*—Bronze Unique contains good substance and other good qualities; the notch in the bottom petal is a point against it, if permanent; none of the other specimens will make show flowers, as no single flower possesses sufficient good qualities; some are too long in form, or too imperfect in the marginal colour of the lower petals.*

PELARGONIUMS—*A B*—Your seedling is pretty, good in form, rather dull in colour, spot small and decided; it wants a little more substance.*——*F P*—No. 1, rich in colour, but deficient in form. The same may be said of No. 2; they are both rough-looking flowers. 3, bright rosy pink with white centre, and small dark spot; under petals broad and well rounded; a very showy and agreeable greenhouse variety. 4, deficient in form; 5, good form, combined with good substance; top petals smooth and even in colour; a pretty variety, injured by the irregular veining on the lower petals. 6, good in general form, broad under petals, which curl back too much, common in colour; 9 is similar to this, but very inferior; 10 is also similar to 6, but not so good; 7 is a flower of good form and substance, the colour on the top petals spreading over the surface and leaving a narrow rim of rose colour; bottom petals slightly veined; 8, very rich and brilliant in colour. These are very good seedlings, and the best will form good greenhouse varieties, but they will not rank with the fine show varieties raised at the present time.*——*J G*—Your seedling is of no value; the form is not good; under petals too narrow; colour common and cloudy in the upper petals.*——*A B*—A flower bright and pretty in colour; but deficient in form*——*W J*—Your seedling is bad in form, and very inferior to the flowers raised in the present day.*—— *R C*—No. 1, a pretty flower, with a white throat, and broad rose-leaf, under petals wanting in size and substance as a show flower. 2, very inferior to the Sylph in substance, which it resembles in spot and colour. 3, bad. 4, a well-formed flower, but deficient in substance, rather novel in colour; this flower and No. 1 are the best and are pretty greenhouse varieties, but they want substance as show flowers. 5 is too rough and loose.*

PETUNIA—*Y Y*—Your seedling Petunia is a good variety, similar to the fine sorts raised by Mr. Girling; it is good in form, and agreeable in colour.*——*Anon*—9, 10, 11: three light varieties, with veined centres, are delicate flowers, not equal in colour and marking to similar sorts already out; 5, 6, 8: three different shades of crimson, good flowers, 5 particularly brilliant; 4, light rose, very even in tint; 12, large lilac, not good in form, the segments too deeply indented, but good in colour.*——*C H*—Your seedling promises to be a distinct variety: it is the best of its kind we have seen.*

TULIPS—*W W*—The condition in which your seedlings arrived precludes the power of saying much about them; they had been kept too long; some of them were in such a state of decay when they arrived that the colours were scarcely visible. No. 1 was in a tolerable state, a very fine byblomen, bottom free from impurity, sharp unbroken feather, rather deep, with a beam down the centre; this was a fine flower. *A bizarre*, with precisely the same character of marking, with a very bright and clear ground; and No. 5, similar also in character, we admired greatly. No. 2 was not in such perfect condition; but, by what was visible, it appears to be a very large and grand byblomen, with a fine style of beam and feather; it seemed, however, that the colour approached the seed-vessel too nearly, a greater space being desirable; from what was visible they appear to be a fine race of flowers.*

VERBENA—*W C*—Your seedling is no improvement upon the sorts already out.*

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.—The next GREAT AGRICULTURAL MEETING and ANNUAL CATTLE SHOW of this Society will be held at BALLINASLOE, on the 30th of September, 1845, and the days following. Premiums to the amount of ONE THOUSAND POUNDS and upwards will be distributed on this occasion, and open for general competition for the encouragement of Stock, Horses, Sheep, Swine, Implements, Flax, Wool, Butter, &c., the particulars of which can be had on application to the Secretary in Dublin.

The AGRICULTURAL CHALLENGE CUP, value ONE HUNDRED GUINEAS, for the best beast possessing most merit of its kind in the yard, and now held by Robert Burrowes, Esq., of Giltown, county of Kildare, with his Short-horned Bull NARCISSUS, will be also open for competition on this occasion.

Arrangements have been made with the different Steam-boat and Canal Companies for the transport of English and Scotch Stock, Implements, &c., to Dublin, free of expense, to the Show, the particulars of which can be had on application to the Secretary, from whom Premium-sheets and full directions can be had on application.

From the nature of the locality itself, and the preparations in progress, it is expected that the approaching Meeting will be the most important that has yet taken place under the auspices of the Society. Every facility and accommodation will be provided for the transport of English and Scotch Stock and Implements, free of expense, and no effort will be spared to render the Meeting every way practical and agreeable to the strangers who might attend. EDWARD BULLEN, Secretary.

Society's Rooms, 41, Upper Sackville-street, Dublin.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

The Agricultural Gazette.

SATURDAY, JUNE 28, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 2—Agricultural Society of England.
THURSDAY, July 3—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, July 9—Agricultural Society of England.
THURSDAY, July 10—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

June 30—Chepstow | July 5—Collumpton

In some ploughs the beam is supported by one or more wheels; in others, this attachment is wanting. The difference thus produced is one so great in *appearance* that it has presented the most obvious method of classifying these implements, and accordingly SWING PLOUGHS and WHEEL PLOUGHS are the two great divisions in which they are arranged. The advantages claimed for the latter class by their advocates over the former are, the less skill required to work them, the greater evenness of their work, and a lighter draught—those claimed by the advocates of the former class are, the greater capability of the implements, and the greater efficiency (arising from depth) of the work done.

It is only with the *draught* of ploughs that we are at present concerned, and so far as this point is affected by the attachment of a wheel, the trials which have hitherto been made represent the addition to be advantageous.

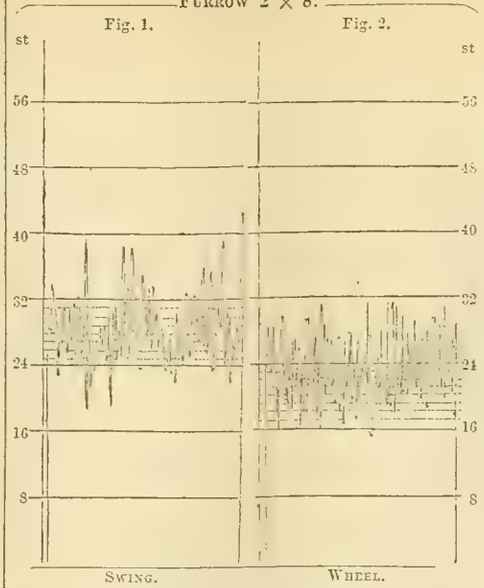
These trials, however, are not, we think, all of them conclusive. It will not do to compare the draught of two or more ploughs, some of them having wheels, and others being without them, and then attribute the differences observed wholly to this circumstance. Many other circumstances must tend to the production of the result—the weight, the form of the mould-board, or the position and dimensions of the cutting parts of the implement, would, probably, any of them, be far more influential than the presence or absence merely of the wheel. The only method of determining the influence of this cause by itself on the draught of the plough is by employing but one implement sometimes as a swing plough and sometimes with the addition of a wheel.

Mr. HANDLEY's trials, as reported in the 1st vol. of the "English Agricultural Society's Journal," were on four different ploughs, and hence their results, though they have been confirmed by subsequent trials, cannot be considered as conclusive on the less draught due to the support of the plough-beam by a wheel, for they *may* have been owing to the other circumstances on which also the draught depends. They indicated an advantage from the use of the wheel of about 15 per cent. on the draught of the swing ploughs. In Mr. PUSEY's experiments, to which we have so often alluded, a difference even greater was exhibited, and in a more unexceptionable manner. The F. F. plough of Messrs. RANSOME required a force of 18 stones to draw it when used as a swing-plough, and a diminution in the draught of 4 stones, or 22 per cent., was effected by the addition of the two wheels belonging to it as a support to its beam; this was in a free working soil, the furrow being 5 inches deep, by 9 inches wide; in heavier land, and when working at a greater depth, the difference in draught in the two cases was imperceptible.

The following figures exhibit the evidence brought out by our recording dynamometer on this subject, when the ploughs were tried on a hard sandy soil in one-year-old Clover:—

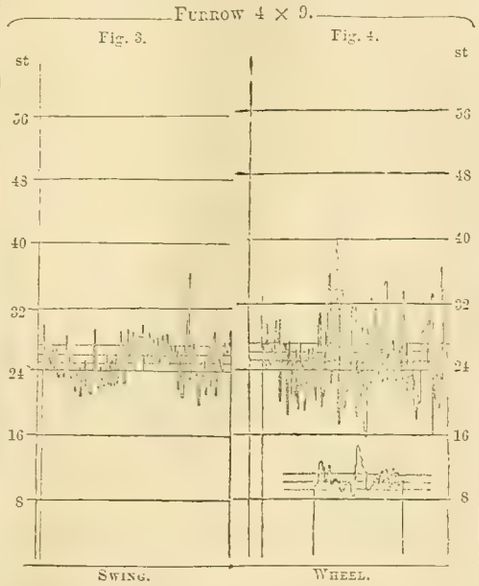
FERGUSON'S PLOUGH.

FURROW 2 × 8.



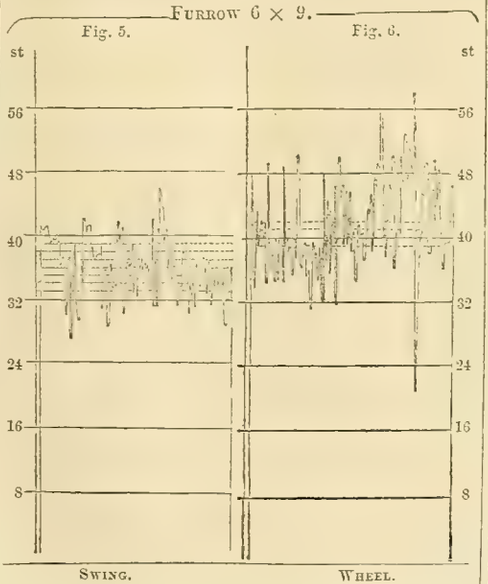
BARRETT AND EXALL'S.

FURROW 4 × 9.



BARRETT AND EXALL'S.

FURROW 6 × 9.



Between figures 1 and 2 there appears a difference of about 4½ stones on a total of 28, in favour of the plough with the wheel added to it: between figures 3 and 4 there is hardly any appreciable difference, excepting the somewhat singular one of greater *evenness* of draught on the part of the *swing* plough: between figures 5 and 6 there appears a considerable difference in favour of the plough when at work without its wheel; but this is in all probability owing to the circumstance, that when the Dynamometer recorded figure 5, the plough was at work, not in a furrow opened by itself, but in one opened by another plough—FERGUSON's, which has a wider mould-board; to this, we think, must be attributed the easier draught which that figure exhibits.

Upon the whole these figures do not give the attachment of a wheel to the plough credit for much influence on its draught one way or another; and we do not think the selection of a plough ought to be made dependant in any great degree upon its possession or non-possession of wheels; certainly the advantages, or disadvantages, arising from this circumstance, are not such as to justify any one in incurring the loss and inconvenience arising from a change of his stock of ploughs, where any particular form of the implement has been already adopted.

ON THE ATMOSPHERE OF STABLES.

[TAKEN FROM THE "AYRSHIRE AGRICULTURIST."]

THE frequent and violent exertions which man requires of the horse, renders it a matter of the highest importance that the animal's physical condition be as perfect as skill and attention can secure; and as there are no organs of this noble animal so severely taxed, during the performance of either fast or heavy work, as the organs of respiration, it is obvious that too much attention cannot be given to all circumstances which tend to secure perfection in the condition of that delicate apparatus which plays so prominent a part. A pure and uncontaminated atmosphere, in all respects suited to the process of respiration, is therefore a *sine qua non;* one cannot help, for these reasons, expressing surprise at the almost universal inattention to stable ventilation, which so lamentably prevails in even many of our first-class establishments. But there is no circumstance connected with domestic life that appears to me more extraordinary than the almost universal want of attention to scientific arrangements in the construction of modern buildings of every description, both public and private, from the largest theatre, or assembly hall, down to the cottage of the most humble peasant. It is not, therefore, wonderful that gross errors may be discovered in the tenements devoted to the accommodation of our domestic animals. That these occur to a much greater extent than many intelligent persons are aware of, I shall presently show. I hope I may confidently presume that most educated persons are aware that air once breathed by an animal is, by the simple process of respiration, converted into a deadly poison, and, therefore, should be instantly removed from its presence, and replaced by a proper supply of a pure and wholesome air. It is well known that the oxygen of the air is absorbed, and carbonic acid gas is thrown out at each expiration—a gas which neither supports life nor combustion: of the truth of this the unhappy fate of the unfortunate sufferers in the Black Hole of Calcutta but too painfully demonstrates. I could cite, were it necessary, numerous familiar illustrations of this subject, but I have no doubt the following sample will serve to inform such of your readers as may not hitherto have given especial consideration to theories of respiration, and who are, therefore, unaware of the importance which attaches to the subject.

All have heard of the fatal accidents that frequently occur in breweries, from persons incautiously descending vats while these are surcharged with the products of fermentation. It is the carbonic acid gas which kills the individual in this case; and who is not aware of the danger of descending close, deep wells, where foul air has accumulated, and rendered the atmosphere obnoxious to human beings? Again, carbonic acid gas proves to be the baneful agent: few, perhaps, are cognizant of the fact, that if a bird be suspended from the roof of a closely-encompassed bed, the creature is speedily put to death—it is poisoned by exposure to the carbonic acid gas—the natural product of the respiration of the persons occupying the bed! Although this gas is naturally heavier than common atmospheric air, it nevertheless, when heated by the process of respiration, becomes much lighter, ascends, and occupies the space nearest the roof of the chamber where it may have been produced; so that persons near the floor, having a plentiful supply of cold air, may suffer no inconvenience, although they, most assuredly, by each act of expiration, are slowly and silently contributing to the destruction of the ill-fated victim in the cage. But the products of respiration, poisonous although they be, are the result of vital phenomena, and, therefore, cannot be dispensed with nor prevented: but the grand source of vitiation to which I am desirous to direct attention, is both removeable and preventable, because it is dependant on the ammoniacal gas which is disengaged from the decomposing urine that is absorbed by the porous floors of stables. Now let me shortly describe the condition of stable-floors as these are usually (I may say invariably) constructed—and suppose we take a stall in the Piershill Barracks as our text: nothing could be more unscientific than the arrangements which are here everywhere to be observed. All that seems to have been aimed at is merely to secure a hard and resisting footing for the animals, and that this may be effected at the cheapest rate, the following mode of procedure is practised:—Boulders, or irregular blocks of stone, are placed in a bed of sand, or small gravel (I beg especial attention to this circumstance), and it is believed that when these are made to present a fair surface that the "job" has been creditably executed; but what are the facts? They are simply these: When the liquid manure of horses is dropped on such a floor as that which I have described, they rapidly percolate between the interstices of the irre-

gular stones—decomposition immediately ensues—and deleterious gases are abundantly disengaged. I would, therefore, beg to press upon the attention of all whom it may concern, that the principle of rendering stable-floors impervious to moisture should never be lost sight of: without attention to this desideratum the most ingenious schemes for ventilation must be stultified! So rapidly do the component parts of urine assume the gaseous form, that it has surprised many to find, on examining an imperfect floor, that percolation has extended to so small a depth, but the true explanation of this circumstance, no doubt is, that the recently-dropped urine comes in contact with materials in a high state of chemical action, which, like yeast to the wort, immediately induces a similar condition in the atoms of the recent materials, ammoniacal gas is formed, which ascends and pervades the entire apartment. The irritating ammoniacal gas I have frequently found, on going into a stable in the morning, so concentrated that I could not breathe without coughing, and my eyes lachrymated as if a newly-cut Onion had been hanging under my nose. Now, the products of respiration contributed but in an inferior degree to this state of vitiation. I repeat again that it is impossible to preserve the purity of the atmosphere of a stable, while its floor continues pervious to moisture. I, therefore, cannot too strongly urge this fact upon the attention of every one who may find his stables in an objectionable and unwholesome condition; and it will be satisfactory to know that the means by which the desired improvement may be effected involves neither difficulty nor expense.

Let the centre of the causewayed stall be removed 2 feet in breadth, and 5 feet in length, measuring from the croup end of the stall. Flags of sandstone pavement, of 1 foot in breadth, 3 inches thick, and of convenient length, having the inner or central edges bevelled to such an angle as that when the two are brought together there will be a space or central gutter formed like an inverted V, 1½ inch in breadth at the surface, and 2 inches deep at the apex of the inverted cone, which space must be filled with cement or pitch—a slight downward and backward inclination must be given to the paving-stones, so that whatever liquid may be dropped upon them, shall be rapidly conducted towards the hind quarters, and from thence conveyed on the surface to the point in the exterior found most convenient for a tank, or reservoir, where it may be stored till required as manure. I find the making such an arrangement as I have shortly described would cost for materials about 10*s.* per stall—10 feet for each stall, and 10 feet for that part of the floor immediately behind the animal opposite his stall. A most superior article I know could be furnished by Messrs. J. Paton and Sons, of Ayr. The excellent quality of their sandstone, and the great advantages their ingenious and powerful stone-cutting machinery gives to their establishment a peculiar claim to preferment.

I shall conclude this perhaps already too extended communication, by assuring gentlemen who may adopt such structural arrangements as I have proposed, that they will have no reason to regret their conduct; as to the pecuniary outlay which these improvements would require, you'll

"Let me whisper in their lug,
That's ablins nae vexation;"

because all that is to be done is to give their noble animals (whose faithful servitude deserve so well at their hands) credit for one year, as the following statement will clearly demonstrate. A horse voids more than 3 lbs. of urine daily, or say—1100 lbs. per annum=21 lbs. ammonia=180 lbs. guano, 10*s.* So that he pays like a gentleman for the enjoyment of an unvitiated atmosphere.

In a future communication I will endeavour to give a popular description of the theory of ventilation, and the contrivances by which fresh air may be supplied to stables, and modes by which it should be removed when it becomes vitiated from natural causes. The necessity there is for rendering stable-floors impervious to urine appears to me so obvious, that I flatter myself no sensible man who may chance to cast his eye over this hurried and imperfect paper will hesitate for a moment in adopting some plan, which shall have the effect of rendering his stable-floors impermeable to liquids. Until this is effected, it is idle to talk about any ventilating scheme whatever; therefore, I say—Reform your Stable Floors!!!—*W. Dyce Guthrie*, 1, *Lothian-road, Edinburgh, 9th June*, 1845.

P.S.—It will afford me great pleasure to communicate with parties who may desire more minute information on this most important, and, I think, highly interesting subject.—*W. G. D.*

ON DISSOLVED BONES.

YOUR correspondents "W. E. W." and "D." make a fierce onslaught on the merits of the discovery of dissolved bones. One doubts and the other denies the truth of the advantages claimed for the practice.

"W. E. W." recommends caution in practice, because he doubts the theory of dissolved bones and the evidence which supports it. Now I beg to remind him that doubts are imponderable, and that it is impossible to outweigh a single grain of fact, or to disprove the weakest argument by such means. There are few who will give currency to doubts as to the truth of Liebig's theory, supported as it is by Johnstone, Playfair, &c., because "W. E. W." asserts that "to suppose that the acid effects anything by dissolving the bone is far-fetched and unworthy of credit." Your correspondent certainly gives the public credit for an extraordinary pliability of faith when he supposes that they will agree with him that sulphuric acid may act "on some soils in converting lime and magnesia in them from carbonates to sulphates, and in assisting in dissolving many material constituents of some soils," and yet will denounce Liebig as "unworthy of credit" when he asserts that which is equally clear—that sulphuric acid will dissolve the material constituents of bone, and convert the phosphate of lime into a sulphate or a biphosphate, and thus render the phosphoric acid which plants require more accessible and more useful.

"W. E. W." also doubts the evidence upon which the case is based; and in support of it ventures an argument. "Mr. M'William's experiments," says he, "are evidently unfair. The 20 bushels of bones are drilled, while those with sulphuric acid are placed in the furrows." "In Mr. Hannam's, 16 bushels of bones were drilled with the seed; in all the other cases of the solutions they are carefully ridged. Here, evidently, there is no comparison calculated to meet the question." "The Duke of Richmond's experiments," he continues, "do not give the information, and that 'most probably' one portion was sown and the other in the ridge, and that also Mr. Geddes' experiment does not mention how the application was made, but most probably it was made in the same manner and is worth as much."

This is a most amusing method of settling evidence. Because Mr. M'William and Mr. Hannam are in error, the Duke of Richmond and Mr. Geddes are very likely the same, and consequently all the other experimenters must be so! This is the sort of induction which is to convince us, and set aside the mass of facts which have been alluded to in previous Papers.

What have probabilities and possibilities to do with circumstances where proof positive can be obtained? Moreover, these same parties whose trials are questioned, have made several other trials. Two distinct committees of the Morayshire Club have examined Mr. M'William. Are the errors in one trial to disqualify the testimony of the other! Decidedly not. Grant that "W. E. W's" objections to these particular cases are well founded, the other evidence, which is unquestioned, is sufficiently strong to bear out all that has been said. But there is no occasion to assume that the trials which "W. E. W." does not question are erroneous, when those that he does question can be proved to be correct. By referring to vol. iv., p. 165, "Royal Journal of Agriculture," "W. E. W." will find that the whole of Mr. M'William's applications were made in drills or ridges, under perfectly similar circumstances; and similarly, p. 167, that Mr. Geddes' trials were made in drills at 28 inches wide.

The same mis-statement is made in Mr. Hannam's case, in whose trial the whole of the plot was ridged, and the manures put in the ridge, the liquid by hand, and the bones by a drill. Vide "Transactions Highland Society," March 1844. The same remarks apply to the Duke of Richmond's trial, in which all the mixtures were applied in drills 27 inches apart. ("Journal Royal Agricultural Society," vol. v. p. 2).

So much, then, for the facts upon which our friend's doubts are based. Not one of his assertions are borne out; and I can only account for his unfortunate position by the assumption that he has never seen the original reports of the various experiments. Perhaps I am not far wrong in guessing that the only document which he has consulted is Mr. Hannam's paper on "the action and application" of the manure, in which a mere summary of the results of the various experiments in given.

Your correspondent "D." is one, as he says, "who calculates as he goes," and of course he will not state anything he has not thoroughly examined the truth of. He objects not to the theory or the evidence but to the practical value of the application. He is astonished, indeed indignant, that people can see anything in such a discovery, and only takes up his pen to prevent the mischief that must accrue, unless he "puts it down." I am afraid, however, that "D." mistakes his proper forte; for in spite of his calculating qualities he builds his argument on but one fact (?) and that near akin to fiction.

"D.'s" statement is that the cost and labour of the preparation swallow up the saving; and in order to justify this conclusion, he magnifies the cost and trouble; converts a common compost-couch and shovel—or at the most, if the liquid form be preferred, the ordinary liquid tank and water-cart—into a costly apparatus which must be specially provided; and at the same time reduces the saving to a size that it can be very easily swallowed. Thus "D." makes no mention of the indirect advantages which arise from the action of the manure, in combination with others, as an agent in promoting early growth, and a means of overcoming the attacks of enemies, or the unfavourable circumstances of soil or season. "The experiment," says he, "has resulted in this: that 1 quarter of bones in its weight of sulphuric acid, and 1 ton of water is equal for the Turnip crop to 2 quarters used dry," and consequently he is astonished that such a result should for a moment be considered important. What, however, is the worth of "D.'s" opinion when it is based upon a false premise: and such is his statement of the result. It is inaccurate both by omission and perversion of facts. By omission, because he takes no account of any result except that of a saving in quantity of the bones, when several beneficial effects have been developed; and by perversion, because, instead of 1 quarter of bones, and its weight (24 stone) of acid being necessary, the experiments have proved that 4 bushels of bones, in ⅔ or even ¾ the same weight of acid, are superior to 2 quarters used dry. The extent of this mis-statement will be seen when it is considered that, according to "D.," 24 st. of bones and 24 st. of acid are required, when 12 st. of bones and 4, or, at most, 6 st. of acid per acre, is what the experiments prove to be the proper quantities. In fact, by this error, "D." doubles the quantity of bones, and quadruples the weight of acid; and, in the same ratio, of course he increases the cost of the application, and diminishes the saving effected. This, however, was his object; and "D." calculates very poorly when he imagines that bold assertion will pass current for argument. There are some, however, who are apt to assert boldly, and to leave the event to circumstances—trusting that their statements may pass current, at least for a time. This spirit is not calculated to promote truth. Inquiry is what the advocates of the theory have asked for, and what the subject deserves; and we have no right either to doubt a theory without we have arguments to urge against it, or to deny it on false data. Until, therefore, "W. E. W." is prepared to do something more than doubt, on imaginary grounds, the evidence which has been adduced, he will not make many converts; nor will "D." make the world believe that he alone can distinguish between error and truth, until he makes his own assertions coincide more with fact.—*Scrutator.*

ARTIFICIAL MANURES.

Phosphate of Lime.—This salt, composed of 48.32 parts of phosphoric acid and 51.68 lime, is one of the constituents (as we have seen before) of bones, marl, ashes, &c., and is used in these substances as a manure for meadows and fields. It may be on this account that minerals, composed nearly entirely of phosphate of lime, like apatite, &c., can be used to advantage as manures. Several experiments, which I made on a small scale, were so successful as to confirm me in my opinion on this subject. That fossil bones could be well used as a manure, is also scarcely to be doubted.

Soda (Carbonate of Soda.)—This salt, consisting of 58.7 parts of soda and 41.3 of carbonic acid, is made from the ashes of the so-called salt plants growing on the sea-shore, but there are also contrivances for preparing it from common salt. No pure salt is needed for manure, and the ashes of the above plants (very rich in carbonate of soda) may be at once applied to the ground, and, by so doing, the soil will be supplied with some other nutritious substances, so that the result will be the greater. In manuring the soil with soda or the ashes of salt plants, much humate of soda will be formed in the soil, which (as has been already seen) is a very powerful manure. But, as the salt is very soluble in water, no more than 60 to 70 lbs. are to be used per acre, and if the soil be deficient in humus, still less; as, on account of the corroding nature of the carbonate of soda, some of it must be at once entirely converted into humate of soda, or it will be hurtful to the plants. If, therefore, the ashes of salt plants be used for manure, even of this only so much is to be taken, that the soil will not obtain thereby more than 60 to 70 lbs. of the salt.

But as even smaller quantities will produce a very good effect, it will be better to use at one time but a small quantity, and to repeat the dose. The carbonate of soda has the property of easily solving silica, on which account it might be also useful to the Cerealia, which require such a large quantity of that earth. It operates always least on those soils which are rich in silica and common salt, because in these substances the plants have already obtained the necessary amount of soda. It is scarcely necessary to be observed, that it will advance vegetation (like the carbonate of potash of wood-ashes) by the decomposition of the coal of humus and the vegetable matters in the soil. Soda is not dear, but additional experiments are yet wanted to tell us whether it can be used to advantage on a large scale. I have found, from experience, that it particularly furthers the growth of Buckwheat.

Potash (Carbonate of Potash).—The above salt, composed of 31.8 parts of carbonic acid and 68.2 potash, is, as we know, a constituent part of wood-ashes. It is to potash that most sorts of ashes owe their manuring properties; and as it can easily be bought everywhere, whilst ashes may not be at hand, it might be advisable to improve soils deficient in potash with the former instead of the latter. That it is really a superior manure, many experiments have fully proved. It acts, however, best on soils abundant in humus, as it here decomposes the coal of humus and the vegetable matters, and combines with the humic acid into a substance exceedingly useful to plants, viz., the humate of potash. Nay, if it is not to be hurtful to vegetation, it must have combined into that salt, as by itself it is of a rather corrosive nature. This process of combination, however (as with carbonate of soda), will take place in the summer season, already in a few days. If, on the other hand, a soil contains but little humus, it is clear that at one time but little potash can be employed. On soils abundant in humus, I have used 60 to 70 lbs. of potash per acre, and always found the result most beneficial. Potash, like soda, is always used as a top-dressing, as it will then be dissolved by the rain-water, and permeate the furrow-slice, thus coming best in contact with the humic parts of the soil. Both, however, may as well be added to the urine, or dungheap, and be brought in that state on the field.

Carbonate of Ammonia.—Solid carbonate of ammonia, composed of 54.5 parts of carbonic acid, 30.5 parts of ammonia, and 15.0 of water, is (as we have seen before)

one of the most essential constituents of putrescent animal excrements and offal. There is, at times, an opportunity to use the salt by itself as a manure, as it is to be had very cheap at places where coals are subjected to dry distillation. The carbonate of ammonia thus formed, is certainly not pure, which, however, does not matter, as the admixtures are such as possess also manuring properties. On account of its quick evaporation, it is always to be used in a solution in water, as it then penetrates at once into the soil, and is fixed by the humic acid. The more humic acid, therefore, the soil contains, the less loss is to be apprehended. I have used it on several sorts of soils with the most striking effect, and have found that 60 lbs. employed on one acre of heath land acted yet, after the lapse of two years. It is of the greatest use for the Cerealia and Buckwheat.—*Sprengel.*

SULPHURIC ACID AND BONES FOR TURNIPS.

By R. W. Purchas. 1844.

	T.	c.	lbs.
Field, No. 1.—*Soil*, sandy loam upon old red sandstone, so completely worn out by the late tenant, that a part without any manure lying between the acre with acid and bones, and the acre with dung, produced only per acre . . .	0	5	20
One acre manured with 160 bushels of turf-ashes wetted with water . .	8	14	32
One acre manured with 160 bushels of turf-ashes, 2 bushels fine bone-dust, and 30 lbs. brown acid (oil of vitriol), costing 12*s.*, the bones and acid dissolved and treated as below	14	5	68
One acre manured with 20 yards of dung This field was limed with 108 bushels per acre in 1842.	14	11	48
Field, No. 2.—*Soil*, stone-brash, upon old red sandstone, limed 1841.			
One acre manured with 15 bushels of coal-ashes, and 15 of charcoal-dust, drilled in with the seed	4	8	64
One acre with 80 lbs. of brown acid and 2 bushels of fine bone-dust dissolved, mixed with 500 gallons of water, and sprinkled with a water-cart over the land before ridging up, and 15 bushels of coal-ashes and 15 of charcoal-dust drilled in with the seed . .	12	11	48

The Swedes (Skirving's) were planted on the ridge the first and second weeks in July, at 24 inches, the plants thinned to 9 inches, horse and hand hoed three times. Pulled, topped, tailed, and weighed, January 14th, 1845.

I had the brown sulphuric acid, strength 1·750 at 0¾*d.* per lb. from Mr. James Gibbs, Bristol, and the fine bone-dust of excellent quality, from Messrs. H. and T. Proctor, Bristol, at 26*s.* per quarter. The acid and bones for field No. 1 were treated as follows: *For* 1 *acre*, an empty hogshead of about 100 gallons, with one head out, was used; 2 bushels (or 16 gallons) of bone-dust was put into the cask or tub, then 80 lbs. (or about 4½ gallons) of acid, the mass being well stirred, to this was added 24 gallons of boiling water, the mixture being well stirred the whole time the water was being put in to keep down the violent ebullition that ensued; in a few minutes the bone-dust was perfectly dissolved, and fit for use; the mixture was then taken in the tub to the field, put by the heap of turf-ashes, which being very dry about 500 gallons of water was gradually added to the mixture, and thrown over the ashes, which being well mixed was then put into carts and distributed with a shovel into the drills, the ground ridged up and immediately sown. I put in about three acres per day, using three old hogsheads or tubs (worth about 5*s.* each) and when taken to the field two lots were put together, the empty tub being used to mix the proper quantity of water before throwing over the ashes. A neighbouring farmer had one carboy of acid last year; he used dried mud from a horse-pond to mix with the acid and bones, and is so satisfied with the result that he has ordered 10 carboys of acid this year. My friend says the acid and bones beat every other manure (guano, dung, &c), and is the cheapest and best of all manures for growing Turnips. The soil, a poor sand, was limed with 108 bushels per acre, immediately before the mixture was put on. I am convinced that without lime in the soil, acid and bones will not act. This I witnessed in a neighbour's field last year. The field, six years ago, was part of a common; it was then broken up, and part limed the following year. Last year the whole field was planted with Turnips, using 2 bushels bone-dust, and 80 lbs. acid per acre, put on as my field, No. 2; the result was, the part limed produced a good crop for the season, beating 15 loads of dung; but the Turnips on the part not limed, although coming up well, very soon died away, and in less than a month not a single plant was to be seen.

In the Field No. 2, the acid and bones were treated as No. 1; when taken to the field a water-cask holding 250 gallons of water (twice filled), was used with half the quantity of the mixture, and sprinkled over the land before ridging up; the ashes were then drilled in with the seed.

His Grace the Duke of Richmond's plan of running the mixture and water along the drills (after ridging) is a much better plan than the above, and which for the future I shall adopt when using the mixture in a liquid state.

I intend this year to put 4 bushels bone-dust and 120 lbs. acid per acre over the whole of my Turnip-land, about 50 acres (with and without other manures), observing that where the water-cask went twice over the same ground last year, there was treble the weight of Turnips.

In every trial of acid and bones the Turnips came into rough leaf a week before those planted the same day with other manures. I find the lighter or shallower Turnip-seed (indeed, all small seed) is put into the ground the better. If the seed is just covered with soil it is sufficient.—*Pilstone, near Chepstow, May* 21, 1845.

Home Correspondence.

Mr. Lawes' Experiments. — Your correspondent "G.," who states that through the whole of my experiments he does not see that I have once applied potass, soda, lime, magnesia, or phosphoric acid, must have read them over the bowl of punch to which he calls my attention. If he will refer to No. 18, he will find all the inorganic substances contained in the ash, or the Turnip, with the exception of some chlorides, in which I know my soil is not deficient. I consider that no soil can be called a good Turnip soil in which a very large development of leaf is required to produce a large bulb; as, in this case, a much larger proportion of manure is required to produce an equal weight of Turnip, and the Turnip has not the same facility of employing its roots to absorb carbon and nitrogen from the atmosphere. I consider the decrease in product, in my second year's crop, due to the want of organic matter, and not to any deficiency in mineral matter. A repetition of these experiments will show how far my supposition is correct. In a fine Turnip soil the roots perform, in a great measure, the function of the leaf; and the phosphates and alkalies, which, in a heavy soil, are consumed in forming leaf, in a light soil are employed in producing bulb. The importance of bringing the land to a fine tilth for the Turnip crop cannot be too much insisted on, as the amount of organic matter which the Turnip assimilates from the atmosphere depends upon the free access of air to the roots. I have noticed that land near a dung-heap, which had been rendered heavy by the passage of horses and carts, although saturated with the draining of the dung, produced a very small bulb, although the development of leaf was enormous; and, in the light soils of Norfolk, Turnips, weighing many pounds, are grown, the leaf of which does not weigh as many ounces. Liebig, in the first series of his "Letters," page 174, says, "that the fields of Great Britain are in a state of progressive exhaustion, by the removal of phosphates, as is proved by the rapid extension of the cultivation of Turnips—plants which contain the least amount of phosphates;" and, in the third edition of his "Chemistry applied to Agriculture," page 213, he says, "that the supply of ammonia to most of our cultivated plants is unnecessary, if only the soil contain a sufficient supply of mineral food." In my experiments, 9½ tons of Turnip bulbs, with half their weight of leaf, contained 53 lbs. of phosphate of lime; double that weight, which would not be considered a large crop, would contain about 48 lbs. of phosphoric acid. A crop of Swedes, of this weight, would contain more. Thirty bushels of Wheat, when absolutely dry, weigh about 1590 lbs.; according to Boussingault, the grain of Wheat contains, of ash, 0.0243, of which 48 per cent. is phosphoric acid; 1590 lbs. would contain 18¼ lbs. Allowing twice the weight of straw to grain, 3600 lbs. of straw, dried in *vacuo*, would weigh 2664 lbs.; according to Boussingault, one of dry straw, leaves 0.0697 of ash, containing 3.2 per cent. of phosphoric acid; 2664 lbs. would contain about 6 lbs. of phosphoric acid—making 24¼ lbs. of phosphoric acid removed by a crop of Wheat. The difference between 24 and 45 is very great. The proportion of leaf to bulb varies so much on different soils, that it is impossible to give an average; but it appears that a crop of Turnips requires more phosphoric acid than a crop of Wheat. The quantity of phosphoric acid added to our soils in the manure, immediately before the Turnip crop, is generally greater than what is contained in the Turnip. If, therefore, the soils of England are becoming exhausted by the removal of phosphoric acid, how does the cultivation of green crops restore them to fertility? It is to the want of organic azotised matter in our soils that the increasing cultivation of Clover and Turnips is to be attributed. These plants, when supplied with sufficient mineral food, especially phosphoric acid, are capable of collecting from the atmosphere large quantities of carbon and nitrogen, and when consumed on the land a large amount of azotised matter is deposited to be taken up by the following grain crops. Phosphate of lime, whether contained in guano, bones, dung, or any other substance, can only be employed to produce grain crops through the medium of a green crop. When employed in the direct production of grain it must be accompanied by a substance containing a large amount of nitrogen. The proportion of nitrogen necessary to render all the phosphate available will vary, I believe, in the different grain crops, but in no case will it be less than two parts of nitrogen to one of phosphoric acid. We see by this how little the vast amount of phosphates that have been lately imported in the shape of guano can be made available for the direct production of corn. In Peruvian guano the proportion of ammonia to phosphoric acid is about 12 to 10; in Ichaboe guano it is not more than 5 to 14; in bone the proportion is 5 to 28. If a substance could be discovered and obtained at a low price as rich in nitrogen as guano is in phosphates, the immense quantities of phosphates which have been placed in our soil in the shape of bones, would be rendered directly available for the growth of corn. The principle of growing a crop of corn by the application of the inorganic substances contained in the ash is dependent upon the power possessed by the corn to obtain its own supply of nitrogen from the atmosphere. My own experiments upon Wheat satisfy me that it does not possess this power. Where the amount of azotised matter in the soil is great, inorganic substances may enable the Wheat to assimilate this, but this is a process of exhaustion which few soils can bear. It is remarkable that Liebig should be induced to alter the high opinion he had formed of the importance of ammonia in the economy of agriculture, after his visit to England to observe the system followed and the deficiencies in our soils. The only way to arrive at a correct knowledge of what a soil is in want of is by direct experiment continued through a series of years, and by an examination of both crops and manure. There is not a farmer in England who has not been informed by an agricultural chemist (a great number of whom now travel about the country), that a few pounds of phosphoric acid and a little potass will enable him to produce a good crop of corn. If he happens to have a turn for experimenting, and a little money in his pocket, he buys the necessary ingredients, and when his experiment has failed he will probably be told that the Wheat ash contains a millionth part of alumina or iron, and as this was not added the other ingredients were useless. The comparative value of different guano is no bad criterion of the importance of ammonia compared with phosphates—Peruvian guano contains, on an average, double the weight of ammonia contained in the Ichaboe, and half the quantity of phosphates. The high price of the Peruvian guano cannot be considered as caused by its being a monopoly, but merely because it is rich in nitrogen. Bones, which contain half the weight of phosphate of lime, do not command a higher price than Rape-cake, which contains so little; and the latter is considered the best manure for corn. I hope, before long, to place before the public some experiments which will, in some measure, confirm my opinions; in the meantime, I am led by my experiments to the following conclusions:—1. That the soils of England are in a progressive state of exhaustion from the loss of ammonia carried off in the grain. 2. That the extended culture of Clover and Turnips is due to the power they possess of collecting carbon and nitrogen from the atmosphere when supplied with phosphoric acid. 3. That phosphoric acid cannot be rendered available for the production of grain crops unless accompanied by ammonia.—*J. B. Lawes, Rothamsted.*

What causes a Plant to run to Seed?—I observe in your Paper of the 7th inst., that a third of the Cabbage-plants of one of your correspondents, which were put in in November, had gone to seed; and you ask if any one has a suggestion to make on the subject: I therefore enclose to you the Jamaica Royal Agricultural Society's Reporter, received by last packet, by which you will observe that the subject is receiving attention, both in the East and West Indies. If you, or any of your numerous correspondents, can give information as to the best mode of culture to prevent the flowering of plants, and what fertilisers may be applied with safety, so as not to encourage blossoming, you will confer a favour, not only on the Cabbage grower, the Turnip and Grass farmer, but also on your obedient servant, *William Stirling, Kenmure House, Glasgow.* [It appears that not only are farmers in *this country* injured by those plants running to seed, which are grown for their *bulk* or *substance* rather than their *produce*, but in tropical climates also, and among the cultivators of the sugar cane, the very same evil is complained of. The object of the West Indian Planter is, to obtain, and use, the bulk and substance of the plants they grow; and hence they, like ourselves, are injured by the exhaustion of the plant, in any effort which it makes to produce blossom and seed. A satisfactory answer to the question we have placed as heading to this paragraph, is thus of considerable importance.]

Fertilizers.—I will mention a singular instance of the fertilizing properties of gas or vapour, which accident enabled me to witnesss. This and other similar circumstances cause me to think, that many discoveries and inventions published as such, often owe their origin more to accident than to inductive reasoning. On a journey in the North of Portugal, I visited a large pottery, situated in an extensive plain, surrounded by high hills, and erected at the foot of one of them. The country through which I had passed was arid, and but partially cultivated. But on this plain vegetation was beautifully green and remarkably advanced. This led me to inquire of some labourers, who were weeding a rich field of Wheat, of such extraordinary growth as I have never seen before or since, the quality of the manure that was used to produce such strength and verdure; I supposed that irrigation had been employed, as is common in those countries, by means of a box on the end of a pole poised on a stake, acting as a lever to lift the water from a pool or stream. Their reply surprised me, as much as the forwardness and exuberance of the corn, "that only which falls from the heavens." Upon further inquiry, I was directed to observe the mounds of argillaceous earth, which had been extracted from a neighbouring hill, and which were encrusted with a thick exudation. Before using this clay, it was necessary to wash it well; the wash was afterwards evaporated, and the residuum was found to be strongly impregnated with nitre. Consequently, the gas or vapour from the ovens was greatly impregnated with this salt, which spreading and settling on the plain, served as the most powerful fertilizer than can be well imagined. Upon inspecting the oven and flues in which the ware made there had been baked, I observed the

sides covered—not with black soot, but a whitish film of strong pungent alkali. This alkali, I was told, if made into a salve, had proved a cure for the most inveterate opthalmia, and other disorders of the eyes, as well as being a most powerful styptic. I was likewise informed that the sweepings from the flues were collected to be mixed with stable manure and ordure, forming a rich compost, used in producing enormous Onions, and other garden produce. I recollect to have seen near Oporto, some common salt (*common* salt?) burnt in a chaffing-dish, during light rains, or in the evening when the dew was falling, in order that the vapour coming down with it, might act as a fertilizer. The effects appeared to be certainly surprising. The residuum (ashes) in chaffing-dish, thrown upon a dung heap, and mixed up with it, was said to produce a very fine manure. Could any of your ingenious correspondents try the latter experiment, and favour your readers with the results?—*D. S. E.. Lambeth.*

Thin Sowing of Grain.—Being fully convinced of the advantage of a thinner sowing of grain than has usually been the practice, and having had some slight experience in the efficacy of dibbling Wheat, I resolved to give this method of sowing a trial with particular care; and accordingly, in the latter end of October, I sowed one acre of ground with 1¼ peck of Spalding's Prolific Wheat, taking care that only one single grain was dropped into each hole (the holes being formed thus, • . • 9 inches • . •); scarcely a grain has missed coming up! The work was performed by two men and two women, occupying them four days; the men at 1*s.* 4*d.* per day, and the women at 8*d.* The result is most satisfactory; the plants have tillered out very fully, and the crop is equally good over every part, and completely covers the ground, and promises at the present time a much larger return than by the ordinary method of sowing. I consider the immense gain by this method of sowing so important, that I am desirous to make it known to the public through the medium of your Paper. I must also add that I have transplanted four plants (each plant from one seed), making nine single ones, and these are all doing well, and likely to produce fine ears of corn. Expense—1¼ peck of Wheat, 2*s.* 6*d.*; labour, 16*s.* Total, 18*s.* 6*d.*—*Samuel Hay, Cliffe Hall, Market Lavington, Devizes.*

Drainage.—The inclosed letter being from a practical farmer, addressed to Professor Johnston, and read by him at the Durham Monthly Agricultural Meeting, is deserving of particular notice; it shows the certain and immediate return for capital laid out, and advocates forcibly and sensibly the advantage of 3-feet drains, which I have always been in favour of, although it has hitherto been contrary to the opinion of most farmers, who prefer shallower cuttings. Another important point is, that the writer does not so much fear the importation of foreign corn free of duty, as the perfect cultivation of waste lands!!!—*Falcon.* "*Spylaw, 5th June,* 1845.—My landlords, the governors of George Watson's Hospital and the Merchant Maiden Hospital, of Edinburgh, defray the expense of cutting, amounting to from 36*s.* to 42*s.* per acre, while the remainder only of the charge—the drainage being performed altogether with tiles, upon soles—falls to my share, amounting, with filling it in by the plough, to from 45*s.* to 50*s.* per acre. My proportion however, I may state, is thus stated low, as the tiles are estimated at prime cost—being manufactured by myself—and no charge made in this price for the expense of the erection of the tile works. It will be noticed, also, that this work being on the farm, the expense of carriage of tiles is, to a great extent, saved. This explanation—when I have stated that the depth of the drains has been in every instance, when practicable, 3 feet from the bottom of the furrow—answers, I think, your second query; and I shall go on, therefore, to reply to the others in their order. 1st. I have now finished upwards of 550 acres in the manner above described, the total length of drains being 267,000 yards. 3d. As explained, my drainage costs less than in ordinary cases can be calculated upon, and I conceive I can, with all safety, trust to being remunerated for my share of the outlay by the two crops first following the operation, viz., Turnips and Barley, or Wheat; no doubt in many instances I derive more. But this depends so much upon the nature of the soil that a definite answer is not easily given. Upon obstinate clays, and land rendered sterile by noxious elements generated by an impervious subsoil, the advantage of thorough draining is, I conceive, to more than double the value. Thus, such land in many instances rented at 10*s.* per acre, would be better worth cultivating, subsequent to such an operation effectually made, at 20*s.* or even 25*s.* per acre. 4th. The nature of the soil on this farm varies very much, but in general it is what is popularly described as a free loam upon an indurated subsoil, in many parts altogether clay, but generally exhibiting, at frequent intervals, a free mixture of sand, which being porous, renders the drainage less difficult, so that, in almost every instance, I have found the comparatively wide distance apart of 28 feet effect a most perfect purpose. This, however, is no doubt in part owing to the great depth. The average rent is 24*s.* per acre; average distance from markets, if by this is meant expense of carriage of produce, I cannot call more than six miles. But as much of our Barley especially, ultimately finds its way to Edinburgh, where, and in the Lothians generally, the prices upon an average are from 3*s.* to 4*s.* per qr. higher for the same quality (and the same may be said of Wheat and Oats in proportion), the difference of value of produce in the two districts cannot be estimated at less, in ordinary seasons, than 16*s.* to 18*s.* per acre, of the land under crop in each year. 5th. As to my confidence in being able to meet a free-trade in corn—it is not easy to say what would be the full effect upon prices of a total abolition of the Corn-laws, and there are other considerations, besides mere price, which ought to have influence with the farmer,—cheapness incident upon a full foreign supply of grain, being a different thing from cheapness as derived from the employment of additional labour and exertion at home. I therefore do not feel quite prepared to answer this question in all its bearings, but were the matter of additional supply the only element to effect price, I must say, individually—having nearly completed my improvements, I would prefer an open trade with the Continent, and the concomitant, as I should expect, of an arrest of ameliorations at home, to a full and perfect cultivation of the extensive breadths of neglected land in England; as the foreign supply I conceive would prove more scanty ultimately, and less elastic to our growing necessities than what we should derive from a free application of science and the modern principles of practical agriculture to our own soils.—*John Dudgeon.*"

Poultry.—Let that part of the fowls'-house not under the perch be fitted up with laying boxes; and let the place be swept and dusted every day. Once a week will be often enough to have the sweepings taken out; dusting improves the sweepings and the manure; and sweeping improves the manure, and keeps the hens' feet, and therefore the eggs, clean. Set, where there is a choice, the worst layers, and the most determined, least freakish, and quietest setters, on fewer eggs in winter than in summer. Set no hens during June and July, and, perhaps, the latter end of May: Aug. 1st, begin again setting, on not too many eggs, and go on till Sept., and the chickens then hatched will be the best to kill during December, April, or even May, and, if not hatched too late, are strong before winter. Mind I am not speaking to salesmen, but to persons who wish to have good poultry on their own table all the year round, and at the least cost. To such I say, don't set hens again till February at soonest, but two or three hens should be setting by March 1st, on not more than 11 of their own eggs, or eggs of the same size; keep up a succession now till May 15th. When the weather is warm a hen may hatch 17, I had one this year, but few hens will cover above 13 safely. Set the freshest eggs, net the hen in securely, and take her off once a day, covering up the eggs with hay, or, when very cold, with flannel or wool. She may be off as long as the eggs are lukewarm. Some would put them at once into a feeding-room with ashes, but I prefer letting them out free, food being set for them in the setting-house; they will soon return, or must be driven in, and then may be shut in and replaced on their eggs. Netting them in gives trouble but is very secure. But to succeed, poultry, like every other kind of stock, requires to be looked to morning and evening. The attendant in the morning is occupied, say half-an-hour, feeds all the stock, brushes and sands the house, takes off the setting hens, covering up the eggs, and when he puts them on again tucks them well up, and supplies the tank with fresh water. In the evening he collects the eggs, and occasionally counts the hens out, removing setters not wanted to short commons and plenty of water in prison; this soon brings them to a sense of their duties. Broods should when in-doors, *i. e.* in coops, be on a dry bottom; during winter more in-doors than in summer. The hen should be let out as soon as the chickens stray a few yards from her; a weak chicken may be lost, but the strong ones are not caught by cats or strayed. If possible there should be two houses, one for broods, &c., with an inclosed yard; here food should be always at hand; hither let everything be put that is to be fatted and killed. The house for broods and fatters should have shelves about 5 inches broad for the birds to roost on; thus bent breast-bones are avoided. As soon as a hen leaves her chickens she goes into the other yard, and they must go into the nursery-house if not previously there. Then must great care be taken that if a hen be shut up, she has no self-adopted chickens; or if two hens be under one cover, there must be the readiest means of escape for either and her chickens. As to stock, breeding-in makes the eggs barren; I believe I have two cases which seem to prove it. Therefore every year procure a set of eggs of the most appoved sort for cocks, and set them about April 1st, so as to have no check all the warm weather. Different sorts have different characteristics, but I prefer a variety of colour but similarity of shape, medium-sized, neat, regular-marked, small, clean-headed, short-legged, sound-bodied, partridge-shaped, and then the greater variety of colour the better, unless they be perfectly uniform, but one or the other, and no mongrels with white wings to black feathers. Black are delicate to rear, and greys and reds give all varieties. As to stocking, say you have 30 hens: hens begin to cease laying much after June is well in; therefore, June 1st, begin killing off the worst, which are either the oldest or the worst sort, or the worst for laying, and not very good mothers, and have killed by August 1st from 10 to 15 hens, not less and not more, fill up the number with the most promising pullets, and, *cæteris paribus*, two pullets of the first spring hatch, will lay more eggs their first year than three of a late one I believe, and they certainly lay many more eggs when they are dear, *i. e.* before and at Christmas time. Some hens and sorts are better layers, some better fatters, therefore it may be worth while to pick your eggs, setting your good layers' eggs for the first broods. As to cocks, leave your brood of them till about Christmas, and then select the two best. I suppose you now to have two older ones; unless very valuable kill the older ones when you leave off setting, that is in May, every year. Thus you would have four cocks at least to 30 hens during the winter and spring quarters, and two cocks to about 15 or 20 hens during the rest of the year; for this stock you ought to have not less than 6 yards of perching, and a dozen nests, with a box for receiving the eggs, &c.; thus, a shed 2 [?] yards square would be required for the laying or old stock, with door in the middle, and the perches on one side, the boxes on the other. Hens well kept will lay most during March, April, and May. This, then, is the time to preserve eggs. The following is a very good plan:—Rub eggs with common varnish with a cloth or your hands, set them to dry on paper; when nearly so, give them a roll, and taught by Achilles' fate, retouch the part that was on the paper; get some sand, dry it in an oven or in the sun; get a box, put in a layer of sand; then set the dry eggs on the small ends, quite upright, fill in and cover with sand, and then another layer, and so on. This plan was devised by a brother of mine, who tried a great many ways; eggs thus kept for 11 months broke like fresh ones. As to food, let those that are to be killed have as much as they please, and what they please abroad; and if you have no yard for them apart let all be on full diet from middle of May to October, when the laying hens bear a small proportion to the rest; after and before that the smaller ones must get food through openings too small for the old hens. But let them have their fill; and about a pint of good Barley will suffice the old stock for the week, given in the morning. One thing more: the nests breed and keep vermin; they must, therefore, be changed from time to time, and the boxes, twice in the year, well shaken or brushed. And now, sir, it's a fine long letter I have sent you, but for that very reason I have no time left to curtail it; you can, if you please. But I have inserted every practical hint I could think of, derived from personal attendance and experience; and, as I am also fond of the statistical part, I can inform you that last year the whole stock realised, as remuneration for time, 2*l.* 12*s.*, being about 1s. for every head of old stock. I find that my stock of 35 hens at strongest (from many old ones not better than 30), laid 2607 eggs last year, which is 50 eggs a-week; probably I lost some that were out-layed.—*M. V.*——I have read with much pleasure a long article from your Lambeth correspondent, on the management of domestic poultry. Under the third section of his paper he has strongly insisted on the necessity of a good supply of green food. In this recommendation I most cordially agree; in fact, I am convinced from long experience that to keep poultry in a healthy state in confined situations this rule must never be departed from. The reason assigned by your correspondent for the different action of vegetable matter upon the intestinal canal of birds, to that which it exercises on the mammalia, I cannot so readily coincide with; and here permit me to say that I think you may have omitted to insert a part of your correspondent's physiological deductions. The difference of action is not to be attributed so much to the different condition in which it is received into the alimentary canal, as to the distinctive anatomical characters of the organs of digestion and assimilation. In the one it is effected by a prolonged and continued action of attrition; in the other, it is accomplished partly by the solvent properties of the gastric fluid, and partly by a process of chemical decomposition. It would be difficult to explain the *modus operandi* of this solution, but the purgative action of vegetable matter upon the higher order of animals may be supposed to arise from its greater tendency to the process of acetous fermentation. In this, also, consists the difficulty of administering to the ailments to which poultry are subject in an artificial state of existence; for here our practice must of necessity be empirical, or the result of experimental investigation. We can only reason from analogy, and be guided by the experience of past times.—*J. L. I., Lambeth.*——In answer to the inquiry of "D. S. E., Lambeth," as to what is the best food for feeding fowls for the table, I find bread soaked in good milk and given lukewarm, three times a day, to be the best food, as it makes them sweet, and the flesh white. They should be kept in darkness, as they feed faster when quiet.—*V. R. C.*

Mildew on Thorns.—For the information of the "Irish Thorn grower," I give him my experience how to prevent mildew upon Thorns. I have used sulphur, &c., but to no effect; the following I have found very beneficial, if not quite effectual:—Sow the Thorns in the autumn, cover them with saw-dust, or old tan, mixed with coal ashes in place of the common mould, (unless the soil should be sandy), which prevents the soil binding when the seed is breaking the stone; then cover the beds with rotted dung; when the seed begins to germinate, rake off the dung into the paths. The Thorns that are headed out cover in the same way as the seed beds, taking care to shake the dung as much as possible to the roots of the plants. Before they begin to break, take off all long dung with a prong, such as can be "rowed" off, cover between the rows with long dung, and let that remain all the summer; in fact, anything that will stimulate the growth of the Thorn. To outgrow the mildew, in some soils, soot thrown over those affected, will assist them much.—*John Steel, Blandford.*

St. John's Day Rye.—Will it answer to sow later in the autumn? I sowed some common Rye with some winter Vetches last autumn from the 2d of September

at intervals, to the beginning of November, which I finished cutting on the 7th of June; they have kept 25 cows from the 16th of April, the Vetches producing next to nothing; the strongest and hardest of the Rye I used to cut as chaff for the horses. Will the St. John's Day Rye answer to sow as above? I cannot expect so good a crop from the late as the early sown; my lands will not be available for early cropping. Your correspondent "J. D. W. Downton" should not sow his Cabbage seed before the 24th of July, being satisfied the seed is saved from good Cabbages, transplanted for the purpose of seeding, and not suffered to run to seed, as I see too many are from the stock cutting.—*R. G., Brompton.*

Wireworm.—The following circumstance connected with this pest may possibly be turned to a good account. In February last I planted 3 gallons of early Cornish Kidney Potatoes in good soil, under a wall having a southern aspect; to my surprise, only one or two had made their appearance up to the middle of May, and by the 2d of June three or four more, without the smallest indication of any further vegetation over the whole border. On examining the rows, to my surprise, the remainder of the sets were found nearly filled with live wireworms, the Potatoes having the appearance of being drilled all through with an auger of the size of a quill. Now, does this not tend to show that by leaving a few refuse Turnips, Potatoes, Carrots, &c., in the fields in autumn, covered with soil, that these destructive insects may be destroyed in great numbers in the spring by stocking out the roots, and carrying them to a heap of quick-lime?—*Thomas France, Ham Hill, near Worcester.*

Cheap Manure for Turnips.—Allow me to draw the attention of such of your readers as are not conveniently circumstanced for obtaining artificial manures, to bran (the husk of Wheat), as a substitute especially for bones. It has been tried experimentally in comparison with bones, at a like cost per acre, and the part of the field so drilled proved superior to that part drilled with bones. It is recommended not to use more than 4 or 5 cwt., lest the fermentation engendered thereby should destroy the seed; this quantity, at its present value, 5*l.* per ton, would manure an acre of land at an expense of 20*s.* to 25*s.*; and as the bran could be obtained at any time from the nearest miller, its whole expense would be its first cost, a point of great consideration in many of the midland counties. We need not study the analysis, or seek the authority of Liebig, Sir H. Davy, Bossingault, or Solly, to show that theoretically it must be one of the best concentrated manures that we can command, on account of nine-tenths of it consisting of soluble salts and phosphates, so beneficially proportioned as to prove in the exact relation best conducive to the future growth of vegetables; because it has been often tried, and now only needs that such persons to whom it is a novel proposition should convince themselves by an experiment. The advantages are, we are certain of having the material unadulterated, that we need not send to South America for guano to be sold at 10*l.* per ton, if we have efficient manure at our own doors to be purchased at 5*l.* per ton, more especially as by taking the bran out of the market, it has the twofold benefit of producing greatly-increased crops, and indirectly by allowing us to obtain a better sale for the hay and Oats, which must be substituted for the bran so used. It would appear desirable that farmers reported the result of their experiments until the use of bran had become more general, because all of us are slow to believe that bones are so near akin in the constituent parts to bran.—*S. H.*

Poultry.—Feeling much interest in everything relating to the history and treatment of poultry, I read with pleasure the remarks of your correspondent, who signs "D. S. E., Lambeth," in your Number of May 31, and am anxious to learn from him or any of your correspondents the correct name of a variety or breed of fowls, which I have managed with much success for the past two years, under circumstances apparently not the most advantageous, as I happen to reside in this large and populous city, and am, therefore, limited in room, &c., being confined to an inclosure off my stable-yard of 20 feet by 6, and the fowls are not allowed the range of the stable-yard till after 2 or 3 o'clock daily. The inclosed space faces the south and is covered over with wire lattice-work at the height of 5 feet on an horizontal surface, which protects them from cats and all such mischief, and confines them at laying hours to their own inclosure, which has a small house at each extremity without a door. This I mention particularly for the guidance of such fanciers as myself, because the fowls are not confined, as they generally are, to a hen-house, till it suits the convenience of, perhaps, a lazy servant to let them out, on getting off his or her own bed. Now, to the breed. I obtained, about this time two years, four eggs of a remarkably large size (for hen eggs), averaging over 3 ozs. each, from a friend, who got his fowls from a correspondent in the wine-trade at Cadiz or Xeres, and from these I obtained a cock and two hens, which, certainly, are not of the old black Spanish breed, so well known for a long period, but now, in my opinion, degenerate. My fowls are very large and heavy, stand high (yet not from length of leg but depth of body as well), may be called silver spangled in colour, with muffs to the jaws only, not to the head as the Polish—on the head is a small comb, drooping to one side, with silver ears. When young they are very odd-looking and bare of feathers, being first covered with a soft down, which is slowly succeeded by feathers, during which process the bare skin of the backs is seen during a week or two. Some of last year's chickens are perfectly black and like the old Spanish breed, though there was no possibility of mixture of breeds; and this has happened in my friend's poultry-yard also, though we keep no other breed; nor do we intend to do so, as we find them superior to all others. They are equally good as layers and as table fowl—the young cocks of last year averaging 4 lbs. weight, three months old, and of very white flesh, though never crammed or forced in feeding. Some of the eggs of the 2-years-old hens weigh 4 ozs., wanting 2 drachms; and they may be called, with some propriety, "ever-laying," as they have never shown any disposition to hatch, which obliges us to procure common hens for that purpose. As it may be satisfactory to state how they are fed and treated, I shall do so as briefly as I can:—When my horses are fed in the morning, they get their share of white Oats; at 2 or 3 o'clock, when let out of their inclosure after laying, they get some screenings of Wheat, thus varying the grain, which I think of much importance, particularly as to flavour of the eggs; and in the evening, before retiring to roost, they get the boiled Potatoes and skins left after kitchen use. Their houses are regularly cleaned out twice a-week, perches, &c., scraped cleanly, and there is a thorough ventilation through the houses by the open doors and latticed small windows. Green food, of some kind or other, such as Cabbages, Vetches, Clover, &c., is regularly given two or three times a-week, and a boiled ox liver is thrown to them (whole) weekly, which, in a few days, is picked to shreds. Water and a large wooden bowl of gravel, and another of coal-ashes, are left in their way, without which I do not think they could be in such vigorous health as they always are. The only breed I have not, at some period or other possessed, is the Dorking, and I have been told that they are fully equal to mine. Their yard is closely flagged on slope, and can be washed down at once.—*Hibernicus, Cork, June* 8, 1845. P.S.—More than one person who has seen the fowls, called them Columbian, though got through Spain.

Yeast or Balm.—Several ways are recommended to extract the bitter from highly-hopped yeast,—a red hot coal-cinder dropped into the jar, and washing and straining through bran in a sieve, &c. But whether the bitter principle can be extracted from brewers' yeast (I have not succeeded in the attempt) is questionable, as it contains many noxious ingredients. Balm can be made artificially in various ways, as is well known, by fermenting flour or Potatoes.

Poultry.—In an old book, it is recommended to give Fenugrique to fowls. Is it for the purpose of making them lay? Should the seed be given, or the green plant? The book does not state. I have not found that they much relish the seed, and it makes their house smell much like garlic.—*Anon.*

Soft Eggs.—"Oon eggs"—"lush eggs." Can any of your practical readers give the true cause of these eggs without shells, and the remedy? Are they common with fowls in the country? If uncommon, then have not too great confinement and locality to do with them? Some fowls have them in winter and in summer; and whether fat or lean. They are certainly the effects of some organic derangement in the secretions; but how is this produced? It is mostly only temporary, and if the egg do not break inside, they soon recover. I have one fowl which lays them habitually, and has done so for two years.—*Anon.* [Have the fowls access to lime?]

Double Culture.—In your Paper of the 31st ult. there is an article dated from Vienna, and signed "J. E., Hölbling," relative to a mixed culture of grain and root crops, on which I would, if you approve of it, try an experiment, and be happy to send you a report of the result. [Thanks.] I have a 4-acre field, which previous to last year's crop of Potatoes had been in Grass for a number of years. There is a good crop of Wheat on it at present, and what I purpose doing with the field is this: when the Wheat is cut in the beginning of September, to subsoil-plough, and put 20 barrels of lime on the subsoil, cross-plough and put in Rye; cut off the Rye in the last week in March, and open drills, putting 3 cwt. of guano per acre in the hollows; sow Barley seed on the guano, close the drills, and pass the roller over the field; on the 1st of May scuffle or drill-harrow the space between the drills of corn, and dibble in Swedish Turnips; dig the headlands, and sow Rape seed; when the Barley is cut in the beginning of September, drill-harrow again, pick the stubble clean, and dibble Rape plants taken, or rather thinned, from the headlands, at the same time using the hoe to the Turnips. The question I want to ask your opinion on is, whether the Barley would pay for the additional labour on the field, and for the manure it got itself? And also whether you think the Turnip crop would be injured by the process? P.S. The Barley would get 3 cwt. of guano; Swedes, 3 cwt. do.; Rape, 3 cwt., and what would the field be adapted for next year?—*J. Rogers Wiseman.* [You will have seen Mr. H. Davis's letter in our last; Beans appear better suited as the corn crop in a double system of cultivation than Barley; and Turnips or Cabbages are perhaps the best green crop to use. The Barley, in your scheme, would doubtless pay for the 3 cwt. of guano it received; but the Turnips would probably not be so good. The better plan would be to sow 3 or 4 cwt. of guano broadcast; drilling will place it too immediately in contact with the seed. If your 9 cwt. of guano are employed it will be too much by half. Whatever corn crop you grow next year would be too luxuriant for a healthy growth or good sample.]

White Mustard.—As I do not see that any one has answered your inquiry respecting White Mustard, I give you the result of my experience with it. On the 7th of April last, the seed, at the rate of 12 lbs. per acre, was harrowed in with Smith's chain-web harrow, upon an Oat-stubble ploughed last autumn. 111 sheep and 61 lambs have just finished feeding off the crop, having been kept loose upon it nine days and five nights—the crop was patchy, or it would have lasted as long again. The sheep are extremely fond of it, and, after the first two days, would run to the field as soon as the gates were opened. As the land will now be sown with Turnips, and the original ploughing of the stubble was for that crop, the Mustard cannot be charged with anything but the harrowing and seed, the cost of the latter is 6*d.* per lb.—*T. W. Lawford, Jun., Tirydail, Carmarthenshire.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover-square on Wednesday last, the 25th of June; present: His Grace the Duke of Richmond, K.G., President, in the chair, Earl of Lovelace, Viscount Torrington, Lord Portman, Lord Bridport, Lord Lovaine, Hon. R. H. Clive, M.P.; Hon. Captain Spencer; Hon. G. Agar; Sir John V. B. Johnstone, Bart., M.P.; Sir R. Price, Bart.; Sir D. Baird, Bart.; T. Alcock, Esq., R. Archbold, Esq., M.P.; Col. Austen, M.P.; J. Baines, Esq.; T. R. Barker, Esq.; E. Buller, Esq., M.P.; F. Burke, Esq.; Dr. Calvert; Col. Challoner; F. C. Cherry, Esq.; W. A. Cherry, Esq.; J. Cotes, Esq.; J. Dean, Esq.; H. Drummond, Esq.; E. W. Etheredge, Esq.; C. Eyre, Esq.; J. H. H. Foley, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; B. Gibbs, Esq.; J. B. Glegg, Esq.; W. Ormsby Gore, Esq., M.P.; G. F. Heneage, Esq.; W. Fisher Hobbs, Esq.; E. Holland, Esq.; T. Houlding, Esq.; M. H. Jenner, Esq.; J. Kinder, Esq.; Col. MacDouall; A. Ogilvie, Esq.; E. W. W. Pendarves, Esq., M.P.; F. Pennington, Esq.; E. S. Chandos Pole, Esq.; P. Pusey, Esq., M.P.; F. Pym, Esq.; W. Pyne, Esq.; Prof. Sewell; W. Shaw, Esq.; J. V. Shelley, Esq.; S. Solly, Esq.; W. R. C. Stansfield, Esq., M.P.; T. Turner, Esq.; T. Tweed, Esq.; W. W. Whitmore, Esq.; H. Wilson, Esq.; Jos. Yorke, Esq.

The following new Members were elected:—

Maurice, R. M. Bonnor, Bodynfoll, Oswestry, Salop.
Nicholl, Rt. Hon. John, Merthyr-Mawr, Glamorganshire.
Taylor, Henry John, Haygate, Wellington, Salop.
Owen, William, Wem, Salop.
Gardener, Joseph, Oxford Arms, Kington, Hereford.
Warter, Henry De Grey, Meole, Shrewsbury.
Sheppard, Joseph, Horton Lodge, Shrewsbury.
Tisdale, Thomas, Shrewsbury.
Surplice, Samuel, Beeston, Nottingham.
Corbett, Vincent, Worthy, Sheffield, Yorkshire.
Rawlinson, John, Andover, Hants.
Howells, Thomas, Fox Farm, Shrewsbury.
Butcher, Richard, Longville, Wenlock, Salop.
Eden, John, Beamish Park, Chester-le-street, Durham.
Watton, John, Chronicle-office, Shrewsbury.
Humphreys, John, Warwick-road, Upper Clapton, Middlesex.
Chambers, William Mellish, Hodsock Priory, Bawtry, Notts.

The names of 18 candidates for election at the next meeting were then read.

The following communications were laid before the Council:—

1. On barking and felling Pine timber. By George Turner.
2. On the evils resulting from over-feeding animals for public exhibitions; their remedy, and the advantages to be derived therefrom. By George Drake.
3. Description of a Double-action Grooved Land-Roller. By John Stewart Hepburn.
4. Facts and suggestions relative to Ammoniacal Manures. By E. Nash.
5. On the cultivation of Flax. By J. H. Dickson.
6. On a Machine for draught on uneven ground. By G. Beaumont.
7. On a Grub ravaging the Swedish Turnip crops in the Island of Anglesey. By R. Prichard (communicated by A. E. Fuller, Esq., M.P.).
8. Suggestions for a Prize on the subject of paring and burning. By T. Beale Browne.

Thanks having been ordered for these communications, the President stated that a book constantly lay on the table for the purpose of receiving suggestions from any member of the Society on any topics connected with the objects of the Society; and although the Council could not pledge themselves to the adoption, in every case, of such recommendations, they would not fail to receive from them every consideration and attention.

The following Committees also held meetings on the same day:—

The General Shrewsbury Committee, the Right Honourable Earl Spencer in the chair; at which the general arrangements for the ensuing country meeting, and an inquiry into the best modes of conveyance for passengers and stock were taken into consideration.

The Collection Committe, Mr. Pym in the chair, at which further progress was made in carrying out the system of a local collection of the subscriptions.

The House Committee, Mr. Raymond Barker in the chair, at which orders were given for the preparation of alphabetical and classed catalogues of the library, and of glass cases and guard books for the preservation and exhibition of the Society's collection of Wheats.

The Show-yard Committee, Mr. H. Gibbs in the chair, at which various points of detail connected with that department were brought under consideration.

The President gave notice that a Special Council for deciding on the Prizes for the Newcastle-on-Tyne Meeting in 1846, would be held on Saturday, the 28th of June.

The Weekly Council adjourned to Wednesday next.

ROYAL DUBLIN SOCIETY.

Influence of Electricity on Vegetation.—At the last meeting of this Society, Dr. Antisell read a paper on this subject. The effect of the distribution of electricity upon the air nigh the surface of the earth is remarkable. It has been ascertained that the atmospherical electricity is of a positive character, while that of the earth is negative; and any body serving as a point of discharge for these two kinds, receives a shock which, in the case of a plant or tree growing, would be a stimulus to its growth, if the shock were gentle, while it would be fatal to its vitality if it were severe, as in thunder-storms. So long as the earth and atmosphere are in equilibrio, the results of it on vegetation are not striking, but should any disturbing cause arise, they become evident. One of those causes is the evaporation of water. The rapid formation of clouds in tropical countries always precedes thunder-storms; the electricity of the atmosphere accumulating round the surfaces of the clouds, and discharging upon the nearest objects. It has been ascertained also, that the issue tube of a steam-engine is a ready yielder of electricity; and it may be taken for fact, that in all cases where water is evaporated, there is a constant electrical disturbance; and where the evaporation is slow, and the disturbance, though slight, is constant, the shocks thus produced appear to have a wonderful power in developing vegetable growth: it follows, then, that in a country where there is a supply of water for evaporation, the stimuli to vegetable growth will be more abundant than in those countries in which such supplies are deficient; and upon this influence depends, in a great degree, the superior efficacy of showers to the same quantity of water applied by irrigation; and in this respect our island, blest with the passage over it of Atlantic showers, and the mountain tops to receive them, produces more abundant and luxuriant vegetation than most European countries. I have mentioned that negative electricity was peculiarly favourable to the growth of the vegetable. The points of vegetables have been found to possess a greater discharging power than steel needles; and blades of Grass and the thorns of Gooseberry bushes, are far superior in discharging power than metal points. This power, which the whole vegetable creation puts in action, silently drawing off the electricity from the clouds, and receiving that of rain, must, if we consider its extent, be very great indeed. Every shower of rain conveys a quantity of electricity upon the herbage it wets; and I think there can be no doubt that it is in this way a shower is beneficial to a plant in the second degree (the first being the supply of moisture to parched surfaces), and not to the quantity of ammonia which it conveys, which we hear reiterated over and over. Every operation of burning produces electricity; as where wood is burned it becomes negative, while the carbonic acid arising from its burning becomes positive. In the plant, the decomposition of carbonic acid in the leaf produces a like electric change—the oxygen escaping being positive, while the cells in which the change goes on becomes negative.

Farmers' Clubs.

CHEPSTOW.—*Turnip Cultivation.*—The following remarks were made at a late meeting of the Chepstow Farmers' Club on this subject:—"The fallow for Turnips should be got as fine as possible; some commence ploughing their Turnip land in the fall of the year; when that system is adopted the land should be ploughed quite deep, so as to turn up some of the subsoil; the subsoil will then become mouldered by the frost in winter; it will then mix easily with the surface-soil, when ploughed in the spring, and increase the depth, which, I think, is the proper course to pursue: others, sometimes either from having their work behindhand, or from choice, defer their first ploughing until after the Barley sowing is ended (say about 1st May); where that is done the plough should not go below the surface-soil, as the subsoil, when turned up at this time of the year, is apt to bake, and is not very easily got to a fine fallow in time for Turnips; but, however, I have seen excellent Turnips grown upon a late made fallow, when the season has been a dry one; but the plan is most objectionable, because it brings the work so much together that it makes the sowing later than it should be, for we cannot expect to grow great weights if we sow much after the middle of July. The land should be rowed (bouted or drilled) up for the reception of the dung at the distances intended, the dung placed in them as soon as there are rows enough ready for a row of dung, by so doing the horses and carts do not cross and trample the rows, as they would if there were more rows ploughed than required for the row of dung; the dung should be spread and ploughed in immediately; by so doing the moisture is kept in the dung, and its best qualities prevented from going off; the drill too should follow close after. I have frequently noticed, where the seed has been left only a few hours after the ploughing, a very marked difference; while the former have been looking well, and all the seed come up, the latter have looked sickly, and only part of them up. If artificial manures are used that are put in with a drill, the rows should be opened as though they were for dung, then ploughed back and drilled immediately; the first opening of the rows is by no means a useless ploughing. The seed should be drilled as lightly as possible; in fact, the point of the drill-share should only just make a mark, the roll following is sufficent to cover the seed. This I have often noticed: where there has been a row put in deeper, the Turnips did not make their appearance for days after the others that were put in lightly; and then did not come up so regularly, nor did they make up for their lost time. The plan I adopted last year with the seed was, to steep it in water from 12 to 18 hours, then put it into a bag and leave it there until the sprouts appeared, it was then fit for drilling; the seed managed in this way swelled so much that the drill that was used could not deposit quite one pound per acre. This, however, was enough, and abundance to cut out, for every seed grew, and the plants made their appearance pretty regularly, about the third or fourth day after the seed was sown, and grew so fast (notwithstanding the dry summer), as to bid defiance to that enemy the fly; the saving of seed by this method, at the price that is often given for new sorts, will pay for one hoeing; indeed, the hoers expressed a hope that the Turnips would not be so sown so thick another year. The distance between the drills should be, at least, from 30 to 32 inches; by having them so there are many advantages to be derived, over having them closer together; the horses are enabled to go between without bruising the plants (which should be avoided as much as possible); if the land is foul, there is an opportunity of giving an extra horse-hoeing; where there is only a small quantity of manure can be obtained per acre, the increase of manure in the drills would be one-third more than there would be if the drills were 24 inches apart, for Turnips seldom do well without a liberal dressing. Seed is also saved after the same rate as the manure, and I have always found in practice, that the greatest weights are to be obtained from wide drilling, in fact the heaviest crop of Swedes I ever saw, was drilled at 32 inches apart; my having obtained Col. Lewis's cup last year, for the best general crop of Swedes and Turnips, will, I think, be a convincing proof of its advantages, for there was not a drill less than 32 inches, but many a greater distance. Turnips should be hand-hoed twice, and horse-hoed thrice, commencing with the horse-hoe soon after the rough leaf is out, the hoe not to be put so wide as to stifle any of the plants; the shares should be set quite deep, so as to give the soil a good stirring the first time; two horses should be used for this purpose, as one is not sufficient to perform the work effectually (unless a very powerful one indeed). Turnips flourish and grow fast when the soil is well and frequently stirred; and I may also add that the succeeding crop will derive a greater benefit too. The plants should be cut out at the distance intended (in my opinion from 13 to 16 inches), and singled the first hand-hoeing, and not by any means to leave two or three in a bunch, or one between the plants intended to stand until the second hoeing, as some say is the way to make certain; when two or three are left in a bunch they hinder each other from growing; whilst a single plant would spread its leaves and soon commence forming a bulb; and when one plant is left between the ones intended to stand it is quite in the hoer's way; for the soil should be well stirred between the plants as between the rows, at least as much so as can be done without disturbing the manure, and when done in this way the first time, there is very little trouble to hoe the second time, and less risk of bruising the leaves; neither the hand-hoeing nor horse-hoeing should be neglected during the harvest, for the harvest weather is the best hoeing weather; a strict attention to the time and season for this operation will most effectually secure the crop." One member said he intended to drill his Turnips this year at 24 inches, and single them out to about a foot in the rows; but he would certainly try a few rows at 32 inches. Another said he had been in the habit of drilling his Turnips at 27 inches, and his drill would not deposit more than 1¼ lb. of seed per acre, but he had always found that sufficient.

STEWPONY.—*Economical Application of Animal Power.*—At a late Meeting of the Stewpony Farmers' Club, Mr. Smith read a paper on this subject. He said: I have carefully observed in many parts of England the mode of putting horses to the several implements used in husbandry, and have uniformly found that the traces form, as nearly as possible, when the draught or power of the horse is upon them, a right angle to the plane of the collar, or, to put it as simply as possible, the trace and the collar resemble the letter T, sloping towards the right. In that truly clever work, "The Book of the Farm," by Henry Stephens, published in 1842, is this paragraph, "The plough may be drawn at any angle from the horizontal line up to a little short of 90°, and it would require less and less force to draw it as the direction of the line of draught approached the horizontal line. It would in all cases be required that the point of the beam, or rather the draught bolt, should be exactly in the straight line from the centre of resistance to the point where the motive force would be applied. If this force could be applied in the horizontal direction, we should have the plough drawn by the minimum or least possible force. This position, however, is impracticable, as the line of draught in such a case would pass through the solid land of the furrow about to be raised, but it is within the limits of practicability to draw the plough at an angle of 12°, and, as will be demonstrated, the motive force required at this angle would be 14 lb. less than is required by drawing at the angle of 20°, which may be held as the average in the ordinary practice of ploughing. A plough drawn at this low angle, namely 12°, would have its beam (if of the ordinary length) so low that the draught bolt would be only 10 inches above the base line, and this is not an impracticable height; though the traces might be required inconveniently long." Mr. Smith proceeded:—"Horses should certainly not be worked in the regular occupations of farm work more than eight hours per day, during which period on ordinary soils, two horses abreast will plough one acre a day, which is considered all over England a fair day's work for horses and man. In ploughing one acre per day, cutting a 9-inch furrow slice, the horses walk a little over 12 miles. There are divers opinions as to the division of the day's work for horses employed in agriculture; from observation I am sure that horses do best commencing work at six o'clock in the morning, working until eleven, brought into the stables, unharnessed, rubbed down, fed and rested until one, and then work until four o'clock." Having passed condemnation on the practice of "unhooking horses from their work, in a state of partial sweat, and turning them loose, with their harness on into a piece of seeds," Mr. Smith clearly pointed out the disadvantage, on strong lands, of using horses in ploughing three or more in a line, instead of two abreast; he then treated of the important subjects of gearing, stabling, and food:—"The proper adaptation of the gearing of working horses is a much more important matter than is generally supposed, and requires the constant watchfulness of the master's eye to see that the traces are of proper and equal length, that no portion of the gearing galls or frets a horse; and special care should be taken that the collar presses only on those parts of the animal capable of receiving the pressure without injury, that the withers are not wrung, nor free respiration impeded, &c. There is one portion of the gearing now in use for waggon horses called the housings—great square pieces of leather; what purpose they can possibly answer, except to catch the wind and encumber the horse, I know not; I presume they were intended to turn back in wet weather, to prevent the wet running down between the collar and the shoulder. Who ever saw them put to this use? A cape of the same make as that in gig harness, proportionately large, would really answer the purpose intended, and relieve the horses considerably. I remember travelling to Dover by the Eagle coach, one of those vehicles we can just remember, called a 'heavy coach,' and a 'slow coach' it most assuredly was, with coachman and harness to match; we were going at the rate of about seven miles an hour, when the mail passed us at the rate of ten; it was just about the time when the lighter style of harness was first introduced. Coachee said to me as it passed, 'Look there, did you ever see the like of that?—no collars, no saddles, no bearing reins. I'm blessed if I don't think they'll try to drive without reins next!' I merely mention this as it illustrates two things—the necessity of getting harness as light as utility and durability will admit, and the extraordinary pertinacity with which some people adhere to old fashions and customs, in spite of reason and practical proof of their uselessness and absurdity. Several essentials in the economical application of animal power are too often neglected, from the farmer himself not being impressed with their importance. The action of pure atmospheric air upon the blood passing through the lungs is of the utmost consequence to the health and vigour of the horse, as it is indeed to all animals. It often happens that after a hard day's work the horses are put into a gloomy stable, imperfectly ventilated, there to breathe a foul and heated atmosphere. Is it reasonable to suppose that horses thus treated can retain their health and vigour, or be long in a condition to do the fair day's work daily demanded of them? How many stables have I seen, particularly those devoted to working farm horses, in which an accumulation of everything abominable and disgusting was giving out in large quantities a strong pungent effluvium producing the most baneful effects upon the health of the animals. Let any one go into an imperfectly ventilated and drained stable, and he will find his olfactory and visual organs immediately pained by a strong pungent vapour similar to hartshorn. Every waggon-horse stable should be furnished with a glazed window, one half of which should open and shut, through which a proper quantity of light and air would be admitted. The next point to which I would direct your attention is the proper drainage of the stables; so convinced am I of the numerous advantages to be derived from carrying off as speedily as possible the urine, that I have had the whole of the stables at Apley drained on the following plan:—A main drain is put in (where the usual surface hollow is left) underground, commencing at the outer stall at each end of the stable, running the whole length and falling each way to the centre with a grating behind each horse. A grating is let into the middle of each stall (to which the paving falls every way) through which the urine passes as soon as voided, and is carried away by the main drains to the back of the stables into a tank domed over, having a trap-door on the top, by lifting which and using the pump the liquid manure may be conveyed to the pastures or mixen. By adopting this plan of perfect drainage the following advantages are obtained:—the pungent vapour is got rid of, the litter is kept perfectly dry and will form a more comfortable and lasting bed for the horses, and it may be fairly inferred that the increased purity of the air, in consequence of getting rid immediately of the urine, will tend materially to the keeping up of the general health of the horses. It is anything but desirable to feed a working horse too much; three quarterns of Oats per day for a young horse, and four quarterns for older horses, are, with 8 lbs. of hay daily, ample. The farmer who desires to keep his horses in health and

good working condition will never be without Carrots, if there be a portion of land on his farm on which they can be grown. The experience afforded by or in consequence of the failure of the hay, Barley, and fodder crops of the last season, has proved that working horses may be fed with cut straw, mixed with Oats and steeped Linseed, much cheaper, yet kept in as good working condition as when hay and other fodder were abundant. It is to be hoped that wasteful use of fodder will not again occur." In conclusion, Mr. Smith said :—"I have endeavoured to show that attention to the principles of draught, careful and judicious choice of horses, adaptation of harness, proper distribution of labour, attention to diet, healthy stabling, and cleanliness, form the basis of the economical use of animals in husbandry." The following resolution was moved, seconded, and unanimously carried :—"That this meeting coincides in opinion with Mr. Smith, that attention to the principles of draught, careful and judicious choice of horses, adaptation of harness, proper distribution of labour, attention to diet, healthy stabling, and cleanliness, form the basis of the economical use of animals in husbandry, and that these particulars deserve more consideration than is given to them by farmers in general."

Reviews.

On Farm-buildings, with a few Observations on the State of Agriculture in the county of Kent. By Viscount Torrington. Ridgway.

This book is descriptive of the farm-buildings which have lately been erected by Viscount Torrington, at West Peckham, in the county of Kent. The foundation on which true economy in the erection of such buildings must rest is fully recognised by the noble author. His lordship considers such buildings simply as a manufactory in which the raw material produced on the farm is to be prepared and converted into human food. He says :

"In considering this subject, I can hardly do better than point the reader's attention to the buildings of the calculating manufacturer (be his occupation what it may). Observe the arrangement of his premises : mark how judiciously they are placed, with a view to the economy of time and labour, aided by excellent machinery, so contrived and placed as to be easily accessible for all the purposes for which it may be required ; and by this combination of power, producing his goods in a short period, and at the lowest possible cost ; thus enabling him to sell at remunerating prices. Why, I ask, may not the same objects be kept in view in the erection and arrangements of farm buildings ?"

This is the true point of view in which to regard this subject. Economy in the application of labour is the only road to profitable farming. The manure made on a farm is the main stay of its fertility ; let it be made and provided on such a spot as that the carriage of it to the various parts of the farm may be effected at the least expense of labour—this will also be the spot on which the produce of the farm, whether it be grain, roots, or hay, may be concentrated with the least labour of carriage. On this spot, then, let the farm-buildings be erected ; due regard being taken to a suitable aspect, the means of drainage, and a supply of water ; and let the various parts of the whole have such a relative position as may be compatible with the greatest economy of the labour carried on within them. Immediate connection should be made between the stack-yard, barn, granaries, and straw-house ; and both the latter and the root-stores should be immediately in connection with the feeding-stalls, the byres, stables, cattle and sheep-yards, and pigsties. The stables should be near the implement and cart or waggon-sheds, which should have a northern or eastern aspect, and over which, in order to diminish the labour of loading, it is well that the granaries be situated. Careful drainage of the stables, byres, feeding-stalls, and yards, is an essential feature in any good system of farm-buildings—the liquid manure being hoarded in tanks hard by the stance for the manure, so that the latter may be easily soaked with the water before being removed. Let these general features of the plan be scrupulously attended to and developed on as small a space of ground as possible—let the accommodation afforded by the several parts be duly in accordance with the wants and capabilities of the farm—let the fitting-up of the several parts be according to the best methods, due regard being had, among other things, to perfect ventilation ; but into these details we cannot now enter ; and the result will doubtless be a great annual saving in the farm expenses.

We have not space at present to enter upon a critical examination of the buildings erected at West Peckham—the work before us is not confined to a mere description of these; it contains many remarks of general agricultural interest, and will deservedly be extensively read.

Miscellaneous.

On the Formation and Management of Fences.—Fences have been mostly formed of White-thorns ; and where they have been skilfully planted, and duly attended to, they have formed fences that are impregnable to cattle—but many of them having been improperly planted, and neglected after planting, have failed to form sufficient fences. Thorns are not aquatic plants, but they require more moisture to bring them to luxuriant growth than any other tree or shrub that is not ranked among the aquatics, and if that supply is withheld, they do not thrive well. When enclosing of land began to be attended to in Scotland, soon after the middle of last century, the dykes were formed with a trench, 6 feet wide and 4 feet deep, and the earth dug up from that trench was heaped over the thorns as high and narrow as it could be made to stand, and it was generally built nearly perpendicular on the back, by sods or turf, to near the height of 3 feet, so that the rain that fell on the dyke either run off into the trench, or was absorbed by the coarse Grasses and weeds that soon covered the mound or dyke ; and as very little of the rain-water sank into the mound, the thorns, after exhausting the moisture in the dyke, when formed, became stunted and unhealthy for want of moisture, and if not relieved, ultimately died. The proper way of forming a dyke for a thorn hedge, is to make the trench, or sheugh, only 3 feet wide, and 18 inches deep, laying the soil, or first spading, mostly under the thorns, and the second spading of subsoil, above the thorns, to the depth of 9 or 10 inches ; and as that is composed of barren earth, weeds or Grass will not spring up over the thorns so readily as in richer soil. The design of a larger trench and high dyke was to serve as a fence till the thorns grew up—but by depriving them of moisture, the thorns were starved and became stunted. It is true, that a trench of 3 feet by 18 inches deep, and the dyke formed of what was dug from the trench, was not sufficient to turn cattle, but had to get either a foot or 16 inches of land stones raised over the dyke, or dead thorns struck into the top of the dyke, or stobs and railing put up to render the fences impregnable to cattle. Any of these on the top of the dykes would allow the rain-water to sink to the thorns, and would not exclude the heat of the sun. Any dyke formed in that manner, and strengthened by any of the toppings here mentioned, will, in five or six years, if kept clear of weeds, become an impregnable fence, especially in clay land that retains moisture. To end my remarks on the formation of dykes, I have only to add, that when fences are run right across a reclining plane, the trench should always be formed on the lower side of the dyke, so that when rain falls it may run into the dyke and feed the thorns ; and in all cases where fences are formed on the side of a road, there should be no trench or ditch between the road and dyke where they are level, or on the lower side where there is a declivity. Thorns planted on the lower side of the road, having no ditch between the road and the thorns, always thrive well, owing to the roots of the thorns being fed by the moisture from the road, enriched with dung dropped by the animals travelling on it. But, besides the right formation of fences at first, they require to be frequently dressed, the ground over the roots of the thorns dug up, so as to kill weeds, and allow moisture to reach the roots of the plants. The proper mode of dressing thorn fences is a matter of some importance, that was long misunderstood or neglected. When the thorns grew up they were either neglected and allowed to take their own shapes, or if the hedge bill was at all used, it was in cutting off the lateral twigs next the roots of the thorns on the front of the fence, to make the hedge as straight in the fore-side as possible ; but the thorns were allowed to retain their highest and bushy tops. This was the very worst mode of dressing a hedge. The chief growth of thorns is, like other shrubs, at their tops, and the growth of the lateral branches is puny and feeble, compared with the growth above. And when these smaller branches were lopped off, and the growth on the tops prevented the sun or rain from falling on the remains of the lower twigs, the thorns set up strong stems with bushy tops, but became so bare and open at the root as not to form a proper fence, and in time allowed cattle to go through the fence. But of late, when hedges are dressed at all, the lateral branches and twigs are spared even to the surface of the ground, while the strong and bushy tops are cut down to an equal height, and thinned, so that the hedge, in a few years, comes to be formed into the shape of a wedge, or horse's mane, when cut short and standing upright—thin and narrow above, and broad on both sides below. When that is done, the branches and twigs, on both sides, get their due proportion of the sun and rain, and grow close and so thick as to form a fence which cattle cannot storm. When I surveyed the county of Ayr, for the Board of Agriculture, in 1810, I found only two or three hedges cut in that manner; but now there are many hundreds of miles of them cut in that form. Another mistaken notion long prevailed in Ayrshire, viz., that the wool of sheep made thorns canker and die. But as every farmer had, for centuries past, a good many sheep on his farm, yet the thorn bushes referred to above grew well, notwithstanding the sheep rubbing on them ; and as there are thousands of such thorn-trees growing on all the dry sheep walks in Scotland, where sheep nestle under and touch them, the wool of sheep does no harm to thorns.—*W. Aiton, in the Ayrshire and Renfrewshire Agriculturist.*

Wheat Growing.—I have planted Wheat on the farm which I now occupy, at various times of the year, from the middle of September to the first week in May, and once as late as the 7th day of this month. The upper or working soils in this part of the vale of Wilts, are composed, in some situations, principally of a loamy clay, mixed with a fossil lime-stone, and rubble of the same rock ; while in other parts a black and red loam prevails, upon layers of stiff clay, which to all appearance was once a moving body of mud, and marine matter much like the deposits of the ocean, and great rivers in other parts of the world. The best seasons of the year for planting Wheat in the vale of White Horse, and I believe upon nearly all the deep level lands in this country, is between the 10th day of October, and the 1st day of March, according to the preceding wet or dry summer, from the time of planting. After dry summers, it is considered very bad management to plant Wheat before plenty of rain has fallen upon the ground, and it has become settled and firm enough for the roots of the plant to strike well into the earth, for its preservation from frost during winter ; and in such cases the time of planting should entirely depend upon the state of the top soil, and the weather to plant in ; it being nearly as bad management to persevere, when the ground becomes too wet, as when it is too dry,—give time enough after the rain, and the work will soon do well ; and in many seasons, after much dry weather, Wheat-planting may be safely delayed until the middle of November. On the contrary, after wet and cold summers, it is better to commence the work much earlier, and according to the state of the land, and the degrees of heat and cold, so to vary the planting ; but it is seldom that Wheat should be sown before the middle of October, unless it be in cold and elevated situations, and where the land is both cold and poor. Many good Wheat farmers have told me that to obtain good crops of Wheat more depends upon the richness, and the state of the soil at planting time, and the manner of planting, than in the seasons afterwards, and that they have seldom seen anything like a large produce after bad farming ; but it is not always the case, that the highest farming produces the largest produce of Wheat. Indeed, in the year 1843, I found that it was quite otherwise ; and where the high farmer, on the best Wheat land, had not had patience to wait until his land was well settled down with rain, and the weeds had vegetated before he committed his seed to the earth, in nine cases out of ten he had failed, and his crops did not exceed three or four sacks to the acre. Looking at the immense loss which the early planting caused to the farmers, and the community in general, in that year, I was induced to persevere in the different modes of planting Wheat, at the farmers' school which I propose to establish at Kingsdown. Large iron-wheel rollers, passed over the land, immediately after the planting is completed, will do much good in dry seasons, but on deep land I have rarely seen that anything can be a good substitute for the proper quantity of rain, and weather required to settle down the soil after ploughing ; and where it is not so settled down, the plants are liable to suffer much from the severe frost of winter, and the March winds in the spring ; and in some such cases the crop is entirely lost for want of plants, although the ground to all appearance had been well stocked before. This year, I expect, great losses will occur to many farmers, from their impatience in not waiting for the proper quantity of rain, and consequent settlement of the soil afterwards, before planting their crops ; and in such seasons as the last I find the systems of paring or scarifying the fallows, is a much better plan of preparing the land for the seed, than ploughing it up again, immediately before the crops are planted ; and where the paring has been done, and the seed drilled in, the plants are now much stronger and more healthy, and thicker than where the plough was used and the seed sown broadcast.—*John Arkell, in the "Farmers' Journal."*

Can Bones be considered an effectual Manure for the Crop succeeding that to which they are applied.—I confess that, from my own practice, *which is to feed on the ground*, I have but little experience to lead me to a conclusion ; but, from observation, I think I have strong grounds for forming an opinion ; and I have considered it right, on the present occasion, to make inquiry of able agriculturists in different parts of the neighbouring country. The result of the answers I have received is not so conclusive as I could have wished ; for though I am told that many fields are not folded, I find very few cases where other manure is not applied. One gentleman informs me, that last year he had 4 quarters of Barley after Turnips raised with 20 bushels of bone-dust, crop consumed on the ground ; but that he thinks he would have had 2 quarters per acre more if he had given a little dung, and, in general, that it is found advantageous, on light land, to follow this practice. Another mentions that he has had a capital crop of Turnips, and a succeeding one of grain, from 25 bushels ; but his present practice now is, to give a slight dunging for Turnips, with 10 or 11 bushels of bones. The information I have just detailed, is principally from Morayshire. In Ross-shire, almost all land suitable is appropriated to Turnips and sheep, and the value of the system is much appreciated ; but there are instances where the nature of the land prevents its being carried into effect. I have in view one particular extensive farm of strong land, where bone-manure is used to raise annually 20 Scotch, or 25 English acres of Turnips for cattle. The owner and occupier of this farm, a gentleman well known for his activity, intelligence, and attention to all departments of agriculture, informs me that he gives 20 bushels per Scotch acre to his Turnips, and that he raises fair crops of them, succeeded by good crops of Oats ; but he also says that he attributes the latter good crop more to the quality of the land than to the bone manure ; and I agree with him. I do not think that 20 bushels can have much effect on such land, after being on it all the winter, nor even a great deal more so applied. Indeed, he has told me, that after trying 50 bushels on a single acre, he could see no difference. But I think there is a way by which he might have derived the benefit he was entitled to expect from so great an expense, and that is, if he had reserved half to harrow in with the spring seed furrow. I am led to this opinion by an experiment that I made this season. On a field of uniform fertile and rather strong land, after a bulky crop of Peas, raised without dung, I laid down different portions with different kinds of manure ; and amongst the rest, 1 Scotch acre, equal to about 1¼ English, with 10 bushels of the dust

of bones, mixed up with 4 bushels of kiln ashes, formed principally from peat, and on this portion I have cut a heavy crop of Barley, not yet threshed, but which has the appearance of 60 or 64 bushels, equal to 48 or 51 bushels per English acre. On a portion dunged from the farm-yard, I have about a quarter more per acre, but the expense is fully equal to the difference on this one crop. Taking everything into view, I believe that on light soils, where a sufficient quantity is applied, bone-manure may undoubtedly be considered effectual for the crop succeeding Turnips; but that on heavy lands, and lands requiring to be furrowed up in winter, it is not to be so considered, if the whole of the bone-dust is applied to the Turnips; but that if part of this manure be given in spring, it is likely to be then effectual. With regard to the quantities to be used, so much depends on the different descriptions of soils, that no fixed rule can be laid down. To determine what should be allotted to any particular field, we must either be able to analyze the soil, or we must find it out by our own trials, or the experience of our neighbours on similar land. This is an instance of the advantages to be looked for, if we could generally apply chemistry to the purposes of agriculture. We would not need, then, to confine ourselves to one trial, but could at any time ascertain the state of our lands; and the time may be when analysation will be considered frequently necessary. Many of us know that lime, when frequently repeated, ceases to operate so advantageously as at first, nay, that it may be absolutely hurtful; and I apprehend that such has already been the case with bone-manure, in parts where it has long been in use; and that it may come to be so with us. With the aid of chemistry, it appears quite possible that we could ascertain proper quantities, and also when to abstain from using bone-manure; and the same with respect to other manures. Connected with the subject, and well deserving attention, are the quantities and modes of application where Turnips are to be wholly or partly eaten on the land; but as this has not been made part of the discussion, I might be considered as encroaching too much on the time of the meeting, were I to enter upon them; and I thall therefore conclude, with the expression of my hope, that what I have said may be considered only as an introduction to further elucidation of the question, by gentlemen who have had opportunities of becoming thoroughly acquainted with its bearings.—*Mr. Sim, of Drummond, at the Meeting of the Highland Society at Inverness in* 1839. *Quarterly Journal of Agriculture.*

Ploughing the Land after Draining on an Impervious Subsoil.—The system I have adopted for the treatment of the lands on my own farm, where the soil and subsoil are of the weakest quality, such as I have previously described, is as follows:—A great proportion of the land is valued at 5*s.* or 10*s.* After it is drained in Grass, the land is trench-ploughed, making the furrow from 14 to 16 inches deep. The sod, of course, is turned into the bottom of the furrow; the ploughing is done by two ploughs, each having a pair of horses; as the work is harder upon the horses that turn up the till, they every hour change with the plough that turns over the sod. The till remains exposed to the frost during the winter; in the spring, the land is cross-ploughed, the sod is found quite rotten, and mixes with the till; Oats are sown; the crop is considerably better than before the land was drained. After the crop is cut, the land is ridged up with a winter furrow—Turnips are sown in spring. In ridging up the land for Turnips, there is little or no appearance of till. The best crop of Turnips to be found in the same district of the country are not superior to those grown after this management of the land. The land, after the Turnips are eaten off, is ploughed for Barley; no appearance is now to be seen of till; there is an excellent crop of Barley, and the Grass seeds are always well planted during the two years of Grass which follow the Barley. The fields have the earliest Grass in the district of the country, the largest number of sheep per acre to feed on them, and the produce are the fattest animals. The Grass that formerly grew in these fields was of the worst quality, and sheep would scarcely eat it. No extra manure or lime has been applied to these fields, except on a part of one of them, which, for six years, remained without growing anything that an animal would eat, consequently it was left without stock; in the third year since it was in that state, it is growing as good a crop of Turnips as can be seen in the country, and no stranger that saw the land in fallow would believe it to have been what the people of the country knew it to be previous to its improvement. In consequence of doubts being entertained as to the accuracy of the results of this system, I requested five or six of the most eminent agriculturists, living in different counties in the south of Scotland, to value a piece of land of the above description, and to return and inspect the first crop cut. They will examine into the expenses that have been incurred during the improvement, and will report faithfully to the agricultural world the result. It is evident, that the only extra work in following out this system is trench-ploughing once. This, however, is done with the ordinary plough used for working the land, and the horses are never oppressed. In conclusion, I think it will be satisfactory to state, I have an equal dread with other farmers to bring till, such as I have previously described, to the surface before the land is drained. It is only after that operation has been effectually executed that I consider the till or subsoil, when properly pulverised, forms a new soil, the most valuable and easy to work of any I know; for in a wet season, the rain water escapes by the drains; in a dry season, the till or clay subsoil that has not been removed, retains sufficient moisture for the plants growing in the pulverised surface-soil, to supply food for them by the exhalations caused by the heat of the weather.—*Marquis of Tweeddale, at the Meeting of the Highland Society at Inverness in* 1839. *Quarterly Journal of Agriculture.*

Expenses of keeping Farm Horses.—The most eligible method of keeping cart-horses, from Michaelmas to May, elicited a very active and careful investigation, the result of which was the following *Resolution*:—The most eligible method towards attaining the object in view will of course be the cheapest consistent with keeping the horses in health and working condition. Horses ought to be in good working order at Michaelmas, having then the harvest work before them; consequently the best chaff ought to be given them at that time, and any inferior sort kept till the winter, when work is slack. It is not considered advisable that horses be kept out at Grass too long at Michaelmas, for the Grass then contains but little nutriment; the nights, too, are long, cold, and often wet and injurious to the animal after a hard day's work, for at no time do they require more warm and comfortable lodging. Horses low in condition at this time, will take all winter to get into even middling condition by the spring; if, on the contrary, they are in fair condition, they will eat such food as horses in poorer order would refuse. A portion of Pollard is recommended in spring as better than a full allowance of Corn, and tending to keep the animal in health. Swede Turnips are excellent during February, March, and April, at the rate of 1 bushel per day as a substitute for Pollard. Farmers not generally trussing their hay are not aware of the quantity their horses eat, but if that plan were adopted, the ration would then be defined per week, and no waste made in laying it out. In addition to good keep, horses require great attention in baiting and cleaning, a good warm yard, a comfortable shed, and careful littering. The following food and scale of allowance for each horse, regulated by the work he has to perform, met the unanimous views of the Meeting on this subject; viz:—

During Wheat Sowing for 4 weeks after Michaelmas.

	s.	*d.*	
1½ cwt. of best Clover or upland Hay, at 4*s.*	6	0	4 weeks.
2 pecks of Beans (ground) . . at 18	2	3	
2 pecks of Oats . . . . at 14	1	9	
Chaff, or cut Hay and Straw . . .	1	0	
Per week	11	0	= £4=2 4 0

Work lighter, from November 8th to March 1st, 16 weeks.

	s.	*d.*	
2 pecks of Beans (ground)	2	3	10 Weeks.
3 pks. of Horse Pollard at 15*s.* p. score (6¾*d.* say)	0	7	
1 cwt. of Hay	4	0	
Chaff, or cut Hay and Straw . . .	1	0	
Per week,	7	10	= £6 5 4

Sowing spring Corn and working Summerlands from March 1st to May 16th—11 weeks.

	s.	*d.*	
2 pecks of Beans (ground) . .	2	3	11 weeks.
2 pecks of Pollard	0	7	
1 peck of Oats	0	10½	
1½ cwt. of Hay at 4*s.*, Chaff, or cut Hay and Straw 1*s.*	7	0	
Per week	10	8½	= £5 17 9½
31 weeks' keep			£14 7 1½

It will thus be seen that the average cost per week of each horse during the period above mentioned is . . 9 3½
The average struck from the Harleston, Wrentham, Glo'ster, Halesworth, & Monmouth Farmers' Clubs was 8 9

Difference exceeding their collective average £0 0 5¾

—*Fifth Report of the Yoxford Farmers' Club.*

What will a Ton of Guano produce?—The above query is a very important one, and one that has been often put. We give the result of a careful computation, furnished by a gentleman to whose theoretical and practical knowledge of agriculture our readers have ofttimes been indebted. We may mention at the same time that the soil of his farm was originally (what prevails over a great portion of this county) a cold, stiff clay loam, of about 6 inches depth, incumbent on a subsoil of hard red till, worth, about 10 years ago, from 15*s.* to 20*s.* an acre; but now, through the influence of thorough draining, subsoil-ploughing, and careful cultivation and management, worth about 2*l.* 10*s.* per acre:—

TURNIPS.

4 cwt. of guano per acre will produce of Turnip	25 tons		
1 ton of guano will therefore produce of Turnip	125 tons		
125 tons of Turnips will produce 31 tons of dung, which at the rate of 2*s.* 8*d.* per ton, will bring	£	4	2 0
125 tons of Turnip will give 1500 lbs. of beef, at 6*d.* amounting to		37	10 0
Produce of 1 ton guano	£	41	12 0

POTATOES.

5 cwt. of guano will produce of Potatoes, per acre	10 tons		
1 ton of guano will therefore produce	40 tons		
40 tons of Potatoes, at 25*s.*, will give	£	50	0 0
Produce of Potatoes		50	0 0
Produce of Turnips		41	12 0
Balance in favour of Potatoes	£	8	8 0

Sufficient to purchase another ton of guano.

But to show the value of guano in its true light, and on a broader view, we will suppose that there are few farmers in this country who do not grow their 5 acres of green crops. To effect this with dung alone it will require (at 40 yards to the acre) 200 cubic yards, which most farmers can manage to raise on the homestead. Five acres Turnips, at 25 tons to the acre, will give 125 tons, yielding as above, 41*l.* 12*s.* The same manure distributed over 10 acres, along with 1 ton of guano (20 yards dung and 2 cwt. guano per acre), at a cost of 10*l.*, will yield double the quantity of Turnips, which, turned into beef and manure, will yield at the same ratio, 83*l.* 4*s.* The profit arising from the ton of guano, after deducting 10*l.* for its price, is 31*l.* 12*s.* This is the profit from one crop only on 5 acres. The farmer who grows 50 (and they are not a few), will see his advantage in increasing his green crops by the use of guano, dissolved bones, and other extraneous manures which science has brought to view; and we have sufficient experience to justify us in the assertion that it is not the first crop alone that is benefitted, but the whole rotation.—*Ayrshire Agriculturist.*

On Subsoil Ploughing.—The soil of this farm rests on the compact trap-rock of the Pentland range, and is no doubt derived from the disintegration of the felspar; and the small fragments of stone constituting part of the soil, and profusely interspersed throughout the whole, consists of compact felspar clay-stone and felspar porphyry. The soil has been analysed and found to contain, in addition to alumina, silica, and a small quantity of oxide of iron, carbonate of lime, to the extent of about 5 per cent., and sulphate of lime. The subsoil is similar to the soil, only, being washed down by the continual rains and springs which issue out of the Pentlands, has become so hard and impervious to the plough as to resemble a retentive clay. The field experimented upon has been under cultivation for a number of years, and, except in the most favourable seasons, yielded but deficient crops. In 1842 it was under Oats, and that portion which was experimented upon proved a very scanty crop. In the winter of that year, it was furrow-drained with tiles, at the distance of 15 feet apart, and with three ploughings, harrowings, and grubbing, it was reduced to a proper state for being planted with Potatoes, in the beginning of May, with the same seed, and under the same treatment in planting and manuring as the rest of the field. The plants came up sickly and were far behind the adjoining ones, so much so, that I do not think one-fifth of the seed ever vegetated at all. At one time I resolved to plough up the crop and sow Turnips, but let them remain. I lifted the crop on the 29th day of August, with the intention of having the ground subsoil-ploughed; and the produce only averaged 4 bolls of 4 cwt. each per imperial acre. Having had an opportunity of seeing Mr. Smith of Deanston's subsoil plough at work, and observed it, from its great weight, very unwieldy to manage, I converted one of my strongest iron ploughs into a subsoil one, by taking off the mould-board and attaching a narrow piece of iron about four inches broad to the share, which caused it to go steadily, and prevented the breast-work from wearing. I put the Hunterian swing-plough first, taking a depth of 8 inches, followed by the subsoil one, with two horses, taking an additional depth of 7 inches, making a total depth of 15 inches. It was incredible to see the fine mould, or rather compound, which was loosened by the subsoil-plough, the land having been reclaimed from a state of nature upwards of 40 years ago. It was at that time well limed, and had received several limings, both in a powdery and compounded state, since that time. After being subsoiled, it was well harrowed, and received another furrow when ploughing it in ridges for the succeeding crop. It remained so all winter, and was sown with common Barley on the 1st of April. The weather being favourable, the field was finished very smoothly. The whole field was rolled before the Barley appeared; both the subsoiled and unsubsoiled portions had the same appearance at brairding, and continued much alike as long as the drought lasted, which, no doubt, prevented the fibres of the grain from deriving that benefit from the subsoiling they would otherwise have obtained; but whenever the field received a drenching of rain, the subsoiled part showed a decided superiority, and continued to make rapid progress before the other part of the field up to the time of harvest. The entire field was cut upon the 3d day of September. The subsoiled portion was scarcely so ripe as the other, from its being considerably lodged; but I was induced to cut it from the favourable state of the weather. The crop was allowed to remain in the stook until the 15th day of September, when it was weighed and threshed.

Table showing the comparative Results upon Land Subsoiled and not Subsoiled, bearing a Crop of Barley, in 1844.

No.	Treatment Received.	Produce of Grain per Imperial Acre.	Produce of Straw per Imperial Acre.	Weight per Bushel.	Excess Produce of Grain.	Excess Produce of Straw.	Quantity of Ground.
		qr. bu. pk.	st. lbs.	lbs.	bu. pk.	st. lbs.	
1	Subsoiled .	7 3 0	206 6	52½	7 3	38 0	2 acres
2	Not subsoiled	6 3 1	168 6	52½	..	..	2 acres

Another part of the field, which I intended to furrow-drain and summer-fallow in 1843, consisting of about four acres, after repeated ploughings and harrowings, I subsoiled to the depth of 15 inches, and afterwards limed it with 30 bolls of lime-shells per acre. It was applied in a hot or floury state immediately before ploughing the seed-furrow. The land upon each side was properly prepared for Turnip, and manured with winter-made dung. The crop throughout the season gave convincing proofs of the advantage of subsoil-ploughing. Not

having ascertained by separate weighing the comparative results of this portion of subsoil-ploughed ground, I may state that the apparent difference was equal to, if not greater than, the one accurately tested by weighing, measuring, &c. Another field, containing about four acres, was drained in winter, 1842, and sown with Oats in spring, and produced rather an inferior crop. It was subsoiled immediately after the crop was secured, and, being more tenacious, both ploughings only afforded a depth of 13 inches. Ever since its improvement, which at that time produced a scanty herbage, when the adjoining lands were under green crop, it was set apart for summer fallowing, no doubt from its great tenacity, and being always in a soft and marshy state; it was completely dried by the furrow-draining; and in spring, when it was wont to be the last field upon the farm in a fit state for ploughing or sowing, in spring 1843 it assumed a different aspect, and was the first to give signs of approaching seed time. I was sanguine that the furrow-draining would have effected all that was necessary; but, ever since the Turnips brairded, I found my expectations disappointed, the furrow-drained part looking thin and stunted. At one time I expected to have to sow them a second time, or to summer-fallow the ground. From the genial nature of the season, however, they assumed a healthy appearance, and have ultimately proved nearly an average crop; but those upon the subsoiled part came off at first with a rapid growth, and, during the season, gave ample testimony of the benefit derived from subsoil-ploughing.

Table showing the Comparative Results upon Land Subsoiled and not Subsoiled, growing Turnips, in 1844.

No.	Treatment Received.	Produce per Imperial Acre.	Excess Produce per Imperial Acre.	Quantity of Ground.
		tons cwt.	tons cwt.	
1	Subsoiled .	23 17	4 12	2 acres.
2	Not subsoiled .	19 5	..	2 acres.

I lately examined a field of about 8 acres, which for many years had been conspicuous for bearing inferior crops, whether grain, green crops, or pasture. It was furrow-drained in winter, 1842, and subsoiled in autumn, 1843, after the separation of the crop, with the Deanston subsoil-plough, drawn by four horses, the common plough going before, making a total depth of 15 inches. It was sown with Swedish, yellow, and common Turnips in 1844. It was well prepared, and received a liberal supply of putrescent manure and compost of lime and earth. The crop has proved most luxuriant, so much so, that I have not seen a better one this season. Thus furrow-draining and subsoiling constitute a simple mode of changing unproductive land into one of productiveness and fertility. I have thus given a short detail of the state of the land previous to being furrow-drained and subsoil-ploughed, and the results, compared with land not subsoiled, upon Turnips and Barley in 1844, have proved quite satisfactory even where great expense has been incurred in furrow-draining, liming, and manuring. An additional outlay of—say 12*s.* per acre—is, however, injudiciously withheld for perfecting an improvement which will render the land capable of bearing abundant crops.—*Mr. M'Lean, in the Quarterly Journal of Agriculture.*

Feeding of Animals (*Boussingault, vol. ii. p.* 412).—The favourable or unfavourable effect of any particular kind of food is best determined by frequently weighing the animal which is the subject of our experiments. Where the object is to keep an animal fit for labour, as in the case of draught horses, or for the dairy, the allowance of food must be such as to keep the weight as nearly as possible constant. A too sparing regimen injures their condition, strength, and activity, and, in the case of cows, the milk will fall off. The allowance remaining the same, loss of weight, leanness, and decrease of milk will be the consequence, if we exact more than the average amount of labour. It is, then, an indispensable condition in experiments of this nature, to let the labour be as uniform as possible. Young animals which have wholesome and sufficient nutriment increase daily according to a ratio, which we shall attempt presently to estimate. Change of diet will produce corresponding change in growth. Beasts in the stall receive always nourishment in excess, which must accordingly be added to the normal ratio. The increase of weight in a given time is often large enough to be appreciated even by very frequent weighings; it varies, however, at different periods of their feeding. The nutritive value of food is not so readily estimated in this case; but, in a practical point of view, it is nevertheless useful to estimate the influence of food on the production of fat. A nutritive equivalent wrongly applied would soon produce an effect different from what we expected, and the animal would lose in weight instead of increasing. When we know the quantity of food necessary to keep an animal in vigorous health, or to produce an increase of flesh or milk, it is weighed, and the additional nutriment supplied whose effects we are anxious to ascertain. After a certain interval it is again weighed, and the effect estimated. This, however, as before remarked, is subject to grave errors, which I have endeavoured to diminish in my experiments on the feeding of horses. In a great number of observations which have come under my view, the different kinds of food have not been persevered in long enough, and, in consequence, changes of weight, arising from accidental circumstances, have been attributed to the change of food. In theory, an adult animal should, at the same hour of the day, always have the same weight; but this is not rigorously true, except we throw our observations over a considerable time, and thus diminish any accidental discrepancy. To ascertain the variations to which an animal fed uniformly with the same weight of food, and at the same hours, may be subject, I weighed, for many successive days, a horse and mare, submitted to a perfectly uniform regimen, and uniformly worked at a pump. The weights were taken at midday, before the animals were watered, four or five hours after breakfast.

Times of weighing.	Weight of Horse.	Weight of Mare.	
	lbs.	lbs.	
16th Dec., 1841	999,3	1089,7	
17th „ „	1003,7	1096,3	
18th „ „	1005,9	1096,3	
19th „ „	1001,5	1097,4	
20th „ „	990,4	1074,3	
21st „ „	991,5	1075,4	
22d „ „	990,4	1085,3	
23d „ „	1001,5	1095,2	
24th „ „	1001,5	1068,8	
25th „ „	1013,6	...	
27th „ „	988,2	1082,	
28th „ „	997,1	1094,1	
29th „ „	1001,5	1083,1	
30th „ „	988,2	1067,7	
31st „ „	998,2	1083,1	
Mean . .	997,8	1084,9	
Maximum .	1013,6	1097,4	
Minimum .	988,2	1067,7	
	15,8	12,5	Greatest difference above mean weight.
	9,6	17,2	Greatest difference below mean weight.
	25,4	29,7	Difference between extreme weights.

Another horse, 12 years old, was weighed fasting, at 4 A.M.:—

Time of Weighing.	Weight of Horse.	
26th April, 1842	1048,2	
27th „ „	1034,6	
28th „ „	1054,4	
29th „ „	1063,2	
30th „ „	1041,2	
Mean . .	1048,3	
	14,9	Greatest difference above mean weight.
	13,7	Greatest difference below mean weight.
	28,6	Difference between extreme weights.

We see, then, that a horse fed very uniformly, and weighed at the same hour, nevertheless varies even to the amount of 29,7 lbs., a difference which might otherwise be attributed to its food. We see, then, the necessity of continuing our experiments for some time to diminish this cause of error. This variation is found in different animals; it is necessarily less in young animals or sheep than in adult horses. The variation of weight in the case of a ram, mentioned above, amounting in a day or two to above 2 lbs., and ascertained by the most careful and scrupulous observer, may now be understood to have been prely accidental.—*M. J. B.*

Is the Potato an Exhausting Crop?—Strong objections are entertained by many against the extended cultivation of Potatoes, on the ground that this crop, being carried off the farm, exhausts the staple of the land, without making any corresponding return of manure. If it can be shown that the advantages attending its cultivation enable the farmer to counterbalance this disadvantage, I hope I shall remove the prejudices of landlords against a crop otherwise so useful to the country at large. The advantages of this crop to the farmer are these—that being less influenced by the season than any other crop, it has been for many years the most regularly productive, and from its extensive application, either in a raw or manufactured state, it has maintained, and is likely to maintain, a remunerating price, while its great bulk, and consequent expense of transportation, will prevent a depreciation by foreign competition. The advantages to the community are, that they obtain an equal amount of nutriment at half the price of Wheat, 1 acre of Potatoes producing as much nutritive matter as 2 of Wheat, whilst the additional wages expended in labour on this crop, as compared with any of the cerealia, should recommend it to those who are anxious to see the labourer employed. No crop grown by the farmer is more dependant on a due application of manure for its success than the Potato. This must always be a check on its too extensive cultivation; and if it does not directly return manure to the farm, it furnishes the means of more cheaply and advantageously purchasing manure. It is calculated that an acre of Turnips consumed on the farm, will leave one-fourth of its weight of manure for the next crop; for example, that 24 tons of Turnips will leave 6 tons of dung. Besides the dung, 24 tons of Turnips will produce 280 lbs. of beef (90 lbs. of Turnips being calculated to produce 1 lb. live weight of beef), so that the value of the Turnip crop may be pretty accurately arrived at, and compared with the Potato crop. The land which would produce 24 tons of Turnips would grow 10 tons of Potatoes, with the same value of manure; and the expense of cultivation would be probably much the same, after all the costs of attendance, interest, and other incidents in the management of stock, are taken into account. Assuming, therefore, the expenses of both crops to be alike, we find the relative value as follows:—

24 tons of Turnips give 280 lbs. of beef, at 6*d.*, ..	£7	0 0
And 6 tons of dung, at 2*s.* 8*d.*	0	16 0
Total value of an acre of Turnips, ..	£7	16 0
10 tons of Potatoes, at 25*s.* per ton, .. £12 10 0		
Total value of an acre of Potatoes	12	10 0
Additional value of Potatoes to the grower	£4	14 0

After making a fair allowance for the manure produced by the Turnip crop. The value of the dung is calculated on its relative productiveness, as compared with guano, according to the experiments by Mr. Gardner, detailed in the last number of the "Journal of Agriculture." The expenses of cultivation and manure will, in both cases, amount to between 6*l.* and 7*l.* an acre; so that while on Turnips the farmer will scarcely realise 1*l.*, on Potatoes he will have between 4*l.* and 5*l.*, after making due allowance for the manure returned to the farm in the consumption of the Turnip crop. And when the rent is charged against the balance remaining, we are not surprised that farmers, who calculate accurately the expenses of their different crops, are beginning to look upon Turnips as a necessary evil, for which it would be most desirable to substitute a positive good. By the relative composition of the Turnip and Potato crop, it appears that 24 tons of Turnips and 10 tons of Potatoes extract from the soil and air nearly an equal amount of dry solid matter, in both cases 2½ tons; so that while both crops are theoretically the same as exhausters of the soil, it will be found in practice that they are equally ameliorating as preparative crops; for I have often had better, always as good, white crops after Potatoes as after Turnips. Some farmers complain that their pasture is not so good after Potatoes, and instances of this have been frequently pointed out to me; but I have always found in such cases that the Potato-crop had been planted on a bit of inferior land, too wet and weedy for a Turnip crop. Indeed, it is quite common to hear a farmer say that he means to take Potatoes off a piece of land because it is not clean enough for Turnips; and yet, without considering the previous bad condition of his land, he blames the Potato crop for his inferior pasture. If, then, I have succeeded in showing that, as exhausting crops, the Turnip and Potato are on a par, while the Potato crop gives a considerable profit, and the Turnip an actual loss to the grower, and that all the gain to the farm from the manure returned to it by the Turnip crop, can be so easily compensated out of the extra money value of the other, I think my case will be completely proved by adducing one or two instances in which it has been actually found that the frequent repetition of the Potato crop is not followed by exhaustion of the soil. In the account of Stinchcombe Farm, in Gloucestershire, in Part IV. of the "Royal Agricultural Society's Journal," it appears that Potatoes have been taken as a crop every *third* year for the last 40 years; and the writer, Mr. Morton, says:—"I have been in the habit of riding over the farm 10 or 12 times a year for the last 25 years, and I can safely say, that instead of a diminution in the crops, there has been an increase not only in the yearly return of each of the three crops grown, but also in the quality and fertility of the soil." The writer of this can point to two instances, the one a patch of about an acre, in which Potatoes are the only crop which have been grown for many years, and last year the crop was extremely luxuriant; the other, a few acres in the possession of a tradesman, which have been cropped for many years back with Potatoes and Barley in succession, the one-half of the land being every year in Potatoes, and always good crops: in both cases the soil has been well manured. It may appear strange to some, that 24 tons of Turnips should leave only 6 tons of dung: but if they consider the matter, they will find that nearly 22 tons of the Turnips is pure water; and that 90 per cent. of the bulky crop which they toil themselves and their cattle in drawing off the land during a great part of the winter, might be much more easily obtained by a pipe from the mill-race: indeed the greater luxuriance of the Turnip crop on the west as compared with the east coast of the island, may be very probably accounted for by the greater fall of rain during the year in the former, furnishing more readily the chief constituent of the crop. The interest of the owner of the land will be sufficiently guarded, not by prohibiting the crop from being grown, but by having the tenant bound, during the latter years of his lease, to purchase a proportionate quantity of manure for the Potatoes he sells off the the farm; but the fact of a good crop of Potatoes being grown, is a guarantee to the landlord that the land has been fairly treated, as without an abundant supply of manure an abundant crop of Potatoes could not be produced.—*Dumfries Herald.*

A Visit to Mr. Davis's Farms at Croydon.—Spring Park is an open farm, with but few hedges, and apparently much exposed; there are a few ornamental plantations and Alder groves; being very springy, it has all lately been subsoil ploughed to the depth of 18 inches, effected through a very sharp gravel. In this operation immense pieces cemented together as hard as a rock have been thrown up. We first proceeded across a piece of Barley, drilled at 10 inches intervals, with 6 pecks to the acre: it was certainly as thick as could be expected from the quantity of seed deposited, and looked remarkably healthy. The next was a piece of Oats drilled with the same quantity of seed, at the same dis-

tance, as above: we thought the plant very thin for that crop. I asked our guide how many quarters per acre he expected at harvest under favourable circumstances; he said at least 10—the last year's crop averaged 12. The next piece was Beans, drilled at 2 feet 3 inches intervals, 8 pecks to the acre, in December: these appeared to have suffered much from the severity of the winter, and had made but little progress lately. The piece was extremely clean, and had a garden-like appearance, which observation may be applied to all the crops on the farm; here the horse-hoe was at work pulverising the soil for the Turnips to be drilled in the intervals. I carried a stick with me, with a blunt end, half an inch diameter; this I could easily thrust into the land to the depth of 14 inches. [!] Our next object was a large piece of Wheat, on land which we thought as good as any on the farm, drilled with 3 pecks to the acre, about 11 inch rows. The Wheat was exceedingly thin; my friend said he thought it could not produce 2 quarters of Wheat at harvest under the most favourable circumstances. The bailiff admitted that the wire-worm had been making great ravages with it this spring, but he did not despair, as their Wheats looked nearly as bad at this time last year, and he had reason to believe the last year's crop would turn out 5 quarters to the acre. The next piece was a miserable looking field of Wheat on a wet piece of land that had not been drained; from the humidity of the soil I imagined the late winter had destroyed half its original thin plant. My friend remarked, "You must not bring me here to learn how to grow a good crop of Wheat." The horses were employed in putting in Swedes on the ridge system, highly manured with farm-yard manure, in every respect creditable to its spirited occupier. The men were laying down drain-tiles at 4 feet depth, in drains at 60 feet distance, in the direction of the declivity of the land. The bailiff now said, "You have seen the worst of it; you must walk a mile and see my master's other farm." On our way thither we met Mr. Davis, to whom I remarked that I thought the farm well calculated to carry out the system of thin sowing, from its open situation, not being liable to that dreadful scourge, the mildew. Mr. D. said he only knew it by name. My friend intimated that he thought it going to an unnecessary expense to lay down drain-tiles at 4 feet deep. Mr. D. replied that it was a secret lately discovered in draining that the drains could not be made too deep, and that land would drain well in a gravelly subsoil with the drains at 60 feet distance. We then proceeded to the other farm; this we found to be as admirable and as snug a concern as a man could desire—composed of convenient-sized inclosures, well sheltered, the hedge, studded with thriving Elms, and growing under them plenty of luxurious weeds and Sting-nettles. It may not be amiss to recite here an old anecdote of a blind man going to take a farm for his son; there are many worse hints thrown out to young farmers than this. On his arriving on the spot he alighted from his horse, and desired the person that was going to conduct him over the farm to fasten his horse to an Elm tree; the reply was that there was not one on the estate. "Oh, then set me beside a hedge where the horse can get at plenty of Sting-nettles?" "Nothing of the kind grows here, sir." "Then I must wish you good morning; the farm won't suit me." Thriving Elm trees and luxurious Sting-nettles are sure indicators of a good and grateful soil, top and bottom. On this farm every description of crop was looking as well as any person could desire or wish to see, precisely under the same management as the home farm: here we found a piece of Wheat drilled with 3 pecks to the acre, planted sufficiently thick to ensure 5 quarters to the acre, under a favourable season. The inspection of these two farms fully confirms my former opinion of thin sowing, that it is a dangerous experiment to be widely entered into where diseases, or the effects of a severe winter, are to be dreaded. It is very evident that Mr. Davis has two large pieces of Wheat seriously injured, one by the wire-worm, and the other by the effects of the frost, from the humidity of the soil; and I cannot at present bring my mind to believe but that if 6 pecks of Wheat had been deposited there per acre, instead of 3, there would at least have been a quarter, or one and a-half more at the time of harvest to the acre. But, should it please God to spare my life, by Mr. D.'s permission I will see his crops again the latter end of July or the beginning of August.—*An Experienced Farmer; in Bell's Weekly Messenger, May* 17, 1845.

American Hops.—An extensive fresh importation has just taken place of very excellent quality. The duty on this produce is so high that the last which were imported were sold for the use of Sydney and the Channel Islands.—*Daily Paper.*

Notices to Correspondents.

RURAL CHEMISTRY—By E. Solly, Esq., F. R. S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer on Chemistry at the Royal Institution, may be had of all booksellers, price 4*s.* 6*d.*

BEVERSTONE PLOUGHS—*Mos*—You can obtain it on application at any of the towns on the Cotswolds; Cirencester, for instance, Gloucestershire. We do not know the price, but it is not expensive. Two horses would easily work it on sandy loam, but we should prefer the Scotch *iron* swing plough. About farm-buildings next week.

BROME GRASS—How can this be eradicated without breaking up the pasture? We do not know. The Grass is not nutritious if cut before flowering, or, at latest, not after flowering.

ELECTRO CULTURE—*T T*—In Dr. Forster's experiment we believe the suspended wire was parallel to the surface of the ground: in that case the poles, of course, must have been of equal heights.

INDEX—*T T*—Thank you. The principal subjects discussed at the meetings of Farmers' Clubs, &c., have always appeared in their alphabetical plans in the indices; your suggestion, however, is very good, and we shall adopt it.

LUCERNE—*H S M*—We should prefer drilling or dibbling the seed in April to transplanting. Plants for transplanting in September may be obtained by sowing in the 1st week in July.

PARING AND BURNING, &c.—*A Subscriber*—This is the most economical method of breaking up pasture-land. A loss is indeed sustained of all that flies off in the smoke, but there are many counterbalancing advantages. Insects are killed, the land is easily brought to a fine tilth; a green crop—Swedes, for instance,—may be obtained off the land the first year, and thus a stock of food is provided, which, being consumed on the land, provides a stock of manure for the maintenance of its fertility. Grass-land ought to be broken up in autumn if it be intended to plough or dig it; and Oats on light soils, Beans on heavy soils, are the best crops to plant in the following spring; but, if it be managed as it ought, it will be pared and burned in autumn or early in spring, the ashes will then be spread, and the land ploughed very shallow; after rolling and harrowing it should then be cross-ploughed 6 or 8 inches deep, and well broken down with the harrow; a third ploughing may then be necessary, and the land may then be drilled up and sown to Swedes. Can any one tell how to clear a deep pond of weeds without letting it dry? Mowing is of no use.

PRIZES FOR ALLOTMENT-HOLDERS—*W S P*—Their object should not be to foster an uneconomical mode of cultivation: there is often a difficulty in overcoming the prejudices of the tenant, and in inducing him to adopt details of management which, if he would only try them, would be sure to be adopted permanently on account of their own obvious merits; the legitimate object of prizes appears to us to be the overcoming of this difficulty, Let a prize worth contending for be offered for the most careful and least offensive management of the manure; let another be awarded for the neatest and cleanest general cultivation: these two must be awarded on the judgment of some impartial and competent person of character, held in estimation among the tenants, who has had constant opportunities of examining the whole during the year. Prizes should also be awarded for the largest gross produce, over the whole extent so cultivated, of the various green crops grown, Potatoes, Turnips, Carrots, Parsnips, Cabbages, or whatever else may have been grown. The cultivation and management on which these crops depend will insure a good crop of Wheat, so that no prizes need be offered for corn crops. These prizes, again, would be determinable by the actual weighing of the crop. November, or some other autumn or winter month, appears to be the best period for awarding the premiums.

RATS—*A Sub*—The receipt referred to is as follows:—Melt hog's lard in a bottle plunged in water of temperature 150° F.; introduce into it half an ounce of phosphorus for every pound of lard, then add a pint of proof spirit or whisky; cork the bottle firmly after its contents have been heated to 150°, taking it out of the water and agitating till the phosphorus becomes uniformly diffused, making a milky-looking fluid. The spirit may be poured off on the liquid cooling; and you have then a fatty compound, which, after being warmed gently, may be incorporated with a mixture of Wheat-flour or sugar, flavoured with oil of Rhodium or oil of Aniseed, &c.; and the dough, on being made into pellets, should be laid at the rat-holes: being luminous in the dark, and agreeable both to their palates and noses, it is readily eaten and proves certainly fatal. The rats issue from their holes and seek for water to quench their burning thirst, and they commonly die near the water. See communication from Dr. Ure to the Royal English Agricultural Society, 17th July, 1844.

RENNET—*E H R*—Sulphuric acid has been so used, in very small proportions; but it did not precipitate the curd so perfectly as the common rennet.

ROTATION OF CROPS—*F X*—Your proposed rotation is as good a one as we can suggest. A little experience will show whether it would be improved by allowing the seed to remain two years down instead of one only.

SMUT IN OATS.—*D J*—Adopt a similar pickle to that you use for Wheat. Old urine diluted or a solution of 2 oz. of sulphate of copper per bushel, will probably answer the purpose.

SUPERPHOSPHATE OF LIME—*M J R*—The quantity of water which your water-cart will spread over an acre when drawn over it at the ordinary rate of a horse-walk is, we will suppose, 500 gallons. Well, then, dissolve the quantity of superphosphate you intend applying per acre, say three cwt., in that quantity of water.

VALUE OF LAND, &c.—*Landowner*—The average rental of England and Wales is estimated to be about 17*s.* 8*d.* per acre. The local taxes we have met with no estimate of; the gross produce may average somewhere about 5*l.* per acre. The price of the funds cannot have any immediate *influence* on that of the land; they may indeed indicate a state of things affecting its value. The repeal or continuance of the present Corn-laws is a subject quite out of our province. The labour attending on the cultivation of land depends on the nature of the plants cultivated; it may in general cost from one-third to half of the gross produce. See page 261 and 277. A farmer should reap at least 10 per cent. on the capital he employs. Land is a good investment, provided the purchasers have the ability necessary to improve and manage it—there is none better.

*** Ausual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, June 23.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4*s*	6 to 4*s*	8	Best Long-wools	-	4*s* 8 to 5*s*	0
Best Short Horns	-	4 2	4 4	Ewes and second quality		4 2	4 6
Second quality Beasts	-	3 2	3 8	Lambs	- - - -	5 4	6 0
Calves	- - -	4 0	5 0	Pigs	- - - -	3 4	4 4
Best Downs & Half-breds		5 0	5 4				

Beasts, 2594; Sheep and Lambs, 22,170; Calves, 211; Pigs, 290.

We have rather more Beasts to-day, but the demand is extensive. Some of the best Scots have made somewhat over our top quotations: the trade, however, fell off at the close of the day.—The supply of Sheep is very small, and readily sold at the above prices.—Lamb is more in demand, but we cannot quote advance.—Veal-trade is brisk.—Pork-trade is good for the time of year.

FRIDAY, June 27.

We have a fair supply of Beef to-day with a very dull trade; prices are lower. Best Scots scarcely make 4*s.* 8*d.*, some very good ones are sold at 4*s.* 6*d.*; Short Horns rather over 4*s.* 2*d.*—There is an average supply of Sheep; Monday's quotations cannot be supported. Best Downs, &c., make little over 5*s.*; and best Long-wools rather more than 4*s.* 8*d*; Ewes, &c., 4*s.* to 4*s.* 4*d.*—Best Lamb is selling dearer, and is worth about 6*s.* 4*d.*, but middling qualities do not advance.—Veal-trade is not so good, it is difficult to make 5*s.* of a very choice Calf.—Pork is not much in request; nice small Porkers make about 4*s.*

Beasts, 1107; Sheep and Lambs, 11,960; Calves, 449; Pigs, 840.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, June 23.

The supply to this Market for the season is unusually large, and the weather of late has been very fine and productive. The town Markets are now abundantly supplied with Peas and Vegetables, and the new Potatoes are earlier and better than could have been expected some time back. The trade at the warehouse is excessively dull, most of the samples being effected by the dry rot, in consequence of which many lots are undesirable. The demand is limited, even for the best samples, and the trade is excessively heavy at the following prices:—

York Reds	- - -	50*s* to 60*s*		Wisbeach Kidneys	- -	40*s* to 55*s*	
Perth	- - -	40	50	— Blues	- -	—	—
Fifeshire	- - -	—	—	— Whites	- -	—	—
Early Devons	- - -	—	—	— Regents	- -	—	—
Late Devons	- - -	70	—	Guernsey Kidneys	- -	40	50
Cornwall	- - -	—	—	— Whites	- -	—	—
Jersey Blues	- - -	40	50	York—Prince Regents	- -	25	45
— Whites	- - -	—	—	— Blues	- -	—	—
Kent and Essex Whites	- -	—	—	— Reds	- -	—	—
— — Kidneys		40	—	Irish Whites	- -	—	—
Dutch Whites	- - -	—	—				

COVENT GARDEN, JUNE 28.—The market has been well supplied with everything during the week, but trade has not been brisk. Excellent specimens of Pine Apples may be obtained at last week's prices. Grapes continue to increase in quantity, as well as to improve in quality; very fine samples of Black Hamburghs may be bought for about 6*s.* a pound. Good Dutch Melons bring about 6*s.* each; those of English growth sell a little dearer. Cherries are somewhat reduced in price; a considerable quantity of foreign varieties have been produced during the week. Peaches and Nectarines have not altered in price since our last report. Green Gooseberries and Currants are brought in large quantities, and Strawberries are also becoming more abundant. Apples and Pears are very scarce, and Oranges are not so plentiful as they have been. Of Vegetables, Cauliflowers are somewhat reduced in price; they are excellent in quality, as are also Carrots and Turnips, both of which are much cheaper. Some good Rhubarb is in the market, and French Beans and Asparagus are sufficient for the demand. Peas are much more plentiful, and the prices are in consequence considerably reduced. Mushrooms are cheaper, and Lettuces and salading of all kinds are sufficient for the demand. Of cut flowers there is a fine display; among them we noticed several species of Erica; also Gardenias, Pinks, Lily of the Valley, Pelargoniums, Fuchsias, Ranunculuses, Verbenas, Moss, Provins, and other Roses, in great profusion.

FRUITS.

Pine Apple, per lb., 6*s* to 8*s*	Walnuts, per bushel, 12*s* to 20*s*
Grapes, Hothouse, per lb., 2*s* to 6*s*	Oranges, per dozen, 1*s* to 2*s* 6*d*
Peaches, per doz., 6*s* to 20*s*	Nuts, Per 100, 6*s* to 18*s*
Nectarines, per doz., 6*s* to 20*s*	— bitter, per 100, 14*s* to 20*s*
Cherries, per lb., 2*s* to 6*s*	Lemons, per dozen, 1*s* to 3*s*
Apples, Dess., per bush., 10*s* to 15*s*	— per 100, 6*s* to 14*s*
— Kitchen, 6*s* to 12*s*	Almonds, per peck, 6*s*
Melons, 4*s* to 8*s* each	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Strawberries, per pottle, 1*s* to 2*s*	Cob Nuts, per 100 lbs., 120*s* to 150*s*
Apricots, green, per pottle, 1*s* 6*d* to 2*s*	Nuts, Barcelona, 24*s*
Currants, green, per hf.-sv., 2*s* to 2*s* 6*d*	— Brazil, 20*s*
Gooseberries, green, p. hf. sieve, 2*s* to 2*s* 6*d*	— Spanish, 20*s*
Chesnuts, per peck, 6*s* to 8*s*	— Cob, 16*s*

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 3*d*	Garlic, per lb., 3*d* to 10*d*
— plants, per doz. bnch., 1*s* to 2*s*	Onions, per bunch, 3*d* to 1*s*
Cauliflowers, per doz., 6*d* to 6*s*	— large, per bushel, 10*s* to 15*s*
French Beans, per 100, 1*s* 6*d* to 3*s*	— Spanish, per doz., 1*s* 6*d* to 4*s*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Shallots, per lb., 6*d* to 10*d*
Artichokes, per doz., 2*s* to 6*s*	Lettuce, per score, Cab., 6*d* to 1*s* 6*d*
— Jerusalem, p. hf.-sv., 2*s* to 3*s*	— — Cos, 6*d* to 1*s*
Potatoes, per ton, 40*s* to 90*s*	Celery, per bunch, 1*s* to 2*s*
— cwt., 2*s* to 5*s*	Radishes, per doz. bunds. 6*d* to 1*s*
— bushel, 1*s* 6*d* to 3*s*	Mushrooms, per pottle, 9*d* to 1*s* 6*d*
— Kidney, per bsh., 2*s* to 2*s* 6*d*	Small Salads, per punnet, 2*d* to 3*d*
— Autumn, per lb., 4*d* to 6*d*	Basil, green, per bunch, 6*d* to 9*d*
— New, per lb., 4*d* to 1*s*	Fennel, per bunch, 2*d* to 3*d*
Turnips, per doz., 2*s* to 6*s*	Savory, per bunch, 4*d* to 6*d*
Red Beet, per doz., 2*s* to 6*s*	Thyme, per bunch, 4*d* to 6*d*
Carrots, per doz. bchs, 4*s* to 12*s*	Watercress, p. 12 sm. bun. 4*d* to 6*d*
Rhubarb, per bundle, 4*d* to 1*s*	Parsley, per half sieve, 6*d* to 1*s*
Peas, per sieve, 1*s* 9*d* to 5*s*	— Roots, per bundle, 9*d*
Asparagus, per bundle, 1*s* to 4*s*	Tarragon, per bunch, 4*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Mint, per bunch, 2*d* to 3*d*
Cucumbers, per brace, 6*d* to 3*s*	Marjoram, per bunch, 3*d*
Spinach, per sieve, 3*d* to 1*s*	Chervil, per punnet, 3*d* to 4*d*
Leeks, per doz., 2*s* to 3*s*	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, June 26.

Prime old Meadow Hay	100*s* to 112*s*	New Hay	80*s* to 90*s*	Clover	110*s* to 120*s*
		Inferior Hay	— —	Straw	38 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, June 26.

Superior Mead. Hay	115*s* to 120*s*	Superior Clover	115*s* to 123*s*		
Inferior -	97 105	Inferior ,,	100 103	Straw	38*s* to 44*s*
New Hay -	60 80	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, June 27.

Fine Old Hay	-	110*s* to —*s*		Old Clover	—*s* to 130*s*		
Inferior Hay	-	90	100	New Clover	110	120	Straw 36*s* to 42*s*
New Hay	-	60	72				

HOPS, FRIDAY, June 27.

The accounts from the plantations state that the bine is growing fast, but the vermin in many places is on the increase, and, with damp weather, may prove of serious injury to the crop. The Market remains firm.

PATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, June 23.

The arrivals of Wheat from Essex, Kent, and Suffolk, by land carriage samples at this morning's Market were small, but the weather continuing very fine for the crops, millers evinced great reluctance to purchase, and no progress could be made with sales until a reduction of fully 1*s.* per quarter was submitted to upon all descriptions; the value of free Foreign remains nominally the same, with very little business doing; there is a slight demand for bonded for export, but at too low prices to admit of any transactions taking place; the Continental Markets are dull, and the turn lower. Barley fully supports our quotations of last week. Beans and Peas continue scarce, and unaltered in value. The Oat trade is heavy; Foreign must be noted fully 6*d.* lower than on this day se'nnight, and Irish barely maintain late rates.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk - - White	44	50	Red -	43	49
—— Norfolk, Lincolnshire, and Yorkshire - — —			White -	—	—
Barley, Malting and distilling 25*s* to 29*s*	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire - -	Polands	20	23	Feed	19	22
—— Northumberland and Scotch - -	Feed	20	22	Potato	21	24
—— Irish - - - -	Feed	20	23	Potato	21	23
Malt, pale, ship - - - - - -		54	60			
—— Hertford and Essex - - - - - -		58	65			
Rye - - - - - - - -		29	32			
Beans, Mazagan, old and new 32 to 38	Tick	32	39	Harrow	34	40
Pigeon, Heligoland - 37 to 44	Winds	—	—	Longpod	—	—
Peas, White - - - - 36 to 39	Maple	36	39	Grey	33	36

FRIDAY, June 27.

There has been very little business doing in any description of corn during the week, and the value of Wheat, Barley, Beans, and Peas, remains nominally the same as on Monday last. Oats meet a slow sale, and although late rates are obtained for fine fresh qualities, Foreign, which are mostly more or less out of condition, and all inferior sorts, are rather cheaper.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May	17 per Quarter.	45*s* 10*d*	30*s* 5*d*	21*s* 6*d*	31*s* 4*d*	37*s* 3*d*	36*s* 8*d*
—	24 - - -	45 9	30 0	21 9	29 7	37 5	37 0
—	31 - - -	46 3	29 5	20 11	27 2	36 7	36 7
June	7 - - -	47 7	30 2	22 2	33 0	38 0	38 1
—	14 - - -	48 3	30 3	22 8	31 4	38 1	37 0
—	21 - - -	47 10	29 9	22 7	31 2	38 6	38 6
6 weeks' Aggreg. Aver.		46 11	29 11	22 3	31 0	37 9	37 5
Duties on Foreign Grain		20 0	9 0	6 0	10 6	5 8	5 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 21.

PRICE.	MAY 17	MAY 24	MAY 31	JUNE 7	JUNE 14	JUNE 21
48*s* 2*d*	..	..	..	..	..	..
47 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..

SEEDS, June 27.

Canary - -	per qr	44*s* to 48*s*		Linseed Cakes, Foreign, p. ton		7*l* 10*s* to 9*l*	
Carraway -	per cwt	44	48	Mustard, White - p. bush.		10*s*	14*s*
Clover, Red, English -	—	—		— Superfine ,, -		12	16
— — Foreign -	—	—		— Brown ,, -		12	16
— White, English -	—	—		Rapeseed, English, per last		36*l*	30*l*
— — Foreign -	—	—		Rape Cakes - per ton		—	—
Coriander - - -	12	13		Saffron - - - -		—	—
Hempseed - per last	36	38		Tares, Eng. winter p. bush.		4	6
Linseed - per qr	52	56		— Foreign - -		3	5
— Baltic - -	53	—		Trefoil - - per cwt		18	22
— Cakes, Eng. per 100	11*l*	0 1		Turnip (too variable for quotation)			

ALL DESCRIPTION AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed by the Executrix of the late C. FARLEY, Esq., to submit to public competition, by Auction, on the Premises, 32, Kennington-street, Walworth, on Thursday July 3d, the very rare and valuable Collection of CACTI and other Succulent Plants, which have been collected at a very great expense. Also two newly-erected Greenhouses, Hot-water Apparatus, Pits, several two and three-light Boxes, Hand-lights, a Bed of rare Tulips, choice Auricula, Tulip Stage, and iron Hoops, an excellent Summer-house, Iron Roller, a Quantity of Box-edging, Garden Utensils, &c. May be viewed three days prior to the sale, when Catalogues may be had of the principal Seedsmen, of Mr. FRYER, Clarendon Nursery, Camberwell, on the Premises, and of the Auctioneers, American Nursery, Leytonstone.

TO FLORICULTURISTS AND OTHERS.

TO BE SOLD BY AUCTION, by Mr. E. E. STONE, on the premises, No. 24, Brooksby-street, Liverpool-road, Islington, on Thursday next at one o'clock, by order of the administratrix, the well-known and valuable collection of TULIPS, the property of the late Mr. JOHN EDES, of Islington. Also an excellent TULIP CABINET for 60 Rows, and all the Household Furniture and Effects. May be viewed the day prior to, and morning of, sale, and Catalogues had on the premises and at the Auctioneer's Office, 83, St. John's-street.

TO SEEDSMEN, FLORISTS, AND OTHERS.

TO BE DISPOSED OF, a valuable and old established BUSINESS in one of the main thoroughfares of the City. None but Principals, with real name and address, will be treated with. For particulars apply by letter to A. B. C., at Mr. GROOMBRIDGE'S, 5, Paternoster-row.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

MESSRS. DANIELL, HUTCHINSON & CO., having completed their extensive works for manufacturing

DANIELL'S PATENT CORNWALL WHITE MANURE,

respectfully announce that they are delivering the same for the present Turnip season. The experiments upon various White and Green Crops of the preceding year have established its title to one of the first Manures of the day, to which fact several eminent Agriculturists testified at the late East Penwith Agricultural Meeting. Besides its possessing all the essential qualities of Bone-dust, with the advantage of being capable of application to the soil with great ease and expedition, it exerts an important chemical action upon clays. Such soils disintegrate and liberate their potash with much less facility than silicious soils; the Patent Manure renders it more soluble, and hence proves a valuable dressing after subsoil ploughing. It hastens the decomposition of peat, leaves, and all other vegetable matters, converting them into humus or mould, and this again is resolved into carbonic acid, and is thus fitted for immediate assimilation by the young plant. It neutralises the acids forming salts of lime. It also decomposes certain salts of iron injurious to vegetation, such as the protosulphate of iron (so abundant in many soils), forming the sulphate of lime of gypsum, and liberating the iron as a harmless oxide. It reacts upon salts of alumina, potash, soda, magnesia, and ammonia; and its action upon slate, felspar, &c., developes alkalies and soluble silicates, so essential to Wheat and other corn crops; and, above all, it furnishes the plants with lime in its purest form, and phosphoric and silicic acid, so necessary to the perfection of the grain and straw. When acted upon by rain, it forms a solution which is destructive of animal life, destroying the germ of the Earth, Flea Beetle (the Turnip-fly), and other noxious worms, thus rendering it the most valuable Manure for the Turnip crop.—Agent, THOS. JNO. CROGGON, 2, Ingram-court, Fenchurch-street.—London, June 28, 1845.

Price 40*s.* per ton.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.

TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, Oct. 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition. Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretar

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents, COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL. 47, Lime-street, June 28.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

HATCHER'S BENNENDEN TILE MACHINE. Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

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Feeding cows	464 *a*	Turnip crops, management of	465 *a*
Flax, an exhausting crop	462 *b*	Varieties, duration of	457 *b*
Forest trees, to prune	456 *c*	Warping land	463 *c*
Gardeners, education of	455 *a*	Weeds, ashes from	464 *a*
Guano, adulteration of	464 *a*	Wheat, growth of	463 *b*
Highland and Agric Society's Show	464 *c*	Wireworm, to kill	457 *a*
Horticultural Society	457 *b*		

UNDER THE ESPECIAL PATRONAGE OF H.R.H. THE DUKE OF CAMBRIDGE.

THE ROYAL PHILANTHROPIC SOCIETY OF GARDENERS.—Grand Annual EXHIBITION of FRUITS, FLOWERS, &c., will be held in the magnificent grounds of Cremorne House, King's-road, Chelsea, on Wednesday, the 16th of July, in aid of the funds of the above Charitable Institution. Military bands will attend; and a variety of entertainments; to conclude with a splendid display of Fireworks. Admission One Shilling. In addition to the 96 Prizes, confined to Members, the following will be open to Public competition: Non Members paying entrance fee: for 12 Geraniums, entrance 7*s.* 6*d.*; 1st Prize. 3*l.*; 2d, 1*l.* 10*s.* Stove and Greenhouse Plants, not less than 20, entrance, 7*s.* 6*d.*; 1st Prize, 3*l.*; 2d, 1*l.* 10*s.* 12 Fuchsias, entrance, 5*s.*; 1st Prize, 2*l.*; 2d, 1*l.* 6 Calceolarias, entrance, 3*s.* 6*d.*; 1st Prize, 1*l.*; 2d, 15*s.* Collection of Fruits (Pines excluded), entrance, 5*s.*; 1st Prize, 2*l.*; 2d, 1*l.* Best Queen Pine, entrance 2*s.* 6*d.*; Prize, 10*s.* Best Providence, do. do. Best Specimen Plant, entrance, 2*s.* 6*d.*, Prize, 10*s.* Best Brace of Cucumbers, entrance, 1*s.*; Prize, 5*s.* Collection of Cut Flowers, entrance, 3*s.* 6*d.*; 1st Prize, 1*l.*; 2d, 10*s.* Seedlings admitted free, certificate of merit only. Competitors to send in their list by July 11. A dinner will take place the same day at Cremorne House, at 5 o'clock. Tickets 3*s.*: the Prizes paid after dinner. Schedule of Prizes to be had of the Secretaries, at the Central and various branch Offices.

Central Office, Commercial Tavern, King's-road, Chelsea.
WALTER KEMP, Hon. Sec.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY. Under the patronage of Her Most Gracious Majesty the QUEEN. The Fourth Exhibition for the Season will be held in the ROYAL SURREY ZOOLOGICAL GARDENS ON WEDNESDAY, JULY 23, 1845, OPEN TO ALL EXHIBITORS. When Prizes will be awarded to the following collections, viz.—Miscellaneous Plants, Orchidaceous Plants, Cape Ericas, Fuchsias, Roses, Cut Flowers and Indigenous Plants, Fruit, and Vegetables. In addition to the Two GOLD and 18 SILVER MEDALS, offered by the Society for PICOTEES and CARNATIONS, Mr. JOHN DICKSON, of Brixton, offers a SILVER CUP, value 5*l.* 5*s.*, for the best 12 white ground PICOTEES; also a SILVER CUP, value 5*l.* 5*s.*, for the best 12 CARNATIONS.

The Grand Dahlia Show will take place in the above Gardens, on Wednesday, September 17, 1845. List of Prizes and the Rules of the Society may be obtained from

Ebenezer-house, Peckham. JOHN TAYLOR NEVILLE, Sec.

GRAND FLOWER SHOW at the ROSHERVILLE GARDENS, GRAVESEND, the 15th July, 1845. The Prizes exceed 100*l.* Thirteen Tickets for 1*l.* 1*s.*, Six for 10*s.* 6*d.*, or Single Tickets 2*s.* up to Two o'clock, and afterwards to the public at 1*s.* each person. Gates open at One o'clock to the holders of tickets; and to the public Two o'clock. The Show will close at Seven o'clock. Applications for tickets at the Gardens, or to W. A. COOMBE, Esq., Town Hall, Gravesend, Hon. Sec.; or to B. THORNTON, Esq., at the office of the Company, 100, Great Guildford Street, Borough.

ROSES.

T. RIVERS informs his Friends and the Public, that his collection will be in Bloom on and after the 30th inst. As the ROSES occupy many acres, and will require several hours to view them, he begs to recommend the morning trains per Eastern Counties Railway as the most eligible; these start from Shoreditch, stopping at the Harlow and Sawbridgeworth stations, each about one mile from the Nursery, at eight, ½ past 9, and ½ past 11 o'clock.—Sawbridgeworth, July 5.

YOUELL & CO. beg to remind their Friends they continue to supply

The very best	FUCHSIAS	12*s.* per dozen.
Ditto	CHRYSANTHEMUMS	12*s.* do.
Ditto	VERBENAS	6*s.* do.
Ditto	PETUNIAS	12*s.* do.
Ditto	PANSIES	10*s.* do.

For particulars, see former Advertisements.
Great Yarmouth Nursery, July 5.

"EMPEROR NICHOLAS"—PELARGONIUM.

H. SILVERLOCK begs to announce he can supply a few plants of this fine variety, now in flower, in 32-sized pots, at 21*s.* each. It was shown at Chiswick, June 21, in Mr. Staines's collection of 12 new varieties, for which he was awarded the large Silver Medal. This is the same "Emperor Nicholas" that gained a seedling prize at the Botanic Society, Regent's-park, in July, 1844.

H. S. can supply established plants of Mr. SMITH'S FUCHSIAS sent out this spring (except the "Queen"), at 2*s.* 6*d.* each; also strong plants of Buddlea Lindleyana, at 18*s.* per dozen.—Nursery, Chichester, July 5.

ALL THE PLANTS ENUMERATED IN THIS LIST ARE NOW READY FOR SENDING OUT.

WILLIAM E. RENDLE, having a very large stock of the following, is enabled to offer them at very reduced prices.

CHRYSANTHEMUMS.—*First Class*—Selection of 20 from the following List, including Hamper and Package, for 15*s.* (or 16*s.* free by Post).—Minerva, Elegans, Vesta, Hero, Queen, Grandis, Compactum, Invincible, Formosum, Georgina, Conductor, Mirabile, Beauty, Phillis, Sultan, Criterion, Campestroni, Duc de Conigliano, Princess Marie, Grand Napoleon, Charlemagne, Reine de Prusse, Ivanhoe, La Superbe, Bijou, Marechale de Crequie, David, Julius Cæsar, Solon, Demosthenes, Pyramidalis, and Defiance.

Second Class—Selection of 20 from the following List, including Hamper and Package, for 9*s.* (or 10*s.* free by Post).—Triomphe, Isabella, Astre Lumineaux, Empress, Enchantress, Glory, Luxuria, General Laborde, Abelard, Imogene, Bethalia, Letitia, Buonaparte, Leonora, Marechale Messina, Colonel Coombes, Maria, Arago, Casimir Perrier, Madame Pompadour, Theresa, Paper White, Queen (Saunders), Chancellor, Victory, Spanish Brown, Atrosanguinea, Park's Imperial Yellow, Golden Lotus, Adventure, Imperial.

GIRLING'S NEW STRIPED PETUNIAS—The following Set, including Hamper and Package, for 10*s.* (or free by Post, for 11*s.*)—Attraction, Beauté de jour, Beauté parfait, Cærulea striata, Forget-me-not, Louis Gullino, Membranacea, Perfection, Portrait, Queen of May, Sanspareil, Striata delicatissima, and Morgan's Delineata.—These are highly recommended.

INDIAN AZALEAS—The following Set, including Hamper and Package, for 6*s.*—Lateritia, Splendens, Variegata, Smithii, Rawsonii, Danielsiana, and Indica alba.

HERBACEOUS PLANTS—Selection of 20 sorts from the following List, including Hamper and Package, for 9*s.*—Catananche cærulea, Physostegia imbricata, Lupinus grandifolius, Geum chiloense, Campanula grandis, C. pyramidalis, C. Barclayana, C. persicifolia, C. fragilis hirsuta, Lychnis Bungeana, L. Chalcedonica, Chelone barbata, Lysimachia verticillata, Ranunculus repens pleno, R. aconitifolius, Potentilla Hopwoodiana, P. formosa superba, P. sanguinea, P. splendens, P. Leucrachroa, P. insignis, P. Russellianus, Dianthus aggregatus, Spiræa japonica, Lythrum salicaria, Pentstemon gentianoides coccinea, Stenactis speciosus, Papaver orientalis, Phlox cordata maxima, P. lilacea grandiflora, P. Wheelerii, P. Riversii, P. cordata grandiflora, P. tardiflora, P. paniculata alba, P. triflora, P. cordata, P. Van Houttei, Stachys inodora, Iris variegata.

MISCELLANEOUS PLANTS—Selection of 12 sorts from the following List, including Hamper and Package, for 20*s.* (or 20 sorts for 30*s.*)—Lilium lancifolium, L. japonicum, Gloxinia cerina, G. caulescens, G. maxima, G. rubra, G. tubiflora, Hibiscus Cameronii, Ruellia azurea, Æschynanthus grandiflorus, Æ. ramosissimus, Plumbago capensis, Lantana crocea, Achimenes hirsuta, A. picta, A. grandiflora, Gesnera Cooperii, G. reflexa, G. zebrina, Centradenia rosea, Ixora coccinea, Begonia floribunda, Pentas carnea, Stephanotis floribunda, Siphocampylus betulæfolia, Passiflora racemosa, Ipomæa Learii, Styli dium fascicularis, Brugmansia floribunda, Thunbergia chrysops, Vinca rosea alba, Boronia viminea, Pimelea decussata, Chorizema varium, with Tropæolum Lobbianum and Araucaria Imbricata.

ARAUCARIA IMBRICATA.—Twenty good plants of this celebrated hardy Tree, including Hamper and Package, for 18*s.*

Orders will be executed in strict rotation. All Plants warranted correct to Name and Sort. Every New Plant obtained as soon as introduced.

Just published—New Geranium Circular for 1845.
" " Flower-root Circular for 1845.
Which can now be had on application.

☞ *Orders above 3l. will be delivered, Free of Carriage, to London, Bristol, Exeter, Falmouth, or Barnstaple; or above 6l. to Liverpool, Dublin, Cork, or Edinburgh.*

Unknown Correspondents are respectfully desired to give a reference in London.

Union-road Nurseries, Plymouth, July 5.

WOOD AND SON'S SPLENDID EXHIBITION OF ROSES WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour most respectfully of announcing to the Nobility, Gentry, lovers and amateurs of Roses, and their friends, that

THE WOODLANDS COLLECTION

of the above favourite flower is now in fine perfection, and will continue in bloom during the Rose season.

W. W. & S. take the present opportunity of stating that their IMMENSE STOCK OF ROSES has been considerably increased during the past season; the Collection has also received many valuable additions, neither pains or expense having been spared to enrich it with all the novelties that have proved worthy of being introduced from the Continent, and it is now unsurpassed by any other collection in Europe.

In addition to the foregoing claim on public patronage, the NURSERY, which extends over an AREA OF 40 ACRES, will be found to abound in every description of Ornamental Trees, Evergreens, and Flowering Shrubs, and indeed every article connected with the business.

Visitors are respectfully informed that the carriage-road through the grounds is in excellent order, and arbours have been fitted up at convenient distances for their accommodation.

Finally—WM. WOOD & SON beg leave to intimate that they do not intend to exhibit Roses at any of the Horticultural Shows this summer; consequently, visitors need not apprehend the disappointment occasionally experienced by those Ladies and Gentlemen who, in former seasons happening to visit the grounds on the eve of a grand Horticultural Fête, have found the Nursery partially stripped of its choicest favourites.

ADMITTANCE GRATIS, DAILY (*Sundays excepted*).

Maresfield is 12 miles distant from the Hayward's Heath station on the London and Brighton Railway, from which place conveyances may be obtained.

Coaches from London to Maresfield every Tuesday, Thursday, and Saturday from the Golden Cross, Charing Cross.—Also light Vans and Coach from Brighton to Tunbridge Wells, passing through Maresfield.

WINDOW GLASS, MILLED LEAD, AND COLOURS.—Nurserymen, Market Gardeners, and others supplied with Crown and Sheet squares for Horticultural and Glazing purposes, at the lowest prices.

White Lead per cwt...	27*s.* 0*d.*	Milled Lead, per cwt...	21*s.* 0*d.*
Linseed Oil, per gall...	2 4	Cut to size, " ..	22 0
Turpentine, " ..	3 3	Pan Basins, each	7 0
Warranted Varnishes.		Plumbers' Brass Work, &c.	

Pumps, Closets, Pipes and Brushes, Dry and Ground Colours, and all materials. Complete Lists (priced) may be had, gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

Bee Glasses, Striking Glasses, and Fish Globes; Ornament Shades and Confection Glasses of all sizes.

NURSERY AND SEED BUSINESS.

TO be disposed of, the STOCK and GOOD-WILL of an old established NURSERY and SEED BUSINESS, with 17 acres of fine healthy Nursery Stock, consisting of Forest and Fruit-trees, Evergreen and Flowering Trees and Shrubs, American Plants, Greenhouse Plants, &c.; situate within five minutes' walk of the Market-place of Pontefract, and within seven minutes' walk of the intended Railway Station at Pontefract, and the neighbourhood studded with noblemen and gentlemen's mansions. Part of the purchase-money may remain on security, and a lease granted of all or part of the land.—Apply to Mr. RICHARD MITTON, Hull.—July 5, 1845.

NEW AND BEAUTIFUL CAPE ERICAS.

T. JACKSON, NURSERY and SEEDSMAN, KINGSTON, Surrey, respectfully announces that he is now sending out plants of the two undernamed extremely beautiful ERICAS, which are highly deserving a place in the most select collection.

ERICA EASSONIANA, has large inflated flowers pure white, and much superior to E. jasminiflora alba; it obtained the first prize as a Seedling Erica at the Exhibition of the Royal Botanic Society of London, on the 4th of June, 1844 .. .. 21*s.* 0*d.*

ERICA PERSPICUA ROSEA, has much of the beautiful habit of E. perspicua, with bright rose-coloured flowers .. .. 10*s.* 6*d.*

Also the following New and Rare Plants, at the low prices quoted:—

Achimenes picta ..	2*s.* 6*d.*	Inga pulcherrima ..	3*s.* 6*d.*
Alona cœlestis	5 0	Ruellia maculata ..	10 6
Begonia ramentacea .	5 0	Scutellaria elegans ..	5 0
Buddlea Lindleyana .	3 6	Styphelia laurifolia ..	5 0
Bossiæa heterophylla .	5 0	Spiræa Douglasii ..	3 6
Chironia floribunda .	5 0	Tasmannia aromatica 5*s.* to	10 6
Chorozema spectabilis variegata	3 6	Tecoma schinifolia ..	10 6
Chorozema triangulare	7 6	Tetratheca, or Tremandra Hugelii 7*s.* 6*d.* to	21 0
Daviesia Hugelii ..	21 0	Veronica salicifolia 5*s.* to	10 6
Gesnera Gardneriana .	5 0	" speciosa ..	2 6
Habrothamnus cyaneus	3 6	Zichya rotundifolia ..	15 0
Hypocalyptus obcordatus	10 6		

T. J.'s General Catalogue, with prices for 1845, may be obtained on application, by enclosing two penny stamps.

FUCHSIA CONSTELLATION.—This large and desirable variety was raised in the Providence Nursery, and is one of the finest ever produced. For description of this extra brilliant variety see Dr. Lindley's opinion, which will be found in the *Gardeners' Chronicle* of September 9th, page 663, under the signature W. Miller. "Your hybrid, between Fulgens and Corymbiflora, is a very handsome flower: seed-pod small, tube long and slender, gradually increasing in size till the diameter is a quarter of an inch; the tube is a delicate Pink colour, having sepals of a Greenish-Primrose, forming a strong contrast to the Bright and Red Corolla seen between them; the flower altogether is 3½ inches in length, and the buds are very handsome as they approach maturity: it flowers in a large broad bunch, which is divided into branches containing altogether 150 flowers." It was also submitted to the Editor of the *Floricultural Cabinet*, whose opinion will be found in No. 128, under the signature W. M. "Your Fuchsia is a very fine one, and deserves cultivation in every situation." Also noticed in the *Northern Times* as the "Gem of 1844."

W. MILLER will commence sending out the above FUCHSIA on the 23d of July, when it may be had of any of the following Nursery and Seedsmen, or from Providence Nursery, Ramsgate. Plants 12*s.* 6*d.* each.

W. Masters, Canterbury	Wood & Son, Maresfield
R. Charlton, Hexham	Flanagan & Son, London
Warner & Warner, Cornhill	Hurst & M'Mullen, London
J. Salter, Versailles	P. B. Broade, Staffordshire
Hancock & Son, Durham	J. Smith, Dalston
F. & A. Smith, Hackney	T. Appleby, York
H. Slator, Lincolnshire	Van Geert, Antwerp
N. Gaines, Battersea	M. Brewer, Cambridge
M. Armond, France	S. Girling, Stowmarket, Suffolk
Brown, Slough	Henderson & Co., Pine-apple-place
Metropolitan Union	Haycroft, Cork
Marnock & Manley, Hackney	Pettit, Bury St. Edmonds
T. & W. Handasyde, Musselburgh	Niemana, Prussia
Stewart, Salt-hill	W. Laird, Dundee
Cooper, Croydon	W. May, Yorkshire
Messrs. Backhouse, York	Garraways, Mays, and Co., Bristol
J. Gill, Blandford	Lowe & Co., Clapton
W. E. Rendle, Plymouth	A. Verchaffett, Belgium
Fuller, Worthing	Harrison, Norfolk
Ivery, Peckham	C. Joplin, Knaresborough
Catleugh, Chelsea	J. & C. Lee, Hammersmith
Burgess & Kent, Staffordshire	G. Smith, Islington
Rogers & Son, Southampton	
Bunney, Kingsland	

Providence Nursery, Ramsgate.

ROSES.

A. PAUL & SON'S Collection of ROSES, which are now in bloom, may be seen any day except Sundays.

THE WALTHAM-CROSS STATION of the Northern and Eastern Counties Railway is the nearest, and an omnibus runs to the Nurseries from each train.—Cheshunt Nurseries, July 5.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

LIST OF PRIZES AWARDED AT THE EXHIBITION, ON WEDNESDAY, THE 2D INSTANT.

For Collections of 30 Stove and Greenhouse Plants.—1st prize to Mr. Barnes, gr. to G. W. Norman, Esq., Bromley; 2d to Mr. Ayres, gr. to J. Cook, Esq., Brooklands, Blackheath.

For Collections of 15 Stove and Greenhouse Plants.—1st prize to Mr. Fraser, Nurseryman, Lea Bridge-road, Leyton; 2d to Mr. Pawley, White Hart, Bromley.

For Collections of 10 Stove and Greenhouse Plants.—1st prize to Mr. Hunt, gr. to Miss Traill, Hayes-place, Bromley; 2d to Mr. May, gr. to E. Goodheart, Esq., Langley Park, Beckenham; 3d to Mr. Bruce, gr. to B. Miller, Esq., Collyers Wood, Tooting; 4th to Mr. Green, gr. to Sir E. Antrobus, Bart., Cheam.

For Specimen Ornamental Plants.—1st prizes were given to Messrs. Veitch and Son, Nurserymen, Exeter, for Oncidium Lanceanum; to Mr. Hunt, for Erica Massoni; to Mr. Pamplin, Nurseryman, Hornsey, for Erica obvata; to Mr. W. Dawson, Nurseryman, Brixton-hill, for Erica ampullacea; to Mr. Barnes, for Clerodendrum paniculatum, also for Aphelexis humilis. 2d prizes to Mr. Kinghorn, gr. to A. Murray, Esq., Twickenham, for Veronica speciosa; to Messrs. Henderson, Nurserymen, Pine-apple Place, for Erica ventricosa grandiflora; to Mr. Dawson, for Erica pulverulenta: to Mr. Green, for Lisianthus Russellianus; to Mr. Ayres, for Clerodendrum fallax. 3d prizes to Mr. Wheeler, gr. to M. P. Guimaraens, Esq., Northwick Terrace, for Pelargonium Victoria; To Mr. Barnes, for Veronica speciosa, and Clerodendrum fallax; to Mr. Baillie, gr. to the Archbishop of York, for Mahernia incisa. Extra prizes to Mr. Dodemeade, gr. to W. Leaf, Esq., Streatham, for Lilium longiflorum; to Mr. May, Woodford, Essex, for Vinca rosea; to Mr. Kendall, Nurseryman, Stoke Newington, for Fuchsia vesta; to Messrs. Henderson, for Scutellaria splendens.

For New or Rare Plants in Bloom.—1st prize to Messrs. Henderson, for Clerodendron squamatum; 2d to Mr. Green, for Tremandra Hugelii; 3d to Messrs. Veitch and Son, for Hoya trinervis: extra to the same, for Pteroliscus speciosus undulata; to Mr. Taylor, gr. to J. Coster, Esq., Streatham, for Chænostoma polyantha; to Mr. Hunt, for Gesnera sp.; to Messrs. Henderson, for Oxybaphus longiflorus; to the same for Pelargonium Anais; to Mr. Barnes, for Blandfordia nobilis; to the same, for Aphelexis purpurea grandiflora.

For New or Rare Plants not in Bloom.—1st prize to Mr. Mylam, gr. to S. Rucker, Esq., Wandsworth, for Nepenthes ampullacea; 2d to Messrs. Henderson, for Jacaranda Clausoniana; 3d to Mr. Mylam, for Nepenthes distillatoria; extra to Messrs. Veitch and Son, for Phyllociadus asplenifolius.

For a Collection of 24 Rare Alpine Plants.—1st prize to Mr. Wood, Nurseryman, Norwood.

For a Collection of 6 Tall Cactaceous Plants.—A 2d prize to Mr. Green.

For Collections of 30 Dwarf Cactaceous Plants.—1st prize to Mr. Bunney, Nurseryman, Stratford; 2d to Messrs. Lee, Nurserymen, Hammersmith; extra to Mrs. Hoffman, Hanover Terrace, Regent's Park.

For a Collection of 4 Clerodendrons.—1st prize to Mr. Barnes.

For a Collection of 10 Gesneraceous Plants.—1st prize to Mr. Fraser.

For Collections of 15 Cape Heaths.—1st prize to Mr. May; 2d to Mr. Barnes; 3d to Mr. Green.

For Collections of 12 Cape Heaths (Nurserymen).—1st prize to Messrs. Fairbairn, Clapham; 2d to Mr. Fraser; 3d to Mr. Dawson.

For Collections of 8 Cape Heaths.—1st prize to Mr. Hunt; 2d to Mr. Bruce; 3d to Mr. Taylor.

For Collections of 6 Cape Heaths.—A 2d prize to Mr. Roser, gr. to J. Norris Helling, Esq., Streatham.

For a Collection of 15 Orchidaceous Plants.—1st prize to Mr. Mylam, gr. to S. Rucker, Esq., Wandsworth.

For a Collection of 10 Orchidaceous Plants.—1st prize to Mr. Den, gr. to F. G. Cox, Esq., Stockwell.

For a Collection of 6 Orchidaceous Plants.—1st prize to Mr. Plant, gr. to J. H. Schroder, Esq., Stratford Green.

For Collections of 30 British Ferns (in pots).—1st prize to Mr. Smith, gr. to J. Anderson, Esq., The Holme, Regent's Park; 2d to Mr. Taylor.

For Seedling Heaths.—Three 2d prizes to Mr. Pamplin, Hornsey, for Ventricosa splendens, V. grandiflora, V. magnifica.

For a Collection of 6 Calceolarias.—1st prize to Mr. Gaines, Nurseryman, Battersea.

For Collections of 12 Fuchsias.—1st prize to Mr. Gaines; and a 1st to Mr. Robinson, gr. to J. Simpson, Esq., Thames bank, Pimlico; extra to Mr. Ottey, Nurseryman, Peckham.

For Collections of 12 New Pelargoniums in 24s (Amateurs).—1st prize to Mr. Dobson, gr. to Mr. Beck, Slate-works, Isleworth; 2d to Mr. Cock, Chiswick; 3d to Mr. Staines, Middlesex Place, Lisson-grove.

For Collections of 12 New Pelargoniums in 24s (Nurserymen).—1st prize to Mr. Gaines; 2d to Messrs. Lucombe, Pince, and Co., Exeter; 3d to Messrs. Henderson.

For Collections of 12 Pelargoniums in 12s (Amateurs).—1st prize to Mr. Staines.

For Collections of 12 Pelargoniums in 12s (Nurserymen).—1st prize to Messrs. Lucombe, Pince, and Co.

For Collections of 8 Pelargoniums (in 24s).—2d prize to Mr. Coysh, gr. to R. Hudson, Esq., Clapham; 3d to Mr. Cowan, gr. to M. Forster, Esq., Belsize Villa, Hampstead.

For Seedling Pelargoniums of 1845.—1st prize to Mr. Whomes, gr. to E. Foster, Esq., Clewer, for Paragon; certificates of merit to the same for Satellite, Painted Lady, and Aspasia; also to Mr. Catleugh, Nurseryman, Chelsea, for Gertrude and Salome; and to Mr. Beck, Slate-works, Isleworth, for Prairie Bird.

For Seedling Calceolarias.—Two 1st prizes to Mr. Standish, Nurseryman, Bagshot, for Trumpeter and Matchless; extra to Mr. Gaines, for Alpha; a certificate of merit to Mr. Standish, for Orinda, which was worthy a 1st prize, but not being entered according to the regulations was so treated.

For Collections of 20 Roses (in pots).—1st prize to Messrs. Lane and Co., Nurserymen, Berkhampstead; 2d to Mr. Dobson; 3d to Messrs. Paul and Son, Nurserymen, Cheshunt; extra to Mr. Laing, Nurseryman, Twickenham.

For Collections of 10 Roses (in pots).—A 2d prize to Mr. Dobson.

For Devices Showing the Combination of Colours.—1st prize to Mr. Oliver, Portland Town; 2d to Mr. Smith, gr. to J. Anderson, Esq., The Holme; and Messrs. Palmer and Gibbs; 3d to Mr. Dennis, Nurserymen, Chelsea.

For Collections of 100 Cut Roses.—1st prize to Messrs. Lane and Son; 2d to Mr. Francis, Nurseryman, Hertford; 3d to Mr. T. Rivers, Nurseryman, Sawbridgeworth, Herts; extra to Messrs. Paul and Son; extra to Mr. Laing; extra to Mr. T. Cole, Willow Rosary, Bath.

For Collections of 50 Cut Roses.—1st prize to Mr. Collison, Bath; 2d to Mr. Milne, gr. to C. S. Chauncey, Esq., Little Morden, Ware; 3d to Mr. Bettridge, Melton-hill, Bucks; extra to Mr. Parsons, gr. to A. George, Esq., Enfield; extra to Mr. Terry, gr. to Lady Pullen, Hertford.

For Collections of 25 New and First-rate Roses.—1st prize to Messrs. Paul and Son; 2d to Messrs. Lane and Son; 3d to Mr. Rivers: extra to Mr. Francis.

For Collections of 24 Verbenas (cut).—1st prize to Mr. Smith, Nurseryman, Hornsey-road; 2d to Mr. Turner, Florist, Chalvey; 3d to Mr. Cowan.

For Collections of 24 Pinks (cut).—1st prize to Mr. Turner; 2d to Messrs. Norman, Florist, Woolwich; 3d to Mr. Ward, Nurseryman, Woolwich; extra to Messrs. Brown and Attwell, Nurserymen, Uxbridge; extra to Mr. Willmer, Nurseryman, Sunbury.

For Collections of 36 Pansies.—1st prize to Mr. Turner; 2d to Mr. W. C. Brown, Nurseryman, Slough; 3d to Mr. Hunt, Wycombe, Bucks; 4th to Mr. Bragg, Florist, Slough.

For Seedling Verbenas.—1st prize to Mr. Smith, Hornsey, for Duchess of Sutherland.

LIST OF PRIZES—*continued.*

For the Best Pine-apple "Providence."—1st prize to Mr. Brown, gr. to Right Hon. Sidney Herbert, Wilton House; 2d to Mr. Mason, gr. to Sir John Kennaway, Bart., Escot; 3d to Mr. Parsons, 2 certificates for the same, and 1 to Mr. M'Ewen, gr. to Col. Wyndham, Petworth.

For the Best Pine-apple "Queen."—1st prize to Mr. Ingram, gr., Royal Gardens, Frogmore; 2d to Mr. Mason; 3d to Mr. Ingram; certificates to Mr. Mason; to Mr. Bray, gr. to E. Louisada, Esq., Peak House, Sidmouth; to Mr. Hewitt, gr. to J. Furdy, Esq., Queen's-road, Bayswater.

For the Best Pine of Other Kinds.—1st prize to Mr. M'Ewen, for Otaheite.

For the Best Pine of any Kind (Fruiterers).—1st and 2d prizes to Mr. Wilmot, Isleworth, for Queens.

For the Best Melon (common var.).—1st prize to Mr. Calver, Canon-hall, Hampstead; 2d to Mr. Davey, gr. to G. Smith, Esq., Colney Hatch.

For the Best Melon (Persian var.).—1st prize to Mr. Fleming, gr. to the Duke of Sutherland, Trentham-hall; 2d to Mr. S. Daniell, gr. to Rev. T. Stevens, Bradford Rectory, Reading.

For the Best Melon of any kind.—1st prize to Mr. Gadd, Betchworth Castle, near Dorking.

For the Best 3 dishes of Grapes (distinct kinds).—1st prize to to Mr. Fleming; 2d to Mr. Haythorn, gr. to Lord Middleton, Woollaton-hall.

For the Best 3 dishes of Grapes (Fruiterers).—1st and 2d prizes to Mr. Wilmot.

For the Best dish of Grapes (black var.).—1st prize to Mr. Davey; 2d to Mr. Ingram; 3d to Mr. S. Barnes, gr. to T. Whitmore, Esq., Apley-park. Certificates to Mr. Maher, gr. to J. Hercy, Esq., Hawthorn-hill; to Mr. Dods, gr. to Sir G. Warrender, Bart., Chiefdon; to Mr. Davis, Oak-hill, Barnet; to Mr. Parker, gr. to J. H. Oughton, Esq., Roehampton.

For the Best Dish of Grapes (White var.).—1st prize to Mr. Davis; 2d to Mr. Davey; 3d to Mr. Maher.

For the Best 4 Dishes of Peaches and Nectarines.—1st prize to Mr. Fleming; 2d to Mr. Parker; 3d to Mr. Kyle, gr. to R. Barclay, Esq., Leyton. Certificate to Mr. S. Barnes.

For the Best 2 Dishes of Peaches and Nectarines.—1st prize to Mr. Parker; 2d to Mr. Dods. Certificate to Mr. Kemp, gr. to P. Grillon, Esq., East Acton.

For the Best Dish of Apricots.—1st prize to Mr. Ingram.

For the Best Dish of Plums.—1st and 2d prizes to Mr. Ingram.

For the Best Dish of Figs.—1st prize to Mr. Foggo, gr. to the Marquis of Abercorn, Stanmore Priory; 2d to Mr. M'Ewen.

For the Best Dish of Cherries.—1st prize to Mr. Gainsford, Brentford; 2d to Mr. Kemp.

For the Best Dish of Apples.—1st prize to Mr. Bettridge.

For the Best 4 Dishes of Strawberries.—1st prize to Mr. T. Cole; 2d to Mr. Bennett, Bath; 3d to Mr. Bettridge.

For the Best 4 Dishes of Strawberries (Fruiterers).—1st prize to Mr. Wilmot.

For the Best Dish of Strawberries.—1st prize to Mr. Maher; 2d to Mr. Kinghorn.

EXTRA PRIZES were awarded for the following *Miscellaneous subjects.*—To Mr. M'Ewen, for Lemons; to Mr. Turner, for a seedling Pink, "Masterpiece;" to Mr. Dods, gr. to Col. Baker, Salisbury, for a collection of 10 Pine-apples; to Mr. Ward, for a seedling Pink, "Great Britain;" to Messrs. Henderson, for 6 Heaths; to Mr. Wheeler, for 6 Scarlet Pelargoniums; to the same for Pelargonium "Victoria;" to Mr. Green, for a seedling Cactus "Greenii;" to Mr. Wood, for a collection of Kalmias.

For Non-competition.—There were collections of Peaches and Strawberries from Mr. Tillery; also from the gardens of Earl de Grey, a collection of Fruit, which would have had a first prize, but were too late for competition.

JOSEPH FRYER begs to inform his Friends that he is now able to supply most of the leading varieties of PANSIES, as well as the undermentioned new Plants, and which are particularly strong and healthy:—

	Each—s.	d.		Each—s.	d.
Thunbergia chrysops ..	2	6	Achimenes longiflora ..	1	0
,, alata superba	2	6	,, grandiflora ..	1	0
,, aurantiaca superba	2	6	,, hirsuta	1	0
,, alata alba....	1	0	,, rosea	1	0
,, Fryerii	1	6	Petunia, newest varieties,		
Buddlea Lindleyana....	1	0	including Girling's and		
Centradenia rosea.....	1	0	others..... 9d. to	1	0
Angelonia grandiflora..	1	0	Fuchsias, finest vars, 9d. to	1	0
Pentas carnea.....	1	6	Verbenas, finest vars. ..	0	6
Leschenaultia biloba nana	1	0	Chrysanthemums, finest		
Bouvardia strigosa	1	0	varieties	0	9

Clarendon Nursery, Camberwell, July 5.

TEA SCENTED ROSES, ONE OF A SORT, 9s. per dozen.

Rosa Devoniensis, 12s. per doz.; Yellow Noisette Rose, 9s. per doz.; Orange coloured Tea Rose, Eliza Sauvage, 9s. per doz.; Superb dark crimson China, and Yellow and White China, 9s. per dozen.

FUCHSIAS, small plants of the best and newest sorts, 9s. per doz.; Chrysanthemums, in best varieties, 9s. per dozen. Can be sent by Post to any part of the United Kingdom.

HARD-WOODED GREENHOUSE PLANTS, one of a sort, 12s. per dozen. Payment, by Post-office order, to Messrs. J. and H. Brown, Albion Nursery, Stoke Newington, London.

LEPUS TIMIDUS, WITH LEPUS CUNICULUS; OR, GENUINE HARE RABBIT.

THIS very large and scarce variety have much bone, great length and depth of carcass, furnished with a considerable dewlap, long and beautiful erect ears, with large projecting eyes, precisely resembling those of the Hare; its size is equal, weighing, when at maturity, 12 to 14 lbs; its flesh is highly flavoured, substantial, very savoury, and cooked as the hare, few would distinguish the difference. A few pairs may be had, by addressing to Mr. JOHN BRETT, Market-place, Great Yarmouth, on the following terms:—2 to 3 months, 15s.; 1 to 2 months, 10s. per pair, including package. A post-office order will be required from unknown correspondents.—Yarmouth, July 5.

SEEDS.—CORNER OF HALF-MOON-STREET, PICCADILLY.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

SILVER SAND.—Nurserymen, Gentlemen's Gardeners, &c., are respectfully informed that the above article of a very superior description, for propagating and growing of Plants, can be had in any quantity from one ton upwards at 21s. per ton, delivered within six miles 5s. per ton extra; smaller quantities at 1s. 6d. per bushel, but not less than ten bushels delivered at that price.—E. KEMP, Manor-street, Old Kent-road, near the Rising Sun. Orders by post punctually attended to. Packages charged cost price.

CAMELLIA—"CHALMERII PERFECTA."

R. BUIST, NURSERYMAN, PHILADELPHIA, N. A., has the pleasure to offer this CELEBRATED CAMELLIA to European growers. It is of a bright rose-colour, of the most perfect imbricated shape, double to the centre, very persistent, each petal cupped (in this character entirely distinct from any Camellia in cultivation), retaining its beautiful form for several weeks: every bud opens perfectly; it is a profuse bloomer, plant of an upright branching habit, leaves 4 inches long, and 2½ wide, plants from 2½ to 3½ feet high, full and well branched, capable of producing 15 to 30 flowers the coming season, only a few for sale. Orders received by Henry Wright, Agricultural Library, 51, Haymarket, London; price, 10l. 10s., to be paid on delivery.

ROSES.

EDWARD DENYER begs respectfully to invite Noblemen, Gentlemen, and his Friends in general, to an inspection of his ROSES, which are now in full bloom, and he is pleased to say, are finer this than any previous year, consisting of 500 sorts (of the finest and newest varieties), planted on each side of a walk upwards of 700 feet in length; they are particularly recommended to amateurs, blowing freely within three miles of the metropolis.

Orders taken for the plants when in bloom, and delivered in November next.—Admission gratis, daily (Sundays excepted).

Loughborough Nursery, Brixton, within three miles of London.—July 5.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding-knife we have seen. The ivory handle is shaped like the blade of a curved penknife, sharp, and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—Opinion of Prof. LINDLEY, in the *Gardeners' Chronicle*, July 29, 1843.

GEORGE PLUM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above new and desirable article, manufactured solely by him. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3s. 2d.

CLARK'S METALLIC  HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.

Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.

The THIRD MEETING will take place on SATURDAY, the 12th of July, on which occasion, HIS GRACE THE DUKE OF DEVONSHIRE, the President of the Society, has kindly directed the Grounds of Chiswick House to be opened for the reception of the visitors to the Society's Garden.

Tickets are issued to the orders of Fellows of the Society ONLY, at this Office, price 5*s.*; or at the Garden, in the afternoon of the 12th July at 7*s.* 6*d.* each: but then also ONLY TO ORDERS SIGNED BY FELLOWS OF THE SOCIETY.

N.B. No Tickets will be issued in Regent-street on the day of Exhibition.

All subjects intended for Exhibition must be in the Garden before half-past 8 in the morning of the 12th, or at 21, Regent-street, before 7 o'clock in the afternoon of the 11th. After these hours nothing can be received. All persons may exhibit, whether Fellows of the Society or not.

The Gardeners' Chronicle.

SATURDAY, JULY 5, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

SATURDAY, July 12—Horticultural Gardens . . . 1 P.M.
SATURDAY, July 19—Regent's-park Zoological Gardens 9 A.M.

THE EDUCATION OF GARDENERS is a subject upon which we seldom touch in a formal way. We have no idea that the habits of men can be changed to suit mere theoretical views of what they should do to qualify themselves for their calling; their means and their varying conditions of life render modifications of general rules so numerous as to diminish very much the value of all such rules. It will usually be found more advantageous to point out to a man the object at which he should endeavour to arrive, than to compel him to follow a particular path, with the assurance that he will find something worth having at the end of it.

It is upon this principle that our journal has been conducted; and it is sufficiently evident by the improvement already visible among gardeners, that the system is telling silently but surely. We have steadily kept before gardeners great objects of attainment, and have left men to arrive at them by such means as each may find it possible or most convenient to employ; a little occasional advice here and there on particular points being all that we have thought it necessary to offer. The truth is, that there is so much good sense among the class of men called gardeners, and they have so much general intelligence, that they can generally judge for themselves what it is most necessary for them to learn.

It will be soon enough to lay down positive rules for a gardener's education when great gardening schools are established in the country, if such a time should ever arrive.

In the meanwhile, a recent public occurrence will serve to show the rising generation of gardeners what is expected of them in particular instances. It has already been stated by us, that the present Curator of the Botanic Garden at Cambridge was appointed after a public examination, in which he had to contend with several others. In this case the trustees of the Garden set an example which it is much to be wished that others should imitate, when similar opportunities occur. They determined not to appoint a gardener upon the mere faith of testimonials; but that they would also test for themselves the capabilities of the candidates. This task was intrusted to Professor HENSLOW, who has very obligingly furnished us with an account of the manner in which the examination was conducted; and we now print his statement upon the subject.

"You have remarked," he says, "that if the system lately adopted by the trustees of our Botanic Garden at Cambridge, when choosing their Curator, were only to be pretty generally followed wherever superior skill and intelligence might be required for conducting a botanical or horticultural establishment, a much higher scale in scientific proficiency would be attained by gardeners generally than is at present the case; and also that some jobbing with respect to testimonials would be got rid of. You have further expressed to me a wish for a copy of the questions I put to the candidates, and I readily send it, with a few remarks upon the motives which induced me to select them.

"Although it was not to be expected that the Curator of our Botanic Garden should be required to have made himself acquainted with the more minute details of scientific botany, it was clearly advisable that he should be well acquainted with the general principles of classification, and the leading facts in physiology. I considered also that he should rather be versed in a knowledge of species under culture, than with specimens to be found only in an herbarium. As a competent knowledge of systematic botany depends mainly upon the precision with which we have learnt to apply the terms used in the description of plants, I have always found a few questions, involving the definition of such terms, to be especially useful in botanical examinations. Many a candidate will contrive to slur over his description of some plant put before him in a way which sometimes leaves it difficult to say what degree of credit he deserves; but his mode of defining a few terms, in addition, will greatly assist the examiner in forming an accurate judgment of his merits. As our Curator will have to lay out an entirely new garden, I put into the hands of each of the candidates a rough outline of a scheme for one, requiring them to comment upon it, and to fill up the minor details necessary for a botanical arrangement. They were also at liberty to send in any second plan which they might consider more advisable. I have already borne my general testimony to the satisfactory character of the results of this examination, and have stated that I consider each of the candidates to have justified the testimonials he had received. It is only by examination that *relative* merit can be sufficiently detected, and we continually hear in Cambridge of different Colleges having their several favourites until the day of trial arrives, and the Senate House decides who is really the best man.

1. Write down as many species of the following genera as you may remember to be under culture in England, stating their country, character of the plants, whether trees, &c., description of culture, whether stove, &c., natural order:—Berberis, Nymphæa, Cleome, Althæa, Pistacia, Sempervivum, Lonicera, Eupatorium, Vaccinium, Asclepias, Ajuga, Vitex, Croton, Dorstenia, Neottia, Pancratium, Ruscus, Paspalum, Stipa.

2. Name a few of the principal genera under culture, in the following orders:—Tiliaceæ, Rutaceæ, Apocyneæ, Scrophularineæ, Coniferæ, Irideæ, Cyperaceæ.

3. How do you distinguish the following orders from each other:—Papaveraceæ from Nymphæaceæ, Capparideæ from Cruciferæ, Cyperaceæ from Gramineæ.

4. Point out the difference in the structure of the fruit of the Mulberry, Raspberry, and Strawberry.

5. Describe the seed-vessels and seeds of the French Bean, Acorn, and Maize.

6. What are the principal causes of sterility in cultivated plants, and how would you seek to counteract them?

7. What are the conditions essential to the germination of seeds, and what are the chemical changes effected in them during the process?

8. Describe the functions of the leaf.

9. Fill up the imperfect sketch of a design for the new garden, inserting the following particulars:—1. The houses to range north and south in an open area, in the centre of the elliptic herbaceous ground. 2. Sheds and compost pits to the north between the entrance there, and the north approach to the houses. 3. Curator's house. 4. Separate beds for the Grasses, Ferns, and Peat-plants, away from the herbaceous ground. 5. Arboretum. 6. Pond in the north-west angle. 7. Suggestions respecting the form and arrangements in the houses. 8. General remarks upon the arrangement of a botanic garden."

A part of these are questions such as few gardeners could answer, and they may therefore, to some, appear much too difficult, while others may suppose that they relate too much to Botany, and too little to Horticulture. But we have Professor HENSLOW's evidence that they were not too difficult; for he assures us that the results of the examination were satisfactory; and we happen to know that, among the candidates were at least three besides the successful one who would deal with most of the questions without much uncertainty. That they are too technical and strictly Botanical, for testing the qualifications of a gardener, under ordinary circumstances, is true. But it is to be remembered that this was not an ordinary occasion. The office sought was the Curatorship of a BOTANIC Garden. A Curator of such an establishment ought to be a gardener, and something more. He ought to possess a fair amount of knowledge of systematical Botany; otherwise he would be incapable of performing his duties efficiently; nor, if he were ignorant of the subject, or even little conversant with it, could he take that interest in a Botanical Collection, which a Botanic Garden demands.

And let us now congratulate those young men who failed at the Cambridge examination upon their having formed a part of the first competition for a post of honour given away to mere merit, and not for favour or affection. It was no discredit to fail, where success could not attend more than one; but it was a great credit to feel that their attainments were such as justified their facing such an examination; and it was no small honour to depart with the *bene meruit* of the Botanical Professor of the University of Cambridge.

WE did not flatter ourselves that the remarks which we made last week on the DISEASE OF THE PEACH LEAF would carry conviction to everybody's mind. On the contrary, we anticipated an answer from some one concerned in the discussion; and we have such an answer from Mr. TOWERS, as will be seen elsewhere.

We have little to object to in the statements made by this gentleman; and now that he puts his views more clearly we have not much to criticise in his conclusions. The principal points are the following. He still assumes that the blister in the Peach-leaf will not appear in the absence of cold acting upon the surface of the young leaves. We maintain that it will not appear even if cold does act upon them, unless the soil is charged with cold water. Of this we have a conclusive proof before us.

In a garden on the London clay are several kinds of Peach trained to some pales, with a southern exposure. In this situation they are subject to all the action of spring cold quite as much as if they were on a wall, and something more; for the pales are thin, retain little sun-warmth during the night, and allow the cold north and east winds to blow freely through their interstices. In such a place, after such a spring, blistered leaves ought to be found, if anywhere, provided cold was really the proximate cause; for how could Peach-trees be placed in a colder position? That, however, is not the case; there is scarcely a blistered leaf to be seen, and it is doubtful whether the very few blisters that occur are not of recent origin, and caused by the puncture of insects. And why is this? Simply *because these trees are so placed that no wet can possibly lodge round their roots for even an hour.*—The pales in question stand on the edge of a steep ditch which runs behind them, and whose water is never within 3 or 4 feet of the surface; and they grow in soil rendered very permeable by the addition of a large quantity of old lime rubbish. This is, we think, perfectly unanswerable.

Mr. TOWERS argues that if redundant moisture were the cause of the blister, then the leaves of the Peach-tree ought to be most blistered during the summer or second growth, when they are still fuller of juices; but he forgets that in the summer leaves are acted upon by long-continued bright light, and are surrounded by a drier atmosphere, which causes, together, amply prevent all accumulation of fluids. That Vines do not form their blisters in the open air is accounted for upon the same principle. In a warm damp Vinery the atmosphere that surrounds them is charged with vapour, and the leaves are exposed to little light; hence the fluids, where escape is hindered, form extravasations; but in the open air no such hindrance takes place, because the air is not damp enough, and light is powerful.

It is no wonder that Peaches in pits or forcing-houses have no blister; they grow in soil amply secured from all prolonged access of cold water to their roots, and the warmth of such places keeps their vital forces in a state of great activity. And it is to be borne in mind that we have distinctly stated that cold may be admitted to aggravate the evil. What we contend for is that the blistered leaves of a Peach-tree will not appear where the soil is so completely drained that no lodgment of water can be effected.

THE RED SPIDER.

THERE seems to be much uneasiness amongst horticulturists about the red spider, and I confess that, when it is allowed to ravage uncontrolled, there scarcely exists a more formidable foe to gardeners. It is well, however, that we possess a cure for so great an evil. Such is sulphur when properly applied; and, although a thrice-told tale, yet I am persuaded, from the many complaints that appear in your columns, that a great many of your readers are deterred from using it through fear of the mischief that it may occasion. I have been enabled to bid the red spider defiance for some years through the use of sulphur, and will endeavour to explain how. It is well known that Peaches and Nectarines, on open walls, are particularly liable to both this insect and the green-fly; and, although a digression, I may mention that a syringing with strong Tobacco-water and soap-suds, two successive evenings, as soon as I perceive the aphides at work, clears me for the season of that pest. The next thing that occurs (and that immediately) with the Peach-wall, is to provide against the spider. Having obtained some strong soot-water, in a tolerably clarified state (and I may here remark that it cannot be too strong), I work it up with some good clean clay, until the whole is of the consistence of thick paint, and can be applied with a common painter's brush. To this I add flowers of sulphur, after the rate of about 1 lb. to a gallon. My practice, however, is mere rule-of-thumb work as to quantity, which plainly shows that it is not easy to do mischief with it when used in this way. To the above mixture I add about 2 oz. of soft soap to the gallon, previously beaten up by itself. Every part of the wall between the shoots which can be got at, is then painted with the above mixture, and, more especially, a thick and broad band all along the bottom of the wall, the fumes from which, in their ascent, become riddled through all parts of the tree.

Now, this is only done once in the season; and, as for the trouble, since we cannot accomplish anything without it, I will offer no apology on that head; but the expense is a mere nothing, since 5*s.* worth of sulphur, and 3*s.* worth of labour, will probably dress the Peach-walls of the very largest garden establishment. Those who are particular about the colour the walls will assume, may soon impart any desired shade to the mixture; water strained through tan will soon reduce it to the colour of the wall itself.

I have used it in this way for some years, and have never known it to fail in accomplishing the desired end. I cannot say that I never have a red spider, but I can boldly assert that if ever they attempt a footing, it has invariably been an unsuccessful one. This year my

trees are absolutely clean in every respect. Gum, red spider, or aphides, are not to be found on a wall 240 feet in length. My trees are planted on brick platforms, in sound, loamy, and turfy soil, 9 inches in depth, and top-dressed 4 inches in thickness with half-rotten manure, in the first week of June; they have a splendid crop on them, and not a single naked shoot is to be found. For using sulphur in hothouses, I have nothing new to offer. I may observe, however, that by persisting in its use, together with a moist atmosphere, and a free use of the syringe, I have seldom seen the spider establish a footing in the houses under my care. For a house 30 feet in length, 16 feet in width, and 10 feet in height, I use about from 6 to 8 ounces. This is mixed in the same way as the wall sulphur, only much less clay is requisite, as the quantity of sulphur alone will be almost sufficient to thicken the mass.

I ought to state that I have never ventured to apply it on the upper or advanced pipe in houses; this is far too hot to be relied on, but I cover the under or return-pipe without hesitation, about three times in the year. My reason for using the soft-soap in the mixture is to form a body which will cause the sulphur to give out its fumes in a slowly progressive way; it being the continuous operation of the sulphur, more than any particular degree of intensity, that is so inimical to the hatching or progress of the red spider. Thunbergias, or other plants in pots, or tubs, in conservatories, or other ornamental houses, when it is not expedient to use sulphur generally, should have the back of the leaf powdered over at least twice in the year, viz., April and September. The same wash recommended for the Peach-walls is of eminent use in the Melon-frames, or pits, the shady wall of which should have a wash of that mixture when the pit is planted, and again, if time permit, in about a month.—*R. Errington, Oulton.*

ENTOMOLOGY.

CURCULIO ABIETIS (*the Spruce Fir Weevil*).—Although this beetle was thus named by Linnæus, its ravages are not confined to that tree, for it equally attacks the Scotch Fir and Larch, and it has been also observed on Rhododendrons, Azaleas, and Alders, which it will feed upon. The Spruce Fir Weevils, however, generally fix on those Pines which have been recently planted, or such as are sickly, in which the sap circulates sluggishly, and it is thus that the young Larch plantations have been suffering severely of late years from their attacks. For three or four successive seasons they were very injurious to some transplanted Larches in South Wales, and last June they entirely consumed the bark, but did not injure any other species of forest tree. In May of the same year they were committing fearful havoc in a young plantation of Firs at Airdrie, comprising about four acres, which they nearly destroyed by eating the bark and scooping out the buds of the leading shoots; this plantation was on the site of an old one, and the roots of the trees could not be taken out on account of the rocky nature of the soil. At the present time these Weevils are in great force in Scotland, near Chester, and in the forest of Delamere; in Ross-shire 10 acres were planted with two-years transplanted Larch, Spruce, and common Fir, upon ground which had been newly cleared from Fir timber, that had been growing there for upwards of 70 years. The Larch plants have been all destroyed by this Weevil, which commenced its operations at the root and stripped every plant of the bark up to the summit; but some Larch trees in the same field, about nine years old and 12 feet high, remain untouched, as well as about 100 acres of Larch in the neighbourhood, which were planted about 14 years back, and immediately after an old Fir wood was cut down.

The Weevils from Chester were put into a bottle well corked, but they soon ate a hole through the centre of the cork, and several of them escaped; they were, however, recaptured, and placed in a box with a fresh twig of the Larch, which they decorticated and disbudded in one night, loosening all the leaves and emptying every bud (figs. 2 and 3). As the favourite haunts of these Weevils are the spots where the trees which they inhabited had been felled, the stocks and branches remaining, nothing can be more injudicious than to make a fresh plantation of Coniferous trees upon the ground which had been for many years occupied by any of the species, especially if there be any evidence of the Pine-Weevils inhabiting the district. It has not been positively proved, but there seems to be little doubt, that the females deposit their eggs deep in the roots of the trees, in July and August, and that the beetles hybernate in the loose soil where the Pines were felled, as they are found in the spring in considerable numbers in the sandy excavations. The galleries formed by the young larvæ can be traced upwards from the roots, and Bouché says they perforate the young shoots, and certainly live in the wood. They are fleshy white maggots, like those of most Curculionidæ, with a brown head; we have no description of the pupa, or any account where it undergoes its transformations, but in all probability in the felled trees, the beetles being found in spring on the lowest branches of the young stems, which are covered with Moss and Grass. These Weevils appear in great numbers in June and July some years, and in others in May and again in August, which has led to an opinion that there are two broods in a year, but that I think is not very probable.

This Weevil was named Curculio Abietis by Linnæus, and it is also said to be identical with his C. Pini; it now constitutes the genus Hylobius. It is black, more or less covered with short ochreous hairs, and rugosely punctured (fig. 1); the rostrum (fig. 4 *a*), is stout but not long, thick at the apex, which is furnished with jaws, &c., and an oblique lateral channel to receive the antennæ (*b*), which are placed on each side near the extremity; they are angulated and 11-jointed, the basal joint is long and clavate, the 7 following decrease in length, the 2d is slightly elongated, and the 8th is cup-shaped, forming the base of an ovate-conic club, which is tri-articulate; the eyes are small and oval; the thorax is semiovate, with a smooth line down the centre, more or less clothed with ochreous hairs, which form spots also on either side; the scutel is minute; the elytra are convex, broader than the thorax, somewhat boat-shaped; they are roughly punctured, causing little tubercles, and there are 9 punctured striæ on each; the ochreous hairs form spots and broken bars; there is a short transverse one behind the scutel, two oblique ones nearly meeting at the suture behind the centre, a transverse one beyond it, and a patch at the apex; the wings are very long and smoky; the legs are strong; the thighs thickened, with a notch beneath near the extremity, and forming a tooth (4 *c*); the tibiæ are short but strong, truncated obliquely with a brush of hairs and a sharp curved spine at the inner angle (*d*), and in the four posterior the apical margin is pectinated; the tarsi are velvety beneath, and 4-jointed, the two basal joints are obtrigonate, the 1st being the longest, the 3d is bilobed, the 4th clavate, with two minute sharp claws.



From their timid nature it is difficult to catch the Weevils, for when approached they slip out of sight, and if the branches be touched they generally fall to the ground, but this species can cling so fast that it is almost impossible to dislodge any that retain their hold. Whether they could be shaken from the branches into sieves by night I have had no opportunity of ascertaining, and it seems impossible to suggest any better mode of catching them than hand-picking, which practice would soon render easy and efficient.—*Ruricola.*

Home Correspondence.

Blister of the Peach Leaf.—Mr. Towers frankly admits the physiological correctness of the organic structure of leaves detailed at the bottom of col. *c*, p. 431; he even takes it as a leading principle in his own view of the disease. He cannot, at the same time, but feel some doubt upon the prevailing theory of the day, which lays so much stress upon the absorbent power of the leaves. As transpiratory organs their office, however, cannot be questioned, and to that the present inquiry is alone restricted. He, perhaps, did not express himself with sufficient minute accuracy, otherwise it would seem impossible to conclude that "his inference was at variance with his own premises," for he never did contemplate, and therefore could not admit that the spring leaves of his Nectarines were surcharged with fluid, and therefore became blistered by cold. To divest the question of ambiguity, and at the same time to point out a probable remedy, he now suggests that the disease represents, or corresponds with, that of congestion in animal bodies, caused by some agent which arrests the regular course of the fluids, and gorges the affected organs. When a plant is in a healthy state its leaves are duly supplied with watery sap; but if, in that condition, any part or portion of the foliage be suddenly checked so as to paralyse the stomates, then that very supply of fluid, which would have been ample, but nothing more, becomes redundant; and not only so, but diseased, chemically changed, and of a saccharine quality, as is proved by the immediate occupancy of each concavity by the aphis. One fact, not before alluded to, should now be adduced: trees liable to the affection seldom escape, while others, upon the same wall, remain free from attack; this might infer a constitutional predisposition; the Peaches at Maidenhead Thicket have heretofore suffered far less than the Nectarines, though they have been exceedingly more liable to mildew. If leaves be replete with juices in the spring, they appear to be vastly more so during the summer, or second growth, assisted by the thunder showers, moist atmosphere, and high temperature of July Yet in that month, the damage is repaired, the blanks filled up, and disease ceases to exist. It is stated at p. 431, that the pustular affection of the Vine-leaf, and the blotchings of the Peach, are of the same nature; the diseases being identical, differing only in degree and severity. Let, however, the following question be put to, and candidly answered by, any practical discriminator. Did any one ever observe a Vine on the open wall subject to that green lichenous affection on the under side of the leaves, which terminates merely in black perforations to, and through the upper surface? Is it not restricted to glazed houses, and there chiefly to the Black Hamburgh? Again,—Is there any evidence of the attack of the Peach-leaf in pits, or forcing-houses. Mr. Towers's observation, in the best gardens around Maidenhead for 12 years, and his own experience at home, with the Hamburgh, White and Black Frontignan, Purple Constantia, and West's St. Peter Vine, and with five varieties of Peach and Nectarine, justify these inquiries; and as to the Peach under glass, he has never seen a bloated leaf. He, therefore, retains his opinion as to the proximate cause of the Peach disease, which he conceives to be night frost, acting upon a secreting surface, but, assuming the symptoms of a partial epidemic; and, judging by experience, he offers it as his firm conviction, that glazed sashes (if our worthy combinations of glass-makers grant the boon), carefully applied in front of Peach walls during the months of April and May, would prove remedial to an extent that would almost banish a disease, which, under aggravated circumstances, does not only strip off the leaves, but utterly gums and destroys the young fertile shoots of the spring, and with them the crop of fruit.

Pruning Forest Trees.—I was once in hopes that the subject of forest-tree pruning, with the view of accelerating the growth of useful timber (which is in all cases the ultimate object), had been nearly set at rest; of late, however, your columns have shown that my hopes in that respect were vain; and my surprise has often been excited at seeing how men of sense and reflection can advocate "systems"—if such they can be called—so utterly at variance with those laws of nature that govern the increase of timber in a growing tree; to say nothing of the reason, experience, and observation, that have been from time to time brought to bear on the subject. A Wicklow correspondent, in a late Number, advocates the Nerquis system of pruning, and is confirmed in its favour by the perusal of what has appeared in the *Chronicle*. Could this correspondent have perused your Leading Article on the subject? If I recollect rightly, Dr. Thackeray proves, according to his own avowal, on the principle that what is taken from the head is added to the stem—assuming the roots to take up the same quantum of matter whether the head is large or small. I admit at once that Dr. T. is more judicious in the application of this principle than others have been; but the principle itself is assuredly contrary to nature. In your No. 25 are two articles on this subject—one by Mr. Donaldson, who advocates the Natural American Forest system, described by Humboldt, and practised in Scotland and England respectively by the Dukes of Athol and Portland. Need any one was tewords about such a system? There is, not many miles from where I now write, palpable examples of its absurdity. I could in a few hours take the writer into large plantations that have been left to themselves, unthinned, and unpruned, where the trees instead of approaching to useful timber, or even to pleasing effect in a landscape, are nothing but masses of naked rods with a tuft at the top, striving with each other for a little light and air. The feeling they excite is one of pain and regret. Can it be profitable? Impossible? In the same Number follows a colloquy between A and B, two very sapient characters no doubt, from which Mr. Howden draws this conclusion, "That abundance of healthy branches are not the cause, but the effect of a healthy growing tree." This conclusion, which Mr. Howden maintains, ministers but little to the clearing up of the matter either way, whether pruning be good or evil. It is an obvious truism that a healthy-growing tree will have healthy branches, just as a healthy man will have sound and healthy limbs. It is part and parcel of a sound and healthy constitution in either case; but deprive a tree periodically of part of these healthy branches, will that contribute to the increase of its stem? or the contrary? Mr. H.'s distinction between cause and effect is in this case of very little importance. I maintain, and would fain bring your readers to the conviction, that the mutual reciprocal influence of root and branches upon one another constitute the true principle of increase in stem, and in proportion as these are interrupted, in like proportion is the increase of timber retarded; consequently, pruning beyond a little knife-work in youth is a decided evil.—*Quercus.*

Pruning Forest-trees.—I am glad to see this subject agitated in your columns. It is really painful to walk out in the neighbourhood and observe the abominable disfigurement to which many of the trees, especially the Elms, are submitted. On inquiring the other day as to why this was done, when it was now known to be injurious to trees, I was told that it arose from the fact that the leases of the land on which these trees grow give power to the tenant to use the branches of pruned trees for firewood and other purposes. Surely the profit of the timber would be greater on the timber, if the branches were left than it can be from this miserable mangling of the trees. Dr. Thackeray has advanced, as an argument in favour of pruning, that when a man loses his leg he becomes fatter, and concludes that a tree losing a branch may grow faster: but this is a mistaken analogy. The branch of a tree bears leaves, which are the stomach and lungs, not the legs of a tree; and the analogy would be in depriving a man of a part of his stomach or one of his lungs. We all know that the latter takes place in consumption, and that in that disease men get thin. It appears to me that the only argument that can be advanced in favour of pruning is that under certain circumstances more light may be admitted to act on the leaves. This only applies where trees are very close together, and then the previous question of cutting down some of the trees should always be considered. Mr. Hamerton suggests the formation of a

arboricultural society, but surely the subject of the growth of trees is one within the legitimate province of either the Agricultural or Horticultural Society. Something certainly should be done to diffuse correct information on this point.—*L. E.*

The Cuckoo.—For the information of "D.," p. 418, I beg to say that the reason the young wagtails were found dead under the tree is this, that the young cuckoo is naturally of a very restless disposition, and finding but little room in the nest with the wagtails, he wriggles them out; this I have been an eye-witness of. The old cuckoo is a very useful bird, and destroys more blight (whilst we sleep) at daybreak than persons probably are aware of. I have seen them eat blight on a Cherry-tree, at four in the morning, as fast as a hen would eat corn, and I am prepared to state that I have often seen them on trees covered with American blight, in preference to other trees, in my orchard. My friend, on Mendip, who lives near a plantation, declares that the cuckoo cries all night long, when the nights are warm and light.—*B. F.*

A Word to the Judges of Roses.—You may believe me when I say I give you full credit for a desire to do strict justice to both exhibitors and the funds of the Horticultural Society. At the last meeting at Chiswick I think you ought to have awarded my collection of Roses the gold medal, and I will tell you why. The difficulty of making a fine display was owing entirely to the season. This was evident from the exhibition of cut blooms, which, perhaps, was never so hard a task as on the 21st of June. Again, it is thought fair that amateurs should be required to produce but half the quantity nurserymen do. Now, double my 12 plants, and I am sure you will agree with me that they would have equalled any exhibition made by my friends the competing nurserymen, to one of whom (Lane) the G. B. was awarded. And, again, why had my gardener no competitor? Because no other amateur had 12 plants to bring. I am sure if you knew me, you will give me credit for only a right motive in thus directing your attention to your award. It is exceedingly discouraging to exhibitors, after struggling against the difficulties of the season (over which they have no control), and which have proved insurmountable to their brother competitors, to receive a medal which conveys censure rather than approval. I throw these remarks before you for your consideration. If I am right, I am sure you will allow them to have weight; if I am wrong, I have laid my opinions before you, in a spirit you cannot object to. As conscientious judges, you have a difficult task; so have we as exhibitors, and you will understand me when I say, upon all occasions, when the season has been adverse to our productions, we like to have competitors. Had we been favoured with two more exhibitors on the occasion I allude to, I think J. Dobson's name would have figured in the Gold Banksian list.—*E. Beck.*

[We certainly should not have made the award of which Mr. B. complains.]

Fruit at Chiswick.—A letter signed "Young Hopeful," requesting that one of the judges of fruit, at the last Chiswick exhibition, will inform him "by what rules Grapes are judged" there; and stating that the judges on that occasion did not act in accordance with the Society's rule, "that all fruit must be perfectly ripe, and well coloured," having been placed in my hands, I beg to assure him that the judges were particularly observant of that rule, several specimens of Black Hamburgh and Sweetwater Grapes, which were very large, both in bunch and berry, having been disqualified solely on account of want of colour; while others of Black Hamburgh and Black Prince, although jet black, and very beautiful in appearance, were unsuccessful because they were not ripe. I recollect that there was a box containing Muscat of Alexandria and Black Hamburgh Grapes, the former were extremely fine in every respect, but the berries of the latter, although large and quite ripe, were of a very bad colour, and the judges distinctly declared that the prize in that case was awarded for the Muscats only. I mention this circumstance, thinking it probable that the remarks of "Young Hopeful" may have been caused by his supposing that the badly coloured Grapes were deemed worthy of a medal. In answering his query, "by what rules are Grapes judged," I consider it quite unnecessary to specify the particular points which characterise first-rate Grapes, they being so well known to every good gardener; I, therefore, beg shortly to say, that to gain a first prize they must exhibit a combination of good qualties, and be entirely free from bad ones. With reference to his anticipation of gaining a prize next year, I heartily wish him success; and judging from the perfect fairness and independent feeling which I have invariably found to govern the Horticultural Society in every branch of its proceedings, I am quite certain that if his Grapes should merit a prize he will obtain one. I beg to add that the judges of fruit were unanimous in their award, in every case, at the before-mentioned exhibition.—*One of the Judges of Fruit, at the Chiswick Exhibition, on the 21st inst.*

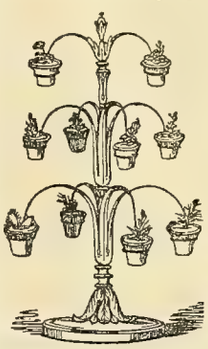
Wireworm.—I have been a great sufferer from the wireworm this year, and having made two or three slight experiments, I am induced to mention the result, in the hope that it may lead to further experiments. Having read somewhere (I think in Mr. Johnson's "Gardeners' Almanack") that guano was destructive to the wireworm, and having ascertained that this was true, if the worm was brought into direct contact with the manure for a few minutes, I put 30 wireworms into a quart bottle half filled with garden-mould, with which was mixed as much guano as would be applied as a manure for ordinary kitchen vegetables, and on removing some of the worms the following morning, they all seemed (although still alive) to have no power of locomotion, and in a week afterwards on removing the earth from the bottle every worm was perfectly dead. It is true, the bottle was corked up and placed on a sunny shelf in a greenhouse; but it seemed not unreasonable to conclude that the insect in the open ground would from instinct avoid the vicinity of a substance evidently injurious to its existence. Now I was at this time about to plant out some Lettuces on a south border, where every plant of a previous crop had been destroyed by the wireworm. Of this second crop I planted out 8 rows, 10 plants in a row; round each plant of the first 4 rows I strewed thinly, but continuously, a ring of guano, the diameter of the ring being about 9 inches, and dibbled it in about 3 inches, afterwards watering well. The Lettuces so planted out are now ready for tying up, and of the 40 plants protected by the guano only one plant has been destroyed; and of the remaining 40 unprotected there are only 11 plants left. The manure has certainly not injured the plants, but I do not notice any perceptible superiority in those treated with the guano. I may mention that the single plant lost from the manured rows was taken up when flagging, and in it was found a very small and diminutive worm, from which I infer that the insect was one which happened to be hatched within the circle, for the experiment seems to prove that they will not pass the barrier formed by the guano, even to obtain their favourite food. I will mention one other circumstance that may be interesting to amateurs. I prefer to grow Carnations in the open ground, and I this spring purchased 12 pair of choice varieties, and for want of opportunity of preparing a compost, I planted them in the same kind of soil in which the Lettuces were grown. The Carnations were protected in the same manner as the Lettuce, and I have not lost one plant by the wireworm. It is true, two plants have gone off, and they were taken up and carefully examined, but no trace of wireworm could be found; the stem appeared to have become cankered and rotten. At the same time it is worthy of remark, that in the very same bed where the Carnations grew, there were Ranunculuses, Primroses, Polyanthuses, and Stocks eaten off by wholesale.—*J. Steed, Hadleigh.*

Duration of Varieties.—There seems little reason to doubt that varieties of most plants have a limited period of duration, which does not affect the species itself. Many of the fine old varieties of Pippins are becoming extinct; such as the well-known Golden Pippin, the old Kentish Pippin (the very finest-flavoured Apple I have known), and some others. This peculiarity also affects the varieties of the Potato, for several kinds that were in high repute 30 years ago are now only known as having once been extensively cultivated, but are at present lost. In a work, "The Florists' Directory," by James Maddock, 1792, are the following observations:—"The constitution of Anemones undergoes considerable changes with age, which is, perhaps, in a greater or smaller degree, the case with all other vegetables. The Anemone will not last more than 12 or 15 years without degenerating, unless it be frequently removed to a different soil and situation; nor will any removals protract or prolong its existence more than 30 or 40 years. It generally blows in its greatest degree of perfection from the 5th to the 10th or 12th year, after which it becomes gradually smaller and weaker, and if the flower was originally very full and double, with age it loses that property; the petals diminish in number, become small and irregular, and finally the sort perishes. It has more than once occurred that the same sort, although in possession of many persons, residing at remote distances from each other, has been entirely lost in one season, without the possibility of accounting for the fact in any other manner than the above." In a foot-note the author observes—"The Ranunculus will last about 20 or 25 years in perfection, after which it degenerates and perishes." It appears that this period of duration is confined only to seminal varieties of vegetables, for the original wild parent still continues to flourish, as it has done since its creation.—*Lusor.*

Societies.

HORTICULTURAL SOCIETY.

July 1.—R. W. Barchard, Esq., in the chair. Mr. F. Gaines, Mr. J. F. Wood, and Mr. J. Pearson, were elected Fellows. A paper communicated by the Cincinnati Horticultural Society, was read relative to the propagation of dwarf Pear-trees. The mode of procedure was a modification of the common method of raising Quinces from layers: it was this. In October, 1842, a number of Quince bushes were dug up, and put in trenches in a horizontal position, placing all the branches a few inches under ground, and leaving the young shoots only above the surface. These grew very freely in the spring and summer of 1843, and were budded in July and August. Two or more buds were placed on each, according to the length, a few inches apart. In the spring of 1844 when the Pear-buds began to shoot, the young branches in which they were inserted were pegged to the surface of the ground, and as soon as the Pears attained the height of 3 or 4 inches these branches were covered with earth; and in the end of October were rooted along their whole length, affording a sufficient supply for the separate growth of each; and at this time a number were planted out which were stated to be now fine growing trees. In 1843 and 1844, the branches of the buried bushes sent up innumerable healthy shoots, which were budded in May, continuing the operation every favourable day, when the sap flowed freely in June, July, August, and September. In April, 1844, all were again pegged to the ground, and in like manner covered with earth, the young Pear being left out. In this way an abundant supply of fine young trees has been raised, many of which it is believed will bear in the second or third year from planting out; and by this mode stocks to any amount may be produced. It was mentioned that many kinds of Apple on Paradise Stocks were also being tried in the same way, and with the same results. Of plants produced on this occasion, Messrs. Veitch and Son, of Exeter, sent a new species of Calandrinia, named umbellata, which is certainly a very pretty thing. It was stated to be hardy, having stood last winter, such as it is in Devonshire, in the open ground without the least protection, and in a situation by no means sheltered. In consequence of want of sun-light in the exhibition room, the flowers did not open; one was, however, forced open, and its size and extremely fine colour served to show what an attractive appearance a mass of the plant would produce. Being from the mountains of Chili, it is possible that it may stand our winters even in a less favourable climate than that of Devonshire, and in order the better to insure this, small stones, or other dry material, should be placed between the ground and the spreading prostrate branches, to prevent them from coming in contact with the damp soil, which is apt to injure such things. It will make an excellent plant for rockwork, where its numerous large umbels of beautiful violet will show to the best advantage. A Banksian Medal was awarded for it.—From the Hon. W. F. Strangways was a contrivance, similar to the annexed woodcut, which has been much used in Germany for keeping plants of tiny dimensions, such as dwarf Cacti and other succulent things, in sitting-rooms. This is of easy construction, being merely an upright stand, from which branch numerous brass wires having loops at the ends, into which the small pots, containing the plants, are inserted.—Another object connected with gardening was in the shape of a hose for force-pumps, garden engines, &c., from Mr. Vaucher, of King's-court, Lombard-street. This is called Vaucher's Patent Woven Hose, and is formed of strong linen without seam, inlaid with India-rubber, which makes it water-tight. From experience it has been found to be superior to leather.—Mr. Fish, gr. to Col. Sowerby, received a Banksian Medal for excellent specimens of Peaches and Nectarines. They were said to be the last gathering from an early forced house.—From the garden of the Society were several interesting plants; among those of modern introduction was Fedia graciliflora, a plant nearly related to Valerian. It is a hardy annual, forming a thick mass of pink flowers, which almost completely bury the bright green leaves. It was introduced through France, and is one of the few things of any consequence from Algiers. From the same collection were Hydrangea japonica, mentioned in last week's Paper; Mussænda frondosa, sent from Hong Kong by Mr. Fortune, and remarkable for one of the lobes of the calyx spreading out in the shape of a large greenish-veined white bract; the plant is not new to gardens, having been introduced some years ago and lost. Now, however, that the art of cultivation is so well understood, this may be made to form an interesting addition to our collections. Along with these were also Begonia Dregei, a Cape plant, covered with a profusion of white flowers; the useful Lyperia pinnatifida, which displays its gay-looking violet blossoms nearly the whole year; Epidendrum primulinum and alatum, Oncidium unicorne, and O. Lanceanum, the latter a noble plant; a variety of Hippeastrum vittatum; two species of Achimenes, and a plant of Sinningia guttata; together with Ruta patavina, whose heads of yellow blossoms contrast well with the bright green foliage; Phlomis Cashmeriana, a half hardy plant with grey leaves and violet flowers not remarkable for their beauty; two fine plants of Statice mucronata; and, finally, a well-managed Veronica speciosa.



BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The fifteenth meeting of this body was held at Cambridge on June the 18th, and succeeding days. The arrangements for the reception and location of members were very complete. Although the time between the last meeting at York and the present one was little more than eight months, there was no deficiency of papers at the various sections, unless we except the Mechanical section, which, from the absence of civil engineers on railway business, was only thinly attended. The section for Natural History (Zoology and Botany) met in the lecture-room of the Philosophical Society of Cambridge. The Rev. Professor Henslow was President. On Thursday, the 19th, the papers were entirely zoological; on Friday, the 20th, botanical. By observing this arrangement strictly at the present meeting, this section was better attended, and its proceedings obtained more interest than at any previous meeting of the Association. The first paper read on Friday morning was by the Rev. L. Jenyns.

On the Turf of the Cambridgeshire Fens.—The author stated that the turf of the Cambridgeshire

Fens was not formed from Sphagnum and other Mosses, like the peat found in many parts of England and Scotland, but owed its origin to the various species of aquatic plants, successive layers of which had been accumulated for a long period of years above the remains of forest-trees, which lie buried at the bottom of the moor. This gives rise to two distinct kinds of turf, which are known to the men who dig the turf for fuel by the names upper and lower. The former is the more compact and heavy of the two, and the darker in colour; the latter, which consists entirely of the bark, wood, and branches of the submerged trees, is lighter in colour, and much looser in texture, and becomes the more so the deeper it is dug. These two kinds of turf, however, pass one into the other. The trees lie immediately above the clay, which constitutes the basis of the whole Fens. It was stated that the upper turf alone could receive any increase at the present time, and that even this could scarcely be considered now in a growing state, from the extent to which drainage has been carried, and a failure of the conditions necessary for its formation. Formerly it was supposed to grow about 20 inches in 16 years. There being several geologists attending the section during the reading of this paper, it led to a discussion upon the modes of forming vegetable deposits, and their conversion into coal.

Dr. FALCONER, of India, stated that he had observed in the bottoms of many of the lakes of Cashmere a turf closely resembling the lower turf described by Mr. Jenyns as existing in the Fens of Cambridgeshire. The plants, of which this turf was composed, were species of Hydrilla, Potamogeton, Utricularia, and Nelumbium. The natives of Cashmere used this turf as fuel. They procured it by dragging the lakes with forks, and afterwards drying the matter thus obtained.

Mr. C. C. BABINGTON had observed that the vegetation of the bogs of Ireland and Scotland was very different from that which existed in the fens of Lincolnshire and Cambridgeshire. He had seen peat obtained from the bottoms of ponds in Ireland in the same way as described by Dr. Falconer to have been done in Cashmere. He believed one great cause of the formation of bogs in Ireland was the constant falling of rain. He related an instance of an island in the Blackwater having become covered over with a bog in the memory of persons living.

Mr. H. E. STRICKLAND said that he had seen portions of peat in Ireland so hard that they were turned for the purpose of making ornaments, which were precisely like those of jet. He thought the formation of bogs threw light on that of coal. He believed that the coal beds of this country had been deposited in two ways; by the formation of bogs, and by the deposit of vegetable matters at the bottom of the sea.

Mr. PRIDEAUX SELBY, of Twizel, had seen peat quite hard, and clear like amber, and which on being rubbed up made an excellent oil-paint.

The BISHOP OF NORWICH referred to the trees found by Mr. Jenyns. He had seen them in Lancashire, and found that they bore marks of fire, and frequently also of the axe. He attributed the accumulation of vegetable matter in bogs to the preserving nature of the water. He wished that chemists would analyse this water. He believed that Ferns and other plants generated secretions in their roots, which gave the water its peculiar character.

Mr. RICHARD DOWDEN, of Cork, thought it was curious that the lighter parts of the turf of Cambridgeshire should be undermost, and the heaviest above. In his country, the bogs obeyed the laws of nature better, and the heaviest turf was always at the bottom. Some of the bogs in Ireland were 22 feet deep. In some places they were covered over by sand. He thought that the obstruction offered by fallen trees to the passing off of water was very likely to form a bog.

Mr. ROBERT BALL, of Dublin, had observed recently some trees which had been blown down in the high wind of 1839. They were covered with grass, and the interspaces between them were filling up with vegetable matter.

Mr. MURCHISON pointed out the difference between the characters of the plants of the coal and those of the peat of the present day, as indicating a different class of circumstances in its production. Coal for its formation required the pressure of water, and he made no doubt that if Ireland could be submerged for three or four centuries, that it would rise a fine coal country. It was a curious fact that although the same formation, the mountain limestone, prevailed in Russia as in Ireland, yet in the former country there were no bogs. He attributed this to climatal causes, and undoubtedly the wetness of Ireland had much to do with its boggy character.

Professor OLDHAM reminded Mr. Murchison that in Ireland the mountain limestone was covered with a very deep clay wherever the bogs were found. There were no bogs on the limestone in Ireland.

Sir ROBERT SCHOMBURGK then read *a Description of the Murichi or Ita Palm of Guiana*. The author referred to the early accounts which naturalists in Europe received of this beautiful palm, of which Sir Walter Raleigh appears to have brought the first fruits to Europe. Clusius, in his "Exotic Flora" describes it as fructus elegantissimus squamosus similis palmæ-pini; and father Gumilla, Gili, and the elder authors on Guiana, extol it in consequence of the various uses the aborigines of Guiana make of it. It serves at different stages of its growth as a vegetable, and furnishes a cabbage equal to the Palmetto; at the maturity of its fruits, they are eaten as well in their natural state as prepared into a drink, which, when drunk copiously proves inebriating. It is remarkable that when much use is made of the fruit it communicates to the linen a yellow colour after perspiration. The trunk is tapped, and a fluid flows from it which possesses much saccharine matter. Of the greatest delicacy is, however, the saccharine liquor extracted from the unexpanded flower, which affords a liquor resembling champagne in its briskness. The Indians prepare from the pith of its trunk a flour resembling that of the Sagus farinifera, which the Warrau Indians call Arù * mixed as a pap; it is considered to be an excellent remedy for dysentery. The fan-shaped leaves are used as a thatch for covering their houses, and the stump of one of these leaves serves as a broom to sweep it with. The Indians of the Savannahs and mountainous tracts use the base of the half-sheathing leaves for making sandals. The midribs of the young branches are cut in thin slices, and after having been dried they are connected together with withes and bast, and serve as a sail for the Indian's canoe, or as a mat to sleep upon. They are used by the travelling entomologist as a substitute for cork to fix insects upon, or to those who are provided with strong beards, as razor strops. Of the greatest use are, however, the fibres of the young leaves which are manufactured into thread and ropes, and they are of such a tenacity that the greater number of Indian tribes fabricate their beds and hammocks of it. The inhabitants of the Rio Negro make a trade of it, and a fine hammock is sold from 10 to 12 milreis. Even in its decay the Murichi is of use, and affords a delicacy to the Indians which likewise many colonists do not refuse, namely, the larvæ of a large beetle; the curculio palmarum is found in large numbers in the pith when the trunk is near its decay, and which, when boiled or roasted, resemble in taste beef marrow. This useful tree which extends from the Llanos of Cumana to the western tributaries of the Rio Negro, and the mouth of the Amazon, or over an area of 550,000 square miles, was appropriately called by father Gumilla arbol de la vida, the tree of life; and it is related at the Orinoco, that one of the kings of Spain hearing of this wondrous tree, which at once furnished bed, bread, and wine, attempted its introduction into the mother country. The author wished to correct finally those who have written on this tree, in two points. It is firstly described as a tree scarcely 30 feet high, while it reaches sometimes a height of 120 feet, and its average size in Guiana is not less than 50 feet; and next to this it is asserted that they are not to be found at a greater height than 800 feet, while the author has met them in numerous groups, and of a luxuriant growth, at a height of from 3000 to 4000 feet above the sea; but strictly to its nature, it grows likewise here in groups and in swampy soil.

(To be continued.)

* The flour which they procure from the arrow-root is called Arù-arù, and our denomination arrow-root is most likely derived from the Indian word.

ROYAL BOTANIC SOCIETY.

July 2.—The third and last Exhibition for this year of this Society was held in their garden, Inner Circle, Regent's Park. Unfortunately, just as the gates were opened, the rain began to fall, and continued for upwards of two hours. About five o'clock the weather had become more favourable, and the company began to arrive in considerable numbers. Her Majesty and suite, and the King of the Belgians, visited the tents in the morning. The exhibition itself, although presenting little novelty, contained some beautiful plants. One striking fact connected with it is that of Messrs. Lucombe and Co., of Exeter, bringing Pelargoniums 200 miles, and winning prizes with them.

Large collections of 30 stove and greenhouse plants were contributed by Mr. Barnes, gr. to G. W. Norman, Esq., and Mr. Ayres, gr. to J. Cook, Esq. Mr. Barnes's group contained many examples of first-rate cultivation; we did not, however, remark any plants in it which were not present at the last Chiswick gathering.—In Mr. Ayres' collection were Achimenes multiflora, the useful Begonia coccinea, a small but neat Ixora crocata, producing six large heads of bloom, and a pretty plant of Kalosanthes coccinea, together with a healthy, well-grown Torenia scabra.—A collection of 15 stove and greenhouse plants was produced by Mr. Fraser, of Leabridge-road, and another by Mr. Pawley, of Bromley. The first prize was awarded to the former, which contained exceedingly well managed plants, among which may be mentioned Kalosanthes grandiflora miniata, measuring about 2½ feet in height and nearly the same in width, and covered with fine healthy foliage down to the pot; a fine Vinca alba, about 3 feet in height and the same in width, profusely covered with blossoms. This group contained moreover good plants of Stephanotis floribunda, Manettia cordata, and the pretty blue-flowered Sollya linearis.—Mr. Pawley sent Phœnocoma prolifera in fine condition, good plants of Rondeletia speciosa and Clerodendrum fallax, with other well-grown plants. Six collections of 10 stove and greenhouse plants were produced. That which gained the first prize was communicated by Mr. Hunt, the more remarkable of whose plants were Erica tricolor elegans; a fine Clerodendrum squamatum; a fine Ixora coccinea; Boronia serrulata, well managed; and a fine Erica tricolor.—Mr. May, who won the second prize, sent Erica metulæflora bicolor, about 4 ft. in height, and 3 ft. in width; a noble Ixora coccinea, producing upwards of two dozen heads of bloom; a finely-grown Erica Massoni, and Crowea saligna, in robust health, measuring about 3 ft. in height, and about as much in width. Other two collections were from Mr. Bruce and Mr. Green, the former containing some remarkably well-managed plants, as did also the latter; the greater part of which were exhibited at Chiswick on the 21st of June.—Mr. Green also showed some Cacti in flower.—Of Cape HEATHS there was a good display. The first prize for 15 was awarded to Mr. May, for well-grown plants of Savileana, radiata, densa, and several others, showing equally good cultivation.—Mr. Barnes and Mr. Green also showed in this class; the former gained a second prize with fine plants of gemmifera, vestita alba, v. coccinea, and splendens. The latter also sent well-managed specimens.—Among Nurserymen, the first prize for 12 plants was awarded to Mr. Fairbairn, who contributed a variety of jasminiflora; the curious looking, rather than beautiful, viridiflora, and several others.—Mr. Frazer and Mr. Dawson, of Brixton-hill, also showed in this class; the former sending dwarf bushy plants, in fine condition, of Bergiana, Westphalingia, and ventricosa superba.—Among Mr. Dawson's plants were ventricosa, prægnans, mutabilis, and infundibuliformis; the latter just coming into bloom. There were three groups of eight plants, the first from Mr. Hunt contained a fine metulæflora, odore rosæ, in fine condition; and Massoni in great perfection.—Mr. Bruce, who gained the 2d prize, produced several varieties of ventricosa, together with Halicacaba, covered with its curious green flowers.—Mr. Taylor also exhibited in this class, and six specimens were sent by Mr. Roser, gardener to J. T. Helling, Esq.—Of SEEDLINGS, Mr. Pamplin was awarded second prizes for three varieties of ventricosa; they were named magnifica, rosy pink; v. grandiflora, larger but not of such bright colour as the former; and v. splendens, producing slender flowers of a bright rose.—The collections of Orchids, with the exception of a magnificent group from the gardener of S. Rucker, Esq., Jun., were few and not remarkable. Mr. Rucker's plants, however, were fully described in last week's Paper, as well as those produced by Mr. Don and others. Of single specimens there was a considerable number; we remarked a noble Erica Massoni, from Mr. Hunt, for which a first prize was awarded; a good E. obvata from Mr. Pamplin; a fine Veronica speciosa, from Mr. Kinghorn; Clerodendrum fallax, from Mr. Ayres; and Mahernia incisa, 6 feet in height, from Mr. Bailey.—Of new plants not in bloom, Mr. Mylam, gr. to S. Rucker, Esq., Jun., sent a magnificent plant of Nepenthes ampullacea, about 7½ feet in height, and bearing numbers of large pitchers, which are beautifully streaked with brown; this was by far the most remarkable plant shown.—Messrs. Henderson, of Pine-apple Place, contributed Jacaranda Clauseniana. The display of ROSES, both cut and in pots, was extremely fine, many of the latter, owing to the dampness of the day, possessing a freshness of colour which was hardly surpassed, even by those from the open ground. The foliage too was as bright and clean as could possibly be desired. The first prize, for 20 varieties, was awarded to Messrs. Lane and Son, in whose collection were General Allard, Persian Yellow, Le Pactole, Charles Duval, Flora MacIvor, Duchess of Sutherland and Barbet.—Mr. Dobson, gr. to Mr. Beck, of Isleworth, won the second prize in this class; the more remarkable plants in this group were Gen. Allard, 5 ft. high, producing upwards of two dozen large blooms; Fulgens, bright red, with about the same number of blossoms, Queen, Coupe de Hebe, Coutard, William Jesse, and Augustine Marget. Messrs. Paul and Son, of Cheshunt, also showed 20 varieties. A second prize for 10 was awarded to Mr. Dobson; among these were French Crimson Moss, Bourbon Queen, Felicité, and White Bath Moss. Collections of cut Roses were numerous. For groups of 100 varieties, the first prize was awarded to Mr. Lane, and the second to Mr. Francis. For 50 sorts, Mr. Collison won the first prize, and Mr. Milne the second. For 25 varieties, the competition was with Messrs. Paul, Lane, and Rivers, the prizes being awarded in the order in which the names are mentioned.—Among miscellaneous objects, Mr. Pamplin was awarded a prize for a collection of Gesneraceous plants, containing several species of Achimenes, the pretty Gloxinia Cartonii, Sinningia guttata, and some others. We also observed groups of Ferns, Alpine plants, some dwarf Cacti, and several devices illustrative of the grouping of plants in flower gardens.

The quality of the Exhibition was greatly assisted by the numerous collections of PELARGONIUMS; they were generally well bloomed and in fine healthy condition. For new and first-rate varieties the first prize was awarded to Mr. J. Dobson, gr. to Mr. E. Beck, Isleworth; these were principally seedlings raised in 1844: Belinda, Favourite, Bellona, Margaret, Rosy Circle, Isabella, Marc Antony, Desdemona, Sultana, Sunset, Zenobia, and Lord J. Russell. Second prize to Mr. Cock, Chiswick, for 12 compact and beautifully-bloomed specimens—Erectum, Cyrus superb, Emma, Sarah, Milo, Plantagenet, Cinderella, Diadem, Rosette, Symmetry, Queen Philippa, Countess Morley. Third prize, Mr. Staines, for Hero, Comet, Emperor Nicholas, Lord Ebrington, Andromache, Sir R. Peel, Amy Robsart, Sunbeam, Aurora, Clio, Archbishop of Canterbury, and La Polka. The same class among Nurserymen was contested by Mr. Gaines, Messrs. Lucombe and Pince, of Exeter, and Mr. Henderson, Pine-apple-place. The first prize Mr. Gaines received for Lady Sale, Camilla, Witch, Prince of Wales, Hebe, Lady Caroline Douglas, Alba grandiflora, Airamana, Rising Sun, Trafalgar, Exoniensis, and Arabian. Second prize to Messrs. Lucombe and Pince, for Meteor, Othello, Martha,

Milton, Superb, Admiral, Unique, Thurtell's Desdemona, Leonora, Zanzummim, Pluto, and Duke of Cornwall. Third prize to Mr. Henderson, who exhibited the Black Prince, Lord Ebrington, Lady Mansell, Akbar, Hesperus, Lady Farnham, Symmetry, Wonder of the West, Saxon King, Lady Vernon, Rising Sun, and Marchioness of Lothian.

For 12 varieties in the Amateurs' Class, a first class prize was awarded to Mr. Staines, Lisson-grove, for Madeline, Superbum, Hebe, Duke of Cornwall, Enchantress, Rowena, Sunbeam, Achilles, Cedric, Fair Maid of Leyton, Duke of Wellington, and Grand Turk.—And in the Nurserymen's Class, the same prize was awarded to Messrs. Lucombe and Pince, for 12 large and finely-grown specimens, comprising Thurtell's Fairy Queen, Beck's Admiral and Black Prince, Stella, Dido, Leonora, Zanzummim, Thurtell's Stromboli, Cleopatra, and Enchantress. — For Pelargoniums in eight varieties, a second prize was awarded Mr. Coysh, gr. to R. Hudson, Esq., for Anna, Luna, Enchantress, Werner, Erectum, Hebe, Priory Queen, and Matilda; and a third class prize to Mr. Cowan, gr. to G. Foster, Esq., Anna, Bridesmaid, Coronation, Superb, Alice, Cyrus, Priory Queen, Jubilee.

The Fuchsias were shown in good condition; the collection supplied by Mr. Robinson, gr. to J. Simpson, Esq., of Pimlico, contained finely grown specimens, consisting of Prima Donna, Lowryii, Vesta, Chandlerii, Eppsii, Robinsonii, Gem, Exoniensis, Formosa elegans, Magnet, Coronet, Barnes's Hope; and a similar prize was also awarded to Mr. Gaines, of Battersea, for Hector, Expansa, Decora, Gigantea, Forsteri, Cassandra, Duchess of Sutherland, Pearl, Goldfinch, Reflexa, Zenobia, and Britannia; and an extra prize was also given to Mr. Ottey, Nurseryman, Peckham.

A collection of Calceolarias, compactly grown, and well in bloom, from Mr. Gaines, was awarded a first prize; the sorts were Tigrina, Kinghornii, Prince Alfred, Flash, Lady Ann Charteris, and Ada.—There was a very good and interesting exhibition of Verbenas, in which were introduced most of the new varieties, the first prize was awarded to Mr. Smith, of Hornsey, who showed Vesta, Lilac Perfection, Queen of England, Smith's Superba, Beauty, Duchess of Sutherland, Excelsa, Delicata, Atropurpurea, Beauty supreme, Girling's Beauty, Boule de Feu, Célestina, Defiance, Enchantress, Messenger, Giant, Poultii, Princess Royal, Rose d'Amour, Hebe, Emma, Ottey's Garland, and Miss Watson.—Second prize to Mr. Turner, of Chevely, for Enchantress, Beauté supreme, Lovely Rambler, Excelsa, Giant, Ingramii, Emma, Lilac Perfection, Delicata, Princess Alice, Rose d'Amour, Messenger, Favourite, Surprise, Defiance, Atrosanguinea, Garland, Triumphans, Speciosa, Blue Queen, Array, Rosea multiflora, White's Perfection, Princess Royal.—A third prize was awarded to Mr. Cowan, gr. to — Foster, Esq., of Hampstead. There was an excellent display of Pinks, both in quality and quantity; the first prize was awarded to Mr. Turner for the following 24 blooms, large and finely laced: Omega, Weedon's Victoria, Napoleon, Eclipse, Rosanah, Warden, Tower, Majestic, Turner's Masterpiece, Alpha, Miss Blackstone. Model, Enchantress, Prince of Wales, Little Wonder, Defiance, Willmer's Victoria, Duchess of Kent, Jelf's Mary Ann, Melone, Hardstone's Prince Albert, President, Turner's Beauty, and Gem; second prize, Mr. Norman, Woolwich, for Wallis's Unique, Church's Wonder, Lady Flora Hastings, Brown's Eclipse, Butler's Seedling, Willmer's Queen Victoria, Sarah, Duchess of Kent, Hodge's 166, Weedon's Queen Victoria, Garrat's Alpha, Omega, Kirtland's Gay Lad, Cousins' Village Maid, Little Wonder, and Paragon, Norman's 1844, White's Warden, Creed's President, Garrat's Queen of Roses, Duke of Northumberland, Jelf's Marianne, Kirtland's Dr. Daubeney, and Hodge's Gem; third prize to Mr. Ward, of Woolwich, Omega, Garrat's Alpha, Prince Albert, Hodge's Melona, Mars, Creed's President, Norman's Defiance, Henry Creed, Fisher's Matilda, Jones's Huntsman, White's Warden, Hardstone's Prince Albert and Queen Victoria, Collie's Majestic, Duke of Northumberland, Jelf's Mary Ann, Brown's Eclipse, Ward's Great Britain, Weedon's Queen Victoria, Wallis's Unique, Dry's Earl of Uxbridge, Kirtland's Gay Lad, Bunkell's Prince Albert, and Willmer's Duchess of Kent.—Extra prizes were also awarded to Messrs. Brown and Attwell, of Uxbridge, and Mr. Willmer, of Sunbury. — Heartsease were exhibited and prizes awarded, first, to Mr. Turner, of Cheveley; second, Mr. W. C. Brown, of Slough; third, Mr. Hart, of Wickham; fourth, Mr. Bragg, of Slough.

The Seedlings were numerous. In Pelargoniums, a first prize was awarded to Mr. Whomes, gr. to E. Foster, Esq., of Clewer, for a variety named Paragon, rosy crimson under petals, with a narrow margin of the same colour around the top petals, which are of a deep maroon. Certificates to Aspasia, Painted Lady, and Satellite, three flowers from the same source, of extraordinary colour and great substance; the latter with a dash of scarlet in the lower petals, which gives great brilliancy to the flower: of these we shall have more to say when exhibited as specimens next year. The Prairie Bird, from Mr. Beck, a flower of good form and substance, somewhat resembling the Queen of the Fairies, but expanding well; and the same reward was given to Mr. Catleugh, of Chelsea, for two seedlings named Gertrude and Salome.—In Calceolarias, first prize to Mr. Standish; his best seedlings were Trumpeter, Matchless, and Nico; and amongst Mr. Gaines's seedlings we noticed Enchantress, Alpha, and Majestica, as the best; and a good variety from Mr. Hodges, named Unique.—Seedling Verbenas from Mr. Smith, of Hornsey, a Certificate to one named the Duchess of Sutherland, was selected by the Judges, a delicate pink flower, with a small rose-coloured spot; a very pretty variety.—Several good seedling Pinks were shown; those selected for rewards were Turner's Masterpiece, a delicate rose, lacing regular and unbroken, flower large and full, and Ward's Great Britain, a red, with rose leaf, good lacing, a large flower, well filled in the crown. 12 specimens of Henderson's Queen Victoria, a light fancy Pelargonium had a very pleasing effect, as also another of great beauty, resembling a rose-coloured Sweetwilliam, the name of which we did not obtain. It would be well if growers would turn their attention to this charming class of Pelargoniums. We also noticed among the seedling Petunias a good white, named Alba Magna.

Of Fruit there was a very excellent display. The 1st prize for a single specimen of a Providence Pine was awarded to Mr. Brown, gr. to the Hon. Sidney Herbert, for a remarkably well-grown fruit; the 2d prize to Mr. Mason, for a fruit little inferior; and the 3d prize to Mr. Parsons, gr. to A. George, Esq.—For single specimens of Queen Pines, the 1st prize was awarded to Mr. Ingram, of the Royal Gardens, Frogmore, for a remarkably well-grown fruit; and the 2d prize to Mr. Mason, for a fruit weighing upwards of 4 lbs.—For Grapes in collections of three dishes, the 1st prize was awarded to Mr. Fleming, gr. to the Duke of Sutherland, for fine bunches of Black Hamburgh, Muscat of Alexandria, and Sweetwater; the 2d prize was obtained by Mr. Haythorn, gr. to Lord Middleton, for well-ripened bunches of Grizzly Frontignan, Black Hamburgh, and White Muscadine.—Mr. Davey, gr. to G. Smith, Esq., obtained the first prize for a dish of Black Grapes; the second prize was awarded to Mr. Ingram, for large bunches of Black Hamburgh.—For Grapes in single dishes of white varieties, the first prize was obtained by Mr. Davis, gr. to W. A. Smith, Esq. In Melons, the first prize for a Single Fruit was awarded to Mr. Calver, for Cuthill's Early Cantaloupe. For Persian Melons, the first prize was obtained by Mr. Fleming; and the second by Mr. Daniell, gr. to the Rev. T. Stephens. Persian Melons were also sent by Mr. M'Ewen, and others. Among Peaches and Nectarines, some very fine fruit were communicated by Mr. Fleming, whose collection contained Noblesse, and Royal George Peaches, and Red Newington and Murray Nectarines. A dish of Millet's Mignonne Peach, and Elruge, Violet Hâtive, and Red Roman Nectarines, were sent by Mr. Parker, gr. to J. H. Oughton, Esq. A dish of Apricots was sent by Mr. Ingram, along with beautiful specimens of Washington, Goliath, and Victoria Plums. Figs were present from Mr. Foggo, gr. to the Marquis of Abercorn; and from Mr. M'Ewen. Collections of Strawberries were numerous. The first prize was awarded to Mr. Cole, for Keen's Seedling, Elton, British Queen, and Myatt's Pine; and the second, to Mr. Bennett, for Myatt's Eliza, Princess Royal, British Queen, and Keen's Seedling. A large Strawberry named Shakspeare, which was nothing else than Keen's Seedling, was sent by Mr. Elliott, of Sherborne. Cherries were produced by Mr. Gainsford. Our report upon this part of the show is, however, very imperfect, owing to the impossibility of getting near the table on which the fruit was placed.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

June 25th—This, the third Show for the season, was held in the Surrey Zoological Gardens. The attendance of visitors was respectable, but the exhibition was far from being a good one. In the amateurs' class of 18 miscellaneous plants, the Gold Medal was awarded to Mr. Young, gr. to C. Barron, Esq., who sent plants of Siphocampylus betulæfolius, Leschenaultia formosa, Sollya linearis, and several varieties of Erica.—Mr. Hamp, gr. to J. Thorn, Esq., received a large Silver Medal for a collection in which we remarked Gloxinia digitaliflora, with rose-coloured flowers, having a yellow throat; Cactus Jenkinsoni, Niphea oblonga, a small but good Erica Shannoniana, and some Achimenes.—Among nurserymen, Mr. Pamplin obtained the first prize; this collection contained several species of Erica, Metrosideros floribunda, Prostranthera violacea, and a large Pimelea decussata.—Two other groups were produced by Mr. Jennings, of South Lambeth, and Mr. Bushel, of Kennington.—For the best 4 plants the large Victoria Medal was awarded to Mr. Bruce, gr. to B. Miller, Esq., for famous plants of Aphelexis humilis, Adenandra fragrans, Erica ventricosa superba, and Boronia serrulata. Two other groups were produced, but they were much inferior to these.—Of Single Specimens, Mr. Bruce sent a very fine Aphelexis humilis, nearly 3 feet in width; from the same collection was also a noble Ixora coccinea, with upwards of 20 heads of bloom.—Mr. Pamplin contributed Erica intermedia.—Of Orchids, Mr. Plant, gr. to J. Schroder, Esq., sent Aerides odoratum, Saccolabium guttatum, and some others.

Of Pelargoniums two collections were produced. The large Silver Victoria Medal was awarded to Mr. Foster, gr. to R. Staines, Esq.; these were finely bloomed, and in excellent condition; the sorts were Sunrise, Superbum, Erectum, Enchantress, Hebe, Duke of Cornwall, Staines's Duke of Wellington, and Achilles.—In the Nurserymen's Class Mr. Pamplin received the large Victoria Medal, for the following 12 plants (which appeared to have received considerable damage in conveying them to the gardens), Lord Byron, Superb, Achilles, Prince of Wales, Maria, Assassin, Sir W. Scott, Alice Gray, Sir I. Newton, Maid of Saragossa, Aurora, and Lord Nelson.—The small Siver Victoria Medal, offered by W. Davis, Esq., for the best collection of Fuchsias, was awarded to Mr. Robinson, of Pimlico, for finely-grown specimens of Eppsii, Goldfinch, Prima Donna, Lowryii, Magnet, Gem, Exoniensis, Coronet, Pawley's Queen Victoria, Formosa elegans, Chauvierii and Modesta; and the small silver Linnean was presented to Mr. Ottey, of Peckham, for Paragon, Coronet, Marginata, Cormackii, Eppsii, Pondii, Fulgens multiflora, Lowryii, Gem, Chauvierii, Brockmannii, and Sir H. Pottinger.

For Ranunculuses in collections of 12 varieties, the large Silver Linnean Medal was awarded to Mr. R. Smith, Poplar, for Margent's Phenomenon, Heming's Topaz, Sir J. Graham, Seedling, Naxara, Queen Victoria, Talisman, Orange Boven, and two seedlings. Second prize, small Victoria, Mr. Trewers, Walworth, for Constantia, Scottish Hero, Pliny, Dr. Gardener, Belzoni, Seedling, Dolland, Luton, Industry, Aust's Marshal Soult, Milo, and Rob Roy. The small Linnean, to Mr. Harms, Farringdon-street, for Angoulême, Mélange des Beautés, Scottish Hero, Agamemnon, St. Jerome, Seedling, Phenomenon, Seedling, Henning, Philocles, Seedling, Pucelle d'Orleans; and the small Silver Medal was adjudged to Messrs. Tyso and Son, for 24 varieties, comprising Tyso's Heidas, Vendome, Flaminius, Attractor, Alexis, Cathcart, Glenelg, Delectus, Gippius, and Victor, Kilgour's Queen, Philocles, Oressus, Marquis of Hertford, Nonsuch, Flavissimus, Costar's Sabina, Aust's Mirabelle, Nestor, Belle Agréable, Adolphus, Niobe, Wilson's Self, and Princess Royal.

There were numerous stands of Pinks from amateurs and florists. The first prize, large Linnean Medal, in the Amateurs' Class, was awarded to Mr. Blest, of Walworth, whose stand consisted of the following sorts: Hodge's 166, Bunkell's Queen, Holmes's Coronation, Hardstone's Prince Albert, Church's Navigator, Lady Flora Hastings, Bunkell's Lord Brougham, Hodge's Gem, Willmer's Prince of Wales, Legg's Prince Albert, Norman's Defiance, and Cousins' Little Wonder. Second prize, small Victoria Medal, to J. Edwards, Esq., Holloway: Bunkell's Lord Brougham, Church's Navigator, Hardstone's Prince Albert, Willmer's Prince of Wales, Hodge's Melona, Legg's Prince Albert, Cousins' Little Wonder, Bunkell's Queen, Holmes's Coronation, Garrat's Prince Albert, Henbrey's Diamond, Hardstone's Beauty of Cray. Third prize, small Minerva Medal, to J. S. Proctor, of Bermondsey: Melona, Holmes's Coronation, Hodge's Gem, Unknown, Harrison's Prince Albert, Bunkell's Prince Albert, Neville's John Dickson, Legg's Prince Albert, Henbrey's Diamond, Bunkell's Queen, Church's Navigator, and Barrat's Conqueror.—The first prize in the Florists' Class, large Silver Linnean, was awarded to Mr. Norman, of Woolwich, for a fine stand of 24 blooms, containing Hodge's 166, Church's Wonder, Stow's Elizabeth, Cousins' Little Wonder, Wilson's Dame Trot, Cole's Majestic, Willmer's Queen and Miss Jean, Omega, Hardstone's Cray Beauty, Ibbett's Queen Victoria, Bunkell's Queen, Hodge's Gem, Lady Flora Hastings, Jones's Huntsman, Wallis's Unique, Neville's John Dickson, Church's Navigator, Willmer's Prince of Wales, Cousins' Queen of the Isles, Creed's President, Bob Laurence, White's Warden, Aker's Lord Brougham. Second prize, small Victoria, to Mr. Henbrey, Croydon, for Bunkell's Queen, seedling U, do. W, do. R, do. 5, Lord Melbourne, Lady Hallowell, three seedlings, Navigator, Beauty, Duchess of Cornwall, Prince of Wales, three seedlings, Sir R. Peel, Tom Thumb, Diamond, Gem, Coronation, Miss Jean, and seedling D. Third prize, small Minerva, to Mr. Ottey, Peckham, for Wallis's Unique, Mary Jane, Coronation, Mars, Hardstone's Prince Albert, Melona, Neville's John Dickson, Lady Flora Hastings, Diamond, Legg's Prince Albert, Lady Hallowell, Willmer's Elizabeth, Hardstone's 18, Hodge's Gem, Earl of Warwick, Navigator, Bob Laurence, Agnes, Brilliant, Norman's Henry, Beauty of Cray, Bunkell's Queen Victoria, Robinson's Queen, and Earl of Stafford.

Seedlings were exhibited, but no prize was awarded. A very pretty Petunia, named the Pet, and other varieties, wanting in colour, were placed on the tables.

The collections of Cut Roses were numerous and fine, forming, perhaps, the most attractive feature of the exhibition. Mr. Ottey, of Peckham, sent a blush-coloured seedling Bourbon Rose, called Queen of Virgins.—For Fruit, the Gold Medal was voted to Mr. Hamp, who produced two good Queen Pine-apples, two Cabul Melons, Black Hamburgh and Cannon-hall Muscat Grapes.—Mr. Parsons was rewarded with the large Linnean Medal, for Pine-apples, Grapes, and Strawberries.—Mr. Cuthill showed fruit of his black-spined Cucumber, together with Strawberries and Cherries.—For Vegetables, the first prize—small Victoria Medal—was awarded to Mr. Martin, of Camberwell; and the small Linnean to Mr. Gaines, of Battersea. Three other collections, but inferior to these, were produced.

Bees.

Nutt's Hives.—I am glad to see that your correspondents "C. Luxmore" and "E. Briggs," have come forward (p. 403), in defence of the collateral system of Bee-management. Will "W.," who finds fault with this system communicate the details of a better plan. Will he also mention what weight of produce was obtained last summer from three hives or boxes of bees, managed according to his system, and the quantities obtained from collateral boxes, which I presume he has (or

ought to have) tried, alongside of his hives, before he wrote against this system. Last year a gentleman in this vicinity obtained 295 lbs. of pure honey from three sets of the collateral boxes; the greater part of which was valued in, and with, the glasses at 2*s.* per lb., making an average of 9*l.* 16*s.* 8*d.*, from each set of boxes. If "W." has beaten this, I trust he will give apiarians the benefit of his experience. The writings of Taylor, Clark, Bagster, Cotton, Lloyd, Nutt, Pyle, and Milton, on the collateral plan, are entitled to extensive perusal. The work of Nutt has run through six editions, and the seventh, I am informed, is expected to appear in the course of a few weeks. This circumstance alone appears strongly in favour of the extensive approval of the collateral system.—*W. King, Spalding, Lincolnshire.*

ANSWERS.—*Mr. Luxmore.*—As the Rev. Mr. Davies has not noticed my inquiries respecting his plans with bees, I suspect he declines subscribing with you to Nutt's theory. It is extraordinary that your bees should have survived the winter without food, and in some degree exposed to the weather. You must have been successful indeed in your experiment to prevent bees from swarming, if it only failed twice in ten years. I do not doubt the purity of the honey of which you speak, for equally good is obtained by the plan in which you fail. Last year I obtained the first prize from the Norwich Horticultural Society for a fine glass of honey obtained from the top of a common hive. You may urge that such cannot be depended upon, for the high temperature of the hive, or the vicinity of pollen in which such hives abound, spoils the honey. But the same is equally applicable to hives on Nutt's plan. I noticed this in the "Gardeners' Magazine" for 1838, and extended experience warrants me repeating—"If bees enter the side-boxes early in the season, the honey will be no purer from that made by a second or third swarm of the same age; and a glass on the top of a common straw hive differs in nothing from one on a wooden box, except in not being dignified with the fine name of the Pavilion of Nature."—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Orchidaceæ.—Continue to keep those in a growing state actively at work, in order to secure large pseudo-bulbs, for on this depends the flowering. When they only produce bulbs weaker than those of the preceding season there must be something wrong, and they will, of course, flower much weaker, if at all. Keep up a very humid atmosphere by copious syringings, or whatever other means may be at command. Plants which are coming into bloom should be removed into a cooler temperature, exposing them gradually. *Greenhouses.*—The beautiful Japan Lilies are now fast approaching perfection, and really what can surpass these for loveliness and fragrance? We are sure every greenhouse and conservatory will soon be decorated with them. As they are succulent in growth, never stint them with water, but keep them well and liberally supplied; the flower stems should be properly sticked, so as to keep them within due bounds, and also to assist in presenting a large mass of flowers to the eye at once. The greenhouse and conservatory should now be a perfect blaze of flowers. Balsams, Cockscombs, Hydrangeas, Gardenias, Fuchsias, &c., should constitute important objects of decoration at this season, intermingled with various hard-wooded plants, which are, of course, in-doors whilst in flower.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

During this showery weather weed and clean borders, beds, &c., and mow Grass lawns frequently. Keep herbaceous plants neatly tied up, in order to prevent them from being damaged by wind. Remove all suckers from standard Roses as they appear, likewise shorten back any over luxuriant shoots, and bud choice kinds. Beds that have been filled with early blooming annuals, &c., should be cleared off, and replanted with other things. The plants raised from the first sowing of Brompton Stocks should be pricked out into borders and pots, placing the latter in the shade for a few days, and then exposing them to the influence of the sun and air. Keep gravel walks well rolled during moist weather. *Pits and Frames.*—Cuttings of herbaceous plants should be put in under hand-glasses, in shady situations. Shift and stop Chrysanthemums, applying manure water to them occasionally. Shift Balsams and other tender annuals, shade during the heat of the day, and sprinkle with water in the afternoon. Lights and frames should now be repaired and painted, to be ready for use when more particularly wanted.—*B.*

III.—FLORISTS' FLOWERS.

The past showery weather has been highly beneficial to all seedling flowers. The Auriculas, which were recommended to be pricked out in pans, must not, however, get too much of it. Worms are apt to draw the young plants out of the ground; where this is the case, a dose of lime water will be found of service.—*Tulips* ought now to be all out of the ground, and carefully and gradually dried. Cover the capsules of those which have been allowed to seed with a hand-glass; the wet lodging on the apex will often cause the destruction of the seed-vessel, unless thus protected.—*Ranunculuses* will now require great care to prevent them making fresh growth; as the Grass withers the roots should be taken up, some varieties attaining maturity much earlier than others. *Pinks.*—My Pinks grown in half-peck pots are blooming highly satisfactorily this season; some sorts watered with Brain's liquid guano have thrown up stems as high as Carnations; where this system is adopted, the bloom may be prolonged by placing them under the Tulip awning, or other light cover. Continue to put in pipings, shading them during the hottest part of the day. *Carnations and Picotees.*—Continue the directions as to tying, &c., as given last week. Liquid manure may now be advantageously applied. Brush off all green flies or aphis as they appear on the buds; by taking them thus early much trouble is saved. *Pansies.*—Prick out cuttings that have taken root, and in looking over beds of seedlings, eradicate all that do not come up to the standard, as given in a previous *Chronicle.*—*C.*

IV.—PINERIES, VINERIES &c.

Pineries.—Remember that from all fruiters nearly ripe, water should be withheld in good time; for a fortnight in summer, and a month, or nearly so, in winter (as a general rule); all water should be withheld, from the root more especially. Some of the late Black Jamaicas or other winter fruit intended for use through November, December, and January, will now be blossoming or rising; see that such have a lively bottom-heat of about 90°, and take the means before recommended to check the growth of the crown as soon as it has finished blooming. Continue to nurse suckers as fast as they come to hand; these if planted out in vegetable or peaty soil, over a safe bottom-heat, will be large plants by the early part of September, when they must be potted for the winter. *Vineries.* The same directions as given in former Calendars as to forced Cherries are applicable to the Vine; syringe, and otherwise encourage the health of the foliage of early forced Vines, in order that they may not be driven to rest, but sink naturally into that state. Root-watering must be had recourse to when the borders are dry. Take care that no insect, more particularly the red spider, gains a footing on any of the Vines, especially on the late Grapes, now completing their first swelling. *Peaches.*—Arrest, by root-watering, syringing, &c., any tendency to premature decay in the leaf of those from which the fruit is all gathered. In later crops remember that the only way to keep the bottom of the tree from becoming "naked," is to persist in stopping the more luxuriant shoots during the growing season. *Figs.*—As before.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The late rains have been favourable for the production of Strawberry runners: and as soon as a sufficient quantity has struck root for the purposes of forcing and the formation of new plantations, the further progress of the runners should be stopped. Some good soil should be prepared for the reception of the plants as they become sufficiently rooted for bedding out. They will thus be strong for final planting out in autumn, and will bear well next season. Continue reducing the superabundant shoots of fruit-trees. Those of the Apple, Plum, and Cherry-trees, having crumpled foliage from being infested with aphis should be rather unsparingly shortened, and the removed portions burned. After the trees have been gone over, they should be syringed with gas liquor, mixed with 8 or 10 parts of water. This will destroy many kinds of insects; but it will take little or no effect upon the American blight. Where this appears it will be necessary to apply naphtha with a small brush. The naphtha distilled from coal-tar is the cheapest, and answers this purpose quite as well as the more expensive kinds. *Kitchen Garden.*—The last sowings of Peas and French Beans should now be made. Finish planting out the principal crops of Broccoli for winter and spring use; also Savoys, Brussels Sprouts, and German Greens. Give plenty of water to Celery recently planted, and pick off any leaves that may be seen marked with the fly. The soil in which this crop is planted cannot be made too rich.—*E.*

State of the Weather near London, for the week ending July 3, 1845, as observed at the Horticultural Garden, Chiswick.

June		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	27	22	29.760	29.462	66	56	61.0	S.W.	.15
Sat.	28	23	29.751	29.330	69	43	56.0	W.	.16
Sun.	29	24	29.937	29.897	72	51	61.5	W.	.04
Mon.	30	25	29.856	29.838	70	53	61.5	W.	.03
July									
Tues.	1	26	29.065	29.572	71	52	61.5	S.W.	.13
Wed.	2	27	29.824	29.776	65	56	60.5	S.	.06
Thurs.	3	28	29.823	29.640	84	52	68.0	S.	.01
Average			29.803	29.631	71.0	51.8	61.4		.58

June 27—Rain throughout
28—Overcast; very heavy showers; clear and cold at night
29—Light clouds, and very fine throughout
30—Slight rain; very fine; partially overcast
July 1—Boisterous, with rain; overcast
2—Thickly overcast; rain in afternoon; overcast
3—Sultry, with rain and thunder; hot; very fine.
Mean temperature of the week 1½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending July 12, 1845.

July	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 6	75.3	51.7	63.5	8	0.45 in.	1	1	1	1	3	7	4	2
Mon. 7	72.6	54.0	63.3	11	0.23	1	2	1	2	2	8	3	—
Tues. 8	73.7	51.7	62.7	9	0.46	—	—	3	1	—	6	6	3
Wed. 9	73.6	50.5	61.6	4	0.57	3	1	—	—	2	3	7	3
Thur. 10	74.3	51.3	62.9	4	0.36	—	—	1	1	3	8	3	3
Fri. 11	74.8	53.0	63.9	5	0.18	2	—	2	—	4	4	4	3
Sat. 12	73.6	52.2	62.9	9	1.10	—	1	1	—	3	6	5	3

The highest temperature during the above period occurred on the 11th, 1826—therm. 88°; and the lowest on the 6th, 1840—therm. 40°.

Notices to Correspondents.

ANTS—*T B*—You must look through previous Numbers. Try spirits of turpentine, covering the anthills closely over for a few hours after the application.

BOOKS—*A Subscriber*—We do not know who the publisher of the Gooseberry book is, but it may, we presume, be had of the booksellers at Manchester.

CUCKOOS—*Rus*—The young are sometimes, by great care, kept alive in confinement over their first winter, but seldom survive long afterwards. The best food for them is raw beef chopped small, and mixed with yolk of egg. Adult cuckoos seem most partial to hairy caterpillars. (See Yarrell's "British Birds.")

EXHIBITIONS—*A Subscriber* puts the following questions:—1. Suppose one prize only be offered at a fruit and flower-show, in any one department, is it allowable for a gardener to enter two specimens (say for instance two baskets of Strawberries) for that prize? (Not if they are the same sort.) If not under his own name can he enter one in his own, and the other in his master's name? (No; that is a shuffle.) 2. Can an amateur enter for the best 12 Pansies in his own name for one prize, and for the best six Pansies in the name of his son for another prize, although they were all grown in the same garden, and by the same gardener, whose name is attached to both, and published in the list of prizes? (No.) 3. Is it proper that any one who may be competing for prizes at a show, whether gardener or amateur, should be allowed access to the tents during the period when the Judges are deciding upon the merits of the specimens? (No; awards made under such circumstances are unfair, and ought to be cancelled, unless means are taken to exclude the exhibitor from communicating with the Judges.)——*A G*—Your question is fully answered in an advertisement over the leading article of to-day's Paper. No subscription is necessary, and all fruit is returned to the senders when required.

GLASS—*Bathoniensis*—We have not yet received samples of the Belgian glass. German glass would have been advertised to-day as being in London ready for delivery, if the worthy Germans had not shipped it on board of a sailing-vessel instead of a steamboat. The moment we can give you authentic information we will do so. In the meanwhile WAIT. There is no objection to such a roof as you propose to make. Anti-corrosion paint is an excellent material for out-door work, but is rather troublesome to use.

GREENHOUSE PLANTS—*A Sub*—Procure Lyperia pinnatifida, Epacris grandiflora, E. campanulata, &c., Corræa speciosa, C. Lindleyana, Habrothamnus fasciculatus, Chorozema varium, Hovea Celsi, H. pungens, Polygala grandiflora, Primula sinensis fl. pleno, Hardenbergia monophylla, and Rhododendron arboreum, &c.§

HEATING—*Shropshire*—Certainly, use hot water in some form. The angle for the roof is not very material, provided it is not too low. Anywhere between 30° and 40° will do. It would be a saving to you if you were to consult some professional man, as to the construction, &c., of your house; and if you will send us your address we will put you into communication with a good adviser.

INSECTS—If *A Lady* will favour us with a Carnation-flower, containing the insects complained of, we will attend to her request. *R*——*Muiryfold*—No. 1, the Apple aphis may be destroyed by dipping the infested shoots into Tobacco-water, or dusting them with Tobacco-powder when moist with dew. No. 2 is also an aphis, which will probably do no farther mischief; 3 are the larva and pupa of a Psylla. The Apple-leaf was also infested with some aphis, but without perfect winged specimens, it is impossible to give you the specific names. *R.*——*Amateur*—For the destruction of green-fly on Rose-trees one part of gas-liquor in 10 of water is sufficiently strong, provided the gas-water is good and fresh from the gas-works. If stale, it will not destroy the insects. Apply it with a syringe in the evening.

LAURELS—*S E A*—If you lay your Laurels now, and tongue them, they will strike.

LAWNS—557—Festuca ovina is an excellent lawn Grass; but if used alone it is a long time in making a close turf, and requires to be fed down. If your soil suits it, use in addition 4 lbs. Medicago lupulina, and 4 lbs. of White Clover per acre. Gather Rose leaves when dry; spread them on the floor of a dry chamber, keep out the direct sunbeams, and turn them frequently so as to prevent their heating or becoming mouldy. Nothing more is necessary.

MACLURA ACRANTIACA—*Este*—This tree may be planted with a reasonable chance of success, as a standard in a gravelly soil, at 10 miles from town; but we have never yet heard of its producing fruit. It is not improbable that all the trees in the country are still too young to flower. We believe they were all seedlings. It is not altogether impossible that the females only will fruit; but we will not answer for it.

MARINE GLUE—*S J*—Our correspondent, Mr. Grant, is so obliging as to say that he will very soon give full directions for the application of this material.

NAMES OF PLANTS—*Poa*—1 and 2, Poa trivialis; 3 and 4, Holcus lanatus; 5 and 9, Arrhenatherum avenaceum; 6, Phleum pratense; 7 and 10, Cynosurus cristatus; 8, Anthoxanthum odoratum; 11, Avena flavescens; 12, Vicia cracca.§——*H P*—Quercus discolor.¶——*L W D*—Elæagnus fusca is a garden name, supposed to have originated with Dr. Fischer; it is not a described plant that we can discover. You are perhaps right in considering it one of the many varieties of Elæagnus angustifolia.——*W L*—Benthamia fragifera.

PEACH AND NECTARINE-TREES—*Querist*—By laterals on these is to be understood those shoots that are produced on others of the present season's growth.‖

PEAS—*Querist*—Cormack's Prince Albert is an early variety, allied to the Early Frame. It may, therefore, probably produce pods if sown as late as the middle of this month.‖

RICHMOND—*Cora*—The following are the lines affixed to a board at the south end of the new terrace in Richmond Park; but we cannot tell you who is the author of them; perhaps some correspondent may recognise them:—

Richmond! ev'n now
Thy living landscape spreads beneath my feet,
Calm as the sleep of infancy: the song
Of nature's vocalists—the blossom'd shrubs—
The velvet verdure—and the o'er-shadowing trees—
The cattle wading in the clear smooth stream,
And mirror'd on its surface—the deep glow
Of sun-set—the white smoke, and yonder church,
Half hid by the deep foliage of the grove.
These are thy charms fair Richmond, and through these,
The river wafting many a graceful bark,
Glides gently onward like a lovely dream,
Making the scene a Paradise.

ROSES—*W C*—You may bud your stocks of Wild Briar with the following sorts:—Madame Desprez, rosy purple; Jaune Desprez, pale buff; Bougainville, purple; Cramoisie éblouissante, crimson; Isabella d'Orleans, white; and Augustine Lelieur, bright rose.‡

ROSE-WATER—*Salvator Rosæ*—Distil fresh Rose petals in the following proportions:—10 lb. of petals, 7 fluid ounces of proof spirit, 2 gallons of water.

STOVE PLANTS—*B W G*—Procure Inga pulcherrima, Turnera elegans, Achimenes picta, Æschynanthus maculatus, Gardenia florida, Gesnera zebrina, Ixora coccinea, I. rosea; Jasminum hirsutum, Rondeletia speciosa, Osbeckia chinensis, and the several species of Begonia.§

MISC—Much obliged to a friend at Adelaide, but decline.——*R R R*—Our papers got accidently disarranged, which was the cause of the error you have noticed.*——*H G*—We do not know the address of the party.——*Holloway*—We know of no effectual mode of keeping cats out of a garden.——*Sub*—Azalea lateritia. You will find a select list of Cape Heaths given in last week's Paper.‡——*P P*—Bletia Shepherdii is an Orchidaceous plant.‡——*Z*—You will find the mode of applying sulphur to Peach-trees given in another column of to-day's Paper.‡——*William Nightengal*—What *do* you mean by arbasius plants? We are also sorry to say we cannot make out what your question concerning Potatoes is intended to signify.——*A Caledonian*—No.——*L L D*—We have reason to believe that "Cooper's Apparatus" is the best that is known for preserving fruits, jams, &c. It is very simple, and not dear.——*Jasper Stokes*—Thinning out the weak shoots of Raspberries, &c., is performed on different principles from that of mowing off the green leaves of Strawberry plants. Thinning is done in order that those shoots which are left may acquire greater vigour, in consequence of having more space, light, and nourishment; for in the case of the Raspberry, the strong shoots do not depend on the weak for assistance in the elaboration of the portion of sap which they appropriate. But, on the other hand, the stem of the Strawberry owes its growth to its foliage.‖

SEEDLING FLOWERS.

CACTUS—*S*—Your seedling is very large and showy; it is rather thin of petals, but they are very long, of a deep bright red, slightly tinged with purple in the centre; when spread open it measures 10 inches in diameter.*

CINERARIA—*G R*—No. 2 is pretty, but we have many superior to it, in the same way.*

FUCHSIAS—*J D P*—Both your seedlings are very small, and there does not appear to be anything novel or attractive in them.*

GLOXINIAS—*A P*—Your seedling Gloxinias are not sufficiently distinct from one another or from others. No. 4 is the best, and may be worth keeping.

PANSIES—*C K*—Your Pansies are flowers of good substance, but the ground colour in both, about the eye, is objectionable, requiring more decision.*

PELARGONIUMS—*J B P*—No. 1 is the best of your seedlings, the white is pure and the spot tolerably good; we have flowers of the same character superior to your seedlings; white Pelargoniums are much wanted, but they must not have the plum-coloured spot. 2 is inferior to No. 1 in colour and substance. 3 is not valued on account of its colour.*——*W M*—The upper petals of your flower are attractive, but the dull centre and veined under petals detract from its beauty; it is, however, seen under great disadvantages.*——*J D P*—No. 1 is a bad form, the top petals being very pointed, and the lower petals sinking down, making a division between the upper and lower part of the flower. 2 is pretty in colour, but deficient in substance.*——*T P*—Your flowers are not good in form, and in other qualities they are of a second-rate character; they have no pretensions to rank as show varieties, but are pretty on account of the colour. *Alice Maud Mary* is pretty on this account, with its white centre.*——*W C*—Lilac-coloured Pelargoniums are not admitted into good collections, and are therefore considered of no value, and the spot in your seedling is of the worst character, that of being veined. No. 2 is bad in form, lower petals long and narrow.*

PETUNIAS—*G R*—No. 1, this is a well-formed flower, of a good and bright colour.*

ROSES—*Jersey*—Your Rose had fallen to pieces, and we can form no opinion about it.

ERRATA—In the list of awards, at the Chiswick Exhibition, published in our advertising columns of last week's Paper, it was omitted that Mr. DOBSON, gr. to Mr. BECK, of Isleworth, obtained a Silver-gilt Medal, for a collection of 12 Roses in pots.—In the Report, p. 437, under the head Ranunculuses, for "Kilgom's Princess Royal" read "Kilgour's," &c.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PROGRAMME OF THE ARRANGEMENTS OF THE SOCIETY'S SHOW AT SHREWSBURY.

THURSDAY, JULY 10.—Last day of receiving Implements, Seeds, &c., to be exhibited in the Implement Yard, and arranged by the Stewards for the Judges' inspection.

TUESDAY, 15.—The Implement Yard open to the Public from Eight in the Morning till Six in the Evening, at 2*s.* 6*d.* each person. The public exhibition of the working of the Implements to take place at Mr. Taylor's, Monkmoor, at Twelve o'clock. Cattle received in the Show Yard from Eight in the Morning till Four in the Afternoon.

WEDNESDAY, 16.—The Judges inspect the Stock and award the Prizes. The Implement Yard open to the public from Eight in the Morning till Six in the Evening; Admission 2*s.* 6*d.* Council Dinner in the Concert Room, at Five o'clock; when the Judges' award of Prizes (with the exception of those for Horses) will be read. Doors open at Four.

THURSDAY, 17.—The Cattle and Implement Yards open to the Public from Six in the Morning till One o'clock in the Afternoon; Admission 2*s.* 6*d.*; and, from One till Six in the Evening, at 1*s.* Dinner of the Society in the Great Pavilion, on the Quarry, at Four o'clock. Doors open at half-past Three.

FRIDAY, 18.—Cattle-yard open at Seven. Sale to begin at Nine for Ten precisely. General Meeting of the Members in the Town Hall at Twelve o'clock.

The Cattle and Implement Show Yards, on the Race-course.

STEWARDS OF DEPARTMENTS.

Cattle, EARL SPENCER; HON. CAPT. SPENCER, Mr. DRUCE.
Implements, Mr. SHELLEY; Mr. HUMPHREY GIBBS.
Finance, COL. AUSTEN, M. P.; Mr. SHAW.
Sale of Tickets, Mr. HENRY WILSON.
Receipts and Admissions to Show Yards, Mr. RAYMOND BARKER.
Pavilion and Council Dinner, LORD PORTMAN.
General Arrangement of Show, Mr. BRANDRETH GIBBS.

By Order of the Council, JAMES HUDSON, Secretary.
London, July 2, 1845.

By the 15th Regulation of the Society, all Persons admitted into the Show Yard shall be subject to the Rules, Orders, and Regulations of the Council.

N.B.—Sale of Tickets for the Pavilion Dinner, to Members of the Society, at the Town Hall, from Twelve to Four o'clock on Wednesday, the 16th July, and from Eight to Two o'clock on Thursday, the 17th of July.—Price 10*s.* each.

The Agricultural Gazette.

SATURDAY, JULY 5, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 9—Agricultural Society of England.
THURSDAY, July 10—Agricultural Imp. Soc. of Ireland.
TUESDAY, July 15
WEDNESDAY, July 16 } Meeting of the English Agricultural Society at Shrewsbury.
THURSDAY, July 17 }
THURSDAY, July 17—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

July 7 { London, Newponey
July 14 { Wenlock, W. Hereford, Cirencester, W. Firle, Yoxford
July 15 { Rochford Hundred, Framlingham, Isle of Thanet
July 17 { Grove Ferry, Richmondshire, Blofield and Walsham
July 18 { Stoke Ferry, Debenham, Halesworth, Wrentham
July 19 { Cardiff, Swansea

THE observance of true ECONOMY IN THE ERECTION OF FARM BUILDINGS is a matter of great importance both to landowners and farmers; and as such it deserves in an agricultural periodical to be treated of *completely*, *i. e.* not only in reference to the more general points which determine the position and construction of a homestead, and the collocation of its various parts, but also as regards the details of each of these parts by itself. The subject, indeed, naturally admits of this twofold consideration, and accordingly while we propose illustrating it in detail in a series of articles which will more properly appear in another section of our paper, it may not be amiss in the first place to set before our readers those more general features which it is believed will be found developed in every good plan.

And in the first place it may be well to offer the following general remarks:—

However ably field labour may be arranged and conducted, the system of farm management cannot be complete, unless the buildings upon it are designed in accordance with its nature and extent, and so arranged, that the operations to be performed within them may be systematically carried on. In addition to those buildings comprehended under the general term *outhouses*, such as those for storing and elaborating the produce of the ground, for sheltering and feeding the live-stock and the working cattle, for securing the implements, machines, and carriages, and the like, there are required on every farm a residence for the farmer and houses for the farm-labourers. These buildings, the outhouses, the farmer's house, and the labourers' cottages, are collectively termed the homestead or steading.

The erection of a homestead is necessarily attended with great expense—an expense greater in proportion on small farms than on those of larger extent; and it too often arises that in the desire to lessen this expenditure, a landlord with injudicious parsimony will be found to curtail a tenant's accommodation, and probably withhold from him buildings essential to the conducting of his business; or, with mistaken economy, he may be induced to construct the buildings without reference to strength and durability. On the other hand it may be that the tenant asks a greater extent of building than the wants of the farm demand; or, to favour some passing peculiarity of his management, he may wish buildings provided which are not common in similar cases, and which if erected might prove useless to his successor, and very likely in a short time to himself. To such follies as these the permanent benefit of the farm is too often sacrificed. The prosperity of the tenant for the term of his lease in great measure depends on the sufficiency and completeness of the accommodation afforded by the homestead, and it is therefore essential that the buildings forming it should be designed with the requisite fitness for the farm, and constructed with good materials, and with strength to ensure durability. But although a sufficient amount of accommodation ought always to be given, too great an extent of it is an evil. It tends to unsystematise the management of the farm; it entails a large expenditure on the farmer for repairs, always grudgingly bestowed, and the useless buildings are soon allowed to fall to ruin from neglect.

It is important, therefore, that there should be a right understanding between the landlord and his tenant on these points, that the one may not be precipitated into a useless additional expenditure on that which is costly enough at the least, and that the other may be secured against loss by the want of the means to conduct his business properly. Specific rules, however, on these points, applicable to every case cannot be laid down; all that can be done is to point out the general principles which should determine the matter, and illustrate them by examples showing their application.

In these remarks we have considered the cost of erecting buildings as devolving on the landlord. This, however, is not always the case—the burden is sometimes thrown upon the tenant—upon one whose interest in the matter not being permanent, like that of his landlord, may lead to the commission of those very errors we have just been deprecating. The injurious tendency of this system, however, must be apparent, and need not here be dilated on. But there is another error more common which needs animadversion—viz., requiring the tenant to carry the building materials. It is asserted in defence of this practice, that the tenant can at spare times lead forward the materials at less cost than any one, having the requisite vehicles, horses, and labourers, in his own employment. Granting this to be true, it is still diverting his attention, his capital, and energy, from their legitimate objects; and that, too, at a time when they are most required—at the commencement of a lease. But the assertion is inaccurate—farm-vehicles are not fitted for the carriage of building materials; so true is this, that where the operations are extensive, and the farmer has this burden laid upon him, it is a wise economy on his part to procure the proper vehicles. Valuable farm horses, too, are rendered valueless by labours for which they are unfitted, and the same economy under the same circumstances teaches that it is wisdom to purchase cheap animals in addition to those for the farm, and dispose of them at whatever sacrifice when the work is done.

Further, the labours of the farm, and those of the building, cannot proceed together; hence there are frequent stoppages of the one, or no less injurious interruptions of the other. Thus, no saving can result from this system, but on the contrary, evil to all parties. The burden imposed on the tenant, of carrying the materials, should not be regarded as lessening the cost of the buildings, but as a payment, in another form, of his share of the cost; and in point of fact, it forms part of the bargain of the lease.

The cost of erecting farm buildings then should devolve on the landlord, but the expense of keeping them in repair properly falls on the tenant. It is a good arrangement to appoint a properly qualified person to make periodical examinations of the buildings of an estate, to see that this condition is strictly complied with. The neglect of a trifling reparation, at the proper time, may lead to serious damage; and such negligence, the vigilance of an inspection will prevent.

In placing the buildings of the farm, it is desirable to obtain a situation as near the centre of the cultivated grounds as possible. Such a position economises labour, and should only be foregone to secure some counterbalancing advantage. For not only have the working cattle and machines to be sent from the homestead to their daily work in the fields, but the produce of the ground has to be led there, and again returned to it in the shape of manure.

To obtain water for the supply of the farmhouse and outhouses, is a necessity for which centricality of situation must be foregone. To obtain the same commodity in sufficient abundance, as a motive power, is a still greater advantage, but to which aspect, shelter, and the other conveniences of situation, it must be said, are too often sacrificed. As we shall have occasion more particularly to advert to the importance of aspect in buildings, when considering the outhouses, farmhouse, and cottages in detail, it is not here necessary further to dilate on it.

A point much discussed by writers on agriculture is, whether, in equal circumstances, it is better to place the homestead on high or low ground. The advantage of carrying down all the manures is insisted on by the one party, and is met by the other, with the disadvantage of carrying the crop up. The crop being the bulkier commodity, leads to the conclusion that in respect of the labours of the farm, the lower situation is preferable; and in the lower situation, water, shelter, and other requisites, are more likely to be met with.

The best materials for the construction of the buildings of the homestead, are stone or brick for the walls, Baltic timber for the roofs, joists, flooring, doors, windows, and internal fittings; and slate as a covering for the roofs. In districts where these cannot be obtained, except at very great cost, recourse must be had to other materials. Thus for the walls may be used clay or concrete, timber, or timber lath and plaster; for the foreign woods, home-grown timber may be substituted, and tiles, thatch, or shingles, for slates. But whatever be the material it should be the best of its kind, and used to the best advantage. If the walls be clay, they should have a stone or brick foundation, or footing, and be provided with the requisite frame-work, and *slowly* and carefully constructed. The home-grown timber ought to be well selected, to be felled at the proper season of the year, and so much sooner than it is required as to allow it to be perfectly seasoned, to suit the different purposes to which it is to be applied. Not, as is the general practice, to fell the tree often when full of sap, and cut it to its scantlings, and apply it to its purpose with all possible haste. Tiles should be well formed, and completely burned; and when in their places on the roof, carefully rendered water-tight, with lime plastered underneath. Thatch of straw or reed should be well drawn, and attached to the spars by oakum, and not fastened merely by turf. Thatch of heath indeed requires to be fastened in this latter mode.

By attending to these points, houses erected of inferior materials may be made comfortable, and to endure for a considerable time. And it is better that the farmer be provided with the buildings necessary for his wants, even if constructed in such a temporary manner, than that his business should be retarded by the want of them.

In all cases, however, properly matured plans of the buildings, and minute specifications, and drawings of the details of their construction should be procured from an architect, and these should be given to respectable tradesmen to tender for their erection; and on a selection being made, a contract should be entered into, and the buildings and other works then constructed under the superintendence of the architect. Thus, both landlord and tenant are secured against inefficient workmanship.—*N.*

WE have the pleasure of directing the attention of our readers to an ADVERTISEMENT in another column, announcing the great ANNUAL MEETING of the AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND, at Ballinasloe, on the 30th of September next and following days. The nature of the locality, as well as the preparations in progress, make it very probable that this will prove one of the most interesting meetings which has yet taken place under the auspices of the Society.

BUT WHERE IS THE MONEY TO COME FROM?

"LANDLORDS have it not, and tenants cannot afford it." This reply generally accompanies a tardy admission, that agricultural perfection is desirable. As theory and practice are always best in combination, I will state *how* the means are to be found and illustrate it by my own case, leaving it to the option of others to follow my example or not. At all events the objection of want of means is thereby removed.

Having some spare capital I invested it in land, purchasing 260 acres. Subsequently I reflected on the imperfect condition of one of the farms, and considered I should be doing no more than a public and private duty by improving it. Well, having already invested, where was the cash to come from? Why, I resolved on selling the other farms, and invested the proceeds in improving the remaining one. This is a ready way of conferring a great national benefit, without injuring ourselves. It takes away the excuse (the last prop) of the non-improvers, and proves it is a true saying, that, "where there is a will there is a way;" and where there is not a will, there is an excuse, good, bad, and indifferent. The struggles for tenures are surprising. A tenant will frequently purchase a farm at a high rate, and mortgage it forthwith for less than the purchase-money, in order to secure a holding, abstracting thereby a portion of his much required means, and sometimes do so when his capital is barely adequate to his present tenure. If farmers, who plead as an excuse

for not farming high that *their means* are inadequate, would *diminish* their holdings *one-half*, they would lessen the competition for farms, and benefit themselves and the community. Their capital would thus be *doubled* in its relative proportion to their acres; and they would be at liberty to bestow deep and frequent tillage, with abundant stock and manure, where now the land, the landlord, the labourer, and themselves, are in an unsatisfactory and unprofitable condition. Drainage I consider the landlord's affair; but now that an acre of land can be perfectly, deeply, and permanently pipe-drained, for from 40*s.* to 70*s.* per acre (see Mr. Parkes' and Mr. Pusey's statement, Rl. Ag. Society's Meeting, 18th Apr.), the neglecting to do so, by landlord or tenant, amounts to a positive national and individual disgrace. It is giving to the League the opportunity of saying, "Oh! you can if you choose produce for us abundantly and profitably all the food we require, but you will not do so." I maintain, and am prepared to prove, that there is no difficulty whatever in raising profitably and forthwith more food than we can require for our own consumption; but then we must try and grow Beans, 7 feet high, instead of fences 7 feet high; the one exhausts the soil quite as much as the other. Corn and Cabbages must displace those ugly old pollards that mar the landscape, and are worth on an average 2*s.* each, to pay for a century's growth and cultivation (for their roots are regularly ploughed, harrowed, manured, and sown over). I will venture to assert as truth, that every villainous stump of this description has been a loss to the nation of 6*d.* annually; or in the whole period of its growth from 20*s.* to 50*s.*—multiply this by 40,000,000, and calculate the loss. As to hedge-row trees, the loss they occasion to the nation is certainly equivalent to 5,000,000*l.* annually—assuming that there are but two on every acre, and that they cause an annual loss of 1*s.* each. It must be in the remembrance of many that the protected silk manufacturers, some years since, either could or would not supply our own markets with silk, so the smuggler made up the deficiency. Mr. Huskisson, not liking the loss of revenue thus occasioned, told them, they must study and apply better methods, and not be beat by foreigners, but produce silks cheaper and more abundantly at home. Loud and bitter were their outcries and protests—their pleas of ruin, destruction, and non-employment—wailing they bemoaned the anticipated glut of foreign goods. But the stern President of the Board of Trade said, "Gentlemen, relying on protection, you have stood still whilst the world has advanced. You are a century in arrear with your means and appliances. Come, look round you and amend your deficiencies, and put your shoulders to the wheel; avail yourselves of all recent improvements, either scientific, chemical, or mechanical, and you will have nothing to fear." Well, the terrible day came, prohibition was exchanged for a moderate duty—they improved their slovenly and clumsy methods, and now not only can they supply our own people abundantly, but they are large exporters.

Let us do the same in agriculture, and be in ADVANCE of Sir Robert Peel, and so render his new Tariff nugatory, doing away with the terrible anticipations of Free Trade.

The question of what may be profitably produced from an acre of land, is a very important one. Professor Playfair (a first-rate authority) has, I believe, stated that 250*l.* can be and has been produced from one acre of market-garden in one year, and we all know full well that in all gardens the produce is abundant, compared with field culture. Why it is so needs no reply—at blithesome morn and dewy eve, the crowds of men, women, and children issuing from market-gardens, are living solutions of the problem, and stand in charming relief to the solitary farm labourer alone in a 20-acre field, or scattered here and there over an extensive district, like plums in a school-pudding.

The *average* annual return of the arable land of this country being about 5*l.* 10*s. per acre*, stands in miserable comparison with Dr. Playfair's 250*l.*

We all know that Lincolnshire is the best cultivated county in the United Kingdom. The secret of this may be found in the annexed extract from an able paper in the *North British Review*, on "The Improvement of Land as an Investment for Capital," and proves that even leases are secondary to "a valuation of tenants' improvements," which will attract *capital* and *intelligence*.

"There are many tenants who, in the present state of the money market, would be able to borrow sufficiency of capital to effect those improvements which pertain both to landlord and tenant, if they had the security of a lease, or an agreement, that on quitting the farm, they should be repaid their outlay, subject to deductions, increasing for every year that had elapsed since the expenditure was incurred. Under such a system, a large portion of the wastes of Lincolnshire have been reclaimed by tenants-at-will; and few changes have taken place in occupancy, which not unfrequently descends from father to son without a lease. A Lincolnshire farmer on quitting, receives from his landlord, or the incoming tenant, half the amount of his bill for oil-cake consumed that year by his sheep and the beasts which tread his straw into manure. He receives, also, the amount of his expenditure for buildings, subject to a deduction of $\frac{1}{21}$ for every year he has enjoyed the benefit of it; for draining, subject to a deduction of $\frac{1}{14}$; for claying and chalking of $\frac{1}{7}$; and for bones of $\frac{1}{5}$ for each year. Such a system, though not so good as a leasehold tenure, is the best substitute or it."

I am perfectly convinced from facts every day brought to my notice, that unless this system of valuation is made the uniform law of the United Kingdom, there is but little hope of improvements progressing as they should do. Improvements should be encouraged, but they are now discouraged, for I constantly meet with zealous and praiseworthy improvers, whose feelings are embittered, and operations cramped by the uncertainty of tenure occasioned by their own improvements. A non-improver, or bad farmer, has no such fears; he is quite safe in possession, for who is anxious to dispossess *him*?

Let us hope our legislators will see to this, for there is already too much indisposition to improve. In a recent instance in Essex a noble lord has abolished his tilery and sheds, established three years since, because his tenants would not accept of the tiles "gratis," they finding the labour; and another landed proprietor in the same county is precisely in the same position. This is not creditable, but it is a common occurrence in this and other counties, and shows the objection to amendment.

Capital is a most sensitive commodity; like ourselves, it seeks for security and remuneration, and you cannot have either under the present system of non-valuation; capital and intelligence are frequently in co-partnership, so that by excluding the one you lose the other, and are obliged to put up with an inferior tenantry; uneducated, and consequently bigoted and prejudiced, mere practical men, unguided by the light of science, whose aid they ridicule.

It is humiliating to the fine manly spirit of tenants-at-will (without a valuation) to feel that they hold their farm tremblingly on the balance, at the mercy of a capricious or imperious steward, to whom they must bow with humble submission, or risk the loss of their holdings.

It is a fact not generally known, that at least three-fourths of all the land in this country is either entailed or settled; so that the tenant for life must sink any capital he may invest in permanent improvements. This acts as a complete barrier to solid amendment. In Scotland, sundry acts of Parliament have remedied much of this evil, by permitting the life-tenant to charge the estate with a large portion of the cost of improvement. The Duke of Richmond has introduced a similar measure for England, and, it is to be hoped, will succeed in getting it passed into a law. No doubt others for Ireland and Wales must soon follow.

These, with the inclosure of waste lands, and the better cultivation of those now imperfectly farmed, would, no doubt, open up a vast and profitable field for the employment of our labour and our capital.—*I. J. Mechi*, 4, *Leadenhall-street*.

IS FLAX AN EXHAUSTING CROP?

HOWEVER satisfied I am, from practical experience, that there is nothing to create a prejudice against its cultivation, any more than against that of Wheat, I think, from the objections that I have frequently and recently heard made by a farmer from Suffolk, who has often grown Hemp, it will be better to bring a few more facts before the readers of the *Agricultural Gazette*, in the hope that if I can show that the advantage attending its cultivation enables the farmer to counterbalance the disadvantage, I shall remove the prejudice of farmers against a crop otherwise useful, and so certain to benefit the country at large.

Having already proved some of the advantages of this crop, reaped by the farmers of the north of Ireland, where it has been grown for many years with increasing success, and where it has maintained, and is likely to maintain, a remunerating price, independent of foreign competition, I shall now combat in argument the opponents of Flax culture—those parties who think it exhausts the soil, because, being pulled up, it leaves no stubble or straw to make manure of. In my last letter on the subject, I showed that by following up the system of Mr. Cassidy (an Irish gentleman), 21*l.* per acre, or a clear profit of 172*l.* could be had on 8 acres. I shall now give the particulars of the expense incurred in growing 8 acres of Wheat in Suffolk, which I have from the Suffolk farmer who was afraid to sow Flax, because, as he asserted, it would exhaust his land; the following will show his profits in Wheat growing, and I add them in order that they may be compared with Mr. Cassidy's profit on 8 acres of Flax.

	£	*s.*	*d.*
Rent of 8 acres, at 26*s.* 9*d.*	10	14	0
120 loads of dung, at 4*s.*	24	0	0
Drawing the same	3	0	0
Spreading	1	4	0
Ploughing	3	0	0
Rolling	0	8	0
Harrowing	0	4	0
Seed, 80 pecks	5	16	0
Drilling	1	0	0
Harrowing	0	4	0
Rolling	0	4	0
Hoeing	1	12	0
Reaping	2	8	0
Watching	0	8	0
Carting	2	8	0
Threshing	5	12	0
Tithe	1	12	0
Poor-rates	0	16	0
Church and survey rates	0	12	0
Balance	13	6	0
	£78	8	0

	£	*s.*	*d.*
224 bushels (being at the rate of 28 bush. per acre) of Wheat, at 5*s.* 6*d.*	61	12	0
Straw	16	16	0
	£78	8	0

Now it is evident that by Wheat growing a farmer cannot have, on the very best drained ground, 4*l.* per acre profit; whereas I prove that Flax, if cultivated with care, can be grown to pay or leave a profit of 21*l.* per acre, and I gave an instance of so much as 50*l.* per acre, on which I defy being contradicted; and I must, therefore, hope that with these facts before the eyes of British farmers, they will see that if they turn their attention to the production of the Flax plant, and bring it to perfection, they must be enabled not only to purchase and feed (by having Flax-seed) an additional stock of cattle, but increase thereby their manure-heap to such an extent as will admit of planting more Turnips and Potatoes; and I need scarcely add, that they will be enabled to manure a much greater breadth of land, and as a consequence annually reclaim and improve their farms.

Some time back I noticed observations on the subject in the *Scottish Farmers' Journal*, which may not be out of place to mention here. The writer says:—"In other parts of the kingdom the landlords and farmers have united in associations for promoting the internal industry of the country, and after some experience have found that the cultivation of Flax is one means of paying our own spare labourer, with the money which would otherwise find its way into the pockets of our not over grateful neighbours on the Continent. At their meetings it has been said that *six millions of British gold* are annually paid for the article of Flax alone, besides a very considerable sum for oil-cake and Flax-seed, for the purpose of feeding cattle and sowing. Where raising Flax has in consequence been resorted to, the announced profits have been much higher than is usually derived from the cultivation of grain, besides the advantages to the community of additional employment, thereby afforded in weeding, pulling, rippling, spreading, lifting, rolling, and scutching." Then he adds: "And why not spinning, for as it is found that as fine Flax can be produced in this country as on the Continent, it is a libel on our Scottish lasses to say that they could not, by practice, learn to spin as fine yarns as those in other lands."

On this, the spinning process, I must remark, that mill-spun yarns being now produced, in such quantity, so cheap, and so superior in quality, compared with hand-spun yarns, the day is gone by, when hand spinning will pay parties to produce it; however, up to preparing Flax for spinning it is well known, it gives considerable employment to the agricultural labourer, in the north of Ireland, for several weeks before the Wheat-harvest, when other field work is in abeyance.

The writer then says, "But it is objected that farmers in Scotland are prohibited, by the terms of their leases, from cultivating Flax; is it meant by this, that they are not so hostile to the practice as their landlords? Should it be found by experience, that a partial culture, or culture on a small scale, of this plant, turns out to be beneficial to the farmers, as well as the community, will not Scotch landlords relax such prohibitory claims, where they exist, and allow of a certain per centage of land on any farm being laid under this crop annually? they will not surely be behind their brethren in England and Ireland, who not only allow, but encourage their tenantry to cultivate this useful plant. Oh, but it is said the culture of Flax deteriorates the land; this, however, is denied by some (by others, as well as myself, who are guided by experiments); but granting that it adds nothing to the dung-hill, if, as it is found to be the case, it adds otherwise to the farmer's profit, are there not now numerous substitutes for farmyard manure to make up for a scourging crop. I deny that Flax is more so than Wheat, on, say a fiftieth or a hundredth part of a farm; and have we not, now, many skilful chemists able to direct us to restore the soil, by the many now available manures, those ingredients of which Flax may be found to have robbed it; and would not the oil-cake, or what is better, the crushed seed, not only be highly beneficial in the feeding byre; but also an enricher of the farm-yard manure?"

Now, as the above observations are such as I entirely agree with, and approve of, I have thought proper to quote them in preference to anything I might be induced to offer, in answer to the prejudiced and idle reports raised against Flax growing in this country. In my former letter I have given the profits on 8 acres of Flax, which appeared to be 172*l.* 10*s.*, or 21*l.* 11*s.* 3*d.* per acre, clear of all expenses; *i. e.*, by taking the seed at feeding prices, 6*s.* 3*d.* per bushel, although it sold this spring in Ireland at 10*s.* to 11*s.* per bushel; and is it not clear to commmon sense, when 8 acres of Wheat grown in Suffolk, after paying expenses, and allowing the straw to be worth 16*l.* 16*s.*, will only leave a profit of 13*l.* 6*s.*, or 1*l.* 13*s.* 3*d.* per acre. That if Flax injure the soil, so that it would not produce another crop until well manured after (and this I most distinctly deny), the farmer who would cultivate the plant, in place of Wheat, must be better prepared to renew the ground with manure, and improve it, by good labour, by having in his hand 172*l.* profit by growing 8 acres of Flax, than he who will sow Wheat on 8 acres, and after selling Wheat and straw, can only realise 13*l.* 6*s.* for his trouble.

I shall not on this part of the subject say more for the present than assert, that after sowing Flax on ground that I had the year previously manured for Turnip or Potatoes, I have had as a good crop of Oats after the Flax as I ever had after a crop of Wheat or Barley. Sowing Flax caused me, no doubt, to be scarce or short of straw for stabling purposes; but I never found the market scarce of a supply, and with more money in my pocket by growing 1 acre of Flax than I could have by growing 8 acres of Wheat, I never had cause to regret the cultivation of that plant.

This letter being for the most part taken from the

observations of others, equally interested with myself in promoting what would, in our opinion, be a public good, I do hope that when those facts are before the eyes of those who have been accustomed to hear that Flax exhausts the soil, that the statements I have brought forward will disabuse their mind, and cause them to give the cultivation of the plant the consideration that the large amount, or value, of our imports of the article, as well as oil-cake and Flax-seed, demands; as they cannot but admit that 10,000,000*l.* or 12,000,000*l.* sterling, annually, distributed amongst our farmers and labourers would add considerably to their comfort; and in order to show how much our foreign neighbours dread our present exertions to grow our own Flax, and increase thereby our improved linen-trade, I shall conclude my observations by quoting a paragraph from the *York Herald*, of the 7th inst., headed

"*The Linen-trade of Germany.*—An important commercial conference has been held in Frankfort, to inquire into the causes of the decline of the German linen-trade. The reports of the conference state 'that, from 1833 to 1839, the annual average excess of linen exports over the linen imports was 15,800,000 rix-dollars (or about 2,370,000*l.* British money); from 1840 to 1842, it was 12,751,252 rix-dollars (or about 1,900,000*l.* British money); and in the year 1843, it was only 7,572,448 rix-dollars (or about 1,081,700*l.* British money).' The reports ascribe the decline—1stly, to the heavy import duties of France, Belgium, and Spain; 2dly, to the defects in the culture of Flax; and 3dly, to the competition of England, the success of which is ascribed to her superior manufacturing advantages, especially to all that relates to machinery. The remedy proposed is, to promote the spinning of Flax by machinery in Germany, for which purpose it is proposed, firstly, to remove entirely the duties on English machinery and on Flax; secondly, to raise the duties on foreign linen yarns to 5 silber-groschens per cwt. the first year, to double that amount yearly till it reaches 2 rix-dollars per cwt., and then to lower yearly by 5 silber-groschens. The grand commercial congress of the Zollverein is to take place at Carlsruhe, at the beginning of July, when the above propositions will be taken into consideration."

Now, the above observations prove the importance that our foreign neighbours attach to the cultivation of Flax, and the decline in their linen-trade, and it is evident they are pretty correct in their ideas as to the cause; however, I must add, to what they enumerate, another great cause of the decline, which I am of opinion has shook to its very centre the linen-trade and Flax cultivation on the Continent.

It is well known that up to 1828, there was no Flax-spinning mills in Ireland; and, as the English spinners supplied the Irish linen manufacturers with yarns (spun altogether from foreign Flax), the Irish farmers had no encouragement to grow the plant, and, as a consequence, they had almost ceased to cultivate it; however, a change took place from 1828, when Messrs. J. and A. Mulholland started their first extensive factory in Belfast; and it is well known that those spirited and enterprising merchants have done much to save their country from losing its linen-trade, which had continued for years in a state of rapid decline, up to 1828. To their liberal donations and subscriptions to the Flax Improvement Society, coupled with those from other Flax-spinners and landlords, do I ascribe the prosperous condition of the Flax-growing farmers of the north of Ireland; and as it got to be known that Flax-spinning was a trade that left an enormous profit, the demand being then much greater than the supply, the spinning and the cultivation annually increased; this fact is corroborated by the extraordinary fortune realised in Flax-spinning by the late and much lamented Mr. Marshall, of Leeds, the announcement of whose death has recently appeared in the *York Herald*. The eminent house of which he was the head, together with the very extensive firms of Messrs. Hines and Atkinson, and Messrs. Renyon and Co., of Leeds, supplied for many years all the principal Irish linen manufacturers with yarns; the demand for Irish linen goods having increased, mill after mill got turned from cotton-spinning to that of Flax, in Belfast, until yarns became so abundant that they fell in price from 11*s.* down to 4*s.* 9*d.* or 5*s.* for a bundle of 16 hanks and 8 cuts, the produce of 2lb. to 4lb. of Flax; and as the addition of 30 Flax-mills in the north in a few years caused the Irish farmers in that province to turn their attention more and more to the cultivation of the Flax plant, until it is now produced in Ireland (through the superior management and directions of a society of which the late Marquis of Downshire was President), at prices from 70*l.* to 100*l.* per ton, equal in quality to the best Dutch or Flemish Flax, for which English spinners formerly paid from 100*l.* to 150*l.* per ton. They are now so well and cheaply supplied from Ireland, with the raw material, that they can send out the same sort of yarns to the Continent, &c., at 4*s.* 9*d.* to 5*s.* 6*d.* per bundle, as that sent up to 1834 at 11*s.* per bundle; and our Irish linen manufacturers, by growing and spinning their own Flax, can have a fair remunerating profit, although able to undersell the Germans and all others, in every market that we trade to.

I regret being obliged to trespass at such length on your columns, but as I ascribe the decline of the linen trade of Germany more to the cultivation of Flax in Ireland than to any other cause, I am obliged to go into particulars to show the grounds I have for my assertions; and as it is evident the Continental linen manufacturers will try and regain a trade that has been most profitable, it is to be hoped that as we can beat the world in machinery, we shall grow the material, and employ it and our redundant population in the spinning and weaving of it. I hope our farmers will soon see the propriety of growing and saving their own Flax-seed, and thereby dispense with the foreign oil-cake; as the fattening qualities of Flax-seed are now acknowledged to be much superior to it, they will not only profit in this instance, but, with their assistance, our linen trade must continue to increase and prosper; our weavers will be kept fully employed; and although last, not the least important, the small farmers and agricultural labourers will reap sufficient remuneration for the hours occupied in honest industry.—*James H. Dickson, 6, De Beauvoir-square, London, June 30.*

Home Correspondence.

On the Growth of Wheat.—A few observations upon Mr. Goodiffe's ingenious and argumentative article "on the Seminal Leaf-stem of Wheat," appear to be called for. I do not dispute his statement of the appearance of the 70 plants of Wheat sown 20th February (see page 421); nor would I impugn his theory of the agency to which he ascribes the formation of what he calls the leaf-stem. My attention to the subject was first excited by a communication from a very clever man in Wiltshire, who had observed that a change took place during March in the radification of Wheat, which at that season sent its roots down into the soil. Those farmers to whom I mentioned the circumstances, assured me that spring-sown Wheat never formed a double series of roots; that the plants tillered less than those sown in autumn, and therefore it was customary to sow a greater quantity of seed in the spring. In November 1843 and 1844, I sowed by the dibble a few lines of seed, and of the fact stated by me, May the 10th, I am positive, namely, that in March 1844, I did not observe one plant without an inch or more of neck, or leaf-stem; whereas, in March last, it was difficult to find a single plant which exhibited anything more than a mere trace of the stem. It is true that in the sowing of 1843 the weather was excessively rainy, and the ground so wet and clogging, as to make the dibbling a work of great difficulty, and hence the depth was uncertain. Yet I am inclined to ascribe the great difference of the two sets of plants to the dissimilar condition of the weather at the corresponding periods of 1844 and 1845. However, to quit a subject which demands future investigation, I come to that part of Mr. Goodiffe's article, which refers to the agency of the leaf in producing the development of roots. It tells us that, somehow or other, we have adopted the notion that "a plant grows from its roots;" whereas, in fact, the plumule is the first to start, and that, therefore the root grows by and from the leaf. In proof of this he adds:—"A very simple exemplification of roots growing from leaves is seen in a Turnip cut across, and the upper half planted. In a very short time a crowd of young roots will be seen pushing down their thirsty mouths all round the Turnip from between the skin and the body of it." Mr. Goodiffe has herein adduced a very pretty and interesting subject for physiological study; but he has made rather more haste than good speed, by jumping at the conclusion that the plumules of all plants are developed before their radicles, and that leaves are the parents of roots. It is, perhaps, physiologically true, that in every instance the movements of both are simultaneous, though in different subjects the one may get the start of the other; yet there is no proof whatsoever that a leaf, simply considered as such, can produce a perfect plant. The most instructive series of experiments that a person of research can undertake, is that of propagation by cuttings in water. By it a number of beautiful phenomena are brought at once to light, which in the ordinary processes would be obscured or left to conjecture. I disclaim any pretension to the discovery of this ready mode of propagation; but, having in the first instance, learned that the Oleander could be so raised with great facility, I was in the habit, during a number of years, of trying almost any plant that came in my way, and thus was enabled to communicate to the public many unsuspected facts. I have always found that a phial of white glass, with a narrow neck, was the most desirable utensil; for it not only permitted daily inspection, but prevented the introduction of more than one specimen. By means of a great number of such bottles, filled to the neck with clear soft water, the process of radification can be inspected at all times; and were Mr. Goodiffe's experiment with the divided Turnip performed in a broad Hyacinth-glass, there would be no need to disturb the natural process for one moment. That roots will emerge all round the divided bulb, there need be no doubt; but it will be somewhat difficult to prove that these roots were developed by existing leaves. A better example, and one more germain to the question, would be found in the leaf of a Cucumber or Melon-plant, and of the Hoya and Gloxinia. The three first, assisted by a little heat, not so great as that of new milk, will produce a profusion of roots; but I never yet could obtain a plant from such leaf-cuttings: the leaf lives, and the roots flourish in the water; but where is the shoot? With the Gloxinia the case is different; by degrees, after the protusion of some fine glassy fibres, a bulb or convex process is formed at the base of the leaf-stem, by the enlargement of the cellular tissue itself, which gradually increases till it becomes a bulb, and then, new plants are developed, and a shoot is thrown upward. There is a system of germs in all plants, precisely adapted to the offices of extension; and to this system is to be referred the natural term of the plant's life. To the philosopher Du Hamel, we are mainly indebted for the theory of pre-organised germs, a theory which seems to embrace every phenomenon connected with growth, and the production of new parts. Wherever these germs are present, they comprise all the essential organs of a seed or embryo; that is, a plumule and radicle, and they are therefore capable, under favourable excitement, to produce a perfect plant. Some leaves contain such embryos, and therefore plants are produced from them. But all leaves do not appear to contain pre-organised germs of life, and, therefore, develope no plumule. But the case of mere leaf-roots does not apply to the seminal leaf-stem of Wheat, as cited by Mr. Goodiffe. Wheat, whether it have the winter-formed stem or not, is still a plant, abounding with the germs of future developments. The first roots are coincident with the advance of cotyledon and primary leaves; they trace horizontally, till the season of spring excitement occur (be that earlier or later), and then new germs become active and simultaneously protrude both roots and tiller-stems, till at length, all the embryos being exhausted, the plant ripens, yields its fruit and dies; and such is the course of all plants purely annual. The Turnip and Carrot have germs already half developed, and each is nourished by the juices of the bulb; the parts are all perfect, and only require to be called into action. These germs or buds, then, as the eyes of the Potato, have entire systems within themselves; and finally they give forth roots to the ground, and a stem, leaves, and fruit above it. To determine the position assumed by Mr. Goodiffe, it would be necessary to try whether a single amputated Turnip-leaf, would form a bulb as well as roots; for unless a complete plant be produced by any leaf, it becomes more than doubtful whether it possess within itself the germs of reproduction.—*J. Towers.*

Dissolved Bones.—When bones are dissolved in sulphuric acid, two plans are at present adopted for applying them to the Turnip crop. In the one case, the dissolved bones are applied to the land in a liquid state, in the other, they are mixed with earth, and sown in a dry state. It is recommended in an article in the "Quarterly Journal of Agriculture," to apply the bones to the land in a liquid state, "because," says the writer, "the extra trouble in doing this is compensated by the additional benefit which it confers on the Turnip crop, the plants requiring their food in a liquid state." Now, I beg to state that this view of the matter is erroneous, and that the plants are as much benefitted by the one method as the other. When the bones are applied in a liquid state, the liquid is applied, not to the Turnips, but to the land. The Turnip drills are formed over the liquid spread on the land, and the Turnip seed is then sown. Now, if any one will attend to this simple operation, he will at once perceive, that the watery part of the solution is absorbed by the land, as soon as it is spread upon it; and the covering in of the liquid, by forming the drills over it, still farther absorbs any moisture it may contain. In fact, it is just mixing the liquid with earth, and in this mixed and dried state it remains in the ground for about a week, before the Turnip plants vegetate; and for a considerably longer time, before the roots of the Turnips reach it. The only difference, then, betwixt the application of dissolved bones in a dry, and in a liquid state, is, that in the one case, the dissolved bones are mixed with earth before they are applied to the land; and in the other, they are mixed with earth after they are deposited in the soil. In both cases, the dissolved bones are in a dry state, before the roots of the Turnips reach them; and hence, in practice, we find both cases equally efficacious. It appears, therefore, to be only a waste of time to apply dissolved bones by a water-cart. The error in supposing the water-cart process to be superior to the other, appears to me to have arisen from overlooking the fact, that the bones from the water-cart are applied to the soil, and not to the growing Turnips. If the liquid bones were applied to the growing Turnips, it would appear extremely probable that it would have more effect on them than if they were applied in a dry state; but then, it is to the land, and not to the Turnips, that the liquid is applied. Before the Turnips send down their roots to the liquid manure, the liquid part of it is all absorbed by the soil, and nothing but the dry result of the solution is found in the ground. This dried solution is afterwards made soluble by rain, and so also is the solution that had been mixed with earth, previous to its deposition in the ground. In both cases, then, the manure has just to depend for its solubility, and consequent efficacy, on the rains which the soil receives, and the moisture which the soil contains.—*A Turnip Grower.*

Cardiff Farmers' Club.—In looking over your No. of the 21st ult., I perceive a long descant by Mr. David, of Cardiff, on the use of lime, as to the quantity requisite for an acre; but I am at a loss to know what a "Crannock" means: that being the case, I would strongly recommend all gentlemen, when writing on such subjects to abstain from all provincial idioms: as many, no doubt, are in a similar predicament to myself, unacquainted with the Welch language.—*No Cymro.*—[The recommendation of our correspondent cannot be too strongly enforced. The standard weights and measures should alone be referred to. What is the weight or bulk of a "Crannock?"]

Warping.—In answer to a correspondent's inquiry as to "where operations are now in progress for warping lands,"—in addition to those now going forward in the parishes of Goole and Swinefleet, a large tract of waste country is now and has been converted by Henry Healey, Esq., of Ashly, near Burringham, on the banks

of the Trent, from whom every information may be obtained; I think Mr. Healey is now warping between 200 and 300 acres.—*A Subscriber to your Paper, June 24, 1845.*

Ashes from Weeds.—I used to find a ready method of converting rubbish of most kinds, such as ditch and hedge trimmings, root-weeds, Potato-stalks, &c., into a valuable ash by mixing them stratum super stratum, with fresh burnt lime-stones, till the pile was many feet in height. The greener the vegetable the more ready was the conversion. I have made a pile of this kind of Potato-stalks quite green and succulent; in a few hours, flames have burst out at the sides, and in a very short time the whole was converted into a fine grey ash. Would not these ashes be useful to mix with bones dissolved in sulphuric acid, for the purpose of drying the mixture? I think the affinities called into action would be beneficial rather than otherwise.—*Lusor.*

Cow Feeding.—Can you, or any of your readers inform me, whether any one has succeeded in keeping a cow upon one rood of land, in the way recommended in Cobbett's "Cottage Economy?" His system appears to me to be liable to at least two objections. He grows nothing on the ground but Cabbages, followed by Turnips. The land must, I should think, get tired of this repetition. He transplants his Swedish Turnips from the seed-bed. My gardener says that you cannot safely transplant Turnips, so as to be sure they will come to anything. [There is not much risk in this if it be carefully done]. Is there a sufficient variety of vegetable, which will afford food enough for a cow, to have a four course shift, so as not to tire the land? I only know of Cabbages, Turnips, Mangold Wurzel, and perhaps Potatoes and Artichokes, and Vetches for a winter crop. Can you tell me of anything more? [Carrots and Parsnips, the latter especially, are excellent food for cows].—*A Country Curate.*

Adulteration of Guano.—Several persons have been employed at Beal's Wharf by Mr. Boorman in mixing gypsum with inferior guano, in the proportion of 1 ton of gypsum to 2 tons of guano; this is being sold at a low price, to the great injury both of the fair dealer and the consumer. I hold myself responsible for this statement.—*Henry Weston, Borough Bank, Southwark, July 1.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A SPECIAL COUNCIL was held on Saturday last, the 28th of June, for the purpose of deciding, agreeably with the tenour of the Bye-Laws, on the prizes to be offered for the Society's country meeting, to be held in 1846 at Newcastle-on-Tyne, for the northern district, comprising the counties of Northumberland, Cumberland, Durham, Westmoreland (including Berwick-on-Tweed). Present—His Grace the Duke of RICHMOND, K.G., President, in the chair; Lord Worsley, M.P., the Hon. R. H. Clive, M.P., Sir R. Price, Bart., S. Bennett, Esq., F. C. Cherry, Esq., W. A. Cherry, Esq., H. Gibbs, Esq., B. Gibbs, Esq., C. Hillyard, Esq., Professor Sewell, J. Villiers Shelley, Esq., and J. H. Tremayne, Esq.

PRIZE SHEET.—The Council decided on the terms and amount of the various prizes for 1846, of which the following is a summary statement, including the amount of prizes for essays, decided at a former meeting:—

Short-horned cattle	£125
Hereford cattle	125
Devon cattle	125
Cattle of any breed	85
Horses	125
Leicester sheep	115
Southdown sheep	115
Long-woolled sheep	115
Mountain sheep	50
Pigs	70
Wool	30
Agricultural implements	300
Prize-essays for 1846	320
	£1700

CONVEYANCE TO SHREWSBURY.—The President called the attention of the Council to the arrangements in progress for the conveyance of passengers and stock to the Shrewsbury meeting, and to the extremely liberal and handsome manner in which the Chairman and Board of Directors of the London and Birmingham Railway Company had signified their willingness to promote the objects of the Society, by granting a free transit along their line of railway to the stock and implements intended for exhibition, and the coaches and horses required to complete the journey to Shrewsbury, from the terminus of either Stafford or Wolverhampton. The noble Duke then read to the Council the following letter:—

"*London and Birmingham Railway.*

"*Office, Euston Station, June 27th,* 1845.

"Dear Sir—Referring to your letters of the 19th and 25th inst., I am instructed to inform you that the Directors have consented to the free conveyance on this railway of stock and implements entered *bonâ fide* for show at the country meetings of the Royal Agricultural Society, and for the free passage of carriages and horses belonging to coach proprietors, for use between Shrewsbury and Stafford, or Wolverhampton, by parties who have travelled to either of those stations by railway.—I am, dear sir, yours faithfully (Signed) R. CREED, Secretary."

"JAMES HUDSON, ESQ."

A MONTHLY COUNCIL was held on Wednesday last, the 2d of July; present: His Grace the Duke of RICHMOND, K.G., President, in the chair; Earl of Lovelace; Lord Hatherton; Hon. R. H. Clive, M.P.; Sir Francis Lawley, Bart.; Sir John V. B. Johnstone, Bart., M.P.; Sir Charles Lemon, Bart., M.P.; R. Archbold, Esq., M.P.; Colonel Austen, M.P.; J. Baines, Esq.; T. Raymond Barker, Esq.; T. W. Bramston, Esq., M.P.; W. R. Browne, Esq.; Col. Challoner; F. C. Cherry, Esq.; W. A. Cherry, Esq.; R. W. Corringham, Esq.; Wilbraham Egerton, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; W. Ormsby Gore, Esq., M.P.; S. Grantham, Esq.; W. Fisher Hobbs, Esq.; W. H. Hyett, Esq.; S. Jonas, Esq.; G. Kimberly, Esq.; J. Kinder, Esq.; Col. MacDouall; R. Milward, Esq.; E. S. Chandos Pole, Esq.; P. Pusey, Esq., M.P.; Prof. Sewell; W. Shaw, Esq.; J. V. Shelley, Esq.; W. R. C. Stansfield, Esq., M.P.; J. Manners Sutton, Esq.; C. H. Turner, Esq.; and F. Woodward, Esq.

Sir Charles Douglas, M.P., of Wilton-crescent, was elected a Governor, and the following gentlemen Members of the Society:—

Drury, J., Shawbury, Shrewsbury.
Dixon, Peter, Holme-Eden, Carlisle.
Smith, Thomas, Maddeley, Shiffnal, Salop.
Brittain, George Dawes, Ercall-Park, Wellington, Salop.
Wilding, James, High Ercall, Wellington, Salop.
Freme, James, Jun., Shrewsbury.
Corbett, Edward, Longnor Hall, Shrewsbury.
Parry, Robert, Bower's Hall, Wrexham, Denbighshire.
Hope, Thomas Henry, Netley, Shrewsbury.
Jobson, Thomas, Bank Farm, Shrewsbury.
Craigh, Rev. J., Chipperton, King's Langley, Herts.
Johnson, Walter, Eastfield, Alnwick, Northumberland.
Leven and Melville, Earl of, Melville House, Fifeshire.
Tyrrell, Sir John Tyssen, Bart., M.P., Boreham House, Chelmsford.
Dent, Villiers, Avon Cottage, Ringwood, Hants.
Egerton, Rev. Thomas, Middle Rectory, Shrewsbury.
Marsland, Henry, M.P., Stockport, Cheshire.
Leigh, Capel Hanbury, Pontypool Park, Monmouthshire.

The names of 22 members for election at the next meeting were then read.

FINANCES.—Mr. RAYMOND BARKER, Chairman of the Finance Committee, presented to the Council the Report of the Committee on the State of the Funds of the Society on the last day of the month of June; from which it appeared that the amount of invested capital in name of the trustees stood at 8200*l.* stock, and the current cash balance in the hands of the Bankers at 3912*l.* (including a special balance of 780*l.* on the Shrewsbury account.)

SHREWSBURY MEETING.—EARL SPENCER, Chairman of the General Shrewsbury Committee, transmitted to the Council the Report of the Committees for the selection and recommendation of the Judges of Stock and Implements at the ensuing country meeting. This Report was taken into consideration by the Council, and the appointments finally declared. Mr. HUMPHREY GIBBS was appointed one of the Stewards of Implements in the place of Mr. W. MILES, M.P., who, from injuries he had so unfortunately sustained in the recent accident on the Great Western Railway, would be unable to attend to the arduous duties of that department at the Shrewsbury meeting.

The PRESIDENT having laid before the Council the letter received from the London and Birmingham Railway Company, in reference to the free conveyance over their line of the stock and implements of exhibitors, and the coaches and horses of coach proprietors, for the completion of the route to Shrewsbury, it was unanimously resolved, that a vote of the best thanks of the Council should be conveyed to the Chairman and Directors of that Company, for the extremely liberal concessions they had made in favour of the Society, and for the promotion of its objects.

The COUNCIL then proceeded to take into consideration their Resolution of the 4th of December last, carried on the motion of the Hon. Capt. Spencer, namely:

"That after the awards of the Judges of Cattle shall have been delivered to the Director of the Yard by the several Stewards, such Members of Council (not being exhibitors) whose duties for the Society prevent them from seeing the cattle when the public are admitted, who shall be named by the Council prior to the meeting, shall be admitted to view the Cattle from five o'clock till seven of the Wednesday (provided the awards shall have been delivered); but that the awards shall not be declared before the usual time, namely, after the Council dinner."

The COUNCIL declared the following to be the parties to whom such special privilege should be granted, viz.: Lord Portman (Steward of the Pavilion and Council Dinners), Colonel Austen, M.P. (Steward of Finance), Mr. Raymond Barker (Steward of Receipts and Admission to Show Yards), Mr. Henry Wilson (Steward of the Sale of Tickets), and Mr. Hudson (Secretary of the Society).

ROTATION OF DISTRICTS.—Mr. FISHER HOBBS having called the attention of the Council to the importance of deciding on the future districts for the Country Meetings, on the near termination of the present schedule, it was resolved on the motion of Mr. Shelley, seconded by Mr. Shaw, that the following committee should be appointed to consider the succession of districts to be adopted after the year 1847, viz.: Duke of Richmond, Earl Spencer, Sir John Johnstone, Mr. Shelley, Col. Challoner, Mr. Fisher Hobbs, and Mr. Shaw.

NEWCASTLE MEETING.—The following General Newcastle-on-Tyne Committee was appointed, for the Meeting at that town next year:—The Duke of Richmond (Chairman), Sir Mathew White Ridley, Bt. (Vice-Chairman), Earl Spencer, Lord Portman, Hon. Capt. Spencer, Sir John Johnston, Bt. M.P., Col. Austen, M.P., Mr. Raymond Barker, Col. Challoner, Mr. H. Gibbs, Mr. B. Gibbs, Mr. Grey (of Dilston), Mr. Fisher Hobbs, Mr. Miles, M.P., Mr. Pusey, M.P., Mr. Ramsay (of Newcastle-upon-Tyne), Mr. Shaw, Mr. Shelley, and Mr. Thompson.

Various communications having reference to the business of the Weekly Council, were postponed for consideration and discussion, to Wednesday next, the 9th of July.

HIGHLAND AND AGRICULTURAL SOCIETY.

Show at Dumfries.—The first meeting of the local committee appointed at the county meeting on 30th April last, and by the Highland Society, for regulating the details connected with the Agricultural Meeting at Dumfries in October next, was held at Dumfries on the 11th ult., and was numerously attended by the surrounding proprietors. The first matter coming before the meeting was the show-yard. Mr. Threshie communicated the inquiries and observations which had been made as to this. The dock was ultimately fixed on by the meeting, and a committee was appointed to co-operate with the directors and their engineer in making the necessary arrangements. Mr. Threshie mentioned the suggestion that had been made as to the place for the public dinner, &c., viz., a pavilion in front of the New Assembly Rooms, in George-street, and in connection with the rooms of that building; which rooms it was thought might be available for the meetings of directors, committees, &c., as well as for the committee-dinner, which takes place on the 7th, the day preceding the general show. This was agreed to, and the matter remitted to a committee. It was the opinion of the meeting that the pavilion should be constructed to contain from 1000 to 1200; the price of ticket to the general dinner not to exceed 10*s.* Mr. Scott next called the attention of the meeting to the propriety of a field being obtained wherein to test agricultural implements, and to arrange the appointment of judges of the trials of these implements; and for this purpose the meeting appointed a committee. Committees were also appointed to provide accommodation for the stock attending the show whilst in Dumfries, to obtain a list of lodgings, and provide proper accommodation for judges, directors, &c.; to appoint judges of dairy produce, horses in harness, and poultry; and to appoint judges of seeds and roots. Sir William Jardine called attention to the public breakfasts in connection with the Chemical Association, and was requested to continue the arrangements of that department. Mr. Scott communicated a letter from Dr. Mercer in reference to the disease of the Potato, in which letter Dr. Mercer offers to give at the general meeting "a full and detailed exposition of the observations that I have recently been making, and the experiments I am now conducting, on the structure, healthy and diseased, of the Potato, as explanatory of an important and frequent, if not most general, physiological cause of failure of this crop." Mr. Scott read letters from Mr. Maxwell, of Terregles, and Lord Selkirk, as to whether or not there should this year be a distribution of the prizes given by the Highland Society to a local exhibition of Leicester sheep at Dumfries. The matter was referred to Mr. Maxwell, as deputy-chairman, the meeting being of opinion that it should take place. After votes of thanks to the chairman (Mr. Macalpine Leny), and to Mr. Scott, the meeting separated.—*Abridged from the Dumfries Herald.*

IRISH WASTE-LAND IMPROVEMENT SOCIETY.

Report.—A special meeting of the shareholders in this society was held on Thursday week. The Right Hon. the Earl of Devon took the chair, and Mr. Fry (the secretary) read the notice convening the meeting, the vote of the last half-yearly meeting, calling upon the directors to give notice to the holders of shares unpaid upon, that they should pay their calls, or, if not successful, to take immediate steps for their forfeiture; and the following Report:—In introduction of the object of the present meeting, the directors beg to remind the proprietors that the fourth call—viz., of 2*l.* per share—was made on the 4th of March, 1844, payable by two instalments of 1*l.* each on the 4th of June and the 4th of September following, of which the usual notices were given by advertisements and letter; and, it appearing by the Report presented to the half-yearly meeting, held on the 25th of February last, that the sum of 1703*l.* was then due in respect of the said call upon 899 shares, a resolution was passed that the directors should use their best exertions to procure payment of the arrears; and, in the event of non-payment, proceed to forfeit the shares, agreeably to the provisions of the Act of Incorporation. In pursuance of this resolution, a circular was shortly afterwards addressed to the defaulters, informing them thereof, and that unless the call should be paid on or before the 15th of April following their shares would accordingly be declared forfeited, in consequence of which some of them paid up the amount due; but the remainder —15 in number—holding in the aggregate 441 shares continuing in arrear for both instalments, amounting together to 882*l.*, the directors, at a court held on the 24th of April last, declared the shares held by 13 of such proprietors forfeited; and at the following court—viz., on the 8th of May last—they also declared the shares held by the remaining two forfeited; whereupon, agreeably to the provisions of the Act of Incorporation, another circular notice was addressed to the defaulters, apprising them of such forfeitures, and that, without delay, they would be submitted to a general meeting of shareholders for confirmation, unless the amount of the call should be previously paid; and it having been afterwards considered advisable to call a special general meeting for the purpose, and the same being duly advertised in the newspapers to be held this day, a further notice thereof was sent to the defaulters respectively, since which three of them have paid the call—leaving 12 other parties, holding 286 shares, upon which 572*l.* is still unpaid, as will appear by the list which the secretary will read to the meeting. The directors, therefore, submit that, agree-

ably to the 65th clause of the Act of Incorporation, authorising the forfeiture of shares upon which the calls shall not have been paid after due notice given, and in justice to those proprietors who have fully paid up the calls, their said resolutions of the 24th of April and the 8th of May last, declaring forfeited the shares upon which the fourth call had not then been paid, should, so far as such shares still remain unpaid, be now confirmed. He then also read a list of ten names of the defaulters, holding 191 shares, upon which 382*l.* remained unpaid; and on a resolution to this effect being submitted to the meeting, the same were unanimously declared to be absolutely forfeited. Previous, however, to this resolution being passed, Mr. Bartlett (of Birmingham) inquired whether the forfeiture of these shares placed the remaining shareholders in a better position than before, and whether they had not the power to compel payment of a call.—The Chairman stated that they certainly had the power to compel payment, but they had hitherto taken every pains possible to obtain payment without going to law, a step which they had always set their faces against; there was no doubt but that the diminished number of shareholders would be benefitted by the forfeiture.—On Mr. Bartlett recommending an extended scale of operations, and, if necessary, to call upon the shareholders for more money, a conversation ensued, which elicited from the Chairman and Colonel Robinson the explanation that, although no dividend had yet been paid, the affairs of the company were steadily progressing towards a profitable state. When they let the farms it was at a very low rental the first year, a little more the second, and so on: and it was five years, at least, before the maximum rent was received. The intentions of the Society were, to give the humble tenant every possible chance of advancing his situation in life, and for that reason they they did not press on them for a heavy rent at once, and thus drive them to a workhouse, but they increased their rent as their means of payment increased, and, instead of depriving them of perhaps their only cow, they wished to give them the means of keeping two or three cows. The very nature of the Society was such, that it must take time to mature its resources; they could only avail themselves of such land as could be had at a moderate rate, extensive drainage must be proceeded with, as the only means, as the first measure, of reclaiming mountain lands, and roads must be constructed—in fact, the labour of the peasant must go hand in hand with the gradual investment of capital, but there was no doubt but that eventually the undertaking would not only prove of immense advantage to Ireland, but pay the shareholders a fair dividend for their capital.—On the Chairman replying to a vote of thanks, which had been passed to him with acclamation, he observed, that he had no doubt the course he had adopted with reference to the important office imposed on him, in connection with his highly-valued colleagues, in the late parliamentary commission as affected the relative interests of landlord and tenant in Ireland, might have been misunderstood—and, consequently, given offence to two extreme parties in Ireland—viz., those who advocated doing everything that tenants chose to ask, without any regard to its necessity or the rights of property, and those who would endeavour to increase the value of their property at any sacrifice to the tenant. It had been his endeavour to steer a middle course, and the results in every situation in which he was placed, with respect to the management of landed property, convinced him he was right; he had not a doubt but those shareholders who held on to their shares, would, in the end, receive a good return. The meeting then broke up.—*Dublin Farmers' Gazette.*

Farmers' Clubs.

Darlington. — *Management of the Turnip and Potato Crops.*—This club held their June meeting on the 23d ult., at the offices of Mr. Thomas Dixon, Land Agent, for the discussion of the above subject. Mr. Walton presided; and on opening the meeting, he stated that last year in order to test the comparative merits of two or three different descriptions of manure for the Turnip crop, on a field of average quality, he had set out three distinct acres, and manured one acre with 3 cwt. of Peruvian guano, another acre with 4 cwt. of superphosphate of lime, and another acre with 16 cart-loads of rotten dung, the expense of each of which was as follows:—

1st acre 3 cwt. of Peruvian guano, at 13*s.* . . .	1 19 0
2d acre 4 cwt. of Superphosphate of lime, at 6*s.* . .	1 4 0
3d acre 16 loads of rotten-dung, for which say 4*s.* per load	3 4 0

The acre manured with the superphosphate of lime was ready for hoeing seven days earlier than the acre manured with guano, and 14 days earlier than the acre manured with rotten dung, and continued to keep the lead of the other two acres until the autumn; but when winter arrived, and the Turnips were drawn, he could see no difference in the weight of the crop, and they were not weighed; had there been any perceptible difference he would then have tested the weight of bulbs on each acre: however, all the three acres were a good crop. The Wheat crop which is now growing on those three acres exhibits no perceptible difference betwixt one part and another. With regard to the hoeing and thinning of the Turnip crop, Mr. Walton had generally been in the habit of leaving the plants at from 10 to 12 inches' distance in the rows, the rows being about 28 inches apart from each other. In hoeing and thinning the Turnip crop, he considers it of great importance to leave, if possible, strong healthy plants, and therefore rather than leave inferior or sickly plants, he would deviate a little from the stipulated distance, leaving occasionally two plants at a nearer distance than usual, whilst the next would be at a greater distance than ordinary. Mr. W. then said that, although in the habit of thinning his Turnips to the distance of from 10 to 12 inches, yet his impression was that if a greater space were left betwixt the plants it would answer still better, more particularly in the case of Swede Turnips, because it is at all times desirable to grow them as large as possible, and as Turnips send out their roots to a considerable distance in the soil in search of food, if Swede Turnips had generally a little more room than what is at present allotted to them, they would be the better for it. A very animated discussion then ensued both as to the distance most proper for thinning the plants, and also whether it were desirable to thin the plants to a proper distance in the first hoeing, or whether it would answer better to leave double the requisite number of plants in the first hoeing, and afterwards in the second hoeing to thin them out to the proper distance. Mr. Emmerson very strongly advocated the principle of leaving, in the first hoeing, double the requisite number of plants, he having very frequently found in case of the crop being attacked by caterpillars, and other insects, that it then had a double chance of success. The majority were of a different opinion, however, and at the conclusion of the meeting it was resolved: That it was the opinion of the Meeting that it is best to thin Turnips to the proper distance in the first hoeing. It was also generally believed by the members that from 10 to 12 inches was a proper distance, but as no resolution was come to on that head, Mr. T. Dixon, the Secretary, suggested that some of the members should by way of experiment, measure off a chain of land in an average part of their Turnip-field, and thin the Turnip plants on this part to 15 inches apart on the rows, and see what the result would be. The meeting then broke up.

East Cornwall.—*Management of newly broken-up land, &c.*—At the late Annual Meeting of the East Cornwall Experimental Club, Mr. Archer, of Trelaske, made the following remarks:—"This being the anniversary of our society, it may not be amiss to inquire what has resulted from our twelvemonth's labours. In the first place, our Society has increased from the small party which at first constituted it to the numerous assemblage now amply filling this barn. It must also be a matter of pride to us that the discovery which emanated from our scientific president, and known by his name—viz, 'Gurneyism'—is attracting the attention of the whole agricultural world. You will recollect, also, that I first called attention to the imperfect state of leases. I am convinced that the expediency of greater length of leases, to insure the tenant farmer a more permanent holding in his estate, is rapidly gaining ground. I do myself feel assured that it is the sheet-anchor of the tenant farmer; and under this impression I have acted, in giving those tenants whom I knew to be good men terms of 21 years in their estates. I must not dilate, however, on these matters too long, but will only say a few words with regard to that most important class of men whose skill in the important operations of ploughing and sheep-shearing you have assembled to-day to witness. Since we first met last year, I have been enabled to witness the result of my cottage allotments, and I rejoice to say that it has been most gratifying; and I feel assured that it is one of the simplest and best modes of bettering the condition of the labourer. I have seen the man whose evenings were formerly spent in the public-house busily engaged with his little family about him in the cultivation of his crops. On the rent-day every farthing was punctually paid, accompanied by sincere and hearty thanks for the boon I had conferred upon them; and I shall have the greatest pride in asking the judges, with any other gentlemen who may feel disposed to walk over my allotment ground, whether the state of their cultivation does not reflect great credit on my little tenantry. I will now detail the system under which I intend to manage the ground I am just now taking into cultivation, which amounts to 100 acres. I shall inclose it with one outer fence alone, having no cross-fences, simply marking it into five portions of 20 acres each, which will be thus cropped: 1st, Wheat or Oats; 2d, Vetches, followed by Rape or late Turnips, folded off; 3d, Swedes, Mangold Wurzel, or Potatoes; 4th, Barley; 5th, Seeds, folded off. My farm will then consist of nearly 300 acres, of which one-third will be managed as I have related; a third is permanent pasture; the remainder a better description of arable land, and will bear Grass for three or more years. I propose to have a flock of southdowns, of which I hope to keep 200 ewes, and to feed off the wether lambs, and to graze and winter-feed from 50 to 60 head of horned cattle as well. With regard to ploughing, I can safely venture to say that the manufacture of our ploughs must have materially improved in late years; for I was assured by some of the oldest of my tenants, who recollected when this down was tilled some 40 or 50 years ago, that it was perfectly impossible to 'vell' the ground with a plough. The work which you have seen to-day proves that this opinion was erroneous, and that either the ploughs must have improved, or the men who hold them. This is an age of science, and I am so fully impressed with this feeling, that I cannot participate in the gloomy sentiments which have been expressed at some of the agricultural meetings recently held; but of one thing be assured—that if times of trouble are at hand, from causes to which I will not allude, we shall one and all—landlord, tenant, and labourer—find ourselves in a better position to struggle against the troubled waters if we are, each in our several stations, thoroughly masters of our business, and have carried our profession to the highest pitch of perfection of which it is at present capable. I say, therefore, despise not the assistance of science; depend upon it, every one should make themselves acquainted with the general principles of scientific agriculture." The principal topics enlarged upon, were the comparative merits of shallow or deep ploughing for the Turnip-crop, where a heavy lot of peat-ashes were spread before ploughing; each system was warmly advocated by its respective supporters; when Mr. Pethick suggested that he had endeavoured, and he thought with success, to combine the advantages incident to either method, viz., by having two or three men to follow the ploughs with shovels, and to scatter the peat-ash on the ridges; by this simple plan, in the after-working of the land, the peat-ash became intimately blended with the soil, instead of being buried, and he said that in practice he had satisfied himself of the value of the plan. The best mode of applying guano to the Turnip crop was also discussed. The comparative merits of rotting or burning on different soils, and under varying circumstances, also came under consideration; and therein again the value of burning in close instead of open burrows, so as to produce rather charred refuse than bare peat-ash.

Miscellaneous.

Feeding of Animals.—(Boussingault, vol. ii., p. 417).—In studying the comparative value of different kinds of food, it is necessary first to institute a series of observations, to determine the amount of variation of weight to which they are subject; and as this takes place sometimes in one direction, sometimes in another, there is a decided advantage in extending them to as many individuals as possible, with a view to diminish the consequent error. But there is another cause of error, which appears to depend on the weight of the nutriment administered. With the same nutritive equivalent, the weight may be very different. Dry hay and Oats, for instance, will weigh much less than their equivalent in roots, tubers, or green food. If, then, after having fed animals with dry nutriment, we substitute watery food, a remarkable increase of weight is at once evident. The change, however, is too sudden and too great to make one suppose that it arises from nutrition; the fact is, that a definite portion of the food is retained in the body amidst every variation during the whole period in which the new regimen is administered; on the contrary, when a heavy nutriment is replaced by a lighter equivalent, the converse takes place, and the animal as suddenly loses in weight. These rapid changes are apt to disarrange our observations, and to cause an unfavourable judgment to be formed when we content ourselves with a single estimation of the weight at the end of each experiment with any particular food. I have myself fallen into this error before I was aware of its influence. To arrive, then, at results which may be trusted, we must feed animals for two or three days with the food on which we wish to experimentalise, when they will have taken* in that portion which is retained permanently in the stomach so long as they receive the same kind of food. The first weighing may then take place, and having continued the food for a time sufficiently long to obviate any uncertainty arising from accidental error, the animal is again weighed, to determine the favourable or unfavourable effect of the kind of nutriment under consideration. It is scarcely necessary to repeat that the increase or constancy of weight are not always sufficient proofs that a particular regimen is superior or equal to that for which it has been substituted. We must keep in view many accidental circumstances of different kinds, or, in a word, the state of the animals themselves. We must attend to the appearance of the coat, the greater or less vivacity and spirit, the nature of the excrements and secretions, the condition of the stomach, the fitness for work in the case of beasts of labour; the quantity of milk in that of cows. It appears, however, to be a general law, that a stationary condition, or a slight increase of weight in adults are almost always in favour of any particular nutriment, while a loss of weight is as surely a sign of its insufficiency. The experiments which I am about to state, were undertaken with the view of determining the nutritive value of different kinds of food which may concur in a certain proportion in the diet of a horse, when combined with their usual nutriment. The scarcity of fodder which was experienced in Alsace after the drought of 1840 had made us feel the importance of such observations. We were at that time forced to substitute, in great measure, Potatoes for hay in our stables; and taking as the basis of this substitution, the equivalent assigned by theory, we obtained important economical results, while the health and vigour of our stud were preserved. The subject is, however, one of too great importance to trust to theory alone. I have, therefore, thought it right to verify the results of chemical analysis by practical observation. The most proper food for horses is considered, in the greater part of Europe, as consisting, in great measure, of hay and Oats. Separately they will not produce the effect which they do when combined. Hay alone is too bulky, and Oats not sufficiently so. Not, indeed, that horses are nice as regards food; for I have fed for a long time a considerable number of horses and mules with Maize and Sugar-cane. On the table-land of the Andes, and in the steppes of South America, horses subjected to very

* This is expressed in the original by the single word "lester," to which we have no equivalent. A certain portion of food, varying according to the kind administered, is permanently retained in the stomach.

severe labour are always kept on green food. Everything, indeed, depends on the manner in which they have been reared. Under existing circumstances there would probably be no real advantage in substituting for their ordinary food roots or tubers. I doubt even of the good effect of such substitution. I know, indeed, that horses have been kept during winter on Potatoes or Beetroot; but there is an essential difference between keeping up a stud without work, and the feeding animals which must every day undergo a certain proportion of labour. A draught horse would with difficulty consume the neeessary bulk of Beetroot, which can be taken only during the hours allotted to repose—a circumstance of some consideration. It is on this account that carriers' horses and post-horses—those, in fact, which are subject to long-continued labour—are principally fed on corn. In the stall the inconvenience of bulky food is much less felt than in the stable. Independently of its peculiar organisation, the cow has always more time for feeding than is usually the case with the horse. The experience of nearly a year having previously taught us that draught-horses may receive half their food in roots or tubers, we took this as the starting point of our experiments.—*M. J. B.*

How to Encourage the Breeding of Useful Stock.—I believe it to be the object of the Royal Agricultural Society to encourage the breeding of the best description of animals; but I hope to be pardoned in observing, that, in the opinion of nine-tenths of the practical men of this country, the mode adopted for the attainment of that object is founded in error, and most fallacious in practice. Take, for instance, the prizes offered for the best shearling rams, or best shearling ewes at its annual meetings; must it not be evident that, however inclined to fatten each contending animal may be, the prize is virtually given to the most skilful shepherd or grazier —to him who shall be most ingenious in pampering the appetite, making them an unwieldly mass of useless offal, unable to bear their bloated carcasses on the enervated muscles, still less able to propagate a species of which they are most ridiculously and ignorantly supposed to be a sample? or, if females, every year's experience gives ample evidence that not more than four or five in 20 bloated prize shearling ewes will bear any progeny at all, and those of such a pigmy, degenerate race, that the owners are frequently obliged to hide them from the eyes of the sight-seekers, who, a year after some grand show, come far and near to see the extraordinary (expected) produce of the Duke of ———'s prize shearling ewes, by Mr. Prize-bearer's 30*l.* prize shearling ram. Sir, there is no gainsaying these facts; among others, almost innumerable, witness the declaration of Mr. Jonas Webb, as related in his memoir, published in the "Farmer's Magazine" for March last:—"In feeding my sheep for the Derby show," says Mr. Webb, "I over-fed two of my best, and killed them before the show took place! I had refused 180 guineas for the hire of the two sheep; I also quite destroyed the usefulness of two other aged sheep by over-feeding them last year; they never, either of them, propagated throughout the season, which has so completely tired me of over-feeding, that I never intend exhibiting another aged ram, unless I can find out some method of feeding them which will not destroy the animals." I have thus far digressed to show, by quoting competent authority, the utter inefficiency of the present method of obtaining that knowledge we, the tenant farmers, wish for—knowledge that will enable us to choose that description of stock which shall return most in value, both of wool and mutton, in proportion to the food consumed. I would, then, with all deference, suggest to the society that a certain number of cattle and sheep of the various breeds should be taken under its care for three successive years, considering that one year's result would not authorise the stamping the character of any breed; they would here be under the guidance, as it were, of one mind; so that managed well or ill, all would fare alike; the skill of the feeder would not be rewarded instead of the merits of the animal; the whole process of feeding would be done with more regularity, and there would be a greater chance of obtaining an impartial report, which can scarcely be hoped for where these trials are carried out by individuals, who, in spite of themselves, are almost sure to have a predilection for one breed or another. And now, Mr. Editor, having written thus far for the public, excuse me if I allow that great idol, self, to come in for a little share of that worship which we poor mortals are so prone to yield it, and from love of which great authorities inform us, all our actions, for weal or for woe, spring. I am no cattle breeder, neither of Kent, Down, or Leicester sheep, but of a breed which originated some 14 years since, in the cross of the Cotswold ram (improved) and the Hampshire down ewe; they have not been crossed either way for the last 10 years, but half-breds bred from half-breds, with the view of establishing a distinct breed, with uniformity of character, a point which I flatter myself I have succeeded in. In order to carry out my recommendation to the Society, I will engage there shall be produced to them, in the summer of 1846, a pen of wether lambs, the produce of tups of this breed, to be fed against any pure breed, either of long or short-woolled sheep, on food measured and weighed; to be shorn and slaughtered at 15 months old, and those which shall, in value of fleece and carcass, return the most money, cost of keep being deducted, to be entitled to any premium the Society may think proper to offer. By such a trial as this, merit must have its due; the most useful and profitable animal would then stand conspicuous before our breeders, and they would no longer be deceived in the capacities of breeds which, perchance, have too long led them astray, merely because some fanciful amateurs, in the persons of our nobility, have been induced to take them under their special protection.—*J. Twynam, Stockbridge, Hants, June 28.*

To the Editor of the Mark Lane Express.

Large Farms.—To give a man a larger farm than he has capital to cultivate, very nearly resembles the practice of Indian princes, who make a present of an elephant to the courtier they wish to ruin—the expense beggars him; so it is with the large farm; the rent must be paid, which is just as eating an evil as the elephant; and the tenant who has not capital to support it is broken. It will be found, I think, when the subject is well considered, that it is not large farms make a wealthy tenantry, but it is a wealthy tenantry that makes the large farms. Therefore, those landlords who wish for large farms, which, in this view of the case, every landlord will naturally do, his first exertions must be to improve the circumstances of the farmers he has; and, as they can only better their circumstances by improved cultivation, his first object should be to give them agricultural instruction. Knowledge is power; and the power of making three acres of land produce as much as nine, with one-third of the rent, and much less expense in other respects, must by degrees effect an improvement in a certain proportion of any tenantry. Suppose this knowledge is pretty generally diffused over any particular district, the value of land (to those who have improved) is enhanced, by their knowing, from experience, what an increased return can be had from it. If any tenant who adheres to old prejudices gets into difficulties, or wishes to emigrate, the man who has improved is the person who will give the highest price for his farm, from knowing what he can make of it; and, by what he has made, is also the the person best able to pay for it. Thus, the improver extends his farm from time to time, as opportunity offers. On the other hand, suppose that no such opportunity occurs—that no one wishes to emigrate, or may be forced to sell from being in difficulties, then the improver, having acquired a little capital, and knowing he can part with his own farm to advantage, from its high state of cultivation, looks round to other localities where agriculture is less understood, and where land, therefore, may be obtained on cheaper terms; he sells his own farm, and purchases, elsewhere, one twice or three times the size, which his skill and exertions will soon double the value of; and his old farm goes to increase the farm of some of his neighbours whom he leaves behind him; and thus, in any case, the acquisition of capital leads to the increase of the holdings, as I have stated.—*W. Blacker, in Appendix, No. 8, Land Commissioners' (Ireland) Evidence. Part I.*

Notices to Correspondents.

BUTTER-CUPS—*J Astle*—How can they be destroyed without injury to the grass in which they grow? Geese are said to be fond of their roots. Try pasturing your land with them.

COTTAGE ECONOMY—*Milrig House*—It will be forwarded as soon as possible.

HYBRIDISING OATS—Will *M Y* be kind enough to give us his address?

ITALIAN RYE-GRASS—*Querist*—It may be sown in most seasons, after harvest, with success; scarify the stubble, sow 2 bushels of seed broadcast, with 10 lbs. of mixed Clover-seeds, harrow and roll. Can the early Vetch mentioned by Mr. Pusey be procured for sowing this next autumn, and where?—Autumn is the best season for inoculating grass land; we shall give an abstract of what information is within our reach before that time. Personally we have no experience on the subject. Do couples or fatting tegs consume most in spring and summer until the lambs are weaned?—The former, certainly. We shall endeavour to meet your wishes about the subject of employment by the piece.

PLANS OF FARM-BUILDINGS—*Anon*—See vol. viii. of the Highland Society's "Transactions." We hope to be able to assist you in this matter shortly.

Markets.

SMITHFIELD, MONDAY, June 30.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4	to 4s	8	Best Long-wools	4s	8 to 4s 10
Best Short Horns	4	0	4	4	Ewes and second quality	4	4 4 8
Second quality Beasts	3	0	3	8	Lambs	5	4 6 4
Calves	4	0	4	8	Pigs	3	4 4 4
Best Downs & Half-breds	5	0	5	4			

Beasts, 2325; Sheep and Lambs, 23,900; Calves, 250; Pigs, 258

Our supply of Beef is very short to-day which gave us expectations that are not fully realised. Best qualities, however, are sold dear. The early sales were the best, trade fell off towards the close, and, although most of the best Scots, &c., were readily disposed of at about 4s. 8d. per 8 lbs, several Short Horns, and heavy Beasts with difficulty realised 4s 4d.—We have a few more Sheep and Lambs, demand is good, and prices about the same.—Good Lamb may be said to be rather dearer.—Veal and Pork remain steady.

FRIDAY, July 4.

Our trade for Beef to-day is slow, but prices remain about the same as on Monday; the supply being but moderate all will be sold. The best Scots, &c., barely make 4s. 8d., and the best Short Horns hardly 4s. 4d.—Sheep are not selling quite so dear, owing to a considerable falling off in the Mutton-trade at the dead Markets. Best Downs, &c., 4s. 10d. to 5s. 2d.; best Long-wools, 4s. 6d. to 4s. 10d.; Ewes, &c., 4s. 2d. to 4s. 6d.—Good Lamb is scarce, and readily sold at 6s 4d.; we have many middling Lambs, which are a heavy sale.—Calves are selling better; a choice one makes nearly 5s. Big Calves are rather unselling this warm weather, and make 4s. 4d. to 4s. 6d.—Pork-trade is heavy.

Beasts, 830; Sheep and Lambs, 10,210; Calves, 470; Pigs, 820.

41, Westsmithfield.

POTATOES.—SOUTHWARK, WATERSIDE, June 30.

The supply to this Market during the past week far exceeded the demand, and the weather was favourable for the early crops. These together kept this Market in a deplorable state, only a few choice fresh samples of Late Devons and the best fresh York Reds were in request. All Scotch Reds, inferior Yorks, and Lincolnshire Kidneys, were a complete drug, and many of our quotations may be considered nominal.

York Reds	-	-	-	40s	to 80s	Wisbeach Kidneys	-	25s to 40s
Perth	-	-	-	20	35	— Blues	-	— —
Fifeshire	-	-	-	—	—	— Whites	-	— —
Early Devons	-	-	-	—	—	— Regents	-	— —
Late Devons	-	-	-	60	70	Guernsey Blues	-	40 50
Cornwall	-	-	-	—	—	— Whites	-	— —
Jersey Blues	-	-	-	40	50	York—Prince Regents	-	— —
— Whites	-	-	-	—	—	— Blues	-	— —
Kent and Essex Whites	-		-	—	—	— Shaw's	-	— —
— — Kidneys			-	—	—	Irish Whites	-	— —
Dutch Whites	-	-	-	—	—			

WOOL.—BRITISH, FRIDAY, July 4.

Our Market is steady, and prices are firm. The rates now demanded by the farmers are higher than the staplers can afford to give. Although the stocks of Wool, generally, are low, the unremunerating prices of Yarns must prevent the price of the raw material from advancing.

	£ s.	£ s.		£ s.	£ s.
Down fleeces	12 10	to 13 10	p.pk.	Hoggets	14 10	to 16 0	p.pk.
Hoggets	14 0	to 15 10		Kent fleeces	14 0	to 15 10	
Lg.-wools, wthrs.	12 10	to 14 0					

JAMES PERRIN, Wool-Broker.

COVENT GARDEN, JULY 5.—THE market has been well supplied with Fruit and Vegetables during the week; but trade has not been brisk. Many handsome Queen Pine-apples have been offered at reduced prices; several specimens weighing upwards of 5 lbs. Of the Providence variety, weighing from 7 lbs. to 8 lbs., there is also a good supply. Grapes have not altered in price since last week; they continue to increase in quantity. Good Dutch Melons bring from 2s. to 4s. each; those of English growth are a trifle dearer. Cherries are becoming very plentiful, large importations being brought from Holland and France; and Peaches and Nectarines, of excellent quality, have been supplied in great abundance at last week's prices. We noticed some ripe Gooseberries and Currants; the former bringing from 3s. 6d. to 5s. per bushel sieve; and the latter, about 3s. a half-sieve. Strawberries are sufficient to meet the demand. Apples are scarce, and Oranges are not so plentiful as they have been. Of Vegetables Cauliflowers are excellent in quality, and they are a trifle cheaper. Asparagus is rather on the rise; it is becoming scarcer. Peas are sufficient for the demand, and may be bought from 2s. to 5s. a sieve. French Beans are plentiful, as are also Cabbages; the latter are very cheap. Carrots and Turnips are good and plentiful; the latter are slightly reduced in price. Mushrooms remain nearly the same as last week. Artichokes are becoming more plentiful, and Lettuces and Salading of all kinds are sufficient for the demand. The prices of other vegetables have varied little since our last account. Among cut Flowers we observed Combretum purpureum, Stephanotis floribunda, Gardenias, Heliotropes, Pelargoniums, Gladioli, Cacti, Sweet Peas, Ranunculuses, Pinks, Fuchsias, Verbenas, and Roses.

FRUITS.

Fine Apple, per lb., 5s to 8s	Oranges, per dozen, 1s to 2s 6d
Grapes, Hothouse, per lb., 2s to 6s	— per 100, 7s to 16s
Peaches, per doz., 6s to 20s	— bitter, per 100, 10s to 18s
Nectarines, per doz., 6s to 20s	Lemons, per dozen, 1s to 2s
Cherries, wall, per lb., 2s to 6s	— per 100, 7s to 16s
Apples, Dess., per bush., 10s to 15s	Almonds, per peck, 6s
— Kitchen, 6s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
Melons, 4s to 8s each	Nuts, Barcelona, 24s
Strawberries, per pottle., 6d to 2s	— Brazil, 20s
Currants, per hf.-sv., 2s to 3s	— Spanish, 20s
Gooseberries, p. hf. sieve, 1s 6d to 2s 6d	— Cob, 14s
Walnuts, per bushel, 12s to 20s	

VEGETABLES.

Cabbages, per doz., 3d to 1s	Garlic, per lb., 8d to 10d
Cauliflowers, per doz., 6d to 4s	Onions, per bunch, 3d to 1s
French Beans, per 100, 1s 6d to 3s	— Spanish, per doz., 1s 6d to 4s
Sorrel, per hf.-sieve, 6d to 9d	Shallots, per lb., 6d to 10d
Artichokes, per doz., 2s to 4s	Lettuce, per score, Cab., 6d to 1s 6d
— Jerusalem, p. hf.-sv., 2s to 3s	— Cos, 6d to 1s
Potatoes, per ton, 40s to 90s	Celery, per bunch, 1s to 2s
— cwt., 2s to 5s	Radishes, per doz. hands, 6d to 1s
— bushel, 1s 6d to 3s	Mushrooms, per pottle, 9d to 1s 6d
— Kidney, per bsh., 2s to 2s 6d	Small Salads, per punnet, 2d to 3d
— Autumn, per lb., 4d to 6d	Basil, green, per bunch, 6d to 9d
— New, per lb., 4d to 1s	Fennel, per bunch, 2d to 3d
Turnips, per doz., 2s to 6s	Savory, per bunch, 4d to 6d
Red Beet, per doz., 2s to 6s	Thyme, per bunch, 4d to 6d
Carrots, per doz. bchs., 3s to 6s	Watercress, p. 12 sm. bun. 4d to 6d
Rhubarb, per bundle, 4d to 6d	Parsley, per half sieve, 6d to 1s
Peas, per sieve, 1s 9d to 5s	— Roots, per bundle, 9d
Asparagus, per bundle, 1s to 6s	Tarragon, per bunch, 4d
Horse Radish, per bundle, 1s 6d to 6s	Mint, per bunch, 2d to 3d
Cucumbers, per doz., 2s to 12s	Marjoram, per bunch, 9d
Spinach, per sieve, 9d to 1s	Chervil, per punnet, 3d to 4d
Leeks, per doz., 2s to 3s	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, July 3.

Prime old Meadow Hay	105s to 110s	Interior Hay	95 100s	Clover	110s to 120s
		New Hay	60s to 80	Straw	36 [43

JOHN COOPER, Salesman.

CUMBERLAND MARKET, July 3.

Superior Mead. Hay	115s to 120s	Superior Clover	115s to 120s		
Inferior -	93 103	Inferior ,,	100 103	Straw	38s to 43s
New Hay -	70 84	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, July 4.

Fine Old Hay -	105s to 110s	Old Clover	115s to 126s		
Inferior Hay -	90 100	New Clover	65 80	Straw	35s to 42s
New Hay -	60 72				

HOPS, FRIDAY, July 4.

The Hop Market remains in the same state as last week.

PATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, June 30.

The supply of Wheat by land carriage samples from the neighbouring counties was small this morning, which enabled the factors to realise an advance of 1s. per quarter on all descriptions; there was not much done in free Foreign, but several parcels of bonded in granary were taken on speculation—Dantzic at 42s. and Rostock at 35s. to 36s. per quarter. There was little business doing in Barley, Beans, or Peas, and the value of each remains as last quoted. The show of Oats being large, and having in addition several vessels fresh up from Ireland dealers refrained from purchasing, the trade was consequently dull at a decline of 6d. to 1s. per quarter.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	44	50	Red .	43	49
—— Norfolk, Lincolnshire, and Yorkshire . — —			White —		—
Barley, Malting and distilling 25s to 29s	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . . Polands	20	23	Feed	19	22
—— Northumberland and Scotch . . Feed	20	23	Potato	21	24
— Irish . . . . Feed	20	22	Potato	21	23
Malt, pale, ship	56	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new	32 to 38	Tick	32	39	Harrow	34	40
—— Pigeon, Heligoland . 37 to 44	Winds —	—			Longpod —		—
Peas, White . . . . 36 to 39	Maple	36	39	Grey	33	36

FRIDAY, July 4.

The arrivals of Wheat and Flour during this week have been moderate. This morning there is very little Wheat offering, either of English, free Foreign, or bonded; the two former are held for an advance of 1s. per quarter on the prices of last Monday; the latter 1s. to 2s., but the day being fine business is limited. Barley, Beans, and Peas are unaltered. The supply of Oats is fair, but there is little doing in them, factors refusing to admit of a further abatement in price, or at 6d. decline sales would have been extensive.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May	24 per Quarter.	45s 9d	30s 6d	21s 9d	29s 7d	37s 5d	37s 6d
—	31 . . .	46 3	29 5	22 5	33 1	37 2	36 7
June	7 . . .	47 7	30 2	22 2	33 0	38 0	38 1
—	14 . . .	48 2	30 3	22 8	21 4	38 1	37 0
—	21 . . .	47 10	29 9	22 7	31 2	38 6	38 6
—	28 . . .	47 11	29 7	23 2	32 1	39 3	38 3
6 weeks' Aggreg. Aver.		47 3	29 11	22 6	31 5	38 1	37 8
Duties on Foreign Grain		20 0	9 0	6 0	10 6	4 6	5 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 28.

PRICA.	MAY 24	MAY 31	JUNE 7	JUNE 14	JUNE 21	JUNE 28
48s 2d	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
45 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..

SEEDS, July 4.

Canary - -	per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	7 10s to 8l
Carraway -	per cwt	44 48	Mustard, White - p. bush.	10s 14s
Clover, Red, English	— —	—	— Superfine ,, -	12 16
— — Foreign	— —	—	— Brown ,, -	12 16
— White, English	— —	—	Rapeseed, English, per last	28l 30l
— — Foreign	— —	—	Rape Cakes - per ton	— —
Coriander - -	- -	12 16	Sainfoin - - - -	— —
Hempseed -	per last	35 36	Tares, Eng. winter p. bush.	4 6
Linseed - -	per qr	52 60	— Foreign - - -	3 5
— Baltic - -	- -	36 44	Trefoil - -	per cwt 18 22
— Cakes, Eng. per 1000		11l 9 11l 10	Turnip (100 variable for quotation).	

KINGSFORD AND LAY.

FINAL DISPERSION OF THE SLOUGH COLLECTION OF TULIPS.

MR. GLENNY has instructions to Sell by Auction, on the 5th of August, the entire stock of blooming and other offsets of Mr. BROWN'S TULIPS, comprising all the grand varieties that distinguished the bed, and affording the last opportunity of obtaining the new and splendid sorts in their purity. Catalogues will be forwarded post-free to all applicants.—GEORGE GLENNY, *Gardeners' Gazette* Office, 2, Tavistock-street, Covent-garden.

TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

For Particulars, apply to F. and A. MACKIE, Norwich.

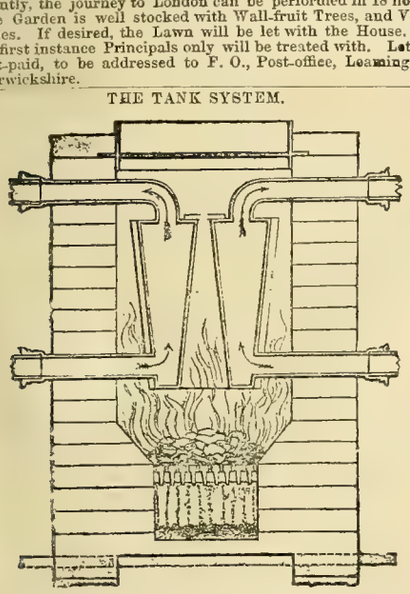
TO NURSERYMEN, FLORISTS, & MARKET-GARDENERS.

TO BE LET ON LEASE for Three, Five, or Seven Years, the EXTENSIVE GARDENS of a Gentleman, situate in a Market Town, within 13 miles of a Railway to the Metropolis and the North of England, comprising every convenience for a first-rate business. There are three hothouses, one 100 feet in length, nearly new, with Vines in full bearing of five years' growth. For further Particulars and Cards to View, apply to Messrs. ROGERS and CLARK, Booksellers, Newmarket, Suffolk.

MANSION—WITH SHOOTING AND FISHING, IN THE SOUTH OF SCOTLAND.

TO BE LET, FOR ONE OR MORE YEARS, A COMMODIOUS WELL-FURNISHED MODERN-BUILT HOUSE, containing two Drawing-rooms, Dining-rooms, Breakfast-room, and Library; 12 Family Bed-rooms, several Dressing rooms, with ample accommodation for servants, and every other convenience, necessary to render it a most comfortable residence. The Game consists of Grouse, Partridges, Hares, Pheasants, Rabbits, and Black Game; with Woodcocks, Snipes, and Wild Fowl, in great abundance during the winter season. The Rivers and Lakes are stocked with Salmon, Trout, Perch, Pikes, and Eels. There is a post daily to London passing within a mile of the house, and steam-vessels within 13 miles sail twice a week, to a seaport town in England, from whence there are Railways to London, York, &c.; consequently, the journey to London can be performed in 18 hours. The Garden is well stocked with Wall-fruit Trees, and Vegetables. If desired, the Lawn will be let with the House. In the first instance Principals only will be treated with. Letters post-paid, to be addressed to F. O., Post-office, Leamington, Warwickshire.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

MESSRS. DANIELL, HUTCHINSON & CO., having completed their extensive works for manufacturing

DANIELL'S PATENT CORNWALL WHITE MANURE,

respectfully announce that they are delivering the same for the present Turnip season. The experiments upon various White and Green Crops of the preceding year have established its title to one of the first Manures of the day, to which fact several eminent Agriculturists testified at the late East Penwith Agricultural Meeting. Besides its possessing all the essential qualities of Bone-dust, with the advantage of being capable of application to the soil with great ease and expedition, it exerts an important chemical action upon clays. Such soils disintegrate and liberate their potash with much less facility than silicious soils; the Patent Manure renders it more soluble, and hence proves a valuable dressing after subsoil ploughing. It hastens the decomposition of peat, leaves, and all other vegetable matters, converting them into humus or mould, and this again is resolved into carbonic acid, and is thus fitted for immediate assimilation by the young plant. It neutralises the acids forming salts of lime. It also decomposes certain salts of iron injurious to vegetation, such as the protosulphate of iron (so abundant in many soils), forming the sulphate of lime of gypsum, and liberating the iron as a harmless oxide. It reacts upon salts of alumina, potash, soda, magnesia, and ammonia; and its action upon slate, felspar, &c., developes alkalies and soluble silicates, so essential to Wheat and other corn crops; and, above all, it furnishes the plants with lime in its purest form, and phosphoric and silicic acid, so necessary to the perfection of the grain and straw. When acted upon by rain, it forms a solution which is destructive of animal life, destroying the germ of the Earth, Flea Beetle (the Turnip-fly), and other noxious worms, thus rendering it the most valuable Manure for the Turnip crop.—Agent, THOS. JNO. CROGGON, 2, Ingram-court, Fenchurch-street.—London, July 5, 1845.

Price 40*s.* per ton.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

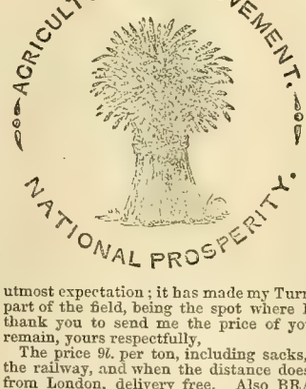
GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. URE.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, July 5.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, October 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition. Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

THE URATE of the LONDON MANURE COMPANY. Four Guineas per Ton. Six cwt. per acre.

The above Manure having been used for the last four years, in all parts of the country, with the greatest success, is most confidently recommended to the notice of Farmers. It will be found most valuable for Spring Wheat, Oats, Barley, Tares, Turnips, Carrots, and Potatoes, either put in with the seed, or sown broadcast; it not only benefits the crop to which it is first used, but extends its fertilising properties to succeeding years. Being prepared with the greatest care, "The Urate" (if ordered direct from the Company, or through their appointed agents in the country) may always be depended on, thereby avoiding those serious disappointments to which the farmer is liable from the uncertainty of procuring Guano and other Manures in an unadulterated state. Testimonials and particulars forwarded on application.

The Company also supply Peruvian and African Guano, Superphosphate of Lime, and every artificial manure, of the most genuine quality, and on the best terms, for cash.

40, New Bridge-street. EDWARD PURSER, Secretary.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

THE BEST AND MOST DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THOMAS JOHN CROGGON, of 2, INGRAM-COURT, FENCHURCH-STREET, LONDON, begs to call the attention of Noblemen, Gentlemen, the Trade, and the Public, to

THE PATENT ASPHALTE FELT, FOR ROOFING, as improved by the original Inventor and Patentee, and patronized by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland. The New Committee Rooms of the House of Commons are entirely covered with it; and it has been used for several years at the

ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK.

This Felt is greatly superior to every other description of Felt in the market, being principally made of Hair, and saturated entirely with Asphalte, without any mixture of Pitch, Tar, or Rosin, and is consequently much more durable, and a much better non-conductor of Heat, and is guaranteed to be the only "PATENTED ASPHALTE FELT."

The PATENT ASPHALTE FELT, for ROOFING, is perfectly impervious to Rain, Snow, and Frost, and a non-conductor of Heat, and has been proved, by a long and extensive experience in all climates, to be superior to all other descriptions of Roofing, not only on account of its Elasticity, Lightness, Economy, and Durability, but also because it is the only perfectly weather-tight covering, and can be laid on with so much facility by Farm Servants, or any unpractised persons.

Of the many purposes for which the Patent Asphalte Felt has been used, the following may be mentioned:—For Roofing Churches, Houses, Cottages, Verandahs, Farm Buildings, Cattle and Sheep Sheds, and every description of Building, in lieu of Slates, Tiles, Thatch, &c., and for lining Granaries and Stores (as rats or mice will not touch it), and the inside and outside of Walls and Wooden Buildings, and for protecting Ceilings under Flooring from Wet and Damp, at the same time deadening sound. For covering Conservatories, and Garden Sheds and Frames, being (from its imperviousness to frost) a protective material for Plants, Seeds, Flowers, &c., and for Thatching Corn and Hay Ricks, making a permanent covering for many years, and thereby effecting an annual saving of Straw; and for Exportation to the Colonies, being, on account of its portability and cheapness, indispensable to the Emigrant.

The price of the Felt is only 1*d.* per Superficial Foot, or 9*d.* the Square Yard, being considerably less than half the price of Slates, Tiles, Thatch, &c. There is also a very great saving in the wood-work, as the Felt, from its lightness, does not require half the weight of timber that slates or tiles do, nor does it require nearly so much fall or descent; and there is a further saving in the expenses of carriage and labour—in the latter particularly, as a moderate-sized house can be roofed in with the Felt in a few hours; nor is it like slates, &c., liable to breakage. The Felt can be manufactured of any required length by 32 inches wide, and parties sending to No. 2, INGRAM-COURT, FENCHURCH-STREET, LONDON, can have it cut off from the machines to suit the dimensions of their roof.

THOS. JNO. CROGGON.

*** There is no other Patent Asphalte Felt Company in the United Kingdom.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.—The next GREAT AGRICULTURAL MEETING and ANNUAL CATTLE SHOW of this Society will be held at BALLINASLOE, on the 30th of September, 1845, and the days following. Premiums to the amount of ONE THOUSAND POUNDS and upwards will be distributed on this occasion, and open for general competition for the encouragement of Stock, Horses, Sheep, Swine, Implements, Flax, Wool, Butter, &c., the particulars of which can be had on application to the Secretary in Dublin.

The AGRICULTURAL CHALLENGE CUP, value ONE HUNDRED GUINEAS, for the best beast possessing most merit of its kind in the yard, and now held by Robert Burrowes, Esq., of Giltown, county of Kildare, with his Short-horned Bull NARCISSUS, will be also open for competition on this occasion.

Arrangements have been made with the different Steamboat and Canal Companies for the transport of English and Scotch Stock, Implements, &c., *via* Dublin, free of expense, to the Show, the particulars of which can be had on application to the Secretary, from whom Premium-sheets and full directions can be had on application.

From the nature of the locality itself, and the preparations in progress, it is expected that the approaching Meeting will be the most important that has yet taken place under the auspices of the Society. Every facility and accommodation will be provided for the transport of English and Scotch Stock and Implements, free of expense, and no effort will be spared to render the Meeting every way practical and agreeable to the strangers who might attend. EDWARD BULLEN, Secretary.

Society's Rooms, 41, Upper Sackville-street, Dublin.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles made in a very superior manner, are kept on sale at the London Warehouse, viz.—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double-action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's, Pine-apple-place; and in the Gardens of the Horticultural Society.

SUPERIOR HOT-WATER APPARATUS for HEATING HOTHOUSES, &c.

The application of Patent Galvanised Iron to Hot-water Pipes, vapourising Gutters, Tanks, &c., being the sole invention of J. PORTER, whose experience in first working that patent, now so fully brought into practice by the Patent Galvanised Iron Company, with which he is intimately connected, he begs to solicit the patronage of the public, and to state, that in every instance where this valuable material has been used for pipes, tanks, &c., it has been attended with uniform success. All kinds of Horticultural Buildings are heated by J. PORTER upon the most improved principles, either with the Patent Galvanised Iron, or with Cast Iron, and under the superintendence of a Civil Engineer of long practice.

The Trade supplied with Patent Galvanised Iron (Sorel's process), Hot-water Pipe, Tanks, &c.; and persons at a long distance furnished with instructions for erecting the same in the most efficient manner, by sending plans of the building, and the particular purposes to which they are to be applied; or experienced workmen sent to any part of the kingdom.

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(And at Southwark-bridge Iron Roof and Building Works.)

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

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AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

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*** Samples, with Directions for its Use, and Testimonials of seven years experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

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☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, are F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

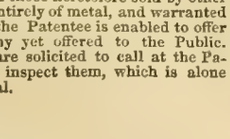
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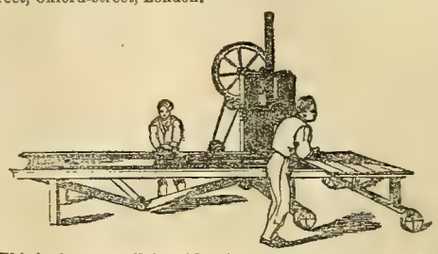
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This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

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Now on Sale, ex "Reynard," 10 *Pipes*, 200 *Hogsheads*, 80 *Tiercons*, *and* 60 *Quarter Casks of*

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THE BEST ENGLISH WATCHES.—A. B. SAVORY & SONS, WATCHMAKERS, 9, Cornhill, London, opposite the Bank, request the attention of purchasers to their stock of London-made PATENT LEVER WATCHES, which are manufactured by themselves in their own house. In silver cases, with the detached escapement and jewelled, the prices are four guineas and a half, six, and eight guineas each; or in gold cases, 10, 12, 14, and 16 guineas each. The very large stock offered for selection includes every description, enabling a customer to select that which is more particularly adapted to his own use.

VENTILATION.—"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool. —BAILLIE'S PATENT TRANSPARENT VENTILATOR ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee-rooms, and, moreover, a simple remedy for smoky chimneys. This article may be obtained from Messrs. Chater and Hayward, St. Dunstan's-hill, and all respectable glass dealers in London; Messrs. Stock and Sharp, and Mr. Samuel Beale, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixis and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 259, Blackfriars-road; Mr. Edward Baillie's, 12B, Cumberland-market, Regent's-park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town: 2, Coleman-street-buildings, Moorgate-street, and at the Office of this Paper.

MEEN FUN, the celebrated Chinese Cosmetic, Patronised by the Queen and the Royal Family.—The great value of this Cosmetic is, that the ingredients being solely herbaceous, the most delicate complexion can apply it without injury, while rough, red, and moist skins speedily experience beneficial results. Another most important feature is that of repressing, without detriment to the sanatory condition of the user, the truly unpleasant sensation accompanying too copious perspiration. Travellers and residents in warm climates, subject to the enervating influence of tropical heat, will, when the skin becomes moist and heated, experience inconceivable comfort by resorting to this Cosmetic, as it will both allay and avert discoloration and coarseness. Sold retail by all respectable perfumers, chemists, &c., in boxes price 3*s.* 6*d.* and 7*s.* 6*d.* each, and wholesale by the Proprietors, FABIAN and Co., late Watson, Fabian, and Co., 24, Mark-lane, London. Country agents required.

SUPERFINE CLOTH DRESS COATS 30*s.* to 40*s.*, extra quality 50*s.*; frock coats, faced with silk, 35*s.* to 45*s.*, extra quality, 50*s.* to 60*s.*; fashionable merino and tweed, Albert, Codrington, and Chesterfield coats, 16*s.* to 25*s.*; waistcoats, new patterns, 6*s.* 6*d.* to 12*s.*, rich satin, 8*s.* 6*d.* to 16*s.*; doeskin trowsers, 12*s.*, 18*s.*, and 21*s.*; shooting jackets, 9*s.* 6*d.* to 18*s.*; boys' and youths' clothing; office or study coats 9*s.* 6*d.* to 15*s.*; a suit of superfine black cloth, 3*l.* 3*s.*; extra quality 3*l.* 10*s.* to 4*l.* 4*s.*, at FISHER and Co.'s, Tailors, 31, King William-street, City, ten doors from London Bridge.

THE ATRAPILATORY, OR LIQUID HAIR DYE, the only dye that really answers for all colours, and does not require re-doing (but as the hair grows), as it never fades or acquires that unnatural red or purple tint common to all other dyes. ROSS and SONS can, with the greatest confidence, recommend the above dye as infallible, if done at their establishment; and ladies or gentlemen requiring it, are requested to bring a friend or servant with them to see how it is used, which will enable them to do it afterwards without the chance of failure. Several private apartments devoted entirely to the above purpose, and some of their establishment having used it, the effect produced can be at once seen. They think it necessary to add, that by attending strictly to the instructions given with each bottle of dye, numerous persons have succeeded equally well without coming to them.

Address ROSS and SONS, 119 and 120, Bishopsgate-street, the celebrated Perruquiers, Perfumers, Hair-cutters, and Hair-dyers. N.B. Parties attended at their own residence, whatever the distance.

THE HAIR.—Of the numerous compounds constantly announced for promoting the growth or reproduction of the Hair, few survive, even in name, beyond a limited period, whilst

ROWLAND'S MACASSAR OIL,

with a reputation unparalleled, is still on the increase in public estimation. The singular virtues of this successful invention for Restoring, Preserving, and Beautifying the Human Hair, are too well known and appreciated to need comment. The very facts of the high and distinguished patronage it enjoys, its general use in all countries, together with numerous testimonials constantly received in its favour, are authorities which stamp its superior excellence and title over all attempts of a similar nature. Being universally preferred, its consequent great demand excites the cupidity of unprincipled shopkeepers, who vend the most spurious trash as the "genuine" Macassar Oil; whereas the genuine article is wholly the invention and property of A. ROWLAND and SON, and the amalgamation of its costly exotic materials renders abortive any attempt to discover its component parts—thus proving the imposition of all other articles bearing the title of "Macassar Oil." The genuine article has the words—

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engraved in two lines on the Wrapper: and on the back of the Wrapper, nearly 1500 times, containing 29,028 letters.—Price 3*s.* 6*d.*—7*s.*—Family Bottles (equal to four small.) 10*s.* 6*d.*, and double that size 21*s.* per Bottle. Sold by the Proprietors at 20, Hatton Garden, and by Chemists and Perfumers.

*** All other articles sold under the same name are FRAUDULENT COUNTERFEITS.

STOOPING of the SHOULDERS and CONTRACTION of the CHEST are entirely prevented, and gently and effectually removed in Youth, and Ladies and Gentlemen, by the occasional use of the PATENT ST. JAMES'S CHEST-EXPANDER, which is light, simple, easily employed outwardly or invisibly, without bands beneath the arms, uncomfortable constraint, or impediment to exercise. Sent per post, by Mr. A. BINYON, 40, Tavistock-street, Strand, London; or full particulars, on receiving a postage stamp.

TEA TRAYS, Tea Urns, Knives and Forks, Dish Covers, &c., at C. WATSON'S, 41 and 42, Barbican, and 16, Norton Folgate. Established half a century.—A set of three Paper Tea Trays, including the largest size made, 35*s.*, very richly ornamented all over, 50*s.* a set of three, and up to 14*l.*—Japan Tea Trays, 7*s.* 6*d.* a set, and upwards.—A 5-quart London-made Bronze Tea Urn, 35*s.*, with the newest patterns up to 5 guineas.—A set of six patent raised London-made Dish Covers, 18*s.* 6*d.*—Best imperial raised, 35*s.* 6*d.*, set of six.—Elegant silver shape, 52*s.* 6*d.* set of six.

Ivory Table Knives, 11*s.* per doz.; Desserts, 9*s.*; Carvers, 3*s.* 6*d.* per pair.

	Table.	Dessert.	Carvers.
3¾-inch handsome Balance-handle	18*s.* doz.	14*s.* doz.	6*s.* 6*d.* pr
4-inch Balance-handle, largest and best made	20*s.*	16*s.* ,,	7*s.* 6*d.* ,,
Ditto with Watson's Albata Plate-handles, equal to Silver	22*s.* 6*d.*	48*s.* ,,	8*s.* 6*d.* ,,

Forks half the price of the above.

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Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, July 5, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1845.] SATURDAY, JULY 12. PRICE 6*d.*

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UNDER THE ESPECIAL PATRONAGE OF H.R.H. THE DUKE OF CAMBRIDGE.

THE ROYAL PHILANTHROPIC SOCIETY OF GARDENERS.—Grand Annual EXHIBITION of FRUITS, FLOWERS, &c., will be held in the magnificent grounds of Cremorne House, King's-road, Chelsea, on Wednesday, the 16th of July, in aid of the funds of the above Charitable Institution. Military bands will attend; and a variety of entertainments; to conclude with a splendid display of Fireworks. Admission One Shilling. In addition to the 96 Prizes, confined to Members, the following will be open to Public competition: Non Members paying entrance fee: for 12 Geraniums, entrance, 7*s.* 6*d.*; 1st Prize, 3*l.*; 2d, 1*l.* 10*s.* Stove and Greenhouse Plants, not less than 20, entrance, 7*s.* 6*d.*; 1st Prize, 3*l.*; 2d, 1*l.* 10*s.* 12 Fuchsias, entrance, 5*s.*; 1st Prize, 2*l.*; 2d, 1*l.* 6 Calceolarias, entrance, 3*s.* 6*d.*; 1st Prize, 1*l.*; 2d, 15*s.* Collection of Fruits (Pines excluded), entrance, 5*s.*; 1st Prize, 2*l.*; 2d, 1*l.* Best Queen Pine, entrance 2*s.* 6*d.*; Prize, 10*s.* Best Providence, do. do. Best Specimen Plant, entrance, 2*s.* 6*d.*; Prize, 10*s.* Best Brace of Cucumbers, entrance, 1*s.*; Prize, 5*s.* Collection of Cut Flowers, entrance, 3*s.* 6*d.*; 1st Prize, 1*l.*; 2d, 10*s.* Seedlings admitted free, certificate of merit only. Competitors to send in their list by July 11. A dinner will take place the same day at Cremorne House, at 5 o'clock. Tickets 3*s.*: the Prizes paid after dinner. Schedule of Prizes to be had of the Secretaries, at the Central and various branch Offices.

Central Office, Commercial Tavern, King's-road, Chelsea.
WALTER KEMP, Hon. Sec.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY. Under the patronage of Her Most Gracious Majesty the QUEEN. The Fourth Exhibition for the Season will be held in the ROYAL SURREY ZOOLOGICAL GARDENS ON WEDNESDAY, JULY 23, 1845. OPEN TO ALL EXHIBITORS. When Prizes will be awarded to the following collections, viz.—Miscellaneous Plants, Orchidaceous Plants, Cape Ericas, Fuchsias, Roses, Cut Flowers and Indigenous Plants, Fruit, and Vegetables. In addition to the Two GOLD and 13 SILVER MEDALS, offered by the Society for PICOTEES and CARNATIONS, Mr. JOHN DICKSON, of Brixton, offers a SILVER CUP, value 5*l.* 5*s.*, for the best 12 white ground PICOTEES; also a SILVER CUP, value 5*l.* 5*s.*, for the best 12 CARNATIONS.

The Grand Dahlia Show will take place in the above Gardens, on Wednesday, September 17, 1845. List of Prizes and the Rules of the Society may be obtained from

Ebenezer-house, Peckham. JOHN TAYLOR NEVILLE, Sec.

SCOTCH ROSES.

MESSRS. JAMES DICKSON & SONS having completed their collection of SCOTCH ROSES, beg respectfully to call the attention of the Nobility and Gentry of England to the same.

In the collection will be found Roses of the deepest crimson, purest white, and brightest yellow, tints which from their abundant bloom are found to be highly ornamental in Lawns, Terraces, and Flower-gardens.

Messrs. J. D. & S. send them out at the under moderate prices:—20 finest varieties, 20*s.*; 30 ditto, 25*s.*; 40 ditto, 30*s.*; 50 ditto, 35*s.*; 60 ditto, 40*s.*

Extra plants allowed to cover the carriage.

Edinburgh: 32, South Hanover-street; Nurseries, Inverleith and Broughton-park.

CAMELLIA—"CHALMERII PERFECTA."

R. BUIST, NURSERYMAN, PHILADELPHIA, N. A., has the pleasure to offer this CELEBRATED CAMELLIA to European growers. It is of a bright rose-colour, of the most perfect imbricated shape, double to the centre, very persistent, each petal cupped (in this character entirely distinct from any Camellia in cultivation), retaining its beautiful form for several weeks; every bud opens perfectly; it is a profuse bloomer, plant of an upright branching habit, leaves 4 inches long, and 2½ wide, plants from 2½ to 3½ feet high, full and well branched, capable of producing 15 to 30 flowers the coming season; only a few for sale. Orders received by Henry Wright, Agricultural Library, 51, Haymarket, London; price, 10*l.* 10*s.*, to be paid on delivery.

PINE PLANTS FOR SALE.—About 170 Fruiting PINE PLANTS, mostly "Ripley Queens," with a few "Moscow Queens;" they are all perfectly clean, and in fine condition. Also, together or separate, a substantial brick-built PIT and LIGHTS, 32 feet by 16, for Fruiting Pines, or may be made available for any other purpose. The whole will be sold at a moderate price. Apply to Mr. CHRISTIE, Gardener, Teddington, Middlesex.

YOUELL & CO. beg to remind their Friends they continue to supply the following fine CAMELLIAS in good healthy plants, set with flower-bud, at 30*s.* per dozen, the selection being left to them or to the Purchaser, namely:—Donkelarii, Monarch, Carolina, Conspicua, Double White, Lefevreana, Invincible, Double Striped, Chandlerii, Colvillii, Juleana, Beallii, Imbricata, Eclipse, Florida, Elegans, Ruckerii, and Fimbriata. Also,

The very best	FUCHSIAS	12*s.* per doz.
Ditto	CHRYSANTHEMUMS..	12*s.* do.
Ditto	VERBENAS	6*s.* do.
Ditto	PETUNIAS	12*s.* do.
Ditto	PANSIES	10*s.* do.

For particulars, see former Advertisements.

Great Yarmouth Nursery, July 12.

SEEDLING VERBENAS.

JAMES PEARSON, in offering the following VERBENAS to the public can, with the greatest confidence, recommend them as being of superior excellence, both in flower and habit.

VERBENA "AVALANCHE" is of a pure white colour, compact habit, and profuse bloomer.

VERBENA "DEFIANCE," a fine rose-crimson; truss large, with good habit; the former was awarded a Certificate at the Meeting of the Horticultural Society of London, on Saturday, June 21st. Good Plants can be obtained at Eschcol Nursery, Hampstead-road, London, at 3*s.* 6*d.* each.—Verbena "Avalanche" was entered at the above Exhibition by mistake under the name of "Hampstead Lily."

NEW CALCEOLARIAS.

MESSRS. JAMES DICKSON & SONS, beg to intimate that they have succeeded in purchasing the whole Stock of the SEEDLING CALCEOLARIAS, raised by Mr. GEO. WEIR, Gardener, Castlecraig, the flowers of which were exhibited at the last Meeting of the Royal Caledonian Horticultural Society, and were so much and so justly admired. They are noticed in the Society's Report in the "*Courant*" of Saturday last, as "well shaped and finely marked." A descriptive Catalogue is in course of preparation, and will be published with prices in a few days.

**** Catalogues forwarded to all parts of the Country.

32, South Hanover-street, Edinburgh, July 12.

WOOD AND SON'S SPLENDID EXHIBITION OF ROSES, WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour most respectfully of announcing to the Nobility, Gentry, lovers and amateurs of Roses, and their friends, that

THE WOODLANDS COLLECTION

of the above favourite flower is now in fine perfection, and will continue in bloom during the Rose season.

W. W. & S. take the present opportunity of stating that their IMMENSE STOCK OF ROSES has been considerably increased during the past season; the Collection has also received many valuable additions, neither pains or expense having been spared to enrich it with all the novelties that have proved worthy of being introduced from the Continent, and it is now unsurpassed by any other collection in Europe.

In addition to the foregoing claim on public patronage, the NURSERY, which extends over an AREA OF 40 ACRES, will be found to abound in every description of Ornamental Trees, Evergreens, and Flowering Shrubs, and indeed every article connected with the business.

Visitors are respectfully informed that the carriage-road through the grounds is in excellent order, and arbours have been fitted up at convenient distances for their accommodation.

Finally—WM. WOOD & SON beg leave to intimate that they do not intend to exhibit Roses at any of the Horticultural Shows this summer; consequently, visitors need not apprehend the disappointment occasionally experienced by those Ladies and Gentlemen who, in former seasons happening to visit the grounds on the eve of a grand Horticultural Fête, have found the Nursery partially stripped of its choicest favourites.

ADMITTANCE GRATIS, DAILY (*Sundays excepted*).

Maresfield is 12 miles distant from the Hayward's Heath station on the London and Brighton Railway, from which place conveyances may be obtained.

Coaches from London to Maresfield every Tuesday, Thursday, and Saturday from the Golden Cross, Charing Cross.—Also light Vans and Coach from Brighton to Tunbridge Wells, passing through Maresfield.

ROBERT HALL, FLORIST, Alkrington, Middleton, near Manchester, Lancashire, calls the attention of all Amateurs and Florists to his most excellent collection of choice and leading sorts of AURICULAS, ALPINES, and POLYANTHUSES; Catalogues of which may be had on post-paid application.

R. H. most respectfully begs to remind those Gentlemen who have before favoured him with their orders, that his plants are this season in their usual fine and excellent condition.

Alkrington, July 12.

FERNS.—Twelve Hardy BRITISH FERNS, of 12 species, for 3*s.* 6*d.*; Two of each species, for 6*s.*; Four of each, for 10*s.*; Ten of each, for 20*s.*; or Twenty-five of each, for 40*s.* They are adapted for North Borders or Rockwork, and will be delivered within the suburbs of London, or packed and sent to any part of the Country.—Address, JOHN LLOYD, 11, Gloucester-street, Vauxhall.

Ferneries, Rockwork, or Borders prepared.

LEPUS TIMIDUS, WITH LEPUS CUNICULUS; OR, GENUINE HARE RABBIT.

THIS extraordinary and large variety weighs, when at maturity, from 12 to 14 lbs; possesses great length and depth of carcass, furnished with a considerable dewlap, very long and beautiful erect ears, with large projecting eyes, precisely resembling those of the hare. The colour of this fine breed is uniformly that of the hare, and when cooked, not to be distinguished from it. It brings forth from five to seven young, and requires no other treatment than the common Rabbit. Mr. JOHN BEETT, Market-place, Great Yarmouth, has a few pairs to dispose of upon the following terms:—2 to 3 months old, 15*s.* per pair; 1 to 2 months old, 10*s.* per pair, including package, and can be forwarded with safety to any part of the United Kingdom. A post-office order, or reference, will be required from unknown correspondents.

Great Yarmouth, July 12.

ROSES.

A. PAUL & SON'S Collection of ROSES, which are now in bloom, may be seen any day except Sundays.

THE WALTHAM-CROSS STATION of the Northern and Eastern Counties Railway is the nearest, and an omnibus runs to the Nurseries from each train.—Cheshunt Nurseries, July 12.

JESSOP'S NURSERY, CHELTENHAM, established in 1815, from its extensive connection, offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm-bailiffs of established skill and reputation. All communications promptly attended to.

NURSERY AND SEED BUSINESS.

TO be disposed of, the STOCK and GOOD-WILL of an old established NURSERY and SEED BUSINESS, with 17 acres of fine healthy Nursery Stock, consisting of Forest and Fruit-trees, Evergreen and Flowering Trees and Shrubs, American Plants, Greenhouse Plants, &c.; situate within five minutes' walk of the Market-place of Pontefract, and within seven minutes' walk of the intended Railway Station at Pontefract, and the neighbourhood studded with noblemen and gentlemen's mansions. Part of the purchase-money may remain on security, and a lease granted of all or part of the land.—Apply to Mr. RICHARD MITTON, Hull.—July 12, 1845.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

ORNAMENTAL WIRE-WORK.

G. B. THOMPSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 390, Oxford-street, their large stock of ORNAMENTAL FLOWER-STANDS, TRAINERS, ARCHES, and fancy Wirework, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements. Also their Improved WATER-POT, with finely-perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	11*s.* 0*d.*	20 inches	22*s.* 6*d.*
15 inches	12 6	22 inches	25 0
16 inches	16 0	24 inches	32 0
18 inches	19 0		

Slate Works, Isleworth, Middlesex

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-Lights made and glazed from 1*s.* per foot, at JAS. WATTS'S Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding-knife we have seen. The ivory handle is shaped like the blade of a curved penknife, sharp, and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—Opinion of Prof. LINDLEY, in the *Gardeners' Chronicle*, July 29, 1843.

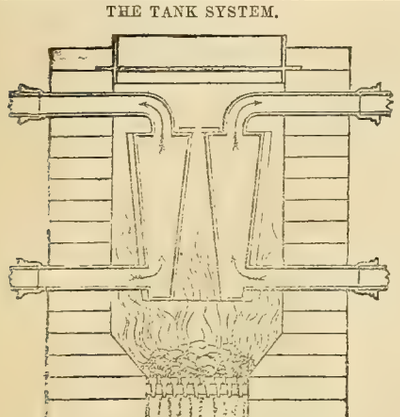
GEORGE PLUM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above new and desirable article, manufactured solely by him. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3s. 2d.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

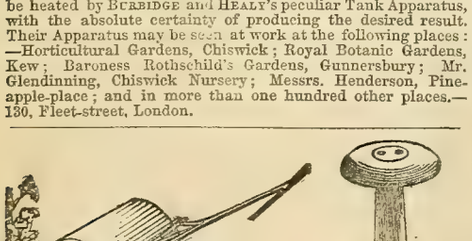
S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



TESTIMONIAL.

Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, October 17th, 1844.

SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.

The price 9*l.* per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

Gypsum (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition.

Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

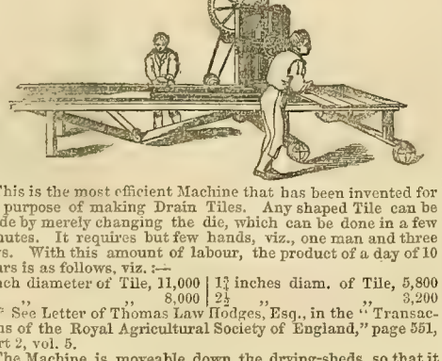
GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, July 12.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

TO FARMERS, MARKET-GARDENERS, FLORISTS, and persons in the habit of using GUANO in a liquid state.—An opportunity which seldom occurs; the Advertizer having a large quantity of the above, and having been tested, is of a superior quality and strength, is desirous of meeting with a purchaser for the whole; or persons not requiring the whole, can take a part.—Can be viewed on application to Mr. HARPER, 19, Burr-street, Nightingale-lane, near London-docks.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ "	8,000	2½ "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

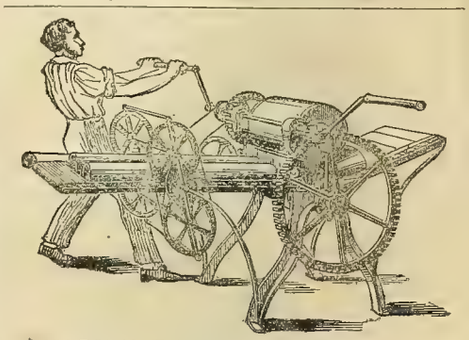
TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis, Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

REAPING SCYTHE.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and may be recommended with every confidence; are furnished by the Subscribers at their establishments, at 10*s.* each, and delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, or Londonderry, at 11*s.* 6*d.* each, and when more than three are taken, at 11*s.* each. N.B.—No Order will be attended to from unknown correspondents without a remittance.

W. DRUMMOND & SON, Agricultural Museum, Stirling, and 58, Dawson-street, Dublin.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

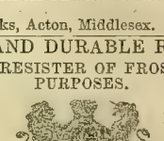
PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commisioners of Woods and Forests, the Hon. the East India Company, and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy. — Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'Neill & Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, is F. M'NEILL and Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITION at the GARDENS, Chiswick.—BENJAMIN EDGINGTON, 2, Duke-street, Southwark, respectfully invites the attention of the Nobility and Gentry to the RIBBED TENT, which will be erected on Saturday, this day, for the Exhibition of Fruit, &c. This Marquee is made on an entirely new principle, and has given great satisfaction to the Council.—Marquees, Tents, Rick-cloths, with Poles, Pulleys, and Lines complete, at the manufactory, 2, Duke-street, Southwark. A Warehouse, 208, Piccadilly.

BECK'S SEEDLING PELARGONIUMS OF 1844.

EDWARD BECK informs the public that he will send out the following varieties at the prices annexed next October, delivered free in London *for cash only*. Their repeated and successful exhibition, both as "Seedlings" and in the collection of "New and First-rate Varieties," appears to render a descriptive list unnecessary. If it should seem desirable, E. B. will have one prepared and forwarded upon application.

Rosy Circle	£1	1	0	Isabella	£1	1	0
Arabella	1	1	0	Juno	1	1	0
Sunset	1	1	0	Bellona	1	1	0
Mustee	1	1	0	Margaret	0	10	6
Marc Antony	1	1	0	Favorita	0	10	6
Desdemona	1	1	0	Zenobia	0	10	6
Othello	1	1	0				

Or the set for 10*l*. 10*s*.

As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.

N.B. Aurora and Calypso cannot be sent out till after next season.—E. Beck, Worton-cottage, Isleworth.

BRITISH SHEET OR HORTICULTURAL GLASS.

In consequence of the entire removal of the duties, J. Welch, Jun. (late with Mr. Drake, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

The Gardeners' Chronicle.

SATURDAY, JULY 12, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Saturday, July 19—Regent's-park Zoological Gardens 9 A.M.
Wednesday, July 23—South London Floricultural . 1 P.M.
COUNTRY SHOWS.
Thursday, July 24—Surrey Horticultural and Floral. Stamford Hill Horticultural. Liverpool Botanic and Horticultural. Berkshire Horticultural.

When the Dean of Manchester was at Ghent the other day he was much struck with the extraordinary beauty of two very long beds of Hybrid Alströmerias, in the nursery of Mr. Van Houtte. In a memorandum with which he has favoured us Mr. Herbert speaks of them in the following words:—

"They are of every tint, from scarlet to lemon-colour, and from crimson to pale pink, variegated with white. It would have been difficult to find two plants, amidst the great number then in bloom, of which the flowers were exactly similar, some being as remarkable for the delicacy, as others were for the brilliancy, of their hues. Another very long bed of younger plants raised from the last year's seed of the former, was in vigorous progress, and already showed many flower-buds. The foliage of all the plants was nearly similar, the average height of the inflorescence being, I should think, between 12 and 18 inches. Mr. Van Houtte informs me that he purchased the whole from the person who raised them; and, from their appearance, I should pronounce them mules between A. Hookeriana and hæmantha. I cannot assert that A. pulchra and aurantiaca may not have been in part concerned in their production, but I rather attribute it to Hookeriana and one of the best varieties of hæmantha, such as Barclayi. They were planted in a mixture of vegetable earth and strong soil, with the Ghent sand, and in some parts the plants seemed to have suffered from the compost being too light and sandy. I do not recollect having ever seen a bed of flowers so beautiful; and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known." In the same nursery-garden Mr. Herbert also saw "the finest Orange Lilium that has been produced, raised from Lilium atropunctatum fertilised by a strong orange Lily called L. croceum in Mr. Van Houtte's catalogue. The plants were of a middle growth, with very florid heads, and the flowers very large, brilliant, and exhibiting a good deal of diversity. This variety will be a great acquisition to our gardens, seeming to be very healthy and vigorous."

What a prospect is thus opened to the English cultivator! What an endless series of beautiful acquisitions may not be expected from merely acting upon the hint thus given!

If Alströmerias, thus improved at the outset, have already acquired a beauty and diversity sufficient to excite the admiration of so experienced an observer as the Dean of Manchester, it is impossible not to feel that they will rapidly become the subject of special cultivation, and be made to constitute quite a new and peculiar feature in a flower-garden. Even Verbenas themselves will be dim by the side of Alströmerias and the new hybrid Corn-flags (Gladiolus). If the Orange Lilies are capable of being improved to the extent above described, why not the scarlet Martagon, the Queen of the Oriental Flora, that "Lily of the field," which is surpassed by nothing in splendour during her brilliant reign? Why not indeed at once apply the arts of cultivation to the production in masses, in the open air, of Brazilian Amaryllids, and all the tender race of beautiful bulbs which we now know only from little specimens in pots?

We do not at all despair of seeing Vallotas, and Hippeasters, with Guernsey and Jacobœa Lilies, as common as Hyacinths, and in the common air.

But how is this to be done it will be asked? By what new process can we hope to transfer the inhabitants of countries so much warmer than our own from the greenhouse and hothouse to the flower border? Nothing is more feasible. We have only to imitate our Belgian friends. Glass and sand, with a little skill and patience, will work greater wonders than this.

Let us suppose a bed for the cultivation of such plants to be formed of proper materials, in a thoroughly well-drained situation. It may be surrounded by a bank of earth, 2 feet thick, and of the necessary height at back and front; on this may rest a wall-plate for the reception of sashes. As soon as the winter approaches the sashes would be fitted to such a bed; as soon as the summer comes they would be removed; and nothing would then be left except a common bed, the banks surrounding which might be decorated in twenty ways. Where plants are not very impatient of cold, no further assistance would be required. But if they are particularly tender, a few inches of dry sand spread over the bed in the autumn, and removed in the spring, would guard them well. We may suppose that in some such way as this the Alströmerias were preserved at Ghent.

The main obstacle to the adoption of all such plans is the cost. Hitherto the great cost has been glass. But those bad times are gone. We are no longer at the mercy of monopolists. Belgian glass is advertised, *in lengths of forty inches*, at the price of something less than 1½*d*. per foot, at Antwerp. At that price we ought to buy it, and eventually shall buy it, at home; for the English glass makers can sell glass as cheap as anybody, if they think proper to do so. Now, the cost of glass at 2*d*. a foot, to cover a bed 6 feet wide and 100 feet long, *would be just five pounds*, and the squares might be long enough to render all laps unnecessary in a bed which shall be 6 feet wide. The English glass dealers, in that modest tariff with which they favoured their countrymen immediately after the repeal of the glass duties, only demanded seventy-five pounds for the same quantity; or, supposing that the squares were not more than 40 inches long, they would then have vouchsafed to accept the small sum of thirty pounds.

We do not say that a fall in the price of glass to 2*d*. per foot is to be expected immediately, or that a reduction of prices to such an amount could at present be accomplished by the English glass trade; but the difference between what they have done, and could have done, and must do, is sufficiently significant of the course which those who have money to spend on glass should steadily pursue.

Let any one compare our two English Oaks at this season of the year, if he wishes to know how much more ornamental the poor condemned sessile-cupped species is than the common one—how far more vigorous in growth, and majestic in appearance. It is, indeed, a monarch of the forest. Those who to-day are passing from the garden of the Horticultural Society to the grounds of Chiswick, will find a young, but beautiful specimen of it inside the garden, and on the side of the entrance near the iron gates of Chiswick. It has the air of a sweet Chesnut, and none of the thin and ragged foliage of its stalk-cupped brother.

As to the quality of its timber, that has been so often mentioned in these columns with praise, that we forbear from repeating a thrice-told tale. The idle prejudice against it is fast disappearing. How strange, then, that nurserymen do not more actively bestir themselves in its propagation.

It is to the magnificent proportions of this ancient Oak that its rarity is to be ascribed. Doubtless, our rude forefathers felled incessantly the finest Oaks to be found in their natural forests. The finest were the sessile-cupped; and hence it is that nearly all the Oak-timber found in buildings of great antiquity is that of the sessile-cupped species. Such is the roof of Westminster Hall; such the bond timber in the old border fortresses of the Welch Marches; such the doors of pews in ancient churches. And such, too, are those relics of early days, when a hollow tree was scooped out into a coracle. The vast dimensions of a sessile-cupped Oak rendered it suitable for a huge canoe; the smaller stalk-cupped species was unfit for such a purpose. We may even be permitted to indulge in the belief that those primæval forests whose recesses were the scenes of Druid mysteries, were woods of our sessile-cupped species; for it is that alone, or principally that, which still remains in the northern parts of Wales.

A very interesting proof of the preference of our ancestors for this species has been lately afforded by the ancient canoe now lying at Lavey Strand in Ireland, an account of which is given at p. 385. The length of this canoe is 42 ft. Our kind correspondent "Cavanensis" has favoured us with a specimen of its timber, from which we learn that it too was fashioned from a trunk of the sessile-cupped species. Where can we now find Oaks of such dimensions, and capable of forming the solid head of a boat, at 42 ft. from the ground?

STOCKS.

It is amusing to reflect upon the prejudices, whims, and superstitious notions, contained in oral traditions of cultivators of Stocks, with regard to the production of double flowering plants. One will tell you, very confidentially, to sow your 10-week Stock seed in the first week after the new moon in August, and when you prick out the plants to reject all but a few of those which are straight or tap-rooted; for they are sure to have single flowers, the forked or branch-rooted ones, being the only ones to be depended on for producing double blossoms. Another will inform you with great seriousness, full of the importance of his secret, that he knows by the feel and contour of the seed, which will produce a single or double bloom. A third will reprimand you for not tying your singles and doubles together, in a matrimonial alliance; for that is the only way by which to obtain a double progeny.

There are few but must have been struck with the beauty of the Stocks which are occasionally to be seen in the well-managed garden of the cottager—the result of his care and attention, and which is a lovely proof of the quiet and domestic habits of the inmates. Indeed, I never see a fine bed of Stocks, but it recals the early scenes of my youth, when the seed of emulation first began to develop itself, and when hope shed a cheering ray over youthful anticipations. The cottager sows his Brompton or Giant Stock in March; he has thus a strong growth before winter, and if he has successfully preserved them until spring, he will then be rewarded with what is the characteristic trait of the variety—a splendid spike of flowers. The gardener and others, who have various and better means for the preservation of their Stocks, will sow the Brompton Stock in the latter end of June or beginning of July, and Scarlet 10-week and German varieties in the second week in August; and to prevent disappointment from any variation of the season, he will again sow about the 1st of September. The practical gardener will require no detailed directions how to preserve his Stocks through the winter; he will use those means at his command best adapted for the purpose; they require simply to be kept in a dry and sheltered situation, with protection from severe frost, and to be shaded from the sun whilst frosty weather continues. My own practice, however, is to pot the scarlet, Brompton, or Giant, three in a pot, and the 10-weeks from five to seven in a pot, and before the frost sets in, the pots are plunged in dry coal-ashes, in a frame, giving abundance of air at every favourable opportunity.

As soon as the severity of the winter is past, and the plants begin to make a fresh growth, holes are dug out in the borders to the depth of 18 inches and filled up with two-thirds of old or decomposed turfs, which have been used in the frames for the growth of Melons, &c. To this is added one-third of burnt clay, or whatever may be at hand, such as vegetable refuse, the scourings of ditches—after undergoing the process of burning. The plants are turned out of the pots with the ball entire and are placed in the compost, which is firmly pressed against the ball with the foot, to prevent rapid growth, a firm compact stem being essential to support the noble spike of bloom which the double flowering plants of the scarlet Brompton Stocks produce.

Complaints have been frequently made that the German varieties of the Stock cannot be kept true to their kinds, from seed saved in this country; but with the selected sorts which I have grown, I have never found the least difficulty, both in regard to the distinctness of the sorts, and the number of plants producing double flowers; these, in fact, were equal to those in every respect, which were raised from imported seed. Everyone acquainted with the culture of the Stock, must have observed the length of time it requires to mature its seed; hence, we seldom can obtain good seed from spring sown 10-week Stocks. Besides, if several varieties are grown closely together, at the advanced period of the season in which they bloom, most of the winged insects will have undergone their various transformations; and their nectar-sipping propensities will explain the cause of the complaint already alluded to.

It will, however, be expected that I should state the method I adopt to obtain good seed to produce double flowering plants; and here I would remark that the greatest difficulty is with the scarlet Brompton. It is well known that a bloom of the single Stock has only four petals, but where proper attention has been previously paid to the saving of the seed, a disposition to double flowering of the single ones, will frequently take place; the plants are, therefore, carefully examined, and those flowers that have five or six petals are only allowed to produce seed pods; but as it frequently happens that a sufficient number cannot be obtained, to produce a sufficient quantity of seed, those plants are selected which grow beside double flowering ones. The first seven or eight blooms are picked off from the bottom of the spike; the next seven are left to produce seed-pods; and to prevent exhaustion, the upper part of the spike, after the pods are well-formed, is broken off. The lateral shoots continue to produce blossom, but none are allowed to produce seed-pods.

All that is required in saving seed from the 10-week, &c., is not to permit more than seven or eight pods to mature their seed on one plant; after the seed is ripe; it is best preserved in the seed-vessels, until it is required to be sown.—*Tassel.*

HOW TO STRIKE CUTTINGS.

BY NEUMANN.

(*Concluded from p.* 384.)

XV. *Slit Cuttings.*—There are some plants whose cuttings root best if a slit is made in their lower part, a piece of sponge being introduced, as at fig. 24; Carolinea, arborescent Bignonias, &c., take root well in this manner.

Layer Cuttings.—For plants difficult to strike I have thought of what I call layer-cutting (fig. 25), from which I have obtained good results. This consists in making a longitudinal incision down the cutting; we then insert a wedge, to keep the wound open; without this precaution the two parts will soon join, and the operation fail. The upper part of the incision ought to be nearly level with the earth in the pot; it sometimes happens that the roots issue at one and at the same time from the slit and the base of the cutting.



Fig. 24. Fig. 25.
Cuttings of arborescent Bignonias.

Cuttings or Grafts upon Roots.—I have often employed the following method of striking plants which are difficult to multiply by cuttings. The process may be slit-grafting, as in fig. 26, or crown-grafting, as in fig. 27. The ligatures must be of worsted; care should be taken not to cover the upper part of the roots of these grafts, or at least very little. In such operations the cutting either adheres to the root as an ordinary graft, and pushes in the same way, or the root does nothing more than nourish and hold the branch fast with which it is in contact, until it forces it to send roots into the soil; the cutting is then on its own bottom, as we say. Tree Pæonies, Dahlias, &c., as everybody knows, are multiplied in this manner. The case where the branch joins itself to the root is rare; I have only observed it upon Grevillea, Morus, Averrhoa; there is every reason to suppose that by the same means we might obtain similar results on several other trees, and I propose to try the experiment on plants which cannot be multiplied by the ordinary means. In this sort of multiplication it is not necessary for the branch to be grafted on the same root from whence we have taken it; but we may work on individuals of the same kind, if we only take care that the root is in proportion to the size of the plant.

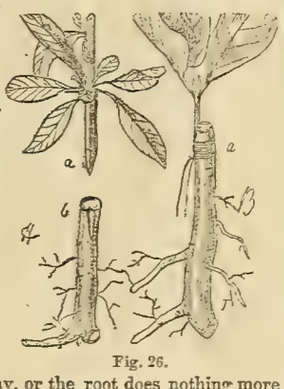


Fig. 26.



Fig. 27.

Striking Cuttings without Heat.—For some time past I have tried to strike without heat hothouse cuttings, which do not like to root in tan. Cuttings of Bugainvillæa spectabilis thus treated have perfectly succeeded. Stephanotis succeeded equally well when struck either in cold or heat. I might conclude from this that we may obtain the same results in striking cuttings whether they are placed in heat or not; but this is for time to determine. Moreover, cuttings exposed to the high temperature of 36° centigrade (98° Fahr.), will shoot with as much certainty as the same plants placed in a greenhouse, and subjected to a heat of only 7°, 8°, or 9° (45° to 50° Fahr.) In the last case, cuttings will only take when the sun raises the temperature to 25° or 30° (80° to 87° Fahr.); but then, as they have to bear a low temperature at night, they will demand more time to root than those which, placed in a hothouse, are in the midst of an atmosphere nearly equal day and night. Attempts of this nature cannot be favourably tried in the autumn or winter, the temperature being then too low; we shall have more chance of success if the operation takes place in spring or summer.

In conclusion, let us observe, that so many circumstances affect the method employed for multiplication by cuttings that we cannot foresee with any certainty whether we can succeed in striking even the less difficult plants. We must be constantly trying experiments, for the conditions favourable to vegetation vary according to the strength of the plant, and according to the temperature; moreover, the dryness or moisture of the atmosphere of the house, the earth which we use, the light or shade to which cuttings are exposed, favour or oppose their success. This, however, seems to be shown by practice, that the result is always more satisfactory in a house entirely shaded, than in that in which light has free access; also that success is more certain in summer than in winter. The perseverance of a gardener ought never to be exhausted; he will be always discovering something worth knowing, and the results to which he arrives will recompense him for the care and patience expended in his experiments.

Home Correspondence.

Blister of the Peach Leaf.—Perhaps the following, which has come under my observation this spring, may tend to throw some light on this subject. Twenty-four maiden plants of Peaches and Nectarines in pots were placed in a late Vinery early in April; they had been potted the preceding autumn in turfy loam, and protected through the winter from severe frost. Previous to placing them in the house, the plants were cut down to within 8 or 10 eyes of the bud, my object being to get dwarf bushy plants for forcing in pots, should they be required on a future occasion. On the plants breaking into leaf I was much surprised to see the leaves on a part of them infected with the blister. Having hitherto imagined the blister on Peach-tree leaves was caused by cold and wet weather acting suddenly on the tender foliage, I was at a loss how to account for its appearance in the present instance, as the temperature of the house had in no instance, since they were placed in it, been lower than 60°. The roots on being examined were found to be in a vigorous growing state, and comparatively dry, therefore it was not caused by any excess of moisture at the roots, as is imagined in some instances to be the case, still all the leaves as they were formed became blistered and diseased, and ultimately fell off, leaving a few only at the extreme ends of each shoot. I found, however, that while part of the plants were so infected, the remainder of them was perfectly healthy, and all that could be wished, although under precisely the same treatment; this indicated that it must be attributed to some other cause in this instance, independent of climate and watering. On examining them more narrowly, I found that where the wood of the preceding year had not ripened properly, every plant had blistered leaves, more or less, and varying in degree, as the wood was ripe or not; whilst on those plants whose wood was firm and ripe, not a blistered leaf was to be found; blistered leaves may, and undoubtedly often are, brought on by secondary causes, still I believe the the primary cause of disease is the imperfect maturation of the wood during cold and wet autumns, particularly where the borders are deep and ill drained; or to quote nearly your own observations, it is the undue preponderance of watery matter in the system which rapidly brings on disorganisation of the tissue.—*John Spencer, Bowood.*

Wireworm.—To destroy this pest most effectually:—Towards the end of last year, when my Carnations and other plants had all been removed from my flower-beds, and previous to the latter being turned up for exposure to the winter frosts, I took sulphuric acid, in the proportion of 1 gallon to 20 of water, and applied the mixture plentifully to the soil. In two days I again repeated the operation, having previously turned up the soil and seen that it had been well pulverised. After the lapse of 10 or 14 days I gave a plentiful application of powdered lime, and shortly after turned the soil up in ridges as usual. The result has been, that it is now a rare thing to see a wireworm where previously I had often killed a hundred in half an hour, and where my plants were eaten up in a wholesale manner. Let any one collect a number of these most destructive pests and put them among soil in a box and then apply the above mixture. Let him look for them next morning and communicate the result; or, indeed, in half an hour after. This can be used on a large scale as well as on small flower-beds.—*Carnation.*

Fairy Rings.—The question of fairy rings was much discussed a few years since, and almost set at rest by a series of accurate observations, showing a periodic increase in the size of the rings—a circumstance wholly at variance with the electric theory. I regret that I am not able at present to refer to the authorities; some information on the subject will be found in "Loudon's Magazine." I can myself bear testimony, as is no doubt the case with very many, to the gradual increase of fairy rings. A particular ring, which I have passed at least once a week for the last 12 years, has gradually extended from the side of a hedge over an adjoining pathway, and is now immensely larger than it was when I first noticed it. From the very nature of the case, it is a matter of extreme difficulty to trace the origin of a ring from a single fungus, for, in the first place, the fungi which form rings are not so very often found separately, and if they are, as the ring cannot be formed till the following year, at the earliest, it is very difficult in pasture-land, except a person's attention is very particularly turned to the subject, and that upon his own property, to mark accurately the position of a solitary Agaric, especially since it would be necessary to extend the observations as much as possible. There are one or two peculiarities about fairy rings which are worth attention. One is the rank vegetation in the ring, which calls to mind the unnatural excitement which is often produced by parasitic fungi. The plants of Wheat which are infected with bunt may be immediately recognised by a practised eye from their dark-green hue, and in multitudes of cases the parts of plants on which the parasites are developed increase greatly in size, and may readily be distinguished at a distance. This is remarkably the case with the common garden Anemone, which is extremely subject to the attack of a species of Æcidium. The leaves infected are thicker, and more fleshy, and overtop the healthy leaves. It is well known that in these cases the tissues of the plant are actually perforated by the delicate fibres of the fungus. This is scarcely likely to be the case as regards the Grass in fairy rings, but it might possibly lead to some useful, or at least, interesting results, if the cause of this luxuriance were duly investigated. Another point worthy of consideration is, that in fairy rings not merely the portion within the circumference is sometimes dried up as if the soil were exhausted, but there is occasionally a barren parched portion beyond the circumference, as if the fertilizing properties of the soil were attracted by the spawn of the fungus. Other points for consideration would occur in examining the rings formed in woods by various kinds of fungi, and these not always belonging to the genus Agaricus. These are sometimes of an immense diameter, and produce myriads of fungi. It may be matter of surprise to some, that fairy rings are not more frequent if they are produced as has been maintained by the centrifugal tendency of the spawn. But to those who have been accustomed to watch the growth of fungi, the surprise would in great measure cease, as no productions depend so much upon a peculiar concurrence of circumstances, and in consequence are more local. One ring or patch of a particular species may be found in a particular wood year after year, but the most diligent search will not discover another locality in the neighbourhood for that species. This circumstance alone makes the investigation of the origin of these rings a matter of more difficulty than might at first be supposed.—*M. J. B.*

Adulteration of Guano.—Among the various modes by which guano is adulterated, you may not be aware that the soil of Wanstead is made to contribute. I have learnt from respectable authority that a person living in Bow, Middlesex (a greengrocer), has supplied a dealer in guano with a large quantity of the celebrated yellow loam from Wanstead, which, having first been very finely sifted, was put into a barge at Bow-bridge, and conveyed to the Thames, and then mixed with a cargo of guano. The above adulterated cargo has been freighted to Bridgewater, to be used there by some unwary agriculturists, who have not yet learnt to profit by the cautions against fraud with which you have indefatigably endeavoured to provide them.—*A Subscriber, Mile End, July* 8. P.S.—I have no doubt I could supply you with the address of the guano dealer if you wish for it. [Pray let us have it.]

Heath Culture.—I observe by the list of awards for Cape Heaths, that Messrs. Veitch, of Exeter, were again awarded the Gold Banksian Medal in the Nurserymen's class for 12 plants. I imagine they must have been good to have been honoured with such an award after travelling 200 miles. Those plants, it is said, "were potted on the system practised with success in Devonshire, but which will not answer in the neighbourhood of London." What is the reason of this? has the plan been put into practice on good and systematic principles? This question is of great importance, and holds good throughout the whole extent of the greenhouse, hothouse, Pinery, and through all artificial culture, and it affects all horticulturists alike, to know why such and such a system practised in one immediate locality with good success, will not answer in another; for instance, none of us know how soon we may have to seek another situation in another locality, where we should at once be awkwardly situated without knowing the system there in practice. For my own part, I am quite at a loss to guess why the system practised with so much success in Devonshire should not answer elsewhere, having, myself, had many years practice of plant-culture in the neighbourhood of London and in other counties. As the system of pot-culture, practised in Devon, first originated with me, I am the more anxious to be set right, that others may not be led astray by following my system, which is now so extensively carried into practice, the particulars of which was published by the late Mr. Loudon in the "Gardeners' Magazine." If I am wrong in my conjecture on artificial cultivation, what benefit is there likely to be obtained from books, practical articles, calendars, &c., away from the immediate locality in which they are written? It will be necessary for each locality to adopt its own favourite system, I should presume; if such is a criterion to steer by. Some remark is made respecting the placing the collar of the plant. My own practice on this matter is founded on observing how Nature herself has placed the collar and roots of plants, &c., in the soil, in regard to her most wonderful productions, which are my examples, and on which I set great value, ever feeling it my duty to assist her progress in practice.—*James Barnes, Bicton Gardens, Sidmouth, Devon.*

Transmutation of Corn.—About a twelvemonth ago, I took the liberty of sending you an account of some experiments which I had caused to be made here some years ago, to test the theory which I had heard propounded of the transmutation of corn. The results were not in accordance with that theory. In order to

afford a still more accurate test, I desired my gardener, Mr. Sharpe, to repeat the experiment, and I instructed him to take the precautions which he mentions, so as to ensure as far as he could, the soil being free from any other seed than that which he had sown. The following is Mr. Sharpe's report :—"On the 20th of August, 1844, I sowed four pots of Wheat, four of Oats, and four of Barley ; two grains were put into each pot, and the soil was previously well examined, in order to ensure no other seed being amongst it. The pots were then placed in a cold frame, and as soon as the seed had sprung and grown 6 inches in height, it was all cut over by the surface of the pots. The second and third cuttings were made when the plants had attained the height of 4 or 5 inches, and the last cutting took place in the end of October. The plants were then removed to a cold Vinery, where they remained all winter. In spring, the Wheat and Barley had all survived, but two of the plants of Oats had died. In the first week of April, the plants were turned out of the pots, and planted in the kitchen garden. The Wheat has been in ear for more than three weeks, and the Barley more than two. The Oats have come into ear a few days ago, and very good specimens all the three varieties are, every one being after its own kind. I may mention that they were not only labelled, but the names were written on the outside of the pots. From the two different trials which I made six or seven years ago, I may remark, that Oats sown in summer, and cut over several times, do not stand over the following winter, so well as Wheat and Barley treated in the same way. My opinion is, that it is in consequence of the Oats not surviving the winter well, and other seeds being in the soil, and growing when the Oats had all died, that supposition of the transmutation of Oats has arisen."—*John S. Richardson, Pitfour Castle, Perth.*

Cacti.—I have treated mine rather differently from what is generally recommended, viz., good soil, with one-third charcoal, and watered once a week all through the winter, consequently kept them growing, which I think suits them, judging from their splendid blooms, which have been from 20 to 60 on each plant.—*M. W. K.*

Humbug.—It is said that "in order to procure the deep yellow Rose, you must bud upon the common Broom : that some fine specimens were shown at the last horticultural meeting, which attracted universal admiration, and that the man who discovered this secret has been paid a large sum of money for it." Such nonsense ought to be put an end to, and nothing will do it sooner than your noticing it.—*Anti-Humbug.* [Lies find their way into gardens as well as other places. 1. The Rose will not grow on the Broom. 2. The fine double yellow Roses alluded to were the Persian variety, grown in the usual way ; and 3. No discovery has been made, and consequently nobody has been paid for it.]

Pine-apples, &c., at the Chiswick Show.—I have read the account of the grand exhibition of horticultural skill at Chiswick on the 21st of June with much pleasure—you have given us figures of several of the most extraordinary plants, and the height, diameter, circumference, &c., of many others, all of which is particularly interesting and valuable to us who live at a distance, and who have not the opportunity of seeing those grand exhibitions, or of ascertaining how far good gardening is carried out with energy in our immediate localities—those interesting descriptions of horticultural productions are a means of stimulating us to exertion, and give us the opportunity of maintaining the good character of our respective situations. Still, I should have been pleased to have seen a clearer description given of the Pine-apples, of which we have no particular account; we are told of nicely-grown specimens—pretty, but small Queens, not well swelled, a fine Providence, &c., but no account of weight, circumference, diameter, length, or height, of the king of fruits ; this would not only be interesting, but of great value, giving us an opportunity of knowing how far we might be behind gardeners near London, and stimulating us to improvement in order to keep pace with the times. The following will give some idea of the kind of Pine-apples we are producing here:—21 Queens, cut lately, weighed 106 lbs. 8 oz. imperial weight, averaging above 5 lbs. each ; one weighed 5 lbs. 9 oz., another 5 lbs. 8 oz.; the circumference averaging from 17 to 18½ inches, and the length from 9 to 10½ in. They were equally swelled, and nearly of the same size at the top as at base ; those are not exceptions, we have every prospect of yet having superior fruit—we have black varieties equally well swelled, of greater bulk and weight. It would be interesting to know how far we may be behind, that we could commence with more persevering energy, being perfectly satisfied that the true system of cultivating this king of fruits is still very imperfectly understood. I am satisfied that there is room for great improvement before a simple certain rule of culture can be established. The above fruit was produced from hungry stiff sods of clayey loam, mixed with scrubby Furze Heath, with its natural vegetation ; charcoal was placed amongst it, and over the drainage. —*James Barnes, Bicton Gardens, Sidmouth, Devon.*

Striking Cuttings.—In page 384, I find in Neumann's article the following observations on striking cuttings in water : "This kind of propagation demands constant care and minute attention," &c. ; and again, "In consequence of the difficulties which this proceeding offers, I do not advise the practice of it, except," &c. Now, for the benefit of ladies and juvenile florists who take pleasure in raising young plants, I beg to say, for four or five years I have raised numbers of Salvias, Calceolarias, Mimuli, Heliotropes, Verbenas, and other plants of similar kinds without any trouble, and more certainly than in pots (as I have only a fair kitchen gardener). I have phial bottles strung together and hung up in the windows of a small greenhouse, facing the east. The only care I have found necessary, was to fill up the bottles when the water sank below the ends of the cuttings. I wait till several roots appear and become an inch or two in length, then pot each young plant in a small pot, keeping them rather damp in the shade a few days. Those raised early in spring I plant out ; the autumn cuttings make my flowering plants the succeeding spring; they take from a fortnight to three weeks to become rooted, the earlier in spring the sooner they strike ; though in a cold part of Kent, many of our Salvias, Calceolarias, Mimuli, and Balm of Gileads survived last winter without protection, and are now thriving plants.—*E. M. W.*

Wasp-trap.—The following is considered to be an improvement upon similar traps which have been used at Sweeney Hall for many years with much success :—Put about an inch and half in depth of water in the bottom of the glass, then placing the funnel in the neck of the bottle, hold the whole under the wall-fruit in which the wasps are eating. Wasps, when slightly disturbed, generally descend a little before they take wing, particularly when gorged with food ; and whether there is a single wasp or many scores to deal with, they will usually be all taken, and they cannot find their way out of the bottle. Shake them up with the water, and, taking out the funnel, throw out the wasps like a ball, and kill them. I have known of seven dozens of wasp-nests having been taken within the range round a walled garden in one season, say within a quarter or half a mile of the garden ; but whatever the quantity of wasps may be they will be materially reduced by the use of this trap.—*T. N. P*


Glass Wasp-trap.

Mr. Loudon's Work entitled "Hints on the Formation of Gardens and Pleasure Grounds, with Designs in various styles of Rural Embellishment," &c.—On looking over my late husband's books and papers, with the view of collecting materials for writing a short account of his life, to be prefixed to his posthumous work ("Self-Instruction," &c.), I find that in the year 1812 he published a work called "Hints on the Formation of Gardens," &c. Now, as I do not possess any copy of this work, and wish very much to see it, I should be greatly obliged to any person possessing a copy, either to lend it to me or permit me to purchase it. —*J. W. Loudon, 3, Porchester Terrace, Bayswater.*

Mushrooms.—Common Mushrooms have been coming up here, though not in large quantities, since the beginning of May, in the open borders of the kitchen garden ; these borders were manured with a last year's bed, which was made entirely of sheep-dung, and which bore a very fine crop. I have not seen any in their natural habitats.—*J. Halliday, Lynedoch.*

Societies.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Continued from p. 458.*)

Professor Allman laid before the section a monstrosity, occurring in Saxifraga Geum. This monstrosity, which was one of high interest, was discovered by W. Andrews, Esq., on the mountains of Kerry, about three years ago. Mr. Andrews has cultivated it in his garden, and finds its characters remarkably persistent, remaining from year to year in the same plant, and being even capable of perpetuation by seed. The monstrosity may be thus briefly described :—The three external verticils are normal, but between the stamens and pistil there is developed a series of adventitious carpels crowded upon the margin of a cup-like production which surrounds the lower half of the pistil. These adventitious carpels are characterised by the strangely anomalous fact of having their backs turned towards the axis of the flower. They bear numerous ovules which, as the margins of the carpels never unite, are always exposed, and present the appearance of a gland-like ring surrounding the pistil. The ovules belonging to the adventitious carpels acquire a very considerable degree of development, becoming completely anatropal, like those contained within the normal ovary, and a distinct primine secundine and nucleus with a well marked vascular raphe, can plainly be seen. Dr. Allman explained the singularly anomalous character of this monstrosity by supposing the existence of a series of secondary axes which are given off in a whorl between the stamens and the primary axis of the flower. These secondary axes terminate each in its flower, which, however, is reduced nearly to the lowest possible condition of development ; the three outer whorls being absent, and all those pistillary carpels which would, if present, have their faces turned to the primary axis, being also in a state of complete abortion. The secondary axes then adhere with each other, and with the normal pistil, so as to form the cup just described, and the existing carpels of the secondary axes necessarily have their backs turned to the normal pistil, being referable to these axes and not to the primary axis of the flower.

Professor Henslow thought this the most interesting monstrosity that had ever been put on record. He could, not, however, think with Professor Allman in this case, that the ovule was developed in the axis of the branch. He exhibited, at the same time, a monstrosity of Papaver orientale, which was very constant, and in which the filaments of the anther were converted into ovule-bearing organs.

Dr. Falconer was not prepared to admit Professor Allman's explanation of the abortion of the second carpel on the superabundant axes. Dr. White, in explaining the structure of Punica, had assumed that the normal position of the carpels was with their backs to the axis. Mr. Brown had recorded the case of a monster of Sempervivum tectorum, similar to that of the Papaver orientale.

Dr. Lankester thought there was no occasion to have recourse to the idea of the abortion of one of the carpels. It was not uncommon for monstrous parts to be developed spirally, and a single turn of a single carpellary leaf would account for the structure presented by Dr. Allman. The turning of the leaf was normal in some plants.

Professor Edward Forbes, of King's College, read a paper *On the Distribution of Endemic Plants, more especially those of the British Islands, considered with regard to Geological Changes.*—The hypothesis of the descent of all the individuals of a species, either from a first pair or from a first individual, and the consequent theory of specific centres being assumed, the isolation of assemblages of individuals from those centres, and the existence of endemic or very local plants remains to be accounted for. Natural transport, the agency of the sea, rivers and winds, and carriage by animals or through the agency of man, are means, in the majority of cases, insufficient. It is usual to say that the presence of many plants is determined by soil or climate as the case may be ; but if such plants be found in areas disconnected from their centres by considerable intervals, some other cause than the mere influence of soil or climate must be sought to account for their presence. This cause the author proposes to seek in an ancient connection of the outposts or isolated areas with the original centres, and the subsequent isolation of the former through geological changes and events, especially those dependent on the elevation and depression of land. Selecting the flora of the British Isles for a first illustration of his views, Prof. Forbes called attention to the fact, well known to botanists, of certain species of flowering plants being found indigenous in portions of that area at a great distance from the nearest assemblage of individuals of the same species in countries beyond it. Thus many plants peculiar in the British Flora to the west of Ireland have the nearest portion of their specific centres in the north-west of Spain ; others confined with us to the south-west promontory of England are beyond our shores found in the channel isles and opposite coast of France ; the vegetation of the south-east of England is that of the opposite part of the continent, and the Alpine vegetation of Wales and the Scottish Highlands is intimately related to that of the Norwegian Alps. The great mass of the British Flora has its most intimate relations with that of Western Germany. The vegetation of the British Islands may be said to be composed of five floras : 1st, a west Pyrenean, confined to the west of Ireland, and mostly to the mountains of that district. 2d, a flora related to that of the south-west of France, extending from the Channel Isles across Devon and Cornwall to the south-east and part of the south-west of Ireland. 3d, a flora common to the north of France and south-east of England, and especially developed in the chalk districts. 4th, an Alpine flora, developed in the mountains of Wales, north of England and Scotland ; and 5th, a Germanic flora, extending over the greater part of Great Britain and Ireland, mingling with the other floras and diminishing, though slightly, as we proceed westwards, indicating its easterly origin and relation to the characteristic flora of northern and western Germany. Interspersed among the members of the last-named flora are a very few specific centres peculiar to the British isles. The author numbers these floras according to magnitude as to species, and also, in his opinion, according to their relative age and periods of introduction into the area of the British islands. His conclusions on this point are the following :—1. The oldest of the floras now composing the vegetation of the British isles is that of the mountains of the west of Ireland. Though an Alpine flora, it is southernmost in character, and quite distinct as a system from the floras of the Scottish and Welsh Alps. Its very southern character, its limitation, and its extreme isolation, are evidences of its antiquity, pointing to a period when a great mountain barrier extended across the mouth of the Bay of Biscay from Spain to Ireland. 2. The distribution of the second flora, next in point of probable date, depended on the extension of a barrier, the traces of which still remain, from the west of France to the south-east of Britain, and thence to Ireland. 3. The distribution of the third flora depended on the connection of the coasts of France and England, towards the eastern part of the channel. Of the former existence of this union no geologist doubts. 4. The distribution of the fourth, or Alpine flora of Scotland and Wales, was effected during the glacial period when the mountain summits of Britain were low islands or members of chains of islands extending to the area of Norway through a glacial sea and clothed with an arctic vegetation, which, on the gradual upheaval of the land and consequent change of climate, became limited to the summits of the new-formed and still existing mountains. 5. The distribution of the fifth or Germanic flora depended on the upheaval of the bed of the glacial sea, and the consequent connection of Ireland with England, and of England with Germany by great plains, the frag

ments of which still exist and upon which lived the great elk and other quadrupeds now extinct. The breaking up or submergence of the first barrier led to the destruction of the second, that of the second to that of the third, but the well-marked epoch of the Germanic flora indicates the subsequent formation of the straits of Dover, and of the Irish sea as now existing. To determine the probable geological epoch of the first or west Irish flora, a fragment, perhaps, with that of north-western Spain, of the vegetation of the true Atlantis—we must seek among fossil plants for a starting point in time. This we get in the flora of the London clay or eocene, which is tropical in character, and far anterior to the oldest of the existing floras. The geographical relations of the Miocene sea, indicated by the fossils of the coralline crag give an afterdate certainly to the second and third of the above floras, if not of the first. The epoch of the red or middle crag was probably coeval with the in-coming of the second flora, that of the mammaliferous crag with the third. The date of the fourth is too evident to be questioned, and the author regards the glacial region in which it flourished as a local climate of which no true traces, so far as animal life is concerned, exist southwards of his second and third barriers. This was the newer pleocene epoch. The period of the fifth flora was that of the post-tertiary, when the present aspect of things was organised. Adopting such a view of the relations of these floras in time, the greatest difficulties in the way of changes of the earth's surface and destruction of barriers, deep sea being formed where land, probably high land, was, are removed when we find that those greater changes must have happened during the epoch immediately subsequent to the miocene period. For we have undoubted evidence that elsewhere during that epoch the miocene sea bed was raised 6000 feet in the chain of the Taurus and the barriers forming the westward boundary of the Asiatic eocene lakes so completely annihilated that a sea, several hundred fathoms deep, now replaces them. The changes required for the events which the author would connect with the peculiar distribution of the British flora need not have been greater than these. Professor Forbes maintains that the peculiar distribution of endemic animals especially of the terrestrial mollusca, bears him out in these views. He proposes to pursue the subject in detail with reference both to animal and vegetable life in connection with researches of the geological survey.

Mr. John Ball protested against the assumption contained in Professor Forbes's paper. We were not yet in a condition to say what a species really is, much less to say that only one of each species was created at first. He saw less objection to the view that the same species was created not only in different places in space but also in time. He thought the geological changes assumed by Professor Forbes were too great, when taken in relation with the age which he assigned to his floras.

Professor Phillips thought that if Professor Forbes's views should be established, they would lead to most important results in geology, especially in establishing the ages of certain rocks with the same organic remains. With regard to the geological questions involved, he could see no objection to admitting all the changes required by Professor Forbes, to explain the isolation of certain species of plants.

Mr. C. C. Babington thought that if the geological changes required to effect the disruption of the floras were not too great, that they were the best evidence in support of the hypothesis urged by Mr. Forbes. The great difficulty of accounting for the presence of plants descended from one parent would then be removed.

Professor Forbes, in reply to Mr. Ball, stated that if the hypothesis of the descent of all individuals from a single one were upset, that there would be an end to all paleæontology, and its value to the geologist. Unless you could connect the same forms with a common descent this science had no value.

(To be continued.)

CALEDONIAN HORTICULTURAL SOCIETY.

June 27.—The Exhibition of Plants at the Experimental Garden, Inverleith, was never surpassed either for number or excellence; but the very ungenial weather marred the whole proceedings. Numerous premiums were awarded. For the four finest shrubby plants, the Silver Medal was voted to Mr. Reid, gr. to Professor Syme, the specimens being Pimelea spectabilis, P. hispida, Leschenaultia formosa and Statice mucronata.—For finely flowered Cape Heaths, a first prize was awarded to Mr. Reid, for Erica ventricosa brevi-flora, Woodhall ventricosa, Savileana major, and ventricosa alba; and a second prize to Mr. Young, gr. to T. Oliver, Esq., for E. ventricosa coccinea, v. prægnans, eximia, and v. glabra.—For the three newest and finest varieties of Fuchsia, there were six competitors, all producing excellent specimens, which formed a very fine display. The Silver Medal was assigned to Mr. A. Sleigh, gr. to A. Rutherford, Esq., M.P., for Modesta, Exoniensis, and Smith's Vesta; and a second premium to Mr. Reid, for Edina, Colossus, and Attractor.—For the two finest tropical Orchids in flower, the Silver Medal was awarded to Mr. Thomson, gr. to Dr. Neill, for Oncidium pulvinatum, and Maxillaria aromatica; and a second premium was voted to Mr. Stirling, gr. to Lord Viscount Melville, Melville Castle, for Oncidium Harrisoni and Cattleya Forbesii.—For the best grown specimens of shrubby plants the prize was voted to Mr. Reid, for Statice Dickensonii; and an extra award was made to Mr. Stirling for a very large Sempervivum arboreum in full flower.—For well grown specimens of recently introduced herbaceous plants, two prizes were given; the one to Mr. Young, Newington Lodge, for Phlox Van Houttii, and the other to Mr. Young, gr. to Mrs. H. N. Ferguson, Archerfield, for Achimenes picta.—For curious or uncommon native plants, two premiums were also awarded; the first to Mr. Stirling, for Woodsia hyperborea, Saxifraga aizoides, Sedum dasyphyllum, and Aceras anthropophora; and the second to Mr. Thomson, for Asplenium fontanum, Erigeron alpinum, Saxifraga Hirculus, and Carex capillaris.—For the best 12 Pinks, the premium was gained by Mr. Currie, gr. to Miss Wedderburn, the kinds being—George the Fourth, Cooke's Joseph Hume, Barr's Emperor, Lowe's Topaz, Rose Diana, Minerva, Mars, Earl Grey, Dan O'Connell, Sir Robert Bruce, Rose Delvine, and Fair Flora.—For Garden Ranunculuses two prizes were given.—The first to Mr. Young, for Queen Victoria, Prince of Wales, Minerva, Esther, Beauty supreme, Earl Grey, Douglas's Macbeth, Mrs. Ferguson, of Raith, Mr. Ferguson, of Raith, Lord John Russell, John Knox, Zebrina, Prince Albert, Lord Brougham, Mrs. Clark, Lady Murray, Plato, Cunningham's mottled, Apollo, and Lady Douro; and the second prize to Mr. John M'Neill, gr. to E. Broughton, Esq., some of whose flowers were of newer sorts, but not perfectly developed. The competition for the six finest Pelargoniums produced a fine display, all the specimens being compact and well grown, evincing decided improvement in Pelargonium culture. The prize of two guineas offered by the Society was voted to Mr. Cossar, gr., Kingsmeadows, Peebles, for Lyne's Sunrise, Foster's Nestor, Foster's Sir Robert Peel, Tisiphone, Beck's Cleopatra, and Ackbar: and another premium was assigned to Mr. Reid, Millbank, for Nestor, Grand Monarque, Fair Maid of Devon, Prince of Wales, Duchess of Sutherland, and Flash.—Numerous extra productions of great interest and merit were exhibited, and for several of these honorary awards were made. In particular for two trays of curious British plants (the one containing eight species of the rarer English Orchids, chiefly from Kent, and the other several scarce Scottish Alpines), the Society's Silver Medal was voted to Lady Harvey, as a mark of approbation of her botanical and horticultural zeal.—Among nurserymen, Messrs. Dickson and Co., besides a large collection of choice plants, sent a new species of Pentstemon (from the north Fork of the River Plata, in South America), and a new species of Stenactis (from the Rocky Mountain district), and for these novelties a Silver Medal was voted—Messrs. Handasyde, who exhibited a magnificent series of Garden Roses, consisting of 70 named kinds, had likewise a Silver Medal assigned to them.—Messrs. J. Dickson and Sons, among a good display of greenhouse and stove plants, sent admirable specimens of Gloxinia Cartonii, Stanhopea oculata, and Pavetta caffra, for which an Honorary Premium was awarded.—Another Honorary Award was made to Messrs. Lawson and Son, who besides Fuchsias, sent specimens in full flower of Clerodendron Kæmpferi and Hydrangea japonica; and a third was made to Messrs. Carstairs, Kelly, and Co., for a fine Drosera filiformis, flowering under a bell-glass, sent along with a collection of greenhouse plants.—Among contributors of plants, to whom only thanks or certificates of merit were voted, are the following:—Mrs. Haig, who exhibited several very showy and striking tropical Orchids; Mrs. Wilson, handsome bushes of Fuchsia; W. R. Ramsay, Esq., very fine Fuchsias and blooms of 18 choice Pelargoniums; Professor Dunbar, admirable Cape Heaths; S. Hay, Esq., greenhouse plants; I. Anderson, Esq., 18 promising seedling Calceolarias in flower; Mr. G. Weir, flowers of seedling Calceolarias; Mr. Purdie, some well grown Cape Heaths; Mr. R. T. Macintosh and Mr. Downie, trays of beautiful Pansies; and Mr. Clark, Stocks. The only fruit exhibited was a decorated basket, containing beautiful specimens of Grapes, Peaches, and Nectarines, from the garden of Sir J. G. Craig, Bart.

BOTANICAL SOCIETY OF LONDON.

March 7.—The Vice-President in the chair. Donations to the library were announced from Mr. W. Gardiner, Jun., the Boston Natural History Society, and the Medico-Botanical Society. Mr. G. H. K. Thwaites presented specimens of British Lichens and Freshwater Algæ. W. O. Newnham, Esq., and T. W. Barlow, Esq., were elected Members. Read: "List of the Grasses found in the neighbourhood of Bristol," by Mr. G. H. K. Thwaites. Specimens were presented.

April 4.—The President in the chair. C. E. Broome, Esq., was elected a Member. The Rev. A. Bloxam presented specimens of a new British Moss, Fissidens Bloxami (Wilson), discovered by him near Twycross, Leicestershire. Read: "Descriptions of Photographic Drawings of Plants," by Edward Palmer, Esq.

Reviews.

Of new books and new editions a large crop has sprung up within a few weeks, to some of which the horticultural reader may advantageously direct his attention. Foremost stands a new edition of *Dr. Neill's Fruit, Flower, and Kitchen Garden;* an excellent and well-known work, revised, and improved by the more recent experience of the judicious author.——*The Guide to Service—The Gardener* (Knight) is a little 12mo, of 142 pages, full of very useful information in plain gardening. Report assigns it to an Irish gentleman well known for the perspicuity and usefulness of his works on Rural Economy, and if he is the author we may add that it is worthy of his reputation. About half is filled with a calendar of operations, partly taken from our columns, but adapted to the purposes of young gardeners, for whom the work is principally intended. We recommend it.——Mr. Maund has added to his *Botanic Garden* a description and figures of the best varieties of Apples, Pears, and other fruits. Those which we have seen are carefully executed, and the figures are very nicely coloured; this addition will render Mr. Maund's work more acceptable than ever to his subscribers.——*Memoirs of a Country Surgeon* (Reeve) is a pamphlet written for the purpose of showing the real position of general practitioners out of London. It is too true a picture of the difficulties which many excellent men have to struggle against, and of the small reward that awaits their most successful exertions. It is, too, a powerful protest against that most unfair, unwise, and indefensible proceeding on the part of the College of Surgeons, by which general practitioners are excluded from the highest honours of that corporate body.——*Unger's Synopsis Plantarum Fossilium* (8vo, Leipsig, Voss) is a most useful list of all the species or supposed species of plants hitherto found in a fossil state. It is arranged according to natural orders, and is extremely copious in that most important branch of natural history, the Synonymy, which is already in fossil botany even more perplexed than in the recent science, if that be possible. In the Index the species are arranged according to their strata; and the whole has a capital index. The work is indispensible to all working geologists.——Hasskarl's *Catalogus alter Plantarum in horto Botanico Bogoriensi cultarum* (8vo, Batavia, pp. 391) is a list of the plants actually cultivated in the Dutch Botanical Garden at Buitenzorg, in Java. It is arranged according to the system of Endlicher; is very rich in all the productions of the Indian Archipelago, contains many new species, and the Javanese names of all the plants. It is a convenient work for those who are interested in the Malay Flora. Of Orchids alone the collection contains 118 species.——*Fleming on Aconite* (8vo, Churchill) is a Medico-Botanical dissertation of importance. The author, Dr. Fleming, has occupied himself specially with determining the respective value of the species of Aconitum as medical agents, and he has proved experimentally that the Aconitum paniculatum, which the London College of Physicians order to be employed, *is totally inert!* while the Napellus is that which appears to possess most energy. The work is a model for dissertations of the kind.——A new edition of the *Outline of the Geology of the Neighbourhood of Cheltenham*, by Mr. Murchison (8vo, Murray), will be welcome to the frequenters of that fashionable resort. The name of the celebrated author is a guarantee for the excellence of the manner in which the subject is treated, and ensures to the reader the assurance that he is put into possession of all the most recent information that geologists have collected. It is accompanied by a good map, and some plates of fossils, which are scarcely worthy of the work to which they are appended.

New Plants.

Echeveria Scheerii. Mr. Scheer's Echeveria (*Greenhouse Perennial.*) Crassulaceæ. Decandria Pentagynia.—Although this is by no means so handsome a species as some of the others, it is far from being unworthy of cultivation. Its leaves are large and glaucous, and its flowers, notwithstanding their dingy colour, are abundant, tolerably large, and gracefully arranged. For its introduction the public is indebted to Frederick Scheer, Esq., of Kew, a zealous collector of succulent plants, and whose name it will henceforward bear. It is a native of Mexico, whence seeds were received by that gentleman, and presented to the Horticultural Society in September, 1842. It flowers in the winter. Like the rest of the genus it should be potted in peat loam and silver sand in equal proportions. During the summer, water should only be given every two or three days, for if too much is given the roots will damp off. From the end of October to the beginning of February very little water will be required, but air at all times when the weather is favourable. Fire heat is not necessary, except to keep off damp and frost. It is easily propagated either from seeds sown in the usual way, or from leaves laid on the surface of the soil. Such leaves offer an interesting illustration of the manner in which the races of plants can be maintained by the agency of the foliage alone, even although accident prevents the formation of seeds. —*Botanical Register.*

Stanhopea Bucephalus. Bull-horned Stanhopea. (*Stove Epiphyte*). Orchidaceæ. Gynandria Monandria. —This is one of the rarest and finest of the Stanhopeas, in some measure resembling S. oculata, especially in the long narrow hypochil. Its flowers are deliciously scented, and their bright golden colour produces a very rich effect. At first sight it might be mistaken for a mere variety of S. oculata, but the shortness of its ovary is a decisive mark of distinction. The effect of this shortness is to make the inflorescence of S. Bucephalus very narrow, while in S. oculata it is broad and straggling. The species is a native of the woods of Paccha, a small village in the Andes, on the ascent from Guayaquil to Loxa, at an elevation of 6000 feet above the level of the sea, where it was found by Mr. Hartweg. It first flowered in the Garden of the Horticultural Society, in August, 1843. Its stem is spotted, as well as its blossoms. It may either be potted in turfy heath-mould, mixed with potsherds in the usual way; or it may be suspended to a rafter, in a wire basket filled with sphagnum. It is a very free-growing species, which will prosper under ordinary treatment. During the growing season an ample supply of water

should be given, and the house shaded in sunny weather. In summer, the temperature should be kept about 80° or 85° by day, and about 70° at night. For a few weeks in winter, no more water should be given than keeps the pseudo-buds from shrivelling, when the temperature should never be raised above 65° with fire-heat.—*Botanical Register.*

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—In the Orchidaceous-house here several of that interesting tribe were in bloom. Among them we remarked a noble specimen of Oncidium Lanceanum, having six strong spikes of handsome blossoms. This, perhaps the best of the genus yet introduced, was growing on a block, and enjoying fine health—as were indeed all the plants here, the recent alterations in the mode of heating, &c., having been greatly conducive to their well-being. In this house were also in bloom the pale variety of Stanhopea oculata, producing a spike of six blooms; Spathoglottis Fortuni, having a panicle of pretty yellow flowers; the small yellow-flowered Epidendrum primulinum; together with E. diotum, a species of recent introduction, bearing two spikes of dingy-coloured blossoms. In the greenhouse the plants received some time ago from Mr. Fortune are looking remarkably healthy, especially a Deutzia from Shanghae; a Spiræa from Chusan; several Indigoferas from the same quarter; and a Campanula and Jasminum. Along with these were also several Azaleas; a Viburnum, with large leaves, from Shanghae; a Mandarin Orange; and several other plants; all in a very thriving condition, and some appearing as if they would soon flower.

Preparations are in progress for heating the bed of the curvilinear stove. This is to be effected by means of open tanks, inclosed in a hollow chamber closed in with slate, with openings in the sides for the escape of moisture, similar to that now in use in the Orchidaceous-house, and which has been found to answer so well. The boiler (one of Burbidge and Healy's) is already fixed, and other things are being put in readiness for the completion of the work. Before leaving this department, we may mention that, in the range of pits in front of this stove, the tanks (formed of brick and cement) by which it is heated have given way, and become leaky. They were found to answer while fires were kept constantly on, but when these were only used occasionally, the cement contracted and expanded as heat was withheld or applied, and cracks which occasioned leakage were the consequence. Several interesting experiments have been made in this department, with the view of killing scale, &c. on plants. The first we shall mention was with a composition sent by R. Dymond, Esq., which was said to destroy scale on Pines: this was found, however, to have no effect on the scale that infests stove and greenhouse plants in general. The liquid is similar to black paint, and when a plant is dressed over with it, as recommended by Mr. Dymond, it does not wash off again by syringing with clean water. The plants are thus rendered unsightly until new leaves are produced, and until the old ones have dropped off.—Of other substances tried, spirit of wine was found to be the most effectual. This, in the form of vapour, seems to answer the purpose of killing scale, bugs, &c., on plants exceedingly well; several Orchids have been cleaned with it, without receiving the least injury from it. The mode of application is this:—The plant is put into an empty water-tub or box, which may be covered up closely, so as to retain the steam. A small vessel full of hot water is placed beside the plant, and over this is put a saucer containing the spirits. This is allowed to remain for about six hours, which seems to be about the time required for effecting the destruction of the insects. The quantity of spirits employed should be in proportion to the space intended to be filled with vapour; for a common water-tub, if the spirits are good, a wine-glassful is a sufficient quantity. Entering the experimental ground, the first objects we meet are two of Mr. Hoare's Vine pillars, which stand one on each side of the doorway. The Vines planted in these hollow pillars, agreeably to the directions in Mr. Hoare's work, have not pushed; one is dead, and the other appears likely to die. Among other experiments, there are several on electro culture. 105 different sorts of seed were sown, two adjoining patches of each. Every alternate patch had a pair of copper and zinc plates, 5 inches by 4, inserted perpedicularly on the north and south sides of the patch; these were connected by means of copper wire. Another trial was made with several rows of Potatoes. These had copper-plates 1 foot in width, and 2 feet in depth, inserted perpendicularly at the one end of each row, and connected by a copper-wire, with zinc plates of the same dimensions inserted at the other end. In other rows, wires were buried on each side, about 6 inches from the sets, and connected with a copper-wire stretched about 3 feet above the rows, from which pointed copper-wires, 2 feet in length and 18 inches apart, were suspended. In others, pointed wires, 11 feet in length, were suspended from cords stretched lengthwise over the rows, and so as to allow the lower ends of the wires to hang about a foot above the plants. No wires were buried in the ground in this experiment. In the kitchen garden a plot of ground was equally divided into two parts. On one of these were two poles 30 feet in height, having each a ball at top, into which four pointed copper rods were fixed horizontally at right angles, and one perpendicularly. From these balls, wires were connected with other wires laid in the ground across the plot, about 6 inches in depth, and a foot apart. These buried wires, 25 in number, were connected at the ends by two cross wires; both patches were then sown with Barley in rows 6 inches apart. All these experiments have been in operation for some time, but not the least effect from them can be at present observed. In this department we observed a sort of naked 6-rowed Barley, said to be the finest possessed by the Chinese Tartars. It was sown in the end of April, and was in ear in the end of June, notwithstanding the coldness of the month of May. It proves to be the Hordeum Ægiceras. In the same department also, some varieties of Chinese vegetables, sent by Mr. Fortune, were growing under glass. Of these, the Han-tsi, a species of Amaranth from Chusan, with broad roundish leaves, is used in the way of Spinach, and is said to be very good. Others under the same name from Shanghae, had more pointed foliage, and proved not so excellent as the sort from Chusan. Here was also the Hoosung, a plant having the appearance of a Lettuce, with lanceolate leaves, the stems of which being stripped of their rind and cooked are much esteemed by the Chinese. Among the more remarkable plants in flower in the bed of the conservatory, were Grevillea robusta producing one-sided panicles of dingy orange blossoms, and a tall Canna iridiflora, from the top of whose stems hung graceful racemes of rosy pink flowers. This is a native of Peru, and is the most beautiful species of the genus yet introduced. The shelves were gay with many varieties of Erica, intermixed with other plants, among which we remarked, Chilodia scutellarioides, a useful New Holland species, with pretty violet blossoms. In the hardy department, we noticed a fine specimen of Veronica speciosa, producing four spikes of fragrant blossoms from the top of every branch. Some difficulty has hitherto been experienced in flowering successfully this valuable New Zealand production; but here it was in all its native beauty. In this instance, it was in a small pot compared with the size of the plant, which is naturally a robust grower, and it is not improbable that it may owe its perfection to having been rather stinted in its growth, which in every case favours the production of bloom. Being a late flowerer, it should possibly also be excited into growth early in the season. In this department we noticed plants of Mesembryanthemum tricolor growing in pans, with stones and other material of a dry nature placed beneath the branches. This plan of cultivating such things appears to answer admirably, as it keeps the succulent stems off the wet soil, which seldom fails to cause the branches to damp off when lying in contact with it. The most attractive feature of the open grounds at present are the many varieties of Rose-trees which are now in perfection; in the flower garden we observed a useful contrivance for securing the trees against the effects of wind, &c. This was in the form of three iron rods of the thickness of the finger, which were inserted obliquely into the ground and fastened at equal distances at the top to a wire forming a horizontal circle varying in size to suit the tree. Other wires are then fastened round the legs below this, and to these the branches are tied with their points towards to the ground. This has a neat appearance, and is found to answer the purpose admirably. In conclusion, we must not forget to mention a beautiful bed of Fedia graciliflora. This hardy annual is a recent introduction from Algiers, and only requires to be known to become a general favourite in the flower-garden, where it forms a beautiful mass of pink blossom so close as almost to entirely hide the foliage.—*July* 1, 1845.

Miscellaneous.

Singular Fact observed upon a Hollyhock.—I had a beautiful double yellow Hollyhock in flower, which I took care of, because being placed at the foot of the steps leading up to my house, it produced, for two years, an excellent effect. Having gone, like many others, to see the exhibition of French industry, I found on my return a Hollyhock very white, and very single. Substitution was not possible; the new individual was very strong, and had its flowers dispersed upon a stem nearly as high again as the old one, and this prevented me from supposing it was transplanted. Lately a bunch of yellow flowers, very double, and very compact, has made its appearance in the middle of the other branches. This fact is remarkable in gardening, because the varieties of Althæa rosea, once obtained, are very permanent, and produce themselves again by their seed.—*David, d'Auch, in Revue Horticole.*

Rhubarb.—We have received from Mr. Godsall, nurseryman, Hereford, a gigantic stalk of Victoria Rhubarb, which, together with the leaf, weighed nearly 6 lbs. The stalk measured 2 feet 8 inches in length, up to the base of the leaf, whose extreme length was 4½ feet, and at 16 inches from the base it measured 7 inches in circumference. Mr. Godsall mentioned that he had gathered a stalk from the same root a few weeks ago, which weighed 6½ lbs., and that last season he took up a root of this prolific variety which weighed 63 lbs.

Bees.

Swarming of Bees.—I am an amateur bee-keeper, and had at the commencement of the season one stock hive, from which I had, on Wednesday the 11th ult., a strong swarm, and, on Sunday the 29th ult., a strong second swarm; the second being 18 days after the first. There probably is, to bee-keepers, nothing remarkable in this; but to amateurs, like myself, who seek their knowledge of the habits and economy of the bee from books, this fact may be interesting:—The books which I possess on the subject are, "Huish's Treatise," and a volume on bees in the "Naturalist's Library." Huish says a second swarm may be expected on the 8th or 10th day after the first swarm, and that after the 12th day, it is useless to expect a second swarm. The author of the volume on bees, in the "Naturalist's Library" says, "in 10 or 12 days after the departure of the old queen with her followers, the hive is in a state to send forth another band of emigrants." I am aware that it may be said, in answer to my statement, that the swarm at the end of 18 days was a third swarm, and that I had lost my second altogether; this, however, could not possibly be the case, the hive having been very well watched; and, indeed, the swarm is much too good for a third swarm, being quite equal to the first. I may add that the piping, so well understood by bee-keepers, was first heard on Monday the 23rd ult., the 12th day, and was daily, and almost continually, to be heard, up to the time of the second swarming; immediately after which, the bees of the stock-hive commenced the destruction of the doomed drones, their occupation being gone.—*G. B.*——*C., Manchester.*——Owing to the late unfavourable weather the swarming season may now be considered at its height, and bee-keepers will do well to pay particular attention to their bees at this important time. The apiarian is apprised of the intentions of his bees by many significant signs; previously they will hang in clusters at the entrance to the hive, seemingly prevented from entering by the crowded state of the interior, but, in reality, they may be considered as the elders deliberating upon the future movements of the infant portion of the community; a few hours previous to their departure what a change takes place in the appearance of the hive and in the actions of its inmates; instead of wheeling about in mazy circles, darting with rapid flight in search of the sweetly-scented Mignonette, or alighting laden with the toil of a well-spent ramble, hundreds may be seen in a state of listless inactivity surrounding the hive, or wending their crowded way alternately from the entrance to the exterior and *vice versâ*. At the appointed hour all again is in commotion, and the bees issuing forth to some previously selected spot; the apiarian should be prepared with a hive, well cleaned and rubbed with fragrant flowers, to collect them, which is a very easy matter should they alight upon a low bush, by lopping off the branch and placing it upon a cloth with the hive over it; if they fix upon the branch of a high tree, a ladder must be fastened by ropes round the trunk, and the operator should ascend with a small bag distended by a hoop, in which he must inclose the bees. After they are hived they should be screened from the sun, and in about an hour removed to their permanent situation in the apiary. The usual swarming time is between the hours of 11 and 3, during which time they should be closely watched. I learn from my apiarian friends that this season is particularly favourable for bees, consequently no opportunity should be lost in strengthening the apiary by swarms.—*Certis.*

Nutt's Hives.—A great deal has been said about the proper ventilation of bees, and the management of Mr. Nutt's hives. I have had one of these hives in use for several years, but I never could prevent the bees from swarming by any system of ventilation, however free or however complete. We are directed to give the bees room, to let them have a free communication from one hive to another. The lateral compartments of my hive have very little comb in them; have a free, open communication with the middle hive; yet, notwithstanding this, the queen has led forth a colony whenever the hive has been in a prosperous condition. Indeed, I am convinced that bees will swarm when they are ready, let them have ever so much room. This afternoon I have had one of the largest swarms I ever saw, the queen of which is before me, under an inverted tumbler, upon the table. I am so sure that bees cannot be prevented from swarming, that it is a matter of indifference with me whether they do so or not. The method I take with them when I do not want to increase my stock, or to have a good hive weakened, is to take the queen away from the new swarm. I never hive them at all. The only trouble I have with them is in finding the queen, on her leading forth a colony, when I take her away; the bees miss her immediately, and in a short time betake themselves back to their old home, and continue to work as before. I do not know whether this fact has been pointed out before or not, but it is a method I have practised for some years. Upon one occasion (the first) two queens issued forth, and led from the hive nearly all the bees in it. While considering what I should do, I espied the queen on the surface of the cluster—a lucky thought struck me—I nipped her up, ran away with her into the house, and put her under a glass, as I have done this one. In a short time I went into the garden, and judge of my surprise, and the pleasure, when I saw the bees returning in thousands to the old hive; but still a great part of them stuck to the bough upon which they had knit, and having no suspicion of there being another queen, I cut the branch off, carried the bees and put them upon the hive, thinking they would, no doubt, enter it as the others had done. In this I was mistaken; they spread themselves all over the outside of the hive, and completely covered it. They remained in this way until 4 o'clock in the morning, when I visited them. On looking rather curiously at them, I observed another queen! I took her away, and every bee went into the hive. Thus I found out how to keep my hives strong, and in good working condition, by simply removing the queen from new swarms.—*R. H. W.*

ANSWERS.—*Gloucestershire.*—A cottager's hive might possibly have been attacked by pillaging bees, or a strayed swarm might have happened to mingle with the clustering bees in front of the hive. Either circumstance would account for the fury and slaughter of the bees. If such was not the case, I never heard of an nstance of one colony of bees destroying another.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—Many of the plants intended for winter flowering should be repotted, and encouraged by all available means. The different kinds of Begonias, Gesnera zebrina, and Achimenes picta, are amongst the class of plants calculated for this purpose. *Greenhouse.*—Camellias which have set their blossom-buds may now be set in the open air, under a north wall or (better) a hedge, which will prevent them from making autumnal growths. *Heath-house.*—Great care is now requisite with these beautiful plants; during a continuance of hot weather mildew is sure to make its appearance, especially amongst those that are kept in the greenhouse and shaded. The moment such is discovered—and they should be narrowly watched—dust them well with flowers of sulphur, and set them in a cool shady situation out of doors, taking care that they are not allowed to remain should a continuance of rainy weather occur. Where temporary coverings can be erected, and used during wet weather, these plants will be benefitted very much by thorough exposure during autumn; this hardens the wood, and strengthens the plants for the winter's confinement, which soon must follow. See that they have plenty of water; deluge them three or four times, so that every part of the ball is completely wet, and then withhold any further supply until it is again comparatively dry.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

China Roses that are going out of bloom should be carefully pruned, cutting out as much of the old wood as can be spared, and shortening back all young shoots out of flower. By this means they will produce a fine show of bloom again in autumn. Continue to bud Roses, and to remove dead flowers as they appear. Tie up Pinks, Carnations, Sweet Peas, &c. Hoe the surface of beds and borders, it keeps them cool and moist, and prevents weeds from appearing. Laurels that are overgrowing choice shrubs should be cut back; they will break again before autumn. Look over choice shrubs and trees; if any of the latter have formed more than one leader, they should be pruned off at once; this should be strictly attended to with the genus Pinus. *Pits and Frames.*—Pipings of Pinks should be sprinkled with water in the afternoons, and air should be given early every morning, keeping them shut up closely during the day. A few cuttings might be taken from the first planted beds, and treated as recommended in former Calendars.—*B.*

III.—FLORISTS' FLOWERS.

Carnations and Picotees.—Catch and destroy by every possible means, earwigs and other noxious insects; dry Bean-stalks, or short pieces of reeds, laid on the surface of the pots, will form harbours for them, from which they may be blown every morning and killed. Attend to the advancing buds; stop or wholly remove spindling layers, and where the stock is large, and the grass sufficiently advanced, layering may be proceeded with. *Pinks.*—Place hand-glasses over all pods of seed, after having extracted the decaying petals from the calyx. Continue to put in pipings, &c. *Polyanthuses.*—Gather the seed as it ripens, and as that obtained from good varieties is valuable, take especial care of it. *Ranunculuses* will require great attention, and the directions given last week must be strictly followed. Keep seedlings growing as long as possible, but when once there appears a tendency to wither in the foliage, let them get gradually dry. *Dahlias.*—The same precautions for entrapping insects as recommended above should be resorted to where these flowers are planted; secure the advancing shoots, to their respective stakes, and should dry weather ensue, water with liquid manure, mulch, &c.—*C.*

IV.—PINERIES, VINERIES &c.

Pines.—Attend carefully to shifting, the moment it becomes necessary, more especially the Black Jamaica, Montserrat, or other slow rooters. It is a practice with some to water freely all the newly-potted stock. I have an objection to this, especially in the case of the black or winter-fruiting Pines just alluded to; but it is a better plan to water the balls three or four days previous to potting. This is a good time to commence the final shift, with strong plants of the black kinds, intended to rise next May and June for ripening through the following winter. Take care to secure an abundant drainage—which, after all, is perhaps the most important part in the pot-culture of Pines. Give abundance of air to all free-growing young stock, and see that the plants have plenty of room. *Vineries.*—Stop closely, as before, all side branches bearing fruit, in the latest vineries, now in their "first swelling;" leave, however, at all times considerable growth in the leading shoots. I have no doubt that many Vines are overpowered by the heavy rains of summer, through a torpid action of root, induced by thorough close stopping all over the tree. A Vine has something more to do than merely to elaborate sap for the present crop of fruit. It should accumulate and store up matter for future contingencies, and this can only be effected by encouraging in some part of the tree the growing principle. Beware of red spider on the Fig—there is a useful paper on the application of sulphur in last week's Paper (p. 455), some attention to which will obviate the necessity of saying anything now on that head.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Attend to Pear-trees against walls, and see that the leaves on spurs, and at the bases of shoots, are of a healthy dark-green colour, which will not be the case if they are too much shaded by any superabundance of foreright shoots. The fruit, and leaves immediately connected with it, should likewise be sufficiently exposed. Follow up, therefore, the gradual mode of reducing the shoots previously recommended. Where several shoots have sprung up close together, or from around the base of a shoot cut back in a former season, they ought to be thinned, and they cannot be taken out too close, with the exception of one or two, which should afterwards be spurred to about three inches. Continue to lay in the young shoots of Peach-trees, and also those of other stone fruit. Shoots of Peaches and Nectarines having fruit at their bases, may be shortened to within three inches from their origin. Examine the soil near the bottom of well drained, or naturally dry, borders; and if found necessary, let the whole be thoroughly watered. Showers may keep the surface of the ground moist, and the foliage healthy for a time, but the latter will not long continue so if dryness take place below. Bud Cherry and other fruit trees as their state of vegetation is found suitable. *Kitchen Garden.*—Early Cabbages may yet be sown for winter and spring Coleworts. Sow Spinach, Endive, Succory, Lettuces, and Turnips. Plant out Broccoli, Cauliflower, Leeks, and Celery. Pinch off the tops of Tomatoes, and keep their shoots regularly thinned, for if once these are allowed to get into confusion, the condition of the plant is deteriorated by the severe cutting which then becomes necessary.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—It would occupy, comparatively speaking, but little time, in proportion to the good done, to go carefully over any extent of young plantations, and regulate, where necessary, the summer growths; that is, to shorten any branches which appear to be gaining an undue influence over the proper leader. Continue to prepare for autumn planting—clean hedge-rows and drains. *Nursery.*—Most evergreens may now be layered, or budded. The seeds of Elm will now be ready, and if ground be prepared, they are better sown immediately. Let no description of weeds flower.—*F.*

State of the Weather near London, for the week ending July 10, 1845, as observed at the Horticultural Garden, Chiswick.

July		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	4	●	30.169	30.033	75	60	62.5	S.	
Sat.	5	0	30.196	30.161	77	56	66.5	S.	
Sun.	6	1	30.067	29.990	81	60	70.5	E.	
Mon.	7	2	29.960	29.943	84	56	70.0	S.E.	.01
Tues.	8	3	29.959	29.940	78	54	66.0	S.W.	.01
Wed.	9	4	30.001	29.978	71	53	62.0	S.W.	.15
Thurs.	10	5	29.814	29.721	71	55	63.0	S.W.	.02
Average			30.015	29.660	76.7	54.8	65.7		.29

July 4—Cloudy and fine; very fine; overcast
5—Overcast; exceedingly fine, with bright blue sky and white clouds partially overcast at night
6—Sultry, with slight dry haze, hot; exceedingly fine; much sheet lightning at night
7—Distant thunder early A.M.; cloudless and very hot; fine, with few clouds at night
8—Slight rain; very fine throughout
9—Light clouds; cloudy, with showers; slight rain at night
10—Rain; cloudy; overcast.
Mean temperature of the week 2 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending July 19, 1845.

July	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 13	73.1	51.1	62.1	8	0.72 in.	1	1	1	—	—	13	3	1
Mon. 14	74.8	50.8	62.9	7	0.60	—	1	1	—	2	8	6	1
Tues. 15	74.4	50.6	62.5	10	1.46	—	2	1	—	3	9	4	1
Wed. 16	76.0	49.9	62.9	4	0.12	1	1	2	—	2	7	6	—
Thur. 17	77.3	54.8	66.1	4	0.46	1	1	1	2	4	4	5	1
Fri. 18	73.5	59.6	66.6	9	1.22	—	—	—	—	5	5	6	3
Sat. 19	71.7	51.3	61.5	11	0.60	1	—	—	1	6	3	6	2

The highest temperature during the above period occurred on the 17th, 1834—therm 94°; and the lowest on the 19th, 1832, and 13th, 1840—therm. 41°.

Notices to Correspondents.

CARNATIONS—*G Montague*—When layers are taken from the parent plant (or stool), they may be potted in equal parts of leaf-soil, loam, and very decayed manure from a Melon-bed, and placed in a cold frame (after having been watered on the surface only) for a few days, till they have again struck root. They may then be placed in the greenhouse, and when the pots (pints) are filled with roots, they may be removed into half-gallon pots; in these they will bloom satisfactorily, great care being taken to keep them clean, as they are extremely liable to the attacks of aphis or green-fly. If required to bloom earlier, a portion may be removed into the stove. Two-year old plants are those usually forced, from the circumstance of their throwing up more blooms; but the current year's layers, if gradually brought forward, as recommended above, will be finest. This applies equally to the Carnation, Picotee, and Pink. *W.*

CRICKETS—*M W K* finds that turpentine has not driven away the crickets, though it kills them when applied individually; if he applies it to one part of the house it drives them to another.

DOUBLE YELLOW ROSE—*W L and W F*—We regret to be unable to give you any useful advice as to the means of making this fine Rose flower. A year or two ago we took infinite pains to obtain evidence on the subject, and the result of the inquiry is given at considerable length in our volume for 1841, pp. 309 and 811. To that we must beg to refer you, for there does not seem to be any possibility of saying what circumstances are really conducive to the prosperity of this highly prized variety, or the contrary. It is most probable that our damp climate is the enemy; for, upon the whole, the flowers open best in dry situations exposed to wind.

EXHIBITIONS—*Ignoramus*—The award of a medal to Clerodendron squamatum as a new or rare plant may well excite your surprise. We beg you will observe that this happened at the Royal BOTANIC Society.

FLORISTS' FLOWERS—*A Young Florist*—There being many new flowers which will come under our observation, we intend publishing a list of them after they have bloomed; so that before the period of purchasing arrives, you shall have the information you require. *W.*

FUCHSIA—*K R*—Your leaves are snipped by the curious little leaf-cutting bee; you will probably find them lining its nest in some old post in the neighbourhood.

GLASS—*J St J*—The moment we can name any place in London where you can procure German glass we will do so. See Notices to Correspondents of last week.

INSECTS—*D M*—In all probability the maggot was the larva of an Anobium, a beetle which will feed even upon Cayenne pepper. *R.*——*Imberbis*—The maggots infesting your Carrots will change to a fly called Psila Rosæ; a top-dressing of wood-ashes, soot, and lime is the best preventive, but we know of no cure. *R.*——*A B C*—If you will send us perfect specimens, we will endeavour to comply with your wishes; but without having all the materials before us, it is impossible to give the history of any insects injurious to the crops. *R.*——*F H R*—It is the leaf-cutting bee which has notched the leaves, and, in all probability, the insect you killed was one of them. Their curious history you will find in the *Gard. Chron.*, vol. ii. p. 573. *R.*——*Cresson*—The beetles infesting the Watercresses are the Chrysomela betulæ. Great numbers of them might be collected by sweeping with an insect bag-net, and we know of no other means of diminishing their numbers. *R.*

MILDEW—*Ruth*—Your Rose is attacked by the common white mildew. Washing well with lime-water has been recommended; but we can hardly promise you much success. You had better cut off the worst parts and burn them, and then you will not find your plants much the worse next year. The cause of its apppearance has, no doubt, been the changeable season, which has affected the growth of the Rose, and enabled this parasite to take possession of it. ‡

NAMES OF FRUITS—*J W*—Not known. ‖

NAMES OF PLANTS—*A Gall*—A seminal variety of Acer Pseudo-Platanus, of which there are many. ¶——*H H*—Rhododendron maximum.——*Annandale*—Sisyrinchium macrocephalum.——*A*—We cannot recognise your plant. If you have so many flowers you should send some unexpanded; it is impossible to determine plants by their leaves, except in familiar cases. If you forward flowers, add another leaf or two.——*S E N* may ascertain whether a plant is indigenous to Great Britain and Ireland or not, by consulting what are called the Floras of the country—botanical books containing descriptions of all such plants.——*J H*—A dark variety of Pleurothallis Smithiana.——*C A*—Stanhopea venusta.

PEAR-TREES—*Querist*—Foreright shoots were recommended to be left untouched till the middle of August, but this was done in conformity with a peculiar mode of management which was suggested at the same time. If it is intended that the fruit shall be produced on short spurs, close to the stem and branches, the points of the foreright shoots ought now to be taken off. ‖

PEAS—*Yorkshire*—Your Pea seems to have been raised from well-saved seeds of the true Early Frame, like Cormack's Prince Albert, which was sent along with it. It is well-known that change of soil will sometimes induce earliness, and thus lead to the supposition that a new variety, with the above quality inherent, has been obtained. As regards early Peas, the difference of even a few days in becoming sooner fit for use is of considerable importance; and the remark is, of course, applicable to the variety received, if it continue to maintain its present character under further trials. That which you sent as the Early Frame is the Early Charlton; the former has round pods, but those of the latter are flattened. ‖

PELARGONIUMS—*J P*—It is impossible to account for the "sport" in the Sylph, of which you have sent a specimen. We have seen the same variation in a single truss upon a plant, sometimes in a single flower—and occasionally by two or three petals only—but never heard of the change taking place in the entire plant. It is, most probably, the colour of one of its parents. *

POT POURRI—*Woglog*—You will find a good receipt for making this given at p. 508 of our last year's volume. ‡

TURF-PITS—*Junius*—You may erect a temporary pit for the propagation of Pelargoniums, &c., either by building turf-walls, or excavating the earth a few inches in depth, and forming an embankment round the sides. In this, if covered with glass, you will be able to propagate all free striking plants. ‡

WOODLICE—*T T L*—See p. 244. A toad or two kept in your frames will thin their numbers; and large quantities may also be caught by placing two boards over each other, between which they crawl as morning approaches, to conceal themselves. Tiles laid over Cabbage-leaves form good traps. ‡

MISC.—*Irishman*—Remove the soil from the roots of your pink thorns in winter, and replace it with fresh material, made rich with a little rotten dung, shortening some of the larger branches at the same time. ¶——*J E B*—Take your Rose tree up in the month of November, wash the roots and replant it in fresh soil, and it will, in all probability, repay your attention with health and vigour. ‡——*M W K*—The holes in your table are bored by some Anobium, a kind of beetle. We fear there is no help unless you can steep it for a few hours in a solution of corrosive sublimate. Varnishing will do no good at all. ——*A M*—You may now cut down your Bignonia and Jasmine; but do not attempt to transplant them, unless you can do so with plenty of soil; and, if you do, keep a hand-glass constantly over their stumps, till they have recovered; at the same time preserving the soil in a moist state. We do not remember a crimson Rosa sempervirens. Princesse Marie is, however, a dark-coloured variety. You must not plant the tea-scented Roses in a cold place; because they are too tender. The others will do. —— *Cavanensis*—The yellow berried Ivy is very uncommon; at least it often proves that what is called yellow berried is not so. We never saw the yellow variety in fruit. Many thanks; see a Leading Article to day. ——*T B C*—Want of bottom-heat is the cause of the sickly yellow appearance which your Cucumbers exhibit. You should apply fresh linings to your bed, and keep the fruit off the wet soil, which will always render them unsightly, if they are allowed to come in contact with it. ‡——*Well-wisher*—You will find a select list of Fuchsias given at p. 316 of the present year's volume. ‡

SEEDLING FLOWERS.

CALCEOLARIAS—*P J*—Your specimens are the best we have seen; they are decidedly striped, and if size could be obtained, which is not improbable, it will improve this class of flowers to a great degree. *——*P J*—The specimen now sent is a good variety, rather singularly spotted; we have, however, seen several somewhat like it. *——*G R*—No. 4 is a prettily spotted variety, but too small. *——*A Sub*—The best is the variety with a white ground; the other is more common; and they are both, in their present state, too small. *——*G R*—4 is a good variety, bold and decided in marking; 5 would be attractive if it retained its dark colour: as it fades it has a dull and common appearance. *——*J D*—Of bright yellow grounds, spotted with brown; 1, 2, 10, and 8, are very fine varieties, large and well-formed; 13 is too much like 10; 11 too nearly resembles 8; 9 and 14 are good, but more common; 5, primrose ground, singularly spotted, attractive, but flat and long in its shape; 6 and 7, delicate yellow, with brown spots, both good; 4, cream, with deep cherry-coloured blotch, well formed, and good in colour. These are a very good collection of seedlings, large, and well formed. *——*J H*—Your seedling is a pretty variety, but there is nothing uncommon in its colour or size. *——*I M H*—Your spotted varieties 29, 33, and 34, are pretty, but too small; most of these sorts raised now measure from 1 to 1½ inch in diameter. Of the yellow grounds with blotches 25 is a very good variety, and superior to 26, 27, and 28, in the same way; 31, common and indented at the bottom; 32, 36, and 37, want clearness and distinctness of colour; and 35, though a large and bold flower, wants decision in the blotch; 30, 38, 39, and 40, are creamy grounds, with large blotches, and are large and good varieties. *——*W A*—Your best seedling is No. 1, bright and attractive in colour, and in shape superior to 2 and 3, which are too deeply indented at the bottom; the marking on each is distinct, and well carried into the hood. *——*G R*—Your specimens arrived in so decayed a state, that it is impossible to form an opinion of their qualities. *

PANSIES.—*J L*—No. 1 is a very good flower; good eye, clear ground, with a broad bold margin of deep blue; large and well formed. No. 2 is an inferior specimen, and the eye in the lip mixes too much with the marginal colour. *——*Nero*—Your seedling is a pretty flower; but on so small a scale that it is of no value. ——*Star of the West* is of no value as a show-flower; it wants a well-defined eye, and the yellow ground colour of the lip is of a different shade to the side petals. ——The *Petis* also deficient in the eye, and wants size, substance, and larger side petals. *

PELARGONIUMS—*A R*—We can say but little about your flowers; the box was brought to our office smashed to pieces, and the contents a confused mass of petals; by the little that remained to judge from, they both appear to wants ubstance in the petals, and to be deficient in that compactness of form observable in the best flowers. Great improvements have taken place in the upper petals of Pelargoniums; they are become more even on the edge, and less cloudy and veiny, and having the colour evenly disposed over the surface of the upper part of the flower. 2 appears to be the better flower. * ——*A Subscriber*—Your seedling appears to be a repetition (without improvement) of Foster's Sylph; it has a little more colour and less substance. *——*W M*—There is a want of novelty in your two seedlings. No 1 is very large, but it is rough also, and cloudy in the top petals; the bottom petals of 2 are too narrow. *——*A Subscriber*—One great defect in your flower is want of substance; the spot is also too veiny, and dies away with a thin and watery edge. *——*J H*—There is considerable substance in your flower, and the white is pure, but the petals are all too narrow; it is bad in form. * ——*A C, Guernsey*—Your seedling is too small to rank with show flowers, but from its peculiar and fine colour it is an excellent variety to class with such fancy Pelargoniums as Henderson's Queen Victoria. *

PETUNIAS—*W M*—We consider your large seedling a coarse variety, with the divisions of the corolla too deeply indented; we have noticed the same colour in a better form. The smaller flower is novel in colour, and showy; the light throat, with a light vein up each division, gives it a pretty appearance. *——*C H*—Form and substance are two essential qualities in the Petunia; some are so flimsy in the corolla that they are ruffled by every breath of wind. This appears to be the defect of your flower. It is also too deeply indented in the outline, and though the colour is undoubtedly fine, endeavour to obtain the same united with fine form and good substance. *

VERBENAS—*A Sub*—Your seedling was quite dried up: something damp should always be put into the box to prevent this. *——*J H*—Your seedling, of a deep lavender colour, is a very good flower, with rather large trusses. The pink variety, although a very good flower, is too much like other sorts that have been some time in cultivation. *——*G B*—A very good seedling, but not to be compared in brilliancy to Boule de Feu. *

ERRATUM—In the article "On Pruning Forest Trees," signed "Quercus," p. 456, col. *c*, line 39 from the top, in last week's Paper, there is a misprint. For "Dr. Thackeray *proves*," &c., read "Dr. Thackeray *proceeds*," &c.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PROGRAMME OF THE ARRANGEMENTS OF THE SOCIETY'S SHOW AT SHREWSBURY.

THURSDAY, JULY 10.—Last day of receiving Implements, Seeds, &c., to be exhibited in the Implement Yard, and arranged by the Stewards for the Judges' inspection.

TUESDAY, 15.—The Implement Yard open to the Public from Eight in the Morning till Six in the Evening, at 2*s.* 6*d.* each person. The public exhibition of the working of the Implements to take place at Mr. Taylor's, Monkmoor, at Twelve o'clock. Cattle received in the Show Yard from Eight in the Morning till Four in the Afternoon.

WEDNESDAY, 16.—The Judges inspect the Stock and award the Prizes. The Implement Yard open to the public from Eight in the Morning till Six in the Evening; Admission 2*s.* 6*d.* Council Dinner in the Concert Room, at Five o'clock; when the Judges' award of Prizes (with the exception of those for Horses) will be read. Doors open at Four.

THURSDAY, 17.—The Cattle and Implement Yards open to the Public from Six in the Morning till One o'clock in the Afternoon; Admission 2*s.* 6*d.*; and, from One till Six in the Evening, at 1*s.* Dinner of the Society in the Great Pavilion, on the Quarry, at Four o'clock. Doors open at half-past Three.

FRIDAY, 18.—Cattle-yard open at Seven. Sale to begin at Nine for Ten precisely. General Meeting of the Members in the Town Hall at Twelve o'clock.

The Cattle and Implement Show Yards, on the Race-course.

STEWARDS OF DEPARTMENTS.

Cattle, EARL SPENCER; HON. CAPT. SPENCER; Mr. DRUCE.
Implements, Mr. SHELLEY; Mr. HUMPHREY GIBBS.
Finance, COL. AUSTEN, M. P.; Mr. SHAW.
Sale of Tickets, Mr. HENRY WILSON.
Receipts and Admissions to Show Yards, Mr. RAYMOND BARKER.
Pavilion and Council Dinner, LORD PORTMAN.
General Arrangement of Show, Mr. BRANDRETH GIBBS.

By Order of the Council, JAMES HUDSON, Secretary.

London, July 2, 1845.

By the 15th Regulation of the Society, all Persons admitted into the Show Yard shall be subject to the Rules, Orders, and Regulations of the Council.

N.B.—Sale of Tickets for the Pavilion Dinner, to Members of the Society, at the Town Hall, from Twelve to Four o'clock on Wednesday, the 16th July, and from Eight to Two o'clock on Thursday, the 17th of July.—Price 10*s.* each.

The Agricultural Gazette.

SATURDAY, JULY 12, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY, July 15
WEDNESDAY, July 16 } Meeting of the English Agricultural Society
THURSDAY, July 17 } at Shrewsbury.
FRIDAY, July 18
THURSDAY, July 17—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, July 23—Agricultural Society of England.
THURSDAY, July 24—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

July 14: Wenlock; W. Hereford; Cirencester; W. Firle; Yoxford
July 15: Wingerworth; Rochford Hundred; Framlingham; Isle of Thanet
July 17—Grove Ferry
July 17: Richmondshire; Blofield and Walsham
July 18: Stoke Ferry; Debenham; Halesworth; Wrentham
July 19: Cardiff; Swansea
July 21—Darlington

We have to request the attention of our readers to the REPORT OF THE SELECT COMMITTEE ON THE CHARGING OF ENTAILED ESTATES FOR DRAINAGE, &c., which is published in another column. The value, in every respect—to the owner of the estate, to the labouring population, and to the nation at large—of permanent improvements in land is fully recognised in this report: and we hope that the Bill which has been prepared in order to ensure the attainment of all these advantages, will prove successful. It is not merely the drainage of land which the committee propose to facilitate; when land has been made doubly productive double the extent of building is requisite for the preparation of its produce, and the erection of these, it is acknowledged, would prove as permanent an addition to the value of the land as its drainage is ascertained to be.

We had intended this week in connection with this subject to bring under the notice of our readers an able article on the improvement of land in that admirable Quarterly Journal THE NORTH BRITISH REVIEW, but want of room obliges us to defer this till another opportunity.

THE length which this report of our inquiry ON DRAUGHT IN PLOUGHING has attained, makes us fear that it may have already worn out the patience of many readers; to such, we are happy to say, that the next section of it will be the last. In the present article we propose to exhibit what testimony our dynamometer has recorded in reference to the influence of *the depth* upon *the labour* of ploughing.

All who have ever tried it on *dry land* will bear witness to the advantage of deep cultivation; and of those who have not tried it—whether farmers or not—to all capable of forming an unbiassed judgment on the subject, these advantages must appear self-evident. Greater depth of soil to the vegetable is analogous to an increased allowance of food to the animal—to both the change is productive of increased growth. The analogy between the two cases was well insisted upon in a short conversation we overheard the other day.

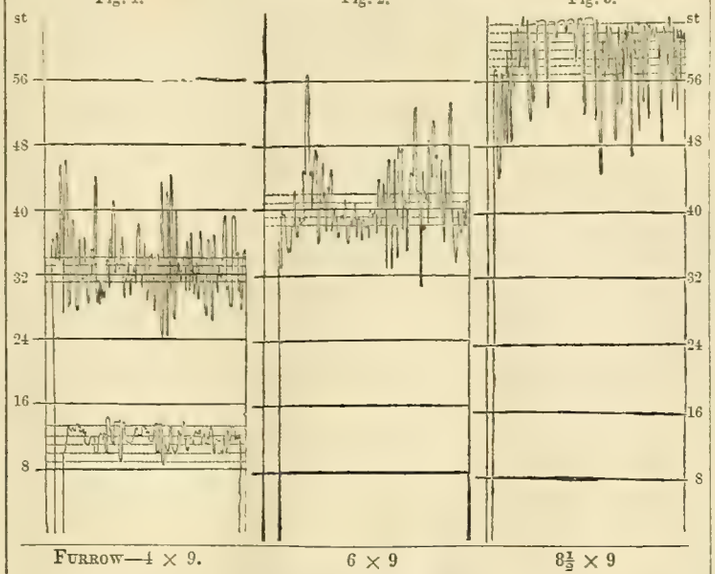
A. "The wireworm has committed great ravages amongst the Wheat this spring. In the eastern counties, especially, many fields have been ploughed up, the plant having been destroyed."

B. "I do not think farmers are right in attributing this failure of plant wholly to the attacks of the wireworm. Even in this *well-ordered* and *wealthy* country we hear sometimes of people being found dead from starvation. May there not be such a thing even in this generally *well-cultivated* land as vegetables dying from want of food, too?" And it might have been added that such cases would be much rarer were the stores of food within the reach of plants more extensive; that is, were the soils on which they grow deepened, and rendered fertile throughout their depth.

But we must not forget that the proper subject of our remarks at present is not the *advantage*, but the *labour* attending deep cultivation. The draught of ploughs does not increase so rapidly with the depth at which they are worked as might have been expected. Mr. PUSEY found it so in his trials. We extract from his report the following Table of numbers shown by the draught-gauge on a free loamy sand when attached to the different ploughs at four different depths:—

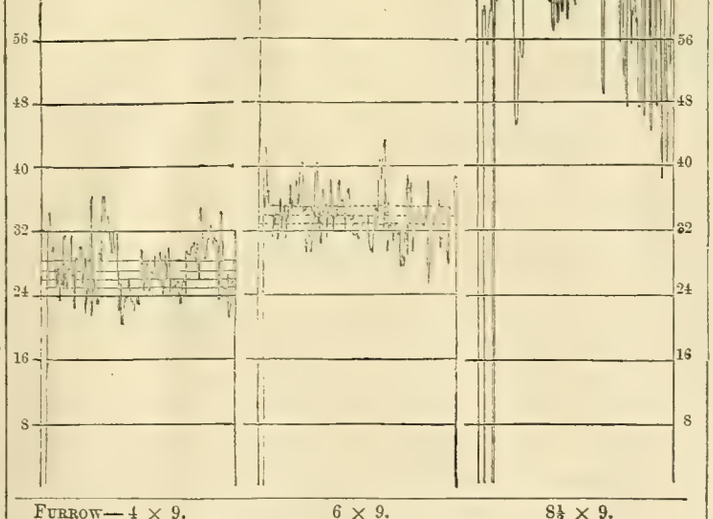
	Furrow 4×9	5×9	6×9	7×9
	Inch	Inch	Inch	Inch.
1. Ferguson's Scotch Swing-plough	18st	19st	19st	22st
2. Clark's Scotch Swing-plough	17	17	18	21
3. Hart's, Berks, one-wheel	11	12	16	18
4. F.F. Ransome's two-wheeled	12	13	18	21
5. F.F. Ransome's Swing	16	16	18	21
6. King's Swing	15	15	18	20
7. King's One-wheel	16	17	21	23
8. Rutland N.L. Two-wheel	16	16	18	20
9. Old Berks	21	21	24	31
Average	15⅞	16⅔	18⅝	21⅓

FERGUSON'S SWING PLOUGH.



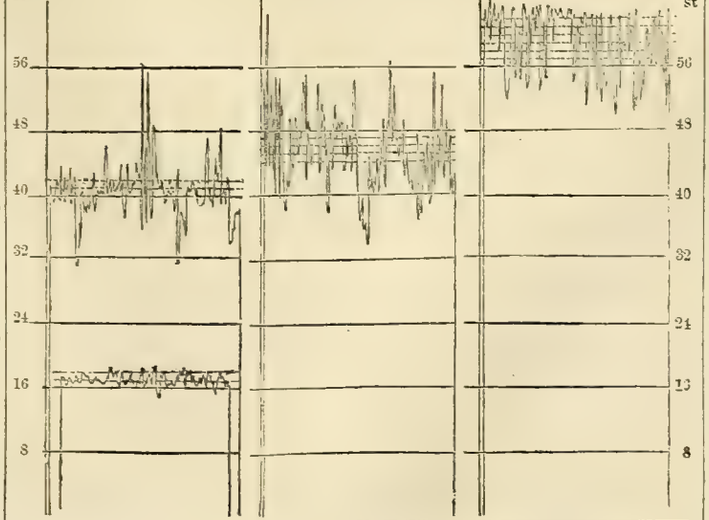
FURROW—4 × 9. 6 × 9 8½ × 9

BEVERSTONE WHEEL PLOUGH.



FURROW—4 × 9. 6 × 9. 8½ × 9.

BARROWMAN'S SWING PLOUGH.



FURROW.—4 × 9 6 × 9. 8½ × 9.

"It will be seen by this Table that, on sandy land at least, the draught increases but slowly when the furrow is deepened. As this is an important point in the practice of husbandry, and as it is laid down on the contrary in our books that the draught increases rapidly, or in mathematical terms, according to the squares of the depth, — that is to say, that if the draught at 4 inches be 18 stones, at 7 inches it will be as 49 to 16, or 54 stones. I put the question again to the test two days later, upon a poor moory soil, with Ferguson's Scotch Swing plough. We began with a 5-inch furrow, and went lower each furrow until the plough was a foot in the ground. The increase of draught was as follows:—

Furrow 9 in. wide. Depth in inches.	Draught in Stones.
5	23
6	22
7	25
8	30
9	31
10	40
11	50
12	50

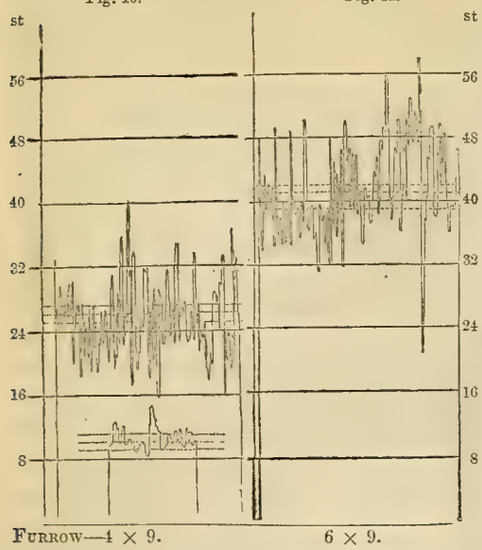
"This is a difficult experiment to make, and some of the numbers show that we did not succeed always in keeping the proper depth of our furrow. Still they are near enough to prove that the law of increase laid down in books is altogether erroneous; since, if that were the correct rate, the draught at a foot would have been not 50 stone, but 132."

The annexed figures, drawn by our recording dynamometer, lead to a similar conclusion; the following are the facts deducible from them:—

Furrow 9in. wide. Depth in inches	Ploughs. Ferguson.	Beverstone.	Barrowman.	Barrett.
4	33	27	41	25
6	40	34	46	40
8¼	60	64	61	

BARRETT'S WHEEL PLOUGH.

Fig. 10. Fig. 11.



FURROW—4 × 9. 6 × 9.

We have only to add that these Diagrams are strikingly corroborative of a remark by Mr. PUSEY regarding the Table extracted above from his report. He says, "It should be remarked that the Scotch ploughs increase very little in draught as they go deeper; indeed, these ploughs appeared throughout to most advantage when they were low in the ground." Now it is not by any means probable that *that* form of mouldboard and arrangement of share, sock, &c., which would form a plough of least draught at a given depth in the land, would also form the plough of least draught at any other depth. And true economy would advise such a construction of the implement as would occasion the least draught when working deep, rather than when working shallow, for it is in the former case only that the draught animals require relief. For this reason, and in this respect, the construction of the swing ploughs of FERGUSON and BARROWMAN is more praiseworthy than that of the BEVERSTONE plough, and that of Messrs. BARRETT and EXALL'S plough. And the difference between these implements in this respect, *i. e.*, in respect of the rapidity with which their draught increases with the depth at which they are working, will appear greater when we substract from the figures in the Table inserted above that portion of the draught which in each case is owing to the mere weight of the plough. This our previous inquiries enable us to do. The Table will then stand thus:—

Furrow 9 in. wide Depth in inches.	PLOUGHS.							
	Ferguson.		Beverstone.		Barrowman		Barrett.	
	St.	Incr.	St.	Incr.	St.	Incr.	St.	Incr.
4	21½		18		24		15	
6	28½	7	25	7	29	5	30	15
8½	48½	20	55	30	44	15	—	—

A few further remarks regarding the relative influence of the various sources of draught in the plough, which we hope to make next week, will close this report.

HOW TO SECURE FOOD AND EMPLOYMENT FOR THE WORKING POPULATION.

THE extent of land which is under Wheat in the United Kingdom is estimated at about eight millions of statute acres; and, of course, if the average produce per acre, which is now supposed to be under 24 bushels, could be increased to an average of 27 bushels, this would yield an increased production of 24 millions of bushels, or 3 millions of quarters, which is more than the actual import of any one year, during the above-mentioned period, and nearly one-half more than the average amount of the annual importation. Or, supposing that 1 million of additional acres were brought into Wheat cultivation, and produced merely 24 bushels per acre, the same result would follow—say an increased annual produce of 3 millions of quarters. In considering how such an increased produce could be obtained, I beg to remark, that, for several years past, there has existed a practice among improving landlords, who have had the requisite funds at command, of advancing the necessary capital to their tenants, to furrow-drain their farms at 5 per cent. interest to be added to their rents, which practice has been attended with the greatest advantage to all parties concerned; and if it was extensively adopted, such has been the increased produce obtained thereby, that no man who has had the opportunity of observing it can doubt but that, between the additional acres brought into Wheat cultivation, and the improvement of the lands now under that crop, the extra supply proposed of 3 millions of quarters might not easily be obtained. Under these circumstances, therefore, let it be supposed that the legislature should take upon itself to furnish the money required for this particular object, taking security upon the properties to be thereby improved, for the interest at which the money could be raised, say 3½ per cent., and should make the payment thereof a first charge on the said properties (to be collected by the excise collector of the district, in like manner as the quit rents are collected upon estates in Ireland), and it becomes evident the means would thereby be afforded of carrying this practice into effect to any extent, without any additional burden being entailed upon the country. Now, supposing such a plan had been adopted in 1837, and that the sum of 2 millions sterling annually had been advanced, in the manner just proposed, there can be little doubt that now, in 1842, we should have secured, at an expense of 10 millions, an addition to our home-growth of Wheat equal to all we have imported in any year of the greatest scarcity; and this supply would not have been secured for this year only, but would be secured for ever; and the outlay of 2 millions annually, would also have produced such a fund of employment as would not only have kept every agricultural labourer from the workhouse, but would also have supplied a valuable fund of employment for the manufacturing operatives (who had either been withdrawn from that annually), or afford the additional demand for the labour required for its cultivation. The adoption of this national plan of providing national employment, and promoting national improvement, is strongly supported by the following considerations:—1st. The certainty of its being fully adequate to its object, which becomes apparent, when the number of acres of reclaimable land in the United Kingdom, which may be brought into profitable cultivation, by the operation of furrow-draining, and the number of acres of arable land, already under the plough or in pasture, which may be improved thereby, are taken into consideration. 2dly. That this plan would be acted on to such an extent as to produce the practical results desired, we have this satisfactory security, namely—the self-interest of all the parties concerned in carrying it into effect. The landlord would be glad to promote an outlay which he would at once perceive would insure to him a very great increase to his rental, at the expiration of the leases existing on his estate, without his being obliged to lay out anything; and would, therefore, be most anxious to encourage his tenant to avail himself of such an offer, if made by the legislature; and the tenant would be equally well inclined, as he has been hitherto deriving advantage from the same practice, paying 5 per cent. interest, and would, of course, derive still more by being subject to only 3½ per cent. It is, therefore, reasonable to conclude that his anxiety to avail himself of such an offer from the legislature, as soon as possible, would create such a demand for labourers as would secure to them remunerative wages, and the kind of labour—merely digging a drain—is of a nature so simple, that the most ignorant manufacturer would feel himself competent to undertake it. 3dly. The improved produce obtainable by furrow-draining, is not confined to Wheat only, but is felt equally in regard to all other kinds of grain, as well as green crops; and the food of stock being thereby augmented, the supply of flesh meat would be increased in the same ratio as that of bread. 4thly. Great, however, as these advantages may be considered, they are by no means all that the community may expect from the extensive carrying into effect of the plan proposed. We have of late seen but too frequently how much the public prosperity has been compromised, by the exportation of the precious metals, to pay for the import of the Wheat required for our subsistence; and not merely the actual occurrence of such a demand for gold, for export, but even the very apprehension of it has exercised a baneful influence over the manufacturing and commercial interests of the empire. All such fears would be for ever set aside, if there be any truth whatever in the foregoing representations; and a bright prospect of national wealth and independence would be opened to our view, without diminishing the welfare or happiness of any class; but, on the contrary, most materially conducing to the comforts and enjoyment of all. 5thly. If the adoption of the foregoing plan would be attended with such beneficial effects to the present generation, it will prove, in itself, a most powerful means of extending its benefits to generations yet to come. For let it once be granted that the plan shall be adopted to such an extent as the wants of the country may at present require, the fall in the price of agricultural produce will be such, that every farmer who will not follow the example set to him, of increasing the produce of his land, in order to indemnify himself for the diminished rate at which it must be sold, will not be able to pay the rent of his farm; and if he will not avail himself of the offer held out by the legislature, he will soon find himself compelled to give up his land to some other that will—an alternative he will not be likely to adopt; and thus the wheel being once set in motion, will be carried on by its own impetus, and increased employment, and increasing production, cannot fail to keep pace with the increase of population, however rapidly it may take place. 6thly. If the population and wealth of the United Kingdom were thus increased, our 50 millions of taxation, which press so heavily upon the nation at present, when hereafter levied off a population and an expenditure so augmented, would scarcely be felt at all, and seems the only legitimate mode of lessening the public burdens now left to us. Having thus shown that the proposed plan is adequate to its object, and pointed out some of the arguments in its favour, it remains only to be considered, what obstacles may arise to prevent its being acted on, as far as the limits of a letter will permit. In this respect the objections ought to be very strong to overbalance the advantages which the plan appears to offer. Its adoption will literally cost the public nothing—the rent-charge on the properties improved will cover all the liabilities—the legislature will merely be the medium of bringing together the capitalist and landlord, the parties who are concerned in the transaction—the interest being secured as a first charge upon the lands, can in no way be likely to bring the executive into embarrassment—the facility of its collection being sufficiently proved by the ease and punctuality with which the quit-rents in Ireland have been constantly collected. Again—the plan is free from the objection generally made to Government outlays, on account of the extravagance attending them, for the correct expenditure of the money is, it may be said, guaranteed by having the self-interest of those concerned engaged on the side of its faithful disbursement. The landed proprietor is interested to see that the money is well laid out, the interest of which is to be a charge on his property, and upon the judicious outlay of which the advantage to be derived by him, in the future setting of his land, must plainly depend; and the tenant who, during his tenure, will have this interest added to his rent, will be always on the spot, and anxious to see the work properly executed. So that it would appear by no means unlikely, that a single government officer in each county might be able to examine and measure the work, and make the necessary returns to the excise of the amount to be advanced in each instance, and the charge to be annually collected. No objection can reasonably be made by mortgagees, minors, or those in the entail, because it has been already proved to demonstration, by the actual practice of hundreds of landlords and tenants, that the plan contemplated enhances the value of the land to the one as owner, and to the other as occupier, in a ratio very much exceeding a charge of five per cent. interest; and it must, therefore be evidently for the advantage of any one, whether immediately or remotely concerned in the soil, to have the same description of improvement made upon it, at a charge only amounting to three and a half per cent., which, in charging the land with a certain payment, does not prevent the mortgagees or other claimants from entering into possession of the rents when legally entitled. I beg, therefore, to urge upon the consideration of the public, that here is a distinct and specific plan submitted to its examination, apparently fully adequate to the object proposed, and perfectly within the power of the legislature to carry into effect; and though it may seem confined in its operations to the mere accomplishment of its avowed objects, will also be found well calculated to increase the salubrity of the climate of our country, and of course promote thereby the health, the happiness, and longevity of its inhabitants. If the experiment should succeed, it will most inevitably confer a certain degree of independence upon the operative, by opening to him a new and abiding source of healthy and remunerative employment; if but partially successful, it may nevertheless be found adequate to withdraw from the workhouse every able-bodied inmate—and if, unfortunately for the cause of humanity, it proved an entire failure (which could only arise from the want of applicants), no loss could thereby be entailed on the public, as no expense will be incurred by making the trial.—*W. Blacker, Armagh, Oct.* 1842. *Appendix No.* 9. *Evidence taken before H.M.'s Commissioners of Inquiry into the state of the Law and Practice in respect to the occupation of Land in Ireland.*

HOW TO ENCOURAGE THE BREEDING OF USEFUL STOCK.

IN your Paper of July 5 you insert a letter from Mr. Twynam, of Stockbridge, under the above heading, originally published in the *Mark Lane Express*. In that letter Mr. T. asserts that "in the opinion of nine-tenths of the practical men of this country the mode adopted by the Royal Agricultural Association for the attainment of that object is founded in error, and most fallacious in practice;" and that if his suggestions were adopted, "our breeders would no longer be deceived in the capacities of breeds, which perchance have too long led them astray; because some fanciful amateurs, in the persons of our nobility, have been induced to to take them under their especial protection." This, to say the least, is a most sweeping, and somewhat ungracious condemnation of a Society allowed at all hands to have done much practical good. Still, if the accusation be correct, the sooner a system so faulty as that complained of be put an end to the better; but, if on the contrary, it can be shown that Mr. T. does not give that credit to our experienced breeders for judgment and good sense to which they are fairly entitled, let him stand corrected.

The two points to which I would call Mr. Twyman's attention are these:—1st, that the R. A. Society in offering premiums for fat stock, does not put forth an opinion that these individual animals are in the best, or even a proper condition to breed from; it simply requires such a condition as the test—indeed, as regards the public, the only test—of the propensity of a particular breed to fatten and lay on flesh. Why is it that horses offered for sale either to, or by dealers, are nine times out of ten, loaded with superfluous flesh? partly, perhaps, to cover, some weak point: to this the old rule of *caveat emptor* must apply; but chiefly for the purpose of showing that the animal has constitution to enable him to carry flesh; every judicious purchaser of these made-up horses on getting them into his own stable takes measures to get them into hard working condition. In like manner the purchaser of stock, taking the condition of the

animal at the show as a criterion of the qualities of the breed, would select stock of the same character; but not in the same over-fed condition. I would, therefore, beg to suggest to Mr. T., that the R. A. Society is not so far wrong. It gives the purchaser the best means of proof—ocular demonstration—and I conceive that if he brought his favourite cross to market, with the mere assurance that they would fatten, he would not be so likely to find customers amongst experienced breeders and feeders as if he could point to one of his flock that had carried off a first prize at Southampton or elsewhere, against Mr. Jonas Webb or the Duke of Richmond? 2d. As to his assertion that breeders have been misled by fanciful amateurs, &c.; a bad horse may do well enough amongst bad ones; so it is with sheep; but the butcher's, after all, is the real test of the value of stock; and so long as first-rate Sussex Downs command the top price in first-rate markets, with well ascertained qualities of laying on meat, propensity to fatten, and early maturity, can Mr. T. be justified in using the terms I have quoted, or be correct in the inferences he would draw from them?

Those who by well conducted experiments test the comparative value of stock deserve at least the thanks of their brother agriculturists; and if I am not mistaken Mr. T. would find that those parties, whom he is pleased to denominate fanciful amateurs, &c., would be very ready to avail themselves of any suggestion for the improvement of their favourite stock, could he show them sound, substantial, and therefore profitable reasons for so doing.

One word, however, as to Mr. Twynam's pet cross of Cotswolds and Hampshire Downs. Mr. T. is a Hampshire man, and may perhaps not be entirely satisfied with the "faint praise" these said South Downs received at the meeting of the Royal Agricultural Society at Southampton, in 1844, when a clear stage, and the best possible opportunities were offered to the Hampshire breeders of showing, on their own ground, their best stock. I have never yet heard any competent person complain of the recorded decision of the judges on that occasion. The peculiarities of the Cotswold are well known, and I am inclined to think that when mutton of first-rate quality is required, a cross with these would be a failure. I have seen such a cross as that described by Mr. T., in the hands of a first-rate farmer in my own neighbourhood, and the only merit I could discover was that at 15 and 18 months they were gigantic masses of fat, but when compared with well-bred Downs, with but little meat in the right place; and, consequently, not calculated in a general way to command either a ready sale or the best price.—*A Subscriber, and Member of the Royal Agricultural Association, July 7, 1845.*

REPORT FROM THE SELECT COMMITTEE ON THE CHARGING OF ENTAILED ESTATES FOR DRAINAGE, &c.

By the Lords Committees appointed a Select Committee to inquire into the expediency of a legislative enactment being introduced to enable possessors of entailed estates to charge such estates with a sum, to be limited, for the purpose of draining and otherwise permanently improving the same; and to report thereon to the House.

ORDERED TO REPORT,—That the committee have met, and considered the subject matter referred to them, and have examined several witnesses in relation thereto. The evidence of these witnesses leads the committee to express their opinion that the operation of draining properly conducted, not only tends by its immediate effect to increase the produce of the soil and to facilitate its cultivation, but also permanently enhances the value of the inheritance to all future proprietors.

The committee are further of opinion, that in some cases (brought before them in the course of the evidence they have taken) the full advantage to be derived from thorough draining cannot be obtained without the erection of farm buildings suitable to the improved state of the land drained.

The committee also wish to add their conviction, that more general extension of good drainage throughout the country is highly important, as calculated to prevent disease, and improve the general health of the community. It is certain, however, that the attainment of these benefits is in many instances prevented, in England and Ireland, by the natural reluctance of proprietors to expend capital upon the permanent improvement of land in which they have only a limited or partial interest. In Scotland a law (10 Geo. 3, cap. 51), intended to remove this difficulty, has for many years been in operation; and although the provisions of that act are in some respects defective and inconvenient, the importance of the principle is universally felt in that country. An attempt was made to carry out the same principle, with respect to England and Ireland, by the statute 3 and 4 Vict., cap. 55. The legislature by that Act have fully recognised the propriety and importance of enabling parties with limited estates to charge the inheritance, under certain regulations, with money expended upon permanent improvement by drainage; but the apprehension of great delay and expense consequent upon proceedings under that statute appear to have very generally deterred persons from seeking to take advantage of it. Not more than 11 applications appear to have been made under that statute, although the evidence fully satisfied the committee that cases are constantly occurring to which some measure of that nature might most beneficially applied.

Recollecting how important it is for the security of property, that much caution should be exercised in the application of any powers which may be given for placing a charge upon the inheritance at the instance of persons having only a limited interest in the estate to be charged, the committee think that no measure would be satisfactory which should not secure the control of the Court of Chancery, or of some superior legal tribunal; but they are satisfied that the object may be attained with much less of delay and expense than attends a proceeding under the present law. The committee have therefore come to the conclusion that they cannot execute the task confided to them more usefully than by pointing out the manner in which, in their opinion, the statute 3 and 4 Vict., cap. 55, may be altered and amended so as to become practically and generally useful. They have had the advantage of good legal assistance in this respect; and a bill has been accordingly prepared under their direction, which they have requested their chairman to lay upon the table of the House. It is obvious that the question both of delay and expense must be materially affected by the forms of proceedings to be adopted on any application to the Court. The committee feel that it would be inconvenient, if not improper, to encumber the Act with minute regulations as to those forms which may be more effectively as well as more properly settled by orders of the Court itself. They think it right, however, to advert generally to some of the points to which it is necessary that attention should be directed in order to attain the desired object, of a cheap and expeditious proceeding, combined with the ultimate control and supervision of the Court. The committee understand that the common practice is to refer all petitions under the statute, without discussion, to one of the Masters of the Court. It appears to them, therefore, that the attendance of counsel, and other expenses of putting a petition down for hearing, might safely be dispensed with, and some order made by which all such petitions should go at once before the Master, the judgment of the Court being exercised upon the matter when the Master shall have made his report. Difficulty is sometimes experienced relative to the surveyor upon whose evidence the Master is required to act. The person proposed by the applicant does not always command the confidence of the Master or of the other persons interested, and both expense and delay are occasioned by discussions in the Master's office upon this point.

It is suggested that the Master might name a competent person upon whose evidence, given orally or by affidavit, he might act, leaving him, however, a discretion to call for or permit the production of other evidence, if he shall think fit. It is also thought that the mode of proceeding usually adopted with respect to the bringing in a paper called "a state of fact," being little more than an echo of the petition, and to the taking of copies from the office, and some other particulars of the practice, might be advantageously altered, so as to leave the applicant to prove the allegations of his petition by the production of such documents, and such other evidence as he may be able to bring forward, care being always taken that all persons interested have proper notice of the proceedings. The committee entertain no doubt that, if the bill now suggested shall pass into a law, the judges will be able readily to make such orders as shall carry the object of the legislature into effect consistently with a due regard to the established rules of their respective courts.

In conclusion, the committee desire earnestly to press upon the consideration of the House the importance of legislating upon this subject without delay. The principle which it is now proposed to carry out has been fully recognised by repeated acts of the legislature, and there never was a moment at which the extensive application of that principle, both in England and in Ireland, would be more useful than the present.

The measure now recommended would tend greatly to benefit both countries, by extending the demand for remunerative labour, and increasing the amount of agricultural produce; and with respect to Ireland in particular, the committee desire to close this report by an extract from the report lately made by the commissioners upon the tenure of land in Ireland, which was founded upon very minute and extensive inquiries throughout that country, viz.:—"In accordance with the recommendation of the committee on public works, which sate in 1825, we are of opinion that for the permanent improvement of an estate, confining that expression to such operations as may properly be considered of an agricultural character, tenants for life or other persons should be empowered, subject to proper and efficient restrictions, to charge the inheritance to an amount not exceeding three years' income for such improvements, being bound to repay the principal by instalments, and to keep down the interest."

There are several other matters connected with the permanent improvement of estates for the benefit of all parties interested, to which, although not embraced in the reference to this committee, they are desirous of directing attention.

They refer particularly to powers of leasing and making exchanges; and they recommend that early in the next session a committee should be appointed, to consider and report whether it may not be proper, under certain restrictions, to confer by law general powers for the above purposes upon persons having limited interests in land.

Home Correspondence.

Bones and Sulphuric Acid.— Your correspondent "Scrutator" struggles for bones and sulphuric acid with a degree of zeal and pertinacity which will convince every reader that he has a strong disposition rather to contend for the theory than for truth. Whatever may influence him, however, is nothing either to the public or myself—the facts are before the world—the experiments will be repeated, and then it will be seen whether it is one of the thousand and one delusions, a "Cæsarian Cow-cabbage" scheme, which should make the wool of sheep fed upon it grow two yards in length, and whose stalk should be useful for bridges over narrow rivers. Had not "Scrutator" left out the really important part of my note, I should have never troubled you with this; for all his column and a half really means nothing; for anything he has shown to the contrary, the theory is as complete a hoax and delusion as was ever palmed upon the credulous. It became one who speaks of "a single grain of fact" being so important, surely to notice in some way the "ponderous" accumulation of facts mentioned by Mr. Robert Russell, of Kilwiss, who shows by careful experiment something like the following results:—1. Sandy Oats—sulphuric acid and bones, 11 bushels per acre less than bones alone. 2. Hopetoun Oats—sulphuric acid and bones, gave 4 bushels per acre less than where nothing was applied. 3. Turnips—sulphuric acid and bones, gave a ton and a quarter less per one-ninth of an acre than bones alone. 4. Turnips—sulphuric acid and bones, gave only half as many Turnips as bones alone. Here is something ponderable for "Scrutator" to deal with, enough to satisfy any reasonable mind that the value of bones and sulphuric acid are by no means decided.—*W. E. W.*

Pasture—Weeds.—The weeds of agriculture are conveniently divided into those infesting arable and pasture grounds; for while the former may be wholly eradicated by the hoe (in drilled crops), that instrument cannot, in general, be beneficially applied in the destruction of the latter class; but we have other means to check or destroy injurious plants in our pastures. One class only grow where the soil is wet, as the Marsh Marigold (Caltha palustris), Tufted Hair-grass (Aira cæspitosa), Rushes (Juncæ), &c.; the only method of destroying these, and one that is effectual, is draining the land. Others usurp the place of more valuable species in land long mown, the principal of which are the Cow-parsnip (Heracleum Sphondylium), wild Chervil (Anthriscus sylvestris), and Hardirons (Centaurea nigra). In land long grazed the Creeping Plume-thistle (Cnicus arvensis) often is very predominant. Now, it does not seem to be generally understood, or at least acted upon, that these latter may be greatly checked or wholly destroyed by alternating the system of mowing with grazing for about three years consecutively, the injurious plants would, in a great measure, disappear and give place to valuable Grasses and Clovers, and consequently the pasture would be greatly improved.—*T. Allestree.*

Dairy Management.—"D. M." is not sufficiently acquainted with dairy concerns, to know whether "Emily's" return of butter was a fair one; but she had a friend who had two favourite cows, partly Suffolk breed, but not pure, which made, in the height of summer, for six weeks, 22 lbs. of butter; they then fell off to 20 lbs., and made that quantity for many weeks: food, Grass and Hay.

Bitter Yeast.—The bitter of highly hopped yeast may be extracted by simply washing the yeast well in three or four waters, pouring off the discoloured liquor after the yeast globules have subsided. When examined under the microscope, yeast is found to consist of globules, somewhat similar to the cream globules in milk, or the red globules in blood. These globules are not bitter, but in common yeast they are always blended with minute fragments of the Hop, which make it intensely bitter; but which well washing and stirring will remove. After this process the yeast is much whiter, and may be gently evaporated to dryness, when it will keep for some time. Yeast does not lose any part of its fermenting property by this simple process.—$\phi\delta$.

Our Notices to Correspondents.—In last week's *Agricultural Gazette*, you say under "Notices to Correspondents," — "ROTATION OF CROPS—*F X* — Your proposed rotation is as good a one as we can suggest; a little experience will show whether it would be improved by allowing the seed to remain two years down instead of one only." The value of publications is increased according to the information they give; yours gives a great deal, but it could certainly be made much more perfect. How is this rotation of crops to be known unless you publish it? I am most anxious to learn and know it—others must also be. Such information must be invaluable; and it is a great pity you do not adopt some plan by which you could in the same Paper give the public the answers to the queries: it would greatly increase the value of your publication. About a twelvemonth ago, I addressed you on the same subject, when you were pleased to say you approved of the suggestion, and it should receive attention.—*J. C., Bellefield House, Trowbridge.*—[Whenever the matter inquired of is thought to be of *general* interest, we take care to let our readers know the particulars of the case; where it is not thought to be of such general interest, we aim at condensing our reply as much as possible. We have not "F. X.'s" communication before us, but think it referred to the following rotation for a farm on the west coast of Ireland. 1, Oats; 2, Turnips; 3, Barley-seeds.]

The Practical Man versus the Theorist.—Scarcely anything can be more amusing to the practical farmer than the mistakes sometimes made by theoretical writers, when they would indicate to him the nature of the food of plants as deduced from chemical analysis,

and would describe the means necessary to carry on the processes of vegetable nutrition according to their own theoretical conclusion. The most intelligent practical farmers highly appreciate the talent of the great chemist, and estimate fully the valuable service he has rendered in the science of agriculture; but when, having proved the existence of ammonia in the atmosphere, he concludes that plants derive all their supply from that source, and when his innumerable disciples broadly assert that inorganic substances alone are required to be applied to the land to restore the exhaustion consequent upon over-cropping, the practical man can scarcely repress a contemptuous smile when he recollects that long before he fully comprehended the nature of ammonia, the pungent smell, its peculiar property, was generally the criterion by which he estimated the quality of his dung, and that its fertilising properties ever were dependant upon the degree of this, its strength. Then, again, when the inorganic theorist asserts that the ashes of a crop contains all the fertilising elements necessary to produce a second equal crop, with the exception of carbon and ammonia, which are assimilated from the atmosphere, and consequently are not necessary in the manure applied, and that their ashes when applied to the soil would practically produce as good a crop, if used as manure, as would be raised if the same produce was converted into dung in the ordinary way—the practical man knows that any adoption by him of such a notion would be the height of folly, as he is well assured that if the produce of his farm in fodder is consumed by cattle beyond a certain degree, his future crops suffer in consequence of not being supplied with the necessary quantity of decaying carbonaceous matter. But when an individual of high scientific attainments, as your talented correspondent Mr. Lawes, puts theories to the test of direct experiment, such services as are by him rendered to the agricultural public are invaluable; they show to the farmer the necessity for some inorganic matter in his manures, and also inform the mere theorist of what the practical man well knows, the necessity for a good supply of decaying organic matter in the soil, if crops are to be raised with any degree of success.—*J. Birditt.*

Preserving Eggs.—A pint of lime and a pint of salt, mixed with a pail of water, will preserve eggs for any reasonable time. My wife read it in an old almanack, and tried it last year; the eggs were as fresh at the end of six months as any egg would be from the nest. —*B. F.*

Medicago maculata, sm. polymorpha.—I think if this plant were better known it would not long be out of cultivation as an early spring feed. It is very early, and is eaten by cattle with avidity. I have seen large patches of it in the richest pastures, eaten close to the earth, when the natural herbage surrounding them has been several inches high and untouched, as long as a stem of the Medicago could be got at. When once it finds a suitable spot, it establishes itself almost to the exclusion of other plants; a small spot of less than a square yard, 20 years ago, now is extended to several perches, and still continues to spread, probably from seed, as it ripens earlier than any other plant of its order, and produces seed in great abundance.—*Lusor.*

Kohl Rabi.—Some time since a correspondent "J.S." mentioned the stalks of Kohl Rabi; if he has the true kind he will find it has scarcely any stalk at all, only a small straggling tuft of leaves; but it is liable to crack and open on the crown, when under forced cultivation, which is a great objection to its general use.—*Lusor.*

Draining Tiles.—"A Subscriber," June 7, suggests, as a means of preventing the displacement of the ends of pipe-tiles, when laid in the drain, to have them of different diameters, and to insert the end of one into the other. If the bottom of the drain be properly finished with a scoop of the size of the pipe intended to be laid, there will be little risk of displacement; but if greater security be required, a small cap of this form, of about 3 inches in length (and which could be made by the tile machine at a very trifling expence), placed over [or under—which?] each joint, would ∩ effectually secure the pipe from displacement, and at the same time serve to keep extraneous substances from insinuating themselves through the joints.—*Lusor.*

Management of Grass Land.—I have a field, about 7 acres of pasture, which contains such a quantity of broad leaf Plantain as seriously to affect the crop of Grass. Will you be kind enough to give me your advice? I have so small a portion of glebe that I am obliged to mow it every year, or I must buy hay. It has occurred to me, that by giving it a rotation of arable crops, the land might be cleansed of the Plantain, but I have been told by farmers that such would not be the case. Is it so?—*Clericus.* [Undoubtedly. Any weed may be extirpated by perseverance in thorough cultivation. If you pare and burn the land in autumn, and plough the ashes under, and let it be all winter; then, on ploughing deeper in spring and reducing it to as fine a tilth as possible, you may sow Swedish Turnip in drills 2 feet apart in spring, which will give you an opportunity, by horse-hoe and otherwise, of cleansing the land perfectly during summer. It may be as well to take a succession of crops for the next two or three years, taking care always to consume all the produce excepting grain upon the land, and you may then lay it down to grass again.]

Prize Lists of our Agricultural Societies.—All men are not born to affluence, yet there is no reason why contentment and competency may not flourish in the country, teeming as it does with wealth, provided those in whose power it is to promote industrious habits, and provide useful employment for their poorer fellow-creatures. Man, as an individual, lives too much for his own particular pleasure and profit, without considering the moral obligation he is under to advance as much as is in his power the welfare of his immediate neighbours. In the constitution of the human animal the centre of attraction is self; and too often the imaginary favours conferred upon our fellow-creatures are dispensed with an ulterior view to our own luxuries and increasing wealth, and not for the sake of those who carry out our ambitious projects. A simple fact is thus stated not to throw blame on individuals who look after their own interests, but to show the importance of societies of every description, whose object is to relieve the wants and increase the comforts of all classes. Amongst these, agricultural meetings stand in the first rank, having the power, if judiciously wielded, of influencing the happiness of thousands. Hence it becomes a positive duty of such associations to excite the exertions of the small farmer and labourer, by offering premiums which they can compete for, without the interference of the "high feeders" and "monied men," whose purses, in many cases, supply the place of manual labour and perseverance, on which alone the moderate farmer and husbandmen depend. There can be no doubt that the talented and patriotic men who superintend the affairs of the various agricultural societies, only require their attention to be called to the beneficial effects that would arise from a distribution of a different class of prizes, to give the experiment a fair trial. Hitherto rewards have been presented for animals which are an exception to the usual saleable stock at market calculated for the butcher. If it is desirable to continue over-feeding animals as a means of obtaining scientific information as to the most nourishing roots, grain, &c., capable of producing the greatest quantity of fat, let it be so; at the same time, an impartial investigation should lead to a thorough examination of the economy of farming, watching steadily the ascending scale, and noting carefully at what point it would be most profitable to stop, both in breeding and feeding, &c., according to experience and available practical knowledge. In order that the energies of the farmer with a small capital and a limited number of acres under his management may be called forth, it is suggested to Agricultural Associations to introduce prizes more within the reach of the hard working cultivator of the soil, viz.:—1. For the best tilled farm, not exceeding —— acres; showing the most judicious rotation of crops, and the greatest number of acres under the spade. 2. For the best and cheapest mode of saving manures, rendering the farmer independent of foreign aid. 3. For the best plan of stall feeding cattle and sheep (with the most nutritious roots and green crops raised on the land), for the butcher. 4. For the best breed of cattle, sheep, or pigs, requiring the least food to fatten them for the market. Many other rewards will naturally occur to the friends of agriculture equally beneficial to the small farmer and labourer, which it is not requisite to mention; enough has been said to induce more able men to advocate the cause, and the *Agricultural Gazette* is most earnestly requested to give an opinion upon a subject so momentous to a deserving class of our countrymen, whose funds will not admit of their entering the ranks against the wealthy und large holders of land.—*Falcon.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A weekly Council was held at the Society's House in Hanover-square, on Wednesday last the 9th of July, present: His Grace the Duke of RICHMOND, K.G., President, in the chair; Lord Portman; Hon. R.H. Clive, M.P.; Hon. G. Agar; Sir C. Lemon, Bt., M.P.; Sir M. W. Ridley, Bt.; R. Archbold, Esq., M.P.; Col. Austen, M.P.; J. Baines, Esq.; T. R. Barker, Esq.; R. Beman, Esq.; J. Benett, Esq., M.P.; F. Burke, Esq.; Dr. Calvert; Col. Challoner; F. C. Cherry, Esq.; W. A. Cherry, Esq.; G. Cottam, Esq.; Col. M'Douall; J. Dean, Esq.; C. Etheredge, Esq.; F. W. Etheredge, Esq.; T. B. Glegg, Esq.; W. Fisher Hobbs, Esq.; E. Hussey, Esq.; J. Kinder, Esq.; Capt. Langley; H. Price, Esq.; W. Pyne, Esq.; Prof. Sewell; S. Solly, Esq.; Prof. Spooner; W. Stace, Esq.; W. R. C. Stansfield, Esq., M.P.; J. H. Tremayne, Esq.; T. Turner, Esq.; T. R. Tweed, Esq., and J. L. Wight, Esq. The following new Members were elected:—

Hamer, David, Glanafon, Salop.
Hamer, John, Glanafon, Salop.
Honeywill, Henry, Itchington, Thornbury, Gloucestershire.
Thornes, Henry, Argoed, Nescliffe, Shrewsbury.
Fowler, F. E. H., 28, Sackville-street, London.
Onslow, Phipps V., Suckley, Worcester.
Dent, John, Worcester.
Lovett, Joseph Venables, Belmont, Oswestry, Salop.
Cope, William, Shiffnal, Salop.
Austin, William Hazledine, Manor House, Woore, Drayton, Salop.
Coyney, Charles, Coyney Hall, Loughton, Staffordshire.
Hughes, John, Fennant, Wrexham, Denbighshire.
Loomes, Edward, Whittlesey, Cambridgeshire.
Hastings, John Ker, Hereford.
Warner, Henry, The Elms, Loughborough, Leicester.
Marjoribanks, Dudley Coutts, Bushy Hall Farm, Watford, Herts.
Dashwood, Henry, Kirtlington, Woodstock, Oxon.
Kenyon, Hon. Thomas, Pradoe, Oswestry, Salop.
Grace, Henry, Gates, Ewhurst, Northiam, Sussex.
Crespigny, F. C., Wootton-under-Edge, Gloucester.
Wynford, Lord, Leesons, Chiselhurst, Kent.
Harries, Francis, Jun., Cruchton Hall, Shrewsbury.
Peel, William, Taliaris Park, Llandilo-fawr, Carmarthen.

The following communications were laid before the Council:—

1. Plans and illustrations of a machine recently invented by Mr. Ridley, a settler at Adelaide, for the purpose of reaping corn, by threshing the ears of the standing crops. Communicated by the Right Hon. Lord Stanley, Her Majesty's Secretary of State for the Colonial Department.
2. Copies of Mr. Foote's prize essay on the Manufacture and Application of Manures, for such of the members of the Council as had expressed a desire to possess copies of that work on its presentation to the Council at a former meeting, by His Excellency the Hon. Edward Everett. From Henry Colman, Esq.
3. Specimens of draining tiles and pipes, made in Mr. Dixon's yard, at Witham, in Essex.
4. Specimens of ornamental harness mounting, manufactured by Mr. James Marlow, of Walsall.
5. Proposal for the construction of a machine for the two-fold purpose of pulverising the soil, and clearing it of stones. From Mr. Joseph Wright of Brompton.
6. Specimen of earth transmitted from North Wales, by the Rev. E. O. Hughes, Vicar of Llanbadrig, with a statement that it had been formerly fetched away, at a considerable distance, and with some difficulty, from that part of the country, in small bags, on account of its estimation as a manure. From Mr. Kimberley.
7. Analyses of Lincolnshire Marl, and the surface and sub-soils of a field in Norfolk, made by Dr. Playfair, consulting-chemist to the Society.
8. A letter from Mr. Bullen, Secretary of the Royal Agricultural Improvement Society of Ireland, stating that the ensuing annual country meeting of that society would be held at Ballinasloe, on the 30th of September next, for which all stock and implements would be conveyed, by way of Dublin, free of expense, by the steam-boat and canal companies, to the place of meeting.
9. A letter from Mr. Fuller, M.P., in which he stated that the grubs destroying the Turnip crops in Anglesey, and which were exhibited by him at a former meeting, had been submitted to the inspection of Mr. Curtis, who informed him that they were not of the same kind as those which destroyed the crops four or five years ago, but totally different, being the larvæ of a large gnat called the crane-fly. Mr. Curtis thought there was no remedy against them but that of hand-picking, which might be performed by children at a trifling expense.
10. A communication from Mr. Hillyard, on the advantages derived from encouraging cross-breeding in animals.
11. A statement by Mr. Raymond Barker of the result obtained by a friend of his in the West Indies, who had imported the best Devon bulls he could procure from England, and crossed them with the native cows in those islands. The produce had all the appearance and qualities of the pure Devon breed of the males, without any traces of the inferior character of females from which they were bred.
12. The following communication from Mr. G. T. Hume, of Parkgate, Cheshire:

Experiment by Mr. Morton and Dr. Lyon Playfair.

(1). Five sheep were fed in the open air, between the 18th of Nov. 1842, and the 9th of March, 1843, consuming 75¼ gallons of Oats, and 1912 lbs. of Swedish Turnips, putting up in the time 23 lbs. of meat.

(2). Five sheep were housed and fed in the dark, for the same period, consuming 75¼ gallons of Oats, and 886 lbs. of Swedish Turnips, putting up in the time 25¾ of meat.

The balance was accordingly in favour of house-feeding: 2¾ lbs. of meat being gained, 1026 lbs. of food saved, and the whole manure reserved.

13. An offer of services for promoting the objects of the Society during his residence at Stanley, Frederickton, New Brunswick, from Mr. P. Hayne, one of the members of the Society.
14. Mr. Hillyard transmitted specimens of the cultivated Gold of Pleasure Flax, and a troublesome weed in his neighbour's crops, to which it bore a strong resemblance.
15. Mr. Fisher Hobbs, Mr. Benett, M.P., Sir Charles Lemon, Bart. M.P., Mr. Tremayne, Mr. Solly, Mr. Stansfield, and Mr. Cherry, favoured the Council with highly interesting statements connected with the cultivation of Flax; and Mr. Clive, Mr. Fisher Hobbs, Mr. Etheredge, and Mr. Benett, on results of experience in draining.
16. Mr. Raymond Barker reported the arrangements made by the General Shrewsbury Committee for conveying passengers to the ensuing meeting, by coaches and omnibus sent down to Wolverhampton to work the ground at stated fares from that station to Shrewsbury; places being secured at the Euston station of the London and Birmingham Railway.
17. Mr. Pears, of Cambridge, communicated a statement on the occurrence of ergot in Grasses.
18. The Rev. Joseph Nodder, a letter on the epidemic among cattle; referred to Professor Sewell.
19. A letter from the Agricultural Society of St. Michael's, in the Azores, requesting communication with the Society. The journals of the Society were ordered to be sent.
20. A suggestion to reprint a collection of American tracts on agricultural subjects.

The Council then adjourned to Wednesday, the 30th of July.

ROYAL SOCIETY.

On the Rotation of Crops.—At a late Meeting of the Royal Society, Professor Daubeny read a paper on this important subject. The learned Professor was first led to undertake the researches by the expectation of verifying the theory of De Candolle, in which the deterioration experienced by most crops on their repetition was attributed to the deleterious influence of their root excretions. For this purpose, he set apart, 10 years ago, a number of plots of ground in the Botanic Garden at Oxford, uniform as to quality and richness, one half of which was planted each year, up to the present time, with the same species of crop, and the other half with the same kinds succeeding each other in such a manner that no one plot should receive the same crop twice during the time of the continuance of the experiments, or, at least, not within a short period of one another. The difference in the produce obtained in the two crops under these circumstances, would, the author conceives, represent the degree of influence ascribable to the root excretions. The results obtained during the first few years from those experiments, as well as from the researches which had in the meantime been communicated to the world by M. Braconnot and and others on the same subject, led him in a measure to abandon this theory, and to seek for some other mode of explaining the falling off of crops on repetition. In order to clear up the matter, he determined to ascertain for a series of years, not only the amount of crop which would be obtained from each of the plants tried under these two systems, but also the quantity of inorganic matters extracted in each case, from the soil, and the chemical constitution of the latter, which had furnished these ingredients. The plants experimented upon were Spurge, Potatoes, Barley, Turnips, Hemp, Flax, Beans, Tobacco, Poppies, Buckwheat, Clover, Oats, Beet, Mint, Endive, and Parsley. From a chemical examination of the crops, Dr. Daubeny concludes, first, that the falling off of a crop after repetition depends, in some degree, on the less ready supply of certain of the inorganic ingredients which it requires for its constitution, not but that two crops equally well supplied by the soil with these ingredients may take up different quantities of them, according as their own development is more or less favoured by the presence of organic matter in the soil in a state of decomposition. 2d. That it is possible that a field may be unproductive, although possessing abundance of all the ingredients required by the crop, owing to their not being in a sufficiently soluble form, and therefore not directly available for the purposes of vegetation; so that in such a case the agriculturist has his choice of three methods—the first, that of imparting to the soil, by the aid of manure, a sufficient quantity of these ingredients in a state to be immediately taken up; the second, that of waiting until the action of decomposing agents disengages a fresh portion of those ingredients from the soil (as by letting the land remain fallow); and the third, that of accelerating this decomposition by mechanical and chemical means. 3d. That it is probable that in most districts a sufficient supply of phosphoric acid and of alkali for the purposes of agriculture, lies locked up within the bowels of the earth, which might be set at liberty, and rendered available by the application of the artificial means above alluded to. 4th. That the aim of Nature seems to be to bring into this soluble, and, therefore, available condition, these inorganic substances by animal and vegetable decompositions, and therefore that we are counteracting her beneficial efforts when we waste the products of this decomposition by a want of due care in the preservation of the various excrementitious matters at our disposal. 5th. That although we cannot deny that plants possess the power of substituting certain mineral ingredients for others, yet that the limits of this faculty are still imperfectly known, and the degree in which their healthy condition is effected by the change is still a matter for further investigation. Lastly, that the composition of various plants, as given in this paper, differs so widely from that reported by Sprengel and others, that we are supplied with an additional argument in favour of the importance of having the subject of ash analysis taken up by a public body, possessed of competent means and facilities for deciding between the conflicting authorities, and supplying us with a more secure basis for future calculations.

On the Ashes of Wheat.—Another paper was also read "On the Ashes of Wheat," by W. Sharp, Esq. The experiments recorded were undertaken principally with the ultimate view of ascertaining with exactness what quantity of inorganic matter is removed from the soil by the seeds of a crop of Wheat. The author first inquires what is the average amount of the inorganic, or incombustible, portion of Wheat; a question to which no satisfactory answer has yet been given. The result of his experiment is, that Wheat yields by slow combustion a residue of from $1\frac{1}{2}$ to $1\frac{3}{4}$ per cent. He then proceeds to determine by experiment the degree in which this result is influenced by previous drying at different temperatures, varying from 230° to 260° Fah., and finds that a heat of 245° is not sufficient to expel all the moisture contained in Wheat; for, while the loss of weight is then about 8 per cent., by a heat of 260° the amount of this loss is 10 per cent. When the heat is so great as to occasion decomposition, the saline matter contained in the Wheat fuses, and a portion of the carbon becomes so entangled, or firmly adhered to it, as to be incapable of separation by burning. Hence he recommends, in order to obtain greater uniformity in the results, that the Wheat subjected to these experiments should be dried at a low temperature, such as that of a room in summer, and be allowed to remain a few days under its influence. The author tried the effect of the addition of nitric acid, with a view to save time, by accelerating the combustion, but found that the results could not be relied upon when this plan was adopted, and he was therefore obliged to relinquish it. He next directed his inquiries to the ascertaining whether the quantity of inorganic matter was in proportion to the specific gravity of the grain; that is, to its weight per bushel, and this he found in general to be the case. The conclusion he deduces from this investigation is, that the mean amount of inorganic matter removed from the soil by the grain of a crop of Wheat is exactly 1 lb. per acre. [This only amounts to one-tenth per cent. on a crop of 20 bushels per acre. One per cent. of ash in the grain of such a crop would amount to nearly 10 lbs. per acre.]

FLAX IMPROVEMENT SOCIETY.

The monthly meeting of the committee was held at Belfast on the 15th of June, S. K. Mulholland in the chair. The treasurer's statement showed an addition to the funds since last meeting of 274*l.*, including subscriptions from the Duke of Devonshire, Marquis of Waterford, Lord Rossmore, Hon. General Meade, Sir J. M. Stronge, A. G. Lewis, Esq., &c. The secretary read a report of the journey which he had made to England, pursuant to the orders of committee, to solicit the support of the English and Scotch spinners, in carrying out the extended views of usefulness which the committee now entertain. From this it appeared, that 40 of the leading firms in the flax-spinning trade of Great Britain had become contributors to the extent of nearly 300*l.*; and that great interest is excited among them regarding the measures of the Society. Irish flax is very highly approved of; and, in the majority of cases, much preferred to the growth of Russia, and other continental countries. The use of it has increased of late among the trade of the sister island to a very great extent, and most of the consumers would be glad to take their entire supply from Ireland, if it could be offered to them. They look with lively interest on the efforts of the Society to spread the culture of the Flax crop through the south and west of Ireland, which would, at the same time, afford much employment to that most indigent class, the agricultural labourers, profit to the farmers, and great benefit to the spinning trade of the three kingdoms. The committee proceeded to take into consideration the subject of the recent frauds in sowing Flax seed, which had been productive of injury alike to the farmer and the respectable importers. Several letters, containing suggestions for guarding against the future recurrence of this evil, were submitted. A sub-committee was then appointed, whose duty should be to collect all the information in their power that could be brought to bear upon the matter, and report to a future meeting the course which they would be prepared to recommend. From the report of the agriculturist who had been engaged in the districts of the counties of Cork and Waterford, about Middleton, it appeared that about 220 acres of Flax had been laid down this season, a considerable portion of which would be brought to the Belfast market. The attention of the farmers and landlords in the south is directed to the success of this experiment; and, should it be such as it now promises to be, the article is likely to become a great staple in the agricultural produce of that part of Ireland.

Reviews.

General View of the Agriculture of Shropshire; with Observations on the means of its Improvement. Drawn up for the consideration of the Board of Agriculture and Internal Improvement. By J. Plymley, M.A., Archdeacon of Salop. Sherwood and Co., London, 1813.

We take this opportunity of publishing a series of extracts from this—one of the county reports published by the Board of Agriculture—in order that the progress of the improvement made in the agriculture of that county may be manifest to those of our readers who may pass through it on their way to the meeting of the English Agricultural Society at Shrewsbury, which takes place in the ensuing week.

"*Estates and their Management.*—The landed income of this county may be about 600,000*l.* per annum, and of this one-twentieth part may be paid in tithe by composition (for scarcely any is gathered) to the parochial clergy. I made my calculation of the value of the county, without looking at the acreage; and I am somewhat confirmed in it, by adverting since to that datum, and to Mr. Bishton's assertion in the original report, that land lets, upon the average, at 15*s.* per acre titheable. Take the county at 896,000 acres, the rental, at that average, would be 671,600*l.* a year, leaving a deduction of 71,600*l.* a year to be made for the waste lands; so that as a general position in round numbers (pretending not in this, or any other assumption of political arithmetic, to be more accurate than something near the truth), I perhaps do not greatly err, in reckoning the value of the county, in land and houses, at 600,000*l.* per annum, or that, at least, it is not an excessive valuation, when intended to include the tithe. Without including the tithe, I should think 15*s.* per acre rather a high valuation for the county throughout, though not so, perhaps, for the side of the Severn where Mr. Bishton resides."

"*Farm-houses and Offices.*—The inconvenience of having the farm-buildings in villages is severely felt, the lands occupied therewith, of course, being distant, reduces the value in some instance 2*s.* per acre, in many upwards of 1*s.* Mr. Tench, then of Crow Meole, and now of Bromfield, a practical farmer of eminence, makes the following observations in his copy of the original report returned to the Board:—'The farm-houses and buildings, in general, are very inconveniently situated and ill-constructed, many of them being at one extremity of the farm; but the greatest part are situated in villages; those that are not so are mostly built in some very low situation, by which means the farmer entirely loses the drainings of his fold-yard, which, had he an opportunity of turning over his land, would render him infinite service.'"

"*Size of Farms.*—The size of our farms are as various as our soil and surface. Many small tenements, to which are annexed from 5 to 20 acres, till they rise to an extent to enable the occupier to keep a plough-team, can hardly be denominated a farm. I think 4, 5, or 6 acres annexed to a comfortable cottage, to keep a cow and two pigs, and an acre or two to be ploughed by the employer of the labourer, I could wish to see more frequent than they are; but from that size till there is sufficient to employ regularly a plough-team, I consider to be unprofitable to the occupier and the community; they are above being labourers, and for want of horses to work their lands, they are in a neglected state, and the occupiers needy. Less than three horses will not do to cultivate a farm; and to keep them regularly employed, there should be 30 or 40 acres of tillage land, and nearly as much in meadow and pasture. The generality of farms rise from 50 to 200 acres; we have a few from 200 to 500 or 600 acres: it is a pretty general practice to enlarge. In the last thirty years the number of our farms may have diminished one-third."

"*Rent, &c.*—Land is measured by the statute acre, and it varies from 8*s.* or less per acre, to 12*s.* in districts where the roads are bad, and where the landlord has not interested himself in the improvement of his estate, or where the agent has gone on in the beaten track of superintendence: and from 15*s.* to 20*s.* per acre and more, the farm together, in more favourable situations. Near towns land lets from 2*l.* to 6*l.* an acre; and in the manufacturing parts of the county small parcels of land also let high. In old leases, reserves were made of a day's ploughing, or of some days' work in the harvest; some poultry at Christmas; the keep of fighting cocks or of dogs; but I do not know that any such stipulations are now inserted or made. The rack-tenants of a sporting landlord are often subject to the inconvenience of keeping dogs; and rack-tenants are in many places expected to draw a load or a certain number of loads of coal annually.—The average of the compositions for tithes in this county, does not, perhaps, exceed the tithe of the rent, or 2*s.* in the pound. I venture to support Mr. Harries's opinion, and that of Mr. Bowman, a respectable land-agent, who have separately stated the poor's-rate to be from 1*s.* to 2*s.* 6*d.* in the pound, according to the real value."

"*Leases.*—Leases for lives, or for a single life, were more common than they are now; though some very considerable proprietors have, at no great distance of time, leased farms for the term of the tenant's life. Sometimes a farmer has made a fortune by a beneficial lease; but it has more frequently happened that he has hurt the land and himself, by the indolence it has given rise to. One very considerable estate, let on leases for three lives, did not produce, a few years ago, more than one-tenth of the annual value to the landlord; and many of the farms so conditioned, and of the roads near them, appear worse managed than those in the neighbourhood that have not been in lease. One gentleman of this county set leases for 21 years certain, and for seven years more at the option of the lessor. This was meant as a check against the tenant's impoverishing the land in the last years of his absolute term; at the end of which the lessor meant to part with him, or come to a new agreement for 21 years, with the threat of seven years beyond it, for which he might be obliged to hold it, had he treated it improperly. Thus, he could not hurt his land without hurting himself more. The nature of leases are various, for 7, 14, or 21 years, specifying a limited quantity of land for the tenant to plough, confining him to draw a certain quantity of manure, and sometimes confining the tenant to expend all the fodder on the lands; though few leases are now granted. Farmers would be more spirited if they had leases."

"*Expenses.*—The prices of labour are various in this county, according to its population. In the east part, where I inhabit, it has been for 20 years the custom to give a constant labourer 7*s.* a week through the year, with the addition of what is equal to about 2*s.* a week more in the harvest quarter; but the custom much prevails now, of letting a great part of the work to the labourers, particularly threshing, by which a good hand will generally earn 1*s.* 6*d.* per day, and some much more. The allowance of beer in this county, both winter and summer, is generally given to those who take their work; in the winter three quarts each, in summer four, and in harvest from five to eight quarts of strong and small beer. This customary allowance is excessive; but there are few parts of England where the harvest is got in with such spirit and expedition; but the custom of such excessive drinking ought to be checked, and has been done in the best governed families."

"*Implements.*—In the strong lands four or five horses are used to a plough, or six or eight oxen; the oxen are preferred for ploughing in the strong lands,

but horses for the road business; that being the case, horses are best adapted for small farms, as oxen are for ploughing upon large ones. The single plough, with two wheels under the fore end of the beam, is the best sort of plough for level land, and almost in general use in the Turnip soils; two horses, either coupled or at length, with a boy, plough an acre and a half per day with ease. Double ploughs with wheels, single ploughs with and without wheels, waggons, tumbrels, carts, and other implements of husbandry, are so various, that it is almost an impossibility to describe them accurately, but nearly the same as are used in the adjacent counties."

"*Tillage—Dry Arable Land.*—The improvements I would propose for the Shropshire farmers' arable land, of the dry or Turnip sort, is the following course, &c., which is the same I used upon 400 acres, being part of a farm which was in my own occupation for many years, and until five years ago, when I resigned it to a relation, who still pursues much the same method; dividing the arable into four parts, that is, for Wheat, Turnips, Barley, and Clover. The Wheat stubble is harrowed by drawing the harrows one way, which lays the stubble, and returning back along the same stroke, draws up the greatest part of the stubble, which is gathered by the harrows; and a person following them with a fork, unloads them and lays it upon heaps. I shall hereafter mention the disposal of this straw. From the middle of November to the end of December this stubble ground is ploughed; at the latter end of February or beginning of March cross-ploughed, and when dry, harrowed, and if the weather prove suitable, much of the Couch Grass is got out and burnt; but if not so, by this method it is checked in its growth during the seed time, and the business is more easily performed, which is to be done in the months of May, June, and July, in which months the fallows have three ploughings and sufficient harrowings to prepare for Turnips, for which I laid about 8 cubic yards of reduced dung, or 72 bushels of clod lime upon each acre, which was ploughed in at the last ploughing, though sooner would be better, if the dung is reduced enough by that time, or the land so clean as not to require much harrowing. Turnip seed, 1 lb. to the acre, sowed from the 7th of June to the 14th of July, the plants twice hoed; average produce from 2*l.* 15*s.* As the land became cleared of its crop of Turnips, it was ploughed and harrowed, preparative for a crop of Barley; and being again ploughed up in buts or lands, 5 yards wide, from the latter end of March to the latter end of April, was sowed with 3½ statute bushels of Barley, 14 lbs of common red Clover seed, and 1 peck of fine Rye-grass to each acre; the average produce about 40 statute bushels of Barley. The young Clover not eaten between December and May; the part mowed on an average produced about two waggon loads, or a ton and a half per acre. In the next month of October, ploughed in 9-inch furrows and 6 inches deep, and sowed with 2½ bushels of Wheat; produce about 17 bushels. The Turnip-crop I dispose of generally in the following manner:—First, by drawing home at the beginning of November those under the hedges and some of the largest over the rest of the field, taking all up where the horses and carts are to pass. When the tops and roots are cut off, carry them home, and place them in heaps of about 12 cart-loads each, in form of the cone of a Wheat-rick; cover a foot thick with straw and thatch. These serve as a resource in time of frost and snow, for the beasts that are stall-fed, of which I generally had 20 yearly, and a man and boy, with one horse and cart, supplies them; leaving as many Turnips to be eaten upon the land with sheep, as to insure fertility enough for the crops of Barley, &c., for the Barley being too rank, generally spoils the young Clover growing with it. Another advantage obtained by stall-feeding with Turnips, is making a large quantity of straw into manure at home, which is the best use that can be made of it, as straw food is not an improver. The stubble-straw, as I mentioned before, is made into manure by being carried and ricked up for litter by the side of a sheep-fold in the centre of these 400 acres, in which the sheep feeding upon Turnips in the winter are lodged every night, from the middle of November to the beginning of March."

[We shall continue our extracts next week.]

Miscellaneous.

Rent.—The following considerations will show the superior advantage to the landlord of a real advance of rent, arising from an increase of produce obtained by the application of additional capital at smaller comparative cost, over a merely nominal advance—for such it is—arising from increased prices. Rent is that portion of the produce which remains after deducting the expenses of cultivation, and a fair remuneration to the tenant for his time, skill, and capital. This portion varies on different soils, with the amount of their natural fertility, and the labour attending their cultivation. The amount of money rent is the value of the landlord's portion of the produce, at a presumed average price, for a future period, deduced from the ascertained average price of a corresponding preceding period. Fluctuations, during the continuance of a lease, in the value of agricultural produce, arising from political causes, such as war or peace, contraction or expansion of the currency, a languid or active state of commerce and manufactures, affecting the demand for produce, derange the money engagements between landlord and tenant, occasioning one to gain an advantage over the other, and to obtain a larger share of the produce than was contemplated in the agreement between them. Variations of price, arising from the fluctuations of seasons, are presumed to be provided for in fixing the average price at which the landlord's share of the produce is to be valued. If three bushels of Wheat be his share on land of a given quality, and from all or any of the political causes above mentioned, a permanent advance take place in the price of Wheat, from 5*s.* a bushel to 10*s.*, and if the landlord, from the determination of the tenure, have it in his power to increase the rent from 15*s.* to 30*s.*, his income is nominally doubled, but his rent consists of only the same quantity of produce; and as a permanent advance in the price of agricultural produce is usually accompanied by a proportionate advance in the other necessaries and most of the luxuries of life, his increased rent gives him no greater command over these. It is different, however, with improvements in agriculture, which either increase produce, or diminish the expense of producing it, or effect both these results together. A larger amount of produce is thus set free for the payment of rent, and the landlord's share is increased. The tenant, who has acquired by lease the possession for a period of years of land worth three bushels of Wheat, under the usual mode of cultivation, and adopts another, which increases the free produce to six bushels, derives, as he ought, the first benefit from the improvement. But the landlord is the ultimate gainer, at the expiration of the lease, when he lets his land for six bushels instead of three. If the prices of agricultural produce fall one half, the money value of his income remains the same; if they continue stationary, it is doubled; if they be doubled, it is quadrupled; but in each case it will command the same amount of agricultural produce, which will be double what he could have purchased had no improvement in cultivation taken place.—*North British Review, May*, 1845.

Effect of Drainage on Temperature.—I have mentioned, in describing the ground-ice, the effect of a little warm stream brought by a deep drain into Scandale-gill, promoting the formation of this ice. Is not this effect interesting and worthy of attention, as tending to illustrate how draining, at the same time that it increases the fertility of land, promotes its warmth, and that of the incumbent air, and its dryness, warming too the river which it feeds, and that in a graduated manner, as from a reservoir? I may add a few thermometrical observations in confirmation. On the 13th of March, when the little stream mentioned was 42°, another flowing from an ill-drained field, partly marshy, was 35°; and while the marshy part of this field was frozen, the dry grass of its roots, in the well drained field, was 35°; the air at the time being 33°. And besides the cold occasioned by a surface of ice, it should be remembered, that even after the ice has disappeared, the stagnant water, in the act of evaporating, will have on the ground, and on the atmosphere, a cooling influence.—*Dr. John Davy, in the Edinburgh New Philosophical Journal, July.*

The Preservation of Wooden Implements.—Few farmers are sufficiently careful about this article; they behave as if instruments of husbandry could be procured without pains, and without price. It is true, indeed, that these instruments are generally so mean, and so insufficient, as to deserve very little care; nothing more common than to be left where last used, open to heat and cold, drought and moisture. To form a just notion of the properest method for preserving wood, I must premise that it will last equally well in air and in water; but it must be kept constantly in one or the other. What destroys wood is the alternate action of air and water. Observe a stake driven into the ground: the part that consumes first is not that under the surface, nor that freely above it, but the ring at the surface, to which air and moisture have equal access. The same, where one piece of wood is morticed into another: the part that decays first is where the two pieces join, which is open to the air, and at the same time lodges moisture. The same is observable in the putrefaction of a dunghill—the parts from which either air or water is excluded never rot. Though in a mortice the parts joined rot the soonest, yet the morticed part, from which both air and water are excluded decays sooner than that which is open to the air, supposing it to be kept dry. Hence it follows that to preserve wood in the most perfect manner, it ought to be sheltered from rain, and exposed as much as possible to the ventilation of dry air. This suggests the best construction of a house for the preserving of instruments of husbandry. It ought to be erected in the highest spot free to every wind; it ought to have a roof supported on pillars; the sides ought to be constructed like those of a drying house or bleach-field, with moveable boards for admitting air and excluding rain.—*Lord Kames' Gentleman Farmer.*

Sir A. Fitzherbert on the Use of Oxen in Husbandry, 1532.—If any sorance betide a horse, as old age, bruisings, blindness, or lameness, then is he worth nothing except for a kennell of noise-begetting hounds (the learned judge was evidently no friend to the delights of the chase); but if any mischief befall an ox, as age, bruise, or lameness, for ten shillings at any time, he may be fed, and then he is man's meat, and in that degree better than ever he was. These reasons and circumstances considered, I am of the poet's opinion that the ploughe of oxen is much more profitable than the ploughe of horses, to which the Holy Scriptures themselves condescend; for wheresoever it speaketh of husbandry, it entitleth the ox to his yoke for labour.—*Boke of Husbandrye, quoted by C. W. Johnson, Esq., Quarterly Journal of Commerce.*

On Grafting Turf.—You some time since requested I would give you an account of my mode of laying down arable land with turf; I now beg to observe there are two plans, one by small pieces of turf, the other by grinding it and sowing it on the surface of the land; the latter will sometimes succeed, but if the weather sets in dry the roots of Grass wither, and disappointment follows. I have laid down above 100 acres. In the autumn of 1842 I laid down 13, which this summer produces more feed than any pasture in my neighbourhood. My plan is nearly the same as was recommended by the late Earl of Leicester:—first to make a good fallow, and then drill in Wheat 9 inches apart; as soon as the Wheat is up I have the turf ploughed out in strips, about 2 inches thick and 3 or 4 wide, from the best old pasture, a line of the pasture being left between each strip of turf taken away; the turf is then carted on to the Wheat, if not wet, but if the carting injure the young Wheat, I have the turf left on the headland, and men carry it on the land in baskets; it is then spread about, and a man with a few boys tear the turf in pieces about three inches square, and lay it, 8 or 9 inches apart, between the rows of Wheat; it is then trod in, which finishes the work. In the spring I sow 10 pounds an acre of white Clover-seed—the first and second year I have always had plenty of feed, and the third year few people know it from old pasture. The price I pay is 8*s.* per acre for spreading, tearing, and laying the turf; and 4*s.* per acre for treading it in. In the autumn of 1842 the men offered to carry the turf on in baskets at 3*s.* per acre, but, as they often lost half a day's work in consequence of rain, I paid them 4*s.*, at which price they earned good wages. In one meadow of 8 acres I have taken nearly all the turf, with which I have laid down above 100; on some part of it I ploughed the turf five separate times, but by giving the meadow a coat of dung after the turf is taken away, and a good rolling *after a frost*, I find very little injury is done to the pasture. Perennial Grasses spread rapidly by the roots, and seed at various times during the summer, consequently you cannot collect the seed of each sort: they also like to congregate together. Sinclair found thirty-two distinct species of grass in one square foot of turf in the Vale of Aylesbury. I transplanted a square foot from my meadow into my garden, and during the following summer I found twenty-eight. Landlords might very much improve their farms, by getting their tenants to lay down in pasture, if only for a few years, some of their worn-out arable land, provided they have but an acre or two of good *pasture* from which to take their turf: I say good, for if a good herbage once takes possession of the land, it keeps out bad.—*B. Baker, in the Journal of the English Agricultural Society.*

Importance of Prudence to the Farmer.—There is a seed called Discretion, if a husbandman have of that seede and mingle it amongst his other corne, they will growe doubtless much the better, for that seede will tell him how many casts of corn a land ought to have. And if a young husband, or, it may so fortune, a man that by possibility might have grey-headed experience, hath not sufficient of that seede, yet he that lacketh, it is lawfull for him to borrow of his neighbours that have, and his neighbours be unkind if they will not lende this young husband part of their seed, for this seede of discretion hathe a wondrous virtue, for the more it is eyther taken of or lent the more it is.—*Boke of Husbandrye, quoted by C. W. Johnson, Esq., Quarterly Journal of Agriculture.*

Notices to Correspondents.

How to Improve Worn-out Grass Land—*T W*—Drain, if necessary, and apply very early in spring a dressing of guano and salt, say 3 cwt. of the first and 1 cwt. of the latter, per acre. Feed all the Grass upon the land for two or three years. And if you can, convey Turnips, &c., to sheep upon it during the autumn months.

Ravages of Insects on Swedes—*A Farmer*—Will you send up specimens of the insect to the office. We were not aware that earwigs were enemies of the farmer. Boussingault's "Rural Economy" will give you the information on manures which you require, perhaps better than any other book.

Weeds—*J B*—Can you inform me how to get rid of the weed known as "Bine-weed" or "Hop-weed," a species of Convolvulus? The roots run to such a great depth that I fear it is almost an impossibility. Will letting the land lie in Grass be any good? [No. You must try perseverance in pulling them up, united with deep cultivation, subsoil ploughing, &c.]

Markets.

SMITHFIELD, Monday, July 7.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0 to 4s	4	Best Long-wools	-	4s	4 to 4s 8
Best Short Horns	-	3 8	4 0	Ewes and second quality		4 0	4 4
Second quality Beasts	-	3 8	3 6	Lambs	- - -	5 4	6 4
Calves	- - -	4 0	4 8	Pigs	- - - -	3 4	4 0
Best Downs & Half-breds		4 8	5 0				

Beasts, 2500; Sheep and Lambs, 28,540; Calves, 230; Pigs, 280.

We have more Beasts to-day and the demand small, consequently a considerable reduction in price: a great many remain unsold. In some few instances a trifle more than our top quotations have been obtained for choice qualities.—Sheep are more plentiful, and trade worse; prices are fully 4d. per 8 lbs. lower.—Lambs are in good demand; the best qualities, which are by no means plentiful, are sold dear.—Veal trade is heavy, as also is Pork.

Friday, July 11.

Although we have a good supply of Beef an improvement in the trade is observable; the best Scots, &c., readily make 4s. 8d., and best Short Horns 4s. 2d.; Second Quality 3s. to 3s. 8d. A very fair clearance is effected.—Trade for Sheep is rather better, although there is scarcely a quotable advance in price. Best Down was readily made 5s., and Long-wools 4s. 8d.; Ewes about 4s. 4d.—There is a large quantity of middling Lamb in to-day, which sells badly, but the best quality maintains its price.—Veal trade is better; a choice Calf makes nearly 5s. per 8 lbs.—Pigs, 3s. 4d. to 4s. 4d.

Beasts, 868; Sheep and Lambs, 11,280; Calves, 460; Pigs, 320.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, July 10.

Prime old Meadow Hay		s to 112s	Inferior Hay	96	105s	Clover	110s to 124s
			New Hay	80s to 90		Straw	36 44

John Cooper, Salesman.

CUMBERLAND MARKET, July 10.

Superior Mead. Hay	115s	to 120s	Superior Clover	116s	to 126s		
Inferior	98	108	Inferior	,,	105 110	Straw 38s to 43s	
New Hay	70	92	New Clover	80	100		

Joshua Baker, Hay Salesman.

WHITECHAPEL, July 11.

Fine Old Hay	-	110s to 115s	Old Clover		s to 126s		
Inferior Hay	-	95 105	Infr.	,,	110 120	Straw	36s to 42s
New Hay	-	65 80	New Clover	80	95		

COVENT GARDEN, JULY 12.—The market has been well supplied during the week; but trade for some things has been dull. Pine-apples are plentiful and remarkably fine; they consist chiefly of Queens, Providence, and Jamaicas. The supply of Peaches and Nectarines has been unusually abundant; but the demand for them is not great. Strawberries and Cherries are daily becoming more plentiful in the market, and Raspberries are now added in pretty considerable quantities. Hothouse Grapes, of excellent quality, are sufficient for the demand; they have not altered in price since last week. The supply of Dutch and English Melons is well kept up; the best specimens of the latter are offered at about 7s. or 8s. each. Oranges and Lemons are much the same as last week. Considerable quantities of ripe Gooseberries and Currants are in the markets, the best of the former fetching about 5s. per sieve, and the latter about 3s. per half-sieve. Among Vegetables Cauliflowers are a little dearer. Asparagus and Rhubarb are becoming scarcer, and French Beans are slightly altered in price, as are also Peas; the latter bring from 2s. 6d. to 3s. 6d. per sieve. Lettuces, and all kinds of salading are plentiful. A few specimens of Vegetable Marrows have been brought to the market during the week. Cut Flowers chiefly consist of Tuberoses, Sweet Peas, Gladioli, Cacti, Heaths, Pelargoniums, Gardenias, Pinks, Fuchsias, Verbenas, Moss, Provins, and other Roses.

FRUITS.

Pine Apple, per lb., 5s to 8s	Oranges, per dozen, 1s to 2s 6d
Grapes, Hothouse, per lb., 2s to 6s	— per box, 1s to 2s
Peaches, per doz., 6s to 15s	— bitter, per box, 1s to 20s
Nectarines, per doz., 6s to 15s	Lemons, per dozen, 1s to 2s 6d
Cherries, wall, per lb. 2s to 6s	— per box, 8s to 16s
Apples, Dess., per bush., 10s to 15s	Almonds, per peck, 6s
— Kitchen, 6s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
Melons, 4s to 8s each	Nuts, Barcelona, 2s6
Strawberries, per pottle., 6d to 2s	— Brazil, 2s
Currants, per half-sv., 2s 6d to 5s	— Spanish, 2s6
Gooseberries, per sieve, 4s to 5s	— Cob, 1s6
Walnuts, per bushel, 12s to 20s	

VEGETABLES.

Cabbages, per doz., 3d to 1s	Celery, per bunch, 1s to 2s
Cauliflowers, per doz., 1s to 5s	Onions, per bunch, 3d to 1s
French Beans, per half-sv., 8s to 10s	— Spanish, per doz., 1s 6d to 4s
Sorrel, per half-sieve, 6d to 9d	Shallots, per lb., 6d to 10d
Artichokes, per doz., 2s to 4s	Lettuce, per score, Cab., 6d to 1s 6d
Potatoes, per ton, 4os to 90s	— — Cos, 6d to 1s
— cwt., 2s to 5s	Radishes, per doz. hands, 6d to 1s
— bushel, 1s 6d to 3s	Mushrooms, per pottle, 1s 6d to 2s 6d
— Kidney, per doz.lb., 2s to 3s	Small Salads, per punnet, 2d to 3d
Turnips, per doz., 2s to 6s	Basil, green, per bunch, 6d to 9d
Red Beet, per doz., 2s to 6s	Fennel, per bunch, 2d to 3d
Carrots, per doz., bch., 3s to 6s	Savory, per bunch, 4d to 6d
Rhubarb, per bundle, 4d to 6s	Thyme, per bunch 4d to 6d
Peas, per sieve, 2s 6d to 3s 6d	Watercress, p. 12 sm. bun. 4d to 6d
Asparagus, per bundle, 1s to 8s	Parsley, per half sieve, 6d to 1s
Horse Radish, per bundle, 1s 6d to 2s	— Roots, per bundle, 9d
Cucumbers, per doz., 2s to 9s	Tarragon, per bunch, 4d
Spinach, per sieve, 9d to 1s 6d	Mint, per bunch, 2d to 3d
Leeks, per doz., 2s to 3s	Marjoram, per bunch, 9d
Garlic, per lb., 8d to 10d	Chervil, per punnet, 3d to 4d

POTATOES.—SOUTHWARK, WATERSIDE, July 7.

The last report for the season. There are several lots stored of Scotch Reds, Cambridgeshire and Lincolnshire Kidneys that will not sell at any price. Some lots are in such a damaged state that the owners are compelled to pay to have them cleared away. The weather being so hot of late has caused a great sacrifice in the old Potatoes; indeed, during the whole of the season, with but few exceptions, it has been a dragging Market, the supply being too great for the demand. During the last week the best fresh samples of York and Devonshire Reds were in request, but all secondary lots were unsaleable.

York Reds	-	-	-	20s to 70s	Wisbeach Kidneys	-	-	—s to —s
Perth	-	-	-	10 30	— Blues	-	-	— —
Fifeshire	-	-	-	— —	— Whites	-	-	— —
Early Devons	-	-	-	— —	— Regents	-	-	— —
Late Devons	-	-	-	65 80	Guernsey Blues	-	-	— —
Cornwall	-	-	-	— —	— Whites	-	-	— —
Jersey Blues	-	-	-	— —	York—Prince Regents	-	-	— —
— Whites	-	-	-	— —	— Blues	-	-	— —
Kent and Essex Whites	-	-	-	— —	— Snow's	-	-	— —
— Kidneys	-	-	-	— —	Irish Whites	-	-	— —
Dutch Whites	-	-	-	— —				

HOPS, FRIDAY, July 11.

The accounts speak of an increase of vermin in parts of the plantation; and the wet weather is decidedly against the crop.

PATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, July 7.

The supply of Essex, Kent, and Suffolk Wheat, by land carriage samples this morning, was small; best-selected parcels that were sold early realised fully the prices of this day se'nnight, but secondary and inferior were difficult of disposal, and many remained unsold at the close; free foreign and bonded are nominally unaltered in value, with little business doing in either.—Barley meets an improved demand, but cannot be written higher.—Beans and Peas continue scarce, and the quotations remain the same.—There was a good show of Oats, which met a fair sale at 6d. per qr. below the rates of Monday last.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk - - White	44	50	Red -	43	49
— Norfolk, Lincolnshire, and Yorkshire - —	—	—	White -	—	—
Barley, Malting and distilling 28s to 29s Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire - - Polands	20	23	Feed	19	22
— Northumberland and Scotch - - Feed	20	22	Potato	21	24
— Irish - - - - - Feed	20	22	Potato	21	23
Malt, pale, ship - - - - - -	54	60			
— Hertford and Essex - - - - -	58	65			
Rye - - - - - - - -	29	32			
Beans, Mazagan, old and new 32 to 38	Tick	32	39	Harrow	34	40
— Pigeon, Heligoland - 37 to 44	Winds	—	—	Longpod	—	—
Peas, White - - - - 35 to 39	Maple	35	39	Grey -	35	36

FRIDAY, July 11.

The few samples of English Wheat on sale this morning realised an advance of 1s. per qr.; free foreign and bonded, both of which are offered very sparingly, are held for higher prices, but business remains inanimate. Barley, Beans, and Peas, are unaltered in value.—Oats sell slowly at our late quotations.—The weather, which has been showery since Monday, continues unsettled and stormy.

IMPERIAL AVERAGES.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May 31 per Quarter.	46s 3d	29s 5d	22s 5d	30s 1d	37s 2d	36s 7d
June 7 - - -	47 7	30 2	22 2	33 0	38 0	38 1
— 14 - - -	48 8	30 3	22 3	31 4	38 1	37 0
— 21 - - -	47 10	29 9	22 7	31 2	39 6	38 6
— 28 - - -	47 11	29 7	23 2	32 1	39 3	38 3
July 5 - - -	47 11	29 10	22 8	31 0	38 10	38 5
6 weeks' Aggreg. Aver.	47 7	29 10	22 7	31 5	38 4	38 0
Duties on Foreign Grain	29 0	9 0	6 6	16 6	4 6	4 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 5.

PRICE.	MAY 31	JUNE 7	JUNE 14	JUNE 21	JUNE 28	JULY 5
48s 2d	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..

SEEDS, July 11.

Canary - - per qr	44s to 46s	Linseed Cakes, Foreign, p. ton	7l 10s	9l
Carraway - per cwt	44	48	Mustard, White - p. bush.	10s	14s
Clover, Red, English -	—	—	— Superfine ,, -	12	16
— — Foreign	—	—	— Brown ,, -	12	16
— White, English -	—	—	Rapeseed, English, per last	28l	30l
— — Foreign	—	—	Rape Cakes - perton	—	—
Coriander - - -	12	18	Sainfoin - - -	—	—
Hempseed - per last	35	36	Tares, Eng. winter p. bpsh.	4	6
Linseed - - per qr	52	60	— Foreign - -	3	5
— Baltic - - -	36	44	Trefoil - - per cwt	18	23
— Cakes, Eng. per 1000	11l	0 11l 10	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

FINAL DISPERSION OF THE SLOUGH COLLECTION OF TULIPS.

MR. GLENNY has instructions to Sell by Auction, on the 5th of August, the entire stock of blooming and other offsets of Mr. BROWN'S TULIPS, comprising all the grand varieties that distinguished the bed, and affording the last opportunity of obtaining the new and splendid sorts in their purity. Catalogues will be forwarded post-free to all applicants.—GEORGE GLENNY, *Gardeners' Gazette* Office, 2, Tavistock-street, Covent-garden.

NURSERY GROUNDS AND STOCK AT STIRLING, N.B.—The Subscribers, being so much occupied with their Agricultural trade at Stirling and Dublin, are desirous of relinquishing the Nursery branch of their business, and are therefore ready to treat for the disposal of the whole of their NURSERY STOCK at a valuation; also for the unexpired term of the LEASE of the GROUNDS, a long period being still to run. These Grounds, consisting of 12½ statute acres of excellent free soil, neatly subdivided and sheltered, are furnished with Dwelling House and Offices. The Stock is select, and of the most saleable description. The situation at Stirling central for railway and water conveyance.

To a party desirous of investing capital in a well-established business, this opening offers peculiar advantages.—Further particulars may be had on application.

W. DRUMMOND & SONS, Agricultural Museum, Stirling.

WANTED to Rent a MODERATE-SIZED RESIDENCE, yet adapted for a Gentleman's Establishment, and with an exclusive right of Sporting over from 1000 to 3000 acres. The object of the Advertizer is good Shooting, which would be well taken care of.—Particulars to be addressed to Messrs. HEDGER, Land-agents, 10, New Bond-street, opposite the Clarendon.

WANTED to Rent a HANDSOME RESIDENCE, placed in a Park, either Furnished or Unfurnished, with an exclusive right of Shooting attached: it must be in a good district, not very distant from Markets and Railway, and fit for the accommodation of a Gentleman's Establishment.—Any family desirous of having such a property well tenanted, may address particulars to Messrs. HEDGER, Land-agent, 10, New Bond-street, opposite the Clarendon.

AGRICULTURAL TRAINING SCHOOL, HODDESDON, Herts, under the direction of a Committee of Management. Established for General and Scientific Education, including every branch of Agriculture.

RESIDENT HEAD MASTER.—Mr. HASELWOOD.

GENERAL ASSISTANT MASTERS.—Mr. AIRD and Mr. A. W. JACKSON.

AGRICULTURE.—Professor DONALDSON, Author of "British Grasses, Manures," &c.

BOTANY.—Professor COOPER, F.L.S., author of "The Botany of Sussex," &c.

CHEMISTRY.—Professor HOLMES, five years Lecturer at St. Edmund's College.

GEOLOGY AND MINERALOGY, &c.—Professor RICHARDSON, F.G.S., of the British Museum, author of "Geology for Beginners," &c.

MANAGEMENT AND DISEASES OF CATTLE.—Professor J. B. SIMONDS, M.R.C.V.S., Lecturer at the Royal Veterinary College, London.

NATURAL AND EXPERIMENTAL PHILOSOPHY.—Professor HOLMES and Mr. A. W. JACKSON.

PRACTICAL SURVEYING AND LEVELLING.—Mr. HASELWOOD and Mr. A. W. JACKSON.

The school session is divided into two terms, viz:—From the 30th of January to Midsummer, and from the 30th of July to Christmas.

The Course of Education embraces the Classics, Mathematics, Natural and Experimental Philosophy, Mechanics, Physics, Chemistry, Botany, Mineralogy, Geology, Land Surveying, Drawing, the French Language, Practical Agriculture, and Lectures on the Breeds, Management, and Diseases of Cattle.

A farm consisting of 400 acres, an extensive library, museum, and laboratory, are attached to the school; and the charge for board, lodging, lectures, &c., is so arranged by the committee of management as to include every expense (except for washing and books), at 20 guineas the half-year.

A separate class will be formed for those pupils who are not sufficiently advanced to attend the lectures.

Applications for the admission of pupils to be addressed to the "Head-Master of the Agricultural Training School, Hoddesdon, Herts," of whom every information may be obtained, and references had to gentlemen whose sons are now at the institution, from most of the counties of England; also from Wales, Scotland, and Ireland.

PREMIUMS FOR IMPLEMENTS, &c.

ONE HUNDRED AND TEN POUNDS are offered by the YORKSHIRE AGRICULTURAL SOCIETY, in Money and Medals, as Premiums for IMPLEMENTS of peculiar merit, at its forthcoming Annual Meeting at BEVERLEY.

The order of Trial will be as follows:—

THURSDAY, July 31.—Implements prepared for work.

FRIDAY, Aug. 1.—Trial of Threshing Machines, Winnowing Machines, Straw Cutters, &c.

SATURDAY, Aug. 2.—Drills, Corn, Bone, Cake, and Gorse Crushers.

MONDAY, Aug. 4.—Drain-tile Machines, (for which 10l. is offered).

TUESDAY, Aug. 5.—Exhibition of Implements.

WEDNESDAY, Aug. 6.—(Principal day of show.)—Exhibition of Stock, Implements, &c.

TUESDAY, Oct. 21.—Trial of Ploughs and ground implements commences.

Nearly 500l. is offered in addition for STOCK, Essays, Farms, Poultry, &c.

All entries must be made to me by letter, not later than Wednesday, July 23.

LISTS of PREMIUMS, Forms of Certificates, and every information may be had on application.

Implements and Poultry are admitted FREE of charge, and all articles are conveyed free from Hull to Beverley and back, on application.

Full programmes of the proceedings will be issued by the middle of July, and may be had gratis.

Thorpfield, Thirsk, Yorkshire. By order of the Council, M. M. MILBURN, Sec.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—MEETING AT SHREWSBURY, JULY, 1845.—The Council have made arrangements with several Proprietors of Omnibuses and Coaches for the conveyance of Members of the Society from the Railway Station, at Wolverhampton, to Shrewsbury and back, on Tuesday the 15th, Wednesday the 16th, Thursday the 17th, and Friday the 18th days of July instant. Places may be Booked at the Railway Station, Euston Square, London.—By order of the Council,

London, July 9, 1845. JAMES HUDSON, Secretary.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.—The next GREAT AGRICULTURAL MEETING and ANNUAL CATTLE SHOW of this Society will be held at BALLINASLOE, on the 30th of September, 1845, and the days following. Premiums to the amount of ONE THOUSAND POUNDS and upwards will be distributed on this occasion, and open for general competition for the encouragement of Stock, Horses, Sheep, Swine, Implements, Flax, Wool, Butter, &c., the particulars of which can be had on application to the Secretary in Dublin.

The AGRICULTURAL CHALLENGE CUP, value ONE HUNDRED GUINEAS, for the best beast possessing most merit of its kind in the yard, and now held by Robert Burrowes, Esq., of Giltown, county of Kildare, with his Short-horned Bull NARCISSUS, will be also open for competition on this occasion.

Arrangements have been made with the different Steamboat and Canal Companies for the transport of English and Scotch Stock, Implements, &c., viâ Dublin, free of expense, to the Show, the particulars of which can be had on application to the Secretary, from whom Premium-sheets and full directions can be had on application.

From the nature of the locality itself, and the preparations in progress, it is expected that the approaching Meeting will be the most important that has yet taken place under the auspices of the Society. Every facility and accommodation will be provided for the transport of English and Scotch Stock and Implements, free of expense, and no effort will be spared to render the Meeting every way practical and agreeable to the strangers who might attend. EDWARD BULLEN, Secretary.

Society's Rooms, 41, Upper Sackville-street, Dublin.

HORIZONTAL WATCHES, very Flat.—A. B. SAVORY & SONS, WATCHMAKERS, 9, Cornhill, London, opposite the Bank; price, in silver cases, three and a half guineas each; or in gold cases, six guineas each. These Watches are accurate and durable, the horizontal escapement being peculiarly suited to combine these important requisites. They are jewelled in four holes, and continue going whilst being wound. A twelvemonth's warranty given with each.

MEEN FUN, the celebrated Chinese Cosmetic, Patronised by the Queen and the Royal Family.—The great value of this Cosmetic is, that the ingredients being solely herbaceous, the most delicate complexion can apply it without injury, while rough, red, and moist skins speedily experience beneficial results. Another most important feature is that of repressing, without detriment to the sanatory condition of the user, the truly unpleasant sensation accompanying too copious perspiration. Travellers and residents in warm climates, subject to the enervating influence of tropical heat, will, when the skin becomes moist and heated, experience inconceivable comfort by resorting to this Cosmetic, as it will both allay and avert discoloration and coarseness. Sold retail by all respectable perfumers, chemists, &c., in boxes price 3s. 6d. and 7s. 6d. each, and wholesale by the Proprietors, FABIAN and Co., late Watson, Fabian, and Co., 24, Mark-lane, London. Country agents required.

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AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 29.—1845.] SATURDAY, JULY 19. PRICE 6*d*.

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STAMFORD-HILL HORTICULTURAL SOCIETY. The next Show of this Society will be held on Thursday, 24th July, in the Grounds of Arthur Craven, Esq., Stamford-hill, when, in addition to the prizes usually awarded to Nurserymen, the following are offered to Florists (Dealers, not Amateurs), for 24 blooms of Carnations:—1st Prize, 2*l*.; 2d do., 1*l*. 10*s*.; 3d do., 1*l*.; and the same for 24 blooms of Picotees. Notice to be given on or before Tuesday, 22d July, to R. WRIGHT, Hon. Secretary, East-place, Hackney.

HORTICULTURAL SOCIETY OF LONDON.
EXHIBITION AT THE GARDEN.
July 12th, 1845.

AWARD OF THE JUDGES.

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1 To Mr. Barnes, gr. to G. W. Norman, Esq., of Bomley-common, Kent, for a collection of Stove and Greenhouse plants
2 To Mr. Mylam, gr. to Sigismund Rucker, Esq., jun., F.H.S., for 20 species of Exotic Orchids.

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2 To Mr. Frazer, of Lea-bridge-road, for a collection of 20 Stove and Greenhouse plants
3 To Mr. J. Robertson, for 20 species of Exotic Orchids
4 To Mr. Don, gr. to F. G. Cox, Esq., F.H.S., for 12 species of Exotic Orchids
5 To Mr. Hunt, gr. to Miss Traill, of Hayes-place, Bromley, for a collection of 20 species of Cape Heaths
6 To Messrs. Fairbairn, of Clapham, for the same
7 To Mr. Ingram, gr. to Her Majesty, at Frogmore, for a Miscellaneous collection of Fruit.

THE GOLD BANKSIAN MEDAL.

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2 To Mr. Hunt, gr. to Miss Traill, of Hayes-place, Bromley, for a collection of 12 Stove and Greenhouse plants
3 To Messrs. Rollisson, of Tooting, for 20 species of Exotic Orchids
4 To Mr. S. M. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for six species of Exotic Orchids
5 * To Mr. Dobson, gr. to Mr. Beck, F.H.S., for 12 new varieties of Pelargoniums
6 To Mr. W. Cock, of Chiswick, F.H.S., for 12 varieties of Pelargonium
7 To Mr. Gaines, of Battersea, for 12 varieties of Pelargonium
8 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for a collection of 12 Roses in pots
9 To Messrs. Lane & Son, for 25 Roses in pots
10 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for a collection of 12 species of Cape Heaths
11 To Mr. Frazer, of Lea-bridge-road, for the same.

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11 To Messrs. Rollisson, of Tooting, for the same
12 To Mr. Barnes, gr. to G. W. Norman, Esq., for a collection of 12 species of Cape Heaths
13 To Mr. May, gr. to E. Goodheart, Esq., of Langley-park, Beckenham, Kent, for a collection of six species of Cape Heaths
14 To Mr. Dawson, of Brixton-hill, for the same
15 To Messrs. Veitch & Son, of Exeter, for Fuchsia serratifolia
16 To Mr. Falconer, gr. to Archdale Palmer, Esq., of Cheam, for Renanthera coccinea
17 To Messrs. Veitch & Son, for Aerides odoratum
18 To Mr. Frost, gr. to Lady Grenville, F.H.S., for Muscat Grapes
19 To Mr. Parsons, gr. to A. George, Esq., Enfield, for a Providence Pine-apple
20 To Mr. Mason, gr. to Sir Jno. Kennaway, Escot, Devonshire, for Pine-apples.

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1 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for a collection of 12 Stove and Greenhouse plants
2 To Mr. G. Stanly, gr. to H. Berens, Esq., F.H.S., for a collection of six Stove and Greenhouse plants
3 To Mr. Plant, gr. to J. H. Schroder, Esq., of Stratford, for six species of Exotic Orchids
4 To Mr. Dobson, gr. to Mr. Beck, F.H.S., for a collection of six species of Achimenes
5 To Mr. R. Staines, for a collection of 12 new varieties of Pelargonium
6 To Mr. W. Ambrose, of King-street, Battersea, for the same
7 To Mr. W. Cock, F.H.S., for a collection of six varieties of Pelargonium
8 To Messrs. Fairbairn, of Clapham, for six Calceolarias
9 To Messrs. Norman, of Woolwich, for a collection of 24 varieties of Carnations
10 To G. Edmonds, Esq., of Wandsworth-road, for a collection of 24 varieties of Picotees
11 To Messrs. Norman, for the same
12 To Mr. Terry, gr. to Lady Puller, Youngsbury, Herts, for a collection of Roses, in 50 varieties
13 To Messrs. Lane & Son, for the same
14 To Mr. Bruce, gr. to Boyd Miller, Esq., for a collection of six species of Cape Heaths
15 To Messrs. Henderson, of Pine-apple-place, Edgeware-road, for the same
16 To Mr. Jos. Robinson, gr. to James Simpson, Esq., of Thames-bank, Pimlico, for 12 varieties of Fuchsia
17 To Mr. May, gr. to E. Goodheart, Esq., for Erica Parmentieriana
18 To Mr. Dawson, of Brixton-hill, for Erica Massoni
19 To Messrs. Veitch & Son, of Exeter, for Siphocampylus coccineus
20 To Mr. Kinghorn, gr. to A. Murray, Esq., F.H.S., for Veronica speciosa
21 To Mr. Frazer, of Lea-bridge-road, for Crassula versicolor
22 To Mr. May, gr. to E. Goodheart, Esq., for Erica radiata
23 To Mr. Dawson, for Erica ampullacea
24 To Messrs. Rollisson, for Erica inflata alba
25 To Mr. Dods, gr. to Sir George Warrender, Bart., F.H.S., for a Miscellaneous Collection of Fruit
26 To Mr. Fleming, gr. to His Grace the Duke of Sutherland, for Grapes *
27 To Mr. S. Barnes, gr. to Thomas Whitmore, Esq., F.H.S., for the same
28 To Mr. Wright, gr. to the Hon. Mrs. Rushout, for Grapes in pots
29 To Mr. Moffatt, gr. to His Grace the Duke of Newcastle, at Clumber, for Frontignan Grapes
30 To Mr. M'Ewen, gr. to Colonel Wyndham, F.H.S., for Pine-apples
31 To Mr. Brewin, gr. to R. Gunter, Esq., F.H.S., for the same.

THE SILVER KNIGHTIAN MEDAL.

1 To Mr. Epps, of Maidstone, F.H.S., for a collection of 12 Stove and Greenhouse plants
2 To Messrs. Norman, for a collection of 24 varieties of Pinks
3 To Mr. J. W. Newhall, of Woolwich, for a collection of 24 varieties of Picotees
4 To Mr. Terry, gr. to Lady Puller, for a collection of Moss Roses, in 12 varieties
5 To Messrs. Lane & Son for the same
6 To Mr. Parsons, gr. to A. George, Esq., of Enfield, for a collection of Roses, in 50 varieties
7 To Mr. Francis, of Hertford, for the same
8 To Mr. Pond, of Wells'-road, Bath, for a collection of Roses, in 25 varieties
9 To Mr. Plumbly, gr. to C. J. Dimsdale, Esq., of Essenden-place, Herts, for a collection of six species of Cape Heaths
10 To Mr. Epps, F.H.S., for the same
11 To Mr. Conway, Nurseryman, Brompton, for a collection of six varieties of Scarlet Pelargoniums
12 To Mr. S. M. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for Erica ampullacea
13 To Mr. Slowe, gr. to W. R. Baker, Esq., for a specimen Rose in a pot
14 To Messrs. Fairbairn, for Erica ampullacea
15 To Messrs. Veitch & Son, of Exeter, for Calandrinia umbellata
16 To Mr. Gaines, of Battersea, for 12 varieties of Fuchsia
17 To Mr. Mylam, gr. to S. Rucker, Jun., Esq., F.H.S., for the best named collection of Plants
18 To Mr. G. Stanly, gr. to H. Berens, Esq., F.H.S., for Leschenaultia formosa
19 To Mr. Dobson, gr. to Mr. Beck, F.H.S., for Achimenes picta
20 † To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for Lisianthus Russellianus
21 To Mr. Foggo, gr. to the Marquis of Abercorn, F.H.S., for Grapes
22 To Mr. Hamp, gr. to James Thorne, Esq., of Mawbey-house, South Lambeth, for the same
23 To Mr. Davis, of East Barnet, for the same
24 To Mr. W. Carmichael, gr. to Mrs. Hawkins, Bignor-park, Petworth, for Pine-apples
25 To J. H. Vivian, Esq., M.P., for a Providence Pine-apple
26 To Mr. Brown, gr. to the Hon. Sidney Herbert, for Providence Pine-apples
27 To Mr. Fleming, gr. to His Grace the Duke of Sutherland, for Peaches and Nectarines
28 To Mr. Parsons, gr. to A. George, Esq., for Strawberries
29 To Mr. Joynes, gr. to Mrs. Hall, Totteridge, Herts, for a Melon
30 To Mr. Slowe, gr. to W. R. Baker, Esq., for the same
31 To Mr. P. Lydiard, Bath, for Strawberries
32 To Mr. Meyers, Brentford, for Cherries.

THE SILVER BANKSIAN MEDAL.

1 To Mr. Henbrey, of Croydon, for a collection of 24 varieties of Pinks
2 To Mr. Williams, gr. to A. Rowland, Esq., F.H.S., for a collection of Moss Roses in 12 varieties
3 To Messrs. Cobbett, of Cobham, Surrey, for the same
4 To Mr. Francis, of Hertford, for the same
5 To Mr. R. H. Betteridge, of Milton-hill, Abingdon, Berks, for a collection of Roses in 50 varieties
6 To Mr. S. Hooker, of Brenchley, Kent, for the same
7 To R. Crutwell, Esq., of Bath, for a collection of Roses in 25 varieties
8 To Mr. Dobson, gr. to Mr. Beck, F.H.S., for a specimen Rose in a pot
9 To Mr. Plumbly, gr. to C. J. Dimsdale, Esq., for Erica viridiflora
10 To Messrs. Henderson, for Erica ventricosa grandiflora
11 To Messrs. Veitch & Son, of Exeter, for new species of Salpichroa glandulosa, from Chili
12 To Messrs. Rollisson, of Tooting, for the second best named collection of Plants
13 To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for the third best named collection of Plants
14 To Mr. Hunt, gr. to Miss Traill, for Grapes
15 To Mr. Chapman, of South Lambeth, for the same
16 To Mr. Hamp, gr. to J. Thorne, Esq., for Pine-apples
17 To Mr. Collinson, gr. to the Marquis of Westminster, for Nectarines
18 To Mr. Parker, gr. to J. H. Oughton, Esq., Roehampton, for Peaches and Nectarines
19 To Mr. Snow, gr. to the Earl de Grey, for Peaches
20 To Mr. Spencer, gr. to the Marquis of Lansdowne, F.H.S., for Peaches
21 To Mr. Davis, gr. to A. Smith, Esq., F.H.S., for Melons
22 To Mr. S. Barnes, for the same
23 To Mr. James Tompkins, gr. to Sir R. W. Bulkeley, Bart., of Beaumaris, for the same
24 To Mr. Elliott, gr. to J. B. Boothby, Esq., F.H.S., for Cherries
25 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for Citrons
26 To Mr. Elliott, for Strawberries
27 To Mr. Thos. Cole, Willow Rosary, Bath, for the same.

THE CERTIFICATE OF MERIT.

1 To Mr. R. H. Betteridge, for a collection of Moss Roses, in 12 varieties
2 To Mr. S. Hooker, for the same
3 To Messrs. Paul & Son, of Cheshunt, for the same
4 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for a collection of Roses in 25 varieties
5 To Mr. W. P. Ayres, gr. to Jas. Cook, Esq., F.H.S., for a seedling Clerodendrum
6 To Mr. Barnes, gr. to G. W. Norman, Esq., for Clerodendrum paniculatum
7 To Mr. S. M. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for Rondeletia speciosa
8 To Mr. Conway, Nurseryman, Old Brompton, for six named Petunias
9 To Mr. Pamplin, Nurseryman, Hornsey-road, for a seedling Erica called "Splendens"
10 To the same for a seedling Heath called "Magnifica"
11 To Mr. W. Burns, of Chevening, for cut specimens of the double yellow Rose
12 To Mr. Glendinning, Nurseryman, Turnham-green, F.H.S., for a Yellow Statice from China
13 To Messrs. Fairbairn, for the fourth best named collection of Plants
14 To Mr. Barnes, gr. to G. W. Norman, Esq., for the fifth best named collection of Plants
15 To Mr. Whomes, gr. to E. Foster, Esq., Clewer, for a seedling Pelargonium called "Paragon"
16 To Mr. Best, Nurseryman, Reading, for a seedling Calceolaria, called "Leopardii"
17 To Mr. Gaines, for a seedling Calceolaria "Alpha"
18 To Mr. Dods, gr. to Sir George Warrender, Bart., F.H.S., for Peaches
19 To Mr. Wright, gr. to the Hon. Mrs. Rushout, of Wanstead-grove, for the same
20 To Mr. C. Ewing, gr. to O. F. Meyrick, Esq., F.H.S., for Peaches and Nectarines
21 To Mr. W. Davis, gr. to John Disney, Esq., for Apples
22 To Robert Crutwell, Esq., of Bath, for Strawberries
23 To Mr. Foggo, gr. to the Marquis of Abercorn, F.H.S., for Figs.

* The Gold Banksian Medal for 12 new varieties of Pelargonium, was withheld from the Nurserymen, because, in the opinion of the Judges, they either did not shew new varieties, or if new, they were of bad quality.

* The Judges particularly commended the fine growth of the Black Hamburgh Grapes (No. 1 PP.), from Mr. Williamson, gr. to the Earl of Lonsdale, but had not the power to award a prize for them in consequence of their want of colour.

† N.B. Had this been exhibited in its proper place, under LL., it would have received a higher Medal.

WARNER & WARNER, SEEDSMEN, 28, Cornhill, London, beg to offer the following new and choice STRAWBERRY Plants:—"Fisher's Alice Maude," being the earliest and most productive known, at 7*s*. 6*d*. per 100, strong plants. "Deptford Pine," "British Queen," and all other new and most approved sorts. Also FUCHSIA SERRATIFOLIA, a distinct species raised by Messrs. Veitch & Son, of Exeter, at 21*s*. each, strong plants. HINDSIA VIOLACEA, 30*s*. to 40*s*. each. Likewise the collection of splendid new GERANIUMS advertised by Messrs. Lucombe, Pince, & Co. in the *Gardeners' Chronicle* of June 21 for 5*l*. 5*s*.; and all the newest varieties of other plants.

THE WALCHEREN CAULIFLOWER.

MESSRS. MARNOCK & MANLEY beg to return their sincere thanks to their numerous Friends for their kind acknowledgments in saying:—"Your Walcheren Cauliflower meets in every shape its promised merits, both as advertised in the *Chronicle* and the Treatise." They also beg to say that they have a small quantity of the same stock left for August sowing at 4*s*. per oz.—Nursery, Hackney, July 19.

NEW TURNIP SEED.

J. G. WAITE begs to inform the trade that he can supply any quantity of NEW TURNIP SEED, from transplanted stocks, at the following low prices for cash :—

Early Stone	per bush. 22s.	White Globe	per bush. 22s.
White Round	,, 20s.	Green Do.	,, 22s.
Red Do.	,, 20s.	New Cream Globe	,, 26s.
Green Do.	,, 20s.	Early Stubble	,, 21s.
Purple-top Scotch	,, 26s.	Green-top Scotch	,, 28s.
Dale's Hybrid	,, 28s.	Laing's Improved Swede	,, 24s.

All other kinds equally as low in price. Not bound to these prices longer than one month from this date—July 19, 1845.
4, Eyre-street-hill, Hatton-garden, London.

BECK'S SEEDLING PELARGONIUMS OF 1844.

EDWARD BECK informs the public that he will send out the following varieties at the prices annexed next October, delivered free in London *for cash only*. Their repeated and successful exhibition, both as "Seedlings" and in the collection of "New and First-rate Varieties," appears to render a descriptive list unnecessary. If it should seem desirable, E. B. will have one prepared and forwarded upon application.

Rosy Circle	£1 1 0	Isabella	£1 1 0
Arabella	1 1 0	Juno	1 1 0
Sunset	1 1 0	Bellona	1 1 0
Mustee	1 1 0	Margaret	0 10 6
Marc Antony	1 1 0	Favorita	0 10 6
Desdemona	1 1 0	Zenobia	0 10 6
Othello	1 1 0		

Or the set for 10*l*. 10*s*.

As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.
N.B. Aurora and Calypso cannot be sent out till after next season.—Worton-cottage, Isleworth.

JOSEPH FRYER begs to remind his Friends and the Public, that he continues to supply strong, healthy plants, as under, at the following prices, including hamper and package, when the orders are not less than 1*l*., or smaller plants free by post :—

Pansies, finest varieties	15*s*. 0*d*. per doz.
Do. fine show do.	12 0 ,,
Do. good named do.	6*s*. to 9 0 ,,
Chrysanthemums, good do.	9 0 ,,
Verbenas, finest new do.	6 0 ,,
Fuchsias, newest do.	2 6 each.
Do. best of last year's do.	12 0 per doz.
Do. older, good do.	6*s*. to 9 0 ,,
Petunias, newest varieties, including Girling's	12 0 ,,
Do. finest varieties of last season	6*s*. to 9 0 ,,
Veronica speciosa	1*s*. 6*d*. to 2 6 each.
Buddlea Lindleyana	1*s*. to 2 6 ,,
Centradenia rosea	1 0 ,,
Bouvardia strigosa	1 0 ,,
Leschenaultia biloba nana	1 0 ,,
Achimenes longiflora, rosea and grandiflora	0 9 ,,
Herbaceous plants (in pots), an extensive collection, containing many scarce varieties	6 0 per doz.

Post-office Orders to be made payable at Camberwell-green.
N.B. A respectable young Man Wanted, who has been used to the business, and wishes farther improvement.
Clarendon Nursery, Camberwell, London.

SEEDS.—CORNER OF HALF-MOON-STREET,
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

EDWARD BECK will be happy to answer any inquiries, either personally or by post

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s*. to 7*l*. 10*s*. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

BRITISH SHEET OR HORTICULTURAL GLASS.
In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.
12, Panton-street, Haymarket.

LEPUS TIMIDUS, WITH LEPUS CUNICULUS; OR, GENUINE HARE RABBIT.

THIS extraordinary and large variety weighs, when at maturity, from 12 to 14 lbs; possesses great length and depth of carcass, furnished with a considerable dewlap, very long and beautiful erect ears, with large projecting eyes, precisely resembling those of the hare. The colour of this fine breed is uniformly that of the hare, and when cooked, not to be distinguished from it. It brings forth from five to seven young, and requires no other treatment than the common Rabbit. Mr. JOHN BRETT, Market-place, Great Yarmouth, has a few pairs to dispose of upon the following terms:—2 to 3 months old, 15*s*. per pair; 1 to 2 months old, 10*s*. per pair, including package, and can be forwarded with safety to any part of the United Kingdom. A post-office order, or reference, will be required from unknown correspondents.
Great Yarmouth, July 19.

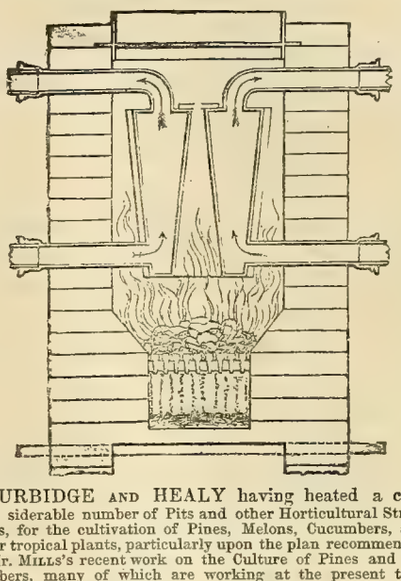
CURTIS'S ROSE-BUDDING KNIFE.—"This is the neatest Budding-knife we have seen. The ivory handle is shaped like the blade of a curved penknife, sharp, and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—Opinion of Prof. LINDLEY, in the *Gardeners' Chronicle*, July 29, 1843.
GEORGE BARNES, Pruning and Budding-knife Maker, (Warranted Good) 68, Campo-lane, Sheffield, begs to call the attention of the public to the above new and desirable article, manufactured by him. Sent free to any part of the kingdom on receipt of 27 penny postage stamps, or post-office order for 2*s*.
Sold by J. KERNAN, Florist and Seedsman, 4, Great Russell-street, Covent-garden, London.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.
S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.
Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

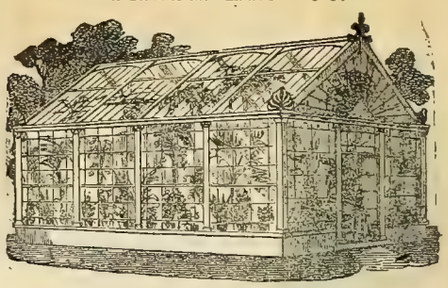


COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz. :—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.
ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.
HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.
STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.
HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.
SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pentey's, Plymouth; Mr. Henderson's, Pine-apple-place; and in the Gardens of the Horticultural Society.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

SMITH AND CO.



ESTABLISHED NINE YEARS.
HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.
D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.
D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

GUANO (GENUINE PERUVIAN & BOLIVIAN),
ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON:
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, July 19.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis, Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO, of the best quality, in bags.—PERUVIAN 10*l*. 10*s*. to 11*l*. per ton; ICHABOE 6*l*. 5*s*. to 7*l*. per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE FOR GUANO.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



TESTIMONIAL.
Extract of a Letter received from J. W. KELSEY, Esq., Hope Farm, near Folkestone, Kent, October 17th, 1844.
SIR,—Your Guano has turned out well, quite answering my utmost expectation; it has made my Turnips best at the poorest part of the field, being the spot where I employed it. I will thank you to send me the price of your Bone Powder, and remain, yours respectfully, J. W. KELSEY.
The price 9*l*. per ton, including sacks, wharfage, delivery to the railway, and when the distance does not exceed 10 miles from London, delivery free. Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lands, &c., 1*s*. 9*d*. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists.
GENUINE CRUSHED BONE, 23*s*. per quarter, including sacks, warranted to stand the most rigorous analysis.
Gypsum (Sulphate of Lime) 23*s*. per ton, in quantities not less than three tons, warranted pure.
N.B.—Mr. BRAIN conducts Analyses of Soils, Manures, and all Agricultural Products with the greatest care and expedition.
Steam Mills, Thomas-st., Stamford-st., Blackfriars, London.

YOUELL & CO. beg to remind their Friends they continue to supply the following fine CAMELLIAS in good healthy plants, set with flower-bud, at 30*s.* per dozen, the selection being left to them or to the Purchaser, namely:—Donkelarii, Monarch, Carolina, Conspicua, Double White, Lefevreana, Invincible, Double Striped, Chandlerii, Colvillii, Juleana, Beallii, Imbricata, Eclipse, Florida, Elegans, Ruckerii, and Fimbriata. Also,

The very best	FUCHSIAS	12*s.* per doz.
Ditto	CHRYSANTHEMUMS..	12*s.* do.
Ditto	VERBENAS	6*s.* do.
Ditto	PETUNIAS	12*s.* do.
Ditto	PANSIES	10*s.* do.

For particulars, see former Advertisements.
Great Yarmouth Nursery, July 19.

SEEDLING VERBENAS.

JAMES PEARSON, in offering the following VERBENAS to the public can, with the greatest confidence, recommend them as being of superior excellence, both in flower and habit.

VERBENA "AVALANCHE" is of a pure white colour, compact habit, and profuse bloomer.

VERBENA "DEFIANCE," a fine rose-crimson; truss large, with good habit; the former was awarded a Certificate at the Meeting of the Horticultural Society of London, on Saturday, June 21st. Good Plants can be obtained at Eschcol Nursery, Hampstead-road, London, at 3*s.* 6*d.* each.—Verbena "Avalanche" was entered at the above Exhibition by mistake under the name of "Hampstead Lily."

The Gardeners' Chronicle.

SATURDAY, JULY 19, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 23—South London Floricultural . 1 P.M.
FRIDAY, August 1—Botanical . . . . . 8 P.M.

COUNTRY SHOWS.

THURSDAY, July 24 { Surrey Horticultural and Floral. Stamford Hill Horticultural. Liverpool Botanic and Horticultural. Berkshire Horticultural.
TUESDAY, July 29 Nottingham Carnation and Picotee.

WITH the 12th of July the Garden EXHIBITIONS of the HORTICULTURAL SOCIETY have terminated for this year, and the beauty of the closing scene was worthy of that unparalleled display of flowers which ushered in the season. We have witnessed many July Exhibitions, and our general impression has been unfavourable to them; for they are usually a spectacle of faded or fading beauty. But no symptom of the kind was visible last Saturday. On the contrary, the plants were in some respects finer than on any former occasion during the year—in the Orchids and Heaths for example—and the fruit was admirable.

Although we seldom address ourselves in this part of our journal to the details of Exhibitions, yet we must be permitted on this occasion to mention the remarkably beautiful fruit sent from the QUEEN'S GARDEN at Frogmore. It abundantly proved Mr. Ingram to be worthy of the distinguished honor of being HER MAJESTY'S Gardener. There was also a very remarkable new species of Fuchsia, called serratifolia, exhibited by Messrs. VEITCH and Co., of Exeter; it is one of the finest things that have been introduced by that very enterprising firm, who also added a graceful little novelty of a lower rank, the Salpichroa glandulosa, with trailing shoots, and pale yellowish green pendent tube-shaped flowers.

We are authorised to add that the arrangements for the next season will very soon be taken into consideration by the Committee already appointed for the purpose. And we may invite all persons having suggestions to make respecting the details of the Exhibition, to communicate their views in writing to the Secretary without loss of time.

THE unusual beauty of ROSES this year is the surprise of everybody. No one remembers a season in which the trees were so healthy or the flowers so numerous and fine. Nature seems to be surpassing herself in fecundity, so profuse is the supply of this favourite flower, so bright the colours, and so large the dimensions. People naturally inquire how this is. One man finds the explanation in the absence of aphides, another thinks it was the winter that did it, and a third refers the phenomenon to new manures.

We cannot say that these explanations carry conviction to our own minds. The green-fly injures flowers when they appear, or soils them; but we do not precisely see how its absence is to improve the quality of the Rose: that is settled before the green-fly is born.

What the winter can have done is yet more mysterious; at all times our winters are long enough and cold enough to send the Rose-tree to its annual repose, and that is all which it requires. Very severe winters do injury to the tender kinds, but we never heard of their improving the hardy ones. And in fact, the summer which succeeded the very hard winter of 1837-8, was not at all a good season for Roses. Moreover, the finest Roses of modern gardens have some warmer blood in their veins than circulates through the Dog Roses and briars of England; and we should as soon expect Lapland to agree with an Algerine, as a hard English winter to suit the constitution of a southern Rose-tree. It may endure it, but cannot, upon any conceivable principle, enjoy it. What they do enjoy is a temperate winter, just cold enough to arrest their growth, and not more; of which a striking example is afforded by the plants in the great iron conservatory of the Horticultural Society. In that place frost is never permitted to enter; and yet the Roses are, in their season, among the most magnificent that can be seen.

Nor can we flatter ourselves that chemistry has added a new laurel to its wreath by discovering a salt which will lend even fragrance to the Rose. Its phosphates, and sulphates, and nitrates, are very good things in their way, and so are ammonia and guano, but they cannot be permitted to claim the honour of having improved the health of the Rose; for its flowers are just as beautiful where they have never been employed.

What then is it that has wrought this change in the constitution of the Rose? Surely nothing else than the last hot and dry autumn, with a cloudless sky, and (for England) a brilliant sun. These favourable circumstances have done what they always do; they have enabled the matter demanded for the organisation of the Rose to be abundantly secreted; they have called forth all the formative power which this shrub possesses; they have enabled the nascent leaves to arrange themselves as flowers, and to effect that arrangement perfectly. There never was a bad Rose season after such an autumn as the last. There never was any other than a good one. And if by artificial means we can always secure such an autumn we may always calculate upon the same result.

We have already stated that the Roses produced on the bushes planted in the iron conservatory in the garden of the Horticultural Society are unsurpassed, and hardly rivalled. The whole face may be buried in their ample petals; during their season there is nothing like them. In that place they are exposed during all the latter part of the year to the very same favourable influences as affected Roses in the open ground in 1844; they are constantly surrounded by a hot and dry air, and are shone upon by all the rays of sunlight which a convex roof of glass is able to collect. They live in the climate of Italy or Provence.

It is this which Rose-growers have to bear in mind; and we entertain no doubt that when acres are covered with glass, as will happen when that commodity is 2*d.* a foot, and the trade is conducted upon fair principles, we entertain no doubt that all the finest Roses will be cultivated under glass. Strong moveable roofs, to be applied in the end of September, and to be removed in April, will render greenhouses unnecessary in half the gardens of the country, and will bring the winter climate of China to the gates of London. An old wall, with a border 12 feet wide in front of it, might be easily fitted up with a moveable glass lean-to, and planted with multitudes of New Holland, Cape, Chilian, Spanish, and Chinese plants. That would be the place for Camellias, Tree Rhododendrons, and the gaudy Australian Myrtle-blooms. Japan Lilies, Syrian bulbs, Mexican Torch Thistles, Cape Oxalids, and all the thousand gay forms of twining exotic vegetation, now known in a languishing state in our greenhouses, would form thickets unrivalled even in the native countries of such plants. There would be no need of heating apparatus. The autumn sun, and the rain-proof roof would provide against cold; and as for our summers, why they would suit such vegetation, even better than that which nature has provided them with at home.

Such a border would be a shrubbery, with a glass roof; a walk could be conducted through it, and everybody who, heretofore, has built a greenhouse, might substitute a winter garden. That such things *may* be done is certain; that they *will* be done, when glass is cheap, is, we think, in the highest degree probable. That the cost of them would be inconsiderable, will become evident, if we remember that with glass at 2*d.* a foot, a border 12 feet wide, and 100 feet long, may be covered in for less than 20*l.*, so far as the glass is concerned.

MOST of the visitors to London have seen in the windows of Club-houses, and of wealthy persons, a small polished PLATE-GLASS APPARATUS, having quite the appearance of a Venetian blind, like which it acts. This contrivance is for the purpose of ventilation, which it effects extremely well, allowing warm air to escape, and cold to rush in, without its being possible for the latter to interfere with the comfort of the interior.

But it has its disadvantages; it is expensive, and it is apt to get out of order. The account of it in the "Mechanics' Magazine" is very just. Of the inclined glass bars, technically called louvres, of which it consists, "it rarely happens that the whole remain for any length of time in the same trim; some will not turn as freely, or to the same extent, as others; while one or two will not move at all, either one way or another; the ventilation becomes, in consequence, proportionally inefficient; the streams of air enter at different, often very conflicting angles; and permanent draughts are established where occasional currents only were wanted." Both these objections are removed by a modification of the contrivance for which a Mr. BAILLIE has taken out a patent; for his is unexpensive, and cannot be deranged. In this invention, to quote once more the words of our excellent contemporary, "we have all the advantages of the glass louvres, free from any objections. It consists, firstly, of a series of louvres, which are *permanently* fixed at a certain inclination, so that the currents of air may be deflected upwards in one uniform direction; and secondly, of a sliding valve, likewise of glass, by which the quantity of air admitted may be regulated at pleasure, and which, when closed, renders the openings perfectly air-tight. The whole is contained in a neat frame, which may be readily adapted by a common glazier to any of the panes of a window. Other advantages arise from having the louvres stationary, instead of being moveable. For example:—First, the draught of cold air is avoided, which, in the case of moveable louvres, enters through the intervals that are required to be left between their ends and the sides of the frame. Secondly, the apparatus has no joints, nor other working parts, where the dust can accumulate and become hardened, so as to obstruct their action. It may be closed in a perfectly air-tight manner, even in the most dusty situations. Thirdly, its construction is so simple, that nothing but rough usage can injure it; and if out of order, it may be repaired by any ordinary workman. And fourthly, a cord or line by which the sliding valve is opened and shut (when such is used) may be carried to any part of a room, such as the bed-side, in the same manner as a bell-rope."

We have ourselves experienced the convenience of this contrivance in a hot room in London, and we only wish it were possible for it, or any other apparatus, to exclude the soot, as well as to admit fresh air. On a larger scale it would probably form a capital ventilator for hothouses in winter, or possibly even for small greenhouses, provided the apertures between the louvres were further apart. This, however, is a matter to be determined by experiment; in the meanwhile the personal comfort of the thing is undeniable.

THE CHINESE CHRYSANTHEMUM.

MY CHRYSANTHEMUMS being much admired both in this and last season, I am induced to offer my mode of treatment, by which I have always succeeded in growing them well. The plants having been cut down in February, after they have done blooming, in March I turn them out of the pots into a bed of light rich soil, previously prepared for them, taking care to plant them an inch or two lower than when in the pots, no farther attention being necessary until the end of April or beginning of May. For our first and what I call best plants, having selected the strongest shoots, I take away the soil from the old stool, and remove with the hand any shoots I have selected when they are found to have rooted above the stool, being earthed up in the planting out. Having previously prepared a trench with good mellow loam, leaf-mould, and dung, in any part of the kitchen-garden, I plant them out with the dibble about four feet apart, and stake them directly, and by attention to watering they quickly recover their removal. I water them occasionally with manure-water, and as they grow, attend to staking and tying out; by September they are (according to the sorts) from 4 to 6 feet in height, and feathered from top to bottom. About this time, or when the flower-buds have acquired the size of Peas, I prepare to take the plants up for potting. The soil I use is rather lighter than what they have been growing in, which encourages them to root quicker. Having the pots, soil, and all ready, I take the plants up and pot them on the spot, reducing the ball as little as possible; I then place them in a house previously cleared for their reception, give them a good watering, and shut them up quite closely, giving them a slight syringing every time I go into the house, if it is a dozen times a day. With this moist atmosphere I do not mind a little sunshine, but if the latter is too strong, I shade the house for two or three hours in the middle of the day; in a fortnight after moving, they will bear sun and air with impunity. With encouragement, in three weeks they will begin to expand their bloom, at which time I remove them to the conservatory, in order that they may display themselves to the best advantage. By this treatment the number of clusters of bloom, and the size of the flowers individually, some measuring from 4 to 5 inches across, will amply repay for all the trouble that has been devoted to them.

At the time of removing the shoots for planting out, I take cuttings of the next strongest shoots, strike them in heat, and afterwards plant them out as above; these make fine plants of a more dwarf habit. I pot and house them as before, and afterwards place them in a cool pit; they make a fine succession to the large and more forward plants. For the next succession, I lay some of the remaining shoots in the beginning of August; and to make good specimens for china vases which stand along the side of the path in the conservatory, I

put three or four plants in each, which form one mass of flower.

For the next succession (which is to me the most interesting), as soon as the buds make their appearance, I take the tops of the remaining shoots, about 4 or 6 inches in length, pot them singly, and place them in heat, and in a fortnight, when they are found to have struck, they are placed in a cold pit and kept near the glass, in order to prevent them from becoming drawn. I put in about 100 cuttings, two-thirds of which are available. These plants, although taken off late, produce fine blooms, and being 6 or 8 inches in height, have a pleasing effect along the lower shelf of a stage, or in the front windows of the conservatory. I tried some cuttings just previous to the buds being formed; these did not answer so well; they struck and commenced growing, but did not (many of them) show any signs of blooming; I threw away the greater part of them, those that showed flower were kept.

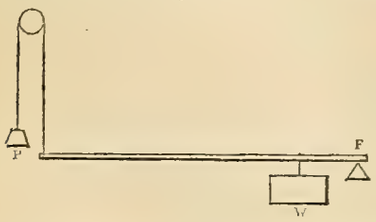
For seeding, I select the strongest plants of the sorts from which I desire to save seed, cut off all the lateral flowers, and give the plants the lightest place in the house; directly the flowers show a sign of fading, I remove the plants into 55° or 60° of dry heat, which is very essential, for if the flower becomes wet, it is sure to rot. By attention to this, I have obtained a little seed from some of the strongest flowers.—*J. Harden, Wormleybury, Herts.*

GARDEN MECHANICS.

In order to make some of the statements in a late article better understood, I will take the lever where the weight is placed between the power and the fulcrum. In treating of mechanical engines, three things are to be considered—the weight to be raised, the power by which it is to be raised, and the instrument or engine by which this is to be done. The lever is considered the simplest of all machines, and in it there are three circumstances to be chiefly attended to:—1. The fulcrum or prop by which it is supported on what may be called the centre of motion; 2, the power to raise and support the weight; and 3, the resistance or weight to be raised or sustained. The common garden wheelbarrow may be taken as an example of what is commonly called the second kind of lever, namely, such as has the weight between the fulcrum and the power; the fulcrum or centre of motion is found at the fore part of the barrow, and the load is the resistance or weight to be raised; the weight is commonly overcome by manual power at the other end of the lever, or barrow handles.

We find it given as a general rule in works treating on mechanics, that "the force of the lever increases in proportion as the distance of the power from the fulcrum increases, and diminishes in proportion as the distance of the weight from the fulcrum diminishes." Now, we may inquire, what mechanical advantage is gained by the arms of the wheelbarrow, considering them as a lever? To find the advantage the rule is, "Multiply the weight by its distance from the fulcrum, then multiply the power by its distance from the same point, and if the products are equal the weight and the power will balance each other." Now, suppose the arms of the wheelbarrow to be five feet long, which is about the common length of those used in gardens; but in making calculations we must know what are to be the units of weight and distance. In the present case we will suppose the unit of length to be a foot, and the unit of weight a stone. In figure 1,

Fig. 1.



let F be the fulcrum, W the weight, P the power, and suppose a weight of five stone on the short arm of the lever, at the distance of one foot from the fulcrum; then another weight of one stone should be equal to the five at the distance of five feet from the fulcrum. This example shows the advantage that is gained by using the lever as a mechanical power, and the proportion in which the weight exceeds the power is called the mechanical advantage; but shift the position of the weight towards the power and the equilibrium will be destroyed, or a greater power must be exerted to keep it up; shift it nearer the fulcrum and less power will be required to bring it to an equal balance. In the making of garden wheelbarrows, particular attention ought to be paid to these things, in order that gardeners may have all the mechanical advantage that can be obtained; for it is evident that by shortening the barrow handles or placing the weight nearer the power than what is necessary, a great loss of power is the result.

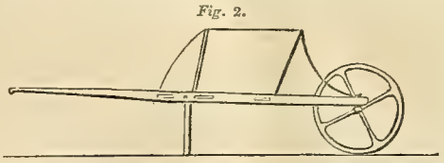
Gardeners ought to be acquainted with mechanics for their own advantage; for of two persons of equal strength at work wheeling earth or dung, the one will perform a great deal more work who has a wheelbarrow properly constructed, than the other who labours under mechanical disadvantages. In the constructing of a wheelbarrow, however, there is another mechanical power to be considered, namely, the wheel and axle. The lever has been called a primary mechanical power, and the wheel and axle a secondary mechanical power founded on the lever. Geometricians inculcate that the circumferences of different circles bear the same proportion to each other as their respective diameters do; consequently, the power is to the weight as the diameter also of the axis to that of the wheel. We find it stated in Brande's Dictionary, that wheels applied to carriages serve a twofold purpose. In the first place, they greatly diminish the friction on the ground, by transferring it from the circumference to the nave and axle; and in the second place, they serve to raise the carriage more easily over obstacles, such as inequalities on roads, &c. The friction is diminished in the proportion of the circumference of the axle to that of the wheel; and the smaller the axle the less is the friction.

The mechanical advantage of the wheel in surmounting an obstacle may be computed from the principle of the lever. We have used wheels of different diameters in wheelbarrows, and although large wheels are found more advantageous for rolling than small ones, as they have less friction, and do not sink so deep in soft ground as those of a less diameter, yet they must be kept within due bounds in order to answer the purpose intended. Perhaps a wheel of 18 or 20 inches in diameter is large enough for a garden wheelbarrow. When much larger the load is thrown upon the arms of the person that wheels, and he may have a burdensome proof of the golden rule of mechanics, namely, "What is gained in velocity or time, is lost in expenditure of power." By lengthening the iron studs in which the pivots of the wheel are placed, a wheel of two feet in diameter may be used instead of a wheel of 18 inches, but in this case the centre of gravity of the wheel is much elevated, and caution must be employed in using such a barrow, or the load will soon fall to the one side or the other. I have been informed that spring wheelbarrows work very pleasantly, but I have never seen them used in gardens; if any of the readers of the *Chronicle* have tried them, they will, perhaps, say something on the subject. This kind of wheelbarrow is sometimes used by street porters. Perhaps the poet Gay referred to such when he says in his "Trivia" on the art of walking the streets of London—

> "No barrow's wheel,
> That bruises oft the truant school-boy's heel,
> Behind thee rolling with invidious pace,
> Shall mark thy stocking with a miry trace."

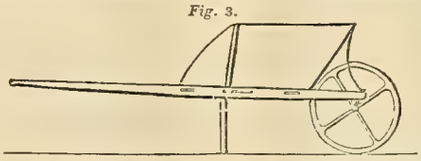
I have tried several ways of placing barrow wheels of 18 or 20 inches in diameter, so as to obtain the greatest mechanical advantage, without raising the centre of gravity to an improper height; and the plan that appears to give most satisfaction, is to lengthen the studs a little and give them a bend backwards; by doing so the load is brought more upon the wheel. In this way another advantage is gained, for in emptying the barrow very little power is required to pitch the load over the front of it, which is sometimes not easily done when the load rests too much upon the arms. Perhaps the following figures will make the subject better understood:—Figure 2 is what I would consider to be the representation of a

Fig. 2.



badly made wheelbarrow. Figure 3 is a representation

Fig. 3.



of one that has more mechanical advantage, and is easier worked, than figure 2.

It would be of some advantage to those who are in the habit of working with wheelbarrows to have some knowledge of the *momentum* of bodies, that is, the impetus or force of a body. "An impressed force is an action exerted upon a body in order to change its state, whether of rest or motion. This force consists in the action only, and remains no longer in the body when the action is over." We often see a strong man stagger when he has to empty a barrow-full of earth over the front of the barrow; while another, who is much weaker, will do it with great ease. In the first case the barrow handles are not raised until the barrow is at rest, in the other case they are raised while the barrow is in motion.—*Peter Mackenzie.*

ORANGE TREES AT MARGAM, GLAMORGANSHIRE.

The following notice of these may possibly be of interest to your readers:—The late A. B. Lambert, Esq., communicated to the Linnean Society some notes relating to Botany, from the MSS. of the late Peter Collinson, Esq., F.R.S., and which were published in the 10th vol. of the Society's "Transactions," pp. 278-9. "Copied from my nephew, Thomas Collinson's Journal of his Travels, 1754." "In the reign of Queen Elizabeth, anno * * * the first Orange and Lemon Trees were introduced into England by two curious gentlemen, one of them Sir N. Carew, at Bedington, near Croydon, in Surrey." The account proceeds to state that the trees had been in great perfection a few years before, but through mismanagement they languished, and at last all died. "A better fate has, hitherto, attended the other fine parcel of Orange trees, &c., brought over at the same time by Sir Robert Mansell, at Margam, late Lord Mansell's, now Mr. Talbot's, called Kingsey Castle, in the road from Cowbridge, and Swansey, in South Wales. My nephew counted 80 trees of Citrons, Limes, Bergamots, Seville and China Orange trees, planted in great cases, all ranged in a row before the greenhouse. This is the finest sight, of its kind, in England. He had the curiosity to measure some of them. A China Orange measured, in the extent of its branches, 14 feet. A Seville Orange was 14 feet in height, the case included, and the stem 21 inches in circumference. A China Orange 22½ inches in girth, June 11, 1777. I visited the Orangery, at Margam, in the year 1766, in company with Mr. Lewis Thomas, of Eglews, Nynngt, in that neighbourhood, a very sensible and attentive man, who told me that the Orange trees, &c., in that garden, were intended as a present from the king of Spain, to the king of Denmark; and that the vessel in which they were shipped being taken in the Channel, the trees were made a present of to Sir Robert Mansell." Kingsey Castle is a misname for Kenfig, a ruined pile situate at some distance from Margam. Eglews Nynngt should be spelt Eglwys Nunyd. It appears from one of the notes appended to the "Hortus Collinsonianus," printed by L. W. Dillwyn, Esq., in 1843, for private distribution among his friends, that Mr. Lambert appears to have had no other than a hurried opportunity for selecting and copying the memoranda which he gave to the Linnean Society; and that the loose memorandum relating to the Orangery, at Margam, with the date of July 11, 1777, is attributed to Mr. Collinson, although he had then been dead for several years, and he omitted to notice that it is in a very different handwriting from the other papers, and bears the signature of John Browne. It may be observed that there is a discrepancy in Mr. Collinson's statement. The Orange-trees are said to have "been brought over" by Sir Robert Mansell (who was, as is well known, a distinguished naval officer in the reigns of Elizabeth and James I.); while, in another place, they are said to have been "taken aboard a vessel in the Channel, and given to Sir Robert Mansell." It is improbable that considering the state of religious opinions at that period, such a present should have been made by the King of Spain. Again, the curious MS. account of the progress through North and South Wales, by Henry Duke of Beaufort, Lord President of Wales, preserved in the library of Badminton, which mentions various particulars relative to Margam, is silent as to the Orangery. Sir Edward Mansell received his Grace and his splendid suite on the 16th of August, 1684. We are justified in presuming that the Orange-trees were not then at Margam; and this hypothesis is strengthened by the received tradition in the family of the proprietor, Mr. Mansell Talbot, that these trees were intended as a present from the King of Portugal to Catharine of Braganza, the Queen of Charles II.; that they were wrecked on the coast of Glamorganshire, and given to Sir Edward Mansell, who was Vice-Admiral of South Wales, and whose family had espoused the cause of Charles I. in the recent rebellion. Catherine remained in England till 1692. The only document which we have been able to discover connected with this celebrated collection, is a memorandum dated July 3, 1727. "The account of the greenhouse plants now in Margam, and in perfect health, and given from me, Joseph Kirkman, gardener at Margam this 16 year and half:—71 Oranges, Citrons, Bergamot, &c., of all sizes; 1 China Orange dying of canchre, all rest healthy. Amomum plyme in a vase." We are enabled to supply a list of the trees in tubs, amounting at the present time to 85:—37 China, Seville, &c.; 23 Bergamots; 14 Lemons; 7 Citrons; 4 Shaddocks; of what are considered to be the original stock there are 12; 6 Bergamots, 4 China, and 2 Seville Oranges. One old Bergamot died last winter; we apprehend that when the Orange wall was constructed after the old greenhouse was pulled down, about 40 years ago, a few of the old trees were planted against it. The Shaddock, which does not bear well in tubs, produced fine fruit on the hot wall.—*Camber.*

THE CEYLON RHODODENDRON.

During the winter of 1835, or early in the spring of 1836, I received a letter from the island of Ceylon, written by a medical gentleman (who was an excellent botanist), dated the 15th July; accompanying it was a packet of the seed of the Rhododendron nobile: of the tree he speaks thus:—"I write from a plain over 8000 feet above the level of the sea, which presents just now one of the finest sights imaginable, being one sheet of scarlet as far as the eye can see—the Rhododendron nobile being in full flower; but from the great elevation and consequent cold, the tree does not attain a greater size than a well-grown Apple-tree; in the valleys it blossoms three months earlier, and grows considerably larger. As British genera abound here, and have frosts in the mornings, I feel confident that it would succeed well in Ireland in the open air, and stand the severest winters." He further adds,—"I write clothed in flannel, before a good fire, the thermometer being only 57°." Immediately on receiving the seed I had it sown, and was pleased to see a fine crop come up; but unfortunately the year following an ignorant person employed in my garden, thinking the Moss that grew about the young plants should be cleared away, hoed up the entire, which I did not discover for two or three days, and only in time to save about 20 plants from de-

struction; those I potted, but did not venture to try them in the open air until the summer of 1842, when two were planted in my garden, the remainder I kept in a greenhouse; but finding they were not in health I, last autumn, turned all out, as the two first had not only stood our severest frosts without shelter of any kind, but were growing most vigorously; the shoots of the year being as thick as those made three years before by Altaclerense, or any other of the hybrids. To Earl Kingston I gave one of my small stock; but his gardener feared putting it out of his conservatory, in a cool part of which it was kept. I last week visited his lordship's castle, and had the pleasure of seeing a splendid bunch of flowers on the plant, fully equal to, if not superior in colour, to the magnificent specimen I saw about six weeks since, in the collection of the Messrs. Cunningham, of Liverpool, of the true arboreum. As those that I have had the good fortune to raise, are not only perfectly hardy, but flowering so late as will secure the bloom from being injured by our spring frosts, I am confident they will prove a great acquisition to the gardeners of Great Britain. I beg to enclose leaves of three different plants, of the two last years' forming, those of this not yet being fully developed, as the young shoots are not above 5 or 6 inches long, and growing rapidly, but even in this state as thick as my finger.—*J. Dillon Croker, Quartertown, near Mallow, Cork.*

[The leaves are of the true Rh. nobile, a very fine species.]

Home Correspondence.

Propagation of the Pink.—In answer to a letter on this subject, from a correspondent, which has been placed in my hands, I beg to mention that Pinks will root extremely well now, and the plan I would advise him to follow is simply this:—On a spent hot bed, which may have been used for raising tender annuals, or other purposes, they may be put in under hand-glasses with success; first stirring the soil, which, if not of a suitable nature, must have equal parts of leaf-mould and white sand added thereto. The shoots of the present year's growth may then be selected, with about three joints; immediately under the lower one, make a clean cut through, then gently strip off the two bottom leaves, thus exposing the buds, which they had previously covered, and which it is most essential should be uninjured. They may then be gently pressed into the earth, to the depth of half an inch, and watered to make the soil settle firmly about them, allowing them to become dry before the hand-glasses are put over. For the first week they should be shaded from the direct rays of the sun, with calico, bunting, or other light material, which may be withdrawn by degrees, as the plants begin to elongate. They will want but little other attention, except keeping free from weeds, and hardening by degrees, taking the glasses off in the evening; when the plants are sufficiently well rooted, they should be pricked out in beds. As an instance of the different methods of arriving at the same end, I know a successful cultivator of Pinks, who, as he prepares his pipings, puts them in water, till he is ready to insert them in the soil; whilst another, equally fortunate, allows his to remain for a short time exposed to the sun, previous to putting them into the soil.—*W.*

The Oyster Plant.—This used to be called Pulmonaria maritima, has that name been changed?—[Yes, to Lithospermum, and Steenhammera.] The flavour of the leaves very much resembles that of oysters, but the plant cooked will not be found to be a substitute for oyster sauce: perhaps it might, if chopped small and put into butter, when it has been melted. Though residing on the coast of Durham, I have not been able to retain the plant in my garden, even carefully planted in, and surrounded by, sea-sand. It is not, however, a native of this coast, though said to be of Northumberland.—*Litoralis.*

Asparagus.—In the spring of this year I planted 200 roots of Asparagus in two beds, which had been made a month before, containing rotted dung, 2 stone of salt, and about a gallon of gas-water. The young plants came up vigorously enough, and altogether promised well, till about a month ago, when they began to turn yellow, and gradually die off. Thinking there might be some insect at the root I examined one, and found nothing but the roots themselves in a state of decay. I can attribute this to nothing but having given them one watering with brine about six weeks back; at least, there is no other apparent cause with which I can connect the decay of the crop. May I beg to be enlightened as to the cause, and remedy, if there be any; for I have yet hope that they may come round, the stronger plants having thrown up some fresh shoots.—*J. F. M.* [It is dangerous to apply salt as a manure to plants with wounded roots, and such recently planted Asparagus must be considered, however carefully the plants may have been taken up, although it is certain that double the quantity above-mentioned would not injure established plants. Perhaps some of our correspondents will state whether they have experienced similar effects as regards the application of salt to Asparagus lately planted. Abundant watering is perhaps the only remedy.]

Hoare's System of Vine Culture.—I bought Mr. Hoare's book on its first appearance, and was induced to plant some Vines according to the plan he recommends. I made five experiments inside of a Vinery—three of these were with Vines which had been planted two years in the border, and two were with young Vines from pots. The experiments were conducted with the utmost care and attention to Mr. Hoare's directions, and with an anxious wish for their success; but I regret to say the result has been very unsatisfactory, some of the plants are dead, and the others are just alive! The experiments by others, so far as recorded in the *Chronicle*, appear to have been about equally unfortunate; a strange contrast to the success which Mr. Hoare records of his own culture, and the assurances he gives to others who will follow his system, of having "at every returning season an ample supply of delicious and well-flavoured Grapes." Alas! we can gather no Grapes from dead or dying plants. When Mr. Hoare is made aware of this general failure and disappointment, he will surely endeavour to point out the cause; perhaps he may visit the Horticultural Gardens, examine the experiments there, and point out what may seem to him the cause of want of success; or he may perhaps invite some distinguished horticulturists to inspect his Vines at Shirley.—*C., Scotland.* [You will find that we were not wrong in speaking very cautiously about this matter. See pp. 635 and 667 of last year.]

Lupinus polyphyllus.—In the spring of 1842 I raised some plants of this from seed, and in the summer of 1843 they flowered, producing the usual purple spikes of blossoms; in 1844 they did not flower. During last winter I divided the roots by taking part away and planting them in another border; both these and the original plant flowered, but one of the removed portions (which, however, appeared sickly from its removal) produced white blossoms, while the original had some very fine spikes; not, however, of its original purple colour, but of a dingy half-brown, half-whitish hue. Is this change in the colour of its blossom usual?—*Amateur.* [We have not remarked it.]

Fish-ponds.—The following curious fact of Natural History may be interesting:—I have two fish-ponds supplied with water from a lake full of pike; my lower pond is full of trout, and I am desirous of keeping the pike out of it. They can freely run from the lake to the upper pond, but to prevent their getting into the lower I have placed immediately under the cascade a large chest, with a lid made of wire-work, with a high ledge of wood around it, to prevent the fish leaping off it. By this means, whenever there is a flood in the stream, I catch a quantity of pike. Notwithstanding this precaution, however, I find my lower pond full of pike whenever I drain it off. Last year I found a pike of 5 lbs. weight there, although it was only two years since it had been drained. I was not able to account for this circumstance until yesterday, when I was taking some pike from the wire lid of my chest; I heard a splash close to me in my upper pond, and, to my surprise, saw that it was occasioned by a small pike, about 6 inches in length, that leaped out of the water of the upper pond 3 feet above the cascade, which it cleared, went over my head, and pitched safely in the lower pond, at least 6 feet beyond my chest. I plainly see that it requires a much higher barrier than is generally supposed to confine fish. This fact explains to me the loss of my fish frequently from my lower pond.—*Cavanensis.*

Instinct and Tameness of Fishes.—I have seen some singular instances mentioned in your columns of the tameness of birds and beasts, and I well know, from oft-repeated experiments, what may be done in this way. My object, on the present occasion, is to direct your attention to sundry experiments I have been making with fish. Of minnows I had, two years ago, no fewer than 13, ranging about in a large glass globe, and I taught them not only to know me but to recognise the sound of my voice, whilst I whistled to them some lively air. On such occasions they would all rise to the top of the water, salute me by touching my lips as I bent closely over the bowl, and actually leap up and play with the extremity of my nose! They would, moreover, fondle over me, by rubbing their silvery sides against one of my fingers, which I purposely dipped into their watery habitation—in this particular imitating the fondnees of a cat, when she pleasingly purrs, erects her tail, and draws close to your person to evince her perfect state of happiness. The usual fate, however, peculiar to all pets, awaited mine; one by one, as the heat of the weather increased in intensity, they gave up the ghost, and my glass globe was consigned to the silent shelf. A few months since, my eye chanced to rest on the same globe, and there was awakened in me the fondest remembrance of my former tiny friends. You may guess the consequence. I have procured more, confining myself, however, to three only; and I have actually accomplished with these what I did with the others, or very nearly so, for they every day become more and more affectionate and attached. How their exquisitely-delicate structure, and still more delicate constitution, will bear up against the coming dog-days I cannot say. I fear the worst. I keep them in cold well water, fresh twice a day; and they suffer themselves, most willingly, to be taken in the naked hand, whilst being transferred from the globe to a basin, during the change of water. Surely the law of kindness is all powerful. Would that it were more universally tried.—*William Kidd, New-road, Hammersmith.*

Propagation by Cuttings.—Having succeeded in striking the yellow Linum by a very simple process, it may be interesting to amateurs to know how this was accomplished, as it is a most valuable addition to the flower-bed, and sufficiently hardy to stand a moderate winter in the open air. Shift some tolerably good soil, and place it under a north-east wall; having watered it well, plant cuttings from two-year-old wood, sprinkle a handful or two of soil over them to insure their being firmly fixed, water again with a fine rose, and cover them with a hand-glass. No further trouble need be taken with the cuttings till the following spring, when they begin to grow. In this way I have raised many healthy plants, which are now in bloom.—*Falcon.*

Irish Yew.—In conversation I heard the following account of the introduction of the Irish, Upright, or Florence-court Yew, for it goes by these three names. In the time of the late Lord Enniskillen, a country farmer found two plants of it growing together in the mountain above Florence-court. He dug them both up, and gave one to Lord Enniskillen, who planted it at Florence-court, and he planted the other in his own garden. The Florence-court tree is rather ragged, but the one planted in the farmer's garden still flourishes, and is a beautiful specimen. The authority on which this is related puts its truth and accuracy beyond question. The curious part is that two plants were found. The tree might have grown double, with two shoots and roots attached to each.—*Cavanensis.*

Wireworm.—I have used the following remedy for the destruction of this pest, with complete success, for a series of years. In the situation that I lately filled, I found the wireworm so abundant in every part of the garden, that we could scarcely grow a Potato without its being rendered useless by it; and amongst the various things that I tried as a prevention, soot appeared to be the only effectual remedy; it was applied to Potato crops in the following manner:—instead of planting with the dibber in the usual way, drills sufficiently deep were drawn, and the sets laid at the bottom of each drill; the soot was then sown upon them in quantity sufficient to cause the drill to assume quite a black appearance. This being done, the drills were filled in in the usual way, to the natural level, and the work was finished. Wherever soot was applied, the crops turned out quite clean and good, scarcely a trace of the ravages of wireworm was to be seen, while those from rows, not dressed with soot, were quite the reverse—the Potatoes being pierced through in every direction, and fit only for feeding pigs. This proves that soot, if it does not destroy, at least prevents the attacks of the wireworm.—*C. Judd.*

Berberis dulcis.—It is not common to see this plant full of fruit. If left to itself, it grows with long rambling shoots; it flowers, but produces no berries; but if the shoots are stopped, a bushy plant is produced, and plenty of fruit. I saw, at Messrs. Paul's Nursery, Cheshunt, several plants covered with berries, not yet, however, ripe, so that I had no opportunity of ascertaining whether the fruit is fit for tarts, as is stated.—*Dodman.*

Toads versus *Tadpoles.*—In your Number for Feb. 8, "Ruricola" stated he was of opinion that toads paired in stagnant water in the spring; and in the following Number I expressed a different opinion, viz., that frogs changed their colour and appearance at the spring season, probably from being in the water all the winter, so as to entirely mislead many persons. Another year's experience confirms my former opinion, and induces me to believe that the two kinds of spawn found in ponds and ditches are produced from the frogs and large dew snails only, and not from toads; I do not believe that they spawn at all. In your Number for the 1st March "Ruricola" further stated, that any person sceptical on the subject may convince himself by taking the ova, &c. I did so; the ducks ate it. A friend of mine also tried his luck, the sun broiled them; but the third time I have been more fortunate, for I have proved beyond a doubt that the spawn with the small black spots on it produces young frogs; I have them now in my parlour in a large glass in the act of changing in various stages, some in the tadpole state, whilst others have only their two front legs visible, others their hind legs, some all their legs, and still retaining their tails, and the rest are little frogs hopping about in all directions; there can be no mistake about this. About two months since I sent you my old toads with their little ones, which were born in my garden (but how or in what way I will not venture to state, not being present at their birth). Since then I have set other old toads at liberty from my Cucumber beds, having previously marked them with blue worsted on their hind legs, and on seeing the same toads a few days afterwards, I find them in the act of protecting three little ones each. Now, if toads are not entirely viviparous, how is this to be accounted for? Professor Owen says the toads quit the egg as an apodal long-tailed larva or tadpole with gills; it acquires first hind feet, then fore feet, loses its tail and gills, and becomes a young toad. Now I agree with him in all that he has said, except the latter part; instead of young toads they become young frogs. I have been told by many of my country friends, "you must give way to the learned professors, they must know better than you;" but I am reluctant to do so, unless convicted of error, which all must admit has not been the case on the subject of toads; and on taking leave of it I must say, although I had two or three hard hits from "R. M.," "J. B.," "F. B.," and others, I will frankly and freely forgive them, if in future they will promise me not to rely on theoretical knowledge alone, as one man's writings may mislead hundreds, provided they are not sceptical as I have been. —*B. Fry.*

Societies.

HORTICULTURAL SOCIETY, CHISWICK.

July 12.—The last of the Horticultural Society's annual series of EXHIBITIONS, in the Gardens, at Chiswick, took place, on Saturday last, and brought to a close, so far as the progress of horticulture is concerned, the most brilliant season on record. The number of Fellows and their friends was 5963. The

...ruit produce of Chiswick House were thrown open on this occasion to the visitors, by favour of the noble President of the Society; the marching, countermarching, and admirable music, of four military bands, and the crowd of gaily dressed spectators, altogether produced an effect which may be equalled, but cannot be surpassed.

On this occasion every exhibitor appeared to have come out with his full strength, and we may safely assert it was the finest July exhibition the Society ever had. At the July exhibition the fruit always forms a very prominent feature of attraction, and on this occasion the display was not only extensive but contained many productions of very superior merit. We cannot, however, abstain from remarking that some of the fruit, especially the Queen Pines, appeared to be over-done; that is, had been so liberally deluged with water as to prevent their arriving at that state of perfection, with regard to colour and flavour, so desirable in this fruit. We make this remark at the especial request of the judges, as many of the Pines instead of being of the bright lively orange-colour, so characteristic of July fruit, had the dull greenish-brown cast of mid-winter productions. It may also be remarked that some of the Black Hamburgh Grapes, though perfectly coloured, were not ripe, as was the case with those from the garden of the Marquis of Abercorn; and the magnificent bunches communicated by Mr. Williams, gr. to the Earl of Lonsdale, with berries nearly as large as Orlean Plums, though quite ripe, were not coloured, and hence neither received the prizes which, under other circumstances, they would have so richly deserved. To proceed, however, with a more detailed account.

The first prize for a collection was awarded to fruit sent from Her Majesty's Garden at Frogmore. In this collection Mr. Ingram produced four admirably-grown Queen Pines, weighing between 4 and 5 lbs. each; immense bunches of Black Hamburgh Grapes, not quite sufficiently coloured, and some good Muscat of Alexandria. From the same collection, also, very fine Violet Hâtive Peaches, and Elruge Nectarines, with Denyer's Victoria and Green-gage Plums, in beautiful order; British Queen Strawberries, as large as hen's eggs; a dish of the charming Malta Fig; and good specimens of the Windsor Scarlet Flesh Melon; with the White Naples Currant, and some Cherries.—Another collection came from the garden of Sir George Warrender, in which Mr. Dods produced two handsome Enville Pines, not quite ripe, but fine; with Black Hamburgh Grapes and Peaches, Nectarines, and some green-fleshed Melons.—Mr. Spencer, gr. to the Marquis of Lansdowne, communicated a third collection, which contained 10 large Queen Pines, not quite ripe; Muscat Grapes, to which the same remark applies; Black Hamburgh Grapes, deficient in colour; with Cabul and hybrid green-flesh Melons; Royal George and Noblesse Peaches, very fine; and some beautiful Elruge Nectarines.—Mr. Hogan, gr. to H. Pownall, Esq., sent a small collection containing some fine Peaches, with Hamburgh Grapes, Strawberries, and Cherries.—Of Grapes, some wonderful productions were present, especially the Muscat of Alexandria, from Mr. Frost, gr. to Lady Grenville, at Dropmore, which was beautifully ripened; and some admirable bunches from Mr. Fleming, gr. to the Duke of Sutherland; the latter were from Vines planted in May, 1844, in a border to which bottom-heat can be applied as detailed by Mr. Fleming in a previous Number: unfortunately they were not quite ripe.—Of Vines producing Grapes in pots, Mr. Wright, gr. to the Hon. Mrs. Rushout, had several plants beautifully laden with fine bunches, as the accompanying woodcut represents.



These were of the Black Hamburgh variety.—Mr. Moffatt, gr. to the Duke of Newcastle, sent fine bunches of White Frontignan and Black Hamburgh: also, some good Black Prince; all, however, much disfigured by bad packing.—Mr. Hamp, gr. to J. Thorn, Esq., sent fine Cannon Hall Muscats, and tolerable clusters of Black Hamburghs; some fine bunches of Black Hamburghs, not sufficiently coloured, came from Mr. Barnes, gr. to H. Whitmore, Esq.; some finely-coloured clusters from Mr. Foggo, gr. to the Marquis of Abercorn; and handsome bunches of the same kind from Mr. Hunt, gr. to Miss Traill. In the Market Gardeners' Class prizes were awarded to Mr. Davis, of Oak Hill, for Hamburghs and Muscats; and to Mr. Chapman, of South Lambeth, for splendidly-coloured small bunches of Black Hamburgh. Black Hamburgh Grapes were also sent by Mr. Jones, gr. to the Earl of Yarborough; Mr. Sellers, of Penn oyre; Mr. Walker, gr. to Capt. Hart; and Mr. Boyce, gr. to Sir L. Shadwell.—Black Prince were sent by Mr. Fisher, gr. to Sir F. Booth, and by Mr. Frost; and some beautifully-ripened small bunches of Muscats came from Mr. Davis, gr. to A. Smith, Esq.

Of Pines, a considerable quantity was produced, though, as has been before intimated, but few of them were so perfect as might have been expected. There were, however, some very worthy exceptions, among which may be noticed an admirably-grown Providence, sent by Mr. Parsons, gr. to A. George, Esq.; and five very beautiful Queens from Mr. Mason, gr. to Sir John Kennaway, Bart. Several of the latter were not far short of 5 lbs. in weight, while the Providence of Mr. Parsons must have been at the least 8 lbs.; they were all admirably swelled and coloured.—Two very pretty Queens, were sent by Mr. M'Ewen, gr. to Col. Wyndham; and six Queens, fine fruit, but badly ripened, from Mr. Brewer, gr. to R. Gunter, Esq.—Seven pretty Queens, grown in peat without pots, were communicated by Mr. Carmichael, gr. to Mrs. Hawkins; a fine Providence by J. H. Vivian, Esq., and Mr. Brown, gr. to the Hon. S. Herbert; and six neat Queens and a small Blood Pine by Mr. Hamp; Mr. Moffatt sent a Blood and Enville Pine; Mr. Eyre, gr. to R. W. Barchard, Esq., six small Queens; and Mr. Toy, gr. to Col. Challoner, two Queens.—A Providence, not ripe, came from Mr. Spencer; and four Queens and an Enville from Mr. Hewitt, gr. to J. Purday, Esq.

Of Peaches and Nectarines some very beautiful specimens were present, especially Noblesse and Royal George Peaches, and Murray Nectarines, from Mr. Fleming; splendid Nectarines from Mr. Collinson, gr. to the Marquis of Westminster; Red Roman, Violet Hâtive, and Elruge Nectarines, beautifully ripened, with Galande Peaches, from Mr. Parker, gr. to J. H. Oughton, Esq.; and very excellent specimens were sent by Mr. Snow, gr. to Earl de Grey; Mr. Spencer, Mr. Dods, Mr. Wright, and Mr. Ewing.—Peaches and Nectarines were, moreover, produced by Mr. Davis, of Barnet, and Mr. Barnes; and some good Nectarines came from Mr. Foggo.—Melons were produced in great abundance, but, unfortunately, but few of them were named. Mr. Tomkins, gr. to Sir R. W. Bulkeley, sent six fine fruit of a green-fleshed variety; Mr. Davis, of Woodhall, six smaller fruit; and Mr. Barnes three scarlet-fleshed and three Beechwood.—Mr. Moffatt had the Hybrid Cabul and Mountain of Sugar Melon, the latter very large but tasteless.—Mr. Braid, gr. to H. Perkins, Esq., had some fine Persian green-fleshed varieties; Melons were also sent by Mr. Fleming, Mr. Spencer, and Mr. Slowe; the Scarlet Romana by Mr. Boyce, and a fine fruit by Mr. Burns, of Chevening.

Prizes for Strawberries were awarded to Mr. Elliott, for British Queen and Keen's Seedling, very large; to Mr. Davis, gr. to J. Disney, Esq., for British Queen and Swanston; and in the Market Gardeners' Class to Mr. Lydiard and Mr. Cole, of Bath; both of whom produced very superior fruit.—Strawberries were also sent by Mr. Tompkins, Mr. Barnes, and Mr. Parsons.—Cherries came from Mr. Elliott, Mr. Bayler, gr. to J. H. Cossey, Esq., Mr. Hogan, and Mr. Meyers; Lee's Perpetual Figs were sent by Mr. M'Ewen and Mr. Foggo; fine Madras Citrons by Mr. Stanly, gr. to H. Berens, Esq.; and Apples, beautifully preserved, by Mr. Davis and R. H. Betteridge, Esq.

We now come to the large collections of plants, and here the competition again lay between Mr. Barnes, gr. to G. W. Norman, Esq., and Mr. Robertson, gr. to Mrs. Lawrence. The collection from the latter was much better than that produced in June; but, nevertheless, Mr. Barnes's plants were awarded the first prize. Not the least remarkable part of Mr. Barnes's collection was the admirable manner in which the plants were put upon the stage, and it may be safely asserted they constituted the finest group of plants ever produced in July. Mr. Robertson's collection contained some fine young Heaths, and other plants, but it wanted brilliancy. In Mr. Barnes's group, in the centre, at the back, stood a noble Clerodendrum paniculatum, with a splendid panicle of bloom, supported on one side by a very large Crowea saligna, and on the other by a bush 4 feet by 3, of Erica ampullacea. In front of the Clerodendrum was a splendid Pimelea decussata, flanked by Clerodendrum fallax and squamatum, and some noble plants of Erica, Polygala, Ixora, and Stephanotis floribunda. The singular Erica Plukenetii was in finer bloom than when exhibited in June; and the large plant of Phænocoma prolifera was a sheet of flowers. It is not, however, our intention on this occasion to give more than a mere outline of the principal plants, as many of them were noticed at the June exhibition. We must not, however, pass over two beautifully bloomed plants of Veronica speciosa; with a dwarf Ixora grandiflora, in fine bloom; Aphelexis sesamoides; and several other plants, evincing equally good management. In Mr. Robertson's collection we noticed two handsome plants of Phænocoma prolifera, nicely in bloom; Roella ciliata, a neat and healthy plant, nine inches in height, and 18 inches in diameter; Cyrtoceras reflexum, a promising young plant; Achimenes longiflora, a tolerable plant, but badly coloured; Cassia corymbosa; Clerodendrum hastatum, with dull colourless flowers, and heavy foliage; C. fallax and Kæmpferi, large, but past their best; Erythrina Crista-galli, two large plants; Tabernæmontana coronaria, the double and single varieties, and the usual specimen of Medinilla erythrophylla. Of the genus Erica, we noticed plants of E. inflata, large, but very thin; ventricosa superba; eximia, good; jasminiflora alba; tricolor elegans; Shannoniana, a pretty plant; Irbyana, good; Cavendishii, profusely bloomed; metulæflora bicolor, miscalled radiata, a large plant; obbata, very neat; gemmifera, promising; depressa, in profuse bloom, and several others; most of these Heaths were from a foot to 18 inches in height, and about as much in diameter, and some of them thickly set.

In the collections of 20 plants, Mr. Frazer, of the Lea-bridge-road Nursery, and Mr. Ayres, gr. to J. Cook, Esq., were again the competitors.—In Mr. Frazer's collection were Tristania nereifolia, a pretty small yellow-flowered shrub, useful in July; Roella ciliata, a nice plant, 18 inches in height and 2 feet in diameter; Crowea saligna, not quite in bloom; Kalosanthes grandiflora and miniata, two neat plants; Achimenes longiflora; with very nice specimens of Erica Bergiana, tricolor, eximia, and ampullacea. All these were clean and well-grown.—In Mr. Ayres's group were some fine plants of Clerodendrum fallax and speciosissimum, the former with 9, and the latter with 13 panicles of bloom; a variety of fallax with deeper-coloured flowers than those of the true species; Crowea saligna, a neat plant in profuse bloom; a large well-coloured Leschenaultia formosa; Pentas carnea, nicely in bloom; a dwarf compact plant of Veronica speciosa, with nearly 20 spikes of flowers; Ixora grandiflora, two plants; and I. crocata, very dwarf; Gloxinia cerina, a large specimen; with Erica juliana, 4 feet by 3, in splendid condition; E. ampullacea, 9 inches by 18, a sheet of flowers; E. ampullacea rubra, very neat, with Kalosanthes coccinea; Begonia parviflora, and a fine plant of Angelonia Gardneriana.

Collections of 12 Stove or Greenhouse Plants were sent by Mr. Hunt; Mr. Bruce, gr. to Boyd Miller, Esq.; Mr. Green, gr. to Sir E. Antrobus, Bart.; and Mr. Epps, of the Bower Nursery, Maidstone.—Mr. Hunt's plants comprised a fine Ixora grandiflora; Clerodendrum fallax, a nice plant; Erica Massoni, a splendid specimen; Boronia serrulata, in fine bloom; with Leschenaultia formosa; Gardoquia Hookeri; Erica densa, and some Vincas.—Mr. Bruce produced a famous Aphelexis humilis; Ixora grandiflora, a tall spare plant; Stephanotis floribunda, clean and healthy; Pimelea decussata, dwarf; Astelma eximia, pretty; with Erica eximia, and Roella ciliata.—Mr. Green's principal plants consisted of Crowea saligna, Epiphyllum speciosum, Passerina grandiflora, and Achimenes longiflora.—In Mr. Epps's group was a large plant of Euthales macrophylla, Leschenaultia formosa, and several species of Erica.

Collections of 6 plants came from Mr. May, gr. to E. Goodheart, Esq., and Mr. Stanly, gr. to H. Berens, Esq.—In the former collection was a large Ixora grandiflora, with remarkably fine heads of flowers; Rondeletia speciosa, pretty; Crowea saligna, a dwarf bush; with Aphelexis purpurea grandiflora, and Erica jasminiflora alba.—Mr. Stanly's group contained Mahernia incisa, Clerodendrum speciosissimum, Achimenes grandiflora, and Gloxinia Menziesii.—Only one collection of creepers was produced; and that came from the nursery of Mr. Frazer. It contained Sollya linearis, a fine plant; Ipomœa tyranthina, very pretty; Allamanda cathartica, nicely bloomed; Stephanotis floribunda, a promising plant; with Clerodendrum splendens, and Thunbergia Fryeri.

Collections of Orchids were not only numerous, but rich in fine specimens of cultivation. As usual, Mr. Mylam, gr. to S. Rucker, Esq., Jun., was the successful competitor for the large Gold Medal, and his collection contained many very remarkable plants. Not the least conspicuous among them was Phalænopsis amabilis, with 19 beautiful white flowers; Phaius albus, with six stems; Miltonia spectabilis, not quite sufficiently in bloom, but with upwards of 30 flower spikes; Sarcanthus rostratus, pretty; Galeandra Baueri, very neat; with Saccolabium guttatum rubrum, and Stanhopea tigrina. In the same collection were moreover Mormodes citrinum, Paphinia cristata, Brassia Lanceana, Anguloa uniflora, with several flowers, Odontoglossum grande, with Epidendrum floribundum, not remarkable; Lycaste purpurea; the curious Promenæa stapelioides, Vanda Roxburghi, and Epidendrum elatum. Of the curious genus Cirrhæa, Mr. Mylam produced several species; C. picta, Warreana, squalens, a variety of tristis, and viridipurpurea; the singular flowers of these drooping over the sides of the pots at a distance looked like a swarm of insects.—A second collection in this class came from Ealing Park, in which Mr. Robertson produced a remarkably fine plant of Oncidium Lanceanum, also Cattleya superba, Galeandra Baueri, Catasetum (miscalled Mormodes) Russellianum, with dull green flowers; Mormodes aromaticum, and a variety of the same; Paphinia cristata, and Cycnoches Loddigesii, Cattleya superba, the pretty Aerides quinquevulnera, Acropera Loddigesii, and Cyrtochilum hastatum. In the same group were moreover Lycaste Deppii, Angræcum caudatum, Mormodes aromaticum, Brassia Wrayæ, Epidendrum marginatum, and several other

species.—A third collection came from Messrs. Rollisson, of Tooting, and contained a splendid plant of Aerides odoratum, in robust health, with 20 spikes of flowers; Lycaste macrophylla, with greenish-brown flowers; Calanthe Masuca, and furcata; Dendrobium filiforme, with minute pale-green blossoms; Aporum cuspidatum; Dendrobium densiflorum, with one fine flower-spike; and Cattleya crispa. Messrs. Rollisson also contributed Dendrobium secundum, Cycnoches ventricosa, Rodriguezia recurva, Saccolabium guttatum, Bifrenaria atropurpurea, and several Oncidiums.

A collection of 12 Orchids was produced by Mr. Don, gr. to F. G. Cox, Esq, among which were Stanhopea insignis and saccata, Catasetum Russellianum, Aerides quinquevulnera, Phaius albus, and Rodriguezia planifolia.—Groups of six plants came from the gardens of W. F. Farmer, Esq., Nonsuch Park, Sir George Larpent's, and J. Schroder, Esq. In the first collection, Mr. Carson produced Miltonia spectabilis, a neat plant; Dendrobium chrysanthum, very pretty; Cattleya Harrisonii, Epidendrum fragrans, with Oncidum roseum, and O. Lanceanum. In the second, Mr. Eyles had Vanda Roxburghi, Calanthe plantaginea, Oncidium Lanceanum, and O. Baueri. Mr. Plant's groups consisted of small plants of Saccolabium guttatum, Vanda cristata, Brassia Lanceana, Lycaste macrophylla, and Cirrhæa fuscolutea.

Among single specimens of Orchids was the beautiful specimen of Renanthera coccinea, represented by the following woodcut, growing upon a block



of wood covered with Moss, and producing four spikes of very handsome flowers. This plant was from Mr. Falconer, gr. to A. Palmer, Esq., and had been treated as mentioned at p. 52 of this year's *Chronicle*.—From Exeter, Messrs. Veitch sent a noble Aerides odoratum, with upwards of 40 spikes of flowers, many of them however considerably injured by the journey.—Mr. Plant had Myanthus cernuus, with curious green flowers, spotted with brown; and Mr. Webster, of Eartham, a plant named Aerides sp., but doubtless a species of Saccolabium—probably præmorsum.

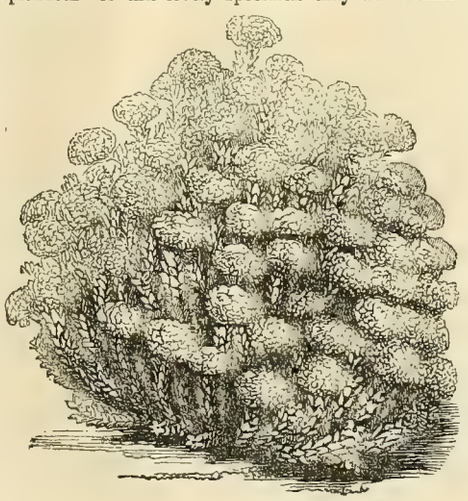
Heaths, in collections of 20 species, were shown by Mr. Hunt and Mr. Robertson. In Mr. Hunt's collection, which obtained the first prize, was Massoni, a splendid plant; Savileana, very good; jubata, very pretty; retorta major, 2 feet by 18 inches, and splendidly bloomed; ampullacea, and tricolor impressa, both fine; gemmifera, 3 feet by 3 feet; odore rosæ; mutabilis, remarkably pretty; obbata (Pamplin's variety), a tall plant, but rather thin; viridiflora; Clusiana; metulæflora bicolor, 3 feet by 4 feet; jasminiflora alba, 2 feet by 18 inches; with a pretty eximia; and tricolor elegans, 3 feet by 3 feet.—Mr. Robertson's plants were smaller than the preceding; the best of them were infundibuliformis, a nice plant; obbata, dwarf and very lovely; eximia; ampullacea, pretty; depressa, pretty; gemmifera, neat; tricolor, fine; tricolor elegans, with ventricosa superba; globosa, and tricolor; a small Coventryana, Templeana, Irbyana; and retorta major, not quite open.

In the Nurseryman's Class, a splendid collection was sent by Messrs. Fairbairn, of Clapham, and some small, neat plants by Messrs. Rollisson.—Among Messrs. Fairbairn's plants we noticed a noble Cavendishiana; jubata, small; tricolor; t. elegans; t. rosæ, fine; t. tenuiflora, good; a variety of obbata; princeps; ampullacea, and a. rubra, both good; a. impressa; ventricosa superba; Bothwelliana; viridiflora; eximia, fine; Savileana, good; gemmifera; inflata; jasminiflora alba, and Irbyana, both in fine condition.—The principal plants in Messrs. Rollisson's collection consisted of Kingscotiana, a very splendid variety, with large flowers, and a great improvement upon the tricolors; Dunbariana; tricolor inflata; multiflora; impressa; eximia; Coventryana; and pulverulenta.

Collections of 12 Heaths were sent by Mr. Green and Mr. Barnes. In the former group were metulæflora bicolor, a good plant; Aitoniana, pretty but thin; jasminiflora alba, pretty; with ampullacea, tricolor elegans, and Massoni.—Among Mr. Barnes's plants were tricolor, tricolor major, and t. superba; eximia, ventricosa breviflora, and carnea; gemmifera, inflata alba, loose; and Coventryana.—Mr. Frazer also contributed 12 Heaths, among which we remarked metulæflora bicolor, eximia, Irbyana, ventricosa globosa, and tricolor; Massoni, small; ampullacea, retorta major, Bergiana, and ventricosa superba.

Groups of 6 Heaths were numerous, and among them were some fine specimens.—Mr. May produced a fine metulæflora bicolor, 3 ft. by 3 ft.; a tricolor of the same size; Savileana, splendidly sheeted with bloom; with jubata, princeps, and ventricosa superba.—A collection also came from Mr. Bruce, in which were gemmifera, a dwarf plant; inflata, and ventricosa.—Mr. Plumbly, gr. to J. Dimsdale, Esq., sent eximia, ventricosa superba, gemmifera, and tricolor elegans, all loose plants.—Mr. Dawson, of the Brixton-hill Nursery, sent the pretty infundibuliformis, a perfect specimen; Massoni, fine; bicolor major, inflata alba, and ampullacea.—Others came from Messrs. Henderson, of the Edgware-road Nursery, among which were a fine plant of obbata, in splendid order; gemmifera, and Massoni, fine plants; with metulæflora bicolor, and tricolor.—Mr. Epps, of the Bower Nursery, Maidstone, also contributed a collection of six, among which was a most admirable tricolor Leeana, 18 ins. in height, and the same in diameter; tricolor, good; vestita grandiflora, badly coloured; with ampullacea rubra; ventricosa breviflora, and superba.—From the nursery of Mr. Glendinning was, moreover, a promising young specimen of eximia, with tricolor superba, and Cavendishiana. A group of seedling ventricosas, containing several desirable kinds; especially splendens, magnifica, and grandiflora, were shown by Mr. Pamplin, of the Hornsey-road.—Of single specimen Heaths, some very remarkable plants were exhibited, especially Parmentieriana rosea, 2ft. 6in. by 2ft. 6in., and a dense mass of beautifully-coloured flowers, from Mr. May, who also sent metulæflora bicolor, 4 ft. by 3 ft., and in profuse bloom; Messrs. Henderson sent ventricosa grandiflora, 2 ft. 6 in. by 2 ft. 6in.—Mr. Carson produced a beautiful ampullacea, trained to a wire cone, 3 ft. 6 in. by 3 ft. 6 in., with the branches drooping over the sides of the pot, and viridiflora, with curious dark-green flowers.—From Mr. Plumbley, a very beautiful dense bush of ampullacea was produced by Mr. Dawson; a similar plant by Messrs. Fairbairn; a magnificent obbata, finely bloomed, by Mr. Pamplin; Massoni, thin, but with fine flowers, by Mr. Dawson; and Mr. Henderson had also a fine plant of the same variety.—From Messrs. Rollissons was a very superior variety, resembling the tricolor, but of very large size, named Holfordiana; and from the same collection was a large specimen, in good bloom, of inflata alba.

Of Single Specimens not enumerated in the preceding notice, may be mentioned an immense specimen of Kalosanthes grandiflora miniata, from the nursery of Mr. Frazer. It was 3 ft. in height, and 3 ft. 6 in. in diameter, and had upwards of 150 brilliant and handsome flower-heads upon it.—Some idea of the splendour of this lovely specimen may be obtained



from the accompanying woodcut.—Mr. Kinghorn, gr. to A. Murray, Esq., sent a noble Veronica speciosa, a little, however, past its best; Mr. Stanly contributed a large plant of Leschenaultia formosa; Mr. Ayres a seedling Clerodendrum, raised from infortunatum, of very robust habit, but not sufficiently in bloom; and Mr. Barnes had a fine specimen of C. paniculatum; Mr. Green sent a good Lisianthus, or rather Eustoma Russellianum; Mr. Carson, a pretty Rondeletia speciosa. A fine specimen of Achimenes picta, in most exuberant health, was sent by Mr. Dobson, gr to Mr. Beck, of Isleworth; and Mr. Ayres had Achimenes multiflora, but not for competition.

Of New Plants, Messrs. Veitch produced a fine plant of their Fuchsia serratifolia, a very promising thing; and Siphocampylus coccineus, a soft wooded stove plant, with bright scarlet flowers, with Calandrinia umbellata, a very pretty purple annual, and Salpichroa glandulosa, with dull greenish yellow flowers, which are produced in bunches in a drooping position at the end of each branch.—Mr. Glendinning had a new Statice from China, with minute pale yellow flowers, pretty, but by no means remarkable.—A seedling Cactus was sent by Mr. Green, but it was not sufficiently distinct to merit recommendation.—Some small plants of tall Cacti were also sent by Mr. Green, but they were nearly alike.—Mr. Dobson had a collection of six species of Achimenes, consisting of coccinea, multiflora, rosea, grandiflora, pedunculata, and hirsuta.—Mr. Conway, of Earl's Court, Old Brompton, sent six varieties of Scarlet Pelargoniums, among which we noticed Mrs. Mayler, a brilliant scarlet with a white eye; Shrublands, and Shrublands Superb, Prince Albert, Compactum, and General Tom Thumb.

Two collections of Fuchsias were exhibited, one by Mr. Robinson, gr. to J. Simpson, Esq., Thames Bank, Pimlico, and the other by Mr. Gaines, nurseryman, Battersea. Mr. Robinson's were by far the best which we have seen this season, being young plants vigorously grown, and most profusely bloomed. The varieties were Hope, Prima Donna, Formosa elegans, Goldfinch, Pawley's Queen, Eppsii, Vesta, Magnet, King John, Chandlerii, Robinsonii, and Exoniensis. Mr. Gaines contributed Duchess of Sutherland, Pirolla, Pearl, Champion, Vesta, Miss Talfourd, Gigantea, Exoniensis, Goldfinch, Cassandra, Robusta, and Decora.

Roses in Pots were shown in fine condition by Mr. Slowe and Mr. Dobson, in the Amateurs' Class, and by Messrs. Lane and Son, of Berkhampstead, and Mrs. Stedman, of Isleworth, among Nurserymen. In Mr. Slowe's collection we noticed of *China:* Belle Emile, Napoleon. *Tea:* Eliza Sauvage, Safrano, Pactolus, Anteros, Aleine, Bougère, Hymenée, and Duchesse d'Orléans. *Bourbon:* Phœnix; and *Noisette:* Sir Walter Scott.—Mr. Dobson's collection comprised Souvenir de Malmaison, Comte de Paris, Gen. Allard, Triomphe du Luxembourg, Eclatante; Mrs. Bosanquet, Duc de Luxembourg, Taglioni, Macarthy, Cristata, and Ne plus Ultra.—In the Nurserymen's Class, Messrs. Lane and Son sent 20 fine varieties, comprising *Hybrid China:* Comtesse de Lacépède, Great Western, Madame Plantier, General Kleber, and Comte de Paris. *Hybrid Bourbon:* Coupe d'Hébé and Charles Duval. *Hybrid Perpetual:* Gen. Allard. *Tea:* Le Pactole, Devoniensis, Josephine Malton, Bisuor, Le Page, Triomphe de la Guiliotine, Eliza Sauvage, and Scholastique. *Gallica:* Guillaume Tell and Colbert. *China:* Eugène Beauharnais and Neuilly. *Alba:* Blanchefleur. *Moss:* Gracilis, Floralie, and White Bath.—Mrs. Stedman's collection did not contain anything very remarkable which has not been before enumerated.—Of Single Specimens, Mr. Slowe sent Gardenia; and Mr. Dobson, Bourbon Queen, neither of them very striking for single specimens.

Of Cut Roses an immense quantity was present, and among them all the finest kinds in cultivation. We never saw Cut Roses exhibited in finer condition, nor a more gorgeous display of them. To give, however, a list of names, without referring each to its proper class and describing it, would convey little information; and as, from the crowds which surrounded them, it was impossible to obtain this information so as to be available for the purposes of selection, we consider it best to give no names at all, especially as a descriptive list of all the kinds may be obtained by application to the respective nurserymen.—Moss Roses, in collections of 12 varieties, were shown by Mr. Terry, gr. to Lady Puller; Mr. Williams, gr. to A. Rowland, Esq.; and J. H. Betteridge, Esq.: and, in the Nurserymen's Class, by Messrs. Lane, Cobbett, Francis, Hooker, Paul, and Rivers.—Other Roses, in collections of 50 varieties, came from Mr. Terry, Mr. Parsons, J. H. Betteridge, Esq., and Mr. Williams: and, in the Nurserymen's Class, from Messrs. Lane, Francis, Hooker, Rivers, Cutbush, Cobbett, Paul, Lane, and Waterer, of Bagshot. Collections, of 25 varieties, were sent by Messrs. Paul, Crutwell, Slowe, Bennett, and Dobson; and some fine flowers of the old Yellow Rose, so rarely seen perfect, were sent by Mr. Barnes.

The Pelargoniums were but little inferior in beauty to the excellent display witnessed at the June meeting, and altogether this class of plants has exhibited evident signs of improvement during the present year. In the class established for the express purpose of bringing into notice new and first-rate flowers, the public have had opportunities of witnessing many of the improvements that have recently been made, as this class has generally been well supported, especially by amateur exhibitors. The judges, however, in the present instance considered it a duty to withhold the Gold Medal in the Nurserymen's Class, as the express stipulations, for which it was established, had not been complied with. In the Amateurs' Class, for new and first-rate varieties, the Gold Banksian Medal was awarded to Mr. Dobson, gr. to Mr. E. Beck, of Isleworth, for Hoyle's Pompey, Sultana, Rajah, Amazon, Margaret, Isabella, Sunset, Repealer, Marc Antony, Desdemona, Titus, and Effect.—Mr. Cock received the Silver Gilt for 12 finely grown plants, consisting of Mary, Sunrise, Repeal, Conflagration, Gipsey Queen, Jessica, Milo, Achilles, Rosette, Duke of Cornwall, Katinka, and Hector; and the large Silver was awarded to Mr. R. Staines, for Sunrise, Staines's La Polka, Clio, Andromache, Emperor Nicholas, Merry Monarch, Duke of Cornwall, Black Dwarf, Nestor, Fairy Queen, Hovea Elegans, and Ackbar. In the corresponding class for Nurserymen, the Silver Gilt was awarded to Mr. Gaines; the Large Silver to Mr. Ambrose, Battersea. The collection from the former contained Gaines's Duchess of Leinster, a clear high-coloured and desirable

flower; Alba grandiflora, Prince of Wales, Begum, Cecilia, Floridum, Gaines's Trafalgar, Lady Sale, Rising Sun, Indispensable, Amelia, and Rhododendron; and the latter sent Madeline, Constellation, Witch, Erectum, Duke of Cornwall, Sir W. Scott, Acme, Sunrise, Mogul, Symmetry, Aurora, and Victory Superb.—In collections of 12 varieties, in 8-inch pots, of superior cultivation, the Gold Banksian was awarded to Mr. Cock, for the following flowers: Diadem, Vesta, Countess Morley, Symmetry, Erectum, Comus, Cora, Pulchellum, Sarah, Hector, Milo, and Emma; and the Silver Gilt was received by Mr. Staines, for Sylph, Amy Robsart, Lord Ebrington, Aurora, Witch, Queen of the East, Sapphire, Hero, Clio, Andromache, Archbishop of Canterbury, and Merry Monarch.—In the Nurserymens' Class Mr. Gaines had no competitor; the Gold Banksian was awarded for the following collection: Spartan, Priory King, Gaines's Duchess of Leinster, Triumphant, Henrietta, Don Juan, Airiamana, Rising Sun, Hermione, Lady Sale, Ackbar's Star.—For Pelargoniums in 6 varieties, in 12-inch pots, one collection only was exhibited from Mr. Cock, to which the Large Silver Medal was awarded; the sorts were: Cyrus Superb, Nameless, Sarah, Black Dwarf, Redworth, and Pulchellum.—Mr. Gaines exhibited 3 pots of the pretty Pelargonium called Queen Victoria; and a noble specimen of Sylph, from Mr. Beck, of Isleworth, was also shown.—Calceolarias, which are calculated to make an effective display, have been but scantily exhibited during the season. At the present exhibition but one collection was exhibited from the Messrs. Fairbairn; there was but little variety in the sorts, being all spotted upon yellow grounds: Flash, Prince Alfred, Conductor, Prof. Wilson, Kinghornii, and Lady Ann Charteris, were the sorts to which the Large Silver Medal was awarded.

The display of Carnations and Picotees, from its being early in the season, was limited—but extremely creditable to the growers. The tray of Carnations from Messrs. Norman, of Woolwich, contained the following sorts finely bloomed, and in good colour:—Wigg's Earl of Leicester, Norman's S. 6, Norman's S. 7, Orson's Reform, Ely's Mango, Hyron's Defiance, Hughes's Sir Joshua Reynolds, Lodge's True Briton, Dalton's Lancashire Lass, Norman's S. 8, Toon's Ringleader, Hunt's Seedling, Cartwright's Lord of the Manor, Kay's Omnium Primum, Wildman's Marshal Soult, Wood's Rosabella, Martin's Prince Albert, Simpson's Marquis of Granby, Puxley's Prince Albert, Pierson's Sir G. Carew, Willmer's Solander, Lowe's Grand Sultan, Kenning's Duke of Cumberland, and Seedling. The Picotees were greatly admired, from their extreme delicacy and beauty of colour; we scarcely ever saw a finer stand of flowers, than those contributed by J. Edmonds, Esq., Wandsworth Road, to whom the larger Silver Medal was awarded; it comprised the following sorts:—Sharp's 101, Gem, Agitator, and Elegant, Barraud's Borderer and Bride, Mrs. Bevan, Wildman's Isabella, Wain's Victoria, Ely's Field Marshal, and Grace Darling, Nottingham Hero, Miss Annesley, Jamie Gordon, Lady Chesterfield, Willmer's Elizabeth, and Prince Royal 136, Matthew's Ne plus Ultra, Crask's Prince Albert, Halliday's Henrietta, Dixon's Seedling Red, Calcott's Princess Royal, Brinkler's New Purple. The Silver Knightian to Mr. J. W. Newhall, Woolwich.—In the Nurseryman's Class, Messrs. Norman, of Woolwich, sent admirably bloomed flowers, to which the large Silver Medal was awarded; they were the following sorts: Sharp's Cleopatra, Jamie Gordon, and Agitator, Kirtland's Miss Newcomb, Sabina, and Queen Victoria, Dickson's Trip to Cambridge, Norman's Dick Lee, Seedlings 3, 4, and 5. Willmer's Prince Royal, Robinson's Nottingham Hero, Thurtell's Norwich Rival, Norman's Beauty, and Seedling 1, Coster's Venus, Wood's Seedling, Gowring's Bride of Abydos, Crask's Prince Albert, Hogg's Mrs. Mathews, Halliday's Fair Phillis, Norman's Seedling 2, Brinkler's Lady Chesterfield.

Pinks were rather on the decline; but two good stands were exhibited, one from Mr. Norman, of Woolwich; the other, from Mr. Henbrey, of Croydon; the rest were not sufficiently good for prizes. Mr. Norman received the Silver Knightian, for Kirtland's Gay Lad, Beatrice, and Dr. Daubeney; Weedon's Queen Victoria, Fisher's Matilda, White Warden, Church's Rowena, Thurtell's Mile-end Defiance, Wallis's Unique, Headley's Duke of Northumberland, Smith's Dr. Coke, Willmer's Duchess of Kent, Hardstone's Prince Albert, Willmer's Tom Davey, Garratt's Alpha, Norman's Henry Creed, Unworth's Omega, Heath's Lord Byron, Jelf's Marianne, Hodge's Cyclops and Mars, Creed's President and Clark's Matilda. Mr. Henbrey's collection was as follows:—Vandenburg's King, Davey's Britannia rubens, Willmer's Tom Davey, Seedling, Coronation, Bragg's Duchess of Cornwall, Willmer's Duchess of Kent, Seedling, Quercus, Dr. Daubeney, Seedling, Willmer's Prince of Wales, Blackheath Hero, Henbrey's Crœsus, Cousen's Queen Victoria, Norman's Wellington, Hodge's Mars,—182, White's Warden, Dr. Coke, Hardstone's Prince Albert, Countess of Plymouth.

A collection of cut blooms of Verbenas was exhibited by Mr. Geo. Smith, Hornsey-road; these proved very interesting, as they exhibited many of the new varieties with the best of the old sorts. Girling's Messenger, Gladiator, Rose d'Amour, Giant, Defiance, Smith's Superba, Excelsa, Delicata, Vesta, Youell's Princess Royal, Duc de Nemours, Merry Monarch, Avalanche, Lovely Ann, Smith's Queen of England, Miss Watson, Atropurpurea, Emma, Beauty, Lilac Perfection, Duchess of Sutherland, Alexander's Enchantress, Grandis, and Poeltii.

The Seedlings were not so numerous as at former meetings; several Pelargoniums, however, were exhibited. One only of the present season was selected by the judges, and received a certificate. These beautiful flowers are so much improved, that it becomes annually more difficult to raise sorts that will carry this class onward to perfection. The flower chosen by the judges was named Paragon, a rich and high-coloured flower, of good form, from Mr. Whomes, gr. to E. Foster, Esq., Clewer Manor, near Windsor; a promising seedling from Mr. Kinghorn was also exhibited. Others possessed fine colour, devoid of shape, and some with shape, but common in other qualities; but as this class is now progressing onward, form, colour, and substance must be combined in the same flower to become an established favourite. Certificates were also given to two seedling Calceolarias, one named Leopardii, from Mr. Best, of Reading, cream ground, with chocolate spots; and the other was from Mr. Gaines, named Althea, yellow ground, very prettily spotted.

We have now brought to a close the Report of the last grand Exhibition of the year, and to each successful exhibitor we would say, do not allow any victory of the present season to lull your energies, or lead you to believe that you have attained perfection; for, depend upon it, the science of cultivation is still very young, and there are yet greater triumphs to be achieved than have been dreamed of. To the defeated we would say, *persevere*, and success must ultimately attend your exertions.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Continued from p.* 474.)

Monday, the 23d of June, was devoted to the reading and discussing botanical papers. Professor Henslow being absent, C. C. Babington, Esq., took the chair.

Mr. A. Henfrey, F.L.S., read a paper on the *Development of Vegetable Cells*. After briefly noticing the opinions of MM. Mirbel, Schleiden, Mohl, and Nägeli, he came to the following conclusions respecting them, derived from his own observations. 1st. That there is no such thing as the interruption of continuity between the liber and albumen called the cambium layer. 2d. That the potentiality of the black granules described by Schleiden is not proved, and that the utricle first developed from the so-called cytoblast is not the permanent cell, but the primordial utricle of Mohl, the existence of which in growing tissues seems to be universal. 3d. That this primordial utricle is not a layer of mucilage as stated by Nägeli, but a true membrane. His own idea of the process, chiefly derived from the examination of hairs of the filaments of Tradescantia virginica, is as follows. The nucleolus or central spot of Schleiden's cytoblast is the germinal point, and is situated on the wall of the primordial utricle; the granular matter of the cell is aggregated around the nucleolus, and enclosed in the primordial utricle. When a new cell is to be formed, the nucleolus divides into two, and a corresponding constriction of the primordial utricle takes place until it separates into two, a layer of permanent cell-wall substance being meanwhile secreted in this fold, from the circumference to the centre till a complete septum is formed. The lateral walls grow by extension, being moulded on the growing primordial utricle within them. In the nascent cell the primordial utricle is filled with granular matter, which during the subsequent growth of the cell remains aggregated round the nucleolus, and thus gives rise to the appearances whence Schleiden derived his theory of development from a cytoblast.

Dr. Lankester said, that although all the observations made by Schleiden had not been confirmed by observers in this country, it was interesting to find the most important of his observations made out by others, so that there could be little doubt of the general correctness of his views. The theory of the development of the tissues of plants from the cytoblast had exerted great influence on both animal and vegetable physiology. He saw in this view one of the most powerful arguments against the theory of the formation of wood, as stated by Du Petit Thouars. Mr. Henfrey's observations showed clearly how the tissues of plants were elongated; at the same time further observations were necessary before he could found any general views on the formation of vegetable structure from the facts he had noticed.—Professor E. Forbes would give no opinion on the subject at the present, but hoped Mr. Henfrey would continue his researches.

Dr. Lankester read a notice of the *Vegetable Ivory, or Tagua plant* (Phytelephas macrocarpa). The author brought this plant under the notice of the section, as he was enabled to present a drawing of a young plant, which was now growing in the gardens of the Messrs. Loddiges, of Hackney. This plant had been placed in the natural order Typhinæ, by Bonpland and Humboldt on account of the imperfect character of its flowers. A fruit existed in the British Museum, of which a drawing was exhibited. This fruit is the size of a man's head, and the tree is called by the Spaniards Negro Head. From the structure of the fruit and flowers, Brown placed it in the order Pandaneæ. Lindley had referred it to Poiteau's order Cyclanthaceæ. A remarkable point in the economy of this plant was, that the horny albumen or perisperm of the seed appeared to undergo no change during the process of germination. In the plant at Loddiges', which was now five years old, the seed still remained on the surface of the soil, as hard as ever. In germination the embryo is carried down into the soil by a rhizoma an inch or more long. The perisperm of other Palms, as the species of Bactris, of Cocos, and of the Phœnix dactylifera, also undergo but little change during germination. The perisperm of a species of Astrocaryum, in British Guiana, is stated by Sir Robert Schomburgk to be as hard as that of Phytelephas. The structure of the tissue of the seed is remarkable. The walls of the cells are very thick, and in their early stages porous; the pores between the cells are at last closed, and the pores form club-shaped cavities leading out of the cells. Cooper in his illustration of the microscopic structure of these cells has drawn a line running between these club-shaped cavities, but this arises from a tube lying underneath, and has no connection with the termination of the pores. The cells, by the resorption of their walls, become converted into tubes. The tubes, under the microscope, appear to contain globules of oil. Chemical analyses of the seeds have been made by Payen, Connell, and Baumhauer. A more accurate analysis was made at the author's request by Dr. Percy, of Birmingham. The result of this analysis was as follows:—

Carbon	44.39
Hydrogen . . .	6.63
Oxygen	47.61
Nitrogen	1.37
	100.00

In drying 12.64 per cent. of water was dissipated. The ash contained sulphuric, hydrochloric, phosphoric, and carbonic acids, in combination with potassa, lime, and oxide of iron. The phosphoric acid was partly combined with the potassa. The iron was probably introduced in filing the perisperm for chemical examination.

Professor Allman gave a description of the *Fruit of some of the Hepaticæ*. In the capsules he pointed out the existence of spiral cells or vessels, which he believed had a hygroscopic power, and that it was by their expansion that the capsule was burst.—Dr. Lankester drew attention to the resemblance between these spiral cells and true spiral vessels; the latter were supposed to carry only air; but if the spiral cell could be proved to absorb or carry fluid, he saw no reason why the same function should not be performed by the spiral vessel.—Mr. Henfrey stated that the tissue of which the air-bags of Utricularia was composed were spiral cells.

Dr. Robert Latham read a paper on *Ergot*. He stated his conviction that ergot was on the increase in this country, not only on all forms of Grasses, but also on the Cerealia. When he first began to observe it eight years ago, he found it on only a few plants; he now found it very commonly, and in almost every district of Great Britain. He had collected specimens of it from 18 different species of Grasses. The Grass on which he found it most commonly, was the Lolium perenne, common Rye-grass. The next most usually infected Grass was the Triticum repens. He had also found it very frequent on the Alopecurus pratensis, the Phleum pratense, Hordeum murinum, and Glyceria fluitans. It had very much increased also on cultivated grain, and he believed that at this moment ergot was increasing absolutely and indefinitely in this country.

Dr. Lankester thought this subject important in a practical point of view. It was well known that ergotised grain exercised a prejudicial influence on the animal system, and wished to know of Dr. Latham if he had observed disease amongst animals from its being eaten.

Dr. Latham stated that he had evidence that the ergot had excited its peculiar influence on animals to the great cost of the farmer. A friend of his attributed its increase to the use of animal manures, and stated that he had always found the ergot most abundant in the Grasses of churchyards.

Mr. Richard Taylor read the report of a committee appointed to draw up a plan for the registration of periodical phenomena amongst plants and animals.

Dr. Lankester read the report of the committee appointed to make experiments and observations on the duration of vitality in seeds. This consisted principally of a list of seeds received and planted; but the season was not far enough advanced to record many results. The committee would be glad to receive old seeds, with authentic particulars as to their age, which may be sent to Mr. Baxter, Botanic Garden, Oxford.

Mr. J. Ball, of Dublin, read a paper on *Practical means for the Advancement of Systematic Botany*. In the present state of systematic botany, we require more accurate and extensive observations, and experiments with respect to the variations of the forms of plants, than have yet been made; and that the forms of descriptive botany should be modified so as to exhibit the whole of the forms contained in the larger groups, and their mutual relations in a more philosophical manner.

The great impediment to the progress of natural history has been the want of union between observers and thinkers, those who study the details of the science, and those who speculate on its general aspects and theory. In order to facilitate and forward their union, it seems desirable that botanists of both classes should agree upon a well-considered series of observations and experiments, which should be conducted in a public botanic garden, where the requisite precautions, as to securing the accurate observance of the conditions agreed upon, the preservation of specimens, and the keeping a proper register, might be adopted and enforced; and, finally, where the experiments would not be exposed to the interruptions, and other accidents, which threaten individual observers. If, for instance, two groups of plants were selected, in one of which the

individual forms approximate very nearly to each other, and in the other the species appear well characterised by constant characters, and a number of individuals of each of a series of forms were exposed to the action of all the causes which we know to be capable of modifying the development of vegetable form, the best means being taken for isolating the action of each of these causes, so that it may be compared with that of the ordinary action of the causes influencing the plant in its natural condition. If this process were repeated upon the progeny of the original plants, and upon their offspring in continued succession, so as to imitate, as far as we can, the actual influences which take effect in nature, and the whole series of experiments were continued for a long period; 20, 30, perhaps 50 years would scarce be sufficient; then I think those who shall succeed us, to whom we bequeath the results, will be enabled, far more safely than we can, to establish a theory as to the nature of the relations of individual forms amongst plants. Even those who conceive the hypothesis of the descent of all the individuals of a species from a common original to be an essential point in natural history, cannot afford to dispense with such a course of enquiry; for admitting the hypothesis, there is yet no practical test afforded, by which to recognise the members of the species in groups, where these are subject to great variation; nor can such a test be supplied in any other manner. Still more those who believe it to be unphilosophical, and in no way necessary to assume the truth of an hypothesis, supported merely as the one in question is by *à priori* considerations, whatever probability we may choose to assign to it, will desire that a body of facts, bearing so directly on the question, should hereafter be forthcoming.

It might also be desirable that a few members of the section should associate for the purpose of collecting, and arranging such well established facts, respecting the variations of plants, as observed either in the natural state, or in cultivation, as now lie scattered through botanical works, or may hereafter be supplied by observers, with a view to illustrate the value of specific characters in various groups. As to the modifications proposed in the forms of descriptive botany, it appears to me that it should be an essential point in the character of a genus to assign, not merely the points of structure in which all the species of the genus agree, but also those which, varying from one species to another within the genus, yet remain constant throughout the subordinate varieties of the species, thus supplying what we call the specific characters within the group. An attempt of this kind, however imperfect, would at once insure an accumulation of important facts, and, by embodying these into our systematic arrangement, would prepare the way for important generalisations. An immediate result would be, that we should hereafter less frequently find one supposed species of a genus rejected, because its characters had been proved to be variable, while another species of the same genus is admitted, though possessing exactly the same and no better distinctive characters.

The other modification which I propose has a similar tendency with the last. It will not be considered improbable to assert, as I do from the study of several complicated groups, that in species of the same genus, the varieties of any single species considered as diverging from a common typical form, recur in a similar cycle throughout all the species of that genus, and if, as is usual, we indicate varieties by letters of the alphabet, it seems natural to ask that in describing a given group, the same letter should always indicate the same corresponding variety, each letter receiving from the first a fixed signification. I am inclined to go one step further than this. It is now admitted that there are two very distinct classes of varieties, the first, properly so called, represent the initial variations produced by modifying causes; they appear amongst the offspring of one parent plant, and usually return to the primary form as soon as the modifying action ceases, either in their own persons, or in those of their descendants; the second, conveniently named subspecies, are permanent, and only after several successive generations do they return to the typical form, if, indeed, they be capable of so returning, which is scarcely yet established. Now, I assert, there is evidence to show that if we take the cycle of varieties displayed amongst the offspring of the original or typical plant, we shall find a cycle of subspecies, sometimes of course incomplete, exhibiting the same tendencies to variation of form in a more marked manner, while in each subspecies the same cycle of varieties is again repeated. Now if it be admitted that this law may hold good throughout, there will be no objection to designating the varieties each successively by a small letter, and each corresponding subspecies by a large letter of the same kind. It is needless to point out how a range of facts would thus be admitted into our systematic arrangements.

The author having attacked the hypothesis of descent from a single individual, Professor Forbes defended this hypothesis as being essential at the present moment for the successful cultivation of natural history.

Mr. C. C. Babington concurred with the remarks in the latter part of the author's paper, and hoped he would be able practically to demonstrate the value of his views.

Dr. Royle's paper, entitled *General Observations on the Geographical Distribution of the Flora of India*, with remarks on the vegetation of its lakes, was commenced by the author's stating that though the plains of India were generally considered to support only tropical vegetation, yet this differed very much both in the different parts of the country and at different seasons of the year. The plains, moreover, might be distinguished into moist and dry; in the former, embankments were required to prevent inundation; and in the latter, canals for irrigation. In the rainy season, however, most parts supported a tropical vegetation, and rice could be successfully cultivated. So in particular localities, covered with primæval forests, some tropical plants extended even to some of the hot vallies in the neighbourhood of Cashmere. In the cold weather, however, that is, in the winter season, some European plants make their appearance in the plains, especially of North-west India; and Wheat and Barley are as successfully cultivated as in Europe. So in ascending its mountains, especially the Himalayas, every variety of vegetation is met with, almost as much as in proceeding from the equator to the poles, being perfectly tropical at the base, European on the ascent, and Polar at the summits of its lofty peaks. The mountains, however, are also under the influence of the rainy season, and are, indeed, for a great part of the season covered with a canopy of clouds in consequence of the air heated and loaded with moisture in the valleys rising to an elevation where the temperature is below the point of deposition or dew point. Considerable uniformity of temperature and moisture is produced, in consequence of there being little cooling at night and but little heating during the day, from the sun being unable to penetrate the cloudy canopy, and we, therefore, see some of the Balsams, Scitamineæ, and Orchideæ, flourishing at elevations where they could not exist for a day during the dry heat of summer, or the piercing cold of winter.

In so extensive a territory and diversified a climate, there is necessarily a numerous and a varied flora. The known species of the Indian flora are about 10,000 in number, the majority of course characteristic species, but on the Himalaya of an European type. The vegetation of the different parts of the Indian empire bears a resemblance to that of different countries where there is a similarity of climate, and about 250 species which are found in the plains and mountains of India, also occur in other, some of them very distant, parts of the world. The vegetation of different tropical countries is very similar, and they are subjected to the influence of the same physical states. The affinity is very perceptible between the Botany of the southern parts of India and that of the Indian Archipelago; the same thing occurs with the flora of southern China; this, therefore, resembles that of southern India. Mr. Brown long since remarked that about 200 species of the Australian flora are also found in the islands of the southern Pacific as well as in India. Dr. Jack observed at Singapore many remarkable points of coincidence between its productions and those of Continental and Western India on one hand, and the islands of the Eastern Archipelago on the other; while the prevalence of some Epacrideæ connected it with that of New Holland. The botany of a great part of the drier parts of India has a great resemblance to that of the west coast of Africa, as originally remarked by Mr. Brown, who ascertained that there were about 40 species common to those distant regions. Dr. R. in the same way remarks a correspondence between the flora of Egypt and that of the drier parts of northern India, and also that some of the characteristic forms of the Mediterranean flora approach its north-western frontier.

The Himalaya mountains have a tropical vegetation at their base, and in their valleys. At elevations of 6000 and 7000 feet, the climate is temperate, and the flora corresponds with that of European regions and of the Caucasus, both in its arboreous and herbaceous vegetation, and in the prevalence of many of the same species which are found here in our fields. Among them also are several genera which, until the last few years, were thought to be peculiar to China, and others to North America. Several, indeed, of the species are identical with those found in these distant countries, separated on one hand by the cold and arid deserts of Tartary, and on the other by the hot and equally arid plains of India and of Africa, as well as the sea. Some of the peaks, however, having the characteristics of Polar climates, have also that of the vegetation; and it is curious to see all the families and many of the same genera on these isolated peaks and the remote Melville Island. The northern face of the Himalayas, or the Tibetan region, has the closest resemblance in its genera and even many of its species, to that of the Atlas mountains and of Siberia, with a sprinkling of the Mediterranean flora. The author, having taken this general view, remarked on the correspondence between the vegetation of even distant countries wherever there was a correspondence in climate, and called attention to the curious resemblance in the belts of vegetation at different elevations on the Himalayas with that of different latitudes, as detailed in the author's "Illustrations of Himalayan Botany." Dr. R. inquired with reference to some of the geological explanations of successive elevations of mountain ranges—at what period the vegetation of the peaks, for instance, came to resemble that of polar regions?

Among the various subjects, Dr. R. stated, to which he might draw the notice of the section, there was one, he thought, particularly worthy of the attention of those favourably situated for making observations; and that was the thick vegetation which clothes the surface of many of the lakes of India. Dr. R. stated that he himself having been chiefly in the north of India, had not seen this vegetation to the extent in which it existed in the more southern parts of India; but even there it was sufficiently substantial to support numbers of the smaller Grallæ, and among them the Chinese Jacana. But having on one occasion been detained on the banks of some of these lakes on the north-west of Bengal, he had been much struck with the thick and varied vegetation of the floating masses with which their surfaces were covered. These consist of numerous stems, leaf and flower-stalks of a variety of plants closely interlaced and matted together, the younger parts requiring both light and air for the performance of their functions, finding their way to the surface, while the older are pushed downwards, when the more herbaceous parts rot and decay. Among these plants are most of the genera and some of the species even, which are found in similar situations in Europe. But with them such plants as Æschynomene aspera, with its thick cellular stem, Convolvulus edulis, Herpestes Monniera, and Utricularia stellaris, Marsilea quadrifolia, Trapa bispinosa and bicornis, with species of Polygonum and Dysophylla verticillata. The last is particularly interesting from its long jointed and striated stem with its whorls of leaves. Of most of them it may be observed that they have little or no root; the floating stems are long and slender, very cellular, with the vascular bundles arranged round the circumference, with little or rather with nothing like bark. By Dr. Buchanan Hamilton these lakes have been seen of much greater extent, and covered with a much more dense vegetation, so much so, indeed, that he describes the floating masses to be sufficiently substantial for cattle to graze upon the Grasses with which they became covered, but that occasionally some fall through and are lost. He describes, moreover, some bushes and trees as growing in the midst of the water, and among them a Rose, a Barringtonia, and a Cephalanthus.

It is hardly possible to witness such vegetation, without calling to mind some of the explanations given of the formation of coal in the ancient periods of the world, and of the indications often presented to us in coal fields of a tropical vegetation, in situations where no tropical plants could now grow. But without proceeding further, it is interesting to compare the vegetation of these lakes with that of the Indian coal fields of Burdwan, which are in their immediate vicinity. The first thing that will strike an observer is, that there is no remarkable difference between what was the former flora of these localities, and what might take place at the present day. One great difference is certainly observable in the Indian coal fields, and that is the immense mass of Ferns of which they seem to be composed, while no Ferns are at present found in their neighbourhood. This, however, is owing to the country and the plains of India generally being open, and therefore extremely hot and dry for some months in the year. One Fern, Asplenium radiatum, is found near Delhi, in the sides of wells, in the Peninsula of India, and also in Arabia. Cheilanthes dealbata and Lygodium microphyllum occur in the neighbouring Rajmuhl hills. But in the same latitude, and not very distant, where the country is covered with forests, producing shade and moisture, numerous Ferns, and even tree Ferns are found, as in Silhet. The strata of the Burdwan coal basins of Ranigunge and Chinakooree yielded the author abundant remains of the Ranigunge Reed, Vertebraria indica, the Marsileaceous genus, Trizygia speciosa, and species of Pecopteris, Glossopteris, &c. G. Browniana is interesting as having been found in these coal fields, and according to Brongniart, in New Holland, in the coal of the Hawkesbury river, near Port Jackson. Zamia Buchanani has also been found—and a Palm which has been called Zeugophyllites calamoites. With a little more moisture, or even the umbrageous covering of a forest, these, and other similar plants, would grow with luxuriance in these localities.

Seeing, therefore, that heat, with moisture, is capable at the present day of supporting a vegetation similar to that of coal-fields, it would in ancient times only have required the presence of heat and moisture for the vegetation of coal-fields to have flourished. If the mass of the earth was in ancient times of a higher temperature, as is inferred from many geological and zoological phenomena, it is evident that, water being present, copious evaporation would necessarily take place as it now does in tropical countries. If the internal heat were uniform at different points of the globe's surface, then would the evaporation be uniform, and there would be an absence of those upper and lower currents of the atmosphere, which now carry the heated and moisture-loaded air of the tropics to polar regions, and send the cold air of the latter towards the equator. As the air, loaded with moisture, ascended into the atmosphere, it would at length reach an elevation where the reduction of temperature would proceed beyond the point of deposition of moisture, and the whole of what had been raised by the aid of heat and air would be constantly depositing in the form of clouds and rain. Moisture would thus everywhere be preserved, and the cloudiness from the steady action of the heat below and of the cold above would necessarily also be constant. This would produce uniformity of temperature; for radiation from the surface would be obviated, and the solar rays would not penetrate the cloudy canopy more than they do in rainy weather at the present time. In such a climate, tropical plants would be able to grow equally well in any latitude, and there might be intermixed with them many others to which dryness was not essential. In conclusion, the author remarked, such a cloudy canopy may be observed, to a partial extent, even in the present day. Humboldt has described it as occurring on the Andes; the author had himself observed it for days together on the Himalayas, and partially so during the whole of the rains; Dr. M'Clelland and others have described it as occur-

ring for months together in the valley of Assam. If it existed in northern regions in early times, and the sources of heat were, as Dr. R. assumed, internal, then could tropical vegetation not only exist in polar regions during the summer season, but it would not be destroyed in winter. Growth would only be stopped, as in the present day, during the darkness of night. As the internal heat diminished and receded from the surface, the cloudy canopy would by degrees be at a lower and a lower elevation, until, like the snow-line of the present, it would be at the surface of the earth in high latitudes. These regions would become as they are now, and immediately under the influence of external cold, and thus a glacial might succeed a tropical vegetation. In situations where a lofty peak raised itself above the canopy of clouds, it would become exposed to the cooling effects of radiation, and would, as in the present day, attract to itself and condense much of the floating moisture of the atmosphere, and give origin to mighty and rapid rivers, which would plough the mountain side and overspread the level plain.

SECTION D., *June* 24.—*On the Germination of Plants*, by EDWIN LANKESTER, M.D., F.L.S.—The phenomena that take place during what is called germination are—1. Absorption of oxygen from the atmosphere; 2. A disengagement of carbonic acid; 3. A disengagement of ammonia; 4. Conversion of starch into dextrine, gum, sugar, &c.; and 5. Increase in bulk—growth of the embryo. The most commonly adopted theory of germination explain the above phenomena as being necessarily connected with the last fact mentioned in the above series, the growth of the embryo. It was in fact supposed that the absorption of oxygen and the disengagement of carbonic acid gas was an act of life—a necessary process of the act of germination; and germination and vegetation were regarded as antagonising processes, the one being an oxidating, the other a deoxidating process; whilst the albumen was regarded as a sole source of nourishment. The author proposed to regard the phenomena of germination differently. It is obvious that the only essential process of germination is the growth of the young plant or embryo. The process of development of the embryo, from primitive cytoblasts developing its tissues, is precisely the same as that of every other part of the plant; and from an identity of structure an identity of function might be inferred. But the ordinary theory of germination gave a different function to the tissues of the embryo. The author considered this unnecessary; he believed that the absorption of oxygen, the disengagement of carbonic acid gas and ammonia, arose entirely from the decomposition of the starch and protein contained in the albumen, or perisperm of the seed; and that the growing cells of the embryo appropriated the carbonic acid and ammonia with water, just in the same way as all other cells in the vegetable kingdom. This theory, he conceived, was not only more consistent with the phenomena of germination observed in plants containing large quantities of starch in their perisperm, but also consistent with a large class of facts which were opposed to the ordinary view, of which the following were brought forward:—1. In many plants no perisperm was developed, and the conditions required for germination were precisely those for vegetation; 2. Many plants with hard perisperms, as the Phytelephas macrocarpa, the Phœnix dactylifera, and species of Bactris, Cocos, and Astrocaryum, germinate without consuming any appreciable quantity of the perisperm; 3. The quantity of carbonic acid obtained by Saussure varied, not according to the number, but according to the mass of the seeds, proving that it arose from the decomposition of the starch as a chemical process, and not from the growth of the embryo as a process of life; 4. De Saussure found that the relation between the oxygen consumed, and the carbonic acid gas given out was different in different plants, for the same quantity of the latter ought to be constant, if the theory of oxidation or combustion during germination be true; 5. Boussingault found that the changes supposed to be peculiar to germination went on in the perisperm after the young plant had developed its radicle and plumule, and was capable of an independent existence. 6. The changes which take place in the chemical composition of the perisperm of the seed during germination can be artificially produced, by mixing starch, diastase, &c., together, and exposing them to the action of the atmosphere. This theory modifies the view of the use of the albumen or perisperm. It is not deposited essentially for the nourishment of the young plant. In some cases it is an organ of support, and bears the same relation to the embryo as the wood of a branch to the buds upon it. Viewing it morphologically, it might be considered the analogue of the tegmenta of the buds, as they consisted of aborted leaves, so the albumen or perisperm consisted of embryos aborted in their earliest stages of development.

Professor HENSLOW thought that the starch and sugar deposited in the albumen of plants were used by the young plant for the development of its tissues. These substances were usually found developed near the growing parts of plants, and apparently for the purpose of being used for forming the growing tissues. When starch was not deposited in the albumen it was deposited in the cotyledons for the purpose of affording nutrition to the young plant. He believed Dr. Lankester's views required further examination, and the chemist must especially be appealed to. He thought sufficient proof had not been brought for the conclusion that certain seeds, as the Phytelephas, Phœnix, &c. did not use their albumen during germination.

Mr. JOSHUA CLARKE thought that Dr. Lankester had brought forward his views upon exceptional cases. There was no question but that the albumen was consumed by the plant during germination in the majority of instances.

Dr. LANKESTER thought that the question of the precise mode of growth of the primitive cell from the cytoblast was yet undecided, but that one of the functions of the developed cell was the assimilation of carbonic acid gas and ammonia, he regarded as highly probable, and as a fact which might in physiological inquiries like the present be taken for granted.

Mr. EDWARD SOLLY next read a paper, *On the Influence of Galvanic Electricity on the Germination of Seeds*. He commenced by describing the old experiments of Sir H. Davy, in which seeds placed in the vicinity of the positive pole of a voltaic pile, germinated sooner than those near the negative pole, an effect which might be attributed to the oxygen evolved at the positive pole, which, of course, would accelerate germination, whilst the hydrogen, set free at the negative extremity, would retard it. These experiments did not in any way prove that germination was stimulated by electricity; but, judging from the known powers of electricity, it would be reasonable to expect, that like light and heat, it would exert marked influence on the growth of vegetables, in fact, act as a stimulus. Mr. Solly then described the recent experiments which have been made on this subject, and gave an account of an extensive series, at present being made in the gardens of the Horticultural Society. Seeds of Barley, Wheat, Rye, Turnip, and Radish, were, in several different experiments, found to germinate with increased rapidity, when exposed to the influence of a feeble current of electricity of very low tension, and the plants not only came up sooner, but were more healthy than others. These experiments certainly appeared decisive in favour of the stimulating effect of electricity on germination, as distinguished from the mere chemical effect produced by electricity; but, on the other hand, a number of experiments on other seeds had given quite opposite results, proving either that the germination of some seeds was retarded, whilst that of others was facilitated by electricity; or, that the effects, observed in both cases, were merely incidental. Out of a series of 55 experiments on different seeds, 20 appeared in favour of electricity, 10 against it, and 25 shewed no effect whatever; and, on carefully counting the whole number of seeds up in the entire series, there were found 1250 of the electrified, and 1253 of the non-electrified seeds up. In conclusion, Mr. Solly stated that he felt very doubtful whether the effects observed were really due to the influence of electricity.

Professor HENSLOW regarded this paper important, as showing how careful practical men ought to be, in arriving at conclusions upon insufficient evidence. Many persons believed that electricity exerted an influence on vegetation, from the instances of beneficial effects which had been brought forward, but they must now be regarded as purely accidental.

Dr. DAUBENY stated, that although he had from the first doubted the influence of electricity on plants, he had, nevertheless, tried experiments, and come to the same conclusion as Mr. E. Solly.

Dr. PERCY did not think Mr. Solly's experiments conclusive, as to the action of galvanism on the productiveness of plants. It was alleged that plants yielded more fruit from the action of electricity, but Mr. Solly's experiments only proved that their vegetative functions were not more vigorous.

Mr. JOHN BALL believed that electricity exerted a constant influence on plants, and he regarded it as an agent in determining many of their peculiar forms. He believed it could be demonstrated that there was an antagonism in the electricity of the cellular and vascular tissues, and that the peculiar organs, as the hairs and spines, developed by those tissues were dependant on this fact.

Mr. YATES read an extract from a letter he had just received from a friend, in which it was stated that some Hollyhocks, which had been planted and submitted to the action of galvanism, grew much faster than those which were without it.

Mr. JOHN BALL read a paper on *The Specific Characters of Plants considered in Morphological Connexion*.—Bearing in mind the two fundamental principles of the unity of primitive structure throughout all the organs of vegetation, and, on the other hand, the connexion between function and structure, as the latter is actually modified in nature, it has ever appeared to him a highly probable, if not a necessary conclusion, that where, in examining a group of vegetable forms, we find, in proceeding from one individual to another, differences of structure in various organs, those variations are mutually connected together by fixed laws, so that a variation in one organ shall invariably accompany the variation of another, not by a mere accidental relation, but one which we may hope to trace and establish. The main difficulty in introducing into botany this method, which has been so successfully employed in comparative anatomy by Palæontologists, is that the latter has been guided and directed by a knowledge of the functions of the several organs whose structural relations he would discover. While in botany, where we have so slight a knowledge of the special functions of the various appendages, we must, if we would at all ascertain their structural relations, seek them in a careful induction from an extensive series of observations; thus only may we hope to reconstruct a lost plant from some single leaf or portion of its inflorescence. The first step will naturally be made in finding the relations between those organs in which the primary function has been the least altered, as between the leaf, the bracts, sepals, or corolla, than with those of the stamens or pericarp, where the primitive organ has been altogether metamorphosed for the purpose of fulfilling a completely different purpose in the vegetable economy. Accordingly we do, in fact, find in many natural orders examples of this law. We might derive some illustrations from the Compositæ, but for the present shall only refer to a small group of Gramineæ, the whole of which order is well adapted for this purpose. The group in question contains three European species of Polypogon, namely, P. monspeliensis, Dsf., P. maritimus, R. and S., and P. subspathaceus, Lois., in which the accordance between the variations of the leaf with unrolled sheath and those of exterior glume is very remarkable; the descriptions are too technical and will be given elsewhere.

Mr. C. C. BABINGTON thought Mr. Ball's observations worthy every attention, and hoped that he himself would endeavour to work out his own views. With regard to the family of Grasses, he had lately heard of an instance in which the palea had been found converted into the sheath, which pointed out an analogy which had not before been observed.

Wednesday, June 25.—The Section met for a short time only to-day. Mr. Gould's spendid works on the Partridges of America and the Marsupiata of Australia were introduced to the Section by the President, also copies of the works just published by the Ray Society.

Captain L. L. B. IBBETTSON exhibited a collection of electrotyped plants. Most of the specimens belonged to the family Orchidaceæ, but there were many specimens of other plants, and some fungi with their forms beautifully preserved. The process by which they were prepared was the ordinary electrotyping process, but various expedients were had recourse to according to the nature of the plant. Some difficulty was experienced in sinking the plants in the solution of copper. This was always least in plants which were brought from hothouses. The parts of the plants on the surface were perfectly preserved, and many of them retained their specific characters.

Professor HENSLOW suggested the use of the air-pump previous to submitting the plants to the electrotype, as he believed the difficulty in sinking them depended on the presence of air in their tissues. He also thought that wax models might be made from the copper casts to which the peculiar colour of plants was due.

Professor EDWARD FORBES believed that the application of the electrotype to plants would be found of the greatest utility, especially in preserving the perishable forms of such flowers as those of the Orchidaceæ, and of the various species of Fungi. He thought the copper models might be coated with wax, and this might be coloured.

A paper was read from Mr. ANDREWS, entitled *Notes on the Irish species of Robertsonian Saxifrages*.—The author having studied the Irish Saxifrages, and compared them with those of the Pyrenees, had come to a different conclusion from Mr. Babington, and believed that there were only two true species in Ireland—the Saxifraga umbrosa and the S. Geum. The other species described by Mr. Babington in his "Manual" he regarded as varieties of one or other of these forms. The reading of this paper terminated the business of the Section, which was adjourned after a short address from the President, who congratulated the meeting on the improved character and high interest of the papers which had been this year brought before the Section of Natural History.

BOTANICAL SOCIETY OF LONDON.

May 2d.—E. Doubleday, Esq., V.P., F.L.S., in the chair. Dr. Lloyd, F.G.S., and J. Coppin, Esq., were elected members. The following paper was read:—"Remarks on some Specimens of Rubi sent to the Botanical Society of London. By T. B. Salter, M.D., F. L. S.—The author stated that Rubus tenuis is by no means an unfrequent bramble, having the habit of Rubus cæsius, from which it is distinguished by its black fruit, and the absence of hairs and glands on the surculi. The sepals are broader, and the fruit, though pleasantly acid, has not that extremely fine flavour which belongs to Rubus cæsius, and which once observed cannot be forgotten. In the plates of Rubus affinis, in the work of Weihe and Nees, one variety (8) is figured with a reflexed calyx. As this is the principal artificial character which distinguishes the present from the more slender forms of that species no doubt rests on his mind that that drawing must have been taken from a plant of this species—an opinion in which he is confirmed by having noticed in the Herbarium of Mr. Borrer, a specimen of Mr. Leighton's, which Nees had labelled as a variety of his affinis. In this country, he believes it has commonly been included under Rubus cæsius, and probably sometimes under the convenient name of Rubus corylifolius. A variety labelled 'var ferox' is distinguished from the other form by the greater number and size of the prickles. Rubus Borreri, which Dr. Salter so named in honour of Mr. Borrer, belongs to the section of which Rubus villicaulis, W. and N., may be considered the type, but it is distinguished from all the species allied to it, by its corymbose panicle, and by its long sepals, which, instead of being reflexed, loosely embrace the fruit. Another specimen he has named Rubus Babingtonii, after the distinguished author of the 'Manual of British Botany.'

It is a remarkably large plant, combining the hispid stem of rudis with the shaggy clothing in the panicle of leucostachys, from both of which it is abundantly distinguished by its ternate leaves, and the breadth and crenate margins of its leaflets."

New Plants.

Gompholobium Barbigerum. Fringe-keeled Gompholobium. (*Greenhouse Shrub*). Leguminosæ. Decandria Monogynia.—This is one of the most beautiful of the many New Holland Leguminosæ, confounded by Sieber with the G. fimbriatum, but correctly determined by De Candolle, and named by him Barbigerum, in allusion to the curious, deep, beardlike fringe on the margins of the keel of the corolla; by which character it is readily distinguished from G. grandiflorum, and no less easily by its broader leaves and larger flowers. It flowers in the greenhouse of the Nursery of Messrs. Lucombe and Pince, who appear to have been the first to introduce it alive to this country, in April, 1845.—*Botanical Magazine.*

Begonia albo-coccinea. Scarlet and white-flowered Begonia. (*Stove Perennial*) Begoniaceæ. Monœcia Polyandria.—This is one of the most lovely of this beautiful genus, which we cannot too much recommend for cultivation to all admirers of hothouse plants, blooming throughout the spring and summer months; the flowers numerous, white and coral-red. Plants of it were raised in the Royal Gardens of Kew, from seeds sent from India by — Strachan, Esq., of Twickenham, Surrey.—*Botanical Magazine.*

Country Show.

Dorking Horticultural Society, June 24.—This was the second exhibition for the present year. The following prizes were awarded:—*For collections of eight Plants:* 1, Mr. Whiting, gr. to H. T. Hope, Esq., for Mahernia incisa, Gloxinia speciosa, Euthales macrophylla, and several varieties of Erica; 2, Mr. Mitchell, gr. to J. Anderdon, Esq., for Leschenaultia formosa, L. biloba, L. Baxterii, Mahernia incisa, Fuchsia Eppsii, Polygala cordifolia, Epiphyllum speciosum, and Aphelexis humilis; 3, Mr. Ivery, nurseryman, &c., Betchworth, for Lobelia bellidifolia, Chorozema varium; Pelargoniums: Gipsy, Dido, Duke of Cornwall, and Sheppard's Queen Victoria; a Calceolaria; and a hybrid China Rose. *Collections of four Plants:* 1, Mr. Scott, gr. to C. Barclay, Esq., for Alströmeria pelegrina, Aphelexis humilis, and several Heaths; 2, Mr. Heritage, gr. to the Hon. H. Goulburn, for Achimenes longiflora, Erica jasminiflora alba, and two varieties of E. ventricosa; 3, Mr. Rowland, gr. to David Barclay, Esq., for Achimenes longiflora, Erica ventricosa nana, E. superba, and Aphelexis humilis; 4, Mr. Gadd, Betchworth Castle, for two varieties of Erica ventricosa, Epiphyllum Ackermanii, and a Pelargonium. *Specimen Plant:* 1, Mr. Mitchell, for Leschenaultia formosa; 2, Mr. Scott, for Erica viridiflora; 3, Mr. Reid, gr. to J. Smallpiece, Esq., for Hoya carnosa; 4, Mr. Whiting, for Oncidium flexuosum; 5, Mr. Rowland, for Erica ventricosa nana; 6, Mr. Gadd, for Erica ventricosa superba. *Pelargoniums,* four Plants (in pots of unlimited size): 1, Mr. Heritage, for Conservative, Coronation, Indian Chief, and Queen of Sheba; 2, Mr. Gadd, for King, Sylph, Alicia, and Lifeguardsman; 3, Mr. Mitchell, for Priory Queen, Grand Duke, Victory, and a seedling. *Pelargoniums,* four Plants (in 8-inch pots): 1, Mr. Rowland, for Florence, Roulette, Witch, and Alexandrina; 2, Mr. Ivery, for Columbus, Exquisite, Gem of the West, and Comte de Paris; 3, Mr. J. Scott, gr. to Mrs. Clayton, for Sidonia, Sylph, Decorum, and a seedling; 4, Mr. Reid, for Conservative, Alexandrina, Victoria, and Alicia. *Calceolarias,* four Plants: 1, Mr. Whiting, for Lady Constable and three seedlings; 2, Mr. Ivery, for Standishii, Lady of the Lake, Pride of Kent, and Zenobia; 3, Mr. Mitchell, for Lady Constable and three seedlings. *Seedling Calceolaria:* 1, Mr. Whiting; 2, Mr. Ivery; 3, Mr. Mitchell. *Seedling Pelargoniums:* 1, Mr. Heritage; 2, Mr. Mitchell; 3, Mr. Ivery. *Roses in Pots,* four Plants: 1, Mr. Ivery, for Velours Episcopal, Marchesi, Louis XVI., and Blanchefleur. *Roses cut,* 24 varieties (Nurserymen and Gardeners): 1, Mr. Broadbridge, gr. to the Countess of Rothes; 2, Mr. Ansell, gr. to R. Fuller, Esq. *Roses cut,* 12 varieties (Amateurs): 1, Mr. Baker; 2, Mr. C. Hart. *Pinks,* 12 varieties: 1, Mr. Ivery, for One in the Ring, Unsworth's Danger, Hodges's Corporation, Hodges's Gem, Marshall's Queen Superb, Pope's George the Fourth, Holmes's Coronation, Uxbridge Surprise, Tom of Lincoln, Norman's Benjamin, Keen's No. 2, and Taylor's No. 24. *Strawberries:* 1, Mr. Henness, for Keen's Seedling; 2, Mr. Rowland, for the same; 3, Mr. Ivery, for Myatt's Eliza; 4, Mr. Gadd, for Keen's Seedling. *Cherries:* Mr. Ivery.

Reviews.

Poems by Robert Bloomfield, the Farmer's Boy; with Thirteen Illustrations. Van Voorst. 12mo.

Most of our readers are probably, in some measure, acquainted with the poetry of Robt. Bloomfield: if not, we can assure them, if they are fond of a country life, that they have a treat in store. Brought up amongst the scenes he describes, and deriving little or no aid from education, there is a simplicity and truthfulness about his poems that we do not often meet with in more cultivated writers. Although far beneath him in imaginative power and sweetness of versification, he reminds us of Burns, and much of their poetry has features in common. The present edition of the poems of the Farmer's Boy is beautifully got up, and contains 13 illustrations by Cooper, Horsley, Taylor, and Webster. They are well executed, and give an additional interest to the descriptive poetry they decorate.

We have still a few things to add to the list of novelties which we gave last week. *Cactæ in Horto Dyckensi Cultæ, Anno* 1844 (8vo, Paris, Crapelet), is a very complete systematical list of the species of Torch Thistle, cultivated in the rich collection of the Prince of Salm Dyck; to the cultivator of such plants it is an indispensible work, on account of the synonyms.——*Walper's Repertorium Botanices Systematicæ,* vol. iv. fasc. 1, contains Verbenaceæ, Myoporineæ, Selagineæ, Stilbineæ, Globulariaceæ, and Plantagineæ.——Of the *Bromley Magazine* we have two or three Numbers. It professes to be conducted by the boys in a school at Bromley, assisted by some who have been educated at the same place. Some of the articles are clever for schoolboys, and, as school exercises, creditable. We do not, however, concur with the editor of the *Illustrated London News* in regarding the papers on botany as excellent; all we can say about them is that they might be much worse.——A few botanical articles occur in a new periodical called *The Illustrated Family Journal* (Sherwood). Some of them are very slight productions; others are more elaborate; all are useful to young persons, and they are illustrated by clever woodcuts. It is a pity that the artist is not more careful in the botanical details of some of them, as for example of the Hottonia.——Gilbert's *Geography for Families and Schools* (Gilbert, 12mo) is really fit for the purpose it professes to serve; which is more than can be said of some school geographies. It is illustrated with neatly drawn maps, one of which, representing the surface of land and water in relief, is a beautiful specimen of art. Young gardeners will find it a very useful book.——Finally, although not relating to rural affairs in particular, we must make the most favourable mention possible of a little book called *Instructions in Household Matters; or, the Young Girls' Guide to Domestic Service* (12mo, Parker). It is perfectly invaluable to a young maidservant, and should form a prize book at all Sunday and other parish schools. How to do *well* everything that a housemaid can possibly have to do, is clearly and admirably explained; and the tone of the work deserves the highest commendation.

Garden Memoranda.

Boconnoe House, the Seat of the Hon. G. M. Fortescue.—There is growing at this place a splendid specimen of Fuchsia corymbiflora, measuring about 12 feet 8 inches in height and 6 feet through; it is now in full blossom, covered with bright dazzling scarlet flowers, and beautiful green foliage; the flowers measuring 10 inches in length; the plant altogether forms a most magnificent appearance.—*W. H., July* 5.

Bees.

Profits of Bee-keeping.—A person in the county of Bucks has about 250 hives this year; he imagines that they will clear him 100*l.* His plan is this: he has four or five hives at a cottage, for which he pays 2*s.* per year for each hive standing, and 1*s.* for a swarm; he has them standing from 10 to 15 miles round him; one house in London takes all his honey; his hives are all on the cottage plan.—*U. U.*

Swarming of Bees.—Your correspondent, "R. H. W." says, "the method I take with bees when I do not want to increase my stock, or to have a good hive weakened, is to take the queen away from the new swarm," and then it will return to the stock hive again. This mode of procedure has been anticipated by the writer on bees in the "Naturalist's Library," who informs us, "if two queens exist in the hive at the same time, one will destroy the other, and thus prevent the swarm being led forth." The same writer, at p. 200, informs us that if any mishap befals the queen, the swarm will return to the old hive, but will set out again in a few days with a new queen (which I am inclined to think will be the case with your correspondent's bees). Dr. Warder, as early as 1765, tried the experiment of depriving the swarm of their queen, the result was "after five days and nights of fasting, they all died of famine except the queen, who lived a few hours longer and then died." "R. H. W.'s" success in uniting the swarm to the parent hive I think is only an exception to the general rule, and must have occurred in consequence of their having at the time a grub in the hive that the bees could convert into a queen. So far from there being any novelty in the circumstance of depriving the swarm of their queen, it has been the favourite experiment of bee-masters for years, but they have hitherto met with the same success. Bees will swarm in spite of every obstacle. What can be the utility of preventing swarming, when we can profit so largely by this admirable provision of nature for the perpetuation of the species? What folly, what presumption it is in man to offer opposition; why not modify his contrivances to act in unison with this general law? Bees set an example to man of how much can be accomplished by industry, unity, and loyalty, and we had better direct their energies than endeavour to pervert them.—*Certis.*

Answers.—*Mr. King.*—I have found no fault in particular with the collateral system of bee-management as followed by the best apiarians. The produce from my straw-hives not only last year, but for eight years has exceeded that from my boxes. Besides, they have been several times replenished during that period with fresh swarms from my simple hives. Not altogether that the plan is defective; but that straw hives are more suitable for bees than painted wooden hives. I never had, nor never shall obtain 9*l.* 16*s.* 8*d.* from a single hive in one season. Mr Nutt mentions that he has obtained 296½ lbs. of honey from a hive in one season, which Dr. Bevan has plainly shown could not be contained in the hive. Those who obtain such great produce ought to say whether they have, or have not, put two or three swarms together in one hive to begin with; whether they have not fed them largely, and perhaps left a box of honey of the previous season's produce. Then it would be seen that the Cottager with his single hives might have a chance of competition with his neighbour's doubled hives. In connection with this subject I may mention that the Rev. Mr. Davis has kindly furnished me with details concerning his bees. He prefers a hole on the top of a hive covered with a bell-glass for ventilation to Nutt's "perforated cylinders;" and says that "he cannot speak of the large quantities which Mr. N. says in his book that he took from one family in one season, viz., 296½ lbs. I believe that to be utterly impossible." Mr. D., however, is very successful; he "obtains about 50 to 80 lbs. from one family during the season." Good pasturage and great attention to extra feeding may account for it.—*W.*——*R. W.*—There is no real practical means of preventing bees from swarming. You can get the honey from the side-box by placing a small piece of burning fungus, or puff-ball under it; the bees will soon be silent. Take the honeycombs and leave those containing the brood for the bees to go on afresh with till autumn; then smoke the three boxes, take the honey from the end ones, and two queens, if possible, and let the whole of the bees mingle together in the centre box. If you think they have not room enough give them one of the side-boxes containing part of the brood-comb, which would be of no value to you, though of much use to the bees. A fumigation-box is very handy for such operations.—*W.*——If *G. B. C., Manchester,* will refer to Dr. Bevan's "Treatise on the Honey Bee," chapter 14, p. 164, he will find all doubt removed as to his having lost a swarm, and will find that a second swarm may not issue till even the 20th or 21st day after the first. The reason of this he will find satisfactorily explained in the same chapter, the whole of which, indeed, will well repay him for the perusal.—*Alcibie.*——*B. F.*—The bees may be dislodged in the evening by smoke from the Bovista giganteum or puff-ball. Put a bit or two of it ignited in a dish, or on a thin board, according to the size of the cavity. Cover the burning stuff with inverted small flower-pots, or perforated tin boxes would be better for the smoke to ascend through, and protect the bees. When they have all dropped down, put them into a hive, taking care that the queen bee is amongst them. If part of the brood-combs were nicely fixed in the hive, that would entice the bees, and afford the means of rearing another queen, in case of an accident befalling the rightful one. Place the hive as far as possible from the former station. Shade and confine the bees, leaving an air-hole, till the evening of the following day. Extract the combs, and fill up the cavity in the wall, so that the bees may not be tempted to return to their old abode. Cutting the wings of the queen is another preventive, which I have practised with success. *W.*——*P. C.*—Cover your hive with any kind of material that will fence against wet, and shade it from hot sunshine. *W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—Admit more air into the house as the season advances, because although this is the period when every advantage ought to be taken of heat and light, still the confinement of a stove is apt to draw the plants, especially if carried out too late in the season. Growth is now required in most kinds of plants, but the great art is to harden or perfectly mature that growth, or the plants will suffer much during winter. Many of the plants in an advanced state may now be placed in the greenhouse, which should be closed on cold nights. *Greenhouse.*—Many of the plants which are now growing rapidly should be set in the open air, as those of a soft nature are apt, under good and free cultivation, to become too succulent, and, as in the case of stove plants, they are subject to damp off or mildew under glass. Proceed with the propagation of all kinds of exotic plants, and especially of Pelargoniums. Expose those to the open sun intended for next season's flowering: to harden and perfectly mature the wood is of paramount importance, more especially for plants intended for exhibition.—*i.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Roses going out of bloom should be constantly gone over, cutting off all dead flowers, &c., and Moss and other varieties should be layered as soon as the young wood is sufficiently advanced in growth. Pinks now out of bloom, from which pipings have been taken, if they have blossomed two years, should be cut off close or removed to make room for young plants of this years' striking. Dahlias require constant care in regard to tying up as they advance in growth. Sweet Williams, Wallflowers, Pianthus, and other hardy biennials, should be thinned, planting out the thinnings into borders, or into nursing-beds till spring. Lawns should be kept constantly mown during showery weather, and edgings of walks clipped. *Pits and Frames.*—Put in cuttings of the best kinds of Antirrhinums, Mule Pinks, herbaceous Phloxes, &c., either under hand-glasses or in cutting pots, and place them in close frames or pits; those already rooted must be hardened off by degrees to be ready for planting out. Pipings that are not rooted should have a little air left during nights. Shift Balsams, Chrysanthemums, &c.—*B.*

IV.—PINERIES, VINERIES &c.

Pineries.—This is an excellent period at which to arrange the late fruit intended to supply the table in November, December, January and February. Where a late house or pit is appropriated to late fruit alone, the bottom-heat should now be renewed, and all the plants which have shown since Midsummer, and those on the eve of showing, should be arranged therein. Those which come up, say from Midsummer to the middle of August, are of the right age for the abovementioned purpose. If fermenting materials are used, take care to secure a strong bottom-heat, but do not plunge the pots above a third of their depth; as such sources of heat are peculiarly deceptive at this

period. This powerful bottom-heat will produce a great amount of atmospheric moisture, if the surface of the tan can be liberally syringed every afternoon at present. These fruiters will by being only a third plunged, be enabled to receive at least three subsequent renewals of bottom-heat, by the application of fresh tan on the surface. Follow up the directions already given, with regard to young stocks. All those which are in a rapid state of growth should have abundance of air, and, what is of even more importance still, plenty of room. No system of growth, however clever, can compensate for the want of room; or, in other words, a proper equalisation of light and air. Our commonest field crops claim this attention, where abundant produce, combined with quality, is the object. Then why not tropical fruits? *Vineries.*—Remember that abundance of air is the foundation-stone of flavour in Grapes, as in most other fruits. Whoever accelerates the ripening of Grapes by unusually high temperatures, without plenty of air, does so at the expense of both quality and colour in the fruit. After early Grapes are cut, if the principal leaves are as they ought to be, still alive and tolerably fresh, suffer the shoots to ramble at their points, if so disposed, for a short period. Late Grapes and Figs as before.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Where heavy rains have beaten the surface of the ground, the latter will require to be stirred. Fruit-trees thrive better in borders that are frequently dug, properly manured, and cropped with Lettuces or other things that do not root too deeply, than where the ground is not cropped and but seldom stirred. It will therefore be advisable to dig or fork over all borders that have not been recently stirred, taking care not to injure the roots of the trees by the operation. This had better be performed whilst the ground is sufficiently moist; and if dry weather should set in, copious waterings ought to be given. It is frequently the case that the surface of a border forms a regular slope, is smoothly raked, so that water from heavy rains, more especially, readily glides off; and a less beneficial supply from artificial watering must be substituted. Sometimes crops are sown or planted in rows across the borders and afterwards landed up, the furrows consequently formed exhibiting a close system of surface-draining, not at all objectionable in the case of a very wet soil and season, but highly so in summer under ordinary circumstances. Proceed in the first place with budding Cherries and Apricots; and with other fruit-trees as the buds become in a fit state, which in this season will generally be the case rather later than usual. *Kitchen Garden.*—In order to obtain late young Potatoes, some of Chapman's Kidney should now be planted. Sow Radishes on a cool border. Plant out Celery, Endive, and Lettuces; the latter generally succeed well on the beds formed between the Celery trenches. Loosen the ground gently near the rows of advancing crops of Peas, and water if necessary.—*E.*

State of the Weather near London, for the week ending July 17, 1845, as observed at the Horticultural Garden, Chiswick.

July	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 11	6	29.722	29.533	70	46	58.0	S.W.	.71
Sat. 12	)	29.916	29.907	64	48	56.0	N.W.	.07
Sun. 13	8	29.940	29.811	71	55	63.0	S.W.	.01
Mon. 14	9	30.035	29.884	71	49	60.0	W.	.04
Tues. 15	10	30.069	30.059	71	46	58.5	N.	.03
Wed. 16	11	30.045	30.005	71	54	62.5	S.W.	.07
Thurs. 17	12	30.029	29.974	75	54	64.5	S.W.	.02
Average		29.959	29.802	70.4	50.3	60.3		.95

July 11—Rain; cloudy; 29m to 1 P.M., thunder, lightning, and unusually heavy rain for half an hour; showers
12—Fine; partially clouded: very slight shower, 5 P.M.; overcast
13—Slight rain; overcast and fine
14—Fine; cloudy; very fine; overcast; rain
15—Slightly overcast and fine; cloudy; slight shower; partially overcast
16—Fine; few clouds and very fine throughout
17—Rain; cloudy and showery; very fine.
Mean temperature of the week 2 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending July 26, 1845.

July	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 20	70.6	51.3	60.9	12	0.47 in.	1	—	—	—	1	8	8	1
Mon. 21	71.0	51.0	61.3	7	0.54	2	—	—	—	3	6	5	3
Tues. 22	71.3	51.9	61.6	12	1.37	3	2	1	—	2	6	4	1
Wed. 23	72.1	52.3	62.4	7	0.40	1	2	3	—	1	3	5	4
Thur. 24	73.1	52.5	62.8	4	1.03	—	5	3	1	2	4	2	2
Fri. 25	73.3	51.9	63.6	4	0.22	2	3	2	—	1	3	7	1
Sat. 26	73.7	52.5	63.1	8	0.70	1	1	3	1	2	6	3	2

The highest temperature during the above period occurred on the 25th, 1844—therm. 92°; and the lowest on the 24th, 1838, and 23d, 1843—therm. 40°.

Notices to Correspondents.

THIRD Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ASPARAGUS—*Aliquis*—The Asparagus is a perennial, and the stems that are left to grow are allowed to do so, sometimes for the purpose of ripening seed, but more particularly for sending down the nourishment derived from the leaves, &c., to the root, for the next year's shoots.‡

CACTI—*M W X*—The time to repot Cacti is when you are about to force them into renewed growth.

CALCEOLARIAS—*F L*—Procure Standishii, Exemplar, Duchess of Sutherland, Queen Victoria, Marquis of Bute, and Mary Queen of Scots.*

CAPE BULBS—*Sub.*—Of the bulbs which you have received from the Cape, Brunsvigia falcata, and Cyrtanthus obliquus, will succeed best in a stove. They should all be planted in well-drained pots in light loam, with the bulbs raised at least half way above the soil. They should be watered sparingly until roots are formed; but when they begin to grow, water may be freely supplied. After the former has bloomed, and made its annual growth, it should be removed to a dry part of the stove to rest; the latter should be kept near the glass, in a cool part of the house, and kept gently growing by a sparing supply of water.‡

CINERARIAS—*F L*—The following are six good varieties:—Criterion, Regina Victoria, Fanny Ellsler, Pride of Peckham, Goodei, and Captivation.*

COUNTRY SHOWS—*E M*—Next week.

CRYPTOMERIA—*W*—Your seed was taken from a parcel which has yielded an abundant crop. It was sown in pans, in loam, under a glass frame, with a *very* little bottom-heat. We should say that two out of three seeds were good.

CUCKOOS—*T F R*—You will find the information you ask for given at p. 460, 1845.‡

EXHIBITIONS—*Hope*—Drawings of fruit and flowers may be exhibited in Regent-street; but no prizes are awarded for them. The price at which the "Vegetable Kingdom" will be sold is uncertain at present. It will form an 8vo volume of 600 or 700 pages, filled with figures of plants.

GRASS SEEDS—*Villager*—If any seedsman sent you a mixture of Grass seeds, when you ordered separate sorts, you should have returned them to him. Have nothing to do with such people. We are not surprised that all your fine Grasses turn out coarse ones. Throw the turf away; for you can never cure it; and deal with more respectable persons. Since *you* say that a "celebrated London seedsman" has thus treated you, then *we* say, apply to Lawson and Son, of Edinburgh. They will deal fairly by you. White Clover forms a part of all good turf, and should always be sown. Consult Lawson's Pamphlet on "Agricultural Grasses."

HEATING—*Constant Sub*—An Arnott Stove *may* be used for heating a small greenhouse; but we do not recommend it. If employed, care must be taken that it is quite tight; and its top must be kept covered with a vessel containing water. Otherwise, the air will be too dry for vegetation. In placing it let it stand as near the middle of the house as it can be. In order to avoid the dust produced by removing the ashes, always introduce among them a quantity of warm water, so as to convert the dust into mud.——*Allan Dale*—You cannot make water flow downwards unless your boiler is completely tight. We therefore do not see how your apparatus can be made to act. Pipes of small bore are objectionable; they should not be less than 3 inches in diameter, and must be of iron. You may make the tank of wood, like a beer cooler, and of a similar depth. You had better get a small boiler on purpose for your pit, if you think it worth while to go to the expense for so small a thing. Cannot you apply the principle of the pit figured at p. 184 of this year's volume?

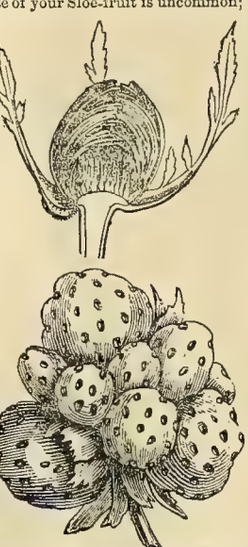
INSECTS—*W Henley's* beetle is the Cetonia aurata, described and figured in the *Gardeners' Chronicle*, vol. i, p. 452.*R.*——*J Pritchard*—The animals infesting your Pansies, &c. are the Polydesmus complanatus, which inhabits all soils, from gravel to clay. Its history and the best modes of extirpation I believe you will find in the *Gardeners' Chronicle*, vol. i, p. 196, and the *Royal Agricultural Journal*, vol. v, p. 228.*R.*——*Constant Reader*—The Lily of Valley weevil is the Curculio elevatus, apparently, and the other is the Hylobius Abietis. Be so good as to give Mr. Curtis the scientific names of the plants this beetle has injured. Hand-picking by night is the best remedy.*R.*—*G N C*—We lately gave the history of the Cockroaches, and must refer you to that paper, for we are persuaded they may be banished by the application of spirit of turpentine, if persevered in. *R.*

LETTUCES—*W J*—We do not like your Lettuces; they are too coarse, and quite inferior to the Paris Cos.

LONDON GARDENS—*A Constant Reader*—Your enemies are two, and two only; viz. soot, and dryness. Can you remove them? If you can water your plants very often, and keep the air moist by syringing and similar contrivances, you may garden in London. If not, you must content yourself with hardy succulent plants. We have seen a London area kept filled with fresh flowers and green leaves by means of water skilfully applied. In that garden were seen Privet, Aucubas, Scarlet Pelargoniums, China Roses, Mignonette, and plenty of Annuals in pots; to say nothing of bulbs in their season. Do not lay out money upon valuable plants until you have ascertained that common things will grow. You should try the experiment with such things as we have named.

MELONS—*A Young Gardener*—The unusual disease affecting the young fruit is not owing, certainly, to any deficiency of bottom-heat, otherwise it would not have set so well. It is most probably owing to the roots having got into the tan, a substance peculiarly injurious to many kinds of plants. Perkins's pipes acquire an intensity of heat almost instantaneously, and therefore cannot fail to do more or less injury to vegetation, especially where the space is small, as in pits.‖

MONSTERS—*H Wood*—The state of your Sloe-fruit is uncommon; but we have seen it before. The pursy shape of the young drupes is perhaps caused by an insect. We have examined similar productions on specimens of Bird Cherries, both from the Himalayas, and from North America. ——*Joshua Whiting*—The bodies growing on the leaf of the Lime-tree are of the nature of galls, and are caused by the puncture of insects. —— *An Original Subscriber*—Your Rose is in the same transition state as that in the annexed cut; only the change of calyx to leaves is more remarkable in your instance. As to the Strawberry, which is branching, the annexed cut illustrates that too. The succulent part of the Strawberry is, morphologically speaking, the growing point of a bud; the growing point of a bud becomes branches. What wonder then that the Strawberry should try to branch? The case now represented was an extremely remarkable one.



——*Cav*—Certainly. The changes observed in the Clover, when in such a state as that you have sent, furnished some of the early evidence respecting morphology. The changes are worth studying.——*G S Hinchcliff*—Such accidents are called sports. All cultivated plants are liable to them. Their cause is unknown. The circumstance is analagous to the occasional formation of Cabbage Roses by Moss Roses, and of Nectarines by Peach-trees.

NAMES OF PLANTS—*W J and W*—Not Rosa Harrisoni, but either the old double yellow or yellow Persian—most probably the latter ¶——*Reader*—Hippophäe angustifolia ¶.——*C A B*—1, Stanhopea oculata; 2, Epidendrum radiatum; 3, Rodriguezia recurva; 4, Aerides affine; 5, Stanhopea insignis; 6, Epidendrum gladiatum; 7, Catasetum atratum; 8, Cyrtopodium Andersonii; 9, Cirrhæa, apparently Loddigesii; 10, Veronica salicifolia; 11, Viola palmensis; 12, Spiræa bella; with a bundle of leaves of the red and white Rhododendron arboreum.——*W J W*—Abrus precatorius; not worth growing.——*J M I*—Maxillaria tetragona. The Potentilla (Geum?) flowers are uncommonly handsome. They are nearly as bright as Verbena Melindres.——*Stura*—Stanhopea Martiana.——*Lucilla*—Alyssum maritimum, now called Glyce or Koniga.——*K*—We cannot undertake to name Florists' Flowers.‡——*Gardener*—1, Agrostis spica-venti; 2, Bromus mollis; 3, Bromus asper; 4, Aira flexuosa.§——*G W*—Erigeron Villarsii. As to the Crucifer we really must beg you, when you send such things, to let them be examinable, and to give us some clue to their history. An ugly common-looking Crucifer, without fruit, will take a day (!) to determine. We have not received the things before.

PANSIES—*F L, &c*—Procure Brown's Curion, Countess of Orkney, Gibbons's Belle du Monde, Prince of Orange, and Cabinet Minister; King's Exquisite, Sulphurea elegans, Bridegroom, Homer, Miss Stainforth, Archimedes, Mulberry superb, Alicia, Thompson's Eclipse, Black Prince, Cyclops, Agnes, Enchanter, Desirable, and Regulator. *W.*

PEARS—*Ipswich*—The following varieties may be planted on a S.E. aspect:—Hacon's Incomparable, Passe Colmar, Beurré Rance, 2 Winter Nelis, and 2 Glout Morceau.‖

PETUNIAS—*Anon*—Many of Girling's Petunias appear to have been overworked; it is possible that they may bloom more satisfactorily towards the end of the season. Like other improved florists' flowers, they should bloom flat, the outline round, and as free from indentations as possible, and the more bright and well defined the colours are, the better. *W.*

PHLOX DRUMMONDI—*Amateur*—The seeds should be sown about the end of March in pots filled with light sandy soil, and placed in a moderate hotbed, or in a Cucumber-frame. In this situation they will soon germinate, and before the first rough leaf appears, they should be potted off, three or four together, in 3-inch pots; when potted, they should be returned to the frame and kept close for a few days, to recover from the effects of removal, after which they should be gradually hardened off, and planted out into the open border about the end of May, when all danger of frost is over. The chief causes of failure are, sowing the seeds too soon, or allowing the plants to get very dry, or pot-bound, before they are planted out. Respecting the hardening of the wood of Fuchsias, &c., you may expect to see that treated of in detail soon.‡

ROSES—*Sub.*—The Banksian Rose produces it blossoms upon one-year old wood. If the plant, therefore, is pruned in spring, all the flowering wood is removed, and you will have no blossoms until new wood can be formed. The proper time for pruning this Rose is midsummer, after the flowering is over; thus new wood is formed abundantly, in the latter part of the year, and when spring arrives it will flower well. Now then is the season for cutting the branches close back; and the more young wood that is laid in, after midsummer, the finer will be the bloom.‡

SILK—*G*—As far as we can judge your silk is of good quality. Do you really think that silkworms can be managed in this country *profitably*, with dear labour, damp summers, and bad food? If so, we should be glad to know what the method is that you would pursue.

SPLIT PEAS—*J B W* is in the habit of saving every year a large quantity of Peas, both for seed and culinary purposes. His cook, however, finds the husk of the Pea very troublesome, and wishes some of our correspondents to point out how he can bring them to the same perfection as the split Peas in the shops. Would any one give him the information?

MISC.—Alstrœmeria and Antirrhinum seeds are very easy to grow; you have, perhaps, killed them with your steeps. *We* do not recommend such contrivances, and never did.——*J H C*—Many thanks for the seeds of the golden-berried Ivy.——*H J Raines*—We shall be very glad to hear the result of your experiment with toads.——*A Constant Reader*—We do not know.——*Old Sub*—You had better apply to Mr. Cutler, 97, Farringdon-street, City, from whom you will get the information you want.‡——*K*—You had better dust your Rose-trees which are infested by red spider with sulphur when they are in a damp state, as the sulphur will then adhere better to them.‡——*R A J*—Your Melons, which bloom abundantly, will not produce fruit unless you set them. Inattention to this, in your case, is the cause of failure.‡——*E E*—In budding Roses, if you make the cut lengthwise, sufficiently long to admit the bud, it is not necessary that there should be a transverse cut in the bark; and this will lessen the chance of the shoots breaking off from the effect of wind, &c. Your Roses which were budded last year, and which have this summer grown in one long vigorous shoot, to the length of 8 or 9 feet, might have been pinched, or cut off at the length of 2 or 3 feet, if you had wished it. This would have made them form a head at once, this season. If you carefully look over the "Tree-rose," which you say you have, we think you will find these points clearly given.‡

SEEDLING FLOWERS.

CALCEOLARIAS—*S S H*—The ground colour of the Calceolaria should be clear, and therefore such specimens as 536, 603, 644, and 614 should be rejected. Of yellow grounds the best are 639, 640, 575, 625, 623, 572, 585, and 559; 596, 632, 579, and 552 are common. Of the light or lemon-yellow grounds, 558, 623, 651, 620, 615, 624, 530, 645, and 637 are rather common sorts, although there are some pleasing contrasts amongst them. 580, 586, 591, 549, 560, 561, and 630 are good and worth preserving.*——*J H P*—The Infant Sappho, buff ground with chocolate-coloured spots, is a very good and decided variety.*——*P J*—Your striped specimens of Calceolaria are very curious and pretty. Persevere; no doubt size with a greater variety of colours will follow. There appears to be a greater precision in the striping in the present specimens than in those you sent previously.*

FUCHSIAS—*W E*—We think little of No. 2. 5 is a far better flower in every respect; but it possesses little to distinguish it from some others in cultivation.*——*C H*—Three years since these varieties would have gained considerable commendation; but so many good sorts have been produced, that it requires some decided novelty to take with the public; there are better varieties in both the light and in the high-coloured sorts than those you have sent. 6 is the best.*——*J T*—Your specimen is a very large one, but it is coarse in texture, and deficient in opposition of colour: the tube and sepals are too much alike.*——*A Subscriber, Glasgow*—Seedling Fuchsias really worth preserving, are very rare; your collection bears too strong a resemblance to those we have been examining for the last three years: they are pleasing varieties, but not of sufficient merit to drive the established favourites out of the markets.*——*H M*—The dark varieties 5, 14, and 15, appear to be no improvement upon those already in the hands of growers; among the lighter sorts, are some very large and showy specimens. No. 1, which measures 4 inches from the seed-pod to the end of the pistil, has a light pink tube, with red corolla: but the flower wants compactness; 4 and 16 are also very large and showy, with light tubes and coloured corollas, somewhat coarse, but evidently producing a fine effect; 2, 6, and 9, are also flowers having light tubes, of better quality, smaller, but of good substance, and with stronger colour in the corolla.*——*J W*—The seedling you have raised from F. fulgens is a very handsome variety of that flower; its mode of blooming is in bunches at the end of a branch, similar to fulgens; tubes long and slender, more than 3 inches long, and not more than a ¼ of an inch in diameter. They are of a bright light vermilion, with the sepals tipped with green, foliage large.*

GLOXINIAS—*Agricola*—Your seedlings are not quite sufficiently distinct from others already in cultivation. They may, however, be worth keeping.*

PANSIES—*T C*—Your seedling is a flower of fine form, and curious in colour, but it cannot be regarded as a show variety, on account of the uncertain nature of the ground colour.*——*C T*—The dark seedling, with bright yellow ground and bronzy purple petals, is a well-formed flower of great substance; the marginal colour good and perfect, with clean edges; it promises to be a standard variety. Of the lighter flower we cannot speak so highly; there is a notch in the lip, and the individual petals are not so well formed, nor the substance so well carried into the edges of the petals as in the darker flower; the bright ground colour and intensely dark eye are very striking.*——*J L*—Young England is a flower of good shape, rather deficient in substance; and in the eye, which is too striated, it is second-rate.*

PELARGONIUMS—*A Constant Sub*—Your seedlings are pleasing in colour, and good in texture, but they want the compactness of form, and the substance in the petals, that distinguish show varieties. The way in which the colour breaks off in No. 1, as it approaches the edge of the upper petals, is not good; it is mottled and uncertain, and of a greyish colour; the petal at this part also becomes thin. In No. 2, the petals are all too long, too loosely put together, and the upper ones too much crumpled. No. 3 is rich and brilliant in colour, and worth keeping. No. 4 is bad in form, the upper petals being ill-formed, and the lower too long.——*J M*—Your seedling is large, but coarse and very common in colour, bad in form, with the upper petals too veiny.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

ROYAL AGRICULTURAL SOCIETY OF JAMAICA: founded 1843.

Patroness—Her Majesty the QUEEN.

Vice-Patrons.

The Right Hon. James, Earl of Elgin and Kincardine, &c.

Sir Charles Fitzroy, Governor-in-Chief of the Leeward Islands, &c.

Sir Henry Macleod, Governor of Trinidad, &c.

President—The Hon. J. E. W. Panton, Vice-Chancellor of Jamaica, &c.

A PREMIUM of £100, offered by His Excellency the Governor, through this Society, will be awarded to the Author of the BEST TEXT-BOOK on AGRICULTURE, for the use of schools in Jamaica; also Premiums of £30 and £20, offered by the Society as second and third prizes, for the same object.

The following extract of a letter addressed by Colonel Bruce, His Excellency's Secretary, to the Society, will explain the nature of the desired work:—

"What we seem to require is a manual of a strictly elementary character, brief, simple, and compendious, applying the first principles of agricultural science (including chemistry and mechanics to the cultivation of tropical productions, the rearing and care of stock, and other matters connected with farming operations in this climate. It may not be expedient to tie competitors down to any one form, but the division of the book into chapters—each chapter to treat of a single branch of the subject, and to conclude with a series of questions upon it—may be suggested as a plan well suited to a work of this nature."

Competitors are to send their manuscripts, their motto only being inscribed, to the Secretary of the Society, Kingston, Jamaica, on or before the 1st of July, 1846, and to transmit a sealed note, on which their motto shall appear, containing their names and addresses.

The copyright of all works gaining prizes will belong exclusively to the Society. T. BLAND, Secretary.

Kingston, June 5, 1845.

The Agricultural Gazette.

SATURDAY, JULY 19, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 23—Agricultural Society of England.
THURSDAY, July 24—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, July 30—Agricultural Society of England.
THURSDAY, July 31—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

July 21—Darlington | July 29—Bromsgrove

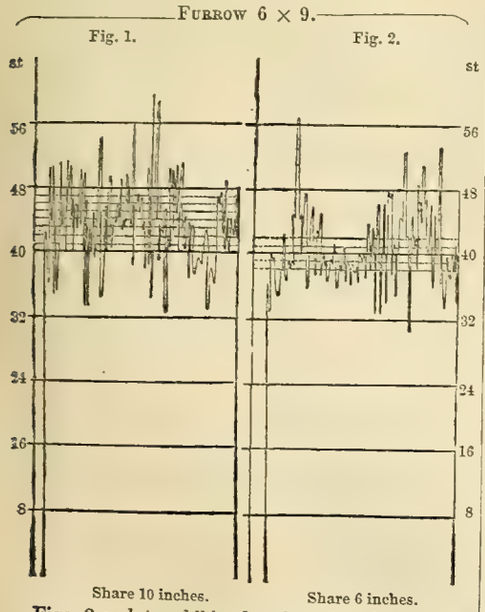
WE refer our readers to another page of this Paper for a report of the EXHIBITIONS OF STOCK, IMPLEMENTS, &c., which have taken place during the past week, at Shrewsbury, under the auspices of the ROYAL AGRICULTURAL SOCIETY OF ENGLAND. The weather, on which so much of the interest of such meetings depends, has been most propitious; and considering the want of railway communication with Shrewsbury, a large number of people have been drawn together. This number would probably have been much larger, had it not been for the very imperfect and expensive arrangement, or rather want of arrangement, for the conveyance of passengers from Birmingham, and other stations on the railroad.

THE DRAUGHT OF A PLOUGH is occasioned partly by the weight of the implement, partly by the cutting of the sod, and in part by the operation of turning the furrow-slice over. In what proportion is it to be divided among these, its several causes? This is obviously a question which it is important that plough-makers should be able to answer. For if they knew this, they would be able to direct their attention to the improvement of the implement in those parts of it where improvement would be useful.

The following figures exhibit the draught of FERGUSON'S Swing Plough:—1st, when its share was 10ins. wide, the lower surface of the furrow-slice being thus perfectly cut; and 2d, when the share was only 6 ins. wide, so that a part of the surface must have been torn.

FERGUSON'S PLOUGH.

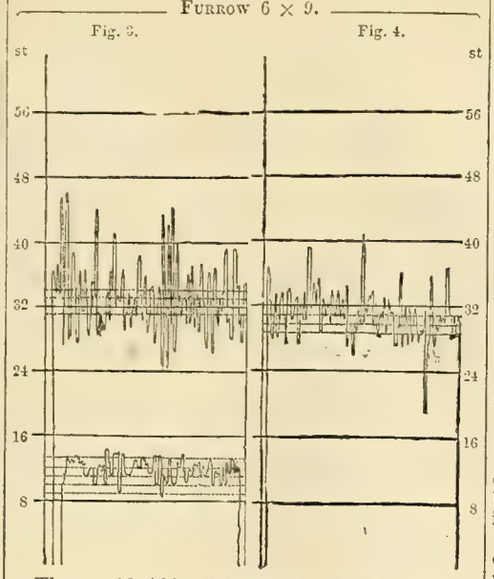
FURROW 6 × 9.



Figs. 3 and 4 exhibit the draught of the same plough, 1st (lower line, Fig. 3), when drawn empty along a furrow previously opened by itself; 2d (upper line in Fig. 3), when at work turning a furrow slice 4 inches deep, and 9 wide; and 3d (fig. 4), when at work on a furrow-slice of similar dimensions without its mouldboard, thus merely cutting it from the fast land without shifting its position.

FERGUSON'S PLOUGH.

FURROW 6 × 9.



The considerable difference in the draught exhibited by Figs. 1 and 2, would lead one to expect that the cutting parts of the plough were one of the chief causes of resistance to its motion through the ground; and Fig. 4 fully confirms the expectation.

The whole draught of the plough at work is 34 stones, the removal of the mouldboard diminishes this only to 31 stones, so that 3 stones only, or only 10 per cent. of the whole draught is occasioned by the turning of the furrow-slice; the draught of the empty plough is 12 stones, and subtracting that from 31, we have 19 stones as the labour of cutting the furrow-slice before turning it. If this division of the draught holds true generally, then we may consider that upon an average 35 per cent. of the labour of ploughing is attributable to the weight of the implement, 55 per cent. to the operation of cutting the furrow-slice, and only 10 to the action of the mouldboard. This conclusion, if it be correct, reverses most of our pre-conceived opinions on the subject; the attempts which have been made to diminish the draught of ploughs have been mostly directed to the alteration of the form of the mouldboard: let our plough-makers direct their efforts more to facilitate the action of the sock and coulter, and to diminish, within safe limits, the weight of the implement, and they will, probably, be more successful in lessening its draught.

FARM BUILDINGS A PERMANENT IMPROVEMENT OF LAND.

ONE obstacle to the adoption of any method of improvement by landowners is the knowledge that the increased production they lead to involves the expense of buildings in which to house, prepare, and consume it. Drainage is attended by a greatly increased produce of grain, roots, hay, &c., and that increased produce requires additional barn-room, and yards—the one in which to prepare the corn for market, and the other in which to consume the other produce. The breaking up of Grass-land, also, would be much more generally carried into effect, were it not for the expense of the additional buildings which the operation would obviously render necessary. It is thus of considerable importance that the erection of buildings should be classed along with drainage, and those other means of *permanently* improving land, the expense of which, as regards settled estates, it is proposed in the Bill just laid upon the table of the House of Lords, to defray by way of mortgage. We give the following extracts on this subject from the evidence given before the select committee on the charging of entailed estates for drainage:—

THE EARL OF DUCIE, a member of the committee, is examined as follows, regarding a certain district in South Gloucestershire, which is chiefly poor meadow land:—

"1400. What is the reason it is not broken up?—The reason, as far as is connected with the entailed estates, is, because the process of draining entails also another expense, namely, building, not the farmhouse, but increased farm buildings, to enable the farmer, upon breaking up the land, to make the most of his roots, his straw, and his hay.

"1401. Is that too heavy an expense for a man who is the possessor of an entailed estate?—I would take my own instance, as the possessor of an entailed estate; a man with a large family and not a very large income. It is impossible for me to take the whole estate on my hands, and immediately put it in the best possible condition, on the cheapest terms. I may be able by degrees to continue the draining; but to put the land in the best possible state, so that the greatest benefit from the improvement may be obtained by the tenants and landlord, it is necessary to erect sufficient buildings and sheds for them to make the most of their roots and straw; that is a sum which must be taken in the gross; it cannot be done in detail, and that prevents me from doing it. I can go on annually draining, but I cannot face so large an expense as the buildings.

"1402. Would not this land yield an adequate return if it were to remain in pasture?—No doubt; but the district being a cheese district, it is found that by drainage a great many of the cheese-making Grasses fail, and the land produces a more feeding quality of Grass. I have no hesitation in saying that a better profit is to be made off this land under the plough than under Grass.

"1403. How much do you think per acre some of the lands you have alluded to would be improved by being drained and broken up?—I did not drain last year, because I expected improvements in tile-making machines, and I was in hopes that some legislative measure might pass which would enable a man to grasp an estate and drain it on the lowest possible terms. The last land I drained I took from the tenant, and he was glad to part with it at 1*l.* per acre, and that land is now worth fully 2*l.* per acre. Last year, a bad year for roots, I had from 16 to 20 tons of Swedes upon it, and I have now a crop of Wheat growing upon it, which will be, I have no doubt, from 4 to 5 quarters. I have hitherto found it average 5 quarters.

"1408. Does not the fact of the possessor not being enabled to charge the expenses necessary for erecting buildings prevent its being broken up?—It has prevented its being broken up.

"1409. If, instead of laying out an immense sum, he could charge it over a number of years on the estate, would you think he would then avail himself of that power to raise buildings, and by that means the land would be broken up and much improved, and the produce greatly increased?—I have no doubt, under those circumstance, that the buildings would be put up. What I call inferior Grass land is land worth less than 2*l.* per acre. I think such land would be broken up for the benefit of the landlord, the benefit of the tenant, and the great and incalculable benefit of the agricultural labourer.

"1411. Being the owner of an entailed estate, if an Act of Parliament passed to enable you to borrow money for the purpose of draining your estate, should you do so?—Most decidedly; but it would have a very great influence on me whether or not I was enabled by the same Act to put up buildings, because I feel I should not get that increased value for my property in consequence of the drainage unless I could at the same time afford my tenants the means of using to the greatest advantage the increased produce of the land."

PHILIP PUSEY, Esq., M.P.—"1345. Do you think that in the state of advancement which agricultural knowledge has come to it is a permanent improvement to have good buildings erected upon farms?—I think it is extremely essential to have good buildings erected upon farms. But a great many cases would arise, where, if power were given to the owners of settled estates to charge their lands for that purpose, I think there would be danger that persons might be disposed to charge their lands improperly with the expense of the repair of buildings which ought to fall upon themselves. But, on the other hand, if that danger were guarded against, as I have not the least doubt it could be, and if care were taken that the farm buildings to be erected should be *boná fide* new works, I have no doubt that it would tend extremely to promote the improved cultivation of the country. With the permission of the committee, I can state one or two different classes of cases in which it would arise. The first case would be with land which is now waste. We have a very large extent of waste land in this country, which it is proposed by a Bill introduced this year to enclose. When you consider the expenses of bringing the land into cultivation, and of erecting farm buildings, and when you consider that a great part of those commons are in the hands of large proprietors whose estates are strictly settled, I do not see any means by which the intentions of the Government can be carried into effect, unless the owners are allowed to charge their property for the purposes of building.

"1361. Do you consider that there is a great deal of poor Grass-land in this country which it would be a benefit to plough up?—Decidedly.

"1362. In case it was so ploughed up, would not that land require to have farm buildings upon it?—Clearly.

"1363. Taking the two things together, would that be a permanent improvement upon the land?—That would just be upon the verge between a new work and the repair of old property. Considering the great benefit arising from the breaking up of Grass-land, in the employment of labourers, I should be inclined to look favourably upon such an improvement, and with great caution against fraud on the part of the tenant for life, to enable him in such a case to make the buildings necessarily arising out of the conversion of the land from pastoral to arable purposes.

"1364. Do you think that a great quantity of land now in pasture is not broken up, in consequence of the necessary expense incurred in erecting buildings?—I have no doubt of it; and it is a great check to the employment of agricultural labourers."

SIR C. M. BURRELL, Bart.—"1418. Do you think it

is a permanent improvement to have good buildings upon farms?—No doubt; in proof of that I have laid out a very large sum of money upon my estate, and I believe I may venture to say, without presumption, that no estate in the county of Sussex is in better order than mine with regard to buildings of all descriptions; it has been my pride as well as my satisfaction to do it. I wish to make the cottages and farmhouses as convenient and as comfortable as they ought to be, in a reasonable way. I have adopted a plan with regard to the drainage of cottages, which I find very beneficial indeed. Whenever I have to build a new cottage, or to take up the floor of an old cottage, I use broken stone and broken bricks, and make a drain from the fireplace directly through the room, and also across any room adjoining, to an outfall where the drain runs into it, and we find the cottages are made very dry by it, and very much more healthy. It is a thing of very trifling expense. I have mentioned it to architects two or three times, who have all thought it a very good thing, observing that they had never heard of it before, but should recommend it in future. Alluding to the question of the committee relative to good farm buildings and 'other permanent improvements,' I beg leave to offer to the consideration of the committee, that no greater improvement of entailed property would be attained than by the passing of an Act of Parliament for the purpose of enabling persons having life interests in entailed estates (with the consent in writing of the trustees or the majority of them) to convert timber (allowed by the testator to be cut for the purposes of the repairs of such estates) by sale into more substantial materials, as stone, brick, slates, tiles, iron, lead, cement, &c., instead of their being by the stringency of legal and literal construction forced to apply the timber itself in necessary repairs, an absurdity self-evident, when, as on most estates prevailing, houses and cottages, barns, cart-stables, and other farm buildings, originally built of stone or brick, require solid repairs by appropriate materials. Contrary, however, to common sense, and contrary to the benefit of entailed estates, and the essential interests of the heir, more especially than the owner for life, such are the prejudicial opinions of persons learned in the law. So that without some Act of Parliament giving a wider latitude, and at the same time a latitude of construction favourable to all parties interested in such entailed estates, no trustees will run the risk of sanctioning such conversion of timber, even with the consent of the next heir, for were he to die the future heir might call their decision in question. In stating this I disclaim any interest for myself, while I add that I have been subject to the hardship of this legal construction (though my son was consenting to the proposed conversion of timber); but having lived to put my wishes of permanent repairs, even to rebuilding or adding to farm-houses, into general execution, what I now say is for the benefit of other estate holders similarly situated; and I earnestly hope it will be deemed worthy of the consideration of the noble lords now sitting in committee, and may by their means lead to some beneficial enactment."

AGRICULTURE OF FORFARSHIRE.

IT is but a morning's ride from Edinburgh to Dundee, and, in a couple of years more, it will be a two hours' journey only; and yet at the back of the Dundee Law, improvement, during the past generation, has proceeded at as laggard a pace as in some more remote districts. There are some fine farms in the district, and some most skilful farmers; and if you were to go with me to Dundee market, I could pick you out 20 or 30 practical men, whom for knowledge and intelligence, and a desire to improve, ingrafted upon that rare and prudent temperament which makes every step they take a sure and safe one, you will not easily surpass in other parts of Scotland. And yet, in the neighbourhood of these men, improvement has been so slow, that even the example and stimulus of the commercial enterprise of Dundee has been unable to drain and subsoil the land from which its inhabitants draw the Potatoes and the milk for their daily consumption. I fancy it is incorrect to suppose that large commercial towns sweep into their own vortex all the enterprising spirits and spare capital of their neighbourhood, and embark them in the prevailing and popular line of commercial speculation, and yet facts are not wanting which would appear to support such an opinion. How otherwise can we explain why those neglected tracts of land we have so often seen in the neighbourhood of Glasgow are allowed still to groan under their perennial load of Rushes; that, while the merchants of Glasgow are lavishing their tens of thousands in draining the swamps of Demerara and Jamaica, the marshes around their native city should be permitted to shiver in primeval coldness?

But the drain is now beginning to score the slopes behind Dundee, and deep ploughing to bring new food within the reach of the plant. In the course of our walk, we went into one of the fields of an adjoining farm, where the tenant, a most industrious man, was himself holding the plough. We found the land in fine condition, and the plough turning it over to a depth of 10 or 12 inches, and I naturally praised his deep ploughing. "Aye, sir," he said, "the farm would hae just clean done me, gin I hadna deep-ploughed."

The thorough-draining now going on in this immediate neighbourhood, has been in a great measure either the actual work or consequence of the example of Sir John Ogilvie. We know it is but a few years since he became a farmer, and the way in which his attention was drawn to it shows how much good may be done, indirectly and by accident as it were—more correctly speaking, by the use of those various means of diffusing agricultural knowledge, which it is one of the main objects of the Agricultural Chemistry Association to promote. He was leaving Edinburgh one morning for home, when a friend put into his hand Mr. Smith of Deanston's pamphlet on draining, to amuse himself with by the way. He read it, and said, What could be done for his own land? On reaching home, he was waited upon by the tenant of one of his wettest farms, who wished either to give it up or to have a reduction of rent. He took the tenant at his word, allowed him to quit, and became a farmer himself. It was amusing, he told me, to see the shrugging of shoulders among some of the farmers he consulted, when he told them of his intention to drain what they were in the habit of considering dry land. But the perennial flow of water from the first drains he cut, and, above all, the striking fact that what were formerly the worst fields of the farms, gave, after draining, the best crops; these quickly satisfied the most intelligent and the most money-making of his neighbours, so that some of these are now doing quite as much, and doing it as efficiently, as himself. It is astonishing how much good may be done, without any great exertion and without any expenditure, which a skilful tenant will not afterwards readily make for himself, by the example and presence of a resident proprietor who really knows something of the principles of agriculture.

I was much interested by a visit we paid to the farm of Mr. W. Cobb, one of the largest farmers in this part of the valley. I found him draining a field which, a few years ago, he said they would have considered dry enough. His drains were 18 feet apart and 33 inches deep. From some remarks I had made in my lecture the preceding day, he said he should in future make their depth 3 feet, which, for stone drains, is sufficiently shallow. He does all his draining at his own cost—of course he has a 19 years' lease—and he reckons, as the Berwick and Roxburgh farmers have told me, that his whole outlay is repaid by the increased produce in two or three years. The subsoil-plough is here, as it ought ever to be, the follower of the drain. Mr. Cobb has found the difference it produces upon his Potatoes so great, that he proposes to subsoil his land every rotation. He is at present altering his ploughs, that he may be able, in going over his land again, to plough 3 inches deeper than before, making 20 inches in all. How can our Ayrshire friends ever get to this stage of improvement while the bottoms of their drains are little more than 20 in. from the surface? A well-known farmer in this district, Mr. Drummond, of Craigie, remarked to me that the land in this county is not half ploughed with the common plough; I believe the same may be said of much of the land of Ayrshire.

The system of farming here is peculiar when compared with that of the country in general. It resembles, however, in many respects, that which is practised in the neighbourhood of Glasgow, Paisley, Edinburgh, and others of our large towns, where markets are constant and easily accessible, and from which manure in any quantity may readily be procured. Everything is sold off the field as it stands. The Potatoes and Turnips to the dealers and cowfeeders of Dundee, and the standing corn, more or less entirely, to jobbers. The seller is bound to cart the produce to Dundee, but his teams generally bring back manure. A quicker return of his expenditure is thus made to the farmer, and, by selling in small lots to suit his customers, a price is obtained for the green crops which by many is considered quite equivalent to the profit which might be made by using them on the farm in fattening stock. It is a drawback to the system that, at this season of the year, when the land is preparing for the seed, the Turnips are sometimes still on the ground into which the farmer would like to send his ploughs, and that, when busy at other work, his horses are often called from the field to take produce into Dundee. This, however, is partly counterbalanced by the less degree of exhaustion produced by those Turnips which are longest left in the ground. Those which are carried away early in the season, and in full leaf, exhaust the land more than those which remain the whole winter through. During the cold months, they shed their leaves, and the early second growth of spring is chiefly at the expense of the Turnip itself.

The rotation followed on the Baldovan home-farm, as well as on that of Mr. Cobb, is in sevens thus:—1°, Oats; 2°, Oats, half or two-third dunged; 3°, Potatoes, with 20 loads of dung; 4°, Wheat, half dunged; 5°, Turnips, heavily manured; 6°, Barley, half dunged; 7°, seeds one year. Sometimes the second crop of Oats is omitted, in which case the rotation is in sixes. Many good farmers agree as to the propriety of taking two crops of Oats after the Clover hay, and, no doubt, where the sods are very tough, or the straw of the first Oats very rank, the practice may be the most suitable to the circumstances. It is doubtful, however, whether, after one year's Clover, the practice can be generally recommended or defended. The singularity in the above rotation, you will observe, is, that besides the manure added to the green crop, every corn crop is half dunged. Perhaps this practice, which is demanded by the land for the purpose of restoring what is sold off, may also, in a certain degree, justify the second crop of Oats.

Were I writing on this subject as a mere theorist, I might say that any course of rotation might be followed, and any crops taken which the farmer chose, and in any order of succession, provided the substances which the crops carry off from the land are faithfully restored to it. This is a favourite doctrine at present among some agricultural theorists. But the study of practical farming has taught me that this kind of closet cultivation would not produce good returns on all our soils. The mechanics of agriculture are almost as essential to the management of the soil as the chemistry of agriculture; and it is because the former is not understood in our laboratories, that the confident announcements of the mere chemist have hitherto been so frequently at variance with the practical experience of the money-making farmer. The natural habits of the plant we seek to grow have also much to do with the mode of culture. A minute knowledge of varieties, even of the same plant, is often a very important element in successful farming. Thus Mr. Cobb takes for his first crop the early Potato-oat, which he sells off the land at 10*l.* to 12*l.* per imperial acre, being bound, however, to thresh and cart the produce to Dundee; but for his second crop he takes the common Angus-oat, which he keeps for his horses. His reason for this is, that besides the greater value of the latter variety for his horses, the two varieties grow better, and give better crops in succession than could be obtained by two crops of either variety alone. Our chemistry is not yet refined enough, that is to say, we have not as yet made the necessary analytical researches, to enable us to do more than merely offer conjectures as to the cause of such differences as this.

As facts in agricultural statistics, it is proper to state that Mr. Cobb purchases his manure at 4*s* per ton, and that the Wheat crops on his well-cultivated farm average 32 bushels per imperial acre, and that the average rent of the land which yields these crops is about 2*l.* 10*s.* per imperial acre. I may here make one observation in regard to the economics of artificial manufactured or imported manures in a district such as this. It is of importance in reference to the manures which are produced and worse than wasted in all our large towns.

The farmers in the immediate neighbourhood of our large towns sell nearly all their produce and buy nearly all their manure. They are thus at liberty to buy and to use that kind of manure which is at once the cheapest and the best. They have hitherto drawn much of this supply from the adjacent towns; because there they could alone obtain it. But the importer and the manufacturer now come into the manure-market and offer them better and more portable substances for enriching their land. One of two consequences will necessarily follow from this. Either the stablers, cowfeeders, and police-boards, who have natural manures to sell, will be driven out of the market, or else they must reduce the price and improve the quality of their commodity. They have science and commercial enterprise to compete with in an open market, and one or other of these consequences must follow. You know how great a reduction is stated to have already taken place in the revenue drawn from the Edinburgh police dung; and I fear it will be very difficult indeed to prevent further reductions from taking place.

Some sanguine persons are hastily asserting that the time will come when all our manures, used for every crop, will be prepared in manufactories and bought by the farmer as regularly as he buys his tea and sugar. This implies that all natural manures are to be wasted, and the management of dung-heaps to be more neglected in future times than it has been during the past. But no such thing will happen. They will be saved, husbanded, and improved in quality more than they have ever hitherto been; because their value to the land will be more clearly and generally seen. What chemistry will accomplish in regard to manures is clear and definite.

1°. It will cheapen, improve the quality, and increase the quantity of the manure collected and sold in towns. In some places it will drive it out of the market altogether.

2°. In rural districts it will supply the deficiency of home-made manure, and will provide what will gradually come to be considered a necessary and paying addition to the other manures hitherto added to the land.

Both of these consequences are important in a national point of view—since,

a. They will lessen the expense of farming in the neighbourhood of large towns, while they will increase the produce, and, consequently, the profit of the farmer.

b. They will increase the produce in the rural districts also, and, by this means, render the art of culture more profitable to the country farmer.

"I have used these chemical manures for the last five years," said a farmer to me who lives about 10 miles from Dundee, "and I have every year sold 250*l.* worth more produce in the markets." If half our farmers would increase their produce in a similar manner, do you think we should eat any more foreign corn? I must defer my further remarks to a future letter.—*By Professor Johnston, in the Quarterly Journal of Agriculture.*

Home Correspondence.

Potter's Guano.—Two years since I sent you a brief account of an experiment I was making with Potter's guano; I informed you that I had in a field of Wheat sown one acre with 2 cwt. of this guano and that it had very much improved my crop in that part of my field; decidedly improved it, the plant being much stronger and thicker during its whole growth. It was my intention, also, after harvest to have sent you the difference in quantity of corn between that acre and the next adjoining it, but it so happened that I was on the Continent at the time the corn was cut and carted home,

and consequently it was not kept so separate as it ought to have been for an experiment, but the men who cut it and carted it told me that the crop was by far the best where the guano was put on, and that the sheaves were considerably heavier than the others. The experiment, therefore, satisfied me entirely that this guano was well adapted to improve my land; but what I wish to draw your attention to, and that of the public in general, is the subsequent benefit that has resulted from this dressing. When I put it on I concluded that its virtues, be they what they would, would have been exhausted, or nearly so, by the first crop, as I had heard was the case with real guano, but last year the same field was of Beans, and I was agreeably surprised to find, that the acre on which this guano had been put the year before, took the lead of all the other part of the field, kept it during the whole season, and the crop at harvest was marked, and decidedly the best—all who saw it allowed that it was decidedly the best. But what has astonished me the most, and also all my sceptical agricultural neighbours, who judge of manures chiefly by their bulk, has been this—my field is again of Wheat this year, and to my agreeable surprise, the part on which this dressing was put in the autumn of 1843, stood the last long winter much better than any of the rest of the field, took the lead in the spring, became much thicker as the summer advanced, kept cleaner from weeds, rose from four to six inches higher than the rest, came into full ear nearly a week first, and in the opinion of all who have seen it, the yield will be more than one-fourth, if not full one-third more than that of any other acre of the field. This, therefore, has been a fair experiment, and it proves decidedly and convincingly the benefit to be obtained by agriculturists from the use of this dressing. All my neighbours, who were at first very sceptical, now fully admit its benefit. I take them into the field and say to them, Gentlemen, you see to a foot where I put on the guano; you see the crop of Wheat higher, thicker, and cleaner than the remaining part of the field; I have done nothing to the field since the guano was put on, nothing except having given the whole a very slight dressing of manure after my crop of Wheat was taken off in 1843; since then it has been cropped with Beans, and now again with Wheat, and, Gentlemen, you see the result, and if the guano has not produced it, explain to me what has. However unbelieving before, every one who has viewed the crop as it now stands, admits that it has been improved to the extent I have stated by this dressing alone. At harvest I will keep the crop on that acre separate from the rest, and when threshed I will send you the result, which I have no doubt will prove to be from one-fourth to one-third more per acre than the rest of the field. I am also trying the real guano, but for my land I am fully satisfied that the artificial is by far the best.—*Geo. Wilkins, Wix Parsonage.*

Poultry.—In a late Number I saw bread and milk was said to be good for fattening fowls: if skim milk is given to them instead of water to drink, they will get fat much faster, and be much whiter.—*U. U.*

Mountain Flax.—I have got a field full of Mountain Flax. I cannot well plough it up. Will you have the goodness to inform me what I can do with it? I was thinking of harrowing it heavily in October, and applying either salt or lime on it; then in the spring of harrowing it again, putting a good compost on it, and plenty of fresh hay-seeds. My cows have lost their milk since they have been in that field.—*J. B. H.* [We don't think you can do better.]

What Makes a Plant Run to Seed?—I very much rejoice to observe, by the question asked respecting the flowering of plants, in your Paper of last week, that others, besides myself, feel that the leading principles of cultivation must be the same in all countries and climes. Differences in detail must, no doubt, constantly arise, but principles must be universal. I ought to apologise, perhaps, for intruding upon you, because I must confess my inability to say positively what will prevent plants, cultivated for their bulk and juices, from flowering, but this I think I may affirm with the expectation of being upheld by men of science, that to grow plants under the heats of the tropics with only a few inches of soil stirred on the surface, however deep the natural soil thus converted into a subsoil may be; to confine their roots, not only in depth, but in extent, by surrounding them with unstirred, and consequently impenetrable banks on all sides; to keep the surface of the land so hard and unbroken as to cause it to throw off by open water courses the greater portion of the rains which fall, and preventing accumulation of moisture below by infiltration for the supply of plants which should be growing in dry weather. All these things, I say, must cause the plants so situated to come to a premature maturity, and thus to pursue their natural bent of flowering instead of accumulating juices, the object of the sugar-planter. I need not observe that the skilful gardener, say Mr. Wood, reverses all things exactly in growing his fine specimens in pots, by which means he keeps his plants growing in a luxuriant state almost as long as he pleases, and then when his large pot is full of roots he allows the plant to exhibit its maturity by flowering, which it does in proportion to its previous luxuriance. In very many cases, however, the Cane is grown in a square hole 4 feet each way, the sides of which are unbroken for years, and the bottom only stirred in digging out the old root, must not the consequence be that the hole becomes filled with the roots of a plant consisting, perhaps, of a dozen Canes, each as many feet in height, and full of juice; that as soon as this takes place the growth of the plant is stopped, and ripening, with flowering, be produced? If so, is not the system of deep cultivation, in all its completeness, that which is most likely to meet this most serious evil? Of course I cannot say what is the cause of the Cabbages mentioned in your Paper having flowered too much and too soon; but if they had been sown in a shallow, or rather say a dry and imperfectly-tilled soil, would not they have thus flowered sooner than the same seed sown in a deep well-tilled soil?—*P.* P.S.—Probably no plant grown requires so much skill in cultivation as the Sugar-cane. 1st. It is to be grown as succulent as possible; 2d, the starch of its juice is to be converted into sugar in the growing plant; and 3d, this sugar is to be extracted as nearly at that moment as possible. Thus, a malting process must be carried on in the growing plant; does not this require great skill?

On the advantages of Light Ploughing gravelly soils for Barley after Turnips.—Having in my occupation a light gravelly soil of about 7 acres that never produced a full crop of grain, I was induced last spring to try the experiment of skim-ploughing the same after the Turnips were eaten off by the sheep, instead of the old-fashioned plan of turning the furrows over with the common plough. Immediately the Turnips were consumed, I dressed the surface with about 60 bushels of lime and 6 bushels of salt per acre, then turned it up loosely with a three-furrow skim-plough. Afterwards it was harrowed with a heavy pair of drags, which thoroughly mixed the lime with the sheep-dung, and produced a fine seed-bed. The Barley came up exceedingly strong, and the plants were very luxuriant; and whilst the Barley on the other parts of the field looked sickly and unhealthy, from the cold weather in the spring, this grew away and flourished amazingly. The Barley came into ear earlier than any other, and the length of the ear and strength of the straw surpasses any that ever grew on the same piece of land. Besides, the saving in labour is immense, as a man and boy with a skim-plough will readily turn over from 2½ to 3 acres per day. One ploughing is sufficient, and the seed being deposited amongst the sheep droppings and urine must be better than when the same is 2 or 3 inches above it. Some may object to the plan, thinking the smaller weeds would not be so effectually destroyed as by turning the furrow over; but such is not the case, for the land skimmed had less weeds amongst the Barley than where the ground was ploughed. Others may say this is no new plan, for it has been usual to skim the clay soils for the last 50 years for Barley. Admitted, but not so with the gravelly soils, which have been, and are, invariably ploughed; and so great has been the prejudice against skimming this description of land, that I only dared try the experiment on a few acres, by way of ascertaining whether or not it was practicable to adopt it. I am now so fully convinced that far better crops of Barley and Spring Wheat may be obtained by this method, that I cannot too much recommend it.—*H. Hudson, jun., Wick.*

Rick Covers.—I should feel much obliged if yourself or some of your numerous readers would give a cheap receipt for making rick covers and tents waterproof. I have lately bought one made of a sort of bed ticking, which was recommended to me as effectual for keeping out wet when placed in a slanting direction, similar to the roof of a house; but I find the wet does get through sufficient to drop freely at different parts in a heavy shower. Do you know whether one could be made to answer both purposes, viz., for a rick cover and tent, [Doubtless it could: see B. Edgington's advertisement.] as these articles come high, and such a transformation, if possible, would induce many to buy who do not.—*An Amateur Farmer.*

Flax.—I wish to ask Mr. Dickson through you how persons who wish to learn how to cultivate Flax may obtain the necessary information; whether there are any persons who would, for a sum of money to be named, undertake to give instruction in the growth of it.—We have bad hay weather; crops average; corn looking well, but inclined to lodge; root crops good also, especially Potatoes—those manured with best Peruvian guano, 5 cwt. per acre, look a good colour and strong, although they do not stand so high from the ground as those manured with yard dung.—*A Constant Sub, Bristol.* [Regarding gas liquor, about which you ask, it is a liquid containing in variable proportions the carbonate and acetate of ammonia in solution; and when applied as a manure it is found to produce the usual effects of ammoniacal manures—deepening the green colour of plants, and increasing the luxuriance of their growth. It is usually disposed of to parties who extract the ammonia for sale. At some works it is still wasted.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

ANNUAL MEETING AT SHREWSBURY.

A VERY accurate distinction is drawn in the following passage, by the writer on the Progress of Scientific Agriculture in the "Edinburgh Review," of January, 1845, between our national societies. He says, "the Irish, English, and Scottish national agricultural societies are as the circumstances of each country direct, following different main lines of improvement. Besides the bettering of the breeds of stock, which all encourage perhaps in too great a proportionate degree. The Irish Society is planting auxiliaries in the provinces—fixing centres, as it were, from which her future operations in each county may begin—is drawing attention to the drainage and improvement of bogs, and is diffusing among the peasant farmers of Ireland the elements of a better husbandry. The force of the English Society has hitherto been more especially expended, and certainly with great success, upon the mechanics of the art—on the improvement of the implements by which the stubborn clays of the country may be hereafter thoroughly subdued—and in collecting information as to what has already been done in different parts of England, with the view of discovering what she may herself most usefully endeavour to accomplish. This is consistent with English prudence, and full of future promise." The exhibition of implements at Shrewsbury fully bears out this statement. There was not such a number shown as was exhibited last year at Southampton, as indeed was to be expected from the want of railway communication; but the exhibition fully kept up the character of our Society as a patron more especially of *the mechanics* of agriculture.

It is impossible to mention one-tenth of the implements exhibited in the yard; and therefore, taking the reader with us round the stands in the order in which they are arranged in the Catalogue, we shall just point out to him a few of those which are the most worthy of notice.

The first implement, in the first stand, is a Chaff-cutter, by Mr. JOYNER, of Aveley-hall, Romford, Essex. The knives of chaff-cutting machines consist commonly of short and slightly curved blades, attached to the arm of the fly-wheel near to the axis; so that when they are brought round by the revolution of the wheel upon the straw, or other substance supplied by the feeding rollers, they operate upon it with a sort of chopping action, which not only prevents their cutting well, but causes a shaking of the machine, which puts it soon out of proper working order. In this implement, the knives are made of a scythe-like form and much longer than usual, and are attached to the fly-wheel so near its periphery, and at such a distance from the axis, as well as in such positions in regard to the feeding rollers, that they come down upon the straw, or other substance to be cut, with a long sweep and continuous shearing action, whereby the machine is said to perform not only a greater quantity of work in a given time, but at much less cost in point of wear and tear.

In stand No. 3, Mr. BEART, of Godmanchester, Huntingdon, exhibited a Tile-making Machine. This implement, which acts on the now common principle of forcing the prepared clay through dies of various forms, is of course capable of making tiles of any form; but, as we saw it at work, they issued from it in the form of a small ridge-tile, about 1 inch deep, two of these placed one reversed under another form a pipe of a quadrangular section, and the parts of which it was composed were held together by the ribbed form of the surfaces in contact. One fault of pipe-tiles is their assumed liability to shift in their beds, and so to break the continuity of the drain: the pipes thus formed by Mr. Beart, stand no chance of this evil, for each of the upper parts being placed over the junction of those below it, the whole arrangement is held together. Mr. Beart's machine was one of those selected by the judges for future trial.

The next implement to be mentioned is Mr. NEWBERRY'S Horse Seed-dibbling Machine, which is now well known. A prize of 15*l.* has been awarded for it. It consists of a series of wheels, each dibbling a separate row; and the construction of which may, perhaps, be understood from the following explanation: Imagine a wheel whose spokes project 3 or 4 inches beyond its rim—if such a wheel were rolled along the ground it would dibble holes in a row as it went. The box and spokes of this wheel are hollow, and each spoke is divided longitudinally into two halves, one of which is fixed and the other is moveable, its surface, where the spoke is divided, sliding over that of the other. Imagine that, by an arrangement acting in connection with the motion of the wheel itself, the moveable half of each spoke, as soon as the latter had dibbled its hole, should be lifted an inch; the end of the tube down the middle of that spoke would thus be opened, and any seed in it would drop into the hole just formed. This is the mode in which the implement acts, a feeding arrangement for placing two or three seeds in each spoke before it acts as a dibble being attached to the parts just described. The price of the five-rowed dibbler is 60*l.*

At stand 13 an extensive model of farm buildings was exhibited by Mr. M'NEILL, of Bunhill-row, London, exhibiting the mode of applying his patent asphalted Felt Roofing. The following is his statement of the expense of a roof covered thus compared with one of slate. Cost of timber for a roof 40 feet long and 25 feet wide, including the boarding, patent felt, putting on, &c.,; the roof to have gable end brickwork:—

	£	s.	d.
6 Principal backs, 14½ ft., 6 by 2½, 9¾ cube, at 2*s.* 9*d.*	1	6	1
3 Cross beams, 18 feet, 5 by 2½, 5 cube, 2*s.* 9*d.*	0	13	9
Ridge piece, 40 feet, 4 by 1½	0	5	6
24 Purlins, 10 feet, 4½ by 2 inches, 15 cube, 2*s.* 9*d.*	2	1	3
1250 Square feet of 5-8 boarding, 1½*d.* per foot	7	16	3
1250 Square feet of felt, and laying, 1½*d.* per foot	7	16	3
	£19	19	1

Cost of timber, &c., for a roof 40 feet long, 25 feet wide, for slating, including slating, &c.:—

	£	s.	d.
3 Cross beams, 25 feet, 7 by 4, 14 feet cube	1	19	4½
6 Principal backs, 15 feet, 6 by 4, 14½ feet cube	1	19	4½
3 King posts, 8 feet 6, 7 by 4, 5 feet cube	0	13	9
Ridge piece, 40 feet, 1½ by 4	0	5	6
8 Purlins, 10 feet, 6 by 3, 10 feet cube	1	7	6
6 Shuts, 4 inches square, 7 feet long, 4 feet cube	0	11	0
56 Rafters, 16 feet, 4 by 2½, 62 feet cube	8	10	6
1350 Feet run of lathing, at ½*d.*	2	16	3
14 Square of slating, at 25*s.*	17	14	0
Iron work	1	0	0
	£36	17	8

In stand 14 a Horse Tile-machine was exhibited by Mr ETHERIDGE, of 15, Park-street, Westminster. "This machine consists of a pugmill and cylinders attached,

with receivers and cutting apparatus underneath. The principal advantage is preparing the clay and moulding the tiles at the same operation, several of which are extended from one die, so that the boy employed to take them away removes more than one at a time. No other machine can from one orifice mould more than one pipe or tile without infringement on this patent. Price 35*l.* to 50*l.*"

At stand 15, Mr. ROBINSON, Lisburn, co. Antrim, exhibited his Churn which has been highly spoken of. "The churn is of an oblong or oval form, divided into two unequal parts, lengthways, by a partition. In the largest division, the blades or flyers are placed, less than one-half immersed in the milk or cream, and covered over similar to the paddle and box of a steam-boat. The other, or smaller division, is open or uncovered, and in which is placed a sluice, as hereafter described. By turning the handle or fly-wheel, the blades or flyers are put in motion, which, acting on the cream, sends it round and round the churn in a continuous and rapid stream, the partition before mentioned being so contrived that it admits the cream to pass round in a current, so that every particle is successively and repeatedly beaten or churned by the flyers. In much less time than is required by other machines, the cream is broken, and butter formed; and, by a very simple and effective contrivance, the butter is prevented from passing again under the flyers, by means of the sluice, which being pushed half way or so into the fluid, the butter, as it floats, is stopped, and easily collected: by this arrangement, the milk is completely gleaned of every particle of butter, and the produce is thereby increased at least at the rate of half-a-pound to 24 gallons of milk—a quantity sufficient, in a short time, to pay the expense of the machine, independent of the superior quality and saving of labour. On the latter point, this object is fully attained, by the construction of the blades, and their position with respect to the fluid, being less than half immersed in it, so that when the cream is once in motion it is easily kept up. Another advantage arising from this arrangement is, that the spindle being above the level of the fluid, a tight joint is not necessary; the friction is, therefore, greatly lessened. Price 3*l.* 10*s.*"

At stand 17, Mr. CROSSKILL, of Beverley, exhibited his valuable Clod-crusher, to which we shall shortly have an opportunity of particularly directing the attention of our readers. At the next stand, Mr. GILLETT, of Brailes, near Shipston-on-Stour exhibited the Gillotine Chaff-cutter, invented by Messrs. Ward and Colborne, of Stratford-on-Avon, which we described somewhat particularly in our report of the Southampton meeting, last year. Though possibly, not the most economical mode of applying power for this purpose, it is an elegant and cheap implement, and we think the best that could be named for the stables of a gentleman where only two or three horses are kept. Messrs. GILLETT also exhibited their Rick Ventilator. This machine is a cylinder, about 2 feet long, and 7 inches in circumference, with a projecting knife on each side, and a screw down the centre, and bars attached; by which a chimney is cut down the middle of any hay or Corn rick, when suspected of being too much heated. Price 3*l.* 3*s.*

Mr. HATCHER'S Bennenden Tile-machine was exhibited at stand No. 28. (Messrs. Cottam and Hallen.) The clay of which its tiles are made is placed in one of the cylinders (of which there are two sent with each machine); this is then placed on the machine, which, by means of a piston, forces the clay out on to the travelling cloth, in any shape or size of tile required. The tiles are then removed by the boys, with an apparatus for the purpose, by which they are cut off square, and laid on the shelves without being touched by the hands; thus retaining their perfect shape. There is a strainer in the cylinder, by which any stones or other substances too large to pass the die, are taken out of the clay while the machine is in full operation. The machine is perfectly portable, on four wheels, and can be moved up and down the sheds—thus economising much time in shelving the tiles; it is so simple in its construction, as to require but little practice in its use; its requires but few hands, viz., one man to fill and change the cylinders, another to force down the piston, by turning the winch handle, and two boys with the cutting off apparatus, to take off and deposit the tiles. With this amount of labour the daily product is as follows:—

Diameter of tiles.	Number that can be made in a day of 10 hours.
1 in.	11,000
1½ in.	8,000
1¾ in.	5,800
2 in.	4,000
2½ in.	3,200

Price 25*l.*, including patent dues and license.

At stand 29 (Messrs. Colborne and Ward, Stratford-on-Avon), there was a chaff-engine, exhibiting a very ingenious method of stopping the feed during the operation of cutting.

Mr. CORNS, of Barbridge, near Nantwich, at stand 38, exhibited his chaff-cutting machine, with three knives, to be worked by two men, or machinery—price 10*l.* This implement, we were informed, had been in use 35 years, and it received the prize for the best of its class; so that, assuming the accuracy of the award, it does not say much for the progress of improvement in this particular. It possesses the merit of simplicity, and its action is not continuous, but of the intermittent character of most machines of its class.

At stand No. 39, Mr. CROGGON, of 2, Ingram-court, Fenchurch-street, London, exhibited his patent asphalte felt, composed of hemp and hair, entirely saturated with asphalte, without any admixture of pitch, tar, or resin; price 1*d.* per square foot. A model of a moveable sheep-fold was also exhibited at this stand. At No. 40, a Norwegian clod-crusher, was exhibited by Mr. FRERE, of E. Claremont-street, Edinburgh, manufactured by Mr. Stratton, of Bristol. It consisted of three or four rows of revolving spiked axles, placed so near one another as that one row hindered the earthing up of that next it. It would, probably, be an efficient implement on dry cloddy ground. It received a prize of 10*l.*

At stand 45, the Earl of DUCIE exhibited a one-horse cart, which obtained a medal at the meeting at Southampton. It possesses the advantage of an easy way of adjusting the load when descending hills. This is done by a rack and pinion, so that the load is quite under the control of the driver, either for this purpose or for tipping out the load. The pinion is acted upon by a handle, and by means of a catch or stop the load is kept fast at any required angle. This cart has a wrought-iron tank made to fit into the body, which holds a cubic yard of liquid manure, so that it can be used as a liquid manure-cart when wanted for that purpose. Price 16*l.* 10*s.*, without tank; 26*l.* 10*s.*, with tank. It received a prize of 5*l.*

Mr. CLYBURN, manager of Lord Ducie's works, exhibited his well-known Dynamometer at this stand. He also exhibited his patent Threshing-machine at work. This machine consists of a revolving cone or beater enclosed in an outer fixed concave case; the outer case is open work: the corn is fed in at the smaller end of the concave case, and (by the difference in the velocity between the large and small end of the revolving cone or beater) the straw is carried rapidly to the larger end and discharged. The grain as it is separated from the ear is thrown through the trellis or open work, so that a complete separation takes place. The wind caused by the revolution of the beater is brought to operate upon the threshed grain, and blows out the greater portion of chaff: thus, at one operation, the threshing and first winnowing is performed. The machine is driven with an improved horse-power, and is portable; it consists of an iron frame, which carries all the wheel-work, and the starts are fastened into recesses made for that purpose upon an internal iron tooth-wheel, which prevents any unnatural stress upon the spindle or any part of the frame. As a proof of its correctness when at work, it makes no noise; the threshing part can be driven by horse, steam, or any other power. This machine has had several improvements made in it since last year, one of which is an improved shaker, which completely separates the corn from the straw. Price: Threshing-machine, 80*l.*; shaker, 35*l.*

This threshing-machine as it was at work in the yard had Mr. Clyburn's winnowing machine attached to it, and the corn was delivered from it very clean. The fan or blower of this winnower is about 3 feet diameter at its greatest radius, and 2 ft. 6 in. at the smallest, with the fans 4½ inches wide, and placed at an angle of forty-five degrees; so that when put in motion the wind enters at the smallest side and is driven out at the largest, filling a space or chamber 3 feet square with wind. The riddle is placed in the middle of the chamber with a vibrating motion, having a small hopper underneath it, which moves with it, the large hopper and feed roller being at the top of the wind chamber. As the grain with the chaff in it drops from the feed-roller to the riddle, it meets with the wind from the upper side of the fan, which blows out the chaff before it gets on to the riddle. The grain after passing through the riddle is concentrated together in the small hopper that moves with the riddle: when it leaves the hopper, it meets with the wind from the lower side of the fan, which drives the light grain farthest from it into a spout provided for that purpose, leaving the heaviest and best to fall down upon a screen which separates from it any seed that may be left. One of the great improvements in this machine is making the fan of such a form that it will give a greater degree of wind for the grain to fall through than in other machines: another great improvement is its having one of Hornsby's registered feeding apparatuses attached to it. Price: with Hornsby's feeder, 17*l.*; without ditto, 15*l.*

The Earl of DUCIE also exhibited his well-known Uley Cultivator, to which the prize was again awarded for the best of its kind.

Mr. HORNSBY, of Spittlegate, Grantham, exhibited his Implements at stand 46. Among them were a two-row Drill Presser, to drill corn and bones, or any other pulverised manure, with coulters to conduct the seed and manure to the ground; also fitted with an extra coulter to drill both sides, the last furrow to finish the land; for which the prize of 10*l.* and a Silver Medal was awarded at the meeting of the Royal Agricultural Society of England, held at Southampton, July, 1844. Price, 14*l.* 10*s.* This obtained a prize of 10*l.* A prize of 3*l.* was also awarded to Mr. Hornsby for his Oil-cake Breaker, and his Drilling Machines, both for Turnips, and for general purposes, were selected by the judges for further trial.

At stand 47 (Mr. HILL, of Brierly-hill Iron Works, Dudley), Mason's Plough, with its attached knives for cutting the furrow-slice as it leaves the plough, was exhibited. This implement received an extra prize of 10*l.* at the Bristol Meeting of this Society in 1842; and from the trial it there was subjected to, the judges' report upon it was as follows: "The appearance given to the surface of the ploughed land by the action of the pulverizing knives was that of a well-harrowed field, the soil being left loose and pulverized nearly to the depth turned up. The judges are of opinion that the soil operated upon was as well pulverized by this single process, and to as great a depth, as if first ploughed and then harrowed." Price, 4*l.* 4*s.* At the next stand, Messrs. WEDLAKE and THOMPSON, of Hornchurch, received a prize of 3*l.* for their Hay Tedding Machine.

At stand 50, Mr. VIAGO, of Penzance, exhibited his Seed Planter. It consists of six pressing-wheels and three carrying-wheels; it will, with great dispatch, deposit any kind of grain or seed, at any required regular depth, at any distances, in any number of grains, with the same uniformity as if done by dibbling. It also possesses the advantage of covering the seed at the same time. The price varies with the size: six rows, 27*l.* The principle on which it acts differs, as far as we know, from that of any other machine of the kind. The seed is contained in a box, having a double bottom of sheet metal, one fixed, and the other moveable—sliding over the first. Both of these are pierced with holes, but it is only when the holes of both coincide, that the seed can escape; and it is upon the regular recurrence of these coincidences that the regularity of the sowing depends; and it is upon the length of interval occurring between these coincidences that the thickness of sowing depends.

Messrs. HOWARD, of Bedford, exhibited their excellent patent 4-beam iron Harrows, at stand No. 51. At the next stand, Mr. CAMBRIDGE, of Devizes, exhibited a four-horse portable steam engine, and received a prize of 5*l.* At stand 54 (Mr. BAILEY DENTON, of Gray's-inn, London), Mr. Charnock's Drain-pipe and Tile-machine was exhibited; and Mr. Denton's well-known "A" Level, which has been already described in our Paper. Near this Mr. DEAN, of Birmingham, exhibited a very simple and excellently constructed 4-horse power steam-engine, for which a prize of 10*l.* was awarded.

At stand 60, Messrs. GARRETT, of Leiston Works, exhibited a great number, and variety of Drilling-machines, Chaff-cutters, &c.

Mr. GRANT (Stamford) exhibited at stand 61, among other things, his excellent Horse-rake. Next this stood Lowcock's patent one-way Plough, manufactured by Messrs. Ransome, to which we referred in our report of the Southampton meeting. A prize of 5*l.* was awarded for this implement. Mr. RICHMOND'S (Salford) Steaming Apparatus stood near this; it received a prize of 5*l.* It includes an exceedingly simple arrangement for emptying the steamed food after it has been prepared. Price 6*l.* 10*s.* to 12*l.*

The prize for the best Turnip-cutter was awarded to Messrs. PHILIPPS, of Bristol. The sample of work produced by this machine is almost entirely free from small chippings, and entirely free from the unslit pieces which all other Turnip cutters leave at the finishing cut of each Turnip, consequently it obviates the great waste that results from these imperfections. It is adapted to cut for all kinds of cattle, the adjustments to alter the size of the pieces of Turnip being almost instantaneous. It cuts with great ease: persons who have used it for two seasons assert that a lad will cut 3 bushels per minute with ease. Price 5*l.*

The prize for the best set of Harrows was awarded to Messrs. SANDERS, WILLIAMS, and Co., of Bedford, who had their stand near this.

A Tile-machine, by Mr. SCRAGGS, of Calveley, Chester, exhibited in stand 70, was one of the three selected for further trial. Mr. SMYTH, of Yoxford, Suffolk, exhibited a great variety of Turnip and Corn-drills. At stand 74, Mr. SPENCER, of Hopton, near Worksworth, exhibited his large Chaff-cutter, for one or two men, and for horse or engine power. The peculiar advantages of this machine consist in its having a short connecting-frame, to increase the power and dispatch of the other, which is of itself a complete chaff-cutter on a long approved and very superior principle. When united, provision is made for two men to turn and one to feed; and the quantity that may thus be cut will challenge competition with any other. Price 10*l.* 10*s.* It received a prize of 5*l.*

Some beautifully executed Churns, of the old vertical form, were exhibited by Mr. WOOD, of Knutsford, Cheshire; these implements were admirably put out of hand.—Mr. READ, of Regent's Circus, Piccadilly, exhibited his simple Subsoil Pulveriser at stand 81, and received a premium of 10*l.* for it.

Messrs. STACE and VALLANCE, of Lewes, exhibited, in the field near the Implement-yard, their method of applying Wind-power to the Ploughing and Cultivating of Land. It consists of two horizontal wind-mills, placed at any distance apart, working an endless rope, by which ploughs or other agricultural implements may be drawn; with blocks, &c., to adjust the rope. The vanes of the mills are about 15 feet high, and, in revolving, describe a circle of about 36 feet in diameter. Price 50*l.* The inapplicability of so variable a power to such a purpose is obvious. The novelty of the spectacle attracted great crowds of people; and the wind happened to be sufficiently high to be effective.—In the trial-field, near the yard, there were also several ploughs, harrows, &c., at work, among which we observed the Norwegian clod-crusher or harrow; it appears to us to merit the former title far more justly than the latter, and on dry, cloddy land would probably prove an efficient implement. The trial-field was not nearly so attractive on this occasion as at Southampton.

In the above hurried account of the Exhibition of the Implements, we have doubtless omitted mentioning many worthy of note; some of them we may probably

refer to more particularly next week. In the meantime we have only to add the award of the judges :—

Amount of Award.	Name.	Implement.
10l.	The Earl Ducie	Cley Cultivator
10l.	Mr. John Corns	Chaff Cutter
5l.	Messrs. Saunders, Williams, & Taylor	Harrow
10l.	Mr. Richard Hornsby	Drill Presser to Deposit Manure
5l.	Mr. Richmond	Churn
10l.	Mr. James	Weighing Machine
5l.	Mr. Richmond	Steam Apparatus
5l.	Mr. Lowcock	One Way Plough
5l.	Mr. Bruce	Paring Plough
10l.	Mr. John Read	Subsoil Pulverizer
10l.	Mr. Crosskill	Clod Crusher
15l.	Mr. Newberry	Horse Seed Dibbler
10l.	Mr. Dean	Linseed Crusher
10l.	Mr. Hill	Moveable Sheepfold
10l.	Mr. George Frere	Norwegian Harrow
10l.	Mr. Viazo	Seed Planter
2l.	Mrs. Carmell	Weighing Machine
2l.	Earl Ducie	Corn Crusher
2l.	Mr. Harkes	Horse-hoe
Silver Medal	Mr. Pickon	Horse-hoe
5l.	Earl Ducie	Cart for general purposes
2l.	Mr. Crosskill	Improved one-horse Cart
Medal	Mr. Bentall	Hand Seed Dropper
5l.	Mr. Read	Fire Engine
5l.	Mr. Hornsby	Oil-cake Breaker
10l.	Mr. Sunday	Winnowing Machine
5l.	Mr. Phillips	Turnip Cutter
5l.	Mr. Spencer	Chaff Cutter
3l.	Wedlake and Thompson	Haymaking Machine
5l.	Lieut. Vibert	Compound Lever Power
10l.	Earl Ducie	Thrashing and Dressing Machine
10l.	Mr. Dean	Steam Engine
5l.	Mr. Cambridge	Steam Engine
2l.	Mr. Hill	Granary Crane
Silver Medal	Mr. Hill	General exhibition of Gates, Hurdles, Cribs, &c.
Silver Medal	Mr. Richmond	Potato Washer
Silver Medal	Mr. Evan Thomas	Leverage applied to Scarifier

THE FOLLOWING WERE SELECTED BY THE JUDGES FOR FURTHER TRIAL.

Mr. Harkes	Plough
Mr. Howard	Plough
Messrs. Mapplebeck and Lowe	Plough
Messrs. Saunders, Williams, and Taylor	Plough
Mr. Wood	Plough
Mr. Bentall	Plough
Mr. Hornsby	Drill for general purposes
Mr. Hornsby	Turnip Drill on the Flat
Mr. Horusby	Turnip Drill on the Ridge
Mr. James Smyth	Turnip Drill on the Ridge
Mr. Garrett	Turnip Drill on the Ridge
Mr. Scragg	Tile Machine
Mr. Clayton	Tile Machine
Mr. Beart	Tile Machine

We cannot conclude this part of our Report without adverting to the admirable arrangement and instructive character of the Catalogue of the Implements, published in the yard; the merit of which, we presume, belongs to Mr. Gibbs, of Half-moon-street, Piccadilly.

On the evening of Wednesday, the Council and Governors of the Society dined together in the Concert-room opposite the Town-hall. About 350 sat down under the Duke of Richmond's Presidency. In the course of the evening the following Award of Premiums to the Exhibitors of Cattle and Sheep was read. Lord Spencer gave it for his opinion that, on the whole, while the Exhibition of the present year fell below those formerly held, in point of numbers, yet that no failure was observable as regards quality :—

THE FOLLOWING IS THE AWARD OF PRIZES :—

SHORT HORNS. CLASS I.—BULLS calved before the 1st of January, 1843.

To Mr. James Banks Stanhope, of Revesby Abbey, near Boston, Lincoln, the 1st prize of 30l., for his short-horned Bull, 2 years and 7 months old, bred by Mr. John Parkinson, of Ley Fields, Newark.

To Mr. John Forrest, of Stretton, near Warrington, Cheshire, the 2d prize of 15l. for his pure short-horned Bull, 6 years and 4 months old, bred by Mr. Thomas Forrest.

CLASS II.—BULLS calved since 1st of January, 1843.

To Mr. Capel Hanbury Leigh, of Pont-y-pool Park, near Pont-y-pool, Monmouth, a prize of 20l. for his short-horned Bull, 2 years, 5 months, and 16 days old, bred by himself. [This was one of the finest animals in the yard].

CLASS III.—COWS in Milk.

To Mr. James Banks Stanhope, of Revesby Abbey, near Boston, Lincoln, a prize of 15l. for his short-horned Cow, 4 years and 3 months old, bred by Mr. John Booth, of Kellerby, near Catterick, Yorkshire.

The Judges *highly commended* Mr. Alexander Bannerman, of South Cottage, near Chorley, Lancaster, for his short-horned Cow, 5 years and 13 days old, bred by Mr. John Booth, of Kellerby, near Catterick, Yorkshire.

The Judges *commended* The Right Hon. Viscount Hill, of Hawkstone, near Shrewsbury, for his short-horned Cow, 7 years old, bred by Mr. Holmes, in Ireland.

CLASS IV.—IN-CALF HEIFERS, not exceeding 3 years old.

To the Right Honourable Viscount Hill, of Hawkstone, near Shrewsbury, a prize of 15l. for his lordship's short-horned Heifer, 2 years, 9 months, and 27 days old, bred by Mr. R. M. Jacques, of Eastby, near Richmond, Yorkshire.

The Judges *highly commended* The Right Hon. Viscount Hill, of Hawkstone, near Shrewsbury, for his short-horned Heifer, 2 years, 5 months, and 22 days old, bred by Mr. R. M. Jacques, of Eastby, near Richmond, Yorkshire.

CLASS V.—YEARLING HEIFERS.

To Mr. Edward Lakin, of Beauchamps Court, near Worcester, a prize of 10l. for his Short-horned yearling Heifer, 1 year and 11 months old, bred by himself.

CLASS VI.—BULL CALVES.

To the Right Hon. Viscount Hill, of Hawkstone, near Shrewsbury, a prize of 10l. for his short-horned Bull Calf, 9 months and 12 days old, bred by Mr. Richard Aimond, of Orrell, near Wigan, Lancashire.

[There was an excellent show of Bulls of this breed, both as regards number and quality. Only 3 Bull-calves were exhibited.]

HEREFORDS. CLASS I.—BULLS calved previously to January 1, 1843.

To Mr. Thomas Sheriff, Coxall, near Brampton Brian, Hereford, 1st prize of 30l., for his Hereford Bull, 5 years 6 months and 21 days old, bred by himself.

To Mr. Edward Gough, of Gravel-hill, near Shrewsbury, the 2d prize of 15l., for his Hereford Bull, 2 years and 7 months old, bred by the late Mr. Edward Gough, of Gravel-hill.

The judges highly commended Mr. William Eyton, of Gonsal, near Shrewsbury, for his Hereford Bull, 4 years and 6 months old, bred by the late Mr. John Morris, of Stockton, near Leominster.

CLASS II.—BULLS calved since January 1, 1843.

To Mr. Edward Urwick, of Felton, near Ludlow, Salop, a prize of 20l. for his Hereford Bull, 1 year and 7 months old, bred by himself.

CLASS III.—COWS in milk.

To Mr. J. N. Carpenter, of Eardisland, near Leominster, Hereford a prize of 15l., for his Hereford Cow, 8 years 8 months and 10 days old, bred by himself.

CLASS IV.—IN-CALF HEIFERS not exceeding 3 years old.

To Mr. J. N. Carpenter, of Eardisland, near Leominster, Hereford, a prize of 15l. for his Hereford In-calf Heifer, 2 years 7 months and 24 days old, bred by himself.

The judges *highly commended* Sir Francis Lawley, Bart., of Middleton-hall, near Fazeley, Warwick, for a Hereford In-calf Heifer, 2 years and 7 months old, bred by himself.

CLASS V.—YEARLING HEIFERS.

To Mr. Thos. Lockley Meire, of Cound Arbor, near Shrewsbury, a prize of 10l. for his Hereford Yearling Heifer, 1 year and 6 months old, bred by himself.

The judges *highly commended* Mr. James Corbett, of the Sheriffs, Lyonshall, near Kington, Hereford, for his Hereford Yearling Heifer, 1 year 10 months and 25 days old, bred by himself.

The judges *commended* Sir Francis Lawley, Bart., of Middleton-hall, near Fazeley, Warwick, for a Hereford Yearling Heifer, 1 year and 11 months old, bred by himself.

CLASS VI.—BULL CALVES, not exceeding 12 calendar months old.

To Mr. John Thomas, of Cholstrey, near Leominster, a prize of 10l. for his Bull Calf, 10 months old, bred by himself.

The judges *highly commended* Mr. Thomas Lockley Meire, of Cound Arbor, near Shrewsbury, for his Hereford Bull Calf, 9 months old, bred by himself.

The judges *commended* Mr. Thomas Lockley Meire, of Cound Arbor, near Shrewsbury, for his Hereford Bull Calf, 8 months old, bred by himself.

[The Hereford breed appeared neither in such force nor quality as might have been expected from the neighbourhood of the county.]

DEVONS. CLASS I.—BULLS calved previously to Jan. 1, 1843.

To Mr. Thomas White, Fouracre, of Durston, near Taunton, the prize of 30l. for his Devon Bull, 4 years and 7 months old, bred by Mr. W. Stace, of Dulverston, Somerset. [The only animal of its class shown.]

CLASS II.—BULLS calved since 1st of January, 1843.

To Mr. James Quartly Molland, near South Molton, Devon, a prize of 20l. for his Devon Bull, 2 years and 5 months old, bred by himself. [The only animal of its class shown.]

CLASS III.—COWS in milk.

To Mr. Quartly, of Molland, near South Molton, Devon, a prize of 15l. for his Devon Cow, 6 years and 3 months old, bred by himself. [The only animal of its class shown.]

CLASS IV.—IN-CALF HEIFERS, not exceeding 3 years old.

To Mr. George Turner, of Barton, near Exeter, Devon, a prize of 15l. for his pure North Devon in-calf Heifer, 2 years and 6 months old, bred by himself. [The only animal of its class shown.]

CLASS V.—YEARLING HEIFERS.

To Mr. George Turner, of Barton, near Exeter, Devon, a prize of 10l. for his pure North Devon yearling Heifer, 1 year and 6 months old, bred by himself.

CLASS VI.—BULL CALVES.

To Mr. George Turner, of Barton, near Exeter, Devon, a prize of 10l. for his pure North Devon Bull Calf, 7 months and 2 weeks old, bred by himself. [The only animal of its class shown.]

[The Devon breed was very poorly represented in point of the number of animals shown].

CATTLE OF ANY BREED. CLASS I.—BULLS calved before Jan. 1, 1843.

To the Hon. M. W. B. Nugent, of Higham Grange, near Hinckley, Leicestershire, a prize of 15l. for his pure Leicester or long-horned Bull, 4 years and 4 months old, bred by Mr. Slingsby, of Foleshill Hall, near Coventry.

To Mr. John Lees Brown, of Farewell, near Lichfield, Stafford, a prize of 10l. for his pure long-horned Bull, 3 years and 6 months old, bred by himself.

CLASS II.—BULLS calved since January 1, 1843.—No prizes awarded.

CLASS III.—COWS in milk.

To the Hon. M. W. B. Nugent, of Higham Grange, near Hinckley, Leicestershire, a prize of 15l. for his pure Leicester, or long-horned Cow, 10 years old, bred by Mr. Gibbs, of Henley in Arden.

CLASS IV.—IN-CALF HEIFERS.

To the Hon. M. W. B. Nugent, of Higham Grange, near Hinckley, Leicestershire, a prize of 10l. for his pure Leicester, or long-horned Heifer, 2 years 10 months and 18 days old, bred by himself.

CLASS V.—YEARLING HEIFERS.

To The Hon. M. W. B. Nugent, of Higham Grange, near Hinckley, Leicestershire, a prize of 10l. for his pure Leicester or long-horned Yearling Heifer, 1 year and 9 months old, bred by himself.

HORSES.

CLASS I.—STALLIONS for agricultural purposes.

To Mr. Henry Crosse, of Boyton Hall, near Stowmarket, the 1st prize of 30l. for his Cart Stallion, 9 years old, bred by the late Mr. William Crosse, of Little Finborough Hill, Suffolk.

To Mr. Hillyer Reeve, of Wroughton, near Swindon, Wilts, a prize of 15l. for his Cart Stallion, 6 years old, bred by Mr. Henshaw, of Ayston, Derbyshire.

The judges *highly commended* Mr. Henry Allen, jun., of Oakfield House, near Hay, Brecon, for a Cart Stallion, 6 years old, bred by Colonel Wood, M.P., of Littleton, Middlesex.

[No prizes were awarded in Class II.]

CLASS III.

To Mr. Frederick Thomas Bryan, of Knossington, near Oakham, Rutland, a prize of 15l. for his Cart Stallion, 2 years old, bred by Mr. Richard Brown, of Elsworth, Cambridgeshire.

CLASS IV.—CART MARES AND FOALS.

To the Right Hon. Viscount Hill, of Hawkstone, near Shrewsbury, a prize of 20l. for his Cart Mare and Foal; the Mare bred by the late Viscount Hill, of Hardwicke Grange, Salop; Sire of Foal belonged to his lordship.

To Mr. George Townshend, of Sapcote Fields, near Hinckley, Leicester, a prize of 10l. for his Cart Mare and Foal: Sire of Foal belonged to Mr. Hipwill, of Swinford, Leicestershire.

CLASS V.—TWO-YEAR-OLD FILLIES.

To the Right Hon. Lord St. John, of Melchbourne, near Kimbolton, Bedford, a prize of 10l. for his 2-year-old Filly, bred by his lordship.

CLASS VI.—THOROUGH-BRED STALLIONS.

To Mr. J. B. Minor, of Astley House, near Shrewsbury, a prize of 30l. for his thorough-bred Stallion, 9 years old; was got by Sultan, dam Clara, by Filho-da-Puta, bred by the Hon. Sidney Herbert, of Wilton House, Wiltshire.

[There was a numerous and good exhibition of stallions.]

SHEEP.

LEICESTER. CLASS I.—SHEARLING RAMS.

To Mr. T. E. Pawlett, of Beeston, Biggleswade, Beds, the prize of 30l. for a Leicester Ram, 16 months old, bred by himself.

To Mr. Samuel Bennett, of Bickerings Park, near Woburn, Bedford, the prize of 15l. for a pure Leicester Ram, 16 months old, bred by himself.

CLASS II.—RAMS of any age above 2 years.

To Mr. Robert Burgess, of Cotgrove Place, near Nottingham, the prize of 15l. for a pure Leicester Ram, 41 months old, bred by himself.

To Mr. Robert Burgess, of Cotgrove Place, near Nottingham, the prize of 30l. for a pure Leicester Ram, 65 months old, bred by himself.

CLASS III.—SHEARLING EWES.

To Mr. John Gregory Watkins, of Woodfield, near Worcester, the prize of 10l. for a pen of 5 pure Leicester Shearling Ewes, 16 months old, bred by himself.

To Mr. George Turner, of Barton, near Exeter, Devon, the prize of 5l. for a pen of 5 Leicester Shearling Ewes, 16 months old, bred by himself.

SOUTH DOWNS. CLASS I.—SHEARLING RAMS.

To Mr. Jonas Webb, of Babraham, near Cambridge, the prize of 30l. for a Southdown Ram, 16 months old, bred by himself.

To His Grace the Duke of Richmond, of Goodwood, near Chichester, Sussex, the prize of 15l. for a South-down Ram, 16 months old, bred by His Grace.

CLASS II.—RAMS of any age above 2 years.

To His Grace the Duke of Richmond, Goodwood, near Chichester, Sussex, the prize of 30l. for a Southdown Ram, 28 months old, bred by His Grace.

To Mr. Stephen Grantham, of Stoneham, near Lewes, Sussex, the prize of 15l. for a Southdown Ram, 40 months old, bred by himself.

CLASS III.—SHEARLING EWES.

To His Grace the Duke of Richmond, of Goodwood, near Chichester, Sussex, the prize of 10l. for a pen of 5 Southdown Shearling Ewes, 16 months old, bred by His Grace.

To Mr. D. Barclay, M.P., of Eastwick Park, near Leatherhead, Surrey, the prize of 5l. for a pen of 5 Southdown Shearling Ewes, 16 months old, bred by himself.

LONG-WOOLLED SHEEP NOT QUALIFIED TO COMPETE IN OTHER CLASSES.

CLASS I.—SHEARLING RAMS.

To Mr. Edward Handy, of Sevenhampton, Andoversford, Gloucestershire, the prize of 30l. for an improved Cotswold Ram, 16 months old, bred by himself.

To Mr. Charles Large, of Broadwell, near Lechlade, Gloucestershire, the prize of 15l. for a new Oxfordshire Ram, 16 months old, bred by himself.

CLASS II.—RAMS of any age above 2 years.

To Mr. E. Handy, Andoversford, Gloucester, the prize of 30l. for an improved Cotswold Ram, 40 months old, bred by himself.

To Mr. Edward Smith, of Charlbury, near Enstom, Oxford, the prize of 15l. for a Long-woolled Oxfordshire Ram, 64 months old, bred by himself.

CLASS III.—SHEARLING EWES.

To Mr. Charles Large, of Broadwell, near Lechlade, Gloucester, the prize of 10l. for a pen of Five new Oxfordshire Long-woolled Ewes, 16 months old, bred by himself.

To Mr. Edward Smith, of Charlbury, near Enstom, Oxford, the prize of 10l. for a pen of Five Long-woolled Oxfordshire Ewes, 16 months old, bred by himself.

SHEEP ADAPTED FOR MOUNTAIN DISTRICTS.

CLASS I.

To Mr. John Robson, of East Kielder, near Hexham, Northumberland, the prize of 15l. for a Cheviot Ram, 3 years and 3 months old, bred by himself.

To Mr. John Robson, of East Kielder, near Hexham, Northumberland, the prize of 10l. for a Cheviot Ram, 4 years and 3 months old, bred by himself.

To Mr. John Robson, of East Kielder, near Hexham, Northumberland, the prize of 5l. for a Cheviot Ram, 2 years and 3 months old, bred by himself.

CLASS II.—Pen of Five EWES of any age.

To The Right Hon. Lord Bagot, of Pool Park, near Ruthin, Denbigh, the prize of 10l. for a pen of Five Cheviot Mountain Shearling Ewes, 14 months old, bred by his lordship.

PIGS.

CLASS I.—BOARS of a large breed.

To Mr. Moses Cartwright, of Stanton House, near Burton-on-Trent, Stafford, the prize of 10l. for a Boar, 1 year and 6 months old, bred by himself.

To Mr. Charles Randell, of Chadbury, near Evesham, Worcester, the prize of 5l. for an Essex enlarged Boar, 2 years 3 months and 21 days old, bred by himself.

CLASS II.—BOARS of a small breed.

To the Right Hon. Viscount Hill, of Hawkstone, near Shrewsbury, the prize of 10l. for a Boar, 1 year and 22 days old, bred by his lordship.

To Mr. Edward Urwick, of Felton, near Ludlow, Salop, the prize of 5l. for an Essex Boar, 1 year and 11 months old, bred by Mr. Henry Quihampton, of Little Totham, near Maldon, Essex.

CLASS III.—SOWS of a large breed.

To the Right Hon. Viscount Hill, Hawkstone, near Shrewsbury, a the prize of 10l. for a Leicestershire Sow, 3 years and 1 month old, bred by Mr. W. Houghton, of Parbold, Lancashire.

CLASS IV.—SOWS of a small breed.

To Mr. William Fisher Hobbs, of Marks Hall, near Kelvedon, Essex, the prize of 10l. for an improved Essex Sow, 7 months old, bred by himself.

CLASS V.—Pens of breeding SOWS.

To Mr. William Fisher Hobbs, of Marks Hall, near Kelvedon, Essex, the prize of 10l. for an improved Essex Sow, 7 months old, bred by himself.

EXTRA STOCK.—BEASTS.

To Mr. W. Taylor, of the Dyffryd, near Llanymynach, Shropshire, a prize of 5l. for a fat Hereford Heifer, 4 years and 4 days old, bred by Mr. Richard Hill, of Golding Hall, Salop.

To Mr. Jacob Brown, of Shrewsbury, a prize of 3l. for a Hereford Calf, 11 months old, bred by Mr. Edward Humphreys, of Walcot, near Cherbury, Salop.

HORSES.—To Mr. Turner, Pool Park, near Ruthin, Denbigh, a prize of 5l. for a Welsh Mountain Stallion Pony, 4 years old, bred by Mr. Wynne, of Llandrillo, Merioneth.

SHEEP.—To Mr. Charles Large, Broadwell, near Lechlade, Gloucester, a prize of 5l. for a new Oxfordshire long-woolled Ewe, 4 years and 4 months old, bred by himself.

To Mr. John Gregory Watkins, of Woodfield, near Worcester, a prize of 2l. for his pure Leicester Ewe, with her Lamb, 5 years and 4 months old, bred by himself.

THURSDAY, on which the Cattle-yard was opened to visitors, proved a fine day, and many thousands during the course of it visited the exhibition.

In the evening upwards of a thousand members dined together at the pavilion, under the presidency of the Duke of Richmond; but the hour at which the post leaves Shrewsbury is so early that we have found it impossible to report the proceedings in sufficient time for publication this week.

AGRICULTURAL CHEMISTRY ASSOCIATION.

The half-yearly meeting of this Association was held on July 11, in the Museum of the Highland and Agricultural Society. Lord Melville having been unanimously called to the chair, Mr. Coventry, the Secretary of the Association, produced and read the following report:—"The course of the Association since the committee had last the honour of reporting to the subscribers in January, has not been marked by anything very striking. The work of analysis has been going on with unabated ardour; indeed, more has been done in the laboratory than in any previous period of the same length. Lectures have been given, as formerly, in various places; and more are to follow at Inverness, Dingwall, Beauly, Forfar, and elsewhere. The subscriptions have been collected, or nearly so; and several new subscribers have joined us, among whom Lord Panmure deserves to be particularly mentioned for his liberality, his lordship not merely subscribing 10*l.* for himself, but providing for three lectures being given to the farmers in his neighbourhood. The only new things which the committee have to notice are the expositions given by Professor Johnston once a month in Bank-street, to the farmers, on the analyses which had been engaging him. The results, as well as the analyses themselves, were deemed so important that, to give them additional currency, he was requested to furnish a detailed account of them for the Highland Society's Transactions; and, by an arrangement made with that body, copies have been allowed to be thrown off for such of our own subscribers as do not get their Transactions. The first Part or Number of these 'Proceedings,' as they are called, has been ready for some time, and the second is just about to be thrown off, when the Secretary will have much pleasure in giving them to applicants, and will send them to the different local secretaries up and down the country for distribution. It is hoped that they will be found interesting. Several topics which have been attracting much notice here and in England, such as the proper treatment of bones, and the value of the silicates, are discussed in them. It may be in the recollection of the subscribers that, at the last general meeting, certain subjects, embracing a very wide field of inquiry, were suggested to Professor Johnston to inquire into. The committee beg to refer to the following Report from him in regard to them:—

"*To the Committee of the Agricultural Chemistry Association.*—Gentlemen,—The first six months of the present year having expired, I beg to offer you the following general statement of my proceedings as the chemical officer of the Association. 1. In the Laboratory, the number of analyses performed during these six months has been much greater than during an equal period of the past year. They have amounted in all to 357 of different kinds. The kind of substances analysed, and the number of each, is shown in the following list:—

Abstract of the Analyses executed between Jan. 1 and July 1, 1845.

Guanos, and other manures	173
Soils, and tile and fire-clays	86
Slates, and other rocks	7
Limestones and marls	16
Iron and manganese ores	11
Waters	5
Ashes of plants	40
Analyses of Turnips, Beans, &c.	9
Miscellaneous	10
Total	357

This large number of analyses indicates at once the demand for analytical investigation which exists among the agricultural classes; and the estimation in which the laboratory of the Association is held in all parts of the country. To accomplish so much analytical work, I have been obliged to add to the number of my assistants, of whom I have now six, all eager to improve themselves, and zealous in promoting the objects of the Association. Of the above analyses, with the exception of the guanos and the ashes of plants, almost the whole have been made at the request of members of the Association. Nearly three-fourths of the guanos have been analysed for dealers and importers not members of the Association, but at the request, and to meet the wishes, of the practical farmers of the country, whose pecuniary interests it is one of the objects of the Association to defend. These analyses have been paid for at a much higher rate of charge than is made to those who are members; it is to be hoped, therefore, that all persons who are desirous of obtaining analyses in the laboratory of the Association, will see the propriety of adding their names to our list of members. The analyses of the ashes of plants, and of rocks of various kinds, have been made under my own direction, with the view of elucidating certain important theoretical points connected with the science of agriculture. This branch of our labours is not inferior in real importance to any other, while it is in agreement with the expressed object of the Association, "to add to our theoretical knowledge by researches in the laboratory." The results of these investigations, in so far as they prove of a practical character, I hope to be able to lay before the members of the Association in the future parts of our proceedings. Among so great a number of analyses there could hardly fail to be some the results of which should be immediately curious and interesting. Among the marls, for example, one from Caliossie, near Tain, was found to contain as much as 13 per cent. of organic—chiefly animal—matter, and to be therefore peculiarly valuable as a manure. Of the limestones, some which are comparatively unfit for agricultural purposes, have been found to be remarkably adapted for the preparation of hydraulic mortars or cements. Some of the soils and clays also have given interesting results, the details of which will be stated on a future occasion. 2. In regard to the other branch of my duties—that of visiting different parts of Scotland—I have to mention that during the first four months of the year I have lectured successively at Linlithgow, at Colinsburgh in Fife, at Dundee, at Brechin, at Montrose, and at Arbroath; and that at these various places I have had the pleasure of meeting numerous parties of intelligent and practical men, and of explaining and impressing upon them the importance of that kind of knowledge, which it is one of the objects of the Association to diffuse. Before concluding the report, it is proper to advert to a series of questions, which in the last half-yearly report, the Committee did me the honour to submit to my consideration. The first of these, referring to the practical inconvenience of applying liquid manure at all seasons of the year, asked if some substance could not be added to this liquid by which its fertilising ingredients might be extracted and preserved like guano in a dry state for after use. The manure sold under the name of Urate is the result of an imperfect attempt to accomplish this end; charcoal powder has also been employed for a similar purpose; but I have to regret that no substance sufficiently cheap and universally accessible has yet presented itself to me by which the virtues of liquid manure can be fully and economically separated from its liquid parts. I shall not lose sight of the subject however, and hope to report to you on a future occasion that some progress has been made in overcoming the difficulties which present themselves. The second question drew my attention to the refuse of our different manufactories, as likely, in many cases, to prove valuable manures. Various substances have been examined in the laboratory in reference to this question. Among others, I may mention the slag of the iron furnaces, an analysis of which will be found in the second part of the proceedings of the Association, now in the press; the refuse of certain bleachworks, in which a large per centage of soda was found mixed with much lime; and the water in which Barley has been steeped for the purposes of malting, which has been found to contain alkaline and earthy phosphates, and other substances useful to vegetation. The details of all these researches will hereafter be fully laid before the members of the Association. The third question was upon the use of bones dissolved or decomposed by sulphuric acid. Upon this, one of the most important practical points which at present engage the attention of the tenant farmer, I have written a long paper, which is printed in the second part of our 'Proceedings.' Upon the action of salves upon wool, which formed the subject of the fourth question, I am not prepared to give an answer which is satisfactory to myself. I shall not fail, however, to give to this question all the consideration to which it is entitled. In reference to the fifth question, why Turnip-tops, as is stated by some, are of more value as a manure when left upon the land than when ploughed in,—I have made an analysis of the ash of the Turnip-tops themselves, and have obtained the very interesting result that the quantity of phosphates contained in a given weight of leaves is usually more than the double of that which is contained in an equal weight of bulbs. Though this result does not throw any light upon the practical question above alluded to—in regard to which, indeed, practical men are not agreed—it is nevertheless of much importance in connection with the general benefit which is found to attend the practice of restoring the Turnip-tops to the soil, and with the kind of exhaustion which is produced by removing them. The subject of the sixth question was the discovery of a substance of home produce, or manufacture, which should serve the purpose of oil cake, and thus render its importation unnecessary. This is a question of great national importance, upon which, therefore, I may be excused for an unwillingness to give a hasty answer. There are many articles of home growth, which, may, to a certain extent, be substituted for oil cake, but the various points of economy, of feeding and fattening quality, and of effect upon the value of the manure produced, so complicate the question that it is very hazardous to pronounce in regard to any substance, or mixture of substances, that it would, in all respects, serve the purposes of oil-cake. I am preparing, however, a series of suggestions for experiments upon the feeding of stock, in which the effects of different substances, compared with those of oil-cake will occupy a prominent place. By the careful performance of such experiments practical men will be most likely to arrive at satisfactory conclusions in regard to questions of this nature. I would further allude here to another question which has at different times been brought under my notice by different members of the Association: I allude to the disease in the Potato crop. The cause and cure of this disease are alike obscure, and men's minds have naturally turned to chemistry, in the hope that researches made in the laboratory might be able to throw light on a subject of so great national importance. The Highland Society has also offered a premium for analytical investigation in regard to diseased Potatoes, in the hope that the results may lead to some effectual mode of cure. I by no means undervalue such investigations; on the contrary, such have for some time been going on in my own laboratory, but I do not expect that we shall very soon arrive at much certain knowledge by this mode of procedure. Our knowledge is still too imperfect. We are still unacquainted with the true constitution of the healthy Potato. An investigation of that of diseased Potatoes alone, therefore, will not help us on very rapidly to conclusions on which confidence can be placed. While these investigations are going on, therefore, we must wait patiently for the discovery of the truth. Perseverance will make it out at last, but hasty conclusions and conjectures are, above all things, to be avoided. One of my assistants is now analysing some diseased Potatoes sent to us by Mr. Fleming. I have intrusted to another the examination of the stems and roots of the Potatoes of the present season at various stages of their growth. This inquiry cannot be completed in less than a couple of years, but it will not fail, I think, to lead to important conclusions, both theoretical and practical.—I have the honour to be, Gentlemen, your obedient servant,

Edinburgh, July 7, 1845. James F. W. Johnston.

"It is most satisfactory to the committee to be able to state, that one of their number, to whom they have often had occasion to express their obligations, has instituted a series of experiments, with the view of bringing science to bear more effectually on practice by determining some points in the cultivation of Turnips, Potatoes, and the Grasses, on which the most respectable and intelligent agriculturists have greatly differed. The value of these experiments may be much enhanced by an analysis of some of the more important parts of the produce; and the committee trust that their funds will be in a state to enable them to overtake so desirable an object. Some minor matters remain to be noticed. Arrangements have been made for two public breakfasts at Dumfries, on the 7th and 9th of October. A subject of interest has been fixed on for each morning to be the subject of conversation; and practical men will have an opportunity in this way of comparing notes with men from other districts, and Professor Johnston will take a part. The subjects which have been selected are, for the 7th, 'Furrow-Draining—on what soils—at what elevations, and under what circumstances will it cease to be profitable in Dumfriesshire and Galloway; and Improvement of Grass Lands in high situations; where regular courses of cropping (from elevation) cannot be profitably undertaken.' For the Breakfast on the 9th October, the topics will be, 'The advantages of keeping young store stock in equal condition throughout the year; mode of doing so; expense and profit compared with the present ordinary practice in Dumfriesshire and Galloway; and Comparative value of grains, Turnips, and oil-cake in feeding cattle; quantities, qualities, used singly and in combination.' It may appear foreign to the objects of the Association, but still it deserves mention, that our West Indian colonies have been so impressed with the importance of science, and perhaps influenced by our example, that, as he understood, they contemplate getting up, on a large and expensive scale, an Association like our own. Your committee has been applied to, and it would be their wish to render them every assistance in their power, compatibly with the prior and paramount claims of our own countrymen at home upon Professor Johnston."—Sir John S. Richardson moved the adoption of the report.—Mr. Aitchison, of Drumore, seconded the motion, which was agreed to.—A vote of thanks to the Secretary, Mr. Coventry, was proposed and unanimously agreed to, which was acknowledged by Mr. Coventry. The meeting then adjourned.

Farmers' Clubs.

Durham.—*On Increasing the Depths of Soils by Drainage, &c.*—The following are remarks made by Professor Johnston, in the course of his address to the members of this Club, at their late meeting:—What are the methods which the most approved drainers are now adopting? First, as to depth. I have been in the habit of saying on all occasions, that no drains should be less than 30 inches deep when laid with tiles; but the tide now seems to be running in the minds of the most intelligent and practical men in favour of drains 3 feet deep. You cannot be too deep, then, if you go only 30 inches. You may safely go down 3 feet, if you can do it without much increase of cost. I do think, however, that, with these pipe-tiles, 30 inches may be sufficient. The principle on which I satisfy myself in regard to the depth is this. I cannot determine the depth by theory. I know only that I need not go 7 feet if I can get the water drawn off at 3 feet. But I say, the deeper I can make my soil, the more valuable I make my land. It is just like deepening one end of my purse, and filling it up at the same time—the deep end and the shallow end—with money. You all know that you can go oftener to the deep end for money than to the shallow end without exhausting it (laughter). I therefore ask myself, "How deep can I at present go with our existing implements, so as to open up my land without incurring too great an expense?—how deep can I go so as to make it pay?" The instruments we now use are the plough, the subsoil-plough, the trench-plough, and the fork, which last has lately been extensively introduced into the South of England and into Scotland. At present the subsoil-plough is made to go 22 inches in depth, in districts where they have begun to see that it is to their advantage to make the soil deep. I was the other day in Forfarshire, and went over the farm of

one of the tenants of Sir John Ogilvie, who had told me that this tenant had begun to plough deeper. I went to him and said, "You are going rather deep." He said, "Yes, sir; this farm wad hae clean dune me, if I had nae gane deep." Another farmer in the same district told me, in regard to subsoiling his Potato-land, and he had upwards of 60 acres of Potatoes, "I am so satisfied with the importance and advantage of subsoiling for my Potatoes, that I mean to subsoil it every time the Potato crop comes off." These are the best proofs of the importance of deepening the soil. Now, the subsoil-plough, as I have said, can go down 22 inches. If you put a drain down to the depth of 24 inches, and put in a tile as small as this, which will occupy 3 inches, its top will be within 21 inches of the surface; but if the tile and sole, as they usually do, occupy 6 inches, and you take that off the 24 inches, you bring the top of the tile to within 18 inches of the surface of the soil. Again, the subsoiling to be effectual, should be done across the ridges; but it cannot be done across them to the depth of 22 inches without tearing up all the tiles. If, then, it be true that the deeper the land is, the better and richer it is, it is clear that if land so drained is ever to be made as rich as it can be made, those tiles must be taken up and relaid. Now, if you subsoil your land to the depth of 22 inches, leave 2 inches clear of the tile, and to that add the height of the tile and sole (6 inches), that brings you down to 30 inches as the depth to which you must dig your drains. This was the reasoning which brought me originally to see that drains ought to be 30 inches deep at least, in order that the tiles might not be disturbed by the subsoil ploughing. I mentioned the fork to you as another instrument now used for the stirring up of the land. The fork thus used is merely a three-pronged fork, made exceedingly strong. This fork is employed, instead of the plough, to raise up the subsoil. It is thus used:—Three men go abreast across the field, taking about a yard together, and throwing forward the surface-soil to a depth of 10 or 12 inches; they then take the fork, and go down into the subsoil 12 to 16 inches more. The fork is thus used, not to turn the subsoil over, but merely to loosen it. If it bring anything up, any stones, they are taken out, while lumps of clay are broken. This is done with great effect. Now, if at each digging, the men turn up 12 inches in depth, that will make 24 inches, and if you allow 6 inches for the tile, it brings you to 30 inches, without any space to prevent the fork from going into the tile. A friend of mine, in Ayrshire, who lately tried the use of the fork, found that his workmen went into the tiles the first drain they came to. Such occurrences as this have satisfied me that those men who say that drains are to be put 3 feet deep, have a great deal of reason on their side. I do not say that all of you should do it; but I say that those who do it are laying up for themselves a store in the bank from which they will in time receive a full interest. Now, how should the draining be done to make it pay? Besides being properly executed as regards individual drains, they must be properly laid out. The old plan was to carry the drains across the hill. The new method—that which is now pursued—is, to carry them straight down the hill, the shortest way to the bottom. In many cases which had been drained under the old system, the land has been obliged to be drained at right angles to the old draining; and it does not now seem wonderful that the plan formerly employed should not have been effectual in carrying off the water. I was, some time ago, going over part of a large estate, which the proprietor was about to drain. On one of those farms was some of those old-fashioned winding-ridges, which meandered beautifully down the slope of the hill—very pretty to the lover of the picturesque, but not so captivating to the eyes of the enlightened practical agriculturist. Though the field, as I have said, was on the side or slope of the hill, we could not persuade the holder of that farm—though he was one of the proprietor's bailiffs, and one of the men who was to advise the tenantry how the draining was to be carried on—that it would be better to carry the drains straight down the hill than in the winding furrows which I have described to you. We cannot expect men to give up prejudices all at once, and the only way to satisfy a man that a thing is wrong, is either to show him by experiment that what you say is correct, or to get him to try the thing on a small scale first, and observe the result. But, then, how is it that draining comes to pay? In the first place, all drained land, unless in very singular circumstances indeed, grows larger and better crops than before. Thus it comes to pay: in the first place, because the crops are better; in the second place, because the land is more easy to work. Every man who has drained strong clay land knows how much less it has cost him to work it than it used to do before it was drained. Besides, you are not under the necessity of having naked fallows, as in this neighbourhood especially is too common under the three years' course of husbandry which prevails. This lying in naked fallow every third year is, in effect, the same as if one-third of the district were every year out of cultivation, and growing nothing at all. Therefore, the additional value of the draining is, that you get three crops where you only got two; and is it wonderful after knowing this, that a man should find it profitable to have his land drained? Again, every man knows that on wet land, manure does not produce half its effect. Not only is lime half thrown away, but farm-yard and other manures are also in a great degree lessened in their efficacy. A load of manure, in some places, will go three times as far on dry land as it would in the same land while it was in a wet state. All these are advantages to be had from draining; and here I may say to you that I wrote the other day to Mr. Dudgeon, of Spylaw, near Kelso, asking him for some explanations respecting draining. The reply which I got from him I now hold in my hand. [This letter was published in our last Paper at page 444.] This letter shows that where men are intelligent, they do not hesitate to lay out large sums of money, at the rate of 3*l.* an acre, which is a large sum for a practical farmer. The man who cultivates his land now, and raises from 15 to 20 bushels an acre, perhaps pays 1*l.* rent per acre. He improves his land, so that he raises from 35 to 40 bushels, and pays still 1*l.* a-year rent; whatever he cultivates is at a less cost—his manure goes further—he can raise crops which he could not do before—his harvest is more secure—his seed time more certain—he receives more than double returns, and yet he pays only the same rent. I know that there is much land in the neighbourhood of Durham that could be made to produce double or treble. Whose fault is it that nothing is done to it? There are obstacles—the want of leases which prevails, or when the tenants have leases, those leases only being for six years. Now, where all these improvements are being carried on, of which I have spoken, the tenants have leases for 19 years. I do not think that the landlords here have considered the importance of this subject. I have not touched on the question who ought to drain the land—you or the landlords, or the landlords one-half and you the other half. That is a subject of agreement in the lease. But the more important question is the tenure of the land itself. On farms where the lease is for six years only, little can be expected to be done by the tenant who holds it only for four crops, two years out of the six being in naked fallow; how much less can be hoped for where the farms are only held from year to year. That is the state of things by which farmers are kept back, when they are not depressed by the fears to which I have alluded. I see Mr. Crofton is in that condition, and I know that that there are many others in the same condition. (Several farmers exclaimed, "so am I.") I do not see how a prudent tenant—unless he have very great confidence indeed in his landlord, in his life as well as in his honour, and in those of his steward too—how he can be expected or pressed to drain at his own expense. I have great pleasure in going among the landlords of the north. I take every opportunity of explaining to them the great benefits which would result to themselves if the land were drained—that their land would be kept up in value—that their tenantry would be kept in better circumstances, and that they themselves would be more likely to obtain their rents; and I am sure that a very great number of the landed proprietors of Scotland are of that opinion. But the duty of draining is less incumbent upon the Scottish landlords in general, for their tenants have leases of 19 years. Thus the tenant is induced to drain because he has the benefit of the improvements for 19 years. And if, as Mr. Dudgeon says, he gets back his money in two years, he reaps the additional produce for 17 years to come. If you could tell me how I could reach the ears of the landlords of this district—how I could satisfy them that it was for their benefit, as well as for that of their tenantry, to drain the wet lands around us, or to remove those obstacles which prevent others from doing it, I should be most happy to avail myself of that opportunity—I should be delighted to learn how I could reach their ears, for then I should hope to see a change come over the face of this neglected country. But it is really a duty which they owe to themselves—for the state has no right to ask them to do what will not benefit themselves individually—since it will insure them better rents hereafter, and what is not obtained by themselves will be obtained by and will benefit their children. I hope either that the present holders of land will see the propriety therefore either of draining the land themselves, or of offering their tenantry such encouragement as shall justify them in draining at their private cost. There are many landlords—as, for example, Lord Grey—who are draining much, and their tenants are willing to pay 5 per cent., in some cases 6, or even 7 per cent. is paid for the money expended. ("That is too much.") That shows how that it is not the tenant's fault that the land is not drained—that the tenants are willing to give more than a fair immediate return—and so that even in this point of view, it would be no immediate loss to the landlord himself, as he would draw a fair interest for the money he expended. —Mr. Crofton said he was sure they must all be obliged to Professor Johnston for his observations on the agriculture of this wide district. He was not at all surprised to hear of the wonderful improvements made in Scotland, for he had himself been an eye-witness of those improvements; neither was he much surprised that improvements should not be made in this neighbourhood —at least in the same proportion; because in Scotland the farmers had leases for twenty-one years, whilst here they were principally tenants from year to year—not one landlord in twenty granting a lease at all (hear, hear). At the same time he knew that a tenant of Lord Durham had drained to a considerable extent, at a cost to him of 10*l.* or 11*l.* an acre; and he would ask this question: whether, with a less price for their produce, the poorer classes of farmers—aye, or the better class of farmers—could go to any such extent? But he knew, also, that tenants here were willing to pay a percentage for draining, though the land was only let at 9*s.* to 11*s.* per acre, for he had been an eye-witness of it. But whilst he was sorry to say that so little improvement had been made in this country, yet he did not think the farmers could be charged with being unwilling. For himself, he should be willing to pay five per cent. on money expended in draining the land he occupied, or himself bear half the expense, though he was a very humble individual and only a tenant from year to year. He had, in fact, himself laid out 7*l.* an acre in draining, and that, he thought, was more than any tenant should do (hear, hear). Although they had heard that a farmer was only to lay out money in order to double his capital in a very short time, he thought very different. There were certain descriptions of land —especially strong loamy soils, of which, after they were cleared of the surface-water, the clay was the most valuable part, and might be made to produce from 18 to 20 bolls of Wheat per acre; but in many cases, in these clayey lands, it was almost impossible to make them grow Turnips; and to drain on such an expectation would be perfectly ridiculous. Drainage might make these lands more dry for pasturage, but the idea of doing away with fallows was too preposterous to be entertained. Mr. C. proceeded to detail the manner in which he carried on his draining. The ridges at the side of the field where he had commenced were four-yard-ridges, and he thought these too narrow intervals to require the tiles to be put up each furrow; and he had consequently started off by putting his tiles six yards apart, at 30 inches deep, and thus he had drained the first half of the field. Afterwards the ridges were 15 feet broad, and he had then put the tiles up every furrow. With this draining after wet weather, the land was perfectly dry where he had put the drains in the furrows; but in the others it was standing where the furrows were, and he did not see that the land was any better for it; and until that land was subsoiled, he was convinced it would never allow the water to percolate the soil, and never be so dry as the other.—Mr. Johnson said he had a strong impression that the produce of this country might be much improved by the application of chemical science, improved implements, and money, to the cultivation of the soil. He believed by draining, deep ploughing, and the application of chemical manures, the produce of the country might be enormously increased, provided, of course, there was capital enough to be employed in thus tilling the land. But in order to induce parties who had capital to do so, they must first give them confidence in the future; because it was quite clear that those expenses were not returned at once (hear). They were only calculated to repay the enterprise of the individual in the course of time; and, therefore, unless they could have confidence in the future, no practical man would lay out his money in improvements (hear, hear). From the course of political events, especially during the present session, he had felt his confidence greatly shaken; and as things now stood, he should content himself—notwithstanding the example of Mr. Dudgeon, the prudence or imprudence of which was yet to be tested—with his present position, for, in his opinion, he would be an imprudent man were he, under present appearances, to lay out large sums of money in improving land, a return for which he could not expect to get for a long time.—Mr. Hunter (we believe): You would get your return in two years.—Mr. Johnson: Were he to begin draining, subsoiling, and trenching, in the present state of our political atmosphere, he did think he should be acting most imprudently. In saying this, he believed he only spoke what would be the sentiments of most prudent men who looked around them at the present moment. A friend of his was draining some cold clayey land, at a cost of about 8*l.* an acre, and he (Mr. J.) said to him, "Will that repay you." His friend said, "Yes, as he was draining his own land; but as the rent was only 12*s.* an acre, if he were to do it for a tenant, he would not find a tenant who would submit to pay the increased rent for it. The tenant would say he was nearly doubling the rent, and refuse to pay it." Now, that was the sort of feeling which generally existed. Very few tenants would like to have their rents doubled because the land had been so drained. That was a question materially depending on the nature of the soil. A good deal of the soil of this country was so poor that even if it were drained it would not make a return equivalent to such an expense, and therefore they would not think it worth their while to drain it. At a cost of 8*l.* per acre, many lands would not pay for draining, because the interest of the money expended in doing so would double the tenant's rent, and to that the tenant would object; but if they could reduce the cost of draining to 3*l.* or 4*l.* per acre, then there was no land but might be improved with a profit; and if so, then the evil of wet land might be at once entirely destroyed and removed from this part of the country, and the prospects of the agriculturists greatly improved. But he had not been able to meet with any person who could drain at that price. Another point was the question of leases. He believed in this country there was a great disinclination to leases on both sides, in many instances, and that evil also arose from the want of confidence in public matters. What tenant would bind himself to pay a fair rent for land for 21 years with a protecting duty of 20*s.*, if he were inclined to suppose that within five or six years the duty might be abolished altogether? What man could venture to say that, with such a change, prices would not be immensely reduced? No prudent man, therefore, could take a lease for 21 years; and no landlord with any spark of feeling, would think of exacting the terms of his lease, with such low prices, from any tenant who might be imprudent enough to take one. He might allude to corn rents, but

that was a question by itself, and would occupy too much of their time. Under the circumstances he had described, then, a lease would be a farce to both parties, and he believed the prevalence of that feeling contributed very much to prevent the granting of, or the asking for, a lease. He knew that leases for a short time had been obtained, and had been abandoned at the request of the tenant, even from the diminution of prices which had taken place already; and what would be the result if even from the present low prices, corn was much reduced? It was perfectly clear that no existing lease would then stand; and who, therefore, could think of granting new leases? If they first established confidence then they might get improvements done, and leases would follow. With regard to what had been done in Scotland he rejoiced to hear it; but at the same time he could not but wonder at the gallantry of their northern neighbours. They had generally been famed not only for their gallantry in the field, but also for their prudence in council. In these improvements they had shown all their ancient gallantry, but here, he was afraid, their prudence had failed them. If he were laying out his money as Mr. Dudgeon was doing he was afraid people would think he had very little prudence; and he could only hope that Mr. Dudgeon's speculations might turn out to be well founded; but that was yet in the bosom of fate.—Professor Johnston: Mr. Dudgeon says he got his own money in two years!—Mr. Hunter said, that to bear out the assertion of Mr. Dudgeon, of Spylaw, he might mention that during the last seven years he had laid out in draining, upon an average, upwards of 100*l.* a-year, and for the last three years 150*l.* a-year, the landlord finding the tiles, which diminished the expenses about one-third; and that he had always found that if he did not get his return in the first green crop, the succeeding crop had always returned him his outlay. Of late years his draining had been conducted under the superintendence of Lord Durham's agent, and the plan on which it had been carried on was that of furrow-draining, the depth 2 feet 4 inches, and the main drains 3 feet, filling them up with refuse coke or small coals, keeping the whole of the clay out of the drains. The land was a tenacious clay, and previous to its being drained, he (Mr. H.) could not grow Potatoes for his own domestic use; and now he could grow 30 acres of green crop upon an average of 40 acres. The rent of the land was 30*s.* an acre, and the cost of draining from 6*l.* to 8*l.* an acre. He had been a competitor for the Society's premium for the best draining last year, and one of the gentlemen appointed to adjudge the prize came over to inspect his drains. That gentleman had said that the best system was to puddle the drains with clay. He (Mr. H.) being a competitor did not think he could with propriety have expressed to that gentleman how much he differed from him in opinion; but he might say that he was decidedly averse to such a system, though his system entailed on the tenant double the expense. By draining his land, he had 50 acres of Potatoes or Turnips every year, where he had never had three before; and he was fully convinced that every one might have their money returned in one or two years.—Professor Johnston said, it was important that two or three inferences to be derived from Mr. Hunter's statements should be borne in mind. First, that in general his green crop paid him his expenses, but generally that two years paid him back his outlay; and then, that the tenant from year to year was justified in draining his land, provided the landlord would find him with tiles. These were rather important points, and their weight was the greater because they had been stated by a practical man.—Mr. Hunter said, one year he had had 28 bolls [What is a "boll" of Beans at Durham?] of Beans an acre where he had none before, because at the end of the year, through drainage, he had been able to go on to his land and prepare it; and another year he had, in the same way, a crop of Oats when, if the land had not been drained, he would not have been able to get them sown; and this year he had a crop of as beautiful Wheat on his land as if it had been fallowed.—Mr. John Hutchinson drew attention to the presence of Butter-cups in fields. Many people thought these flowers an ornament to their fields and thought it was a proof of the goodness of their land. He took a different view of it. All the Ranunculus tribe of flowers required considerable moisture, and he looked upon a flourishing crop of Butter-cups as a sure indication of the land being too wet, as if it had been covered with Rushes.—*Abridged from the Durham Chronicle.*

Reviews.

General View of the Agriculture of Shropshire; with Observations on the means of its Improvement. Drawn up for the consideration of the Board of Agriculture and Internal Improvement. By J. Plymley, M.A., Archdeacon of Salop. Sherwood and Co., London, 1813.

We continue our extracts from this work.

"*Improvement of Wheat Lands.*—The turf being well ploughed and laid dry before Christmas, in the month of April sow with 4½ statute bushels of Oats; plough and lay dry in the autumn, and in the months of May, June, and July, give it three good ploughings and harrowings, rollings, &c., so as to reduce it; being drawn up and laid dry, and continuing in that state to the middle of September, though made both fine and clean, it gets an adhesive and binding quality, and consequently works lumpy, and therefore has the texture and quality which the farmer, by mistake (as I said before), is afraid of losing, by making his land clean. It is in the months of May, June, and July, when the sun is powerful, that land is to be cleaned; a ploughing in August is seldom of much worth. If manured with lime, lay 80 bushels upon an acre; if with dung, 10 cubical yards to each acre, either to be ploughed under at the July ploughing. From the 20th of September to the 10th of October, sow Wheat, 9 statute pecks to the acre, after having soaked the same not more than eight hours in mild brine, and dried with lime to prevent the smut. The next autumn plough the corn stubble, and at the end of March plant Beans or Peas in rows one foot asunder, hand-hoe and weed them. Plough in the autumn, and sow Oats in the spring, and lay down with 10 lbs. of red, 4 lbs. of white Dutch Clover-seed, and 1 peck of Rye-grass-seed to each acre. Manure the seeds in the autumn, let it lie in sward two or three years, as it may be required. At next breaking up plant with Beans, hand-hoe and weed; next autumn sow with Wheat, then with Beans in rows, hand-hoe and weed that crop; Oats, and lay down with seeds as before. In lieu of one of the hoeing crops, if the land is not too wet, Potatoes may be planted, which would be found very profitable to the Wheat-land farmer; being very useful food for feeding or milking cows in the winter, as they produce much sweet milk. I would fallow for the first crop in one tillage, and hoe the next, and so proceed alternately; the summer sun to Wheat-lands is certainly useful, the manuring with dung or lime also alternately. Where marl is to be procured at convenient distances, nothing turns to more profit; upon open soils, with either dry or clay bottom, marl laid upon the sward in the autumn, and to lie one year, is generally best; particularly if the marl is not perfectly good. Lime is sure to pay well the next tillage."

"*Crops.*—Wheat, sown upon a clean Clover ley of the first or second year (and no Wheat yields better). The red straw Wheat, seed steeped in urine or salt and water, afterwards sprinkled over with lime, and well mixed together. From 2 or 3 bushels (of 33 quarts) per acre, is sown in October. If the land is in condition, and manured a little over, 2 bushels per acre is sufficient. October is the best month; but on sound lands Wheat is sown till the middle of November. Dung is spread upon the leys and ploughed under; sometimes we cart and spread the dung after the seed is harrowed in. If Turnips are to succeed Wheat, we never manure for the Wheat. If lime is the manure to be used, we sometimes spread it upon the Clover in July; at other times harrow it in with the soil, during the summer, in the proportion of three waggon-loads to 2 acres. Summer-fallows for Wheat are either dunged or limed, and sowed the end of September or beginning of October, with a little over 2 bushels of seed per acre. Wheat frequently succeeds Pease upon one, and sometimes two ploughings. When Vetches or Buck-Wheat are sown, they are followed by Wheat. Wheat is sometimes ate a little with sheep in the spring, wed with the hand once or twice in the month of May or beginning of June, it produces from 10 to 25 bushels per acre, seldom more; 15 to 20 bushels may be looked upon as the more general produce. It will be recollected that by a bushel is meant 36 quarts, if no explanation of the measure is given."

"*Barley.*—When Barley succeeds Wheat upon strong soils, the stubble is generally ploughed under the end of December, or in January. The frost prepares such soils for working well with the harrows at seed-time. When Barley follows Wheat on sandy, gravelly, or pebbly loams, it has frequently three ploughings; if after Turnips, one, and sometimes two; we sow 3½ bushels per acre, from the 20th of March to the beginning of May; the produce is from 18 to 35 bushels; upon powerful land I have known 40 bushels of the sprat or broad Barley."

"*Peas.*—Peas are frequently sowed upon old pastures, or clover-leys, after one ploughing, in the month of March. They are uncertain in their produce; from 10 to 24 bushels per acre are raised. I believe they are more grown upon our sound soils than any other county. They are used in fatting our large stock of hogs, and for food for horses."

"*Turnips.*—On the east side of the county, Turnips come in as a regular crop in a course, and are sown from the middle of June till the first week in July; the land is made clean and fine by frequent ploughings, the first before Christmas; they manure with 15 tumbril loads of dung per acre; the produce is from 10 to 20 tons per acre. An acre of Turnips will keep stock equal to 2 tons of hay. Two acres of good Turnips will feed three middle-sized beasts, with Barley-straw."

"*Natural Meadows.*—Grass-land for hay is seldom manured, except one field next the house, and that with such shovellings as are got near it by scraping near the house." [!]

"*Draining.*—There is much draining done by the best farmers, both with stone and wood, and it is now generally well understood; but in many situations, particularly in clay countries, the materials, as stone, &c., are very expensive, occasioned by getting, and the distance it is to be carried; and thin soil upon clay requires the drains in many places to be not more than from 6 to 8 yards asunder, which consumes large quantities of materials. I have made what I call a brick arch, for that purpose, full an inch thick and a foot long, nearly of the shape of a ridge-tile, but being not more than 5 inches wide at bottom, and 6 inches semi-diameter, it cannot possibly be used in building; but such having been made at a brick-kiln, the excise-officer thought them taxable, and charged them 2*s.* 6*d.* per thousand, as common bricks."

"*Cattle.*—The neat cattle of this county cannot be referred to any of the district breeds that writers upon live stock have enumerated, though, probably, they are much the same breed as that spread over Warwickshire and Staffordshire. The old Shropshire ox was remarkable for a large dewlap. There have been many cattle reared within the last 20 years, from the improved breeds of Lancashire, Cheshire, Leicestershire and Staffordshire, and that of Mr. Fowler, of Oxfordshire. Upon the south confines of the county, the Herefordshire breed is now gaining ground; and some Devonshire cattle have been brought to Kinlet-hall. About Bishop's Castle is a good breed of cattle, the colour a dark red; they are more uniform in shape and colour than in any other district in the county: the oxen at four years old sold upon an average at 15*l.* a piece unfed, previous to the late extraordinary prices. At Walcot, many Alderney cattle have been bred for the dairy, and numbers of the Galloway breed have been reared there."

"*Sheep.*—The breeding flocks are few and small, where there are no commons, but are various in their sorts, as the fancy of the farmer leads him; for in this county there are sheep kept of most of the sorts in England, from the Welsh of 6 lbs. per quarter to the Leicestershire of 30 lbs. per quarter; those farmers who have commons generally keep of a size from 11 lbs. to 14 lbs. per quarter; shear about 2 lbs. of wool each, worth about 1*s.* 6*d.* per lb., though there has been of late such a fluctuation in the price of wool, that it is now difficult to say what any sort is worth. Upon some commons the aged wethers do not require much assistance in the winter, but the ewes and lambs, with the yearling sheep, are either wintered from home or kept in their own farms. This sort, which is kept to stock commons, is generally sold off, or fed upon their own Turnips, at from 4 to 5 years old. There is scarcely an instance of folding sheep. The old Shropshire sheep are horned, and have black or mottled faces and legs. They are about as large as the south-down sheep; but the neck rather longer, and the carcass, perhaps, not quite so compact. They are extremely hardy, and have never any dry food given them in the winter, except in great snows which last for a considerable time. They are not attended by a shepherd, nor folded; nor do they generally drink. If any sheep is seen to drink, the farmer looks upon it as a sign that such sheep is rotten or tainted [!] The Shropshire sheep crossed with the Dorsetshire, are said to raise excellent stock, especially for land of a pretty good quality. The system of sheep husbandry in Shropshire is defective. There is a breed of sheep on the Longmynd with horns and black faces, that seems an indigenous sort; they are nimble, hardy, and weigh near 10 lbs. a quarter when fatted. Their fleeces, upon an average, may weigh 2½ lbs. of which half a pound will be the breechen or coarse wool, and is sold distinct from the rest."

"*Draught Cattle.*—In the strong lands, four or five horses are used to a plough, or six or eight oxen; the oxen are preferred for ploughing in the strong lands, but horses for the road business; that being the case, horses are best adapted for small farms, as oxen are for ploughing upon large ones. Horses in general are made use of, though some of the largest farmers get much of their ploughing done by oxen. The ox teams of this county used to consist of ten oxen yoked [!] now those who use them generally plough with five oxen single in gearing, or with four oxen and a horse to lead them. A few persons have used them in waggons."

Miscellaneous.

Feeding of Animals (*Boussingault, vol. ii., p.* 422).—The ordinary allowance of a horse at Bechelbronn consists daily of

Hay	22 lbs.
Straw	5,5
Oats	7,25 = 2 gallons nearly, the sack of [Oats weighing 145 lbs.

On this allowance the teams thrive admirably. In the following observations I selected two teams of four horses each, which I shall designate as No. 1 and No. 2. The first consisted of a mare and three horses, respectively of the ages of 7, 7, 16, and 8. The second of three mares and a horse, of 15, 5, 14, and 5 years years old. *Observation* 1.—In this case half the hay was replaced by steamed Potatoes, it being assumed, as the result of analysis, that 100 of hay is equivalent to 280 of Potatoes. The ration thus became

Hay	11 lbs.
Straw	5,5
Oats	7,25
Potatoes	30,88

The Potatoes were slightly steamed only, as they are too pasty when thoroughly boiled. The tubers when cold were chopped and mixed with the straw converted into chaff. In consequeuce of the peculiarly wet weather, the teams were subjected to great labour; the result, then, of this observation is to a certain extent doubtful. After having been accustomed to their new ration for some days, the teams were weighed. The second weighing took place at the expiration of 24 days.

1st weighing—			
No. 1, 4630 lbs.	No. 2, 4473.	The two teams, 9104.	Mean per horse, 1138.
2nd weighing—			
No. 1, 4566 lbs.	No. 2, 4345.	Ditto 8912.	Ditto 1114.
In 24 days—			
Loss 64.	Loss 128.	Loss 182.	Loss 24.

The loss experienced authorises us in thinking that the allowance was insufficient. The 30,88 lbs. of Potatoes are not really equivalent to 11 lbs. of hay. To adopt this conclusion, however, comparative observations of horses subjected to the same labour and kept on the normal allowance would have been necessary. This, however, unfortunately, was impossible, as all the horses had received Potatoes. Notwithstanding this diminution of

weight, the horses, it should be observed, worked remarkably well, and were in excellent health.—*M. J. B.*

Necessity of Drainage, Natural or Artificial, before Subsoil Ploughing.—The field which was the subject of the experiment was once a portion of the open common in the forest of Windsor, and brought into cultivation soon after the inclosure of the forest in 1813. Its soil consisted of a very moderate loam, inclined to yellow clay, only a few inches in depth; the subsoil chiefly a stiff clay, but with occasional portions of a very gravelly loam, nearly impervious to water. The surface is slightly undulated, and sufficiently inclined to let off the surface-water by means of open drains. It was first brought into cultivation by paring and burning the surface; and no very regular rotation of crops was followed. The first crop was Turnips, broadcast; a very good crop in consequence of the ashes. After this had been fed off by sheep, came Oats; a good crop. It was then chalked, at the rate of about 15 tumbrel-loads to the acre, and manured with good dung, 6 tumbrels per acre. After this, part of the field was planted with Potatoes, part with Beans, and part with Peas, as experiments; the crops were moderate. The next crops were half Wheat and half Oats; fair crops, about 3½ quarters of Wheat and between 5 and 6 quarters of Oats per acre. A similar course was pursued, with variations, till within a few years, when Rye-grass and Clover were sown with the last crop. The Grasses were mown twice for hay the next year. The two next years the field was pastured, chiefly with sheep. This I consider to have completed the preparatory cultivation; and the field, when broken up, showed a manifest improvement in the depth, colour, and texture of the soil. After that it bore Beans and Wheat. It was then fallowed, in order to clear it of the coarse natural Grasses which, in spite of all this cultivation, had not been entirely eradicated, and also of a considerable portion of Couch-grass (Triticum repens), which had increased in the soil. Six acres of the field were subsoil-ploughed, early in 1838, to the depth of 14 or 15 inches, by means of the Rackheath-plough, made by Messrs. Ransome and Co., at Ipswich. A common swing-plough (the only plough I ever use), with two horses abreast, first made a furrow of about 6 inches deep. Not having a large team, I had several such furrows opened, and then the two horses, and two more, who had been carting manure while the other pair was ploughing, were yoked to the Rackheath-plough, which stirred the subsoil 9 or 10 inches deep. The common plough after that filled up the furrows. Thus somewhat less than half an acre a day was subsoil-ploughed with four horses, the weather being very favourable. The land was now manured with 10 cart-loads of yard-dung to the acre; 1 acre was planted with Potatoes; in another acre Mangold Wurzel seed was drilled in rows 18 inches apart; 2 acres were sown with Swedish Turnips, and 2 acres with red Tankard Turnips. The Mangold Wurzel was either taken off early by the fly, or failed; and Turnip-seed was drilled over it. The Swedes were also sown a second time. Before Christmas there was a very good appearance of Swedes and Turnips, which had been properly hoed two or three times, and were clean. I congratulated myself on the result of the experiment; and began to feed off the Turnips with sheep, drawing a portion for the cows at home. The winter was wet, and I was soon obliged to remove the sheep. The ground became too hollow to bear the cart-wheels and the tread of the horses; and I began to regret having loosened the subsoil, which now held wet like a sponge. I had never thought that the field required underdraining. The water always ran off by the open drains before it was subsoil-ploughed; I might, therefore, very naturally have concluded that the subsoil-plough had now ruined my land. The Turnips were not eaten off or carted home till late in spring; and perhaps I should have lost the use of them altogether, or spoiled my land by cutting it up, if I had not determined on an effectual remedy. I immediately ordered 18,000 draining-tiles, which fortunately I procured from different kilns in the neighbourhood: they were the footed tiles. The common size cost 2 guineas a thousand, besides carriage: they were 13 inches long; those for the main drains cost 3 guineas a thousand, 6 inches in diameter, but only 12 inches long. I laid out the drains 30 feet apart; the common drains 26 inches deep, the main drains 30 inches. An immense volume of water ran out of the drains before the tiles were put in; and, in a short time after they were filled up, my sheep returned to the fold, and my cart took the daily supply of Turnips for the cows. The whole field was underdrained at a cost of 50*l.*, besides the carriage of the tiles, that is only 5*l.* per acre. Of the 6 acres which had been subsoil-ploughed, 2 were drilled with Chevalier Barley and 4 with Tartarian Oats. Red and white Clover, Rye-Grass, and other Grass-seeds, were sown after the land had been harrowed, and the surface was rolled. The season being moist, the Clover grew very rapidly, and the Barley suffered in consequence. The crop, notwithstanding, was fair, reckoned at about 4½ quarters to the acre; which is more than is usually grown in the neighbourhood. Had there been no Clover, 6 quarters might have been fairly expected from the length of the straw and ears. The Tartarian Oats kept down the Clover. The straw rose above a man's head, and the crop was very heavy. It is not threshed out, but we estimate it at 9 quarters to the acre. From the yield of a small portion threshed, I have reason to think it will exceed this. The field is now (Dec. 21st), after all the rain which has fallen in autumn, as dry and sound as any pasture I have. My cows and horses have been occasionally turned into the field without making any impression; and the old water-furrows, which were dug out by my men, from habit, are quite dry, with fine Clover in the bottom of them. The conclusion to be drawn from this experiment is important, as it shows that, wherever the subsoil is retentive of moisture, complete under-draining is essential; and that the subsoil-plough should never be used until the water can run off below.—*The Rev. W. L. Rham, 1st vol. Journal of the English Agricultural Society.*

French Agriculture in 1840.—A spirit of agricultural improvement is showing itself in France. At a moment when this subject is attracting so large a share of public attention in this country, it may be a matter of interest to some persons to know what is the present condition of agriculture among our neighbours in France, and what are the means in operation towards its advancement. That the two countries differ most widely in all that relates to agriculture—that, seeking the same end of improved cultivation, they set out almost from opposite points, and employ very different means,—would increase rather than diminish the interest of this inquiry. In England the land is in great measure owned by large proprietors, and cultivated by tenants possessed of capital and skill: in France the land is almost infinitely subdivided among small proprietors. In England the individual enterprise of landlords and tenants detects deficiencies, and supplies the remedy: in France, from the want of capitalists, the Government is obliged to take the part of instigator and chief agent in the career of improvement. In comparison with the English system of inclosures, France may be called one vast open field. You may travel from Calais to Paris, from Paris to the German frontier, to the Alps, to the Pyrenees, and scarcely see a hedge or a partition fence of any sort. This vast open field (unlike the open districts of England, where the operations of farming are generally conducted on the largest scale) is cut up into the smallest conceivable plots of every variety of produce. As far as the eye can reach, over vast plains bounded by sloping hills, you see the surface varied by every description of crop; none perhaps above an acre or two in size, the larger portion not more than the fourth or the eighth of an acre. Here a vineyard 100 yards by 20, there a strip of Wheat, Lucerne, Barley, Oats, Potatoes, Clover, Vetches. Few roads intersect this extensive garden, which from the nature of the cultivation must be traversed every day in all directions by the proprietors and cultivators of the various lots. The owner of a plot of Lucerne, half a mile from the high road, must pass one neighbour's vineyards, another's Wheat, and 50 such varieties, to reach his own plot, where he must cut his Lucerne, make it into hay, and carry it home, either on his own back, or piled on an ass or horse, along the narrow paths which intersect the plots. The residences of these proprietors are almost invariably congregated into villages or towns, and lie therefore, for the most part, quite wide of their respective allotments. Upon English principles of farming and of rural economy it is difficult to imagine how such a system of cultivation can be carried on successfully and profitably for a series of years. How is manure to be made? how are cattle, the great agents in reproduction, to be kept, and restoration to be made to the land? It is clear that over this vast open field, thus laid out, no cattle can depasture, and though a certain amount of stock may be kept in stables, the amount must be limited from the want of winter food, as few or no Turnips are seen, and the transport of manure to the distant plots from the want of roads and tracks must be operose and expensive. Such is the condition of a large portion of the surface of France.—*J. E. Denison, Esq., in English Agricultural Society's Journal.*

Visit to Mr. H. Davis's Farms.—In your last *Gazette* I find an article copied from *Bell's Weekly Messenger*. As I had also the advantage (for so I must call it) of inspecting Mr. H. Davis's farm twice in the present month, I conceive it may, in some degree, tend to the same end which, no doubt, the correspondent of *Bell's Weekly Messenger* had in view—namely, the diffusion of useful knowledge—if I add a word to his fair and plain statement. The great theory which Mr. H. Davis supports, and that very ably by his own practice, is "thin sowing." I have seen all the Wheats on Mr. Davis's farms, and also others under his management in the neighbourhood of Croydon, upon all of which thin sowing is practised. I agree with *Bell's* correspondent, that "some was thin and some as good as possible;" but I have not come to the conclusion, that "thin sowing is a dangerous experiment." The only conclusion you could fairly draw from Mr. H. Davis's Wheats, would be that arising from a comparison of his with those of other farmers in the neighbourhood. If all their Wheats had succeeded, so as to justify the opinion that a five-quarter per acre crop could be expected from them, and that a great proportion of Mr. H. Davis's was very inferior to theirs, the inference would be strong against his thin sowing; but I assert such is not the fact. To this I can speak with some certainty, as I rode over several farms in the neighbourhood of Croydon, as well as that of Mr. Davis; and I do not hesitate to say, that the comparison, not only of the Wheats, but also the entire farm management, is very much in favour of Mr. Hewitt Davis. In fact, that whole district suffered much this season from severe frost in March, and from wire-worm; but the thick-sown Wheat suffered quite as much as that which was thin sown; therefore neither the correspondent of *Bell*, nor his Devonshire friend, should conclude anything against thin sowing from their visit; except, indeed, this, which is much in its favour, that in a very unkindly spring some thin-sown Wheats are of the first quality, while some also thin sown suffers nothing in comparison with the thick sown of that vicinity. In conclusion, Sir, I must add, that my own practice has not been thin sowing; but, contrary to the "Devonshire farmer," all that I have seen on Mr. H. Davis's farms has tended to shake my confidence in my former practice; I do not say I shall adopt it on a large scale, but, if I live I propose to try it. Again, I know nothing of Devonshire farming; if it be as bad as a great deal in the Croydon district, it will admit of great improvement; and as Mr. H. Davis's farms have been the sole subject of the communication of *Bell's* correspondent, I must take the liberty of bearing witness to his very superior management generally. The prejudice of old farmers is almost proverbial; and he has had sufficient firmness, in the midst of this dense atmosphere of prejudice, to rise superior to it—to adopt altogether a new and improved system. I do not now allude to thin sowing, but generally; and I confidently hope and believe he will have a substantial recompense in plentiful crops. One word more, I never was acquainted with Mr. Davis till this month; I have not the pleasure of being acquainted with any of the other farmers in the vicinity of Croydon, therefore it must be plain I speak of systems, not of men. Will you believe it, Mr. Editor, the finger is almost pointed at Mr. Davis because he ploughs his land deep? I shall be much surprised, indeed, if Mr. H. Davis's example does not work a great reform in Surrey farming within a few years, if men will only cease to be prejudiced. Let them watch the progress of things—adopt nothing over hastily (farmers cannot afford to adopt every new theory, neither can they afford to adhere to every error); but when the light shines, I submit they should not call it darkness; the mind should be always open to improvement. There is much that is new in farming very valuable; and I, for one, do not advise any one to adopt a theory on a large scale until it is ascertained to be an improvement. —*F. S., in Dublin Farmers' Gazette, July* 5.

Condition of the Labourers at Saxby, Lincolnshire. —In the first place, the cottages are good, being brick and tile, and contain each four rooms, viz., two low rooms and two chambers, besides a back kitchen, pantry, &c., &c. For the cottage alone the rent charge is 30*s.*, to each of which is attached about an acre (some more, some less) of garden ground, for which they pay 28*s.* per acre, the average rent of their meadow and pasture land. Those keeping one cow have about 4 acres of meadow and pasture, and those keeping two cows about 7 or 8 acres, exclusive of the garden above described. The labourers' wages are 13*s.* 6*d.** per week; this has been the stated wages during the winter. The garden ground is cultivated with Potatoes, which enables them to feed two or three good pigs, which on an average weigh about 25 stone (14 lbs. to the stone): one pig they generally contrive to sell for the Michaelmas rent, the other for their own consumption. During the spring they have generally a good fat calf, which will fetch from 3*l.* to 3*l.* 10*s.* Having given you the principle upon which our cottages are rented, I will give you (as under) a few of the names, with the particulars, as they stand in the rent-roll:—

	Quantity.			Annual Value.		
	A.	R.	P.	£	*s.*	*d.*
George Atkinson, two cows	8	1	8	13	19	6
Jonathan Ashton, one do.	4	1	34	7	15	0
John Brocklesby, one do.	3	2	26	6	7	0
William Blair, one do.	3	3	30	7	1	0
John Clayton, one do.	4	0	1	7	2	0
William Jackson, one do.	4	0	27	7	0	0
Isaac Marshall, one do.	4	3	5	8	4	0
John Oglesby, two do.	8	1	19	13	5	0
John Pocklington, two do.....	7	0	1	11	9	2
Thomas Stephenson, two do....	7	1	39	14	10	0
George Turner, one do.	3	3	31	7	0	0
John Twidle, one do.	4	3	7	8	4	0
Joseph Thistleton, two do.....	8	0	25	13	0	0
John Walker, one do.....	4	3	23	8	7	0

What I have stated above is a fair specimen. We have in this parish about 40 cottagers, and I am happy to see them all comfortably fixed. The farmers generally draw the hay and coals for the cottagers in their employ. I have great pleasure in giving the particulars of our cottagers, and I should be glad to hear of other landlords following the example.—*John Horsley, Saxby, near Barton-on-Humber, April* 2, 1842.—*English Agricultural Society's Journal.*

How to Make a Water-meadow.—Being in the occupation of a meadow, containing 20 acres 2 roods, situate in the parish of Bicester, in the county of Oxford, which, from time immemorial, had been subject at certain seasons of the year to floods (causing the land to produce flags and all sorts of aquatic plants, to so great an extent that some parts of the produce were of little greater value than to lay into the yard to make dung), I was determined in the autumn of 1838, from the confidence I had in my landlord (being only a tenant-at-will) to try, at my own expense, the effect of irrigation on the said meadow. My first object was to ascertain, as near as I could, the probable expence of carrying my views into execution; this done, my next step was to satisfy myself of procuring a proper supply of wate and its quality. This also, on trial, proved satisfactor

* The wages would be now about 12*s.*

it being the produce of a spring oozing out of limestone rock and marl strata, distant from the spot about two miles, which was brought to the meadow by the brook adjoining. My next step was to throw a dam across the brook, and to do it in such a manner that it would not cause my neighbour's land on the other side to be inundated; therefore I made a sort of moveable dam or sluice, which I can put up and down at will, so as to regulate the water sufficiently for my purpose without doing injury to the opposite lands. My next object was to make myself sure that I could get the water off as quick as I could get it on; in this I was a little puzzled, as the middle part of the meadow was the lowest, being nearly as low as the bottom of the brook. This caused some consideration and trouble: however, a thought struck me that I would carry the main drain through the whole length of the mead, and dig it deep enough over the rising ground, which I did, and again succeeded to my entire satisfaction, as on this depended the completion of my enterprise. I next turned the water out of the brook over the whole 20 acres, in order to ascertain the levels, which I did by sticking down pegs and laying bits of turf in the hollow places level with the top of the water. I then let the water off by the main drain, which was already dug for that purpose; this enabled me to carry the water by small floats to the high parts, and to make all the small drains in the low parts, which made it something like running from ridge to furrow. I used no spirit-level, but proved the levels with water. Please to observe that when I let the water on the land, that part of the brook below the dam was empty, which then became the principal receiver for all the drains in the meadow. During the time the work was in hand I attended my labourers four or five hours each day, or as much time as I could spare; which I am convinced tended much to lessen the cost, as my object was to execute the work in the cheapest and most simple manner. I gave for digging all the main conductors and large drains 4*d*. per rod; for the medium drains 2*d*.; and for the small floats and drains 1*d*. per rod: the whole cost of this was 27*l*. 10*s*.; 10*l*. the sluices, and 5*l*. making the dam across the brook; making the whole cost 42*l*. 10*s*. In the beginning of the present year I began to float the meadow, and had not applied the water long to the land before I observed an evident improvement. I wish also to state that, on some of the worst parts of the meadow, where the flag-roots and aquatic plants were so blended with the soil, I dug the whole and laid the top downwards. I did not lay the spits too close together, but left sufficient room between each for the Grass to shoot up; and to my great surprise, the whole of the flags and aquatic plants disappeared, and an entire fresh herbage of good quality sprung up in their stead. If there were any difference in the crop, I think this spot had the advantage, the whole, however, produced the best crop I have ever seen, and which was cut in June last, and yielded more than 2 tons per acre, which was of double the value of any crop which I have had from any part of the said meadow, in any season, these last 20 years. As soon as the Grass was mowed and the hay cleared off, I let on the water again; and, in about five weeks, there was another crop fit for the scythe; but, having had enough hay-making in such a wet and trying season, I was afraid to encounter the second crop for hay; consequently, I turned in my cattle, consisting of horses, cows, and sheep, all of which appeared to do well: but when the working horses were taking up again to their work, they each and all were seized with a relaxation to such a degree that I was fearful some of them would die. This leads me to doubt whether the hay or Grass produced from water-meadows is proper food for working horses, though it answers well for milking cows and, in the spring of the year, for sheep, —say until June, but no longer. The mode I adopted in putting on the water was to float about one-half of the meadow at one time, letting the water on about three days and nights, and allowing it the same time to drain off, and so on alternately until the beginning of May, when I ceased. The fall of the water from the highest part (near the dam) in the brook to the point where the main drain empties itself again into the brook is, as near as I can ascertain, 22 inches.—*W. Paxton, Langford Farm, Bicester. — English Agricultural Society's Journal.*

On White Carrots.—In the spring of 1843, 5 acres were sown, of which 4½ acres were white and ½ an acre were red Altringham Carrots, to test their worth against the white—some seedsmen having asserted that they would answer equally well, perhaps from having great difficulty in supplying the demand for the white Carrot seed, which was very scarce in the spring of 1843; the sowing of the Altringham was unsuccessful, as also ½ an acre of land sown with the white, consequently I had only 4 acres, producing 1200 bushels per acre, or in the whole 4800 bushels; with these 24 fatting beasts were fed, adding equal quantities of Swede Turnips (both sliced by a machine), together with hay and oil-cake up to the month of April, 1844. For my cart-horses, 20 in number, about 10 lbs. of white Carrots were used, with a little corn and hay, from November, 1843, to the following April; and the Carrots were further applied in feeding 24 cows and two bulls to the same period, with very great economy of hay. The land for Carrots was dressed with sea-weed trenched into the ground in the autumn, previous to frosty weather. The Carrots were sown in April, and my bailiff's observation leads to the conclusion that Carrots do not draw the ground more than Swede Turnips. In preparing for a crop of Swedes, however, we necessarily dress the land well; whereas for Carrots we seldom dress the ground, sowing them generally after Wheat, or after Oats and seeds. In fact, this season I have a very promising crop of Flax after Carrots without any dressing. The land which last year bore Carrots is now in fallow for Wheat. In preparation for Carrots deep trenching is much preferable to ploughing, however deep, the crops being better; and this season the preference for drilling Carrots over sowing broadcast, is very evident. Having stated that the introduction of white Carrot culture economised hay, I proceed to offer proofs as follow: —In 1842: 238 acres of seeds and Grass produced 200 loads of hay; and when hay-making commenced in 1843 I had about 50 loads of old hay only in reserve. In 1843: 260 acres of seeds and Grass produced 505 loads of hay, besides 21 acres of Clover, producing 19 loads; and I had about 400 loads of hay in reserve when hay-making commenced in 1844. Showing a beneficial reserve of hay, chiefly to be attributed to the united effects of a very good crop of hay in 1843, and the reduction of its consumption by the use of white cattle Carrots, grown to considerable perfection on clay land in the Weald of Sussex, a soil which, without thorough good and frequent under-drainage, combined with a high state of cultivation, offers no hope of growing a crop of good Swede Turnips. Carrot seed is very easily saved by transplanting some of the Carrots of smaller size into portions of gardens, where not liable to injury by rabbits or hares.—*Sir C. Burrell, English Agricultural Society's Journal.*

Tenant-rights.—There are many tenants who, in the present state of the money market, would be able to borrow sufficient capital to effect those improvements which pertain both to landlord and tenant, if they had the security of a lease, or an agreement that, on quitting the farm, they should be repaid their outlay, subject to deductions, increasing for every year that had elapsed since the expenditure was incurred. Under such a system, a large portion of the wastes of Lincolnshire have been reclaimed by tenants-at-will; and few changes have taken place in the occupancy, which not unfrequently descends from father to son without a lease. A Lincolnshire farmer on quitting, receives from his landlord, or the incoming tenant, half the amount of his bill for oil-cake, consumed that year by his sheep and the beasts which tread his straw into manure. He receives, also, the amount of his expenditure for buildings, subject to a deduction of $\frac{1}{21}$ for every year he has enjoyed the benefit of it; for draining, subject to a deduction of $\frac{1}{14}$; for claying and chalking, of $\frac{1}{7}$; and for bones, of $\frac{1}{3}$, for each year. Such a system, though not so good as a leasehold tenure, is the best substitute for it.—*North British Review, May* 1845.

Notices to Correspondents.

Bacon—Will any correspondent, versed in curing bacon, be kind enough to state the best mode of curing it, as to flavour, keeping, and smoking it?

Colman's Report—*German Subscriber*—We have not seen a second report, and do not think it is published yet, but will inform you next week.

Cow-feeding—*R W*—Warne's jelly is good for this purpose; you should begin with 3 or 4 lbs daily, and keep increasing as long as the animal benefits, up to 10 or 12 lbs daily. You do not state the size of your paddock, but unless it is large it is needless to tether.

Dairy—*A Constant Subscriber* says his dairy is attached to his house on the north side, but in summer the heat has such an effect on the slate with which it is covered, that the milk quickly turns sour. Can any one suggest a covering which being placed on the slate during the very hot weather will repel the heat? How would it answer roughly to cover the roof with straw every morning during hot days?

Geese—*A Sub*—Will any of our correspondents be kind enough to inform us of the most economical and expeditious plan to fatten green geese at this time of year?

Hornbeams—*Anon*—The best time to plant them out in hedges is in November; use two years transplanted plants; plant them about 1 foot apart to form a continuous hedge.

House Manure—*Carmarthenshire*—The best way to dispose of it is to convey it by drain to some place where it may be at once mixed with large quantities of vegetable earth, &c., and made a compost of. You will find it very inconvenient to cart it away, and apply it directly to the land: but if you have determined on that plan you had better dig a tank (say 12 feet by 8 feet and 6 feet deep), into which the manure may run, the solid parts settling, and the liquid parts being pumped into carts and carried off. The tank should be walled and paved.

Implements—*Anon*—The party you name will make as good carts as any in the kingdom. For farm purposes, springs and cranked axles for carts are both unnecessary.

Poplars—*T W*—The best time to pollard them is immediately after the fall of the leaf.

Salt—*A Subscriber*—It is advisable to salt all hay in stacking it, but especially any which is somewhat spoiled. We will, next week, state the quantity usually so applied.

Turn-wrest Ploughs—*One who wants some* of these ploughs would be much obliged to any one who will give him his *experience* of the relative merits of the different forms manufactured by Lowcock, Ransome, Comins, Law, Sims, Wilkie, and others.

Markets.

SMITHFIELD, Monday, July 14.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	2	to 4s	4	Best Long-wools	4s	6 to 4s 14
Best Short Horns	3	10		4 2	Ewes and second quality	3	8 4 0
Second quality Beasts	3	0		3 6	Lambs	5	4 6 4
Calves	4	0		4 8	Pigs	3	4 4 4
Best Downs & Half-breds	4	10		5 2			

Beasts, 2060; Sheep and Lambs, 26,110; Calves, 169; Pigs, 275.

We have an increase in the supply of Beasts, the demand is also rather arger than on Monday last, but prices no better; indeed, our top quotations are not readily obtained. Scarcely any remain unsold.—The supply of Sheep is shorter, and the best qualities are rather dearer.—Good Lamb is also dearer. —Veal-trade is heavy.—Pork remains steady.

Friday, July 18.

Beef-trade is remarkably heavy, owing to a falling off in the demand. Best Scots, &c., 4s. to 4s. 2d.; best Short Horns, 3s. 6d. to 4s.; Second Quality, 2s. 10d. to 3s. 4d.—Mutton-trade is hardly so good as on Monday. Best Downs make about 5s; best Long-wools, 4s. 8d.; Ewes, &c., 3s. 8d. to 4s. 4d.—Lamb-trade is considerably worse, it being difficult to make 6s. of the best.—Trade is rather brisk for the best Veal; a choice Calf makes nearly 5s., but middling ones, of which there is a large supply, are a heavy sale at 4s. to 4s. 4d.—Pork-trade is hardly so good.

Beasts, 797; Sheep and Lambs, 5850; Calves, 467; Pigs, 314.

HOPS, Friday, July 18.

There is still a quantity of vermin in parts of the plantation; the late weather has been favourable to its increase, and should we have a continuance thereof, it may yet prove fatal to the crop.

Pattenden & Smith, Hop Factors.

COVENT GARDEN, July 19.—Owing to the continued fine weather the supplies of fruit and vegetables have been very good during the past week, and trade has been tolerably brisk. Pine-apples of English growth are plentiful and remarkably fine; large quantities of West India Pines have also been brought to the market during the week; they appear to be an improvement on last year's importations, the best of them being good in quality, and weighing from 3 to 4 lbs. each. Grapes are very good, and are selling at the same price as quoted in our last report. Excellent specimens of English and Dutch Melons may be obtained at last week's prices. Peaches and Nectarines of good quality continue to be abundantly supplied, as are also Strawberries and Cherries; the latter are very plentiful and cheap. Of Apples of this season's growth, a few of the Juneating and Hawthornden have made their appearance, and have met with a ready sale at from 2*s*. to 3*s*. per half sieve. Gooseberries and Currants of excellent quality are plentiful; trade for the latter has been better than in the preceding week, but large quantities being supplied from Holland, prices remain nearly the same. Of Vegetables there is abundance. The price of Cauliflowers continues the same as in our last report. Cabbages are very plentiful, and Potatoes have been abundantly supplied, which has had the effect of lowering the prices. The same remark applies to Peas, which are improving in quality, and remarkably plentiful. French Beans are considerably cheaper, the best samples fetching about 5*s*. per half sieve. Turnips and Carrots are good. Artichokes are tolerably plentiful, and Lettuces and all kinds of salading are sufficient for the demand. Asparagus and Rhubarb are becoming scarce, especially the latter. Among Cut Flowers we noticed several varieties of Alstrœmeria, Combretum purpureum, Sweet Peas, Pelargoniums, Gardenias, Picotees, Carnations, Moss, Provins and other Roses.

FRUITS.

Pine Apple, per lb., 5*s* to 8*s*	Oranges, per dozen, 1*s* to 3*s*
Grapes, Hothouse, per lb., 2*s* to 6*s*	— per 100, 7*s* to 16*s*
Peaches per doz., 4*s* to 15*s*	— bitter, per 100, 10*s* to 20*s*
Nectarines, per doz., 6*s* to 15*s*	Lemons, per dozen, 1*s* to 2*s*
Cherries, wall, per lb., 2*s* to 6*s*	— per 100, 8*s* to 16*s*
Apples, Dess., per bush., 10*s* to 15*s*	Almonds, per peck, 6*s*
— Kitchen, 6*s* to 12*s*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Melons, 4*s* to 8*s* each	Nuts, Barcelona, 24*s*
Strawberries, per pottle., 6*d* to 2*s*	— Brazil, 10*s*
Currants, per hf.-sv., 2*s* 6*d* to 5*s*	— Spanish, 2*s*
Gooseberries, per sieve, 4*s* to 5*s*	— Cob, 14*s*
Walnuts, per bushel, 7*s* to 9*s*	

VEGETABLES.

Cabbages, per doz., 3*d* to 1*s*	Celery, per bunch, 1*s* to 2*s*
Cauliflowers, per doz., 1*s* to 5*s*	Onions, per bunch, 3*d* to 1*s*
French Beans, per hf.-sv., 4*s* to 5*s*	— Spanish, per doz., 1*s* 6*d* to 4*s*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Shallots, per lb., 6*d* to 10*d*
Artichokes, per doz., 2*s* to 4*s*	Lettuce, per score, Cab., 6*d* to 1*s* 6*d*,
Potatoes, per ton, 40*s* to 60*s*	— — Cos, 6*d* to 1*s*
— cwt., 2*s* to 3*s*	Radishes, per doz. hands, 6*d* to 1*s*
— bushel, 1*s* 6*d* to 3*s*	Mushrooms, per pottle, 1*s* to 2*s*
— Kidney, per doz.lb., 1*s* 6*d* to 2*s*	Small Salads, per punnet, 2*d* to 3*d*
Turnips, per doz., 2*s* to 6*s*	Basil, green, per bunch, 6*d* to 9*d*
Red Beet, per doz., 1*s* to 3*s*	Fennel, per bunch, 2*d* to 3*d*
Carrots, per doz. bchs., 2*s* to 5*s*	Savory, per bunch, 4*d* to 6*d*
Rhubarb, per bundle, 4*d* to 6*d*	Thyme, per bunch, 4*d* to 6*d*
Peas, per sieve, 2*s* to 2*s* 6*d*	Watercress, p. 12 sm. bun. 4*d* to 6*d*
Asparagus, per bundle, 1*s* to 6*s*	Parsley, per half sieve, 6*d* to 1*s*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	— Roots, per bundle, 9*d*
Cucumbers, per doz., 2*s* to 9*s*	Tarragon, per bunch, 4*d*
Spinach, per sieve, 9*d* to 1*s* 6*d*	Mint, per bunch, 2*d* to 3*d*
Leeks, per doz., 2*s* to 3*s*	Marjoram, per bunch, 9*d*
Garlic, per lb., 8*d* to 10*d*	Chervil, per punnet, 3*d* to 4*d*

HAY.—Per Load of 36 Trusses.

Smithfield, July 17.

Prime old Meadow Hay	105*s* to 115*s*	Interior Hay	95 100*s*	Clover	—*s* to 126*s*
		New Hay	75*s* to 95	Straw	38 44

James Cooper, Salesman.

Cumberland Market, July 17.

Superior Mead. Hay	110*s* to 126*s*	Superior Clover	120*s* to 128*s*		
Inferior —	100 108	Interior „	105 112	Straw	40*s* to 44*s*
New Hay —	80 95	New Clover	95 110		

Joshua Barker, Hay Salesman.

MARK-LANE, Monday, July 14.

The supply of English Wheat at market this morning was unusually small, and taken off by the millers at a rise of 2*s*. per qr. upon the finest samples, and 1*s*. to 2*s*. upon the secondary and inferior descriptions; free Foreign also brought fully 1*s*. per qr. more than last week; bonded was held for an advance of 2*s*. to 3*s*. per qr. and *f.o.b.* even higher, but the rates asked caused the transactions to be limited; stocks in the Baltic are reduced to a very narrow compass, and holders refuse selling except at a further rise of 2*s*. to 3*s*. per qr. There is an inquiry for Malting Barley, both English and Foreign; Grinding remains unaltered in value, with a retail demand. Beans and Peas maintain our quotations. Oats are firm and in some instances command a slight advance. The millers have raised the top price of Flour 4*s*. per sack.

British, per Imperial Quarter,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk White	46	52	Red	45	49
—— Norfolk, Lincolnshire, and Yorkshire —	—	—	White	—	—
Barley, Malting and distilling 25*s* to 29*s*	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire Potands	20	23	Feed	19	22
—— Northumberland and Scotch Feed	20	22	Potato	21	24
—— Irish Feed	20	22	Potato	21	22
Malt, pale, ship	54	60			
—— Hertford and Essex	58	65			
Rye	29	32			
Beans, Mazagan, old and new 32 to 38	Tick	32	39	Harrow	34	40
—— Pigeon, Heligoland 37 to 44	Winds	—	—	Longpod	—	—
Peas, White 36 to 39	Maple	36	39	Grey	33	36

Friday, July 18.

There was very little Wheat of any kind offering for sale this morning, and the few samples of English were cleared off at Monday's prices; of bonded there are scarcely any sellers, nor did we hear of sales being effected. In Barley, Beans, and Peas, there is no alteration. Having an arrival of about 54,000 qrs. of Oats, including 33,550 from abroad, of which a large proportion are out of condition, dealers refrain from purchasing, the trade is consequently exceedingly heavy, and sales can only be proceeded with at a decline of 6*d*. to 1*s*. per qr. according to their condition.

Imperial Averages.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
June 7 per Quarter.	47*s* 7*d*	30*s* 2*d*	22*s* 2*d*	33*s* 0*d*	33*s* 0*d*	33*s* 1*d*
— 14	48 3	30 3	22 8	31 4	33 1	37 0
— 21	47 10	29 9	23 7	31 2	33 6	33 6
— 28	47 11	29 7	23 2	32 1	33 3	33 3
July 5	47 11	29 10	23 3	31 0	33 10	33 5
— 12	48 10	29 0	22 6	33 11	33 5	33 11
6 weeks' Aggreg. Aver.	48 1	29 9	23 7	32 1	33 9	33 4
Duties on Foreign Grain	20 0	9 0	6 0	10 6	4 6	4 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 12.

Price.	June 7	June 14	June 21	June 28	July 5	July 12
48*s*10*d*	..	..	..	..	..	
— 2	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..

SEEDS, July 18.

Canary	per qr	40*s* to 48*s*	Linseed Cakes, Foreign, p. ton	7*l* 10*s* to 9*l*		
Carraway	per cwt	44	48	Mustard, White	p. bush.	10*s* 14*s*
Clover, Red, English	—	—	—	— Superfine	„	12 16
— — Foreign	—	—	—	— Brown	„	12 16
— White, English	—	—	—	Rapeseed, English, per last	26*l*	30*l*
— — Foreign	—	—	—	Rape Cakes	per ton	— —
Coriander	—	19	18	Saintoin	—	— —
Hempseed	per last	35	36	Tares, Sng. winter	p. bush.	
Linseed	per qr	52	60	— Foreign	—	3
— Baltic	—	36	44	Trefoil	per cwt	18 22
— Cakes, Eng. per 1000	1M	9 11	10	Tuscan (too variable for quotation).		

Kingsford and Last.

Sales by Auction.

MEXICAN ORCHIDACEÆ, &c., FOR SALE BY AUCTION.

MESSRS. J. C. and S. STEVENS beg to announce they have just received a small consignment of CHOICE ORCHIDACEÆ, and a few Bulbs and Seeds from the more temperate parts of Mexico, chiefly from Chinantla, comprising several species believed to be altogether new, or but imperfectly known. They will be sold by Auction, in Lots, at their Great Room, 38, King-street, Covent Garden, on Thursday next, 24th July, at 12 for 1 o'clock; together with several collections of Dried Plants, the result of Sir R. Schomburgk's last expedition in British Guiana. Catalogues are preparing, and will be forwarded to collectors in due course. Note.—Messrs. S. beg to intimate that they are daily expecting notice of the arrival of the collection of Orchidaceæ from Guatemala, advertised in this Paper, 17th ult.

NURSERIES, CIRENCESTER, GLOUCESTERSHIRE.
UNPRECEDENTED SALE OF PLANTS.

In consequence of Mr. Gregory being about to quit one of his Nurseries, and not intending in future to cultivate plants so extensively,

MR. W. H. JEFFERIES is directed to Sell by Public Auction, upon the Premises adjoining the Railway Station, Cirencester, on Wednesday, July 23, 1845, several Thousand GREENHOUSE, STOVE and other PLANTS, consisting of Orchidaceous Plants, a choice Collection of Cacti, Camellias, Azaleas, Rhododendrons, Epacrises, Heaths, Geraniums, New Holland Plants, &c., amongst which are many fine Specimens, the whole of which will be sold without reserve; and as the lots will be very numerous, the Sale will positively commence at Ten o'Clock.

IMMENSE AND FINAL SALE OF BROWN'S TULIPS.—The Blooming and other offsets of this superb collection will comprise about Lots, from one bulb to 100 in a Lot, and will be absolutely sold to the highest bidder, Tuesday 5th, and Wednesday 6th, of August, in the Great Room (No. 9) at the Auction Mart, London. Catalogues will be sent, post free, to every applicant the instant they are printed.—GEO. GLENNY, Gardeners' Journal Office, 2, Tavistock-street, Strand.

TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

For Particulars, apply to F. and A. MACKIE, Norwich.

TO GARDENERS.

TO BE DISPOSED OF, IN ISLINGTON, A HOUSE, containing three rooms: with a good Garden, upwards of 20 rods of ground, well calculated for the growth of Flowerroots, having a good well of water; also an excellent business in the Jobbing line, with tools necessary for the purpose. Rent low. This is an opportunity seldom to be met with; the reason for giving it up is ill-health.—Apply to Mr. WATTS, Greengrocer, Islington-green.

GOLD AND SILVER PHEASANTS.

TO BE SOLD.—GOLD PHEASANTS in pairs, or single birds. Also, GOLD AND SILVER PHEASANTS of a yearling breed, and not in full plumage. Likewise, a very fine large SILVER COCK bird, Irish breed.—Direct to D. C., 189, Regent-street, London.

NURSERY AND SEED BUSINESS.

To be disposed of, the STOCK and GOOD-WILL of an old established NURSERY and SEED BUSINESS, with 17 acres of fine healthy Nursery Stock, consisting of Forest and Fruit-trees, Evergreen and Flowering Trees and Shrubs, American Plants, Greenhouse Plants, &c.; situate within five minutes' walk of the Market-place of Pontefract, and within seven minutes' walk of the intended Railway Station at Pontefract, and the neighbourhood studded with noblemen and gentlemen's mansions. Part of the purchase-money may remain on security, and a lease granted of all or part of the land.—Apply to Mr. RICHARD MILTON, Hull.—July 19, 1845.

NURSERY GROUNDS AND STOCK AT STIRLING, N.B.—The Subscribers, being so much occupied with their Agricultural trade at Stirling and Dublin, are desirous of relinquishing the Nursery branch of their business, and have therefore to apply to treat for the disposal of the whole of their NURSERY STOCK at a valuation; also for the unexpired term of the Lease of the GROUNDS, a long period being still to run. These Grounds, consisting of 12½ statute acres of excellent free soil, neatly subdivided and sheltered, are furnished with Dwelling House and Offices. The Stock is select, and of the most saleable description. The situation at Stirling central for railway and water conveyance.

To a party desirous of investing capital in a well-established business, this opening offers peculiar advantages.—Further particulars may be had on application to

W. DRUMMOND & SONS, Agricultural Museum, Stirling.

TO COLONISTS, EMIGRANTS, &c.—Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles made in a very superior manner, are kept on sale at the London Warehouse, viz.:—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 80 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double-action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

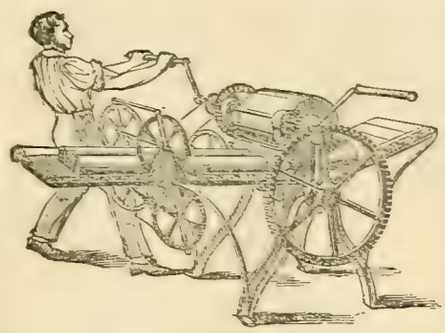
TO THE NOBILITY AND GENTRY.
IMPORTANT DECISION.—CHEAP WIRE WORK, &c.

A. B. SMITH & CO., of GLEBE-PLACE, KING'S-ROAD, CHELSEA, Manufacturers of Verandahs, Alcoves, Summer Retreats, Venison and Meat Larders, Dairies, Aviaries, Pheasantries, Dove Cotes, Cages and Coops, Invisible Wire and other Fences, Temple's Wire and Cast Iron Bordering Arches, Trainers for every purpose, Flower Stands in great variety, Hurdles, Cast Iron Hand Lights, ditto Chairs and Benches, Rustic Arbours, Chairs, Tables, Stools, and every article necessary for Horticultural and Zoological purposes. Having bought an immense stock of Wire and Iron when it was at its lowest price, A. B. SMITH & Co., of Glebe-place, have DECIDED upon letting those who may honour them with their patronage have the full benefit of it.—A large stock always kept; Models and Drawings, &c., at A. B. SMITH & Co., Glebe-place, King's-road, Chelsea.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a full can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Rams, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.





AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 14 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2 inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, £40. No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, £70. The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2s. to 3s., or 3s. 6d. per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

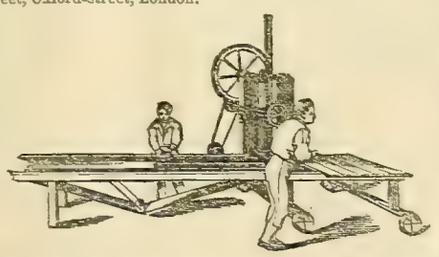
PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2¼ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

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DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and may be recommended with every confidence; are furnished by the Subscribers at their establishments, at 10s. each, and delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, or Londonderry, at 11s. 6d. each, and when more than three are taken, at 11s. each. N.B.—No Order will be attended to from unknown correspondents without a remittance.

W. DRUMMOND & SON, Agricultural Museum, Stirling, and 58, Dawson-street, Dublin.

BENJAMIN EDGINGTON, MARQUEE, TENT, FLAG, and RICK-CLOTH MANUFACTURER, 2, Duke-street, Southwark.

"Every hour, every minute of Lord Snowdon's time was now occupied in preparations for the reception of the royal party. * * * * Edgington was summoned in the Tent and Marquee department."—*Love and Pride*, vol. ii. p. 77.

Marquees and Tents with boarded floors, and tastefully lined, suitable for royal and noble parties, or fêtes of the most extensive and brilliant character, may be had at the above establishment. A warehouse, 208, Piccadilly.—Address at full length, BENJAMIN EDGINGTON, 2, Duke-street, Southwark.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, which has been exhibited at the Great Agricultural Shows of England, Scotland and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c., and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company, and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET), NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'Neill & Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, is F. M'NEILL and Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

VINAIGRE DE BOURDEAUX.—UNDER THE REDUCED TARIFF.

Now on Sale, ex "Reynard," 10 *Pipes*, 200 *Hogsheads*, 80 *Tierces*, *and* 60 *Quarter Casks of*

FRENCH WHITE-WINE VINEGAR, OF PUREST AND FINEST QUALITY.—In selecting the above, the Importers have availed themselves of the two-fold advantage of many years' experience in the manufacture at home, and a lengthened connexion with the first houses in the Vine-growing districts abroad. For Pickling, and every domestic use, this Vinegar, the genuine juice of the Grape, is strongly recommended as superior to all other. The Public may obtain it, at a moderate price, of the Chemists, Grocers, and Wine Merchants, whose names may be learned by applying to W. & S. KENT AND SONS, Upton-upon-Severn.—July, 1845.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130s, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

SILVER-PLATED DISH-COVERS.—A. B. SAVORY & SONS, MANUFACTURING SILVERSMITHS, 14, Cornhill, London, opposite the Bank of England, submit for choice in their Plate-rooms many patterns of SILVER-PLATED DISH-COVERS, of Sheffield Manufacture, from 15 to 20 Guineas the set, viz.:—

Double Dome Pattern. Size.	£	s.	d.	The Melon Pattern. Size.	£	s.	d.
Plated Dish-cover, 20 in.	5	13	6	1 Pltd. Dish-cover, 20 in.	5	17	0
,, Dish-cover, 18 in.	4	7	6	1 ,, Dish-cover, 16 in.	4	14	6
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Per set . .	£15	13	6	Per set . .	£16	17	6

The above have Silver Handles and Mountings, and Silver Shields for engraving the Crest or Coat of Arms. A Price Current, illustrated by drawings, and containing every information relative to the purchase of Silver or Sheffield Plate, may be had on application, or will be sent into the country free of postage, in answer to a paid letter.

MEEN FUN, the celebrated Chinese Cosmetic, Patronised by the Queen and the Royal Family.—The great value of this Cosmetic is, that the ingredients being solely herbaceous, the most delicate complexion can apply it without injury, while rough, red, and moist skins speedily experience beneficial results. Another most important feature is that of repressing, without detriment to the sanatory condition of the user, the truly unpleasant sensation accompanying too copious perspiration. Travellers and residents in warm climates, subject to the enervating influence of tropical heat, will, when the skin becomes moist and heated, experience inconceivable comfort by resorting to this Cosmetic, as it will both allay and avert discoloration and coarseness. Sold retail by all respectable perfumers, chemists, &c., in boxes price 3s. 6d. and 7s. 6d. each, and wholesale by the Proprietors, FABIAN and Co., late Watson, Fabian, and Co., 24, Mark-lane, London. Country agents required.

MEAT! MEAT! 25 lbs. Corned in Five Minutes, or Salted in Ten.—CARSON'S PATENT SALTING INSTRUMENT effects the above object in all climates. This Instrument is much valued by cooks in private families, residents in the tropics, captains, emigrants, hotel and eating-house keepers, butchers, and curers. With it a joint need never be lost, as it may be salted at any time, even at the instant a change is about to take place. Meat salted with this Instrument is rendered more tender, and, if dressed directly, all the properties of fresh Meat retained.—Price 30s. to 50s.—Cheap Depôts: C. Hockin & Co., 38, Duke-street, Manchester-square, and 1, Bishopsgate-street Within. Agents required for town and country.

Price Sixpence, stamped for free post, Sevenpence,

The Lancet,

Saturday, July 12, 1845,

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Pericarditis.
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Case of Strangulated Inguinal Hernia requiring Operation. By George Bottomley, Esq., Surgeon.
Case of Obscure Abnormal Pulsation in the Abdomen, treated with Tonics. By A. Wolff, Esq., Surgeon.
Case of Imperforate Hymen. By Thomas G. Vawdry, Esq., M.R.C.S.
Pregnancy, occurring with complete Occlusion of the Vagina. By C. Carter, M.D.
Periostic Tumour, the result of Stumps of Teeth remaining in the Jaw. By H. C. Vanderpant, Surgeon-Dentist.
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A System of Surgery. By J. M. Chelius. Translated by John F. South, Surgeon to St. Thomas's Hospital.
On Diseases of the Jaw; with a brief outline of their Surgical Anatomy, and a Description of the Operations for their Extirpation and Amputation. By R. O'Shaughnessy.
Royal Medical and Chirurgical Society.
BRITISH MEDICAL JOURNALS :—
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No. 2. Gonorrhœa and Syphilis with Reference to Forensic Medicine and Therapeutics.
No. 3. Yellow Skin and Black Vomit (?) in a Case of Fatal Otitis.
Case of Sudden Death, in which a portion of the Muscular Fibres of the Heart was found Ruptured.
Case of Intermittent Mental Disorders of the Tertian Type.
The Withdrawal of the Amended Bill by Sir James Graham.—The Position and Prospects of the Members of the Medical Profession.—The Representative System Imperatively demanded.
The Aggregate Meeting and Convocation of Surgeons.
MISCELLANEOUS LETTERS :—
Preparation of Inspissated Ox-Gall—Superiority of Desiccated Ox-Gall—The Crime of Infanticide—Strapping in the Treatment of Inflamed Testicles—The Approaching Election of Councillors of the College of Surgeons—The Great Western Railway Club—Note from Mr. Roebuck, M.P.—Qualifications of Existing Practitioners—Cholesterine in the Urine—Tic Douloureux—Illustrations of Quackery.
News of the Week, Remarks, and Criticisms—Royal College of Surgeons—Apothecaries' Hall—Correspondents.

London : JOHN CHURCHILL, Prince's-street, Soho; and may be obtained of all Booksellers and Newsvenders.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 30.—1845.] SATURDAY, JULY 26. PRICE 6*d.*

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Worton-cottage, Isleworth, July 26.

SMITH'S "QUEEN VICTORIA" FUCHSIA.

JOHN SMITH begs respectfully to inform his Friends who were disappointed owing to the smallness of the Stock of the above SPLENDID FUCHSIA, that he can now supply young healthy plants at 15*s.* each. An allowance to the Trade. It may be seen in flower at his Nursery with his Seedlings of the present year.—Dalston, July 26.

CARNATIONS AND PICOTEES.

MESSRS. N. AND B. NORMAN beg to invite the Nobility and Gentry to view their Superb Collection, which are this season in much finer condition than they have been for many years previous. Open daily from 10 till 8, during the present month.—Bull Fields, Woolwich, July 26.

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Ditto	VERBENAS	6*s.* do.
Ditto	PETUNIAS	12*s.* do.
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For particulars, see former Advertisements.
Great Yarmouth Nursery, July 26.

NEW AND SPLENDID SEEDLING ERICAS.

J. PAMPLIN & SON beg to inform the Nobility, Amateurs, and Trade, that they intend sending out their New Seedling ERICAS, which were exhibited and obtained prizes at the Royal Botanic Society, Regent's-park, July 2, 1845, and a Certificate of Merit from the London Horticultural Society, Chiswick, July 12, 1845, and much admired at the London Metropolitan Society, Somerset Coffee-house, Strand, fine strong plants are now ready at the following prices:—

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Do.	Do.	grandiflora	
Do.	Do.	delicata	Plants to be ready in July, 1846.
Do.	Do.	multiflora	
Do.	Do.	conspicua	
Do.	Do.	elegans	
Do.	Do.	magnifica	

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J. P. & SON beg to call attention to their extensive collection of Ericas, which are all worthy of growing, and may be had on reasonable terms. A remittance or reference from unknown correspondents.
Paradise Nursery, Hornsey-road, Islington, July 26.

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Chrysanthemums, best double varieties .. 9 0 per doz.
Cyclamens, of sorts .. .. 12 0 do.
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Verbenas Atrosanguinea, Boule de Feu, Alba-lutescens, and nine others of the newest sorts, 6*s.*
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German Seeds in Sealed Packets.

		s.	*d.*			*s.*	*d.*
40	Hollyhock, extra fine	8	0	12	Stock, ann., large P.	4	0
20	Do. do. ..	4	0	12	Do. do. branching	2	0
16	Poppy, fine double ..	3	0	12	Do. do. Prussian ..	2	0
8	Scabiosa, splendid ..	2	6	12	Do. do. autumnal	2	0
60	Stock, annual ..	8	0	16	Do. Queen & Brompton	3	0
25	Do. do. all dwarf	4	6	8	Do. do. do.	2	6
12	Do. do. ..	2	6	10	Wallflower, finest ..	2	6

Various Seeds in Separate Varieties, or Mixed.

		Sep. *s.*	*Sep.* *d.*	*Mix.* *s.*	*Mix.* *d.*
*8	Alstrœmeria ..	3	6	1	0
*5	Anemone ..	1	6	0	6
7	Aquilegia ..	1	6	0	6
6	Calliopsis ..	1	6	0	6
6	Clarkia ..	1	3	0	6
6	Delphinium ..	1	6	0	6
3	Do. Chinese			0	6
8	Dianthus ..	2	0	0	6
8	Digitalis ..	1	6	..	
3	Geum	1	0	0	6
8	Godetia ..	1	6	0	6
6	Linaria	1	0	0	3
*6	Marvel of Peru	1	6	0	3
6	Nemophila ..	1	6	..	
6	Œnothera ..	1	6	0	6
6	Papaver ..	1	6	0	6
8	Potentilla ..	1	6	0	6
6	Schizanthus, an.	1	3	0	6
*3	Do. biennial ..	1	0	0	6
	Snapdragon, 6 var.	1	6	0	6

		Mixed. *s.*	*Mixed.* *d.*
	Aquilegia, 30 var. new	1	0
	Auricu a, finest mixed	2	6
**	Brachycome ibiridifolia	1	0
	Carnation, finest dble.	2	6
	,, double ..	1	0
**	Calceolaria, new spot.	1	6
**	,, fine, mixed	1	0
**	Chinese Primrose ..	0	6
**	Cineraria, finest mixed	1	6
**	Cobœa scandens.. ..	0	6
**	Erica, 30 species ..	2	6
**	Geranium, finest mixed	2	6
**	,, small packet	1	0
*	Gladiolus, 20 fine vars.	1	6
**	Gloxinia, finest mixed.	1	0
	Heartsease, finest ..	1	0
	Hollyhock, 30 vars..	2	0
	,, 20 do ..	1	0
*	Ipomopsis picta ..	0	6
	Larkspur, dwf. German	0	6
	,, tall do..	0	6
**	Lophospermum, 3 vars.	0	6
**	Maurandya, mixed ..	0	6
	Pentstemon, 12 species	1	0
*	Phlox Drummondi,	1	0
	Picotee, extra fine ..	2	6
	,, fine	1	0
	Polyanthus, finest ..	1	0
*	Portulaca, mixed ..	0	6
	Ranunculus, finest mxd	1	0
	Rhododendron, mixed	1	0
	Scabiosa, 12 new vars.	1	0
	Stock, German, 20 vars	1	0
	,, 10-week, 6 do.	0	6
	,, new scarlet ..	0	6
	,, Brompton, 6 vars	0	6
	Sweet William, 20 vars	0	6
	,, new scarlet and crimson	0	6
**	Thunbergia alata, 3 varieties	0	6
	Wallflower, 10 vars ..	0	6
30	Hardy Perennials ..	7	0
15	Do. do	3	6
25	Hardy Annuals.. ..	5	0
12	Do. do	2	6
**	12 Greenhouse Seeds.	3	6
**	6 Greenhouse Climbers	2	0

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SYRED'S Hudibras, Fair Rosamond, and Bloomfield Beauty.
YOUELL'S Rose Charmanet, Hebe, Leonora, British Queen, Princess Royal, Trinandia, Duke of York, Speciosissima, and Magnifica.
ALEXANDER'S Grandis and Enchantress.
MORTON'S Emma.
PEARSON'S Beauty Supreme, Celestina, and Atrosanguinea.
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1 to 2 months old, 10*s.*; 3 to 4 ditto, 15*s.* per couple.
See Advertisement in this Paper of the 19th inst., and preceding dates.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen, the ivory handle is shaped like the blade of a curved penknife sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—*Opinion of Professor Lindley in the Gardener's Chronicle, July* 29, 1 43.
GEORGE PLUM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post office order for 3*s.* 2*d.*
G. P. cautions Floriculturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

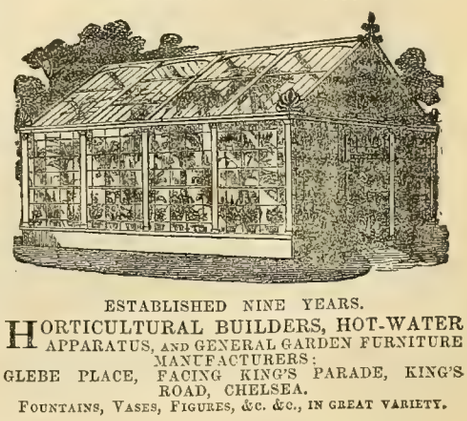
HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

FLOWER-POTS AND GARDEN SEATS.
JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

ORNAMENTAL WIRE-WORK.
G. B. THOMPSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 390, Oxford-street, their large stock of ORNAMENTAL FLOWER-STANDS, TRAINERS, ARCHES, and fancy Wirework, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements. Also their Improved WATER-POT, with finely-perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.
D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.
D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

SMITH AND CO.



ESTABLISHED NINE YEARS.
HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS:
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

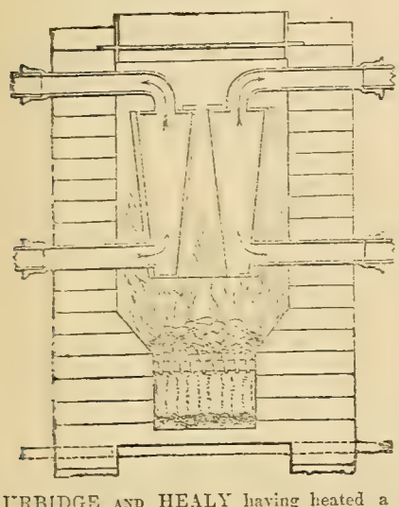
PRESTOE'S IMPROVED MUSHROOM SPAWN, Patronised by the Earl of Auckland, the London Horticultural Society, &c. &c.—This superior variety of MUSHROOM frequently attains 12 inches in diameter; the Spawn is made up in cakes of a proper size to plant whole.—See *Gardeners' Chronicle* for 19th of April and 3d of May last. Sold in baskets, a sufficient quantity to plant 50 feet of bed for 5*s.*, with printed instructions for cultivating Musbrooms in the Shed, the Cellar, the Garden, or the Field. The common Mushroom Spawn 5*s.* per bushel.—Shirley Nursery, near Southampton.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

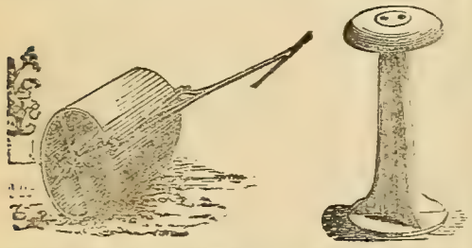
S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-Lights made and glazed from 1*s.* per foot.—Jas. WATTS's Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

TURNIP CROP.

GUANO.—Peruvian and Ichaboe, imported by A. GIBBS & Co., warranted first-rate quality by analysis. Bone-dust, Sulphuric Acid (with instructions for making Superphosphate of Lime), Phosphated Turnip Compost, Desiccated Ammonia, and all other Manures for Turnips; also Nitrates of Soda and Potash, Gypsum, &c.—Apply to MARK FOTHERGILL, 40, Upper Thames-street. Sole London Agent for Potter's Guano, invaluable for Turnips.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL; And by their Agents. COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL. 47, Lime-street, July 26.

GENUINE PERUVIAN GUANO, the Importation of Messrs. A. GIBBS & SONS, London; or Mr. MYERS, Liverpool. Strongest Sulphuric Acid, Sulphate of Soda for Potatoes, Sulphate and Phosphate of Ammonia, Superphosphate of Lime, Gypsum, Salt, and every other Artificial Manure.—London Manure Company, 40, New Bridge-street. E. PURSER, Secretary.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton: ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

LIQUID MANURE.

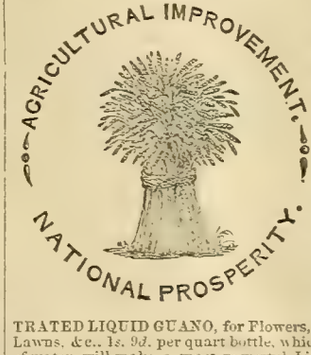
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN POWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town: Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

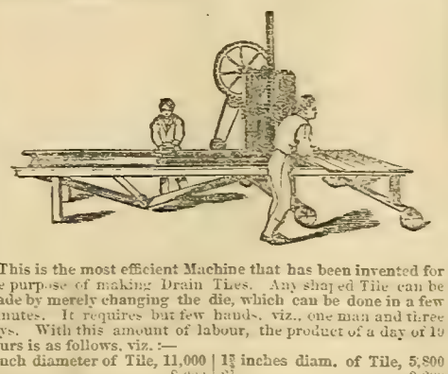
GENUINE CRUSHED BONE. 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-street, Samford-street, Blackfriars-road, London.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ " "	8,000	2½ " "	3,200

℞ See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

REAPING SCYTHE.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and may be recommended with every confidence; are furnished by the subscribers at their establishments, at 16*s.* each, and delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, or Londonderry, at 11*s.* 6*d.* each, and when more than three are taken, at 11*s.* each. N.B.—No Order will be attended to from unknown correspondents without a remittance.

W. DRUMMOND & SON, Agricultural Museum, Stirling, and 58, Dawson-street, Dublin.

BRITISH SHEET OR HORTICULTURAL GLASS. In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

WINDOW GLASS, MILLED LEAD, AND COLOURS.—Nurserymen, Market Gardeners, and others supplied with Crown and Sheet squares for Horticultural and Glazing purposes, at the lowest prices.

White Lead per cwt.	23*s.* 0*d.*	Milled Lead, per cwt.	21*s.* 0*d.*
Linseed Oil, per gall.	2 3	Cut to size, "	22 0
Turpentine, "	3 3	Pan Basins, each	7 0
Warranted Varnishes.		Plumbers' Brass Work, &c.	

Pumps, Closets, Pipes, and Brushes, Dry and Ground Colours, and all materials. Complete Lists (priced) may be had, gratis, on application to R. COGAN, 5, Prince's-street, Leicester-square, London.

Bee Glasses, Striking Glasses, and Fish Globes; Ornament Shades and Confection Glasses of all sizes.

CHEAP AND DURABLE ROOFING, AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company, and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

℞ Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'Neill & Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, is F. M'NEILL and Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 122, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber. JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

FOREIGN SHEET GLASS.

FREDERICK ELPHICK having opened a communication with one of the

FIRST HOUSES IN THE FOREIGN GLASS TRADE,

IS ABLE TO OFFER

SHEET GLASS, OF EXCELLENT QUALITY,

Averaging 18 oz. to the foot, cut to any dimensions, from 6 ins. by 4, to 24 by 20, at 5*d.* per ft., per 100 ft., for ready money only.

A Smaller Quantity will be charged 5½*d.* per foot.

*** *If quantities above* 1000 *feet at a time, as imported, are required, some abatement will be made in the price of* 5*d. per foot.*

This Glass is heavier than, but equal in quality to, the 2d Class of No. 1, Flattened Sheet Glass, in the English Tariff, the price of which, for similar sizes, is from 9*d.* to 1*s.* 2*d.* per foot.

Apply to FREDERICK ELPHICK, 28, Castle-street East, Oxford-street.

GLASS FOR HOT AND GREENHOUSES.

TESTA, ANDREWS AND CO., OF ANTWERP, respectfully invite the attention of the Horticultural Interest to their quality and price of GLASS, which they deliver at Brewer's-quay, London, in cases, containing 100 square feet.

For Greenhouse, } not exceeding 40 inches . 3¾*d.* per foot.
all sizes. } above 40 „ . . 3¾*d.* „
Window Glass, third quality . . . . . 3¼*d.* „
„ „ second „ . . . . . 4¼*d.* „

Samples may be seen, and further information obtained, on application to their agent, Mr. GEORGE RANN, 52, Mark-lane.

The Gardeners' Chronicle.

SATURDAY, JULY 26, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

FRIDAY, August 1—Botanical . . . . . 8 P.M.
TUESDAY, August 5—Horticultural . . . . . 3 P.M.

COUNTRY SHOW.

TUESDAY, July 29—Nottingham Carnation and Picotee.

WAIT, WAIT, has been hitherto our constant advice to the buyers of GLASS; and those who have taken that counsel will now reap the benefit of it. When the memorable glass tariff of April 5th was published by the glass trade, we had hoped that it was but a momentary price-list, to be abandoned in a few weeks. A very little contact, however, with the dealers in the commodity sufficed to dispel this delusion, and it soon became evident to us that no abatement in price was to be hoped for so long as the public would submit to pay whatever was demanded. One of our correspondents, indeed, with more candour than discretion, maintained that glass makers had a clear right to obtain the best price in their power for what they had to sell.

We had no intention, in the beginning, of arguing the matter upon the principle of "get all you can." We should as soon have thought of settling a difference between gentlemen by the maxims of a sharp-practising Old Bailey lawyer. But, *diis aliter visum est*; the glass deities would not agree to this; they laughed at our simplicity, declared themselves bound by nothing but the good old rule—

That they should keep who have the power,
And they should get who can,

and boldly stuck to their tariff.

That they had a right to do this could not be denied. In this free country we have no Pacha's prices, and it was impossible to dispute the force of the arguments of the glass trade. We therefore gave up the point, and ceased to apply a persuasive treatment to our patients.

But it was also evident that if the makers of glass had a right to sell their commodity as dear as they could, the buyers of glass had an equal right to procure it as cheap as they could. And therefore it was that we, on behalf of the buyers, raised the cry of WAIT. We resolved on bringing foreign glass into the field, for which time was required. We have done so, and with what effect we shall presently show.

It is a curious psychological fact that the most abusive men are often the most indignant when their own language is applied to themselves, and no man abhors sharp practice more than a sharp practitioner. So it is with the glass makers; they see no harm in taking the most unfair advantage of their momentary monopoly, but the instant the public tries to break it down by perfectly fair means, they cry out lustily, protest that they are hardly used, and complain of want of sale, difficult customers, and the abominable *Gardeners' Chronicle*.

In our columns a few weeks since was an advertisement from a firm at Antwerp, offering to deliver glass "free on board" at that town at Belgian prices. It was, however, accidentally placed in an inconspicuous part of the Paper, and, perhaps, did not attract attention; besides, Belgian prices are so much increased by duty, freight, and Custom-house charges of one sort or other, that few persons would be likely to calculate with accuracy the final cost of such glass by the time it is delivered in England. We therefore now invite attention to the fact that an agency for the sale of foreign glass has actually been established in London, and that any quantity, from a single square up to as much as would glaze a village, may be procured by all purchasers. We have examined that glass and can say that it is excellent. It is as good in quality as English sheet glass, called the second quality of No. 1; and thus far better—that the English glass weighs only 16 ounces to the foot, while this glass averages 18 ounces, a very important difference.

As to the price, we find the difference to amount to this. We quote English prices from the tariff, circulated by Messrs. CHATER and HAYWARD.

	English glass 16 oz. to the foot.	Foreign glass 18 oz. to the foot.	Difference against the English glass, and in favour of the buyer of foreign glass.
6 × 4 and under 9 × 7 .	0*s.* 9*d.*	5*d.*	4*d.*
9 × 7 and under 12 × 10 .	0 10	5	5
12 × 10 and under 24 . .	1 1	5	8
24 to 36 inches	1 2	5	9

And if larger sizes are required the only increase in price is 2*d.* a foot up to the greatest dimension made abroad, which we believe is much beyond anything that can be required for glazing purposes.

And here we see one of the most striking differences between the system of glass dealing in England and on the Continent. An English glass-cutter tells you that he cannot cut you a square of glass 9½ inches long, and 7½ inches wide, unless you give him a 1*d.* a foot more for it than if it is 9 inches long and 7 inches wide. He sets out by charging in the first place 9*d.* a foot for little pieces of glass worth 2*d.* or 3*d.* If half an inch is added, he claps on a 1*d.* more, until you arrive at the magnificent dimensions of 12 inches one way and 10 the other; for that you must pay 3*d.* a foot more. And so he goes on adding 2*d.* a foot, till at last, by this ingenious manœuvre he contrives to extract 2*s.* 3*d.* out of his customer's pocket, for that which is worth 3*d*; or taking his own exorbitant standard of value, he converts that which he admits to be worth only 9*d.* into 2*s.* 3*d.* Our calculating powers are unequal to determine how many thousands per cent. are pocketed by this scheme. That it is a mere scheme of trade is quite clear from the foreign practice. Messrs. TESTA and Co. publicly advertised that if their glass is under 40 inches long they must have 14 francs *per* 100 *feet;* and if it is more than 40 inches long they must have 17 francs *per* 100 *feet.* This is a very reasonable advance; the necessity for which is intelligible. But the English glass-trade say, that they must have from 1*d.* to 3*s. a foot* extra. So that an English glass-dealer requires a greater advance upon a single foot of glass than a foreign dealer finds necessary upon 100 feet. This is quite in character with Mr. CHATER's famous calculation of the cost of the carriage of glass from St. Helen's to London (see p. 343). How true is the saying *Quem Deus vult perdere prius dementit!*

The above was in type when a second advertisement by Messrs. TESTA and Co. was placed in our hands. From this it appears that foreign glass may be had at even lower prices than we above anticipated. We have not, however, leisure just now to compare quality, which is of course important.

SOME expresssions of disappointment at not gaining a prize having lately reached us from an exhibitor who sent a collection of fruit to the last Chiswick Exhibition, we cannot do better than offer a few remarks for the consideration of contributors of fruit generally; there being no doubt that the failure in obtaining a prize has often been caused by a want of judicious deliberation on the part of the exhibitor before he fixes on the letter in which he will show.

We know nothing of the merits of the collection just referred to. But it is quite certain that in some cases an attempt at grasping too much has ended in securing nothing. An exhibitor who might have gained a silver medal for a specimen of one particular kind, has unwisely attempted to form his fruit into a general collection, for which it was not qualified, in the hope of securing a gold medal, and of course has failed; for the Horticultural Society requires that such a collection should consist of "*at least* three different kinds," fully ripe and well coloured."

There were two collections at Chiswick on the 12th inst., which more especially appeared to us to come within these remarks. One consisted of British Queen Strawberries, Raspberries, and Currants; the Strawberries were exceedingly fine; but the Currants were so unripe that they were fit for kitchen use only. The other collection contained Noblesse Peaches, as fine as any at the exhibition; but they were accompanied by Grapes which were completely disqualified by their unripeness, and by some other things not deserving especial notice. If, in these instances the Strawberries and Peaches had been shown separately, they would undoubtedly have gained prizes; being shown as collections they gained nothing. It therefore behoves those who contend for medals to consider well before they determine in what letter they will exhibit—quality rather than quantity—should be their aim, and they never should attempt to make up a collection unless they can furnish at least three distinct kinds of fruit, each of first-rate character.

If fruit is entered as a collection, it must stand or fall by its merits as such. The judges cannot separate the good portion of a collection from the bad, and award a prize for the good part alone; they must treat the collection as a whole, and no otherwise.

The duties of the judges at exhibitions are frequently arduous and unpleasant, and in our own experience in such matters we have often witnessed a disposition to grant prizes when they were scarcely deserved, rather than to withhold them when justly due. But there are limits which cannot be passed. The judges are guided by the Society's published rules, and they are absolutely and very properly restrained from making an award in cases where the objects exhibited do not appear worthy of a medal.

We can enter fully into the feelings of disappointment entertained by an exhibitor, who after months of anxious exertion in contending against an adverse season, fails in his praiseworthy object of gaining a prize; and we offer these remarks in the hope that they may tend to diminish the number of such failures in future.

REMARKS ON THE VINE.

I FREQUENTLY find inquiries in the *Chronicle* about the propriety of stopping the shoots of growing young VINES. Some Tyros appear to imagine that stopping is a necessary point of etiquette that cannot be passed by with impunity. Now I must confess that I am one of those who think that this ceremony would at times be "more honoured in the breach than in the observance."

As to young Vines just planted, or not yet in bearing, I presume that one of the first objects of a good cultivator ought to be to obtain a considerable volume of healthy roots in the border, without which nothing else can avail long; these healthy roots, it is pretty well known, can never be obtained without a corresponding amount of leaves, which, together by their reciprocal action, ultimately produce the due amount of cambium, which, stored up in the system of the plant, furthers, in due time, the purposes of fructification.

As one leaf, however, will (more especially in houses) overlap another, our problem is, how to get the greatest amount of surface of leaf in a given space.

In pursuing this inquiry, it should be borne in mind that there is a very considerable difference between the functions of the leaves made on the central or main stem of a young Vine, and those produced from mere laterals (I mean in degree); the latter are both smaller in volume as well as weaker in capacity, and if encouraged too late in the autumn they (by keeping the vital forces in action at a period when from the deficiency of light they can make no adequate return in the shape of duly elaborated matter) will be in some degree inimical to the principal objects of Vine culture, viz., the attainment of the greatest quantity of the best fruit; and last, not least, the leaving sufficient unexhausted energies in the tree, to give a guarantee for future seasons. Therefore, in the management of young Vines, it appears that both science and substantial practice concur in advising that every respect be paid to increased surface of foliage, more especially of the earlier-made leaves, which are perfect for the elaborating process betimes, and which, if their great capabilities receive fair play, will, with a lively and unstagnated action of root, secure much, very much increased energies for the ensuing year.

What I practise, and what I would advise, is (with regard to young Vines), first, to strip off all the secondary or lateral leaves, which may intercept the light from the main stem or principal leaves. Now, this may be done without either disbudding the laterals totally or even stopping their points; and, secondly, after this object has been secured, to encourage all possible growth until the end of August, when I would both stop every lateral in the house and even remove several of those subordinate shoots which would only have the effect of intercepting the light from superior leaves, which are so well able to add to the general secretions of the plant.

With regard to fruiting Vines, I am of opinion that many are injured in constitution by too rigid an adherence to the very close stopping system. It may do well for those whose borders are so happily constituted in point of texture (quality is, forsooth, a secondary consideration), that a free and continuous amount of action is at all times to be calculated on; but this section of Vine-growers, I am much afraid, constitutes a fearful minority. But what is the case with those who, from certain local circumstances, are obliged to use soil in the construction of their borders, which they fear at the time may prove too adhesive? If such prove the case, and what is termed close-stopping is resorted to in a drenching summer, the consequence is a glutted system in the Vine, and a corresponding torpid action of root. For my part, I imagine that what is termed close-stopping, is perfectly proper as a means of concentrating the energies of the branch, *pro tempore*, and of enlarging the capacity of the berries during the first swelling; but having attained this object, we may safely allow them to ramble again for a time, during which circumstance the continual demand for sap in the shoot

provides against what we gardeners call a stunted character.

However, there is no reason why the terminal points of the Vine should not be allowed to range in freedom; and, although, perhaps in some slight degree it may be adverse to extreme size in the berry, yet that, if true, will be amply compensated for, in the increased power imparted to the root for the ensuing season. Nevertheless, it is to a properly constituted soil, as to its mere mechanical texture, that we must look for permanent success in the Vine; more especially out of doors, and in so fitful a climate as Britain.

Mr. Hoare's columns are, I understand, in part a failure; I am not astonished at this. An Eddystone light-house is not the sort of place for Vines in this country; although, I must add, that the fault is not in the pillar or column at present, but in the rough compost, which is, I am afraid, as dangerous an extreme on the one hand, as the recommendation of some tenacious soil would be on the other.—*R. Errington.*

CULTURE OF THE GUAVA.

WHEN properly managed, the Psidium pyriferum and P. Cattleyanum produce fruit that form no despicable addition to the dessert. The flavour is rich, and they possess a handsome appearance and an agreeable odour. Few cultivators, however, appear to care much about them, and they are rarely met with in a well-managed condition. To obtain this fruit in perfection, a similar course of treatment to that bestowed on the Vine is necessary; and by starting plants in succession, a supply of fruit may be had for almost as long a period. One of the most prevalent errors in practice is to confine the plants constantly to the stove; whereas they are not only capable of enduring the temperature of a greenhouse in winter, but are considerably benefitted by the change. Early in February, or if the fruit be forced, immediately before that process commences, the plant should be taken out of its pot, a quantity of the earth—which will then be somewhat dry—shaken from the roots, and the remaining ball immersed in aired water, and allowed to remain till the whole mass shall be saturated. It should then be taken out, and as soon as it has partially drained, pot it in a soil composed of strong turfy loam and reduced night-soil, that has been mixed in the compost-ground for a twelvemonth previous. When the plants are taken into the house (a Vinery beginning to force), plunge the pots in wooden troughs filled with sawdust, or some similar convenient material. This will maintain a more equable humidity and warmth in the soil, and will prevent the immediate action of the sun upon the pot—a point of some moment in obtaining large fruit. Little more after this is necessary, beyond preserving the usual atmospheric conditions essential to the Vine. Supplies of water should be carefully afforded, and after the plants are fairly excited, weak solutions of guano or liquid manure may be occasionally substituted. It will probably be necessary to thin the fruit, as a much larger quantity will usually set on a healthy plant than it can bring to maturity. In doing this, observe never to leave those that are near the base of the shoot, for they rarely make as fine fruit as those beyond them. Two are sufficient on a shoot, and when these have acquired about half size the shoot had better be stopped, or shortened, if it has extended far beyond them. They require as much sun during the ripening process as can be commanded; and it will be well at all times to give them a station as near as convenient to the glass, to prevent an attenuation of the shoots. And as maturation proceeds a degree of inspissation should also be induced by a gradual lessening of the amount of water furnished to the roots. Throughout the winter, let them stand almost dry, and provide them with a cool and airy place. It is desirable also that the plants should not be allowed to grow large; and to this end, and at the same time to preserve fertility, with vigour, the knife will be necessary. Prune so as to get rid of as much old wood as possible, to keep the bush open, and to promote the appearance of young bearing growths. The thrips is a frequent pest to the Guava, and will spoil both the appearance of the plant and the fruit, if not destroyed directly it makes its appearance. Syringing and sponging are the best preventives.—*Res Facta.*

THE PEACH TREE.

A GREAT deal has been written on the culture of this delicious fruit, although certainly not more than such a fruit deserves, when cultivated under glass and brought to perfection in early season. It is then that its value is enhanced threefold, and the skill of the gardener more particularly determined, for it would be absurd to deny that good gardening is not necessary to bring it to perfection. It is true, there are some who force Peaches, or rather the trees—for it is rarely or by mere accident they secure a crop, and that crop when obtained, a dexterous adept at Peach forcing would be ashamed to place in a dessert. Size and colour are strong evidence of good flavour, but in the absence of these it is scarcely possible to use a worse or more unwholesome fruit. To obtain a crop, and then to give that crop size and colour, may be set down as the art of Peach growing.

Being an old hand at Peach forcing, and not an unsuccessful one, I beg to throw out a few hints which may be of service to those who may not have succeeded so well as I have done. First, then, the border is the battle field, and this should be formed with something like a physiological knowledge of the constitution of the tree itself when planted, more especially under glass. Its tendency to wear out or become sterile, its liability to accidents, and other incidental casualties attending all fruits grown in forcing-houses, the production of shoots unfit for the production of fruit—the hatching of insects, to which this tree is especially subject—are a series of calamities which desolate Peach-houses, and with which badly-formed borders, have some connexion. Drainage, then, of the most perfect kind is absolutely demanded. On no tree do the effects of bad drainage sooner manifest itself than on the Peach. No operation can be more simple, or of so much importance, as that of draining a Peach-border; 9 inches of flints, stones, or brickbats, with under-drains to carry off the water, will accomplish this; on this lay 18 inches of mellow loam, of a turfy nature, from a dry healthy old pasture, without any manure, and the border is complete. This arrangement, like all others in good gardening, is without mystery, and when carried out, inexpensive in most places. One of the most important points in Peach growing is to get bearing-wood. The border has a great deal to do with this, for when manure is liberally supplied to the border, or when the roots have a superabundance of moisture, caused by imperfect drainage, the shoots under such circumstances are not of that quality which gardeners distinguish as short well-ripened bearing-wood. The soil I have ventured to recommend laid upon a dry bed, as above detailed, will correct this redundancy of growth; but there is still another important point to be attended to, and that is the ripening of the wood thoroughly. First, then, no more shoots should be left than are required for next year's bearing, all others are only incumbrances, preventing the access of light to those which should be left as well as to the fruit. The pruning of a Peach-house in autumn or winter ought to be a very simple operation, certainly unlike the thinning of a coppice which the tree too frequently presents.

There is an old-fashioned plan of tying the shoots of the current season as soon as they will admit of it; now, I am going to question the propriety of this system. True it is, that if 10 times more are left than are necessary, and these 18 inches or 2 feet in length, the sun could never penetrate through such a thicket, but we should content ourselves with bearing-wood 9 inches in length, if we mean it to bear anything else besides leaves, and these left sparingly, or only where they are absolutely wanted; these shoots, if left at proper distances, and allowed to grow—naturally (not tied in), will become hardened, and in every respect calculated to stand next season's forcing; at the same time, they will by no means obstruct the sun's rays from reaching the fruit; besides being short, they are only left at such distances as cannot in the least interfere with this; the difference of wood produced in this way, and on a border formed as above, compared with that grown in a thicket and smothered in leaves, and its tendency to fruitfulness, will be quite apparent to all practical and unprejudiced gardeners. Should there, however, be any sceptical as to the propriety and importance of these remarks, all I can urge in their behalf is a fair trial.—*One who has Handled the Knife.*

PROPAGATION OF IRISH GORSE.

IN the *Chronicle* of Jan. 4, Mr. Babington brings the Ulex stricta, or Irish Gorse, into notice as an agricultural fodder plant, stating the difficulty of obtaining seeds, but that it may be readily increased by cuttings. The difficulty of obtaining seeds arises from its flowering sparingly, and when it does flower the crowded lateral shoots growing upright smother the seed-vessels before they come to perfection, or if they do come to perfection it is almost impossible to find them.

Seeds of Irish Furze may be obtained at some of the seed-shops, imported from Ireland; but these are probably only Ulex europæa, as U. stricta is said to be only found in one locality in Ireland. The propagation of this plant from cuttings is certain, when the requisite care is taken of them. A surer method of propagation for the generality of agriculturists is by layering; and those wishing to give the plant a trial should obtain a few strong plants, and plant them in some convenient situation, and layer all the branches around each plant at least 6 inches in depth, leaving only 1 or 2 inches of the tops above-ground; they require no nicety in laying down, as they will root equally well whether each branch be put down singly or several together. If they are layered early in spring they will produce rooted plants fit for transplanting in October, so as to allow their roots to commence growing before the winter sets in. They may also be layered in autumn, and these will be fit for transplanting in the following autumn. In taking off the layers they may be divided into as many plants as can be found with roots, and they succeed best when planted deeper than previously, as they soon send out abundance of roots up to the very surface of the soil. The Irish Furze bears transplanting well, as it forms an entangled mass of roots; while the common Furze produce fewer roots, and does not bear transplanting with so much certainty. The plant thrives in almost any soil, but would probably be of most advantage on light sandy or gravelly land, which it would ultimately improve by its decaying masses of entangled fibrous roots. This plant is also worthy of being planted as an ornamental evergreen shrub; for, although producing few flowers, its formal compact habit contrasts well in winter with other evergreens.—*D. C.*

Home Correspondence.

Rotation of Crops.—It is a subject of paramount importance to know in what manner vegetables perform their functions, to maintain a healthy existence; how far they are influenced by atmospheric agents; and to what extent the soil ministers to their wants. It was the general opinion of the last and preceding century that the atmosphere contributed little or no advantage to the production of fruits and vegetables, unless the benefit of showers—being perceptible by the more luxuriant growth of the crops on which they descended, and the greater increase and better ripening of fruit visible from exposure to the genial influence of the sun—may be supposed to indicate some slight knowledge of the advantages of such influences; but to specify the qualities of the agents by which such changes were effected has been left for modern science to explain. Within the present century there have been many plausible theories suggested by some clever men, to explain the qualities of the atmospheric agents by which vegetation is influenced. Their views had been impeded by some thick mists that they could not see through, until Liebig penetrated them, and explained the whole phenomena so clearly, that all gardeners can now receive valuable instruction from the sound reasoning contained, and well-attested facts detailed in his writings. That manures were known to possess fertilising properties is evident from the perusal of the works of the many authors who have written on the subjects of gardening and farming. Tull had taken great pains to prove that by frequently stirring and pulverising land, and by deep diggings and ploughings, a soil may be made to produce better crops, and a succession of them, without any manure, than land neglected in such particulars, but supplied with manure, could do. The benefit derived from frequently stirring the soil around growing crops is generally admitted. Such benefit is to be attributed to the increased pulverisation of the soil, the more free admission of air, and the more certain destruction of weeds; but the nourishment that each crop extracts from the soil must be supplied as manures, organic and inorganic substances. A knowledge of the analysis of the plant to be grown, specifying the constituents of which it is composed, will give us the best clue to the application of the ingredients which it requires for its perfect development. It is well known that the second crop of the same sort of vegetables, grown on the same soil, will not be produced in the same perfection as the first crop. It is affirmed by some that an excrementitious matter, thrown off by the roots, will act injuriously on the same sort, if immediately following; in short, that such root-excretions will act as a poison to the succeeding crop. But it is certain that what was formerly attributed to root-excretions is now proved to be caused by the crop extracting from the soil the different ingredients necessary for its existence and maturity; and by partly or wholly exhausting it of such substances, of the elements of which it is composed, the succeeding crop is deprived of the food particularly required for its growth and maturity. By supplying the soil with the particular materials of which the plant is composed, we could then continue to grow the same crop on the same piece of ground for many years, the influences of air, heat, light, and moisture being the same. But until that more perfect knowledge, to which we are advancing rapidly, is attained, we must continue the rotation system of cropping. By that system the long tap-rooted vegetables, which extract nourishment from the soil at some distance from the surface, are succeeded by vegetables with fibrous or widely-spreading roots, which extend more closely to the surface; the ingredients extracted by one is no detriment to the other crop. But such practices cannot be long continued without a supply of manures, and the more the manures are made to contain the constituents of the plants cultivated, the greater will be the produce; and in proportion to the absence of one or more of such ingredients, will the crop be affected. Hence the importance of possessing a correct ash-analysis of plants as a guide to the best system of cultivation.—*William Keane, Chelsea.*

Hoare's Vine Pillars.—Last autumn I partly erected two Vine-pillars upon Mr. Hoare's plan, each 5 feet in diameter, and with bricks moulded for the purpose. In one pillar I planted four Vines and in the other two. The bare roots were placed between two layers of flannel soaked in soap-suds. I have at this moment one living Vine in each pillar, with quite healthy leaves of late growth. The other Vines have not yet vegetated. I intend planting Vines in my pillars out of pots, without breaking the balls, and expect by doing so to meet with full success. This I shall do the moment I can procure Vines fit for the purpose. I can do this without disturbing the growing Vines, by planting the new ones higher up the pillars. It may be proper to mention that in both instances of the living Vines, that the holes in the pillars through which they are to grow face north. The Vines which have not yet vegetated face other points.—*C. A. A. Lloyd, Whittington.*

Fairy Rings.—On the links of Montrose are a great many of these, the cause of which the good people here attribute to the droppings from horses, which are frequently broken in on the links. I see your correspondents give different theories in regard to the formation of fairy rings, but I am quite sure from observations which I have made, that where a ring had been formed by the breaking-in of a horse, next year the place where the horse had run upon would be covered over with fungi.—*Amateur.*

Stag Beetles.—During the sultry weather we had at

the end of June, and in the beginning of this month there has been an unusual abundance of the stag beetle (Lucanus Cervus). One evening at dusk, I was much interested in the unusual, and certainly exciting spectacle of a fierce combat between two large and powerful males of this species, to which my attention was first drawn by a crackling noise near my feet. A near examination soon convinced me that here was no child's play; but a downright battle to the death. The only weapons used being their powerful horns or antlers: sometimes both belligerents locked them fast together; and then the struggle was to rush forward and seize the enemy before he had time to open his horns for a fresh gripe. At one time I saw one vigourously seize his foe by the middle of his body over the wing cases, grasp him with such violence as perceptibly to compress his plate armour, and rising on his hinder legs, hold his unhappy foe high in the air, grinding him, and almost crushing him. This, however, was the most valorous deed I witnessed, and I regret to say that the obstinate prowess of these gaunt warriors drawing out the fight to tedious length of time, and also the approach of a thunder-storm, induced me to leave the field before it was lost or won. In my opinion the battle would have been a drawn one, unless they had other means of offence to resort to than repeated gripes of the horns, which could scarcely produce a fatal effect.—*F. A. M., Pulborough.*

Ceylon Rhododendrons.—Being an enthusiastic admirer of Rhododendrons, I have taken some pains to procure all the known species, and a number of the finest hybrids; among the former I have purchased nobile, Rollissonii, and zeylanicum, believing them at the time to be distinct and genuine species. I have been mistaken, however, and shall be much obliged if you will inform me in what respect they vary from each other. The first-named I accidentally lost, but the second and third have stood the last severe winter well, and are thriving in the open air. My experience, therefore, of the hardy constitution of these plants agrees with that of Mr. Croker, at p. 488; but as his communication is not dated, I cannot ascertain when his seedling was in bloom at Lord Kingston's. If R. nobile flowers in a conservatory during the month of July, it will form an invaluable union with some of the late-blooming Ponticums and Maximums, the only fault of the gorgeous hybrids now in cultivation being their early flowering. I take this opportuntiy of mentioning that a variety of Rhododendron arboreum, called Roylii, is decidedly more hardy than the original species, having received no injury dnring the last winter, whilst others in the same situation were much damaged. —*A Devonian.* [R. nobile, zeylanicum, and Rollissonii are only different names for the same thing.]

Heath Culture in Devonshire.—In the *Chronicle* of July 12, p. 472, I perceive Mr. Barnes, of Bicton, has made some inquiries relative to an observation which occurred in the Report of the June exhibition of the Horticultural Society, about the system of potting Heaths practised in Devonshire not being suitable for the neighbourhood of London, and wishes to know "what is the reason of this?" I am sure Mr. Barnes's good sense has taught him that the county of Devon possesses advantages for plant cultivation, which cannot be commanded in a more northern or more inland situation. First, the superincumbent air over the land at, say Sidmouth, a place contiguous to the sea, and much further south than London, is most favourable for vegetable development, in consequence of the south and south-west winds gathering up and carrying along with them moisture to southern vegetation, which moisture as the breezes travel inland is gradually deposited both by condension and absorption on the objects travelled over, until by the time these winds reach London, and many parts of England, they are not only deprived to a very great extent of the invigorating influence of their heat, but of their moisture also. Oh, but say the Devonians, "we have north and north-east winds as well as you have;" granted—but these winds come ashore at the north and north-east confines of this country, and as they approach London their capacity for carrying moisture becomes increased, in the same ratio as they become heated—and if this moisture is not supplied in sufficient quantity external to vegetation, the plants part with it—until they become completely withered up; but by the time these winds reach West Britain they are comparatively powerless, as moisture is added to them as they travel along the earth's surface until they reach Sidmouth, when they are completely neutralised by the power before alluded to. From the preceding observations it will be seen that the Devonian possesses many advantages over the Metropolitan cultivator, inasmuch as he has a warmer and more humid climate at all seasons, and cannot by any possibility suffer so much from drying winds, as we do near London. During the prevalence of north-east winds the past spring, the amount of evaporation in the garden here frequently exceeded 30-100ths of an inch per day; and I believe on one occasion, some years back, the amount of evaporation registered at the Observatory in Greenwich Park exceeded 1 inch in the 24 hours. Now, if Mr. B. will only consider that a steady shower, of 24 hours' duration, will rarely produce more than an inch of rain over the surface upon which it falls, and if he will also remember that on an average one-fourth of this quantity, or six hours' rain, is daily carried away from the earth's surface by evaporation, during the prevalence of north or north-east and drying winds, he will at once see that to expose the roots of delicate plants to its withering influence would be in the highest degree injudicious, and must be attended with most disastrous consequences. In the preceding remarks I have alluded to the management of Heaths and other greenhouse plants, as they are necessarily the most exposed to the natural atmosphere; but in the management of stove plants, Pines, &c., the matter is different. There the atmosphere is more under the control of the cultivator, and consequently the plants may be potted on the elevated system without injury, that is, if they are properly managed. However, under any circumstances, I doubt whether there is any real advantage to be gained. I will conclude with a general proposition, which may be of use to those who have not devoted much attention to this matter. When the air is supplied with moisture equal to its capacity for carrying it, the roots may be elevated with impunity; but when this is not the case an opposite course must be pursued, viz., by keeping the roots beneath the rim of the pot, and that to prevent those dry heated currents of air abstracting their moisture as it passes over the root, which, if they are raised high, become so stinted and dried up that, let the nutritive matter be what it may in the pot, it cannot pass in sufficient quantity to induce vigorous growth.—*Reporter.*

Berberis dulcis. — Your correspondent "Dodman," page 489, says it is not common to see this plant in full fruit; I, however, beg to inform him that, when in Ireland, I saw it in several gardens in full fruit, and I was assured that it fruited freely. The plants I observed were in pots, plunged to the rim in a border. I also assure "Dodman" that this fruit makes excellent tarts, at least according to my taste.—*J. M'Intosh.*

Blister of the Peach-leaf.—My soil is deep land on clay. I had against a wall, the border of which was, I suspect, but imperfectly drained, four or five Peach trees, and nearly every year the leaves of the trees were blistered. Last autumn they were all moved to a border completely drained, and I do not think there were half a dozen blistered leaves; though if early or late spring colds produced this evil, there never was a season more likely to produce it.—*Dodman.*

Miscellaneous.—J. C. mentions that where large pots for growing plants in in summer cannot be procured on account of the expense, Seakale pots turned bottom upwards, placing the lid inside, with the convex side upwards, as part of the crocking, answer the purpose admirably. In this way he grows Verbenas, Fuchsias, Petunias, Pelargoniums, and other quick growing plants with perfect success. In autumn the plants are taken out of the pots, the balls are reduced, and placed in small pots, in which the plants remain through the winter. In spring the pots can be again used for forcing Seakale, &c.

Foreign Correspondence.

Royal Horticultural Society of Paris.—This, the Annual Exhibition, was held on the 10th July and three following days. The weather has been for several weeks past anything but favourable for fruit or flowers; wind, rain, and storms have been of almost daily occurrence; the thermometer on some days ranging as high as 86° or 90° Fahr., and then suddenly falling to 46° and 50°. Several active friends of this Society have been unwearied in their exertions, both personally and by their monthly Journal, to induce gardeners to exhibit, but success did not fully attend their efforts, for certainly as a whole, a poorer show has not often been seen in Paris; at least one half of the things never ought to have been admitted within the doors as show flowers. The unfavourable season no doubt partly conduced to the failure, but other causes exercised a still more blighting influence over its destiny. Bad management and unjust awards have engendered among the public a total want of confidence, and prevents them from exhibiting; and until these abuses are reformed, this Society can never realize the good it might otherwise effect. Rules and regulations, even the most stringent, are completely set at nought both by Judges and Exhibitors. *Camaraderie* is found more likely to insure a prize than fine flowers, and thus Paris Exhibitions continue far in arrear; not but what there are many honourable men in both the Societies who would gladly see these abuses swept away, but unfortunately the cleansing of the Augean stable is beyond their power. The Exhibition contained between 2000 and 3000 specimens of plants, fruit, vegetables, paintings, and horticultural implements; among this number were some good things, although not equal in size to those usually shown near London. M. L'Homme had a splendid Stanhopea oculata, the rare and curious Angræcum eburneum, Zygopetalum maxillare, Bilbergia zebrina, Sabal Adansoni, Hohenbergia strobilacea, Malpighia coccifera, and Oncidium Papilio in fine flower. MM. Cels had some fine Orchids, among them a splendid Brassia Cowanii with two large spikes of flowers, Stanhopea tigrina, Phaius bicolor, Epidendrum cochleatum, Oncidium pulvinatum, Cattleya Forbesii, and Camarotis purpurea, together with some nice bushy Ericas, well covered with bloom, but not large plants; among them I noticed ventricosa carnea, coccinea, and superba, Cavendishii, retorta major, vestita fulgida, and ampullacea; also a new Cuphea and Gloxinia Cartonii; this was by far the finest collection, but did not appear to have had any prize awarded to it, for the principal Gold Medal was given to M. Souchet fils for a collection every way inferior in growth or size, and here I may mention, *en passant*, that the best things he exhibited had been purchased in London expressly for this show hardly 10 days before, and so little delicacy was manifested that the labels of Henderson, Lowe, or Rollisson still remained on the plants; among them was Oncidium pubes, Maxillaria Deppii, Gongora varietas, Maxillaria aromatica, Ardisia hymenandra, Gloxinia Rollissonii, Mussænda macrophylla, Napoleona imperialis, Luculia Pinceana, Gesnera albiflora, Begonia coccinea, Veronica salicifolia, Brachysema longifolia, between 20 and 30 plants not in flower, several small Ericas, Sweetwilliams, and Indian Pinks. M. Dufoy was awarded the second Silver Medal for 60 Pelargoniums, 30 Dahlias, and 20 Verbenas. The Dahlias were fine grafted plants in pots, and exceedingly well flowered; among them were Raphael, Standard of Perfection, Hero of Maida, Spitfire, Zoe, Odalisque, Lady Antrobus, Delectus, La Lionne, La Vogue, Beauty of England, Marie, Leopold Hoffman, Athlete, Schöne, Erfurterin, Lady Cooper, Madame Miellez, Venusta, Lady St. Maur, Alamode, Prince of Wales, and Beauty of Birmingham; he had also some fine large showy Verbenas — La Reine, delicate rose and crimson centre; Phœnix, very dark and crimson violet; Josephine, light blue; Leonora, fine rose. The Pelargoniums were good showy market plants. M. Chauviere gained the first Silver Medal for a large collection of hot and greenhouse plants, many of them good things, but not at all calculated for exhibition, being small and drawn up. M. Thibaut was also awarded a Silver Medal for a general collection of Plants—Pelargoniums, Fuchsias, Verbenas, Petunias, &c. M. Jacques, the Gold Medal of the Princess Adelaide for a collection of very ordinary-grown plants, and only remarkable for a number of old-fashioned things now discarded, such as Mimulus cardinalis and rosea, Achimenes coccinea and rosea, Fuchsias globosa, coccinea, and the earliest hybrids; Gloxinia caulescens, Vinca rosea, Amaranthus tricolor, &c.; he had, however, a fine plant of Cymbidium aloifolium, and 8 or 10 pretty seedling Alströmerias. M. Pelé showed an excellent collection of herbaceous plants, in which were Campanula grandiflora, Coronilla varia, Phlomis agraria, Anomatheca cruenta, Teucrium canadense. M. Ryfkogel was awarded a Gold Medal for hard-wooded plants, very few of which were in flower, and also a Silver Medal for a fine specimen of Veronica speciosa; this had nearly 50 heads of bloom. MM. Vilmorin and Co had a very pretty collection of cut flowers, including most of the new annuals; the Balsams and Cockscombs were very good; among the former were several very double and fine in colour—rose spotted white, red spotted white, scarlet spotted white, and purple spotted white; among the latter—yellow, orange, red, rose, carmine, crimson, and dark brown. They also exhibited a piece of cloth almost as fine as muslin, manufactured from the Urtica nivea. There were three large collections of Carnations and Picotees in pots. M. Tripet Leblanc had nearly 300 varieties and gained the first prize. M. Ragonot the second, and M. Dubos a *mention honourable*; almost all these varieties were of French or Belgian origin, large and of fantastic colours, but not at all up to the English standard in point of form; indeed this is of secondary consequence here. The Roses were not so numerous as last year, and very few novelties were produced. M. Verdier had some seedlings, two of which were fine in form and colour—one purple crimson, the other deep carmine. His general collection obtained the Gold Medal of the Duchess d'Orleans, and contained more than 300 cut flowers of all the finest varieties. La Reine was splendid, also Paul Joseph, Comice de Seine, and Marie, Smithii, Souchet, Comte de Paris, Reine de la Guillotière, Emile Courtier, Souvenir de la Malmaison, Adam, Bergmann, Souvenir de Dumont D'Urville, Clementine, Baron Pasquier, Brennus, Madame Hardy, Jaune Desprez, Mrs. Bosanquet, Parquin, Niphetos, Ida, Reine des Isles Bourbon, Beluze, and many others. The collections from MM. René, Jamain, Burel, and Margottin were small and not individually equal to the preceding. There were but five or six exhibitors of fruit and vegetables. Two Pines, and these unripe; about a dozen really fine Melons; a few Currants, Cherries, and Strawberries; together with some small bundles of Cauliflower, Carrots, Celery, Lettuce, Radishes, and Endive completed this department, although Paris and its environs contain some thousands of market gardeners. M. Pivet was awarded the first Gold Medal, M. Duverne the second, and MM. Noblet and Tussaint, Silver Medals.

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

July 23.—This, the fourth exhibition for the season, was held in the Surrey Zoological Gardens, and considering the unfavourable state of the weather, was tolerably well attended. The exhibition was a good one; the plants in the different collections were produced in fine condition, the contributions were numerous, and altogether we consider this the best gathering we have seen in these gardens. The best collection of Miscellaneous Plants was shown by Mr. Bruce, of Lower Tooting, who sent a tall well-flowered specimen of Ixora coccinea, Stephanotus floribunda, the pretty blue-flowered Roella ciliata, and an exceedingly well-grown Aphelexis humilis. From the same collection were also Rondeletia speciosa, Astelma eximia, and several Achimenes and Heaths. The group to which the gold medal was awarded was produced by Mr. Ayres, of Brooklands, Blackheath. In this we remarked Veronica speciosa, well grown, but not in fine bloom; the useful Begonia coccinea, Gloriosa superba, a famous plant of Crowea saligna, and a large Clerodendrum infortunatum. Mr. Ayres sent, moreover, a well-grown

Witsenia corymbosa, and the showy Kalosanthes coccinea, together with Angelonia Gardneriana, and several Heaths; among which was ampullacea, about 8 ins. in height, and 18 ins. in diameter, literally a mass of white bloom.—Mr. Young won the third prize with a group, in which were Lilium longiflorum, Sollya heterophylla, and several Heaths.—For miscellaneous collections of 10 plants, the first prize was awarded to Mr. Roser, who produced a large Erica Bowei, Gloxinia speciosa, and some Achimenes and Heaths.—Mr. Hamp won the second prize, with a group, in which were Erythrina Crista-galli, several Heaths, Gloxinias, and three species of Achimenes. The third prize, a small Linnean Medal, was awarded to Mr. Schroder, for Angelonia Gardneriana, Erica ampullacea, and other plants.—Mr. Kay, of Norwood, sent a Malva, a large Abutilon striatum, and a capital Mahernia incisa.—For the best four specimen plants the first prize was awarded to Mr. Ayres, for Leschenaultia formosa, exceedingly well grown; Pentas carnea, Clerodendrum paniculatum, and a specimen of Cape Heath.—Mr. Bruce received the second prize, for a fine Sinningia hybrida, with greenish white flowers, Boronia serrulata and viminea, and Pimelea decussata. Of the genus Erica there was a fine display from the nursery of Messrs. Fairbairn, of Clapham, who produced many excellent specimens of good cultivation. A first prize was awarded for them. Mr. Dawson, of Brixton Hill, was second.—For this interesting tribe a first prize was also awarded to Mr. Bruce; a second to Mr. Roser, and a third to Mr. Doran, as amateurs.—Of Single Specimens, Mr. Dawson sent a fine Erica Massoni, which received the first prize; Mr. Fairbairn, E. Shannoni; and Mr. Cuthill, Lisianthus Russellianus. The display of cut flowers and Roses, which were fine, was not the least interesting part of the exhibition.—Among nurserymen the competition for the latter was between Messrs. Paul and Francis, the former being first and the latter second.—Among amateurs, Mr. Terry was first.—For cut flowers the first prize was awarded to Mr. Bruce.—Mr. Schroder sent a small group of Orchids, containing Stanhopea insignis, Broughtonia sanguinea, Vanda cristata, and the showy Cattleya intermedia.—The contributions from the growers of Picotees and Carnations were both numerous and fine, and the display of these lovely flowers excited much interest; the following list shows to whom prizes were awarded, and the flowers in the winning stands.—Among Amateurs, for 12 white-ground Picotees, the Gold Medal was awarded to G. Edmonds, Esq., whose stand contained the following flowers:—Lady Alice Peel, seedling 104, Green's Queen, Burroughes' Miss Jane, Crask's Queen, Edmonds' Prince of Wales, Mrs. Barnard, Burroughes' Mrs. Bevan, Wildman's Isabella, Ely's Field Marshall, Barraud's Bride, and Lady Chesterfield. Second prize, large Silver Victoria Medal to Mr. Embleton, for Willmer's Prince Royal, Russell's Lady Hardwick, Dickson's Robert Stanford, Trip to Cambridge, and Lady Jane Grey, Robinson's Nottingham Hero, Kirtland's Queen Victoria, Burroughes' Mrs. Bevan, Brinkler's Lady Emily, Gidden's Teaser, John's Prince Albert, and Sharp's Lalla Rookh. Third prize, small Silver Victoria Medal, Mr. Newhall, for Norwich Rival, Barraud's Bride, Wood's Princess Alice, Burroughes' Mrs. Bevan, Crask's Prince Albert, Wilson's Fanny Irby, Aggripina, John's Prince Albert, Brinkler's Lady Flower, Sharp's La Delicata, Halliday's Fair Phillis, and Brinkler's Lady Chesterfield. Fourth prize, small Silver Linnean Medal, to Mr. Leach. Fifth prize, small Minerva Medal, Mr. Trevers, for Mrs. Bevan, Prince Royal, Vespatian, Tande's Queen, Gidden's Teaser, Mrs. Barnard, Gidden's Sir R. Peel, Lady Dacre, John's Prince Albert, Agitator, Lady Flower, and Wildman's Isabella.—In Carnations, the first prize, the Gold Medal, was awarded to Mr. Reeves; in this collection were Lady Rowley, Amato, Mansley's Beauty of Woodhouse, Squire's Defiance, Cartwright's Rainbow, Strong's King, Jacques' Iris, Smith's Wellington, Alfred, Willmer's Conquering Hero, Wilson's Harriet, Wood's William the Fourth. Second prize, large Linnean Medal, Mr. Trevers; Strong's Duke of York, and Duke of Roxburgh, Puxley's Prince Albert, Calcutt's Brutus, Wood's William the Fourth, Count Paulina, Monarch, Smith's Earl of Chandos, Hero of Middlesex, Arthur Clinton, Willmer's Endymion, and Sunbeam. Third prize, small Victoria Medal, Mr. Leach. Fourth prize, small Minerva Medal, Mr. Alleway. Class 2d, for Nurserymen, &c. For the best 12 white ground Picotees, the First prize, the large Silver Linnean Medal, was awarded to Mr. Keynes, Salisbury, whose stand contained the following flowers:—Crask's Queen Victoria, Burroughes' Mrs. Bevan, Ely's Field Marshall, Tande's Victoria, Ely's Favourite, Willmer's Princess Royal, Burroughes' Duke of Newcastle, Dickson's Trip to Cambridge, Kirtland's Augusta, Brinkler's Lady Chesterfield, Sharp's Cleopatra, and l'Elegant. Second prize, small Silver Victoria Medal to Mr. Norman, of Woolwich, for Sharp's Gem, Kirtland's Princess Augusta, Wildman's Isabella, Burroughes' Duke of Newcastle, Crask's Prince Albert, Dickson's Trip to Cambridge, John's Prince Albert, Burroughes' Mrs. Bevan, Norman's Queen of Purples, Willmer's Bride, Barraud's Bride, and Kirtland's Queen Victoria. Third prize, small Silver Minerva Medal, Mr. Dickson, Acre Lane, Brixton, Gidden's Teaser, Willmer's Prince Royal, Burroughes' Duke of Newcastle, Dickson's Sophia, Seedling 10, and Trip to Cambridge, Kirtland's Queen Victoria, and Mrs. Annesley, Burroughes' Mrs. Bevan, Dickson's Charles Stanford, Hero of Nottingham, and Brinkler's Lady Chesterfield.

CARNATIONS.—For the best 12 Carnations, the large Silver Linnean Medal was awarded to Messrs. Norman, for Smith's Lord Combermere, Flora's Garland, Cartwright's Rainbow, Ely's Rowland Hill, Mansley's Beauty of Woodhouse, Ely's Lady Ely, Willmer's Duke of York, Wildman's Bonaparte, Puxley's Prince Albert, Ely's John Wright, Hepworth's True Briton, Holmes's Count Paulina. Second prize, small Silver Victoria Medal, to Mr. Ward, of Woolwich, for Young's Earl Grey, Strong's Duke of York, Ward's No. 5, Calcutt's Brutus, a magnificent bloom; Beauty of Woodhouse, Young's XX, Ely's Mango, Puxley's Prince Albert, Hepworth's True Briton, Hale's Prince Albert, Ely's Mrs. Bunkill, and Ringleader. Third prize, small Silver Minerva Medal, to Mr. Keynes, for Holmes's Count Paulina, Flora's Garland, Ely's Mango, Hyson's Defiance, Hepworth's True Briton, Cartwright's Rainbow, Hughes's Bees'-wing, Puxley's Prince Albert, Wildman's Bonaparte, Mansley's Beauty of Woodhouse, Willmer's Conquering Hero, and Hepworth's Leader. The Silver Cup, value 5 guineas, offered by Mr. Jno. Dickson to Amateurs, for the best 12 white-ground Picotees, was awarded to G. Edmonds, Esq. This fine stand of flowers contained the following sorts:—Wildman's Isabella, Barnard's Mrs. Barnard, Burroughes' Mrs. Bevan, Sir W. Middleton, Burroughes' Miss Jane and Lady Douro, Green's Queen, Borroughes' Duke of Newcastle, Ely's Favourite, Sharp's Wellington, Edmond's Prince of Wales, and Willmer's Prince Royal. The entrance money awarded to the second-best collection, G. Leach, Esq.: Sharp's l'Elegant, Lady Flower, Wilson's Fanny Irby, Burroughes' Mrs. Bevan, Willmer's Princess Royal, John's Prince Albert, Robinson's Nottingham Hero, Crask's Prince Albert, Barnard's Mrs. Barnard, and Gidden's Vespatian.—A second Silver Cup, of similar value, was also offered for competition for the best stand of 12 Carnations; this was awarded to J. Edwards, Esq., of Holloway:—Puxley's Prince Albert, Wood's William IV., Millwood's Premier, Tomlyn's Briseus, Ely's William A'Beckett, Strong's Duke of York, Hale's Prince Albert, Beauty of Woodhouse, Smith's Mrs. Smith, Brook's Flora's Garland, Smith's Duke of Wellington, and Chadwick's Brilliant. The entrance money for this prize was awarded to Mr. Embleton, for Hughes's Prince of Wales, Soon's Bloomsbury, Ely's Lovely Nancy, Willmer's Solander, Hogg's Princess Maria, Beauty of Woodhouse, Ely's Lovely Ann, Willmer's Conquering Hero, Stretche's King, Calcutt's Brutus, Ely's Mango, and Hugo Meynell.

A collection of 24 PELARGONIUMS was contributed by Mr. Foster, gr. to — Staines, Esq., Paddington; these plants were in fine healthy condition, and covered with bloom.—The collections of FUCHSIAS were numerous and finely grown, but they still require a greater variety to make them attractive. Among amateurs, the first prize was awarded to Mr. Roser, whose collection contained, Gem, Monarch, Corymbiflora, Exoniensis, Stanwelliana, Multiflora, Atrosanguinea, and Curtisii. Second prize—Mr. Robinson, for Hope, Loweryi, Exoniensis, Prima Donna, Formosa elegans, Robinsonii, Chandlerii, and Eclipse. Third—Mr. Corben. In the Nurserymens' Class the first prize, the large Silver Linnean Medal, was awarded to Mr. Fowle; second prize, small Victoria, to Mr. Jennings; third prize, small Minerva Medal, to Mr. Pausey, of Brixton.—PANSIES were contributed by Mr. Hunt, Mr. Hall, Mr. Ottey, &c.; and trays of VERBENAS from Mr. Smith, Hornsey-road; Mr. Ottey, of Peckham; and Mr. Fry, gr. to Mr. Dent, Blackheath, &c. Collections of PETUNIAS, in pots, came from Mr. Fowle, of Brixton; and from Mr. Ivery, of Peckham; and Mr. Chapman sent a noble collection of scarlet Pelargoniums.—A first-class certificate was awarded to Mr. Smith, of Hornsey-road, for a seedling Verbena, named Emperor; to Mr. Fowle, for a Fuchsia, named Exquisite; and to Mr. Ivery, for a Delphinium. A collection of Cockscombs, from Mr. Connoly, was also shown, and two designs, exhibiting the grouping of plants in flower gardens.

Of FRUIT, several collections were produced; Mr. Parker was awarded the first prize for a green flesh Melon, Gallande Peaches, large and fine; Elruge Nectarines, Cherries, and Gooseberries. Mr. Martin was second, and Mr. Kay was third, both of whom sent good fruit. Grapes were exhibited by Mr. Chapman and Mr. Hamp, and Pine-apples by Mr. Parsons and Mr. Brewin, the former gaining the first prize. For Vegetables, the first prize was awarded to Mr. Martin, and the second prize to Mr. Gaines, of Battersea.

BOTANICAL SOCIETY OF LONDON.

June 6.—Dr. BOSSEY, V.P., in the chair. Dr. W. H. Harvey, of Trinity College, Dublin, presented a collection of plants from the Cape of Good Hope, and British plants have been received from Mr. W. Andrews, Mr. F. C. Lukis, and Mr. W. J. West. The Rev. Henry L. Jenner, the Rev. C. B. Hodges, and the Rev. T. Hodges were elected members. Dr. Ayres presented specimens of a barren state of Agaricus androsaceus L. which had been submitted to the Rev. M. J. Berkeley for his opinion. This state consists simply of fine brown filaments attached to dead leaves, more particularly on those of the Beech. Mr. Berkeley states that similar modifications of other Agarics have been found. Read, the commencement of a paper, by H. O. Stephens, Esq., being "Memoir on the Phenomena of the Colouring of the Waters of the Red Sea," translated from a paper by Dr. Montague.

Reviews.

A History of British Crustacea. (Parts II. and III.) By Thomas Bell, F.R.S. Van Voorst.

To those who would wish to make a sea-side visit really interesting, we would recommend, in addition to Dr. Johnston's "Zoophytes," and Professor Edward Forbes's "Star-fishes," this work of Mr. Bell's on the Crustacea. Scarcely a wave dashes on the shore but it brings with it some of these interesting creatures, and in these works, illustrated as they are by excellent wood-engravings of the objects they describe, will be found an easy means of giving to each its proper name, and learning all that is known of its habits and history. The Crustaceans are not a large family, and the work will probably, soon be completed. There has been, however, a little halting in the appearance of the Parts; but this must probably be forgiven, considering the family they describe. In the present Parts, the great crab and shore-crab (those which are commonly eaten in London), with the various forms of swimming-crabs, are described.

The Note-Book of a Naturalist. By E. P. Thompson. Smith, Elder, & Co.

WE have not met with Mr. Thompson in the walks of natural history before, but we have been much amused and interested with the volume before us. In the mind of every one there is an instinctive love of what we call nature; a feeling which the forms, the colours, the scents, and the growth of flowers and plants, and the varied habits and peculiar characters of the animal kingdom, appeal to in the strongest possible manner, and render it a source of never-failing pleasure. This feeling of delight at witnessing the objects of nature, is not confined to the cultivated and refined, but exists in the comparatively ignorant and uninstructed. The half-dead plants that strive to ornament the dirty windows of the closest streets and courts in London, with the pigeon-houses, rabbit-lockers, and fancy dogs of the poorest of the poor, as well as the gardens, the aviaries, and zoological gardens of the rich, attest the universality of this feeling. Like all other sentiments, this love of nature becomes stronger by culture, and when developed, in union with a special direction of the intellect, it constitutes the botanist, the zoologist, the naturalist. It is a mistake to suppose that the study of plants and animals may not be pursued, without having for its objects the ends which the science of botany and zoology aim at. Every one may habituate himself to observe so much of the structure and habits of plants or animals, as to afford him an increasing source of delight, without being obliged to comprehend all the technical details of science. And we are much mistaken if this is not the proper way of beginning the study of all sciences, by taking an interest in the objects they contemplate independent of all other considerations. When this is once the case, the expressions which the operations of the understanding on the object institute for purposes of communication become easy, and the ascent to the loftiest heights of a science perfect natural; on this ground we always hail such books as Mr. Thompson's. Free from the technicalities of perfected science, and written by one who feels intense pleasure in the observation of the external world, it cannot fail to excite a kindred interest in the minds of others. He has evidently been a student of White, Knapp, and Jesse, and his work is not an unworthy companion of these masters in the art of describing natural objects. The work consists of several chapters, the title of which generally indicates its nature, such as the emigration of birds; the nests of birds; the hybernation of animals; the passions of animals; instinct in dogs, &c. The reader will here meet with many old companions in the form of anecdotes, but mostly with additions from the author's own observations. As specimens of the anecdotes and author's manner of treating his subject we give the following:—

"I was much amused once in Belgium at a curious contrivance adopted by a shepherd to extricate himself from a dilemma, and at the readiness with which his sheep obeyed his intentions. Preceding his flock, he was moving them to a fresh pasture, when his progress was stopped by a large corn-field through which there was only a narrow footpath. His knowledge of the habits of his charge made him thoroughly aware of the destruction they would commit if left to follow him at their leisure, so, after a few moments' reflection, he started off at the top of his speed, the whole flock pursuing him at a gallop, and almost in single file, without doing the slightest damage."

"*Memory and Revenge.*—A striking instance in proof of the existence of these faculties in animals occurred some time since at the seat of a noble lord in Surrey. In the park are two large pieces of water, divided by a small isthmus, which widens considerably at one extremity, and at the time in question a pair of swans were the occupants. A doe and her fawn, belonging to a herd of deer in the park, coming down to one of the pieces of water to drink, were immediately set upon by the swans, and the fawn, by their joint efforts, was got into deep water and drowned. After a considerable interval of time, when the swans were one day on the wide part of the isthmus, and thus separated from their element, and at a disadvantage, a rush was made upon them by a number of the deer, which trod under foot and utterly destroyed one of them. The bereaved doe must have had some means of communicating her loss to the other deer, and of urging them to help her in her revenge; and the most remarkable part of the transaction is, that

the deer must have had a kind of consciousness of the fitness of the moment, when the swans were to a great extent defenceless, or at least deprived of their greatest advantages, and had no means of effecting their retreat to the water."

"There can be no new argument necessary to prove the insensibility of fish to pain. I was fishing one day at sea in a small boat with some friends, when one of them pulled up a large whiting, which suddenly broke away, carrying his only hook and a portion of the line with it. Almost instantaneously I had a bite, and hauled in the very same fish with the former hook in its jaw, and thus singularly enough enabled the other party to proceed with his sport. The escape and subsequent capture did not occupy more than a few seconds of time."

We do not wish to find fault, but we think the introductory essay might have been left out with advantage; the author has no pretensions to a fine writer, and is best when not attempting an ambitious style. He has also written on some subjects which he does not understand, especially geology, and entered into arguments which, from the ignorance they betray, only detract from the merit of the work.

New Plants.

Pleroma Kunthianum. M. Kunth's Pleroma. (*Evergreen Shrub.*) Melastomaceæ. Decandria Monogynia.—Like P. petiolatum, this magnificent plant belongs to the sub-genus Lasiandra. It has been enumerated and described by De Candolle as L. Kunthiana; and more recently in the "Botanical Magazine," as P. Benthamianum. The latter specific name was applied to it by Mr. Gardner; but the present having the claim of priority, we have accordingly adopted it. It is a Brazilian production, for the possesion of which we are indebted to Mr. Gardner, who discovered it in situations partaking of a boggy character on the Organ Mountains, at an altitude of more than 3000 feet above the level of the sea, and transferred it to the Botanic Gardens at Glasgow, where it first produced flowers in the latter part of 1842. In the garden of R. G. Loraine, Esq., at Wallington Lodge, a vigorous specimen flowered in one of the stoves in October, 1844. It is a shrubby plant, having robust four-sided branches, bearing ample foliage of a neat outline, and remarkable for its velvety softness. The flowers are disposed in large panicles at the top of the shoots, and possess a richness of tint unequalled by those of any of its congeners: under proper management, it grows vigorously and flowers freely. Several cultivators, nevertheless, have failed to obtain blossoms even from strong healthy specimens,—a disappointment which seems to be owing chiefly to the neglect of encouragement to grow early in the season, and of proper steps to mature the wood in autumn. It should be pruned very closely after flowering, in order to preserve the lower part of the plant clothed with foliage. Very fine bushes may thus be produced in a few years; but it is not requisite to have old specimens to obtain flowers. Mr. Loraine's plant was reared from a cutting the previous autumn, and headed down to three or four eyes in the spring.—*Paxton's Magazine of Botany.*

Bees.

Answers.—*A. B.*—The plan you suggest will do, provided you can cover the bees with the box without disturbing the combs. Great care must be taken in removing the hives, if you see danger; perhaps the bees had better remain undisturbed till September; then take the honey, and unite them to another weak stock. As the swarming season is backward, there was little chance of your swarm being a "virgin one." The closeness of your bee-house may account for the bees working outside the hive; they could scarcely occupy the inside of it also, as it must be partly empty. *W.*

——*J. Linsley.*—Your bees either left the stock without a queen, or some accident happened to her; otherwise they would not have returned to the hive. The latter circumstance was more likely to be the case when they went back after the piping was heard. If you have not secured the swarm before now, no loss will occur, for the stock will be stronger. The proceeding of your bees reminds me of "R. H. W.'s" plan of destroying the queens, with the view of preventing swarming. I have noticed the same thing mentioned elsewhere of which the following is an extract:—"Catch the queen at the entrance of the hive while the swarm is making its exit; the bees being deprived of their queen, will return to the hive. Supposing this to be the first swarm led off by the old queen, as soon as others are hatched swarming will again commence, and the same process must be repeated. It may be said, why not destroy the brood-queens in the old stocks, and at once prevent the repetition of swarming? but the brood cannot be got at without much trouble and injury to the stock, especially in common hives." *W.*

Ventilation of Hives.—As many of your readers take great interest in the management of bees, perhaps the following remarks on this subject may be acceptable in the present season. Madame Vicat, a native of Switzerland, who wrote on the subject of bees, about the year 1764, seems to have first attempted the ventilation of hives. It is a well-known fact that the preservation of the bees and their brood requires them to live in the strictest union; the heat also necessary for the secretion of wax is lessened by the division of the bees into different groups; Madame Vicat, therefore, adhering to this principle, and finding that the storifying system (which she otherwise strongly advocated) would not admit of perfect ventilation, formed a hive of collateral boxes, which might be increased or lessened in number to accommodate the dwelling to the multitude of its inhabitants—a convenience, the want of which is one of the greatest objections to the common cottage hive. The shape of this hive was that of an oblong box, and wider at the bottom than at the top; this box was divided across into four equal pieces, so that if the ends were brought together, they would form a small square box, the two intermediate pieces being used only when required to lengthen the box. The four separate pieces had two bars each across the inside, to strengthen the boxes, as well as to support the combs. Each box had a hole at the top, over which a piece of perforated tin was placed for ventilation. This hive (when united) was placed on a table, or stand, having a large piece cut out of its centre, and a drawer, with a linen slider attached to it, fixed under it, by means of which air was admitted at the bottom of the hive, and also through which the hive could be examined and cleaned; for cleanliness is one of the great secrets in the successful management of an apiary.

Fig. I.

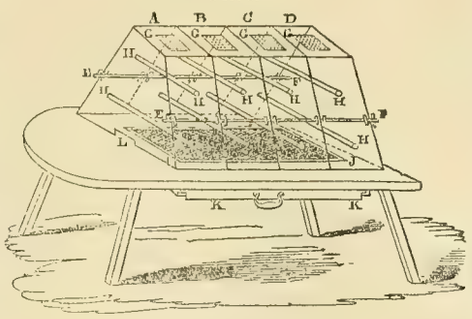
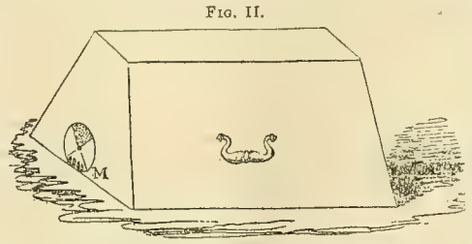


Fig. II.



Madame Vicat's "Ventilating Hive." 1764.

Reference to Plan.—Fig. I.—A B C D, The four boxes joined together, and secured by the iron rods E F and E F on each side. A and D, the ends of the box. G G G G, The air-holes at the top of the hives covered with perforated tin. H H H H H H H H, The two bars in each box. I J, The opening of the long drawer at the bottom of the hive in the middle of the table fitted with a linen slider to admit air from below. K K, The drawer shown under the table. L, The entrance for the bees in the inside box.

Fig. II.—The cover to go over the whole of the boxes; M being the entrance with the circular piece of tin, with holes pierced for the ingress and egress of the bees.

Fig. 1 represents the entire hive, composed of its four boxes, &c. The whole has a cover to secure it from the weather, with a small door at one end, made as a moveable circle, and pierced with holes, for the ingress and egress of the bees, which can be opened or shut according to circumstances. Ventilation of the hive, then, was the new feature introduced by Madame Vicat in the management of bees; and having myself adopted a somewhat similar principle for several years, I am able now to speak as to its results. The collateral hives I have used are made in the shape of square boxes, having extensive openings at the top, covered with perforated tin, besides having perforated tin tubes in the centre of each box, and the entire table or floor, upon which the boxes stand together, is covered with perforated zinc, so that when the three boxes are placed side by side on the floor-board, there is a thorough draught from the bottoms of the hives to the tops and sides of the boxes. The inside boxes are made of mahogany, and secured from the weather with a deal surtout. The outer boxes have windows at the sides, through which the operations of the bees can be partially inspected, and the centre tin tube admits a thermometer whenever it may be wished to ascertain the heat of the hive, without disturbing the bees. The centre box has one window only, in which are fixed two thermometers only 2½ inches apart; the one is graduated according to Mr. Nutt's plan, who says, when the thermometer is at 75°, the top tins should be opened; when at 85°, one of the side boxes opened for the bees to swarm into; when at 95°, both the boxes should be opened; and when at 100°, the bees were likely to swarm; but the fallacy of the thermometers being any guide will be apparent to any one who will take the trouble to examine the following extract, taken from a register kept for many years to test this very matter:—In the year 1835 I hived a swarm in the centre box, and another in one of the end boxes, and in the autumn united them; in the summer of 1836, the bees worked a little in the other end box, but in June of that season they swarmed thrice without giving me any notice, although the ventilators were kept open, and the thermometers closely inspected hourly. In 1837 the bees were so impoverished, that I added a swarm to the end box, and united them; and that season the bees neither swarmed nor stored any honey in the top glasses. Early in February of the year 1838, in attempting to exchange the side boxes, some of the combs were unfortunately broken, and I presume the queen bee was crushed, and although there was plenty of brood in the cells, the bees dwindled away during the summer; and, in 1839, I again replenished the boxes, and, in 1840, I was rewarded with about 10 lbs. of honey and a swarm! On the 28th April, 1841, I hived a swarm in one of the side boxes, and united them to the other bees, and in the autumn reaped the most abundant harvest of any season, by taking nearly 25 lbs. of honey. In the year 1842 the boxes were quite full of bees, &c., and consequently in great prosperity. I have here given only the history of one set of the ventilated boxes, but I regret to add that no better success has attended several other hives constructed on the same principle; whilst common cottage and other hives, in the same apiary, have given the average swarms and honey of the district, according to the seasons. By comparing the difference between the first and second columns in the table, we may fairly conclude that no successful method has been yet devised to ventilate the combs where the bees cluster, as they can, by forming themselves into thick rows at the bottom of the combs, prevent the circulation of the cold air, and, as shown in column 1, raise the heat to 89°, whilst in the adjoining combs, where the bees had no brood and did not cluster, the heat appears by the thermometer 1° lower than in the side box, although the two thermometers are only 2½ inches apart in the centre box; and they show a difference of an average of 10° between them for that short period; but the actual difference has been nearly 20°. The bad effects of this system of ventilation are very manifest; for the bees, instead of ranging the fields to gather honey and pollen, have to collect together and idle away their time to retain the necessary heat for the formation of the combs, or to rear their brood. Experience has proved to me that in spite of the perforated zinc floors, ventilating tubes, and thermometers, the bees will swarm, and the queen bee will deposit her eggs in the side boxes, and destroy the purity of the honey, whatever success may have attended the system when introduced in Switzerland by Madame Vicat. After all the inventions in hives, and the attempts at new systems, I know not of any method by which a certain and abundant harvest of wax and honey can be obtained; because it depends upon contingencies over which human skill can have no control—such as the seasons being more or less favourable for the bees; and it is from this very circumstance that one mode of management which has been successful one year will not answer the next, although the system may have been exactly the same; but the occasional fortunate results of some of these new hives and systems, prove to us that bees can inhabit, work in, and store up honey, in hives of every construction, under every disadvantage (provided the bee-pasturage be good and abundant), even from the hollow trunk of a tree in the forests of Poland, to the giant "flour tub" of Duhamel, or the common straw-hive of the "suffocating cottager," to the "old hat of a field scarecrow." Still, perhaps, as a contributor to your paper has given directions "how to make a swarm of bees," some one may yet be found ingenious enough to be able to construct a "self-supporting, honey-extracting, ventilating, vermin bee-trap or hive." The following is the register of the thermometer:—

Date.	Hour of the Day.	Thermom. in centre box, gradl. 2½ in. apart.	Thermom. common make.	Thermom. in the side box.	Thermom. in the Garden.	Quarter of the wind.	General Remarks.
1842. May		Deg.	Deg.	Deg.	Deg.		
8.....	5 P. M.	89	76	77	56	S.W.W.	Rain and wind, with frequent showers.
9.....	9 A. M.	88	74	76	56	W.N.W.	Cloudy and Showery. Thermom. in-doors at 9 A.M. stood at 56°.
10.....	7½ A. M.	86	76	76	63	N.N.W.	The heat in the hive seems to remain the same, except where the combs were building.
11 & 12	No entry of the degrees of heat, &c.						Thermometer in-doors at 7½ A.M. stood at 56°. but found the collection of honey, &c. great.
Ditto.	5 P. M.	88	79	80	58	S.W.W.	
13.....	9 A. M.	88	83	85	63	W.N.W.	The bees have clustered much in the side box.
14.....	1 P. M.	99	89	90	68	N.N.W.	Ditto.
Ditto.	5 P. M.	92	82	89	64	N.N.W.	Sunshine and fine weather, the collection of honey very great.
15.....	8 A. M.	89	72	80	69	S.S.W.	Fine; wind changed quite to the south in the afternoon.
Ditto.	10 A. M.	88	76	89	55	E.N.E.	Cloudy & cold; great difference in the thermom. in the shade.
Ditto.	1 P. M.	90	78	92	64	E.N.E.	The Queen Bee has deposited both worker and drone eggs in the cells of the end box.
16.....	8½ A. M.	88	72	93	56	E.N.E.	Cloudy and cold. The bees left of building combs.
17.....	9 A. M.	88	80	87	53	N.N.E.	Cloudy and cold. The bees very inactive.
Ditto.	5 P. M.	75	70	86	53	N.E.	Cloudy weather and cold; at 5 P.M. wind N. Honey side of hive 76° of heat.
18.....	9 A. M.					N.N.E.	Cloudy and cold. Bees clustering principally over the brood.
Ditto.						N.N.E.	Cloudy and cold. The bees clustering as before.

The temperature of the hive has been between 80° and 90° ever since the cells were filled with brood; and the heat, where the bees were building combs, be-

tween 72° and 77°. Early in June a fine swarm issued from the centre box, and flew completely away into some woods a mile off, and was never heard of or seen afterwards.—*W. A. X.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouses.—Continue the directions given in former Calendars, lessen the artificial stimuli, and use all means to harden and ripen the shoots of succulent plants before the approach of winter; when plants of a soft wooded nature are kept growing until winter approaches, their ruin is, in most cases, ensured. When plants are intended to bloom freely the following season, this must be accomplished by having the juices properly elaborated. Light and air are indispensable to effect this; a growth accomplished under these circumstances will be much more favourable for the production of bloom than in a close and shaded stove. *Pelargonium-house.*—Head down those for early flowering; still continue to expose them to the open air until they begin to break, when they must be removed into the house. Continue to propagate them by cuttings, which will now strike freely in the open border. Pick off all decaying and decayed flowers in the conservatory and greenhouses, and let cleanliness prevail in all departments. Cleanliness may be termed "the double charm" in gardening, dirty plants, even in bloom, have no relish.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Climbing Roses out of bloom trained against walls, would be much improved next season by having a large portion of the old wood cut out; nailing or tying in as many of the strong young shoots as are necessary to replace those which have been removed. Climbers of all kinds should be constantly nailed or tied as they advance in growth, in order to prevent them from being injured by wind. Early planted beds covering the ground should be constantly weeded; and beds in which the plants have not advanced much in growth should be occasionally watered, and hoed to keep the surface loose and clean. Roll and sweep walks daily. *Pits and Frames.*—Sow Mignonette for blooming early in autumn, and pot off plants out of borders for training as trees; train them to one stem, and keep the flowers pinched off as they appear; shifting occasionally into larger pots; grow them in a pit or frame until they are sufficiently large to be removed to the greenhouse. Cuttings of choice Verbenas should be put in for store plants next season. Sow Nemophila insignis for blooming in autumn, either in a bed or in pots for planting out.—*B.*

III.—FLORISTS' FLOWERS.

During hot weather, shade seedling Auriculas from the midday sun. Take particular care that the plants are not suffered to become too much "droughted," but water occasionally and carefully. *Polyanthuses* are apt to become infested with red spider when exposed to much sun, and if the situation is dry; moisture is a preventive, and these beautiful spring flowers delight in shade at this time of the year. As the seed ripens gather it, and if thoroughly dry, let it continue in the capsules, putting it into small paper bags, and hanging them in an airy situation. *Ranunculuses* ought to be out of the ground as soon as the leaves become yellow; let them dry gradually. It is best to part the roots before they become too hard and brittle. *Pinks.*—Extract the withered petals from the calyx of those pods in which there is an appearance of seed; it is worse than useless to save from those which have serrated petals. Headley's Duke of Northumberland, Kirtland's Melrose, and Creed's President, are good flowers to save seed from. *Carnations and Picotees* may now be layered, doing those first which are longest and most forward. It has hitherto been an unkindly season for blooming, but as soon as we are favoured with some hot weather, attention ought to be paid to cross impregnation of the flowers; by this means amateurs may improve the races of these universal favourites.—*C.*

IV.—PINERIES, VINERIES &c.

Pineries.—Follow up, or endeavour to complete, the general arrangement of winter fruiters. Take proper means to check the undue growth of the crown, shortly after the fruit has done blossoming. Relieve the plants of all superfluous suckers, gills, &c., remembering that all such are opposed to size in the fruit. Give air abundantly early in the morning, and shut up as early as possible, securing a solar heat of 95°; syringe copiously shortly after closing the structures; water all floors, and moisten all available surfaces, not excepting the tan, which should, if possible, be stirred with a pointed stick once a week. *Vineries.*—It will be well, if the red spider appear, to have the walls washed immediately with lime and sulphur: this, in fact, should be done much oftener than is commonly practised. The sulphur may be subdued previous to mixing with the lime, with skimmed milk or buttermilk. Where the early Grapes are cut, the borders, if inside, may probably be dry; if so, let them be freely watered with tepid water, to encourage the leaf to perform its functions to the last, as on this will depend in some degree vigorous breaking, as well as fine bunches in the ensuing spring. Where borders are shallow, and of light texture, out of doors, and dry weather prevails, it is advisible to cover the borders of the late Vineries, with a few inches of rotten manure. *Figs.*—Water abundantly; syringe morning and evening, when the fruit is not ripening, and use the means for the prevention of red spider recommended for the Vines.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The foreright shoots of Pear-trees against walls or espaliers should be so reduced as to occasion no injurious degree of shade to the fruit now swelling, nor to the foliage of buds forming for future bearing. If previous directions have been attended to the trees should exhibit only a sprinkling of shoots; and these, already partially shortened, may now be cut back to within 3 inches of their bases. All shoots that have pushed a second time, or that may afterwards do so, must be checked. The shoots of Peach and other trees of the stone-fruit kinds, should be kept neatly trained, but more especially the free exposure of their foliage to light should be kept in view. It is improper to lay two shoots in a space which the foliage of one would sufficiently cover, whilst the other might be trained along an adjoining old naked branch, the covering of which is no disadvantage, but rather the contrary. See that nails have not been driven too near the fruit. Trench down Strawberry plantations intended to be done away with as soon as the crop is gathered. *Kitchen Garden.*—Prepare ground for a first sowing of Flanders Spinach, the seeds of which are not prickly, neither are those of the Lettuce-leaved Spinach, an excellent new variety for winter, with thick dark-green leaves. Finish planting out Celery and Broccoli. Sow Spanish Radishes, and some Early Horn Carrots on a rich light border for drawing young. Make a sowing of early York, Vanack, or other approved Cabbages. Take up Garlick and Shallots, when their leaves have faded; lay the bulbs on clean gravel, protecting them from rain, and storing them up when their coats are thoroughly dried. Gather herbs for drying before their flowers open; they should be spread out thinly and dried quickly.—*E.*

State of the Weather near London, for the week ending July 21, 1845, as observed at the Horticultural Garden, Chiswick.

July		Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain
Frid.	18	13	30.091	30.066	76	48	62.0	S.W.	
Sat.	19	O	30.058	30.030	71	52	61.5	E.	
Sun.	20	15	30.041	29.955	71	54	62.6	E.	.24
Mon.	21	16	29.921	29.908	73	57	65.0	E.	
Tues.	22	17	29.935	29.921	71	54	62.5	N.E.	.05
Wed.	23	18	29.910	29.905	68	53	55.5	N.E.	.05
Thurs.	24	19	29.924	29.905	60	55	57.5	N.E.	
Average			29.983	29.955	68.5	53.1	60.8		.34

July 18—Slightly overcast and fine; very fine; slightly clouded
19—Cloudless and very fine; overcast
20—Fine, with light clouds; cloudy; rain
21—Uniformly overcast; fine, with light hazy clouds
22—Very fine, with light clouds; overcast; rain at night
23—Slight rain; drizzly and cold; overcast
24—Cloudy; overcast throughout.
Mean temperature of the week 2 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Aug. 2, 1845.

July	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 27	75.4	51.4	63.4	5	0.56 in.	1	2	3	1	2	4	3	2
Mon. 28	77.6	53.9	65.7	9	0.32	1	1	2	2	1	7	3	2
Tues. 29	74.2	51.4	62.8	10	1.31	1	1	4	—	2	6	2	3
Wed. 30	72.9	50.7	61.8	11	0.88	3	2	3	—	1	3	6	1
Thur. 31	73.3	49.6	61.4	7	0.65	2	3	1	—	3	3	5	2
Aug. Fri. 1	74.7	54.0	64.4	7	0.43	1	2	3	2	2	4	5	—
Sat. 2	75.1	53.3	64.2	9	0.62	1	3	2	—	6	3	3	1

The highest temperature during the above period occurred on the 28th 1835—therm 91°; and the lowest on the 27th, 1829—therm. 42°.

Notices to Correspondents.

ANTS—*E T*—Nothing is so difficult as to drive away ants. They dislike water, and will resist it for a long time. It has been suggested that pouring a very small quantity of turpentine into their nest would have the effect, and it is worth trying. We are not, however, quite sure that it would not hurt the tree if in a fluid form. The best way of applying it would probably be to soak coarse rags in turpentine, and to bury them in the ant-tracks away from the roots of the tree.

BOOKS—*Amateur*—"The Florists' Journal."*——*H R S*—We have no full botanical glossary in English. You will find a good one in the last edition of De Candolle's "Theorie Elémentaire de la Botanique." The indexes, however, of English Introductions to Botany will be found to answer all the purposes of a glossary. Many botanical terms are also explained in Paxton's "Botanical Dictionary." The only English book on fossil plants is Lindley and Hutton's "Fossil Flora."——*A Beginner*—Works written on the Linnean system are unworthy of the age we live in; and we cannot recommend them. If you want to study the rudiments of Botany procure "School Botany;" if you then wish to make out the names of wild plants, procure the cheapest book you can find on the British Flora, arranged according to the natural system. You may still get Melons, if you are a clever grower and the autumn be fine.

BOX—*A A*—The dwarf Box is a variety of Buxus sempervirens, and does not produce seed, as far as we know.

CAPE PELARGONIUMS—*J T F, &c*—A few cuttings of P. echinatum, &c., struck at three times in the year, will keep up a succession all the year round. It strikes very freely under almost any circumstances, while in a growing state; and thrives in loam, peat, and white sand. ‡

DISEASE—*Clevedon*—Your Pelargonium leaf has all the appearance of suffering from bad drainage. We imagine that it is grown in a place too damp for it. Or, it may be that its roots are diseased. No doubt the mischief lies with the roots.

EXHIBITIONS—*Devoniensis* asks whether if a society offer a prize for a new and rare plant, and Achimenes picta be produced for this prize, the judges at a show are justified in refusing the award to it, bearing in mind that no other plant was in competition, and that this variety had never before been in the exhibition room, and was now viewed for the first time by hundreds who promenaded the room, and gazed on this beautiful flower with intense admiration? They were *not* justified, under the circumstances stated.——*E M*—Upon the whole, we can hardly meet your wishes better than by referring you to an excellent pamphlet on country exhibitions, called the Rules of the Pytchley Horticultural Society, published by Parker, in West Strand. They have been found to work well, and are in much more detail than we could give to the subject in our columns, in which it has, in fact, been already discussed; as at p. 243 of our volume for 1844.

FRECKLES—*Sub*—It is said that Elder-flower water, or Beanflower water, will remove them; but we have not much faith in the remedy. ‡

FRAMES—*R Pilbrow*—In a space 18 ft. wide, you will find it difficult to construct three rows of Melon-pits; because there will not be room for sliding the sashes up and down, which is necessary in the business of managing Melons and Cucumbers. If you constructed your pits with earthern walls, you would have no other expense to incur than tanks for heating, a boiler, sashes, and a wall-plate. We should think it *would* be worth while to do this. We cannot recommend tradesmen; but you will easily ascertain the expense by applying to the advertisers of heating apparatus.

FUCHSIAS—*An Amateur*—They will ripen their wood better in the greenhouse than in the open air. In order to prepare plants to bear a winter well, they should always be exposed in the autumn to bright light, and as dry an atmosphere as consists with their peculiar nature. This will stop their growth, and enable them to convert into woody matter the fluids which they receive from the earth and air. It is what gardeners call ripening them well; light, warmth, and dryness, are the agents to employ in all cases, and as much of them as plants will bear.

GARDENERS—*A C E*—If you will favour us with your address we shall be happy to do what you wish. We must, however, beg of you to state the wages.

GLASS—*J R B*—See a leading article of to-day. We prefer wood to iron for moveable sashes; iron is far too heavy. Gas will not do to be introduced into greenhouses, unless some means can be found of preventing its escape. It might be applied to a boiler, and the water from that boiler would, of course, heat the building into which it might be introduced. It is a question of expense, and will probably be found troublesome. As to regulating it, we do not see how that can be done without constant attendance.

GUANO—*A Subscriber and Others*—Thanks; we are making enquiries.

INSECTS—*J J F*—Your wire-worms are the larvæ and pupæ of some gnat, introduced, as you suspected, with the manure. Please to breed the flies, and send some to Mr. Curtis. You had better consult the 5th vol. of the "Royal Agricultural Journal," where you will find the economy of the various wire-worms discussed. *R*——*A Beetle-hater*—In a recent Number you will find the history of the black-beetle; the best mode of extirpation is by spirits of turpentine, but it must be persevered in; and by a reference to the indexes of the *Gardeners' Chronicle*, you will see various ways of applying arsenic, &c. *R*——*Dogberry*—The beetles are called gravediggers, from their singular operations; and you will find an account of them in Curtis's "Brit. Ent.," fol. 71. The species you sent is the Necrophorus vespillo, which we hope to describe and figure in due time. *R.*

LAW—*J W*—We are quite unable to advise you. The question is one of mere law, and can only be answered by a solicitor. The case seems to be a hard one; but we suspect that nurserymen can claim no such exemption as you have heard of.

MONSTERS—*George Rogers*—Calceolarias often assume such a form as you have sent us. It is an attempt on the part of a very irregular flower to assume a regular form, and is analogous to what is called Peloria in the Toad-flax.

NAMES OF PLANTS—*S C*—Rhus Cotinus, a plant of the Anacardiaceous order. Your Fuchsia seems to be what gardeners call pot-bound; its roots are out of order. There is no objection to your plan for Strawberries; they will be the better for it.—*Iota*—Escallonia rubra; half hardy.——*G W*—Your Rose-leaves are producing hairy galls, in consequence of the attack of an insect.——*J C X*—Rosa lucida, escaped from a garden.——*J W*—Oncidium Harrisonianum.——*R E G*—Claytonia alsinoides, the red variety——*An Old Subscriber*—Some Anchusa, and apparently A. hybrida; but the species of this genus cannot be determined satisfactorily by small dried specimens; they are very difficult to distinguish when dried.——*A B C*—The spotted Brassia is brachiata; the other is B. pumila; the other seems to be Colax jugosus; but it is hardly recognizable.

NERQUIS—*A Country Clergyman* will find that we have already published many such letters as his. We are not disposed to revive the question at present; but wait for more conclusive evidence than we have yet received. Some time in the autumn we may return to the subject formally.

ROSES—*Sub and M U S*—The following will answer your purpose: La Reine, rosy pink, very sweet; William Jesse, light crimson, flowers open freely; Brennus, large bright red; Prince Albert, varying from purplish lilac to deep crimson; Crimson Perpetual; Coupe d'Hébe, delicate rose; Boule de Nanteuil, large double crimson-purple; Madame Laffay, rosy crimson; Duchess of Sutherland, bright rosy blush; Lady Alice Peel, deep pink; Safrano; and La Monarque. There is no rule yet laid down by which to determine the properties of the Rose. ‡——*A Subscriber*—Any of the larger kinds of Tea-scented Roses will grow to the size which has excited your admiration, provided they are suitably treated. Those to which allusion was made were Bougère, Elize Sauvage, Triomphe du Luxembourg, and especially Belle Allemande, all sweet-scented, and to be had of any Rose-grower.——*Ignotus*—Your Rose is the old double yellow, and is in its usual miserable state in this country. See what has been said about it in previous volumes.

STRAWBERRIES—*Sub*—Fresh plantations of these may be made in the beginning of August, choosing well-rooted runners, or such as have been taken up and pricked out in beds previously. It matters little whether they are planted in beds or in rows, provided the plants have a sufficiency of room. The ground should be well trenched and manured, and if the soil is of a stiff nature, the addition of a quantity of gritty matter will be of advantage; for no spade ought to be inserted among them until they are finally dug down. For general purposes, no sorts are preferable to Keen's Seedling, and the Elton; and, by planting on different aspects, they will furnish a very early and a very late supply. ‡

MISC.—*Downtonian*—You will find your enquiries partly answered in another column, and in an article which will appear in a subsequent Number.——*A B*—We have seen the leaves of plants affected by green-fly exhibit the appearance of those you have sent. You had better wash them with a sponge and water, giving the plants a good syringing occasionally to keep them clean. ‡——1s. each is offered for Nos. 4 and 45, for 1843.——*W E H*—April is the best time for pruning Evergreens, such as the common Laurel, Arbutus, &c. They should have only one pruning in the year.——*Amateur*—In ignorance of all the circumstances connected with your Pansies, we cannot say what has caused them to suddenly fall down and wither. Had you not better see in what state the roots are, then you might possibly discover the cause, and find a remedy. ‡——*Lancastriensis*—We do not recognise the two leaves you have sent. We learn that Mr. Loudon's book, entitled "Self-instruction for Young Gardeners, &c.," is expected to appear in about a month. Three varieties of Strawberry, early, medium, and late, may be Keen's Seedling, Old Pine, and Elton. The Old Scarlet is the earliest of all, but is rather a shy bearer. ‡——*D*—We know of no method of preserving gathered summer flowers (buds), so as to make them bloom in winter. What are called everlastings may be preserved for decoration during winter, by cutting them when they are in bud, and suspending them till dry, in a shady place, and in an inverted position. *A Constant Sub.*—We have no information on the subject of bell-shaped hand lights. No doubt they will be made by and by, if they are wanted; but in what does their superiority over ordinary hand-lights consist? Cheapness *may* be a recommendation; but we cannot indulge in the hope of much domestic cheapness for the present; and it will not answer to import them.——*An Emigrant*—We are unable to answer your question. Liverpool is the great port for vessels proceeding to the United States.——*Woglog*—There is but one Grass-cutting machine, that we know of, and we cannot recommend it, except when extraordinary care is taken, and there is not much work to do. It cannot be used in wet weather, unless the Grass is very short. Flowers used in making Pot Pourri, may be either fresh or dried; but they must not be wet. Orange flowers are usually employed fresh; Rose leaves dried, because it is not always convenient to obtain them both at the same time.——*An Original Sub.*—We are quite puzzled by your question. The common white Jasmine has always appeared to us incapable of not growing and flowering. Heavy land and light land, hot places and cold places, the pure air of Salisbury plain, and the smoke of a dingy London area, seem to do it no harm. Do not you kill it by kindness, especially by pruning it? The knife should never be employed, except to remove unsightly, or dead branches. It likes sunshine, and so does Jasminum revolutum, which is much tenderer, and requires the aid of a south wall.

SEEDLING FLOWERS.

CALCEOLARIAS—*M & S*—Two very pretty seedlings, of good form; but rather small. No. 1, Tigrina, bright yellow ground, visible only in small spaces between the spots. 2, Venus victrix, buff ground, with bright maroon spots. 14, 15, and 16, are three pretty varieties of the same character, form, and size, and assort well with the two first-mentioned flowers.*——*J M H*—Most of your seedlings are repetitions of old varieties. 45, dark self. 53, spotted; and 51, with light blotch, are the best in the collection.*

FUCHSIAS—*J R*—A stout showy seedling; but similar to sorts in cultivation; the corolla is rather weak in colour and substance.——*J L*—Your blooms had been cut too long; the contour of the tube was gone.*

LOBELIA—*A Gardener*—We do not perceive any superiority in the flowers of your seedling over those we already possess.*

MIMULUS—*J M H*—Your seedling is of no use.*

PANSIES—*A Subscriber*—No. 3, yellow ground, with plum-coloured top petals and broad margin of the same round the lower petals, round, flat, and of great substance a fine show flower; the margin wants a little more defining on the side petals. No. 1 is a good flower also; but it wans the flatness of No. 3, and the steadiness of colour also; ye fine, white ground, with blue and purple mottled top-petals and margin; it will form an excellent contrast in a collection.*——*An Amateur and Subscriber*—The form of No. 5 is objectionable, the lower petal being disproportionably long. 20, this like 5, is extremely pretty in colour; but both flowes want the size, substance, and compact form of show varietie.*——*T A*—The seedling you have sent is a very good, but not a first-rate flower; it wants size, and the ground-colour is not perfect.*——*G U*—No. 1 appears a tolerably good flower, but not equal to those in the same way at present cultivated. 2, distinct and good; but rather small. 3, pretty; but wants size and substance.*

VERBENAS—*A Gardener*—A good seedling, of a rosy scarlet colour; but differing very little from others.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also bg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delaye.

ERRATUM—In the report of the Chiswick show, p. 492, col. *a*, line 30 from top, instead of "Calcecarias were exhibited from Messrs. Fairbairn," read "fron Mr. Gaines, of Battersea."

SEED-WHEAT.—Any one desirous of purchasing Seed for next season is invited to inspect the two varieties of WHITE WHEAT—MORTON'S RED-STRAW WHITE and SHIRREFF'S HOPETOUN, 120 acres of which are now growing on WHITFIELD FARM, WOTTON-UNDER-EDGE, GLOUCESTERSHIRE.

The present is, obviously, the only season of the year when the value of any variety of Wheat *as seed* can be ascertained by inspection: the examination of a mere sample of the grain, which can be inspected at any time, is manifestly uninstructive as to the productiveness or habit of growth of the variety to which it belongs. These points, which are of the highest importance to the Farmer, can be ascertained only by an examination of the plant when in full ear.

The Agricultural Gazette.

SATURDAY, JULY 26, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, July 30—Agricultural Society of England.
THURSDAY, July 31—Agricultural Imp. Soc. of Ireland.
Week ending Aug. 7—Yorkshire Agricultural Society at Beverley.

FARMERS' CLUBS.
July 29—Bromsgrove | Aug. 11—Norton

WHAT are the *objects* of the great ANNUAL MEETINGS OF OUR NATIONAL AGRICULTURAL SOCIETIES? We presume that they are—1st, to arouse, in the districts which are visited by them, a portion of that energy and skill in farm-management which exist amongst their own members; and, 2dly, to benefit those drawn together on such occasions, not only by exhibiting the results of ability in the various departments of agriculture, but also by affording opportunities for intercommunication on topics connected with the art.

What are the actual *results* of these meetings—to what extent are their objects attained? However desirable a true answer to this question must be deemed by all those connected with our national societies who are anxious to increase their efficiency, we fear that it is impossible to give one founded on *facts;* the progress of agricultural improvement may be carefully watched, and its rapidity noted, but so many causes contribute to urge it on, that, to eliminate from amongst them the influence of but one, would be a hopeless task. All that we have on which to form a reasonable estimate of the usefulness of these meetings is, the natural tendency of the various means which, during their continuance, are brought into play.

Let us take the case of the late Shrewsbury meeting of the English Agricultural Society. Some hundreds of the most enterprising and skilful farmers of the kingdom have met together, and mingled for a few days, as chance directed, with some thousands of farmers and others interested in the agriculture of Shropshire and the adjacent counties. A public exhibition of implements and live stock has been held, and competent judges have awarded premiums where, in their opinion, praise was due. A large meeting of members of the Society have dined together, and listened to speeches, chiefly complimentary (in some points, however, of real utility), by men of rank, some of whom were also practical farmers.

These, we think, were all the influences which were brought to bear upon the late assembly at Shrewsbury. What may we suppose them to have effected? Doubtless, many a valuable implement has found its way into quarters where it was before unknown—machinists have been instructed in the faults of their manufactures—the pride taken by many an exhibitor of stock in the results of his own skill has been humbled before the evidences of superior skill on the part of others—the award of premiums has, to some extent, indicated the qualities both in implements and animals deemed by the judges worthy of praise—and those who were fortunate enough to meet with the more intelligent and experienced of the assembled farmers, have doubtless carried home with them some useful truths and opinions new to them. So far, also, as the first object of the Society is concerned—the improvement of the district visited—this meeting at Shrewsbury will doubtless be beneficial. It is impossible that the farmers of Wales and Western Shropshire—a district so isolated when compared with most parts of railroad-intersected England—could inspect last week's exhibition either of stock or implements, without feeling stirred up to the attainment of a higher status on the scale of excellence as agriculturists than that which they now occupy.

Thus far the efforts of the Society have doubtless been successful; let us now point out how—in the opinion, we venture to say, of a majority of its members—they might have been rendered more so. And, 1st, in reference to the Exhibition of Stock, let us direct the attention of our readers to a lately published pamphlet, entitled "Hints for Increasing the Practical Usefulness of Agricultural Shows."* It is to the means of rendering exhibitions of live stock more useful that the author, Mr. HINCKS, of Brecknborough, confines his remarks. He complains, and we think with justice, of the absence of any attempt "to define with precision the properties which, in the opinion of the Society, constitute excellence" in the animals exhibited. He points out the faults and imperfections of the present method of classifying and identifying them. He insists upon the great evil, so often referred to by our correspondent, "FALCON," of exhibiting breeding animals in a state of "enormous and overgrown fatness." We extract the following remarks on this point:—

"The evil to which I allude is the enormous and overgrown fatness of the breeding animals; and here, not to dwell upon their unwieldy and unsightly appearance, particularly in the male and older animals, one ground of objection, with reference to the principles we have been discussing, may fairly be laid, that it is impossible to find out, under such a load of flesh, their natural or real proportions. But another, of still more practical consequence exists, which rests upon the acknowledged fact, that overfeeding has a sure tendency to render them less prolific. We may assume that none but superior specimens will be brought forward. If then we promote by such means the unfruitfulness of a district, we affect the very best kind of stock which the country can produce. We realise the fable of the golden eggs—Professing a desire to improve the breed, we indirectly forward its extinction, and, in the majority of the choicest animals, we destroy or injure their powers of reproduction. It does not appear very easy to suggest an effectual remedy for this abuse. Restrictions upon feeding seldom have any weight, and are moreover, when regarded, liable to the objection of tending to prevent experiments made with a view of ascertaining the value of different descriptions of food. There seems no better mode of combating the mischief than by stringent instructions to the judges not to give a premium to any animal, which, in their opinion is shown in a state too fat for the purpose professedly intended, or where the natural points are obscured by the fat laid upon them."

Among the suggestions which Mr. HINCKS offers, with the view of making the best use of these periodical exhibitions of live stock, are the following:—

"That instructions far more particular and precise be given, before a show takes place, to the judges and candidates, so that they, as well as every person interested in the subject, may know pretty clearly what properties, in the opinion of the Society, constitute merit, and what it is which they intend to reward. That the name and pedigree of every animal, with the name and residence of the breeder and owner, be inserted in a printed catalogue, to be publicly sold. That the Judges deliver their opinions upon facts. That these facts be collected in the following way. The Secretary or one or more competent persons, to attend the Judges during the examination, with a book ruled in proper form, with columns properly headed, for the purpose of noting down such facts as may be agreed upon. That these facts, when collected, form the basis of the ultimate judgment, and be published as they stand in the number of the Society's Reports, which contains an account of the exhibition. No more alteration being on any account permitted than the necessary correction of obvious clerical or grammatical errors. That a report founded on these facts be made in writing, by the Judges, or under their direction, which having been approved by the Committee, shall also be published in the Transactions of the Society. That the attention of scientific and practical men be invited, for the purpose of generalizing and deducing from these facts principles applicable to breeding, or to any department of farming on which they may bear."

But, secondly, the main point on which the Society's arrangements are capable of improvement, is in the absence, as they at present stand, of any opportunity for inter-communication, on agricultural topics, amongst those whom they gather together. If the Pavilion dinner were put an end to, 1000*l.* spent in erecting a suitable building for it would be available for more profitable purposes; and if we except Lord SPENCER's speech, and one or two remarks by other speakers, what benefit, *in an agricultural point of view*, could any one receive from his attendance last week, in the Pavilion at Shrewsbury? The *social* advantages of such meetings are, doubtless, great; but these, unless they lead to *agricultural* improvement, have no place, of right, among the objects of an agricultural society. How much better would it be to have meetings of a more limited character, each for the discussion of a specific subject—at which a lecturer should be provided at the expense of the Society, and at which also the attendance should be requested of scientific and practical men, interested in that subject. A prospectus of the arrangements for the week would then direct any one, in search of information on any interesting point, at once to the society of those capable of informing him. These meetings might be public breakfasts, as they are at the annual assemblies of the Highland Society, or they might be such as to admit of a more formal discussion of the subjects allotted to them. But under any form they would be a great improvement on the present arrangement, where farmers are either left each to himself, in his endeavour after the ascertainment of truth, or are congregated in numbers, upwards of 1000, for the purpose of listening to merely complimentary speeches.

Let us not be supposed to undervalue the great social advantages arising from these meetings; but these, we are sure, would be equally secure, and united with far greater agricultural usefulness, under an arrangement, for the discussion of agricultural topics, similar to that adopted by the Highland Society, and which we earnestly hope will be followed by the Agricultural Society of England, at their next meeting. At present, let any one capable of arriving at an intelligent and disinterested judgment, one year hence, compare a full report of the meeting, at Shrewsbury, of the great Agricultural Society of England, with one (see pp. 43, 60) of the discussions which took place this year at the meeting of so humble a Society as that which annually assembles at Market-hill, under the presidency of Mr. BLACKER, and we doubt not that he will assign the certificate of superior usefulness to the latter.

* Ridgway, Piccadilly.

PRACTICE VERSUS THEORY.

THE observations of Mr. BIRDITT in a late Number of the *Gazette* are worthy of especial attention by those who are interested in the application of scientific knowledge to practical agriculture. He has certainly made out a good case with regard to the inconsistency of one year recommending every possible means to be taken in the fixing and consequent preservation of ammonia, and the next being told by the same authority that the carbon and ammonia of plants were derived entirely from the atmosphere, and hence the necessity of applying inorganic matter alone to the soil.

The question of the necessity of fixing ammonia and the consequent increase of nitrogenized matter in the plants fed upon manure so prepared, originated with Liebig in his work upon Agricultural Chemistry. The theory of plants being entirely supplied by nitrogen and carbon from the ammonia and carbonic acid of the atmosphere was propounded by the same authority in a subsequent publication entitled "Chemical Letters to a Friend." It is quite clear that in one of these views Liebig must be in error, for if the ammonia of the atmosphere is the only source of nitrogen to plants, its fixation in manures is a useless loss of time and money; and Mr. Birditt is quite right in stating that such inconsistency is calculated to weaken the faith of the practical agriculturist in the application of chemical science to his art. The question is, however, one which is fortunately susceptible of proof. In some observations which I offered to the notice of your readers last year, I ventured an opinion, contrary to that of Liebig, upon this subject, and suggested that experiments should be instituted to prove whether the roots of plants did take up carbon and ammonia from the soil, as well as the leaves from the atmosphere. If one plant is supplied with inorganic matter alone, and another the same amount of inorganic matter, *plus* a certain known quantity of organic food, and the plants are grown under precisely the same conditions, then if there is more nitrogen or carbon in the product of the latter than the former, it is quite evident that such an increase was derived through the roots, and not by the leaves from the atmosphere. But great care must be taken in trying this experiment, inasmuch as stable or straw manure contains inorganic as well as organic matter. An experiment tried with a bushel of straw manure and a pound of the superphosphate of lime in one instance, and a pound of the superphosphate alone in another can have no satisfactory result. Supposing there is an increase of produce in the first instance, this may be owing to the inorganic constituents of the straw. The very elaborate and able experiments, however, of Mr. Lawes, published in your Number of June 14, afford us data by which the question may be considered decided. In the 18th experiment we find that 3¼ cwt. of superphosphate of lime, 84 lbs. of phosphate of magnesia, and 75 lbs. of phosphate of potash produce 11 tons, 17 cwt. and 2 qrs. of Turnips; while the addition of 30 lbs. of sulphate of ammonia (a compound of organic and inorganic matter), in experiment 19, gives an increase of 8 cwt. 2 qrs. of produce; and 3¾ of superphosphate of lime and 1 cwt. of rape cake (an organic manure), in experiment 10, give 12 tons 14 cwt. 3 qrs. and 6 lbs. of produce, being the greatest amount in any of his experiments. And these compounds produced 2 and 3 tons per acre more than 12 tons of farmyard dung (experiment No. 1).

In order to understand the bearing of these experiments two or three things ought to be especially noticed. 1st, Turnips are not the crop upon which the value of an azotised manure can be decided, because they do not contain more than 1½ or 2 per cent. of albumen. And yet 30 lbs. of sulphate of ammonia increases the produce by 8 cwt. 2 qrs. per acre! How is this to be accounted for? To understand this it must be remembered that sulphate of ammonia contains the following constituents: sulphur, oxygen, nitrogen, and hydrogen. The increase in weight could not have been produced by a mere re-arrangement of elements, because 952 lbs. could not have been formed out of 30, the water and starch containing neither sulphur or nitrogen could not have been materially increased by the sulphate of ammonia; but the increase was evidently in the albumen.

Now, vegetable albumen is composed of carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus; the latter two in very small proportion—the nitrogen about 15 per cent. It will be near enough to say that 30 lbs. of sulphate of ammonia contains 10 lbs. of nitrogen, which is sufficient to form, by a union with its other elements, about 66 lbs. of albumen, which would be more than the usual proportion of dry albumen in 952 lbs. of Turnips, deducting the starch and water which would, of course, be formed from other sources in exact relation to the albumen. Nothing, then, can be more clear than that the increase of Wheat in the 19th over the 18th experiment, was due to the application of a nitrogenised compound to the roots of the plant; and that the plant did appropriate, assimilate, and convert this compound into albumen through the medium of the roots, and that the nitrogen was not obtained through the leaves from the ammonia of the atmosphere.

2. In the other instance, experiment 10, the same process of reasoning may be applied. Rape-cake is a carbonaceous manure. The oil which it contains has 79 per cent. of carbon in its constitution. Each atom of oil is capable of supplying the carbon necessary for nearly two atoms of starch, of which about 10 per cent. is contained in the Turnip bulb; and here the produce was much greater than where the same amount of inorganic material without the organic was applied. No evidence can be stronger, then, that plants do take up both carbon and nitrogen by their roots. If further proof were required we should find it in the fact that the heaviest bulbs in the series of experiments were those in which the sulphate of ammonia or Rape-cake were applied; and the heaviest result in the list was that in which these manures were united.

3. These experiments prove beyond a doubt that carefully attending to the chemical constitution of plants, and of the soil, and applying to the latter a combination of all the constituents of the former, of which the soil is deficient—organic as well as inorganic—is the basis of a rational system of agricultural chemistry.

4. They prove also, as Mr. Lawes has pointed out, that Liebig was in error when he advanced the opinion that the inorganic constituents of plants were all that is required to be applied to the roots. There is much more matter in these tables of extreme interest and value. The immense labour and trouble they must have required in collecting the data can only be appreciated by those who are accustomed to the routine of scientific investigation of this character.

I hope Mr. Birditt will remember that Agricultural Chemistry is still in its infancy, and that all theories by whomsoever advanced, must undergo the strict test of sound and careful experiment before their truth can be established. He must not forget either that those experiments which require a considerable expenditure of time and money have hitherto principally been undertaken by those who feel a laudable anxiety for the advancement of agricultural prosperity, and in many instances by those who have no interest whatever in the subject beyond that of promoting the interests of science. Mr. Birditt, perhaps, knows that it is a thankless office—that of endeavouring to establish truth against the prejudices, and very often the obstinate disbelief in facts of those for whose benefit it is intended. The Agricultural Society has, it is true, engaged the services of an eminent practical chemist, who will, I have no doubt, apply himself in earnest to elucidate the dark points of the subject, by undertaking or superintending a series of experiments. Much useful time is wasted in discussing matters that a few sound experiments would set at rest.

Many, for instance, are already expressing a want of faith in the use of sulphuric acid and bone-dust. Why do we not have from the best authority a series of experiments which would settle the doubts upon the subject at once? Instead of this we find certain statements made of the value of this manure brought forward; others try it and fail—and why? Simply because it has never yet been decided, as it ought to have been, from experiment. 1. What is the active fertilising principle or principles in the compound. Is it the sulphur, the oxygen, the phosphorus, or the lime? Or, is it the nitrogen in the gelatine of the bones? 2. Upon this question depends a knowledge of the fact. What crop is best adapted to the manure? 3. What are the most fertilising proportions of acid and bone-dust as a mixture, and what the exact amount of the compound per acre?

The Royal Agricultural Society gives a prize to Mr. Hannam for his essay. Why not instruct their own chemist to decide the question by direct experiment? Or, why do they not instruct him to take up the question discussed in this paper; or the fixation of ammonia in solid or liquid manure; or the use and comparative value, and *modus operandi*, and suitable crops for the application of artificial manures in general; in fact, why does not the chemist of the Royal Agricultural Society do something? Why permit all confidence to be lost in the public mind, and a noble and useful science which is capable of doing so much good, to be damaged, by neglecting to bring into practical operation all that is already known of Agricultural Chemistry.—*C. R. Bree, Stowmarket.*

AGRICULTURE OF FIFESHIRE.

I had the pleasure of meeting at Balcarres a number of the most intelligent farmers of the district, whom Colonel Lindsay had been kind enough to bring together. We had much conversation in the course of the evening, and we mutually put and answered many interesting practical questions. My friend and pupil, Mr. Norton, who was a spectator and listener, expressed, the following day, what I had myself thought, that during our many excursions, he had seldom met a more intelligent and less prejudiced company of practical men. They were not all from the immediate neighbourhood of Colinsburgh, some of them, whose farms I should like to visit, had come from Leuchars, the district which lies between the Eden and the Tay.

Among the topics to which our conversation turned was that of feeding with different kinds of Turnips, and to their use with or without tops. When given to milk cows, I found the opinion here to be, that white Turnips produced much *more* milk than Swedes, some said twice as much, but all allowed that yellow Turnips gave a *richer* milk. Still that the same weight of Globes should give so much larger a quantity is not easily explained, since the difference in the relative proportions of water they contain is comparatively trifling.

I asked some questions about Turnip-tops. All agreed that the Turnips gave more milk when the tops were given along with them. This also must arise from some other cause than the quantity of water they contain, since, according to experiments made in my laboratory, the

Bulbs of Swedes contain . 88 per cent. of water.
Tops of Swedes contain . . 85 .. ..

so that the *quantity* of milk must depend upon the chemical composition of the tops, and not merely upon the water they contain, since the bulbs contain the most.

A difference of opinion prevails as to their use in the feeding of growing and fattening stock. I am inclined to concur with one or two of the practical men present, who pronounced them to be good feeding, when given with a proper admixture of hay, straw, or other dry fodder, and especially to young stock. I am inclined to this opinion in consequence of the very interesting result of an analysis I am now making of the tops compared with the bulbs of the Turnips. These experiments are not yet completed; but, so far as they have gone, you will see how practically interesting they are, from the following facts in regard to Swedes:—

	Water.	Dry Matter.
1° A ton of bulbs contains	1970 lbs.	and 270 lbs.
A ton of leaves contains	1900 lbs.	and 340 lbs.

Or the leaves contain, in the same weight, one-fourth more dry food than the bulbs.

2° A ton of the bulbs gives 17 lbs. of ash.
A ton of the leaves gives 33 lbs. of ash.

Or the leaves, weight for weight, take from the soil twice as much as the bulbs do. Of course they convey into the stomach of the animal, in these same proportions, the inorganic substances of which the ash consists. But further—

3° In the ash of the leaves a much larger proportion than I had anticipated consists of the earthy phosphates—chiefly the phosphate of lime, of which, as you recollect, the earthy part of the bones in a great measure consists. Thus

A ton of bulbs contains 3 to 6 lbs. of phosphates.
A ton of leaves contains 10 lbs. of phosphates.

So that not only does a given weight of leaves exhaust the soil of phosphates in a greater degree than an equal weight of bulbs, but it is also fitted to give to the animal more of those materials from which the bones are to be formed. Hence the reason why I am inclined to concur in opinion with those of the Fife farmers, whose experience had led them to consider the Turnip-tops a nourishing food for young stock. And as milk contains and requires for its production a considerable supply of these phosphates, it is not unlikely that the increased yield of milk caused by the Turnip-tops may be in some measure owing to the large proportion of phosphates they convey into the stomach of the animal. Of course, every practical man knows that, if any food scours an animal, as Turnip-tops are sometimes said to do, it may prove injurious when given in too large quantity. It will be necessary, therefore, to give some other, perhaps some dry food, along with the green tops, to check any tendency they may have to produce this effect in an improper degree.

In regard to Turnip-tops, another opinion entertained by some of the Fife farmers attracted my attention. It is said that if the Turnip-tops are left in the field, and only the bulbs carried off, the land will be as much benefitted as if the whole be eaten off with sheep. I do not know how far experience bears out this opinion—of what kind of soils it is correct—nor in reference to what kind of sheep. I shall make further inquiries, therefore, before I venture to offer you the explanation of the alleged fact which at present occurs to me.

I shall trouble you with only one other fact, observed in the south-east coast of Fife, which, in your inland position, however, may not be of much practical value to yourself. When sea-weed is laid on the stubble in autumn, and ploughed in at the rate of 25 tons an acre, and the Turnips afterwards raised with half dung, the Red Clover which succeeds is never known to fail. Does this imply that saline matter, such as sea-ware contains, is a specific against such failure, or may not the mildness of the climate along the sea-shore secure the Red Clover plant against the injury it often receives from the premature frosts of an early winter?

On the following morning I had the pleasure of addressing a large audience of practical men in Colinsburgh—Mr. Bruce, of Kennett, in the chair. It was on the occasion of the Annual Show of the East of Fife Agricultural Society, and the hour of lecture was very judiciously fixed at half-past 9, by which means I was enabled to dismiss my audience before the proper business of the day commenced. This is an important consideration, and should, I think, be kept in mind whenever lectures or discussions are fixed to take place at such agricultural meetings. Mr. Bruce also presided at the dinner, which went off very successfully. One thing struck me as peculiarly worthy of imitation, that by 7 o'clock—the dinner having been fixed for 3—every person had left the room, the chairman being the last to quit, and most of the farmers were already on their way home.

You know the natural richness of the land in this district. It labours, however, under two natural disadvantages. In many parts it is wet, and requires drainage to make it more, or more uniformly, productive. It contains also much oxide of iron in the subsoil, especially of the richer and opener land, which rest upon the trap. This iron is derived from the trap itself, which not unfrequently contains a very large per centage of this metal. In soils which are formed from decaying trap, it sinks or is washed down by the rains, and in many places collects in the under soil. I have seen very instructive examples of this upon the home farm of Balcarres. Beneath the first 12 inches of black or brown soil there are 12 or 15 inches dotted with red or ochrey spots, and below this occasionally the whole is a wet and ochrey mass. The same appearance presents itself in many other parts of this county, and indeed in many other counties of Scotland; and, were I not afraid of making this letter of a tiresome length, I could mention some very curious facts in regard to it, quite as interesting as those I picked up two years ago on your own home farm at Southbar. The roots of plants cannot, of course, descend into such subsoils, and the crops not unfrequently droop and fail after they have come into flower; because their roots have reached the noxious matter. The cheapest, and, perhaps, the only available, general method of remedying this evil is by the insertion of drains.

But of the means of draining, at least with tiles, this part of Fife has hitherto been deficient. It was with much satisfaction, therefore, that I visited the tile-work now erecting on Etheredge's principle, at the joint expense of Sir Ralph Anstruther and Colonel Lindsay, between Kilconquhar and the sea. The work will be on an extensive scale; and, as the clay is of excellent quality—as Etheredge's machine leaves nothing to be desired in regard to the workmanship of the tile—and as the proprietors propose to sell their tiles at the cheapest possible rate, many years will not elapse before the eastern part of Fife becomes still more distinguished for its productiveness and good farming than it has hitherto been. Indeed, while improvement is going on so generallly—while almost every proprietor and every county are striving with their neighbours—any estate or district which stands still must necessarily appear to fall behind in the universal progress.

My limits do not permit me to do more than advert to the success which has attended Colonel Lindsay's distribution of a part of his land, around Colinsburgh, in small allotments to the poorer inhabitants, and to the amount of health and comparative domestic comfort he has thus been the means of diffusing among the humbler peasantry in the district. Many persons are opposed to the system; and, on the part of a proprietor who is not acquainted with its actual results where it has been long introduced, I can understand why evil results may be reasonably anticipated; but I confess I do not see why it should meet with opposition from an enlightened tenantry. I was told the other day, by a friend of ours, that the tenantry around one of his estates, in the south of Scotland, were not only opposed to it, but had publicly announced that they would not employ a labourer who was the holder of an allotment. A hard measure this is surely, and an unkind one to the industrious labourer. Is he supposed to have no fraction of strength left after his day's work is conscientiously performed—and are his wife and children to be debarred from contributing their mite towards the common support of the family?—*By Prof. Johnston, in the Quarterly Journal of Agriculture.*

DRAINAGE A PERMANENT IMPROVEMENT.

The following is a condensed report of the evidence of Mr. Smith, of Deanston, on this subject, before the Lords' committee on charging settled estates for the expense of the operation:—

The way in which I have found it best to drain land is to drain it in a thorough manner. In the first place to provide sufficient outfall for the water from the different fields or from the estate; thereafter to place drains parallel to each other at the distance which I have found in practice to be suitable for all varieties of soil; that distance is from 18 to 25 feet. Then making the drains from 2½ feet to 3 feet deep; never less than 2½ feet. The propriety of the material with which the open of the drain is to be preserved will depend much on circumstances. In some situations broken stones are most suitable, and most economical for the purpose; in other situations tiles or tubes (which are of the same character) are the best for that purpose. I drained my estate in Scotland with stones entirely. I commenced about 25 years ago. The expense of draining per Scotch acre was 6*l.*, including main drains and all expenditure in drains. I have had an opportunity of ascertaining that those drains have remained efficient up to the present time. I made an inspection very recently, and did not find a single spot indicating the slightest damp. I had the drains opened into, in several places, and wherever they were opened I found them perfectly free from silt, and open for the water. The soil of that

estate was various. Some of it an alluvial clay in some of the hollows, some of it a sort of drift composed of the debris of the old red sandstone, and some of it a sort of moorish gravel. With regard to the expenditure for the drainage, I am quite sure that the return was upwards of 10 per cent. on the outlay. The farm was increased in value from about 20*s.* an acre, which was rather considered a high rent for it; and since I have left the farm, and given up farming, 50*s.* I understand has been offered for the farm. But that improvement is not all due to the drainage; there are many other things, such as fencing, and other arrangements; making the fields of a proper size, and a proper number for the rotation; making roads and fences, and improving the condition of the land.

If a tenant is allowed to remain 10 years on the land after he has drained at his own cost, do you consider he is completely repaid the outlay?—In most cases I should say he would be.

Which do you think the best mode of draining, supposing that could be done at the same expense, tile draining or stone draining?—As regards permanency, I should say, especially in steep land, that stones are better than tiles, provided they are properly executed. It requires a little more care to execute draining with stones well, and therefore there is always a risk that they are not so well done, and tiles are to be preferred on that account. I should say where there is not much fall tiles would be preferable to stones.

Do you mean tiles or the tube tiles?—I think it makes no difference.

When you say that stones require greater care, is there any particular manner of laying them, or do you merely tumble them into the drain?—The drain ought to be cut as narrow as possible to the bottom. The stones ought to be broken to a very equal size, about the size of road metal; they should then be put in carefully, and be well straighted on the surface after there is a sufficient quantity put in; and I think that from 6 to 8 inches of stone is quite sufficient.

Will not stones with angular points consolidate and unite in one mass, which round stones would not do?—I do not see that that would make any material difference; it is the falling in of silt amongst the stones that consolidates the drain; not the form of the stones themselves. In order to prevent that silt getting in, I recommend that the stones should be covered at first with a very thin turf; and if a moorish turf can be had so much the better. After the turf is carefully laid on, and the meeting ends lapped over, so as to prevent any direct opening into the drain; then I recommend as stiff soil as can be had—clay, or if clay cannot be had, the stiffest soil that can be obtained—should be placed over the turf, and be well beaten or tramped down so as to prevent the possibility of any direct opening from above into the open of the drain.

Do you think that a pipe tile of an inch diameter is large enough for draining most lands?—It depends upon the length of the drain. As far as regards the sufficiency of area to discharge the water quick enough, a tile of an inch in diameter will serve a great distance. If the drains are from 18 to 20 feet apart I should say you might discharge the water of a couple of hundred yards, or perhaps more, by a pipe of an inch in bore; nevertheless I prefer a tube of larger diameter, as being more fitted to retain its place in the soil.

Home Correspondence.

Lord Torrington on Farm Buildings.—The favourable notice of Lord Torrington's treatise on "Farm Buildings and the State of Agriculture in Kent," which appeared in your Paper of the 28th June, induced me to purchase it; and I beg to observe that I have been much interested and instructed by its perusal. The work reflects very great credit on the noble author, who appears to enter into the great question of agricultural improvement with all the ardour and intelligence worthy of the high rank to which he belongs. What, however, particularly struck me, as being both opportune and of the highest importance to the agricultural interest, are those just observations which relate to the proper education of the sons of farmers, and the qualifications and duties of land stewards. That portion of the work has, at this time, more than a usually strong claim on the serious attention of all that feel interested in the advancement and prosperity of British agriculture. The following observations, quoted by his lordship from the pen of Mr. Buckland, the author of the Prize Essay on the "Farming of Kent," cannot be too extensively read: —"I know of estates in this county that, under an enlightened system of management, might be made to yield from 25 to 50 per cent. more rent, with an equal advantage to the tenantry. I think that a steward should not only be a man of general intelligence (keeping pace, by reading and observation, with the daily advancing state of agriculture), but should likewise possess great firmness of purpose, and strength of moral character. He might, and ought, as the representative of his employer, to promote and strengthen a spirit of inquiry, correct habits of observation, and inculcate purer and more elevated tastes among the tenantry and the labourers. A judicious man, of a candid and liberal spirit, might do much for these great objects among the rural population, without any kind of petty intermeddling, or stepping one inch beyond the strict line of his study. The relation between landlord and tenant is of a delicate and most interesting nature, likewise that between the labourer and his employer, and might be made to yield the best results. The grand thing is for all parties to cherish an increasing conviction of this moral force of the relationship. Apart from this, there appears to me no hope of any permanent improvement of mankind. Property and station have their duties as well as their rights." It may appear startling that rents now-a-days, on any number of farms, might be raised 25 to 50 per cent., and that with advantage to the tenant. But there are estates in other counties besides Kent, where this might take place under a wise and improved system of management. The farm which I occupy now yields me a considerably larger profit than it did a few years ago, with an advanced rent of nearly 30 per cent. And this simply in consequence of the landlord substituting a good practical, scientific farmer for steward instead of a London lawyer. Several instances of a like nature have come under my observation in other districts. It is not so much the mere amount of rent of which tenants generally complain, or ought to complain, as it is the want of freedom and security in effecting those permanent and expensive improvements without which farming cannot prosper. In order to this most desirable object, the management of estates should be vested in competent hands—in men who keep pace with the advance of the age, and unite with an extensive knowledge of practical husbandry, those scientific principles upon which alone that most valuable art can be safely based.—*A Tenant Farmer.*

Warping.—The cases of the successful practice of warping, for the improvement of sea-board lands, so obligingly communicated by your correspondents, do not offer the exact models for imitation for which the inquiry was made. The outfall of the Trent and Ouse, like the rivers of Lincolnshire, is exceedingly gentle and slow, and their respective estuaries so remote from the open sea, and their sloping borders so favourable for the operations of reclaim as to make the choice of means comparatively easy. But on a bolder coast, and with a stronger and more rushing tide, it becomes a question whether other modes of procedure than those now in successful practice on the banks of the Humber and the Wash, would not be more applicable. The principles of all these operations may be the same, but the means must vary according to circumstances; and as example is said to prevail more than precept, the inquirer hopes to hear of some successful instance of the improvement in question amid greater difficulties, now ready for inspection. Has warping been practised on the outlets of the Stour or Orwell, or on any other parts of the Essex and Suffolk coasts, where newly-embanked lands exist? —*Anon.*

Sulphuric Acid.—"T. B." is certainly charged far too high a price for his acid; for his information, and that of others, the present prices at which I have purchased it from the manufacturers is ¾*d.* per lb., with 5 per cent. off, for acid sp. g. 1,700, and 1*d.* per lb., 5 per cent. off, for sp. g. 1850; I can recommend him to use that at 1,700, which not having undergone the expensive process of boiling down, contains more *real* acid for the price than the stronger acid.—*Lusor.*

To Keep the Dairy Cool.—The plan I adopt to keep the hunters' boxes cool, would answer for the dairy. Fasten reed (Wheat straw) on the inside of the slate roof by means of laths or any other plan. In the highest part of the roof insert a tin tube with cover, being perforated with small holes. Previous to adopting this plan my boxes were too hot in the summer, and not properly ventilated in the cold weather.—*D.*

Instructions on the Cultivation of Flax.—In answer to your Bristol subscriber, I beg to say, that as I have some hopes that a society may be formed by landlords and Flax spinners, similar to the Belfast Flax Improvement Society (which has been so successful), for the purpose of sending out men capable of giving out proper instructions in the cultivation and management of Flax, I shall attend to communications from gentlemen wishing to cultivate the plant; and, if I find the landlords not inclined to meet the wishes of the Flax spinners, and that such a society cannot be formed, I shall make such arrangements as will allow of my time being devoted to the business of giving instructions on the proper mode of Flax cultivation, and will secure the assistance of proper qualified persons from Belgium and Ireland. —*J. H. Dickson, 6, De Beauvoir-suare, London, July* 22, 1845. [To this we add, as suggested by another correspondent, that our Bristol correspondent may, by subscription to the societies already in existence, viz., those at Belfast and Ipswich, obtain every information.]

Bitter Yeast.—With respect to bitter yeast I think the following method to sweeten it the simplest of any. To remove the bitterness from yeast, produced from highly-hopped beer, our cook previously to baking puts a glowing (red-hot) lump of charcoal, about the size of a large hen's egg, in say a pint of bitter yeast, and after giving the yeast a good stir, she strains it through a fine horse-hair sieve, when it becomes perfectly palatable.—*William H. Twyning, Cardiff.*

Guano.—Two years ago I put 2½ cwt. of guano to an acre on Grass land, and the crop of hay was extraordinarily good. A woman who has lived at our lodge for 37 years never remembered so good a crop. I do not, moreover, know how many loads of hay we carted from the 8 acres. The horses like the hay as much as any other, but the cows always feed on the land manured with lime and earth in preference to that with guano. Neither last year or this did these 3 acres seem benefitted by the guano, but rather impoverished last year, which may be attributed perhaps to the want of rain. This year I have been trying guano *versus* stable-dung, and when my hay is in will let you know the result.—*A Carmarthenshire Subscriber, July* 15, 1845.

Potatoes.—A young man in our town has, during the past three or four years, preserved, or prepared, his seed Potatoes in the following way:—He plants his early crop, and when fit, removes them, setting in their place the small waste Potatoes which he saved from the crop of the last season. When about half ripe, *i.e.*, the tops still luxuriant, and showing no sign of decay, he takes them up and spreads them over the land, allowing them to lie till the approach of winter, turning them often. These Potatoes always yield much more than those allowed to remain in the ground till fully ripe. His father prefers seed fully ripe, and this year his crop does not average more than half what the son's yield; the Potatoes are good in quality.—*J. Tison.* [It is a common, and therefore probably accurate idea, that Potatoes not fully ripened, are the better, as seed, on that account.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT SHREWSBURY.

We must add to our last week's notice of Implements exhibited at Shrewsbury, a description of a simple and most ingenious instrument exhibited and manufactured by Mr. E. H. Bentall, of Heybridge, near Maldon. We referred last week to a Seed Planter by Mr. Vingo, of Penzance, the principle of whose action consisted in the regularly intermittent coincidence of apertures in the two discs, one moveable and the other fixed, which form the bottom of the seed chest. We were not aware that the same principle had been adopted by any other maker; but something similar is observable in the construction of this instrument, a Hand Seed-depositor, (price 7*s.* 6*d.*), manufactured by Mr. Bentall. This seed-depositor is for use by children following the man who dibbles the holes. Holding the instrument over each hole in succession, and first pulling its handle out and then pushing it in, three grains escape at each movement into the hole over which it is held. It consists of a metallic vessel of the form of the space between two concentric cylinders 1 inch apart. This space is kept filled with Wheat from a bag tied to the neck of the person using the instrument. The bottom of this vessel is pierced with holes, and it rests on a metallic plate, in which there is one hole, with a tube below it. The seed stored up in the instrument can thus escape only when one of the holes in the seed-box corresponds with that in the disc on which it rests. What is wanted, therefore, is some simple method of bringing about this coincidence at the will of the operator, and this is effected in a manner equally simple and ingenious. The inner cylinder, which constitutes one side of the seed-box, is grooved internally in the manner of a rifle barrel; only, instead of the grooves being all one way they are alternately to the right and to the left. The piston or ramrod working in these grooves being pulled directly out, pressing under the edge of a right hand groove, of course turns the box on its axis to the left, and causing one of the holes in the bottom of the box to coincide with that in the disc on which it rests, two or three seeds drop out, and are guided by the terminal tube to the hole prepared for them. On pushing the handle in the the piston meets with the upper surface of a left hand groove, and this obviously causes another movement of the box upon its axis to the left, and seed is again deposited. The alternate up-and-down motion thus produces an intermittent delivery of seed at the will of the operator—and, in short, so far as a cheap and efficient instrument to take the place of the wasteful and careless use of finger and thumb, which has been the great objection hitherto to the process of hand dibbling, Mr. Bentall has left nothing to be desired.

We must also allude to another machine, a Tile-making machine, exhibited by Mr. Ainslie, which was not in the yard, being too late for entry. The peculiarity in it is in the method of forcing the clay through the dies on which the shape of the pipe or tile depends. This is effected by a pair of rollers, whose adhesion to the clay gives them sufficient hold of it to overcome the resistance which it necessarily offers to the operation. The production or emission of the tube from the die being continuous, not intermittent as in other machines, an arrangement is added by which, when the tube is cut into lengths, the verticality of the section is ensured. This is effected by giving sufficient inclination to the path which the cutting wire takes across the tube, thus accommodating the onward motion of the latter with a similar onward motion combined with an upward one on the part of the former. If there be any great importance in having all the tiles of one length and always cut right across, there is this to be said against Mr. Ainslie's machine, that its accuracy in this respect must obviously depend upon an almost impossible condition, viz., the absolute uniformity in texture and consistency of the clay with which it is fed while at work. But we do not think that there is much importance in either of these points; and the mode of forcing the clay through the dies in this machine is, we think, an improvement upon that now in use; and had Mr. Ainslie's machine been submitted to the judges we doubt not it would have been one of those selected for further trial.

We must also refer to an ingenious attachment to a Tilt-cart, exhibited by Mr. Crosskill, by which the operation of tilting the body of the cart of itself removes the back-board, and holds it in a convenient position to be restored to its place by the process of letting the body fall back on its bed.

We have only to add, in correction of our last week's report, that the Churns referred to in col. *c*, page 500, were manufactured by Mr. Richmond, of Salford, Manchester.

We have also to add the following award of prizes to the exhibitors of Cheese :—Judges—Samuel Jonas, Ickleton ; Charles Stokes, Kingston ; and Walter Anderson, Oakley. To John Justice, of Tyhtfield, Whitchurch, Salop, the prize of 10 sovs., for his sample of 1 cwt. of Cheshire Cheese ; to John S. Wilkinson, of Madeley, near Newcastle, Staffordshire, the prize of 5 sovs., for his sample of 1 cwt. of Cheshire Cheese

On Thursday evening the dinner of the members of the Society took place in the pavilion. It passed over very successfully under the presidency of the Duke of RICHMOND. One thing, however, struck us as novel and unfortunate, and that was the absence of any of those gentlemen distinguished by their attainments in science, and by their skill in suggesting applications of it to the practice of the farmer, whose presence has graced former meetings. We have only room for an abstract of one of the speeches delivered—that by Lord SPENCER ; it was delivered with great energy and spirit, happily excited by an interruption which he received in the course of it. Lord Spencer proposed the toast, "Agriculture, Manufactures, and Commerce." He said, "My only difficulty in proposing such a toast, where I know I have the cordial concurrence of all those whom I have the honour to address, is to select the topics on which I shall address you, or in which you will not be beforehand with me in feeling everything that I may say. This country depends—the greatness of the country, the prosperity of the country, the happiness of every class in the country, depends upon the prosperity of agriculture, manufactures, and commerce ; and if I could conceive that there was an Englishman who was an enemy to either of these classes. I should say that he was an enemy to his country. I shall take them in a different order from that in which I myself feel their importance, or in which I feel attached to them. I shall begin with manufactures. The manufactures of the country are the sources of employment to great masses of our fellow-countrymen. On their prosperity depends the actual existence, in anything like comfort, of the greatest masses of the labouring classes. ('No, no.') What ! does any gentleman say to you, that, looking to the population of the manufacturing districts—looking to the numbers of such enormous masses of the population ? does any one say that it is not for their advantage that manufactures should prosper ? I really, when I began, could not believe it possible that any person, whatever his means might be, would say 'no' to such a proposition as that. If we look to the millions of our fellow-countrymen—of our poorer fellow countrymen—of our honest industrious labourers, whose existence, whether in comfort or starvation, depends upon the prosperity of manufactures—I must profess that, at a meeting of farmers, a doubt should arise, a question should be started, whether it was for the advantage of the country that prosperity in manufactures should exist, is to me one of the most astonishing things I ever heard. Who are your consumers—who buys your produce—who is it that encourages the improvement of the agriculture of this country ? We all know when there is a prosperity in the manufacturing interest—we all feel when there is a failure in that prosperity ; we feel it in our prices ; we feel it, above all, in the encouragement which is given to agriculture. What country, I should like to know, ever existed where it was possible to bring agriculture to its highest and most complete state of perfection, if it depended on agriculture alone? This is a great country, rich in every line, great in every line, skilful and industrious in every line to which it applies its energies ; and this energy of the country has been given us to improve—to improve, I say—for I do not say that we have yet arrived at anything like perfection—but to improve agriculture, in which I have no doubt we at present occupy a position superior to that of any other nation in the world. So that while, in addressing Englishmen of every description, if I were to speak to them of the prosperity of manufactures, I should expect they would be ready to applaud ; but in addressing an assembly of farmers, I feel still more confident that they will applaud me. The commerce of the country is another point to which I wish to call your attention. The commerce of the country is one of the great elements of our prosperity. Commerce has given us our naval superiority ; it is on the commerce of the country that the maintenance of our superiority must depend ; and in asking you to drink prosperity to the commerce of the country, I ask a toast which I am sure you will all concur in. I now come to agriculture, and I address you with perfect confidence on that subject. Without agriculture our manufactures could not go on. Without agriculture our commerce would languish—without agriculture our people would be miserable. I have always been—I am ready to assert distinctly—that I have always been in my mind desirous, to the utmost degree, to promote the improvement of the agriculture of the country. I concurred with my noble friend in the chair and with Mr. Handley in establishing this Society. I think the Society has done a great deal of good, and I think it will yet do a great deal more good than it has ever yet done in promoting the improvement of agriculture. The agriculture of the country is of the greatest possible importance. I have already stated what I feel with regard to manufactures. I have stated what I feel with regard to commerce ; but then I feel that these apply only to parts of the country. Agriculture applies to the whole, and therefore it is of the highest importance to every interest in the country. It is of the highest importance to every person who is engaged in trade or occupation in the country that the agriculture of the country should prosper. Our prosperity, gentlemen, depends on our own exertions. We must exert ourselves to improve it in every way we can, with a view to render the greatest amount of produce out of the smallest amount of outlay. It is impossible to describe the effect of agriculture upon the happiness of the country. I feel, as you all know, I feel that it is a most agreeable occupation. I feel that I can pursue its various interests through all parts of the year. There is no part of the seasons in which an agriculturist may not find full and entire occupation. I won't say that it is, at least quite lately, a profitable occupation. I am too much of a practical farmer to tell you that ; but though it has not been so profitable as I would wish latterly, yet I don't think, so far as I am concerned, that it has diminished in its interest at all. It is a most agreeable occupation, and suits every man whatever his disposition may be. If a man likes to look at the dark side of things, then there is scarcely any kind of weather which is not bad for some part of his crop. I cannot say that I am fond of looking at the dark side of things. But, on the other hand, if a man likes to take a comfortable and agreeable view of matters, then the same weather which is injurious to some part of his farm will be good for another, and therefore I say, that farming suits everybody's taste. Those who like grumbling can find in it plenty of opportunities for grumbling ; and those who like to be pleased, can always find something in it to please them. I will not now detain you further, but I beg to propose the toast, 'Success to the Agriculture, Manufactures, and Commerce of the country.'" —(Loud applause.)

On Friday the General Meeting of the Society was held, when Lord PORTMAN took the chair as President for the ensuing year. Complimentary votes were passed thanking the various public bodies in Shrewsbury, to whom the Society had become obliged ; and also thanking the Duke of RICHMOND as President during the past year.

HIGHLAND SOCIETY OF SCOTLAND.

THE general meeting of this Society was held in their Hall, Albyn-place, on July 8. The Right Hon. Viscount MELVILLE was called to the chair. Mr. Hall Maxwell then submitted for the approbation of the meeting the premiums offered by the Board of Directors in the list for the present year, of which copies were on the table. It was not necessary to go into the details, as they were printed, but he might mention that the aggregate sum of money devoted to the premiums, including the auxiliary local contributions from districts, amounted to the very liberal sum of 2404*l.*, and this without including certain premiums announced for competition in 1846, and subsequent years. The directors had thought it necessary that the new premiums should be particularly brought under notice. In Classes I. and II., under the heads of Essays and Reports, and Agricultural Machinery, premiums to the amount of 190*l.* were offered for the best communications on ten different subjects, now for the first time introduced into the Society's premium list. These subjects embrace quantitative analyses of cultivated plants and common weeds ; the extraction of iodine, and the valuable salts which accompany it, from kelp ; the structure, conformation, and physical properties of wool, and the nature and uses of the sebaceous secretion of the skin of the sheep ; the uses and advantages of the spade and fork when employed conjunctly in husbandry ; the cultivation in this country of the Tussac Grass of the Falkland Islands ; the nutritive properties of Turnips raised with different manures ; the construction of tanks for liquid manure ; the allotment system, with particular reference to its practical operation in specified localities—the effect of picking the blossoms from the stems of the Potato-plant—the application of galvanism or electricity to the cultivation of plants—and the comparative results of threshing grain by the common Scotch threshing-machine, the peg drum machine, and the English high speed beater. The subjects thus briefly enumerated do not form one-half of the topics which are included in the classes to which they belong ; but they are sufficient to evince the anxious desire which is felt by the directors that the Society should be instrumental in conferring upon the country the benefits derivable from the successful application of that spirit of scientific research and practical experiment which constitutes so marked a feature of the present times. The premium on the subject of electro-culture is open to competition by essays in English, French, German, and Italian. It amounts to 30*l.*, and is offered at the instance, and through the liberality of James Adam Gordón, Esq., of Knockespock.—Mr. Dalzell, of Whitehouse, reported in reference to the General Show at Dumfries this year,—the General Show would take place at Dumfries on the 7th, 8th, and 9th of October. As intimated at the General Meeting in January last, the county and town of Dumfries, the stewartry of Kirkcudbright, and the county of Wigton, had severally proffered liberal contributions in aid of the Premium Fund ; and the subscriptions which have been promised by individual noblemen and gentlemen, though they may not yet have reached the limit to which it is desirable they should extend, amount to a sum of considerable magnitude. The Society contributes its enlarged grant of 300*l.*, besides charging itself with the customary responsibilities belonging to the show. The premiums offered for competition in the various departments of cattle, horses, sheep, dairy produce, seeds, implements, &c., amount to nearly 900*l.* The stock expressly includes most of the chief breeds of the country, and virtually embraces the whole of them, while it predominates in the class of cattle to which, locally, most importance is attached. In the department of machinery, the directors have resolved to employ a properly qualified person to report upon the machines and implements which shall be exhibited, and more particularly upon those for which premiums shall be awarded ; and they trust that the measure will tend to increase the practical utility of this part of the show, and that it will afford satisfaction to exhibitors—the merits of whose inventions it will serve to illustrate and make known. The Local Committee have already obtained an eligible site for the show-yard on the eastern bank of the Nith, in the immediate vicinity of the town of Dumfries, and also the use of the new Assembly Rooms, for the purposes of the Society during the show. It is likewise intended to erect a spacious and elegant pavilion in front of the Assembly Rooms for the general dinner on the principal day of the meeting. The Committee-dinner will be on the day preceding. Due arrangements will be made for public breakfasts and ordinaries on the days of the show ; and no doubt is entertained that all who may be present will experience every comfort and convenience. Mr. Baillie of Culterallers, as chairman of the Standing Committee on Cottages reported in reference thereto. The Society (he said) continued most anxious to promote attention to the improvement of cottages, and the habits of the peasantry. In addition to premiums to proprietors for building new and improving existing cottages in certain districts, the money premiums to cottagers for the best kept cottages and gardens, are this year in operation in 30 parishes. There were many more in which they would have been in operation had the country gentlemen responded to the appeals made on this subject ; but he was sorry to say they had not done so in a degree corresponding with the exertions of the Higland Society. Only four applications had been received in consequence of the published advertisement, and of these only two came forward with the necessary funds. There were many gentlemen in different parts of the country whose exertions were beyond all praise, but these were the exceptions unfortunately, and not the rule. He hoped that the country gentlemen would take up the matter more warmly. Mr. Hunt, of Pittencrieff, said he had been requested to lay on the table a copy of Mr. Pagan's book on "Road Reform." His plan he should state to the meeting as shortly as possible. It related not only to turnpike, but also to statute labour roads. Mr. Pagan, from his professional avocations at Cupar-Fife, has had access to the best information, and from his calculations and the returns he has received to his inquiries, it appears that the sum of money annually collected in the counties of Fife and Kinross, at turnpike gates, and from statute labour and bridge money assessments amounts to about 33,500*l.* Now, of this amount, he proposes to save the two counties not less than 15,000*l.* annually. His plan is to abolish turnpike gates, statute labour and bridge money assessments, and to levy in lieu thereof a rate on horses of every description, without distinction of 30*s.* a-year each. This rate, from the information he has received, should produce 18,000*l.* The sum saved, viz., 15,000*l.*, he estimates, is absorbed at present in the expenses of toll-collectors, clerks, and treasurers. By the setting or leasing of tolls, houses, and gardens, &c., he is of opinion that that sum would be amply sufficient, not only to keep both turnpike and statute labour roads in good and substantial condition, to pay the interest of the money borrowed, but also to create a sinking fund that would extinguish the debt in 31 years. The plan, Mr. Hunt thought, has the merit of being clear and explicit ; and, in these days when railways are extending over every district of the country, well worthy of attentive consideration. Mr. Pagan's desire is to make his book generally known ; and having been permitted by the Directors of the Highland and Agricultural Society to lay a copy on their table, at one of their general meetings, Mr. Hunt hoped it would have the effect of calling the attention of gentlemen to it in the different counties of Scotland.

Farmers' Clubs.

NORTON JOINT STOCK IMPLEMENT CLUB.—At the late monthly meeting of the above Club, the policy of the formation of a joint-stock fund for the purchasing of improved agricultural implements was discussed. After a cursory allusion to the agricultural improvements which had taken place in Norton, since the establishment of a Farmers' Club, and to the state of insecurity in which most farmers were placed by the system of yearly tenure, inadequate remuneration for outlay in draining, &c., Mr. Green urged that every possible means ought to be adopted by farmers, in order to further promote their mutual welfare. Many improvements still remained to be done, and among the means of accomplishing them he did not know of any better than the bringing into use improved agricultural implements. The time had arrived when farmers must not stand still. At present their capital was nearly absorbed in cultivating their farms, and meeting the multifarious calls that were made upon them, so that it was impossible that the generality of tenant farmers could be expected to expend money in the purchase of costly implements for their own individual use. Some, it was true, had already done so to a limited extent, but from the want of a thorough knowledge of their applicability, many of the implements had been cast away as useless ; and in some instances where farmers were in possession of useful implements, they were continually being tormented by their neighbours for the loan of them, which created much unpleasantness, and often

great inconvenience. To remedy this state of things he would suggest that a fund be established for the purchase of implements, to be let out on hire at a cost hereafter to be determined on. In support of his argument, Mr. Green said that, in adopting the four-course system of management or rotation of crops, it was utterly impossible to succeed without first possessing themselves of superior implements; and he added, that if the proposed arrangements be made, and other improvements are followed up, such as the soiling of cattle, preservation of manures, &c., he had not the least doubt that, in a few years, 1000 loads more of Wheat might be annually grown in the parish. He had witnessed with pleasure the improvements of late years at Clipstone and the neighbourhood, and he was so fully impressed with the advantages enjoyed in that locality by the use of the drill, that he hoped the members of the Norton Farmers' Club would not be backward in imitating the good examples that had been set them. After some other remarks, Mr. Green concluded by proposing a motion founded on his proposition.—After some opposite discussion Mr. Green said, he merely wanted the Club, as a body, to approve his motion, and individuals could take shares or not, just as they might feel disposed.—An amended motion was then submitted to the members, approving the principle of Mr. Green's motion, and making it optional for individuals to subscribe to the fund or not, which was carried *nem. con.* It was then announced that T. B. Holy, Esq., had ordered his name to be put down for 30*l.* towards the implement fund.—*Sheffield Independent.*

Penwith.—*Guano.*—At the dinner which lately took place in Penzance, where this association held its annual show, the Chairman (Col. Scobell) said, in alluding to the properties of guano—"It was a very quick fertilizer, but he would recommend the users of it to observe whether it improved the quality of the grain. It was known to throw out an immense quantity of straw, but he had never heard any one say that it improved the corn; and its benefit, as a fertilizer, he understood lasted only about five or six months." Mr. Silvester said that he had not made a proper trial of guano upon corn, but he had found it a very valuable manure for Grass. Last season he cut down four tons of Grass per acre on land dressed with it; and this year, without any additional supply, he had more Grass than he ever grew before in any one season. He found it to answer well for Turnips, and applied it at the rate of 3 cwt. per acre, but had found 5 cwt. do much better. Mr. Tyacke had sown part of a Wheat field last season with Peruvian guano, at 2 cwt. per acre, and found the corn grown upon it to be much superior. It was sown in with the seed, October 12 months. He also manured another portion of the field at 4 cwt. per acre, and he thought that the quality of the corn from this was better. Mr. Nicholas Permewan said, that during the last three years he had laid out large sums on guano, and this year above 48*l.* He applied it to 10 acres of Wheat, at 2 cwt. per acre, which had been well dressed with farm-yard manure, but had come away badly, and the result was astonishing. He had applied 3 cwt. to 20 acres of Grass, and the effect produced was most beneficial. He had also tried it on part of a Turnip field of 13 acres. The field was manured with farm-yard dung and earth from the neighbourhood, at the rate of 90 to 100 loads per acre, but a space of seven acres in the centre was manured with guano at 2 cwt. per acre. On the latter the Turnips were equally as good as on the former. After the Turnips he put in Wheat, and no man could say which manure had given the better crop. Mr. Pascoe tried bone-dust and guano separately on Turnips last year. At first the guano lot did not come on so quickly as the bone-dust lot, owing to the drought; but after a fall of rain it pushed on vigorously, and turned out the best crop. He also put 12 cwt. of guano to 3 acres of Grass, but he might as well have tossed his money into the sea. It proved the worst Grass field he had ever seen; but the dry season, it was said, was altogether unfavourable to it. In September he applied 400 cwt. of guano per acre to 3 acres of yellow Turnips; and after the first month the bulbs grew rapidly, and he never saw a heavier crop. Mr. Tyacke said, last year he had 10 or 15 acres of Wheat on land not worth 5*s.* an acre, but manured with guano; and this year he had Wheat on equally poor land; and he had found that the poorer the soil, the better it would answer. He sowed the guano along with the seed, and then harrowed it in. Last year he sowed one-third of a field of 8 acres with bone-dust, the middle with guano, and the remainder with farm-yard dung, in the proportion of 2½ qrs. bone-dust, 2 cwt. guano, and forty loads farm yard dung. The bone-dust gave a fair crop, the guano a third larger, and the dung gave the worst of all. This year the field was in Barley, which seemed the best at first on the part manured with dung; then the bone-dust portion looked best, but now that on the guano was better than either. At first he had from 12 to 15 bushels from the poor land alluded to.

Loughborough.—*The Best and Cheapest Method of Harvesting Hay and Corn.*—Mr. Angrave, East Leake, read a paper at the late meeting of the above Society, on this subject. The best time for cutting Grass, he considered, was when it was in flower, before the seeds were formed. Meadow Grass, which is generally of a variety of kinds, should be cut down when the majority are in flower. Grass requires more spreading than Clover, and is best and cheapest spread by the tedding machine. Wheat is shown by Johnston to be best cut before ripe. A farmer, by way of experiment, parcelled a field of Wheat out in three lots, and cut lot 1 a month before it was ripe, lot 2 a fortnight before it was ripe, and lot 3 when ripe. For the grain from lot 1 he obtained 63*s.* per quarter, and experienced a loss of 10 per cent. in straw. For the grain of lot 2 he obtained 63*s.* 6*d.* per quarter, and for lot 3, 61*s.* 6*d.* per quarter, and experienced a gain of 4 per cent. in the straw of lot 2, over that of lot 3. Shearing is the common method of cutting it in this neighbourhood, in some others mowing is adopted. The advantages of the latter is the gain of straw, and the clearing of land without mowing stubble. He thought, in wet seasons, Corn should be in small stacks. Barley should be in narrow stacks.—Mr. Kilby, Queniborough, agreed with the principal part of what had been advanced by Mr. Angrave respecting the getting of hay, but was of opinion that after the tedding machine the horse-rake should be used. He had experienced the want of it when a thunder-storm came on, after the Grass had been spread by the tedding machine. He thought it should not be allowed to become too dry, as the cattle did not derive so much benefit from it as when it was heated. The medium of Corn getting was, in his opinion, the best. If cut too green or too ripe they would lose 2*l.* or 3*l.* per acre by it. As to the mode of cutting it, he had a dozen times commenced having his Wheat mown, and had taken the men out of the field thinking it could not be done; but he had since persevered, and was now satisfied it was better than reaping. Care should be taken to have the sheaves got in perfectly dry. Two men mow, two tie up, and one sets up. Two women rake and tie up what remains. When the Corn is taken out of the field he used the horse-rake, and kept apart from the rest what he collected by it, as there is a difference in the quality. Reaping cost him 12*s.* per acre; mowing costs him 8*s.*, and besides the saving of 4*s.* per acre in that way, he considered 2*s.* 6*d.* per acre was saved by the stubble being cleared at once. Besides this, there was the benefit of an extra quantity of straw. He last year grew 40 acres of Wheat, and had he reaped it he would have had one-third less straw than by mowing. This system was considered destructive to sport, as there was no stubble left for the game; and were he situated as some farmers, he would ask the landlord to allow him to mow his Wheat on that account. Barley should be mown and tied up. It was most expensive, but of better quality; it was worth 3*s.* or 4*s.* per quarter more. If grain were allowed to lie on the earth, it was almost sure to be injured in one way or other.—The Chairman approved of the practice of mowing Wheat, although it spoiled a little sport; for he thought no sport should interfere with the interests of the country.—Mr. Walker, Bradmore, was of opinion Grass should be cut as soon as the flower begins to fall, as by that means the best quality was retained before it fell off in the seed.—Mr. Stokes said, in his opinion, it was better to cut the Grass in full flower than at a later period. The land was materially injured by allowing it to stand longer. He recommended that when Clover was about half made, it should be put into large cocks on the middle of the land for three or four days. It might want turning the day before carrying. The best time to cut Wheat was when they could see the straw white about 6 inches below the ear. The advantages of sheaving Barley are not so well known here as in the north. The loss occasioned by stacking Barley which had been mown was greater than the expense of sheaving. Corn should be sheaved dry, set up well, and patience should be exercised to have it fit for carrying home.—Mr. Smith, Hathern, was of opinion that land was injured by hay being allowed to become too ripe; he had no hesitation in stating that sheds might be used to great advantage, both for the housing of hay and for sheltering cattle in the winter season.—Mr. T. C. Angrave proposed—"That, as a general principle, Clover and artificial Grasses should be cut when in full flower, and only moved so as to insure sufficient evaporation of the sap. That the meadow Grasses being so various, it depends upon the flowering of the majority as to the proper time for cutting them; and none ought to be left in such a state as to shed their seeds. That the tedding-machine and horse-rake ought to be used conjointly, and the hay should be put together perfectly free from all extraneous wet or damp, and to induce a proper degree of fermentation. That all white crops and Beans ought to be sheaved."—Mr. C. Stokes seconded the resolution, which, after a few remarks, was carried with but one dissentient, who dissented because he considered farmers ought to cut their crops as they pleased [!]. — *Abridged from the Leicester Mercury.*

Wingerworth.—*Lecture on Manures.*—At a late meeting of the Wingerworth Farmers' Club, a lecture on this subject was delivered by Mr. J. Holland, of Chesterfield. We make the following extracts:—"Saussure says, 'Many authors consider that the mineral ingredients of plants are merely accidentally present, and are not at all necessary to their existence, because the quantity of such substances are exceedingly small. This opinion may be true as far as regards those matters which are not always found in plants of the same kind, but there is certainly no evidence of its truth with those invariably present; their small quantity does not indicate their inutility. The phosphate of lime existing in the human body does not amount to the fifth part of its weight; yet it cannot be affirmed that this lime is unnecessary for the formation of its bones, the same compound being found in the ashes of all plants submitted to examination.' It is the manure which contains the greatest variety of these ingredients; and that containing them in the proportions most useful to vegetation, may be said to be the most perfect manure; and, those manures, such as horse-dung, guano, and the varieties of those made in our farm-yards, or by the cattle on the land, are best adapted for most crops and most soils, under ordinary circumstances; and if neither stock nor produce were sold off the farm, by returning the excrementitious matter to the soil, we should have no need of supplies of manures from other sources for moderate crops. But this is not the case, cattle do not live and die on our farms; the greater bulk of seeds produced are sold away, and these contain large proportions of mineral matters, especially the phosphates—eggs, milk, butter, cheese, and a variety of other productions rich in mineral matters are removed from the farm, and in consequence of this, and especially when the farmer has not supplied other manures than that produced by his own stock, a great proportion of the land in this country has become exhausted of its free and available mineral food for plants, and thereby impoverished, and brought into such a condition as no longer to yield of itself. For although fallowing, lime, and probably this electricity of which they had lately heard much, might unlock, as it were, a considerable quantity of ingredients from the soil in its natural state, and for a year or two effect the growth of a luxuriant crop, yet used alone, they were only other sources of more quickly exhausting the soil of its fertility; if, however, by supplying, along with these means, a proportionate addition of manures, the farmer obtain, in a given time, greater abundance of produce, he may, without exhausting his capital, or rather that of his landlord, by taking out large interests, and not refunding them, turn over a greater amount of capital, in a given time, and on the same extent of soil, and may realise considerably more. There are now a vast number of artificial manures, which ought, however, to be called imperfect or simple manures, because they do not contain all the necessary ingredients for the food of plants. It is from this cause that we hear so many conflicting statements made by farmers of the utility and non-utility of this or that manure. Our ordinary artificial manures, as guano, for instance, are destitute of at least one ingredient which farm-yard manure contains, and which is necessary to be supplied to many soils; this is silicate of potash, a flinty compound, which gives strength to the stems of plants, and without which they could not grow; it exists in the manure from the decomposition of the straw, and from the rinds of Barley and Oat seeds which likewise contain it: this is needful for the future plant, and it is chiefly on this account that farm-yard manure will always be found to enhance the value and success of artificial manures when used along with them in a judicious admixture. The reason that guano and the dung of birds contain little or none of this silicate of potash, is, because they live upon either seeds or flesh, which do not contain it, and not on the stems and leaves of plants, as other animals do; their excrements, however, are rich in the phosphates and in ammonia, because of this, for the seeds of plants all contain more or less of these elements, phosphorus, and its compounds, especially phosphate of lime." He then went on to speak of the properties of phosphorus, which he illustrated by some pleasing and brilliant experiments. Mr. Holland then explained that, according to Playfair, from every Wheat-growing farm of 300 acres on the four-course system, there is removed every year, in the form of corn and straw, more than 18,000 lbs. of alkalies, about 9000 lbs. of salt of lime and magnesia, 39,000 lbs. of silica, and nearly 21,000 lbs. of phosphates, the latter being found nearly altogether in the grain, and therefore almost all exported from the premises. He said that phosphate of lime, magnesia, and soda, and potash, and some other phosphates, are necessary for the formation of a great variety of seeds, and are found in considerable quantity, especially in those of the cereal or corn crops; indeed, it has often been remarked that the cereals, like domestic animals, naturally follow man in his migrations. The seeds of all kinds of Grasses, Beans, Peas, and Lentils, also contain the phosphates. In applying bones to land for the purpose of restoring the phosphates, the farmer must not always expect to see any great improvement upon the next succeeding crop; if he wish to have an immediate effect, he must mix them with sulphuric acid and water; but this would diminish the permanency of their action, and in some measure would entail a loss, as the increased solubility of the manure would render it capable of being washed beyond the sphere of the plant by rains. Perhaps the medium state between too great solubility, and too great insolubility of bone, is after bruising them; this gets rid of the gelatine or glue, with which they are combined, and which diminishes their solubility if the soil be rich in vegetable matters. In conclusion, he states that Dr. Playfair says that, "every farmer should keep an account-stock with a debtor and creditors' side, for each field; then in his crops he could tell how many pounds of potash, of phosphates, and of magnesia he had robbed the soil by the growth of the plants, and let him give credit to the field for those amounts in manure of which he had robbed it If he robs it only of potash, as in the case of Turnips, why should he be at all the expense of giving it silica and various other ingredients? let him give back the potash: there is no use in giving a host of other things to the soil; let him take such manure as was necessary and useful to the plant, and not put in 20 or 30 other things which the plant did not require." The lecture was illustrated by a variety of pleasing and instructive experiments, and was received by the plaudits of a numerous and highly respectable audience.

Reviews.

Liquid Manure, the Wealth of Towns—and, we may add, of Farms also.*—This tract was referred to by the Duke of Richmond, at the meeting of the Society at Shrewsbury, on Thursday last. He said—"I think that on this subject we might with advantage take a leaf from the Chinese. I think we do allow to run to waste a great quantity of manure in this country. I believe that instead of allowing the water to flow into and out of our yards, by which we spoil a great quantity of our manure, we ought to have tanks for the reception of this liquid manure, and I would recommend to the landlords to build these tanks."

We called the particular attention of our readers to this subject last year. It was then shown what loss was sustained on every farm where the liquid and soluble portions of the manure made on it were allowed to waste. But there is great difficulty in the way of applying this liquid manure. It is easy to fix it mechanically and chemically—to accumulate it in tanks, and deprive it of volatility; but it is by no means easy to find an economical mode of applying it. The use of the water-cart on extensive farms is impracticable. If the liquid be applied in its natural condition, the plants which receive it will be injured—perhaps burnt up by its strength; if it be diluted to the proper degree, its bulk and its weight become such that the expense of its carriage destroys its value to the farmer. If we exclude its use in irrigation, perhaps the only economical mode of applying home-made liquid manures is by soaking the ordinary farm-manure with it. Care must then be taken to hinder its dilution by water. All the runs of urine in a farm steading should be directed to one point, around which stores of dry absorbent vegetable rubbish, capable of fermentation and decomposition have been accumulated during comparatively idle periods, and around which also it is customary to place the dung-heaps. Let the liquid be received into a vessel capable of holding two or three days' produce of it; and at such intervals during the winter, let this vessel be regularly emptied on the materials here gathered together. Of course it will be well to place in this vessel every time it is emptied such a quantity of sulphate of iron or other fixer of ammonia as shall be able to neutralise all the ammonia which such a quantity of urine is capable of generating during fermentation. The liquid manure thus preserved will be applied to the land in a properly diluted condition; diluted not by a useless material such as water, but by valuable decomposing vegetable matter.

The pamphlet before us, however, refers to liquid manure as the wealth of towns; unquestionably a great source of wealth to those who would dispose of it, and a vastly greater source of wealth to those who would purchase it, is now altogether neglected in the present management of the sewerage of our towns. "It has been calculated that the human refuse of London is worth annually five hundred thousand pounds." The great waste under the present system of neglecting these sources of wealth must ultimately force itself on public attention, and we doubt not that when in the opinion of our capitalists this country shall have been sufficiently intersected by railroads, the next great engineering operation of the day will be the execution of plans for collecting, storing, and transmitting, the sewerage manures of towns. Whether the method adopted be that of dilution by water, and conveyance by pipe or channel to *water-meadows*, or that of all possible condensation and desiccation, and conveyance by barges, &c., to the place of its application on *arable land*, we may be assured with the author of this pamphlet that "ere long measures will be adopted in all large towns for the collection and sale of this most important substance."

Miscellaneous.

Mouldy Hay, put together with salt, from 8 lb. to 25lb. per ton, was better relished by the cattle, and did them more good than sound hay stacked without salt; and this in many instances (Johnstone on Salt, p. 105). The late Solomon Brown, of Laudrake, many years ago, stacked damp hay with salt, which came out almost a paste when the rick was opened; but the cattle devoured it with avidity. In Germany they cure Grass, fresh cut, by packing in pits with 1lb. of salt to the cwt., and find it go much farther in food than the same quantity of Grass made into hay. In fact, by sun-drying, the hay seems to become rather more woody, and therefore less digestible and nutritious; but the salt seems to have a contrary effect, softening the woody stalks, thus rendering them digestible food. A method which appears to me preferable to these, both in convenience and economy, is to stack the green Grass or Clover, in layers with straw or old dry hay, sprinkling the salt upon each green layer. Thus the juices drawn by the salt from the Grass will be absorbed by the straw; and I think that not only the nutritive power of the damp hay or Grass may be improved in this way, but that the straw itself may be brought back toward the state of green stalk, by the salt juice absorbed gradually softening and rendering it soluble and digestible. The proportions may vary somewhat, according to the dampness of the Grass. Good upland Grass, cut in dry weather, may contain two-thirds its weight of water; that is, two tons in three; and one ton straw will absorb three tons water. But as we do not want it wet, say one ton straw to four tons Grass; and suppose the Grass to give out half its juice to the straw (by aid of the salt), we shall have the whole soft and damp, without being disposed to drop or leak. If old hay is used instead of straw, perhaps one-third, or even one-half might be nearer the mark, as it is much less absorbent. For meadow Grass or any other green fodder, cut damp, the quantity of straw or old hay may be proportionably increased. For hay partly dried it may be reduced or omitted altogether. The best proportion of salt must be determined by experience. 1lb. per cwt. appears but little for fresh Grass; 2 lb. per cwt., or about half a bushel to the ton of Grass, I should think not more than the cattle would relish, and more likely to preserve the whole in a sweet and digestible state. For half dried hay 1 lb. per cwt. may be enough. Where the farmer is short of straw or old hay (as often happens before hay time) bran would be an excellent thing to use instead; its cost being well repaid by the increased nourishment. The doubt is how far it would be liable to ferment and heat. It may be worth trying on a ton or two, mixing the salt first with the bran, and strewing it in as the Grass is stacked. Chopped Furze (Gorse, Whin) has been used as winter food for horses. Now if my notion be correct, that soaking with salt and vegetable juice tends to render woody fibre soluble and nutritious, stacking with Grass and salt would much increase the value of Furze; whilst its ragged form and stiffness would let the air through the rick, and dry it as it stands, or only prevent any chance of damage by heating, according to the proportion employed. Of this proportion the farmer can better judge on the spot, than the chemist by reasoning; probably one-third or half the weight of the Grass, according to its dryness, may be near the mark; and since both are green, and the Furze hard, the salt should not be less than 3 lbs. to the cwt. of Grass.—*J. Prideaux.—Exeter Flying Post.*

Flax.—Under the improved system of management, the seed is preserved without deteriorating the fibre, and thus the crop is rendered doubly valuable. Flax must on no account be mown or reaped, but pulled up by the roots. The best criterion for judging of the proper time for pulling is precisely that which would influence every judicious farmer in shearing his Wheat, viz, when the major part of the straw turns yellow, and the kernel of the principal ears was brown. With Flax, also, it is perhaps better to begin a little too early than too late. The method of pulling is merely to collect a small quantity in the left hand, and to pluck it with the right, placed about half-way down the stalks. The hands may thus be quickly filled, and then the Flax should be spread in neat and even rows upon the ground. In the course of a day or two, according to the weather, it may be turned, for which purpose a long stick is most appropriate. When dried to the state in which hay would not heat in the stack, it should be tied up in small sheaves about 2 feet in circumference, and either put in a barn or stacked. But if the weather render it necessary to tie up the Flax before it is sufficiently dry, the sheaves may be set up in the field. All weeds ought to be carefully taken out of the Flax as soon as pulled; long and short stalks should be tied in separate sheaves, which can easily be done at the time of pulling. In this neighbourhood the earliest sown Flax will not be ready to pull before the expiration of about 14 days from the present time. In the course of the winter, the seed should be thrashed out; and in the spring or summer the stalks may be prepared for market. Flax improves by keeping. A large portion of my crop grown in 1843 is now being steeped and scutched. Having already written so much upon this subject, I have only to repeat my readiness to answer any inquiries; and again to recommend the sending of active young men into Norfolk, to learn of my Belgian agent the various arts connected with the management of this valuable and important plant.—*John Warnes, Jun.; Trimmingham, July* 18.—*Mark Lane Express.*

Turnip Culture.—No person ever deserved better of a country, than he who first cultivated Turnips in a field. No plant is better fitted for the climate of Britain. No plant prospers better in the coldest part of it; and no plant contributes more to fertility. In a word, there has not, for two centuries, been introduced into Britain a more valuable improvement. — *Lord Kames' Gentleman Farmer.*

Cultivation of Cottage Allotments.—The following is a short account of the system I consider best adapted for the most profitable cultivation of 1 acre of land, to suit the cottager:—Divide the land into three equal parts, containing 53⅓ perches each. Separate these portions by small alleys of such a size as will permit a wheelbarrow to pass along with manure, and also for weeding the crops, or applying liquid manure to them. The liquid manure to be collected in a well-constructed tank suited to the cottage. One portion, or 53⅓ perches, should be planted with early Potatoes, to be succeeded by Turnips, Broccoli, Savoys, Lettuce, and Mangold Wurzel transplanted. The second division should be planted with Potatoes, in April, for the next summer's supply. The subdivisions of the third, or remaining portion, should be as follows:—20 perches planted with early Wellington and Battersea Cabbages, to be succeeded by transplanted Swedes; 2 with Carrots; 4 with Parsnips; 3 with Beans; 3 with Peas; 1 with Onions; ⅓ of a perch with Leeks, Lettuce, &c.; 2 perches sown with various small seeds, such as Broccoli, early York, Lettuce, and Savoys, to afford a supply of plants to fill vacancies that may occur; 4 perches sown with Swedes, which, when thinned, will give a supply of plants for dibbling after the 20 perches of early Cabbages; 4 perches sown with Mangold Wurzel for transplanting, after the early Potatoes mentioned in the first division. Ten perches should be sown with Wheat, which will supply the family with nice bread and hot cake for Christmas. The Mangolds, Swedes, and Cabbage strippings will afford excellent feeding for pigs, and will produce excellent pork when properly attended to. There should also be planted, either as standards or espaliers, 12 dwarf Apple-trees, 4 Plum-trees, 4 Pear-trees, 4 dozen of Gooseberry-bushes, and 4 dozen of Currant-trees. By adopting this system the cottager and his family will enjoy the sweets and comforts of their labour. The three portions in which the land is divided can undergo alternate changes or rotations of cropping, and one of them should be trenched each succeeding year.—*Daniel Regan, Practical Land Steward. Abridged from the Dublin Farmers' Gazette.*

* A Letter to the Royal Agricultural Society, on the occasion of their meeting in Shrewsbury, July, 1845; by a Practical Man. Ridgway, Piccadilly, London.

Notices to Correspondents.

DISEASES OF ANIMALS—*A Subscriber*—We know of no single work that embraces the diseases of all domestic animals, but the following will be found the most likely to answer your purpose:—"The Horse," published by the Society for the Diffusion of Useful Knowledge; "Cattle," Do.; "Sheep," Do. White's "Compendium of Cattle Medicine," last edition, by Spooner; this embraces the diseases of cattle, sheep, pigs, and dogs. White's "Compendium of the Veterinary Art," last edition, by Spooner; this relates to the horse. "Treatise on Sheep," by Spooner. Blaine's "Veterinary Art."

DISEASES OF THE HORSE—*A Subscriber*—White Hellebore, powdered, 1 oz.; flowers of sulphur, 1 lb.; oil of tar, ½ lb.; train oil, ½ lb.; to be well mixed together, and thoroughly rubbed into every part of the body, which the following day should be washed with soap and water, and the application repeated as before. This method to be pursued until this troublesome and infectious disease (the itch) is eradicated.—*W A S.*

EUROPEAN AGRICULTURE—*German Subscriber*—The only report on this subject by Mr. Colman which has yet appeared, is published in the "Farmer's Magazine."

FATTING HEIFERS—*Querist*—We never heard of putting such animals to the bull. It will probably make them quieter, and *may* therefore induce them to feed quicker.

FEEDING—*Juvenis H*—Can you obtain cut Lucerne, Vetches, or Clover; give your cow as much of any of these as she will eat, and, at the same time, give her Warnes' Linseed jelly, commencing with 6 or 8 lbs. a-day, and increasing by 2 or 3 lbs. per week, up to 16 or 18 lbs. daily. She should be kept in a loose box, dry and warm; and when you substitute Turnips for Clover, do so gradually, and keep on with the jelly: if you cannot make this jelly, you may substitute oil-cake, beginning with 2 or 3, and ending with 8 or 10 lbs. daily.

FELT—*Protector*—Possibly you have not allowed it sufficient inclination. The last operation in the process of roofing with it is covering it with coal-tar and lime mixed to a fine paste. More information next week.

HEIFERS—*Carmarthenshire Subscriber*—It is common in our dairy districts to put the heifer to the bull at the age of 16 months, so that she may calve at two years old. The Ayrshire is a horned breed. There are other polled breeds beside the Suffolk; the Angus and Galloway breeds for instance.

HOPS—*F G*—We are not aware of the existence of any distinct work on their cultivation; but there are articles on the subject in most of our Agricultural Dictionaries and Encyclopædias. See Rham's "Dictionary of the Farm."

IMPROVEMENT OF A CLAY-FIELD WITH A SANDY SUBSOIL—*Query*—If the natural drainage of the land be perfect, you had better try subsoil ploughing; and if the land be destitute of calcareous matter, you had better lime it; both operations will tend to the formation of a soil in which the various earths shall be present in due proportions.

MANURE—*Querist*—We presume that straw will make most manure by being *wholly* used for litter, but the animals fed will benefit by having some as fodder in addition to their green food.

POULTRY, &c.—*D S E*—Thanks for your note. Our query was as to the kind of salt. *Common* salt is not combustible, nor, on being subjected to red heat, does it give off fumes.

SAINFOIN—*R A Johnstone*—Drill, in April, three bushels of seed on a calcareous soil, along with a thin seeding of Barley. You may mow it during successive years, provided you give it a fair dressing of farm manure every autumn. Kohl Rabi is capital food for sheep, the leaves being as good as those of the Cabbage, and the bulb as good as that of the Swede; but we are not aware of its suitableness for culinary purposes.

SALT—*Subscriber*—See paragraph in our Miscellaneous section.

SHEET-IRON ROOFING—*J K C*—No danger can arise from its use.

THEORY OF AGRICULTURE—*G S W*—Thank you: we shall very soon explain our views in detail, on the interest which the farmer should take in perfecting it.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, July 21.—Per stone of 8 lbs.

Best Scots, Herefords, &c	4s	2 to 4s	6	Best Long-wools	-	4s	4 to 4s 8
Best Short Horns	-	3 10	4 2	Ewes and second quality		4 0	4 4
Second quality Beasts	-	3 0	3 6	Lambs	-	5 0	6 0
Calves	-	4 0	4 10	Pigs	-	3 8	4 4
Best Downs & Half-breds		4 8	5 0				

Beasts, 2,775. Sheep and Lambs, 26,100; Calves, 177; Pigs, 315.

Our supply of Beasts is short, and trade rather revived; however, top quotations are only realised in some instances for the choicest qualities.—Sheep and Lambs are by no means plentiful, the demand is rather decreased; the choice qualities are, notwithstanding, readily sold at our highest quotations.—Veal-trade is heavy, but a very choice Calf still makes 4s. 10d.—Pork-trade is heavy.

FRIDAY, July 25.

There is a considerable falling off in the supply of Beasts to-day; trade is, however, dull at 4s. 4d. to 4s. 8d., for the best Scots, &c., the latter price being more readily obtained than on Monday. The best Short Horns make 4s. 2d.; Second Quality, 3s. to 3s. 8d.—Mutton continues short, and is rather dearer. Best Downs, &c., 5s. 2d.; best Long-wools, 4s. 10d.; Ewes and Second Quality, 4s. to 4s. 6d.—Lamb-trade is steady.—A choice Calf is worth 5s.; Second Quality, 4s. to 4s. 6d.—Pork-trade is heavy. Neat Porkers make about 4s. 4d.

Beasts, 751; Sheep and Lambs, 10,060; Calves, 429; Pigs, 320.

41, West Smithfield.

COVENT GARDEN, JULY 26.—The market continues to be well supplied with Vegetables of good quality, and fruit of all kinds in season is abundant. Pine Apples scarcely fetch so much as they did last week; they consist principally of Queens, with a few Montserrats, Enviles, and Providences. Of hot-house Grapes there is an excellent supply, which has had the effect of slightly lowering the prices. Melons remain nearly the same as mentioned in last week's report; Peaches and Nectarines continue to be supplied in abundance; as are also Cherries, Gooseberries, and Strawberries; and Currants, both English and Dutch, are abundant at last week's prices. A few Apricots have just made their appearance, and are sold at a reasonable rate. Cucumbers are plentiful. The prices of Cauliflowers have not altered since last week, and the remarks then quoted, in regard to Cabbages and Potatoes, are still applicable this week. French Beans are very plentiful, and are considerably reduced in price, as are also Artichokes. Peas are likewise cheaper. Turnips and Carrots of good quality are abundant, and the supply of Lettuces is much greater than the demand; other kinds of Salading are also plentiful. Asparagus, if any, is very scarce, and Rhubarb is far from being plentiful. Mushrooms are a trifle cheaper than they were last week, as

are also Vegetable Marrows, the best of which bring about 1s. per dozen. Of Cut Flowers there is a fine display; they consist chiefly of Alstrœmerias, Picotees, Pinks, Jasmine, Sweet Peas, Pelargoniums, Gardenias, Mignonette, Moss, Provins, and China Roses.

FRUITS.

Pine Apple, per lb., 5s to 6s	Oranges, per dozen, 1s to 2s 6d
Grapes, Hothouse, per lb., 2s to 6s	— per 100, 7s to 10s
Peaches, per doz., 6s to 15s	— bitter, per 100, 10s to 20s
Nectarines, per doz., 6s to 15s	Lemons, per dozen, 1s to 2s 6d
Cherries, wall, per lb. 2s to 6s	— per 100, 8s to 16s
Apples, Dess., per bush., 10s to 12s	Almonds, per peck, 5s
— Kitchen, 6s to 12s	Sweet Almonds, per lb., 2s 6d to 3s
Melons, 4s to 8s each	Nuts, Barcelona, 3½s
Strawberries, per pottle, 6d to 2s	— Brazil, 2½s
Currants, per hf.-sv., 2s 6d to 5s	— Spanish, 2s
Gooseberries, per sieve, 4s to 5s	— Cob, 1½s
Walnuts, per bushel, 6s to 8s	

VEGETABLES

Cabbages, per doz., 3s to 4s	Vegetable Marrows, p. doz. 1d to 1s
Cauliflowers, per doz., 1s to 5s	Onions, per bunch, 3d to 9d
French Beans, per hf. sv., 2s to 4s	— Spanish, per doz., 1s 6d to 4s
Sorrel, per hf. sieve, 6d to 9d	Shallots, per lb., 6d to 10d
Artichokes, per doz., 1s 6d to 3s	Lettuce, per score, Cab., 6d to 1s
Potatoes, per ton, 40s to 80s	— — Cos, 3d to 1s
— cwt., 2s to 5s	Radishes, per doz. bands 6d to 1s
— bushel, 1s 6d to 3s	Mushrooms, per pottle, 2d to 6d
— Kidneys, per doz lb., 9d to 1s	Small Salads, per punnet, 2d to 3d
Turnips, per d. z., 2s to 6s	Basil, green, per bunch, 6d to 9d
Red Beet, per doz., 1s to 3s	Fennel, per bunch, 2d to 3d
Carrots, per doz. bchs., 2s to 5s	Savory, per bunch, 3d to 6d
Rhubarb, per bundle, 4d to 6d	Thyme, per bunch 3d to 6d
Peas, per bushe., sieve, 1s 6d to 4s	Watercress, p. doz. bun. 4d to 6d
Asparagus, per bundle, 1s to 6s	Parsley, per half sieve, 6d to 1s
Horse Radish, per bundle, 1s 6d to 6s	— Roots, per bavaw, 9d
Cucumbers, per doz., 2s to 8s	Tarragon, per bunch, 3d
Spinach, per sieve, 9d to 1s 6d	Mint, per bunch, 2d to 3d
Leeks, per doz., 2s to 3s	Marjoram, per bunch 9d
Garlic, per lb., 6d to 10d	Chervil, per punnet, 3d to 4d
Celery, per bunch, 1s to 2s	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, July 24.

Prime old Meadow Hay	115s to 120s	Interior Hay	100 115s	Clover	90s to 126s
		New Hay	75s to 94	Straw	36 44

JOHN COOPER, Salesman.

CUMBERLAND MARKET, July 24.

Superior Mead. Hay	115s to 126	Superior Clover	120 to 134s		
Interior -	97 108	Interior „	110 118	Straw	33s to 44s
New Hay -	78 95	New Clover	80 100		

JOHN & JAMES HAY, Hay Salesmen.

WHITECHAPEL, July 25.

Fine Old Hay -	105s to 115s	Old Clover	120s to 130s		
Interior Hay -	— —	Infr.	— —	Straw	36s to 42s
New Hay -	63 81	New Clover	80 98		

MARK-LANE, MONDAY, July 21.

There was a moderate supply of Wheat from Essex, Kent, and Suffolk, this morning, which was cleared off by the millers at an advance of 1s. to 2s. per qr.: free Foreign was held for more money, but sales were made slowly at the prices asked last week. The accounts from several parts of the country represent the Wheat as badly set and suffering from maggot, in consequence of which there was an increased inquiry for bonded and *f.o.b.* cargoes, and in the sales effected, 2s. above the rates of last Monday were obtained.—In Barley, Beans, and Peas, we observe no alteration.—The show of Oats being large, buyers evinced great disinclination to purchase, and sales were with difficulty effected at a decline of 1s. per qr. from the prices of this day se'nnight, on the out-of-conditioned Foreign and light Irish qualities.—In Hamburgh and the Baltic, prices of Wheat continue to advance, and the available stocks in Rostock, Stettin, and Wismar, collectively are represented as under 30,000 qrs.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	46 52	Red	45	50
—— Norfolk, Lincolnshire, and Yorkshire		— —	White	—	—
Barley, Malting and distilling 25s to 29s	Chevalier	30 32	Grinding	23	26
Oats, Lincolnshire and Yorkshire	Polands	20 23	Feed	19	22
—— Northumberland and Scotch	Feed	20 22	Potato	21	24
—— Irish	Feed	20 22	Potato	21	23
Malt, pale, ship		54 60			
—— Hertford and Essex		58 65			
Rye		29 32			
Beans, Mazagan, old and new	32 to 38	Tick	32 30	Harrow	34 40
—— Pigeon, Heligoland	37 to 44	Winds	— —	Longpod	— —
Peas, White	36 to 39	Maple	36 39	Grey	35 36

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Bar.	Malt.	Oats.	Rye.	Bns.	Peas
English	5611 Sks. — Brls.	5623	414	4035	967	—	634	15
Irish	200 „ — „	—	—	—	260 3	—	—	—
Foreign	5223 „ — „	4867	2670	—	23574	—	2166	1516

FRIDAY, July 25.

On Wednesday our Market was attended by several country buyers of bonded Wheat, which, combined with the wetness of the morning and worse accounts of the crops, created an animated demand and a more extensive business than was transacted on any previous day this year, at an advance of 2s. per quarter, and in some instances even more, upon the prices of Monday, very middling Dantzic bringing 45s. per quarter, and Uckermark ex-ship, not in good condition, as high as 42s.; 61½ lbs. Rostock 40s., and common Odessa 34s. *f.o.b.* freight included. Yesterday being again cloudy, and several orders arriving from the country, the greater part of the offers on hand were cleared off at 38s. to 42s. per quarter *f.o.b.* for Dantzic, 33s. *f.o.b.* for 60 lb. Stettin, 36s. *f.o.b.* for 61 lbs. Pommeranian, and 39s. *f.o.b.* freight included for 61 lbs. Holstein. This morning there were a few fresh runs of Essex Wheat on market, which sold at fully 1s. per quarter over Monday's prices, in which free Foreign also participated. The accounts respecting the crops coming to-day unfavourable from new districts, and appearing to show itself pretty generally as the Wheat arrives at a certain approach to maturity, caused again a good inquiry for bonded and *f.o.b.* Wheat at fully 1s. over yesterday's rates. Barley, Beans, and Peas, remain as last quoted, with a moderate business only doing in each. Having a fair arrival of Foreign Oats, the trade ruled heavy, and prices for this description were with difficulty maintained.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	2450	70	2130	4470 Sks.
Irish	—	—	200	—
Foreign	4010	—	1200	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
June 14 per Quarter	48s 2d	30s 3d	22s 8d	31s 4d	38s 10	37s 0d
— 21	47 10	29 9	22 7	35 2	38 6	38 6
— 28	47 11	29 7	22 2	32 1	39 3	38 3
July 5	47 11	29 10	23 5	34 0	38 10	39 5
— 12	48 10	29 0	22 6	33 11	39 6	38 11
— 19	50 0	29 6	22 4	32 8	39 9	40 2
6 weeks' Aggreg. Aver.	48 5	29 8	22 8	32 0	39 0	38 8
Duties on Foreign Grain	20 0	9 0	6 0	10 6	3 0	4 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 19.

Price.	June 14	June 21	June 28	July 5	July 12	July 19
50s 0d						
48 10						
— 2						
47 11						
— 10						
— 7						
46 3						
— 0						
45 10						
— 9						
— 8						
— 7						

SEEDS, July 25.

Canary - - per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	7 10	to 9l
Carraway - - per cwt	44 48	Mustard, White - p. bush.	10s	14s
Clover, Red, English - -	— —	— Superfine „ -	12	16
— — Foreign - -	— —	— Brown „ -	12	16
— White, English - -	— —	Rapeseed, English, per last	26l	30l
— — Foreign - -	— —	Rape Cakes - per ton	—	—
Coriander - - - -	12 18	Rubbish - - - -	3	5
Hempseed - per last	35 36	Tares, Eng. winter p. bush.	4	6
Linseed - - per qr	52 60	— Foreign - -	3	5
— Baltic - - -	36 44	Trefoil - - per cwt	18	23
— Cakes, Eng. per 1000 11l	0 11 10	Turnip (too variable for quotation).		

C. KINGSFORD AND LAY.

Sales by Auction.

CHOICE SUCCULENT AND OTHER GREENHOUSE PLANTS, AND BOOKS, the genuine Property of a Gentleman leaving Hampstead.

W. & H. PAXON respectfully announce they will Sell by AUCTION, at the EXHIBITION ROOMS of the FLORICULTURAL SOCIETY, HAMPSTEAD, on TUESDAY, July 29, at 12 o'clock, a fine collection of SUCCULENT PLANTS, including various species of the several genera Cacti, Mammillaria, Echinocactus, Cereus, Opuntia, Euphorbia, Cacalia, and Aloe; choice Geraniums, &c.; two handsome Garden Seats. Also a LIBRARY OF BOOKS of about 500 vols., comprising the Record Commission Publications; Beauties of England and Wales; Encyclopædia Britannica, 20 vols.; Works on Natural History, &c. Also a few lots of excellent Table and Bed Linen. To be viewed, and Catalogues had at the Rooms; of Mr. Bates, Howland-street, Fitzroy-square; and of Messrs. Paxon, Hampstead.

TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

For Particulars, apply to F. and A. MACKIE, Norwich.

TO NURSERYMEN, SEEDSMEN, BUILDERS, & OTHERS. TO BE DISPOSED OF, most Desirable NURSERY GROUNDS, situate within half an hour's ride from either of the Bridges, containing about Three Acres of Land in a very high state of cultivation, and in the midst of a populous and wealthy neighbourhood. There is a Cottage, Greenhouse, Pit, and Seed Shop on the Premises. The above are held under a Lease, of which 31 years are unexpired; the Valuation of the Stock, &c., will not exceed 150*l*. For further particulars apply by letter to C. D., No. 20, Paul-street, Finsbury.

NURSERY AND SEED BUSINESS, MAIDENHEAD. TO BE DISPOSED OF, the STOCK and GOODWILL of an Old-Established NURSERY and SEED-BUSINESS, with 4 Acres of fine healthy Nursery Stock, consisting of Forest and Fruit Trees, Evergreen and Flowering Trees, and Shrubs, Roses, and Greenhouse Plants, &c. The Dwelling House is attached, situate within 10 minutes' walk of the Railway Station, and a good neighbourhood for Noblemen and Gentlemen's Mansions. Apply to the Widow of the late Mr. WAKERILL, Maidenhead, Berks.

NURSERY GROUNDS AND STOCK AT STIRLING, N.B.—The Subscribers, being so much occupied with their Agricultural trade at Stirling and Dublin, are desirous of relinquishing the Nursery branch of their business, and are therefore ready to treat for the disposal of the whole of their NURSERY STOCK at a valuation; also for the unexpired term of the Lease of the GROUNDS, a long period being still to run. These Grounds, consisting of 12½ statute acres of excellent free soil, neatly subdivided and sheltered, are furnished with Dwelling House and Offices. The Stock is select, and of the most saleable description. The situation at Stirling central for railway and water conveyance.

To a party desirous of investing capital in a well-established business, this opening offers peculiar advantages.—Further particulars may be had on application.

W. DRUMMOND & SONS, Agricultural Museum, Stirling.

MONMOUTHSHIRE. TO BE LET ON LEASE, with entry at Michaelmas, a FARM, TITHE-FREE, containing 154 Acres of Arable, Meadow, and Pasture Land, about 53 of which are Arable, the remainder Grass-land of superior quality, well supplied with Water. The Farm has been for some years in the occupation of the Proprietor, who has spared no expense in thorough draining and subsoiling, to bring it into an improved state of cultivation. It is situated within five miles of two good market towns; lime and coal cheap, and of easy access; roads good and rates very low. There is a comfortable Farmhouse, with good Garden, Barn, Stables, Cow, Calf, and Turnip-houses; and Four Acres of good Orchard. For further particulars, or to treat, apply to Mr. JOHN MORTON, Whitfield Farm, near Wotton-under-Edge, Gloucestershire. An adjoining Farm of about 55 Acres, of which 40 are Arable, may be had with the above.

ELECTRO PLATE, in great variety, and of warranted quality, only at the establishments of ELKINGTON & Co. {22, Regent-street, corner of Jermyn-st. and 45, Moorgate-street, City.

The Patentees, from their great experience in England and France, are enabled to decide the quantity of silver necessary to ensure durability and economy for every article they manufacture, and which invariably bears their marks, E. and Co., under a crown. Having granted numerous licenses to use their patented processes, they beg to intimate to purchasers that they are not responsible for the quality of goods sold as plated by their process, unless they bear the above marks.—Re-plating and gilding.—Old plated and other articles repaired and re-plated, or re-gilt, and the quality warranted, if sent direct to either of the above establishments. No other party in London is authorised to re-plate. Persons infringing these patents by using the processes, or by purchasing goods so plated or gilt, will be proceeded against.

MEAT! MEAT! 25 lbs. Corned in Five Minutes, or Salted in Ten.—CARSON'S PATENT SALTING INSTRUMENT effects the above object in all climates. This Instrument is much valued by cooks in private families, residents in the tropics, captains, emigrants, hotel and eating-house keepers, butchers, and curers. With it a joint need never be lost, as it may be salted at any time, even at the instant a change is about to take place. Meat salted with this Instrument is rendered more tender, and, if dressed directly, all the properties of fresh Meat retained.—Price 30*s.* to 50*s.*—Cheap Depôts: C. Hockin & Co., 38, Duke-street, Manchester-square, and 1, Bishopsgate-street Within. Agents required for town and country.

THE ATRAPILATORY, OR LIQUID HAIR DYE, the only dye that really answers for all colours, and does not require re-doing (but as the hair grows), as it never fades or acquires that unnatural red or purple tint common to all other dyes. ROSS and SONS can, with the greatest confidence, recommend the above dye as infallible, if done at their establishment; and ladies or gentlemen requiring it, are requested to bring a friend or servant with them to see how it is used, which will enable them to do it afterwards without the chance of failure. Several private apartments devoted entirely to the above purpose, and some of their establishment having used it, the effect produced can be at once seen. They think it necessary to add, that by attending strictly to the instructions given with each bottle of dye, numerous persons have succeeded equally well without coming to them.

Address Ross and SONS, 119 and 120, Bishopsgate-street, the celebrated Perruquiers, Perfumers, Hair-cutters, and Hair-dyers. N.B. Parties attended at their own residence, whatever the distance.

IMPORTANT INFORMATION.

DR. ROBERTS'S CELEBRATED MEDICINES.—The excellent OINTMENT called "THE POOR MAN'S FRIEND," is confidently recommended to the Public as an unfailing remedy for Wounds of every description, and is a specific for Eruptions that sometimes follow vaccination. Sold in pots at 1*s.* 1½*d.* and 2*s.* 9*d.* each.—Also his PILULÆ ANTISCROPHULÆ, confirmed by more than 40 years' successful experience as an invaluable remedy, and presents one of the best alteratives ever compounded for purifying the blood, and assisting Nature in all her operations. They are efficacious also in Rheumatism, and form a mild and superior family aperient, and may be taken at all times without confinement or change of diet. Sold in boxes at 1*s.* 1½*d.* and 2*s.* 9*d.* each. By the late Dr. ROBERTS's will, Messrs. BEACH and BARNICOTT (who have been confidentially intrusted with the preparation of his medicines for many years past), are left joint proprietors of the "Poor Man's Friend" and "Pilulæ Antiscrophulæ," &c., with the exclusive right, power, and authority to prepare and vend the same. The utility of these Medicines is fully testified by thousands of persons who have been benefitted by their aid.

Beware of Counterfeits.—No Medicines sold under the above names can possibly be genuine unless "BEACH and BARNICOTT, late Dr. ROBERTS, Bridport," is engraved and printed on the stamp affixed to each package. Sold wholesale by the Proprietors, BEACH and BARNICOTT, at their Dispensary, Bridport; by the London Houses; and by most respectable Medicine Vendors in the United Kingdom.

VENTILATION.—"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool. —BAILLIE'S PATENT TRANSPARENT VENTILATOR ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee-rooms, and, moreover, a simple remedy for smoky chimneys. This article may be obtained from Messrs. Chater and Hayward, St. Dunstan's-hill, and all respectable glass dealers in London; Messrs. Stock and Sharp, and Mr. Samuel Beals, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixie and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 259, Blackfriars-road; Mr. Edward Baillie's, 12 B, Cumberland-market, Regent's-park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the Office of this Paper.

SUPERFINE CLOTH DRESS COATS 30*s.* to 40*s.*, extra quality 50*s.*; frock coats, faced with silk, 35*s.* to 45*s.*, extra quality, 50*s.* to 60*s.*; fashionable merino and tweed, Albert, Codrington, and Chesterfield coats, 16*s.* to 25*s.*; waistcoats, new patterns, 6*s.* 6*d.* to 12*s.*, rich satin, 8*s.* 6*d.* to 16*s.*; doeskin trowsers, 12*s.*, 18*s.*, and 21*s.*; shooting jackets, 9*s.* 6*d.* to 18*s.*; boys' and youths' clothing; office or study coats 9*s.* 6*d.* to 15*s.*; a suit of superfine black cloth, 3*l.* 3*s.*; extra quality 3*l.* 10*s.* to 4*l.* 4*s.*, at FISHER and Co.'s, Tailors, 31, King William-street, City, ten doors from London Bridge.

CORNS AND BUNIONS.

Patronized by the Royal Family, Nobility, Clergy, &c.

PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances without causing the least pain or inconvenience.

Unlike all other remedies for Corns, its operation is such as to render the cutting of the Corns altogether unnecessary (indeed, we may say, the practice of cutting Corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth); it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate Corns and Bunions.

Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.

Prepared by JOHN FOX, in boxes, at 1*s.* 1½*d.*, or three in one for 2*s.* 9*d.*, and to be had of C. KING, Napier-street, near the Albert Saloon, Hoxton, London; and all wholesale and retail medicine venders in town and country. The genuine has the name of JOHN FOX on the stamp.

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No. 31—1845.] SATURDAY, AUGUST 2. PRICE 6*d.*

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W. PAMPLIN has just received from M. TH. DE HELDREICH, Athens, a small collection of about 200 species of the rarer plants of Greece, chiefly Attica, and the island Naxos; all named and localised.—45, Frith-street, Soho, London.

YOUELL & CO. beg to remind their Friends they continue to supply the following fine CAMELLIAS in good healthy plants, set with flower-bud, at 30*s.* per dozen, the selection being left to them or to the Purchaser, namely:—Donkelarii, Monarch, Carolina, Conspicua, Double White, Lefevreana, Invincible, Double Striped, Chandlerii, Colvillii, Juleana, Beallii, Imbricata, Eclipse, Florida, Elegans, Ruckerii, Fimbriata, Perfecta, Frankfortensis, Tricolor, King Horsfallia, Hendersonii, Bruceana, Double Red, Rosa Mundi, Grand Frederic, Pompone, and Ochroleuca. Also,

The very best	FUCHSIAS	12*s.* per doz.
Ditto	CHRYSANTHEMUMS..	12*s.* do.
Ditto	VERBENAS	6*s.* do.
Ditto	PETUNIAS	12*s.* do.
Ditto	PANSIES	10*s.* do.

For particulars, see former Advertisements.
Great Yarmouth Nursery, Aug. 2.

BECK'S SEEDLING PELARGONIUMS of 1844.—EDWARD BECK informs the Public that he will send out the following varieties, at the prices annexed, in October, delivered free in London, for cash only.

Rosy Circle	£1	1	0	Isabella	£1	1	0
Sunset	1	1	0	Juno	1	1	0
Mustee	1	1	0	Margaret	0	10	6
Marc Antony	1	1	0	Favorita	0	10	6
Desdemona	1	1	0	Zenobia	0	10	6

No more remittances can be received for ARABELLA, BELLONA, and OTHELLO, until further notice, the present stock being engaged.

As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.

N.B. No discounts, allowances, or abatements can be made in any case.—Worton-cottage, Isleworth, Aug. 2.

THE FOLLOWING SEEDS FOR PRESENT SOWING, May be had in Papers, of

WILLIAM CLARK, SEEDSMAN, &c., 25, Bishopsgate-street Within, London.

Acacia armata	1*s*	0*d*	Lisianthus Russellianus	1*s*	0*d*
Alpine Auricula	1	0	Lophospermum	0	6
Alströmerias	0	6	Marvel of Peru, mixed		
Anemone	0	6	Maurandya	0	6
Arbutus	1	0	Pansy, superb	1*s.* and 2	6
Azalea	1	0	Papaver	0	6
Browallia, white & blue	0	6	Potentilla	0	6
Calceolaria	1	0	Pentstemon	0	6
Carnation	1	0	Phlox Drummondii	0	6
Catananche	0	6	Pimelea decussata	0	6
Cineraria	1	0	Picotee, Cox's Superb	5	0
Chinese Primrose, fine	1	0	Polyanthus	1	0
Delphinium	0	6	Portulaca	1	0
Digitalis	0	6	Rhododendron, in sorts	0	6
Fuchsia	1	0	Ranunculus	0	6
Foxglove	0	6	Rhodanthe	0	6
Gladiolus	0	6	Salvia	0	6
Gypsophila	0	6	Schizanthus, sorts 6*d.* to	1	0
German Wallflower, in 10 varieties	0	6	Swt. William, superb dark	0	6
Geranium, fine, mixed	1	0	Thunbergia	1	0
Do. Scarlet	0	6	Tropæolum tricolorum	1	0
Iris	0	6	Do. grandiflora	1	0
			Do. brachyseras	1	0

LYNE'S SEEDLING GERANIUMS OF 1845.—Descriptive Catalogues are now ready upon application to WILLIAM E. RENDLE, Union-road Nursery, Plymouth.—Aug. 2.

NOW SENDING OUT.

FUCHSIA—"CONSTELLATION." This large and desirable variety was raised in the Providence Nursery, and is one of the finest ever produced. For description of this extra brilliant variety, see Dr. LINDLEY's opinion, which will be found in the *Gardeners' Chronicle* of September 9th, p. 663, under the signature of "W. Miller." "Your hybrid, between Fulgens and Corymbiflora, is a very handsome flower: seed-pod small, tube long and slender, gradually increasing in size till the diameter is a quarter of an inch; the tube is a delicate Pink colour, having sepals of a greenish Primrose, forming a strong contrast to the bright and red corolla seen between them; the flower altogether is 3½ inches in length, and the buds are very handsome as they approach maturity; it flowers in a large broad bunch, which is divided into branches, containing altogether 150 flowers."

It was also submitted to the Editor of "The Floricultural Cabinet," whose opinion will be found in No. 128, under the signature W. M.—"Your Fuchsia is a very fine one, and deserves cultivation in every situation."

Plants 12*s.* 6*d.* each, and sent post-free in stout tin cases on receipt of a post-office order for the amount.—WILLIAM MILLER, Providence Nursery, Ramsgate.

PLANTS AT REDUCED PRICES.

WILLIAM E. RENDLE, having a very large stock of the following, is enabled to offer them at very reduced prices.

CHRYSANTHEMUMS.—*First Class.*—Selection of 20 from the following List, including hamper and package, from 15*s.* (or 16*s.* free by post).—Minerva, Elegans, Vesta, Hero, Queen, Grandis, Compactum, Invincible, Formosum, Georgina, Conductor, Mirabile, Beauty, Phillis, Sultan, Criterion, Campestroni, Duc de Conigliano, Princess Marie, Grand Napoleon, Charlemagne, Reine de Prusse, Ivanhoe, La Superbe, Bijou, Marechale de Crequie, David, Julius Cæsar, Solon, Demosthenes, Pyramidalis, and Defiance.

Second Class.—Selection of 20 from the following List, including hamper and package, for 9*s.* (or 10*s.* free by post).—Triomphe, Isabella, Astre Lumineaux, Empress, Enchantress, Glory, Luxuria, General Laborde, Abelard, Imogene, Bethalia, Letitia, Buonaparte, Leanora, Marechale Messina, Colonel Coombes, Maria, Arago, Casimer Perrier, Madame Pompadour, Theresa, Paper White, Queen (Saunders), Chancellor, Victory, Spanish Brown, Atrosanguinea, Park's Imperial Yellow, Golden Lotus, Adventure, Imperial.

GIRLING'S NEW STRIPED PETUNIAS.—The following set, including hamper and package, for 10*s.* (or free by post, for 11*s.*)—Attraction, Beauté de Jour, Beauté parfaite, Cærulea striata, Forget-me-not, Louis Gullino, Membranacea, Perfection, Portrait, Queen of May, Sanspareil, Striata delicatissima, and Morgan's Delineata.—These are highly recommended.

INDIAN AZALEAS.—The following set, including hamper and package, for 6*s.*—Lateritia, Splendens, Variegata, Smithii, Rawsonii, Danielsiana, and Indica Alba.

Orders will be executed in strict rotation. All plants warranted correct to name and sort. Every new plant obtained as soon as introduced.

Just Published—New Geranium Circular for 1845.
" Flower Root Circular for 1845.
" Which can now be had on application.

*** *Orders above 3l. will be delivered Free of Carriage, to London, Bristol, Exeter, Falmouth, or Barnstaple; or above 6l. to Liverpool, Dublin, Cork, or Edinburgh.*

Unknown Correspondents are respectfully desired to give a reference in London.

Union-road Nurseries, Plymouth, August 2.

THIS ADVERTISEMENT WILL NOT BE REPEATED.

"FUCHSIA SERRATIFOLIA."
SPLENDID NEW PERUVIAN FUCHSIA.

MESSRS. VEITCH & SON beg to inform those who have already ordered the above lovely plant, and the Public generally, that plants will be ready for delivery early in September. A beautiful specimen of it was exhibited at Chiswick on the 12th inst., when it was awarded the First Prize for New Plants (the large Silver-gilt Medal), and was universally admired.

For the information of those who may not have seen it, Messrs. V. would add, that it was imported by themselves from Peru, and is solely *in their own possession*. The flower is a delicate waxy rosy-pink, of large size, and great substance; the sepals tipped with green, the corolla with vermilion-scarlet; the foliage very fine and distinct, and the habit remarkably good; it is very free blooming, and altogether a most beautiful plant.

Strong plants in September, 21*s.* each.

N.B. The Trade will be allowed one plant over on every three they may purchase, and a List will appear in a future Advertisement of all those Nursery and Seedsmen who having secured early plants will be enabled to supply them.

A London reference, or Post-office Order, from unknown correspondents.

Orders executed in strict rotation as received.

Exeter, August 2.

WHALE'S SEEDLING FUCHSIA "EXIMIA."—A splendid globe-shaped flower, throwing from five to six flowers from each eye, on long foot-stalks; sepals and tube a glossy crimson; corolla dark violet-purple, tinted and margined with crimson; the sepals reflexing quite back, showing the beautiful corolla. Mr. Glenny says, "Your Seedling Fuchsia is exceedingly pretty and novel, and from the long foot-stalks I should think of splendid habit." Small plants, 10*s.* 6*d.*; strong flowering plants, 1*l.* 1*s.* A Post-office order will be expected from unknown correspondents.

W. R. W.'s other varieties of Seedling Fuchsias will not be sent out till spring, 1846.

Kintbury, near Hungerford, Berks, removed from Elcot.

BEST TWENTY-FOUR VERBENAS ever offered for 21*s.*; or Twelve for 12*s.*, postage free.

The under-named varieties have been shown at the Royal Botanic Gardens of London, where they obtained the First Prize, July 2d; also at Chiswick, July 12, where they were universally admired for their fine forms and rich diversity of colours. Ladies or Gentlemen wishing to improve their collections may rely on these being the best in cultivation, viz.:

SMITH's Excelsa, Beauty, Vesta, Delicata, and Queen of England.
GIRLING's Boule de Fue, Giant, Messenger, and Gladiator.
CONLEY's Lilac Perfection, and Bedford Beauty.
OTTEY's Garland.
SYRED's Hudibras, Fair Rosamond, and Bloomfield Beauty.
YOUELL's Rose Charmanet, Hebe, Leonora, British Queen, Princess Royal, Trinandia, Duke of York, Speciosissima, and Magnifica.
ALEXANDER's Grandis and Enchantress.
MORTON's Emma.
PEARSON's Beauty Supreme, Celestina, and Atrosanguinea.
TILLEY's Princess Royal. Also, PEARSON's Avalanche, the finest white in cultivation, and Defiance, a rosy-crimson, at 3*s.* 6*d.* each.

G. S. can also supply all the new FUCHSIAS of the season at 15*s.* per doz. All Money Orders will have the strictest attention. — GEORGE SMITH, Tollington Nursery, Hornsey-road, Islington, near London.

SEEDS FOR AUTUMN SOWING.

JAMES CARTER, SEEDSMAN AND FLORIST, 238, High Holborn, London, begs leave to recommend the following Seeds proper for present sowing. Perennials sown now will flower next year. The sooner the Seeds are sown the better, particularly the Carnation, Hollyhock, Queen and Brompton Stock, Picotee, and Wallflower. All the Stocks, and also the Seeds, marked * require protection in winter; ** are greenhouse seeds.

German Seeds in Sealed Packets.

		s.	*d.*			*s.*	*d.*
40	Hollyhock, extra fine	8	0	12	Stock, ann., large P.	4	0
20	Do. do. ..	4	0	12	Do. do. branching	2	0
16	Poppy, fine double ..	3	0	12	Do. do. Prussian ..	2	0
8	Scabiosa, splendid ..	2	6	12	Do. do. autumnal	2	0
60	Stock, annual ..	8	0	12	Do. Queen & Brompton	3	0
25	Do. do. all dwarf	4	6	8	Do. do. do.	2	6
12	Do. do. ..	2	6	10	Wallflower, finest ..	2	6

Various Seeds in Separate Varieties, or Mixed.

		Sep. *s.*	*d.*	*Mix.* *s.*	*d.*
*8	Alströmeria ..	3	6	1	0
*5	Anemone ..	1	6	0	6
7	Aquilegia ..	1	6	0	6
6	Calliopsis ..	1	6	0	6
6	Clarkia ..	1	3	0	6
6	Delphinium ..	1	6	0	6
3	Do. Chinese		0	6	
8	Dianthus ..	2	0	0	6
8	Digitalis ..	1	6	..	
3	Geum	1	0	0	6
8	Godetia ..	1	6	0	6
6	Linaria	1	0	0	3
*6	Marvel of Peru	1	6	0	3
6	Nemophila ..	1	6	..	
6	Œnothera ..	1	6	0	6
6	Papaver ..	1	6	0	6
8	Potentilla ..	1	6	0	6
6	Schizanthus, an.	1	3	0	6
*3	Do. biennial ..	1	0	0	6
	Snapdragon, 6 var.	1	6	0	6
			Mixed.		
	Aquilegia, 30 var. new		1	0	
	Auricula, finest mixed		2	6	
**	Brachycome ibiridifolia		1	0	
	Carnation, finest dble.		2	6	
	,, double ..		1	0	
**	Calceolaria, new spot.		1	6	
**	,, fine, mixed		1	0	
**	Chinese Primrose ..		0	6	
**	Cineraria, finest mixed		1	6	
**	Cobæa scandens.. ..		0	6	
**	Erica, 30 species ..		2	6	
**	Geranium, finest mixed		2	6	
**	,, small packet		1	0	
*	Gladiolus, 20 fine vars.		1	6	

		Mixed. *s.*	*d.*
**	Gloxinia, finest mixed.	1	0
	Heartsease, finest ..	1	0
	Hollyhock, 30 vars..	2	0
	,, 20 do ..	1	0
*	Ipomopsis picta ..	0	6
	Larkspur, dwf. German	0	6
	,, tall do..	0	6
**	Lophospermum, 3 vars.	0	6
**	Maurandya, mixed ..	0	6
	Pentstemon, 12 species	1	0
*	Phlox Drummondi ..	1	0
	Picotee, extra fine ..	2	6
	,, fine	1	0
	Polyanthus, finest ..	1	0
*	Portulaca, mixed ..	0	6
	Ranunculus, finest mxd	1	0
	Rhododendron, mixed	1	0
	Scabiosa, 12 new vars.	1	0
	Stock, German, 20 vars	1	0
	,, 10-week, 6 do.	0	6
	,, new scarlet ..	0	6
	,, Brompton, 6 vars	0	6
	Sweet William, 20 vars	0	6
	,, new scarlet and crimson	0	6
**	Thunbergia alata, 3 varieties	0	6
	Wallflower, 10 vars ..	0	6
30	Hardy Perennials ..	7	0
15	Do. do	3	6
25	Hardy Annuals.. ..	5	0
12	Do. do	2	6
**	12 Greenhouse Seeds.	3	6
**	6 Greenhouse Climbers	2	0

*** No duplicates will be sent.

Also most other Seeds not in the above List. A new Catalogue of genuine Dutch Flower Bulbs will be ready at the usual time.—JAMES CARTER, Seedsman and Florist, No. 238, High Holborn, London.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen, the ivory handle is shaped like the blade of a curved penknife sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—*Opinion of Professor Lindley in the Gardener's Chronicle, July* 29, 1843.

GEORGE PLUM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post office order for 3*s.* 2*d.*

G. P. cautions Floriculturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

SEEDS.—CORNER OF HALF-MOON-STREET,
THOMAS GIBBS and CO.
(by Official Appointment) to the SEEDSMEN to the
"ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN SHEET GLASS.

FREDERICK ELPHICK having opened a communication with one of the

FIRST HOUSES IN THE FOREIGN GLASS TRADE,

IS ABLE TO OFFER

SHEET GLASS, OF EXCELLENT QUALITY,

Averaging 15 oz. to the foot, cut to any dimensions, from 6 ins. by 4, to 24 by 20, at 5d. per ft., per 100 ft., for ready money only.

A Smaller Quantity will be charged 5½d. per foot.

*** *If quantities in boxes, as imported, are required, a moderate allowance will be made in the price of 5 d. per foot.*

This Glass is heavier than, but equal in quality to, the 24 Glass of No. 1, Flattened Sheet Glass, in the English Tariff, the price of which, for similar sizes, is from 9d. to 1s. 2d. per foot.

Apply to FREDERICK ELPHICK, 28, Castle-street East, Oxford-street.

SMALL GLASS FOR HOTHOUSES, MELON PITS, &c. &c.—Several thousand feet of 4 ins. by 2, 5 ins. by 2, 4½ ins. by 2½, 5 ins. by 2, 4½ ins. by 2, and 6 ins. by 2, from 1d. per foot—Address, R. COGAN, Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.—Bee-Glasses, Fish Globes, French Ornament Shades, &c. &c.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26s. 0d.	Milled Lead in Sheets,	s. d.
Linseed Oil, per gall...	2 3	per cwt.	21 0
Turpentine	3 3	Cut to Size	22 0
Warranted Varnishes and Colours.		Pipe all Sizes	22 0

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

BRITISH SHEET OR HORTICULTURAL GLASS. In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DEANE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	.. ..	11s. 0d.		20 inches	.. ..	22s. 6d.	
15 inches	.. ..	12 6		22 inches	.. ..	25 0	
16 inches	.. ..	16 0		24 inches	.. ..	32 0	
18 inches	.. ..	19 0					

Slate Works, Isleworth, Middlesex

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9s. to 7l. 10s. per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.



55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.

Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hot-houses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat can well be combined to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as references of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

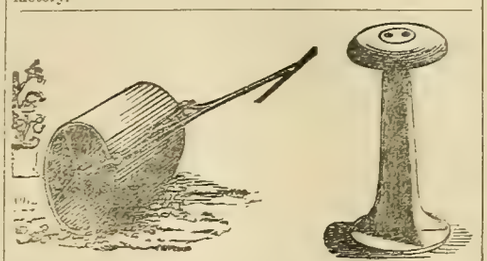
HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

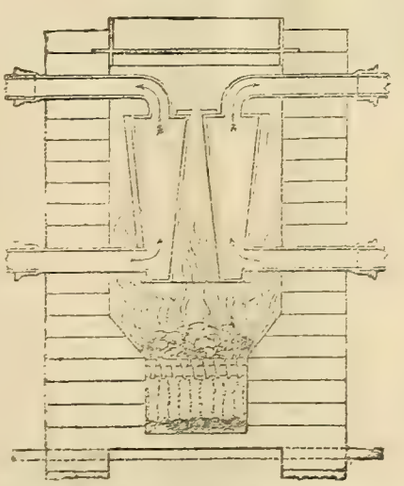
HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

LEPUS TIMIDUS, WITH LEPUS CUNICULUS; OR, GENUINE HARE RABBIT.

THIS extraordinary and large variety weighs, when at maturity, from 12 to 14 lbs; possesses great length and depth of carcass, furnished with a considerable dewlap, very long and beautiful erect ears, with large projecting eyes, precisely resembling those of the hare. The colour of this fine breed is uniformly that of the hare, and when cooked, not to be distinguished from it. It brings forth from five to seven young, and requires no other treatment than the common Rabbit. Mr. JOHN BEETT, Market-place, Great Yarmouth, has a few pairs to dispose of upon the following terms:—2 to 3 months old, 15s. per pair; 1 to 2 months old, 10s. per pair, including package, and can be forwarded with safety to any part of the United Kingdom. A post-office order, or reference, will be required from unknown correspondents.

Great Yarmouth, Aug. 2.

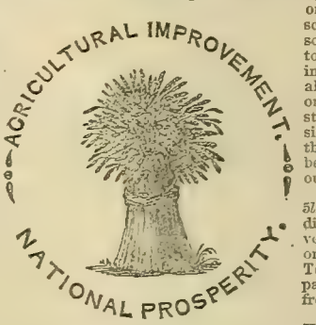
CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's, Pine-apple-place; and in the Gardens of the Horticultural Society.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL; And by their Agents, COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL. 47, Lime-street, August 2.

GUANO, of the best quality, in bags.—PERUVIAN 10l. 10s. to 11l. per ton: ICHABOE 6l. 5s. to 7l. per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9l. and 5l. 10s. per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1s. 9d. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23s. per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 2s. per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8l. per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-street, Stamford-street, Blackfriars-road, London.

GUANO, &c.—TO MARKET AND AMATEUR GARDENERS.—The undersigned begs to offer GUANO and other Manures for the Autumn Vegetables, &c., at the following prices, guaranteeing the quality of each by analysis of Dr. Ure or Mr. Teschenacher:—

At the Import Warehouse.	*At 40, Upper Thames-street.*
Guano, Peruvian, imported by A. Gibbs & Son, 10l. to 10l. 10s. per ton, according to quantity.	10s. 6d. to 11s. per cwt., according to quantity.
Do., Ichaboe, 6l. to 6l. 15s. per ton, according to quantity.	6s. 6d. to 7s. 6d. per cwt., according to quantity.
Do., Saldanha Bay, 6l. 10s. to 6l. 15s. per ton, according to quantity.	6s. 9d. to 7s. 6d. per cwt., according to quantity.
Do., Potter's	10l. per ton.
Do., Do. Liquid	18s. per doz. bottles.
Nitrate of Soda, 19s. 6d. to 20s. per cwt.	20s. to 22s. per cwt., according to quantity.
Gypsum, at the Factory in Derbyshire, 12s. 6d. per ton.	30s. to 35s. per ton, according to quantity.
Do., at Waterside Warehouse, London, 27s. 6d. to 30s. per ton	
Compost for Cabbages	10s. per cwt.
Sulphate of Magnesia	8s. 6d. to 10s. do.
Do. of Soda	5s. to 6s. do.
Do. of Potash	20s. to 24s. do.
Do. of Ammonia	17s. to 20s. do.
Do. of Iron	5s. to 5s. 6d. do.
Do. of Copper	34s. to 36s. do.
Sulphuric Acid (with instructions for making Superphosphate of Lime).	½d. to 1½d. per lb., according to strength.
Bone Dust	21s. to 22s. per quarter.

Pamphlets on Guano, Gypsum, and Nitrate of Soda, gratis to purchasers.—MARK FOTHERGILL, 40, Upper Thames-street.

TO COLONISTS, EMIGRANTS, &c. — Mrs. MARY WEDLAKE, widow of the late THOMAS WEDLAKE, at 118, FENCHURCH-STREET, CITY, informs Emigrants and others that she continues to manufacture those Agricultural Implements for which her late husband was so extensively patronised by the Settlers of South Australia, Van Diemen's Land, Swan River, New Zealand, and other British Colonies. The following articles made in a very superior manner, are kept on sale at the London Warehouse, viz.—

Patent Hay-making Machines	Flour-Mills—Bean-Mills
Dressing Machines	Patent Essex Ploughs, 30 sorts
Patent Chaff-cutting Machines	Subsoil Ploughs [Colonies
Oil-cake Crushers	Threshing Machines for the
Double-action Turnip-cutters	Drills of all kinds—Scarifiers
Railway Wheels	Vacuum Pumps

Please to be particular in the address, MARY WEDLAKE, 118, Fenchurch-street, London.

ARAUCARIA IMBRICATA, OR CHILIAN PINE. WILLIAM E. RENDLE has a very large stock of this valuable Hardy TREE, and can supply 20 good seed-plants in 60-sized pots for 18*s.*, including hamper and packing, or 100 for 4*l.*

* Orders above 3*l.* will be delivered free of carriage to London, Bristol, Exeter, Falmouth, or Barnstaple; or above 6*l.* to Liverpool, Dublin, Cork, or Edinburgh.

Union-road Nursery, Plymouth, Aug. 2.

FUCHSIA SERRATIFOLIA."—Two Advertisements having appeared in this Paper offering for sale "FUCHSIA SERRATIFOLIA," Messrs. VEITCH & SON beg to state that the plant was introduced by themselves from Peru, and is solely in their *own* possession, they have not parted with a plant to any one; the Advertisements alluded to are unauthorised by them, and they cannot but feel surprised that parties should advertise as ready for sale a plant they have never had: Messrs. BROWN & Co., of the Albion Nursery, in whose Advertisement it appeared last week having been since applied to, have acknowledged that they have not the plant in their possession.

For particulars, description, and time of delivery, see Messrs. VEITCH & SON'S Advertisement.

Exeter, August 2.

The Gardeners' Chronicle.

SATURDAY, AUGUST 2, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY, Aug. 5—Horticultural . . . . 3 P.M.
MONDAY, Aug. 11—Royal Botanic Anniversary. . 1 P.M.

In another column will be found a communication on a subject of great moment; namely, the IMPROVEMENT OF COTTON in our East Indian provinces. At present we mainly depend upon the United States for fine cotton, our East Indian samples continuing inferior, notwithstanding all the pains that have been taken to improve them. Mr. GARNETT thinks that the fine varieties of American cotton are crossed and spoiled by the bad Indian varieties with which they come in contact in Bengal, and that this is the true cause of their deterioration.

It will require some investigation and a careful examination of any facts that may have been obtained to determine whether there is really truth in the suggestion, that the difficulty of cultivating American cotton in India is due to the deteriorating influence of the indigenous varieties of cotton. The species being indigenous in America, and others in India, nothing would appear simpler than to cultivate the former species in the latter country, the Indian species in America. Experiments on this subject have for many years, and at different times, been made both by the East India Company and individuals, but with the single exception of that it is called Bourbon cotton in the Tinnivelly district, no permanent success has attended them.

Without referring to any recent results that may have been obtained, it is an important question to ascertain the cause or causes of this failure. Looking over the chapters on the cultivation of cotton, pp. 78 and 312, in ROYLE'S "Essay on the Productive Resources of India," we find that numerous experiments have been made on the subject; that the attention of the Directors of the East India Company was called to it as early as 1788, that seeds, with a machine for cleaning cotton, have been sent to India, and that a cotton farm was even established in the last century; so, again, in 1810, 1813, and 1818; and in 1840 Captain BAYLIS, who had returned from America with 10 experienced planters, was sent with them to India, to cultivate American and Indian cotton in the American method in different parts of that extensive empire. In addition to this, we find the Agricultural Society of India, and numerous individuals, making experiments with the same object in view.

The success has certainly not been in proportion to the efforts made. This cannot be because American cotton will not grow in India, for the contents in some places are that it grows too much. We cannot believe that all the experiments have been unskilfully performed, in a country where Indigo, Poppy, Sugar-cane, Mulberry, and Rice are successfully cultivated. We suspect, therefore, that the causes of failure in producing an article suited to the European market must be of a very general nature to have been productive of so many similar results. And as these results may depend on many different parts of the culture being carefully attended to,—that is, the growth, the gathering of the crop, the cleaning the cotton, the proper housing, and the careful packing, it is a question whether the people pay equal attention to every part of the culture, although each is of equal importance.

It is probable, also, that in so wide a sphere of experiment, and where there are considerable differences of climate, the same causes may not be those which are the most influential in all the different situations; for instance, the soil may be too rich in one, and too poor in another situation; the winds too violent, or the cold too great; the moisture excessive, or the dryness intolerable.

We, therefore, invite our correspondents to enter upon this interesting and important subject, which is peculiarly within the department of horticulture, and we trust that some valuable information will be elicited. The effects of hybridising, either in deteriorating a species, or in producing a useful variety suited to the country, certainly seem to deserve thorough investigation.***

It may be interesting to the growers of STRAWBERRIES, to know what can be done with the British Queen, the remarkable specimens of which have, this year, excited so much attention about London. We, therefore, give a prominent station to the accompanying sketch of a fruit of this kind, forwarded by Mr. JOHN STOBBS, Gardener at Doddington Hall, near Lincoln. The figure shows its exact size; and it weighed a little more than an once and half; so that 10 such Strawberries would make a pound. Has any one ever produced such a Strawberry as this before? We doubt it.



What a marvellous race we have among the mercantile community! How fertile in invention! how rich in resources! how prompt to seize the opportunity of profit-making, be it never so fleeting! No difficulties daunt; no obstacles deter them; whether they face the terrors of the law, or the dangers of the ocean, is a matter of indifference. Guildhall, the Excise Courts, Westminster, Lincolns Inn, or the Atlantic, are the same in the eye of a bold trader. So that money is to be made he is always ready to take the risk of his adventure.

Talk of the Chinese and their economy; they are nothing to men of this class The Chinaman, indeed, scrapes up his offal and refuse, and hoards it for his own use; but our countryman does more; he discovers virtues in everything, and makes the vilest materials administer to luxury or profit; not for his own sake, but for that of his customers. What philanthropy is here! Who but such a man would have discovered that pounded limestone is as good for a farmer as bone-ashes, and thus have exchanged his half-crowns for five-pound notes? Who but he would grind coffin-boards into rappee; or ferment Rhubarb-leaves into champagne; or dry exhausted Tea-leaves into rough Souchong; or powder gum into brown sugar; or tenderly foster Dock-leaves till they are changed into the finest Havannah cigars? These are the triumphs of our own countrymen, and words are unequal to express the admiration that we feel for their skill. The search for the philosopher's stone is needless in London: for the art of turning dross into fine gold is discovered, and practised daily.

Lately a new source of mercantile advantage has been found out, and we hasten to apprise our readers of it, that they too may learn how to profit by the discovery. It has been ascertained that the loam of Epping flats can by some mysterious process be made available for export to Devonshire and Cornwall. It costs three shillings and sixpence a ton at Wanstead, for which they say that the dealers in it get ten guineas at Plymouth. Having been made aware of such a lucrative trade at the very gates of London, our duty to the public prompted us to make inquiries; and we have ascertained that for some purpose or other this precious loam is really in considerable demand. It is carted to Bow; from Bow conveyed by barge to London, and when in London disposed of, nobody knows how. It disappears. We have hunted in vain, through the newspapers, for advertisements of Wanstead loam for sale; and it, therefore, must assume another form.

There are singular circumstances connected with this loam, which may possibly throw some light on its destination. It is not removed like common loam, by carts, or in the hold of a barge. It is much too valuable for that. The wharfingers, on the contrary, say that it is packed in bags, such as guano is sold in; and to say the truth, it does look so much like Peruvian guano, that a man with more skill than a lighterman, might very well mistake the one for the other. It is also said that the bargemen have a joke among themselves, that the loam is to "do" the farmers with.

Another odd thing is that this loam, looking so much like guano, and packed in bags, is not conveyed directly to London. The direct line from Bow to London is, through a cut with locks upon it; but the Epping loam avoids this course; is carried down to a place called Bow Creek, and enters the Thames below Greenwich, which is something like going from London to Cheltenham, by way of Liverpool. By this means a tide is lost; but that is of no consequence, so profitable is the trade in Epping loam; and it has the advantage of escaping the scrutiny of the lock-keepers, who have inconvenient memories, and might perhaps talk, and introduce interlopers into the profits of the merchant adventurers who deal in Epping loam.

Eventually, however, the loam finds its way to London, notwithstanding the loss of a tide, and its roundabout line of conveyance. What becomes of it then is the great point; and that is what we have tried to find out.

What we know about the matter is this. A short time ago a barge, called "The Hope," took on board, at Bow, 25 tons of the loam, and conveyed it, circuitously as aforesaid, to a place called Staunton's wharf, and there deposited about 15 tons. Oddly enough there is a guano store at this place, and 5 tons of it were at the same time put on board "The Hope," which then ran alongside a Plymouth schooner; and more oddly still another barge was found there, also containing what was called guano. What followed was still more interesting; while the bargeman of "The Hope" put on board the schooner one bag of his loam, the other bargeman put on board one bag of his so-called guano; and the two were emptied into the hold of the schooner. The whole of the two cargoes were finally thus mixed; and when the operation was over the schooner sailed for Plymouth.

A simple man might fancy there was roguery here; and come to the conclusion, that this operation was a device to hide an enormous fraud. But we have ascertained that the order for the delivery of the loam on board the Plymouth schooner was obtained at an office in Mincing-lane, and it is inconceivable that any broker or merchant there could be a party to swindling a Cornish farmer by selling him loam for guano.

However, we are making further inquiries as to this matter, and shall resume the subject next week. In the meanwhile it may be as well for buyers of guano to preserve samples of what they purchase, in order that it may be examined in case a suspicion should arise about its purity. There can be no harm in that. The mixture of guano and loam is very easily detected, and can be demonstrated in a court of law, where a sure remedy will be found for the fraud, if any fraud has been committed.

The want of leisure to examine the quality of the BELGIAN GLASS OF MESSRS. TESTA & ANDREWS prevented our expressing our opinion upon it last week. We have now compared it carefully with other samples, and we can state that the following is its real description. It is all of good quality, white, and well made. That at 3½*d.* per foot weighs 11 oz., and is equal to good English crown-glass; that at 3¾*d.* per foot weighs 14 oz., and is equal to the sheet-glass generally employed before the alteration of the English tariff. The quality for which 4½*d.* per foot is charged is nearly the same as Mr. ELPHICK'S, but rather lighter. If bought in the boxes, exactly as imported, buyers taking on themselves the risk of breakage and cost of cutting, Mr. ELPHICK sells his at the same price: but we doubt whether it is quite so advantageous for the generality of purchasers to procure the glass in that way. We suspect that they will find it cheaper to pay 5*d.* for glass delivered perfect, and ready cut to the sizes they require, than to buy it at 4½*d.* in the rough. The weights we have given are what we have found in the samples we have seen; but we understand that the squares are not of equal thickness.

GROWTH OF COTTON IN INDIA.

THREE years ago I addressed the subjoined letter to a gentleman in Liverpool connected with the trade to South America, and he forwarded a copy of it to his

partners in Peru, who did me the honour to translate it into Spanish, and circulate it amongst the planters there, but with what effect I know not. Now, it seems to me to be quite as applicable to India as Peru, and it every year becomes more evident how vitally important it is for us to endeavour to grow that indispensable article cotton in our own colonies, rather than continue dependant on the United States for our supplies ; as a war of two years' duration, or even a serious outbreak amongst the negroes (which is very likely to occur, if we have a war with the States) might set fast all our mills, and deprive our work-people of bread.

I am aware that many experiments, having for their object the growth of a better quality of cotton, have failed ; indeed so long ago as the year 1828, I sent seed of many varieties to Calcutta, where they were put into the hands of the Horticultural Society ; but I heard no more of them, and it did not then occur to me that the failure of all attempts to grow good cotton would be probable from the overwhelming preponderance of the native cotton, planted in the same vicinity. The growing of better kinds of cotton may have been attempted in India, with the precautions suggested to the Peruvians, but if it has I have never heard of it, and I am convinced if success is to be attained at all it must be sought for in that direction.

It is a fearful consideration that nearly two millions of our population are dependant on a country governed by a mob, or in other words, which cannot be said to have a government at all.—*T. G.*

The following is the letter above alluded to : — "I have for some time intended to call your attention to the importance of attempting to grow fine cotton in Peru. We have been, as you are aware, consumers of Peruvian cotton to some extent, for the last six or eight months, and from the observations I have made on it during that time, I have no hesitation in saying that it possesses many excellences ; it is long enough (almost too long), very sound in staple, and where well managed, of a very good colour ; its defects are coarseness and harshness of staple, and if these could be removed, I do not see what is to prevent its rivalling the Egyptian and Sea Islands' Cottons, any considerable approximation to which would very materially enhance its value ; seeing that the highest quotation for Sea Islands, was last week 30*d.* ; whilst the highest for Peruvian was no more than 6½*d.* With the view of improving the quality of cotton in Peru, I would strongly recommend you to send seeds of various kinds, packed in air-tight boxes, particularly Sea Islands and Egyptian, which some of the cotton-brokers would easily procure from the spinners using these descriptions, and judging from what I hear of the climate of both countries, I should think the Egyptian would go to a very similar atmosphere and mode of cultivation to that where it had been raised, which would be very likely to render it much more easily acclimatised, and of course make it much more likely to succeed than a sort of cotton which had been grown under dissimilar circumstances of soil, climate, and mode of cultivation.

"These seeds, when sown, ought (with the exceptions hereafter to be mentioned), to be planted at such a distance from all other cottons as to render it very unlikely for the wind or insects to carry the pollen from the flowers of one kind to those of another; for, without this precaution, such is the tendency in many genera of plants to hybridise or cross-breed with each other (and I believe from what I have heard that there is this tendency in the different varieties of cotton), that however good the quality in the first instance, they would all revert to the old variety in a season or two, in consequence of the great preponderance of that variety over any newly-introduced ones. So much are the growers of Turnip-seed for sale in England aware of the importance of attending to this, that the greatest precautions are taken to remove all cruciform plants from the vicinity of the field; whilst their Turnips are in flower, as there is such a tendency in them all to hybridise, that the quality of the seed is often injured by the Wild Mustard (Sinapis arvensis), springing up in the same or adjoining fields ; whilst, by carefully selecting on the other hand, the best bulbs for seed, and by judiciously crossing one variety with another, new sorts are obtained, combining the excellences of both. This leads me to observe, that probably seed of foreign varieties of cotton may not thrive well in the first instance; and I would, therefore, very strongly recommend the gentleman who may make the experiment, carefully to select seed from the plants on his estate which he sees are producing the best and finest cotton, and sow them in contact with a few seeds of each of the sorts you may send out to him, carefully removing them in every instance, as far as is practicable, from the vicinity of all other cotton ; and then again sowing the seed which is obtained from these experiments, and carefully examining the cotton growing upon each of them ; it is more than probable that some of the plants will be varieties partaking of the character of both the parent kinds; and by selecting the best of these, and sowing them alone (still at a distance from all other cotton), there is little doubt that much benefit will be derived by the persevering and skilful cultivator. I have heard it stated that the origin of the Sea Island cotton is to be traced to something of the kind : an observing and experimental planter, by carefully examining his plants, and sowing seed always from those alone which produced the longest and finest cotton, at last arrived at that excellent quality known by that name. Look again at what has been done in Egypt, by the introduction of seeds of better cotton ; and there this improved variety has by no means had a fair chance of showing what it is capable of becoming, inasmuch as the wretched cultivator has not the slightest inducement to improve its quality. He gets no more per pound for the finest and cleanest cotton, than he does for the coarsest and dirtiest, and therefore it is not very likely to improve under his care ; but with all this neglect, and want of management, we can see by what it is, what it would most probably become in the hands of an enterprising and skilful man, who knew that every improvement he made in its quality would be to his own advantage. Assuming that your Peruvian friends could so far improve the quality of their cottons as to double its value in this market (and I do not think myself too sanguine in expecting even more than this), with very little extra labour, nearly all the additional price would be profit.

"But supposing even that cross fertilising, or hybridising as the horticulturists call it, does not frequently naturally occur in cotton plants, we all know that it is very easy to effect it artificially, by prematurely unfolding the petals, and with fine scissors cutting away all the stamens before impregnation takes place. This requires to be carefully done, so as not to injure the petals, and they will then close again of themselves ; and when they expand naturally, then impregnate the stigma of the flower with the pollen of the kind you want to cross with ; we owe many of our finest varieties of fruits to this practice. The late Mr. Andrew Knight, in particular, was very successful in raising new kinds in this way ; and it appears to me, from the experiment I have made, that the more frequently this cross breeding takes place, the more easy (within certain limits), it is to extend it, until cultivation has so completely changed the character of the plant, that it bears very little resemblance to its original stock. There is nothing growing wild like our Cabbages, Turnips, and Cauliflowers ; nor even like our Carrots, Celery, and Asparagus ; where are the originals of our Wheat, Barley, Rye, Beans, and Peas ? Many of these appear to be so completely transformed by cultivation, that we do not know where to look for the original stocks from which they have sprung.—*Thomas Garnett.*"

Home Correspondence.

Saving Seeds.—It has often occurred to me that sufficient care has not been exercised in saving seed of vegetables from the finest parts of the crop. If we breed live stock, of whatever kind, we invariably select the parents from the best of our flock or stud. So, with regard to flowers, no one would sow seed from inferior flowers, but would select from the best specimens ; and it is by following up this system (even without more crossing than is performed by Nature, and the bees), that great improvements have been made. Thinking the same effects would accrue from a more careful selection of culinary seeds, and that a much greater degree of productiveness might be attained, about three years ago I began an experiment with long-pod Beans ; I carefully selected the finest and fullest pods for seed, taking none with fewer than five Beans in each. Next year I had a good sprinkling of pods with six seeds in each ; these were saved for seed. The following year there were many six-seeded pods and some with seven. Following up the same plan, I find this season many more six and seven-seeded pods, than of a less number, and some with eight seeds ! There are still a few plants which produce five-seeded pods, and it is worthy of remark, that the five-seeded plants have seldom a six-seeded pod upon them, but all fives ; on the contrary, a six-seeded plant generally has nearly all the pods bearing six Beans or more. As the seed-saving season is now coming on, perhaps these hints may induce others to adopt the plan. If the same thing were adopted with our corn-crops, by selecting a few of the largest and best filled ears to save as seed, I have little doubt more productive varieties might be procured. In my younger days I once gathered an ear of Barley which had 22 grains on each side ; surely the produce from seed of this description would yield a far better crop than such as is frequently sown.—*Lusor.* [Our correspondent is quite right.]

The Toad Sloughing its Skin.—The following account of this operation is from an eye-witness of the process, and may possibly prove interesting. Mr. Johnson, gr. to R. Gardner, Esq., of Chaseley Hall, Manchester, writes :—"I have had two toads nearly seven years, one in the Grapery, the other in the Pinery. They lie under the floor-flags all day, and come out on the approach of night to wander over the premises. I have evidence of their great consumption of beetles and woodlice, and I consider them invaluable in keeping down these mischievous vermin. On entering the Grape-house one morning in April last, I saw one of my toads squatting on the floor in the act of sloughing his skin. I was not in time to see the beginning of the operation, as the skin had already cracked open down the back. The creature was in the act of seizing it with its mouth at one side of its neck, when I began to watch it. It had brought its hinder parts as near its head as possible, by rounding its back ; when it had got firm hold with its mouth it began fighting with all its feet, evidently using no slight exertion. Its fore feet were the first to be got out, and I can only compare it to getting a leg and foot out of a stocking, as everything came off both from above and under the feet. The skin in the meantime peeled off the body and seemed to turn down, and form a roll on each of its sides; and towards the belly, which was the last part to be freed. The greatest difficulty seemed to be to get the hind legs clear ; whilst this was going and the creature apparently scraping its sides with its four legs, the mouth was receiving the slough in shape of a lengthened strip or roll. I could perceive mumbling motion ; the hold of the mouth seemed assist very considerably in the process, as it kept pull back with its head, but the skin was swallowed with any signs of mastication. For a time previous to t the toad had assumed an unusually dark colour. Wh the skin had left it, it was a mottled light ash-gr This darkened, however, very much in the course o very short time. The business of getting off its cov ing lasted scarcely a quarter of an hour, from the ti I first saw it, and it showed symptoms of sickness about a quarter of an hour longer. The eyes lool dim, and it appeared altogether prostrated in strengt after this it recovered, and hopped away into its form retreat.—*W. A. G.*

Pine-growing.—I built a house last year which I hea by iron gutters and one of Burbidge's boilers ; it ha path down the middle ; and a bed supported by piers plunging on either side. I also procured 40 Pine plan 20 Queens, and 20 of a kind called Trinder's Pine. T latter were young plants, the former were to fruit t spring. Now, the whole have grown admirably. T leaves are of a fine dark-green colour, and nothing c look more healthy. But the Queens have shown fruit nor seem likely to do so. They continue to gr vigorously, and each has sent up very strong sucke of which I have removed all but one. Ought I to c tinue their growth ? or tell me what to do, so as to sure fruit next spring. I should mention that the wh are planted in very rough turfy loam and horse-du and are in very large pots. Can you also give me a information as to the sort called Trinder's Pine ? th have grown to double the size of the Queens, with mu darker foliage. I should add that the pots are plung in sawdust.—*A. Z.* [Your Pines have not shown fr in consequence of their vigorous growth, and of hav been placed in extraordinarily large pots ; when pots are full of roots there can be no question but t fruit will come up. Encourage the plants by all mea until the end of the growing season. Keep them n the glass, and expose them to the full sun ; during w ter withhold water in a great measure ; in early spr increase the temperature, and be more liberal in yo supply of water, and your success will be comple Remove all suckers until the fruit makes its appearan and then only leave one to each plant. We presume sort you allude to is the Enville—a well-known kind larger, but inferior in all other respects to the Quee pine. We congratulate you on your success in the of iron gutters in producing bottom heat.]

Tan as Manure.—With regard to this being injuri to vegetation, I may mention that I this spring appl a good thick mulching of it on the surface to the ro of some newly planted fruit-trees, and they have struck upwards and imbedded themselves in the t forming a very hard mass of young fibrous roots. T trees are growing vigorously.—*An Amateur Garde* [Our correspondent has omitted the important poi whether his bark was that of the Larch or the Oak].

Horticultural Exhibitions.—The advantages result from public displays of horticultural skill have be doubted by some, and condemned by others ; but think a most conclusive proof, were such required, favour of them, is the wide spreading efforts now m ing by every man who claims the distinction of being good gardener ; for without doubly taxing diligen and trebly spurring mental and bodily energies, name must be swept from the professional roll. W can deny but that horticultural exhibitions have brou out a new, and vastly improved class of men ? and benefit of this new order of things, it is true, is par reaped by the gardeners themselves ; but also, in great measure, it cannot be denied, by their employe In proof of this, we see daily disappearing the ha starved, half-baked, one pound Pine-apples. T miserable Currant-looking brown — miscalled Bla Hamburgh Grapes, together with the lanky things pots, designated exotic plants, with two or three leav and a solitary tuft of flowers, on the top of a 3 f rod. These things, let us congratulate ourselves, becoming matters of garden history, just as much as that our children will learn from their grandfathe that stage-coaches once conveyed the public to and throughout the kingdom. Hence, if a new order things has arisen, by which 50 miles can be travelled the same time in which 10 used to be, we think it m be admitted that everything must travel at simi speed; and gardening, above all other arts, is the le likely to stand still, under the competition to which public exhibitions, horticultural productions are so f quently submitted. It would be premature, indeed, suppose that gardeners would slacken pace, we mean who constantly submits to public criticism examples his skill and talent in the art of gardening. Eve effort he possesses is called forth to keep the position has attained, or to take a higher one. Those pla which used to adorn, or rather disgrace our conser tories, are now insufferable in every well manag garden. The employers of gardeners will no longer content with such things. Cultivation in these, as all other matters, must be the passport. No gentlem can submit to have put upon his table, a hard, dried- Pine-apple, with the pips as acute as a diamond cut gl sugar-basin. These must be stretched out by super culture, until they are quite flat ; and so full of fatne that it is leaking out in all directions. The time gone by when a Pumpkin will pass for a Melon, and

gardener who thinks otherwise must certainly fall behind. It is very true that a great deal rests with the gardener, but it is also true, that if a gentleman desires good gardening on his premises, the necessary encouragement must be given. There is no more expense in gardening well than in gardening badly; but he who prevents his gardener from exhibiting at such meetings as that of the Horticultural Society, damps his enthusiasm and clogs his industry. A man's talent, under such discouraging circumstances, "is hid under a bushel." The only way to discover the merits of a gardener is by fair and honourable competition; are the conservatories of Mrs. Lawrence, of Ealing Park, or those of Mr. Norman, of Bromley, less gay, or in a worse condition because Mr. Robertson and Mr. Barnes produce magnificent collections at the London Exhibitions? Or on the other hand, is the Marquis of Lansdowne, or Sir George Warrender's table worse supplied with fruit because Mr. Spencer and Mr. Dods exhibit splendid collections annually at Chiswick. We will venture to say that they are better and more profusely supplied on that very account; wherefore then any opposition to Horticultural Societies? surely there is no immoral tendency in producing a 6 or a 10-pound Pine-apple, or a collection of well-grown plants, and placing them on the table for England's aristocracy to look at? We know that this illiberal feeling is on the wane, and that it may be completely extinguished is the earnest and sincere wish of—*Duro.*

Elæodendrum indicum.—Amateur cultivators interested in the physiological structure of plants, will find a rich treat in the finely marked leaves of this rare and valuable stove-shrub. They are of a lanceolate form, from 8 to 12 inches in length, and from 2 to 4 inches in width, of a thick leathery substance, with a smooth, shining, dark green surface, broken by irregular masses of a lighter shade, the midrib being of a rich crimson tint. On viewing the leaf through strong sun-light (from the upper side), its texture is semi-transparent, showing a brilliant contrast between the crimson column of the centre, and the alternate spaces of dark and light green tissue. When thus examined, what, at an ordinary sight of the plant, appears to be only a thick opaque medium, with a mottled surface, is then seen to range itself into an extremely beautiful and geometrical distribution of the larger nerves, exhibiting a distinct outline of the central and secondary branches, radiating towards the margins, and surrounded by the ramifications of the smaller ones, extending over the whole surface; the latter being of a bright green colour, are graphically defined by the darker tissue running along their margin, the intervening spaces being of a paler shade. Such a leaf may be regarded as forming in itself a museum of vegetable structure. I have seen nothing like it, not even excepting the exquisitely marked Anæctochilus setaceus. The picturesque impression upon the leaf of the latter, may, not unaptly, be compared to veins of rich mosaic gold running over a chocolate-green vegetable substance, and that, on Elæodendron indicum, to a stream of blood, broken into a thousand currents, flowing over a richly diversified surface of green vegetable tissue.—*W. Wood, Pine-Apple Place.*

Fruit at the Chiswick Shows.—I was much pleased at reading (pp. 489 and 511) your remarks on the fruit at the Chiswick Exhibitions, and I hope they will not be disregarded by the exhibitors in future. I have often been surprised at the quantity of unripe fruit shown, and sorry to see the frequent instances of growers sending bad things with good, and thereby losing prizes which they otherwise might have gained. We all grow indifferent articles sometimes, but for our own sake we never should expose them on these public occasions. I lately noticed at Chiswick a lot of 10 Pines, eight of which were bad, and two uncommonly good; if the good ones alone had been shown they would probably have gained a prize, but by sending the whole parcel the exhibitor gave himself so bad a character as a Pine grower, that the judges would, in my opinion, have acted very wrongly if they had awarded him anything; the declared intention of the society in giving the medals being "to reward the skilful gardener." It is not unlikely that the exhibitor was disappointed, but he should have kept his bad Pines at home, and then he might have passed for a grower of good ones in general. For several years, I have occasionally sent fruit to Chiswick, but I never did so unless I had something particularly good, and when I had not got at least three distinct kinds, each of first-rate character, I never ran the risk of making up a collection with things of inferior quality, but contented myself with showing single specimens, and by so doing I have seldom missed a prize: and I think that if my brother exhibitors would act with similar caution, they would be equally successful.—*An Exhibitor of Fruit in a small way.*

Gardening Implements.—The excellent articles on Garden Mechanics, by Mr. P. Mackenzie (pp. 433 and 488), and the report of the Royal Agricultural Meeting at Shrewsbury (p. 499), have suggested to me the idea, as the operations performed in gardening and agriculture are nearly similar, that what is seen to be of great service to the one, may be extended with equal advantage to the other. The advancement in agricultural improvement is, in a measure, to be attributed to mechanical inventions. The encouragement given by the Society to produce a superior class of implements is a movement in the right direction. The emulation that is produced by giving prizes to those who have applied their mechanical skill to the advancement of agriculture is laudable and productive of useful results. In the science of gardening mechanical skill could be applied with advantage. If prizes were given at horticultural shows for improvements that may be made in garden implements it would arouse a spirit of invention on the subject that would produce some useful results. The mechanics of agricultural improvements are generally indebted to the suggestions of farmers for each succeeding step in their progress to perfection. At an agricultural show the individuals most interested in the subject are present to appreciate the value of each invention or improvement. The prize is not so much the object with the inventor or improver as to know that the exhibition of them at such places, where their merits would be appreciated, would do much for their sale. If the same system was adopted at horticultural shows, it appears to me that similar results would follow. The Chiswick and other horticultural societies could very much encourage the production of gardening implements by offering prizes for any invention or improvement of them that would seem deserving of such awards. In several counties in which I have been, I have seen some garden tools or implements in one that are not known in another. Even a knowledge of the best tools at present in use would help to abridge the labour that is required to be done in many places with a very limited number of hands. If mechanical skill and invention were set to work there would be no lack of competitors, not so much for the object of the prizes as to have an opportunity of exhibiting these productions before those who are always ready to reward merit that tends to extend the improvement of horticulture. As farmers are best able to suggest improvements in the construction of farming implements, so likewise are gardeners best qualified to suggest improvements in the construction of gardening implements. When the fact is so generally known that great improvements in the cultivation of the soil have been produced by the force of mechanical science it is reasonable to expect that if the same impetus was given to push on improvements in gardening implements, that similar happy results would follow. The drill rake, transplanter, and other useful implements for general or particular purposes, are only rarely to be met with. What is the reason? because they are not exhibited to public notice. The implements of gardening are not generally of such complicated structure or mechanism but that a gardener by seeing them would be able to judge pretty correctly of the powers of each, and how far they were likely to answer the purposes for which they were intended. If they were to be seen at horticultural shows, where gardeners are in the habit of attending, then there would be a great probability that every implement valuable as a new invention, or an improvement on the old, would be appreciated; that those best adapted for their specified purposes would pass for their sterling value, and that the others found deficient would be rejected as worthless.—*William Keane.*

Asparagus.—I am a fellow-sufferer with your correspondent "J. F. M." (p. 489). I bedewed a bed of freshly moved Asparagus plants this last spring with pork-brine; they came up, and then began to pucker and wither away. At present the bed has a very shabby appearance, but as the plants do not appear to be quite defunct, I propose to try them on till next year.—*P. P.*

Hoare's System of Vine Culture.—I perceive, in a late Number, that a correspondent, signing himself "C.—Scotland," states that he planted some Vines in a Vinery on the plan recommended in my work on the roots of Vines, and that they have not grown; and in consequence he calls upon me to account for their failure. This I will endeavour to do as soon as he has communicated a little further information in the matter. He states that he has followed my directions in every respect, and as those directions extend no further than to the completion of the act of planting, I have to request that he will be good enough to inform me either by letter or through the *Chronicle*, what means he afterwards adopted to promote the growth of the Vines, and I shall then be enabled, I have no doubt, to explain the cause of his failure. Your correspondent also refers to the non-growth of the Vines in the Horticultural Society's Gardens at Chiswick, which has been already noticed in the *Chronicle*. This notice, however, being only incidental, and not being acquainted with the facts of the case, I considered that I was not thereby called upon to take any formal notice of the matter, and therefore reserved myself for a more suitable opportunity. That opportunity has now been afforded me, and I will, therefore, embrace it, without hesitation, next week.—*Clement Hoare.*

Dendrobium moschatum.—A flower spike of this advanced so far towards flowering, that I expected it would have opened next day. But instead it withered as if flagging for want of water, although both the plant and the house were abundantly supplied with moisture. It was soon evident that the flowers would not open, and no more notice was taken of the circumstance till some time after, when the seed-vessels were observed to swell—in fact the seeds were set. As I think a flower, or the fructifying parts of a flower, must be perfect before it can set its seeds, why did not the flowers open? D. chrysanthum opened its blooms within a few feet of the other, at the same time. And the only alteration I made in the treatment was, that the sun shone upon D. moschatum from about 2 o'clock to ½ past 3; and I threw a mat on the back part of the house to prevent this, a few days previous to the flowers of D. moschatum withering.—*A. Brander.* [It is not absolutely necessary for an Orchid or any other plant to open its flowers in order to set the fruit. The point is to bring the mature pollen into contact with the mature stigma. An insect in the interior of the closed flower may possibly do that. The fact, however, deserves inquiring into].

Longevity of the Canary.—It is a disputed point among bird-fanciers, how long a canary will live. Some say 12 years, others fix 16, as the extreme limit. I have kept one in my family between 13 and 14 years; his song, however, had ceased previous to his death at least a twelvemonth. I have now to record the remarkable fact of a cock canary being in good song, who is at the present moment in his 20th year! I saw him a few days since, when calling on a friend at Shepherd's Bush. He was well and hearty, in excellent plumage, and remarkably tame. His extreme age was by no means apparent; on the contrary, he was quite sprightly, and uncommonly observant of what was passing. His present master and mistress have had him 18 years, and when they first took charge of him he was more than 20 months old. I need not add that he is, in every sense, "one of the family." How much longer he may remain so I cannot say, but he looks so well that an insurance might, I think, be effected on his life for at least five years to come.—*William Kidd, New-road, Hammersmith.*

Steeping Seeds.—Having seen in your Number of May 3d, an account of steeping Beans and Peas, &c., in chloride of lime and water, I beg to forward the result of my experience. Some French Beans that had been soaked six hours in one part of the solution of chloride of lime, to seven parts of water, and sown on the 2d of June, came up in 10 days. Some Peas after the same process of steeping were up in the same space of time. Another crop of Peas, steeped in the same manner, and sown on the 19th of June, came up partially on the 4th day, and were all up on the 7th day. The chloride of lime seems to have the double effect of preventing the attacks of grubs, slugs, &c., and greatly promoting the progress of vegetation. Peas and Beans previously sown in the old way, have not come up under six or seven weeks.—*W. L.*

The Aerial Rooting of Plants.—Some weeks ago a correspondent asked—"Why do plants frequently throw out roots into the air?" And as the elucidation of the question affords a subject of physiological inquiry, a few remarks may not be uninteresting to your readers. Although this aerial rooting is a property far from being general in the ordinary economy of vegetable life, yet there are some species which depend in a great measure upon this property for their support. For instance, we have only to examine the Epiphytes of the tropical forests, or the Pandanus of the adjacent plains. In the former these aerial roots appear to have only one function to perform, that of imbibing nourishment from the moist atmosphere, in which the greater part of those singular plants delight; but in the latter instance, they continue to grow downwards, performing the functions of aerial roots until they reach the earth, into which they penetrate. The upper part assumes the appearance and performs the functions of a stem; the lower part branches into the soil, and forms roots. Now this formation of new stems around the parent plant affords a beautiful illustration of the peculiar adaptation of every plant to the situation which it is destined to fill, and of the unison of its several parts in the general economy of the whole fabric, as the nature of the plant requires the formation of new stems around the original one. The roots of the Pandanus before they reach the soil are furnished with peculiar organs for collecting moisture for the nourishment of the plant; but as soon as the roots reach the earth, these organs disappear, being then useless, as roots beneath the soil require no such organs for the purpose of imbibing the surrounding substances capable of being assimilated for the uses of the plant. Now, although this aerial rooting is part of the general economy of the plants above named, those instances can only be considered as exceptions to the general rule. It is therefore for us to inquire, Why do plants, under certain circumstances, and contrary to their general nature, produce roots from the stem? We know that such instances frequently occur, and a familiar one is afforded in the Vine. These roots do not at all times issue from the joints, as is generally, though not always the case with cuttings, but from all parts of the stem; and this emission of roots takes place only when the plant is of vigorous growth, and growing in a moist atmosphere. During the growth of a plant all the inorganic matter which has been absorbed by the roots mixes with the gases of the atmosphere imbibed by the leaves, and, assimilated by the indescribable chemical operations constantly going on in the plant, is returned as nutritious sap by a series of vessels in the interior of the bark, and from thence to the several parts of the plant, for their nourishment and growth. But the greatest accumulation of the nutritious sap takes place around the exterior of the alburnum, and assumes the pristine form of all vegetable fabrics—cellular tissue, and from which a layer of woody fibre is formed around the stem, thereby increasing it by a layer of alburnum. Now, while the plant continues to grow moderately, this deposition of nutritious sap continues to take place, but in no greater quantities than is required for the gradual enlargement of the plant. But when the plant is stimulated to an extraordinary degree, the accumulation of nutritious sap takes place in much greater quantities than can be accommodated by the gradual enlargement of the several parts of the plant. And as this accumulation takes place in greater quantities immediately beneath the bark, as great expansive force is constantly acting on the bark,

tending to force it outward, and it being unable to withstand, it splits into numerous minute apertures through which the sap oozes in the form of roots, which continue to elongate as long as the supply of nutritious sap continues in any quantity.—*Walter Wakefield.*

New Vegetable.—In the "Monthly Magazine" for Sept., 1821, James Sibbald, of Paisley, writes as follows, of a new vegetable which, if it could be obtained now, would, I think, be a great acquisition:—"The Trottel or Treuttel root is the principal source of subsistence to the Squee Indians, Labrador, withstands the most severe frosts, and it bears, even in the depth of winter, curled, thick, crisp leaves, as tender as Asparagus, and something like Seakale. The root weighs generally from 8 to 10 oz., and is shaped something like a Windsor Bean, grows in clusters like Potatoes, when boiled yellow-coloured, and though drier, much resembles the Carrot. I plant the roots, cut in small pieces, in rows 2 feet asunder, and 3 inches deep, in August or September, and as the plant is of rapid growth, begin to top the herbage in winter (December and January), and in the spring months, when vegetables are rare, I dig up a plentiful crop (10 or 12 to each plant), of a delicate vegetable—most nutritious, and keeps well. It is now grown at Greenock, Paisley, and Bristol."—*T. W.* [What is this?]

Transmission of Cuttings to India.—It will be recollected that when suggesting a particular mode of preparing and packing cuttings of fruit-trees for India (see p. 539, 1843), I said, in a fit of enthusiasm, that they might be so prepared and packed as to enable them to survive a sailing voyage to India round the Cape of Good Hope; but the experiment appeared so impracticable, that after preparing a quantity of cuttings in the way recommended, I could meet with only one gentleman who would incur the trouble and expense of transmission. The cuttings were gathered nearly three months before the vessel sailed, and after a voyage of nearly four months to Calcutta, it will be seen by the following report that 36 out of 82 cuttings had retained some traces of vitality. Now, if these cuttings had been sent by the Overland Mail in November, packed in the same manner, they would have arrived at Bombay in a fresh state, fit for grafting; and even had they been shipped from thence to Calcutta, the whole passage would not have exceeded half the time that they occupied round the Cape of Good Hope, to say nothing of the disadvantage of being cut three months before they were despatched. In future there need be no such delays, as the Peninsular and Oriental Steam-ship Company have concluded arrangements for running their vessels direct to Calcutta by the Red Sea route, and, by a rough calculation, I imagine that young fruit-trees may be sent by this conveyance from London to Calcutta, at a rate not exceeding 2*s.* each. In order to go so cheap, they must, however, be prepared in the nursery, after the following manner:—Graft strong shoots quite close to the ground, on stocks about the same size as that of the scions, and allow only one shoot to grow from the graft; about the end of August cut back this shoot to half its length, in order to strengthen the eyes below, and by the end of October the grafted tree will be fit for the journey; but a plant two years old would, however be preferable. Before they are packed, all the small roots, that would be likely to perish on the way, may be cut off, and the grafted part reduced to 10 or 12 inches. Young trees, thus prepared, would occupy little space—not much more than what double the quantity of grafts would require. Dry sawdust seems the best article in which to pack them, and as stone fruit is more liable to injuries than Apples and Pears, they might be first packed in tin cases, and then put into strong wooden boxes, sufficiently large to receive 3 inches of sawdust all round the tin cases. I have known collections of seeds, packed in this way, to come safely from Australia, dry earth being used in place of the sawdust.

The following is a list of cuttings sent to Calcutta early in 1844 and the result:—

	Dead.	Alive.	
12 Currants	8	4	with a little sap.
APPLES.			
7 Hawthornden	5	2	
6 Alfriston Pippin	4	2	
2 King of the Pippins	0	2	
2 Reinette du Canada	1	2	
2 Wormsley Pippin	1	1	
3 Downton Pippin, 3 Dutch Mignonne	2	4	These cuttings were carefully coated in bees'-wax, and packed in sawdust in a strong box, which was screwed down very tight, in order to exclude air. They were shipped from London in the month of January, 1844, and arrived in June following at Calcutta.
2 Brabant Bellefleur	0	2	
2 Pennington's Seedling	2	0	
PEARS.			
2 Aston town	2	0	
8 Ne Plus Ultra	2	6	
3 Althorp Crassane	1	2	
3 Easter Beurré	0	3	
3 Beurré Bosc	0	3	
2 Beurré Rance	0	2	
3 Hacon's Incomparable	2	1	
PLUMS.			
10 Greengage	10	0	
82 Cuttings	46	36	

Other cuttings had their ends inserted in Potatoes, without any bees'-wax, but they all perished.—*D. Beaton.*

Cropping a Kitchen Garden.—The following is a routine of crops for a moderate-sized gentleman's garden. It was made up in accordance with what the experience of others and my own showed to be favourable to the crops as they are severally placed. I have now tested it some time, and the only fault (if fault it be) that I can find is that in some cases the ground is hardly clear soon enough from the preceding crop. The Table, I imagine, explains itself. The garden is permanently and markedly divided into four shifts, and each of these shifts is again subdivided into five portions; the 20 divisions exhibit the whole garden, with its crops for one year, or of any fourth part in four years; the column from side to side gives one-fourth of the garden or shift; while the columns from top to bottom show the respective crops which all the subdivisions bear in four years, or any one subdivision in 20 years, in the order of the numbers in the corners. This cropping, if the garden be a quarter of an acre, or 40 rods, clear of fruit-trees, gives in 20th parts of the whole (in this case 2 rods).

	Parts.	Rods.	
For Peas	5 or 10	or 10	rows 20 yards
Broad Beans	1 — 2		long; distant on an
French ditto	1 — 2		average 1½ yards
Potatoes	4 — 8		from each other.
Greens	4 — 8		
Onions	2 — 4		
Lettuces	2 — 4		
Turnips	1 — 2		
Celery	3 — 6		
Endive	1 — 2		
Carrots, Beet, &c.	2 — 4		
Strawberries	4 — 8		
Total	30	60	or 1½ crops a year.

Year I., or one Shift. First, or winter sown Peas. (Muck) First—Winter Greens (1)	Year II. Broad Beans. (Muck) Third—Celery. (2)	Year III. Fourth—Potatoes. (3)	Year IV. Potato Mounds. Fourth—Peas. (4)	
(Muck) First—Potatoes. Second—Winter Greens. (5)	Third—Peas. (Muck) Second—Celery. (6)	Carrots and Parsnips. (7)	(Muck) Second—Lettuces & Nursery for Greens and Celery. French Beans. (8)	
(Muck) Second—Potatos. (Muck) Winter Onions. (9)	Now Strawberry Bed. (10)	— (11)	— (12)	
Strawberry bed which after 4 years' bearing is now dug up for White Turnips. (13)	Second—Peas. First—Celery (Muck). (14)	(Muck) Spring Onions. First—Lettuces for next year. (15)	Fifth, or Latest Peas. (16)	
(Muck) Third—Potatoes. Autumn sown Cabbages with rows left for (17)	Beet. (18)	Cauliflower and Spring sown Cabbages. Endive. (19)	(20)	

Care must be taken that the lines of Brussels sprouts and the late Broccoli should be so got out among the other winter Greens, as to stand between the future rows of Peas and Beans which are to follow them. Spinach is, of course, to be sown between the Peas when wanted. Of course the whole ground is to be fresh dug some time for each crop, although it cannot all be done when the seed or plants are put in.—*G. V.*

Sport of a Moss Rose.—I beg to mention a singular circumstance, which I discovered, connected with a Moss Rose which is growing in a north aspect at the back of my house. My attention being called to the tree one day, I saw at the extremity of one of the branches two buds without any Moss upon them, and upon looking more narrowly at it, the shoot of this year's growth, and at the extremity of the branch, is without Moss entirely; the leaves are larger and more obtusely ovate, more deeply and coarsely serrated, and without that brown-coloured edge which the Mossy leaves have, and in appearance resembles the common Cabbage Rose, except that the bud is more tapering. It was in full bloom yesterday (July 6), and was seen by Mr. Burn, of Tottenham-park Gardens, and Mr. Forrest, of Kensington, who both pronounced it to be a single Provins Rose. It is of a most delicate scarlet colour; it has not more than 20 petals, and is much less fragrant than the Cabbage Rose. It was seen by Mr. Sanders, from Mr. Ashton Smith's, before the bud had expanded, who had then some doubt of its being a Cabbage Rose. None of the Moss-buds are yet expanded. This is a freak of Nature which I cannot account for; but of this I am quite certain, that the bud has never been placed there by the hand of man. *W. Bartlett, Surgeon, Burbage, near Marlborough, Wilts.* [The Moss Rose is reported to have been originally a "sport" from the Provins Rose; all sports have an occasional tendency to return to their original condition.]

Supposed Cabbage-seeds.—The productions resembling Cabbage-seeds, to which your correspondent alludes under the title "Absurdities," are fungi known by the name of Sclerotium semen. They are by no means peculiar to the different species of Cabbage, but may be found on many decaying vegetables, and even on old ropes. Neither are they confined to this country. I have very fine specimens, gathered in Jamaica by Mr. Purdie, on a species of Alsophila. It is only a very superficial examination which could confound them with Cabbage-seeds, as they are very much wrinkled when dry, and have nothing resembling cotyledons; nor have they the same taste, nor do they contain any oil. Most, if not all, the species of the genus Sclerotium are but imperfect fungi. A very interesting paper, by Dr. Léveillé, has appeared on this subject in the "Annales des Sciences Naturelles," from which it appears that, in most cases, they are but a temporary condition of fungi of various classes. They frequently remain in this state till they perish by natural decay; but, under favourable circumstances, they undergo a further development. The seed-like globules, for instance, which are so common in tan in some hothouses, after lying free, like little shot, for months, at length (under suitable conditions of temperature, moisture, &c.) develope the beautiful Agaricus volvaceus. The Sclerotium of the Cabbage produces a little white club-shaped fungus. It was supposed that these bodies, when sown, produced new and fine varieties of Brassica, and that Broccoli, Cauliflowers, &c., had thus originated. Multitudes of authorities might be added to those given by your correspondent, as it was a subject which once exercised the fancy of the learned. It would be well occasionally, even in the present day, if people would have a little more recourse to observation.—*M. J. B.*

Blister of the Peach Leaf.—On this subject I may add to what has been said, that I am convinced it is partly owing to an over supply of moisture at the roots, as I could detail at length from experience if it is desired.—*An Amateur Gardener.* [Pray do].

Societies.

BOTANICAL SOCIETY OF EDINBURGH.

July 10.—This the last meeting for the session was held in the Royal Botanic Garden. The President in the chair. The Curator reported that several valuable additions had been made to the Society's collections during the present season, both in the Foreign and British departments, and that the library had received valuable additions through the liberality of members and correspondents. During the past year the Assistant-Curator has been chiefly engaged in adding to and arranging the Society's Herbarium, and he has to acknowledge the valuable assistance rendered by Mr. C. C. Babington, of Cambridge, in reducing to order the extensive collection of European plants. A very valuable and instructive series of these has been selected for the Society, the remainder being set aside for distribution among the members. Much of the Assistant-Curator's time has also been employed in the distribution of the Society's duplicates, especially to foreign members. This work is now nearly completed, the parcels being ready for sending off. A large collection of British plants, which have been accumulating for several years, are now being arranged, and specimens for the Society selected, in order to fill up the different sections marked out in Mr. Brand's plan for arranging that part of the Herbarium. A detailed account of the donations to the Herbarium and library will be published in the annual report. The following communications were read:—1. Dr. Seller read the remainder of his paper, entitled "Observations on some Plants from the Shores of Davis's Straits," begun at the previous meeting. Among the species on which he particularly commented were, Stellaria scapigera, Potentilla nana, Saxifraga tricuspidata, Saxifraga cernua, Saxifraga rivularis, Arnica montana, and Pedicularis hirsuta. The Stellaria scapigera appeared to be new to the catalogue of Arctic plants. Under the name, however, of Stellaria Edwardsii he had seen, in the Society's collection, what appeared to be the same plant, brought also from the shores of Davis's Straits. He had referred the Potentilla, of which there were several excellent specimens, to Potentilla nana, trusting a good deal to the rounded form of the outer sepals of the calyx, which, according to Lehmann, distinguishes this from all the allied species. Of the Saxifraga tricuspidata, the specimens were several and well marked, agreeing perfectly with the descriptions of that Arctic species. Of the Saxifraga cernua the specimens were also rather numerous. As usual, most of these had no flowers; but in lieu of them little bulbils in the axils of the upper leaves. What is unusual, of the flowered stems one had three flowers, another two. In all these specimens amylaceous scales cover the roots, giving them at first sight no slight resemblance to the Saxifraga granulata. The specimens of Saxifraga rivularis might be described as gigantic, being about 3 inches high; no doubt, however, could be entertained of their belonging to that species, notwithstanding the defect of the pigmy aspect. The plants referred by Dr. S. to Arnica montana differed much from the specimens of that species produced in the more temperate parts of Europe, and as this striking difference

of aspect had raised some doubt at the previous meeting, he entered at some length on the characters, by which it appeared that these specimens belonged to the genus Arnica. In the specimens of Pedicularis hirsuta, he pointed out the resemblance which the petiole and its leaflets bear to the snout of the saw-fish, the peculiar character of this species. Dr. Seller having intimated his intention of presenting to the Society's Herbarium the specimens which had been the subject of this paper, amounting in all to about 25 species, the thanks of the meeting were unanimously voted to him for his liberality and for the trouble he had taken in determining the species. 2. On two species of Desmideæ, by Mr. J. Ralfs, Penzance. Mr. James M'Nab exhibited a Pelargonium belonging to Mrs. Captain Sinclair, Inverleith Row, bearing two distinct varieties of flowers. The flowers, which were strikingly dissimilar, were growing on separate branches, no artificial means having been employed in their production. Dr. Neill sent a specimen of the Tussac Grass, received from the Falkland Islands.

Reviews.

Reports on the Progress of Botany and Zoology. Ray Society. The British Nudibranchiate Mollusca. By Messrs. Alder and Hancock, Ray Society.

Most of our readers are probably aware of the existence of a society named after John Ray, established for the purpose of publishing otherwise inaccessible works on natural history; and many, perhaps, with ourselves have wondered why this Society have not before this issued its works. In the commencement of the working of such a society, unavoidable delay will undoubtedly occur, and we are glad at last to have proof that the council has been at work. The first volume published consists of reports on the progress of zoology and botany. Most of these have been translated from the German, and have appeared amongst the reports given from time to time in that valuable collection of natural history papers "Wiegmann's Archiv." Such reports when carefully done are of great value. In the report on zoology in this volume there seems to be some disparity in the different departments, but this of course will arise from the amount of materials furnished to the hand of the reporter. The report on the Insecta and Crustacea, by Professor Erichsen, appears to be very full and complete, and offers a good example of what reports on natural history should be. The other reports on the various departments of zoology, translated from German, are by Wagner, on mammalia and birds; Froschel, on the reptilia, fishes, and mollusca; and Siebold, on the Entozoa, Echinodermata, Acalephæ, and Infusoria. There is also a report on Vertebrate Zoology, by C. Lucien Bonaparte, translated from the Italian. The report on Botany is that of Link, published in the year 1841. It embraces only physiological botany, and occupies about one-fourth of the volume. There is more criticism in this report than in the preceding, and is interesting as indicating how the veteran in science regards its progress. Without misrepresenting his young opponent Schleiden, he loses no opportunity of pointing out the insufficiency of an observation or the weakness of an argument in support of a general conclusion. This report being professedly annual is necessarily imperfect, and appears late, but it contains much valuable matter. We think the Ray Society have done well to publish these reports, but we could wish they had been original rather than translated. Surely some of our own naturalists would undertake this work, and the reports would then be written from a point of view in which they would be more interesting and available to the British naturalist. The second volume is a much more ambitious production. It is the first part of a large work on the British Nudibranchiate Mollusca, with coloured engravings of each species. This work it appears could not have been produced unless the council of the Ray Society had been enterprising enough to publish it. We can only speak of it as a work of art; the authors' names are, we believe, a sufficient guarantee for its scientific excellence. The present Part contains ten plates, executed by Mr. Hullmandel's new process of lithotint. Nothing certainly could more effectively exhibit the general character of these fragile inhabitants of the sea than this process. A figure of each of the species is coloured, a most important adjunct, as colour is of great importance in distinguishing the species of this family, in the various stages of their development. We see that the subscribers for the first year will be entitled to a third volume, which is now in the press, being the Life and Letters of Ray. This will be an acceptable volume to the naturalist, as the originals are so scarce that a copy is seldom to be met with.

New Plants.

Fuchsia serratifolia. Saw-leaved Fuchsia. (*Greenhouse Shrub.*) Onagraceæ. Octandria Monogynia.—Nothing attracted the attention of the visitors to the last meeting of the Horticultural Society more strongly than a very fine plant of this beautiful new Fuchsia, which seems likely to surpass all that have been yet imported. It has a noble aspect. The large leaves are of a deep rich indigo green, the effect of which is greatly heightened by the gay rose colour of their stalks and midrib. The flowers are between 2 and 3 inches long, of a very deep clear rose colour, most intense at the bottom, becoming paler upwards, and at last melting into a delicate green at the ends of the sepals. The petals are of the most vivid vermilion. Although the flowers appear singly from the axils of the leaves, yet their size is such as to render them most conspicuous objects, and moreover it appears probable that every leaf will produce its flower all over the branches. For its introduction from Peru the country is indebted to the enterprise of Messrs. Veitch, of Exeter, by whom it was exhibited. According to the "Flora Peruviana" it grows in damp and shady places at a place called Muna, where it forms a shrub 2 or 3 ells high, and not much branched. The berries are said to be oblong, purplish, and about an inch in length. This very handsome robust shrub requires the same kind of treatment as Fuchsia fulgens, like the other kinds demands a rich soil, composed of sandy loam and leaf-mould, or well decomposed cow-dung, and plenty of pot room and moisture during the growing season, if it is to become a large and handsome object. After flowering, and in the autumn, the plants should be kept nearly dry; they may even be placed during the winter in a dry cellar, or other such place where they are secured from frost, until the following April. No doubt it will strike freely from cuttings of the half-ripened shoots, treated in the ordinary way, any time when such can be procured. It seems disposed to flower during all the summer and autumn.—*Botanical Register.*

Miscellaneous

Salvia pratensis.—Why is this plant not cultivated here as a meadow plant? It forms a large portion of the hay in the north of Italy, in the Ionian islands, and in parts of Switzerland; and, by the admixture of its deep blue flowers, with the red, yellow, and white, that prevail in our meadows, it adds much to their beauty, and affects the general aspect of the scenery. What are the peculiarities of soil and situation in which it delights, and are there any, which would prevent its being found useful here? I regret not having taken these points into consideration while I was in the quarter where it flourished, and where it ceased to be frequently seen. From recollection I believe that the presence or vicinity of calcareous matter is the needful thing. It is, indeed, a subject deserving investigation, whether the neighbourhood of calcareous rocks, or their existence at a great depth below the surface, influences the vegetation, by affecting the springs, by electricity, or some other mysterious agency, or not, where the presence of an extraordinary quantity of calcareous matter is not manifest in the soil. Climate does not materially interfere with the growth of Salvia pratensis, for it rises from the plain of Lombardy into the valleys of the Alps, and is found amongst the stones on the mountains behind Trieste, as well as in the alluvial meadows by the salt pans, and very high amongst the rocks in Corfu and Santa Maura. It is superabundant on the banks of the Brenda, near Padua, but that river after rains comes down absolutely white in its turbid state. It is very abundant in the meadows of the beautiful valley of the Ticino, under the calcareous rocks. On the northern side of the St. Gothard it paints the valley of the Reuss; becoming less abundant on approaching the lake of Lucerne, and beyond Lucerne it disappears. A very little below Lucerne a considerable river, of which I forget the name, falls in from the left; and after heavy rains, while the Reuss flows on clear and blue, the turbid yellow water of the subsidiary river continues below the junction unmixed, and occupying, perhaps, a third or a quarter of the whole breadth. The Salvia has disappeared, as well as a blue Phyteuma, which had been seen above the lake of Lucerne, and a dirty white Phyteuma has started up abundantly by the hedge sides. Traversing the rich country, through which the yellow river runs, we see no Salvia pratensis; but within 10 miles of Berne here and there a plant reappears, and nearer to Berne, as we approach the Aar, it becomes more abundant; and, following the course of that river up to Thun, we find it again painting the meadows. The Aar, like the Reuss and Ticino, is a clear river from the calcareous Alps. From these observations, I conceive that this beautiful plant would thrive, where there is a sufficiency of calcareous matter, in the meadows of this country.—*The Hon. and Rev. W. Herbert in Bot. Reg.*

Bees.

Nutt's Hives.—Much has been said of late, *pro* and *con*, upon the system of hiving in collateral boxes, and their advantages when the hoped-for results are obtained. The great question seems to be, can they, under any circumstances, be worked with certainty? I have taken great pains, but, beyond the pleasure of the occupation, have as yet reaped no reward. Last season I established a colony (a swarm and cast from a straw hive) in a collateral box-hive, constructed upon a plan analogous to Nutt's. On the 5th of June, I hived the swarm, and on the 15th I added the cast without its queen. They worked well, and all seemed to progress favourably till the 20th of July, when an enormous swarm was thrown off. I abstracted the queen therefrom, and returned the bees to their parent hive. No ejectment of supernumerary queens followed the operation, and the expulsion of the drones commenced on the 23d of August. The population became exceedingly numerous, and numbers frequented the side compartments—not for work, but apparently for occasional shelter. So the season wore away, and not an ounce of honey was stored for me. In due time the winter came, and dragged its weary length away; I carried my stock successfully through it; and now for the doings of this year. With a prodigious population, no attempt has yet been made to construct combs in the side-boxes; but instead, on the 4th inst., issued a swarm! As before, I abstracted the queen, and returned the emigrants. Again, on the 14th, occurred a repetition of the act under the leadership of another queen! I determined then to cut out any queen cells that might remain, thinking that would effectually settle them. I excised two (being all I could detect), and returned the bees, queen and all, this time to their original occupation. Between the evening of the 14th, and the morning of the 16th, as many as five young queens were ejected, dead; notwithstanding about mid-day of the latter date out came the swarm again. I withdrew the queen, and once more returned the restless multitude to their apparently uncomfortable home, where they now are, under circumstances more promising in appearance; but whether for good or not, remains to be proved. Now the above is a record of facts. What can the advocates of the system say to it? I have all along used the best of my judgment in ventilating, giving room, &c. &c., but the result of my management, at present, amounts to nothing; and the best of the season is almost over.—*Dogberry.*

Nutt's Hives.—In your Number for June 28th, "W." says, "that when he recommended collateral hives, he did not mention that they should be according to Nutt's plan;" he, however, omitted to state in what particulars they differ from Nutt's, and also to mention in what points those of the latter are defective, when judiciously and impartially carried out. If he had given a detailed description of the kind of hive that he recommends, we should then have been enabled to decide which of the two was entitled to preference. I am acquainted with Nutt's system, as well as with that of other apiarians.—several of whose plans are worthy of attention; while others are susceptible of material alterations and improvements. Golding and Bevan are, I have no doubt, skilful apiarians, and their opinions are entitled to attentive consideration; but it must be admitted that Nutt is not the only apiarian who says that bees will continue to prosper for several years, as Gelieu and Payne have stated that they have had them in a prosperous state, at ages varying from 12 to 25 years. If Payne wrote before Nutt's book appeared, how could he sift the writings of the latter, and find in them much dross? The persons whom "W." named, are probably acquainted with the collateral system, at its present state of perfection; but as their criticisms appeared some considerable time ago, it is fair to state that those remarks would not equally apply against the system at the present time; if they did, they would be as likely to depreciate the collateral hives of "W," as those of Mr. Nutt, for the latter has had every opportunity of constructing his boxes on the most correct and approved principles. After what has appeared at page 495, in reply to "W. King," is it not possible that "W." may yet become an advocate of the collateral system? He has stated that the produce from his straw hives, however, has for 8 years exceeded that from his boxes; but to render that information serviceable, we would require to be made acquainted with the size and shape of the straw hives, with the system on which they are worked; and finally, with the routine of management that has been annually practised with them during each month or season of the year.—*E. Briggs, Swinstead by Bourne.*

Answers.—*E. S.*—Smoke from the Bovista giganteum, or large puff-ball, when dried, has a stupifying harmless effect on bees. I have tried smoke from other funguses, and various other things, but found none to equal the large puff-ball. If you cannot procure it in your neighbourhood, try a friend at a distance. It is very light, and as much of it as might make a hive of bees motionless in 20 minutes could be sent by post. If the season permit, you may safely allow your bees to fill a small cup of honey. The plan you follow is the simplest way of taking the honey in autumn without destroying the bees. *W.*——*Sub.*—Queens are of the same colour as workers, and are easily known by the greater length of their abdomen. They vary, however, in size, some being scarcely bigger than the largest workers. I imagine that the small queens are bred in common cells, lengthened to yield sufficient room for the growth of the insects. Lately I found about a dozen of such cells containing young queens. I mention this more particularly, for I know of no writer who has remarked it. The colony from which the cells were taken had been many years under the lead of an old tower, and contained an old queen. *W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

We are now arrived at a most important period in the cultivation of exotic plants, for although at this season they are not likely to suffer from cold on the one hand, or the withering effects of fires on the other, still at no period during the year is good management of so much importance; their beauty or deformity hangs upon the treatment they now receive; nay, their life or death depends upon it. If mildew makes its appearance, lose not a moment in applying sulphur and placing the plant in the open air. But again, should continued rains follow, the plant is just as likely to suffer from them as from the previous confinement; immediately shelter it therefore with canvas or glass, and if this can only be done by carrying the plant back into the house again, it *must* be done; no great attainment can be accomplished in gardening, or in anything else, without a little trouble. All greenhouse plants will be benefitted by exposure to the natural atmosphere; the dews of heaven are more refreshing and invigorating than artificial moisture, and will always beat the syringe. It will be wise to finish at once the potting of all specimen plants, they have yet time to make roots; but if left until late in autumn, they had better not be potted at all. No position can be worse for a plant at all impatient of wet than that of surrounding it with fresh soil for months when the roots should be in a comparatively dormant state.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Cloves, Carnations, and Picotees should be layered at once; sweepings of roads finely sifted is the best material for striking them in. Let the pegs for fastening them be made from con-

mon Fern, which answers the purpose better than wood, as the latter is generally rotten before the layers are fit to be removed. All plants growing over Box or other edgings, should be cut back, taking the under branches, as by this means the plants do not exhibit the appearance of having been clipped. Remove dead flowers from Roses, Pinks, &c., as often as required. Dahlias, Hollyhocks, Sweet-peas, and other tall-growing plants should be regularly gone over and tied up, taking particular care not to tie too tightly. Hoe, rake, and clean borders and beds, not a weed should ever be suffered to seed if there is a possibility of preventing it. Roll, mow, and sweep daily if the weather continues showery, and shorten back strong-growing shoots of Roses, &c., if they require it. *Pits and Frames.*—Pink pipings that were put in early and that are rooted, should be uncovered at night and in dull days, to harden them for planting out. Cuttings of China, Noisette, and other Roses, should be put in under handglasses; or, if wanted in large quantities, into a shady border, without glasses. Cuttings of Pelargoniums, Verbenas, Salvias, Petunias, &c., should be put in for next year's store; no heat is required for striking at this season, excepting sun heat, which prevents damp.—*B.*

III.—FLORISTS' FLOWERS.

Tulips.—The capsules or seed-pods, are in most parts of the country fit to gather, and should be hung up in a dry airy situation for a short time, preparatory to being stored away. It will be better to allow the seeds to remain undisturbed, till the proper season for sowing them arrives. *Carnations and Picotees.*—Continue at every favourable opportunity to layer the side-shoots. Foul or run-flowers are considered of little value; though those who do not regard them with the critical eyes of florists, will often prefer the large gaudy self to those which are regularly marked. In the collections which have come under my observation, I find a greater quantity than usual of run or self-flowers (especially amongst Bizarres), this season. *Pinks.*—Pipings are now rooting fast; and a second crop may be put in with success. Should the weather continue showery, the capsules of seed should be covered, or they are apt to rot.—*Dahlias* will require thinning, as they are growing most luxuriantly. Use every endeavour to entrap earwigs, &c., &c.; and should the weather turn out hot and dry, the surface of the soil should be covered with very rotten manure.—*C.*

IV.—PINERIES, VINERIES &c.

Pineries.—I have little to add on this head at present, excepting that the leading things, viz., air, heat, and moisture should be duly balanced, remembering that it is not any absolute point in either, but a proper relation of the whole of these elements that secures success in the cultivation of the king of fruits.—Late Grapes having fully completed their first swelling, may now be allowed to ramble considerably; and towards the end of August, close stopping may be again resumed. Late Melons should now have every attention, the principle of stopping, thinning, &c., as applied to the Grape Vine, in fruit, are equally applicable to the Melon. Stop frequently, thin liberally, and endeavour to present as many of the uppermost leaves to the action of the sun's rays as possible. Bear in mind that the earliest formed, largest, and most mature leaves are the chief agents in secreting food for the young fruit. Melons, when properly managed, require little water, until the young fruit is fairly set, and as large as hen's eggs; the soil will then of course be getting very dry, and at that period it should have a thorough soaking of water of the temperature of 90°—if clear manure-water, so much the better. The red spider is a most formidable enemy, and is almost sure to appear. It is a good plan to wash the walls, or sides of the pits or frames, with any wash containing sulphur.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Continue to make new plantations of Strawberries; or if ground cannot be at present cleared nor labour spared for its preparation, the runners ought to be bedded out, without delay, in rich soil, and afterwards duly supplied with water. They should be planted in these nursing-beds in rows 6 inches apart, and at least 3 inches from plant to plant in the rows. Keen's Seedling, Old Pine, Myatt's British Queen, Eliza (not Keen's), Downton, Elton, and American Scarlet, are amongst the most esteemed varieties. The merits of the Downton should not be overlooked. If well grown, and allowed to become perfectly ripened, which it only is when nearly black, few varieties, if any, can compete with it. Where Gooseberries and Currants are required to be preserved till a late period on the plants, all superfluous shoots ought to be cleared away previously to netting or matting up. The red Warrington and small dark rough red are suitable varieties of Gooseberry for this purpose. *Kitchen Garden.*—Sow Vanack, Battersea, or Fulham Cabbages. A few of the Couve Tronchuda or Portugal Cabbage may be sown and protected in a frame during winter. The dwarf variety is the most delicate in quality. If aphides attack the Cabbage tribe, water with clear lime water, and stir the ground frequently. Sticks for Scarlet-runners, and for the climbing varieties of Kidney-beans, cannot be obtained in many cases, and in such, attention must be paid to topping, which has generally the effect of inducing abundant produce. Sow Endive. Reserve some of the pricked-out Celery for planting out next month, to come in late in spring; it should be kept protected when necessary in winter, but not blanched by earthing up till spring.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—The directions recommended previously as regards the summer growths of young forest trees must still be attended to, for experience has taught us that much after-trouble as well as expense will thereby be saved, independent of the gratification. Continue by all possible means to prepare for November planting. *Nursery.*—Laurels, Privet, Box, and most other evergreens may now be layered or propagated by cuttings; it is also a good time to prune evergreens.—*F.*

State of the Weather near London, for the week ending July 31, 1845, as observed at the Horticultural Garden, Chiswick.

July		Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	25	20	29.932	29.921	64	57	60.5	N E.	
Sat.	26	21	29.929	29.921	71	52	61.5	S E.	
Sun.	27	22	29.859	29.774	67	48	57.5	W	.07
Mon.	28	23	29.746	29.577	72	44	58 0	N W.	.05
Tues.	29	24	29.794	29.559	65	43	54.0	W.	
Wed.	30	25	29.799	29.477	64	45	54.5	S W.	.33
Thurs.	31	26	29.587	29 515	69	50	59.5	S.W.	.18
Average			29 806	29 697	67.4	48.4	57 9		.63

July 25—Foggy; uniform dusky haze; clear and fine at night
28—Foggy; overcast with dark and partly copper-coloured clouds; clear
27—Cloudy throughout; rain at night
28—Uniform haze; cloudy; partially overcast; rain
29—Fine, with light clouds; heavily clouded at noon; clear and cold at night
30—Clear and fine; densely clouded; constant heavy rain at night
31—Heavy showers, with sun at intervals, afternoon fine; clear at night.
Mean temperature of the week 5 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Aug. 9, 1845.

Aug.		Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun.	3	74.6	53 3	64.0	10	1.03 in.	2	2	1	1	2	7	3	1
Mon.	4	75.2	52.9	64.0	10	0 84	1	1	1	2	3	6	4	1
Tues.	5	73.3	53.4	63.4	8	0.53	—	2	2	1	2	6	5	3
Wed.	6	72.0	52.8	62.4	8	0.58	—	3	1	1	3	5	5	1
Thur.	7	73.9	51.1	62.5	6	0.57	—	3	2	—	4	10	1	—
Fri.	8	75.4	49.1	62.2	4	0.38	2	3	2	—	3	5	4	—
Sat.	9	77.3	51.8	64.6	5	1.06	1	3	1	—	5	5	4	—

The highest temperature during the above period occurred on the 9th, 1835—therm 89°; and the lowest on the 6th, 1833—therm. 36°.

Notices to Correspondents.

Books—*J J*—"Darwin's Journal" is a most interesting and instructive book; its price is very small, and its matter excellent and copious to overflowing. By all means buy it. We shall notice it very shortly.——*Florum Amator*—We know of no instructor. If you will *study*, 1, "School Botany," and, 2, "The Vegetable Kingdom," when it appears, you cannot well fail of mastering all the little difficulties attending the Natural System. Such books are intended to be studied; and then every succeeding step taken in the road to knowledge becomes longer than its predecessor. You may creep at first, and probably stumble, but *persevere*, and your steps will soon become strides. If you can attend the lectures of a competent person that would help you greatly.——*Constant Sub*—Any British Flora on the Natural System will give you the desired information. Lindley's "Synopsis," or Babington's "Manual," or Hooker's "British Flora," should be examined. Consult your pocket.

Chrysanthemums—*Amateur*—In order to obtain dwarf bushy plants of these, the strongest shoots should be stopped when they are about a foot high. The process should not, however, be continued after they are much farther advanced, as late stopping has a tendency to weaken the plant, and make the blossoms small and poor.‡

Climbers—*S H*—Procure the following six hardy greenhouse Climbers, viz: — Clematis azurea, and Sieboldi, Hardenbergia macrophylla, Brachysema latifolium, Jasminum odoratissimum, and Tecoma capensis.¶

Foresting—*A O*—Cut down your Horse-Chesnuts close to the ground next April. Watch the young shoots, single out the strongest, and destroy the remainder. Plant them out the succeeding year. Never prune them more than is necessary to give the leader a decided predominance in the general growth.

Glass—*J St. J*—We fear that your letter of July 9 has been unanswered. It has only just turned up, having been accidentally mislaid. You will, however, have already found the information you desire in a leading article of last week.

Hydrangeas—*Geo. Handley*—Your specimens are very remarkable, and we shall be glad to learn your mode of growing them.

Insects—*D M*—The insects upon the Raspberries are the larvæ and pupæ of the lady-birds, which are eminently useful in destroying the plant-lice. You will find their history in last year's *Chronicle*, p. 588. *R*——*Podov*—Your bee is the Megachile Willughbiella, which forms its nest of Rose-leaves; its economy was given in the *Gardeners' Chronicle*, vol. 2, p. 573. *R*——*Ruth*—The animal is Julus terrestris, whose history was published in the first vol. of the *Gardeners' Chronicle*, p. 196, and you will find additional information in the fifth vol. of the "Royal Agricult. Jour." There is no work that will answer your purpose. *R*——*A Constant Subscriber*—We cannot give you any information without seeing specimens of the Dolphins. *R*——*F B*—It appears to be the Coccus Hesperidum that infests your house, and is now producing its young. Can you wash the diseased parts with a decoction of Tobacco mixed with soup-suds and sulphur? if not, it is to be feared you will find no remedy. *R*.——*H T*—We are not surprised at your having killed the Cucumber leaves as well as the thrips, by using Laurel leaves bruised. What poisons an animal will poison a plant: even poisonous plants are killed by their own venom. It requires experience to learn how to apply such remedies as Laurel leaves. No doubt you kept the frames shut up much too long. The plants will probably recover.

Melons—*J Cuthill*—The Passingham green-fleshed Melon is a very nice little variety, with deep-green flesh, and very sweet. It is well worth cultivation.

Monsters—*A M*—Your Rose is lengthened into a branch in consequence of the leaves not having been converted into the floral organs, except at the outside. It is a good piece of morphological evidence, analogous to what is represented in the accompanying figure of a Pear. It frequently happens that the axis lengthens at the same time as the customary position and figure of the floral organs is disturbed.



Names of Plants—*A Gardener*—1, Agrostis spica-venti; 2, Bromus asper. §——*Amelia*—We cannot undertake to name florists' flowers.‡——*G R*—Ononis rotundifolia, a half-hardy plant. We are not aware that it is used as food for horses. It is best grown in a warm sheltered nook, among stones or rough materials. Sedum populifolium, not a native of England. ——*F W C*—Smilax aspera; a half-hardy scrambling shrub. Plant it on a south wall, where it may be roasted in summer and protected in winter, and it will flower.—— *Silex*—Campanula hederacea. ——*A B D*—Aerides odoratum. It is not very uncommon for Orchids to seed and produce seedlings in hot-houses. —— *J M K*—Ononis repens.

Oranges—*W M*—You may keep Orange-trees very well during winter in a house with a flat ceiling without glass in it, and only a front of upright sashes. They do not in fact want anything more than a hibernatory. Keep out the frost, and no more. We have no reason now to advise you to wait for glass, unless you will stop till next October twelvemonth, when ¾d. per pound will be taken off the import duties.

Pelargoniums—*Derbyshire*—Mr. Beck is out of town; when he returns we will see him about it.

Pines—*J P*—Throw away the gills of your imported Pines immediately. They are evidently the White Providence, and they probably swarm with insects enough to infect a dozen Pineries.

Roses—*An Amateur*—Consult Rivers's Catalogue, and be guided by that. The distinctions are so arbitrary that we are quite unable to explain them. Perpetual Roses flower both in summer and autumn.——*S H, &c.*—The following are six hardy climbing Roses of different colours:—Rose de Lisle, Boursault, Bougainville, Jaune Desprez, Ruga, and Blairii.¶

Seedlings—*J P*—We do not think your Alströmeria of any value.

The Vine—*Sub*—You will find a good paper on the pot-culture, by Mr. Spencer, Lord Lansdowne's gardener, at pp. 195, 212, and 228, vol. 1844.

To Preserve Flowers throughout the Winter—A *Leeds Correspondent* has sent us the following receipt, taken from some country paper:—"Pluck the flowers when half blown, and place them in a closely covered earthen vessel, dipping them, with the stalk downward, in equal quantities of water and verjuice, mixed with a small quantity of baysalt. The vessel must be kept closed and in a warm place; and then, if in the coldest day in winter, the flowers be taken out, washed in cold water, and held before a gentle fire, they will open as if in their usual bloom." We have no reason to suppose that such a method can possess any sort of advantage. Doubtless, if flowers are immersed in a fluid of this kind, or in acetic acid and water, or even in a saturated solution of salt, they may be preserved,—or rather pickled; and it is very possible that some flowers thus treated may, partially, open while drying before a fire. But what is the use of such a scheme? The flowers can have neither colour, smell, nor freshness.

Wasps—*Teifiside*—A rag dipped in spirits of turpentine, and introduced into the cavity, will kill every wasp; but, you must carefully close up all holes for ingress or egress.

Misc—*Querist*—If you can steep in a solution of corrosive sublimate the wickerwork and wood into which the grub enters, you will kill it. We do not approve of the plan of digging out the alleys between Asparagus-beds in autumn, and throwing the soil on the beds; it does expose to cold the roots at the side. The reason for the practice is, that such beds are warmed early in the spring, because their sides are more exposed to the sun. The stems which rise after the cutting has ceased for consumption, should never be removed till they die. *Good* Melons *cannot* be grown in England without bottom-heat. In January and February Cucumbers will not fruit without artificial assistance from man to set the blossoms.——*J C C*—Your question will be answered shortly*. ——*Cavanensis*—Many thanks for the yellow-berried Ivy.—— *G*—The paper on silkworms is longer than we expected: we will find some opportunity of inserting it; but we fear that we cannot do so just yet.——*Constant Sub*—None of your seeds are worth sowing except Grislea tomentosa, which is a stove plant; and Lagerstromia Reginæ, which is a hardy greenhouse shrub.——*G M*—Mr. Henderson, Pine-apple-place, Edgeware-road. No. You will soon receive a box.—— *J Mc L*—We can form no opinion of the disease which has attacked your Plane-trees. You, who are on the spot, can surely ascertain; it is clear that the roots are wrong.—— *J R B*—Marine-glue not being advertised, we regret to say that we are unable to give you the information which you request. What glass we have seen, at 5*d.* per foot, weighs 18 oz. to the foot; but we hear that it is not of uniform thickness. The lighter kinds are advertised at 3½*d.*——*D M*—A north-east aspect will do for the Wistaria sinensis, but it will not flower so well as on a better aspect. ‡——*Sub*—Among large Strawberries, Keen's Seedling is perhaps the earliest and best kind.‡——*Sub*—The best time of the year for cutting down Larch and Scotch Fir timber for building purposes, is between October and January.‡——*A Young Gardener*—Write to the agent who supplies you with the Paper.—— *A Constant Sub*—North Warnboro' Nursery, Odiham, Hants. ——One Shilling will be given for No. 4, 1843.

SEEDLING FLOWERS.

Calceolarias—*T J*—Both your seedlings are good spotted varieties—the outline a little too indented at the bottom. The spotting is very pretty on each.*——*Hortensis*—On examining your collection of seedlings, No. 3 is not to be found; and with the exception of 6, 11, and 14, we consider all the others worth growing. Those possessing the strongest marking are decidedly the best, and, having white grounds, with crimson markings, they will form desirable varieties with the prevailing yellow and brown sorts. 13 is showy, but the border is too dull.*——*Y Y*—A pretty variety, but not uncommon.*——*S S H*—653 wants clearness in the ground colour, and 573 is common; 521, 546, 553, and 654, are good varieties, distinct and pleasing in colour and marking.*

Gloxinias—*Veritas*—Your seedlings are no improvement on kinds already in cultivation.‡

Pansies—*An Amateur*—No. 1 is a well-formed flower, but it has the defect of possessing a deeper ground colour in the lip than in the side-petals; 2, flat and of good shape, defective in the eye, which is too striated; 3 is the best, but the lines from the eye mix rather too much with the border —a well-formed flower of good substance.*——*R D K*—No. 1 is a well-shaped flower, of good substance; it wants a little more clearness in the ground colour, but this may be accidental; 2 is the next in order of merit, but the form is not first-rate, and the edges to the petals are too serrated. The remainder of the seedlings are very inferior in character to the two mentioned, and we consider the first the only one worth preserving.*

Pelargoniums—*J H*—The upper petals of your seedling are too high, and the lower ones too long; it is good in substance, but bad in form; and the only thing remarkable is the divided spot in the lower petals.*——*J R*—No. 1 is a bright and pleasing flower, but possessing no novelty. No. 2 is similar in colour, but bad in form.*——*J T P*—Your seedlings are flowers of a second-rate character; they are generally deficient in form. No. 9 is rich in colour, and worth preserving on that account; 28, 40, and 79 are very common in colour, and not flowers of good form; 94, the white is very inferior to many of the old varieties; 80 has good under petals, but the upper part of the flower is very mottled and uncertain; and 84 appears to burn very much.*——*C W H*—Scipio is a handsome flower, colour and texture fine, the petals clean and well formed, the white centre shows to advantage, the rosy-pink terminations of the lower petals as well as the maroon top petals, which are bordered with crimson. The unnamed is a good variety also, with stout and broad petals; the lower petals appear to have a slight tinge of pink. They are handsome and desirable varieties, which we should like to see again, packed in a way as to show their mode of expanding.*——*J A*—Your seedling is not uncommon, there are several varieties somewhat similar to it of superior size and substance. Beauty of Kent is deficient in substance and common in colour, but a flower of good form.*——*W T M*—Your Champion is a bold, showy, but rather coarse variety; the centre of the flower wants clearness, the colour is common, and the strong veining in the lower petals is objectionable.* ——*X Y Z*—Your seedling is an improvement upon many of the same rosy-purple colour; it is not a first-rate flower, but a bright and pretty variety.*——*An Old Sub*—Your seedling is a very peculiar one; the lower petals are of the most beautiful pink colour—broad and well formed, with perfectly smooth edges, fine in texture, but wanting in substance; the colour in the top petals is too mottled—this appearance is in part to be attributed to the petals having been bruised in the letter, as the lower ones had suffered from the same cause. We should like to see it again.*

Petunias—*S O*—Of your whitest varieties, with dark centres, 2, 6, 8, 10, and 11, No. 10 is the best; it opens well, is better formed, and devoid of the green stain apparent in the others, which are very similar, one to the other. Nos. 4 and 7, similar, but with a little more colour; 4 is the better flower. Nos. 5, 9, 16, 17, possess a little of the crimson-purple colour, with dark veined throats; these are also too much alike; 17 is the best. Nos. 1, 3, 15, deep crimson varieties, bearing a very strong resemblance to each other, 3 being the best. Most of these seedlings have a common appearance, and differ but little from those generally raised from seed; judging from the collections we have seen, 10, 17, and 3 are the only sorts worth preserving.*——*J W*—Your seedling is a very large but a very coarse flower, and not uncommon in colour.*——*J M H*—Nos. 1, 5, and 3 are the best varieties among your seedlings; the colours are distinct and good, but they do not possess any novelty.*

Picotees and Carnations—*Nemo*—Your seedling is very sweet-scented, but it is no more than a border flower.*

Potentilla—*J M*—Your seedling Potentilla is large and very showy in colour, shaded yellow and orange-brown.*

Erratum—In Mr. Brett's advertisement of the Hare Rabbit in the first page of last week's Number, *for* "Market Gardener, Yarmouth," *read* "Market-place, Great Yarmouth."

SEED-WHEAT.—Any one desirous of purchasing Seed for next season is invited to inspect the two varieties of WHITE WHEAT—MORTON'S RED-STRAW WHITE and SHIRREFF'S HOPETOUN, 120 acres of which are now growing on WHITFIELD FARM, WOTTON-UNDER-EDGE, GLOUCESTERSHIRE.

The present is, obviously, the only season of the year when the value of any variety of Wheat *as seed* can be ascertained by inspection: the examination of a mere sample of the grain, which can be inspected at any time, is manifestly uninstructive as to the productiveness or habit of growth of the variety to which it belongs. These points, which are of the highest importance to the Farmer, can be ascertained only by an examination of the plant when in full ear.

The Agricultural Gazette.

SATURDAY, AUGUST 2, 1845.

MEETINGS FOR THE FOLLOWING WEEK.
Wednesday, Aug. 6—Agricultural Society of England.
Thursday, Aug. 7—Agricultural Imp. Soc. of Ireland.
Week ending Aug. 7—Yorkshire Agricultural Society at Beverley.

THE OUTHOUSES OF A FARM are those buildings in which the farmer stores and prepares his crops, rears and feeds his live stock, and houses his working cattle and implements. On their arrangement in regard to each other, as well as on the adaptation of each to its separate purpose, much of the farmer's profit necessarily depends. It is to the first of these considerations, the disposition of the several parts in relation to each other, that we shall now direct our attention.

The leading object to be aimed at in the arrangement of the outhouses of a farm is economy of time and labour in the performance of those operations which are to take place within them. The first principle by which we must be guided in an endeavour to effect this object is, the self-evident one, that there must be an immediate connection between those buildings in a homestead whose usefulness depends upon each other. In carrying out this principle, we shall find that the position of the barn governs, in a great degree, that of the other buildings; for the straw-barn being the great storehouse of forage and litter, from which the stables, feeding-houses, and sheds and yards receive their supply, it is necessary that these be situated as near to it as possible, and those nearest, to which the greatest and most frequent supplies have to be conveyed. Again, the straw-house is an appendage to the barn where the corn is threshed—there is a necessary connection here also. To the corn-barn also must be attached the building which contains the motive power to drive its machinery; and it is a convenient arrangement to have the granary too in immediate connection with the corn and dressing-barns. Further, the house where food is consumed should be in connection with, or at least not far removed from, the house in which it is prepared, and this again should be contiguous to the places where the food is stored. Lastly, that the cleaning out of the houses may not consume unnecessary time, the place where the manure is deposited should be near to them, and of ready access.

It should be always borne in mind that it is more important to save time in comparatively insignificant operations, if they be of frequent occurrence, than in larger matters which are not often repeated. Thus, if the separation require to be made, it is better to have the house where food is prepared, and whence small quantities are taken several times each day, close to the place where food is consumed, than to have it near the storehouse from which the supply requires to be carried only once.

The second principle of arrangement which should guide us, although subordinate, is yet of great importance; it is to classify and arrange together the buildings used for like purposes. An attention to this greatly facilitates the labours of the homestead. Thus, the houses and yards for particular descriptions of stock should be placed together; the working cattle should be kept by themselves; the cows of the domestic dairy should be kept apart from the feeding stock; the pigs and the poultry should have their proper locality. It is of great assistance to this classified arrangement to have a working-court or yard, round which are assembled, in their proper places, the apartments for storing and preparing food, the sheds where the wheel-carriages of the farm are stored, the houses where the tools and smaller implements are kept, those in which the blacksmith and the carpenter work, and the others used occasionally for various purposes. And, in addition to this, it is important to place the highest buildings so as to afford shelter from the prevailing winds, and yet not to intercept the rays of the sun from the other buildings and the yards. In many situations it is desirable that the whole of the outhouses should be so arranged as to have one common entrance, which can be closed for security every night. This is especially necessary near towns.

It may be proper to remark that all the road should be wide enough to allow a cart and horse to be turned on them; and that it is well that the yards should be so arranged as to allow of a cart being driven through them, which is much better than backing the horse.

So far, then, for the principles of arrangement of the buildings relative to each other. The next topic which demands our attention is the form which the collected buildings should assume, and this involves the consideration of aspect.

Under the idea of compactness, outhouses used generally to be arranged in the form of a square, with a central yard into which the litter was thrown; and here, uncheered by a ray of sunshine, wading in a pool of rain-water from the roofs of the buildings, and of liquid manure from the houses, the farming stock was suffered to languish. Professor Low, of Edinburgh, first showed the absurdity of this system, and pointed out the advantages to be derived by the stock from the admission of sunshine and air to their yards. He showed that these benefits could be best obtained by the form which also ensured other advantages;—a long parallelogram. The Professor's principles of arrangement have been extensively adopted in modern homesteads, and have been advocated in almost every publication on agricultural matters, although very seldom with the acknowledgment of the source whence they were derived.

The best form that the farm outhouses can assume—that which combines the greatest advantages—is a long parrallelogram, with its diagonal nearly on a line from north to south. The prevailing and severest winds being from the west and west by north, the greatest possible amount of sunshine, and the best shelter may be obtained by having the sheds for the cattle and their yards open to the south and east. There are cases, however, in which this rule will not obtain, and these must be dealt with according to circumstances.

The buildings should be placed, if possible, on a gently rising surface. If, where water-power exists, such a situation can be found, it is well to take advantage of it. But if to secure such power it is necessary to place the buildings where light, warmth, ventilation, and drainage, cannot be obtained in perfection, then the water-power ought to be sacrificed to these more important benefits. The position of the homestead is often determined by existing roads and divisions of the farm, irrespective of the eligibility of the situation in itself. This is an absurd practice, and cannot be too severely reprehended.

Among other matters demanding our attention in this preliminary notice are the means for preserving the liquid manure made in the steading. The attainment of this important point is greatly assisted by the classification of the buildings before spoken of. Under-ground drains should be carried from the cowhouses, feeding-houses, and pigsties, to one or more tanks. The tanks may be of two kinds; they may be adapted for making compost, in which case they should be in the form of a rectangular basin sloping inwards from the ends to its deepest point in the centre of its length, so that a cart may be driven through when the compost is carried out; and this, or something similar to it, as we mentioned last week (p. 522), is probably the most economical mode of using the liquid manure on a farm. Or the tanks may be in the form of a well, square, rectangular, or circular in the horizontal section, and arched or domed over. In this case the tank is used to contain the manure in its liquid state, and should by puddling, and the use of cement, be made perfectly water-tight. It must have a man-hole in the arch or dome, and another opening by which a pump may be inserted, or in which it may be permanently fixed. The drains before entering this latter kind of tank should terminate in a cesspool in which the liquid manure may deposit any sedimentary matter which would obstruct the working of the pump if deposited in the tank.

The eaves of all the buildings should be furnished with gutters, and the rain-water collected by them conveyed to underground drains by cast-iron pipes. The drainage of the site has already been spoken of as an essential requisite. It should be thoroughly done. In too many instances remedies are applied to the foundations of buildings, to prevent dampness from ascending, while the only true remedy is, by draining thoroughly, to remove the cause. As drains very often harbour vermin, cesspools should be constructed in them, at proper places, without the buildings, which will effectually bar their progress.

On reviewing the principles here recommended to be observed in the collocation of the outhouses of a farm, it will be seen that their application in practice must be attended with no little difficulty. Slight variations in management, to suit the soil, and other peculiarities of the farm; the nature of the power to be employed in threshing, &c.; the requisite arrangements for shelter in exposed situations, when such situations cannot be avoided; and the nature of the ground on the site of the buildings, all tend to embarrass and prevent the application, in any single case, of all these principles in their integrity. The judicious designer knows in such cases what to forego, and what to secure; and endeavours, when a sacrifice has to be made, so to arrange, that all the more important principles may be preserved, and carried out.

Before concluding these remarks it may not be amiss, in a sentence or two, to consider the *appearance* of outhouses, arranged on the principles here advocated. Premising then, that we consider any attempt to mask or disguise the character of a building, as indicative of what, in ordinary language, is called bad taste; and that the expression of character and fitness, on the contrary, is in correct taste, we shall find that this expression of character and fitness in these buildings, can easily be obtained; in many cases the whole steading can be arranged symmetrically; and where this is not attainable, the extended lines of building, the archways, the varying outline caused by the different heights of the houses, and the numerous gables, harmonising with that of the stacks in the barn-yard, never fail to give piquancy and picturesqueness. There ought to be no mock windows, mock doors, or arches; no false gables; let everything be real, and expressive of its use; and trust to that expression, as the best aesthetic principle of design in such erections.—*N.*

SAVING OF FLAX SEED.

As the season approaches for pulling the Flax crop, the committee of the Flax Improvement Society would earnestly urge the farmers to save all the seed, and not let it go to waste in the Flax pools, as used to be the case. The experience of the last five years establishes the fact, that the seed of the Flax crop may be saved, by rippling, without the slightest injury to the fibre, if the operation be carefully performed; and an additional value of 3*l.* to 4*l.* the acre thus secured. The difficulty of obtaining good, genuine, foreign Flax-seed, for sowing, last spring, and the frauds committed by the retailers, have caused the society to turn its attention to the best mode of obviating such frauds, and to recommend, as one of the best means, that farmers should reserve a portion of their present crop, for sowing next season. They have the less hesitation in recommending this plan, as the home-saved seed of last year, which was extensively sown in spring, has produced the finest crops. By adopting this course, the farmer will be able to protect himself against the imposition. But it must be understood, that it is only the seed saved from Flax grown from Riga Flax-seed that should be sown; as, if that saved in the next, or any subsequent year, from the home-saved seed, be sown, the crop deteriorates. It is, therefore, better to renew again, with fresh Riga seed. The following system is the best for saving the seed intended for sowing:—Let the portion of the crop intended for seed stand until the stems have turned of a yellow colour, and the seed of a bright brown.—As soon as pulled, the Flax is stooked, without binding it. The handfuls are set up, resting against each other, the root ends spread out, and the top ends joining like the letter A, forming stooks about 8 feet long, and a short strap keeping the ends firm. In this way it will resist wind and rain well, and dry fast. In six or eight days it may be stacked in the field; the seed to be taken off at leisure, in winter; the Flax to be steeped the following May—a system which possesses the advantages of affording the farmer the best season of the year for steeping and grassing, and a time of comparative leisure, when his attention is not called off to the harvesting of other important crops. This secures the finest quality of seed; and, if the Flax happen to turn out coarse under this treatment (which is not, however, of necessity, the case), the farmer will be amply compensated by the saving effected in the purchase of seed. For feeding cattle, or selling for crushing, the following is the system recommended:—The rippling should be carried on at the same time, and in the same field, with the pulling. If the only advantage to be derived from rippling was the comparative ease with which rippled Flax is handled, the practice ought always to be adopted. But besides this, the seed is a most valuable part of the crop, being worth, if sold for the oil-mill, 3*l.* per acre; and if used for feeding stock, of all kinds, at least 4*l.* per acre. The apparatus is very simple. The ripple consists of a row of iron-teeth screwed into a block of wood. This can be procured in Belfast, or may be made by any handy blacksmith.* It is to be taken to the field, where the Flax is being pulled, and screwed down to the centre of a nine feet plank, resting on two stools. The ripplers may either stand, or sit astride at opposite ends. They should be at such a distance rfom the comb, as to permit of their striking it properly and alternately. A winnowing sheet must be placed under them, to receive the bolls as they are rippled off; and then they are ready to receive the Flax just pulled—the handfuls being placed diagonally, and bound up in a

* The best ripples are made of half inch square rods of iron, placed with the angles of iron next the ripples, three-sixteenths of an inch asunder at the bottom, half an inch at the top, and 18 inches long, to allow a sufficient spring, and save much breaking of Flax.

sheaf. The sheaf is laid down at the right hand of the rippler and untied. He takes a handful with one hand, about six inches from the root, and a little nearer the top with the other. He spreads the top of the handful like a fan, draws the one-half of it through the comb, and the other half past the side; and by a half turn of the wrist, the same operation is repeated with the rest of the bunch. Thus the Flax can be rippled without being passed more than once through the comb. He then lays the handfuls down at his left side, each handful crossing the other, when the sheaf should be carefully tied up and removed. The object in crossing the handfuls so carefully, after rippling, when tying up the beets for the steep, is that they may part freely from each other, when they are taken to spread out on the Grass, and not interlock, and be put out of their even order, as would otherwise be the case. If the weather be dry, the bolls should be kept in the field, spread on winnow-cloths, or other contrivance for drying; and, if turned, from time to time, they will win. Passing the bolls first through a coarse riddle, and afterwards through fanners, to remove straws and leaves, will facilitate the drying. If the weather is moist, they should be taken in-doors, and spread out thinly and evenly on a barn-floor, or in a loft, leaving windows and doors open, to allow a thorough current of air, and turned twice a day. When nearly dry they may be taken to a corn-kiln (taking care not to raise it above summer-heat), and carefully turned, until no moisture remains. By the above plan of slow drying, the seed has time to imbibe all the juices that remain in the husk, and become perfectly ripe. If it be taken at once from the field, and dried hurriedly on the kiln, these juices will be burned up, and the seed will become shrivelled and parched, little nutritious matter remaining. In fine seasons, the bolls should always be dried in the open air, the seed threshed out, and the heaviest and plumpest used for sowing or crushing. The light seeds and chaff form most wholesome and nutritious feeding for cattle. Flax ought not to be allowed to stand in the field, if possible, even the second day; and it should be rippled as soon as pulled, and carried to the water, as soon as possible, that it may not harden. The Society has waited the result of the trials which have been made of home-saved seed, before they recommend it, which they can now confidently do. This practice has been always the custom in Belgium and Holland, where their own saving from foreign seed is sown the first year, and a fresh import from Russia brought in for the following crop. Rippling combs may be had in Belfast; and information concerning which will be given, on application to James MacAdam, Jun., Secretary to the Flax Society.—*Dublin Farmers' Gazette.*

LOLIUM ITALICUM :—(Italian Rye Grass).

Much, and deservedly, as this Grass is esteemed where it has been cultivated, it may, perhaps, prove useful to some of your agricultural friends, and induce many who have not yet tried it to take an early opportunity of doing so, if you will publish a statement of the advantages I have derived and expect from its growth on a small scale under the following circumstances :—

In September last, upon an acre of good loam, previously well drained and deeply ploughed, I sowed 4 bushels of seed. It vegetated quickly and grew so fast that, considering it too thick to stand over the winter without injury from snow, I depastured it with sheep before Christmas. In February it was splendid keep for ewes and lambs; but having so little of it, as fast as the latter were dropt, they were, with the ewes, turned upon it, each for a few days only, to give them a start before passing them on to the other keep, and in this way it was fed down close by a small flock of ewes with their couples. The liquid manure cart then conveyed upon it a good dressing from the urine tank of the cow-sheds and stable. In April it was mown and consumed in the stalls day by day as long as it lasted, the liquid manure cart being freely used, as fast as a sufficient breadth was cut for it to work upon, and I firmly believe I had considerably more than 2 tons to the acre. In the last week of June and the first in July, a second and equally good crop was cut and consumed as before, followed in the same way by a dressing of liquid manure.

It is at this moment looking very luxuriant, but having no further occasion for it in my stalls, I purpose cutting it next time for its seed, and confidently expect to be enabled to do so by the end of August, and (from a little experience I have had this week upon another and very inferior piece of land) doubt not of obtaining at least 40 bushels of seed (now worth, I believe, 9*s.* or 10*s.* a bushel); after which I shall give it another taste of liquid manure, and confidently look forward to a good bite, if not another cutting, by the end of October or beginning of November, thus obtaining, in all probability, something very like five crops within the twelve months, four of which may fairly be regarded as full crops. Those already had could I think hardly be surpassed for luxuriance.

The several applications of liquid manure were with ease pumped by a stout lad, and with one horse conveyed to the ground and applied through a trough placed behind the carriage, each time in little more than half an hour; and I will venture to say that where, as in the present instance, land is near the steading, an acre may be dressed well with ease in less than 4 hours.

Four bushels of seed I am aware is more than usually sown, but the result has proved that under such severe cropping it was not too much, for the plant on the ground is, I consider, perceptibly thinner; but I have no doubt of amply replenishing this at the next cutting by the quantity of seed that will unavoidably be shed in harvesting it. After this I intend to harrow slightly, and manure the whole at one time with urine as before. If one were justified in entering into a calculation of the value of the obtained and expected crops, I consider it may fairly be set down thus :—

Dr.	£	*s.*	*d.*
Ploughing twice, 1 acre	1	0	0
4 bushels of seed, at 9*s.*	1	16	0
Sowing and harrowing	0	4	0
4 dressings of liquid manure, too often regarded as of no value—say	1	0	0
Cutting twice for forage	0	5	0
Once for seed	0	2	6
Threshing, riddling, &c.	0	10	0
Rent, tithe, taxes, &c.	3	0	0
	£7	17	6

Cr.	£	*s.*	*d.*
Value of feed at Christmas, 1844	1	0	0
First cutting, call it 2 tons of fodder, green, or 1½ as hay, at only 4*l.* a ton (worth this year 6*l.*)	6	0	0
Ditto, second cutting	6	0	0
Third cutting, say only 40 bushels of seed, at 9*s.*	18	0	0
1½ ton (deducting weight of seed) of fodder ..	5	0	0
Value of bite in October or November,* say	1	0	0
	37	0	0
	7	17	6
Profit per acre ..	29	2	6

* Worth considerably more if it should grow to cut for the stalls.

The above happened to be the more convenient method for my purpose, and therefore was pursued; but I conceive it is by no means the most profitable, inasmuch as in an ordinary season, with liberal assistance, an early feed may be obtained in spring; two cuttings for seed during the summer months, and mown or depastured in autumn, thus increasing its value from 8*l.* to 10*l.* per acre.

It may possibly be said "Oh, but four manurings in 12 months is a deuce of a dressing." One moment's dispassionate reflection, will, however, show that all these were easily and inexpensively obtained, that they were derived from a source by too many farmers thrown away as valueless, that they can be applied at less than a fourth of the value and expense of one ordinary application of solid dung, and with equal, if not better effect; if it were possible to prevail on them to save their liquid manure with the same degree of care they often bestow on trifles about a farm, in themselves of much less value, and instead of allowing it to pollute their own or neighbour's ponds, which is rendered the more inexcusable when a liquid manure pit may in all, or most situations, be made for less than 30*s.*

I am very sorry to say that I know an instance, between 5 and 6 miles only north-west of the "faithful city," where lamentable pains and expense appear to have been taken by an otherwise exemplary farmer (or his landlord) to get rid of this valuable auxiliary, by turning it into a wide ditch close by the turnpike-road side, deep enough to smother at least a hundred of her Majesty's honest peasantry at once; aye, and where, too, sundry statutable permissions (I will not say encouragements) "to be drunk on the premises" abound, so that but for the grim visage of that feudal ornament, a pair of stocks, and the good example and care of the rural authorities, there would be more or less danger of such an untoward event taking place.—*T. F., Ham-hill, near Worcester.*

DRAINING, A PERMANENT IMPROVEMENT.

The following are extracts from the evidence on this subject given by Mr. Parkes, consulting engineer to the English Agricultural Society, before the Lords' committee, on the charging entailed estates with the expense of the operation :—

"Have you had much experience in draining wet moor land?—I have done more in bog draining than any other sort; in the perfect bog, with wet peat drains, not with pipes. I should use pipes now in draining bogs; but at that time they were not invented. I should insert the end of one pipe within another, or use a short piece as a cover-joint, which is better than a socket-pipe. There are simple ways of doing without any sockets; in fact, enabling us to use the simple pipe-tile without any apparatus of any other description for joints, or anything of the sort. Mr. Taylor, of Mereworth, Kent, informs me he has drained some very boggy soil, and that he had to pass through several yards at a time of perfectly soft stuff. He did what I think was most sensible; he rammed surface sods to the bottom till he made it firm, and laid his pipes on that firm bottom, and covered them with sods, also well rammed. He says they are as good at this day as when he did it. There are other simple and cheap modes of making a firm bottom.

"Would not that firm sod soon rot?—No, I think not. They are uncommonly durable. I have seen peat drains 100 years old as good as the day they were formed. Mr. Taylor will also state that in part of his drainage he had to pass through a soil which gave out a good deal of ferruginous matter, and in such quantities that it would very quickly fill the ditch in which his outfall was. He laid inch pipes in that soil. The water is continually running, and the drains have never filled up. The pipes always remain open, by reason of the volume and velocity of the run. There are springs in that soil.—It is sometimes difficult in lands reclaimed from the sea to practise deep drainage for want of fall; but there is a way of doing that in many situations, and at a moderate expense. This is to dig a well, and the water will generally be found to be standing lower in that well than is required for draining. Mr. Outhwaite, a good farmer in Yorkshire, had no fall at all for nearly 60 acres of land. He was draining, and he has dug what are commonly called swallow holes or wells. He could only get a fall by that means, without flooding other fields, and he has conducted the water of 60 acres into six of these swallow holes. They are wells varying from 6 to 15 feet deep, according to the strata; they are walled with plain rubble stone, and filled with broken stones, or any common stone from off the land. The carriers from his parallel drains are conducted into these wells, which swallow all the water, by which means he is enabled to get the three feet drainage. It was a very judicious and economical operation. The swallow hole or well absorbs the water as fast as it can come.

"What is the diameter of it?—I think about 6 feet. They cost very little money; from 30*s.* to 2*l.* each, perhaps, or less. In Hertfordshire, near King's Langley, Nature has given the farmers natural swallow holes. There is a great deal of clay land there having but little fall. Some of the farmers have drained these clays by conducting their carrying drains a considerable distance into these natural swallow holes, which communicate with the fissures of the chalk rock below, and away goes all the water.

"Does the water flow off out of the swallow holes?—Yes; it goes into the earth. As a professional man, and in order to obtain the advantage of 3 feet or deeper drains, rather than put up with shallow drains, I should sound all about a property, of any magnitude until I found places where I could lose my water, for that is the meaning of the phrase 'swallow hole.'

"I believe you are of opinion that it is easier to drain sound clay than anything else?—There is a species of soil which I think much more difficult to drain than clay, but it occurs rarely. I refer to a particular kind of loam which does not crack in drying like the purer clays. It is used by the ironfounders to make the cores of castings and the interior of cylinders. These loam cores are baked very hard in an oven with a fire, but they never crack. If they cracked we could not use that material for the purpose. I have noticed a few pieces of land since my attention was particularly called to the properties of soil which are certainly very obstinate in their determination to retain water, and it has occurred to me that the reason for their not bleeding is, that they approach in their nature to this species of loam, and instead of cracking by the action of the sun and air, that they subside *en masse* when the water is evaporated from them. I imagine that the whole mass of the soil in a field swells upwards when receiving water, and settles bodily downwards on drying, that it does not contract horizontally, and exhibit cracks and fissures, like the mud of a drained pond on exposure to the atmosphere, for which reason rain water would not reach the drains so rapidly. I would state this rather as a theoretic notion than as a proved fact; but it is well known that the aluminous earths vary very much in their contractile powers in drying. I did think that a field of Mr. Pusey's was of that order, but the drought of last year has proved that it is actually cracked. He has some land of horribly tenacious clay, upon which you cannot walk without getting masses of it on your feet like snowballs. There was certainly very little water running from the drains formed in this land when I saw it the year before last, and he was very doubtful whether it could be drained, and still more doubtful whether the small pipes would effect that object. I said to him, 'I think if you let it lie bare for a whole summer, let there be no herbage on it, and let the sun blaze on the surface, it must inevitably crack it, and then it will bleed.' Last year's drought effected the object without having recourse to this expedient. Mr. Pusey has informed me that the moment the autumnal rains came the older drains in this field ran, and a new small pipe tile drain he had laid in it, as well as any drains could possibly do, which shows that the cracks had gone down to the very bottom of the drains.

"It had been drained, but the drains had not acted?—Yes.

"At what depth?—He had drained it about 26 inches, I think; but since last autumn he has laid another drain with inch pipes in the same quality of soil 3 feet deep, and that instantly began to run, for the effect of the drought of last year apparently has continued up to the present moment, and the cracks have not had time yet to close altogether.

(To be continued.)

Home Correspondence.

Flax Culture.—I have occupied a little of my time, and a considerable space in the columns of your journal, for the purpose of making good my arguments in favour of Flax culture, and in hope of doing away with the unfavourable impression of it on the minds of the agriculturists which your remarks, and those of Mr. Sproule, on my first letter, were calculated to have produced. I must call attention to the evidence which the latter gentleman has elsewhere given on the subject :—Mr. Sproule says in his essay, p. 7, "Another important circumstance connected with this subject should not be lost sight of by the Flax-growers. The depression so severely felt for several years past has chiefly affected the inferior qualities of Flax; and when a superior article was brought into the market, it invariably brought remunerating prices. A large proportion of the article brought into the markets has for many years not realised more than from 37*s.* to 40*s.* per cwt., which even in the case of the heaviest crops, could not by any means remunerate the farmer; but it is to be observed that at the same time samples of good quality brought 80*s.* and

upwards. Indeed so great is the difference in price between superior and inferior samples of Flax, that even at the present time the former will fetch 7*l.* per cwt.; while the average price does not nearly approach half that sum. Here, then, is a splendid field for exertion. If the return from the growth of Flax can be doubled, without devoting another acre to its cultivation, what an increase would thereby be made to the resources of the country. That an approximation to this is capable of being effected, no reasonable doubts can now be entertained. The seed itself is a most important consideration with the foreign grower, though almost entirely neglected in this country; so important, in fact, that more is returned by the seed alone, under proper management, than the Irish farmer often obtains for his entire crop." He next goes on to say—"that the soil and climate of Ireland answers, the superiority of the samples occasionally produced (in cases where a proper course of management had been adopted), is a proof. To this circumstance it is that we are indebted for the establishment of the Flax Improvement Society, in one of the resolutions of which we find it expressly declared that ignorance of a proper system in the management of the Flax crop in this country, is alone the cause of its inferiority to the produce of the Continent; that this is now established beyond a doubt, and that by the introduction of those right principles that are wanting, our farmers may share the benefits at present possessed exclusively by the more skilful cultivators of France, Belgium, and Holland." Now it will be recollected, I quoted 10*s.* per stone, or 4*l.* per cwt. for good middle quality, and Mr. S. condemned me for doing so. What then must those who read his letter in answer to mine think of it now, when they find that he had then a pamphlet for sale dated at Dublin, 1844, which represents in as strong terms as my letter the advantage of Flax-culture, and that there is "a splendid field for exertion," because of the difference between superior and inferior quality, as the prices range from 37*s.* to 140*s.* per cwt. It is evident according to his (Mr. S.'s) own showing, that my quotation of 4*l.* per cwt. was not above the middle price; but he finishes his letter by declaring that my letter was erroneous, and that 15*l.* per acre profit would be a high average, and more than could be realised. I must therefore quote another paragraph from his essay. At p. 29 he says, "the produce of Flax, even under the best system of management, will of course vary according to the soil, season, and many other particulars. In those parts of the Continent where its culture is so well understood, it is esteemed their golden crop, and regarded as superior to any other on the farm. The ordinary produce there is from 20*l.* to 30*l.* an acre independent of the seed, which is worth 5*l.* or 6*l.* more. The seed alone, which has hitherto been entirely neglected in this country, may at a low calculation be assumed to repay the cost of the seed sown, with all other charges attending the cultivation and manufacture of the crop, leaving the fibre altogether as net proceeds. Here, then, is a splendid field for exertion, and our farmers may take shame to themselves if they rest satisfied with their former returns. There need not be the slightest fear of the supply exceeding the demand; for, however great exertions may be made for the extension of the culture of Flax, it will be many years before our spinners can obtain a sufficient supply in the home market." I beg of those who have read Mr. Sproule's letter in your journal of February to compare it with this statement taken from his own essay. He found great fault with me, for what he termed "the unpardonable omission of the seed." He valued it then only "at 4*l.* 10*s.* per acre," although in his essay he values it at 5*l.* or 6*l.*, and then he adds, "it is sufficient to pay the seed sown, with all other expenses attending the crop, leaving the fibre as net proceeds." Now, if we believe the latter statement, that the seed will pay all charges on growing an acre of Flax, we must believe it worth 9*l.* or 10*l.*; for with rent, seed, and other expenses incurred, an acre cannot be produced at less expense than 9*l.* or 10*l.*; therefore, Mr. Sproule's essay proves that from 20*l.* to 30*l.* per acre net profit can be made, although he condemned my statement of 20*l.* per acre profit, by representing that 15*l.* was a larger sum, or average, than farmers could calculate on obtaining. Having now, as I conceive, justified my former statements on this subject, I beg to call the attention of landlords and agriculturists to the proceedings of a monthly meeting of the Belfast Flax Improvement Society, particulars of which I have received from their Secretary, James Mac Adam Esq. a copy of which I observe is to be found in your *Gazette* of Saturday, page 481. It corroborates my former statements, when I said, that the English and Scotch Flax-spinners, who are a very wealthy and influential body, are certain to contribute liberally towards the formation of a Society in this country similar to the Belfast Flax Improvement Society, provided the landlords and farmers can be brought to see (as the Irish landlords and farmers do) the great benefit derived from Flax-culture; and as the British farmers are a calculating class, and far from following the example of our railway speculators in their business movements, it is to be hoped that English and Scotch landowners will consult and join with British spinners in promoting a society calculated to instruct the farmers of this country in the cultivation of the plant, as it cannot be denied that it will be a national benefit, and if the matter be taken up by landlords and farmers with the same spirit and determination as their brethren in Ireland have done, it is evident from what has appeared in your Paper last week, they may calculate on the undivided support of the Flax-spinners of Britain.—*J. H. Dickson*, 6, *De Beauvoir-square, London.*

Curing Bacon.—A correspondent asks for information on this subject. I think it is generally admitted that York bacon is equal to any; I will, therefore, give your correspondent my plan. After being killed it is allowed to hang 24 hours previous to being cut up; I then rub 1 lb. of saltpetre on a 20 stone pig (of 14 lbs. to the stone), and 1½ or 2 stones of common salt, taking care that it is well rubbed in; it is then laid in a tub kept for the purpose. After having laid a fortnight it is turned over, and a little more salt applied—say half a stone; it then remains a fortnight longer in the pickle-tub; it is then taken and hung up in the kitchen, where it remains two months to dry, but should the winter be far advanced, and dry weather set in, a shorter period might suffice; after being taken from the top of the kitchen, the inside is washed over with quicklime and water to preserve it from the fly; it is then removed into a room not used by the family away from heat, and where it will be kept perfectly dry, and is ready for use at pleasure. The smoking system is not adopted in York, at all events not in that part from which I write. The plan I have given you never fails, if done with care; the saltpetre and salt should be of the best quality, for upon those articles depend your success in producing a good article for the table. —*A Subscriber, Banks of the Deam.* P.S. The white-wash not only preserves it from the fly, but also prevents it from being rancid so soon as it would otherwise be.

Curing of Bacon.—Presuming your hogs were of the half Sussex and half Berkshire breed, and were from seven to nine months old when you commenced fattening them—that each has eaten from 6 to 10 bushels of Potatoes, and from 8 to 10 bushels of meal, we will conclude they are fit for the knife. By all means choose a dry day, when the wind is blowing from the north, and kill the hog early in the morning (it having fasted the day before). When dressed hang him up in some airy place for 24 hours, then proceed to cut him up. This being done, lay the flitches on the ground, and sprinkle them with salt lightly, so let them remain for six or eight hours; then turn them up edge-ways, and let the brine run off. In the mean time take 2 or 3 gallons of best salt, and 2 ounces of saltpetre, pounded very fine, and well mixed together; and the salting bench being made of the best seasoned Oak proceed to salt the flitches by rubbing in the salt on the backside of the flitch. This being done, turn the inside upwards, and lay on the salt about a quarter of an inch in thickness: in like manner treat every flitch. On the third day afterwards change the flitches, viz., take off the uppermost and reverse them, at the same time lay on salt a quarter of an inch in thickness. There will be no need of rubbing as before mentioned, neither should the saltpetre be repeated, otherwise the lean of the bacon will be hard. The changing and salting should be done every third day for six successive times, when the bacon will be sufficiently salt. Then proceed to rub off all the stale briny salt, and lay on each flitch a covering of clean fresh bran or sawdust, and take it to the drying loft. It should be there hung by means of crooks fastened in the neck of the flitch, and remain for 14 or 16 days. The fuel most proper for drying bacon is cleft Oak or Ash, what is commonly called cord wood.—*W. P.* [This is the way in which the finest Hampshire bacon is cured].

Curing Bacon.—Observing in the last *Chronicle* an inquiry on this subject, I beg to state that I have been accustomed to cure bacon for home consumption for many years, and if the following method be strictly followed, provided the hogs have been well fed, I will warrant the produce to give satisfaction. As soon as the flitches are cut from the hog, lay them on a form or table in a slanting position, and supposing the whole hog to have weighed 12 or 14 score, take ¾lb. saltpetre, pounded very fine, and sprinkle it all over the flitches, rubbing it well into the shoulder parts especially; let them remain 12 hours, when they should be rubbed dry, and in the meantime mix 7lbs. of salt with 1½lb. of coarse brown sugar, put it into a frying-pan, heat it on a clear fire, stirring it well that it may all be of the same temperature. The mixture, as hot as the hand can possibly bear it, is now rubbed well into the flitches, which are put one upon the other and laid into a salting-pan or other contrivance, in order that the brine may form and be kept from waste. The bacon must be kept in this situation four weeks, turning it and basting it well with the brine twice or thrice a week. At the expiration of this time, take the bacon from the brine, hang it up to dry, and smoke it, if preferred, which in the absence of a regular smokehouse, may be done as follows:—Hang up the bacon in a chimney or other orifice, then underneath put down a layer of dry straw, upon this a layer of mixed shavings, keeping out those from deal or fir, next a good layer of sawdust and some Juniper berries, or branches where procurable, and over all a mantle of wet straw or litter, which makes the fire give out much smoke without burning away too rapidly. This smoking must be repeated three or four times, or till the bacon appears thoroughly dry, when it may be hung up in the kitchen, or any dry place convenient. The above method of curing I learned in Buckinghamshire, and although a Yorkshireman "bred and born," I very much prefer the south to the north country method of cure.—*A Yorkshire Farmer.* [For answer to your question about books on Agricultural Chemistry, see "Notices to Correspondents."]

Adulteration of Guano.—I beg to state that Thomas Hugh Boorman and Co., of East Peckham, Tunbridge, are not in any way connected with the person of that name, stated by me in your journal, to have adulterated guano at Beal's Wharf.—*Henry Weston, Borough Bank, July* 31.

To Fatten Poultry.—The following will be found a quick and excellent food for fattening chickens. Set rice over the fire, with skimmed milk; let it boil till the rice is quite swelled out, then add a teaspoonful of sugar. Feed them three times a-day in common pans, giving them only as much as will quite fill them at once. Let the pans be well washed, and set in clean spring water, that no sourness may be conveyed to the fowls, as that prevents them from fattening. Give them clean water, or the milk of rice to drink. By this method, the flesh will have a clear whiteness, which no other food gives; and when it is considered how far a pound of rice will go, and how much time is saved by this mode, it will be found to be cheap. It is said that a portion of animal mixed with vegetable food, causes poultry to thrive rapidly, but they should be confined to a vegetable diet some time before they are killed. A quantity of charcoal, broken in small pieces, and placed within reach of the poultry, increases their appetite, and promotes digestion.—*J. M'Intosh.*

Tiptree Hall.—As my crops at Tiptree Hall have been (like Mr. Hewitt Davis's) very soundly abused, and as it is of some importance to the cause of agricultural improvement that the truth should be spoken, I beg to annex the following extract of a letter, just received from a competent judge of the matter, which I confirm by my own personal observation. Those who feel an inclination to go and see will, I hope, do so either with or without an order, which they can obtain here at any time. Mr. Hewitt Davis's crops are superb, and will speak for themselves.—*J. J. Mechi*, 4, *Leadenhall-street, July* 23:—"But altogether the crops on Tiptree Hall Farm in my opinion will equal in value those of the same number of acres of the very best land in this county. This is my opinion; and I rejoice greatly that I can form it, and that my companion's tune is so completely changed and improved."

Pigs.—Strychnia powder not being to be procured in the neighbourhood, a few drops only of strong infusion were tried on the palsied pig, as recommended to "A. E.," October 26. The benefit was evident, but counteracted by bad weather, which continuing cold and wet, the pig was killed in December; it weighed 9 stones, and a bladder of clear water nearly half a pint on one side, not quite so much on the other, was found between the belly and tendons of the legs, which were consequently shortened. It had previously been bathed in an infusion of the leaves of the enclosed plant (Antirrhinum linaria), called Staggerwort in the neighbourhood, from its supposed efficacy. Horse Chesnuts, soaked in lime-water, as recommended in the *Gardeners' Chronicle*, 1843, are eagerly devoured by pigs.—*A. E.*

Pigs versus Opium.—The fact that pigs and rabbits eat Poppies greedily without being injured by the opium they contain, has been long known here. As regards rabbits, this fact has lately gone the round of the papers as the discovery of a famous French chemist. —*T. W.*

Spontaneous Life.—The article on spontaneous life which you published in your last Paper is somewhat similar to one by Mr. A. F. Reed, of Bonshaw, in the last Number of the *Ayrshire Agriculturist.* I do not know if Mr. Reed finds the Potatoes in his subsoil, or whether they grow from seed [?] in that soil on its being exposed; but the following passage is singular enough, whether it be regarded as a statement of fact, or of error, arising from imperfect observation:—"How did the seeds of these plants come to grow in such situations? The question has often been asked, but I am afraid the answer is beyond human ken. Circumstances occur that may convince us that the naturalist, with all our modern philosophy, can neither discover how many kinds of seed [!] some plants grow from, nor how much of our earth the great Creator has put in life! Mr. Dow also gives his own opinion, that beasts or birds may carry the seeds; this he will find rather difficult to make out. When I tell him that if he will go to a dry muir in May or June, burn a small patch of the heather or moss, dig down to the clay, mix the clay with the ashes (which will correct the adhesive qualities of the clay), he will find Potatoes, if the spot is not too near whin rock that may have a volcanic origin, and therefore hurtful to the clay." [! !]—*M.S.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover Square, on Wednesday last, the 30th of July; present: The Right Hon. Lord Portman, President, in the Chair; J. Baines, Esq.; T. Raymond Barker, Esq.; S. Bencraft, Esq.; J. F. Burke, Esq.; Rev. Thos. Cator, Col. Challoner, F. C. Cherry, Esq.; W. A. Cherry, Esq.; W. Dalgairns, Esq.; Col. Mac Douall, A. Ogilvie, Esq.; C. E. Overman, Esq.; Prof. Sewell, J. H. Tremayne, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq.

The following new Members were elected:—

Hampton, Robert, Wytheford, Shrewsbury.
Edwards, Joseph, Ross, Herefordshire.
Belliss, Thomas, Birmingham.
Stroud, William, Swansea, Glamorganshire.
Rees, Richard, Gelligron, Swansea.
Thompson, Robert, Walton, Stone, Staffordshire.
Moore, Rev. George Bridges, Tunstall, Sittingbourne, Kent.
Murton, William, Tunstall, Sittingbourne.

The names of 36 candidates for election at the next meeting were then read.

Newcastle Meeting.—The Duke of Northumber-

land, one of the Vice-Presidents of the Society, communicated, through the Hon. Robert H. Clive, M.P., his wish to place the sum of 100*l.* at the disposal of the Council, to be applied by them in any way which in their opinion would best contribute to promote the agricultural improvement of the northern district, in which the Society's meeting would be held, at Newcastle-on-Tyne, in 1846. This communication was received with the best thanks of the Council, and its consideration referred to the next monthly meeting on the 6th of August.

Early Spring Feed.—The Duke of Richmond transmitted to the Council the following communications addressed to him by Mr. Dickinson, in reference to his mode of obtaining early spring feed for the horses of his establishment.

"*7, Curzon Street, May Fair, London, July* 12, 1845.

"I beg to send your Grace a report of my mode of cultivating Italian Rye Grass, as food for my horses, the success of which has astonished me very much, and which I am anxious to make known for the general welfare of agriculturists at large.

"My land, a strong clay in good heart, and underdrained, is finely pulverised, during the summer months, after Tares, or any early crop of Corn; is sown broadcast, with 4 bushels per acre of seed, grown by myself—without weeds—harrowed very lightly with bushes—iron harrows bury the seeds too deeply; if weeds grow they are pulled, and the Grass stands for a crop, which in 1844 was cut the first time, the first week in March, with about 10 inches of Grass; April 13th, it was cut the second time; May 4th, the third time; May 24th, the fourth time; June 14th, the fifth time; July 22d, the sixth time, with ripe seed, and three loads of Hay-straw to the acre. Immediately after each of these crops the land was watered once from a London street water-cart, with two parts of pure urine from the stables, and one part of water, the produce of each crop increasing with the temperature of the atmosphere, from ¾ of a load per acre, as Hay, to three loads per acre. The crop having shed a quantity of seed, I was doubtful the urine might injure its growing, so discontinued to water, but well harrowed it with iron harrows, and left it, expecting nothing more from it; it produced, however, three or four, I believe four, light crops afterwards; and has now standing upon it again, three loads to the acre, the third crop for seed. My first cutting (1845) this year, was not till April 6th; second, May 3d; third, June 9th; fourth, 2½ feet long, now standing on the land. I think it necessary to observe, from my own experience, Italian Rye Grass differs as much in quality and variety as English Rye Grass, or English fruits; there are Italian Rye Grasses that bloom at 1½ feet high; and that I grow, as your Grace has seen, stands from 4 to 5 feet. Any further information that may be required, so far as I am able, shall be given to any one wishing to grow the plant. I attach a letter sent me by a practical farmer, to whom I supplied seed for an acre, which will furnish interesting information to sheep-graziers.

"(Signed) William Dickinson."

[Mr. J. Hunt to Mr. Dickinson.]

"*Hayes Gate, near Uxbridge, July* 1.

"With the Italian Rye Grass seed I had of you, I sowed about an acre the first week in September last, after a crop of spring Tares; the ground was manured with about 10 tons of good horse-dung. The second week in April I began to feed it off with ewes and lambs, and they made very quick progress, especially the lambs. The Grass producing an abundance of milk, there were 42 couples, and the Grass supplied them three weeks, giving the ewes chaff and Oats, and the lambs Peas. After this they began to feed it again for want of other food. I took them off the Grass on the 13th of May, and on the 13th of June we mowed the whole for hay, which produced nearly two loads per acre; this was about five weeks' growth. I should not have pursued this plan had I not had Tares which I wanted off the land to sow with Swedes. The Grass is now growing freely, but not so fast as after feeding off. I want your water cart. I am quite satisfied of its being the most valuable plant I know of, especially for early spring feed: it comes to perfection for feed quite as early as Rye, and the comparison between the two for feeding qualities is as 10 to 1 in favour of the Italian Rye Grass. I am so well satisfied of its goodness that I intend sowing a much larger breadth in the ensuing autumn after Wheat. (Signed) J. Hunt."

The President informed the Council that he had made arrangements for the trial of Mr. Dickinson's plan on the clays and alluvial soils of Somersetshire, as well as on the chalks of Dorsetshire; the result of which he would in due time communicate to the Council, along with those of an extended comparative trial he had instituted of the cultivation of the various Wheats on the soils of Dorsetshire.

Germination of Seeds.—The President laid before the Council the following communication addressed to him by Mr. La Beaume, in reference to the application of electric currents to seeds for the purpose of exciting their vitality and quickening their growth.

"*London*, 11, *Argyle Street; July* 30, 1845.

"As the President of your Society I beg to lay before you the following facts, which I think important to the interests of agriculture, horticulture, and floriculture. By former, and also more recent experiments on a limited scale I have fully succeeded in quickening the germination of various seeds, invigorating their plants, increasing their fecundity, and improving the quality of the produce. This is particularly important in Turnip-seeds, as you well know. The means I have employed are not atmospheric electricity, galvanism, or electro-magnetism, which cannot apply, but electricity developed by a machine of adequate powers, and by a simple, peculiar, and effective process, easily understood, and easily used with very little manual labour. The time required is, on the whole, about half an hour, and 1000 bushels of Wheat, or any other grain, can be electrified as easily as an ounce at the same time. I beg also to remark, that this my process applies equally to the resuscitation of the impaired vitality of old as well as bad seeds, to the revivification of withering plants, and to the increase of the quantity of their fruit. In order to a more extended trial, and to the establishment of the facts I have communicated, if several members of your body will send me some packets of Turnip and other seeds, I will freely and cheerfully electrify and return them in a day or two, so that success may be proved by an impartial trial under your auspices, and I shall neither seek nor receive any other reward than your approbation, and the satisfaction of diffusing practical knowledge for the public good.

"(Signed) M. La Beaume."

Mr. La Beaume expressed his intention of communicating to the Council at their next meeting the results obtained by the Earl of Essex, Mr. Lefroy, and others, in their comparative trials under similar circumstances, of seeds prepared, and not prepared, by this process.

Mr. Van Voorst and M. D'Hondt, of Ghent, invited the members to an inspection of the results of their new mode of promoting the growth of plants.

Wheat Crops.—Capt. Hamilton, of Rozelle, in Ayrshire, communicated the following remarks in reference to the state of the Wheat-crops in Scotland:—

"*Rozelle, near Ayr, July* 13, 1845.

"I am happy to inform you that there were never seen finer crops of every kind than now on the ground in Ayrshire, and the farmers are all in good spirits, and the labourers generally fully employed. The weather has been, however, lately cold and wet, and yet it is surprising how forward our Wheats are; almost all are now in full ear. I had Neapolitan Amalfi, red Wheat, in full ear early in June; this is the Wheat from which the best Macaroni is made, and is said to contain the largest proportion of gluten of any. It was sown 10th Jan., has stood perfectly well this severe winter, and seems a very early Wheat—a good quality for our generally late climate; an acre of it was in full ear when Chidham Wheat sown the same day alongside of it was barely in the shot blade.

"(Signed) Archibald Hamilton."

The following communications were also laid before the Council:—

1. From the Hon. Edward Everett, a letter expressing his willingness to receive, and carry out, as an Honorary Member of the Society, the wishes of the Council, on his return to the United States, on the termination of his diplomatic mission to this country.
2. From the London and Birmingham and Grand Junction Railway Companies, acknowledgments of the Society's thanks for their efforts in promoting the objects of the Annual Country Meeting, by free conveyance of stock and implements along their respective lines, and the grant of every requisite facility in favour of the Exhibition.
3. From Mr. Towers, of Pinkney's-green, Maidenhead, a communication on Dibbled Wheat, and the result of his trials of steeping grain.
4. From Mr. Hutchins, of Hanover-square, specimens of New Zealand and Australian Wheat, with a statement of their cultivation. By Mr. Brown, of Welfield, near Streatham Common.
5. From Mr. Chapman, of Doctors' Commons. A statement of the numerous uses to which Wheaten flour is applied, besides that of food; and the economy of employing for the purpose of paste-making in the arts a cheaper farina from other sources.
6. From Mr. T. K. Short, of Martin-hall, Bawtry, an account of the cultivation and uses of the Cow-Parsnip.
7. From Sir Charles Lemon, Bart., a communication addressed to him, by Mr. C. Newman, of Court-farm, on the subject of the failure of the Potato-crop, and the results of his experience in draining.
8. From Mr. Davidson, of Darlington, an essay on rotation of cropping.
9. An essay on the cultivation of Heath-lands, received after the date prescribed for competition.
10. From Mr. Dalgairns, of Guernsey, a description of a simple barrow-drill, used in that island with great economy and success.
11. From Mr. Hillyard, of Thorpelands, suggestions in reference to the Society's prize-sheet; and notice of a motion for rescinding the present regulation which excludes castrated animals from exhibition.
12. From Dr. Johnson, of Shrewsbury, a letter and pamphlet on the application of the town-sewerage of Shrewsbury.
13. From Mr. Moss, of Hull, a letter on the employment of labourers.
14. From Mr. Dickson, communications on Flax-cultivation.

The Council then adjourned to Wednesday next, the 6th of August.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

The weekly meetings of the council were held on Thursday, July 17th and 24th. The secretary stated that he had addressed a letter to the directors of the City of Dublin Steam Packet Company, to ascertain whether all articles going for competition to the Ballinasloe show, would be carried free of expense, in the company's steam-boats, on the Shannon, to which he had received the following most satisfactory reply, in addition to his former communication to the same effect:—

"City of Dublin Steam-Packet Company.

"Sir,—In reply to yours of the 11th instant, inquiring if cattle, &c., for the Ballinasloe show, would be conveyed free of freight on the Shannon, as well as in the several directions, stated in my letter of the 8th instant, I beg to acquaint you that no charge whatsoever will be made for show stock, &c., by any conveyance of the company's. You are, therefore, quite at liberty to announce free carriage on the Shannon, wherever the company's steamers and boats ply, as well as by the canal and sea, as before communicated. Your obedient servant, P. Howell, Secretary.

"Edward Bullen, Esq., Secretary."

The noble chairman stated, that the above company were entitled to the fullest thanks of the Society for this increased accommodation. By the arrangements now at their command, it would be impossible for them to convey all stock and implements, as well as all other articles coming from the ports of London and Liverpool, *viâ* Dublin, free of all carriage to the show. This accommodation would no doubt attract a great number of exhibitors, who would not otherwise attend, but who would be now induced to send their stock and implements there, from this great additional facility of conveyance. The secretary stated, that the Society's Transactions and Annual Report for the past year, was then ready for distribution. It contained much most useful and interesting matter, including all the proceedings connected with the competition for the gold medals for thorough-draining, and the reports of the inspectors upon the same. It was considered most advisable that this work should be circulated as generally as possible; and accordingly it was ordered, that a copy should be sent to each of the secretaries of the different local societies, for the use of these bodies. It was also ordered, that non-subscribers should be entitled to a copy, on payment of 1*s.* each; and that gentlemen who are desirous of distributing the work among their tenants, could have any number of copies at the same price, on applying to Messrs. Curry, in Sackville-street, the society's publishers. It was also agreed, that the copies of the last year's report on hand, should be sold at half-price. The secretary stated that he had received a communication from Mr. Charles Filgate, relative to the arrangements for the cattle show, at Ballinasloe, on the 30th September, which were progressing in the most satisfactory manner. The show-yard was in course of erection; and the great agricultural hall was nearly ready, and would be capable of dining near 800 persons at the banquet. Arrangements were also in progress to secure the best accommodation for the different visitors, and upon the most reasonable terms; and from the well-known character of the locality, and the increased facilities provided, no difficulty was anticipated on the subject.

FLAX IMPROVEMENT SOCIETY.

The monthly meeting was held 16th July, Belfast, S. K. Mulholland, Esq., in the chair. A report of the sub-committee appointed to conduct the experiments on different kinds of Flax-seed, was read. The following was the appearance of the portion sown at Belsize, near Lisburn, inspected on the 12th instant:—

No. of plot.	Description of seed.	Portion of ground.	When sown.	Average of crop.	Length of stems.	State as to flowering.
1	Bombay....	36 sq yds	5th May.	Full	14 In.	Partially.
2	Calcutta ..	do.		A Fourth	14 do.	Not yet.
3	Egyptian ..	do.		Full	24 do.	Profusely*
4	American ..	do.		Full	30 do.	Beginning
5	Dutch.....	do.		Full	24 do.	Not yet.
6	Riga	do.		Full	22 do.	Beginning
7	Irish	do.		Full	19 do.	Not yet.
8	Belgian....	do.		Very full	26 do.	Not yet.
9	English....	do.		Very full	28 do.	Not yet.†

* Full of a yellow weed. † Stems branchy.

As the appearance of the Flax grown from home-saved seed is everywhere very fine, this season, a paper was directed to be drawn up, for circulation among the farmers, urging them to reserve a portion of their growing crop for seed, letting it get ripe, and stacking it over until next spring, the seed to be separated, and the Flax then to be steeped on the Courtrai system. This would do much to secure genuine fresh seed for the crop of 1846. Arrangements were made for the opening of a hand-scutching school in Youghal, where persons would be instructed in the Belgian mode, by one of the Society's agriculturists. Several letters were read relative to Flax-seed, &c., and referred to the sub-committee appointed to consult on the measures to be taken by the Society to protect the farmer, in the most effective way, against fraud in future seasons. The following extract from the letter of a gentleman in the county Derry, will prove interesting:—"I am happy to be able to bear my testimony to the fact, that, if Flax be judiciously grown, and well handled, there is no other crop that will pay like it. I had, last season

not quite eight Irish acres of Flax, from which I had 295 stones, which brought 8*s.* per stone, in Cooks-town market, and 31 stones, at 6*s.*, besides 4½ cwt. of scutching tow, at 9*s.* per cwt. :—

295	stones, at 8*s.*	£118	0 0
31	stones, at 6*s.*	9	6 0
4½	cwt. tow, at 9*s.*	2	0 6
		£129	6 6

being upwards of 16*l.* per acre ; besides this, I had an exceedingly large quantity of bolls, which fed my cattle, to the greatest advantage, during the whole season, and as much seed saved on the Courtrai system, as sowed about 3 acres this year. The Flax-seed saved on the Courtrai system turned out exceedingly well ; and my steward showed some of the seed to Mr. Mac Adam, of Donegal-street, Belfast, who said he thought it finer than any Riga seed he had seen last season. I may add, that the Flax from our seed looks to the full better than that growing from Riga seed. We used but the two." The applications and testimonials of 10 candidates for future appointment as instructors, to be put in training under the Society's agriculturists, were next considered, and some of the candidates who were in attendance, personally examined. Messrs. Hugh Orr, of Granshaw, and William Smith, of Crossnacreevy, both in county Down, were chosen, and the claims of several others reserved for future consideration ; the Secretary being directed to advertise, that all applications should be lodged prior to the 23d inst., to which day the Committee adjourned.—*Dublin Farmers' Gazette.*

Farmers' Clubs.

St. Peter's.—*True Economy in Farming.*—At several meetings of this club, as stated in the Annual Report, drawn up by its talented secretary, this subject has occupied the attention of its members. "Economy in labour was said first to consist in regulating the amount of it by the probability of remuneration. The systems of farmers vary considerably, and consequently a different amount of labour is required to carry out the plans of each, and he cannot always be said to be the most economical who pays the least for labour, but he whose plans rarely fail to remunerate him, and are on the whole productive of profit. With our present population it is not necessary we should economize in the quantity of labour, but we are rather called upon to exert ourselves to find employment for the poor, and he is wise who finds the greatest abundance of such employment as turns to his own advantage in the end ; such a system will necessarily require more energy and create greater anxieties, and may give a man as much business with 100 acres of land as another has with 200 acres, but managed diligently, wisely, and economically, that which increases his toils and anxieties may be ultimately most productive of advantage, and to speak figuratively, the 100 acre farm may become the largest in the parish. 2dly, it was observed the economy of labour consisted in arrangement, so as to equalize it as much as possible throughout the year. One of the most important arrangements for accomplishing this end is a judicious rotation of crops. If some professor of chemistry were to write us a prescription for growing Wheat all over the farm year after year, and we could get it prepared by a neighbouring druggist at a moderate charge, it might not prove economical to administer it ; as all our manure (for we reckon that physic would not supply the place of food) must then be collected for Wheat, all our ploughing must be for Wheat, and all our sowing, hoeing, and harvesting would be of Wheat ; while these operations lasted we should require double the horses and men we now employ, while at the other seasons of the year, we and our horses should want physic, and our men food, just because all would be left without employment. We are not now to consider how many sorts of grain, seeds, and roots it may on the whole be profitable to grow, but we may affirm it is essential to economy in labour, that there shall be such an arrangement as shall secure a tolerable degree of regularity throughout the year ; so that masters, servants, labourers, and horses may be capable of doing what ought to be done every day, and daily have something to do. Let a farm be cropped with Wheat, Peas, Beans, Barley, Oats, Canary, Carrots, Wurzel, Potatoes, Turnips, &c., and the master may be contriving, or overlooking, or buying, or selling, and the men and horses carting, or ploughing, or sowing, or planting, or reaping, or thrashing, from the beginning of the year to the end. The 3d essential in the economy of labour was said to be the adaptation of the means to the accomplishment of the end. It is equally unwise to put a tradesman whose pay is 4*s.* per day to do work that may be done by a common labourer, or to put the common labourer to work which can only be properly and expeditiously executed by the tradesman. There are suitable employments for men, others for women, and others for boys ; but to put either where the other would be better, is a want of economy. This adaptation extends also to numbers. Too many men should never be set about a small piece of work, nor too few about a large one ; in the former case time is lost in frequently shifting from one place to another, and in the latter, the labourer is discouraged from not being able to see he is making progress. It is also thought of importance, so to arrange matters that the whole of the men and horses be as much as possible on one part of the farm at the time, so that the master may have the whole of them under his eye without going from field to field, and the example of a good foreman, have its full effect. Another observation on this part of the subject was, that in our neighbourhood it was equally a want of economy to employ too many regular men, and to keep too few horses ; it being easy to obtain extra men at seasons when we are particularly busy, and extremely difficult at such times to obtain extra horses. 4thly, it was thought that economy of labour consisted in seizing the fittest opportunity of doing everything. By carting manure on the fields when the ground is dry, an amazing amount of labour is saved, and the mischief perpetrated by going on the land with horses and carts in wet weather avoided. The most proper time to empty the yards, and to fetch dung from town, is when it is too wet to get upon the land ; time is thus saved, and the manure is better. There is a season when almost all kinds of land are in a proper state to be ploughed ; at that time it should be done, then, three horses will do as much as four at other times, and the land be left in better condition. There is also a suitable time to harrow, the neglect of which may subject the farmer to inconvenience and loss. Above all, a suitable opportunity to plant and sow must be made available, a good season being more worthy attention than a few days as to time either one way or the other. Economy respecting manure was said to consist, 1st, in collecting all kinds of refuse capable of being converted into dung, and in using all kinds of mould and litter in suitable quantities and at proper times. If mould can be obtained it should be put at the bottom of the yards and mixings, and also on the top of the latter. Litter should be spread over the yards according to the quantity of stock kept therein, and the state of the weather, so that the yard is always kept in a condition that no moisture can escape, nor on the other hand any straw be buried in a dry state. Short stubble, gratten (?), Potato haulm, and any kind of rubbish (not containing seed) may be usefully applied in this way. 2dly, economy is required to guard against any unnecessary diminution in quantity or quality till the manure is deposited in the soil of the farm. Although few of us have often to complain that either our yards or mixings are too wet, yet it is worthy our remembrance that the escape of liquid from either yards or mixings should under all circumstances be carefully avoided. With our usual variety of crops it is not often practicable, nor is it at any time desirable that manure should be collected in mixings a very long time before it is used, and special care should be taken that it is not turned above three or four weeks before it is applied to the land, as by that time it will be in a proper state of fermentation to render its decomposition in the soil easy ; whereas, if it lies longer it will become seriously reduced in quantity, and lose some of its best qualities. It should not be spread till it can be ploughed into the soil, except when used for top-dressings, which should always be applied in the early part of the winter. 3dly, there is economy in its judicious adaptation to the different soils to which it is applied. As a general principle we prefer a moderate coating of manure every other year, to a less frequent though more abundant application ; but we have no doubt but most of the land in our neighbourhood would prove itself grateful if the application was more liberal as well as frequent. In general we may consider that a variety of manures improve a mixing, still such materials as brick-and-mortar-rubbish, lime, chalk, sand, &c., may prove a useful addition for some fields, and injurious for others ; here good judgment will prove productive of economy. 4thly, it consists in settling the expenses of obtaining extra manures with strict regard to the fertilizing qualities, and the relative costs of collecting and applying each. In general we prefer things that are real to those which are artificial, and at present we had rather apply 18 tons of town dung per acre, than a bag of guano, or a dose of oil ; still it is worth our while to ascertain by experiment, whether the latter does or does not possess equally fertilizing power to be made available at a less expence. If this should be fully discovered, it will doubtless operate well for us every way, as we can use quantities, bringing our land well up to the mark, and shall in a little time have the manure of the towns sent to us just because they want to get rid of it. Still we think it much safest to make these experiments on a small scale, and have concluded that a few cwts. of guano, &c., will be quite sufficient for the Club this year.

(To be continued.)

Darlington.—*Lime and Common Salt.*—This club held their July meeting on Monday last. Mr. Thomas Dixon, the honorary secretary, said: Some of the leading points to be considered are :—The proper quantity of those substances for one application ; the best season of the year for applying them ; the description of crop most suitable for applying them to ; the proper interval of time between the applications ; and whether it is more judicious to apply those substances to the land singly, or in combination with each other, or with other substances ; and, in order to arrive at proper conclusions, it is very important that we should know something about the probable quantity of these substances that each description of crop extracts from the land on which it grows. Limestone, of the best kind for agricultural purposes, is chiefly composed of carbonate of lime, from which, during the process of burning, the carbonic acid is driven off, and then it becomes what we call quicklime. This quicklime, by long exposure to the air, absorbs moisture, and falls into powder, and is then slaked lime, or, what chemists term hydrate of lime. Now if the slaked lime continue exposed to the air for a considerable time longer, it will absorb a considerable quantity of carbonic acid, and by that means it begins again gradually to assume its original quality before burning ; with this advantage, however, that it is now reduced to the finest powder—much finer than it could be ground or made by any other means—and therefore it mixes intimately with the soil, and thus furnishes nourishment to the roots of growing crops. Now, the carbonic acid forms, I believe, a very considerable element in the constituent parts of all plants and crops. I am, therefore, of opinion that lime, and more particularly magnesian lime, is seldom allowed to lie a sufficient time after burning, before being applied to the land. Now, in order that lime may yield carbon to the soil, to the greatest possible extent, I am rather an advocate for composting or mixing quicklime with earth, such as hedge-back weeds, quicken heaps, or ditch clearings ; as by that means, when covered over and mixed with vegetable earth, carbonic acid is formed, during the fermentation, to a much greater extent than is generally the case when the lime is simply exposed to the atmosphere. In speaking of composting, I may state my belief that it is of greater importance in the case of magnesian lime, than in that of the more pure descriptions ; for composting has the effect (to some extent at least) of subduing the caustic qualities and neutralising the poisonous effects that are known to result from an overdose of magnesian lime ; for it is a fact that has long been known that, when lime contains a great quantity of magnesia, it has, in many instances, when applied to the land in very considerable quantity, a poisonous effect upon vegetation. Then, with regard to the interval of time which ought to elapse between one application and another of lime to the same land, a good deal must depend upon the description of crops produced from the land during the interval, as one description of crop is known to extract a much greater quantity of lime from the soil than another. According to Professor Johnston, lime is extracted from the land in about the following proportions, according to the crop produced :—

25 bushels of Wheat, about	9 lbs. of Lime.		
38 do. Barley,	,, 15	,,	
50 do. Oats,	,, 9	,,	
25 tons of Turnips,	,, 140	,,	
9 do. Potatoes,	,, 270	,,	
2 do. Red Clover,	,, 126	,,	
2 do. Rye-grass,	,, 33	,,	

Now, it is quite evident, from this comparison that, in regulating the application of lime, much depends on the crops produced on the land.—The other subject for this day's discussion—"Salt,"—I have had much less experience in the use of, and therefore I am much less able to judge either of its merits or its application than of lime ; but yet I have observed sufficient to convince me that it has, in agriculture, some important uses. As a manure, however, I apprehend that it will be found more generally useful in combination with other substances, than when applied to the land by itself ; unless it be applied as a medicine or a remedy against some disease, or irregularity of the soil or its crops : as it is, I believe, an enemy to canker and insects. In applying salt to the land I have invariably found that it gives the land more consistency and firmness, and therefore, I have no doubt that, in combination with soot, or other proper substances, it will be an excellent top dressing for Wheat and other crops in the spring, and more particularly on land where there is danger of the crop losing its roothold at that season. I also think that it might be useful to add a little salt to the dunghills. In the discussion which ensued on the lime question, several of the members were of opinion that, upon the poorer descriptions of clay land, which had been long under the plough, the good resulting from a dressing of lime was scarcely, if at all, perceptible, and therefore they considered that upon very poor worn-out land would not pay the expense ; but upon land of a better description an occasional liming was evidently useful. The chairman detailed the results of some of his applications of lime. Some years ago, on a poorish field that had been long under the plough, he applied four double-horse cart-loads per acre ; and in order to see the benefit more clearly, he left every fourth ridge without applying any lime, and in the following and succeeding crops he could not see that the limed land produced any better crop than the ridges which were left unlimed. He, therefore, thought that it did very little, if any good. On another field which had only been ploughed six or seven years, he applied five double-horse cart-loads per acre, and in this field also he omitted every fourth ridge, and in the following Wheat crop the produce was nearly double on the limed, to what it was on the unlimed ridges. On another poor field, in which the crops were very subject to go off, and which previously had been long ploughed, but, at that time, had been two years in seeds, he limed well five double-horse cart-loads per acre ; and, in sowing with Wheat, he used the land pressers. In that case the crop succeeded far beyond his expectations ; in fact, it was a better crop than had ever been known to grow upon that field before. It also stood well upon the land ; no part of it going off as had usually been the case there. From those results he felt certain that it was of no use applying lime to poor worn-out clay lands, unless they were first laid down to seeds for two or three years. The secretary and some other members recommended composting the lime for the former descriptions of land, by which means Clover could be grown occasionally, and the course of cropping could thereby be more varied, they having experienced the advantages of this mode of applying lime to poor land. With regard to the quantity for one application, the interval between each application, and the particular species of crop to which it was best to apply lime, no

resolution could be come to, so much was considered to depend upon the quality of the lime applied, the description of soil, and the course of cropping pursued; but it was considered that where pure lime was used it was better to apply a pretty full dressing perhaps once in nine years.—*Abridged from the Durham Chronicle.*

Longford, Ireland.—*Report of Agriculturist.*—At the late Annual Meeting of this Society the following report of the active agriculturist was read:—"My Lords and Gentlemen.—I have the honour to lay before you my second report; and the third of your Society. There was last year distributed 150*l.* worth of seeds, and this year we have increased the quantity to 505*l.*, which, taken at an average of 15*s.* per acre expense of seeding, would sow 673 acres, which I hope you will consider is increasing the usefulness of the Society. There has also been 700 lbs. of Turnip seed sown by the small farmers this season. The Hon Mr. Harman, Lord Longford, Mr. Edgeworth, and others, give the seed gratis to their tenantry. Since my last annual report, Lord Longford's tenantry here have made 7550 perches of drains on the Deanston plan. Mr. Edgeworth's tenants, on the Hill estate alone, have made 5880 perches, and about that much more around Edgeworthstown, both those gentlemen allow the tenants 3*d.* per perch for draining, and Mr. Edgeworth was obliged to call on the tenants to stop draining, as they were, in many instances, swamping the rent. He will allow them, in future, 10 per cent. on the rents every year, if they drain what will come to so much, at 3*d.* per perch. Colonel Palliser has made a great quantity of drains on his estate adjoining Mr. Edgeworth's, under the superintendence of his active estate-manager, Mr. Rose. In many instances all the expense is defrayed by the Colonel, with the exception of drawing the stones. Mr. Edgeworth has drained 20 acres in the demesne farm in the very best style. The Hon. Mr. Harman has also drained a large quantity in his demesne. In fact in almost every farm in the county more or less draining has been done within the last twelve months. I am happy to be able to inform the Society, that there never was such a prospect of abundance in this county as there is from the crops of this year. Meadows are very heavy, and all the new ones made up. The Wheat looks rich, strong, and healthy, and there is a greater breadth sown this year than ever there was before, from its succeeding so well last year, and having so good a seed-time. The Oats have that peculiar colour and breadth of leaf that denotes a large yield of corn, and the Potatoes are certainly the finest in Ireland. They have that healthy, luxuriant, broad leaf and thickness of stalk, that will insure a large return. There is no failure, and it is admitted on all hands there never was such a quantity of them planted in this county before. The only damage done by the late rains is along the rivers, where the Grass and bottom meadows are flooded. I beg to refer to my annual report, and also to one in January, where I call the attention of the proprietors along the Camlin to the sinking of that river; if done this summer, 20 miles of it could be done for 10,000*l.*; the longer it is delayed the more it will cost; when the railways commence to be made, labour, it is to be hoped, will rise from one-fourth to one-half more than it is at present, consequently the sinking of the river will increase in expense proportionably. I am happy to say, we have got new members subscribing upwards of 20*l.* I have earned for the Society 37*l.* 5*s.* since July last; and, before then, 23*l.* 5*s.*, making, in less than a year and a half, 60*l.* 10*s.*—some of it in Westmeath and Roscommon, of which there is due to the Society 46*l.* 5*s.* as it never was applied for.—*James Kelly, Agriculturist.*"

Maidstone.—*The best Mode of Harvesting Grain Crops.*—The discussion which was a useful and animated one, embraced the whole subject of cutting, carrying, barning, and stacking grain crops, as well as some important points in the construction of the bagging hook, and the comparative value of the different tools, implements, and buildings used in harvesting, during which much valuable information was elicited. The following resolution was unanimously adopted:—"That it has been found desirable to cut Wheat before it becomes sickle-eared, and other grain rather green. That if men can be got to bag Wheat well, it is best to bag; the next best plan is to mow; but both bagging and mowing must be done well, or dirt will get into the sample, from the stalks which are torn up by the roots. That corn should always be made up in small sheaves. That when winter threshing is required, Wheat threshed after having been kept in the barn is generally better than that kept in stack; but that for summer threshing, the sample is rather improved by being stacked." Several of the points discussed on this occasion having been embraced in the recent work of Lord Torrington on farm buildings, it was proposed, on the next meeting of the club, to discuss several of the suggestions of his lordship; more particularly the comparative merits of barning and stacking, and of the Kentish and other breeds of sheep.

Reviews.

An Essay on Corn Rents. By a Practical Farmer. Being a paper read at a Meeting of the Lewes Farmers' Club, on the 8th of July, 1845. By Henry Hart, V.P. of the Society. G. P. Bacon, *Sussex Advertiser* Office, Lewes.

The author of this pamphlet has not contented himself with merely indicating the tendencies of the system which makes the amount of rent fluctuate with the value of farm produce, but he has given his ideas a definite form, by applying them to a particular case, and ascertaining the actual extent in £. *s. d.*, of the influence, both on landlord and tenant, which such a system exerts. This is the only method of ascertaining the truth, when one meets with a subject bearing so strongly on parties whose interests in the matter are necessarily opposed; a *quantitative* analysis is the only one, in such a case, which can afford any real instruction. We hope soon to refer to this pamphlet more in detail, when discussing the subject of which it treats.

Miscellaneous.

Ploughs in the Sixteenth Century.—One plough will not serve in all places, wherefore it is necessary to have divers sortes. In Somersetshire, Dorsetshire, and Glostershire, the share beam, that in many places is called the plow-head, is four or five foote long, made very broad and thinne, and that is because the land is very tough, and would sucke the plough into the earth, if the share beams were not very long, broade, and thin. In Kent they alter much in fashion, for there they goe upon wheeles, as they do in some parts of Hartfordshire, Sussex, and Cornewall. In some counties they will turn the shell board at every landsend, and plough all one way. In Buckinghamshire are ploughs of another fashion, and plough irons of altering shape, both which are more correspondent to my lyking than any other, and are fytte in general for most places, especially if the ploughe beame and share beame were four inches longer between the sheathe and the ploughe tail. Neither will I stand too strictly on their fashion, sith their is no county but custom or experience hath instructed them to make choice of what is most available, and he that will live in any countrie may by free charter learne of his neighbours, and howsoever any plough be made or fashioned, so it be well tempered, it may the better be suffered.—*Sir A. Fitzherbert's Boke of Husbandrye*, 1532; *quoted by C. W. Johnson, Esq., in the Quarterly Journal of Agriculture.*

On Stacking Stainfoin.—On Monday and Tuesday of the last week in June, last summer, I cut 9 acres of Sainfoin, a good crop for the season, averaging 1½ loads to the acre, and in full flower. On Wednesday it was once turned, and on Thursday and Friday it was carried and stacked. The weather was dry and hot, so that the hay was somewhat dried, but still so green that on working it between the finger and thumb, abundance of moisture exuded. In stacking it, I put alternate layers of Oat-straw (in all 200 trusses). All hands prognosticated heating and burning; and my bailiff suggested that I should put a perpendicular chimney, in the centre of the stack, of rough timber, communicating at the bottom with a horizontal one, extending to the outside of the stack. No heating whatever took place; I have now reached the centre of the stack, and nothing can be finer than the hay. It has retained its green colour; and the flower, especially near the chimney, is as bright and purple as when first cut. The straw seems to have absorbed all the superabundant moisture, and is almost as good as the hay: and the whole together cuts up into most admirable chaff. This year I should certainly wish to repeat the process with all my hay, but fear there will be a great deficiency of straw.—*The Earl of Essex, in the Journal of the English Agricultural Society.*

Notices to Correspondents.

Rural Chemistry—By E. Solly, Esq., F.R.S., Experimental Chemist to the Horticultural Society of London, Honorary Member of the Royal Agricultural Society, and Lecturer of Chemistry at the Royal Institution, may be had of all booksellers, price 4*s.* 6*d.*

To Correspondents—We always publish names and addresses when we can get them: it would give a value to their communications which they do not at present possess were correspondents to permit us, more frequently than they do, to append to them their names.

Bitter Yeast—*J B*—Will the recipe in our last Number assist you?

Books—*Yorkshire Farmer*—Read Reid's "Chemistry of Nature" in the first place; then, some systematic work, such as Turner's, on Chemistry as a Science. It is only by making one's-self acquainted with the *science* of chemistry that one can thoroughly appreciate and understand its applicability to the arts, and among others, to that of Agriculture. The works exhibiting this applicability are, Liebig's two volumes and his "Familiar Letters," Professor Johnston's "Lectures on Agricultural Chemistry," and Boussingault's "Rural Economy."——*A Constant Reader*—Is it a work *descriptive* of Irish farming in its present condition that you want; or one pointing out possible improvements? Blacker's "Essay on Small Farms" and Sproule's "Treatise on Agriculture," adapted to the soil and climate of Ireland will suit you. We cannot give prices here.

Cows—*Querist*—It is not necessarily a fact that cows brought home and fed on the best of cut Grass in the house should give less milk than when in the field. They will generally give more *in proportion to the food they consume.*

Felt-roofing—*Protector*—We presume you have failed in consequence of not observing the following: "All Roofs covered with the felt must get a good coating of gas, or, what is the same thing, coal-tar; or, if more convenient, Stockholm tar, and dry fine-pounded chalk, whiting, or lime — the latter being well slaked by exposure to the air—in the proportion of 2½ buckets of tar to one of chalk, whiting, or lime, well boiled together, kept constantly stirred while boiling, and put on hot, with a common tar mop, or brush; at the same time, some coarse sharp sand should be sifted over it. In cold weather a less proportion of chalk will be found necessary. The process of coating should be commenced at the ridge of the roof, spreading it rapidly, working it well into the crevices, taking care not to go back over the work more than is necessary, yet to coat it effectually, the workman finishing as he goes on, and to every potful scattering with a brush dry sharp sifted sand before commencing another. The smell from the tar goes off in a few days. It is absolutely necessary that the day should be dry, and the felt perfectly so, before the coating is put on." If the felt be painted "it requires a first preparation, which can be either a slight coat of lime whitening, or a coat of clearcole, which is a mixture of parchment-size and whiting; a slight coat only is necessary—the former for out-door and the latter for in-door work. Your first coat of paint should be principally of red lead, boiled oil, and plenty of dryers, after which the paint will be found to take and dry effectively; but we would note that for out-door work, the coating of tar, slaked lime, and sand, will be found the most economical and effective."

Oats—The specimen is attacked by smut, a kind of fungus, which is very destructive to the grain of corn. Who could possibly be so absurd as to fancy it a *male* Oat?

Poultry—*J B* would feel obliged if any of our correspondents could give him a plan of a fowl-house for about 20 or 30 fowls.

Prices for Digging Drains—*Banks of the Dean*—Land can be dug out of a trench and placed on the surface for 1¾*d.* to 2¾*d.* per cubic yard, according to its texture and the form and depth of the trench, which, of course, affect the ability of the workman; and at this price a good workman will earn 2*s.* 6*d.* a day. A drain in soil of good easy texture without stones, 2 feet 6 inches deep, 4 inches wide at bottom, and 14 inches at top, may be dug for 2¾*d.* per cubic yard of its contents; this will amount to about 2½*d.* to 3*d.* per perch of 5½ yards.

Rabbits—*A Retired Cit* asks for information on the management and treatment of tame rabbits, with the sort of hutches best adapted for rearing and fattening.

Remedy for Smut in Oats—*Querist*—"Since the sporules (seed) of the fungus which produces smut enter the plants they attack by absorption at the roots, and since they are buried with those seeds to whose surface they have attached themselves, it is evident too great care caanot be bestowed in procuring clean seed, or in purifying such as may accidentally be infected."—*Professor Henslow, in the English Agricultural Society's Journal.* Steep your new Oats in brine, and dry them with lime dust.

Rye—*Querist*—It should be sown about the middle or towards the end of August.

Seed Wheat—*Querist*—Old Wheat if *newly threshed*, is, perhaps, the best as seed. New Wheat, if dry, is as good, but it needs pickling, to kill the smut with which it may be infected, which old Wheat does not need.

Sheep—*Wykeham Lodge*—The question, "How many sheep, in addition to 2 cows, can I keep on 9 acres of Grass land?" necessarily depends for its answer on the quality of the land, of which you have said nothing. You had better try in May 6 to 8 sheep per acre, for as many acres as remain of those which are left for depasturage, after deducting such an extent as will keep the 2 cows on till the 1st of August, when the aftermath will be ready for them.

Soot—*A Sub*—It is a most powerful manure. Its value depends, 1st, upon the charcoal it contains, the fertilising powers of which, in such a finely comminuted state, are great, and dependant on various circumstances; and also upon the salts of ammonia which it also contains. It is most efficient when applied to the ground just as the grain is sprouting through it. Sow it broadcast, 30 or 40 bushels per acre.

Steaming Food—*W W*—You need not wet the chaff; the steam will soon condense upon it; half an hour is long enough to steam it thoroughly, if you pass the steam through it rapidly. Our farm-horses have done well without hay for the last four years; they eat Oats, straw, and Carrots. We do not know whether they would thrive upon steamed Beans and chaff. We have no experience of *steamed grain* of any kind as food for horses. A horse will probably eat from 12 to 14 lbs. of hay chaff, after being steamed, besides his Oats; but this depends, of course, upon the quantity of other food he receives. Of course the chaff would be better all hay; but half and half Wheat straw and hay will make very good food, provided the horse receives a sufficiency of Oats besides.

Sulphuric Acid and Bones—*A Constant Reader*—We do not know of any case where this manure has been tried on Grass land. But considering that bones alone have as much influence on such land as they have on Turnips, there appears no reason to doubt that bones and sulphuric acid will also be as beneficial on the former as they have been on the latter. Try four bushels of fine bone-dust dissolved in half their weight of acid.

Threshing-Machine—*W D* must see that it is impossible for us to recommend machine-makers. In the first place, to do so would subject us to advertisement duty; and next, to do it justly, would require in any one a knowledge which neither we, nor perhaps any one else, possesses—a perfect knowledge of the agricultural machine manufacturers in the kingdom.

Ticks—*Sub*—Dipping is the most effectual remedy; but mercurial ointment or tobacco-water will destroy these pests. The former must be weakened by mixing with it two parts of lard, and gently rubbed into the wool. The latter may be made by boiling 2 oz. of tobacco, put in a bag, in a gallon of water, for half an hour. Whale-oil is the safest application, but not so effectual as the above; it may be mixed with one-fourth part of oil of turpentine.

Vetches—*The Writer* wishes to know whether there is such a plant as the Razor Vetch; whether it is English, and whether it is to be found in Norfolk? [Don't know it.]

Warne's Linseed Jelly—*C, a Subscriber* asks for the *experience* of any one on the comparative value of Linseed cake, and the seed bruised, using oil and husks together: the latter is decidedly the more nutritious—to what extent, however, we do not know. Linseed meal is doubtless more nutritious boiled to a jelly, and mixed with other food, than it would be when mixed with that food unboiled.

⁂ As usual, many communications have arrived too late.

Markets.

SMITHFIELD, Monday, July 28.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 4 to 4s 8	Best Long-wools	4s 8 to 5s 0
Best Short Horns	4 2 4 4	Ewes and second quality	4 0 4 6
Second quality Beasts	3 4 3 8	Lambs	5 4 6 0
Calves	4 0 5 0	Pigs	3 4 4 4
Best Downs & Half-breds	5 0 5 2		

Beasts, 2667; Sheep and Lambs, 24,920; Calves, 205; Pigs, 340.

We have again a short supply of Beef, with a brisk trade; the best Scots, &c., which are not at all plentiful, readily make 4s. 8d., and Short-horns 4s. 4d.—The quantity of Sheep is remarkably small for the time of year, consequently Mutton is near.—Lamb trade is not quite so good; some of the choicest qualities make rather over 6s.—Veal trade is better.—But little is doing in Pork.

Friday, Aug. 1.

We have but few home Beasts in to-day, there are several Foreign and Scotch Beasts. The trade is not quite so brisk, the general quality of the supply not being so good. Best Scots, &c., hardly make 4s. 8d., and Short-horns scarcely 4s. 4d.—Mutton trade is about the same as on Monday.—The best Lamb, which is scarce, is rather dearer.—Veal trade is better; a good Calf readily makes 5s.—Pigs, 3s. 4d. to 4s. 4d.

Beasts, 894; Sheep and Lambs, 10,570; Calves, 270; Pigs, 330.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, July 31.

Prime Mead. Hay	105s to 110s	New Hay	70s to 90s	New Clvr.	70s to 100s
Inferior Hay	— —	Clover	110 to 126	Straw	38 44

John Cooper, Salesman.

CUMBERLAND MARKET, July 31.

Superior Mead. Hay	115s to 120s	Superior Clover	120s to 130s		
Inferior	98 108	Inferior ,,	105 114	Straw	38s to 43s
New Hay	78 92	New Clover	84 105		

Joshua Baker, Hay Salesman.

WHITECHAPEL, Aug. 1.

Fine Old Hay	100s to 110s	Old Clover	120s to 130s		
Inferior Hay	— —	Infr. ,,	— —	Straw	36s to 44s
New Hay	63 84	New Clover	80 105		

HOPS, Friday, Aug. 1.

The Bine continues to grow, but the Burr is very backward in coming out, which is thought to be much against a heavy duty in late seasons. The crop is generally overrated. We have rather more doing in Hops.

Pattenden & Smith, Hop Factors

COVENT GARDEN, Aug. 2.—The supplies of fruit and vegetables, during the past week, have been good; but trade has not been very brisk. Of Pine Apples, of English growth, many of the specimens offered are remarkably fine; they have not altered in price since our last report. Foreign Pines are still supplied in great abundance. Peaches and Nectarines, although a little scarcer, are sufficient for the demand; and their quality is excellent. Apricots are becoming more plentiful, and Plums, in small quantities, have been offered. The supply of Melons is on the increase; good Dutch varieties may be obtained for about 2s. 6d. each. Cherries are not quite so plentiful as they have been; but Gooseberries and Currants are abundant, and excellent in quality. Strawberries will soon be out of season, the few offered are from 6d. to 2s. a pottle. Apples are becoming more plentiful, and Ridge Cucumbers are abundant. Among vegetables, Cauliflowers have not altered in price, nor has any difference taken place in that of Cabbages and Peas; but French Beans are cheaper, the best samples bringing about 3s. a half sieve. Potatoes are well supplied, at the same prices as mentioned in our last account. Turnips and Carrots are particularly good, especially the former; and Radishes, and other kinds of salading, are sufficient for the demand. Mushrooms have not altered since last week. Among cut flowers we observed Agapanthus umbellatus, Nerium splendens, Combretum purpureum; and handsome collections of Pelargoniums, Carnations, Picotees, and Roses.

FRUITS.

Pine Apple, per lb., 5s to 8s	Walnuts, per bushel, 6s to 8s
Grapes, Hothouse, per lb., 1s to 6s	Oranges, per dozen, 1s to 2s 6d
Peaches, per doz., 6s to 18s	— per 100, 7s to 15s
Nectarines, per doz., 6s to 15s	— bitter, per 100, 10s to 20s
Cherries, wall, per lb., 2s to 5s	Lemons, per dozen, 1s to 2s 6d
Apples, Dess., per bush., 10s to 15s	— per 100, 6s to 16s
— Kitchen, 6s to 12s	Almonds, per peck, 6s
Melons, 2s to 6s each	Sweet Almonds, per lb., 2s 6d to 3s
— Dutch, 1s to 3s each	Nuts, Barcelona, 24s
Strawberries, per pottle, 6d to 2s	— Brazil, 20s
Currants, per hf.-sv., 2s 6d to 5s	— Spanish, 20s
Gooseberries, per sieve, 4s to 6s	— Cob, 14s

VEGETABLES.

Cabbages, per doz., 3d to 1s	Vegetable Marrows, p. doz. 4d to 1s
Cauliflowers, per doz., 1s to 5s	Onions, per bunch, 3d to 9d
French Beans, per hf.-sv., 1s to 3s	— Spanish, per doz., 1s 6d to 4s
Sorrel, per hf.-sieve, 6d to 9d	Shallots, per lb., 6d to 10s
Artichokes, per doz., 1s 6d to 2s 6d	Lettuce, per score, Cab., 6d to 1s
Potatoes, per ton, 40s to 80s	— — Cos, 3d to 1s
— cwt., 1s 6d to 3s	Radishes, per doz. bands 6d to 1s
— bushel, 1s 6d to 3s	Mushrooms, per pottle, 8d to 1s 6d
— Kidney, per doz lb., 6d to 1s	Small Salads, per punnet, 2d to 4d
Turnips, per d. z., 2s to 4s	Basil, green, per bunch, 4d to 9d
Red Beet, per doz., 2s to 2s	Fennel, per bunch, 2d to 3d
Carrots, per doz. bchs., 2s to 5s	Savory, per bunch, 4d to 6d
Rhubarb, per bundle, 4d to 6d	Thyme, per bunch 4d
Peas, per bushel sieve, 1s 6d to 4s	Watercress, p. 12 sm. bun. 4d to 6d
Asparagus, per bundle, 1s to 4s	Parsley, per half sieve, 6d to 1s
Horse Radish, per bundle, 1s 6d to 6s	— Roots, per bundle, 9d
Cucumbers, per doz., 1s to 6s	Tarragon, per bunch, 4d
Spinach, per sieve, 9d to 1s 6d	Mint, per bunch, 2d
Leeks, per doz., 2s to 3s	Marjoram, per bunch, 4d
Garlic, per lb., 3d to 10d	Chervil, per punnet, 2d to 3d
Celery, per bunch, 1s to 1s 6d	

MARK-LANE, MONDAY, July 28.

There was a fair supply of Wheat this morning from Essex, and moderate from Suffolk and Kent, which sold at an advance of 1s. to 2s. per qr. upon the prices of this day se'nnight; free Foreign participated in the same improvement. The morning being fine and holders of bonded generally unwilling sellers, and insisting on high prices, the business transacted was less extensive than on Friday, but at 3s. to 4s. per qr. over the rates of Monday last.—Barley sells slowly at late prices.—Beans and Peas were in short supply and are unaltered in value.—The arrivals of Foreign Oats were again large, which caused the trade to rule dull, and sales were slow at a decline of 6d. to 1s. per qr. upon our late quotations.—The price of Flour has been advanced 4s. per sack.

BRITISH, PER IMPERIAL QUARTER,	S.	S.		S.	S.
Wheat, Essex, Kent, and Suffolk . White	50	54	Red .	50	54
—— Norfolk, Lincolnshire, and Yorkshire . —	—		White —	—	
Barley, Malting and distilling 25s to 29s	Chevalier	30	32	Grina.	23	26
Oats, Lincolnshire and Yorkshire . .	Polands	20	23	Feed	19	22
—— Northumberland and Scotch . .	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship	54	60				
—— Hertford and Essex	58	65				
Rye	29	32				
Beans, Mazagan, old and new 32 to 38	Tick	32	39	Harrow	34	40
—— Pigeon, Heligoland . 37 to 44	Winds —	—		Longped —	—	
Peas, White . . . 36 to 39	Maple	36	39	Grey	33	36

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4845 Sks. — Brls.	4445	70	5123	6?4	—	515	97
Irish .	200 „ — „	—	—	—	2695	—	—	—
Foreign .	— „ — —	6309	1370		22433	—	2032	246

FRIDAY, Aug. 1.

The weather since Monday has been and still continues cold for this season of the year, stormy with occasional heavy rains, and on the whole unfavourable for maturing the growing crops, which are more generally badly spoken of than hitherto, including also some parts of Ireland.—On Wednesday there were a few fresh runs of Essex Wheat at market, for which Monday's prices could not be exceeded, but there was a decidedly better feeling for bonded, in which an increased business was done at an advance of 1s. to 2s. per qr., and yesterday some extensive sales of Baltic parcels f.o.b. were effected at 2s. to 3s. above the rates previously obtainable.—This morning the English Wheat left over from last day realised fully Monday's prices; free Foreign met a moderate demand on the same terms; business in bonded was less extensive than on Wednesday, and the little offered for sale is held very firmly; Dantsic must be noted 2s. and Red Wheat 1s. to 2s. dearer than on Monday.—In Barley, Beans, and Peas, we observe no alteration.—Oats meet a slow sale at our quotations.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	4480	—	190	3250 Sks
Irish . .	—	—	16.50	—
Foreign . .	3850	290	3170	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
June 21 per Quarter.	47s 10d	29s 9d	22s 7d	31s 2d	38s 6d	38s 6d
— 28 . . .	47 11	29 7	22 2	32 1	39 3	38 5
July 5 . . .	47 11	29 10	23 8	31 0	38 10	39 5
— 12 . . .	48 10	29 0	23 6	33 11	39 8	38 1
— 19 . . .	50 0	29 6	23 4	33 8	39 9	40 12
— 26 . . .	51 7	29 3	22 5	31 7	40 3	38 10
6 weeks' Aggreg. Aver.	49 0	29 6	22 7	33 1	39 4	39 0
Duties on Foreign Grain	20 0	9 0	6 0	10 6	3 8	3 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 26.

PRICE.	JUNE 21	JUNE 28	JULY 5	JULY 12	JULY 19	JULY 26
51s 7d	..	..	..	..	..	..
50 0	..	..	..	..	..	..
48 10	..	..	..	..	..	..
— 2	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..

SEEDS, Aug. 1.

Canary - - per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	7l 10s to 9l
Carraway - per cwt	44	48	Mustard, White - p. bush.	10s	12s
Clover, Red, English -	—	—	— Superfine „ -	12	16
— — Foreign -	—	—	— Brown „ -	12	16
— White, English -	—	—	Rapeseed, English, per last	26l	30l
— Foreign -	—	—	Rape Cakes - per ton	—	—
Coriander - - -	12	18	Sainfoin - - -	—	—
Hempseed - per last	36	36	Tares, Eng. winter p. bush.	4	6
Linseed - - per qr	52	60	— Foreign - -	3	5
— Baltic - -	36	44	Trefoil - - per cwt	18	22
— Cakes, Eng. per 1000	11l 0	11l 10	Turnip (too variable for quotation)		

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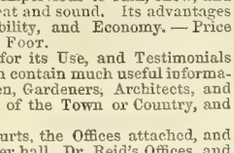
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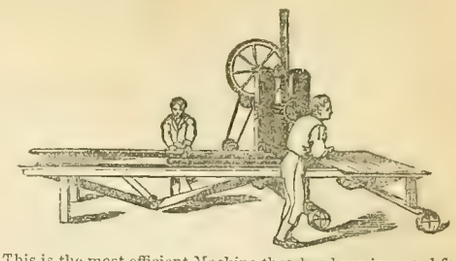
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1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ „ „	8,000	2½ „ „	3,200

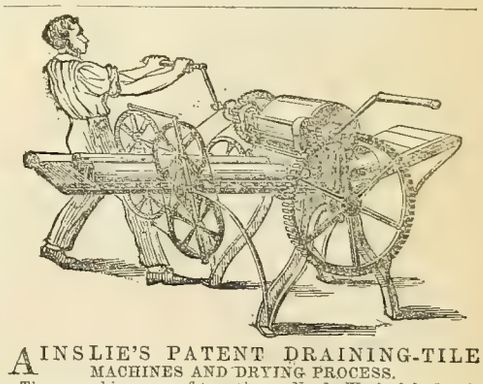
*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

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CAUTION.—SPURIOUS COMPOUNDS are frequently offered for sale, under the same names, (some under the implied sanction of Royalty,) the Labels, Bills, and Advertisements of the original articles are copied, and either a Fictitious Name, or the word "Genuine," is used in the place of "ROWLAND'S." It is therefore imperative on purchasers to see that the word "ROWLAND'S" is on the Wrapper of each Article. For the protection of the Public from fraud and imposition, the Hon. Commissioners of Stamps have directed the Proprietors' Signature to be engraved on the Government Stamp, thus—

A. ROWLAND AND SON, 20, HATTON GARDEN.

Which is affixed on the KALYDOR and ODONTO.

Sold by the Proprietors, and by most Chemists and Perfumers.

*** All others are FRAUDULENT COUNTERFEITS!!!

AN EXTRAORDINARY CURE OF A DISEASED KNEE OF TEN YEARS' STANDING, BY HOLLOWAY'S PILLS AND OINTMENT.—Mr. Edward Perryns, residing at No. 21, Fargate-street, Worcester, is now cured of an abscess on the knee and a stiff joint, which had been bad for 10 years, indeed ever since he was 14. He lost from the knee joint several pieces of bone, one being two inches in length. He had been under the most eminent of the faculty in Worcester, and at last was told that his leg must be amputated, as a cure was impossible. A perfect cure has been effected in this hopeless case by these wonderful medicines. Sold by all Chemists, and by the Proprietor, 244, Strand, London.

MEAT! MEAT! 25 lbs. Corned in Five Minutes, or Salted in Ten.—CARSON'S PATENT SALTING INSTRUMENT effects the above object in all climates. This Instrument is much valued by cooks in private families, residents in the tropics, captains, emigrants, hotel and eating-house keepers, butchers, and curers. With it a joint need never be lost, as it may be salted at any time, even at the instant a change is about to take place. Meat salted with this Instrument is rendered more tender, and, if dressed directly, all the properties of fresh Meat retained.—Price 30s. to 50s.—Cheap Depôt: C. Hockin & Co., 38, Duke-street, Manchester-square, and 1, Bishopsgate-street Within. Agents required for town and country.

CORNS AND BUNIONS.
Patronized by the Royal Family, Nobility, Clergy, &c.

PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances without causing the least pain or inconvenience.

Unlike all other remedies for Corns, its operation is such as to render the cutting of the Corns altogether unnecessary (indeed, we may say, the practice of cutting Corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth); it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate Corns and Bunions.

Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.

Prepared by John Fox, in boxes, at 1s. 1½d., or three in one for 2s. 9d., and to be had of C. King, Napier-street, near the Albert Saloon, Hoxton, London; and all wholesale and retail medicine venders in town and country. The genuine has the name of John Fox on the stamp.

A 2s. 9d. box cures the most obdurate Corns.

Ask for "Paul's Every Man's Friend."

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at Metcalfe's Sole Establishment, 130B, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

SUPERIOR FRENCH BEDDING.—HEAL & SON'S MATTRESSES, of fine long wool and horse-hair, are quite equal to the best that are made in Paris; and they having been the original introducers of French Mattresses, have paid great attention to their manufacture; also Spring Mattresses, combining the utmost elasticity with the greatest durability. List of prices of every decription of Bedding sent, free by post, on application to their establishment, the largest in London exclusively for the manufacture and sale of Bedding (no Bedsteads or other Furniture being kept).—Heal & Son, Feather-dressers and Bedding-manufacturers, 196 (opposite the Chapel), Tottenham-court-road.

Printed by William Bradbury, of No. 6, York-place, Stoke Newington, and Frederick Mullett Evans, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, August 2, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 32—1845.] SATURDAY, AUGUST 9. PRICE 6*d.*

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UNDER THE PATRONAGE OF THE MAYOR AND CORPORATION, FOR THE BENEFIT OF THE MANCHESTER ROYAL INFIRMARY.

THE Nobility, Gentry, and Public generally, are respectfully informed that a GRAND FLORAL AND HORTICULTURAL EXHIBITION will be held in the spacious Room at the Town Hall, King-street, Manchester, on Wednesday, the 13th day of August next, when Prizes will be awarded to the several successful competitors. The co-operation of all parties is most earnestly solicited in aid of the above charitable institution.

Tickets of Admission 2*s.* 6*d.* each, as well as Schedules of the Prizes, and Regulations for the Meeting may be obtained of Mr. T. D. WATKINSON, Seedsman, No. 6, Market-place.

HERBARIUM FLORÆ ATTICÆ.

W. PAMPLIN has just received from M. TH. DE HELDREICH, Athens, a small collection of about 200 species of the rarer plants of Greece, chiefly Attica, and the island Naxos; all named and localised.—45, Frith-street, Soho, London.

LYNE'S SEEDLING GERANIUMS OF 1845.—Descriptive Catalogues are now ready upon application to WILLIAM E. RENDLE, Union-road Nursery, Plymouth.—Aug. 9.

KING'S ROAD, CHELSEA.

WILMER'S COLLECTION OF CARNATIONS AND PICOTEES.—Florists, Nurserymen, Amateurs, and the Public in general, are respectfully informed that the whole of this choice collection of Carnations, Picotees, and the general Stock, are now selling at very low prices.

ENGLISH IRIS.

T. AND C. LOCKHART, FLORISTS, 156, Cheapside, London, respectfully recommend this and the month of September as the best for planting English IRIS. They are now sending out their best collection of 30 varieties for 1*l.*, and 36 varieties of their most showy early TULIPS for 15*s.* The latter are the most beautiful and early ornament for the drawing-room or conservatory.

NEW AND FIRST-RATE PELARGONIUMS,
Raised by E. Foster, Esq.; Rev. R. Garth; J. Drewry, Esq.; and Mr. Cock.

W. CATLEUGH begs respectfully to call the attention of the cultivators of the above to the following:—Orion, 63*s.*; Sappho, 42*s.*; Ardens, 42*s.*; Queen Pomare, 42*s.*; Isabel, 21*s.*; Exactum, 21*s.*; and other Seedlings raised by E. Foster, Esq. Dobler, Mary, Momus, Plantagenet, Repeal, Tritania, by the Rev. R. Garth. The Pearl, the best white out, raised by J. Drewry, Esq. Milo, fine dark, by Mr. Cock. Most of the above that were exhibited have obtained prizes. A good collection of Fuchsias, Azaleas, Roses, Auriculas, Pinks, and most Florists' Flowers; new Mushroom Spawn.

Hans-street, Sloane-street, Chelsea.

FUCHSIA "SERRATIFOLIA."—Two Advertisements having appeared in this Paper offering for sale FUCHSIA "SERRATIFOLIA," Messrs. VEITCH & SON beg to state that the plant was introduced by themselves from Peru, and is solely in their *own* possession, they have not parted with a plant to any one; the Advertisements alluded to are unauthorised by them, and they cannot but feel surprised that parties should advertise as ready for sale a plant they have never had; Messrs. BROWN & Co., of the Albion Nursery, in whose Advertisement it appeared 26th July, having been since applied to, have acknowledged that they have not the plant in their possession.

For particulars, description, and time of delivery, see Messrs. VEITCH & SON's Advertisement.

Exeter, August 9.

SEEDS FOR SOWING THIS MONTH, TO BE HAD OF WARNER & WARNER, SEEDSMEN, &c., 28, Cornhill, London.

	per paper—*s. d.*		per paper—*s. d.*
Cabbage, early incomparable	0 6	Geranium, new dwarf Scarlet	1 0
Ditto, The Queen	0 6	Lobelia splendens	1 0
Cauliflower, large early	0 6	Pentas carnea	1 0
Lettuce, Imperial Winter Cos	0 6	Primula sinensis fimbriata, mixed	0 6
Ditto, large Winter Cabbage	0 6	Schizanthus Hookeri	0 6
Onion, large Winter	0 6	Stock, intermediate, purple and scarlet, each	0 6

A GARDENER wishes to purchase from 30 to 40 FRUITING PINE PLANTS, and about 50 to 60 succession. Any Gardener or Nurseryman having any to dispose of *cheap* may send the particulars to A. B., Mr. Ashford, Forresters' Cottage, Bedford Lane, Clapham, Surrey.

YOUELL & CO. beg to remind their Friends they continue to supply the following fine CAMELLIAS in good healthy plants, set with flower-bud, at 30*s.* per dozen, the selection being left to them or to the Purchaser, namely:—Donkelarii, Monarch, Carolina, Conspicua, Double White, Lefevreana, Invincible, Double Striped, Chandlerii, Colvillii, Juleana, Beallii, Imbricata, Eclipse, Florida, Elegans, Ruckerii, Fimbriata, Perfecta, Frankfortensis, Tricolor, King Horsfallia, Hendersonii, Bruceana, Double Red, Rosa Mundi, Grand Frederic, Pompone, and Ochroleuca. Also,

The very best	FUCHSIAS	12*s.* per doz.
Ditto	CHRYSANTHEMUMS	12*s.* do.
Ditto	VERBENAS	6*s.* do.
Ditto	PETUNIAS	12*s.* do.
Ditto	PANSIES	10*s.* do.

For particulars, see former Advertisements.

Great Yarmouth Nursery, Aug. 9.

WOOD AND SON'S NEW CATALOGUE OF ROSES, NOW READY FOR DISTRIBUTION.
WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON, have just received from the Press their NEW CATALOGUE OF ROSES, for 1845-46, which has been prepared with much care, and will be found to contain every old and new variety worthy of cultivation.

Those friends who have in past seasons kindly favoured W. W. and Son with their commands, will receive a copy of the above in due course; in the mean time, Amateurs and lovers of Roses, the Trade and others, are respectfully invited to make early applications for the Catalogue, a copy of which will be sent GRATIS to all applicants.

SHILLING'S QUEEN CABBAGE.—1*s.* per oz., or 1*s.* 2*d.* free by post.

SHILLING'S HAMPSHIRE BATH COS LETTUCE, 2*s.* 6*d.* per packet, free by post.

In recommending the above to the Public generally, J. and S. SHILLING do so with confidence. The Cabbage has given universal satisfaction two years, and the Lettuce one year. The Cabbage for earliness, certainty of cabbaging, and flavour, has no equal. The Lettuce is hardy and superior to any other kind for winter and spring use, and will stand longer during the summer season. Northwarnbro' Nursery, near Odiham, Hants.

CARNATION-STRIPED CALCEOLARIAS.

JOSEPH PLANT, Cheadle, Staffordshire, having originated a family with the above character, begs to say that they may be seen in bloom any day, except Sunday, till the end of the present month.—Cheadle, August 9.

BECK'S SEEDLING PELARGONIUMS of 1844.—EDWARD BECK informs the Public that he will send out the following varieties, at the prices annexed, in October, delivered free in London, for cash only.

Rosy Circle	£1	1	0	Isabella	£1	1	0
Sunset	1	1	0	Juno	1	1	0
Mustee	1	1	0	Margaret	0	10	6
Marc Antony	1	1	0	Favorita	0	10	6
Desdemona	1	1	0	Zenobia	0	10	6

No more remittances can be received for ARABELLA, BELLONA, and OTHELLO, until further notice, the present stock being engaged.

As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.

N.B. No discounts, allowances, or abatements can be made in any case.—Worton-cottage, Isleworth, Aug. 9.

NOW SENDING OUT.

FUCHSIA—"CONSTELLATION." This large and desirable variety was raised in the Providence Nursery, and is one of the finest ever produced. For description of this extra brilliant variety, see Dr. LINDLEY's opinion, which will be found in the *Gardeners' Chronicle* of September 9th, p. 663, under the signature of "W. Miller." "Your hybrid, between Fulgens and Corymbiflora, is a very handsome flower: seed-pod small, tube long and slender, gradually increasing in size till the diameter is a quarter of an inch; the tube is a delicate Pink colour, having sepals of a greenish Primrose, forming a strong contrast to the bright and red corolla seen between them; the flower altogether is 3½ inches in length, and the buds are very handsome as they approach maturity; it flowers in a large broad bunch, which is divided into branches, containing altogether 150 flowers."

It was also submitted to the Editor of "The Floricultural Cabinet," whose opinion will be found in No. 128, under the signature W. M.—"Your Fuchsia is a very fine one, and deserves cultivation in every situation."

Plants 12*s.* 6*d.* each, and sent post-free in stout tin cases on receipt of a post-office order for the amount.—WILLIAM MILLER, Providence Nursery, Ramsgate.

FUCHSIA "SERRATIFOLIA."
SPLENDID NEW PERUVIAN FUCHSIA.

MESSRS. VEITCH & SON beg to inform those who have already ordered the above lovely plant, and the Public generally, that plants will be ready for delivery early in September. A beautiful specimen of it was exhibited at Chiswick on the 12th inst., when it was awarded the First Prize for New Plants (the large Silver-gilt Medal), and was universally admired.

For the information of those who may not have seen it, Messrs. V. would add, that it was imported by themselves from Peru, and is solely *in their own possession*. The flower is a delicate waxy rosy-pink, of large size, and great substance; the sepals tipped with green, the corolla with vermilion-scarlet; the foliage very fine and distinct, and the habit remarkably good; it is very free blooming, and altogether a most beautiful plant.

Strong plants in September, 21*s.* each.

N.B. The Trade will be allowed one plant over on every three they may purchase, and a List will appear in a future Advertisement of all those Nursery and Seedsmen who having secured early plants will be enabled to supply them.

A London reference, or Post-office Order, from unknown correspondents.

Orders executed in strict rotation as received.

Exeter, August 9.

WHALE'S SEEDLING FUCHSIA "EXIMIA."—A splendid globe-shaped flower, throwing from five to six flowers from each eye, on long foot-stalks; sepals and tube a glossy crimson; corolla dark violet-purple, tinted and margined with crimson; the sepals reflexing quite back, showing the beautiful corolla. Mr. Glenny says, "Your Seedling Fuchsia is exceedingly pretty and novel, and from the long foot-stalks I should think of splendid habit." Small plants, 10*s.* 6*d.*; strong flowering plants, 1*l.* 1*s.* A Post-office order will be expected from unknown correspondents.

W. R. W.'s other varieties of Seedling Fuchsias will not be sent out till spring, 1846.

Kintbury, near Hungerford, Berks, removed from Elcot.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

YOUELL AND CO.'s stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that these they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter in this the most eastern point of England proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season:—

2 years old	9*s.* per dozen.
3 ,,	12*s.* ,,
4 ,,	18*s.* ,,
5 ,,	30*s.* ,,
6 ,,	60*s.* ,,
Cedrus Deodar, 1 year, fine	18*s.* ,,
,, 1 foot	30*s.* ,,
Pinus excelsa, 3 inches	9*s.* ,,
,, ,, 4 to 5 inches	18*s.* ,,
,, ,, 18 inch, fine bushy plant	42*s.* ,,
,, Gerardiana, 2 years	30*s.* ,,
Abies Khutrow, 2 years	9*s.* ,,

Also fine specimen plants of older growth from 10*s.* 6*d.* to 2*l.* 2*s.* per plant.—Great Yarmouth Nursery, August 9, 1845.

FOREIGN SHEET GLASS.

FREDERICK ELPHICK having opened a communication with one of the
FIRST HOUSES IN THE FOREIGN GLASS TRADE,
IS ABLE TO OFFER
SHEET GLASS, OF EXCELLENT QUALITY, FOR HORTICULTURAL PURPOSES,
Cut to any dimensions, from 6 in. by 4, to 24 by 20 in. square, at 5*d.* per ft., all above that size to 42 in. by 36 in. square at 5½*d.* per foot, for ready money only.

Apply to FREDERICK ELPHICK, 28, Castle-street East, Oxford-street.

SMALL GLASS FOR HOTHOUSES, MELON PITS, &c. &c.—Several thousand feet of 4 ins. by 2, 4½ ins. by 2, 4½ ins. by 2½, 5 ins. by 2, 5½ ins. by 2, and 6 ins. by 2, from 1*d.* per foot—Address, R. COGAN, Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.—Bee-Glasses, Fish Globes, French Ornament Shades, &c. &c.

BRITISH SHEET OR HORTICULTURAL GLASS. In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen, the ivory handle is shaped like the blade of a curved penknife, sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—*Opinion of Professor Lindley in the Gardener's Chronicle, July* 29, 1843.

GEORGE PLUM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post office order for 3*s.* 2*d.*

G. P. cautions Floriculturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

SEEDS.—CORNER OF HALF-MOON-STREET
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the
"ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

ORNAMENTAL WIRE-WORK.

G. B. THOMPSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 390, Oxford-street, their large stock of ORNAMENTAL FLOWER-STANDS, TRAINERS, ARCHES, and fancy Wire-work, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements. Also their Improved WATER-POT, with finely-perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

HENRY HUNT'S PATENT GARDEN POTS AND STANDS. For opinions of Horticultural and Scientific Works, see Advertisement in *Gardeners' Chronicle*, April 12th. WHITE BISCUIT, STONE, and WEDGEWOOD WARE, of various colours and designs, for Drawing-rooms, as patronised by Her Majesty, and many of the nobility; from 9*s.* to 7*l.* 10*s.* per dozen. Wholesale and Retail Depôt, 29, Queen's-row, Pimlico, near the Palace.

EXHIBITIONS AT THE GARDEN OF THE HORTICULTURAL SOCIETY OF LONDON, FOR THE YEAR 1846.

THE EXHIBITIONS will take place on the SECOND SATURDAYS in the months of MAY, JUNE, and JULY.

All Persons, whether Fellows of the Society or not, will be at liberty to send subjects for Exhibition.

Every Exhibitor will be required to deliver, upon first entering the Garden, a fairly-written statement of the Letter in the following Classes under which he intends to exhibit; he will not be permitted to pass beyond the Carters' Yard till this is done; and no alteration in the entries will be afterwards permitted *upon any pretence whatsoever.*

Class I.—FLOWERS; for which Nurserymen and Private growers exhibit independently of each other.

A PELARGONIUMS: in collections of 12 new and first-rate varieties, cultivated with superior skill, in 8-inch pots. GB—SG—LS

B PELARGONIUMS: in collections of 12 varieties, in 8-inch pots. GB—SG—LS

C PELARGONIUMS: in collections of six varieties, in 11-inch pots. LS—SK—SB

D ROSES, in pots: Amateurs to show in collections of 12, Nurserymen in collections of 18, distinct varieties. GB—SG—LS

N.B. The Judges are required to disqualify any collection which shall be found to contain a plant which has been recently placed in the pot from the open ground.

E Roses in pots; single specimens displaying superior cultivation. SK—SB—C

F Moss Roses in loose bunches, each consisting of three trusses as they are gathered, so as to exhibit, as far as possible, the habit of the variety: in 12 varieties. SK—SB—C

G Other Roses, exhibited as in the last letter, and in 30 varieties. LS—SK—SB

N.B. No one who exhibits in this letter, can also compete in the following.

H Other Roses, exhibited as in the letter *F*, and in 25 varieties. SK—SB—C

N.B. Higher Medals than those here offered for Roses cannot be given by the Judges. And if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I CAPE HEATHS: in collections of 20 entirely distinct varieties. GK—GB—SG

N.B. It is expected that the same plant shall not be exhibited on more than one occasion.

K CAPE HEATHS: in collections of 12 entirely distinct varieties. GB—SG—LS

L CAPE HEATHS: in collections of six entirely distinct varieties. SG—LS—SK

N.B. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M CAPE HEATHS; single specimens displaying very superior cultivation. LS—SK—SB

N CALCEOLARIAS, in sixes: in 8-inch pots. LS—SK—SB

O CARNATIONS, in pans of 24 distinct varieties. LS—SK—SB

P PICOTEES, in pans of 24 distinct varieties. LS—SK—SB

Q PINES: in pans of 24 distinct varieties. SK—SB

R RANUNCULUSES, excluding Turbans; in stands of 12 distinct varieties for private growers, and 24 for Nurserymen. LS—SK—SB

Class II.—FLOWERS; for which all persons are admitted to equal competition.

S STOVE OR GREENHOUSE PLANTS: in collections of 40 plants. LG—GK—GB

N.B. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums, to be excluded from *S*, *T*, *V*, and *W*

T STOVE OR GREENHOUSE PLANTS: in collections of 20 plants. GK—GB—SG

N.B. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*

V STOVE OR GREENHOUSE PLANTS: in collections of 12 plants. GB—SG—LS

W STOVE OR GREENHOUSE PLANTS: in collections of six distinct species. SG—LS—SK

X GREENHOUSE AZALEAS: in 12 distinct varieties. GB—SG—LS

Y GREENHOUSE AZALEAS: in 6 distinct varieties. SG—LS—SK

N.B. No one can show in both classes of Azaleas

Z Collections of NEW HARDY EVERGREENS in pots; LS—SK—SB

AA EXOTIC ORCHIDS: in collections of not fewer than 20 species. LG—GK—GB

N.B. Exhibitors cannot show in more than one of the classes, *AA*, *BB*, and *CC*

BB EXOTIC ORCHIDS; in collections of 12 species. GK—GB—SG

CC EXOTIC ORCHIDS: in collections of six species. GB—SG—LS

DD SCARLET PELARGONIUMS: in six distinct varieties, in pots not less than 11 inches in diameter. LS—SK—SB

EE PELARGONIUMS: in six DISTINCT SPECIES. SG—LS—SK

N.B. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden cross-breds.

FF ACHIMENES; in collections of six species, grown in pans not less than a foot in diameter. LS—SK—SB

GG Distinct varieties of Tall CACTI in flower. GB—SG—LS

N.B. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH FUCHSIAS: single specimens. SK—SB—C

N.B. No person can receive more than one prize under this head

II HARDY ORCHIDS in pots, in collections; exclusive of Cypripediums. SK—SB—C

KK HARDY CYPRIPEDIUMS. SK—SB—C

LL HYBRID ALSTRÖMERIAS; cut specimens. LS—SK—SB

MM STATICES; in collections of six species. SG—LS—SK

NN New or extremely rare ORNAMENTAL PLANTS. SG—LS—SK

OO SINGLE SPECIMENS of very superior cultivation. SG—LS—SK

PP Miscellaneous subjects. SK—SB—C

RR SEEDLING FLORISTS' FLOWERS. SK—SB—C

Class III.—FRUIT; for which Market Gardeners, Fruiterers, or Persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY ripe and WELL COLOURED, and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary, it will be disqualified.

SS Miscellaneous collections of FRUIT, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS

N.B. Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter. Exhibitors of collections of Fruit should bear in mind that however fine one or two of the kinds in their collection may be, they cannot gain a prize unless they furnish at *least* three different kinds of fruit of *first-rate quality.*

TT GRAPES. SG—LS—SK—SB

VV PINE APPLES. SG—LS—SK—SB

WW PEACHES OR NECTARINES, in dishes of six specimens. SK—SB

XX Other kinds of Fruit. SK—SB—C

PRINTED SCHEDULES MAY BE OBTAINED UPON APPLICATION AT 21, REGENT STREET.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority: or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

DIBBLED WHEAT.—All who are desirous of Dibbling Wheat during the coming season, are recommended to make a trial of

DINGLE'S HAND DIBBLING MACHINE,

which is so constructed that the soil cannot choke it.

Apply to WILLIAM E. RENDLE and Co., Union-road, Plymouth.—Aug. 9.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

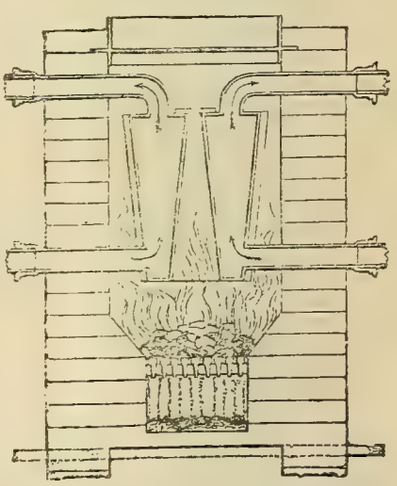
HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-Lights made and glazed from 1*s.* per foot, at JAS. WATTS'S Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

EXHIBITION OF CARNATIONS, PICOTEES, AND FUCHSIAS.

YOUELL AND CO.'s well-known Superb Collection of the above will commence on MONDAY next, the 11th inst., and continue about three weeks. Open to the public gratis, from 9 o'clock till 6, Sundays excepted.
Great Yarmouth Nursery, Aug. 9.

CARNATIONS AND PICOTEES.

W. CATLEUGH begs to inform the Cultivators of the above, that his plants are in good bloom, and those raised by J. L. Puxley, Esq.—the Prince of Wales, Princess Royal, Rising Sun, and other Seedlings.—Hans-street, Sloane-street, Chelsea.

The Gardeners' Chronicle.

SATURDAY, AUGUST 9, 1845.

MEETINGS FOR THE FOLLOWING WEEK
MONDAY, Aug. 11—Royal Botanic Anniversary . 1 P.M.
COUNTRY SHOW.
WEDNESDAY, Aug. 13—Manchester Floral and Horticultural.

THE opinion which we gave a short time since (p. 471), as to the possibility of forming admirable winter gardens at a small cost, and of dispensing to a great extent with the ordinary greenhouse, is strongly confirmed by the following very interesting letter from the Dean of MANCHESTER, who, our readers do not require to be told, is one of the most experienced of all the amateurs in which this country is prolific. In a letter now before us, he says,

"In the botanical garden at Padua (the oldest, I believe, in Europe), I observed, with much gratification, the healthy and thriving state of an extensive collection of greenhouse shrubs growing in the open ground. The thermometer falls at Padua to 7° Reaumur, which is about 16° Fahrenheit, in the winter, and neither Orange nor Lemon-trees usually survive the winter in the garden without protection. Some of the shrubs and dwarf trees, of which I speak, were trained so as to cover the whole extent of the south wall of the garden; and, at a sufficient distance not to overpower them, a row of standard shrubs was planted in front. That space might, I think, have been a little increased, and a gravel or flagged walk, 2 feet wide, laid between the two rows, with advantage; and I suggested the planting semi-hardy tubers, bulbs, &c. between the shrubs, and Professor Visiani seemed disposed to adopt the suggestion. Over the whole a moveable glazed building is raised before the approach of winter, and it is taken away in the spring, so that no vestige of it was observable.

"Such plants as Erica arborea, Azorean Jasmines, Metrosideroses, and Acacias of New Holland, &c. are generally killed in England by the freezing and explosion of the sap at 19° or 21° Fahr.; and it often happens that during a course of years the thermometer does not fall below 19° or 20°, and that for a few nights only; but there can be no doubt that as the plants, which are killed by the winter at Padua, when the glass falls to 16°, thrive perfectly with such protection, a vast number of greenhouse plants will do so here. Some, such as Camellia japonica, will do so infinitely better here, because too powerful sunshine is destructive to them in hotter countries. The disadvantage experienced in our climate from the wood not ripening so well in the autumn, would be obviated by putting the glass on earlier than at Padua.

"With respect to such shrubs as require further protection from frost, there would be no difficulty in supplying it by keeping them in a compartment with an internal partition, and placing over them a double glazed case in the manner of the double windows used on the Continent to exclude the piercing wind in winter, and removed in summer; and no greenhouse shrub would suffer from frost with that covering. The back wall in that part might be built thicker, or with a cavity between two single walls, which would exclude the frost more effectually. I would further suggest a lower set-on along the front to cover plants of humble growth. Of course the protection in winter will be more effectual, if thick glass is used, and of sufficient lengths not to require laps.

"I apprehend, that, as you have shown us where to get good and thick glass of considerable length at a very trifling cost, the mode of cultivation which I am now suggesting must soon come into use extensively; and the trade should immediately begin to prepare cast-iron moveable frames adapted to such purposes, and the glaziers to procure ample supplies of serviceable glass from Antwerp, shipped to Liverpool, York, &c., as well as London. I am inclined to think the cheapest mode would be to raise the front wall only 1 foot, and let the glazed frames reach from the back wall to it without any upright glass. If the wall were 12 feet high, and the front stones 12 feet from the wall, the lights would be 16 feet long, or in two lengths of 8 each, supported by iron pillars in the middle. The row of standard shrubs must be cut to 7 feet or lower when the lights are put on; and there would be space enough for a walk behind them, and for lower shrubs and herbaceous plants in front. A moveable front 2 feet high might be advantageously placed upon the front wall, of which the lights might be hung upon revolving iron pegs let into the uprights, and so be easily opened. Portions of the front wall might be concealed by an internal and external projection of rock-work, and the intermediate portions concealed by dwarf-flowering shrubs."

These excellent suggestions are well deserving consideration. The only point about which we entertain a doubt is the use of cast iron sashes. We suspect that wood will be a better material for *moveable* sashes.

WE print elsewhere letters from the respectable houses of RENDLE & Co., and PONTEY & Co., of Plymouth, on the subject of GUANO; and, at the same time, we think it right to say that the course taken by those firms is exactly what is demanded in order to stand above suspicion. Peruvian Guano, it is well known, can only be had at first hand, in London, of Messrs. ANTHONY GIBBS & Co.; and if wholesale dealers cannot prove that their London bought Peruvian Guano is derived directly from that source, we advise nobody to become their customers. Not that such a proof would be entirely satisfactory, because the Guano might be adulterated elsewhere than in London, or even in the open stream of the Thames; but still it would be some guarantee of the genuineness of the article.

That the Thames is a scene of the fraud we indicated last week; and we have no doubt that the trick is still carried on there, or in the neighbourhood, for Epping loam is sifted and carted away to this hour. This is a fortunate fact; because it multiplies the chances of detection, and shows the public that what we have been exposing is no bygone roguery, but a fraud still daily practised.

We have made out all the facts connected with this phase of the Guano trade. We have the names of all the parties concerned it, their residences, and occupations, and we have traced the operation to the rascal who has cheated the country in the shape of a London merchant. This information we reserve for production in a court of law, if any one should think it advisable to bring actions against the gentleman or his agents. Such is the course which purchasers should pursue; and we will gladly give their solicitors all the intelligence that we have procured, at considerable expense, upon this nefarious subject.

What we would advise is this. Let every one who has bought Guano test it by the following simple process. Put a couple of ounces into a crucible, and heat it to redness in a fierce fire. If genuine it will become black; and when the burning has been carried on long enough it will change to a white ash, losing about half its weight, or even more. But if loam has been mixed with it, the ash will be red or pink, and the loss of weight will be much less. In the latter case the sample is to be suspected, and should be put into the hands of a chemist, who would, for a very small fee, decide immediately whether earth had been used for adulteration or not. If that is found to be the case the buyers should immediately bring actions against those who sold them the guano; and the latter can in their turn proceed against the gentleman in London. There can be no doubt about the result, with a jury of farmers, or gardeners. A crucible can be had for a few pence in any market town; but if there should be a difficulty about it, a very good shift may be made with a tobacco-pipe, the only objection to which is that it holds so little.

Mr. RENDLE doubts whether the vessel that was loaded in the Thames was really a Plymouth schooner. We have no reason to disbelieve the fact. But she might have been taken up expressly for the purpose, or she might have run round to Bridgewater, or her destination might have been the north of England. For there is no probability that the persons who have been guilty of these transactions have confined their operations to the south of England. We therefore advise the buyers of Guano all over the country to look to it.

We should, however, have thought Devonshire and Cornwall very likely counties to become the scene of Guano roguery; for it was in a city in one of them that a certain letter was written, which, for the edification of the public, we now proceed to print from the original.

SIR,—You may sell a great deal of our Chemical Guano at the same prices as Foreign, and thus gain 5*l.* or 6*l.* a ton profit: and may easily put 200*l.* into your pocket during the next four or five months. *No time should be lost in pushing it.* The plan is to get 500 bills printed (cost 10*s.*), and circulated by the penny post, &c. to gentlemen and farmers. You may have it from my Exeter warehouse in sacks 2 cwt. each, or from London. If you are not inclined to do it, would you hand my circular to some one in your place you think likely?

Yours truly, C. P. DOWNMAN,
Per THOS. WEEKS.

Can this Mr. DOWNMAN be the person who advises farmers not to "suffer themselves to be humbugged," and kindly cautions them against "the tricks played by unprincipled persons?" We do not profess to answer that question. Those who have been dealing with him can judge for themselves. Of his acts and deeds we know nothing further than this letter tells us; and he is not the broker who shipped the so-called Guano and Epping loam on board the Plymouth schooner lying off London Bridge.

AMONG the HORTICULTURAL OPERATIONS which demand attention in the summer, is one that few gardeners think of practising; and which, if put in practice, is often performed either too soon or too late. We allude to the August stopping of Apple shoots.

It is well known that very large quantities of admirable fruit can be obtained from well managed dwarf standard Apple-trees; and that it is generally finer than what comes from tall standards. But gardeners are continually failing in their management of these trees, which may too often be seen running to wood, and but thinly sprinkled with a crop. Nevertheless the management is so simple that a maid-servant may undertake it. All that is necessary to insure abundant fruit is to practice diligently the August stopping. This consists in breaking or cutting off at that season, from 3 to 4 inches of every summer shoot, and then in midwinter cutting back two-thirds or one-half more of such shoots, so as to reduce them to the length of 4 to 6 inches.

The effect of this system is to prevent the sap of the trees from expending itself in the over-lengthening of branches. The ends of the summer shoots being broken off the sap is arrested in its onward course, and forced into lateral channels. Those lateral channels are the buds in the axils of the lower leaves. There it collects, is occupied in the organisation of short lateral branches, which finally become fruit-bearing spurs. In this way we have seen dwarf trees covered with bearing wood down to the very graft.

If observed from the beginning this practice renders a dwarf tree a most prolific object. If neglected at first it may at any time afterwards be put in force with this difference in the result that it takes a much longer time to bring into bearing a tree rendered barren by long mismanagement than to secure abundance from a tree well treated from its earliest youth.

The reason why August is chosen for the operation is this; if the summer shoots are shortened earlier the side-buds will all break from the excessive influx of sap; if performed later there will not be a sufficient propulsion of sap into them to effect the desired object. It will frequently happen that with the best management some of the side-buds will break; but they will be near the end of the branches, and will be removed with the winter pruning.

We have said that in winter-pruning the shoots are to be cut back to the extent of half or two-thirds of their length. It is hardly necessary to explain that it is only the weakest shoots that require to be shortened by two-thirds; and that the strongest are to be left with half their length.

CIRCULATION OF SAP IN PLANTS.

PERHAPS there never existed an opinion to which assent has been more generally given, one that has been less questioned—the only inquiry being as to its cause—than the circulation of sap in plants. Now, in a fundamental principle, upon which is based so much of our theories on the mode in which plants receive their nourishment, and of our practice in supplying them with it, I think this has been unfortunate; and the more so, as I must think this opinion rests on but equivocal data. It no doubt took its rise from the fondness of the age for analogy; the circulation of the blood had been discovered in the animal, and an analogical action was fondly expected in the vegetable world; the field of discovery was entered with this prepossession, and with the circulation of sap, mouths in roots, lungs in leaves, arteries, veins, and irritability in vessels, nervous sensibility and even discriminating powers in plants were found; a heart, however, the very principle of activity to most of these functions, was by some oversight forgotten. This forcing-pump of the animal system exists not in the vegetable, and we have here action without cause, and a fertile source of theories and conjectures the most absurd, which are now mostly exploded, but which have left us without any at all to account for it; or, in the words of Du Petit Thouars, we are now satisfied that the circulation of the sap depends on an inherent power, with which Nature has been pleased to endow vegetables; a very valuable solvent for a gratuitous difficulty. Although unequal to the task of inquiry into this subject, yet, as it is one of much interest

and importance, I would claim permission to invite attention to the view I have taken of it.

On what grounds, then, does this circulation of the sap rest? Dr. Darwin, Knight, and others, have found that a plant or cutting having taken up by its roots, or by the lower extremity of the stalk, a coloured infusion, which, passing along the upper sides of the leaves, is lost at their extremities; while a milky or pale fluid is seen in vessels on the lower sides of the leaves. This circumstance is adduced, with a confidence I do not think it deserves, as proof of the circulation of the sap; for I would ask, what proof have we that these two fluids are identical? What proof have we of connection between the vessels of the upper sides of the leaves, granting such vessels to exist, and those of the lower sides? But there is much doubt whether this coloured sap or fluid really ascends by vessels at all. De Candolle says that in observations so delicate, it is impossible to distinguish whether the colour is inside or outside of the vessels, and that he, in opinion, coincides with M. Kieser, that all vessels of plants are probably air vessels. But the proofs of the circulation of the sap by these coloured effusions, are rendered still more doubtful by its being physically against our experiences and all known laws of mechanics and chemistry, that a colouring matter, probably solid and also more ponderous than the elements of water, should pass off, leaving the fluid, or a great portion of it, in which it was suspended, behind it; and that this fluid thus deprived of some of its weight should, without any other assigned cause than gravity, change its motion from an ascending to a descending one; now, though light or other causes discharge colouring matters from dry bodies, I am not aware that they do from fluids; generally, I think I may say invariably, the fluids evaporate, and leave the colouring matter attached to some body to which it has more affinity than to the fluids, or in the bottom of the vessels which contained them. I believe this is the case even with the most evanescent colours, even those of flowers.

De Candolle, with a full persuasion of the circulation of the sap, states his conviction of the probability of the leaf containing two systems of vessels, the one which carries the ascending sap into contact with the air for its elaboration, and to permit the evaporation of its superabundant parts; the other which receives the elaborated sap and reconducts it into the stem where it serves for the nutrition of the plant. "Ses phénomènes physiologiques prouvent l'existence de ces deux fonctions dans les feuilles; mais l'observation anatomique ne les a point distinguées; on ne sait pas même si les deux fonctions sont exécutées alternativement par les mêmes organes, ou si, ce qui est plus vraisemblable, elles sont l'apanage de deux systèmes differens. Le mesophylle comprend probablement deux systèmes d'organes, mais que l'anatomie ne sait pas encore distinguer." Physiological phenomena proves the existence of these two functions in the leaves, but anatomical observation has not at all observed them; it is not even known whether the two functions are performed by the same organs alternatively, or whether, which appears more probable, they belong to two different systems. The mesophylle (the substance between the upper and lower skins of the leaf) probably contains two systems of organs, but anatomy has not yet been able to discover them.

The belief, then, of the existence of vessels for the circulation of the sap rests on the circulation of the sap; and the belief of the circulation of the sap rests on the existence of these vessels. I think I may rest in this circle. But there is a large class of plants without vessels, constituted solely of cellular tissue; now, if these plants (Mosses, &c.) take up the fluid required for vegetable sustenance, is it not consonant with sound reason that vascular plants may take up this fluid also, through their cellular tissue? is it not consonant to sound reason that this fluid having been originally taken up by organs (the roots) destitute of vessels, should continue its progress through the same pulpy medium into which it was first received, and which forms so large a portion of every plant? The very name parenchyma indicates this. We know that the fluid thus taken up is generally diffused throughout the cellular tissue in plants that have no vessels, and we may therefore infer that vessels are not necessary for the conveyance of this fluid. But De Candolle makes this matter very clear; he says, however the richness of a soil may increase the size of a leaf it does not add to the number of its vessels, the increase in size depends on the greater development of the cellular tissue which fills up the enlarged spaces between the fibres.

We have then a plant saturated by a fluid; I think we must have considerable doubt whether this fluid is contained in sap vessels, but we can have no doubt that the whole of the parenchyma of a plant is full of it, but whether by vessels or through the cellular tissue this fluid is conveyed to the leaves, we have some vague ideas that it contains, and derived from the soil through the roots, certain vegetable principles; and we assert that this vegetable fluid, having by perspiration got rid of some of its aqueous parts, is worked up in the leaves by certain agencies and returned towards the roots and diffused through the plants by appropriate vessels, a proper juice for the formation of the various matters proper to the plant. That this fluid does contain vegetable principles essentially is, I think, very much to be questioned.

Conservative wisdom has implanted in all created beings an attractive force towards the means of their support; the roots of plants are subjected to this force which directs them to seek water, and water alone they appear to seek unimpregnated with vegetable principles, for did they not they would remain in that medium in which vegetable principles most abound, and which we have abundant proof they do not. We manure on or near the surface, and the roots of plants pass through the manured soil and penetrate into the earth far beyond the action of the manure, and the more we render a soil, by disintegration and mixture, and by the admission of air, chemically active—a more efficient decomposing medium, and, therefore, the more ready to give out its vegetable principles, the deeper the roots descend, seeking in the undisturbed and crude subsoil, not as Mr. M'Arthur supposes, fertilising matter, but plain unvegetised water. Recent experiments of chemists favours this hypothesis, by proving that rain water in percolating through the soil loses its vegetable principles, and I question very much whether, as Mr. M'Arthur states, that an unstirred subsoil derives fertility from the application of manures to the laboured soil; not only from the result of these experiments, but that as animal and vegetable matters in decomposing, form gases which must not descend, but either escape into the air or are absorbed by the superincumbent soil; the action of water being rather to assist the decomposition and formation of gases than to absorb them after they are formed, and to carry them down in solution. We know that water is purified by filtration. I do not deny that the roots of plants may take up vegetable principles in a state of solution in water, which may be incidentally offered to them, because they have no power of refusal; but I believe they are rarely offered to them, and that they are not essential; and that if we force them upon them we are about as extravagant as the man who, in a windy day, would scatter guano over his fields by throwing it high into the air; his crop might receive some benefit from it, but his neighbour would get more; for though some of the vegetable principles would, no doubt, remain in the parenchyma of the plants, a very large share would evaporate by the leaves. From what I have stated, and from various instances which I have before submitted to the public through the columns of the *Agricultural Gazette*, I conclude that water alone is essentially absorbed and taken up by the roots, and therefore that the ascending sap contains no vegetable principles to be elaborated by the leaves. But it appears that the quantity of fluid that must evaporate from a plant has not received the consideration it is entitled to; it seems rather to have been merely incidentally noticed as a perspiration. Take a tree, a shrub, an herb, its branches, and its foliage, continually in motion and violently agitated by each passing breath of wind; a hot and parching sun, a dry atmosphere, heat, light, and all other predisposing causes of evaporation in full activity, and then calculate how much of that fluid that has been drawn up from the root to the leaf can be left in the leaf to take its downward course: the fluid and dry state of the leaf will deny that it can transmit a current of elaborated fluid sufficient for all the various demands of the vegetable. Again, this returning fluid must evaporate, must sustain other changes to give it the more solid forms which it is destined to take on without any causes for evaporation or chemical action being provided. It is considered probable that the chemical changes, originating in the leaf, are carried on in the body of the plant—it must be so—yet, with a descending elaborated juice, I do not see how it can: I know that chemical action, commencing at any point, will cause a disturbance in adjacent parts so as to extend and continue the chemical action, because it meets with matters in different combination than the one in which it is placed; but this is not the case here; here we suppose a regular current through vessels of an homogeneous fluid; it encounters no matter to disturb, for above it and below it a fluid of the same combinations exist—it has nothing to take up, nothing to act upon in its downward course from the leaves in which it has taken in its existing form. The term perspiration is not even strictly analogous, in the animal it is an excrementous matter, in the vegetable it takes place previous to the elaboratory process; it is as simply and purely evaporation as that of a piece of linen hung out to dry. De Candolle, with his usual perspicuity, distinguishes, which I believe English writers do not, between evaporation and perspiration in plants; the former he considers in the light I have taken of it, as a general passing off of water from all parts of a plant, and the latter as issuing only from the vessels through their stoma; and which, although aqueous, and therefore apparently contradictory to what he has advanced as to the uses of these vessels, yet is not so in fact, for in the chemical changes taking place in a plant some aqueous particles may escape with the gases which we know are evolved.

But it may be necessary to show the connection of the stoma with the vessels, and here I must again have recourse to De Candolle, than whom I know no better authority. 1st then, he says:—"The open orifice of stomata has been seen and admitted unanimously by all observers, with the exception of M. Mirbel." 2d "That the stoma exist more or less defined in all surfaces of the nature of leaves of vascular vegetables," and that "they are wanting in all the organs of all the cellular vegetables." 3d "That there are leaves where the stomata approach each other and form a species of little rosettes or rounded spots. This approach of stoma in rosettes on the under side of the leaf of the Begonia spathulata is seen in small spots by the naked eye; it is still more remarkable upon the leaves of Crassula cordata and C. arborescens; for the rounded spots which one there sees with the naked eye are heaps of stoma. This fact suggested to me the idea of the stoma being possibly the orifices of vessels; for each of these heaps of stoma was the termination of a fibre, which is itself a bundle of vessels. "At the same time he admits that he has never been able to see the connection (*continuité*) of a vessel with a stomata," but that, "M. Comparetti is very sure he has seen vessels terminate in stoma." M. Mirbel, on the contrary, says, "they are orifices of cells," and M. Kieser considers them as "being the orifices of the intercellular canals."

That the opinion of their being orifices for the admission or emission of air appears very strongly supported by the facts, as stated by De Candolle, that they are wanting (perhaps closed) in many vascular plants so situated as that they could not be available as air mouths, thus "they are not found on the leaves or on the stems of plants which live under water, such as Zostera, Ceratophyllum, &c., and that in plants where a part of these organs are in water and a part out of it, they are only found in the parts exposed to the air as many Potamogeton, Myriophyllum, Nymphæa, &c. The aquatic Ranunculus has stoma when it rises into the air, and wants them when it is made to live under the water."

It appears, then, probable, that the vessels are air vessels only, that the stoma are their mouths, and that they admit or emit essentially only gaseous fluids; that they are disposed so in the leaves as best adapts them for catching the rising gases from the soil, being in the under sides of the leaves of most trees, and in both sides of the leaves of the Grasses, both sides being from their position equally accessible to this stream of gases; and in the upper sides only of leaves resting on water as being the only sides by which air could enter, and not existing (or closed) in the parts of vascular plants under water.

The theory then that I propose, is, that plants absorb (essentially) water only from the soil by their roots, which is carried up the plant through its cellular tissue, that this water evaporates, principally at the leaves, and that this evaporation is the cause of its ascent, the parenchyma remaining necessarily always saturated with water. That the other constituent parts of plants are conveyed to them in an aeriform state through the stoma into the vessels in a constant current, with a velocity, and in quantity proportional to the demand and supply and stimulating causes; that these gases are supplied by the air, but principally by a stream arising from the earth of decomposing matters contained in it. That these gases, with the water contained in the parenchyma and with heat, light, and electricity, act upon each other and form the various matters found in plants, and that thus a return of the sap, in the general acceptation of the term, is not necessary, and does not take place.—*J. M. Goodiffe, Granard.*

Home Correspondence.

Adulteration of Guano.—We have just read the Leading Article of Saturday last relating to the adulteration of guano, and as we are the largest dealers here we think we should co-operate with you in detecting and finding out the parties connected in such illegal proceedings as you describe. It is well that farmers have a paper so much interested in their behalf—every one connected with agriculture must acknowledge their grateful thanks for your proceedings, and all the respectable dealers connected with the guano trade must also be grateful for the manner in which you bring to light the doings of nefarious persons, who would otherwise be enabled to undersell the fair dealer; whereas you are now a great check, and I trust will be the means of stopping altogether the dishonest transactions of avaricious dealers. Immediately on reading the article alluded to we went to the South Devon Shipping Company, and found from them that they had, in the year 1845, brought from London 20 tons of guano for Mr. Rogers, of Tideford; 30 tons for Messrs. Pontey, Rowe, and Co., of Plymouth; and 50 tons for ourselves; all of which were shipped in the Surrey Canal Docks direct from Messrs. Anthony Gibbs and Son's warehouse. At the Union Shipping Company's Office we found that 5 tons had been brought from London for Mr. Keast, of St. Germans, and 5 tons for Mr. Rundle, of Tideford; which is all they have brought down in this year. It is certain, therefore, that the schooner alluded to could not have been a regular Plymouth trader, but might have been a bye-vessel taken up to carry a particular cargo; but we have been sifting and inquiring of all the brokers and shipping agents in this port, but cannot find out that any guano has been brought here from London this year, except the quantities before named. We have ascertained that Staunton's Wharf is a north country wharf, having no traffic whatever with shipping that sail for ports on the west coast. It would be doing ourselves service, and we are sure that all the dealers in the west of England would join with us in giving their best thanks, if you would endeavour to trace out the name of the vessel, the captain's name, and her port of destination. This would be easily found out on application to the Custom-house. It would also be well to know the time of the year the loam was shipped. It is strange that persons are to be found who have the impudence to offer such an article for sale when their stuff can be so easily detected. It is the easiest matter possible to find out if any adulteration has taken place. In order to protect ourselves we have cards published, which are widely circulated, giving plain instructions for detecting spurious guano. Since writing the above we have sent one of our clerks to the Devonport Shipping Company, and find they have not brought down a single bag of guano from London this year.—*W. E. Rendle and Co.*

Guano.—In your last Number, you call the notice of your readers to a trade in manure at Plymouth. As we are extensively engaged in that business at Plymouth, we ask you to do us the favour and justice to say, through your *Chronicle*, that we knew nothing of such trade until we saw it noticed in your Paper. We have sold no guano but Peruvian, had direct from Messrs. Gibbs, Bright, & Co. We will produce our invoices from that firm, and the names of purchasers, to any customer who chooses to inspect them for his own, or friends' satisfaction.—*Pontey, Rowe, & Co., Duke's Place, Plymouth.*

Local Associations.—The Annual Meeting of the Society for Bettering the Condition of the Poor in the Hundred of Oswestry, was held on Thursday, July 31, in the large National School-room, at Oswestry, when various prizes were given, and among them, one to Elizabeth Danily, of Henlle, for exhibiting 25 lbs. of pure wax and honey, obtained this year in the practice of the new system of aired side-hives. The prize was two sovereigns.—*C. A. A. Lloyd, Whittington.*

Cultivation of Cotton in India.—I am much pleased, in common with many others interested in the improvement of the cotton of India, and in the extension of its culture, at Mr. Garnett's communication, as well as with your remarks on this very important, nay truly national subject. Without entering at present into other points, it is extremely desirable to investigate that to which your correspondent has drawn attention, and to ascertain whether any facts can be adduced in opposition to, or in corroboration of his opinion. In order to arrive at a perfectly satisfactory conclusion, the subject ought first to be investigated in a general manner, so as to separate and weigh the influence of the several general causes, which must operate on both the quality and quantity of the products of every cultivated plant. In the first place it is taken for granted that the American cottons, when cultivated in India, deteriorate in quality. If this is a fact, it is necessary to inquire whether the soil and climate in which these cottons are cultivated in India, are exactly similar to the soil and climate in which the same cottons are cultivated in America. Now it is well known that the different parts of India differ much from each other in soil and climate; they cannot, therefore, all be like American countries in these respects; consequently, the American mode of culture cannot be equally well suited to every part of India. These may be mentioned as a few of the causes of very general operation, which must necessarily affect the results, and assist in preventing the production of good cotton. This will be still more the case if any of the good properties of American cotton are due to the care with which it is cultivated; this culture, indeed, is so carefully conducted that it may be considered rather of the nature of garden than of field culture, that is, where individual plants may be attended to instead of the mass only. If such should be the case, the neglect of any part of this particular culture would of itself cause a return of the plant to its original or wild state. Refraining, however, from the discussion of more general causes, we may inquire whether there are any facts to be adduced in favour of, or opposed to the view, that the deterioration of American cotton in India is due to the hybridising influence of the Indian species. The species which are indigenous in India are Gossypium herbaceum, and G. arboreum. The American species, and G. peruvianum, yield the Brazilian, Pernambuco, and other cottons, while G. Barbadense, originally a native of Mexico, appears to be the source of all the short and long staple cottons of the United States of America. There may be other species, but these are clear and distinct, and can hardly be confounded with each other, though they have been so even by some modern botanists. Though the American species have long been introduced into India, they still retain their distinctive characters. Thus the Tinnivelly cotton, originally grown from Bourbon cotton, which is only a variety of G. Barbadense, has been cultivated for upwards of 30 years in that southern district of the Indian Peninsula, and it is still as distinct as ever; but it has lost the advantage of Mr. Hughes's skill as a cultivator, and therefore it has not of late been so carefully sent to market as formerly. A few years since Dr. Burn, now in charge of the East India Company's experimental cotton cultivation in Broach, grew some cotton at Kaira, which was pronounced by the Bombay Chamber of Commerce, nearly, if not quite equal to the best New Orleans. But he collected his seed from hedges where Dr. Gildens had grown American cotton in 1817. So Mr. Elphinstone, collector of Rutnagherry, lately sent some cotton to Bombay, which was pronounced by the merchants there to be a very beautiful cotton, in staple, colour, fineness, and cleanness, and who stated that it would produce 100 per cent. above the market price of the best Surat. This also was afterwards proved to be the produce of one of the American species—that is, G. Barbadense—which had been many years previously introduced into the district. So Dr. Roxburgh, under the name of G. acuminatum, describes an American species, which seems even in his time to have been acclimated in the north and westward of Bengal; for its long acuminate capsules, with the seeds firmly adhering to each other, show it to be nothing but the American G. peruvianum. These facts show perverseness of character even in the midst of the Indian species. By adducing these I do not mean to deny the influence of the hybridising effects of these species, for I think the subject well worthy of investigation. But having already taken up sufficient space, I will next week adduce an instance, by Dr. Burn, of the beneficial effects derived from crossing the true Indian species, for the production of a cotton well suited to the country. —*J. F. R.*

Gardeners' Characters.—I observed the enclosed printed circular two or three months ago at Messrs. Knight and Perry's; and as, in your Leader, at p. 455, you have drawn the attention of gardeners to the things that are expected of them upon some occasions, I forward this to you (with permission) for insertion, to show what is expected in ordinary cases; with the hope that the interest here taken in the industrious and well-conducted, may act as a spur to their exertions, and also lead to a more general adoption of a similar enquiry. I have only to add that this pre-ordeal is followed up by further examination on the various practical topics mentioned, and by giving prizes to the best designs for laying out gardens and erecting garden edifices.—*Q.*

We, the undersigned Proprietors of this establishment, being very frequently honoured by the nobility and gentry with applications for gardeners, feel it an imperative duty we owe to them, to the respectable members of the profession, and to ourselves, to recommend none in whom implicit confidence cannot be reposed, not only for perfect professional ability, but also for unexceptionable private character. We have, therefore, drawn up the following form, which we earnestly request of those recommending persons to our notice, to fill up faithfully and impartially; for in no way can we more contribute to the respectability of a most worthy class of men, than by supporting the intelligent, good, and deserving gardener, and by discountenancing the ignorant and worthless one. — Joseph Knight and Thomas A. Perry.

Form, to be accurately filled up.—Christian and Surname?—Where and when Born?—Whether Single or Married; and, if Married, how many Children?—Where Apprenticed, to whom, and how long?—Where employed as Journeyman, under whom, and how long?—Where employed as Foreman, under whom, and how long?—Where employed as Head Gardener, how long, and why he left his situation?—Whether honest, sober, moral, and of strict integrity in word and action?—Whether attentive to the Religion he professes?—Whether industrious and attentive?—Whether a good and quick Workman?—Whether clean in person, and of methodical habits?—Whether of good address, pleasing, and obliging manners?—Whether a good Writer and Accountant?—Whether well acquainted with cropping the Kitchen Garden?—Whether well acquainted with the management of Wall and other out-door Fruit-trees?—Whether well acquainted with forcing Pines, Grapes, Peaches, Cherries, and other Fruits; as also Vegetables?—Whether well acquainted with the management of the Flower Garden?—Whether well acquainted with the management of Hothouse and Greenhouse Plants?—Whether well acquainted with Plant Forcing?—Whether well acquainted with the management of Pleasure Grounds; as also with the names of hardy ornamental Trees and Shrubs?—Whether well acquainted with the formation of Plantations, and their management in every stage of growth for Timber or otherwise?—Whether well acquainted with the laying out of the Pleasure Ground, Flower Garden, and Kitchen Garden; as also ground work generally, as Draining, Levelling, &c.?—Whether well acquainted with the construction, heating, and ventilation of Horticultural Buildings?—Whether acquainted with Surveying, Mensuration, and Drawing?—Whether at all acquainted with Farming, and to what extent?

[This plan merits the warmest commendation. It might be improved, but in its present state it offers an admirable test of the qualifications of a gardener. All nurserymen should keep such forms, and recommend no men except those who can fill them up satisfactorily].

Destroying Weeds on Gravel Walks, &c.—The following is a plan for destroying weeds on walks, which I have been told is excellent. I intend trying it, and would wish others to do the same, and make known the result. Put about an ounce of arsenic in a gallon of hot water, and pour it through the rose of a pot on walks or pitching.—*W. C.*

Hoare's System of Vine Culture.—Noticing in three or four late Numbers of the *Chronicle* some remarks relative to the failure of Vines that had been planted in pillars agreeably to the directions given in my late work on the "Roots of Vines," I beg to offer the following observations in reference thereto:—From the tenor of those remarks there seems to be an opinion on the part of the writers that, because in some instances Vines so planted have not struck root, the principle of growing them in that manner cannot be successfully carried out. The correctness of this inference, however, I must take the liberty of denying. The numerous and important advantages resulting from Vines growing amongst hard porous substances, and their capability under such circumstances to produce a superior growth of fruit-bearing wood, are not in the least impugned by these failures. Indeed, if every Vine which has been planted in these substances in pillars had failed to strike root, even that would not shake the principle in question, it would only prove the necessity of adopting a different mode of transplantation. It is one thing for the roots of a Vine to create new spongioles after having been removed when in a dormant state, and another and quite a different thing for them to continue growth after new spongioles have been generated. The former requires the presence of many conditions that are not necessary to insure the latter. For it so happens that the better adapted any soil or compost may be to produce a rapid creation of new fibres from the roots of a Vine after transplantation, the less calculated is it to generate afterwards a superior fruiting growth of the branches, and *vice versâ*. Thus much by way of showing that the principle in question is not shaken by the failure in growth of the Vines above mentioned. Referring now, however, to the causes of these failures, and of some other similar ones also, I have reason to believe that they have arisen—1st, either from the insertion of Vines that were not sufficiently strong and vigorous in their growth; or 2d, from the use of raw bones having portions of flesh remaining on them, which, from the putrefactive process that afterwards takes place, have proved destructive to the roots; or 3d, from an excessive use of urine in saturating the materials, by which the roots have come in immediate contact with it, and have thereby been greatly injured; or 4th, from the adverse effects of the late severe and protracted winter, which have been, in a vast number of instances, such as to paralyse and render inert the sap of transplanted Vines to such an extent as to make it, hitherto, powerless to act. This last cause, indeed, has been in more active operation, and to a far greater extent during the passing season, than I ever before remember. Many hundreds of young transplanted Vines have lately been brought under my notice, that are now suffering from it, and which, up to the present moment, have been unable to start in growth; and if the present unfavourable weather continues a little longer they will be incapable of producing any new fibres from their roots during the present season. The above causes, operating singly or in combination together, are those, I have no doubt, that have produced the failures in growth of the Vines in question, and as they are all easily obviated, and as they do not in any way trench upon the principle of growing Vines in pillars, nor on the advantages arising therefrom, I propose to meet the case by the following directions, which if observed in reference to such and similar erections cannot fail to insure success. 1. To use no bones but such as have been well boiled, and thereby freed from all portions of flesh, and in saturating the materials to discard the use of urine, and to substitute that of soapsuds, which cannot be used to excess. 2. To plant such Vines only as have been raised in pots, and are at least three years old, and to insert them with their balls of earth entire and undisturbed. 3. To plant only when actual growth is in progress, or not earlier than the 1st of May, nor later than the 1st of September. 4. To run the pillar up after the Vine has been planted, about three courses of brickwork above the ball of earth containing the roots of the Vine, and then, after filling in the materials nearly even with the brickwork, to let it remain in that state open to the weather for at least a month, at the expiration of which it will be seen by the growth of the shoot that the fibres of the roots have pushed themselves in all directions into the cavities formed by the body of the materials, and when that is the case all will be safe, the future growth of the Vine will then be secured, and the pillar may be finished as soon as convenient. If the above directions be attended to, every possible cause of failure in growth will be entirely avoided. I am reluctant to discontinue the use of urine as a saturating liquid manure, for I believe it to be one of the best and most lasting sources of nourishment when it can be stored up for the future use of a Vine that has hitherto been discovered, but it is capable of being applied in so many ways injudiciously that there is no alternative but that of recommending its discontinuance. One word now, in reference to pillars that have already been erected. In such of these as the Vines have not grown, fresh plants may be easily introduced higher up the pillar, or within a couple or three courses of the top; and if the shoot of each Vine, during its growth, be trained horizontally or nearly so, round the pillar, it may, at the autumnal pruning, be trained directly downwards, either straight or in a serpentine manner, to the bottom of the pillar; and then, by cutting out all the buds, except the three lowermost ones, the future shoots will spring from the bottom in precisely the same manner as they would do were the Vine planted there.—*Clement Hoare, July 30.*

Blister of the Peach-leaf.—Until this year, five Peach-trees in my garden have been more or less affected by the blister. The soil in which they grow is a very strong red marl, almost tenacious enough to make bricks, and with difficulty could it be induced to grow many of the common garden vegetables; it is on the outside of the garden to the south. Last autumn I had the soil taken out, 16 or 18 feet from the wall, to the depth of 2 spits, and burned, which has produced a great improvement in the crops of vegetables, including Carrots, Parsnips, and Salsafy; and, moreover, there is scarcely a blistered Peach-leaf to be found on any of the trees, which convinces me of the accuracy of the observation of several of your correspondents, in attributing this disease to an over supply of moisture to the roots.—*G. Lloyd, Starch-hill, near Warwick.*

Alströmerias.—As an inducement to the more extensive culture, in the open air, of this beautiful flower, we beg to mention that we have now in bloom a bed, 50 feet in length and 2½ feet in width, of Alströmeria aurantiaca, the flower-stems varying from 2 to 3 feet in height, and with from 9 to 15 blossoms on each. It is literally one mass of bloom, and we are confident that no flower is capable of making a greater display during the month of July. This bed was planted in 1838, in gravelly loam (the common soil of our nursery), and has bloomed every year since most luxuriantly, without any protection; the situation is rather moist, being about 5 feet above the level of a stream which sometimes overflows its banks in winter.—*J. & H. Haycroft, Victoria Nursery, Cork.*

The Scotch Thistle.—I have the above growing in my garden, about two miles from Bolton, of the following dimensions, which are the admiration of all who have seen it. I wonder if any of your correspondents has grown it more successfully:—Height, exactly 8 feet; number of flowers, 102; length of leaves, 32 inches; breadth of leaves, 16½ inches; lateral shoot, 5 feet 3 in. —*Chemical Jack.* [This must be the Onopordon acanthium, and not the Carduus lanceolatus, which is often understood to be the Scotch Thistle.]

Hand-glasses.—Thanks to the *Gardeners' Chronicle*, we amateurs have a chance of procuring glass for horticultural purposes at a cheap and reasonable rate. I

would suggest to those spirited foreigners who have offered to supply the English market, to attempt the manufacture of different sized hand-glasses, made of moderately clear glass, to take the place of those fragile things composed of lead, &c., liable to be twisted into all shapes by the wind.—*Falcon.*

Foreign Correspondence.

Simla, March 27, 1845.—Some time since I had the pleasure to receive your letter when on my return from an excursion into our outer mountains, the extreme cold and deep snow here having induced me to migrate to a milder climate, and employ myself in examining the theatre of the campaign by which Sir D. Ochterlony put us in possession of these mountains; and I may say I have returned with a very high idea of the military talent which enabled him, with somewhat inefficient means, to drive a very formidable enemy from still more formidable positions, and thus, among other benefits, secure a refuge for such miserables as myself from the ungenial heat of the plains. But, however folks at Bombay might glory at the sight of snow, I assure you that when the mountains are clothed with a too permanent coat of from 3 to 5 feet of it (and 15 feet only a few miles in the interior), the matter runs into the other extreme! I returned a week since, and now the cold enemy being almost melted, I think our climate is not to be surpassed in the world. All the seeds I have left are of course quite ripe, but one of them, which lies in the sunshine before me, will require a day or two more to dry; I allude to the seeds of an Ivy, which differs from our English one in bearing yellow or orange berries instead of black, and may therefore be a curiosity at home—a sort of antithesis to our faces in Europe and India. In addition to this are packets of our famed Deodar, one of the largest, most beautiful, and useful trees in the world, of which in September and October any desired quantity of seed may be had; Abies Smithiana, an immense and very beautiful Spruce, but nearly worthless for timber; Pinus excelsa, nearly resembling the Weymouth Pine; Pinus Gerardiana, which affords a very agreeable, though not very wholesome, article of our dessert. This tree only grows in the district of Kunâwur, beyond the snowy range, where rain never falls, though snow does in plenty; it will require the most rocky spots and the driest climate England can furnish; and even then I have my doubts of its thriving. Cupressus torulosa (a Cypress), attains a great size, and the wood is the most fragrant with which I am acquainted; our mountaineers burn it largely as incense to their favourite goddess, Devi; it also affects our driest, rockiest, and sunniest exposures, but flourishes where the rainy season is very heavy, which the Neoza (*Pinus Gerardiana*) does not. Rhododendron arboreum I also send; and on the outside of the packet I have written a few directions,* derived from observation of the tree in this its native locality. Our woods are now absolutely masses of the most brilliant scarlet, from its large and countless bunches of blossoms. There are two Clematises, both handsome, and one of them (grata) very fragrant; and Hydrangea altissima. If this latter will flourish at home, it will be a great curiosity; instead of being a humble shrub, like our garden one, it aspires to the summit of the loftiest trees, forming great festoons from their boughs, like some of our gigantic Bauhinias.—*D. M.*

Societies.

HORTICULTURAL SOCIETY.

August 5.—R. H. Solly, Esq., in the chair. Lord Southampton, the Hon. R. P. Arden, F. H. Cornewall, Esq., W. Evetts, Esq., T. G. Parry, Esq., W. W. Valk, M. D., A. Unthank, Esq., and the Rev. J. Horner, were elected fellows. At this meeting a considerable number of gay plants were brought together, and some remarkable for their novelty. Messrs. Fairbairn, of Clapham, received a Banksian medal, for an exceedingly well-grown collection of Cape Heaths, in which were two seedlings named Vernonii and Wilsonii, both improvements on their parents in point of size; but not otherwise sufficiently distinct from them; the latter has, however, large bold flesh-coloured flowers. On the same table was a number of small plants from the nursery of Messrs. Henderson, of Pine Apple-place. These consisted of Elæodendrum indicum, mentioned at p. 529, a Gesnera-like plant from Brazil, a Besleria, and an Angelonia, together with an Achimenes called Leibmanni, which is, however, not distinct from grandiflora; Ismene calathina, Oncidium incurvum, and the pretty greenhouse plant Franciscea Pohliana.—From the Royal Botanic Garden, Kew, was the little Achimenes argyrostigma, whose beauty is confined to its fine silvery spotted leaves rather than to the blossoms, which are small. —Mr. Moore, gr. to the Earl of Auckland, was awarded a Banksian medal for a capital specimen of the beautiful twining Brazilian plant Stigmaphyllon aristatum. This plant, which is rarely to be met with in collections, stood about 4 feet in height, and was covered with clean dark green foliage, which contrasted well with the clusters of bright yellow flowers.—Messrs. Veitch and Son, of Exeter, sent a seedling Heath, which was stated to have been raised between ampullacea and Aitoniana; combining the flowers of the latter with the foliage and habit of the former.—Of Orchids, Mr. Robertson, gr. to Mrs. Lawrence, sent Stanhopea Wardii, oculata, and graveolens, Peristeria elata, the little white blossomed Eria densiflora, Vanda Roxburghii violacea, Epidendrum radiatum, the rare Cattleya granulosa, Leianthus longifolius, with panicles of yellow blossoms, and a fine Aerides quinquevulnera, for which a Knightian medal was awarded.—Of Florists' Flowers, Mr. Norman, of Woolwich, produced two excellent stands of Picotees and Carnations; these were, however, received too late to be taken into consideration for a prize. — From Uxbridge, Messrs. Brown and Attwell sent 20 varieties of Carnations, and the same number of Picotees, for which a certificate was awarded.— Cut blooms of Picotees likewise came from Mr. Ferguson, of Aylesbury, who also received a certificate for an excellent specimen of Oncidium incurvum. Mr. Pullen, of Islington, sent two seedling Pelargoniums, named Triumphant and Prince Albert. And Mr. Cole, gr. to C. Lewis, Esq., was awarded a certificate for an excellent Clerodendrum fallax; he also sent blooms of seedling Verbenas and Fuchsias, and six varieties of Phlox Drummondi.—Of Border Flowers, Mr. Cuthill, of Camberwell, showed bunches of his Prince of Denmark Clove-scented Carnation; a Chinese Cucumber, which was said, when young, to be a good sort for pickling; Passingham's green-fleshed Melon, a good small kind, and apparently a great bearer; and a fine plant of Lisianthus Russellianus, for which a certificate was awarded.—From Mr. Linford, gr. to Mrs. C. L. Francis, was a seedling Fuchsia named Francisii. — From C. B. Warner, Esq., were Cattleya violacea, and the pretty little Maxillaria stapelioides; a certificate was awarded for the former.— Messrs. Van Houtte sent a bouquet from Ghent, composed of Alströmeria blooms from the open ground. These were hybrids of various colours, and although somewhat tarnished by the journey, and wet weather, to which they were stated to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number. Of Fruit, Mr. Daniell, gr. to the Rev. T. Stevens, sent two Melons, weighing respectively 3 lbs. 15 oz., and 2 lbs. 5 oz. The larger of the two was stated to have been raised from seed which had been sent from Jellalabad this spring; the other was from seed which had been received a few years ago from Palestine. The specimens were, however, unripe, and deficient in flavour; a circumstance possibly owing to the gloomy weather we have had, which has been very unfavourable for oriental Melons. They were mentioned to have been grown in heat obtained from fermenting material. The bed was made 1 foot deep, of loamy turf cut up into rough pieces, and pressed together over a subsoil drainage of charcoal 2 feet deep, into which the Melon roots were found to delight to dive. Mr. Fraser, gr. to E. D. Davenport, Esq., sent three Pine-apples, the heaviest of which (a Queen) weighed 3 lbs. 12 oz. These were stated to have been turned out into the border of a Melon-pit, which was heated by linings similar to the pit in which Mr. Mills, of Gunnersbury, grew his large Providence Pines, of which mention was made at page 619 of our volume for last year. Mr. Fraser stated that most of his Queen Pines, turned out into the bed and forced by dung linings, average from 3 to 4 lbs., while those produced in pots plunged in tan and heated by hot water, seldom weigh more than from 2 to 2½ lbs. Finally, Mr. Toy, gr. to Col. Challoner, sent a Queen Pine, handsomely formed, weighing 3 lbs. 9 oz. Messrs. Youell and Co. sent fine specimens of the Fastolff Raspberry.—From the Garden of the Society were beautiful masses, in pans, of the different species of Achimenes, which were mentioned to have been raised in close pits, heated by no other means than by the rays of the sun. The advantage of this method of culture is that the plants are not drawn up weakly, but are stiff and short-jointed, and are better able to stand any hardship to which they may happen to be exposed. Niphæa oblonga, a near relation of these, and whose tufts of white blossoms, produced at this season, render it very useful, was also grown in the same way, and with equal success, without any artificial heat or moisture farther than what was obtained from sun-heat and damp arising from the earthen floor of the pits. Along with these was the pretty little hardy herbaceous plant, Silene Schæftii, whose masses of pink, starlike blossoms recommend it to a place in the flower-border. From the same collection were also Viscaria oculata, which, being raised in a greenhouse, had the eye better and the colour brighter than when grown in the open air; Roscoea purpurea, a plant related to the Ginger, from the north of India; the pretty marbled-flowered Aconitum ovatum, a Himalayan production, which is quite different from any Aconite with which we are acquainted; it is not quite hardy, however, and will not stand the winter without protection. Along with these were the blue and white varieties of Lobelia gracilis, and the bright blue L. ramosa; the dark variety of Fuchsia fulgens, which has a handsomer foliage and better-coloured flowers than the original species, or any of the sorts raised from it. This native variety, we believe, was raised from seeds imported by Mr. Lee, of Hammersmith. In the same group was a noble plant of Sobralia macrantha, having on it two open blossoms, two coming and two just past. This is a terrestial species, on the top of whose long reedy stems are produced magnificent purple blossoms, 5 or 6 inches across; it is a native of Guatemala, where it was found by Mr. Hartweg. Along with it were Myoporum parvifolium, Gesnera discolor, Statice Dickensonii, together with Oncidium luridum, Campanula garganica, and the pretty Mexican bulb, Bravoa geminiflora.

* "Young plants may be tried in the open air in England, if planted on ground thoroughly drained, or on the steep side of a hill, with Oak trees as nurses. The soil should be poor, and rest on rubble of clay or mica-slate."

ROYAL PHILANTHROPIC SOCIETY OF GARDENERS.

July 30.—F. Moor in the chair. This meeting was held in the Commercial Tavern, King's-road, Chelsea. From a report which we have received we are glad to learn that after paying away a great many prizes at their annual exhibition, which took place at Cremorne House, the books showed a balance of 20*l.* 13*s.* 7*d.* in favour of the Society; and it was agreed that this sum should be immediately deposited in the savings' bank, with the general fund. From the same source it also appears that several of the successful competitors who are members returned part of their prizes, which was added to the funds of the Society.

Country Show.

Dorking Horticultural Society.—Connected with this Society there are two exhibitions every year for cottagers' productions only, and the good that has resulted from this branch of the Society is amply apparent in the excellence of the fruit and vegetables exhibited, and in the improved management of the cottagers' gardens. The first of these exhibitions, for the present year, was held at the National School-room, Dorking, on July 26, when between 30 and 40 labourers competed for the prizes offered, which were awarded as follows:—24 *Gooseberries*: 1, P. Croucher; 2, W. May; 3, J. Goring. 24 bunches of *Red Currants*: 1, W. Niblett; 2, W. Sayers; 3, W. May. 24 bunches of *White Currants*: 1, J. Goring; 2, P. Croucher. 24 bunches of *Black Currants*: 1, J. Goring; 2, J. Shepherd. 1 gallon of *Peas*: 1, T. Adams; 2, H. Letts; 3, T. Cox; 4, W. Niblett. 1 pottle of *Scarlet Runners*: 1, W. Niblett; 2, J. Morris. 3 *Lettuces*: 1, G. Rose; 2, J. Martin; 3, T. Adams. 3 *Cabbages*: 1, J. Worsfold; 2, W. May; 3, G. Rose; 4, J. Bixley; 5, J. Shepherd. 12 *Turnips*: 1, J. Martin; 2, J. Worsfold; 3, H. Letts; 4, G. Rose; 5, W. May. 1 gallon of *Beans*: 1, G. Rose; 2, T. Adams; 3, J. Worsfold; 4, T. Nye. 12 *Potatoe-onions*: 1, W. Sayers; 2, T. Worley; 3, J. Lane; 4, T. Cox. 12 *Potatoes*: 1, W. Niblett; 2, G. Rose; 3, J. Bixley; 4, H. Letts; 5, J. Worsfold; 6, W. May. *Collection of Vegetables*: 1, J. Shepherd; 2, T. Adams; 3, G. Rose. Extra Prizes were given to T. Lee, for Cauliflowers, and for a nosegay; J. Comfort, for Red Currants; W. King, for Carrots; J. Lane, for Gooseberries; T. Nye, for Peas; J. Yarnley, for Beans; Widow Brett, for Turnips; J. Lawrence, for Turnips; T. Rowe, for Peas. The prizes (amounting to 7*l.* 14*s.*) were distributed by the President, who, in an appropriate address, urged the unsuccessful exhibitors to increase their exertions, and assured them that ultimately they must be rewarded. One praiseworthy custom at these meetings is, that the articles exhibited are afterwards purchased by the visitors, and thus the owners are insured against loss, even if unsuccessful.

Reviews.

Darwin's Journal of a Voyage round the World. Part I. Murray. 12mo.

None of our voyages of discovery, or of survey, have produced a result more satisfactory to the naturalist than that of the Beagle, a ship commissioned about 14 years ago to survey the coast of Patagonia and Terra del Fuego, and to examine some other parts of the South American continent. On that occasion Mr. Darwin, the author of the very entertaining and instructive Journal before us, volunteered to act as naturalist, and it was a white day for zoology when his services were accepted.

Mr. Murray could scarcely have chosen a better work than that of Mr. Darwin for a portion of his Home and Colonial Library, a periodical especially intended for those who seek for solid information at a cheap rate. It is an inexhaustible mine of observations and anecdotes concerning the natural history of the South American continent, written with the intelligence of a quick-sighted observer, and the tone of a gentleman. The only thing to be regretted is that to his graphic accounts of the zoology, ornithology, malacology, and geology of the survey Mr. Darwin should not have added more botany, a theme which to so many readers is even more interesting than the subjects specially treated of. We are, however, thankful for the abundant entertainment actually provided for us, from which we must make a few extracts, with the persuasion that they will lead to a careful perusal of the work itself.

At Rio Janeiro Mr. Darwin first saw Tree-ferns, which he speaks of thus,—

"During the second day's journey we found the road so shut up, that it was necessary that a man should go ahead with a sword to cut away the creepers. The forest abounded with beautiful objects; among which the Tree-ferns, though not large, were from their bright green foliage, and the elegant curvature of their fronds, most worthy of admiration. In the evening it rained very heavily, and although the thermometer stood at 65° I felt very cold. As soon as the rain ceased, it was curious to observe the extraordinary evaporation which commenced over the whole extent of the forest. At the height of 100 ft. the hills were buried in a dense white vapour, which rose like columns of smoke from the most thickly-wooded parts, and especially from the valleys. I observed this phenomenon on several occasions: I suppose it is owing to the large surface of foliage, previously heated by the sun's rays."

At Bahia Mr. Darwin had an opportunity of studying the habits of that queer creature which one of the old travellers maintained was a plant with a worm for its root.

Captain Lancaster, in his voyage in 1601, narrates that on the sea-sands of the Island of Sombrero, in the East Indies, he "found a small twig growing up like a young tree, and on offering to pluck it up, it shrinks down to the ground, and sinks unless held very hard. On being plucked up, a great worm is found to be its root, and as the tree groweth in greatness, so doth the worm diminish; and as soon as the worm is entirely turned into a tree it rooteth in the earth, and so becomes great. This transformation is one of the strangest wonders that I saw in all my travels; for if this tree is plucked up, while young, and the leaves and bark stripped off, it becomes a hard stone when dry, much like white coral: thus is this worm twice transformed into different natures. Of these we gathered and brought home many."

Of this our author gives the following interesting explanation:—

"I will only mention one other animal, a zoophyte (I believe Virgularia Patagonica), a kind of sea-pen. It consists of a thin, straight, fleshy stem, with alternate rows of polypi on each side, and surrounding an elastic stony axis, varying in length from 8 ins. to 2 ft. The stem at one extremity is truncate; but at the other is terminated by a vermiform flexible appendage. The stony axis which gives strength to the stem may be traced at this extremity into a mere vessel filled with granular matter. At low water hundreds of these zoophytes might be seen, projecting like stubble, with the truncate end upwards, a few inches above the surface of the muddy sand. When touched or pulled they suddenly drew themselves in with force, so as nearly or quite to disappear. By this action, the highly elastic axis must be bent at the lower extremity, where it is naturally slightly curved; and I imagine it is by this elasticity alone that the zoophyte is enabled to rise again through the mud. Each polypus, though closely united to its brethren, has a distinct mouth, body, and tentacula. Of these polypi, in a large specimen, there must be many thousands; yet we see that they act by one movement; they have also one central axis connected with a system of obscure circulation, and the ova are produced in an organ distinct from the separate individuals. Well may one be allowed to ask what is an individual."

But it is not the mere natural history of the countries he visited that Mr. Darwin has recorded. Unhappily in the barbarous regions of Spanish America there is too much to study in the inhabitants themselves, who seem to have been brutalised by their Spanish masters to a degree that would be incredible upon worse testimony than that before us. Take the following scene as a specimen of the discipline of a Spanish American detachment of soldiers:—

"The next day 300 men arrived from the Colorado, under the command of Commandant Miranda. A large portion of these men were Indians (*mansos*, or tame), belonging to the tribe of the Cacique Bernantio. They passed the night here, and it was impossible to conceive anything more wild and savage than the scene of their bivouac. Some drank till they were intoxicated; others swallowed the steaming blood of the cattle slaughtered for their suppers, and then being sick from drunkenness, they cast it up again, and were besmeared with filth and gore.

> Nam simul expletus dapibus, vinoque sepultus
> Cervicem inflexam posuit, jacuitque per antrum
> Immensus, saniem eructans, ac frustra cruenta
> Per somnum commixta mero."

We trust that the reader will not rest satisfied with these extracts, which are taken quite at random from the first part of Mr. Darwin's Journal; another equally rich is to appear, and the two are perfectly indispensible to all who are interested in natural history.

New Plants.

TASMANNIA AROMATICA. Aromatic Tasmannia. (*Evergreen shrub*). Magnoliaceæ. Polygamia Monœcia.—This plant was first made known in De Candolle's "System," where it was described from specimens gathered on the mountains of Van Diemen's Land by Brown, and in the country round D'Entrecasteux channel by Lichenault, a French traveller. But at that time nothing was known of the flowers, except that they were dicœcious. At a much more recent period Endlicher described the flowers as being composed of two flat deciduous sepals, and from two to five petals. Such is certainly not the structure of Tasmannia aromatica, whose sepals are three, and very concave, and the petals six in two rings, or occasionally eight, in consequence of the addition of one petal to each ring. Endlicher's character cannot then have been taken from T. aromatica, but possibly belongs to T. dipetala, which perhaps does not belong to the genus. The species is a handsome evergreen bush, with dull purple branches, and light green leaves, distinctly marked with transparent dots; they are of a dead green and veinless on the underside. Mr. Gunn informs us that it is very abundant in Van Diemen's Land. "Between Burghley (at the Surrey Hills) and May Day Plain, the Van Diemen's Land Company's track, commonly called road, to Launceston, is cut through a thicket of it for upwards of a mile; at that place its usual height is from 9 to 12 feet. It always grows in the richest humid soil; in the neighbourhood of Launceston, usually on the margins of rivers or small streams in umbrageous ravines. Every part of the plant is highly aromatic and pungent to the taste. The fruit is occasionally used as pepper." In fact it is nearly related to the aromatic Winter's bush, Drimys Winteri; from which its unisexual flowers and solitary carpels chiefly distinguish it; and it would follow the affinity of that plant. For this reason it seems necessary to associate it with the order of Magnoliads rather than with that of *Kadsurads (Schizandraceæ) or Anonads. The three orders are generally distinguished by the following characters. Magnoliads are bisexual, have stipules of large size, and their flowers have an imbricated æstivation. Kadsurads resemble them in all things, except the want of stipules, and their flowers being absolutely unisexual. Anonads are bisexual like Magnoliads, but they have no stipules, their corolla is valvate, and their albumen ruminate. Moreover, Magnoliads are astringent subaromatic trees or bushes; Anonads are similar in quality, but they are more aromatic; Kadsurads are scrambling plants with no aroma. It is a question of some interest to determine to which of these Tasmannia really belongs. If we regard its aromatic quality, it will belong to either Magnoliads or Anonads; but from the former it differs in the want of stipules, from the latter in its imbricated corolla, and from both in its unisexual flowers. On the other hand, it has the unisexual flowers of Kadsurads, but not their habit, nor their mucilaginous qualities. Its unisexual flowers, however, point strongly in the direction of Kadsurads; but, then, it is not separable from Drimys, which is bisexual, and, moreover, its own flowers are in reality in many cases furnished with a central carpel: the two first flowers taken off one of Mr. Gunn's specimens proved in fact to be in that condition. Tasmannia must, then, be regarded as having a manifest tendency towards hermaphroditism, while no such attribute is known among Kadsurads. For these reasons it will be stationed along with Drimys, among bisexual natural orders; and, then, will necessarily fall into the ranks of Magnoliads; for its imbricated corolla and homogeneous albumen are at variance with the most essential peculiarity of Anonads. It, however, like Drimys itself, wants the stipules of Magnoliads, in which respect it is exceptional to the usual character of that natural order, and must be regarded as a genus stationed on the frontier between Kadsurads and Magnoliads. It is a hardy greenhouse evergreen shrub, grows freely in a mixture of sandy loam and peat, and only requires to be kept free from frost. It flowers freely in April, and is easily increased by cuttings put in sand and covered with a bell-glass, and placed where there is a gentle bottom-heat. The plant is in the garden of the Horticultural Society, to which it was presented by Mr. Low, of Clapton.—*Botanical Register.*

Miscellaneous.

Psychotria leucocephala (*Ad. Brongniart*).—This is a straight shrub growing to about a yard and a half in height; its leaves are opposite, about 18 inches long and 10 inches broad, tough, and of a dark green, furnished with deeply serrated stipules, a remarkable fact in this species. The flowers are pure white, rather large, sessile, and appear in bunches on the top of the plant. The specimen that flowered for the first time in France, in the Garden of Plants, had but one head of flowers; but I have seen these shrubs in Brazil having eight or ten heads at once of beautiful white flowers, surrounded by dark green leaves, which relieve them, and produced a charming effect under the large forest-trees of Rio Janeiro. I brought the plant which has just flowered, in 1839, from the Corcovado mountain. The shrub requires a good hothouse, and cannot bear the action of the sun's rays. We cultivate it in the Garden of the Plants, in peat and maiden soil mixed with decayed vegetable matter.—*R. Houllet, in the Revue Horticole.*

Dwarfed Plants.—There is the following interesting account (somewhat abridged) of these singular productions by Professor Morren, in the 3d Number of the "Ghent Annals," p. 109. "Nowhere has the mania for dwarfing plants been carried farther than in Japan. Thunberg, in his flora of that country, had spoken of an Apricot-tree, which he called Amygdalus nana, although the tree, which he thought to be very like our common Apricot, was from 15 to 20 feet high. Messrs. Siebold and Zuccarini have determined Thunberg's plant to be the Mume Plum (Prunus Mume), which the Chinese call Bai. This tree is really a marvel in the history of dwarfed plants, and is thus spoken of by Dr. Siebold. The Mume is common in Japan, and thrives in the most northern part of the country, where it grows 15 or 20 feet high, and is very like an Apricot-tree. It is, however, in its wild state, or when made into hedges, only a thick bush, very much branched, and 8 or 12 feet high. It is commonly cultivated for its beautiful flowers, as well as for its fruit. The Mume is much spoken of in the Chinese and Japanese legends of their saints, and in the history of great men and celebrated poets; it is even looked upon as something holy. Pilgrims are shewn ancient trunks of this tree, under which deified princes have rested, and celebrated priests or inspired poets composed their psalms and sublime canticles. For this reason young plants struck from cuttings of such holy trees have a great value throughout the empire of Japan. The fruit ripens in June. When ripe it is insipid, and therefore it is salted in a green state like cucumbers, and then is eaten, as a vegetable, with rice and fish. Europeans, however, do not admire the sharp and bitter taste. When salted the plums are often mixed with the leaves of Oeymum crispum, which gives them a red tint. The juice of the green fruit is used as a refreshing drink in fevers, and is also indispensable in preparing a beautiful light pink colour with Carthamus or Safflower. In good seasons the tree is in full flower in February, when the altars of idols, and dwelling houses are everywhere decorated with its branches, which the Japanese regard as a symbol of the return of spring. The blossom of the wild plant is white, but there are cultivated varieties, with various shades of colour between white and red, and some are even green or slightly yellow. Double varieties are in most request, and dwarfed trees of that description are planted everywhere near dwellings and round the temples. The largest collection of these varieties, said to amount to several hundreds, is in the possession of the Prince of Tsikusen, to whose kindness we are indebted for drawings of some of the rarest kinds. The passion of the Japanese for dwarfed trees is inconceivable, and it is principally on that account that the cultivation of the Mume is one of the most common and profitable occupations of the country. They graft it by approach, and in this way obtain trees whose branches hang to the ground like those of a weeping willow. A dealer offered us in 1836 a bush in full flower, and scarcely 3 inches high. This prodigy of gardening was growing in a little varnished box with three steps, like the boxes of medicine which the Japanese carry at their girdle. In the upper step was the Mume, the next step was occupied by a Fir tree of similar smallness, and on the lower step was a Bamboo not above an inch and half high.—*Flora Japonica pp.* 29, 31. These details, adds Dr. Morren, were confirmed to me by Dr. v. Siebold himself, when he was at Ghent in 1844; he did not, however, confirm all the tales that are current as to the manner by which the Japanese succeed in dwarfing everything. It is said that they select the very smallest seeds, taken from the very smallest plants, two circumstances which are certainly quite rational and conformable to all the facts known to us in connection with varieties of race. No doubt, indeed, exists, about the operation thus far; but the following assertions are much more apocryphal. It is said, that as soon as the plants have germinated, the Japanese cover them with fluid honey, or with dissolved sugar; that they afterwards paint them with a camel's hair pencil, using the same material, and that they afterwards introduce into the little box, which serves as a greenhouse for these marvellous pigmies, a nest of little ants, whose eggs soon hatch and produce an active colony greedy of sugar, and incessantly running over the plants, which, although alive, have really been converted into a cold preserve. Gardeners know very well that aphides, scale-insects, the cocci, and other vegetable leprosies, do in fact torture and distort plants till they are quite disfigured. The everlasting play of these insects, which are always running over every part of the plant, keeps up a peculiar excitement which ends in producing the state of dwarfness in question. At least that is what the Japanese say. The Fir of which Dr. Siebold spoke, in the paragraph above quoted, as being only 3 inches high, and growing on the second stage of the box, was the Pinus Massoniana, the Wo matza of the Japanese, or the Kok sio of the Chinese. Thunberg mistook it for the Scotch Fir. Its history is very curious, and is also given in the 'Flora Japonica' (p. 25, vol. ii.) Of all the Conifers we generally found this the commonest through the whole empire of Japan. In places where it does not grow wild, it has been universally cultivated. It has a great reputation on account of the fables, miraculous stories, and idle tales of all sorts, mixed up with its history, and is a religious symbol in the ceremonies and festivals of the people. A true Japanese cannot possibly dispense with it, and takes care to have it wherever he lives. A Wo matza and a Mume are planted before the residence of Mikado. It forms groves round the temple of the Sun-god, of saints, and of holy men; and it overshadows all the little chapels and gardens adjoining the dwelling-houses, &c. On the high road it forms alleys 100 leagues long; and the course of every highway is marked by hillocks planted with this Pine and species of Nettle trees. The art of the Japanese gardener is exhausted in the cultivation of these Pines. They are clipped and cut into all sorts of shapes; their branches are spread into fans, or horizontal trellises, and are thus fashioned into a sort of flat dish. In this kind of gardening extremes are made to touch, and the traveller is astonished to find specimens of an immense size placed by the side of others of the most tiny dimensions. While staying at Ohosaka I went to see the celebrated Pine-tree before the Naviwaja Tea-house, the branches of which are artificially spread out into a circumference of 136 feet. On the other hand, they showed me at Jeddo a dwarf tree in a lacquered box, with branches not occupying more than 2 square inches. They even know how to graft Conifers in Japan; and we saw dwarfed specimens on which almost every variety of Pines known in Japan was fixed by grafting."—*Botanical Register.*

Curator to the Leeds Zoological Gardens.—We are glad to state that Mr. Mearns, the talented and indefatigable curator of these gardens, has been re-elected. Mr. Mearns has been connected with the Gardens ever since the period of their formation, and of the efficiency of his management, his re-election over a large number of other candidates, bears the most substantial and gratifying testimony.

Bees.

Swarming of Bees.—"Certis," at page 495, remarks "what can be the utility of preventing swarming, when we can profit so largely by this admirable provision of

* Vegetable Kingdom, ined. p. 305.

Nature for the perpetuation of the species?" If bees had no winter nor backward seasons to contend with, that remark would be applicable; but bee-keepers have great reason to complain of the propensity of bees to swarm, or increase colonies, instead of increasing their species in the same dwellings, especially in late seasons like the present. On whatever plan bees are kept, when that occurs to any extent there is a loss. "Certis" is surely aware of the old adage respecting a swarm of bees in July; by which the stock is weakened, and the new colony has not time to collect sufficient food to make it survive the winter.—*W.*

Management of Bees.—Amongst the list of prizes awarded by the South London Floricultural Society, the name of Mr. Dutton is omitted, who had a Linnean Medal presented for a splendid glass of honey in the comb. I was much pleased to see the award, as it may be the means of inducing other apiarians to follow Mr. Dutton's humane mode of management, which is most simple. I understand from him that he takes his swarms into a flat top hive, 9 inches in height and 12 inches in diameter, with a round hole of 4 inches at the top; and that in good seasons he oftentimes takes a glass containing 8 or 10 lbs. of honey from the swarm in the same season. In the middle of the following April he puts on a glass capable of containing from 15 to 20 lbs. of honey; this, in most cases, will prevent swarming; but in the following year he does not attempt to prevent it, for he has found from many years' experience that a hive seldom does well if prevented from swarming two years in succession. I think it would be attended with much advantage to bee-culture, if Horticultural Societies generally were to offer prizes for the produce of similar glasses of honey in the comb—the criterion being weight, all the comb well sealed up, and colour.—*D. W. R., Brixton.*

Answers.—*Quizzz.*—I cannot say why Milton's hive, with revolving top, is "useful for working the bees out of any old or decayed hives" more than any other hive having openings at top. His hive is made of straw and is wider and flatter than common. It has two wooden tops in which there are four holes to admit the bees into four glasses placed on the uppermost, which revolves to open the passages to the glasses. Excepting the moveable top, the hive differs in no way from other flat hives on the storifying plan; therefore, it cannot obviate more than others can the "necessity of smoking, &c." Nor can it "keep the bees more secure during winter;" indeed, all wide and flat hives are bad for winter. Moreover, how can the honey from the hive in question be "clearer and far superior to that taken from common hives?" What difference is there whether the bees ascend through holes opened by plugs, or by a turning board? The latter way would certainly be useful while the glasses were removed in shutting out the bees, but according to Milton at that time "it is not requisite to turn the board, but merely with a knife to remove the plaster outside the glass, and then to put the knife underneath and loosen it from the board." When the bees have made their combs through the holes, however, and closed up the openings between the two boards with propolis, how can the upper one be easily turned? And when turned it would crush instead of cutting the combs. The cottager is sometimes blamed for cementing the bottom of his hives with mortar, to exclude the air and insects; and there is still less necessity for doing this at the bottom of glasses standing on a smooth surface, for the bees will be sure to seal them down, whether they take possession of them or not.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

The continued rains are likely to be prejudicial to all hard-wooded newly shifted plants in pots; therefore, either protect them with canvas, or remove them under glass until a change of weather takes place. Many of the plants which have had a liberal shift should have attention paid to training, &c. Cuttings of the desirable kinds of Calceolarias should now be struck, and seeds of selected kinds sown for next summer's flowering. Examine the compost-ground, and have the deficiencies made up. Peat-soil and loam should be procured during summer; without these little can be done in plant growing. It should be laid up in stacks, and covered on the top with reeds, to keep off the soaking rains. The various kinds of manures in a decomposing state should be turned, to freshen and sweeten. Always have a supply of all these kept in a dry shed; never on any account use soil in a wet state for potting; the procuring and preparing of soil is a primary and important point in the cultivation of exotic plants. Attend to the Japan Lilies; they will now be coming into bloom, and nothing at this season can surpass them.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Roses budded last month should have the bandages loosened or removed if the buds have taken well, and the shoots should be shortened back to prevent wind from breaking them off near the buds. Continue laying Carnations, Cloves, &c. Early-struck Pink pipings should now be planted out in flower-borders or beds in the reserve garden, for transplanting in autumn or spring. Sow 10-week Stocks in beds to be potted in autumn for early blooming next year. Sow also Poppy Anemone seed if not already done; the least sprinkling of earth over the seed is sufficient. Laurels and other strong growing shrubs, injuring choice kinds, by over-growing them, should be cut back to allow the air to circulate around them, in order to harden the wood before winter. *Pits and Frames.*—A few cuttings of every description of plants for bedding out should now be put in to be potted off before autumn. Sow Schizanthus seed for blooming in pots next spring, and take particular care that cuttings have sufficient air in the morning during this gloomy weather, to dry off all damp; likewise be careful not to water too freely.—*B.*

III.—FLORISTS' FLOWERS.

The extremely wet weather has been unfavourable for many floricultural operations. Transplanting seedlings, and rooted cuttings, layers, &c. &c., is, however, an exception. Carnations, Pinks, and Pansies, should be immediately pricked out in the beds, where they are to flower; and Polyanthuses will now part to advantage. Where Carnations are grown in pots, they may be removed to any convenient shed, and during showers layered; the operator having previously provided himself with some proper compost of leaf-mould, and sandy loam, and pegs of Fern or lead. In trimming the shoots of Carnations and Picotees, the tips of the leaves ought not to be shortened. In wet weather Tulip bulbs may be looked over, and the loose skins removed; where off-sets are small and soft, they should be put in sand, otherwise they will often perish before planting time. *Pinks* will yet do to put in, should the previous crop of pipings not be sufficient. *Dahlias* will require much attention; thin out the buds, and contrive, by every available means, to catch the nightly depredators which prey on them; this cannot be too often, or too strongly urged, on the attention of the amateur.—*C.*

IV.—PINERIES, VINERIES &c.

Pineries.—Any successions which may have filled their pots with roots should be shifted forthwith, as it is scarcely expedient to have much shifting after this time. Continue to pot or plant suckers as soon as taken off the plant; they shrivel much at this season in laying out of the ground. Attend to the state of the linings to dung-pits; at all events take care to secure a lively bottom-heat of 90° to all Pines at this period. *Vineries.*—See that the houses containing late Grapes are shut up warm, and rather early (say 4 o'clock), in order to dispense, if possible, with fires, giving, however, air by 7 o'clock in the morning, and increasing it abundantly towards 11 o'clock, diminishing it at intervals soon after noon, according to the weather. See that your late Melons do not want for bottom-heat: more fail through this circumstance, perhaps, than any other. The volume of soil containing the roots should never be less than 75° by any means; if 85°, so much the better. In shaking out the dung for linings at this period, the shortest should be thrown together for an early Mushroom-bed. One or two fermentations will prevent overheating in the bed, and will do no harm, provided a good quantity of straw or litter be combined with it.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Fruit.—Gather early Pears and Apples. Their fitness requires particular attention. If they are gathered a few days too soon, they will be insipid and watery; for they do not acquire a sugary quality by laying in the fruit-room, as is the case with more late varieties. But, on the other hand, these early kinds ought not to hang a day beyond the precise time they prove best. Attend to this year's budded and grafted trees, and see that they are not injured by matting used in tying. Dress off the tips of the stocks behind grafts. If this be done now the wounds will be nearly, or in some instances completely, healed over before winter. Wall trees will require to be kept in order as previously directed. This moist season has encouraged numerous outbreakings of lateral shoots. Where the wall is already sufficiently covered with foliage, these recent growths are worse than useless; they shade the more efficient portions, whilst they draw sap from the tree but return little; for, as Mr. Knight observed, the elaborations of the very young foliage is appropriated to its own development and growth of the pushing shoot. *Kitchen Garden.*—Sow Brown Cos, the Black-seeded Green Cos, and Brown Dutch Cabbage Lettuces for standing the winter. Prepare ground for planting out Coleworts. Take up pickling Onions, and lay down the tops of the main crop with a soft broom. Some of the White Spanish Onion may be sown.—*E.*

State of the Weather near London, for the week ending Aug. 7, 1845, as observed at the Horticultural Garden, Chiswick.

Aug.		Moon's Age	Barometer.		Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid.	1	27	29.732	29.678	64	52	60.0	S.W.	.05
Sat.	2	28	29 518	29.430	64	48	56.0	S.W.	.61
Sun.	3	0	29 764	29.630	69	54	61.5	S.W.	.10
Mon.	4	1	29.694	29.641	71	55	63.0	S.W.	
Tues.	5	2	29.677	29.597	75	55	65.0	S.	.05
Wed.	6	3	29.4	29.378	73	50	61.5	W.	.12
Thurs.	7	4	29.786	29 728	69	47	58.0	S.W.	.24
Average			29 713	29.619	69.8	51.6	60.7		1.18

Aug. 1—Fine; cloudy; partially overcast
2—Rain; heavy rain; showery; densely overcast
3—Cloudy; showery; partially overcast
4—Fine, with sunshine; cloudy; fine; clear at night
5—Overcast; rain; cloudy; showers, fine and clear at night
6—Fine, with light clouds; very fine; showery
7—Slight rain: thunder and heavy showers in afternoon; fine.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Aug. 16, 1845.

Aug	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 10	76.5	53.3	64.9	7	0.36 in.	1	1	2	—	2	7	5	1
Mon. 11	75.1	50 6	62.8	8	0.36	1	—	2	—	2	8	5	1
Tues 12	75.2	50.9	63.0	6	0.11	1	1	1	—	3	6	5	2
Wed. 13	73.2	50.5	61.8	7	1.14	—	1	1	2	3	8	2	2
Thur. 14	72.6	50.2	61.4	7	0.67	—	3	5	1	2	4	4	—
Fri. 15	73.6	51.1	62.3	7	0.61	1	2	3	1	2	4	2	4
Sat. 16	75.3	52.6	63 9	6	0.58	—	—	2	1	3	5	6	2

The highest temperature during the above period occurred on the 10th, 1842—therm 93°; and the lowest on the 13th, 1839—therm. 32°.

Notices to Correspondents.

Books—*X Y*—The "Flower Garden," by Macintosh. ‡

Garden Architecture—*W C*—There is no reason why vases of worked stone should not be placed on the brink of a turfed terrace, about 20 feet from the walls of a mansion which is built of the same stone as the vases. There can be but one reason for placing 4 inches of gravel round the base of the vases, and that is because it is rather easier to mow up to them than if the turf actually touched them. Large handsome vases are, in fact, necessary on terraces if a good effect is to be produced.

Greenhouses—*W S H*—In all probability, you suffer more from want of ventilation than anything else. Green glass will, no doubt, remove a part of the evil, but neither it nor anything else will work a cure unless you can get rid of the heated air which accumulates in your lantern. We shall, next week, give some observations on the effects of coloured glass, which you will probably find useful.

Heating—*G W F*—A three-light pit for early Cucumbers can be more regularly heated, and at much less expense, by hot water than by dung. If you can lay the tanks or pipes in a clear chamber, with a cavity of 3 inches next the front wall, there will be no danger of the roots getting over-heated, or, in other words, the bottom-heat will not exceed the top-heat; for when the air in the chamber is rarified it will ascend, and will be replaced by the colder air from near the glass. Slate is an excellent material for the flooring under the soil.‖

Ice-houses—*W Y* will be thankful to be informed, whether any one has built an ice-house, from the particular directions given from Cobbett's "Cottage Economy," p. 671, of our vol. for 1844, and the result; if any alteration made, that those directions should not be closely followed, the statement is requested.

Insects—*J J F*—I have ascertained that your maggots were the offspring of a gnat called Rhyphus fenestralis; figured in Curtis's "Brit. Ent.," pl. 102. *R*——*W L W*—The animals infesting the Turnip-root are the Julus pulchellus. I do not think the earwigs occasion any damage to the Turnip-crops. *R*——*Theresa*—Your flies are the six-spot burnet moth, named Zygæna filipendulæ; these beautiful creatures will do no harm: see Curtis's "Brit. Ent.," pl. 547. *R.*

Names of Fruit—*A Lady*—The name of the small long keeping Apple is not known; it seems only fit for cider.‖

Names of Plants—*H B R*—Cyclobothra barbata.——*Watson*—Sedum villosum.——*A*—Fuchsia arborescens and cordifolia are certainly species; conica and globosa are thought to be so; the others are of garden origin.——*Anon*—Œnothera; from the two Greek words signifying wine and hunting, or searching for a thing; the root was used as a relish with wine.——*J Lee*—Scleranthus annuus and Cerastium viscosum.

Pruning—*E K S*—Shorten the laterals of your newly planted Apple trees, and cut the snags clean off in the winter. No two kinds of Turnip can be grown for seed near each other, without the one spoiling the other. Yes; prune your Walnuts for leaders; but only shorten the side shoots till next winter, when you may trim them up if you like.

Seedlings—*P C*—There is a slight tendency to change in your Escholtzia; but we have seen much greater changes in it, none of which proved permanent.

Misc.—*G F H*—The weather being unusually wet, you *may* perhaps succeed in moving your Laurels now; but not your Currants and Raspberries. The former should have a mat thrown over them, for the first fortnight after removal, so as to be kept as much in the dark as possible.——*O H*—The best plan of glazing pits is, to have the glass lapped and and puttied.‖——*B Law*—There is a Black, but not a White Naples Currant.‖—— *G O L*—You may propagate Night-scented Stocks by taking off cuttings now and putting them in under a hand-glass, in a border of a light nature. They should, however, have been put in sooner, but they will do yet.‡——*J B*—Your Liliums have become diseased through cold and wet, probably arising from bad drainage. You had better look to that, and see that it is put in order, giving the plants, if possible, a warmer situation.‡——*Beginner*—Your Fuchsia leaves are covered with green-fly. The best remedy is to smoke your greenhouse with tobacco, which will effectually kill the fly. ‡

SEEDLING FLOWERS.

Antirrhinum—*K E*—The best and most novel seedling in your collection is No. 3; the remainder are repetitions of sorts long since in cultivation.*——*W M*—Nos. 1 and 2 are large, bold, and attractive varieties, and will be very ornamental in the borders. No. 3 was too decayed to form an opinion of; 4, 5, and 6 are but repetitions of old sorts.*

Calceolarias—*J H*—A pretty spotted seedling, similar to many sorts sent us this season.*——*C L*—Your seedling, having a yellow ground with well-defined crimson spots, is a very good and pleasing variety.*——*G R*—The seedling marked *A* is precisely like the specimen just mentioned, having well-defined crimson spots upon a yellow ground; it is a very good variety. The spots upon *B* are not sufficiently dark for the quality of the yellow; it is a flower of good form.*——*S S H*—Your seedling is pretty, with good and distinct spotting; it is very small compared to many we have had sent us.*——*P J*—You are evidently improving in your striped varieties, the striping is more distinct, the flowers larger, and a little more varied in colour; the deep yellow and brown are the best at present; we are glad to see one with a perfectly white ground; some of your spotted varieties are very handsome.*

Fuchsias—*J W T*—The variety No. 1, white tube and sepals, with rosy crimson corolla, is a handsome variety, and one of the best of its class we have seen. No. 2 is not better than many of the dark flowers in cultivation; the corolla wants colour, and the stripe of lighter colour down the division of the corolla wants decision, and appears uncertain.*——*J M*—There is nothing remarkable in your seedling—there are several in the same way.*——*A P*—Your seedlings are not equal to flowers of the same character in cultivation; they are all deficient of the violet colour in the corolla: and Standish's flowers are very superior to them.*——*J P*—No. 1, the light seedling, has a very poor corolla, short and small, and the sepals are long and narrow. There are in cultivation many sorts very superior to your specimen; 2 is a brilliant and a better flower, but it would be difficult to distinguish this from many others.*——*Winwick*—The most novel seedling among your flowers is No. 3. This arises from the intense brilliancy of the corolla; next to this we place No. 4, containing a fine contrast of colour between the corolla and tube; 1, 2, and 5, are sorts similar to others. They are good flowers, but they have all a degree of coarseness in the sepals. No specimens were received previously to these.*——*A Novice*—The sepals to your seedling are rather coarse, and the flower altogether is devoid of colour.*——*J B*—Your seedlings generally are flowers of good substance, smooth in texture, and possessing clear and bright colour, still many of them want novelty to recommend them to purchasers; 7, 8, 10, are the best of the light sorts, showy, and pleasing; of the darker sorts I should retain 1 and 3 only, the remainder, although good flowers, are too much like those in general cultivation.*——*E J L*—Dragon is a bold and showy flower, but coarse in the sepals, and wants compactness in the corolla. Bluebell and Zara are both small, compact, and pretty specimens. Cerito, too coarse, and long in the sepals. Clara, pretty in form, but there are several larger flowers in the same way. Fireball was damaged, but appears a good showy sort. Carlotta, novel and pretty; sepals too long and probably do not expand. Lion and Great Mogul, too much like sorts out. Clara, Bluebell, and Zara, are the best and Carlotta, if the sepals expand.*——*G R*—An elegant flower, with rather too much colour in the tube and sepals.*——*W G*—Your seedling is an extremely pretty flower; good colour, fine texture, and substance rather small, but refined in character.*——*G N*—There is a coarse and faded appearance about the sepals of No. 1, they are also too long for the size of the flower. No. 2 is a large and handsome flower of good form and substance. The colour in the corolla of appears to change on exposure to the sun, and to look dirty and withered—a fatal defect.*

Mimuli—*E A J*—The best and most pleasing of your varieties is No. 3.*

Pansies—*C T*—Good form and substance; ground colour clear, with deep purple of a novel hue; there appears a slight inclination to a watery edge in the side petals, where the ground colour meets the margin. The shield is perfect and it will form a good show variety.*

Pelargoniums—*W P*—Flowers of the colour of your seedling are not admitted into good collections: your flower possesses good form and substance, and is the brightest and best of the plum-coloured varieties we have seen.*——*L K*—The seedling you have named Jupiter is of no use.*——*Clericus*—Your seedling is objectionable in form, the lower petals being too narrow and the upper ones uneven on the edge; it is bright and pleasing in colour, but inferior to many sorts of the same colour in cultivation.*——*S B*—No. 5 is a well formed flower of good substance; the broken and irregular veining in the lower petals is objectionable, and the flower wants brilliancy. No. 10, pink with white centre lower petals broad and finely formed; the top petals are well formed also, but appear to be crumpled and to curl back: the petals had fallen.*——*L G D*—Your seedling is a small specimen; singular in colour, and it wants both size and form as a show flower.*

Petunias—*E J L*—The seedling named Titania is a good specimen of the veined varieties, of which there are many in cultivation. Lucette was bruised and not in a fit state to form an opinion of.*——*S B*—No 7 is a very good flower, of a brilliant crimson violet-purple.*——*W M*—No. 1 is a very good seedling, rather common in colour, and though remarkably clean on the edge, the divisions on the corolla are too deep. No. 2, too dingy in colour.*

Verbenas—*L K*—Your seedling is a brilliant flower, but not surpassing those in cultivation; the divisions in the corolla are too much cut away.*——*E J L*—The colour of your flower wants brilliancy, it has a faded appearance; the colour of the eye is no improvement, it is not so good as many of the light pink varieties.*

Farm to Let.

MONMOUTHSHIRE.

TO BE LET ON LEASE, with entry at Michaelmas, a FARM, TITHE-FREE, containing 154 Acres of Arable, Meadow, and Pasture Land, about 53 of which are Arable, the remainder Grass-land of superior quality, well supplied with Water. The Farm has been for some years in the occupation of the Proprietor, who has spared no expense in thorough draining and subsoiling, to bring it into an improved state of cultivation. It is situated within 5 miles of two good market towns; lime and coal cheap, and of easy access; roads good and rates very low. There is a comfortable Farm-house, with good Garden, Barn, Stables, Cow, Calf, and Turnip-houses; and Four Acres of Good Orchard. For further particulars, or to treat, apply to Mr. JOHN MORTON, Whitfield Farm, near Wotton-under-Edge, Gloucestershire. An adjoining Farm of about 55 Acres, of which 40 are Arable, may be had with the above.

The Agricultural Gazette.

SATURDAY, AUGUST 9, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Aug. 13—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUB.—Aug. 18—Darlington.

LINSEED CAKE is liable to adulteration:—Hearken to what Mr. HUXTABLE says at an agricultural meeting in Dorsetshire (p. 877, 1844):—"Two or three millions are annually sent out of this country for Linseed-cake, and what stuff it is! I appeal to any gentleman who has examined it with a microscope, to bear witness of what incongruous and worthless materials it is in a large measure composed; of Mustard and refuse seeds ('and old rope,' from Mr. FARQUHARSON), &c."

But it is also liable to great variation in composition—involuntary on the part of those who manufacture it—variations which cannot be ascertained by a mere external examination—and thus the farmer is liable to loss in two ways. Take the following analyses, by Mr. GYDE, of Painswick, as evidence on this latter point (p. 175).

	No. 1.	No. 2.	No. 3.
Water	18	13	15
Organic Matter, exclusive of fat ..	63	69.5	71
Ash	6.6	7.	6
Fat	12.4	10.5	8

Here we find cakes varying 12 per cent. in "organic matter exclusive of fat," and 35 per cent. in the quantities of fat which they respectively contain; and this, too, in cases where there was no reason to suspect adulteration: and the prices at which these specimens were selling were by no means in proportion to this difference of quality.

Now the only method of avoiding the liability to loss, to which all purchasers of oil-cake are thus subject, is for farmers to buy, or what is obviously better, to grow their own seed. The cultivation of Flax for its fibre, it is found, does not necessarily involve the loss of its seed. Considering on the one hand the gradual depreciation in the quality of the fibre, as the Flax plant attains maturity, and on the other the advantage of saving the seed, together with the gradual increase in the bulk of the crop, it is found that the greatest advantage to the grower is obtained by pulling the crop when about two-thirds of the stalk has become yellow, and the seed is fully formed—the stalk, though then past the stage when its fibre is finest, yields a much greater weight per acre; and the seed, though not fully ripened, is easily separable.

We are not now considering the policy of giving Flax a more prominent station among our cultivated plants; that subject may be safely left to the advocacy of our indefatigable correspondent Mr. DICKSON. Our present object is merely to point out that the English farmer may, with a reasonable profit to himself, produce on his own farm the Linseed for which, after its oil has been expressed, and the refuse frequently adulterated with useless ingredients, he now pays a high price to the foreigner. It is the interest of the farmer, we believe, to *buy* Linseed, rather than purchase Linseed-cake; both because of its greater value as food, of which we shall speak presently, and because of his greater safety from the imposition of an adulterated article; and, considering the other sources of profit in a Flax crop, it is, surely, doubly his interest to *grow* it.

The following is an analysis of Linseed, by Mr. GYDE, of Painswick—a comparison of it, with those of Linseed cake, by the same gentleman, exhibts the superiority, as food, of the seed entire, over its husk, &c., after the oil has been expressed.

Water.	Gluten, Albumen, and Casein.	Starch, Gum, Sugar, and Woody Fibre.	Fat.	Ash.
10	22.8	27.2	36	4

But the superiority of this article as food does not depend only on the assertions of scientific men who have investigated its composition: it has been *experienced*. Mr. WARNES, of Trimingham, well known as a hearty advocate of Flax culture, was, we believe, the first to point out the advantage of using Linseed-meal made into a sort of porridge with Bean and Barley-meal as food for cattle. His recommendations have been extensively acted upon. The following, with which we have been favoured, describes the practice of one of our best Norfolk farmers:—"One bushel of Linseed is ground between two smooth cylinders, and boiled slowly in a copper for one hour with 30 gallons of water, keeping the mixture constantly stirred to prevent burning. To every gallon of jelly thus produced, 1 bushel of cut straw is added, and the whole being mixed in a large tub is kept covered for four or five hours, after which it will be fit for use. I consider this the cheapest and best food for cattle that we can make; but if Barley, Bean, or Pea-meal be thought necessary, the cattle will eat it better given to them in a dry state at the same time with the above preparation." One of the most valuable pieces of evidence, however, on this subject that we have seen occurs in BACON's "Report on the Agriculture of Norfolk," where the experience of Mr. POSTLE, of Smallburgh, is given in detail.

A lot of 12 beasts were divided equally. Six were fed on oil-cake and six on Mr. WARNES' compound. The account of their food was kept with scrupulous accuracy for nearly six months, and the following is a summary of the expenses on both sides:—

Food of the six cattle on Warnes' Compound.

	£	s.	d.
66½ bushels of Peas at 3*s.* 7½*d.* =	10	12	0¾
18½ bushels of Linseed at 6*s.* 4½*d.* =	5	17	11¼
Peas, grinding, 1*s.* per sack ... =	0	14	7½
Linseed, grinding, 2*s.* per sack =	0	9	3
Making compound ... ... =	1	0	0
Fuel ... ... =	0	17	6
	20	11	4½
Deduct for 3½ bushels of wood-ashes, at 1*s.* 6*d.* per bushel ...	0	5	3
	20	6	1½
Balance in favour of the compound	1	8	7½

£	s.	d.
21	14	9

Food of the six Cattle on Oil-cake.

	£	s.	d.
Jan. 2, 1843, 1tn. of Dieppe Linseed-cake	8	3	0
March 17, 1843, ditto	7	15	6
April 28, 1843, 15 cwt. 1st. 9 lb., ditto	5	16	3
	£.	s.	d.
	21	14	9

The following is the weight of the two lots respectively, as reported by the butcher:—

	Meat. st. lbs.	Loose Fat. st. lbs.	Hides. st. lbs.
6 cattle on compound ...	432 7	55 9	39 6
6 cattle on oil-cake ...	387 12	51 7	37 11
Difference in favour of compound	44.9	4.2	1.9

So that, assuming, as we may justly do, that this lot of 12 cattle was fairly divided to begin with, the compound consisting of Linseed and other meal, produced more meat than the Oil-cake, and at a considerably less expense. Any Swedish Turnips or hay given to the cattle was weighed out to them in equal quantities.

This subject is of considerable importance—perhaps less so, however, in our present prospect for food for winter than it was last year; but still, the facts we have brought forward, the liability of the cake to adulteration, the profits of Flax-growing, and the great nutritiveness of the Linseed as used by Mr. POSTLE, deserve the attention of farmers.

REMARKS ON THE QUALITIES OF WHEAT NECESSARY FOR THE MANUFACTURE OF BREAD, BY THE ORDINARY AND PATENT PROCESSES. BY SIR G. S. MACKENZIE, BART., F.R.S., V.P.R.S.E., &c.

LAST year I published a pamphlet on the choice of Wheat for seed, in which an attempt was made to set forth the importance of examining the chemical constituents of Wheat, in reference to the manufacture of bread. I failed to impress this on the Highland and Agricultural Society of Scotland; and, though the subject has not been taken up by the Agricultural Chemistry Association, nor by farmers themselves, I can only regret these facts. They have not deterred me, however, from following up a pursuit manifestly fraught with importance, and the results of my inquiries have fully justified my perseverance. Such inquiries are unquestionably too expensive to be made by individuals, and ought to be taken up by public bodies. But, unfortunately, the latter have their attention too much attracted by useless cattle shows, the effects of which seem to be not to benefit the public by furnishing wholesome, cheap, and abundant food, but to put money into the pockets of butchers, the providers of dinners, the builders of pavilions, and newspaper printers, besides gratifying self-love in after-dinner speeches, meaning little, and effecting nothing.

Circumstances, as I will presently show, have occurred to render the inquiries referred to greatly more interesting and valuable than they were when they were commenced; and I doubt not they will attract the attention of the numerous readers of the *Agricultural Gazette*, and by its means the notice of the public in general.

At the time when I offered my pamphlet to public consideration, I was impressed by the belief that the nitrogenous ingredients of Wheat were those which were chiefly nutritive; and that the varieties which contained the largest proportion of these, were the most valuable. This is unquestionably true; but the result of chemical investigation has proved that the Wheats in greatest estimation for making bread contained a much smaller proportion of these matters than others which bakers rejected as unfit for their process. This fact is important in itself; and another has been elicited, also of importance, that the success of the manufacture of bread by the ordinary process, in other words, the baking quality of Wheat depends on the proportion of sugar.

Now, every one knows that sugar, gluten, and albumen, constitute the chief nutritive ingredients of Wheat. But every one may not be aware of what chemistry further tells us, that, in the ordinary process of baking, the sugar is totally destroyed, and part of the gluten. Let us see, then, how matters at present stand in reference to market prices, and the real value of particular varieties of Wheat as an article of food. At the time I published my pamphlet, a Baltic Wheat, known by the name Wolgast, was rated at 58*s.* per qr.; another Wheat, a new variety sent to me by Col. Le Couteur, and called by him Trémois (which was erroneously written by me Tremaine), was examined by six different persons, three corn-dealers and three bakers, and the average of the values stated by them was 47*s.*, 11*s.* under the value of the Wolgast. Having obtained more minute analyses of these Wheats, I find that the amount of the nutritive ingredients in Wolgast Wheat is 14.6 per cent., and that in the Trémois 17.8 per cent., showing a difference in favour of the latter (which grew in Ross-shire) of 3.2. Compared with a Ross-shire Wheat, the difference against the Wolgast is 4.7. As the sugar is lost in baking we may leave that out, when in comparison with Trémois Wheat, the Wolgast loses 4.1. Thus, then, it appears that the rejected Wheat had the greatest proportion of nutritive matter, and was, in fact, the most valuable. This is a fact of too great consequence to be overlooked. Of course it is most important to prevent, if possible, the loss of the sugar and any portion of the gluten in the process of baking.

This leads me to notice some matters, well worthy of attention, connected with the patent recently obtained for raising bread by the process of uniting hydrochloric acid with carbonate of soda, and thus, at the same time, introducing salt, which is necessary to render the bread palatable. This process leaves the nutritious ingredients of Wheat untouched; and hence the patent bread ought to be, and, if made of nutritious Wheat, unquestionably is, the most nourishing. It is obvious, however, that this patent process does not, like the old one, require Wheat of a particular quality. Flour, containing scarcely any nitrogenous ingredients, may be made by it to rise into light bread. The raising is a mechanical operation effected in the one case by chemical action producing vinous fermentation, and the decomposition of the sugar, which causes carbonic acid gas and alcohol to escape; and in the other case, the addition of hydrochloric acid to the carbonate of soda, sets the carbonic acid free, while common salt is formed. By this latter process bread, to all appearance good, and at the same time palatable, but very little nutritious, may be imposed on the public by dishonest persons, or even in ignorance. It has become a matter of indifference to the baker what flour he uses. In the old process of baking the use of alum, for whitening the bread, was limited, because its use beyond a certain amount stopped the fermentation. In the new process adulteration is facilitated. The public, therefore, is very deeply interested in the matter. We now see that the ordinary process of baking actually destroys, to a considerable extent, the nutritive portions of Wheat, and therefore the patent process should be encouraged. But, at the same time, it will be necessary that, to secure its advantages, no other than Wheat of the most nutritive quality be used. The chemist, therefore, must be applied to in order to check any tendency to fraud. As farmers and their families eat bread it becomes their interest to look for and cultivate Wheats that yield the largest proportions of nutritive matter.

It is the interest also of the patentee of the new process to promote the search for Wheats that, while suitable to the climate of Britain, shall be productive, and contain what is required in large proportion. Thus a complete revolution is likely to take place in the kinds of Wheat cultivated at home, and the choice of Wheats for importation; and I hope I may not only have laid the foundation for it, but that I may live to see its accomplishment. I am already in possession of minute analyses of a considerable number of Wheats, but until I obtain some more analyses of Wheats I have now growing, I will defer submitting any till all are made.

Should this meet the eyes of the leaders of the great Agricultural Association of England, I shall be happy to correspond with them on the means which they may adopt for extending our knowledge of this interesting and most important subject. Should the patentee of the new baking process see these remarks, I shall be ready to communicate with him in regard to the deep interest he may feel in reference to what those bakers to whom he has sold licences may do.—*G. S. Mackenzie, Rosebank, Roslin, N.B., August 2, 1845.*

DRAINING A PERMANENT IMPROVEMENT.

Continued from page 534.

Mr. Parkes' evidence before the Lords' Committee:—

"What is your opinion with regard to the efficacy of pipe tiles?—My opinion is quite settled on that point, viz., that the pipe or cylinder tile, and the smallest size used, which is of an inch bore, forms the best known conduit for the parallel drains. I consider this to be abundantly proved.

"How long would you have the inch pipe drains?—I think, from my own observation and experience, I should not be disposed to lay drains of inch pipe longer than 300 yards in any one continuous drain. If I had a field to drain, 600 yards long, and its form was such that I felt there was no necessity for an intermediate main drain, I would first of all lay 200 yards of inch pipe, and then I would lay about 200 yards of inch and a quarter or inch and three-eighths pipe, and perhaps I might finish with inch and seven-eighths or two inches at the outfall. If a pipe of an inch bore suffice to convey and discharge all the water collected in a run of 300 yards, a pipe of double the area will suffice at the end of 600 yards, and a pipe of two inches diameter possesses four times the area and capacity of an inch pipe.

"Have you seen the socket-pipe?—Yes.

"Do you not think that a great improvement on the others?—No; I look upon it as quite unnecessary, and a great evil, because it at least doubles the expense.

"Is it not a great advantage that it prevents the pipe slipping?—We have a better way of doing that than through the socket-pipe, namely, by making a smaller one enter a larger one; and there is no necessity to do that, except in cases where you have got a soft boggy or fine sandy soil to deal with, in which the pipes are likely to sink, and then if you let one enter the other you might really make a chain bridge of them if you pleased. Socket pipes would not stand such a test. I do not think socket-pipes of any sort of utility in land draining, though excellent for domestic drains. I look on them to be unnecessary: and, being unnecessary, what is the use of spending as the farmers in Kent would say, more than is necessary. They would not apply them if given to them; nor would I.

"Would not one great advantage be to prevent the pipe slipping?—The evil does not occur in good practice; we have no instance of it. I never heard an instance of any one of these inch-pipe drains being deranged where the trench has been properly made, and wherein the pipes were properly laid and filled in. I never heard of one of these drains giving way in any manner. The making drains deep is a great preservation against their derangement. Drains of from three to four feet deep cannot be injured by any pressure or action of implements on the surface. Deep drains are superior to shallow drains in every point of view; they are cheaper, more durable, and more effective. Several farmers in Kent, among whom I may name Mr. Spencer, of Wrotham, Mr. Simmonds, Mr. Hammond, and others, have re-drained fields to a greater depth, and with great advantage. The old shallow drains then cease to flow, and the deeper drains run sooner after rains than those placed more shallow. We have many instances in which one single deep drain, in the case of open drains like a ditch, has been more than equivalent for an acre of land; but no man can give a rule as to depth or distance; it depends on the judgment of the individual, and the quality of the soil.

"What is the minimum of the depth?—My own opinion is, that land should never be drained to a less depth than 3 feet, and that 4 feet is preferable wherever an outfall can be procured, at which depth it will rarely occur that drains need be placed nearer than 33 feet asunder.

"Is there a good deal of difference of opinion about whether the water should be carried off rapidly or not?—There has been a difference of opinion, but I find many people giving way on that subject. My opinion is, that one of the greatest sources of fertility which Nature has provided, and the management of which she has put partly at our command, is rain; and that one great object we have to accomplish is to make use of all that rain, and to make it go through the ground, that it may operate in its various ways, both physically and chemically. The object of draining is to make rain our friend, and not our enemy; to cause it to descend through the soil; then to remove it after it has done its work, and before it can do any harm. All this is accomplished by an efficient system of drainage. Land in a fair climate can scarcely be too humid, but water never ought to stagnate upon it or in it. If our chemists would turn their attention to the analysis of the water which issues from drains, they would discover much that is at present unknown, and particularly illustrate the superior effect of deep draining over shallow draining.

"Will you explain what you mean by saying that the Kentish clay land is kept moist by draining it?—The manner in which I believe that process to be effected is through the free admission of the atmosphere into the soil. We know very well that the atmosphere is composed not only of fixed gases, but also of aqueous vapour, and there is a much larger quantity of aqueous vapour suspended in it during the summer season than in the winter season; that was one of the discoveries of Sir Isaac Newton. Now, there is at all times a temperature with respect to that of aqueous vapour at which water will begin to precipitate on any body possessing that temperature, and with which the vapour is in contact. This degree of temperature is termed the dew point. The action of drainage is to cause air to occupy the place previously occupied by water, and to which air could not obtain access; and the lower portions of the soil being considerably cooler than the air causes a precipitation of dew or moisture throughout every part of them, when the atmosphere is highly heated. The surface of soil only is moistened by dew during the night, but the interior parts of the soil are abstracting it from the atmosphere during the day. This beautiful operation was first explained by Sir Humphry Davy, and in the following words:—'The power of soils to absorb water from air is much connected with fertility. When this power is great, the plant is supplied with moisture in dry seasons; and the effect of evaporation in the day is counteracted by the absorption of aqueous vapour from the atmosphere by the interior parts of the soil during the day, and by both the exterior and interior during the night.' We know that the atmosphere also gains access to the subsoil of a clay field, if undrained, through the wide cracks opened by a hot summer; but the very shrinkage which has occasioned these cracks has so closed and hardened the separated masses that the air has no free entrance and exit into what Davy meant by the 'interior parts.' The air, under such circumstances, rather assists in drying than in moistening the mass. A well-drained clay field never exhibits the wide and numerous fissures common to a wet undrained clay. Its condition is rapidly and entirely changed; it becomes filled with air instead of water, and though what I have previously termed cracks, in accounting for the manner in which water finds its way into drains, exist, yet these are numerous and minute, almost indeed indiscoverable, after clay land has been drained for a twelvemonth. The laws of the precipitation of superficial dew were explained solely by Dr. Wells, and they came from his pen a perfect theory. I trust that this simple explanation of the causes which maintain drained land in a moist state, though it prevents them from being wet, will serve to illustrate the superiority of deep drainage. It will be seen that one great source of fertility and humidity, the atmosphere, has access to a greater mass of soil; and that, in consequence of the depth drained, the lower soil is placed in a condition continually to absorb moisture, and transmit it upwards, whilst a rapid evaporation may be taking place at the surface during a parching summer.

"On wet pasture, or undrained Grass land, in a dry summer, nothing burns up worse?—Clearly.

"Aquatic Grass, which alone flourishes on it in the winter, being entirely consumed for want of moisture?—Yes; the aquatic Grasses have nothing to live upon when the moisture is evaporated, and the air cannot get into the soil to supply it. If the soil be clay, undrained and unworked, and the clay has shrunk into masses with intervening cracks, the atmosphere only gets into the cracks, and not into the substance of the clay. Baked clay resists for a long time the re-entrance of water. I may here mention another beautiful instance of the effect of draining, which I observed during the sharpest frosts we experienced last February. I was at Mr. Thompson's farm in Surrey, and was out by moonlight. We were walking over several fields of clay soil, one of which had been deeply drained, well ploughed, and pulverized, the greater part of it moderately subsoiled, and altogether in an admirable state of culture. I could, with the slightest exertion, push my stick from the top to the bottom of the worked bed. The fact is it was full of air, and not of water, therefore the mass was not frozen altogether. There was a field next to it which had only been just drained, and not yet so much worked. I could not insert my stick at all into this soil, for the whole of it was one frozen mass; it was full of water, not air. I hope I have made my statement quite clear with respect to the cost of drainage in the two cases, when the tenant farmer practises it himself, and buys his pipes, or when the landowner manufactures his own pipes, and does it for himself. Lest this should not be so, I beg to hand in the following Table and remarks:—

Instances of the Cost of Draining an Acre of Land, the Drains being laid with Inch Pipes at various Depths and Distances asunder, the Pipes being manufactured on an Estate, and assumed to cost 6*s.* per Thousand.

Instance.	Depth of Drains.	Distance between Drains.	Length of Drains per Acre.	Cost of digging Drains. per Rod.	per Furl.	per Acre.	Pipes per Acre.	Cost of Pipes per Acre.	Total Cost of Drains per Acre.	Character of Soil.	Authority and Place.
No.	Ft. In.	Feet.	Rods. Furls.	*d.*	*s. d.*	*s. d.*	Feet.	*s. d.*	£ *s. d.*		
1	3 0	33	80 2	3	10 0	20 0	1,320	7 11	1 7 11	Uniform Clay..	Thomas Hammond, Tenant-farmer, near Penshurst, Kent.
2	3 0	33	80 2	3	10 0	20 0	1,320	7 11	1 7 11	Ditto ..	Henry Purland, Tenant-farmer, Salehurst, Sussex.
3	3 0	33	80 2	3	10 0	20 0	1,320	7 11	1 7 11	Ditto ..	John Thompson, Tenant-farmer, Woolver's Farm, Horley, near Reigate, Surrey.
4	3 6 to 4 0	40	66 1·05	4	13 4	22 0	1,089	6 6	1 8 6	Ditto ..	Thomas Hammond.
5	4 0	50	53 1·025	6	20 0	26 0	875	5 3	1 11 9	Clay, with some Stones	Ditto.
6	3 0 to 3 6	40½	53·3 1·333	8	26 8	35 6	880	5 4	2 0 10	Clay super; hard gravely Subsoil	Henry Simmonds, Tenant-farmer, Hadlow, Kent.
7	4 0	49½	53·3 1·333	8	26 8	35 6	880	5 4	2 0 10	Clay super; hard Gravel Bottom	— Kepping, Hadlow, Kent.
8	4 0	60	40 1	8	26 8	26 8	660	4 0	1 10 8	Various; Clay, Gravel, Sandy Loam	Ditto.
9	3 6 to 4 0	33	80 2	7½	25 0	50 0	1,320	7 11	2 17 11	Clay super; hard Black Gravel, Springy Subsoil	John Taylor, Tenant-farmer, Mereworth, Kent.
10	2 6 to 3 0	20	88 2·2	Stone Drains, 3*d.* per Rod for digging, getting, drawing, breaking stone, filling in.					5 8 2	Clay and stiff Loam super, with Stones in Subsoil	— Bartlett, Tenant-farmer, Butleigh, Somerset.
11	3 0	20	132 3·3	.. ..		Ditto			8 2 3	Clay, with some Boulders in Subsoil	— Maidment, Tenant-farmer, near Butleigh, Somerset.

THE HAND VERSUS MACHINES.

Without any wish that those machines which really and not only apparently work cheaper than the hand should be disused, yet I think there are many cases where the hand would be better. Some dibbling machines shown at Shrewsbury have suggested these reflections:—A dibbling machine that costs 60*l.* must either be very heavy or very intricate, or both—and, however admirable seed machines may be (and I admit are) for using on dry summer land, yet I think it is extremely desirable to use no heavy partial presses on our best Wheat lands in autumn.

So busy are clever men in search of machines for everything that requires exactness, that I do not think it impossible that some are even now puzzling their brains to make a hand of wood and iron as an improvement upon, yet to be held by the hand of flesh, perhaps for dropping Wheat. They who proposed "the hand" as the subject of a Bridgewater treatise, in my humble opinion, had a more correct idea of the capabilities of man, than they who too much encourage and patronise the inventors of machines. There are questions of the highest moment connected with this of "the hand *versus* machines." There can be no denying that, in many cases, machines are used because men, women, and children, cannot be trusted to do the job carefully enough, or they are said to be too stupid. Hence, we often read that "dibbling is less general than it would be, but that the droppers cannot be trusted." It is the duty of the farmer to till his land in the best way, but it is also his duty to improve his labourers. If he had no means of obtaining machines, he would have to pay more attention to 'improving the habits of fidelity, care, and accuracy, in his servants, and, as a step, to engaging their love—instead of striving to be independent of them. There is a tendency to capitalise skill as well as wealth, and the mass are not only to be left in the depths of poverty, but it will soon be a matter of indifference how shallow their heads may be. In plain language, I think it to be the duty, especially of the thinking and intelligent, to look first to what can be made out of the human frame, before they turn their attention exclusively to wood and iron.

With a small portion of ground indeed, which of itself I admit drives me to look to the individual man rather than to a variety of machines, I am endeavouring to practice, and I hope with profit, what I preach. To produce as much as possible at the least comparative cost, not for self, but as a steward only, and to bear in mind that the labourer's temporal and eternal happiness is of more importance still, must *be*, and therefore be seen to be the leading motives of the master. The labourer must be well paid, encouraged by extra payments—his due for work done extra well—he must first be well and closely directed as to the best methods of doing the job he is upon and afterwards (unless he be found quite unteachable or careless, so as to be turned away) left avowedly much to himself. Children, especially, must be well, kindly, and judiciously brought up on a farm; they will often be found capable of doing the lighter work of men, but they must and ought, in such cases, to be paid the same wages, held out as contingent upon the care and diligence they exhibit.

I did hope to have been able to have given the results of a plan for sowing Wheat by hand, but circumstances prevented the experiment from being made. However, as it is possible that some of your readers might like the idea, I will send it you, untried as it is, except for Turnips, &c., where I have pursued it with success.—*G. U.*

P.S.—If people will waste their ingenuity upon machines, by all means let them eschew such absurdities as that for making Latin verses. It is said the inventor has worked, I do not know how many years, upon it. Why, a common seven-row drill could be constructed in half a day by any ingenious workman, into one that would drill as good hexameters, and give into the bargain the alternate pentameter. It might be a good speculation, now that drills are not wanted, for a month or so.

[The invention of a machine—an improvement upon the hand—for dropping seed, was noticed the other day in our report on the Shrewsbury Exhibition; and, as we then said, it is, what it professes to be, a decided improvement upon the finger and thumb for the purpose of depositing seed (see page 519). The use of machinery in agriculture, though its *immediate* effect may be to deprive labourers of work, is yet part of an improved system which will ultimately employ more labour than ever—labour, too, not of a merely brute-force character, but to the accomplishment of which skill will be a necessary ingredient. The use of machinery—of any means, indeed, of diminishing the cost of production—is productive of a cheaper article in greater quantity; and there is such a necessary connection between cheapness and plenty on the one side, and increased consumption of the article produced on the other, as universally insures increased employment for all who are engaged in the manufacture. The preparation of agricultural produce is as truly a manufacture as any other.]

FARM BUILDINGS.

Barns.—These are, 1st: The barn for unthrashed corn which is generally on the second floor, and contains the machinery for thrashing. 2d, the dressing barn in which the corn is winnowed and prepared, generally situated under the former. 3d, the chaff-house which receives the chaff from the winnowing machine, and is generally a small apartment partitioned off from the dressing barn. And 4th, the straw barn in which the thrashed straw is stored for use. On farms, on which the economical and convenient plan of stacking the corn crop is not adopted, large barns have to be provided to lodge the whole unthrashed corn of the farm, but as such buildings are inconsistent with the arrangements required in a properly conducted mixed husbandry we do not propose to consider them. The barns are the only buildings in which the size has little reference to the extent of the farm. This is more particularly the case where water or steam power is employed for thrashing; a certain amount of space being required to contain the machinery in the corn and dressing barns, their dimensions are in a greater measure regulated by this, and the straw barn is adapted to the amount of work which the machinery performs.

Being necessarily connected together, the barns do not admit of much diversity of arrangement. The straw barn may be a continuation in a straight line of the dressing and corn barns, or it may cross them at right angles, thus ⊥, where the horizontal limb of the inverted ⊤ represents the straw barn in two divisions, a very convenient arrangement, and the vertical line the corn barn. In this case the straw falls from the rakes of the thrashing machine into the centre of the straw barn, and is conveyed right and left to be stored; another and very good arrangement, and one easily applied in practice, is the following :—

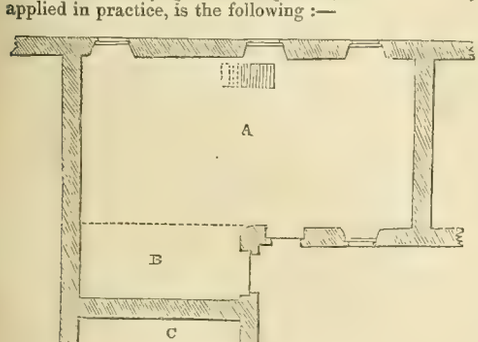


Fig. 1.

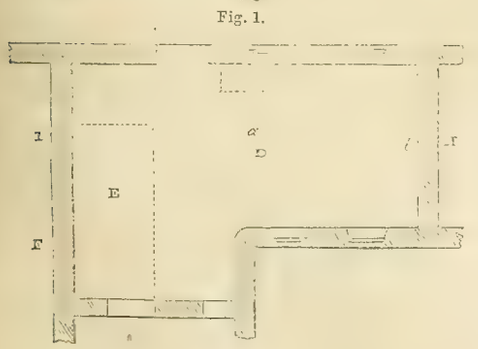


Fig. 2.

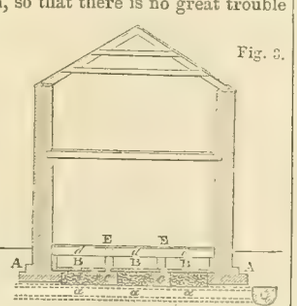
Fig. 1 is a plan of the ground or dressing barn floor; and fig. 2 a plan of the corn barn floor. In the former, A is the dressing barn, B is the chaff house, and C part of the straw barn. In fig. 2, D is the corn barn; at E, the position of the thrashing machine is indicated by dotted lines; the motive power may be at F. In this arrangement, the whole space from *a* to *b* is available for storing unthrashed corn; the granary may be in the direction H or I, or it may extend over the straw barn.

Thus much for the arrangements of the barns in themselves—when considering the motive power and its applications, I shall again have to advert to them. It would confuse the subject to treat of the modifications in the disposition of the barns required to admit of the utmost advantage being taken of the power employed to drive the thrashing machine in the preparation of food and other matters. I shall, therefore, proceed to the consideration of the construction of these buildings.

The dressing barn may be eight feet high from the floor to the under side of the joisting of the corn barn; but it is better to be higher, to afford space for the elevators, which raise the corn to the hoppers of the winnowing machine, to work with advantage; it should be well lighted. The side walls of the corn barn should not be less than 5 feet above the floors, but six feet is better, for the higher the walls are made, the lower may the tie-beams of the roof be kept, and greater strength and durability ensured. A good floor for the dressing barn may be formed of tiles or bricks; a much better one of asphalte; but the best, in my opinion, is one of stone. There exists, however, a pretty general prejudice against all these, and wood is in most cases preferred. Whatever be the material, it is essential that it be impervious to the inroads of vermin. In the case of a wooden floor, the usual method of effecting this object is as follows :—The soil and subsoil are dug from the area of the interior of the building to the depth of 2 feet, or 30 inches below the level of the floor. Drains are then constructed, if necessary, and the excavated space is filled with stones broken small to a height of about 1 foot or more, according to the total depth, and above this there is a stratum of stones or brick built solidly with lime mortar—in fact, a horizontal wall. In this stratum of solid building the sleepers or joists are bedded, and it is carried to within 1½ inch of the under side of the flooring boards. It is then grouted, or in some cases covered with a stiff coat of plaster lime mixed with glass broken small. Now this, though, for a time, pretty effectual in preventing the inroads of vermin, is attended by two evil consequences. The first is the certain early decay of the sleepers from dry rot, and consequent inequalities of the floor by partial sinking; the second arises from the careless manner in which the work is almost always performed, the stones of the substratum being seldom broken small enough, the interstices between them afford access to the rats and mice, and what should be solid building above this stratum seldom deserves the character; on the contrary, being deficient in packing, as it is technically termed, that is, in the smaller stones by which the interstices between the large ones are filled up, the place of which, if supplied at all, being supplied with mortar, there are secure and comfortable burrowing places provided for all sorts of vermin.

This method, then, of rendering wooden floors vermin-proof being ineffectual and also expensive, I shall describe a method which I practise, and which experience has shown not only to be well adapted to the purpose of excluding vermin, but also to be attended with the important advantage of ventilating thoroughly the under part of the barn. The area of the buildings having been excavated as before, and the drains constructed if required, it is filled in to the depth of a few inches with gravel or stones broken small; care must be taken that for this the workmen do not substitute the rubbish and debris of the building materials. These are properly levelled, and on the top of them rough flags with dressed joints are laid; and to ensure perfect tightness round the main walls, and also the dwarf walls, the flags are dressed square on the edges, and as it were fitted into a groove in the building. It is not really so, however, for the flags are laid when the building is just the requisite height to receive them, so that there is no great trouble in making tight work.

Fig. 3.



The figure shows this arrangement. It is a transverse section of the building. A A is the foundation or footing of the walls, *a a* the stratum of broken stones or gravel, B the under floor of flags inserted into the walls at the sides, C C the dwarf walls which carry the sleepers *d d*, E E the wood floor. The surface of the walls and dwarf walls in the space between the two floors should be coated with smooth plaster. Openings should be made through the walls into the space between the floors for ventilation, and they should have perforated iron covers on the outsides. This, of course, is an expensive floor, and, in my opinion, not nearly so good, if prejudice could be overcome, as when the upper floor is constructed of smoothly polished flags, carefully jointed. In the least expensive way these may be laid on sharp broken stones, but in the better, though more costly manner, they should be supported on dwarf walls, with the interspaces filled in with such stones. This latter method requires the flags to be of regular sizes, while in the former method this regularity of size is not required.

The other part of the barn, where it is necessary to guard against vermin lodging, is the wall-head. To prevent this, the wall-heads should all be beam-filled, as it is technically termed, and the division-walls carried up until they come in contact with the slate boarding. Beam-filling, in the case of a roof, is merely continuing the inside part of the wall until it meets the slate boarding, in place of levelling it at the wall-head, or point where the wall-plate of the roof rests. The interior of the walls of these barns should be smoothly plastered and finished at the floor, with a deep skirting of wood. The plastering should be continued down underneath the skirting. The windows of the dressing and corn-barns should be made as represented in the following figures :—

Fig. 6. Fig. 5.

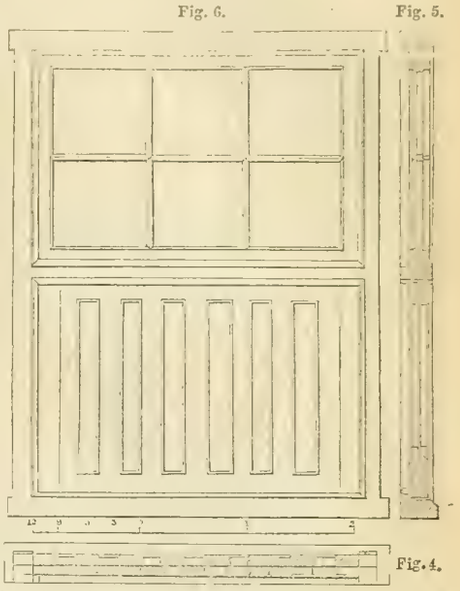


Fig. 4.

Fig. 4 is an horizontal section through the lower part of the window; fig. 5 is an elevation; and fig. 6 a vertical section. It will be seen that the upper part of the window is glazed, while the lower part is formed of two frames of wood, with corresponding openings. The outer frame is fixed, but the inner frame is made to slide, so that its openings may be opposite those of the outer frame, to permit air to enter, or so that its upright spaces may cover the openings of the outer frame. I have figured this window here because we shall have occasion frequently to refer to it.

In many cases, dependant on the situation and arrangement of the barns, it is convenient to make the doors open outwards and fall back against the wall; or, what is still better, to suspend them by pulleys from an iron rail, that they may be slidden aside. This last manner of hanging the doors should be adopted wherever practicable, in all the buildings of the out-houses. They may thus be hung on the exterior or interior of the wall, or, what is a nearer approach to perfection, a recess should be made in the centre of the wall, into which the door may be slid, and thus be protected from injury. This simple manner of suspending doors will be illustrated by figures in a subsequent article.

The chaff-house being merely a portion of the dressing-barn partitioned off, it is not necessary to notice further. I shall, therefore, proceed to notice the straw barn. The walls of the straw barn, when there is no loft above it, should be 10 or 11 feet in height, beam-filled as in the corn barn. The floor of this barn may be formed of any of the materials enumerated as suitable for the dressing-barn, excepting wood; but the floor generally used—and an excellent and durable floor it is, when well made—is a composition of lime, clay, and the scoriæ of a smith's forge, well tempered together, and laid on a stratum of sharp broken stones, the site, of course, being drained as in the other cases. This composition is greatly improved by the addition of bullock's blood; it then, when properly made, becomes as hard as stone. The frequent failures in composition floors arise from the materials not being of good quality, and from the want of a little additional labour; they are in general not half incorporated by working. The straw-barn walls do not require to be plastered. Light and ventilation are obtained by narrow openings in the walls, fitted each with a vertical board, turning on pivots in the centre. This, when turned parallel with the face of the wall closes the opening entirely, and its greater or lesser obliquity admits more or less light and air as required. In place of this turning-shutter, a sliding one may be substituted. Some cover the exterior of the openings with stout wire net-work, or perforated iron, to prevent vermin getting into the barn. But where there are open doors and plenty of straw for them to burrow in, even rats and mice will not take the trouble of seeking to gain admission by the window—that is to say, if these creatures exist on the premises at all, it is almost impossible to prevent their getting into the barn; therefore, our care should be to construct the floor and wall-head, so that they may not find a hole to take up their abode in.—*James Newlands, Architect, 2, Queen-street, Edinburgh.*

Home Correspondence.

Bindweed.—I see in your "Notices to Correspondents," an inquiry how to get rid of Bindweed (Convolvulus arvensis), a plant often abundant in clayey, marly, arable land. So long as the land remains arable the hoe and dead fallow will be the only remedy; but

the land may be converted into pasture without any fear of its appearing as a pasture weed. A field on which it was abundant was laid down to Grass for three years, and during that period I do not remember seeing a single plant, nor have I ever observed it in pasture ground. This, with some others, as the Wild Oat (Avena fatua), Mustard (Sinapis arvensis), &c.; arable culture seems essential to their growth. However abundant they may be among corn, so soon as the land is converted into pasture they disappear; but if again brought in tillage they will be as abundant as ever. So certain are plants to spring up where soil and circumstances are favourable to their growth, that many philosophers of old believed plants to be the offspring of an equivocal generation. As all plants are now considered to come from seed, in some cases with the above plants their seeds must remain in the ground, and near the surface, for ages without germinating, and yet preserve their vitality. Another species, the Convolvulus sepium, I have nearly cleared from my garden, not by getting up all the roots, which would be impracticable, but [N.B.] by perseveringly cutting off the stem whenever it appeared.—*T. Allestree.* In reference to the subject of "equivocal generation," alluded to above, we take the liberty of publishing the following, abridged from the *Inverness Courier;* it is a pretty good illustration of what the author terms most erroneously "*spontaneous life:*"——"We, farmers, are sometimes much puzzled to account for the various tribes of Grasses, weeds, fungi, &c., which spring up in our fields and gardens, after any peculiar change in our mode of cultivation or management, and that without any apparent intervention of what naturalists consider an indispensable constituent, viz., the seed. I have sometimes imagined naturalists, when they recount the various, and round-about, and tedious processes which must take place before certain natural phenomena can occur, must have felt themselves hampered by theory or precedent. For instance, if we ask a philosopher how a certain moor—formerly covered with heath and bent, and miles from any spot producing any other sort of herbage—has become, by the mere application of burnt lime, comparatively a Clover field, he will probably say that the seeds of the White Clover have been carried there by the winds, or in the stomachs of birds, and dropped, undigested, on the field. Now, we know that the seeds of White Clover are not of that aerial substance, easily carried about by winds—that the seeds, in fact, are probably rarely carried a single yard from the place where they have grown by this medium. In regard to the transportation of the seed by birds, we do not deny either the possibility or probability that such may occasionally happen to a small extent; but that a field, say of 20 or 30 acres, can be seeded over in the course of a season or two, and so regularly, by the chance flight of birds, which have by chance picked up a few seeds of White Clover, which they have been unable to digest, is more than I can comprehend. But, says the philosopher, this field may, at one time, have carried White Clover; the seeds or roots may have lain in it in a dormant state for centuries—as we know seeds and roots, under certain circumstances, have capabilities of doing, and sprung up again when circumstances favoured their habit of growth. To this I would answer, that the field is from 2 to 6 feet deep of pure peat—that this has been accumulated through a long succession of years, by the growth and partial decay of peat-earth plants—that Clover, if it ever did exist there, must have done so before the accumulation of the peat, and the supposed seeds and roots must of course be below the accumulation, and are not likely to make their appearance through a stratum of peat-earth from 2 to 6 feet thick. Again, if a quantity of peat be burnt, and the ashes left for a month or two in the open air, in moist weather, it will be covered with a coating of Moss plants. Have the seeds of these *musci* likewise floated through the air, and alighted on the ash-heaps; or has the peat contained the seeds, which have been set free by the burning, after having thus gone through an ordeal of, probably, 1000° Fahrenheit? I can scarcely imagine the Moss plants to have been propagated by either of those processes. I shall now give an instance of what appeared to me to be spontaneous life in insects. Late in the month of December, I had a quantity of sea-weed cut for a special purpose, and placed under a shed to decay and rot; in the course of a month or six weeks, the heap was literally swarming with maggots, to such an extent, indeed, that they might have been lifted in handfulls. Whence came these maggots?—they could not be deposited in the shape of 'larvæ,' in the cut sea-weed, as at that season of the year the whole insect world is in a state of oblivion in our northern climate. Neither could the eggs of the insects have been deposited on the sea-weed before it was cut, as it was taken from a sunk rock, fully half a mile from the shore, and only visible at low spring-tides; and it is well known that none of the insect tribes go often past their depth in salt water. The most apparent natural cause for the production of these maggots in fermenting sea-weed, is, that the eggs or larvæ of the insects were deposited on the land or in the fresh water, and washed into the rivers by the rains, and thence carried into the sea. But salt is so inimical to land-insects of every description, that I can scarcely imagine their eggs would withstand 10 or 12 months' soaking in brine. But granting that they could withstand this, how are we to account for the transient inanimate egg of a land insect, washed into the ocean apparently by chance, thus leaving the 'waste of waters,' and cleaving, as if by instinct, to the leaves of the growing sea-weed, in quantities which appear incredible?—and alike is the sea-weed of the most distant island of the Hebrides, as at the mouths of our streams and rivers, where alone one would venture to look for such a phenomena. The unlearned say, the maggots and flies which spring from them are produced from the fermenting and decaying sea-weed. Can the learned gainsay this? It would be easy to give numerous other instances, in the lower grades of animal and vegetable life, where reproduction seems as inexplicable as in the above; and Coleridge, the poet, seemed to understand the matter, when he said, in his 'Ancient Mariner,'

'And slimy things did *crawl with legs* upon the slimy sea.'

The only instance in which mankind seems to have comprehended, or at least acted upon, the laws which produce spontaneous life, is in the case of the Mushroom. Our horticulturists not only raise Mushrooms from the seed, which they call 'spawn,' but, by a sort of 'hocus-pocus' mixture of the dung of horses and cows, they actually manufacture, or create the 'spawn.' They still, however, cling to the idea that the 'true seed' must be somehow or other mixed up in the preparation. Nicol, one of our old and most enlightened gardeners, gives a very clear and graphic exposition of the manufacture of Mushroom seed, and of the spontaneous life which arises in consequence. 'The cultivation of the Mushroom,' says Nicol, 'is a process in gardening, perhaps the most curious of any. In the cultivation of any other vegetable, we either sow or plant something material—a seed, slip, or root, which we both see and handle; but in the culture of the Mushroom, we neither sow nor plant anything visible, at least to the naked eye; yet it is certain that Mushrooms are produced from seed.' Where is the certainty of this?—honest Nicol has taken it from 'hearsay.' From the great interest the learned and scientific now take in investigating natural phenomena, we may also reasonably hope the further light will be vouchsafed us on this subject. Believing that animalcules, aided by atmospheric influence, are the true architects, or builders up and pullers down of the material world, we may yet be able to direct the stream or tide of these minute things, so that it may be made to work for our good; or where it seems to take a wrong direction, we may be able to dry it up before even the 'leaven' by which they are produced is called into existence. Thus the blight, the rust, the mildew, the smut, and numerous other ills which our crops, and our flocks and herds are heir to—which many imagine, and, I think, with reason, are the works of animalcules, and that which appears to us as the disease, is simply the *debris* or rubbish of their excavations—may be prevented by a knowledge of the laws which govern their creation." [We trust that no one will suspect us of admitting for an instant these arguments, which are alike contrary to revelation, evidence, and common sense.]

Glass Milk-pans.—I saw in the *Gardeners' Chronicle* some time ago, a notice of glass milk-pans, and on making inquiry in Dublin I ascertained that I could procure an article of light green glass, 14 inches top diameter, 10 bottom ditto, and 5½ inches deep, for the price of 4*s.* I was informed at Messrs. Drummond's agricultural warehouse that they had last year got some glass milk-pans, which were occasionally found cracked and broken without any assignable cause. Will any of your correspondents who have tried them have the kindness to give some information as to glass milk-pans, their prices, and whether they have been found to answer in dairies. White delf pans and wooden tubs are in use in this district, but the latter are liable to contract acidity.—*Aliquis, Enniskillen, Ireland.*

Dairy Management.—I have just taken a farm in this neighbourhood, upon which there are 20 cows. Having heard of the great benefit derived from stall-feeding with steamed or cooked food, I shall feel greatly obliged if any of your correspondents will inform me where I may be permitted to inspect a dairy so arranged, previous to my erecting a steaming apparatus.—*A Constant Reader, Hurstperpoint, near Brighton.*

Wheat-crop.—I have a large field of Wheat in the most luxurious condition as to growth, &c., but all the ears are like the inclosed, withered at the ends.—*E. R., Halifax.* [Many causes may be effectual in hindering the *setting* of the bloom, *i.e.*, the formation of seed. A cold night at the critical period during which the process takes place might do it, and as the abortive culms are at the upper end of the ear, this may have been the cause in your case. Does this failure occur in patches or over the whole field?]

Draining.—Will you, or your correspondents, advise me on the following subject:—I have finished cutting drains down the slope, in a piece of springy meadow land, 21 feet apart, 3 feet deep, 5 inches wide at bottom, by 12 inches at top; and from the previous state of the land, and the weather not allowing it to harden, the sides (clay) have given way in a few places. Two of the drains had to be cut upwards of 5 feet through bog, down to the clay; would you, therefore, recommend cutting into the clay, and if so, to what depth? or is the present cutting sufficiently deep? And as some of the drains discharge a considerable stream of water—stone being the material for filling them—how do you recommend its being done, due allowance being made for the melting of snow, in addition to the springs of water carried off?—*L., Cardiganshire.* [It may be beneficial to dig deeper than would otherwise be necessary, in order to obtain the clay, to apply to the land on its surface; if this be not necessary, then we do not see that you need dig *into* the clay, after going so deep to reach it. If you have a great body of water, you must fill in deeper than usual with stones, and use them coarser than would otherwise be advisable.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's house in Hanover-square, on Wednesday last, the 6th of August; present, the Right Hon. Lord Portman, President, in the chair; Col. Austen, M.P.; T. Raymond Barker, Esq.; W. R. Browne, Esq.; J. French Burke, Esq.; F. C. Cherry, Esq.; W. A. Cherry, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; S. Grantham, Esq.; W. Fisher Hobbs, Esq.; E. Hussey, Esq; J. Kinder, Esq.; Col. M'Douall; R. Milward, Esq.; H. Price, Esq.; Philip Pusey, Esq., M.P.; J. A. Ransome, Esq.; Prof. Sewell; Prof. Solly; J. Manners Sutton, Esq.; and T. Turner, Esq. The following new Members were elected:—

Middleton, John, Sparham, Reepham, Norfolk
Tollemache, Henry Bertie, Guard's Club, St. James's
Jesty, Thomas, Douce Farm, Piddletown, Dorset
Owen, Richard, Nantwich, Cheshire
Cookson, John, Hatherton, Nantwich
Davenport, Edward, Speenston-hall, Bunbury, Cheshire
Elliott, Evan, Marsh, Landulph, Devonport
Barker, Robert, Glynn, Barmouth, Merionethshire
Field, James Pope, Chesham Vale, Bucks
Field, Joseph, Market-cell, Market-street, Beds
How, William, Hammond's End, Harpenden, Herts
Dunn, George, Ellingham, Belford, Northumberland
Hogarth, John, Akeld, Wooler, Northumberland
Champion, Henry, Hafod, Rhayader, Radnorshire
Edwards, Sir John, Bart., Greenfields, Machynlleth, Montgomeryshire
Boddington, Benjamin, Presteign, Herefordshire
Taylor, Silas B., 36, Regent-square, St. Pancras
Marshall, Rev. Thomas, Eccleston, Chorley, Lancashire
Welch, John, Bachymbid, Bach, Ruthin, Denbighshire
Pardoe, James, Sion-hill, Kidderminster, Worcestershire
Hamilton, John, Sundrum, Ayr, Dumfrieshire
Cholmondeley, Lord William Henry, Cholmondeley-hall, Cheshire
Ogden, John Maude, Sunderland, Durham
Hammond, Horace, Horsemonden, Lamberhurst, Kent
Glynne, Sir Stephen R., Bt., M.P., Hawarden Castle, Flintsh.
Haslam, John, Chesham, Bury, Lancashire
King, James, Dullingham, Cambridge
Taylor, George, Brecon
Day, Theodore, Porthomal, Brecon
Corbett, Rev. Joseph, Longnor, Salop
Marshall, Francis, Grimstone Cottage, Wolverhampton
Smith, Samuel Steedman, Hopton Castle, Ludlow, Salop
Ashton, Richard, Limefield, Bury, Lancashire
Baker, John, Bridgnorth, Salop
Hickman, Captain, Old Swinford, Stourbridge, Worcester
Bowman, Edward, East Stoke, Newark, Notts.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, presented to the Council the Monthly Report of the Accounts of the Society; from which it appeared, that the current cash-balance in the hands of the bankers was 5,313*l.*, and the amount of invested capital, 8,200*l.*

Resolutions.—1. That the communication made by the Hon. R. H. Clive, M.P., of the Duke of Northumberland's donation of 100*l.* in promotion of the objects of the Society at their next year's country meeting, be referred to the General Newcastle Committee, with a request that they would report on the subject to the Council at the Monthly Meeting on the first Wednesday in December.

2. Mr. Etheredge having represented to the Council, that some of the exhibitors whose Tile-machines had been selected for subsequent trial, in competition for the Society's prize, infringed on certain patent rights held by him in reference to his own machine; the Council, on the motion of Mr. Gibbs, seconded by Mr. Fisher Hobbs, passed the following resolutions:—

(1). That the trial of the Tile-machines proceed.

(2). That the Judges be informed of the protest of Mr. Etheredge; and be indemnified by the Society against any legal consequences.

(3). That such arrangements be made through the lawyers of the Society with the proprietors of the selected Tile-machines, as shall save the Society from action-at-law, as users of the machines.

(4). That Mr. Pusey, Mr. Fisher Hobbs, Mr. Ransome, and Mr. Gibbs, be a Committee to carry out the foregoing resolutions.

3. That the Council cannot grant the Petition of the Omnibus and Coach Proprietors who worked the ground between Wolverhampton and Shrewsbury, on the occasion of the recent Country Meeting for an increased rate of remuneration beyond the terms of contract.

4. On the motion of Mr. Fisher Hobbs, seconded by Mr. Raymond Barker, it was resolved unanimously—

(1). That a communication be made to the Commissioners of Police, conveying the best thanks of the Council for their arrangements, and the excellent conduct of the parties selected by them to attend the Shrewsbury Meeting.

(2). That the Silver Medal of the Society be presented to Inspector Charles Otway, of the Metropolitan Police, in testimony of the unqualified approbation entertained by the Council of his conduct, and of the valuable services rendered by him to the Society, at their Annual Country Meetings.

Notices of Motion.—1. Mr. Shelley, at the Monthly Council in November:—"That it is advisable, in the payment of the judges, both of Implements and Stock, that their *bona fide* expenses be repaid them."

2. Mr. Hillyard, at the Monthly Council in Decem-

ber:—"That the resolution of Council, passed on the 20th July, 1844,—'That no castrated or spayed animals be allowed to be exhibited at the Country Shows of the Society'—be rescinded."

3. Mr. Raymond Barker, at the Monthly Council in December :—"That the bye-law which requires the final settlement of all the prizes of any particular year, by the month of June in the year preceding, be taken into consideration."

4. Mr. Milwood, at the Monthly Council in December :—"That as the sales by auction have hitherto not been satisfactory, it will be better to appoint an auctioneer."

Communications.—From the Marquis of Northampton, informing the President that the Royal Agricultural Society of Jamaica had offered a prize of 100*l.*, placed at their disposal by the Governor of that island, along with second and third prizes of 30*l.* and 20*l.* each respectively, supplied from the funds of the Society, for the best text-book on agriculture, for the use of schools in Jamaica. From Mr. Grey, of Dilston, on Arrangements for the Accommodation of Judges of the Society's Shows. From Mr. La Beaume on the Germination of Seeds, the Preservation of Corn, Hay, and Clover stacks from spontaneous combustion, and the treatment of diseases to which labourers are more peculiarly liable; from Mr. Dodds, on the state of the crops in Lancashire; from Professor Sewell, presenting to the Society two transfusion Syringes for passing water or other liquids into the jugular vein, with a view to counteract the effect of rabid poison taken into the system; and at the same time, repeating his request of last year, that should any of the members of the Society have sheep, calves, steers, or heifers, bitten by rabid dogs, and apprehensions be entertained from their symptoms that canine madness would ensue, they would do him the favour of sending them, without loss of time, addressed to him at the Royal Veterinary College, London, when he would cheerfully defray all expenses of such conveyance, and report to the parties the result of his experiments on the animals; from Lord St. John, offering his Tile-yard for the Society's trial of tile-machines; and from Mr. Hillyard and Mr. Crisp, suggestions in reference to the prizes of the Society.

Among the numerous presents made to the Society, were a collection of samples of Alpaca wool, from Capt. Stanley Carr, and a China jug of large dimensions embellished with designs of an agricultural character as a specimen of art to the Society, on the occasion of their Shrewsbury meeting, by Messrs. Rose and Co., of the Coalbrook Dale China Works. For all which the thanks of the Council were ordered.

The House Committee having received authority to undertake the requisite repairs of the Society's house during the autumn, agreeably with the tenour of the lease, and the Finance Committee to make the usual arrangements for leave of absence to the Secretary, and to the clerks of the establishment during the autumn recess, the Council adjourned to Wednesday the 5th of November.

AGRICULTURAL CHEMISTRY ASSOCIATION.

On Silicate of Soda as a Manure.—I have adverted to the propriety of mixing silicate of potash or soda with guano or dissolved bones before applying them to the land. As the use of these silicates is at present much recommended, it may be proper to consider how far they are really necessary to the soil.

1°. If a portion of soil, burned, in order to destroy the organic matter it contains, be then boiled in distilled water for a length of time, and the filtered solution be afterwards evaporated to dryness, and the residue heated to redness, to burn off the organic matter, a minute but variable quantity of saline matter will remain, in which a trace of silica will usually be found. Most soils, therefore, contain some silica in a state in which it may be taken up by water.

2° If, after boiling with water, the soil be digested for two or three hours with concentrated muriatic acid till it is perfectly colourless, and if the filtered solution be treated with ammonia and oxalate of ammonia, to separate the oxide of iron, alumina, and lime, and be then evaporated to dryness, an appreciable quantity of silica will be found in the saline matter which remains. Or if the acid solution be at once evaporated to dryness, and then treated with water, some silica will remain insoluble. Soils, therefore, generally contain a further appreciable quantity of silica, in a state in which it is soluble in acid solutions. In the following table, the last line but one shows the proportions of soluble silica thus obtained from four different soils analysed in my laboratory :—

	Auchengate Farm.	Thandersly Hall Farm Essex	Stonyster by Thurso	White Hill, Lasswade	Kircudbright.	
					Top	Bottom
Organic matter	14.15	4.27	8.43	6.64	26.86	18.57
Alkaline salts, soluble in water and acids	0.06	0.94	0.49	0.20	1.41	0.46
Gypsum	0.02	0.02	0.03	0.09	0.11	0.07
Oxide of iron	2.09	7.00	5.61	4.46	4.37	5.93
Alumina, soluble in acids	0.60	5.14	3.08	1.08	2.44	2.90
Carbonate of lime..	0.12	1.05	0.25	2.32	2.26	1.47
Carbonate of Magnesia	0.26	0.78	0.45	1.02	0.70	1.86
Soluble silica	0.19	0.16	0.20	0.17	0.84	0.42
Insoluble siliceous matter	82.95	80.29	80.39	83.31	60.47	67.24
	100.44	99.65	98.93	99.29	99.46	98.92

I could have given other such results, but these show both the presence of silica in this state in our cultivated soils, and how much it varies in different soils. In the fifth column it is four times as great as in the first and second. The quantity present in the first two columns —1-5th of a per cent., or one pound in 500 lbs. of soil—appears very small when compared with the whole soil, and yet it proves to be large when we come to calculate how much an acre of soil will contain, and how much a crop of corn will carry off from that acre. A square yard of soil, 12 inches deep, will weigh about 700 lbs., so that this extent of soil will contain 1⅖lbs. of silica soluble in acids, which amounts to 6,700 lbs. in an acre! The straw of our grain crops leaves, on an average, less than 5 per cent. of ash, of which less than one-half usually consists of silica, and a crop of straw rarely exceeds 3000 lbs. per imperial acre. If we take these numbers as tolerable approximations, the quantity of silica carried off by a crop of straw amounts to 75 lbs. per acre; while the silica soluble in acids, and which it is believed plants can take up, amounts as above to 6700 lbs. Or this silica will alone supply the wants of 900 crops of corn. The soil in the fifth column contains four times as much, or it would provide silica for 3600 crops!

3°. If the insoluble portion of the soil be washed with water, to free it from siliceous sand, and the finer or clayey part be collected and fused with carbonate of soda, and then treated with muriatic acid, a large portion of silica, in light white flocks, will remain behind; while the solution will contain alumina, lime, magnesia, and perhaps potash and soda, with which the silica had been combined in the soil. This portion of the silica of the soil is very large, and sometimes forms nearly one-half of its whole weight. In the form of silicates insoluble in muriatic acid, therefore, the soil contains an enormous quantity of silica. There can be no doubt that the roots of our corn-crops are capable of taking up and appropriating that portion of the silica of the soil which is soluble in water, but it may be doubted by some if that which is taken up by acids, and especially if that which acids leave undissolved, is capable of supplying the wants of our growing crops. I will not offer here any of those theoretical considerations which induce chemists and physiologists to believe that both the silicates which are soluble and those which are insoluble in acids are really a source of mineral nourishment to the plant. An appeal to experiment will be much more satisfactory to the practical man. Wiegman and Polstorf* took fine white quartz sand, burned it to destroy any organic matter it might contain, digested it for 16 hours in strong nitro-muriatic acid, and then washed it with distilled water. Everything soluble being thus removed, seeds of different kinds, Barley, Oats, Buckwheat, Vetch, Clover, and Tobacco were sown in it, and watered with distilled water. They all grew and came to a greater or less height. The ash left by separate portions of the seeds and plants, when full grown, was determined and analysed. In the following table I have put together their comparative results, in so far as the silica is concerned, as well as the height to which the plants had arrived when they were gathered :—

	Height.	Silica in the Ash :		Silica had Increased.
		Of the Seed.	Of the Plant.	
	Inches.			Times.
Barley . .	15	0.034	0.355	10
Oats . .	18	0.064	0.354	5½
Buckwheat	18	0.004	0.075	18
Vetch . .	10	0.013	0.135	10
Clover . .	3½	0.009	0.091	10
Tobacco .	5	0.001	0.549	500

Thus it appears that, from quartz sand, after it has been digested in strong acids, plants are able to extract silica as well as other kinds of inorganic nourishment, to which, in the above Table, I have not alluded. The sand in which the plants had grown was found, upon analysis, to contain 97.9 per cent. of pure silica, the remainder consisting of potash, lime, magnesia, alumina, and oxide of iron. From this experiment, therefore, we are justified in concluding that plants are capable of decomposing and extracting silica even from those silicates in the soil which are not attacked by acids. How much more easily may they decompose and appropriate the constituents of those silicates which are capable of being decomposed and dissolved by acids! Nor is it in virtue of any mysterious power that this decomposition is effected. The prolonged action of water containing carbonic acid, slowly decomposes even the most refractory silicates. The water in the soil is more or less charged with this carbonic acid—the decaying vegetable matter of the soil produces it, and the roots of living plants give it off—so that a simple chemical action is sufficient to explain how the plant can obtain food from such unpromising materials.

It is an important conclusion, therefore, for practical agriculture, that the silica, which is so necessary to the growth of our corn and hay crops, abounds so much in nearly all our soils, and in a state in which the roots of plants can more or less readily take it up. It satisfies us in regard to three points :—*a.* As to where and how the plants obtain their silica. *b.* That, in general, it cannot be necessary to add silica in any form as a manure to the soil, and therefore that—*c.*—The broad assertions of those who say that guano or bones should always be mixed with silicate of potass or soda, and who ascribe certain alleged failures of these manures to the absence of such silicates—that these assertions are hastily made and are not to be depended upon. I believe there are very few soils indeed, which, if properly treated otherwise, will refuse to yield good crops merely because a soluble silicate has not been added to them.

Is the use of silicate of potash or soda, then, not to be recommended? Are there no circumstances under which it may prove profitable to the practical man? These are questions which, notwithstanding what has been said in the preceding remarks, it would be premature to answer in the negative. Soils which contain thousands of pounds of potash and soda in a state of chemical combination, from which plants can obtain it by degrees, are yet often rendered more productive by the addition of a few cwts. of wood-ashes or common salt, from which the plants can obtain alkaline matter without delay. It may be so, therefore, with the silicates.

There is only one legitimate purpose, however, for which a silicate should be added to the soil—it is to supply silica to the plant. We ought not to add silicates for the purpose of supplying alkaline or earthy matter, unless some question of economy interferes. We use wood-ashes which contain silicates, because it is cheaper to add potash in this than in any other form. There is only one evidence, therefore, that the addition of a silicate has done good to our corn crop; it must have given more silica, and consequently, as it is believed, more strength to the straw. That the crop has been generally improved, that it is more luxuriant and thriving, or even that it yields a larger return of corn, will not be a proof of the virtue of the silicate. The effect may result from the action of the potash or the soda it contains, and the use of these alone might have produced the same effect.

Oats grown upon a mossy soil are soft and dull in the straw, and I have found such straw to be deficient in silica. Wheat growing rankly upon a moist soil, and in a moist season, or a heavy thickly growing crop of Barley, is apt to be laid by the wind, or to fall down under the weight of the ear. The straw is too feeble in all these cases, and it has been said that the use of silicates would abate the evil. Lampadius found the growth of Wheat and Rye to be greatly promoted by the use of a soluble silicate of potash, but the alkali might be the cause of the effect observed, and no other experiments of an accurate kind have yet been made. The late Mr. Oliver, of Lochend applied silicate of soda, at my suggestion, to his corn crop last year, but his unfortunate death prevented the results from being observed.

It is still an open question, then, whether or not we have it in our power, at our pleasure, to strengthen the straw of our corn plants—whether it would be useful to apply the soluble silicates to all soils—whether there are any to which they may be applied with advantage and profit as an ordinary manure.

Irrespective of theory, it is important to determine this point. There are certain practical evils which it is desirable to overcome; will the use of silicates overcome them? Theory does her part best by practice, when, instead of boldly pronouncing upon doubtful points, she suggests experiments by which they are likely to be cleared up. It is a fair subject for trial, therefore, which I hope some of our skilful experimental farmers will take up. Silicate of soda may now be had of the Messrs. Turnbull's, of Glasgow, at 12*s.* per cwt. Mr. Campbell, of Craigie, has some patches on trial. I hope others will follow his example. To eliminate the effect of the soda from the experiment, three experimental patches ought to be chosen in duplicate or triplicate. Thus :—

Nothing	1 cwt. of Silicate of Soda.	1 cwt. of Carbonate of Soda.
1 cwt. of Carbonate of Soda	Nothing.	1 cwt. of Silicate.
One cwt. of Silicate.	1 cwt. of Carbonate.	Nothing.

Not only should observations be made as to the rapidity and luxuriance of growth and to the strength of the straw, but an average sample of each of the straws should be analysed, for the purpose of ascertaining whether any more silica has really been taken up by the one part of the crop than by the other. Such experiments as these will, in a year or two, settle the point, and will free the practical man from the necessity of relying upon, or being guided by, the mere opinions and hypotheses of theoretical chemists.—*Report by Professor Johnston in the Highland Society's Transactions.*

* Ueber die Unorganischen Bestundtherle der Pflanzen-Braunschweig. 1842.

FLAX IMPROVEMENT SOCIETY.

An adjourned meeting of the committee was held at Belfast on the 23d of July. The sub-committee, appointed to consider the best means of guarding against the future occurrence of those frauds in sowing Flax-seed which had been so prevalent last spring, recommended that the following document should be put in circulation : — "The Flax Improvement Society, anxious to guard the farmers of Ireland against such frauds as have been practised of late in the sale of Flax-seed (where much injury has been occasioned to persons getting old or mixed seed, instead of new and genuine, and many persons consequently prevented from sowing), have given the subject their most earnest and anxious attention; and hope the following directions will, if properly adhered to, prevent similar impositions in future :—As most of the frauds have been practised by retailers of seed—men of little standing, or possessed of limited capital, and from whom no

compensation could be obtained, in case of breach of faith, it is strongly recommended that seed shall, in every instance, be procured from importers or merchants of integrity, or known wealth. From persons of character there is little to apprehend, on the score of fraud; and wealthy parties will be able to make compensation, if loss be sustained (the legal means for which have been pointed out in the counsel's opinion, taken by this Society, on behalf of the farmers of Ireland, and formerly published). As many small farmers would not require so much as an original package, it is strongly urged on all landed proprietors to protect their tenantry from imposition, by purchasing (as some of them at present do) such quantity of seed as they may require. For this purpose, it would only be necessary to give notice that such tenants as require Flax-seed should, on or before a certain day, leave their names, with the quantity and sort of seed required, with the land-agent, who would order the necessary quantity, and pay a person for distributing it. The farmer would thus save a little in price, and be secure of a crop, under ordinary circumstances; and the landlord would, besides doing a positive good to his tenant, be pretty certain of enabling him to pay his rent. Where the landlord does not assist in this way, two or more farmers, or the committees of farming societies, should join, and purchase their seed from first hands, or respectable parties, and in original packages. In all, or any of these cases, the secretary of this Society will be ready to give advice and assistance in procuring good seed, having, as is expected, information from the trade as to the sorts and quantity of seed imported by them. For the above purpose, this Society, on receiving from importers or vendors of seed, satisfactory information, and evidence of the quality and sorts he has for sale, will recommend them to purchasers, when the parties are willing to give such a guarantee as may be evidence to the farmer that the seed he purchases is what it purports to be. This Society recommends the farmer, in every instance, to insist on such a warranty as is subjoined.* No respectable dealer will refuse it; and from no other should he, on any terms, purchase. The result of the present crops confirms the Society in the belief that seed saved in this country, from foreign, will, for one year at least, produce quite as good a crop as the original, or perhaps better; and, as this is a simple and efficient mode of getting rid of the imposition, it is strongly recommended to farmers to protect themselves in this way. For this purpose, ample instructions have been provided, and circulated extensively; and it is hoped, if these suggestions be acted upon, that there will be no difficulty in the next and ensuing seasons. It will only be necessary to save a small portion, as the produce of a very small quantity would be sufficient for sowing as much as any farmer will require. This should be saved on the Courtrai plan; and, should it give a little trouble, or even render the Flax worse, it will be more than compensated by the value of the seed, and security of a good crop from it. The seed has been worth 12*l.* to 14*l.* per acre, for sowing, besides the value of the Flax; so that there need be no fear of loss on this head. For the rest of the crop, rippling immediately will save the seed for crushing and feeding, without injuring the Flax. Riga seed would seem the best to rear from, for the next year's sowing, as the Dutch is from Riga seed similarly treated; and the change of the soil, in the second instance, might not be so useful as the first. Either may do very well; but, until there are more extensive experiments, this Society would prefer Riga. Every farmer should carefully watch, and note the results of each, so as to come to the most remunerative. If these hints be of any service in obviating the disappointment and loss arising from spurious seed, this Society will be amply repaid.—(Signed) *Robert M'Kibbin, Chairman of Sub-Committee.*" The report was unanimously received, and ordered to be circulated, with copies of the case submitted to counsel, and his opinion thereon.

* *Form of Warranty.—Belfast, April* 15, 1845.—We hereby certify, that we have this day sold to A. B., of C., two hhds. genuine Dutch Flax-seed, which we warrant of the growth of 1845, marked S. K. & Co.; said Flax-seed was imported by us in the ship Zorgolict, Captain Beighius, from Rotterdam, and entered in the Custom-house, at Belfast, on the 15th February last.—*R. B. & Co., Merchants.*

Miscellaneous.

Effect of Oilcake on the Manure of the Animals fed on it.—A friend of mine has lately adopted a plan which, under the same circumstances, I should strongly recommend; it is that of giving a small quantity of oilcake to animals grazing, for the sake of improving an ordinary pasture, and its effects are astonishing. The pastures I allude to are small, and one or two bullocks more than they are calculated to carry are put into each; the lot are then allowed 4 lbs. of cake per day per head; this, at a cost of about 2*s.* per head per week—which, I believe, the stock well paid for—has entirely altered the face of pastures from what they were three years ago, when the plan was first adopted by him; and, I believe, without any loss to himself.—*G. Dobito; English Agricultural Society's Journal.*

Stall-feeding.—It is the abuse of stall-feeding that has got it into disrepute with some people, and the not treading down straw enough with others. This last I hold to be an advantage, instead of a disadvantage; for, depend upon it, it is not the size of the dunghill, but the quality of the manure that causes the farmer's stack-yard to be well filled. If managed well, I contend that there is no plan so good as stall-feeding. The fattening-house may be of any size or shape, but it is necessary that there should be underground drains, with gratings, to carry off the urine into the liquid-manure tank; shutters behind the bullocks to regulate the heat, and a wide passage at their heads to feed them and clean their mangers. The advantages I conceive to be the quantity of litter required being smaller, therefore the muck being made better; the temperature being more easily regulated, and every bullock being allowed to eat his share in peace. The disadvantage of the animal not being able to rub himself so well, I consider fully done away with by the rough brush, which, you will observe, I recommend using; and although theorists may fancy the health of the animal likely to suffer, I have never found it so in practice.—*G. Dobito; English Agricultural Society's Journal.*

Notices to Correspondents.

AGRICULTURAL COLLEGE, CIRENCESTER—*Juvenis*—We understand it will be open at Michaelmas. Pupils need nomination by shareholders. A list of these may doubtless easily be obtained by application to the principal, at the college, Cirencester, Gloucestershire.

ANALYSIS OF RED CLOVER—*C, a Subscriber*—The following are analyses, by Boussingault, of the ashes of Clover:—

Acids. Carbonic.	Sulphuric.	Phosphoric.	Chlorine.	Lime.	Magnesia.	Potash.	Soda.	Silica.	Oxide of Iron, Alumina, &c.	Charcoal and loss.
25.	2.5	6.3	2.6	24.6	6.3	26.6	0.5	5.3	0.3	0

The following is Sprengel's analysis of dried Clover:—

Gluten.	Total Inorganic Matter.	Potash.	Soda.	Lime.	Magnesia	Alumina.	Oxide of Iron.	Oxide of Manganese.	Silica.	Sulphur.	Chlorine.	Phosphoric Acid.
17174	1571	419	111	584	70	3	trace	trace	76	94	76	138

The following is Liebig's analysis of Trifolium pratense:—

Carbonate of Potash.	Carbonate of Soda.	Sulphate of Potash.	Common Salt.	Carbonate of Lime.	Magnesia.	Phosphate of Lime.	Phosphate of Magnesia.	Phosphate of Iron.	Phosphate of Alumina.	Silica.
12 728	13 528	3 080	1.67	32.216	4.16	11.97	6.79	1.24	0.16	5.438

The following is a statement by Wiegmann and Polstorf, of the mineral constituents of Clover:—

	Salts of Potash and Soda.	Salts of Lime.	Silica.
Meadow Clover . .	39.20	56.	4.9

916 lbs. of green Red Clover contain 100 lbs. of gluten; it takes 9487 lbs. of Turnips to give as much—Red Clover is the cheapest source of gluten that the farmer possesses;—authority, Dr. Smith, Manchester. We have no analysis of Meadow-Grass.

BOOKS—*J S Wroxton*—"The Value of Landed Property Demonstrated," &c. By Layton Cooke, Esq. London.

COLTSFOOT—*J H*—You must pull the flowers as soon as they bud in the spring, and the leaves whenever they appear. There is no other way of destroying them.

DUCKS—*A Keeper of Aylesbury Ducks*—You may put more than six, say eight or ten to one drake.

EXPENCES OF FARMING—*X Z*—Thank you: we will endeavour to excite a discussion on the subject.

HORSE-DEALERS—*Anon*—The editor does not reside in London, and is quite unable to give any assistance.

LIQUID MANURE—*P C*—Perhaps the best use you can make of it is, to gather round your tank a lot of vegetable mould, sawdust, leaves, and vegetable rubbish of every kind, and soak the heap once a week with the liquid. As soon as it is sufficiently rotted, apply it to the land, and replace the heap with a fresh lot of material to be converted in like manner.

LUCERNE—*E T W*—It will be your interest to defer sowing Lucerne till April next, rather than sow now. Three acres of good land will suffice for the maintenance of four cows, if cultivated properly. Lucerne and Italian Rye Grass with Clover are both good feed for cows from May till October. Carrots and Parsnips, especially the latter, with hay, are good winter food.

NAME OF GRASS—*Gramen*—Only one specimen arrived; it is Avena flavescens.

PIGEONS—*O P Q* asks what is the best treatment of fancy pigeons with regard to food, lodgings, &c.? Are there any diseases to which they are liable, and what are the best preventives, remedies, &c.?

TURNIPS, MANURES, &c.—*A G*—The nearer the Turnips that you work your land with the horse-hoe, the better, provided you do not injure the leaf or the bulb; and the oftener, the better also. Our Mangold Wurzel and Swedes now cover the land, but they were horse-hoed probably five or six times, while it could be done; and now I will engage you could not take a handful of earth out of the fields, though you went 18 inches below the surface for it, which would not be full of their fibrous roots.—Messrs. Muspratt & Co., Liverpool.

WARNES' JELLY—*Teifside Farmer*—See Leading Article.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Aug. 4.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4 to 4s	6	Best Long-wools	-	4s	8 to 5s 0
Best Short Horns	-	4 0	4 4	Ewes and second quality		4 0	4 6
Second quality Beasts	-	3 0	3 8	Lambs	-	5 0	6 0
Calves	-	4 0	5 0	Pigs	-	3 4	4 4
Best Downs & Half-breds		4 10	5 2				

Beasts, 3016; Sheep and Lambs, 21,870; Calves, 164; Pigs, 320

We have to-day a large increase in the supply of Beasts, and a consequent reduction in price; 4s.6d. is quite an extreme price for Scots, &c., many very good Short-horns are sold under 4s. 4d.—The number of Sheep is still small, and the trade remains about the same.—Lamb is hardly so dear; the choicest qualities, however, are still worth 6s.—Veal trade is brisk, the best Calves readily make 5s.—Pork trade is heavy.

FRIDAY, Aug. 8.

Trade has been heavy in the dead markets since Monday, which causes great depression here to-day. The best Scots, &c., make about the same as on Monday; the best Short-horns about 4s. 2d.; Second Qualities are heavy on hand, and will scarcely be all disposed of.—Good Mutton is not plentiful; best Downs, &c., make 4s.8d. to 5s.; best Long-wools, 4s 8d. to 4s.10d.; Ewes and Second Quality, 4s. to 4s. 4d.—Lamb, 5s. to 5s. 8d.—Veal is lower; it is very difficult to make more than 4s. 8d. of the best Calves.—Pork trade is heavy; neat Porkers make about 4s.

Beasts, 925. Sheep and Lambs, 10,940; Calves, 410; Pigs, 280.

WOOL.—BRITISH, FRIDAY, Aug. 1.

In our English Wool-market a good deal of business has been done. Prices remain firm, and we think likely to continue so. Price current:—

	£ s.	£ s.		£ s.	£ s.
Down fleeces	12 10 to 13 10	p.pk.	Hoggets	14 10 to 16 0	p.pk.
Hoggets	14 0 to 15 10		Kent fleeces	14 10 to 15 5	
Lr. wools, wthrs.	13 0 to 14 0		JAMES PRERIN, Wool-Broker.		

HOPS, FRIDAY, Aug. 8.

The accounts from the plantations speak of the Bine as being strong, but that the Burr is very slight and backward, which must prove against the crop; in the year 1818 a pocket of new Hops arrived at market on the 6th of August—at the present moment they are scarcely in Burr. We have more doing in Hops, and good samples of Sussex are in demand.

PATTENDEN & SMITH, Hop Factors

COVENT GARDEN.—AUG. 9.—The market has been well supplied with vegetables during the week; but, generally speaking, fruit has been somewhat scarcer. Pine-apples, however, both English and foreign, have been sufficient for the demand; the prices for the former being lower than they were last week. Grapes are also cheaper; the very best samples fetch about 5*s.* per lb. The supply of Peaches and Nectarines has been well kept up, and Apricots are becoming more plentiful; they are good in quality, but small in size. Plums are likewise on the increase, and good samples of Gooseberries and Currants are sufficient for the demand. Strawberries are scarce, and Cherries are not plentiful; we observed a few good Morellos, for which, however, there is at present no great demand. Apples, consisting of the Juneating, Hawthornden, and Dutch Codlin, are increasing in quantity. Good Melons, of English growth, are abundant; and upwards 2000 Dutch varieties have been brought to the market during the week, together with 48 dozen of Cucumbers. Of Vegetables, the supply of Peas is well kept up; they have not altered in price since last week. Cauliflowers are likewise good and plentiful, as are also Cabbages. French Beans have not altered in price, and Potatoes also continue to bring the same prices as mentioned in our last report. Carrots are good and plentiful, and the same may also be said of Turnips. Mushrooms are on the increase, and Salading and herbs of every kind are abundant. Among Cut Flowers was observed Alstrœmerias, Fuchsias, Heaths, Pelargoniums, Carnations and Picotees, Verbenas, Gardenias, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 7*s*
Grapes, Hothouse, per lb., 2*s* to 5*s*
Peaches, per doz., 6*s* to 15*s*
Nectarines, per doz., 6*s* to 15*s*
Cherries, wall, per lb., 2*s* to 5*s*
Apples, Dess., per bush., 3*s* to 7*s*
— Kitchen, 2*s* 6*d* to 5*s*
Melons, 2*s* to 6*s* each
— Dutch, 1*s* to 3*s* each
Strawberries, per pottle., 6*d* to 2*s*
Currants, per hf.-sv., 2*s* 6*d* to 4*s*
Gooseberries, per sieve, 4*s* to 5*s*
Walnuts, per bushel, 5*s* to 7*s*
Oranges, per dozen, 1*s* to 2*s* 6*d*
— per 100, 7*s* to 18*s*
— bitter, per 100, 10*s* to 20*s*
Lemons, per dozen, 1*s* to 2*s* 6*d*
— per 100, 8*s* to 16*s*
Almonds, per peck, 6*s*
Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Nuts, Barcelona, 24*s*
— Brazil, 20*s*
— Spanish, 20*s*
— Cob, 14*s*

VEGETABLES.

Cabbages, per doz., 2*d* to 1*s*
Cauliflowers, per doz., 1*s* to 5*s*
French Beans, per hf.-sv., 1*s* to 3*s*
Sorrel, per hf.-sieve, 6*d* to 9*d*
Artichokes, per doz., 1*s* 6*d* to 2*s* 6*d*
Potatoes, per ton, 40*s* to 80*s*
— cwt, 1*s* 6*d* to 3*s*
— bushel, 1*s* 6*d* to 3*s*
— Kidney, per doz lb., 6*d* to 1*s*
Turnips, per doz., 2*s* to 4*s*
Red Beet, per doz., 9*d* to 2*s*
Carrots, per doz. bchs, 2*s* to 5*s*
Rhubarb, per bundle, 4*d* to 6*s*
Peas, per bushel sieve, 1*s* 6*d* to 4*s*
Asparagus, per bundle, 1*s* to 4*s*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*
Cucumbers, per doz., 1*s* to 6*s*
Spinach, per sieve, 9*d* to 1*s* 6*d*
Leeks, per doz., 2*s* to 3*s*
Garlic, per lb., 8*d* to 10*d*
Celery, per bunch, 1*s* to 1*s* 6*d*
Vegetable Marrows, p. doz. 4*d* to 1*s*
Onions, per bunch, 3*d* to 9*d*
— Spanish, per doz., 1*s* 6*d* to 4*s*
Shallots, per lb., 6*d* to 10*d*
Lettuce, per score, Cab., 6*d* to 1*s*
— Cos, 3*d* to 1*s*
Radishes, per doz. hands, 6*d* to 1*s*
Mushrooms, per pottle, 8*d* to 1*s* 6*d*
Small Salads, per punnet, 2*d* to 8*d*
Basil, green, per bunch, 4*d* to 9*d*
Fennel, per bunch, 2*d* to 3*d*
Savory, per bunch, 4*d* to 6*d*
Thyme, per bunch, 4*d*
Watercress, p. 12 sm. bun. 4*d* to 6*d*
Parsley, per half sieve, 6*d* to 1*s*
— Roots, per bundle, 9*d*
Tarragon, per bunch, 4*d*
Mint, per bunch, 2*d*
Marjoram, per bunch, 4*d*
Chervil, per punnet, 2*d* to 3*d*

HAY.—Per Load of 36 Trusses,

SMITHFIELD, Aug. 7.

Prime Mead. Hay	105*s* to 115*s*	New Hay	60*s* to 95*s*	New Clvr.	—*s* to —*s*
Interior Hay	90 100	Clover	110 to 123	Straw	36 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Aug. 7.

Superior Mead. Hay	115*s* to 120*s*	Superior Clover	127*s* to 133*s*		
Inferior	95 105	Inferior ,,	110 120	Straw	38*s* to 43*s*
New Hay	70 90	New Clover	84 105		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Aug. 8.

Fine Old Hay	105*s* to 115*s*	Old Clover	115*s* to 130*s*		
Inferior Hay	— —	Infr. ,,	— —	Straw	36*s* to 44*s*
New Hay	65 88	New Clover	84 105		

MARK-LANE, MONDAY, Aug. 4.

The supply of Wheat from the near counties this morning was unusually large, which being held for high prices in the early part of the day, and the weather being fine, checked business; factors were subsequently compelled to accept the rates of this day week, a large proportion however remained unsold; free Foreign met a slow sale on the same terms; bonded is held firmly at Friday's advance, but the transactions were limited.—Barley, Beans, and Peas, each met a moderate demand at their late qotations; there were one or two samples of new Peas at market, but too few to establish their value.—Oats were a dull sale at late prices.—We had several parcels of new Carraway and Rape at market this morning, some of the former were sold at 46*s.* to 48*s.*, but of the latter a good deal remained on hand, although offered at 28*l.*

BRITISH, PER IMPERIAL QUARTER,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	50	54	Red	50	54
—— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 25*s* to 29*s* Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire	20	23	Feed	19	22
—— Northumberland and Scotch	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship	54	60			
—— Hertford and Essex	58	66			
Rye	29	32			
Beans, Mazagan, old and new	32 to 38	Tick	32	39	Harrow	34	40
—— Pigeon, Heligoland	37 to 44	Winds	—	—	Longpod	—	—
Peas, White	36 to 39	Maple	36	39	Grey	33	36

FRIDAY, Aug. 8.

There were several runs of English Wheat fresh up for this morning's market, which being held for very full prices, met a slow sale only at the rates of Monday last; in free Foreign there is very little doing, as also in bonded and f.o.b. sales, but holders remain very firm, being supported in their opinion by the accounts which continue to arrive from various parts of the country, also from France and the south of Germany.—Barley, Beans, and Peas, are unaltered.—Oats are neglected, and barely maintain our late quotations.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
June 28 per Quarter.	47*s* 11*d*	29*s* 7*d*	23*s* 2*d*	32*s* 1*d*	39*s* 3*d*	38*s* 3*d*
July 5	47 11	29 10	22 8	31 0	38 10	39 5
— 12	48 10	29 0	22 6	33 11	39 8	38 11
— 19	50 0	29 6	23 4	33 8	39 9	40 2
— 26	51 7	29 2	22 5	31 7	40 8	38 10
Aug. 2	53 3	29 8	22 5	34 6	40 5	41 0
6 weeks' Aggreg. Aver.	49 11	29 5	22 7	32 8	39 8	39 5
Duties on Foreign Grain	20	9	6	10	8	8

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Aug. 2.

PRICE.	JUNE 28	JULY 5	JULY 12	JULY 19	JULY 26	AUG. 2
53*s* 3*d*	..	..	..	..	..	..
51 7	..	..	..	..	..	..
50 0	..	..	..	..	..	..
48 10	..	..	..	..	..	..
— 2	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..
0	..	..	..	..	..	..
45 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..

SEEDS, Aug. 8.

Canary	per qr	40*s* to 50*s*	Linseed Cakes, Foreign, p. ton		7*l* 10*s* to 9*l*
Carraway	per cwt	44	46	Mustard, White - p. bush.	—*s*	—*s*
Clover, Red, English	—	—	—	— Superfine ,,	—	—
— Foreign	—	—	—	— Brown ,,	—	—
— White, English	—	—	—	Rapeseed, English, per last	26*l*	28*l*
— Foreign	—	—	—	Rape Cakes - per ton	—	—
Coriander	- per lb.	12	18	Saintoin	-	-
Hempseed	- per last	48	56	Tares, Eng. winter p. bush.	4	6
Linseed	- per qr	52	60	— Foreign	-	3	5
— Baltic	-	36	44	Trefoil - per cwt	18	23
— Cakes, Eng. per 1000	11*l* 0	11*l* 10	Turnip (too variable for quotation).			

KINGSFORD AND LAY.

ORCHIDACEÆ FOR SALE BY AUCTION.

MESSRS. J. C. AND S. STEVENS beg to announce they have just received, per Papineau, from Honduras, 15 Cases, containing a very Choice Collection of the ORCHIDACEÆ of GUATEMALA, which they will Sell by Auction, in Lots, at their Great Room, 38, King-street, Covent-garden, on Wednesday next, August 13, at 12 for 1 o'clock. The chief part of these plants have arrived in a very fine state; they comprise Barkeria spectabilis (some of the largest masses that have ever reached this country), Lælia acuminata, Epidendrum Skinneri, Sobralia macrantha, Cœlia macrostachya, and many other rare species, described in Catalogues, to be had of the Auctioneers, 38, King-street, Covent-garden. On View the day before and Morning of Sale.

MAGNIFICENT SHOW CARNATIONS AND PICOTEES FOR SALE by AUCTION, on WEDNESDAY, the 20th August.—Mr. GLENNY has received instructions from THOMAS BARNARD, Esq., one of the most successful amateur cultivators of the last few years, to submit for sale, to the highest bidder the entire collection, comprising a choice and healthy stock of all the fine flowers in cultivation, together with a neat and elegant stage (30 feet long), with stands, clothes, shades, sticks, glasses, frames, and lights, the wood-work and glass of an excellent pit, hot-water apparatus, a quantity of pots, garden seat, large butts and tubs, garden roller, and sundries; on the premises, 2, PARK-TERRACE, NORTH BRIXTON; in consequence of the proprietor removing to a distant part of the country. The Plants will be sold in the blooming pots, with strong healthy grass ready for layering, and may be seen on the premises Monday, Tuesday, Wednesday, and Thursday, from two till five.—Further particulars of the AUCTIONEER, at the *Gardeners' Gazette* Office, 2, Tavistock-street, Strand.

TO BE DISPOSED OF, THE NORWICH NURSERY.—In consequence of the Copartnership of the above Establishment being about to terminate, this Extensive Nursery is now to be disposed of, and affords an opportunity for one or more young men desirous of entering into the trade of engaging in one widely known and of many years' standing. The soil is well adapted for Nursery operations, and the Stock is young and saleable.

For Particulars, apply to F. and A. MACKIE, Norwich.

NURSERY GROUNDS AND STOCK AT STIRLING, N.B.—The Subscribers, being so much occupied with their Agricultural trade at Stirling and Dublin, are desirous of relinquishing the Nursery branch of their business, and are therefore ready to treat for the disposal of the whole of their NURSERY STOCK at a valuation; also for the unexpired term of the Lease of the GROUNDS, a long period being still to run. These Grounds, consisting of 12½ statute acres of excellent free soil, neatly subdivided and sheltered, are furnished with Dwelling House and Offices. The Stock is select, and of the most saleable description. The situation at Stirling central for railway and water conveyance.

To a party desirous of investing capital in a well-established business, this opening offers peculiar advantages.—Further particulars may be had on application.

W. DRUMMOND & SONS, Agricultural Museum, Stirling.

MANCHESTER PUBLIC PARKS, WALKS, &c.—TO LANDSCAPE GARDENERS AND OTHERS. The Committee for the Establishment of Public Parks, Walks, &c. hereby offer TWO PRIZES, one of Fifty Guineas, and the other of Twenty-five Guineas, for the Best and Second Best SET of PLANS (with Estimates), for the laying out, &c. of the three sites already purchased by them.

Intending competitors must notify their intention to the Honorary Secretaries previous to the 1st September next, when they will receive such information as may be required for their assistance and guidance.

The successful competitors will have the preference in the superintendence of the execution of their designs.

No plans and drawings can be received later than the 20th September. The adjudication will take place on the 1st October.

MALCOLM ROSS, } Hon.
EDWARD WATKIN, } Secretaries.

Committee Room, Town Hall, Manchester,
August 1st, 1845.

SMITH AND CO.



ESTABLISHED NINE YEARS.

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FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

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47, Lime-street, August 9.

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ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

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At the Lapsort Warehouse.	*At 40, Upper Thames-street.*
Guano, Peruvian, imported by A. Gibbs & Son, 10*l.* to 10*l.* 10*s.* per ton, according to quantity.	10*s.* 6*d.* to 11*s.* per cwt., according to quantity.
Do., Ichaboe, 6*l.* to 6*l.* 15*s.* per ton, according to quantity.	6*s.* 6*d.* to 7*s.* 6*d.* per cwt., according to quantity.
Do., Saldanha Bay, 6*l.* 10*s.* to 6*l.* 15*s.* per ton, according to quantity.	6*s.* 9*d.* to 7*s.* 6*d.* per cwt., according to quantity.
Do., Potter's	10*l.* per ton.
Do., Do. Liquid	18*s.* per doz. bottles.
Nitrate of Soda, 19*s.* 6*d.* to 20*s.* per cwt.	20*s.* to 22*s.* per cwt., according to quantity.
Gypsum, at the Factory in Derbyshire, 12*s.* 6*d.* per ton.	30*s.* to 35*s.* per ton, according to quantity.
Do., at Waterside Warehouse, London, 27*s.* 6*d.* to 30*s.* per ton	
Compost for Cabbages	10*s.* per cwt.
Sulphate of Magnesia	8*s.* 6*d.* to 10*s.* do.
Do. of Soda	5*s.* to 6*s.* do.
Do. of Potash	20*s.* to 24*s.* do.
Do. of Ammonia	17*s.* to 20*s.* do.
Do. of Iron	5*s.* to 5*s.* 6*d.* do.
Do. of Copper	34*s.* to 36*s.* do.
Sulphuric Acid (with instructions for making Superphosphate of Lime).	¾*d.* to 1½*d.* per lb., according to strength.
Bone Dust	21*s.* to 22*s.* per quarter.

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Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

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GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

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THE AYRSHIRE DOUBLE-ACTING PATENT TILE MACHINE may be seen in operation, at Bellstone Tile Works, three miles from Ayr, on Fridays and Saturdays, during the season. The Patentees, Messrs. YOUNG and BOYLE, respectfully invite all who may be interested in seeing their invention at work to make a call; and have much pleasure in informing the public that it has already been seen in operation by several Gentlemen well known in the Agricultural world, and by a great many Tile Manufacturers, and their unanimous testimony is, that the "AYRSHIRE DOUBLE-ACTING PATENT TILE MACHINE" is the most simple, and decidedly the most speedy, of all others that have come under their observation, producing, with two men and five boys, 20,000 Tiles, or 40,000 Soles, per day—all perfectly formed and substantial. The Machine is very light and portable, and can with great facility be transported to any place in the drying sheds; and what is of paramount importance, all Clays will suit, with only the ordinary preparation which is required for Hand-moulding. No WASHING—NO SCREENING—no extras whatever is required for the Clay previous to its entering into the "AYRSHIRE DOUBLE-ACTING PATENT TILE MACHINE!"

Much has been said lately regarding the Manufacture of Pipe Tiles, and many attempts have been made to bring out Machines for their Manufacture, all on the principle of pressing through dies; but not one of these on the die principle can be used without a great expenditure in the working, washing, or screening of the Clay. On the score of economy, therefore, the "AYRSHIRE DOUBLE-ACTING PATENT TILE MACHINE" will be found the most beneficial. A Tile and Sole can be Manufactured by it, and both sold at a cheaper rate than a Pipe Tile alone; and the efficiency of a Tile and Sole for permanent drainage, in comparison to Tubes, without any thing to prevent them getting deranged in the drain, will be obvious to all who have paid the slightest attention to the subject.

The price of the "AYRSHIRE DOUBLE-ACTING TILE MACHINE" is 30*l.*, and no Lordship exacted.

Orders for the Machine can be sent addressed to Mr. JOHN YOUNG, Engineer, Newton, Ayr; or to Mr. ROBERT BOYLE, Potter and Tile Manufacturer, Fullarton Street, Ayr.

The Patentees are ready to treat with parties at a distance who may be desirous of purchasing a right to manufacture and sell the "AYRSHIRE DOUBLE-ACTING PATENT TILE MACHINE."

ROBERT BOYLE, Potter and Tile Manufacturer, Ayr, offers his professional services to those Landed Proprietors who are desirous of having their Tiles Manufactured on economical principles.

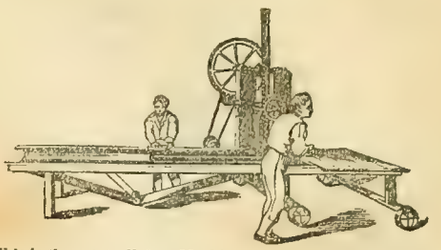
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This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ "	8,000	2½ "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

DINGLE'S HAND DIBBLING MACHINE for Depositing all kinds of Seed in any soil.

Registered in pursuance of the Designs Copyright Amendment Act, 6 and 7 Victoria, C. 65, No. 469.

WILLIAM E. RENDLE and Co., PLYMOUTH, have purchased the sole right and license for manufacturing and disposing of this valuable machine, which will be found to be one of the most desirable inventions ever offered to the Agriculturist.

The Machine is so constructed that it will, at the same moment, make the hole and deliver the exact quantity of seed. It is simple in its construction, and not liable to get out of order.

THE DIBBLING POINT IS OF SUCH A SUPERIOR CONSTRUCTION THAT THE SOIL CANNOT CHOKE IT.

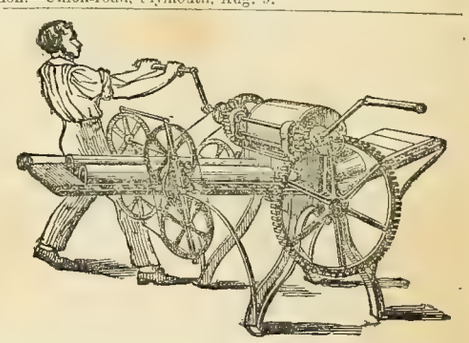
The Machine is confidently recommended by the Proprietors, as they feel assured it will give satisfaction. It having but recently been invented, it was too late for entry at the Shrewsbury Show; they feel confidence, however, in saying that had it been shown there, it would have received the prize.

It will be found most valuable for dibbling Wheat, Mangold Wurzel, Barley, Peas, Beans, &c. &c.

PRICE ..... 35*s.* each.

Including box and carriage to London, Liverpool, or Bristol.

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These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

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Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

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VENTILATION.—"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool. —BAILLIE'S PATENT TRANSPARENT VENTILATOR ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee-rooms, and, moreover, a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London; Messrs. Stock and Sharp, and Mr. Samuel Beals, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixie and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 259, Blackfriars-road; Mr. Edward Baillie's, 12B, Cumberland-market, Regent's-park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the Office of this Paper.

GOOD NEWS FOR THE AFFLICTED.

DR. ROBERTS'S CELEBRATED MEDICINES.—The excellent OINTMENT called "THE POOR MAN'S FRIEND," is confidently recommended to the Public as an unfailing remedy for Wounds of every description, and is a specific for Eruptions that sometimes follow vaccination. Sold in pots at 1s. 1½d. and 2s. 9d. each.—Also his PILULÆ ANTISCROPHULÆ, confirmed by more than 40 years' successful experience as an invaluable remedy, and presents one of the best alteratives ever compounded for purifying the blood, and assisting Nature in all her operations. They are efficacious also in Rheumatism, and form a mild and superior family aperient, and may be taken at all times without confinement or change of diet. Sold in boxes at 1s. 1½d. and 2s. 9d. each. By the late Dr. ROBERTS'S will, Messrs. BEACH and BARNICOTT (who have been confidentially intrusted with the preparation of his medicines for many years past), are left joint proprietors of the "Poor Man's Friend" and "Pilulæ Antiscrophulæ," &c., with the exclusive right, power, and authority to prepare and vend the same. The utility of these Medicines is fully testified by thousands of persons who have been benefitted by their aid.

Beware of Counterfeits.—No Medicines sold under the above names can possibly be genuine unless "BEACH and BARNICOTT, late Dr. ROBERTS, Bridport," is engraved and printed on the stamp affixed to each package. Sold wholesale by the Proprietors, BEACH and BARNICOTT, at their Dispensary, Bridport; by the London Houses; and by most respectable Medicine Vendors in the United Kingdom.

ELECTRO PLATE, in great variety, and of warranted quality, only at the establishments of ELKINGTON & Co. {22, Regent-street, corner of Jermyn-st. and 45, Moorgate-street, City.

The Patentees, from their great experience in England and France, are enabled to decide the quantity of silver necessary to ensure durability and economy for every article they manufacture, and which invariably bears their marks, E. and Co., under a crown. Having granted numerous licenses to use their patented processes, they beg to intimate to purchasers that they are not responsible for the quality of goods sold as plated by their process, unless they bear the above marks.—Re-plating and gilding.—Old plated and other articles repaired and re-plated, or re-gilt, and the quality warranted, if sent direct to either of the above establishments. No other party in London is authorised to re-plate. Persons infringing these patents by using the processes, or by purchasing goods so plated or gilt, will be proceeded against.

CHEAP AND DURABLE ROOFING, AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company, and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'Neill & Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, is F. M'NEILL and Co's Manufactories, Lamb's-buildings, Bunhill-row, London.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130B, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

SILVER SUPERSEDED, and those corrosive and injurious Metals, called Nickel and German Silver, supplanted by the introduction of a new and perfectly matchless ALBATA PLATE. C. WATSON, 41 and 42, Barbican, and 16, Norton Folgate, aided by a person of science in the amalgamation of Metals, has succeeded in bringing to Public Notice the most beautiful Article ever yet offered; possessing all the richness of Silver in appearance, with all its durability and hardness—with its perfect sweetness in use, undergoing, as it does, a chemical process, by which all that is nauseous in mixed Metals is entirely extracted—resisting all acids—may be cleaned as silver, and is manufactured into every Article for the Table and Sideboard.

	Plain Fiddle.	Threaded Fiddle.	King's Pattern.	Albert Pattern.
Table Spoons per doz.	16s. 6d.	30s.	35s.	42s.
Dessert do. do.	12s. 6d.	25s.	28s.	32s.
Tea do. do.	5s. 6d.	13s. 6d.	13s. 6d.	17s. 6d.
Table Forks do.	16s. 6d.	30s.	35s.	42s.
Dessert do. do.	12s. 6d.	25s.	28s.	32s.

C. WATSON begs the Public will understand that this Metal is peculiarly his own, and that Silver is not more different from Gold, than his Metal is from all others—on its intrinsic merits alone he wishes it to be tested, and from the daily increasing eulogiums he receives, he is convinced that nothing can prevent its becoming an article of universal wear.

C. WATSON'S handsomely ILLUSTRATED CATALOGUE and PRICE CURRENT, is just Published; and Families who regard economy and elegance, should possess themselves of this useful Book, which may be had *Gratis*, and Post Free, from the above Address.

ROWLAND'S ODONTO, OR PEARL DENTRIFICE, patronised by Her MAJESTY, H.R.H. Prince ALBERT, the Royal Family, and the several Courts of Europe. A FRAGRANT WHITE POWDER, prepared from Oriental Herbs of inestimable virtue, for strengthening, preserving, and cleansing the teeth. It eradicates the factitious formation of tartar, and, by the removal of that extraneous substance, lends a salutary growth and freshness to the gums. It removes from the surface of the teeth the spots of incipient decay, polishes and preserves the enamel, substituting for discolour and the aspect of impurity, the most pure and pearl-like whiteness; while, from its salubrious and disinfecting qualities, it gives a sweetness and perfume to the breath, bestowing at once cleanliness, and the appearance and reality of health. Price 2s. 9d. per box, duty included.

CAUTION.—To protect the public from fraud, the Hon. Commissioners of Her Majesty's Stamps have authorised the Proprietors' Signature to be engraved on the Government Stamp, thus,—A. ROWLAND and SON, 20, Hatton Garden, which is affixed to each BOX. Ask for ROWLAND'S ODONTO. Sold by them, and by Perfumers and Chemists.

*** All others are SPURIOUS IMITATIONS.

MEAT! MEAT! 25 lbs. Corned in Five Minutes, or Salted in Ten.—CARSON'S PATENT SALTING INSTRUMENT effects the above object in all climates. This Instrument is much valued by cooks in private families, residents in the tropics, captains, emigrants, hotel and eating-house keepers, butchers, and curers. With it a joint need never be lost, as it may be salted at any time, even at the instant a change is about to take place. Meat salted with this Instrument is rendered more tender, and, if dressed directly, all the properties of fresh Meat retained.—Price 30s. to 50s.—Cheap Depôts: C. Hockin & Co., 38, Duke-street, Manchester-square, and 1, Bishopsgate-street Within. Agents required for town and country.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, August 9, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 33—1845.] SATURDAY, AUGUST 16. [Price 6d.

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ROYAL BOTANIC SOCIETY OF LONDON.—The Successful Competitors who have not already received the PRIZES awarded to them at the Exhibitions in the Gardens of this Society, are requested to apply to the Secretary for payment of them as soon as convenient, or to appoint some person in Town to receive them. J. D. C. Sowerby, Sec.

Office, Botanic Gardens, Regent's-park.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—President, the Right Hon. Lord Francis Egerton, M.P.—The Third Exhibition of Plants, Flowers, Fruits, and Vegetables, for the current year, will take place at the Society's Gardens, Old Trafford, on Wednesday, the 10th of September next, when Prizes will be awarded for the best specimens exhibited.

The Schedule of Prizes and Regulations for admission and exhibiting may be had on application at the Secretary's Office, 28, Brazennose-street, Manchester. By order of the Council,

Samuel E. Cottam, Sec.

MANCHESTER PUBLIC PARKS, WALKS, &c.—TO LANDSCAPE GARDENERS AND OTHERS. The Committee for the Establishment of Public Parks, Walks, &c. hereby offer TWO PRIZES, one of Fifty Guineas, and the other of Twenty-five Guineas, for the Best and Second Best SET of PLANS (with Estimates), for the laying out, &c. of the three sites already purchased by them.

Intending competitors must notify their intention to the Honorary Secretaries previous to the 1st September next, when they will receive such information as may be required for their assistance and guidance.

The successful competitors will have the preference in the superintendence of the execution of their designs.

No plans and drawings can be received later than the 20th September. The adjudication will take place on the 1st October. Malcolm Ross, } Hon.
Edward Watkin, } Secretaries.

Committee Room, Town Hall, Manchester, August 1st.

WOOD and SON'S NEW CATALOGUE OF ROSES, NOW READY FOR DISTRIBUTION.
WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

WILLIAM WOOD and SON, have just received from the Press their NEW CATALOGUE OF ROSES, for 1845-46, which has been prepared with much care, and will be found to contain every old and new variety worthy of cultivation.

Those friends who have in past seasons kindly favoured W. W. and Son with their commands, will receive a copy of the above in due course; in the mean time, Amateurs and lovers of Roses, the Trade and others, are respectfully invited to make early applications for the Catalogue, a copy of which will be sent GRATIS to all applicants.

SEEDS FOR SOWING THIS MONTH, TO BE HAD OF WARNER & WARNER, Seedsmen, &c., 28, Cornhill, London.

	per paper—s. d.		per paper—s. d.
Cabbage, early incomparable	0 6	Geranium, new dwarf Scarlet	1 0
Ditto, The Queen	0 6	Lobelia splendens	1 0
Cauliflower, large early	0 6	Pentas carnea	1 0
Lettuce, Imperial Winter Cos	0 6	Primula sinensis fimbriata, mixed	0 6
Ditto, large Winter Cabbage	0 6	Schizanthus Hookeri	0 6
Onion, large Winter	0 6	Stock, intermediate, purple and scarlet, each	0 6

NOW SENDING OUT.

FUCHSIA—"CONSTELLATION." This large and desirable variety was raised in the Providence Nursery, and is one of the finest ever produced. For description of this extra brilliant variety, see Dr. Lindley's opinion, which will be found in the *Gardeners' Chronicle* of September 9th, p. 663, under the signature of "W. Miller." "Your hybrid, between Fulgens and Corymbiflora, is a very handsome flower: seed-pod small, tube long and slender, gradually increasing in size till the diameter is a quarter of an inch; the tube is a delicate Pink colour, having sepals of a greenish Primrose, forming a strong contrast to the bright and red corolla seen between them; the flower altogether is 3½ inches in length, and the buds are very handsome as they approach maturity; it flowers in a large broad bunch, which is divided into branches, containing altogether 150 flowers."

It was also submitted to the Editor of "The Floricultural Cabinet," whose opinion will be found in No. 128, under the signature W. M.—"Your Fuchsia is a very fine one, and deserves cultivation in every situation."

Plants 12s. 6d. each, and sent post-free in stout tin cases on receipt of a post-office order for the amount.—William Miller, Providence Nursery, Ramsgate.

NEW TEA-SCENTED ROSES.—TWELVE BEST VARIETIES, 12s. per dozen.

New Crimson, and Alba odorata	9s. per doz.	Safrano (bright buff rose),	2s. 6d. each.
Devoniensis (a very large Rose)	12s. per dozen.	Cloth of Gold, each	5s. 0d.
Eliza Sauvage, pale orange colour	9s. per doz.	La Marque,	1 6
Yellow Noisette	9s.	Aimée Vibert	1 6
		Blairii	1 6
		Euphrosyne	1 6

The above are all on their own roots.

Double white and other Camellias, set with bloom, 2s. 6d. to 5s. each.

Chrysanthemums, best double, named varieties, 9s. per doz.
Alstrœmerias, six sorts .. .. .. 1s. 6d. each.
Fuchsias, 12 of the most approved sorts .. 9 0
Verbenas, atrosanguinea, alba lutescens, Blue Queen, and nine others of the newest sorts, for .. .. .. 6s.
Petunias, 12 of the newest sorts .. .. .. 6s.
12 Perennial Phloxes, of the best sorts .. .. .. 8s.

The new Lilium lancifolium album, and punctatum, 2s. 6d. and upwards.

The new Lilium lancifolium rubrum .. 10s. 6d. each.
Do. do. venustum and superbum 3 6 ,,

Messrs. J. and H. Brown are now sending the above to any part of the United Kingdom, by post or otherwise. Payment by post-office order. List of Greenhouse, Stove, and Herbaceous Plants, Seeds, and Dutch Roots.

Albion Nursery, Stoke Newington, London.

SMITH'S SEEDLING FUCHSIA "VENUSTA."

JOHN SMITH begs respectfully to announce, that he is now sending out the above distinct and showy FUCHSIA. Tube and sepals pure white, corolla purple, pretty habit, price 10s. 6d. Where three are taken, the Trade will be allowed one plant over. The above may be seen in flower at his Nursery, with a few fine Seedlings of the present year. Strong healthy plants of "Queen Victoria," 15s.; an allowance to the Trade. A Remittance will be expected from unknown Correspondents.—Dalston, Aug. 16.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

WILLIAM MILLER informs his numerous patrons and the public that he will send out the under-named varieties at the prices annexed, in October. (Printed Circulars with descriptions can be had.)

Augusta	21s 0d	Lord Morpeth	21s 0d
Alice	21 0	Duke of Orleans	21 0
Gipsy Maid	21 0	Josephus	21 0

The set of six for 5l. 10s., or 5l. when cash accompanies the order. Trade-price 4l. 10s., or 4l. cash accompanying the order, which will in either case ensure strict priority of selection.

HOYLE'S SET OF 12, viz., Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, and Sarah Jane, sent out last season at 10l. 10s.; may be had for 3l. 10s., or cash accompanying the order for 3l.

100 CHOICE HYBRIDISED SEEDS, 10s.; 50 ditto, 5s.; 25 ditto, 3s. A general List of GERANIUMS, priced very cheap, by the dozen, is now ready, which should be in the hands of every Geranium grower, as it contains all the principal sorts for exhibiting.

W. M. finding that pots are frequently broken, and the Plants damaged in hampers, he has prepared a quantity of strong Fir boxes for the purpose.—Providence Nursery, Ramsgate.

SLOUGH NURSERY, BUCKS, NEAR WINDSOR.

W. C. BROWN has the pleasure of informing the collectors of CONIFERS, that he can offer to their notice 350 of the finest specimens in the Kingdom, or perhaps in Europe. A few of the most conspicuous are Araucaria excelsa, 12 to 20 feet; three Imbricata, 6 feet; Cunninghamia, 10 to 18 feet; Abies Douglasii, 11 feet; two Pygmæa, very fine; Taxus fastigiata, 11 feet, beautiful; Cedrus Deodara, 12 feet; Pinus grandis, 6 feet: also Philloclades rhomboidalis and trichemanoides; two Podocarpus latifolius; Dammara; Dacrydium elatum, and cupressina, &c. &c.

W. C. B. merely inserts this as a Notice, in the next Paper he will give a full list with heights, and will fix a date before which no plant shall be sold, so that Foreigners and distant purchasers may be able to see them or forward orders.

FUCHSIA "SERRATIFOLIA."
SPLENDID NEW PERUVIAN FUCHSIA.

MESSRS. VEITCH & SON beg to inform those who have already ordered the above lovely plant, and the Public generally, that plants will be ready for delivery early in September. A beautiful specimen of it was exhibited at Chiswick on the 12th ult., when it was awarded the First Prize for New Plants (the large Silver-gilt Medal), and was universally admired.

For the information of those who may not have seen it, Messrs. V. would add, that it was imported by themselves from Peru, and is solely *in their own possession*. The flower is a delicate waxy rosy-pink, of large size, and great substance; the sepals tipped with green, the corolla with vermilion-scarlet; the foliage very fine and distinct, and the habit remarkably good; it is very free blooming, and altogether a most beautiful plant.

Strong plants in September, 21s. each.

N.B. The Trade will be allowed one plant over on every three they may purchase, and a List will appear in a future Advertisement of all those Nursery and Seedsmen who having secured early plants will be enabled to supply them.

A London reference, or Post-office Order, from unknown correspondents.

Orders executed in strict rotation as received.

Exeter, August 16.

NEW AND RARE PLANTS.—The following are confidently recommended, viz.—

Luculia Pinceana, strong, 42s.	Echites splendens, strong, 15s.
Tropæolum Lobbianum, 3s. 6d.	" atropurpurea, 3s. 6d.
Gardenia Stanleyana, 21s.	Diplodenia crassinoda, 5s.
Aphelandra aurantiaca, 42s.	Whitfieldia lateritia, 10s. 6d.
Hindsia longiflora, 3s. 6d.	Hoitzia coccinea, 2s. 6d.
" violacea, 10s. 6d.	Thunbergia chrysops, 2s. 6d.
" longiflora alba, 31s. 6d.	Fuchsia serratifolia, 21s.

Early in September.

R. White & Co., Poole Nursery, Dorsetshire.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

YOUELL and CO.'s stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter in this the most eastern point of England proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season:—

2 years old	9s.	per dozen.
3 ,,	12s.	,,
4 ,,	18s.	,,
5 ,,	30s.	,,
6 ,,	60s.	,,
Cedrus Deodar, 1 year, fine	18s.	,,
,, ,, 1 foot	30s.	,,
Pinus excelsa, 3 inches	9s.	,,
,, ,, 4 to 5 inches	18s.	,,
,, ,, 18 inch, fine bushy plant	42s.	,,
,, Gerardiana, 2 years	30s.	,,
Abies Khutrow, 2 years	9s.	,,

Also fine specimen plants of older growth from 10s. 6d. to 2l. 2s. per plant.—Great Yarmouth Nursery, August 16, 1845.

YOUELL & CO. beg to remind their Friends they continue to supply the following fine CAMELLIAS in good healthy plants, set with flower-bud, at 30s. per dozen, the collection being left to them or to the Purchaser, namely:—Donkelarii, Monarch, Carolina, Conspicua, Double White, Lefevreana, Invincible, Double Striped, Chandlerii, Colvillii, Juleana, Beallii, Imbricata, Eclipse, Florida, Elegans, Ruckerii, Fimbriata, Perfecta, Frankfortensis, Tricolor, King Horsfallia, Hendersonii, Bruceana, Double Red, Rosa Mundi, Grand Frederic, Pompone, and Ochroleuca. Also,

The very best FUCHSIAS	12s.	per doz.
Ditto CHRYSANTHEMUMS	12s.	do.
Ditto VERBENAS	6s.	do.
Ditto PETUNIAS	12s.	do.
Ditto PANSIES	10s.	do.

For particulars, see former Advertisements.

Great Yarmouth Nursery, Aug. 16.

HERBARIUM FLORÆ ATTICÆ.

W. PAMPLIN has just received from M. Th. de Heldreich, Athens, a small collection of about 200 species of the rarer plants of Greece, chiefly Attica, and the island Naxos; all named and localised.—45, Frith-street, Soho, London.

PERMANENT GRASSES.—This being a proper season for laying down land to permanent Pasture, and for improving old Grass Lands, Messrs. SUTTON and SONS respectfully intimate that they have now ready for delivery NEW SEEDS of the most proper kinds of GRASSES for these purposes, and having had nearly forty years experience in this department, they have the privilege of referring to estates in most parts of England where pastures of very superior quality have been produced from Seeds supplied by Messrs. Sutton.

The cost of Seeds is 32s. per acre, consisting of the most proper sorts, either separate or mixed, to suit the soil described.

Reading Seed Warehouse, Reading, Berks, Aug 16.

ROSA BERBERIIFOLIA HARDII, 2s. 6d. each.

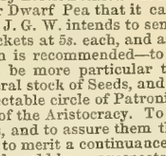
A. PAUL & SON have a large stock of the above rare and beautiful Rose, healthy and well-established plants, for sale at 2s. 6d. each. They are growing in pots on their own roots, the only way in which they can be successfully cultivated. To those who are unacquainted with this unique variety, they beg to offer the following description:—An evergreen shrub, of small growth, blooming through the autumn; flowers single, of a bright yellow, with a rich chocolate spot at the bottom of each petal, resembling Cistus formosus. Package 6d. extra—carriage free to London.

AUTUMNAL ROSES.

The collection at the Cheshunt Nurseries are just coming into second bloom, and bear promise of a perfect and abundant flowering. The communication between the Metropolis and the Nurseries is now so rapid and easy, that all lovers of Roses should avail themselves of it to inspect them. Trains of the Eastern Counties Railway to Waltham-cross in half an hour, whence there is an Omnibus to the Nurseries in 15 minutes.

ROSE CATALOGUE.

A. Paul & Son's Catalogue for the approaching season is in course of preparation in an improved form, and will be ready for circulation early in September, of which due notice will be given.—Nurseries, Cheshunt, Herts.



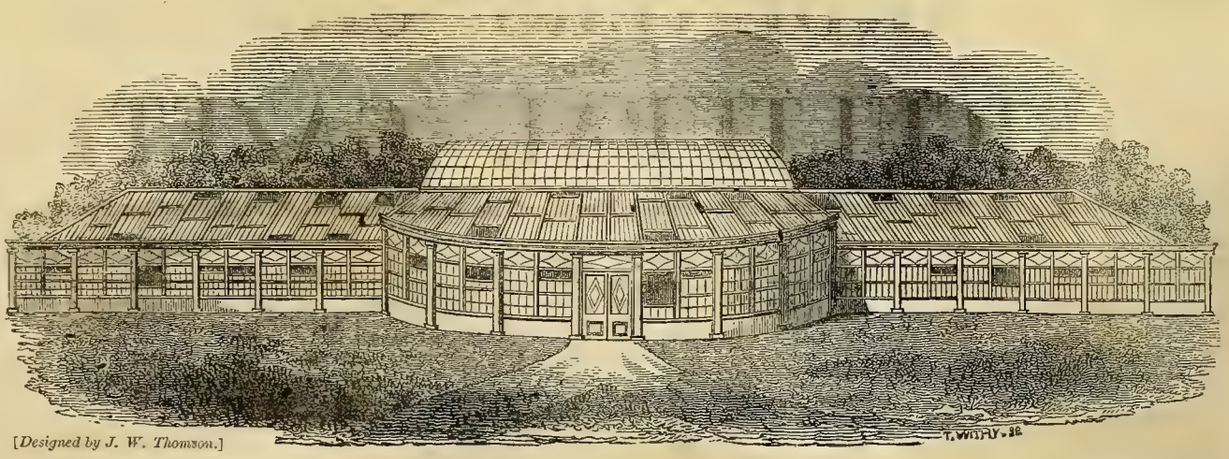
WAITE'S "QUEEN OF DWARF" PEA.—This PEA has, during the present season, fully established its superiority to any other Dwarf Pea known. The very flattering accounts that J. G. W. is daily receiving of its merits from all parts of the Kingdom, is sufficient to warrant him recommending it to the notice of every horticulturist. It is a Pea that is so distinct from any other Dwarf Pea that it cannot by any possibility be substituted. J. G. W. intends to send it out next season, in sealed (quart) packets at 5s. each, and as the stock is limited, an early application is recommended—to prevent disappointment. No one can be more particular than J. G. W. in the selection of his general stock of Seeds, and he has consequently secured a very respectable circle of Patronisers, amongst whom will be found many of the Aristocracy. To these friends he begs to return his thanks, and to assure them that nothing shall be wanting on his part to merit a continuance of their favours.

N.B. Not to be undersold by any respectable house in London.

Eyre-street-hill, Hatton-garden, London.—Aug. 16.

LANDSCAPE GARDENING, HOT-HOUSE DESIGNING, AND BUILDING.

TWELVE THOUSAND FEET OF GLASS EFFECTUALLY WARMED TO STOVE TEMPERATURE, BY FOUR SMALL BOILERS!



[*Designed by J. W. Thomson.*]

NOVEL AND ECONOMIC BOILERS FOR WARMING HOTHOUSES, CHURCHES, AND PUBLIC BUILDINGS, BY THE CIRCULATION OF HOT WATER.

J. W. THOMSON, after Twenty-five years' Practical Experience as HEAD GARDENER TO HIS GRACE THE DUKE OF NORTHUMBERLAND, at SION HOUSE, and in the BOTANIC and other Gardens of HER MAJESTY, has succeeded in inventing a Novel and Economical BOILER, which, for Efficacy, Simplicity, and Economy of FUEL and LABOUR, stands unrivalled. The success of the Inventor's plan of Heating, either by his IMPROVED TANK, TROUGH, or PIPE SYSTEM, will be UNEQUIVOCALLY GUARANTEED. Estimates furnished for Warming every Description of Garden Structures and Defective Plans of Ventilation and Warming by Hot Water remedied on Scientific Principles. The Boilers may be seen in use at Messrs. LEE'S Nursery, Hammersmith; Mr. WILMOT'S, Isleworth; Messrs. OSBORN'S Nursery, Fulham; and at Mr. THOMSON'S own Nursery, King-street, Hammersmith; where Four Small Boilers effectually Warm to Stove Temperature above 12,000 superficial feet of Glass Erections.

Address, J. THOMSON, HOTHOUSE DESIGNER and BUILDER, KING-STREET, HAMMERSMITH.

FOREIGN SHEET GLASS.

FREDERICK ELPHICK having opened a communication with one of the

FIRST HOUSES IN THE FOREIGN GLASS TRADE,

IS ABLE TO OFFER

SHEET GLASS, OF EXCELLENT QUALITY, FOR HORTICULTURAL PURPOSES,

Cut to any dimensions, from 6 in. by 4, to 24 by 20 in. square, at 5*d.* per ft.. all above that size to 42 in. by 36 in. square at 5½*d.* per foot, for ready money only.

Apply to FREDERICK ELPHICK, 28, Castle-street East, Oxford-street.

BRITISH SHEET OR HORTICULTURAL GLASS.

In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.

—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26*s.*0*d.*	Milled Lead in Sheets,	*s.* *d.*
Linseed Oil, per gall...	2 3	per cwt.....	21 0
Turpentine.....	3 3	Cut to Size.....	22 0
Warranted Varnishes and Colours.		Pipe all Sizes.....	22 0

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

SMALL GLASS FOR HOTHOUSES, MELON PITS, &c. &c.—Several thousand feet of 4 ins. by 2, 4½ ins. by 2, 4½ ins. by 2½, 5 ins. by 2, 5½ ins. by 2, and 6 ins. by 2, from 1*d.* per foot—Address, R. COGAN, Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.—Bee-Glasses, Fish Globes, French Ornament Shades, &c. &c.

SEEDS.—CORNER OF HALF-MOON-STREET,

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

SLATE WORKS, ISLEWORTH, MIDDLSEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted).

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

EDWARD BECK will be happy to answer any inquiries, either personally or by post

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STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

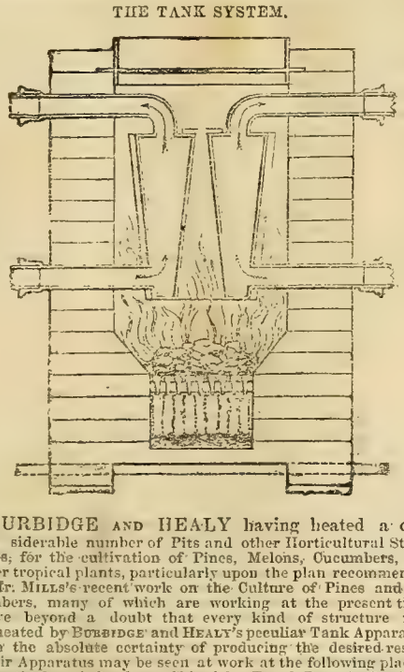
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's, Pine-apple-place; and in the Gardens of the Horticultural Society.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements:

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

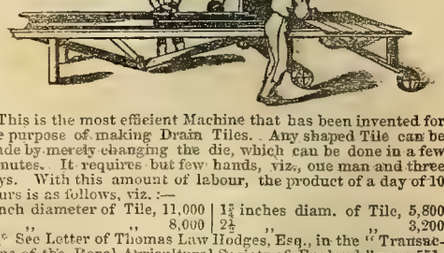
STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

HATCHER'S BENNENDEN TILE MACHINE,

Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ "	8,000	2½ "	3,200

* See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

DIBBLED WHEAT.—All who are desirous of Dibbling Wheat during the coming season, are recommended to make a trial of

DINGLE'S HAND DIBBLING MACHINE,

which is so constructed that the soil cannot choke it. Price 35*s.*, including box and carriage to London, Liverpool, or Bristol.

Apply to WILLIAM E. RENDER and Co., Union-road, Plymouth.

—August 16.

EXHIBITION OF CARNATIONS, PICOTEES, AND FUCHSIAS.

YOUELL AND CO.'s well-known Superb Collection of the above are now in bloom, and continue about three weeks. 4000 pots will be staged. Admission gratis, from 9 o'clock till 6, Sundays excepted.
Great Yarmouth Nursery, Aug. 16.

BECK'S SEEDLING PELARGONIUMS of 1844.—EDWARD BECK informs the Public that he will send out the following varieties, at the prices annexed, in October, delivered free in London, for cash only.

Rosy Circle	£1	1	0	Isabella	£1	1	0
Sunset	1	1	0	Margaret	0	10	6
Mustee	1	1	0	Favorita	0	10	6
Marc Antony	1	1	0	Zenobia	0	10	6
Desdemona	1	1	0				

No more remittances can be received for ARABELLA, BELLONA, OTHELLO, and JUNO, until further notice, the present stock being engaged.
As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.
N.B. No discounts, allowances, or abatements can be made in any case.—Worton-cottage, Isleworth, Aug. 16.

The Gardeners' Chronicle.

SATURDAY, AUGUST 16, 1845.

MEETING FOR THE FOLLOWING WEEK.
COUNTRY SHOW.
TUESDAY, Aug. 19—Yorkshire Floricultural and Horticultural.

AMONG the speculative subjects respecting which we are looking for information, is that of the effect upon plants of light of various colours. Dr. DAUBENY's experiments, published in the Philosophical Transactions for 1836, proved that plants are very considerably affected by the colour of the light that falls upon them, and this was confirmed by M. DECAISNE who found that red light hindered the production of colouring matter in the Madder plant.

Various other experiments have been made on this subject of late years, and especially by Mr. HUNT, who has investigated the phenomena with great skill and perseverance. We are, therefore, sure that we shall be doing an acceptable service to our readers in laying before them the following very interesting communication, for which we are indebted to the kindness of that gentleman :—

"The experiments which have been published on the influence of the several rays of the solar spectrum on the germination of seeds, and the growth of plants, have excited some interest. They have induced many persons to repeat them, and very diversified effects have resulted, in most cases owing to some dissimilarity in the conditions (as it regards light), in which the seeds and plants were placed. It, therefore, appears to me desirable that a brief recapitulation of these experiments should be published, and no journal is so fitted for this as the *Gardeners' Chronicle*.

"In general it has been thought that the colour of a glass, or of a solution, is the same as that of the rays which permeate it. This is an error, and in consequence of the want of the required prismatic analysis of the media employed, many of the discordant results alluded to have arisen. Desirous of guarding against this in future, I shall in the first place describe as clearly as possible all the conditions under which my experiments have been tried.

"The solar beam of white light, consisting of several coloured rays, which are known to possess very different illuminating, heating, and chemical properties, it became desirable to examine if they, all alike, in the same degree, assisted in the progress of the vegetation of a plant. To do this it was necessary to use some means of isolating the different rays, so that the seeds and plants might be exposed at will to the influence of an individual ray.

"It is pretty generally known that the prismatic spectrum consists of seven *or more* distinct colours. Sir DAVID BREWSTER is inclined to admit only three primitive colours in the spectrum—red, yellow, and blue, all the others being made up of mixtures of these. As these colours may be regarded as sufficiently indicating the three principles which are active in the solar radiations, I shall, for the sake of clearness, adopt Sir DAVID BREWSTER's views. We find, by experiments, that the maximum of heating power is found on the confines of the red rays. That the largest amount of light is given by the yellow ray; and that the chemical power exists most strongly amidst the blue rays of the spectrum. Hence, these three colours fairly represent the three principles, the effects of which it is desirable to try. If we take a deep red glass, which has been coloured with oxide of gold, it will be found that the quantity of LIGHT which passes through it is very small; and by the use of photographic paper, it may be ascertained that the amount of that principle which produces chemical change, is also very little; whereas the HEAT rays suffer no interruption. Solutions of carmine in ammonia, or in sulphuric acid, answer equally well with red glass, for separating the hermic rays from the others.

"A deep yellow glass—that which answers best, is prepared with glass of antimony, red-lead, and oxide of iron—has the property of intercepting almost entirely all the chemical rays; but it admits of the permeation of all the luminous rays, and offers but little interruption to the calorific rays. If, however, we cover a pane of this yellow glass with another of very pale green bottle-glass, the passage of the heating rays is much impeded. A solution of the bichromate of potash answers much better than any kind of glass which has yet been tried; and a cell filled with this solution, to the thickness of an inch very nearly, isolates the yellow or luminous rays. A deep blue glass—such as is used for finger-glasses, coloured with oxide of cobalt—has the property of admitting freely the passage of all the chemical rays, whilst it obstructs both the heat and light radiations. A solution of the oxide of copper in ammonia possesses similar properties.

"Hence it is by an arrangement of the above kinds of glass, or of the differently-coloured fluids, that experiments can be tried on the influences exerted on seeds or plants by these principles of the solar beam. It would be much more satisfactory if the rays of the spectrum could themselves be used, as the isolation is not, in any case of coloured media, perfect, but the difficulties attendant on maintaining the solar spectrum in a fixed position during the period of the experiments is so great, and the practicability of obtaining, under any circumstances, the command of a sufficient area of mono-chromatic light, so doubtful, that we are of necessity obliged to have recourse to those chromatic media, although they only afford results which in a greater or a less degree approximate to the truth.*

"It will be evident from the above statement, that by the use of red, blue, and yellow glasses of peculiar kinds, we may so far alter the natural conditions of plants as to free them from one or more influences, whilst the third is brought more decidedly into action. Notwithstanding the modification of many of my experiments, the essential conditions throughout the whole of them were pretty much the same as those which would be obtained by attention to the above directions, and therefore we may regard red, blue, and yellow media as suitable to all the conditions necessary for producing the following results :—

"1. *Light which has permeated yellow media.*—It was found that, in nearly all cases, the germination of seeds was prevented, and even in the few cases where germination commenced, it was found that the *young plant* soon perished, and the germination was, as it appeared to me, referable to the action of the heat-rays, which had passed the medium employed, rather than to light. Agarics, and several varieties of Fungi, flourished luxuriantly under the influence of the yellow media. Although the luminous rays may be regarded as injurious to the early stages of vegetation, I have seen reason to believe that, in the more advanced periods of growth, they become essential to the formation of woody fibre.

"2. *Light which has permeated red media.*—Germination, if the seeds are very carefully watched, and a sufficient quantity of water added to supply the deficiency of the increased evaporation, will take place beneath red glass or fluids. The plant is not, however, of a healthy character, and, generally speaking, the leaves are partially etiolated, showing that the production of chlorophyl is prevented.† Most plants, instead of bending towards red light in the same manner as they do towards white light, bend from it in a very remarkable manner.

"I have found that plants in a flowering condition may be preserved for a much longer time under the influence of red light than under any other, and I am inclined to think that red media are highly beneficial during the fruiting processes of plants. Many practical advantages may arise from experiments tried on a large scale on these points.

"3. *Light which has permeated blue media.*—The rays thus separated from the heat and the light rays, and which I am inclined to regard as a distinct principle, and for which I have proposed the name of ACTIMISM, have the power of accelerating in a remarkable manner the germination of seeds, and the growth of the young plant. After a certain period, varying with nearly every plant upon which experiments have been made, these rays become too stimulating, and growth proceeds rapidly, without the necessary strength. When this is perceived, the removal of the plant into the yellow rays, or, which is better, into light which has permeated an emerald green glass, accelerated the deposition of carbon, and the consequent formation of woody fibre, proceeds in a very perfect manner.

"Such are the conditions, and the results of my experiments. They appear to point to a very great practical application, in enabling us, in this climate, to meet the necessities of plants, natives of the tropical regions. We have evidence, at least so it appears to me, from these and other results, that the germination of seeds in the spring, the flowering of plants in summer, and the ripening of fruits in the autumn, is dependant upon the variations in the amounts of actimism, or chemical influence—of light and of heat—at those seasons in the solar beam. Many results obtained by the photographic processes appear to prove this to be the case."

* See "Researches on Light," by the Author. Part 2: Section 1. Fol. 183.

† In some cases a peculiar red colour or tint is imparted to the leaves of plants grown under red media.

To our previous remarks on the GUANO TRADE we have still a word to add, in the hope of doing something further to arrest future roguery.

It is not alone by the substitution of Epping loam that the buyer is defrauded by shameless dealers. The art of adulteration is inexhaustible, and as soon as one trick is discovered, some other is thought of. Honest men are no match for sharpers in these matters; and therefore, as we have repeatedly said on former occasions, the only real security against deception is chemical analysis. But the great mass of farmers are unwilling to put themselves to the expense of such an examination; that the Guano cheats know too well, and it is upon the strength of this certainty that they venture to carry on their operations.

Since, then, buyers either cannot or will not adopt the best means of securing themselves against being cheated, we would at least advise them, in the strongest possible manner, to take another course, which common-sense must tell them to be a good one; and that is, never to deal with strangers, of whom they know nothing, but to make their purchases of dealers who are resident among them, and whose characters can be investigated. The profits of Guano cheating are so great, that many unprincipled persons are engaged in it, and by their circulars and personal applications they succeed in driving a very pretty trade. We say, avoid all such men. They may be known by their living in holes and corners, taking a lodging in one town to-day and in another to-morrow; appearing in one place this year and in another the next. When they are inquired for, they are nowhere to be found. In London such people are called men of straw; in country places they give themselves airs, boast of their acquaintance with great men, and, above all things, talk loudly of their own honesty and of the roguery of the fair dealer. They profess not to deal in inferior sorts of Guano, and because of the peculiar advantages of selling, which they say they possess, and the wonderful cheapness of their article, they require cash *when the order is given*. It will not do for them to wait till the Guano is delivered.

Against all such men buyers should be on their guard. Cheat is branded legibly on their forehead.

It should also be remembered that there is no such thing as *good* Guano below the usual market price. It is an article in such demand, that markets cannot fall; and, therefore, when low priced Guano is offered for sale, even although the seller undertakes to deliver it "from the Queen's bonded stores," it is perfectly certain that it is valueless. He might as well undertake to deliver cheap Wheat. Plenty of spurious Guano has been imported from the coast of Africa, and more will, doubtless, come. As the great dealers take care to ascertain the exact composition of every cargo, they never touch such stuff, which goes into the hands of the Guano cheats, who puff it off as being "genuine as imported." A great deal of this spurious Guano has very lately arrived, and some of it is so like Peruvian in colour and appearance, that by common observers it would be taken for it. A cargo of the kind has lately been offered for sale at Liverpool, purporting to come from Algoa Bay; it proves, upon analysis by Dr. URE,* to be merely common gypsum, stained brown,

* [COPY]. Report of the Chemical Examination and Analysis of a reddish-brown powder called Guano from Algoa Bay, sent to me by H. Bland, Esq. The specific gravity of this powder being 2.10 to water 1.00, shows it not be any kind of bird or animal excrement. It consists of—

1. Sulphate of Lime or Gypsum, about	70.0
2. Phosphate of Lime, about	5.0
3. Combustible colouring matter; some kind of dyeing substance used in decoction	6.0
4. Common salt	3.0
5. Sal ammoniac	0.5
6. Moisture	15.5
	100.0

It is merely common gypsum tinged artificially by some dye-infusion, and mixed with a little ground bones, and a particle of sal ammoniac. The salt (muriate of soda) is probably derived from the bones. The mixture has been so imperfectly made of the gypsum with the phosphate of lime, that I find one portion of the sample to contain only 3 per cent. of phosphate of lime. It is in my opinion a vile imposition on the public to offer such an article for sale under the name of Guano, which it resembles in no respect.

(Signed) ANDREW URE, MD., F.R.S.
Professor of Chemistry and Analytical Chemist.
London, 13, *Charlotte Street, Bedford Square, 5th Aug.*, 1845.

P.S.—As ground bones effervesce with dilute muriatic acid, which the said powder does not, I think it probable that the

and mixed with a little ground bones, with a particle of sal ammoniac; a few tons have been sold by auction at 1*l.* 10*s.*, and we understand that the remainder is offered at 2*l.* Such Guano is dear at any price. It is not worth cartage; and can only be used for purposes of fraud. Yet it may be delivered, with certificates, from bonded warehouses, that it is "genuine *as imported*." If, however, the owners sell it as Guano, they are liable to an action for fraud.

Cannot landlords protect their tenantry against being made the victims of Guano cheats? they, at least, can have no difficulty in knowing where to procure the genuine article, or by what means to ascertain its quality, or how to proceed at law against fraudulent vendors. But we cannot, at present, afford more space to this subject. We can only repeat our advice to buyers, that they have nothing to do with unknown London dealers, who hawk about their rubbish with circulars, and puffing advertisements. Respectable houses never do such things.

We have just time to invite attention to a letter or two from the Isle of Wight, the one by Dr. Bell Salter, the other by an anonymous correspondent, describing an alarming pestilence which has seized the Potato crop on that Island. Will any of our correspondents favour us with their experience on this subject?

MANAGEMENT OF FORCED STRAWBERRIES.

Practical gardeners know from experience that Strawberries forced in pots early in the spring, when turned out into the open air and planted in the ground, afford blossoms throughout the summer. Strawberries, if gently assisted by artificial heat under glass in February, and the temperature gradually raised, afford ripe fruit towards the end of April. But the fruit, however beautiful to the eye and acceptable at a season of the year when fruit is scarce, is always watery and flavourless. My practice for many years past has been, at the end of the first week in May, to place the pots on the surface of the front border outside my Grapery (not plunged in the ground). Ten days' exposure to light and free ventilation gives the fruit a fine colour and a very high flavour, much exceeding the flavour of Keen's Strawberry grown in beds in the open air. The last two seasons, thinking we might turn this disposition to blossom to better account, and obtain fruit throughout the summer by taking pains to keep the plants in vigour, as soon as the plants had ripened all the first crop and were beginning to show their second blossoms, I gave them one watering of the black stable-yard water which runs into a tank in my garden, carefully removing all runners. This brought out a second crop of blossoms and fruit as abundant as the first; the fruit afforded a daily supply till the middle of August. But the season last year being so unusually dry, I had no black stable water in the tank; I therefore ordered some guano, say a garden-trowelful, to be mixed in a three-gallon water pot, and let remain and soak a few hours; the plants then, in the middle of August, had one more watering of this liquid manure, which produced a third crop of blossom and fruit. Early in October the plants were carefully turned out into the open ground for this summer's crop, where they continued to show flowers till put an end to by frost. And what is very remarkable, all the plants treated as above were more luxuriant this year, the leaves of a darker green, and afforded the largest crop of fruit in the open ground I ever saw. The result of my practice has not a little surprised many of my neighbours. Much depends on the early establishment of young plants intended to be forced. In the beginning of July, or as soon as any runners are observed to be sending out roots in the beds in the open ground, a very small pot is placed under the plant, and a small stone placed on the runner to prevent the young plant being removed by the wind. The pot is filled with light soil and mixed with decayed vegetable matter; if dry weather, these pots are watered every evening. Plants soon take good root, and are then repotted into pots a size larger, with similar good soil, placed on a southern border fully exposed to the sun, no runner allowed to grow, and carefully watered in dry weather. A third potting takes place in the middle of August, and the fourth time about the middle of September, when the plants are removed to the pot in which they are to fruit, where they remain on the south border till severe frosts commence in November or December; the pots are then removed to the floor of a cool Peach-house, and preserved from severe frosts till vegetation begins to show indication of spring in February. — *John Williams, Pitmaston, Worcester.*

FLOWER GARDEN ARRANGEMENTS.

This is, I conceive, the most important period in the whole year for witnessing the effects of the spring arrangement of the flower garden. However well the plan may have been laid as to the detail of the beds individually, or the whole collectively, as to general effect, blemishes will at all times be found to exist, which will at least be useful in guiding the policy of the ensuing year. Amongst the blemishes alluded to may be reckoned misplacing the heights, and perhaps the position of certain colours in masses, with regard to the effect of the whole. Wet and cool summers have much to do with deranging the proportions in regard to height, for many of the herbaceous tribes this season are at least 1 foot above their usual height. Such incidental matters, however, can never be fairly guarded against, and the only course we can steer in regard to extreme seasons, is so to prepare the soil that it will be ready for the extremes of either drought or wet. For such purposes an addition to beds of a free and fresh loam (as the chief proportion) will, in general, be found the safest compost by far, as its action (if there be any organic matter contained in it) will be found progressive, durable, and averse to stagnation. The great rage for the newer half-hardy plants for masses, has had the effect of driving a host of the old herbaceous tribes (some of very great merit) out of the market; so much so, that I am credibly informed that it is now really difficult to procure a collection of herbaceous plants.

Now, I must confess, that a majority of those old-fashioned things were, indeed, "mere drugs;" yet who can despise such plants as the Verbascum phœniceum, the old double scarlet Lychnis, the Mule Pink, the better kinds of Gentian, of Delphinium, of Phlox, together with the ancient Aster amellus or the A. sibiricus. By the way, I am persuaded that many of these things are well adapted to form the nucleus of groups or masses, provided they possess the property of endurance as to flowering. Now is, therefore, the period for those who can devote some time to the affair, to lay down schemes for the future year, based on the observations of the present season. Hand-glasses and spare frames should now be put in instant requisition, for the reception of the more tender or difficult kinds; whilst most of the herbaceous things intended for masses, will strike very well under any canopy which will totally exclude the sun's rays from 9 o'clock in the morning until 4 in the afternoon; bearing in mind, that, although the sun's rays must be warded of, abundance of light must be ensured to secure success. Some will be found to yield cuttings only, some suckers, which are preferable, and some both cuttings and suckers. However, there is no time to be lost in either case; for the best way to preserve these things through a long winter, is to propagate early, and get them firmly established in their pots or beds. I am of opinion, that in a well managed flower-garden—that is to say, where sufficient labour is provided to give constant attention to everything in due course; every individual bed should be both complete in itself as to form, and colour; and also perfectly subservient to the general design. For instance, a bed of scarlet Verbenas is a most gaudy object; still it is in a bright summer's day painful to the eye, and should have relief both in colour and figure, to accomplish which all the heights and shades of the various crimson kinds may be called in to assist, as well as any crimson dressy plant of the herbaceous or other tribes; studying in this case not the name or popularity of the kind alone, but its utility as to the effect sought to be produced, and especially its durability.

Whilst offering a hint or two to those who are not thoroughly experienced in these matters, I will take the opportunity of recommending edgings, or rather margins of low and creeping plants, to all masses of flowers. Some plants are peculiarly adapted to that end; such as the Musk Mimulus, the old Forget-me-not, or Myosotis rupestris, the Campanula pumila, the Kaulfussia amelloides, the Lysimachia nummularia, some of the Saxifrages, the Primula sinensis, the Chryseis compacta, the Mignonette, some of the Nolanas, the Lupinus nanus, Pansies, &c., with many others. These things being chiefly gay, and flowering all the summer, and being moreover, low, and inclined to spread, are excellent for that purpose. For instance, a blue mass of the following kind has a gay and graceful effect, viz., Salvia patens as principals, supported by Salvia chamædryoides, and Heliotropes, and edged finally with the Forget-me-not, or the Kaulfussia. As a scarlet mass, the richer coloured Lobelias, as principals, supported by the Pentstemon gentianoides coccinea, and edged with scarlet or crimson Verbenas. Again, as a party coloured bed, a collection of Antirrhinums, supported by the variegated Pelargonium, and finally edged with a row of Pansies, with the shades well divided, has a pretty effect. These low edgings give a graceful contour to the bed, and with a proper arrangement of heights in the interior, renders each bed complete in itself. One thing is necessary, in order to preserve the appearance of complete dress, the edging should never be allowed to clash with the grass, or other outer edge, but must be kept at all times distinct.

One of the richest beds I have ever seen was composed of Fuchsia fulgens as principals—(strong plants in bloom) when planted out in the end of May), supported by nice compact bushes of the variegated Pelargonium, and edged finally with a thick band of Musk—the arrangement was at once sweet, gay, and harmonious in point of colour.

The better sorts of herbaceous things which it is desirable to multiply, should now be increased by suckers, or otherwise, and placed in store beds, in a reserve ground, taking care to have abundance; this will be a valuable stock to draw on in March next, when rearranging the garden, when the half-hardy stores will come in to their assistance from the pits or frames. Now the duty is repealed on glass, I make no doubt that we shall shortly have light, metallic, glazed, portable structures, to cover the beds of flower gardens which contain tender things; and could any means of self-ventilation be devised for these structures, they would be rendered still more valuable and perfect as to the end in view. By such structures we should be enabled to extend the gay period out of doors—commencing earlier in the spring, and preserving their beauties later in the autumn.—*Robert Errington, Oulton Park.*

On the CIRCULATION of the SAP IN PLANTS.

Late researches (some, indeed, not very recent*) have shown us that the roots of plants descend to a depth of which the casual observer could have had no conception.† Wheat has been found to send down its roots 5 or 6 feet; a young Oak, 1 foot high, 4 feet. I have, with only the rough labour of the spade, found the stronger roots of Turnips (yellow Maltese), not a single one, but all I examined, 6 inches deep when only acquiring the rough leaf; the finer fibres, broken off and left in the ground, there cannot be a doubt had penetrated to a considerably greater depth.

Eminent modern chemists, who have given their attention to chemistry connected with agriculture, assert that water percolating through earth is deprived of its vegetable principles; we cannot doubt this, when, connected with the transmuting powers of earth, we find so sensible a difference between rain and spring-water, and when we know that, by exposure to the atmospheric influence, spring-water recovers the properties of that of rain. Now, if rain water carried its ammonia to any great depth with it into the earth, it would also carry with it, which it is supposed to do, the effluvia of putrid matters placed in the soil; and as water has not the transmuting power of earth to change these putrid effluvia into grateful odours, and is indeed a promoter of putrefaction, the spring-water should have been found rather surcharged with these matters than freed from them; and then, indeed, we might contend that a plant by its roots supplied itself with nitrogen.

It is unnecessary to prove that our surface-stirring operations among our growing crops promote their fuller development. We are taught that they effect this by admitting the oxygen of the atmosphere, as necessary to combustion, to act on decaying vegetable and animal matters in the soil; by which carbonic and ammoniacal gases are evolved, and we have a strange fancy that these are carried to the roots; but as moisture is necessary as well as oxygen to these formations, and while they seem to add to the moisture retained in the soil, we cannot suppose that the moisture of the soil, the dews of night, or light rains, can supply sufficient water to absorb and carry these gases in solution into the soil; indeed they rather assist by the evaporation they generate, and which the porosity of the new stirred earth facilitates, to carry them into the air; neither in the case of heavy rains can we suppose they are absorbed and carried by them in solution into the lower soil, for a necessary consequence of heavy rains is the closing of the pores of the earth, thus preventing the access of atmospheric air, and consequently of the oxygen, necessary to carry on this slow combustion by which these formations are effected. Nor, upon the same principle, can the vegetable and animal matters contained in the unstirred soil, below the reach of these surface operations, be acted upon, nor these formations effected in the more immediate neighbourhood of the roots, which we have seen send down their finer fibres, by which they get what they have received from the soil, to a very considerable depth into the earth. Indeed, in all our surface-stirring operations we are rather careful to avoid disturbing the roots.

We harrow Wheat in the spring, we roll it, we top dress it; we top dress red Clover, a tap-rooted plant, between the cuttings to increase the second crop, with possibly materials not very soluble, and at a season when little rain is expected to fall; we give a sprinkling of guano or some chemical stimulants over growing crops, which does not sink an inch into the ground; on the west coast of Donegal they apply a small portion, carried out in baskets, of cattle manure to their Potato ridges immediately before the final moulding of them. Liebig says, upon the authority of Humboldt, that in Arica they manure the pepper plant three times with guano, "first upon the appearance of the roots, second upon that of the leaves, and lastly upon the formation of the fruit! and adds, "From this it will be observed, that the Peruvians follow the plan of the Chinese in in manuring the plant rather than the soil." Dr. Lindley, in observations on Potato planting in March last, says, "all our letters show the advantage of placing the manure either upon the ground as a top-dressing, or above the sets." We now spread straw over our meadow-lands to increase the growth of the Grass. By what possible means can all these operations supply nutriment to the roots of plants, many of these applications being made to soils that have not been stirred for six months, and some considerably longer, and these roots, at least the spongy extremities of them by which

bones have been acted upon by a little sulphuric acid before being mixed with the pretended Guano. (Signed) A. Ure.

It may be the waste of some chemical manufactory (such as of tartaric acid), disguised with colouring.

* The readers of the *Gardeners' Chronicle* are aware that the Editor of the *Agricultural Gazette* has stated that he has traced the radicle of the young Wheat-plant to the depth of 1 foot when the leaf was not three weeks old; and that, in this *Gazette*, it is also stated that about 30 years ago, Mr. Badcock, in a communication to Lord Macclesfield, president of the Board of Agriculture in London, represented the roots of Wheat to have descended 6 feet into the earth; and that "J. R." communicates in the same *Gazette* that he found them from 4 feet 6 ins. to 5 feet 6 ins., and that of a dwarfish kind of Wheat.

† The casual observer goes into a field where a crop has been harvested and drags up a stubble, and with it roots of 3 or 4 inches long, but the finer parts are left behind; to ascertain the depths to which roots descend he should have secured the stump, have dug a pit alongside of it, and have washed the clay carefully from the roots.

they are supposed to take in the food supplied by these dressings, being from a foot to six feet below the surface! But we may well understand how the fertility that we know results from them is effected, if we admit that in the decompositions and formations that take place between these matters and the immediate surface in contact with them (with effluvia accruing from the soil and air) they give out vegetable nutriment in the form of gases, and that these gases are absorbed by the leaves of plants, or, in the case of spreading straw over Grass, that it entangles and confines the effluvia which arises from the soil, promoted by the moisture retained by this covering, and which effluvia by being thus prevented from escaping into the air are altogether taken in by the stomata of the leaves.

My attention was first drawn to this subject some five or six years ago by an unexpected very heavy crop of Potatoes from ground on which an application of manure on the surface had been neglected to be worked in. I have for the last year and a half acted on the principle of manuring the plant rather than the ground, on a piece of long-neglected land, as a kitchen garden, with all sorts of vegetables, even Carrots and Celery, with good success. On getting possession of it in April, 1844, I found it nearly full of indifferent Cabbage and Potatoes; to make room for Peas and Beans, I removed some of the Cabbage, and planted them again in another part of the same piece of land, not more than 10 or 12 yards from where they originally stood, without manure—applying manure afterwards to the surface, and hoeing repeatedly. These Cabbages so much exceeded the others that had not been removed, and which had been well manured at the roots, that people supposed them another and a superior kind.

Can we conceive anything more beautiful in the economy of nature than the way she thus takes, in availing herself of every change of weather, to supply vegetables with their food; ammonia now brought down with the rain from the air; now carried up with the evaporating moisture from the earth, and caught each way in its passage by the open stomata in the leaves of plants. How constant, how regular the supply! every shower, the dews of night, each fluctuation of the electric fluid, the ever-changing lines of light, the transitions from heat to cold, all cause disturbance, and keep up the alternate ascending and descending motion of the vegetable's food.

For the present I lay down my subject, regretting my inability to do it justice, but fully satisfied to let it stand or fall by its truth or fallacy; yet with some hope that more able inquirers may take it up; and with the gratification of having at least submitted it to their good offices.—*J. M. Goodiff; Granard, Aug. 4, 1845.*

Home Correspondence.

Potato Blight.—A blight of unusual character, which almost universally affects the Potatoes in this island, having been the last few days repeatedly brought to my notice by several gardeners, I am induced at once to lay before the readers of the *Chronicle* such observations as I have yet been able to make on the subject, being desirous to know whether this plague be in reality as it is here supposed, an entirely new one; whether it be local or general in other parts of the kingdom; and, principally and lastly, what is the best course to pursue when it has made its appearance. The first appearance is a dark spot on the margin of the leaf, which withers the leaf, and spreads rapidly to the stem. The discoloration soon extends along the stem in the course of the vessels, and the whole plant rapidly becomes black, so that within three days after a plant is attacked it has become totally destroyed. With this appearance in the upper part, there coexists a fatal change in the tubers; they become likewise spotted at first near the eyes on the upper surface; the cuticle separates; the substance becomes friable, and the change soon spreads throughout the whole Potato. These are the leading facts of this destructive visitation, and I regret that I cannot add any remarks which throw light on the subject; I may, however, make one or two remarks or suggestions respecting the matter. All situations, whether high or low, and whatever the nature of the soil, appear to be equally visited. The attack on the plant appears invariably to commence in the leaf, and not in the stem; and the spot commences at the margin, corrugating the leaf as it spreads. It is black on the upper surface, but on the lower surface, though black in the centre, it is whitish or grey at the margin, but neither minute insects nor fungi can be seen with a strong lens. That, as regards the green portion, the leaf is affected before the stem, I am quite clear; but the question arises, is the disease in the root and tuber the cause or consequence of the above change? I believe the latter to be the case, from all the instances I have examined; and in one instance in particular, where from ripeness the greens were on the point of withering when attacked, the affection did not at all extend to the roots. The change which takes place in the tuber is as follows:—The first appearance much resembles a severe burn—the root turning grey or ash-coloured, and the cuticle coming off. When the change has become considerable, I am told that the vegetable has a pungent and nauseous taste, and it is reported to have been injurious to pigs, but on this point I have no certain information. With respect to the real nature of the affection, we must, no doubt, look for information to the microscopic physiologist, who will probably find some minute parasite. So universal is the evil, that the consequences are likely to be very serious, as in a long journey on horseback, I have this day carefully watched every Potato ground as I passed along, and not one could I see uninjured. The question has been asked me by many—what is to be done? I should be glad to see this question answered in the *Chronicle*, but in the mean time, I may say that my advice has invariably been, as soon as you see a spot, dig all your Potatoes, and fully expose them to dry as quickly as possible.—*T. Bell Salter, M.D., Ryde, Isle of Wight.*——The failure of Potatoes in our parish is every day becoming more alarming. I yesterday saw a piece of Potatoes that are looking as if they had all been scorched, although but two days before they were looking as healthy as need be. They first become attacked with small brown spots, and in less than 48 hours they are quite burnt up, and the smell is most disagreeable. The Potatoes when cut in two have the appearance of being frost-bitten, and in two cases pigs have died immediately after eating them.—*A Subscriber, Northwood Park, Cowes, Isle of Wight.*

Potatoes.—I have my doubts about cutting off the bloom, and preventing the seeding of Potatoes, or any strong-growing plant of that kind. I did not find my crop improved in weight, though my experiments were not so precise as to give any very accurate results; but I observed, the cutting off the bloom encouraged side-shoots, and kept the plant above-ground growing long after those not cut, and, I think, without any increase in the tubers.—*Dodman.*

Elevating the Ball in Potting.—The remarks of Mr. Barnes and "Reporter" on this practice lead me to offer a few observations on its origin, which will perhaps place the question of the utility of the operation in a clearer light. It is well known that a few years back it used to be considered the very perfection of potting to sift the soil as finely as possible, not allowing a single lump not even the size of a pea to remain in the mixture of peat, sand, &c. In this mixture Heaths, &c. were potted of all sizes, and although the drainage in the bottom of each pot was generally sufficient both in quantity and quality, yet the fineness of the soil, and the frequent waterings, effectually choked up every crevice in the drainage; and no sooner was this the case than the sudden death of the plant was the consequence. Hence the general opinion arose that Heaths were difficult of cultivation, and consequently a private collection of Heaths was rarely to be met with. The disease (so called) being considered peculiar to Heaths, and incurable, their cultivation was gradually abandoned, except in a few of the London nurseries, where, by dint of incessant propagation, the collections were kept up in tolerable order. When the plan of elevating the ball came into use, it was found to be a great improvement; by this means part of the roots, at least, were lifted out of the stagnant mass, increased vigour was given to the plant, and its life was prolonged in proportion; although the soil still continued to be finely sifted as formerly, yet it came gradually to be found that by using coarser materials, and raising the ball well up, that a large shift might be ventured upon with certain success, and hence the origin of the one-shift system. About 20 years since I visited the Edinburgh Botanic Gardens, where I found, to my great delight and surprise, both elevation of the ball and the one-shift system in full operation. I am not aware that the plan was adopted by any one else at that time, and consequently I think I may safely venture to designate Mr. M'Nab as the originator of the one-shift system. With respect to the practice of elevating the ball, I should say that to a person thoroughly acquainted with the improved methods of potting plants, as a general rule it may be dispensed with as being of no use whatever. When finely-sifted soil was used the case was different; it might then be compared to a shrub or tree which we sometimes see thriving on an elevated knoll in the middle of a bog. Drain the bog thoroughly, and then the trees and shrubs will grow and thrive equally well, if not better, on the level ground.—*Robert Reid, Noblethorp.*

Blister of the Peach-leaf.—Much has been written of late on this subject, and the prevailing opinion appears to be, that it proceeds from a superabundance of moisture at the roots in consequence of a neglected or an imperfect system of drainage in the formation of the borders. The first object of all communications on this subject, must be to enable those whose trees suffer from blisters, to remedy the defect in future, or to guard against its occurrence if possible. I therefore beg to state a circumstance which took place this spring under my own eye. Four years ago I walled in a small piece of ground adjoining my garden, principally for framing. This had been an old haggard, 45 yards long, and 26 yards broad, with a natural fall in the ground, of about 2 ft. in the length. There was very little good or available earth in it; whatever was of use I removed into the centre, and formed a heap with such additions as I conceived would be necessary; this I turned and mixed three times during the year. What remained was a very hard limestone gravel. I then formed the border 14 ft. wide all round, by levelling the gravel, giving it a fall of 18 ins. to the walk. On this bed of gravel I laid carefully by hand, 8 ins. deep of small stones, and along the walk a drain of one foot deep was sunk. These I covered with thin sods, putting the grassy side next the stones. When this was completed, I filled up the border 18 ins. with the stuff from the heap, and when it settled I planted my fruit-trees. On the south border were six Peach-trees, two of which were subsequently removed into a Peach-house, and were replaced by two young ones. The four remaining are 1, Royal George; 2, Scarlet Admirable; 3, Millett's Mignonne; 4, Galande. They all grew remarkably well, and had their portion of the wall well covered with good sound bearing wood. In spring, the person in charge of the garden covered No. 1. and No. 3 with old Cherry-nets doubled. He had but two nets, or the other trees would have been covered also. The selection of Nos. 1 and 3 was made solely because they showed more blossom-buds than the others. Nos. 2 and 4 are nearly destroyed by blistered leaves; while on Nos. 1 and 3 there was not a leaf disfigured, and have each a full crop. I have stated every particular which occurs to me correctly, and shall make no further comment than that I shall cover every Peach-tree I have early next spring with nets.—*J. C. Lyons.*

Blister of the Peach Leaf.—Notwithstanding all that has of late been urged in respect to the blister on the Peach, the true cause of that affection does not appear to be satisfactorily shown. Various causes have been named, and among others, moisture at the root, a low temperature in the early months of spring, and immaturity of the wood, have severally been pointed out; but then, unfortunately for those who hold these opinions, instances have been adduced, where these evils have respectively existed, and yet where the disease has either not been known, or else has been so partial in its effects as to render it highly improbable that any one of these supposed causes alone can be honestly charged with the evil. No doubt, however, conditions such as these have an evil tendency; indeed they are known to be in a greater or less degree opposed to the proper exercise of the functions on which the healthiness of vegetables most undoubtedly depends. I would venture to suggest that the disease cannot rightly be ascribed to any single condition or circumstance, for it is known that such conditions or circumstances cannot exert their influence on the plant singly, or irrespective altogether of the circumstances which may be connected with them. To illustrate this a case may be supposed: we should have no hesitation in believing that a degree of moisture, or immaturity which would cause no damage under a favourable condition of the atmosphere, and with a high and even range of temperature, would be destructive when acting in conjunction with atmospheric conditions less favourable; and again, a degree of immaturity, which in a favourable season will cause no ill effect, would, in a more vigorous, or one in which the atmospheric conditions were generally unfavourable, be almost certain to cause the disease. Those who have paid any attention to these matters will readily conceive how great a difference in the nature of the development of a plant will result from different calorific and hygrometric conditions of the atmosphere acting in conjunction with certain conditions both of the soil and of the plant itself. To secure healthy growth, adapted to the discharge of its proper functions, favourable conditions, both of the soil, the atmosphere, and the plant itself, are necessary; a slight disarrangement of one of these may produce but a slight effect, but any disarrangement of each of these, though ever so trifling, causing them to act towards each other in opposition instead of conjunction, might be expected to disarrange very materially the development of a plant, and just to bring about the conditions which are favourable to disease. Is it not therefore probable that some peculiar state of the atmosphere, acting in conjunction with indisposition in the plant, that depending on some unfavourable state of the soil, may induce the disease? and that it is not attributable to either the one or the other of these separately. In the grand scheme of nature we cannot disconnect one circumstance from its accompaniments, the character of which latter may often very materially alter the original; and hence it appears reasonable to attribute the effect which in this case is produced, to a combination of causes acting in concert. This conclusion is strengthened by the fact that while the diseases and one or the other of these supposed causes are sometimes seen in conjunction, on other occasions, under the same apparent circumstances, the disease is not perceived. In one instance which I can remember, in a garden situated at the top of a hill, and where the soil was altogether of a clayey nature, retaining moisture, but where the atmosphere was pure, and other circumstances—such as shelter, and exposure—favourable, the trees were always very unevenly affected; so much so, as to favour the idea, that no condition to which they were alike equally subject could properly be assigned, as the cause of the affection; but that it must be owing to something connected also with the individual tree, if not, indeed, the individual members which might become the subject of attack. The same unevenness of attack will everywhere be observed. It would be well if the real cause could be fully demonstrated, for until this is the case, no remedy can be applied with entire confidence and satisfaction. As it is, the assignment of moisture in the soil as the cause, is met by the statement that perfectly healthy trees are growing in soils which are subjected to excess of moisture; when a low spring temperature is adduced, the fact that plants in a forcing-house, kept at a temperature of 60°, were also subject to attacks, is brought to oppose it; and if the immaturity of the wood, of the previous autumn, is condemned as the evil cause, we hear that trees which invariably ripen their shoots sufficiently to bear good crops of fruit, are still within reach of the blister.—*T. Moore, Camden Town.*

Strawberries.—A fictitious manure of my own devising having been successful with me, I beg to preface the receipt with some observations on a cheap way of obtaining a crop where labour is scarce. I used to

grow my Strawberries as other people do who have a gardener, which I have not, and consequently a year without a dish of Strawberries was far from uncommon. But a neighbour who is in the same predicament with respect to labour, and yet hardly ever failed having an abundant crop, told me he never suffered his beds to be touched except when the fruit was to be gathered! I followed his plan, with a few trifling modifications, and have only had one failure since, and expect never to have another. My friend's beds are several of them 12 and 15 years old. I cover the beds with straw at the beginning of the winter, and let the young runners kill and take the place of the old roots, whereby a deep layer of humus is formed, just as in old Grass land, and by the same process. But I had a failure in 1843, so in 1844 I applied the dressing just referred to, and the produce was such as I really believe, if I could give it you accurately, would be incredible. This year I tried the same again, and on another bed guano; the result being that the guano produced enormous plants and very good fruit, but no more of it than might have been expected without any dressing, and the size no greater than my inferior mode of cultivation commonly gives. The bed watered with my guano was not so early by a week, and the plants not larger than usual; but the crop in quantity, size, and flavour on a par with that of last year. The latest, however, was considerably in advance of any of my neighbours. My composition is 1 lb. each of Epsom salts, Glauber's salts, Pearl ash, and carbonate of soda, and ½ lb. of muriate of ammonia to 60 gallons of water. Last year I used small quantities of chloride and phosphate of lime and nitre, instead of the pearl ash; but I tried the two in different parts of the bed this year and found no difference. I apply it as soon as the plants show signs of growth in the spring, watering them pretty freely without a rose three times, at intervals of about a week, so as to finish before they come into flower. And if the season be dry I find it absolutely necessary to supply them liberally with common water afterwards during their whole time of growth, or their increased activity will very quickly kill them. Independently of the quantity, Strawberries of equal size I never saw grown on plants grown separately. I say separately, for by this plan the bed is of course a complete mat, and yet last year I measured a specimen of Keen's seedling 5 inches, and that towards the end of the season. And during the whole time of bearing I could at any time gather a plate fit for exhibition. This year was not of course equal to it, on account of the wetness of the season, but the crop was equally abundant, and I had not so large a portion of it fogged off when half ripe.—*G. J.*

Hardiness of the Dahlia.—Mr. Murray, gardener, Taymouth Castle, had in the gardens there early in July, two Dahlias, (Phenomenon and Andrew Hofer,) in full bloom, after having withstood the winter's cold, in the open air, preserving last year's stems and foliage, &c. Will not the seeds of these be of service in the acclimatising of this justly prized flower? [No.] Cactus Opuntia, growing upon a bare rock, has also been left to the mercy of the winds for the last nine winters, including the very severe one of 1838, and is this year as promising as ever. Are these facts of frequent occurrence in such a northern latitude?—*Mag.*

Leeds Botanic Garden.—In last week's Number it is adduced as a proof of the efficiency of Mr. Mearns's management, that he has been re-elected over the host of candidates who applied. Now, that the council thought fit to reappoint Mr. M. was no doubt a proof that they had no reason to be dissatisfied with his management, but it ought to be known that the election was a mere pretence; and that so far from the claims of the other candidates being put into competition with those of Mr. Mearns's, Mr. M.'s re-election was determined upon before the testimonials of the others were sent in. The week after the advertisement had appeared in the *Chronicle*, the editor of the *Land Stewards' Journal* stated, upon what he termed good authority (no other, I believe, than that of Mr. Mearns himself), that Mr. M was to be retained; while I received a letter from the secretary, written at Leeds on the same day on which the *Journal* was printed in London, appointing the day of election and other particulars, upon the strength of which letter I sent in testimonials.—*A Candidate.*

Rockwork.—I found in the "Gardener's Receipt Book" directions for making artificial coral for rockwork, and making at the time a range of rockwork along one side of my flower garden, I gave the receipt a trial, as I could not find stones that approached the colour of vermilion; I imagined that this would form a very good and lively contrast, and I was not disappointed, for at a cost of only 3*s.*, I was enabled to coat as many stones as have made my rockwork look 5*l.* the better. The composition stands fast, and does not appear in the least affected by all the rain that has fallen during these last two months, to which it has been exposed. I mention this, in order that those who are admirers of grotto work may not hesitate in giving it a trial, as I think it likely to prove an indispensable ornament to rockwork, which is so desirable in the flower-garden.—*Rock Fancier.* [We hope no one will have such bad taste as to take this advice. What possible business can red coral have among rockwork? Such devices belong to the barbarous ages of gardening.]

Joining Glass Labels with Marine Glue.—The inventor of marine glue recommends that it should be boiled, or rather dissolved, in a common glue-pot, by the medium of oil instead of water; but, knowing the danger of oil boiling over, especially if it was in careless hands, I only used water in the same manner as if I had been melting common glue, and it answered the purpose admirably. The marine glue I used is known at the manufactory as No. 4, and when made liquid over the fire I applied it to the back piece of glass only with a small hogs'-hair painters' brush, the glass having been previously made as warm as the hand could bear by laying it on the surface of the side of the grate. The glass with the face of the label pasted on it is then placed on the glue, and gently pressed with a rag, to expel any air that may have got betwixt the pieces and render the glue smooth and uniform. In the event of its being necessary to bring the glass, when joined with the glue, to a greater heat, it may be held over the fire or placed on a warm iron plate. I find paste answers the purpose of attaching the label to the upper glass in preference to parchment-size, which I also used, as it does not present any apparent surface on the paper; but if great care is not taken the size melts again with the heat of the glue, and it is liable to run betwixt the label and upper glass. It has occurred to me that a small piece of glass—say about ½ an inch or ¾ of an inch larger than the label—might have the label pasted on it, and joined by marine glue to a piece of common slate, where the label was required to be of some strength, and inserted deep into the ground. Indeed, there is no end to the appliances of this valuable invention to articles liable to exposure in this changeable climate. In using the marine-glue, I think it advisable to leave some body of it betwixt the pieces of glass, to allow for its contraction and expansion, according to the state of weather. Glass joined in the manner alluded to would answer well for preserving labels of casks in wine-cellars, and last for a long period, owing to the marine-glue being indissoluble in water, or the dampest situations.—*J. Grant, Woolwich.*

Hydrangea hortensis.—Being very successful in the culture of this, I beg to offer the following observations for the benefit of others. About the middle of February, last year, I put six cuttings into 3-inch pots, and kept them in a Cucumber-frame until the beginning of April, when they were taken out, and shifted into 5-inch pots, and then returned to the frame again, where they remained until the middle of May. They were now shifted into 6-inch pots, and placed in a frame, with the pots half plunged in a steady bottom-heat. About the middle of August they were removed to the greenhouse, where they remained until the pots were quite filled with roots; and when they had become somewhat hardened off, they were finally placed in a cold frame, in which they passed the winter. In February of this year they were again placed in the greenhouse, where they enjoyed all the sun-light that could be given them during the summer. The plants now measure 2 feet in height from the rim of the pot to the flower-heads, which are respectively of the following dimensions:—

	Breadth Across.		Circumference.	
No. 1	1 foot 8½ inches.	No. 1	3 feet by 9½ inches.	
2	1 " 8 "	2	3 " 9 "	
3	2 " 2 "	3	3 " 8½ "	
4	2 " 1 "	4	3 " 8 "	
5	1 " 9½ "	5	3 " 5 "	
6	1 " 9 "	6	2 " 2 "	

The two largest flowers were watered 12 times with Potter's liquid guano. The soil in which they were grown consisted of cow-dung, leaf-mould, and peat in nearly equal proportions. This, I find from experience, suits them better than anything else with which I am acquainted. In conclusion, I may add that in pruning I cut out all the eyes as they appear, leaving only the top bud, until the flowers begin to colour. By following this plan of cultivation, I am enabled to have noble specimens in the greenhouse two months in the year.—*G. Handley, Milford House, Derby.*

Hoare's System of Vine Culture.—Observing (page 545) a statement from Mr. Hoare respecting his method of planting Vines, and which I think scarcely intelligible, I beg to offer the results of my own experience of the plan for the formation of Vine-borders recommended by him. Last winter I prepared a bed consisting of old mortar, broken bricks, charcoal, and bone dust; and these materials were soaked in urine and a portion of soft-soap and water, which he advised me to use in case I had not a sufficient quantity of the former. I procured seven Vines from the "Sbirley Vineyard," and planted them in the border so prepared in April. I was assured by Mr. Hoare, in a letter which is still in my possession, that the "Vines, after being committed to their final destination would, in the course of the summer, send up some splendid shoots." You may judge then of my disappointment when I observed them break very weakly, and instead of these "splendid shoots," they have produced canes not more, at this time, than 5 feet in length, and not bigger than the quill of a pen, with leaves very much curled. In justice to Mr. Hoare, I should mention that I added to the materials recommended by him, a small portion (about a tenth) of the top spit of an excellent pasture, with the turf entirely decomposed. I should have been willing to attribute my want of success to this circumstance, had I not observed from several communications which have appeared in the *Chronicle*, that others, who have strictly followed Mr. Hoare's directions, have succeeded no better than myself. It is my intention to procure a fresh stock of Vines, and replant them in a border composed of good turfy loam and well-rotted dung, retaining a portion of the original materials.—*T. Canning, Elsenham Vicarage, Bishop's Stortford, Herts.* P.S. Would you recommend me to use a portion of Mr. Hoare's compost with the loam and dung? [Yes.]

Vine Borders.—The conflicting opinions on the formation of these, recently given in the *Chronicle*, and in treatises on the culture of the Grape, have left us as yet completely in the dark on this subject. The Government having given us, or at least intended that we should have cheap glass, many individuals are now building, or about beginning to build, Vineries and other horticultural erections; and the first question which arises is, whose plan is the best to follow in making the border? for after all without a properly-formed border filled with suitable compost, little benefit will arise from having cheap glass. Many who will avail themselves of this Government boon do not, and cannot afford, to keep first-rate gardeners. It is such then that are placed in the midst of embarrassments; one person informs him that his border must contain dead horses, nightsoil, and the emptying of pigsties, whereas another sets all these and similar things at defiance, as being opposed to good cultivation, and utterly at variance with the wants of the Vine; telling us that brickbats, lime-rubbish, charcoal, and bones alone should constitute its food, and that even soil itself is not necessary. That these are all useful when applied rightly there can be no doubt, either as drainage or when mixed with the soil, to effect a free passage for air and water, and also to enable the roots to run in all directions. It cannot be disputed that the Vine is differently circumstanced in our Graperies than on the mountain sides of France or Germany, and that the produce is also different, both as regards size and quality; in fact, we may just as well compare the Celery gathered in our native links with that produced by the market-gardeners in Fulham-fields. The Grapes in this country are cultivated for the table, and where they deservedly take up an important position; whereas on the Continent they are collected and thrown into the wine-press, as they should be, as farmers in the Apple counties of England do in respect to Apples; they select a few that may be fine for family use, and the rest are crushed to make cider. No analogy can be drawn between the Grapes grown, for the purpose of making wine, in the open air, and the produce of our Vines under glass; indeed the Apple might as well be compared with the Crab. No gardener has mentioned such a doctrine as that of excluding soil from forming any portion of the Vine border; indeed, the two brick columns, erected this spring, in the gardens of the Horticultural Society, at Chiswick, are proof that this is necessary. The Vines there, we understand, although planted literally in accordance with the directions given in Mr. Hoare's recent work on the Vine, have died, as might have been expected. The great Grape growers, who annually astonish some thousands of the very best judges in England of this fruit, would not, we think, excavate the fine loamy compost, collected at considerable trouble from some upland pasture, and substitute brickbats, charcoal, &c., with an idea of accomplishing greater feats than the victories already recorded in their favour. It is well that such an institution as the Horticultural Society of London exists to prove the value of new systems of cultivation, &c., which in some instances have no other recommendation than that of originality. In conclusion, would it not be better to carry out some good old plan thoroughly, than to puzzle ourselves with inventions which are so much at variance with those which have stood the test of long experience.—*One who has Handled the Knife.*—*July* 28

Spinach.—This wet weather will bring too forward some of the early sown winter crops, especially the Lettuce-leaved (the best). I have found, when this is the case, that the transplanted plants do the best, and stand the winter better.—*Dodman.*

Fairy Rings.—Since I communicated with you some time ago, on the circle of fungi, which I discovered in one of my woodland rambles, several reasons for the cause of such an appearance have been given. One correspondent lately observed, "that where a ring had been formed by the breaking-in of a horse, next year the place where the horse had run upon would be covered with fungi." This is quite consistent, but cannot have been the cause of forming the circle in question, because where the circle of fungi was the trees were very close, and it would have been impossible for a horse to have turned round among them, and the circle even came in contact with the trunks of several trees, and joined again close on the other sides of the trees, thus forming a circle despite of all obstructions.—*A Fifeshire Florist.*

Country Show.

Coppice Carnation Show.—The adjourned meeting took place on Friday, the 8th inst.; a strong muster of amateurs assembled, and a very spirited competition was the result. The flowers were finer than usual, and excited universal admiration. *Scarlet Bizarres*: Premier, J. Langsdale, Mr. J. Robinson. 1, Patriarch, Mr. Wood; 2, ditto, Mr. Hudson; 3, Hepworth's Britain, Mr. Wood; 4, Patriarch, Mr. Taylor; 5, Lodge's Briton, Mr. Wood; 6, J. Langsdale, Mr. Robinson; 7, Don John, Mr. Taylor; 8, Patriarch, Mr. Wood; 9, Don John, Mr. Cooper; 10, Splendid, Mr. Hudson. *Crimson Bizarres*: Premier, Lord Milton, Mr. J. Robinson. 1, Lord Milton, Mr. Taylor; 2, ditto, Mr. Wood; 3, ditto, Mr. Hudson; 4, Dr. Watts, Mr. Wood; 5, Paul Pry, Mr. Taylor; 6, 7, 8, Seedling, Mr. Taylor; 9, Dr. Watts, Mr. Wood; 10, Seedling, Mr. Taylor. *Scarlet Flakes*: Premier, Ringleader, Mr. Taylor. 1, Dr. Barnes, 2, Lord Palmerston, Mr. Wood; 3, Marquis of Granby, Mr. Hudson; 4, Creswell's Premier, Mr. Cooper; 5, Ringleader, Mr. Linegar; 6, William IV., 7, Rob Roy, Mr. Hudson; 8, Attila; 9, Rob

Roy; 10, Invincible—Mr. Wood. *Rose Fuakes*: Premier, Lady Ely, Mr. Wood. 1, Rose of Sharon, Mr. Hudson; 2, Flora's Garland, Mr. Wood; 3, Village Maid, 4, 5, Seedling, Mr Hudson; 6, Lady Ely, Mr. Taylor; 7, Victoria, Mr. Cooper; 8, Mrs. Hughes, Mr. Wood; 9, Lady Ely, Mr. Cooper; 10, Marchioness of Westminster, Mr. Hudson. *Purple Fuakes*: Premier, Seedling (Lord Byron), Mr. Taylor. 1, Seedling (Lord Byron), Mr. Taylor; 2, Squire Meynell, Mr. Wood; 3, Seedling (Lord Byron), Mr. Taylor; 4, Beauty of Woodhouse, Mr. Wood; 5, Bellerophon, Mr. Hudson; 6, Euclid, Mr. Taylor; 7, Mango, Mr. Linegar; 8, Lord Byron (Seedling), Mr. Taylor; 9, Turner's Charlotte. 10, Enchantress, Mr. Wood. *Heavy Red Picotees*: Premier, Duke of Wellington, Mr. Taylor. 1, Sir William Middleton, 2, Mrs. Horner, Mr. Hudson; 3, Wellington, Mr. Taylor; 4, Wellington, Mr. G. Robinson; 5, Sir William Middleton, Mr. Buswell; 6 do., Mr. G. Robinson; 7, Barraud's Cornelius, 8, Derby Willow, Mr. Buswell; 9, Seedling, Mr. Hudson; 10, Mrs. Horner, Mr. Linegar. *Light Red Picotees*: Premier, Mrs. Horner, Mr. Cooper. 1, Wood's Queen Victoria, Mr. Garrick; 2, Anacreon, Mr. Hudson; 3, Sharp's Hector, Mr. Buswell; 4, Seedling, Mr. Hudson; 5, Queen Victoria, 6, Wellington, Mr. Taylor; 7, Gun, Mr. Buswell; 8, Hector, Mr. Robinson; 9, 10, Seedling, Mr. Hudson. *Heavy Purple Picotees*: Premier, Nulli Secundus, Mr. Taylor. 1, Nulli Secundus, Mr. Cooper; 2 do., Mr. Hudson; 3, Bennet's Nonpareil, Mr. Wood; 4 do., Mr. G. Robinson; 5, Nulli Secundus, Mr Buswell; 6, Field Marshal, Mr. John Robinson; 7, Ely's Favourite, Mr. Linegar; 8, Pluperfect, Mr. G. Robinson; 9, Nulli Secundus, Mr. Linegar; 10 do., Mr. Taylor. *Light-edged Purple Picotees*: Premier, Crask's Prince Albert, Mr. Wood. 1, Crask's Prince Albert, Mr. Wood; 2, Marris's Lady Sale, Mr. Hudson; 3, Mary, 4, Vespasian, 5, Perfection, Mr. G. Robinson; 6, John's Prince Albert, Mr. Wood; 7, Seedling, Mr. Hudson; 8 do., Mr. G. Robinson; 9 do., Mr. Hudson; 10, Pluperfect, Mr. Buswell. *Heavy-edged Rose Picotees*: Premier, Green's Victoria, Mr. Buswell. 1, Princess Royal, Mr. G. Robinson; 2, 3, Fanny Irby, Mr. Buswell; 4 do., Mr. Wood; 5, Miss Ellen, Mr. Buswell; 6, Fanny Irby, Mr. Wood; 7, King of Roses, 8, Princess Royal, Mr. Buswell. *Light Rose Picotees*: Premier, Wilmer's Agnes, Mr. Hudson. 1, Ivanhoe, Mr. G. Robinson; 2, Mrs. Barnard, Mr. Buswell; 3, Princess Royal, Mr. J. Robinson; 4, Agnes, 5, Sharp's Fairy Queen, Mr. Wood; 6, Seedling, Mr Langsdale; 7 do., Mr. Hudson; 8, Gidding's Favourite, Mr. Buswell.

Garden Memoranda.

Sea Park, the Seat of J. Duncar, Esq.—This place is beautifully situated, about two miles north-east of Forres, on the Lindhorn-road. The gardens are pretty extensive, and contain several glass structures filled with plants, among which were some excellent specimens of good cultivation. The plant stove faces the afternoon sun, and is heated on the tank system, which is found to answer well. The greenhouse was remarkably gay even at this season, with by no means common plants. The conservatory is attached to a wing of the mansion; it measures 50 ft. in length, 30 ft. in width, and 20 ft. in height, and is supported by pillars, which were covered with creepers. The most remarkable plant here was a noble specimen of Fuchsia corymbiflora, measuring 10 ft. in height, by 16 ft. diameter. It is shaped something like an umbrella, and a sight of it only can convey a correct idea of its beauty. I did not count the trusses of bloom on the whole plant; but from the fact of having counted 60 on one branch, I imagine that there could not be less than 500 trusses in all on this magnificent specimen. The kitchen and flower-gardens were in good order, and reflect credit on Mr. Morrison, who is gardener there.—*Visitor.*

Miscellaneous.

Extinction of Species by Natural Causes.—It is impossible to reflect on the changed state of the American continent without the deepest astonishment. Formerly it must have swarmed with great monsters; now we find mere pigmies, compared with the antecedent, allied races. If Buffon had known of the gigantic sloth and armadillo-like animals, and of the lost pachyderma, he might have said, with a greater semblance of truth, that the creative force in America had lost its power, rather than that it had never possessed great vigour. The greater number, if not all, of these extinct quadrupeds lived at a late period, and were the contemporaries of most of the existing sea-shells. Since they lived, no very great change in the form of the land can have taken place. What, then, has exterminated so many species and whole genera? The mind at first is irresistibly hurried into the belief of some great catastrophe; but thus to destroy animals, both large and small, in Southern Patagonia, in Brazil, on the Cordillera of Peru, in North America up to Behring's Straits, we must shake the entire framework of the globe. An examination, moreover, of the geology of La Plata and Patagonia, leads to the belief that all the features of the land result from slow and gradual changes. It appears from the character of the fossils in Europe, Asia, Australia, and in North and South America, that those conditions which favour the life of the larger quadrupeds were lately co-extensive with the world: what those conditions were, no one has yet even conjectured. It could hardly have been a change of temperature, which at about the same time destroyed the inhabitants of tropical, temperate, and arctic latitudes on both sides of the globe. In North America we positively know from Mr. Lyell, that the large quadrupeds lived subsequently to that period when boulders were brought into latitudes at which icebergs now never arrive: from conclusive but indirect reasons we may feel sure that, in the southern hemisphere, the macrauchenia also lived long subsequently to the ice-transporting boulder-period. Did man, after his first inroad into South America, destroy, as has been suggested, the unwieldy megatherium and the other edentata! We must, at least, look to some other cause for the destruction of the little tucutuco at Bahia Blanca, and of the many fossil mice and other small quadrupeds in Brazil. No one will imagine that a drought, even far severer than those which cause such losses in the provinces of La Plata, could destroy every individual of every species from Southern Patagonia to Behring's Straits. What shall we say of the extinction of the horse! Did those plains fail of pasture, which have since been overrun by thousands and hundreds of thousands of the descendants of the stock introduced by the Spaniards! Have the subsequently introduced species consumed the food of the great antecedent races! Can we believe that the capybara has taken the food of the toxodon, the guanaco of the macrauchenia, the existing small edentata of their numerous gigantic prototypes! Certainly, no fact in the long history of the world is so startling as the wide and repeated exterminations of its inhabitants. Nevertheless, if we consider the subject under another point of view, it will appear less perplexing. We do not steadily bear in mind how profoundly ignorant we are of the conditions of existence of every animal; nor do we always remember that some check is constantly preventing the too rapid increase of every organised being left in a state of nature. The supply of food, on an average, remains constant; yet the tendency in every animal to increase by propagation is geometrical; and its surprising effects have nowhere been more astonishingly shown than in the case of the European animals run wild during the last few centuries in America. Every animal in a state of nature regularly breeds, yet, in a species long established, any great increase in numbers is obviously impossible, and must be checked by some means. We are, nevertheless, seldom able with certainty to tell, in any given species, at what period of life, or at what period of the year, or whether only at long intervals, the check falls; or, again, what is the precise nature of the check. Hence probably it is that we feel so little surprise at one of two species closely allied in habits, being rare and the other abundant in the same district; or, again, that one should be abundant in one district, and another, filling the same place in the economy of nature, should be abundant in a neighbouring district, differing very little in its conditions. If asked how this is, one immediately replies, that is determined by some slight difference in climate, food, or the number of enemies; yet how rarely, if ever we can point out the precise cause and manner of action of the check! We are, therefore, driven to the conclusion, that causes generally quite inappreciable by us, determine whether a given species shall be abundant or scanty in numbers. In the cases where we can trace the extinction of a species through man, either wholly or in one limited district, we know that it becomes rarer and rarer, and is then lost; it would be difficult to point out any just distinction between a species destroyed by man or by the increase of its natural enemies. The evidence of rarity preceding extinction is more striking in the successive tertiary strata, as remarked by several able observers; it has often been found that a shell very common in a tertiary stratum is now most rare, and has even long been thought to be extinct. If then, as appears probable, species first become rare, and then extinct—if the too rapid increase of every species, even the most favoured, is steadily checked, as we must admit, though how and when it is hard to say—and if we see, without the smallest surprise, though unable to assign the precise reason, one species abundant, and another closely-allied species rare in the same district, why should we feel such great astonishment at the rarity being carried a step further—to extinction? An action going on, on every side of us, and yet barely appreciable, might surely be carried a little further, without exciting our observation. Who would feel any great surprise at hearing that the megalonyx was formerly rare compared with the megatherium, or that one of the fossil monkeys was few in number compared with one of the now living monkeys? and yet, in this comparative rarity, we should have the plainest evidence of less favourable conditions for their existence. To admit that species generally become rare before they become extinct—to feel no surprise at the comparative rarity of one species with another, and yet to call in some extraordinary agent, and to marvel greatly when a species ceases to exist, appears to me much the same as to admit that sickness in the individual is the prelude to death—to feel no surprise at sickness, but, when the sick man dies, to wonder, and to believe that he died through violence.—*Darwin's Journal*, in *Murray's Home and Colonial Library.*

Bees.

Swarming of Bees.—In reply to my communication (p. 495), "W." remarks, "that bee-keepers have great reason to complain of the propensity of bees to swarm, or increase colonies instead of increasing their species in the same dwelling, especially in late seasons like the present," &c. With due deference to "W.'s" opinion and all old adages, I still think there is no utility in preventing swarming. I condemn the practice of frequent swarming, which I consider arises from mismanagement; but I believe that an annual swarm is not only conducive to health, but also necessary to their perpetuation. Bees when in a natural and healthy state rarely swarm but once during the year, and the two following instances strengthens this opinion. A lady with whom I am acquainted has kept bees for several years, and from a hive in her dressing-room, she takes annually a box of honey averaging 40 lbs., besides having a swarm which usually supplies her with a glass of honey-comb the first year. The hive is on the storifying principle, but of the dimensions recommended by Milton, which are considerably less than those of Bevan, being 12 inches by 12, and 7 inches in height. The noble proprietor of Eden Cottage, Knightsbridge, experiences very little difficulty in procuring annually a large quantity of honey from a few hives in his possession, and both he and the lady just mentioned, I am informed, have rarely been troubled with second swarms: in fact, it was only after numerous instances like the above that I arrived at this conclusion. I hope since so many have accomplished their object of procuring an immense quantity of honey with destroying the bees, that they will now direct their attention to study more minutely the nature, organisation, senses, and mode of perpetuation of bees. Much has been done, and much more will be done towards rendering this study one of the interesting branches of natural history, awakening at once our admiration, our fear, and our love for the Creator of an insect apparently so insignificant yet rendering such important services to mankind. The immortal Huber laments the few real discoveries that have been made compared with the number of investigators. The importance of the subject has long been acknowledged, and those who refer to the ancient Brehon laws of Ireland will see of what vital importance bees were considered even in that age.—*Certis.*

Answers.—*Mr. Briggs*—When I recommended collateral hives I meant simple ones, without the appendages recommended by Nutt. No system can maintain a larger population than one queen can produce. Nutt would have us believe that his hives continue to increase in strength, whereas everybody knows that, under ordinary circumstances, a colony is as strong in the year following its settlement as a swarm as ever it is, or can be. I see no reason why Nutt may not construct hives on the most correct and improved principles; but I deny that he can make them so as to prevent bees from swarming, or so as to enable them to store up 296½ lbs. of honey in a season. By ventilation, Nutt professes to prevent swarming, and likewise to keep the queen bee from depositing eggs in the end boxes; but both schemes have failed, and therefore I cannot advocate that which only leads to disappointment. My straw hives are of the common size, and managed in the usual way, excepting one, which is a bar-hive, that I made by merely inverting a common one, having the top cut off, and on which there is a wooden hoop with grooves to receive the bars; it is covered with a lid, and answers very well.—*W.*——*A Bungler.*—In the evening fumigate both colonies, taking away one queen and mixing the whole together. As the bees will be numerous, for fear of suffocation spread them upon a cloth, or smooth surface, and place the centre box over them, raised a little, to allow the bees to ascend. Want of air might cause the death of your bees, while under the effects of suffocation in the end box. Perhaps your fungus was damp, or badly preserved, otherwise it would have readily ignited; smoke from a bit or two of it, about the size of a common hen's egg, will suffice. Remove the bees from the fumigation box as soon as they are silent, which may be in 20 minutes, more or less, according as the operation is performed.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Now that all plant structures are nearly empty, or that the plants in them may be moved from one house to another without sustaining any injury, painting and glazing should be got on with, in fact all kinds of repairs should now be forwarded; and if flues (should such exist) require sweeping, let this be done. If any alteration is required in hot-water apparatuses, this should be at once completed. Badly set boilers, which consume fuel without producing much benefit, should be reset on a right principle, and badly constructed boilers entirely removed. Nothing, during the time of severe frost, is so disheartening to a gardener, as to consume fuel without receiving its full equivalent of heat. This is a most important subject, and one which we should like to see discussed calmly, and without prejudice, in the columns of the *Chronicle*. Every gardener can give the result of his experience in these matters, and surely all will be less or more benefitted. The cook can do little when the fire is out, and the gardener less when it burns to no purpose.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Pillar Roses out of bloom should be carefully pruned; cut out a moderate portion of the old and young wood, so as to thin them sufficiently, to prevent the wind from blowing them down; the wood left should not be shortened, but should be allowed to grow during the season. Climbers on walls, &c., should be fastened in and occasionally pruned, to prevent them from getting too thick. As weeds increase rapidly on gravel walks in showery weather, take particular care to keep them clean, frequently rolling and sweeping them. Hoe and rake borders and beds as often as they require it. Keep herbaceous plants neatly tied up, removing all dead flowers, but do not cut the plants down to the ground until their stems have begun to die off, as it weakens the plants for another season. *Pits and Frames.*—Cuttings put in a few weeks ago will now be rooted, and should be removed to a more airy situation for a few days, to harden previous to potting off; fill up the empty space again with fresh kinds; no time must be allowed to pass by now in preparing all the new and better kinds of Verbenas, Petunias, Anagallis, scarlet and other Pelargoniums, &c. &c.—*B.*

III.—FLORISTS' FLOWERS.

Polyanthus seedlings may be pricked out during the present unusually wet weather, and will hardly experience any check. Seed also may be sown, though some prefer waiting till spring. —*Auriculas*, if not under a temporary awning, will be likely to receive damage from excessive moisture. Look well to the

drainage of the pots; if too wet, and the surface of the pot becomes foul, lose not a moment in counteracting the effect of imperfect drainage. *Pinks.*—Continue to plant out pipings, either in store-beds or where intended to remain. If you are fortunate enough to have any seed-pods this season, they should be sheltered, and the calyx split down, to prevent the lodgment of moisture, which infallibly rots the seed-pod.—*Carnations and Picotees*, if not already layered, should be finished off without delay. From the continued wet weather there has been but little opportunity for "cross impregnation." It is not usual to layer the run or impure flowers, though occasionally some return to their proper character, if planted in poor soil. Seedlings may still be planted out, occasionally examining the beds, as the worms are apt to uproot them before they get established. *Pansies.*—Propagate well at this season from side shoots, throw away all seedlings that are not a decided improvement on the parent variety, keeping none but those which are round, thick petalled, clear and decided in their markings, perfect in the eye, &c.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Those fruiters which have done blossoming should have every means afforded them of making fresh roots up the stem; these are useful adjuncts to the original roots. Fibrous turf may be piled up the stem as high as possible, making use, if necessary, of artificial rims of clay or otherwise, to secure it on the pot. Where, however, the bottom heat is of a permanent character, and will need no renewal, they may, after a slight stripping of the under leaves, be covered over with clean new tan, after Mr. Hamilton's system; they will root very freely in this, and it will be the means of producing an extended volume of fermentation. This tanning, however, must be proceeded with somewhat cautiously, for fear of overheating; remember that 90° is the maximum as to safety.—Those who can get the lights off their early Peach-houses or Vineries, presuming that the trees are fast advancing towards a state of rest, should lose no time in doing so; this course is certainly not absolutely indispensable, but still is of much benefit to the trees. A good opportunity will now present itself of repairing such structures where necessary, finishing with a coat of paint, and whitewashing if possible. *Figs.*—Bathe well with the syringe where red spider exists, and take care to supply them well with moisture at the root. *Melons.*—Attend well to a proper bottom-heat in the late crops; any stagnation in this respect will soon render them a prey to thrips, canker, and other evils.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The ground being at present not only soaked but beaten with heavy rains, its surface will become too compact in many instances when dry weather sets in. The surface should therefore be stirred by forking over, or otherwise, before it gets too hard for working freely. In many cases farm-yard manure, the most desirable of all, cannot be readily obtained, and the gardener has to substitute whatever vegetable refuse he can collect, weeds included; the latter can be easily rotted with the exception of their seeds, enough of which to crop the ground manured usually escape decomposition; and in a very wet time, these weeds, chiefly of an annual description, will not be destroyed by hoeing; they are, as it were, only moved and transplanted by the operation. The Groundsel, for example, may be tossed frequently on the surface in wet weather, and still survive, its roots being rolled up in balls of mud. Under such circumstances, when hoeing proves ineffectual, digging is to be preferred as being best for the ground, which afterwards retains a fresh, clean appearance for a considerable time, with little or no additional expense. Continue to cut off runners from Strawberry plants where increase is not required. Dry Beanstalks are perhaps the best of all traps for earwigs, therefore reserve a quantity for the purpose. *Kitchen Garden.*—The main crop of Onions now demand particular attention. If the old stalks have stopped growing, the crop is fit for being taken up, and if this can be done in a dry day, so much the better; but wet or dry it must be done before a second growth commences, otherwise the Onions will not keep. Attend to the earthing up of the earliest planted Celery, choosing a dry day. Sow Cauliflower for spring. Plant out Coleworts as the plants become fit.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Carefully clear away the herbage from the stems of young trees of all kinds, and prune in any plants which may appear encroaching upon the permanent ones; trim thorn hedges, and clean hedge-rows of all kinds. *Nursery.*—Destroy weeds in nursery beds, and lines; look over grafted trees and shrubs, and loosen the ties if necessary.—*F.*

State of the Weather near London, for the week ending Aug. 14, 1845, as observed at the Horticultural Garden, Chiswick.

Aug.	Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 8	5	29.831	29.320	71	55	63.0	S.W.	.25
Sat. 9	6	29.628	29.427	64	52	60.0	S.W.	.01
Sun. 10	7	29.577	29.326	66	53	60.5	S.W.	.05
Mon. 11	8	29.760	29.623	70	53	61.5	S.W.	.33
Tues. 12	9	29.929	29.826	64	49	56.6	N.W.	.01
Wed. 13	10	30.034	30.000	65	50	58.0	N.W.	.07
Thurs. 14	11	29.952	29.819	62	52	57.0	N.W.	
Average		29.816	29.720	66.8	52.0	59.4		.76

Aug. 8—Clear and fine; cloudy; overcast
9—Rain; boisterous; partially overcast
10—Overcast; rain; densely overcast at night
11—Lightly overcast; showery; thunder, 1 P.M.; heavy rain in the evening and at night
12—Clear; cloudy; overcast
13—Uniformly overcast; small cold rain, wind N.E., changing to N.W. at noon; showery
14—Overcast; densely clouded; overcast.
Mean temperature of the week 3½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Aug. 23, 1845.

Aug.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 17	77.2	52.2	63.2	10	0.51 in.	2	—	1	1	3	3	7	2
Mon. 18	74.1	53.0	63.5	8	0.33	1	4	3	1	3	2	4	1
Tues 19	73.8	51.7	62.8	8	0.24	—	1	2	1	1	5	6	3
Wed. 20	72.7	52.3	63.0	7	0.18	1	—	1	—	5	1	9	2
Thur. 21	72.2	51.3	61.2	6	0.62	2	1	—	1	4	4	5	2
Fri. 22	70.8	52.6	61.7	9	0.58	—	2	1	—	4	5	6	1
Sat. 23	72.0	48.6	60.3	10	0.95	—	1	—	—	3	4	9	2

The highest temperature during the above period occurred on the 18 h, 1842—therm 92°; and the lowest on the 20th, 1839—therm. 37°.

Notices to Correspondents.

Boilers—*Boulogne.*—There is much difference of opinion about boilers. Almost any of those now constructed are good. If your friend could not heat his house with his conical boiler it must have been owing either to mismanagement of the fire or to the apparatus being badly arranged. A second sized Rogers's will do for such a house as you describe. The boilers now fixing in the Garden of the Horticultural Society are Burbidge and Healy's.

Books—*J C*—Macintosh's "Practical Gardener."‡

Border Plants—*Romsey*—You may plant the following:—Mimulus moschatus, Vinca major, White and Tiger Lilies, Hepaticas, Neapolitan Cyclamen, Campanula (the smaller kinds), Lily of the Valley, Violets, and Polyanthuses. These may be intermixed with Rhododendrons and Kalmias.¶

Climbers—*Romsey*—The following will answer your purpose:—Pyracantha, Caprifolium gratum, Laurustinus, Cotoneaster microphylla, Clematis viticella and Hendersoni, Glycine sinensis, Berberis aquifolium, China Roses, and Ampelopsis quinquefolia.¶

Cucumbers—*Clericus*—The gumming, or canker, affecting the fruit of your Cucumbers is probably owing to the roots having come in contact with some deleterious substance in the composition of the dung bed The upper portion of the latter should be well mixed with rotten leaves. It may be advisable to grow the plants in peat, as has been long successfully practised by Mr. Mills.‖

Fruits—*X Y Z*—The following are some of the best dessert Pears and Apples, suitable as standards or dwarfs, for a small garden:—Williams's Bon Chrétien, Marie Louise, Althorp Crassane, Passe Colmar, Glout Morceau, Winter Nelis, Knight's Monarch, Hacon's Incomparable, Ne plus Meuris, Thompson's, Beurré Rance, Suffolk Thorn, Beurré Bosc.—Apples: Early Harvest, Oslin, Wormsley Pippin, Ribston Pippin, Claygate Pearmain, Adams's Pearmain, Court of Wick, Pearson's Plate, Hughes's Golden Pippin, Herefordshire Pearmain, Reinette du Canada, Golden Harvey, Scarlet Nonpareil, Court Pendu Plat, Old Nonpareil, Sturmer Pippin.‖ ——*M M S*—The preceding Apples and Pears are likewise such as you require. The other points of information are under consideration.‖

Gardeners—*Streatham*—You entirely misunderstand the purport of the remarks you criticise. We may possibly notice your letter next week.

Glazing—*James Skinner*—Nothing is gained by oblique glazing. The best is straight or curved glazing; and if you employ thick glass, you may very well have your squares 12 inches wide, and 20 or 30 long; only take care that the iron braces of such sashes are very strong. Apply to Mr. Elphick; we cannot go into the details of glass-cutting.——*Davenham*—We should use narrow glass, cut into as long lengths as our sashes will take conveniently.

Gooseberries—*A Constant Subscriber*—The Rumbullion is considered the best Gooseberry for bottling, and the small dark rough red for preserving. The trees planted for these purposes do require pruning, and must not be allowed to grow too crowded; but they should not be cut in to the extent usually practised in the case of large varieties.‖

Heating—*O M*—There is no good work expressly on the construction and heating of frames, pits, hothouses, and conservatories, and it is for that reason that we have endeavoured to fill our columns with practical information useful in planning, arranging, and erecting such garden structures.

Insects—*A Young Gardener*—Having seen a few red spiders in your Vinery, you may suspect thousands are forthcoming. Their attack on the Vines will soon be obvious enough; the leaves will become yellow, and ultimately sapless, if you allow the pest to increase unmolested.‖ ——*C M*—Your beetles are Cionus scrophulariæ. I was not aware they were ever infested by a parasite; it appears to be an Entedon.*R*——*John Anderson*—It is probably an insect that has affected your Pear-tree leaves, although I can find none in the callosities. It is impossible to advise you until the cause of the injury has been ascertained. *R.*

Ipomœas—*M F*—Your plants have been kept too warm. In spring I. luteola and coccinea require stove-heat to enable them to make wood, but in summer they will flower much better in a warm greenhouse. They are both annuals. I. Learii is a stove perennial, which will flower freely in a temperature not exceeding 80° even in summer§

Irises—*P. Barton*—You may save the seed of the English Iris, when ripe, without injuring the bulbs. The English Iris likes a rich light loamy soil, and a situation fully exposed, with plenty of moisture during the growing season. The roots should not be disturbed oftener than once in three years.¶

Monsters—*Sir G S* The Calceolaria often sports in this manner, attempting to return to the regular structure from which it is an irregular departure.

Mulberry—Certainly no one has ever seen the Mulberry propagated by grafting or budding on the Alder. It may be considered an impossibility.‖

Names of Plants—*A R R*—1 and 2 indeterminable; 3, Strophanthus dichotomus.¶——*A B D*—Pholidota imbricata.—— *C L*—We believe the larger flower to be Ammocharis falcata; the other we do not recognise; it belongs to a set of species which can scarcely be named without seeing an entire plant. ——*H C N* The larger Fuchsia is F. globosa; the smaller looks like F. bacillaris. Both are species.——*M A G*—Your plant is Raphanus caudatus, and is from Mussooree, not Missouri. Could you favour us with a few seeds? It is a sort of Radish.——*Redruth*—Some Melastoma; but in the absence of seed-vessels it cannot be made out. It is perhaps a Spennera. If you will dry a specimen, and send it hereafter, along with its seeds, we will let you know its exact name.

Pear-trees—*W S*—Many varieties of Pears have been growing for upwards of 20 years on the Quince stock in the garden of the Horticultural Society. Most kinds will succeed on it; and the fruit is not inferior if the trees are kept in a thriving state. The ground should be well trenched, and made to slope a little towards the trees when planted in rather dry soil, such as you describe your's to be. Should they appear not to thrive, take them up in Autumn, trench and enrich the soil, and again replant. This you can do at any time within 20 years, or even longer, from the time of planting, for they move well.‖

Peas—*O H*—Dancer's Monastery Pea is perhaps the largest of the new kinds, possessing good flavour.‖

Plums—The London and the Michaelmas Plums are not known to us.‖

Raspberry—*D D*—Your Raspberries were good in appearance, but the flavour was deteriorated by carriage. Putting all other varieties aside, compare it only with the red Antwerp; if it be found equal to this well-known variety in point of flavour, and in any other respect superior, although but in a slight degree, you may then strongly and safely recommend it to the public.‖

Roses—*Aimée Vibert*—The following are suitable for growing as standards with the principal shoots trained downwards in the umbrella fashion, viz., De Lisle, Brennus, Madame Desprez, and Watts's Climbing Provins. The Persian Yellow is quite hardy, and you may order it with safety. Jaune Desprez is also quite hardy, having stood last winter uninjured in a fully exposed situation. Moss and Provins Roses, if well managed, do well either as standards, or on their own roots.‡

Rose-cuttings—*R W T*—A metal-box, with a piece of plate-glass let into the side, will probably be a secure protection for Rose-cuttings to be sent to Rome; but we doubt much whether they will arrive in good order. If you make the attempt, you had better take care that the box is quite air-tight, and before closing it up, you should introduce some pieces of sponge saturated with moisture. A common green bottle will do as well, if closely corked.

Seeds—*S W*—Your South American seeds are not worth sowing, with the exception of No. 8. They require a high heat. Nicotiana glauca is in cultivation: but it is far from handsome.

Seedlings—*A B C*—We do not perceive the peculiar merit of the Lobelia.

Sports—*Banbury*—The White Moss Rose, coming pink on one-half of its flower, is remarkable. It was a freak of the same kind that produced the old York and Lancaster Rose. We would advise you to mark the branch, and if it again sports next year, to bud the branch on a strong stock; this sport *may* prove permanent.——*Xy*—Your Carnation is a similar case to that of the last correspondent. Such things often happen; but why, Who can tell? It is not unlikely that a piping of the branch, which bears party-coloured flowers, may continue to produce them. An opinion is gaining ground that mildew increases in proportion to the quantity of nitrogen that plants receive in the shape of manure; and if that is the fact, your view may be correct. We cannot, however, connect aphides with horse-dung.

Strawberries—*An Amateur Gardener*—Some soils do not suit the British Queen Strawberry, nor was the late severe winter at all favourable for it.‖

Vegetable Marrow *O H*—The wet season appears to have favoured the production of male rather than female blossoms.‖

Vines—*W Y*—12 feet is a moderate width for a Vine-border, and preferable as a matter of choice; but good Grapes may be produced where the roots are limited to a border not exceeding 8 feet. Some have been grown exceedingly fine, although the roots could not extend 6 feet; but they were highly fed with manure-water. It is not necessary to take Vines out of a greenhouse for the purpose of hardening them. The best mode of taking them, necessarily, outside a Pine-stove, is by means of a double front; but less expensive modes may now be adopted by using large moveable panes of glass.‖

Weeds—*Woglog*, see p. 545—We know of no certain recipe for killing weeds on roads and gravel-walks. You may keep them down by strong doses of common salt; but it becomes necessary to repeat the salt from time to time. Much the best remedy is to hoe or pick them out as they spring up.‡

Misc—*Cultor*—You will find a list of the tools essentially required in gardening at page 72 of the present year's volume. We know of nothing better than the common pickaxe for loosening shallow stonebrash soils. Dr. Yelloly's fork, figured at page 28, might, however, answer the same purpose.‡——*J M*—A small portion of sea-sand, say 1 part in 20, may be used in growing the more ordinary kinds of plants, and particularly bulbs; but it will not do as a substitute for silver sand.¶——*T C*—A good method for keeping the bark upon trees used for ornamental rustic work, is to fasten it on with small brads. Paliurus aculeatus may be planted in light sandy loam, in a warm situation. It is increased either by suckers or by seed, when the latter can be procured.——*J Lane*—We have not heard of Benthamia fragifera flowering in the neighbourhood of London.‡——*Wakefield*—Your Cucumbers are affected with mildew. To check it remove the worst of the leaves, dust the remainder with sulphur, and keep the frames warmer at night than you have been accustomed to do. Mildew upon this tribe appears to proceed from the plants suffering at night from cold.‡——*Sub*—By no means remove the leaves of your Vines till they are withered. Why not wait till they drop off of their own accord?‡——*J Flower*—Your Martynia was so much dried up when it reached us that it was impossible to say of what colour it had been.‡——*Z*—You will find excellent practical directions for the management of Vines in pots given at pp. 195, 212, and 228, vol. 1844, by Mr. Spencer, gr. to the Marquis of Lansdowne. We do not know anybody who wants the duplicate volumes you mention.‡——*Moss*—Procure cuttings of the very small slender shoots of the Banksian Rose, about the middle of July or beginning of August, and place them in a mixture of sandy peat and loam, under a hand-glass in a north aspect (at the back of a wall or hedge). Water the cuttings freely when first put in, and afterwards keep them close. This is the best way of striking all kinds of hardy plants where there is no artificial heat. You must repot and grow your Rocheas in spring, and when they have made their growth, rest them and keep them rather dry, fully exposing them to the sun in autumn. Cut them back freely when done flowering, and by no means give large shifts; but encourage their growth by gentle heat and moisture. Hydrangeas may be treated like Pelargoniums; only give them a richer soil, and more heat in the spring. Old plants never flower freely or well if kept in pots. When they are growing keep them in a close moist atmosphere; use manure-water, and you may grow them to almost any size you please.°——*A Constant Subscriber*—Summer pruning is as applicable to the Pear as it is to the Apple-tree.°——*Old Sub*—Much information regarding the cultivation of the Pelargonium has been given in our columns by the most successful growers, principally in vol. i. Your flower is beautiful in colour, but rather deficient in substance.°——*J H*—Put the Maldive Cocoa-nut in a moist hot-bed, the temperature of which is about 84°, not less; and if it is alive it will germinate in time. It should be half buried.——*A B C* Digging up and replanting Rhododendrons will render them less luxuriant, and may promote their flowering. Perform the operation in November.——*G J*—Larna was a misprint for Lima, which is a beautiful variety of Pelargonium.‡

SEEDLING FLOWERS.

Carnations—*Christian*—Your scarlet bizarre is a flower of good qualities: pod very fine, petals round and smooth on the edge; colour good and well distributed; white pouncey and wanting purity (a very common fault this season); flower of a medium size.°——*W C*—The best of your seedlings is the scarlet bizarre, a flower of good general form, with round petals smooth on the edges, and attractive in colour, the chocolate stripe wants more equal distribution; the white is rather better than usual, and the scarlet good; pod rather short, and the guard petals want size. The scarlet flake is too broken and deficient in the striping, and the flower wants a better outline: it is too broken. The crimson bizarre is a large flower, fine in colour and clean in its general appearance, the larger petals occasionally deficient in form and striping. These specimens have been too much pulled about.°

Fuchsias—*G N*—Your seedlings do not possess any novelty; they are good flowers; varieties similar in character are already in cultivation. Bura is the better flower of the two, but they both possess too much colour in the tubes for light varieties.°——*G N*—No. 5 is a fine and showy variety, although possessing no particular novelty; the corolla is large, of a good crimson-purple, and the flower finely formed, with long foot-stalks. 4 is superior in colour to 5, but the sepals are too long; it is, however, a graceful and showy variety. 6 rather small, but good both in colour and texture. 7 is similar in colour to 6, but a longer flower, and most prolific bloomer. 8 and 9 are two of the largest flowers we have seen; a little coarse in the tube and sepals, and wanting violet in the corolla. We prefer 9 on account of its large corolla.°

Gloxinias—*J Ross*—When your seedlings arrived they were shrivelled, and had lost their colour; they appear, however, to be no improvement on kinds already in cultivation.‡

Pansies—*E H*—No. 1 is a large well-formed flower, but rather rough on the edges of the petals, and the ground colour is too dull and discoloured. No. 2 is also rather serrated, but the ground is clear, with a fine eye; this is the better flower of the two.°

Pelargonium—*J*—Your seedling scarlet is as brilliant as any of the varieties in cultivation: flowers compact, rather small, with the head of bloom composed of between 40 and 50 flowers.°

Petunias—*W E E*—The best flowers among your seedlings are 1, 2, 5, and 11; generally your flowers want substance. 1, 2, and 11 are free from that fault, but the others more or less possess it. None of your seedlings are new; they are repetitions of varieties now generally raised.°

Picotees—*Y Y*—Your seedling is a very good second-rate flower, the edging is very regular and perfect, but the guard petals want size, and the white is deficient in purity.°——*R P*—Cultivation will not alter the character of your seedlings sufficiently to make them show flowers, the petals are too small: the best is No. 15. 16 and 24 are too serrated on the edge, and the petals of all are too small.°——*E H*—No. 1 is a large full flower, having a very pure white ground, with large well-formed petals, the great fault in the flower is the serrated nature of the edges of the petals: it is worth trying again. No. 2 is a thinner flower of the same character; No. 3, rather thin, with some good qualities; No. 4, petals too small, but similar in character to the others; No. 5, ditto; Nos. 1 and 3 we recommend you to try again.°

Verbena—*J*—Your seedling is very similar to sorts in cultivation.°

THE GUANO OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence: being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is required to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price and warranted of the best quality.
40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

The Agricultural Gazette.

SATURDAY, AUGUST 16, 1845.

MEETINGS FOR THE FOLLOWING WEEK.
THURSDAY, Aug 21—Agricultural Imp. Soc. of Ireland.
FARMERS' CLUB.—Aug. 18—Darlington.

THE ROLLER is an important agricultural implement. In fallow operations it is often required in order to reduce a cloddy surface to a sufficient tilth; at seed-time it is used to consolidate land, which may be considered too loose for the habit of the plant to be grown, or should the weather be dry, to check evaporation by hardening the surface of the ground—and in the earlier stages of many crops it is an efficient means of compressing land which a winter's frost may have loosened, or of levelling that unevenness of surface which might interfere with harvest operations.

Ordinarily, this implement is simply a cylinder constructed of wood, iron, or stone, and varying in length, weight, and diameter, according to the work for which it is intended. The first improvement upon this, its original form, was the division of this cylinder into two or more parts, each moving freely on a common axle; this diminished that rubbing over the surface, whenever it was turned, and the consequent destruction of the young plants, which was necessarily involved in the use of the undivided cylinder. Fig. 1 represents the ordinary form of a double iron cylindrical roller.

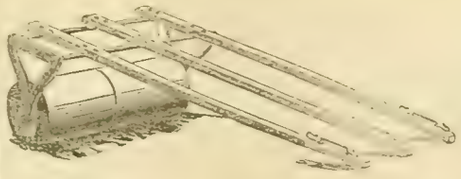


FIG. 1.

The next improvement—for, however unsuited the alteration involved in it may be on certain soils, it certainly deserves this name when the implement is intended for the lighter kinds of land—consists in the substitution of a series of bars for the smooth surface of a solid cylinder: it is represented below.

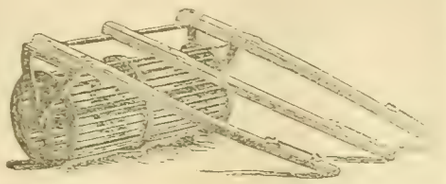


FIG. 2.

When the land is dry this forms an effective clod-crusher. By far the most efficient implement of this kind, however, is that manufactured at Beverley, and known as CROSSKILL'S clod-crusher. We called attention to this implement last year (p. 673). The division of the cylinder, alluded to above, is in this implement carried to an extreme; so that in fact it consists of 23 wheels all working freely on the common axle—these wheels are toothed.

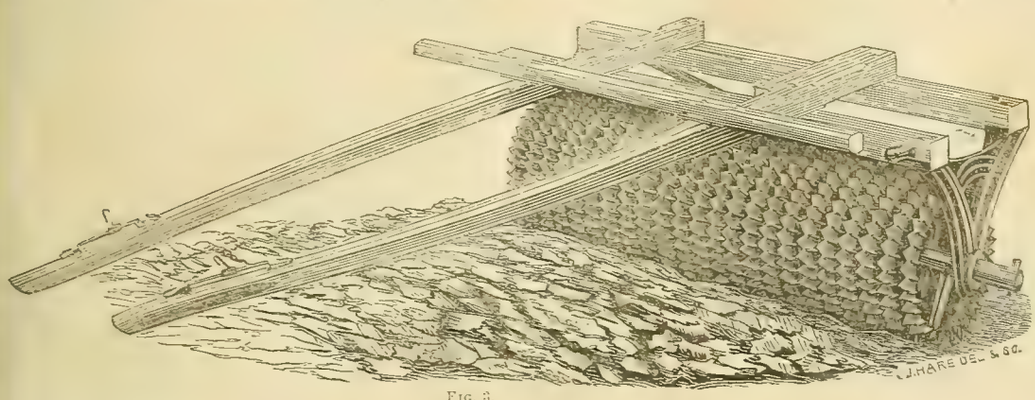


FIG. 3.

The above figure represents CROSSKILL'S clod-crusher, which the experience of the few years during which it has been at work enables us to describe as a most effective and useful implement.

Wheels are provided for use in conveying this machine from field to field; they are larger than the diameter of the cylinder, and holes must therefore be dug in the land under the projecting extremities of the axle, in order to slip them on.

In the enumeration of implements of pressure, we must not omit mentioning the Drill-presser in use on light soils in many parts of the kingdom, for the purpose either of indenting the surface for the reception, in lines, of broadcast-sown seed, or of compressing the ribs left in ploughing lea land, thus hardening the bed in which the seed is to lie, and perfecting the burial of the Clover-plant. The following figure represents the form of the implement when used for the latter purpose.

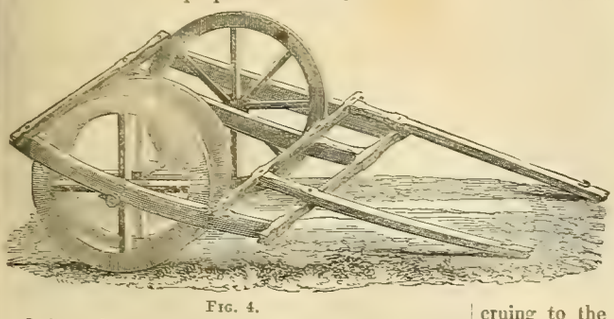


FIG. 4.

It is made to follow the plough, and press home each furrow-slice in succession. For the last two figures we have to acknowledge the kindness of Mr. RANSOME.

MANY of our readers are, doubtless, well acquainted with the NORTH BRITISH REVIEW—one of the most talented of our quarterly periodicals. Two valuable articles have lately appeared in it—one in the current Number of it; and the other, in that which was published in May last, which are calculated to exert a beneficial influence on our Agriculture.

It is to the latter of these, "On the improvement of land as a safe investment for capital," that we at present wish to direct attention. The works whose titles are prefixed it, are Mr. HUTT'S "Compendium of Evidence given before the Parliamentary Committee on Agricultural Distress," the "Journal of the English Agricultural Society," and Mr. MORTON'S work on the "Nature and Properties of Soil," with its two appendices, the first and second Reports of Whitfield Farm. From these and other sources the reviewer has collected convincing evidence of the profitable nature of permanent improvements of land when conducted with ordinary skill. This, we say, he has left no doubt of, in cases where the expensive methods of execution were adopted which have been hitherto in use; and we may safely affirm that such operations, conducted as they will now be with greater economy, must in future yield abundant returns.

In fact, it is unquestionable that the improvement of the land—whether it be by drainage, by the erection of suitable farm-buildings, or by the construction of roads—affords one of the best existing investments for capital. And the national advantage of such investments are even greater than those accruing to the capitalist; and this is what makes it the duty of Government to assist in removing all legal obstacles in their way.

It is much to be desired that sound knowledge on this subject were more generally diffused; for, then we might expect to see landowners more busily engaged in assisting in the effort which must be made to find employment for our increasing population.

IN another column we have printed an interesting paper, by Dr. CANTOR, on the "GUANO OF THE MALAY ISLANDS"—a substance which, though very different in nature from the Peruvian or African Guanos, appears to be a valuable manure, and well worthy the attention of those within a moderate distance of the islands where it is found. It does not appear probable that it would be worth while to import it into England; for though, from the calculations given in the paper, it appears that it might be sold here at a much a lower price than ordinary Guano, yet comparing them, as regards the quantity of available manure which they contain, the Malay Guano would be found considerably the dearest.

AGRICULTURAL IMPROVERS—THEIR PRESENT POSITION.

IT is a gratifying fact that there now exists a stirring desire for amending our wretchedly defective system of agriculture—drainage is well known to be the basis of that amendment; and, consequently, drainage is either being or about to be executed extensively. Ignorance is sometimes a very expensive affair. My not knowing the best mode of drainage caused me to expend uselessly, in draining my Tiptree Hall Farm, 800*l.* more than there was any occasion for. It is just possible that prejudice may be sometimes as costly as ignorance; but mine was not prejudice, but ignorance of facts, resulting, however, in heavy loss. I consider it, therefore, no more than my duty to communicate to my brother agriculturists the mode of draining I ought to have pursued (and am now pursuing), and also consider the difficulties that beset our path—those difficulties are the cost of inch-bore pipes, and the expense of cutting the drains and depositing them therein. Many will, no doubt, be startled when I tell them that pipes of 1 inch bore can be made at a cost of 6*s.* per 1000; and are in Kent safely deposited and covered in at a depth of 4 feet below the surface, at a cost of 4*d.* per rod of 5½ yards; that no earth is previously removed by the plough, but entirely by the spade; and that expert workmen at that price, in pure clays, earn good wages; but where there are stones, &c., requiring the pickaxe, a higher rate is paid.

Now, I believe I am correct in stating, that agricultural improvers, generally, are quite ignorant of these facts. In many districts inch pipes are not to be got; and where there are any the makers ask 18*s.* to 20*s.* per 1000 for them, and make them twice as heavy and bulky as there is any occasion for, thereby causing greater expense in cartage and in cutting the drains. The reason for so few small pipes being made, is the disbelief by most farmers, that they can be efficaciously employed in drainage: that point being no longer a doubtful one, having been settled and approved by Mr. Parkes and Mr. Pusey, as the result of their own and many other farmers' practice on a large scale—see "Royal Agricultural Society's Journal," I will proceed to further explanation: land drainers, and labourers too, being unused to this deep drainage, and not knowing the best way to proceed, take care to ask an exorbitant price, from 6*d.* to 10*d.* per rod.

Mr. Parkes's mode of proceeding may be thus described:—A pipe-making machine, with various dies and fixing, about 35*l.* Erecting a kiln and sheds, capable of drying and burning from 700,000 to 1,000,000 of inch pipes annually—from 150*l.* to 200*l.*—depending on locality, and whether timber is furnished by the estate. Labourers required to produce the above quantity:—two men, a youth, and three boys. The work being so arranged that they find constant employment by digging, wheeling the clay, &c. Clay being given by the estate, Mr. Parkes finds that at 6*s.* per 1000 the pipes pay all charges of labour and fuel, and leave 20 per cent. for wear and tear of the kilns, sheds, and machines, which is beyond the absolute requirement on that account. 6*s.* per 1000 includes coals for fuel, at 25*s.* per ton. Each pipe is of 1 inch bore, 12 inches long, and weighs about 1 lb. The number required to drain an acre varies with the soil from 500 to 1320.

Now as to cutting—no preparatory ploughing is allowed. The workmen stretch two parallel lines on the surface of the earth, and dig a trench gradually narrowing to the width of the sole of a boot. Standing in this narrow trench, with one foot before the other, a longer and narrower spade, of an elliptic form, is now used, and which, by forming two cuts thus (), removes the last spit, 1½ inch wide at bottom. The scoop smooths the bottom and sides. The pipes being laid diagonally on the surface ready for the drainer, he, without handling them, whips a crome or hooked stick into one end of the pipe, and places it firmly against the preceding pipe in the bottom of the drain. The outlet pipe is made a yard long, and well rammed with wet clay to keep it in its place.

I have recently paid 6*d.* per rod of 5½ yards for 4 feet drainage, no ploughing out, in soil requiring the use of pickaxe; and am now paying 5*d.* per rod in very strong brick earth, 4 feet deep—that is, for cutting the drains, placing the pipes, and filling in the earth. At this rate the men earn 12*s.* per week. Of course where boulder stones or other obstructions occur, a higher price will be required. For 5-feet drainage I am paying 6*d.* per rod; although, I am convinced, the price may be reduced 1*d.* when I get proper sized pipes. I am at pre-

sent paying 12*s.* per 1000 for 1-inch bore pipes 12 inches long. The maker persists in making them 50 per cent. heavier and bulkier than there is any occasion for, causing more expense in cartage and in cutting the drains. They ought not to cost more than 8*s.* per 1000. Although the removal of earth by the workmen may appear cheap to those unused to deep drainage, it will be readily perceived to be fair wages; for instance, the ordinary price for digging a square rod of ground is 6*l.*, 10 inches deep. In the drain not one-half so much is removed, the stiffness and depth compensating for the quantity.

It is the absurd custom of using large pipes and cutting broad trenches that has hitherto made drainage such an expensive affair. In silty, boggy, or treacherous soils, Mr. Parkes's plan for giving security and continuity to the pipes is simple and admirable. The small pipes meet in a pipe large enough to receive them, and 6 inches long, so as to form a collar over them and prevent their removing laterally, vertically, or downward, and the silt is thus prevented working into the joints. On very strong soils inch-pipe drains, laid at 33 feet apart, which is about the maximum distance at 4 feet deep, should not exceed 300 yards in length; if the field be longer, somewhat larger pipes should be added. Much wider distances between the drains may be used on looser soils—say from 50 to 60 feet.—*I. J. Mechi, 4, Leadenhall-street.*

ADULTERATION OF LINSEED CAKE.

Let me occupy a leisure hour in endeavouring to place before the readers of your Journal the advantages that are to be gained by ourselves growing the plant, to which we are indebted for the important and nutritive article called Linseed-cake. From what has come to my knowledge respecting adulteration in this article, which is often resorted to at home and abroad, I think that a few words on the subject may not be out of place.

If there be one article in which the farmer is more liable to be imposed on than another that article is Linseed-cake, as a large proportion of the Continental cake is not near so rich in nutritive matter as it is usually stated to be. It is well known on the Continent that, previous to its being manufactured, parties are employed to collect various agricultural seeds, and all sorts of seeds are gathered from field-weeds, which are all mixed with the pure seed, and undergo the pressure in the oil crushing mills, in order to make cake for exportation; and, not content with this spurious admixture, it very frequently happens that sand is introduced by those Continental manufacturers of Linseed-cake: under these circumstances we need not be surprised to hear that cattle fed on it are often found to eat very sparingly; it not only becomes sour, because of the small portion of oil that is left in it, but the admixture of so many articles causes a fermentation, and before it can arrive in this country for consumption it becomes stale. Those gentlemen that pride themselves on the keeping and fattening of stock, can judge how far I am correct on this subject. Experiments have been made in Norfolk, by a member of the Ipswich Flax Improvement Society, who weighed and fed 12 bullocks on foreign cakes, and weighed and fed 12 on home-grown seed, and found, when they were ready for market, that a considerable saving had been effected in favour of home-grown seed feeding.

I have heard farmers differ about the manner of feeding with cake; some say that as the oil acts too much as a purgative it should be all pressed from the cake, and others will have it that the pure seed is preferable. I differ from both opinions; I am of the opinion expressed by a writer in one of the country journals, who says, "The oil and the fibre serve two essentially different purposes, neither could serve alone; give an animal the vegetable fibre simply, it would obtain muscle, but would never get fat; give it oil alone, I grant it would for a time be too relaxing, but ultimately would only form fat, and supply respiration; thus we see by a union of the two, if genuine, all that the feeder can require are combined; but do not trust in the virtue of dry cake, nor think a foreign article equal to cake made from our own grown seed."

These remarks carry with them strong and convincing proof that farmers should not only grow, but prepare their own cake, and as the fattening quality of Flax-seed is acknowledged to be superior to any other article, and the fibre I have proved will leave a much larger remuneration for time and capital employed than any other article that can be produced from the soil, I do hope that those gentlemen who take such delight in producing animals at our exhibitions that cannot be equalled in any country but England, will consider the great benefit they will confer on their tenantry and the nation by encouraging the growth of Flax in this kingdom.

Having asserted from the first letter I addressed to the landowners of this country on the subject, that they could calculate with certainty on the support of what I termed (because of their wealth) a powerful body—the Flax spinners of Britain, I have much pleasure in referring them now to the report of the Belfast Flax Improvement Society, which appeared in your *Gazette* of the 12th ult. The treasurer's statement shows that not only do the funds of the Society increase, but, in addition, they have secured, by their Secretary's journey to England, contributions from 40 leading houses (Flax spinners) to the amount of 300*l.*; and he tells us that these not only want more Irish Flax than they can get, because of it being better than Russian Flax, and Flax from other continental countries, but that great interest is excited among the Flax spinners of Britain in favour of the measures of the Society.

It is evident from this statement that the landlords in the north of Ireland are aware of the usefulness of the Society, and that those in the south are beginning to see that it is their interest to follow their example; and as the extensive Flax spinners in Leeds, Manchester, and Preston have proof of the results from the labours of the Society, whose object is to teach the farmers how to cultivate and manage the Flax plant in Ireland, may we not calculate on their coming forward to give more liberal contributions to have it grown in their immediate neighbourhood? I can say with confidence we may do so, for when I was a buyer of Flax in the Irish market for the many extensive houses in the trade, their only objection to the use of Irish Flax was, that it was injurious to their machinery, because of the slovenly way it was prepared for market, compared with the Dutch and Belgian Flax, which is always well dressed. However, the servants of the Belfast Flax Improvement Society have, by their visits to the farmers, so improved their mode of management, that English spinners now give a preference to the Irish Flax, and we hear but but very few complaints, for they now find the fibre much superior to Russian, and I know, from having had up till 1841 from 1500 to 2000 weavers in constant employment, making all kinds of linen goods in Ireland, that yarns from Irish Flax were stronger and better than those from Dutch or Russia; and from the samples I have seen of British Flax, I do not hesitate to say it is not only equal to Irish, but some of it is as good as the best Courtrai.

As I expect these observations will satisfy the British landlords and farmers that they can command the support of the Flax spinners in this country, if they form a society similar to that which has done so much for the interest of the Irish farmers in the north of Ireland, I do hope that the Royal Agricultural Society of England will give the matter their serious consideration, as I am confident if 1000*l.* or 2000*l.* of its funds were annually appropriated towards the object alluded to, it will do more substantial good to the farmers and labourers in this country than ten times the amount laid out in exhibitions, however pleasing such may be.—*J. H. Dickson, 6, De Beauvoir Square, London, 21st July.*

P.S.—I observe in the *Sunday Times* that it is supposed the Flax Crop in Ireland this year will be about 39,000 tons; value near 2,000,000*l.* sterling.—*J. H. D.*

[This has been in type for some time, and should have been published last week].

MALAYAN GUANO ("TY BURONG.")

[By Dr. Cantor, Civil Surgeon, Prince of Wales' Island.]

Mr. E. Solly read, before the Chemical section of the British Association, at Cambridge, the following paper on Guano, by Dr. Cantor, which he had received from Dr. Royle, of the East India House:—

Denomination.—Ty Burong,* in the Malayan language, signifies birds' manure, but not every substance thus denominated is obtained from birds; for bats are considered by the Malays to be birds, and, although the different kinds are distinguished by separate names, their manure is included in the general denomination of Ty Burong.

Use of Manure among the Malays.—Before noticing the different kinds of birds and bats' manure, it is as well to observe that the use of manure is, according to Mr. Crawfurd, not adopted by the inhabitants of the Indian Archipelago. In the chapter devoted to general remarks on the husbandry of the Indian Islands, Mr. Crawfurd observes upon this head, "The fertilising process of irrigation almost supersedes the use of other dressings, or, at least, causes them to be neglected. None of the Indian islanders ever apply any kind of manure directly to the land. In process of time, when the Rice-lands are exhausted and the poorer lands are in more request, dressings will be applied to the upland soils, and the refinements of agriculture will approximate them more nearly in value to the lands capable of submersion." Though no dressings be applied directly to the land, some processes are pursued which, to a certain degree, are equivalent to them. In reaping the principal crops, particularly the Rice crop, the best part of the straw is left on the ground, and into this ample stubble (the village) cattle are turned, until it be exhausted. During the short period during which the land is permitted to lie fallow, the cattle are constantly fed in the rice grounds, and as the dung is not removed for the purpose of fuel, as among the people of Hindustan, the land benefits by this accidental dressing. To this it must be added, that, immediately before ploughing, the whole of the remaining stubble and dry weeds are systematically burnt on the ground, and the carbonaceous refuse spread on the land as a manure. It may be presumed that experience has ratified the utility of a practice which is general, and which is, in some respects, parallel to that of paring and burning among our agriculturists."—*History of the Indian Archipelago*, vol. i. p. 354.

Throughout the Malayan Peninsula the application of manure is very limited. In the cultivation of Rice and Tobacco, birds' manure has, from time immemorial, been in use among the inhabitants of Kĕddah (Quĕdah) and the tributary territory of Purlis. In the latter locality the supply of birds' manure is principally obtained from Bukit Jubing, situated about 7 miles to the northward of Karngha, the residence of the chief of Purlis, while the agriculturists along the coast are supplied from the islands in the vicinity, particularly from Pulo Karap, situated about a mile from the mouth of the Purlis River. In Kĕddah the manure is procured from inland mountains (Gunong, Geriang, and Bukit Khopuloh, in particular), from which circumstance it appears most likely to be bats' manure. The depôts of the latter kind are, however, resorted to for another purpose, which is more general, viz., that of obtaining saltpetre for the home-manufacture of gunpowder. The making, or rather gathering, of saltpetre is a royal prerogative, the infringement of which is, according to the Malayan code, a capital crime. The Malayan saltpetre is of very inferior description, and the inconsiderable quantity brought to market commands a price but one-half of that manufactured in Bengal (which fetches in the Straits from 4 to 6 dollars per picul).

Birds' Manure.—Ty Burong, or guano properly speaking, is obtained from Hirundo esculenta, the swallow, which makes the edible nests and feeds upon insects. It is a coarse, light-brown, or snuff-coloured earthy powder, more or less mixed with undigested remains of insects (apparently large ants occasionally prevailing), and of a more or less strong taste of saltpetre, but without offensive smell. With a watery solution of carbonate of potash, ammonia is developed; but to judge by the faint smell, but in small quantity. By exposure to the atmosphere (under a temperature of 75° to 86°), it attracts moisture in a considerable degree. From the fact of the manure being obtained from the swallow, whose nests form an article of considerable importance in commerce, the localities where to search, as well as the number of the depôts may be inferred. Such depôts of the manure of birds and bats occur on the myriads of rocky islands lining the coast of the Tenasserim provinces, from about the 15° north, continuing along the Malayan Peninsula, and terminating in the Indian Archipelago. In a tropical climate, where the moisture of the atmosphere combines to create great evaporation, the quality of the manure would suffer or be lost, if it was not for the birds and bats selecting places of abode, sheltered from the influence of the weather and the sea. Probably in quality the manure must suffer withal, but the results of its application in the Malayan Peninsula and Prince of Wales' Island are such as to prove its efficacy. The depôts from which it is taken exist in the extensive caves in the islands of limestone rocks, stretching with intermissions from Maulmain to Java. Although sea-birds inhabit many of the Malayan Islands in prodigious numbers, their abodes are too much exposed to the influence of the atmosphere and tides to render the guano applicable, even though it was suffered to accumulate. But there is every reason to believe that the assertions of the Malays, that no such depôts exist in the Malayan Seas, are correct. The localities, which hitherto have supplied the agriculturists of Prince of Wales' Island with birds' manure, are principally Pulo Balitong, one of the Lancavy Islands; Pulo Mootiah, an island near the mouth of the Trang River; Pulo Beberee, near Pungah; and Cangam, not far from Mergui. A very extensive depôt is reported by the Malays to exist in Pulo Nepis, an island near the mouth of Pungah River, but from the impracticable nature of the entrance to the cave, it has not yet been resorted to. The depôts of the first-mentioned islands, which have been mentioned solely as known to supply the agriculturists of Prince of Wales' Island, are computed to contain a quantity of manure not less than 1000 coyans, or between 2000 and 3000 tons.

Bats' Manure.—The external appearance so greatly resembles that of the swallows, that it is scarcely possible by sight to distinguish the one from the other, and the difference must therefore be ascertained by chemical analysis. The criterion by which the agriculturists judge of the quantity and fix the price of both kinds, is by applying a small quantity to the tip of the tongue. According to the stronger or weaker taste of nitre they are guided in their choice and valuation, and this simple method appears to answer practical purposes. The Malays denominate the bat "Klawah" (Vespertilio ——?) and the manure occurs sometimes under the name of "Ty Klawah." This bat (and probably other genera) inhabits the same localities as the swallows. There is a large depôt of bats' manure in Pulo Mootiah, from whence it has frequently been imported to Prince of Wales' Island; but as this kind has been found of much less efficacious qualities than the swallows' manure, it is now in little demand among agriculturists, and if imported at all it occurs mixed with birds' manure. Manure, obtained from a frugivorous bat, is reported to have been tried without beneficial results. The bat is commonly denominated the "flying fox"—"Kluwang" of the Malays (Pteropus javanicus, Horsfield), which inhabits low jungles. Perhaps one of the largest companies is that frequenting the island of Callum, in the Straits of Malacca, separated from the Peninsula by a narrow shallow arm of the sea. The island, several miles in length, is but little elevated above high-water mark, and is covered by a dense, apparently impenetrable, Mangrove jungle. The passage through the Straits of Callum exhibits at all times a most singular spectacle. The trees, verdant below, present withered tops, suspended from whose naked branches the bats appear during the day like large black fruits. At sunset, when the countless masses sally forth, they may be said literally to darken the skies. The atmosphere, even at some distance from the island, is said to be tainted by the effluvia, but the manure, however plentiful, is too much exposed to the influence of the climate and the sea to expect it would answer agricultural purposes. Such, indeed, must, in these la-

* *Ty*, offal, dross, manure; *Burong*, bird.

titudes, be the case with the manure of all frugivorous bats, who take up their abodes in the branches of trees, but never in caves.

(To be continued.)

THE PRIZE LIST OF THE ENGLISH AGRICULTURAL SOCIETY.

To the Members :—It is well known that the Royal Agricultural Society of England has done great good, and that such societies must continue to do good, inasmuch as they call together landlords and rich farmers, and excite in them an additional taste for trying experiments in agriculture, which even the middle class of farmers would never attempt ; and I must think, that when any part of the practice or proceedings of your Society becomes so publicly noticed, and condemned in our Journals, as is likely to prejudice persons against it, otherwise in favour of improvements, that you would prefer to see the matter openly discussed; and as I have noticed the letter of Mr. Twynam, in the *Agricultural Gazette*, of the 5th July, and an answer to it from one of the members of your Society, I beg leave to offer a few observations on the subject, in the hope of benefiting a class connected with the agriculture of the country, that should never be lost sight of, by the landlords of this kingdom.

I so far agree with Mr. Twynam in opinion, as to believe it to be the object of the Royal Agricultural Society to encourage the breeding of the best description of animals ; but as we may buy even gold too dear, and as I do not consider the management of the Society so perfect in every respect as not to require some little alterations, I would beg to make the following remarks on the present practice of distribution of prizes : my proposed alteration will, in my humble opinion, go far to excite the exertions of the large majority of the agricultural community—the small farmers and labourers—a class that really require instruction ; and one that will not shift from their old habits of practice, unless prizes are offered to arouse their energies, and drive them from a desire for improvement, to the field of competition.

It is a well known fact that competition, amongst manufacturers, has wonderfully called forth the mechanical skill and energies of Englishmen ; and to this we owe the fact, as proved by our latest accounts from China, that our manufactures must be considered in that great Empire superior to those of any other country in the world, for quality or price. Let the members of agricultural societies consider this fact, and let them excite a similar competition in excellence, not among themselves only, but among farmers generally, especially amongst those most in need of improvement. This is to be done by offering prizes more within the reach of the hard-working cultivators of the soil. Let our societies be less anxious to encourage the useless and unprofitable custom of overfeeding animals—less anxious even to call forth the inventive energies of machine-makers, and thereby increase the number of intricate cultivating machines. Let their prizes be offered so as to call forth the energies of the industrious and practical farmer.

Having read several letters, many in praise, and some in condemnation, of the practice of the Society ; and having frequently heard the opinions of small farmers, respecting cattle shows, and their attempts in competition with the noblemen or gentry of the country, I have been induced, in order to see how far they are correct, to classify the prizes awarded at the late meeting in Shrewsbury ; and I am inclined to think, very few prizes have been obtained by farmers of 200 acres and under ; but I should be glad to be set right, if in error on the subject ; the particulars I have taken from the *Agricultural Gazette*, 19th ult.

Prizes obtained at the Shrewsbury Meeting.

The Rt. Hon. Viscount Hill, and others ..	2	Prizes.	Bulls	£25 0 0	
Mr. J. Banks, and others	11	,,	,,	210 0 0	
	13				235 0 0
Viscount Hill, & others	6	,,	Cows	80 0 0	
Mr. J. N. Carpenter, and others	11	,,	,,	123 0 0	
	17				203 0 0
Viscount Hill, & others	3	,,	Horses	40 0 0	
Mr. H. Cross, & others	6	,,	,,	95 0 0	
	9				135 0 0
His Grace the Duke of Richmond, & others .	5	,,	Rams	70 0 0	
Mr. T. E. Pawlett and others	19	,,	Sheep	297 0 0	
	24				367 0 0
Viscount Hill, & others	2	,,	Pigs	20 0 0	
Mr. M. Cartwright, and others	5	,,	,,	40 0 0	
	7				60 0 0
					£1000 0 0

By this statement it appears that five noblemen have been awarded 18 prizes, amounting to 235*l.*, and 36 other gentlemen have obtained 52 prizes and 765*l.*, in all 1000*l.* has been distributed to 41 gentlemen, for being the fortunate owners of 70 head of over-fed animals, all of which, no doubt, have been brought to the greatest perfection (if over quantum of fat be thought such) by the constant care of their servants, and at an expense in feeding, that we must suppose many of the owners never hear of, and such as no common farmer dare to lavish his produce, or waste his time in emulating.

It is very plain that by awarding prizes for extravagantly fed animals, the prudent and industrious small farmer will never enter the field of competition, or be benefitted by such exhibitions ; however advisable it may be, and is, that landed proprietors should encourage the improvement in the breed of cattle and sheep, there is no inducement offered as a reward for such exertions as *he* can make in the cause of agricultural improvement. In my opinion, prizes should be offered for the best cultivated farms, due regard being had to size ; to the rotation of cropping adopted ; for the most improved system of planning farm-buildings ; for the saving of manual labour ; for the best methods in practice of collecting and applying manure ; and for the greatest number of acres permanently drained at least expense.

Let the Society give these matters their serious consideration, and let it not be said, that so much as 1,000*l.* of its funds disappears without giving a chance for the working farmer to benefit by it, without, in fact, effecting anything but a removal from the hands of one rich landowner to those of another.

I admit that cattle shows have done much good, in improving the breed of stock, and that the exhibitions have no doubt created a considerable anxiety amongst gentlemen to improve their stock and compete with each other, and I consider that those who go to these expences are well entitled to the thanks of the tenant farmers ; but as the small farmers have no chance of a 30*l.* prize for an over-fed bull, ram, or pig, I think the majority of subscribers to the Society would agree with me in opinion, that such sums awarded for over-fed animals have merely the effect of distributing the funds into quarters where they are least required.

Having humbly submitted my views on the subject, it appears to me every well-wisher to the Society should advocate a change in the way of distributing its prizes, and I shall be glad to see that you consider my observations worthy of space in your journal.—*An Old Farmer.*

ON THE TENANT'S RIGHT TO UNEXHAUSTED IMPROVEMENTS.

Having just read in the "Journal of the Royal Agricultural Society" two papers on this subject, I wish to offer a few remarks upon them. Compensation for any unexhausted improvement can only be supported on the ground that tenants ought not to be at the cost of any improvement whatever, which will benefit any one but themselves, which reminds me of the old objection to tithes, viz., that tenants would not improve though they would derive nine-tenths of the advantage of such improvement, because the clergyman, who contributed nothing towards it, would gain the remaining one-tenth, in preference to which they would rather not gain anything themselves. One would have thought that the folly of such an opinion would have been too apparent to admit of its being still held. I am free to admit that if a landlord contributes nothing towards any improvement he has no abstract right to expect any tenant to leave his farm better than he found it ; but is this a sensible reason why, when by effecting improvements they can obtain a return of their capital with ample interest, tenants should refuse to do so. My opinion is that an allowance for draining, done solely by a tenant, should be calculated so as to give him a fair opportunity to regain, from increased produce, his capital and 10 per cent. interest. It is stated that in Lincolnshire tenants are allowed a proportion of draining, done solely at their own cost, for seven years ; but that when the landlord finds tiles nothing is allowed, if there has been a crop taken since from the land. The writer, however, thinking that it must often happen that the extra produce of the first crop will not pay for the labour, suggests three years to be, in this case, a proper time to allow a proportion upon ; and this is gradually being introduced into new agreements in this county (Shropshire), on the supposition that in that space of time the tenant will have regained his outlay with interest as above, and, consequently, having benefitted instead of injured himself by the transaction, that he ought not to have any further claim against the landlord. To those persons, however, who act upon the principle before alluded to, I would remark that farms are always let according to the state of cultivation, and other circumstances ; as for instance, the number of trees, "particularly Ash-trees," in the hedge-rows, and the quantity of game on the land at the time of taking it, consequently, when a landlord improves a farm by felling his hedge-row timber, and reducing his game, or by allowing draining-tiles, erecting buildings, or aiding in any permanent improvement whatever, not stipulated for at the time of letting it, he has as fair a claim to an increase of rent equal to the whole benefit the tenant may derive from additional produce caused thereby as the tenant has to any allowance whatever, though I am not aware of a single instance of any rise of rent being asked for on any of these grounds in this county, unless by special agreement entered into previously, the improvements being done by the landlord at the tenant's solicitation.

With respect to allowances for purchased manure, or for the quality of manure made on the premises being improved by cattle having been fed on oil-cake, I would suggest that the old Shropshire customary agreement is far preferable, viz., that the tenant should purchase and lay on the land in a husband-like manner as much well-burnt lime in each year as will be proper for one-eighth part of his arable land, giving him now the choice of laying out the same amount of money as the lime would have cost in any kind of manure, should he prefer it, the cost of that purchased in the last year only of the tenancy to be allowed for. It seems evidently impracticable to admit farmers to lay out what money they please in lime, dung, bones, Rape-dust, marl, oil-cake, &c., and on quitting of their own accord to claim repayment from the landlord for the cost and carriage of any had as far back as four, five, or seven years ; and on draining for 14 years ; for if so what landlord could calculate or meet his expenses ? What are termed running or unsettled accounts are always held in abhorrence by men of prudence, in whatever profession ; therefore if a tenant is possessed of sufficient capital, and is willing to lay it out, a lease with proper covenants is, for both parties, a far preferable method of arrangement ; but no tenant has any right to expect a lease, if his object is merely to benefit himself, and, having done so, to leave the land no better than he found it, or in other words, "to leave no unexhausted improvement unless he were to be paid for it," for why should a landlord put it out of his power to change his tenant, exchange his land, or sell it, should circumstances so require, unless probably at a great disadvantage, without a certainty of improvements being left at the expiration of the term so as to make it worth his while to grant it ? It is true that some estates are so settled that the possessor has no legal power to grant leases, and that many landlords and tenants also object to leases from the uncertainty of prices of grain, &c. ; but perhaps, the greatest obstacle to leases is to be found in the too general desire of tenants "to leave no unexhausted improvement." This feeling is to be found in a work on Agriculture, "Marshall on Estates," where it is suggested to grant leases for six years certain, and unless notice to quit is given by either party before the end of the third year that it should run to nine years, then to 12, and so on, thus giving the tenant a certain tenure of six years after a notice, and, consequently, that space of time to take all he can out of the land prior to quitting ; to prevent which I have elsewhere seen or heard proposed as a remedy, that the landlord should have the power of compelling the tenant to hold it, at the expiration of the term, three years more, so as to make him feel personally the effects of having exhausted the soil ! Respecting the fluctuation in the price of grain being a bar to leases, there are two methods of overcoming this difficulty, viz., either not to let the term be too long at a fixed rent, or if a corn rent be adopted to fix it according to the price at the time of letting, and let it vary within certain limits, either higher or lower, in a ratio equal to half the actual fluctuation of the markets. I believe that this is the Scottish system, and is by them effected by paying the first half year's rent as originally agreed upon, and the other half year, adding or deducting a per-centage on that half year only, equal to the fluctuation in the prices of grain on the average of the year, as compared with the prices current on which the fixed rent was estimated, which saves the trouble of calculating the variation twice a year. The reasons for dividing the fluctuation are that it reduces the income and expenditure of both parties to a greater degree of certainty, and is fairer in general, on a mixed farm particularly, because when grain is low stock is often high, and crops abundant ; and it is well known that comparatively low prices, with good crops and a good harvest, are more advantageous than high prices arising from scarcity or bad seasons, so that the price of grain alone never can be a just criterion of what rent should be paid. With regard to the legislature interfering to allow persons to grant leases, I shall only say that the experiment would probably not be free from danger, and that proper covenants in a yearly agreement for the protection of the tenant on quitting, which are in the power of every landlord to grant, and of every tenant to require, would obviate the necessity for such interference. The gist of these remarks may be shortly stated, thus :

1st. That no landlord has an abstract right to expect a tenant to effect any permanent improvement, unless there be a reasonable prospect of advantage to the tenant, added to a moral certainty of freedom from loss arising therefrom.

2d. That where there is no risk of loss of principal, with five per cent. interest, added to a reasonable prospect of further advantage, a good tenant should not hesitate to effect any improvement in his power.

3rd. That under these circumstances not to do so would evince the churlish feeling of refusing to do any action from which any other person may possibly derive benefit, and preferring to derive none himself as the alternative.

4th. That for tenants to expect to be repaid money laid out by them 14 years previously, is unreasonable, and an expectation not likely to be realised.

5th. That if instead of seeking "to leave no unexhausted improvement," they would be satisfied with having had an opportunity of regaining from increased produce any sums expended in improvements solely by themselves, with 10 per cent. interest, landlords would probably be ready to grant such covenants as would secure this to them, they covenanting on the other hand to maintain such improvements, and leave them in fair order, and not exhausted, on quitting.

6th. That with a view to carrying out this principle it would be desirable that the expenses of draining should be ascertained, and the additional produce arising therefrom calculated on various soils, showing the time that it would probably take to repay the cost and 10 per cent. interest to the tenant.

7th. That this done a clause should be inserted in every annual agreement, allowing to the tenant if dismissed by his landlord (unless for breach of covenant) a proportion of the expense ascertained to be fair as

above, according to the time that may have elapsed since the draining was completed, stipulating of course that the drains should not be less than 30 inches deep, done in a proper manner, with the consent of the landlord, and left in good working order.—*A Looker On.*

Home Correspondence.

Causes of Blight.—Some years ago, while staying at Amersham, I was shown a circular spot of ground, a few rods in extent, on the top of a considerable hill, near the town; upon which spot, during the memory of man, the corn, and everything else that had been planted, had invariably failed, although occasionally double the usual quantity of manure had been applied to it. When I saw it, there were only a few stunted stalks of Oats on it, while the remainder of the field was carrying a good fair crop. On inquiring to what cause so singular an effect was attributed, I was informed there was a tradition, that some martyr had formerly been burnt there, and that the ground had been barren ever since. I was also told that Professor Sedgwick had visited the spot, and was anxious to ascertain the real cause of its barrenness. That mystery was, I hear, cleared up a year or two since by a dissenting minister of the place, who employed some men to dig out the earth to a considerable depth, when they found that a pit had formerly been dug there, and a quantity of stones picked off the adjoining land had been thrown in to fill it up. The above account may be probably interesting to many of your readers; to some, by merely clearing up a mystery that puzzled them; to others, by demonstrating that those baneful effects which are so often accounted for by the vague term "blight," may be ultimately traced to more intelligible causes; and then, as I believe was the case in this instance, it becomes comparatively easy to counteract them, and substitute well-filled ears for withered stalks.—*F. J. Graham, Crauford.*

The Proper Time to Harvest Wheat.—Would it not be desirable to call the attention of your readers to the greater than usual danger in leaving the Wheat to get too ripe ere being cut; for, owing to the showers, each grain is, this year, unusually large, extending the capsule, and if over-ripened and the capsule further weakened by the changes of the weather, it might cause a large quantity of the Wheat to be shaken out in the fields instead of being in-gathered. From experience I can safely recommend that Wheat be cut comparatively green, at least 10 days earlier than it used to be: that it ought to be sheaved as soon as cut, and firmly stood up in the fields, there to remain until it becomes in good order, and fit in all respects to be housed. Wheat thus treated will remain in the fields without the danger of becoming so quickly sprouted as if the corn had been allowed to get quite ripe, and allows, in ever so changeable a season, some period in which it can be secured in perfect condition.—*H.*

Labourers.—Observing in a recent Number of your Paper that you interest yourself about procuring gentlemen good gardeners, I am led to hope you may be able to assist me in procuring one or two good skilful, industrious labourers, capable of performing the usual routine work upon a highly-cultivated farm of the modern school, say such as Mr. Hewitt Davis's, of Spring Farm, near Croydon, whose system seems excellent for the eradication of weeds, growth of two crops per annum, &c. We are so near to the manufacturing districts here that good labourers, accustomed to their work, cannot be procured, and for want of them the excellent systems of the present day cannot be carried out.—*C. R., Stourbridge.* [We do not know how to assist you; except by the publication of your letter.]

Rabbits.—In answer to a "Retired Cit.," in last week's *Chronicle*, I beg to state that my rabbit-hutches are built of brick on edge 4 feet long, 2½ feet wide, and 2 feet deep; the height of back wall 2½ feet, the front wall 2 feet. This is divided within by a partition of bricks so as to allow the nesting place to be about 1½ foot wide, leaving a brick out as a door, the whole being paved with brick, the top covered with doors or hinges for each compartment. I have also a small iron-grating in front wall to admit air. In these hutches my rabbits thrive exceedingly well, and are perfectly secure from vermin. The breed consists of the hare rabbit, which I have seen advertised in your Paper, and for size and flavour certainly surpasses any other that has come under my notice, having killed one in July last 11 weeks old, and weighing 5¼ lbs. For fattening I use Peas, soaked in water 12 hours, and then strained off; Oats, Clover, hay, and a moderate supply of green food, and fed three times a day. —*W. H. C.*

Fences.—Mr. James Grigor in treating of fences in his "Prize Essay," in the Royal Agricultural Society's Journal, Vol. vi., Part 1, page 209, when writing of making a Hawthorn hedge, says, "In cases where the plants are very strong, the space between each plant should be 8 inches." Whilst he directs that plants as a general rule "are to be placed 6 inches apart from each other." Now, sir, as I am forming new fences of the Hawthorn, and am very desirous to have good ones, I hope you will inform me, whether you think that the way to make strong hedges is to place the weaker plants nearer together than the strong ones; can the side-branches grow strong if the roots have so little space in that direction, or how can the main stem have room to grow? Were I able to plant my own fences I should place the Hawthorn plants 8 or 10 inches apart. I should train up one strong stem, and should allow the side-branches to cross each other. I should keep my hedge clipped, about 2 feet wide at bottom, getting narrower till it was 6 feet high, when I should prevent its further ascent. I think the plants should be sorted before they are put in the ground, the strong ones to be planted together, for if placed promiscuously the strong overpower the weak ones.—*Villager.*

On Manuring Wheat.—Upon inquiry among several of my agricultural neighbours I learn that they uniformly obtain a larger quantity of Wheat per acre when they manure their Clover-lands (say at this time, or a short time previously) than when the land is manured just as the crop is being put in. I also learn that the layer grows up luxuriantly, but is sour, and very unpalatable to the stock. I have asked a great many farmers for a satisfactory solution of this problem, but in vain. I find in some agricultural works which I have been reading, that ammonia (one of the principal foods of the plants) very readily escapes into the air, and is consequently lost; if such be the case, how is it that the crops are better under this treatment? I have ventured to guess that it is possibly arising from the circumstance, that the "goodness" of the ammonia is "washed into the soil," and consequently is in a fitter state to furnish food for the roots of the plants; for I have uniformly found better crops on my little plot of garden-ground, where the staple of the land was always good, than in those places where I applied the manure when I put in the seed or plants.—*Tyro, Diss, Norfolk.* [Those crops will generally be best which are made to depend rather upon fertility communicated to land by a former manuring, than upon the strength of an immediate application of manure. We object, in general, to manuring grain crops; they should be made to depend upon the good cultivation given to the preceding green crops.]

Reindeer.—Some years ago attempts were made to introduce the reindeer into the Highlands of Scotland, where it was thought they would flourish upon the Lichen rangiferinus. And the failure of those attempts was, I believe, ascribed to the unsuitableness of the climate. But I see it stated in the "Orkneyinga Saga," pp. 384, 385, in reference to the events of the year 1159, that the Norwegian Earls of Orkney were in the habit of passing over, most summers, into Caithness to hunt red deer (*rauddyri*) and reindeer (*rœcina*). May this be considered as true?—*A. H.*

Flax.—Which is the best seed, and when best to sow, and in what soil? In the East Indies, in one of the provinces, it is sown in spring, and ploughed in when 2 feet high, as dressing on light loam for corn crops. Indigo, from its falling leaves, is a fertilising crop in India. Which are such in England, both ploughed in and allowed to mature?—*L.* Sow Riga seed, about the 10th of April, on a loamy soil. Vetches are grown sometimes, to plough in green; but it is a wasteful system.]

Salvia pratensis.—I observe in your Paper (p. 501), the Hon. and Rev. W. Herbert recommends this for pastures. I was so much pleased with it in the localities he mentioned, that I, some years since, brought the seed from thence, and have now abundance in my garden. I have never yet placed it in my pastures though I have meant to do so each year. In consequence of Mr. Herbert's remarks, I have this morning, taken some to two Alderney cows, and (although they are fed upon excellent Vetches and White Turnips), the stems and leaves of the S. pratensis—and the Salvia of which I send a specimen (and the name of which I shall be much obliged to you for), were devoured with much relish. This Salvia I gathered in a hedge-row, between Salzburg and Munich. It is more succulent than the pratensis, and though a smaller flower, a very pretty plant. I shall be happy to forward seeds of both species to any one wishing to adopt Mr. Herbert's suggestion, who will send me his address.—*W. D. Fox, Delamere, Chester.* [It is Salvia verticillata].

A Method of Sowing Wheat and other Seeds by Hand.—A gentleman on giving me some Beet-seed two or three years ago, remarked that it was not an unusual plan on small pieces of ground to sow the seed in the hollows left by one furrow-slice falling on another. I adopted the plan for this, and also my Turnip seed, obtaining a more numerous plant at a less cost of seed (together with all the advantages of drilling, and that immediately) than by sowing broadcast. The method before pursued, as drilling by machine, was almost out of the question. A man followed the plough every second or third bout, and dropped the seed from a greater or less elevation, according as the hollow was deep or shallow, in order to make sure some seed fell right. Where, however, farms are of any size, I should consider the drill decidedly superior for summer crops, if the land be dry. I am going to sow Wheat this year in the same way. Wheat, Potatoes, and Beet have preceded. I shall plough deep, and about 8 or 9 inches in breadth. A man (though perhaps a woman or boy would do) will follow the plough, and drop the seed continuously, for the sake of experiment, from about one seed to the inch to one seed to 6 inches, for I am an advocate for thin sowing on clean land. Now I expect that by a little contrivance we can make the plough not only turn over fresh ground, but also bury the seed sown, by smoothing or cutting the edge of the last laid slice; if not, I have the option of harrowing, or having a boy follow the man and do what I fully believe the plough will effect; in any case but that of harrowing, not a step will go on to the fresh-ploughed land. The plan, with our present ploughs, will not do on stubble or a layer. But, if found successful, where it can be tried, I think ploughs might be fitted up so as to cut a slice in the middle of the flag, in which to deposit the seed, burying it next time down. Dibbling for Wheat is said to be superior to drilling; it has, however, many faults, viz., the placing all the seeds that are to form plants for a certain space in one little hardened hole; if there be many seeds (even two) they injure each other; if there be but few or one, it often happens that the whole fail, and thus considerable gaps often occur where that good practice of thin sowing is pursued. Now dibbling costs 7*s.* 6*d.* an acre, and the ground gets jammed, which very often is not desirable, or, if so, can be done easily otherwise when the plants are well up. Thin sowing requires (to be safe) early sowing; thus one plough with long days does an acre and a half. A woman or young man for 1*s.* 6*d.* a day would drop an acre and a half; that is to say, my method would cost 1*s.* an acre, exclusive of harrowing if needful. I should suppose a drill, with its two horses and two men and a boy, would do eight rows for one hand-dropped or 12 acres a day at the outside. The bare keep of the five living machines would cost more than 6*d.* an acre, and one way or other drilling, I should conceive, costs on an average 1*s.* an acre. I conceive that on the wetter lands, which are often fallow before Wheat, and therefore suited to the plan I propose, it is of immense importance to have no treading after the plough; and if extra machines must be used, I am strongly inclined to think, with a little thought, a hand-drill might be made by any of us that would, in the hands of a man, cleave the furrow-slice or flag, deposit its seed regularly, and cover it into the bargain; the man walking in the furrow after the plough. Supposing the drills to be 9 inches apart, and the seed dropped at the rate of one to the inch, I find by counting a small quantity weighed, that about a bushel of seed would be required for the acre; if the plants did well, two-thirds of these might be hoed out. The common quantity set by dibblers, if left to the old way, is more than 2½ bushels; thus the difference in expense between dibbling, the old way, and sowing after the plough, my way, is 17*s.* the acre, viz., 10*s.* 6*d.* for seed, and 6*s.* 6*d.* for labour saved, and the land into the bargain is left in a much more promising way to show a good even crop.—*G. U., July* 28.

Depredations of Birds.—I have seen several articles in your Paper on the depredations which small birds commit on the different crops of Peas, seeds, &c., and all differing, more or less, on the different modes proposed, in order to prevent the mischief. Now, sir, I think I have solved the question, and put it at rest for ever. This is my mode of proceeding: it has answered to the utmost of my wishes. I plant a stand in the middle of the plot I wish to preserve, or at one of the corners, or in a very conspicuous place, and I place a little box on it for shelter from the sun or rain, and tie a cat or small kitten to it, and puss keeps off every little thief who would feel inclined to approach. This plan may be of use to my brother farmers at this season of the year, when the seeds are getting ripe &c. It might even be made to answer on a large scale. In a field, for example, place four cats, one in each corner of the field, and one tom cat in the middle, upon high stands, and, I am bound to say, they will do more good than if they were so many boys. The cost cannot be much; I feed mine with potatoes and skim milk, and regale them now and then with a morsel of liver, or any other piece of coarse meat. Stuffed cat's skins may answer the purpose as well, but not having tried the experiment, I cannot give an opinion. Would they not also prove a remedy against the depredations of game? I think they would. The sight and smell of so many cats, would, no doubt, frighten them away from the field. I see no reason why they should not be of utility in scaring away hares, rabbits, pheasants, partridges, &c. If so, puss would become the greatest and best servant of the farm, doing a deal of execution, and that for small wages. Now is the time for some of your readers (farmers) to try the experiment, and report progress in your columns. As to your correspondent who asks for a remedy to drive away cats from his garden, he little knows the value of the animal to ask such a question. Puss may scratch once, now and then, a bed of onions, &c., to clean himself, &c., but then, for that mischief, how much good does he, in killing rats, mice, moles, and other vermin, which carry away and destroy by wholesale Peas, &c.—*Richard Gifford, Bellevue Cottage, Beaumont, St. Peter's, Jersey.*

Farmers' Clubs

Continued from p. 501.

St. Peter's.—*Extracts from Annual Report.*—Economy in feeding cattle was next considered, upon which a greater difference of opinion was manifest than upon the other parts of the subject. A few general principles were, however, mutually assented to, viz.—That food should always be administered in moderate quantities; the condition of the animal not being improved by overfeeding, nor the object of the farmer answered by too great parsimony. 2dly, it was agreed that where the improvement of the animal was desired, there should be a gradual improvement in the quality of the food. It was further thought important to observe the strictest regularity in feeding, as the animal will expect its meals at the accustomed times of feeding, and an hour's uneasiness from neglect will do much harm. Lastly, all were of opinion that cattle should be comfortably bedded, and should be kept warm, dry, and clean. Another meeting was occupied in discussing whether the folding

of sheep on Lucerne during the winter was injurious to the plant or not. Various opinions were expressed, several facts stated, and some few experiments previously agreed upon were detailed. The discussion closed in the adoption of this resolution.—That it is the opinion of this meeting that neither the treading nor close-nibbling of sheep in the winter is injurious to the Lucerne plant, except in its young and tender state. And further, that by folding upon it, almost all kinds of weeds with which it is infested are either destroyed or weakened, and the plant itself is nourished and strengthened. At a subsequent meeting a discussion took place on the quantity of seed corn to be used with the greatest prospect of advantage. It was observed that we read much in the present day about dibbling Wheat, and it is probable it is a system that might be adopted with advantage in a very few fields in our parish that are in a high state of cultivation ; but from the losses we often sustain, when from any cause our corn becomes thin, its general adoption is not to be recommended. It was stated that on a very rich and fertile piece of land near Broadstairs, only two bushels of Wheat were sown per acre last year, and that it was so assailed by enemies as to be considered in the spring wretchedly thin ; still from the extraordinary fertility of the soil, it produced nearly eight quarters per acre. Another field in the neighbourhood considered not equal to the former in richness produced from much thicker sowing nearly nine quarters per acre of the same sort of Wheat ; while no other field in the parish that we know of, where from any cause the plant happened to be thin yielded any such produce. *Resolved*—It is the opinion of this Club that the farmer sustains more losses from having his corn too thin, than from having it too thick. That the better the soil and the season the less the quantity of seed required. That if the plant in the spring happens to be too thick, it will adapt itself better to the capabilities of the soil than when it is too thin. In the former case the rubbish is kept under, in the latter case the tillering requisite renders a part of the crop late and lean, the whole is generally infested with weeds, and falls sadly short in the end."

Newry Wisk.—*Allotment Tenancies.*—At the audit of W. Rutson, Esq., the cottage tenantry held their annual exhibition of fruits and vegetables grown by them on the allotments provided for them by their landlord : it did great credit to the growers.

Reviews.

Transactions of the Royal Agricultural Improvement Society of Ireland, and Annual Report and Proceedings of the Council. For the Year 1844.
William Curry, Jun., and Co., Dublin.

There are some useful reports and papers in the present Number of this periodical. To those engaged in the permanent improvement of their estates, the reports of the surveyors appointed by the Society to inspect the drainage executed under the orders of those competing for their gold medal, will prove very useful. We extract the following Table, which exhibits the expense of the operation on the different properties. A comparison of it with that compiled by Mr. Parkes, given at page 550 is instructive. The names opposite which an * is placed are those of the successful competitors :—

Table showing a Return of the number of Acres Thorough-drained by the different Competitors for Sir Richard O'Donnell's Gold Medal, together with the average prices per Perch, and per Acre respectively.

Competitors.	Number of Irish Acres Drained.	Number of Statute Acres.	Number of Irish Perches.	Number of Statute Perches.	Average Price per Irish Perch.	Average Price per Statute Perch.	Average Price per Irish Acre.	Average Price per Statute Acre.	Cost to the Landlord.	Cost to the Tenants.	Rate of Wages per Day, and by Task Work.	Nature of the Agreement.
	A. R. P.	A. R. P.	P.	P.			£ s. d.	£ s. d.	£ s. d.			
Marquis of Waterford	309 2 25	501 2 15	52,564	66,900	9¾d.	9d. in 1842, reduced to 5¾d. in 1845.	6 10 1	5l. in 1842, reduced to 3l. 2s. 8d. in 1845.	2013 2 8	5 per cent. charged to the rent.	..	Landlord executed the entire, and added 5 per cent. on the certified expenditure to the rent.
Viscount Templetown	348 1 0	564 0 25	42,704	54,351	5½d.	4¼d.	2 15 7½	1 14 4	468 11 7	500 0 0	..	1½d. a statute perch paid by landlord.
Sir R. O'Donnell, Bart.	340 0 30	551 0 0	42,018	53,478	5 1/11d.	4d.	2 12 5	1 12 4	483 0 0	403 6 0	8d. a day	2d. a statute perch paid by landlord.
The Earl of Caledon	198 1 0	321 0 19	37,072	47,183	5 1/7d.	4d.	4 0 0	2 9 5	396 9 9	396 9 9	10d. to 1s. a day	2d. a statute perch paid by landlord.
J. L. W. Naper, Esq.	157 0 18	254 1 29	27,054	34,433	12¼d.	9¾d.	8 15 4	5 8 3	676 7 3	700 7 4	7d. a day in winter, and 10d. in summer	6d. an Irish perch paid by landlord.
Lord Blaney	124 2 0	201 2 30	27,212	34,634	6½d.	5d.	5 16 7¾	3 12 0	298 3 7	427 18 0	10d. to 1s. a day	1¾d. a statute perch paid by landlord.

Table showing a Return of the number of Acres Thorough-drained by Proprietors, for the Society's Gold Medal, and the average prices per Perch, and per Acre respectively.

	A. R. P.	A. R. P.	P.	P.			£ s. d.	£ s. d.	£ s. d.			
The Earl of Erne	68 0 10	110 0 37	..	..	..	..	5 16 11½	3 12 3	397 14 2	..	..	..
Lord Dufferin and Clanboye	125 2 20	203 1 0	23,161	29,478	13¾d.	10¾d.	10 13 4½	6 11 9	1339 1 0	..	1s. per day.	..
* Messrs. Andrews	72 1 25	117 1 4	13,054	16,614	12¼d.	9¾d.	9 6 3	5 15 0	674 6 7	..	13d. per day.	..
Dr. O'Neill	71 0 7	115 0 12	..	..	..	..	4 11 2	2 16 3	323 13 0	..	7d. or 8d. per day.	..

We must draw the attention of our readers also to another paper in this volume, entitled "Statement of an Experiment in the year 1844, on the relative value of the Flax and Wheat crops." F. Filgate Esq. :—

"The field in which the Flax was grown contained 9A. 2R. Irish plantation measure ; the ground actually occupied by the Flax was 8A. 2R. 33P., situate on the side of a steep hill, having a north-eastern aspect, and being at an elevation of about 200 feet above the level of the sea. It was always considered good Flax-land, had been drained on the Deanston system, 18 feet apart, in the autumn of 1841, being then, and having been for some years before, in Grass. In the spring of 1842 it was sown with Oats; after the Oat-crop was taken off it was ploughed 12 inches deep, a furrow only being taken down the hill, the plough returning empty up the hill, in consequence of its steepness. It was afterwards, in the spring of 1843, prepared in the usual way for drilled Potatoes and Turnips. The ground was ploughed early in January 1844, to the depth of 10 ins.; it remained so until the first week in April, when it was harrowed with a heavy harrow and rolled. The seed was then sown at the rate of 4 bushels per acre, and harrowed ; after which Grass-seeds and Clover were sown, covered in with a light harrow, and afterwards in consequence of the dryness of the season, rolled. The field is bounded by planting on three sides, being open to the fourth, the north-east. The shelter was no doubt injurious ; some damage also arose from hares, rabbits, and pheasants. The soil before being drained, was a very stiff clay of considerable depth, and resting upon a subsoil of blue clay, filled with stones ; its character is now much changed, being perhaps better described as a heavy loam. The Flax when growing, looked remarkably well on that part of the field which had been in Potatoes; and that which grew on the Turnip-land, with the exception of the ridges, on which the Turnips had been grown with guano, and on which the Flax was miserable, had the appearance of being a fair crop, though not so good as that which grew on the Potato-land.

"The extent occupied by the Wheat was 2A. 2R. 30P. plantation measure, at an altitude of about 195 feet above the level of the sea, on the side of a hill, having a south-western aspect. The fields of which the 2A. 2R. 30P. formed the chief part, had not been drained; a few drains had been placed here and there, where symptoms of wet were manifest, but for the most part the field was dry, being a light loam upon a gravelly subsoil, and according to the opinion of the neighbourhood, not a Wheat soil at all; it had been in Lazybed Potatoes in 1841 ; Oats in 1842 ; drilled Potatoes and Swedish Turnips in 1843. The Wheat (Hunter's) was sown at the rate of 16 stone per acre in the Potato-land; Barley in the Turnip-land, both being sown out with Grass-seeds and Clover. The month of November 1843, and the early part of December in that year having been very wet, the Wheat was not sown until the third week of the last named month ; Grass-seeds were sown in the April following, harrowed, and rolled. The expense of the preparatory tillage for the crops has not been stated in either case, being nearly equal, and as the object was to ascertain the relative, and not the absolute value of the crops, it was not deemed necessary to make any estimate of it ; but every person can charge for the ploughings and harrowings, according to the prices of his own neighbourhood. The horses employed in harvesting, and bringing the produce to market, have in both cases been charged at 3s. per day, for man and horse, which is sufficiently accurate for our purpose, and cannot be considered too high, as the distance to the mill, at which the Flax was scutched, was seven miles ; and the distance from the mill to the market, in which it was sold, seven more ; while the distance to the market at which the Wheat was sold, was 12 miles.

Cost of Carrying Flax to Market.

	£ s. d.
To Girls weeding, 90 at 4d.	1 10 0
Men making dams, 41 at 9d.	1 10 9
Girls pulling, 192 at 6d.	4 16 0
Tying Beets, 35 at 9d.	1 6 3
Men drowning and sodding, 73 at 9d.	2 14 9
do. filling carts in fields, 24 at 9d.	0 18 0
do. cutting sods, 58 at 9d.	2 3 6
do. filling sods in carts, 14 at 9d.	0 10 6
do. taking Flax out of water, 81 at 9d.	3 3 0
do. filling carts at water, 18 at 9d.	0 13 6
Girls spreading on Grass, 214 at 4d.	3 11 4
do. turning twice on Grass, 148 at 4d.	2 9 4
do. lifting off Grass, 130 at 4d.	2 3 4
Men stacking, 35 at 9d.	1 6 3
do. loading carts to mill, 12 at 9d.	0 9 0
Horses drawing to water, 19 at 3s.	2 17 0
do. drawing sods, 5 at 3s.	0 15 0
do. drawing from water to Grass, 24 at 3s.	3 12 0
do. drawing to Keady mill, 19 at 3s.	2 17 0
do. drawing to Armagh market, 5 at 3s.	0 15 0
Men's expenses to Armagh toll-bar, &c.	0 7 0
Steward's expenses to Armagh and mill, &c.	2 15 0
Ten barrels of seed at 36s.	18 0 0
Scutching 306 stone of Flax, at 1s. per stone	15 6 0
Total cost of Flax.	£76 9 6

Cash Received for Flax.

Sold 108 stone, at 9s. 6d.	£51 6 0		
Less craneage and storage	0 4 6		£51 1 6
,, 104 stone, at 10s.	52 0 0		
Less craneage and storage	0 4 4		51 15 8
,, 40 stone, at 10s.	20 0 0		
Less craneage and storage	0 1 8		19 18 4
,, 54 stone, at 10s.	27 0 0		
Less craneage and storage	0 2 3		26 17 9
,, Scutching tow			0 14 0
Total receipts for Flax			£150 7 3

Cost of carrying Wheat to Market.

	£ s. d.
To Men reaping and binding, 34 at 9d.	£1 5 6
Horses drawing from field, 5 at 3s.	0 15 0
Men stacking and thatching, 16 at 9d.	0 12 0
Thrashing and cleaning	2 7 1
Horses drawing to Armagh market, 4 at 3s.	0 12 0
Men's expenses and toll bar, &c.	0 6 0
Steward's expenses to market	0 7 6
Seed (44 stone) at 1s. 6d.	3 6 0
Total cost of Wheat	£9 11 1

Cash received for Wheat.

Sold 66 cwt. at 11s.	£36 6 0
Used for seed, 28 at 11s.	15 8 0
Straw, 7 tons, at 20s.	7 0 0
Total receipt for Wheat	£58 14 0

The results may be stated as follows :—

The gross amount received for the Flax per acre, amounted to	£17 5 4
The cost of bringing it to market	8 15 8
Leaving a net profit of	£8 9 8

The produce per acre being 35 stones, and the price per stone averaging 9s. 10d. nearly.

The gross amount received for Wheat per acre amounted to	£21 17 4
The cost of bringing it to market to	3 11 1
Leaving a net profit per acre of	£18 6 3

The produce per acre being 14 barrels of 20 stone, and the price per barrel 27s. 6d.

"It will thus be seen that the cost of bringing the Flax to market amounted to 51 per cent. of its value ; while the Wheat was brought to the same market at an outlay of 16 per cent. only. This, if corroborated by similar results, would lead to the conclusion that the Flax crop was best suited to the circumstances of the small farmer, a great part of its value being derived from the labour bestowed upon it, that article being for the most part redundant, and seeking some means of profitable employment."

Were this a fair experiment it would be conclusive as to the inferiority of Flax to Wheat as a remunerating crop ; but there are many statements in the account of it to which exception may be taken. Last year was a particularly good one for the Wheat-crops on rich lands, and the Flax-crop appears to have been but a middling crop; in some parts, indeed, "miserable." We shall shortly insert some remarks with which we have been favoured on this subject by Mr. Dickson.

Miscellaneous.

The Appointment of "Agriculturists" in Agricultural Union Societies—a method of Agricultural Improvement.—"The plan I have to propose is based upon the following self-evident truisms, namely, that if the occupiers of the soil in Ireland are ignorant of the true principles and practice of agriculture, the natural remedy for such ignorance is to give them instruction ; and *if they are to be instructed*, it becomes equally evident *there must be some one to instruct them.* This reasoning seems so clear and conclusive, that it may appear necessary to allude to some of the causes which tend to prevent the appointment of such instructors, in order to account for their not being, before this, located upon every considerable estate ; for although a great many landlords have appointed such instructors, under the name of agriculturists, for the instruction of their tenants, yet by far the greater number, though at present roused to pay some attention to the improvement of their estates, have not yet been induced to avail themselves of the services of this description of persons on their properties. The cause of the backwardness of landlords in this respect appears to me to be the following :—From the failure of the many attempts that have been heretofore made to improve the condition of

the small farmers of Ireland, a very general impression prevails that every endeavour to accomplish it is but so much labour lost; which belief, chiming in with the natural indolence and want of business-like habits of the great majority of landlords, indisposes them generally (notwithstanding many splendid examples to the contrary) to embark in any undertaking where a certain expense must inevitably be incurred, and where success, in their opinion, is so very problematical. Besides this expense, however, there is another great discouragement in the trouble of supplying seeds, lime, bone-dust guano, &c., to the poorer tenants, without which (and even a loan in cash) it would, in general, be wholly impossible for them to follow the instructions given to them; and besides the great trouble in the delivery and keeping the account of these loans, there is also the apprehension that it may be difficult, if not impossible, to recover payment of such advances. These are discouragements to the general appointment of agriculturists, which will, on consideration, fully account for the numbers of those who, though they cannot deny the force of the reasoning in favour of the appointment, have, nevertheless, to the present time, delayed, or absolutely declined to adopt a plan so clearly supported by argument. Taking these facts and circumstances into consideration, it occurred to me, when consulted by the Earl of Clancarty, to recommend to his lordship the appointment of an agriculturist to the Union Agricultural Society he was about to establish at Ballinaslee, whose duty it would be to visit the estates of such gentlemen, belonging to the Society, as chose to avail themselves of his services, for any specified time they might think proper, paying him his wages for the time required, by which means the subscription funds of the Society would be left available for other necessary objects. This plan, it will be obvious upon the slightest consideration, went far to meet the discouragements just mentioned, which appeared to deter individual landlords from engaging an agriculturist specially for his own property; for, in the first place, it greatly lessened the expense and trouble by bringing within his reach a well qualified man, who, for an outlay of four or five guineas, he might procure to go round every tenant on his estate, and one general committee would, in all probability, be able to free him from the labour of loans, &c.; or upon the plan of the Rev. W. Eames, of Clonfadforan Glebe, he might, perhaps, be able to get that duty performed by the loan fund of the district, and all risk of not being paid for his advances thereby removed. Thus the appointment of agriculturists to Union Agricultural Societies seems calculated (by setting aside the objections which landlords have heretofore been deterred by) to facilitate the introduction of the agriculturist upon estates where he would otherwise never have gained admittance; *and if the plan became adopted in every Union, would bring the best agricultural information within reach of the most remote inhabitant in every corner of the kingdom.*" It would further provide a confidential agent in each Union, capable of affording the most valuable statistical information; would facilitate the establishing of lending libraries; depôts of breeding stock; museums of agricultural implements; and any other such measures as might hereafter be determined on, when sufficient funds were obtained."—*Mr. Blacker:—Evidence taken before Land Commission (Ireland).*—(*To be continued.*)

Prevention of Curl and Dry-rot in Potatoes.—It will be well to present these results in a tabular form. I shall assume that the red Potatoes bought in 1840, and the black Kidneys in 1841, had been taken up ripe; and their mealiness will justify such an assumption, as unripe Potatoes are always watery, and unfit for the table.

ROUND REDS.

Year.	Seed taken up.	Quality of Crop.	Quantity of Crop.
1840	Ripe (supposed).	Curled.	Failing crop.
1841	Unripe.	No curl.	Good crop.
1842	Unripe.	No curl.	Good crop.
1843	Ripe.	Curled.	Indifferent crop.
1844	Unripe.	No curl.	Good crop.

BLACK KIDNEYS.

Year.	Seed taken up.	Quality of Crop.	Quantity of Crop.
1841	Ripe (supposed).	Curled.	Failing crop.
1842	Ripe.	Curled.	Light crop.
1843	Unripe.	No curl.	Capital crop.
1844	Ripe.	Much curled.	Very bad crop.

Had the above results been obtained by experiments contrived for the purpose, they could not have borne more directly on the point in question, as we find that in the wet summer of 1843, and the extraordinary drought of 1844, as well as in the average seasons of 1841 and 1842, it accidentally happened that part of my Potato crop was grown from ripe and another part from unripe sets, and in every case with success from the one and failure from the other: thus showing that the seasons could not be blamed as the cause of curl. To make these instances still more conclusive, it also happened that each of the two very different kinds of Potatoes named were alternately affected by or free from curl; thus showing that it was not a peculiarity belonging to a particular kind of Potato.—*H. S. Thompson, Royal English Agricultural Society's Journal.*

Notices to Correspondents.

Application of Lime—*R Seymour*—You may safely apply it in autumn: it is a general practice to do so, and the intervention of a winter season before the application becomes useful, is not, in practice, found to diminish the efficiency of the lime as a fertiliser.

Bean as a Manure—*Querist*—We cannot find any account of experiments on this subject.

Building Materials—*Villager*—We are informed by a competent authority that so far as the timber can be judged of from the specimen sent, it *is* suitable for *sleepers* if they be kept dry.

Gas-tar as a Manure—*A M*—Mr. Bowley, of Cirencester, has long used it in a compost with dung and turf. In 1838 he used it in an "unsophisticated" state, pouring it out of a watering-pot *in a small stream* regularly over half an acre of Rye-grass. The crop for the time appeared destroyed, but it regained its vigour, and at harvest was unusually luxuriant. Too much had been applied. See Johnson on Fertilisers.

Early Feed—*Dareuham*—The best thing you can do on taking up your Potatoes will be to sow Rye, as recommended by Mr. Baker in the present Number of the Agricultural Society's Journal. Harrow in 3 bushels of Rye per acre early in September. It will be ready early in April. See Miscellaneous Section.

House-feeding Dairy Cows—*Correspondent*—In answer to an inquiry on this subject we extract a statement from the *Dublin Farmers' Gazette*, of August 9. "By Mr. Wilson's desire I furnish you with an accurate statement of the manner and effect of house-feeding my cow (a very small one and a poor milker).

Nov. 7, 1844, I had her milked at 11 o'clock, a.m., in the presence of his workmen—the milk measured by his steward was 1 quart and 3 naggins, and at night her milk was but 3 naggins.

— 9, ,, Milked before the workmen, at 10 o'clock, a.m., 1 quart and 1 naggin, and in the evening again before them, 3 naggins.

— 11 ,, I got her in to house-feed, after the following manner:—

1st feed,	6 o'clock,	a.m.,	Cut straw, hay, and Turnips, all boiled together (called steamed food).
2d	,, 8	,,	,, Raw Turnips.
	10	,,	,, Let out on the field till 12 o'clock.
3d	,, 12	,,	m. Hay.
4th	,, 3	,,	p.m. Steamed food same as in the morning.
5th	,, 6	,,	,, Raw Turnips and Mangold leaves, &c.
6th	8	,,	,, Hay.

The result was an increase from the 1st day to the 3d, when she milked 2 quarts in the morning and the same at night; on the 8th day, 2½ quarts at each milking; and on the 12th day after being put in, she milked 3 quarts at a time, and continued so for four days. Being limited in my supply of green food (as I then thought), I curtailed her a little in the different feeds, consequently she did not increase.

	£	s.	d.
From the day on which she was got in to house-feed, up to the 1st of April (being 140 days), her milk averaged 5 quarts per day, at 1½d. per quart . .	4	7	6
On the 1st of April, the Turnips and Mangolds not being nearly consumed, I increased her feeds again, when she averaged 6 quarts a-day for the first fortnight, and 7 quarts during the remainder of the month, being 6½ quarts per day for 30 days, or 195 quarts, at 1½d. per quart	1	4	4½
9th May.—The Vetches were now fit for cutting, and the supply of Turnips and Mangolds continuing up to the 15th of June, she frequently milked 9 quarts a-day. Her milk at this date (1st August) is 9 quarts, allowing an average from the 1st of May to the present date (being 92 days) at 8 quarts per day, or 736 quarts, at 1½d. per quart	4	12	0
Total amount from 11th Nov. to 1st August .	10	3	10½
Deduct the value of 21 cwt. of hay, at 2l. per ton.	2	2	0
	£8	1	10½

The quantity of ground under green food was—

Mangolds . . .	10½	perches English.
Swedish Turnips . .	21	,, ,,
Aberdeens . . .	9½	,, ,,
Vetches and Rape . .	15	,, ,,

Hay, 21 cwt., Statute. 56=35 perches Irish.

An Irish acre of ground bearing crops such as the above, and being turned to the same advantage, would (notwithstanding the cow being such a poor milker) bring in a return of 46l. 10s. (minus the price of hay), together with a large quantity of manure, and the cattle well fed. My cow is at present in excellent condition. Had she not been house-fed I would have to buy milk and butter for my family during the winter, and to pay about 30s. for sea-weed or guano.

"Yours, &c., John Lynch, Belvoir."

Kohl Rabi—*L*—This is the Knol Kohl of the Cape of Good Hope, the bulb of which is more delicate for table than the Turnip.

Manure—*L*—"Is it better to manure meadows soon after mowing than during winter?" [Yes.]

Rooks—*Querist*—You must keep a boy with a gun during the seasons when they are injurious.

Soot, &c.—*A M*—Apply 20 to 30 bushels per acre. You may mix this with "five or six bags" of *old* ashes. Fresh ashes, which contain caustic alkali, would dissipate the ammonia in soot. Peat-ashes vary much in quality, so do those from wood. It is impossible, therefore, to state their relative value.

"Velouse" Wheat—*W D H*—Velvet-chaffed Wheat is not an uncommon variety. It is generally understood to be more liable to injury from damp weather than thinner-chaffed varieties. The ears you sent are fine specimens.

Warnes's Linseed Jelly—*Teifside Subscriber*—See pages 789, 820, vol. 1844.

"e" As usual, many communications have arrived too late.

Markets.

SMITHFIELD, Monday, Aug. 11.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	2 to 4s	4	Best Long-wools	4s	6 to 4 8
Best Short Horns	3	10	4 0	Ewes and second quality	3	1 4 8
Second quality Beasts	3	0	3 6	Lambs	5	0 5 8
Calves	4	0	5 0	Pigs	3	8 4 8
Best Downs & Half-breds	4	10	5 0			

Beasts, 3224; Sheep and Lambs, 26,880; Calves, 170; Pigs, 305.

We have a very full supply of Beef, but for the most part it does not come to market in good condition. Prices are lower, but some of the choicest qualities make rather over our top quotations. Good Mutton is still scarce, trade is rather dull, and prices a little lower.—Lamb is also lower.—Calves are a steady trade.—Pork is rather dearer.

Friday, Aug. 15.

We have a full average supply of Beef; the weather being cold enables us to maintain Monday's prices for the best qualities. Choice Scots, &c., are making nearly 4s. 6d., and Short-horns nearly 4s 2d.; but the Second Quality, of which there is a large proportion, are heavy on hand.—The trade for Sheep is about the same as on Monday. Best Downs, &c., about 5s.; and Long wools, 4s. 8d.; Ewes, &c., 4s. 4d.—Lamb trade is very dull at from 5s. to 5s. 6d.—The weather being good, Pork trade is brisk at from 3s. 8d. to 4s. 8d.

Beasts, 908; Sheep and Lambs, 968; Calves, 313; Pigs, 320.

* Weathersfield Seed

HAY.—Per Load of 36 Trusses

CUMBERLAND MARKET, Aug. 11.

Superior Mead. Hay	110 to 115	Superior Clover	128 to 134	Straw	38s. to 42s.
Inferior	95 100	Inferior ,,	110 120		
New Hay	80 90	New Clover	90 110		

John & Baker, Hay Salesman.

WHITECHAPEL, Aug. 15.

Fine Old Hay	125s to 135s	Old Clover	130s to 136s	Straw	36s. to 42s.
Inferior Hay	— —	Inf. ,,	— —		
New Hay	65 88	New Clover	80 105		

WOOL.—British, Friday, Aug. 15.

In combing Wools rather less business was done last week than during the preceding one. Short Wools continue to be in good request, and command high rates. The uncertain state of the weather and the high rates asked by the growers of Wool, caused the consumers to be very cautious in their purchases. Price current.—

	£ s.	£ s.		£ s.	£ s.
Down fleeces	12 10 to 13 10	p.pk.	Hogs . .	14 10 to 15 0	p.pk.
Biggets	14 0 to 15 10		Kent fleeces	14 10 to 15 5	
Lg.-wools, wthr.	13 0 to 14 0		James Perris, Wool-Broker.		

COVENT GARDEN, August 16.—The market has been well supplied with vegetables during the week, and out-door fruit is becoming more plentiful; trade, however, is far from being brisk, a circumstance chiefly owing to the unfavourable state of the weather. Pine-apples, both English and foreign, are sufficient for the demand; the prices of the former being lower than they were last week. Grapes are very plentiful, and Peaches and Nectarines are also abundantly supplied. Apricots are increasing in quantity, as are also Plums, among which good samples of Greengage, Orleans, and Violet may be met with. Currants and Gooseberries are sufficient for the demand; Strawberries are becoming very scarce. Cherries, with the exception of Morellos, for which there is very little demand, are far from being plentiful. The supply of Apples and Pears is on the increase; but what we saw were inferior in quality to last year's produce. Good English Melons are abundant: and there is no scarcity of Dutch varieties, which are imported in considerable quantity. Among Vegetables, Peas are good, and continue to be supplied in abundance: French Beans are also sufficient for the demand. Good Cauliflowers are not so plentiful as they have been: but there are plenty of inferior samples to be met with. Potatoes continue to bring the same prices as mentioned in last week's report. Carrots and Turnips of excellent quality are abundant, and the supply of Celery is on the increase: it is improving in quality. Mushrooms are plentiful, and Salading of every kind is abundant. Among Cut Flowers, we noticed Gesneras, Vincas, Bignonia venusta, Achimenes, Gardenias, Liliums, Heliotropes, Phloxes, Pelargoniums, Carnations, Verbenas, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Gooseberries, per sieve, 2s to 3s
Grapes, Hothouse, per lb., 2s to 5s	Walnuts, per bushel, 5s to 6s
Peaches, per doz., 6s to 12s	Oranges, per dozen, 1s to 3s
Nectarines, per doz., 4s to 12s	— per 100, 7s to 18s
Plums, per half-sv., 4s to 7s 6d	— bitter, per 100, 10s to 16s
Apricots, from 1s to 3s per doz.	Lemons, per dozen, 1s to 2s
Cherries, wall, per lb. 2s to 5s	— per 100, 7s to 16s
Apples, Dess., per bush., 2s 6d to 5s	Almonds, per peck, 6s
— Kitchen, 2s 6d to 4s	Sweet Almonds, per lb., 2s 6d to 3s
Pears, per half-sv., 2s to 6s	Nuts, Barcelona, 2s
Melons, 3s to 6s each	— Brazil, 10s
— Dutch, 1s to 3s each	— Spanish, 8s
Strawberries, per pottle, 6d to 2s	— Cob, 1s
Currants, per half-sv., 2s 6d to 4s	

VEGETABLES.

Cabbages, per doz., 3d to 1s	Onions, per doz., 2s to 6s
Cauliflowers, per doz., 1s to 5s	— Spanish, per doz., 3s to 5s
French Beans, per half-sv., 1s to 3s	Shallots, per lb., 6d to 10d
Sorrel, per half-sieve, 6d to 9d	Lettuce, per score, Cab., 1s to 2s
Artichokes, per doz., 1s 6d to 2s 6d	— Cos, 9d to 1s 3d
Potatoes, per ton, 45s to 50s	Radishes, per doz. bunds 6d to 1s
— cwt., 2s 6d to 3s	Mushrooms, per pottle, 2s to 2s 6d
— bushel, 1s 6d to 3s	Small Salads, per punnet, 2d to 3d
— Kidney, per doz. lb., 6d to 1s	Basil, green, per bunch, 4d to 6d
Turnips, per doz., 2s to 3s	Fennel, per bunch, 2d to 3d
Red Beet, per doz., 9d to 2s	Savory, per bunch, 4d to 6d
Carrots, per doz. bchs, 2s to 5s	Tb. Ke, per bunch, 4d
Peas, per bushel sieve, 1s 6d to 4s	Watercress, p. 12 sm. bun. 4d to 6d
Horse Radish, per bundle, 1s 6d to 6s	Parsley, per half sieve, 6d to 1s
Cucumbers, per doz., 1s to 6s	— Roots, per bundle, 2d
Spinach, per sieve, 2d to 1s 6d	Tarragon, per bunch, 4d
Leeks, per doz., 2s to 3s	Mint, per bunch, 2d
Garlic, per lb., 6d to 10d	Marjoram, per bunch 4d
Celery, per bunch, 1d to 1s 6d	Chervil, per punnet, 2d to 3d
Vegetable Marrows, p. doz. 4d to 1s	

HOPS, Friday, Aug. 15.

The accounts from some parts of the plantation are decidedly worse than last week, and the weather continuing wet and cold the fretting hereis much more against the crop. The market is more active than for a long time past, at better prices.

Pattenden & Smith, Hop Factor.

MARK-LANE, Monday, Aug. 11.

There was again a very large supply of Wheat from Essex, Kent, and Suffolk, this morning, which, owing to the late unfavourable weather and bad accounts from the country, was held in the morning for high prices; but the millers refusing to comply with the terms asked, a few sales were subsequently effected at a reduction of fully 2s. per qr. from this day se'nnight, but by far the larger proportion was held over; in free Wheat very little was done, bonded was more inquired after than last week, and fully maintains its late value.—Barley is firm, and there was some demand for bonded for export.—Beans and Peas are unaltered.—Fine Oats are quite as dear, but all light inferior and heated qualities are difficult to quit.

British, per Imperial Quarter,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	50	54	Red .	50	54
—— Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 25s to 29s	Chevalier	30	32	Grind.	23	26
Oats, Lincolnshire and Yorkshire . .	Polands	20	23	Feed	19	22
—— Northumberland and Scotch . .	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	24
Malt, pale, ship		54	60			
—— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	32 to 36	Tick	32	39	Harrow	34	40
—— Pigeon, Heligoland .	37 to 44	Winds	—	—	Longpod	—	—
Peas, White	36 to 39	Maple	36	39	Grey	33	36

Friday, Aug. 15.

The continuance of ungenial weather for maturing the growing crops, combined with bad accounts of the Wheat, have given increased confidence to the trade, in consequence of which the supplies left over from Monday, together with the fresh arrivals on Wednesday, were then principally cleared off by speculators at fully Monday's quotations. This morning there were a few runs of Wheat fresh up, for which the factors were unwilling to accept late rates, and some remained unsold; of bonded there is but little offering: the business transacted is at very full prices: a few f.o.b. sales have also been effected at rather advancing prices for Mediterranean qualities, but the increased quantity offering from the Baltic, prevents any improvement in these descriptions.—Barley is inquired after, and 1s. dearer.—Beans and Peas firm.—Fine Oats continue to meet a fair sale, but black and inferior are difficult of disposal.—The accounts from Holland and Belgium are assuming a serious character: Wheat has risen 4s. to 6s. per qr., Barley 6s. to 8s., and their bonded value in those markets is now above our own; the Potato crop is said to be destroyed there.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
July 5 per Quarter.	47 11d	29 1d	22 8d	31 0d	33 10d	39 5d
— 12 . . .	48 10	28 0	22 0	33 11	36 9	38 1
— 19 . . .	50 0	29 6	23 4	32 8	39 9	40 12
— 26 . . .	51 7	29 2	22 5	31 7	40 3	38 0
Aug. 2 . . .	51 2	29 8	22 5	34 6	40 5	41 10
— 9 . . .	55 3	29 7	22 8	33 10	41 0	39 0
6 weeks' Aggreg. Aver.	51 2	29 5	22 6	33 11	40 0	39 6
Duties on Foreign Grain	19	9 0	6 0	11 6	2 6	2 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Aug. 9.

Price.	July 5	July 12	July 19	July 26	Aug. 2	Aug. 9
55s 3d	..	..	..	..	..	..
55 3	..	..	..	..	..	..
51 7	..	..	..	..	..	..
50 0	..	..	..	..	..	..
49 10	..	..	..	..	..	..
— 2	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
45 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..
45 1d	..	..	..	..	..	..

SEEDS, Aug. 15.

Canary . . per qr	52s to 54s	Linseed Cakes, Foreign, p. ton	7l 10s to 8l	
Carraway . . per cwt	42 44	Mustard, White . p. bush.	— —	
Clover, Red, English . .	— —	— Superfine ,, . .	— —	
— — Foreign . .	— —	— Brown ,, . .	— —	
— White, English . .	— —	Rapeseed, English, per last	28l 29l	
— — Foreign . .	— —	Rape Cakes . . per ton	— —	
Coriander . . .	12 13	Saffron	— —	
Rapeseed . . per last	28l 30l	Tares, Essex, winter potash.	4 6	
Linseed . . per qr	52 60	— Foreign . .	3 5	
— Baltic . . .	36 44	Trefoil . . . per cwt	12 13	
— Cakes, Eng. per 1000	11l 0 0	Turnip (too variable to quote)		

Kingsford and Lay.

MAGNIFICENT SHOW CARNATIONS AND PICOTEES FOR SALE by AUCTION, on WEDNESDAY next, August 20.—Mr. GLENNY has received instructions from THOMAS BARNARD, Esq., one of the most successful amateur cultivators of the last few years, to submit for sale to the highest bidder the entire collection, comprising a choice and healthy stock of all the fine flowers in cultivation, together with a neat and elegant stage (30 feet long), with stands, clothes, shades, sticks, glasses, frames, and lights, the wood-work and glass of an excellent pit, hot-water apparatus, a quantity of pots, garden seat, large butts and tubs, garden roller, and sundries; on the premises, 2, PARK-TERRACE, NORTH BRIXTON; in consequence of the proprietor removing to a distant part of the country. The Plants will be sold in the blooming pots, with strong healthy grass ready for layering, and may be seen on the premises Monday, Tuesday, Wednesday, and Thursday, from two till five.—Further particulars of the AUCTIONEER, at the *Gardeners' Gazette* Office, 2, Tavistock-street, Strand.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS are instructed by the Mortgagee, to sell by Auction, on the premises, Bedford Lane, Clapham Road, on Thursday, the 28th of August, inst., the valuable collection of CAMELLIAS, AZALEAS, GERANIUMS, and the General Stock of a Nurseryman. Also several newly erected Greenhouses (one of which is of large dimensions), Pits, Boxes, &c.; useful Horse, Cart, Flower Van, &c. Also the unexpired term of about 11 years of the Lease of the said premises, held at the low rent of 60*l.* per annum. May be viewed two days before the sale, when catalogues may be had of the principal Seedsmen; of the Auctioneers, American Nursery, Leytonstone; or, of Messrs. Coombe and Jones, Solicitors, 2, Church Court, Clement's Lane.

TO BE DISPOSED OF, THE POOLE NURSERY, DORSETSHIRE.—In consequence of the proprietor of this Nursery being too actively engaged in another business to give it proper attention, he wishes to dispose of it. It is well situated in a fast increasing neighbourhood, and might be had on easy terms. Any one thinking of taking it might, if he wished, come as a Foreman for a few months previously, or a person of *known abilities and good standing* might be engaged as a permanent Foreman, at liberal salary, or as a Partner.

Aug. 16. A. BULSTOW.

NURSERY GROUNDS AND STOCK AT STIRLING, N.B.—The Subscribers, being so much occupied with their Agricultural trade at Stirling and Dublin, are desirous of relinquishing the Nursery branch of their business, and are therefore ready to treat for the disposal of the whole of their NURSERY STOCK at a valuation; also for the unexpired term of the Lease of the GROUNDS, a long period being still to run. These Grounds, consisting of 12½ statute acres of excellent free soil, neatly subdivided and sheltered, are furnished with Dwelling House and Offices. The Stock is select, and of the most saleable description. The situation at Stirling central for railway and water conveyance.

To a party desirous of investing capital in a well-established business, this opening offers peculiar advantages.—Further particulars may be had on application.

W. DRUMMOND & SONS, Agricultural Museum, Stirling.

TO BE SOLD.—A Thoroughbred POINTER.—To be seen at the New Inn, Ealing, Middlesex.

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Do., Ichaboe, 6*l.* 5*s.* to 6*l.* 15*s.* per ton, according to quantity.	6*s.* 9*d.* to 7*s.* 6*d.* per cwt., according to quantity.
Do., Saldanha Bay, 6*l.* to 6*l.* 5*s.* per ton, according to quantity.	6*s.* 6*d.* to 7*s.* per cwt., according to quantity.
Do., Potter's	10*l.* per ton.
Do., Do. Liquid	18*s.* per doz. bottles.
Nitrate of Soda, 19*s.* 6*d.* to 20*s.* per cwt.	20*s.* to 22*s.* per cwt., according to quantity.
Gypsum, at the Factory in Derbyshire, 12*s.* per ton.	30*s.* to 35*s.* per ton, according to quantity.
Do., at Waterside Warehouse, London, 27*s.* 6*d.* to 30*s.* per ton	
Compost for Cabbages	10*s.* per cwt.
Sulphate of Magnesia	8*s.* 6*d.* to 10*s.* do.
Do. of Soda	5*s.* to 6*s.* do.
Do. of Potash	20*s.* to 24*s.* do.
Do. of Ammonia	17*s.* to 20*s.* do.
Do. of Iron	5*s.* to 5*s.* 6*d.* do.
Do. of Copper	34*s.* to 36*s.* do.
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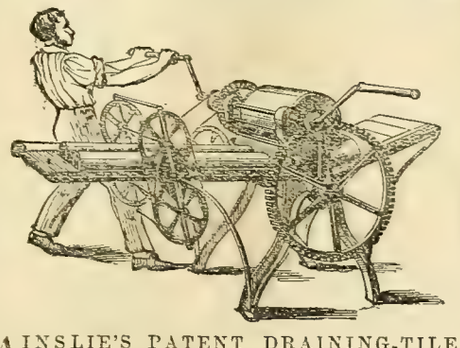
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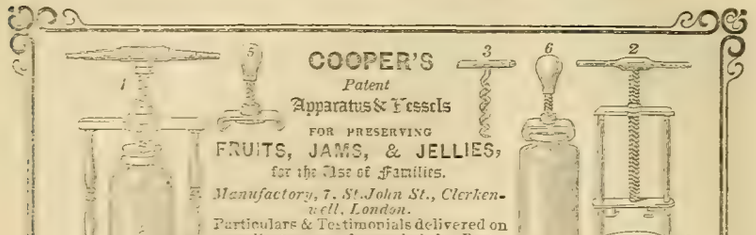
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RICHARD POTTER, A.M., Dean of Faculty of Arts.
C. J. B. WILLIAMS, M.D., Dean of Faculty of Medicine.
CHAS. C. ATKINSON, Secretary to the Council.

August 16.

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Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, August 16, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 34.—1845] SATURDAY, AUGUST 23. [Price 6*d*.

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EXHIBITION AT BOULOGNE, Saturday, August 30.—(OPEN TO ALL THE WORLD.)

1. Une exposition publique de fleurs, de plantes d'agrément, de fruits et de légumes, aura lieu les 30 et 31 Août, et le 1er Septembre, 1845, de 10 heures du matin à 7 heures du soir, dans le local de l'Ecole d'Enseignement Mutuel.

2. Cette exposition se composera: 1°. de plantes d'agrément en fleurs, soit de serre chaude, de serre tempérée, d'orangerie ou de pleine terre: 2°. de plantes grasses et de celles employées dans les arts et la médecine, avec ou sans fleurs; 3°. de fleurs détachées, principalement de Dahlias et de Roses; 4°. de fruits et de légumes. Les fabricans d'instrumens horticoles, ainsi que les autres objets employés dans la culture des plantes, tels que ceux à l'ornement des parcs, jardins ou serres, sont invités à en exposer des échantillons. Les dessins pour parcs, jardins et serres, seront aussi admis à l'exposition.

4. Des prix, consistant en médailles en or, vermeil, argent et bronze, seront décernés aux différentes collections désignées en l'article 2, qui l'auront le mieux mérité. Nota. Les exposants qui auront remporté des prix recevront à leur choix les récompenses proposées par la société, ou la valeur en argenterie, en livres, en instrumens horticoles, ou instrumens de physique.

7. Les objets présentés à l'exposition devront être munis d'étiquettes qui indiqueront:—1°. Les noms botaniques des plantes et des fleurs, et les noms des variétés des fruits et des légumes; 2°. Les numéros d'ordre des objets exposés. La liste des objets présentés par chaque exposant sera remise entre les mains du secrétaire.

8. Les objets à exposer devront être transportés au local de l'exposition le Vendredi 29 Août, de 6 heures du matin à 4 heures du soir. Il y aura exception pour les fruits et légumes, qui seront reçus le Samedi 30 jusqu'à 8 heures du matin.

9. Les objets exposés seront soignés par un jardinier praticien, choisi par la société.

10. Les horticulteurs qui se proposent de concourir sont instamment priés d'en prévenir le secrétaire 10 jours, au moins, avant l'exposition, en indiquant les noms et le nombre de plantes, de fruits, et de légumes dont se composera leur envoi.

11. Le conseil se réunira le Dimanche 31 Août, à 9 heures du matin, pour prononcer sur le mérite des objets exposés et adjuger les prix.

14. La distribution solennelle des prix aura lieu dans la salle même de l'exposition, le Mercredi 3 Septembre, à midi. Elle sera suivie du tirage de la tombola.

Fait et arrêté en séance, le 6 Juillet, 1845.
A. DE BAZINGHEN, Président.
A. CRUCKSHANKS, Secretaire.

MANCHESTER PUBLIC PARKS, WALKS &c.—TO LANDSCAPE GARDENERS AND OTHERS.

The Committee for the Establishment of Public Parks, Walks, &c. hereby offer TWO PRIZES, one of Fifty Guineas, and the other of Twenty-five Guineas, for the Best and Second Best SET of PLANS (with Estimates), for the laying out, &c. of the three sites already purchased by them.

Intending competitors must notify their intention to the Honorary Secretaries previous to the 1st September next, when they will receive such information as may be required for their assistance and guidance.

The successful competitors will have the preference in the superintendence of the execution of their designs.

No plans and drawings can be received later than the 20th September. The adjudication will take place on the 1st October. Malcolm Ross, } Hon.
Edward Watkin, } Secretaries.

Committee Room, Town Hall, Manchester, August 1st.

DOUBLE ROMAN and PAPER-WHITE NARCISSUS, 4*s*. per dozen.

The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived at A. Cobbett's, late Mr. Barron's, Italian and Foreign Warehouse, 18, Pall Mall, London.

Orders by post punctually attended to.

ROSES.

T. Rivers begs to inform his friends and the public, that his DESCRIPTIVE CATALOGUE OF ROSES, and Supplement, will be ready for delivery on the 28th inst. The Catalogue contains a selection of all the finest Roses, with descriptive paragraphs. In the Supplement will be found ample lists of Roses cultivated in 6-inch pots, for forcing and exhibition. He feels it due to himself to state, that such a healthy and extensive stock of Rose plants has never yet been offered to the public; the above will be sent, as usual, to his friends; if omitted, he will feel obliged by being reminded. Applications, enclosing three penny stamps, will also be promptly attended to. Sawbridgeworth Herts, Aug. 23, 1845.

FUCHSIA "SERRATIFOLIA."
SPLENDID NEW PERUVIAN FUCHSIA.

Messrs. Veitch & Son beg to inform those who have already ordered the above lovely plant, and the Public generally, that plants will be ready for delivery early in September. A beautiful specimen of it was exhibited at Chiswick on the 12th ult., when it was awarded the First Prize for New Plants (the large Silver-gilt Medal), and was universally admired.

For the information of those who may not have seen it, Messrs. V. would add, that it was imported by themselves from Peru, and is solely in their own possession. The flower is a delicate waxy pink of large size, and great substance; the sepals tipped with green, the corolla with vermilion-scarlet; the foliage very fine and distinct, and the habit remarkably good: it is very free blooming, and altogether a most beautiful plant.

Strong plants in September, 21*s*. each.

N.B. The Trade will be allowed one plant over on every three they may purchase, and a List will appear in a future Advertisement of all those Nursery and Seedsmen who having secured early plants will be enabled to supply them.

A London reference, or Post-office Order, from unknown correspondents.

Orders executed in strict rotation as received.

Exeter, August 23.

BECK'S SEEDLING PELARGONIUMS of 1844.—

Edward Beck informs the Public that he will send out the following varieties, at the prices annexed, in October, delivered free in London, for cash only.

Rosy Circle	£1 1 0	Isabella	£1 1 0
Sunset	1 1 0	Margaret	0 10 6
Mustee	1 1 0	Favorita	0 10 6
Marc Antony	1 1 0	Zenobia	0 10 6
Desdemona	1 1 0		

No more remittances can be received for ARABELLA, BELLONA, OTHELLO, and JUNO, until further notice, the present stock being engaged.

As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.

N.B. No discounts, allowances, or abatements can be made in any case.—Wharton-cottage, Isleworth, Aug. 23.

WOOD and SON'S NEW CATALOGUE OF ROSES, NOW READY FOR DISTRIBUTION.
WOODLANDS NURSERY, MAPLEFIELD, near UCKFIELD, SUSSEX.

William Wood and Son, have just received from the Press their NEW CATALOGUE OF ROSES, for 1845-46, which has been prepared with much care, and will be found to contain every old and new variety worthy of cultivation.

Those friends who have in past seasons kindly favoured W. W. and Son with their commands, will receive a copy of the above in due course; in the mean time, Amateurs and lovers of Roses, the Trade and others, are respectfully invited to make early applications for the Catalogue, a copy of which will be sent GRATIS to all applicants.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

William Miller informs his numerous patrons and the public that he will send out the under-named varieties at the prices annexed, in October. (Printed Circulars with descriptions can be had.)

Augusta	21*s*. 0*d*.	Lord Morpeth	21*s*. 0*d*.
Alice	21 0	Duke of Orleans	21 0
Gipsy Maid	21 0	Josephus	21 0

The set of six for 5*l*. 10*s*., or 5*l*. when cash accompanies the order. Trade-price 4*l*. 10*s*., or 4*l*. cash accompanying the order, which will in either case ensure strict priority of selection.

HOYLE'S SET OF 12, viz., Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, and Sarah Jane, sent out last season at 10*l*. 10*s*., may be had for 8*l*. 10*s*., or cash accompanying the order for 8*l*.

100 CHOICE HYBRIDISED SEEDS, 10*s*.; 50 ditto, 5*s*.; 25 ditto, 3*s*. A general List of GERANIUMS, priced very cheap, by the dozen, is now ready, which should be in the hands of every Geranium grower, as it contains all the principal sorts for exhibiting.

W. M. finding that pots are frequently broken, and the Plants damaged in hampers, he has prepared a quantity of strong Fir boxes for the purpose.—Providence Nursery, Ramsgate.

NEW AND FIRST-RATE PELARGONIUMS

to be sent out by N. Gaines, in Oct., 1845, viz., Candidate, Cygnet, Compacta, Cyrous, Druid, Superb, Dazzle, Edith, Exemplar, Eximia, Highlander, Holkar, Gipsy Queen, Lady Bulkeley, Miss Holford, Prince Alfred, Pamela, Sweep, Vesta, Xarifa, Zuliema. P.S.—N. G. begs to say the Dahlias are now coming into flower, and among them his beautiful seedling Princess Radzewill, which was so much admired last year.

Nursery, Surrey-lane, Battersea.

SLOUGH NURSERY, BUCKS, NEAR WINDSOR.

W. C. Brown has the pleasure of informing the collectors of CONIFERS, that he can offer to their notice 350 of the finest specimens in the Kingdom, or perhaps in Europe. A few of the most conspicuous are Araucaria excelsa, 12 to 20 feet; three Imbricata, 6 feet; Cunninghamia, 10 to 18 feet; Abies Douglasii, 11 feet; two Pygmæa, very fine; Taxus fastigiata, 11 feet, beautiful; Cedrus Deodara, 12 feet; Pinus grandis, 6 feet; also Phillocladus rhomboidalis and trichemanoides; two Podocarpus latifolius; Dammara; Dacrydium elatum, and cupressina, &c. &c.

W. C. B. merely inserts this as a Notice, in the next Paper he will give a full list with heights, and will fix a date before which no plant shall be sold, so that Foreigners and distant purchasers may be able to see them or forward orders.

AURICULAS, ALPINES, and POLYANTHUSES.

John Holland, Market-place, Middleton, near Manchester, Lancashire, respectfully calls the attention of Amateurs, Florists, &c., to his extensive Collection of the above Florists' Flowers, including all the new and leading sorts, which he is now sending out in strong, healthy, blooming plants.—Market-place, Middleton, Aug. 23.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

Youell and Co.'s stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter in this the most eastern point of England proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season: -

2 years old	9*s*. per dozen.
3 ,,	12*s*. ,,
4 ,,	18*s*. ,,
5 ,,	30*s*. ,,
6 ,,	60*s*. ,,
Cedrus Deodar, 1 year, fine	18*s*. ,,
,, 1 foot	30*s*. ,,
Pinus excelsa, 3 inches	9*s*. ,,
,, 4 to 5 inches	18*s*. ,,
,, 18 inch. fine bushy plant	42*s*. ,,
Gerardiana, 2 years	30*s*. ,,
Abies Khutrow, 2 years	9*s*. ,,

Also fine specimen plants of older growth from 10*s*. 6*d*. to 2*l*. 2*s*. per plant.—Great Yarmouth Nursery, August 23, 1845.

Youell & Co. beg to remind their Friends they continue to supply the following fine CAMELLIAS in good healthy plants, at 30*s*. per dozen, the collection being left them or to the Purchaser, namely:—Donkelarii, Monarch, Carolina, Conspicua, Double White, Lefevreana, Invincible, Double Striped, Chandlerii, Colvillii, Juleana, Bealii, Imbricata, Eclipse, Florida, Elegans, Ruckerii, Fimbriata, Perfecta, Frankfortensis, Tricolor, King Horsfallia, Bruceana, Double Red, Emilia Grandiflora, Pompone, and Ochroleuca. Also,

The very best FUCHSIAS	12*s*. per doz.
Ditto CHRYSANTHEMUMS	12*s*. do.
Ditto VERBENAS	6*s*. do.
Ditto PETUNIAS	12*s*. do.
Ditto PANSIES	10*s*. do.

For particulars, see former Advertisements.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s*. per 100.
"PRINCESS ALICE MAUDE," ,, 10*s*. ,,
Great Yarmouth Nursery, Aug. 23.

ROBERT HALL, Florist, Alkrington, Middleton, near Manchester, Lancashire,

calls the attention of all Amateurs and Florists to his most excellent collection of choice and leading sorts of AURICULAS, ALPINES, and POLYANTHUSES; Catalogues of which may be had on post-paid application.

R. H. most respectfully begs to remind those Gentlemen who have before favoured him with their orders, that his plants are this season in their usual fine and excellent condition.

Alkrington, August 23.

NEW AND RARE PLANTS.—The following are confidently recommended, viz.—

Luculia Pinceana, strong, 42*s*.	Echites splendens, strong, 15*s*.
Tropæolum Lobbianum, 3*s*. 6*d*.	" atropurpurea, 3*s*. 6*d*.
Gardenia Stanleyana, 21*s*.	Diplodenia crassinoda, 5*s*.
Aphelandra aurantiaca, 42*s*.	Whitfieldia lateritia, 10*s*. 6*d*.
Hindsia longiflora, 3*s*. 6*d*.	Hoitzia coccinea, 2*s*. 6*d*.
" violacea, 10*s*. 6*d*.	Thunbergia chrysops, 2*s*. 6*d*.
" longiflora alba, 31*s*. 6*d*.	Fuchsia serratifolia, 21*s*.

Early in September.

R. White & Co., Poole Nursery, Dorsetshire.

TO AMATEURS OF CAPE BULBS, &c.

Bernard Saunders, Nurseryman, &c., begs respectfully to call the early attention of Amateurs and the trade in general to his extensive collections of IXIAS, SPARAXIS, TRITONIAS, BABIANAS, GLADIOLUS, WATSONIAS, OXALIS, IRIS, and LILIUMS, which are now ready for delivery. Catalogues of which may be had on application.

Island of Jersey, Aug. 23.

FINE TEA-SCENTED, NOISETTE, CHINA, and BOURBON ROSES,

in pots, on their own roots, now sending out. Twelve distinct and fine-named varieties of the above, including the "Cloth of Gold," for 13*s*. Twelve fine climbing varieties, including "Queen of the Prairies," for 10*s*.

The above will be well packed; Baskets and Carriage free to the Wendon Station of the North Eastern Railway, on receipt of a Post-office Order, payable at Halstead.

S. and J. Dillistone, Nurseries, Sturmer, Aug. 23.

PALM SEEDS.—All holders of Palm Seeds, of any species whatever, may send a List of the quantities of each sort they may wish to dispose of, adding their prices, by letter, directed to L. V. H., at Mr. Geo. Rahn's, 52, Mark-lane, London.

MALDIVE COCOA-NUT.—The holder of this Seed,

if he be disposed to sell, may apply by letter to Mr. L. V. H., at Mr. Geo. Rahn's, 52, Mark-lane, London.

FOR SALE.—About 100 lbs. of KNIGHT'S PROTECTING BROCCOLI SEED, warranted Genuine; Price,

4*s*. per lb., ready money, or if reference is given to a party in Edinburgh, the price may remain with the Purchaser till the Seed is proved.

J. and M. Reid, Rose-bank Garden, Edinburgh.

SEEDS.—CORNER OF HALF-MOON-STREET,
THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN SHEET GLASS.

FREDERICK ELPHICK having opened a communication with one of the FIRST HOUSES IN THE FOREIGN GLASS TRADE, IS ABLE TO OFFER SHEET GLASS, OF EXCELLENT QUALITY, FOR HORTICULTURAL PURPOSES,

Cut to any dimensions, from 6 in. by 4, to 24 by 20 in. square, at 5d. per ft., all above that size to 29 in. by 36 in. square at 5½d. per foot, for ready money only.

Apply to FREDERICK ELPHICK, 28, Castle-street East, Oxford-street.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	23s 0d.	Milled Lead in Sheets, per cwt.	s. 21	d. 0
Linseed Oil, per gall...	2 3	Cut to Size	22	0
Turpentine	3 3	Pipe all Sizes	22	0
Warranted Varnishes and Colours.				

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

SMALL GLASS FOR HOTHOUSES, MELON PITS, &c. &c.—Several thousand feet of 4 ins. by 2, 4½ ins. by 2, 4½ ins. by 2½, 5 ins. by 2, 5½ ins. by 2, and 6 ins. by 2, from 1d. per foot—Address, R. COGAN, Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.—Bee-Glasses, Fish Globes, French Ornament Shades, &c. &c.

BRITISH SHEET OR HORTICULTURAL GLASS. In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

WINDOW GLASS. — THOMAS MILLINGTON, just returned from the Continent, where he has purchased a large quantity of WINDOW GLASS of some of the first manufacturers, he expects to receive some cases on Tuesday next, the 26th inst., when he will be happy to show them; they are packed in cases of 100 feet, of various sizes, and are well worth the attention of the trade. The lowest cash price will then be quoted. — THOMAS MILLINGTON, 87, Bishopsgate-street Without, London.

ORNAMENTAL WIRE-WORK.

G. B. THOMPSON AND CO. respectfully announce that they continue to exhibit at their extensive warerooms, 390, Oxford-street, their large stock of ORNAMENTAL FLOWER-STANDS, TRAINERS, ARCHES, and fancy Wirework, suited to the garden, conservatory, and vestibule. Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements. Also their Improved WATER-POT, with finely-perforated copper roses, with screw joints, adapted to the varying and delicate texture of plants.

THE GENUINE HARE RABBIT—Weighs, when at maturity, from 12 to 14 lbs.; colour, that of the hare, with long erect ears, and when cooked not to be distinguished from it. Brings forth from 5 to 7 young, and requires no other treatment than the common rabbit.—Mr. JOHN BRETT has a few pairs to dispose of as follows:—1 to 2 months old, 10s.; 2 to 3 months, 15s.; and 4 to 5 months, 20s. per pair, sent with safety to any part of the United Kingdom. Post-office Order or reference will be required.—For further particulars see advertisement of August 2.—Market-place, Great Yarmouth.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

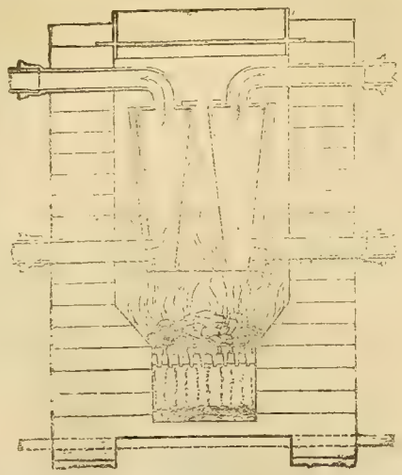
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedesta's in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;

GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, August 22.

GUANO, of the best quality, in bags.—PERUVIAN 10l. 10s. to 11l. per ton; ICHABOE 6l. 5s. to 7l. per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO, &c.—TO MARKET AND AMATEUR GARDENERS.—The undersigned begs to offer GUANO and other Manures for the Autumn Vegetables, &c., at the following prices, guaranteeing the quality of each by analysis of Dr. Ure or Mr. Teschenacher:—

	At the Import Warehouse.	*At 40, Upper Thames-street.*
Guano, Peruvian, imported by A. Gibbs & Son, 10l. 10s. to 11l. per ton, according to quantity.		11s. to 12s. per cwt., according to quantity.
Do., Ichaboe, 6l. 15s. to 7l. 0s. per ton, according to quantity.		7s. 0d. to 7s. 6d. per cwt., according to quantity.
Do., Saldanha Bay, 6l. to 6l. 5s. per ton, according to quantity.		6s. 6d. to 7s. per cwt., according to quantity.
Do., Potter's		9l. per ton.
Do., Do. Liquid		18s. per doz. bottles.
Nitrate of Soda, 19s. 6d. to 20s. per cwt.		20s. to 22s. per cwt., according to quantity.
Gypsum, at the Factory in Derbyshire, 12s. per ton.		30s. to 35s. per ton, according to quantity.
Do., at Waterside Warehouse, London, 27s. 6d. to 30s. per ton		
Compost for Cabbages		10s. per cwt.
Sulphate of Magnesia		8s. 6d. to 10s. do.
Do. of Soda		5s. to 6s. do.
Do. of Potash		20s. to 24s. do.
Do. of Ammonia		17s. to 20s. do.
Do. of Iron		5s. to 5s. 6d. do.
Do. of Copper		34s. to 36s. do.
Sulphuric Acid (with instructions for making Superphosphate of Lime).		½d. to 1½d. per lb., according to strength.
Bone Dust		21s. to 22s. per quarter.

Pamphlets on Guano, Gypsum, and Nitrate of Soda, gratis to purchasers.—MARK FOTHERGILL, 40, Upper Thames-street.

NOTICE.

POTTER'S GUANO, patronised by Sir R. Peel; the Duke of Northumberland; the Earls of Essex and Zetland; Lord Braybrooke; Lord Portman; Sir John Lubbock; D. Barclay, Esq., M.P.; P. Pusey, Esq., M.P., &c. &c.

Mr. POTTER has Reduced the price of his GUANO to 9l. per Ton, delivered FREE to any Wharf or Railway in London, bags included. Terms, Cash.

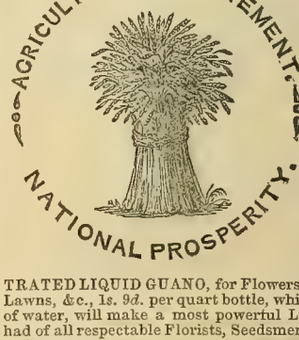
If Five Tons are ordered, it will be delivered FREE to any Wharf or Railway Station within 100 Miles of St. Paul's, or to any Principal Port of the United Kingdom.

CAUTION.—It having come to Mr. Potter's knowledge that some unprincipled dealers have fraudulently mixed his Guano with other substances, he begs to signify that he cannot be answerable for Manure not had direct from his Manufactory, or through authorised persons, a list of whom, with Testimonials, will be sent free, per post, on application.—Manufactory, 28, Clapham-road-place, London.

N.B. Mr. Potter has no London Agent for the sale of his Manure.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9l. and 5l. 10s. per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1s. 9d. per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23s. per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23s. per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8l. per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-street, Stamford-street, Blackfriars-road, London.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

SAUNDER AND NEWBERRY'S PATENT DIBBLING MACHINE gained two Prizes from the Royal Agricultural Society; one at Liverpool, of 10l., and another at Shrewsbury, of 15l.; also, Two Prizes at Local Agricultural Meetings. Manufactured by J. W. NEWBERRY, Hook-Norton, Oxon; R. CLYBURN, the Earl of Ducie's Iron Works, Uley, Gloucestershire; and R. HORNSBY, Grantham, Lincolnshire.

PRICES:

Five Rows	£60
Four Rows	50
Three Rows	42
One Row	13

J. W. NEWBERRY recommends his implement to the notice of the public with the most perfect confidence, after it has experienced a test of four years; he can give the most satisfactory references; and he would advise any person who may be inclined to try it, but fears the expense, to purchase one of his one-rowed machines, which will follow the plough, and is particularly adapted for heavy land; he begs to add that he thinks there can be comparison made by a practical man between even his one-row and a Hand-Dibble.

LYNE'S "MARMION" AND "HESPERUS."—Engravings of these Splendid GERANIUMS will appear in "The Florists' Journal," on the 1st of September. Catalogues and descriptions can be obtained of WILLIAM E. RENDLE, Plymouth.—Aug. 23.

EXHIBITION OF CARNATIONS, PICOTEES, AND FUCHSIAS.

YOUELL AND CO.'s well-known Superb Collection of the above are now in bloom, and will continue about 3 weeks. 4000 pots will be staged. Admission gratis, from 9 o'clock till 6, Sundays excepted.
Great Yarmouth Nursery, Aug. 23.

The Gardeners' Chronicle.

SATURDAY, AUGUST 23, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS

MONDAY,	Sept. 1—Entomological	6 P.M.
TUESDAY,	Sept. 2 Horticultural	3 P.M.
FRIDAY,	Sept. 5—Botanical	8 P.M.

COUNTRY SHOW.
THURSDAY, September 4—Chepstow Horticultural.

A FATAL malady has broken out among the POTATO CROP. On all sides we hear of the destruction that has overtaken this valuable product, excepting in the north of England. In Belgium the fields are said to have been entirely desolated. There is hardly a sound sample in Covent Garden Market. In fact the murrain seems to have been transferred from cattle to Potatoes.

Dr. BELL SALTER last week called attention to the symptoms of the disorder as manifested in the Isle of Wight, and we this week print many other communications on the subject; concerning which we have very numerous letters. The disease consists in a gradual decay of the leaves and stem, which become a putrid mass, and the tubers are affected by degrees in a similar way. The first obvious sign is the appearance on the edge of the leaf of a black spot, which gradually spreads; then gangrene attacks the haulm, and in a few days the latter is decayed, emitting a peculiar and rather offensive odour. When it is severe the tubers also decay; in other cases they are comparatively uninjured.

The cause of this calamity is, we think, clearly traceable to the season. During all the first weeks of August the temperature has been cold—from 2 to 3 degrees below the average;—we have had incessant rain, and no sunshine. It is hardly possible to conceive that such a continuation of circumstances should have produced any other result, all things considered.

The Potato absorbs a very large quantity of water. Its whole construction is framed with a view to its doing so; and its broad succulent leaves are provided in order to enable it to part with this water. But a low temperature is unfavourable to the motion of the fluids, or to the action of the cells of the plant; and, moreover, sun-light is required in order to enable the water sent into the leaves to be perspired. In feeble light the amount of perspiration from a plant is comparatively small; in bright sunshine it is copious; in fact, the amount of perspiration is in exact proportion to the quantity of light that falls upon a leaf. At night, or in darkness, there is no appreciable action of this kind. During the present season all this important class of functions has been deranged. The Potatoes have been compelled to absorb an unusual quantity of water; the lowness of temperature has prevented their digesting it, and the absence of sunlight has rendered it impossible for them to get rid of it by perspiration. Under these circumstances it necessarily stagnated in their interior; and the inevitable result of that was rot, for a reason to be presently explained. If the first days of July had not been suddenly hot it would not have happened; if we had had sunlight with the rain it would not have happened; and, perhaps it would not have occurred had the temperature been high, instead of low, even although the sun did not shine, and rain fell incessantly. It is the combination of untoward circumstances that has produced the mischief.

Although we first see the symptoms of the disease in the leaves, and then in the haulm, yet we believe that it commences underground, in that part of the haulm which is just above the old set. There water collects the most, there the temperature is lowest, and there the old set itself, acting like a sponge, and itself decaying, feeds the live stem with semiputrid matter.

It may be urged, perhaps, in opposition to this explanation, that Potatoes thrive very well in districts whose summers are usually as unfavourable as this has been; as for example the cold parts of Scotland. And that is doubtless true. But in those climates the Potato grows slowly, its tissue becomes thoroughly organised as it proceeds, and it is not liable to be acted on by accumulated moisture. There no predisposing cause exists. But in England the Potato was predisposed to take the disease which is destroying it, by the unusual warmth of the beginning of July, suddenly succeeding a period of cold ungenial weather; at that time the temperature of the soil near London was between 60° and 68°; the Potatoes grew excessively fast, their tissue was soft and unconsolidated, filled with azotized matter, as all such tissue always is, and peculiarly liable to run into a state of rottenness. They have never had the means of consolidating their tissue, but the tendency to putrefaction has continued almost unchecked ever since the 16th of July, when the cold and unfavourable weather first began to declare itself; the tendency has increased; and at last accumulated so far as to terminate in absolute decay. This is strikingly illustrated in those cases where, in consequence of the badness of the soil, the Potatoes made no considerable progress in July, but continued stunted and unpromising, notwithstanding the warm weather. In such places, and we have one beneath our eye, not a trace of rot is to be found.

The mischief, although very general, is not universal. It is, however, appearing in some of the gardens round London; and it has begun to attack a field, near ourselves, on the London clay, which, as it offers what we think a good illustration of the way in which the Potato crop is affected by such a season as this, we shall proceed to describe. The field is bounded on two sides by a deep ditch, newly cut, and on the others by a hard roadway. It was last year a pasture. During the autumn it was trenched 3 spit deep; but in such a way that the turf was turned down about a spit below the surface. It was planted partly in December, and partly in April. Here, on this cold soil, lying on a dead level, with scarcely any means of effectual drainage, the Potato-murrain might have been expected, and here it has made its appearance; but not to any great extent. Symptoms are discoverable here and there; but only in one place has the haulm actually decayed. That place was a low part of the field, and had been made up with road-sand, and similar rubbish, very retentive of water. Elsewhere the leaves are yellow, an invariable symptom of an over-cold and damp land; in situations better drained, as for example all along the ditch, the foliage is green, vigorous, and healthy.

Here, then, we find what we look upon as good evidence of the justice of the opinion which we have ventured to express as to the cause of the pestilence in question. The whole crop is not attacked, because, although the land is ill-drained, yet the recent trenching, and the decaying turf just below the Potatoes, have been sufficient to carry off the water. Where it was otherwise, that is, where road sand was thrown down to some depth, and consequently the turf drainage annihilated, there, and there only, the disease appears.

We should be much obliged to our correspondents if they would examine closely into the state of the ground where their Potatoes are growing; for if water lodging in the ground is the cause, then thorough drainage will be the preventive in future years. That excessive wet in a cold soil is the cause, connected with the other circumstances already alluded to, is, we think, conclusively proved by Potatoes from Bennenden, in Kent, which are half rotten. Now these Potatoes had already burst from the quantity of water they contained; but the wounds so produced had healed up, and now they are perishing from murrain. We infer from these examples that at Bennenden, even in the warm and comparatively sunny days of July, the tubers were injured by excessive wet; but on that occasion it did not end in putrefaction; that form of the disease did not come on till the cold, gloomy, watery days of August, and after the forced growth of July.

Since writing thus far, the post has brought a fresh supply of information; among which are letters from Dr. BELL SALTER, and Mr. GIFFORD, a Jersey gentleman. The former states that the disease has become modified, and ceases to run its course so rapidly. During the last week we have had a little sunshine and a cessation of rain. Mr. GIFFORD's remarks coincide with the views above expressed.

As to cure for this distemper—there is none. One of our correspondents is angry at our not telling the public how to stop it; but he ought to consider that man has no power to arrest the dispensations of Providence. We are visited by a great calamity; which we must bear. At the same time, although it is not within human means to alter the course of the seasons or to prevent the maladies attendant on them, yet prudence may perhaps suggest some alleviation of the evil. Should we have fine weather, the disease will probably disappear; should rain and cold continue, it will spread. In the latter case, the only thing to be done will be to dig up the crop immediately. Much loss will be thus sustained, and the quality of late Potatoes will be bad; but the loss will be less than to let the Potatoes all rot in the cold ground, and we conceive that some of the crop will be eatable, though not what could be wished. We find that in some districts the haulm has been mowed down by way of stopping the mischief, and this may be judicious, as a temporary expedient; but we fear that no real advantage can be expected from any other course than digging up, drying, and sorting over the produce.

Although the Potatoes taken up thus early will suffer in quality from their unripeness, yet even this evil may be partially remedied by putting them in heaps consisting of alternate layers of dry earth and tubers. In such a situation it is probable that no further decay will take place, and it is certain that the ripening process will continue to proceed, although less effectively than under natural circumstances. We may add that such late Potatoes as we have examined are much more advanced towards ripeness than might be supposed. They are already very full of starch and their gummy matter is disappearing fast.

We should be very glad to know how far the observations of others confirm or contradict our suggestion, that thorough drainage prevents the appearance of the Potato-murrain. We should also wish to know whether it has appeared in the cold parts of the kingdom. If not, the Potato harvest in the north bids fair to be as profitable to the gardeners there as it is ruinous to those in the south; and holders will do well to ascertain the value of their Potatoes in London before they sell.

As to the fitness of decayed Potatoes for food, we doubt extremely the prudence of using them, if the disease is more than skin-deep, so that it may be pared away. Putrid matter of any kind, or even matter approaching putridity, is unfit for being introduced into the stomach, and has very often proved fatal. The Belgian Police, acting upon this well-known fact, have been destroying the decayed Potatoes in the public markets of Antwerp, and they have acted wisely.

PROPERTIES OF THE CARNATION.

SOME friends of mine, who were at the late Leeds show of Carnations and Picotees, having expressed regret that many of the flowers there exhibited were extremely thin and deficient in petals; and as there appears to be a greater diversity of opinion with regard to the Carnation than with most other florist flowers, I have ventured to recommend the following standard, which has been known and acted on in Nottingham and its vicinity these last 20 years, without any one wishing to lay claim to it, as of their establishing, or being anxious to appear wiser than their brother florists. I am aware that it differs in some respects from the opinion of good practical men, still I believe it will be found not very far off the mark:—

First, then, with respect to the Carnation, the ground colour should be white, the purer the better. In Scarlet Bizarres this is a point of difficult attainment, nine varieties out of twelve having the ground colour flushed, specked, or pouncy.

Bizarres, whether scarlet or crimson, ought to have the two colours distinctly and vividly portrayed on the white or ground colour; and these colours should be as equally as possible distributed over each petal. It is argued by some, that so long as each leaf has the two colours (however minute the dark or scarlet may be), it will do. It may do for some parts of the country, but it will not pass here; we want a well and fairly balanced flower, without too great a preponderance of either colour, such as a well grown Hufton's Patriarch, Redfern's Gameboy, S.B., or Ely's Lord Milton, C.B.

Flakes—scarlet, purple, and rose, have their respective colours only, without any admixture, in longitudinal stripes on each petal, narrow at the lower end, and increasing in width to the margin. These stripes should be fairly proportioned (without the broken narrow markings prevalent in some varieties), with the ground colour; specimens of our standard will be found in Wilson's William the Fourth, S. F., Pollard's First Rate, P. F., and Ely's Lovely Ann, R. F. These sorts have fine Rose-leaved petals, bright colours, and excellent markings, with sufficient in them to please the most fastidious. If further examples are wanted, take Addenbrook's Lydia, S. F., Brabbin's Squire Meynell, P.F., and Ely's Lady Ely, R. F. As for size, we like them as large as we can get them; say from 2 ins. to 3 ins. Colcut's Brutus, S. B., Bucknall's Ulysses, S. F., and Brooks's Flora's Garland, R. F., are all flowers of large proportions and fine properties, often reaching 3 ins. in diameter. It will happen, however, that when grown so large, their purity, which is of primary importance, will occasionally be sacrificed to their size; but, as in other florists' flowers, size, with fine quality, will always take precedence.

In regard to *Form*, every Tyro in floriculture knows that a round flower is preferable to a three-cornered one. Carnations will grow out of shape, and therefore art is brought in aid of nature; and the skilful florist, with tweezers in hand, will place the petals in their proper position, and give the flower that perfection of form which is requisite. The excellency of this depends in a great measure on the petals, which must be

broad, smooth on the margin, and without serrature—the guard-leaves rising well out of the pod, and then assuming a horizontal direction, each petal very slightly cupping. It is also required that they should be stiff, and of good substance, each tier imbricating the one beneath it, and gradually decreasing in size, the leaflets in the centre forming a crown. We consider six rows of petals too many in the Carnation, for this simple reason, we wish to see the marking of each leaf distinctly, and when so double, this can hardly be done, in consequence of the upper ones hiding the lower ones. As for the pod, it ought to be long, and sufficiently large to bloom without bursting. We cannot, however, boast of many possessing this desirable quality; some few of the Yorkshire and Lancashire will do so, and laterals and late blooms are with me this season better than usual. Still, I think it must be allowed that the florist, who, by assiduity and attention, will bring awkward-podded flowers in a fit state to compete with those of more tractable nature merits commendation; and I think that it is a point which deserves consideration in all Florists' Societies—"whether, where two flowers in every other respect are equal, the variety which has been most difficult to bloom well should not have the award."

I have now enumerated what we consider the necessary points to form a good Carnation. I do not claim them as my own, for these rules are acted on by our judges, and are well known to all florists here. If they can be improved on, we shall be happy to be informed through your columns; and, if required, my brother florists will bear testimony to the number of years they have been in force.—*W.*

CULTURE OF THE CHILIAN ALSTRŒMERIA.

Nothing whatever presents more ornament to our gardens during a great portion of the year than this beautiful production, whose flowers are at once so numerous and so splendid, and yet nothing can be more easy than its culture and multiplication. The thousand varied, but always charming tints, which tinge the corollas of these Alstrœmerias, present a difficulty in establishing a just horticultural nomenclature for them, as, like their brilliant rivals the Calceolarias, they would defy on that point the most rigid examination. One may affirm without exaggeration that all are beautiful, and one may also infer that they will soon become as popular as the Wallflower, the Mignonette, the Carnation, &c.; in fact, cut for nosegays, to grace the various apartments of the house, no other flowers can be compared with them.

The length, thickness, and number of their fascicled roots hinder them from flourishing under pot-culture; they succeed best in the open ground, in the free air, which if subjected to the following treatment, they can brave with impunity. A bed is dug about 14 ins. deep, in length and breadth proportioned to the number of roots required to be planted, at a foot apart from heel to heel; the bottom of the trench must be filled with rubble of potsherds, fragments of bricks, tiles, &c., in order to permit a prompt and easy drainage. It is then filled with a rich compost, formed of one-third fresh loam, one-third sandy bog earth, and one-third spit-dung, and some such strong manure as guano may be added, in the proportion of 1-30th of the whole mass. The whole is to be mixed well together, and left in heaps about two months before making use of it.

Each rhizome is planted in the month of October, taking care that its growing point is 10 ins. below the surface of the soil, On the frost becoming severe, the bed is covered with a frame-work, and surrounded by mulch; the air being abundantly admitted whenever the thermometer may not be below 32° Fahr. We have, however, known the cold to descend to 25°, and the roots not to be injured thereby.

As long as the severe frost lasts, the frame is covered with litter or straw, which is removed at all times, when the plants can enjoy the benefit of the sun's rays. So soon as the cold is no longer to be dreaded, the above protections are removed, and the plants whose shoots are already apparent, are left perfectly free to all atmospheric influences, and finally treated like other perennials. They must be very sparingly watered during the ripening of the seeds, and should great rains follow after the seeds are gathered, they must be protected by the frames to prevent the rot. The roots are to be taken up towards the end of July, the rhizomes cleaned and separated; afterwards they may be left exposed on shelves in a very airy dry place, until the moment of replanting.—*Louis Van Houtte, of Ghent.*

ICE-HOUSES IN CHINA.

A short time before I left England, you published in the *Gardeners' Chronicle* a number of letters and plans for the construction of ice-houses, but, as far as I can remember, nothing at all resembling the Chinese one, which I shall now describe to you. On the left bank of the Ningpo river, proceeding upwards from the town and forts of Chinghai, and in various other parts in the north of China, I have met with these ice-houses. When I inspected them for the first time, last winter (1843), their construction and situation differed so much from what I had been accustomed to consider the essentials of an ice-house at home, that I had great doubts of their efficiency; but at the present time, which is the end of August, 1844, many of these houses are yet full of ice, and seem to answer the end most admirably. You are probably aware, from my former descriptions of the country, that the town of Ningpo is built in the midst of a level plain, from 20 to 30 miles across. These ice-houses stand on the river sides, in the centre of this plain, completely exposed to the sun—a sun, too, very different in its effects from what we experience in England—clear, fierce, and burning—which would try the efficiency of our best English ice-houses, as well as it does the constitution of an Englishman in China.

The bottom of the ice-house is nearly on a level with the surrounding fields, and is generally about 20 yards long by 14 broad. The walls, which are built with mud and stone, are very thick, 12 feet in height, and are, in fact, a kind of embankment rather than walls, having a door through them on one side, and a kind of sloping terrace on the other, by which the ice can be thrown into the house. On the top of the walls or embankment a tall span roof is raised, constructed of Bamboos thickly thatched with straw, giving the whole an appearance exactly resembling an English haystack. And this is the simple structure which keeps ice so well during the summer months, under the burning sun of China! The Chinaman, with his characteristic ingenuity, manages also to fill his ice-house in a most simple way, and at a very trifling expense. Around the house he has a small flat level field, which he takes care to overflow in winter before the cold weather comes. It then freezes, and furnishes the necessary supply at the door. Again, in spring these same fields are ploughed up, and planted with Rice; and any water which comes from the bottom of the ice-house is conveyed into them by a drain constructed for the purpose. Of course here, as in England, the ice is carefully covered up with a thick coating of straw when the house is filled. Thus the Chinaman, with little expense in building his ice-house, and an economical mode of filling it, manages to secure an abundant supply for preserving his fish during the hot summer months. This I believe is the only, or at least the principal purpose to which it is applied in this country, and never for cooling wine, water, or making ices, as we do in Europe.



It is now, I think, a question whether we could not build ice-houses at less expense, and more efficient, upon the Chinese plan than upon the old under-ground system common in England. The accompanying sketch will enable you to form an idea of the appearance which these ice-houses present to the traveller, in going up the Ningpo river.—*R. Fortune, Ningpo-foo, August*, 1844.

Home Correspondence.

Potato Blight.—In reference to my communication on this subject (p. 561) I think it well to add that since that time the type has somewhat modified. Though the affection is almost universal, and is still essentially the same as I at first described it, it does not now run its course so rapidly, nor in the instances of later attacks do I think reaches to the same extent. In this, as in other respects, this disease in the vegetable world has followed the little-understood laws of epidemics in the animal kingdom, whether as affecting man or animals. In this island most certainly the first attacks were immeasurably both the most fatal and the most rapid. As regards what proportion of the Potato crop is destroyed in this neighbourhood, I would not venture an opinion.—*T. Bell Salter, Ryde.*——I am sorry to say that the pestilence mentioned by Dr. Salter, which has seized the Potato crop in the Isle of Wight, has also done a deal of damage to our Potato crops in the island of Jersey, but, thank heaven, not as yet to the extent mentioned by your correspondents. About three weeks ago, I first perceived the mischief in a Potato-field of mine (about an acre), and I at once attributed it to the easterly winds, and took no more notice of it; but a few days after, seeing the fields of my neighbours in the same plight, and having taken notice that those parts of the fields which were most sheltered from these winds had not escaped the disease, I concluded that it must be attributed to other causes, as yet unknown. Having remarked that the places most affected were under the hedges, and in the coldest parts of the fields where the sun had less power, and that those parts where the sun had full play, the crop had suffered less, I think that it will be found, after a serious investigation, that a great deal of the mischief must be attributed to the very wet season, and to the cold nights which we have had all through the summer. With us the tubers have not as yet suffered. I dug a few roots the other day, and though unripe, they were found very good. So far as the leaf and the stems go the disease seems to be the same as mentioned by Dr. Salter, and it seems to be universal through our island. P.S. I have Potatoes in a field, hilly ground, where the sun strikes all day long, which shows no symptom of the disease, and this according to my opinion, goes far to prove that the state of the atmosphere through the summer has had a great deal to do in bringing the dreadful calamity complained of.—*Richard Gifford, Bellevue Cottage, Beaumont, St. Peter's, Jersey.*——The perusal of the article on Potato-blight induces me to trouble you with a few remarks on the subject. About ten days ago I first noticed a brown spot or mark on the margin of some of my Potato-leaves. On examination I also found spots of a similar colour on the stalk; but on trying the roots or tubers of several sorts, I could find no perceptible disease or injury! This morning I have been induced to examine a variety of sorts in different situations and soils. 1, Ash-leaved Kidney; 2, July; 3, Fox's or Cox's Seedling; 4, Peeler; 5, Lancashire Red; 6, Canada Pine; 7, a Potato kindly sent me by Dr. Henderson; and 8, Mangold Wurzel. All the sorts in all the situations appear to be similarly affected, except No. 8, which has up to this day almost entirely escaped, though the fatal spot is occasionally perceptible on the leaf, the plant growing very luxuriantly. I may add, that every plot in my allotment-field, under every variation of culture, is in the same sad condition, and the neighbouring farmers make a similar report. I observe here that the centre of the plots has been first affected; that the haulm smells remarkably like new-made hay, and that the whole of the mischief above-ground is done in the course of 3 or 4 days. I cannot, however, ascertain that as yet any injury whatever has been done to the tubers in either of the sorts I have mentioned, whether early or late; it is true that I found a few of my Julys slightly diseased on the outside; but not more so than frequently happens, and certainly not sufficient *per se* to attract notice or remark. With respect to the destruction of the pigs mentioned at p. 561, may not this have arisen from the Potato being unripe and unfit for food, instead of being consequent upon the blight? My gardener calls the disease the dry rot.—*Petworth.*——This remarkable disease, I am sorry to say, is very prevalent in this county, and has created quite a sensation among Potato growers, who, from the general healthy appearance of the plants previous to this sad visitation, had every reason to anticipate a most abundant crop. It is now about 10 days since I had my attention first drawn to it, by the unusually sudden decay of the stems of some Early Frame Potatoes in the kitchen garden; but supposing them to be ripe, no particular notice was at that time taken of the circumstance. The following day, however, on passing through our field of Potatoes I was surprised to see large patches of the late kinds dying off, and presenting the same appearance as those of the Early Frame. On examining the roots, I found to my astonishment, portions of them more or less spotted and spongy, of a dull brownish colour, resembling Potatoes injured by frost. I at first was inclined to ascribe the disease to this cause, but if such had been the case the failure would have been general over the field, which is not the fact—some parts only being affected, whilst others are as green and healthy as it is possible to be. When the subject has been further investigated we may probably be able to account for this malady, but at present I think it would be premature to offer an opinion. Certain it is, that it has spread, and is spreading, to an alarming extent.—*W. B. Booth, Carclew.*——I am sorry to say that the blight you mention as occurring to the Potato-crop in the Isle of Wight is general. I understand, all between Dartmouth and Kingsbridge, and that neighbourhood, and possibly in most other places. It seems to be a new thing here; they have given it here the name of rust. I do not hear that it has attacked the late Potatoes, but on looking at mine yesterday evening some of the leaves appeared black, but that might have been the effect of previous high wind. The effects will be severely felt by the local poor; and should it be general throughout England (and I hear it spoken of in Norfolk), the consequences will be very distressing. Should you not think that the Potatoes under the stalk which are not infected will not become so? and that, therefore, they need not yet be taken up, as the weather and time is unfavourable, and the disease will not—now communication with the stalk is cut off—spread from Potato to Potato. Mine are not so bad as mentioned in the Isle of Wight, as only a very small portion of the Potato is infected—in some in two or three other places. I have observed it about a week, and it was then that I observed that, apparently in one night, the leaves of the Potatoes had turned as if struck by frost. My pigs have eaten them since, though a person to whom I was speaking yesterday said that some of them tasted so

bad that he could not get rid of the flavour for some time; and all Potatoes, except the very early ones, are complained of as being bad and close.—*C. B.* ——The failure in the Potato-crop is not confined to the Isle of Wight. Hundreds of acres have been destroyed in Devon and Cornwall; the havoc is very great, and many poor families will suffer during the coming winter. The plant is attacked in a similar way to that described by Dr. Salter. The failure is not confined to one district, but is seen to be universal throughout the West.—*William E. Rendle, F.H.S., Plymouth.*——The Potato blight ravages the whole neighbourhood, and is so rapid in its progress, that an inclosed garden quite free last Saturday was quite offensive from the decay on the Monday, the roots apparently uninjured to the eye, when boiled, appeared to have been frost-bitten, and were uneatable. Will the ground require purifying previous to planting any other crop?—*A. E., Sussex.*——Can anybody in any way account for a sudden change in my Potatoes, viz., the haulm dying off, as if after a severe frost; in fact, not only in my own, but all of my neighbours for many miles round. The Potatoes themselves are small and the skins soft. This applies to all the sorts both early and late; where they are in fields they look quite black, and small spaces in the gardens almost so.—*J. F. F., Suffolk.*——The Potato pestilence described by Dr. Salter as being prevalent in the Isle of Wight is, I fear, too general. In this neighbourhood, so far as my inquiries have extended, neither sort, soil, nor situation make any difference. In the garden here it first attacked a plot of Bread-fruit Potatoes, and the appearances these presented were very similar to those mentioned by your correspondents at p. 561, and its progress has been so rapid that 20 rows, each about 20 yards long, will not yield a bushel of untainted tubers. All the Potatoes in the garden are affected, more or less, but the late varieties are the most injured; in consequence, perhaps, of the greater luxuriance and succulence of their stems and foliage. I am satisfied that the disease commences in the leaves, and extends down the stems to the root.—*J. B. Whiting, The Deepdene.*

Winter Planted Potatoes.—I planted a few rows of Ash-leaved Kidneys on the 5th December last, (before I had seen the article in your Paper on the subject,) ridging them up 1 foot high, with long dung over them. I did not hoe off till the end of March. The crop has been magnificent, and the tubers excellent. I intend to plant in the same way for next year's use in about a fortnight. Another lot of Penzance Kidney I planted precisely in the same way on the 5th January, but they have miserably failed. I think the first planted gave me 10 times as much produce, and better quality.—*T. P., Cornwall.*

Hardiness of Salvia patens.—I have in my garden a plant of this which has been out of doors entirely unprotected during our late severe winter. It was forgotten when the plants were taken in in the autumn, and after the first frost appeared quite dead; it was cut down, and the root allowed to remain; and in May it began to shoot; it is now in very fine flower, and quite as early, and I think a finer plant than those which were planted out from the greenhouse in June. I am anxious to know if cuttings from this plant will be more hardy than from the greenhouse plants, as anything which would acclimatise so beautiful a flower is desirable. Verbena Melindres has also been out all winter with me, but the bed was thatched over with straw. My garden is situated on the north coast of Devon, and much exposed to cold winds; and though the climate is milder than in the neighbourhood of London, we had very severe frosts and snow on the ground in March.—*An Amateur.*

Renovating Vine Borders.—The following is a method of doing this without disturbing the roots of the Vines: —An old Vinery under my charge having failed for two successive years in producing anything like a full crop of Grapes, and attributing the principal cause of failure to the border being exhausted, I adopted the following novel plan of renovating it with perfect success. About the middle of March, and just as the Vines were beginning to start, I penned a few sheep on the border, and fed them well with Swedish Turnip and oil-cake for about a month. Immediately after the sheep were removed the border was slightly forked up and left fallow during the remainder of the season; the consequence was, that the Vines made excellent short-jointed wood, and they have ever since carried more fruit in one season than they did in two, previous to the "sheeping" of the border. I cannot say what quantity of Turnip and cake were consumed; nor can I as yet state what quantity ought to be consumed on a given space of ground. My border is 48 ft. by 15 ft., and I kept six sheep on it during the term mentioned above, and gave them as much Turnip and cake as they could eat. Some, I have no doubt, will laugh at the idea of feeding sheep on a Vine-border, and think it a very unsightly object to see sheep and hurdles in a garden; but let them bear in mind that a half a dozen of sheep and a few hurdles for about a month are not at all so unsightly an object in a garden as a few shanky small-berried bunches, where a full crop of well-shouldered large-berried bunches of Grapes ought to be, and which can be obtained without the labour and expense of renovating a border in the usual way. I intend renovating a Peach-house border in the same way, and will send an account of the result. Much depends upon how the sheep are fed; the richer the food the better the droppings.—*A. Z. R.*

Hoare's System of Vine-culture.—In reply to Mr. Hoare, who wishes (p. 529) to know how the Vinery was managed here in which we tried his plan of root culture, I give the following:—Mr. H., in his book, not having stated that any particular method of regulating the house was necessary to insure the success of the Vines, we naturally adopted that generally followed with young plants—namely, beginning to force with a mild heat, and raising it gradually from 45° to 65°, by an increase of about half a degree each night, frequently sprinkling the house during the day with tepid water, and admitting air in the forenoon when the weather was moderate. The forcing was begun on the 1st of March, and two Vines planted in turf, in the same house, at the same time, and of the same age, as those put into Mr. Hoare's substances, have done well, showing a specimen or two of highly-coloured fruit.—*C., Aug.* 12.—— Having latterly seen several articles in the *Chronicle* on the Vine, and for some years having in part followed out Mr. Hoare's system of training the Vine on the wall, I feel it due to Mr. H. to state that it has succeeded with me far beyond what I could have expected, having hitherto obtained abundant crops of Grapes; and this year they appear most promising. Two years ago I prepared a border according to the instructions given in Mr. H.'s Work on the Vine, but not exactly in the same manner (if I understand rightly), as done by your correspondent from Bishops' Stortford. I formed mine thus:—Having excavated the space allotted, I laid in a tolerable quantity of broken bricks, old mortar, bones of a large size, manure, &c., to within a given distance of the surface, and afterwards laid over it, probably, 18 inches of good rich light soil; I then planted several young Vines, 56 inches apart. They made little progress in the first year, and were cut down in November to the lowermost bud; but this year I have the satisfaction of seeing them grow most luxuriantly, many of the stems being from 10 to 11 feet long, with fine healthy expanding leaves, and bid fair, though the season has been so unfavourable, to mature their wood well. As an individual who has derived great advantage and amusement from Mr. H.'s system, I feel it a duty I owe to that gentleman to state thus much; and have no doubt, if others would pursue a moderate system, instead of going to extremes, their expectations would be realised.—*W. E., jun., Ludlow.* ——As some importance has been attached to Mr. Hoare's book on the Vine, which professes to give directions how to grow Grapes, but which nobody seems to comprehend, I think it but fair and just to the public, that when any theory so much at variance with the axioms of gardening is propounded, especially one so opposed to common practice as that of discarding our mother earth entirely in the cultivation of the Vine, and substituting exclusively brickbats, lime rubbish, bones, &c., that some better apology should be offered for the many failures that have occurred than that published by Mr. Hoare, at p. 545. Mr. H.'s statement amounts to this—1st. The want of success is attributed to the planting of too weak Vines. Now, in two pillars which I happened to see put up, two Vines were selected, unusually strong and vigorous, and although I have planted Vines less or more for these 25 years, I never planted two finer Vines; but I might as well have planted a couple of walking-sticks. 2d. The next excuse is the use of raw bones with flesh about them. The bones used in these pillars were not raw, nor had they any flesh about them whatever. 3d. The excess of urine in saturating the materials is the next cause of failure. Now this was done with Mr. Hoare's book in hand, and under the direction of an eminent chemist and vegetable physiologist, but Mr. Hoare was obeyed to the letter. The 4th and last cause which Mr. Hoare advances is the severity of the winter. Now these pillars were built, and of course the Vines planted, after the frost in spring. The Vines, moreover, had never been exposed to any of the severities of winter, but had been kept in a glasshouse. The above are the causes which Mr. Hoare assigns for the failures of his system, but in this case none of them were present. The best evidence which Mr. Hoare could offer of being able to do what he professes, and which the public has a right to demand, is a sample of his Grapes at some of the Exhibitions of the Horticultural Society. A Gold Medal will tell in these times in favour of the system much more convincingly than a multitude of excuses.—*Duro.*

Pine-growing.—I have been much interested by the remarks of "A. Z." (p. 528) on the growth of his Pines. From my own experience I think I can promise him very fine fruit next year (if that will be a consolation to him). I also built a pit last year, which I heated with a tank made of 1½ inch deal, extending under the whole of the bed, leaving room for a 4-inch pipe in the front only. I purchased two dozen fruiting plants, which I received in March last year; about 18 of these fruited in the latter end of the year: one White Providence reached 5¾ lbs.: the remainder, with some successions, which I received at the same time, have given me some nice fruit already, and more promise. I will only mention that I cut three Ripley Queens, (probably the Trinder's Pine referred to in "A. Z's." letter,) in one week lately, which weighed together 12 lbs. 10 oz.: one having reached 4 lbs. 12 oz.: all being very handsome fruit, with small crowns. These were planted out in the bed soon after they showed fruit, which they ought to have done last year. The soil is rough turfy, as recommended by Mr. Barnes; the plants are all in excellent order, and their luxuriant growth seems to defy the attacks of insects, of which we have not one in the pit. I attribute much of this success to the application of the tank system, which answers admirably. One very fine fruit I fear I shall lose owing to the stem cracking nearly through soon after the fruit had made its appearance, caused, I presume, by the exuberance of growth; the stem was upwards of 1 inch in diameter at the time; the fruit has since blossomed, and swells tolerably well, but it has no crown, and I cannot, of course, expect a fine fruit, although it is 10 pips high. If you can give any explanation of the cause of this mischief, I shall feel obliged; it is a novel circumstance to all the gardeners to whom I have mentioned it; the cracks, of which there are several, are nearly vertical, and extend nearly all round the stem; they appeared in a single night, certainly not from the effects of a blow. I should mention that I do not keep up a very high temperature, rarely exceeding 80°, using the syringe copiously, and admitting plenty of air as often as possible. I think I shall cut a Ripley Queen 5½ lbs. this autumn—will that do?—*T. P., Cornwall.*—[The cracks are probably caused by the too rapid growth of the flower-head].

Glass.—It would be extremely desirable just now to ascertain precisely the prices of glass, of the different qualities, cut into the various useful sizes. I would advise all purchasers of this article to procure it of the exact dimensions they may require, if they desire to avoid loss from breakage in the cutting; thick glass in the hands of the inexperienced is not so easily cut as the thin glass formerly manufactured. In the erection of the more useful kinds of glass structures, with moveable sashes, it would be bad policy to use panes of a much greater width than formerly; because the least twist of the sash is sure to crack the panes if they are of great width, say 20 inches or 2 feet. I am quite of opinion that, for strength and economy, 8 inches in the clear of the sash-bar should be the maximum width; 7 inches is better; therefore, 7×24 is a convenient and economical size. In addition to the information furnished in the glass advertisements, it would be of service to country buyers to ascertain the following:—

Inches.	Weight per square foot.	Net price of do. for Cash.
18 by 6	.. ..	.. ..
18 by 7	.. ..	.. ..
18 by 8	.. ..	.. ..
24 by 6	.. ..	.. ..
24 by 7	.. ..	.. ..
24 by 8	.. ..	.. ..

It would also be desirable if those engaged in this trade were to have small squares, say 1 or 2 inches square, fair samples of the quality, which could be transmitted by post to parties applying. Thus placing buyers in the country on a level with those who can, without inconvenience, inspect the article in London. I make these remarks on account of the frequent inquiries made to me on the subject, and if carried out, the plan would facilitate the object of both parties—the buyer and seller. The observations made above respecting the use of certain sizes of glass are only applicable to forcing-houses, pits, and similar buildings, where the sashes require to be moved and shifted continually, and not to structures of a more permanent and ornamental kind.—*R. Glendinning.*

New Vegetable.—About a week or two ago, I observed in your Paper, an inquiry by one of your correspondents, for information respecting a "New Vegetable," reported to have been discovered on the coast of Labrador, about the year 1821. About that period a friend put into my hand a paragraph, cut out of a provincial paper, giving a flourishing description of a new vegetable, and asked me to procure some of the sets if possible. This I believe to be the same as your correspondent is inquiring about. I wrote to the gentleman who was stated to have introduced it; if I recollect rightly his name was Buck, residing at Beech Grove, near Paisley; in process of time my letter was returned, marked "no such person nor place known." On making further inquiry, I found that it was a hoax played off on the publisher of the Magazine, Sir Richard Phillips, but from what motive I do not recollect.—*F. H. S.*

Destruction of Wasps.—Various plans have from time to time been recommended in the *Chronicle*, for the destruction of wasps, all of which I have tried, but have found none of them so effectual and speedy as the following:—I take a pair of the old-fashioned sort of fumigating bellows, and first place in the bottom of the tube a small quantity of ignited rags, or any other dry substance which will burn freely; a thin layer of tobacco is then put in, adding afterwards a layer of sulphur, then another layer of tobacco, and so on, until the tube is rather more than half full. On the top of all there is placed a layer of dry Moss, pressing it down gently round the edges to prevent its coming out in the operation of blowing, should the entrance to the nest be perpendicular: this precaution is not necessary, however, if the top is used, but I find it less trouble, and the job is more speedily accomplished without it; although if the entrance to the nest be very small, and cannot, without disturbing the wasps, be enlarged, it is better to put it on. While the tube is being charged the bellows should be gently blown from time to time to keep the tobacco in a state of ignition. Having inserted the tube an inch or two into the hole, and filled up with pieces of turf any openings round the edge to prevent the smoke coming back, five or six minutes' blowing will be sufficient to charge every nook and cranny within, and should there be any other entrance, however minute, it will soon be discovered by the smoke issuing from it. After the bellows are withdrawn, the hole should be closed for a short time—about 10 or 12 minutes—when the nest may be dug out without any dread of injury. The whole operation, if rightly conducted, does not occupy more than 20 minutes, and if the nest

is near the mouth of the hole, half that time will be sufficient. I took a nest a few nights ago, which contained nearly a thousand working wasps, besides an immense quantity in the maggot state, and amongst all these, when taken out, there was not one that exhibited any sign of life To this I may add that one of my men has just brought in, in his cap, one of the largest nests I ever saw. He had about a mile to walk, and has been absent something less than an hour. Will some of your correspondents, who have the means and opportunity, try this plan and report upon it.—*Omega.*

Melon-growing.—Having seen a plan of Mr. Rogers's pit early in the summer, I had one built exactly like it, thinking it would do well for Cucumbers and Melons, in which, however, I am sadly disappointed. I have tried every means I could think of, still the fruit of the Melons goes off, after becoming larger than a Walnut. The Cucumbers do a little better; but are far from being handsome, as they used to be in dung-beds. I have been a grower of Melons upwards of 30 years, and have obtained many prizes; but it was from M'Phail's pits, worked by dung. In fact, I never failed once in having a good crop of well-flavoured fruit; but now I am completely beat. I have tried everything I could think of. Having my pit divided by cross walls into four parts, I tried one with air night and day; another with air, as I used to work my old pits; one was well watered, the other sparingly, but all to no purpose. Nothing can be more healthy than the bines are; they have never flagged nor wanted shading. What, then, can be the reason I cannot get a crop of handsome fruit? My pit being finished about two months back, I planted out 3 lights of Cucumbers and 12 lights of Melons; in a month the pit was filled with the most healthy bines, showed plenty of fruit after being stopped, thinned out, and the fruit set; but the fruit continually dies away. Nothing can work better than the apparatus; I can keep the pit just as I please, which I do to about 76° Fahr. If you can give me any advice respecting it, I shall be thankful.—*Nella.* [Too much moisture is doubtless the cause of Melons occasionally not setting well in pits heated by hot-water. The tanks or pipes should be in a chamber, from which there should be free communication with the air above the soil; if the heat has no way of ascending but through the soil, it carries with it so much moisture, that the plants are kept in a constantly humid atmosphere, and hence cannot have their tissues sufficiently formed to retain the young fruit.]

Tasmannia aromatica.—A small specimen of this new shrub has stood the whole of the late rigorous winter, at Combe Royal, near Kingsbridge, South Devon, without protection. It is growing in a sheltered situation, on a dry bank, and its foliage was not even injured by the intense frost; while Metrosideros robusta, though screened by mats and planted against a wall, has perished close to it; and a noble specimen of Acacia dealbata, 42 feet in height, has been killed nearly to the ground. Would not Drimys Winteri succeed in such a situation? —*Anon.*—[Probably.]

Weeds on Gravel Walks.—Having seen in your columns, a plan for destroying weeds on walks, or pitching, with arsenic, I beg to mention one which, I think, is more economical, and which I have proved to have the desired effect (on pitching). I have a large yard, which for years has been very much neglected—it was a complete mass of Thistles, Dandelions, Couch, Hogweed, Convolvulus, &c., in fact it was covered to that degree, that you could hardly tell whether it was pebble or not. To keep men weeding seemed useless, so having a large copper, containing (when full), about 60 gallons, I had it filled with water, and when the water boiled, I threw in about 50 lbs. of salt (not quite a pound to the gallon); this I had put on while boiling, and the result has been beyond my expectation; the weeds being large I had them pulled up. This was done in the spring of last year; in autumn I found them springing up again, I then had the yard done with a solution not so strong as the first. This, too, proved effectual, and I had it done once this spring as a preventive, and I have had scarcely a weed during these last 18 months. This method not only eradicates the weeds, but gives to the pebbles the bright appearance of those by the sea-side. The reason why I mention this is, that I think the arsenic dangerous, and the salt is so much cheaper. I have not tried it on gravel walks.—*J. W., Chichley Hall.*

Country Show.

Manchester Floral and Horticultural Society, August 13.—The display of flowers and fruit on this occasion, more especially the latter, was in every way worthy of the neighbourhood. The following are a few of the principal objects:—Amongst the Fruit were two splendid Cabul Melons, from Heaton Park, weighing, on an average, 8 or 10 lbs., which great weight led some to imagine that they were not the genuine Cabul. The one had green spots on a white ground, rather roundish, and the other green on a yellow ground, of a very oval, or oblong character. There were also other very good Melons. Of Pines, there was a fine Providence from Thornycroft, weighing probably about 6 lbs., and a good Jamaica, besides a fine pair of Envilles, on one root, from Mr. Newton. A dish of the Gros Mignonne Peach exceeded, I think, all in the Peach way I ever saw: they probably averaged 11 ounces each. Of Grapes, there was a dish of the Cannon Hall, from Eshton, in Yorkshire, the berries of which were of immense size, but the bunches lean; it is proverbially a shy setter. There were other Muscats good, but not thoroughly ripe; also many dishes of good and well-coloured Hamburgh and Lombardy Grapes. The various show Gooseberries might very fairly be taken at a distance for ripe Pears. Several other dishes of various well-grown articles in the fruit way, graced the tables. Vegetables were abundant, but those I must pass by. Among plants, the Orchids, as usual, were most striking. Mr. Clewes' collection being so near at hand it may readily be supposed that there would be something very good in this way. Amongst the foremost was a fine plant of the rare Cephalotus follicularis, well grown indeed; a fine plant of Nepenthes distillatoria, the beautiful little Anœctochilus setaceus, the singular and dark-complexioned Cycnoches Egertonianum, and Calanthe masuca; several masses of Miltonia spectabilis, a Cattleya Harrisoniæ, at least 1½ foot diameter, and having 12 trusses of bloom in perfection; the elegant Cattleya crispa, with two trusses, Cycnoches chlorochilon, and a little Cattleya citrina in a Cocoa-nut shell, with one blossom; a nice Aerides quinquevulnera in full bloom, a large Oncidium luridum, Rodriguezia suaveolens, Zygopetalum maxillare, Mormodes aromaticum, &c. In the general plant way, there were fine Lilium lancifoliums, excellent Fuchsias, amongst which were large plants of F. Exoniensis. The Pelargoniums were both few and indifferent. The old but elegant Humea elegans, a fine Cereus Mallisoni, grafted on C. tetragonus, had the effect of a fountain playing, so symmetrically were the branches disposed; Gloxinia Cartonii, Cyrtoceras reflexum, Amaryllis aulica, Sollya linearis, with a host of Achimenes, &c., &c. The meeting, I was given to understand, was in aid of the funds of the Infirmary, and I was sorry to be informed before leaving the rooms, that the thing was, as to its object, a failure.

Reviews.

Travels in North America, with Geological Observations on the United States, Canada, and Nova Scotia. By Charles Lyell, F.R.S. 2 vols. 8vo. London: Murray.

To those who intend making America their home, or are anxious to know something more of the physical capabilities of the United States, this book will be found very valuable. It not only contains an interesting account of the geological characters of the United States and British North America, but also the personal adventures and observations of the author. Mr. Lyell is well known as a geologist, and the scientific world wanted no pledge of the interest that would attach to any remarks that he might make on the subject of which he is so profound a master. The public generally, however, might think that a man might be very skilful in pointing out the physical features of a country, who, nevertheless, would be utterly unable to throw an interest over the life and activity which might be presented to him. But this is not the case with Mr. Lyell. In the midst of his geological excursions, he has not failed to observe the beauty of the wild scenery around him, the majesty of primitive Pine forests, the rapid strides of population, the wants, the habits, and peculiarities of man, in teeming cities, in wild back-woods, or doomed to wear the chain of slavery. Mr. Lyell left England in July, 1841, and returned to England in August, 1842. During this time he travelled through the greater part of the United States, besides passing through Canada and Nova Scotia. His geological observations were full of interest; the result, however, of these only is given in these volumes, as the details have been previously published in the "Transactions of the Geological Society," and other places, and have an important bearing on many of the disputed geological points of the present day. There is no part of these volumes more valuable than that which refers to the various coal-beds of America. These beds are so extensive that they seem capable of affording an almost inexhaustible supply of fuel to the future inhabitants of that part of the world. In some districts, as in the Valley of the Ohio, great rivers pass through the coal, so that it lies exposed upon their banks. The Nova Scotia beds present great numbers of upright trees; of these Mr. Lyell counted 17, and from this fact, and observations made on the Great Dismal, a very appropriate name for a swamp 40 miles in length and 25 in breadth, he concludes that our ancient coal-beds must have been deposited on the spot where they now exist.

"That the ancient seams of coal were produced for the most part by terrestrial plants of all sizes, not drifted, but growing on the spot, is a theory more and more generally adopted in modern times, and the growth of what is called sponge in such a swamp, and in such a climate as the Great Dismal, already covering so many square miles of a low level region bordering the sea, and capable of spreading itself indefinitely over the adjacent country, helps us greatly to conceive the manner in which the coal of the ancient carboniferous rocks may have been formed. The heat, perhaps, may not have been excessive when the coal measures originated, but the entire absence of frost, with a warm and damp atmosphere, may have enabled tropical forms to flourish in latitudes far distant from the line. Huge swamps in a rainy climate, standing above the level of the surrounding firm land, and supporting a dense forest, may have spread far and wide, invading the plains, like some European peat-mosses when they burst; and the frequent submergence of these masses of vegetable matter beneath seas or estuaries, as often as the land sunk down during subterranean movements, may have given rise to the deposition of strata of mud, sand, or limestone, immediately upon the vegetable matter. The conversion of successive surfaces into dry land, where other swamps supporting trees may have formed, might give origin to a continued series of coal measures of great thickness. In some kinds of coal, the vegetable texture is apparent throughout under the microscope; in others, it has only partially disappeared; but even in this coal the flattened trunks of trees of the genera Lepidodendron, Sigillaria, and others, converted into pure coal, are occasionally met with, and erect fossil trees are observed in the overlying strata, terminating downwards in seams of coal."

He also mentions a curious fact with regard to the coal flora of America, and that is, that four-fifths of its plants are identical with those of the European coal-beds. This indicates a much greater resemblance between the circumstances of Europe and America in the earlier periods of the world's history than at present. In this part of his work Mr. Lyell objects to the theory which accounts for the enormous quantities of carbon deposited in the coal-beds, by supposing that the atmosphere of the carboniferous era was charged to a much greater extent with carbonic acid gas than at present, and that the condensation of the carbon and the giving out of the oxygen led to a state of the atmosphere adapted to the existence of higher forms of animals than had hitherto existed. In objecting to this theory, Mr. Lyell urges that peat mosses, swamps, and bogs, and deltas formed of trunks of trees, are forming at the present day, and yet do not change the constitution of the atmosphere. This we take for granted, that the surface of the earth at the present day and during the coal period corresponded. It is this evident want of correspondence; the fact that so large a portion of the earth was suddenly covered with a prolific vegetation, without animals to restore in carbonic acid what they took in as vegetable matter, that leads to the conjecture of an atmosphere charged with carbonic acid; and we think the difficulty of admitting Mr. Lyell's assumption is greater than that of supposing a highly carbonated atmosphere; and consequently, wanting in evidence as it may be, we receive the latter as the sounder conclusion.

We hardly know where to select passages illustrative of the general remarks in the work. Here is a scene in a slave-state:—

"Returning home to his hospitable mansion in the dusk of the evening of the day following, I was surprised to see, in a grove of trees near the court-yard of the farm, a large wood-fire blazing on the ground. Over the fire hung three cauldrons, filled, as I afterwards learned, with hog's lard, and three old negro women, in their usual drab-coloured costume, were leaning over the cauldrons, and stirring the lard to clarify it. The red glare of the fire was reflected from their faces, and I need hardly say how much they reminded me of the scene of the witches in Macbeth. Beside them, moving slowly backwards and forwards in a rocking-chair, sat the wife of the overseer, muffled up in a cloak, and suffering from a severe cold, but obliged to watch the old slaves, who are as thoughtless as children, and might spoil the lard if she turned away her head for a few minutes. When I inquired the meaning of this ceremony, I was told it was 'killing time,' this being the coldest season of the year, and that since I left the farm in the morning, 30 hogs had been sacrificed by the side of a running stream not far off. These were destined to serve as winter provisions for the negroes, of whom there were about 100 on this plantation. To supply all of them with food, clothes, and medical attendants, young, old, and impotent, as well as the able-bodied, is but a portion of the expense of slave-labour. They must be continually superintended by trustworthy whites, who might often perform no small part of the task, and far more effectively, with their own hands."

The volumes are illustrated by two plates; one of the geology of the falls of the Niagara, the other a coloured geological map of the United States, Canada, and Nova Scotia, and numerous wood engravings.

Practical Hints on the Culture and General Management of Alpine, or Rock Plants. By Jas. Lothian, gardener to W. A. Campbell, Esq., of Ormsary. 12mo. Lizars, Edinburgh; Highley, London; and Curry, Dublin.

A very nice little book, perfectly explanatory of the art and mystery of Alpine growing; and written by a gardener who understands his craft. It is not everybody who has a greenhouse, and very few of those who have one would dispense with a collection of Alpines, the most interesting of all the lowly tribes of plants, if they could but succeed in managing them. For, who is ignorant of the simple beauties of Saxifrages, Dryads, Soldanellas, Sundews, Primulas, Gentians, and a host of little things which dearly love John Highlandman, but show no affection to his lowland cousin. If such plants are to be coaxed into good humour in the low plains and valleys of the south, or are to dress themselves as they can do even in the north, Mr. Lothian tells the secret of inducing them, and we entirely recommend his little book to everybody who wishes to have the nicest of all hardy plants in the nicest possible garden. We do not however intend to dismiss the work thus slightly; but reserve it for some critical observations on another occasion. The only complaint that we shall now make is that the title does not correctly express its contents: it is not a treatise on Alpine or rock plants alone, but on bog-plants and water plants as well, and contains very neat figures and plans of a rockery upon and around which to grow them.

New Plants.

PORPHYROCOMA LANCEOLATA. Lance-leaved Porphyrocoma. *(Stove Perennial).* Acanthaceæ. Didynamia Angiospermia.—For the possession of this charming plant we are indebted to Mr. Forkel, gr. to his Majesty the King of the Belgians, at Brussels, who sent it to us under the above name; but unfortunately without any history, so as to leave us in the dark as to its native country, or the author of its very appropriate name (*πορφύρα* purple, and *κόμη*, head of hair), given in allusion to the singularly richly-coloured spikes of deep purple, from within the scales of which, the scarcely less brightly-coloured (but more inclining to blue), flowers appear. It was exhibited in the Horticultural Society's rooms, and excited admiration from the beauty of the blossoms, which consist in the dark purple comb-like parts half covering the Lamium-like violet flowers. It is a stove plant, and continues flowering during the spring and summer months. It may be referred to the tribe Echmatacanthi, Nees, and the sub tribe Justiceæ, Nees.—*Botanical Magazine.*

ACHIMENES ARGYROSTIGMA. Silvery-spotted Achimenes. (*Stove Perennial*). Gesneraceæ. Didynamia Angiospermia.—Among the many novelties sent by our collector for the Royal Botanic Gardens Kew, from the Sierra Nivada de Sta. Marta, in New Grenada, is this highly interesting plant. The leaves are peculiarly beautiful, of a rich, velvetty, dark green, with a tinge of purple, spotted with white, as in Begonia argyrostigma. The first appearance of the flowers produced some disappointment; but as the racemes increased in length, and more blossoms expanded, the plant became a general favourite, and is likely to continue so, for the flowers bid fair to continue the whole summer months. They are white, or cream colour, spotted with red. The plant requires the same treatment as others of this family; and we find it best, after rearing it in a moist and hot stove, to remove it to a cooler place; thus treated, the bloom and foliage continue in beauty a great length of time. It will be readily increased, we cannot doubt, by its scaly, caterpillar-like tubers, as is the case with the original Achimenes coccinea, of which this is unquestionably a true congener.—*Botanical Magazine.*

Garden Memoranda.

Brooklands, Blackheath, Kent.—This villa, the residence of James Cook, Esq., having been already noticed at page 87, little room is left for saying more on the subject. Those who are interested, however, in the art of getting up plants for exhibition will do well to pay Mr. Ayres, who is gardener there, a visit. Many promising specimens are now in training for next year; Erica hiemalis measures 6 feet in circumference and 1 yard in height, this being the growth of 15 months; Pimelea spectabilis is bushy and well grown; Boronia serrulata, and many other plants, also look remarkably well. The compost Mr. Ayres uses is a mixture of Shirley-peat, loam, and charcoal, the latter in small pieces, with a little silver sand; all in a very rough state. This mixture he finds to suit his plants generally. In the greenhouse, now a kind of stove, on account of the hardiest of the plants having been moved out of doors, was in bloom a bushy plant of Pentas carnea, which is very useful on account of its long season of blooming. Mr. Ayres imagines that it may possibly become one of the best plants for winter flowering; a well-grown specimen of Achimenes hirsuta was also in full bloom, it measured from 4 to 5 feet in circumference; also a dark variety of Clerodendron fallax, having 11 panicles of bright scarlet flowers; the blooms were much brighter than those of the best scarlet Pelargonium. Many other good things were likewise in flower, among which was a new plant which is supposed never to have bloomed in this country before; it was obtained from the Horticultural Society, to whom it was sent by Mr. Fortune from Chamoo, with this remark, viz., "A beautiful Campanulaceous plant, with large blue flowers, resembling at a distance Lisianthus Russellianus." This remark proves to be true. The plant has now bloomed, and the flowers do resemble those of L. Russellianus, and render it well worth cultivation in every collection. It was made bushy in habit by stopping the leader, and this produced plenty of side-shoots, on which was abundance of bloom. The flowers in form resemble those of a Campanula, are very large, and are on the top of single pedicels; the pedicels are from 3 to 4 inches in length, ending in a flower, which on its first appearance is of a whitish gray, and then changes to porcelain blue; it is a plant of easy cultivation. Among new things lately added to the collection, were Chirita sinensis; Gardenia Sherbourniæ, a promising plant with good foliage; Russelia (miscalled Vassalia in gardens) floribunda; Luculia Pinceana; Lemonia spectabilis; Brunsfelsia violacea and undulata; a large new Veronica, and a new Ipomœa, said to be much better than I. Learii, producing sky-blue flowers striped with white. The grounds are striking, and in the best of keeping; the flower beds are filled with Calceolaria viscosissima, Ageratum mexicanum; the newest of Verbenas and Petunias; and here was also the General Tom Thumb Pelargonium, which, in baskets with other plants, had a good effect; it is very dwarf, and a profuse bloomer. The stream which intersects the grounds assumes the magnitude of a lake; and near the water is a neat romantic-looking ice-house, whose outward appearance is that of a large mass of coral. From the top of this mass may be seen Shooter's-hill Castle, King John's Banqueting Hall, and other interesting views. All alterations here for this season are now completed, and one improvement which has been effected is, the laying down and planting a large piece of ground behind the house. Most of the trees and shrubs were moved last May, when some of the former were coming into leaf; Spruce Firs and other trees, 30 feet in height, were also moved, and are doing well. In this new ground is a collection of the best kinds of Roses, which are to be trained down on a wire trellis about 1 or 2 feet in height; this having a tendency to promote a good display of bloom. Of the Vineries little can be said, the Vines having only been planted in May last; the border is on the ground-level of the garden, with a drain opposite each rafter; only one half of it was made, the other half is to be added when the Vines may require it. In one division of the range were some well grown Cucumbers, with leaves as large as those of Rhubarb, and of a very dark green colour. Out of the pits, Beechwood Melons, weighing from 5 to 6 lbs., were said to have been cut.—*W. S.*

Lady M. Stanley's, Huggerston Castle, Berwick-upon-Tweed.—In the conservatory here there is now, in great perfection, a plant, in a tub, of Erica Ewerana. It measures 10 feet in height and 12 feet in circumference, and is one mass of beautiful light pink blossoms, which are tipped with pale green, each spike of flower measuring from 2 to 2½ inches in length. It is a handsomely grown plant, and has a most magnificent appearance.—*J. B.*

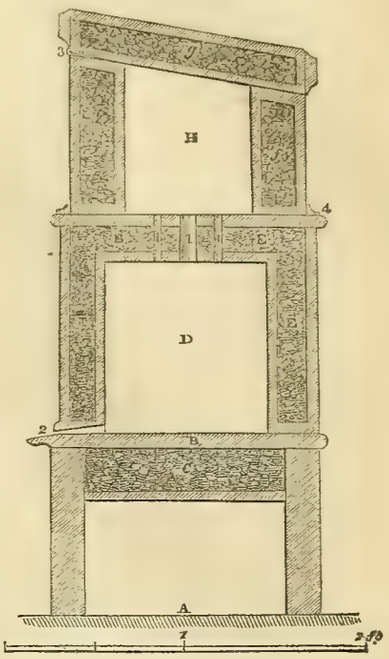
Miscellaneous.

The Scarlet Laburnum.—A Communication to the Royal Institution of South Wales, by L. W. Dillwyn, Esq., F.R.S., &c., President.—In 1833, it was announced that a new scarlet Laburnum had been sent over from Paris for sale, and the high sounding name induced me to be one of the earliest purchasers. I, however, soon afterwards found that it was a hybrid, obtained from C. Laburnum by the pollen of C. purpureus, and had been grafted on a stock of the Scotch Laburnum. Instead of approaching at all to scarlet, the flowers, as might have been expected from this union, proved to be of a yellowish dingy purple, and the branches and shoots were thickly crowded with them. In five years it had become a tall rambling shrub, about 20 feet high, and so covered with these unsightly flowers, that I thought it not worth preserving, when in 1839 I observed, on one of the main branches, a small tuft exactly as if some other small species had been budded on it. This tuft continued to spread rapidly, so as in 1841 to have become a large bush of C. purpureus; and in the same year I was increasingly surprised to observe, at the termination of some of the hybrid branches, a few shoots which bore the racemes of the common Laburnum. Each of these parental shoots, if I may so call them, has the leaves as well as flowers of its species; and in those of the hybrid, the leaves are very nearly intermediate, both in size and shape, between the two others. Several shoots of both parents have since broken out on various branches without any apparent order, and the stem now exhibits a vast profusion of flowers, of which the majority are still dingy hybrids, but intermingled with others of bright purple, and with the well-known golden racemes of the Laburnum. Some further account of this remarkable sport of nature is given in the *Gardeners' Chronicle* for May 22, 1841, and for June 18, 1842.—*Shetty Hall, May* 18, 1845.

Death of Robert Graham, M.D.—We regret to announce the death of this gentleman, who has for many years filled the chair of Botany in the University of Edinburgh. His lectures were delivered during the last session by Dr. Joseph Hooker, and we have reason to believe with very great success. This circumstance, his high reputation as a scientific botanist, and his experience as a botanical teacher, will, we presume, ensure the vacant chair to Dr. Hooker, whose pretensions stand far above those of any other candidate that we have yet heard of.

Bees.

Beehives.—I tried the following plan last year, as I found that Nutt's boxes were far too hot in summer for the bees, which were not able to work on account of the heat, great quantities of them lying out upon the flight-board, whilst those in the accompanying non-conducting box kept steadily at work in the very hottest days. In the winter months the bees need no other protection than what the box affords. This spring I have had some boxes made on the same principle, but with hipped roofs, which look much neater and are made to turn round on an iron pin fixed in a block of wood, so that when the sun shines upon the front of the box in winter it can be turned round to face the north, which prevents the bees from coming out and perishing from cold. It is not absolutely necessary to fill the spaces between the boxes with sifted charcoal; as air is a bad conductor, I think it would answer without the charcoal.—*William Pillans, Castle Gardens, Alnwick.* [Mr. Pillans' hive is on the storifying plan, as will be seen by the wood-cut; the proportions of it are very good, and it deserves a fair trial. The vacancies between the partitions are filled up with sifted charcoal, as a preventive against the influence of the weather. As charcoal is a non-conductor of heat, it may tend to keep a more equal temperature in the hive; but I fear that will not altogether prevent bees from clustering in hot weather, especially before swarming. At that time many of them seem unwilling to add to the store they intend to quit, otherwise they would be cooler amongst the flowers in search of honey than basking outside the hive in a hot sun. However, as charcoal may absorb the vapour or damp from the bees, perhaps the inside partitions had better be of straw than of solid wood, otherwise the charcoal would be of little use in this respect. I do not know what effect the charcoal might have on bees in hot weather, whilst the hive is densely crowded. I would prefer wood instead of zinc tubes to connect the lower and upper hive. The roof does not appear to project enough to throw the wet off the hive; a thing, however, which may be easily remedied.—*W.*]



SECTION OF BEEHIVE.

Reference.—A B, Height of the frame; D, The hive; E E E, Space between outer and inner box filled with charcoal; 1 1 1, Spaces made with zinc tubing to admit the bees from the lower to the upper hive; *f f*, Spaces filled with charcoal; *g*, Ditto with the lid; H, Space for placing the glasses; 2, The alighting board and aperture for ingress and egress; 3, The hinge of the lid; C, Space between frame filled with charcoal; 4, The upper box made to take off and on for placing the glasses within the upper hive.

Note.—This section is made square, the length being the same as the breadth, but it may be extended to any length.

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—The absence of bright sunlight will more especially render it desirable to expose all plants to the little sunshine we have, in order that the shoots may be ripened before the approach of winter; more air should also be admitted to these plants, as their preservation in a perfect state depends in a great measure upon the thorough maturation of the young wood. It is a great error to keep plants that are required to produce a profusion of bloom during the following spring and summer, actively at work late in the autumn; summer is the season when rapid development should be promoted, and autumn the period when the young wood should be completely hardened and ripened preparatory to the approach of winter. *Greenhouse.*—Plants that are required to bloom late in autumn and winter, should be repotted and their growth advanced, Chinese Primroses and Chinese Chrysanthemums are of this class; the latter should be stopped and tied out, so that fine bushes may be produced; these are of sterling value in the greenhouse and conservatory until almost winter, and nothing is so likely to bring them into disrepute as badly cultivated specimens. Plants for next winter's forcing should now be seen to; Pinks, Pelargoniums, and similar plants, require to be well established before forcing; the roots should quite fill the pots.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Look over rock plants, pruning back any that are overgrowing choice kinds, in order to give them sufficient time to break again before autumn; cuttings of choice kinds, such as Saponaria ocymoides, Onosma taurica, Linaria alpina, Phlox nivalis, setacea, subulata, aristata, amœna, Linum flavum, &c., should now be put in for planting out in spring; any that were struck early had better be planted out at once. Collect seeds of Sweet Williams, and sow some for spring planting. Plant into borders Dianthus superbus, single Wallflowers, Mule Pinks, &c.; keep such plants cut back as have a tendency to overgrow Box or other edgings. Tie up Dahlias, Sweet Peas, and other border plants; peg down a few shoots of Chrysanthemums for laying in small pots, this is better done after the shoot has turned up at the point; cut out some of the leaves from Hollyhocks to show their bloom. *Pits and Frames.* Some of the first struck cuttings will now be fit for potting off; place them in a pit or frame, shade and keep them close until they are rooted, when they should be set out to harden previous to being stored up for winter. Continue to put in cuttings, more particularly the best kinds of bedding Pelargoniums, which ought to be struck as soon as possible.—*B.*

III.—FLORISTS' FLOWERS.

Polyanthuses may be parted; use the knife as little as possible in the operation, as it appears to have a prejudicial effect on the roots. *Auriculas.* Prick out seedlings into store-pots or pans. These also, if not previously done, should now be parted, so that they may get well established before winter. *Tulips.*—Seedling bulbs which have been out of the ground since the tops decayed, should be reset; if kept out long, the smallest are apt to perish. *Carnations and Picotees.*—Many of those which were layered early will now be fit to take off; it is better to detach them from the parent plant as soon as rooted. Continue to look to your seed-pods, sheltering them from excessive wet, and extracting decayed petals, &c. Layering may still be done, though it will depend on the attention bestowed afterwards, whether they will root well. *Pansies.*—Prick out seedlings, and plant out the first struck cuttings for next year's bloom. *Dahlias.*—Pull off all damaged or deformed flowers, and take especial care by constant attention to staking, tying, &c. &c., that the plants are not broken during boisterous weather.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Much of the winter fruit will now be in bloom, or finished blossoming; in the latter case, see that good liquid

manure be supplied, and abundantly, to those which require water. Attend to checking the growth of the crown also at this period, and take care to displace betimes all useless suckers, gills, &c. Secure a steady bottom heat of 85° or 90°, but by all means let 90° be the maximum at all times; much, very much mischief is done, more than people are aware of, by what is frequently termed a "lively" bottom heat, which sometimes signifies 95° or 100°. When a house or pit is devoted to late Pines alone, be sure to create abundance of atmospheric moisture, night and day. It is almost impossible to obtain too much. It is to be hoped that young stock in dung pits have now nearly completed their growth; give abundance of air early in the day, and keep a rather drier atmosphere, as it is getting time to commence measures for hardening their constitution against winter. *Vineries.*—Late Grapes should now be changing colour; give air freely; I am afraid there will be heavy complaints from the deep border places this wet season, of want of colour. I am of opinion that where a difficulty exists of the kind, that it is increased by additional heat; I would rather recommend keeping them at a lower temperature than usual, for, if the spongioles have suffered through excessive wet, it is plain that the accretive matter cannot be furnished so rapidly as when there is a free action of root. If any Figs are growing on the back of the late Vinery, they should have one good soaking of water soon, and but little after, as a dry atmosphere will be necessary. Take care that no wild breast-wood intercepts the light from the true bearing wood of the Peach trees, and syringe with soapsuds twice a day on the ripening wood, if the red spider appears. They are most prejudicial at this period, as they empty the tree of those powerful secretions destined to make fine blossom, and consequently large fruit in the ensuing year. More about Melons and Mushrooms next week.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Crevices formed between the soil and walls are most favourite lodgments of numerous insects; therefore, at this season, the soil adjoining walls should be frequently disturbed. A shallow trench may be taken out all along; and as this is being proceeded with, the soil adhering to the bricks should be removed with a hard broom. The portion of wall thus exposed should then be sprinkled with gas-water, or with lime-water if the other cannot be readily obtained. Lime-water should be applied the instant it is made. Remove all superfluous shoots from wall-trees; and expose the fruit of Peaches and Nectarines, but this must not be done by cutting off the foliage, as has been practised with this view. If the foliage is in any case overcrowded, the fault is owing to the laying in of the shoots, and the remedy must consist in their proper regulation. Place dry Bean-stalks, cut in lengths of about 6 inches, among the branches, and by this means most of the earwigs may be caught before the Peaches become ripe. The soft pithy lining of the Bean-stalk is decidedly preferred by these insects to the finest polished tubes. *Kitchen Garden.*—Early Potatoes will now require to be taken up; and so must others that are affected with the too prevalent disease of this season. It will be improper to let these remain if their stems are blotched. In taking up the tubers, they ought not to be exposed to light any longer than can possibly be avoided; and in storing those that appear sound, they should be disposed in long narrow ridges, no straw on any account to be placed in contact with them; but if soil is allowed to mix with them so much the better.—*E.*

State of the Weather near London, for the week ending Aug. 21, 1845, as observed at the Horticultural Garden, Chiswick.

Aug.		Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid.	15	12	29.800	29.728	62	44	53.0	N.W.	
Sat.	16	13	29.941	9.837	61	48	54.5	N.W.	
Sun.	17	○	29.90	29.727	69	43	56.0	S.W.	
Mon.	18	15	29.762	29.594	71	52	61.5	S.W.	.28
Tues.	19	16	29.471	29.111	67	49	58.0	S.W.	.42
Wed.	20	17	29.765	29.524	66	45	55.5	S.W.	
Thurs.	21	18	30.030	29.891	63	39	53.5	W.	.04
Average			29.795	29.631	65.3	45.7	56.0		.74

Aug. 15—Cloudy; clear at night
16—Light clouds, with brisk cold wind; cloudy, partially overcast
17 Fine, with light clouds; densely clouded; clear and fine at night
18—Very fine; rain at night
19—Raid, with fog; very heavy rain in forenoon; boisterous in afternoon; cloudy
20—Very clear, windy; cloudy; clear at night
21—Very clear and fine; heavy shower in the evening, and again exceedingly clear.
Mean temperature of the week 7 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Aug. 30, 1845.

Aug.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 24	71.3	48 7	60.0	10	0.23 in.	1	3	—	—	—	4	4	4	3
Mon. 25	70 8	51 8	61.3	8	0.32	2	—	1	1	5	4	4	2
Tues 26	72 9	48 6	60.8	6	0.51	—	1	2	—	5	5	3	3
Wed. 27	72 8	49.3	61 0	6	0.43	—	2	2	—	1	4	6	4
Thur. 28	72.4	45.6	59.0	9	0 20	—	3	2	—	4	1	7	2
Fri. 29	71.6	50.4	61.0	7	0 58	3	1	4	—	1	7	2	1
Sat. 30	72.1	50.4	61.2	5	0 92	—	2	2	—	3	4	5	3

The highest temperature during the above period occurred on the 25th and 30th, 1826—therm 83°: and the lowest on the 27th, 1814—therm. 38°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

Cape Bulbs—*M*—These require very different treatment, according to their nature. All these are the better for being kept dry until they begin to move. They may then be planted and placed in the frame, greenhouse, or stove, according to their nature. Those of them which are Irids, such as Watsonia, Babiana, &c. will flower well in a frame thoroughly guarded from frost, and well exposed to sunlight; the Lilyworts, such as Albuca and Anthericum, prefer a greenhouse, where there is rather more warmth; the Amaryllids like still more heat. The Dean of Manchester's book treats exclusively of Amaryllids; it is an 8vo, and contains very useful directions for the management of them. Sow your seeds in a hotbed in the spring.

Circulation of Sap—*J W*—There is still a paper by Mr. Goodiff to be published, unless we can find room for it today; and we think it better to let his argument be finished before we insert any reply. It is a very important practical subject, on which we do not at all agree with him; but he states his case fairly and like a gentleman.

Diseases—*E M*—Your Pentstemon Murrayanum has too much water and too little heat. It is thus attacked by the distemper analogous to that which is destroying the Potato crop; mildew follows, and all is over. It should be treated as a greenhouse-plant.

Fairy Rings—*A Northamptonshire Farmer*—No, no; if fairy rings are produced by the workings of moles, how does it happen that they are plentiful where no moles are found?

Glass Tiles—*W*—We cannot answer you publicly; but we will send you word privately, if you will remit a cover with your address on it. They are 9*d.* each.

Grapes—*T B*—Many thanks. The specimens of the Grizzly and White Frontignan are very nicely grown, and just what will best suit a private gentleman's table; but they want ripeness, and a month's fire-heat would do them great good, unless we have very warm days, and even then fire at night would be advisable.

Greenhouses—*W P*—There does not appear to be anything very new in the arrangement proposed by you for opening and shutting hothouse lights; a similar plan is in use, only instead of the racks and cog-wheels attached to the rafters, a chain is made fast to the top sash and wound round an iron roller fixed to the top of the house; and if used for a span-roof house, by placing the chain on the roller reverse way, both the back and front sashes may be wound down or up at one time. *S.* [The objection to all such plans is their expense; after all they do nothing more than can be as well done by hand.]

Guano—We have received the following resolution of the Wakefield Farmers' Club, Aug. 15, 1845:—"Resolved unanimously, That the thanks of the Club be tendered to the Editor of the *Gardeners' Chronicle and Agricultural Gazette*, for his fearless exposure of the unprincipled adulteration of Guano which has been practised by certain dealers in that valuable fertilizer." [We can assure the gentlemen of this Association that we are very sensible of the compliment they have paid us. The rogues who live by cheating farmers will always find us ready to expose them whenever we have *proof.*]

Heating—*W*—A brick flue a foot in diameter inside will answer your purpose; but see another answer to-day headed "Protection."——*Tolla*—The tank system, properly arranged, will answer for Melons and Pine-apples under proper management.‖

Insects—*Civis*—Cannot you bake the sacks in an oven? If you burn sulphur under, you must set a watch until the flame be extinguished, which will not be long. The pans of turpentine you must keep under three or four days; in either case cover the pile with wet sacks to prevent the smoke and fumes from escaping. With regard to the danger, that depends upon the premises, and of course we can give no opinion. *R.*——*Dublin Subscriber*—It must be some bird that decapitates the humble-bees. The Lime trees can have nothing to do with the phenomenon. *R.*——*R H*—If the damage be of sufficient amount, put your preserves into a chest or tin-box that fits close, or remove the articles to a more secure position; we know of no better remedy. *R.*——*Herts*—You may entrap earwigs by means of dry Bean-stalks, which the insects will enter; blow them out into water every morning.‡

Melons—*B W G*—The stems of Melons will sometimes canker under treatment exactly similar to that which is usually adopted with success. The soil round the stem must be taken away if damp, and replaced with perfectly dry sand or powdered chalk.‖

Monsters—*J Z*—The Jargonelle in which a Pear seems to grow out of a Medlar is not uncommon. Such instances are figured in the "Theory of Horticulture," p. 59. It is an instance of the ordinary arrangement of parts in the flower being disturbed accidentally, the result of which has been a lengthening of the axis of growth, and a partial retrogression of the organs of the flower into leaves.

Morphology—*D Murray*—We never before saw so singular a monstrosity as this of yours. It is not without example for a seed-vessel to bear another seed-vessel from its side, but in your case the fruit of Opuntia Tuna perfects itself one year, and next year amuses itself with generating another on its side—that is a very remarkable circumstance.——*Mr. M*—There is nothing new in your specimens: most are very common. That in which the receptacle of a Pot Marigold is producing a flower-head is the most remarkable. In that case the centre of the receptacle has extended into a branch, as is its prerogative, and in doing so has produced a perfect flower-head.

Names of Fruits—*H B*—Your Gooseberries, numbered on tissue paper, were partially bruised, and some of the numbers obliterated by the juice. 1 appears to be Bell's Peover Pecher; 2, Melling's Crown Bob; 4, Bratherton's Huntsman.‖ We cannot undertake to name Gooseberries.

Names of Plants—*A G*—Salix pentandra, the Sweet Willow.——*C L*—Thanks; the flower is not Cape, but Chilian, and is some Habranthus.——*A E*—Lycium barbarum.——*W J Epps*—Your Clerodendron is not C. squamatum, but C. fallax; and in no respect an improvement of the original.——*Cognotus*—Plants like yours cannot be named from leaves.——*Rural Chemistry*—Veratrum nigrum, a poisonous plant of the order of Melanths.——*J C L*—Apparently Maxillaria acutifolia: but the flower was crushed to pieces.——*H E B*—Abies balsamea.¶——*B*—Stanhopea insignis.——*Y*—Maxillaria marginata.——*D M N*—Rhus Cotinus, or Venetian Sumach. The French call it the Wig-tree.

Packing—*Revertens*—Pack your Vine plants and cuttings in damp Moss, in a wooden box; and they will travel safely to the United States.——*O M* will find some information respecting the best method of packing fruit to go by railway at p. 485 of the first volume of this Paper. We have seen Grapes covered with fine tissue-paper, and packed in perfectly dry bran travel in good condition and preserve the bloom; but the main point to be attended to is to have the box containing the fruit encased in another box, leaving an interspace of 2 or 3 inches all round, which must be filled up tightly with hay, Moss, or other soft material of a like character.‡

Pears—*F G D*—Mix up a compost of good turf and rotten dung; and in autumn carefully remove your Gansel's Bergamot trees; trench the border, introducing the aforesaid compost, and then replant the hitherto unproductive trees. They will certainly bear the second season after this.‖——*C Nicholetts*—The shoots of Pear-trees may be shortened as directed in the case of Apple-trees.‖——*J J*—Four good sorts of Pears for the table from Christmas till May: Knight's Monarch, Ne Plus Meuris, Easter Beurré, and Beurré Rance.‖

Potato-murrain—We have not space for half the communications that we have received on this terrible scourge; but we have selected such as seem to throw most light upon the subject. We trust that those whose letters cannot be inserted, will accept our thanks for the trouble they have so obligingly taken.——*J Stewart*—Your Potatoes have the distemper in a mild form.

Preserving Vegetables—*H C M*—We know of no contrivance for preserving green Peas equal to Cooper's apparatus, advertised at p. 572. They will keep perfectly if prepared by it.

Protection—*M P*—It is of no consequence how pits for this purpose are constructed, provided the following principles are observed:—1st, that they shall be quite dry; and 2dly, that their sides shall be thick enough to resist frost. In order to effect these objects, a deep drain or even ditch may be drawn round the sides of the pit, so as to lay the inside high and dry; or it may be paved with slate, or floored with asphalte, or any such contrivance; so that its dryness is secured it matters nothing by what means. In constructing the walls, nothing is better than peat or turf; but of course other walls can be employed, only in that case it is desirable that they should be 18 inches thick, and hollow. Nothing however is better than dry turf walls, well rammed together, so as to close up all crevices. Then, if a wall-plate is put on the bank, and sashes with stout glass be employed, there will be no risk from the winter, unless the weather should be very severe, and then straw mats, reed mats, or Russia mats, or any such contrivance, can be added. It is better that the sun should not shine on such pits during the winter months. We know of no work to which we can refer you for this kind of information. It has formerly been discussed a good deal in our own columns, but the above is the substance of all that was said.

Raspberries—*E M R*—Your specimens are very curious. Such cases are unusual. They show you beautifully how flowers, &c., *may* be fashioned out of imperfectly formed foliage. Compare these leaves with the calyx leaves of the Raspberry.

Scotch Thistle—*Bromsgrove*—You must be mistaken. We cannot easily believe that Carduus lanceolatus has grown to any such size as you mention. It surely must be some other plant.

Transplanting—*Tyro*—Always do your work in November or December if you can, October is too early. Hollies may be moved at any season if they have good roots, and you can ensure wet or damp cloudy weather for a fortnight or 10 days after. If you remove them in the summer, throw mats all over them for the first fortnight.

Misc.—*Priory Queen*—You must excuse us; your question should have been addressed to the "Builder," or some such paper. Building pot-kilns is not gardening.——*Preston*—We see no reason why your Passiflora alata should not flower this year, unless it is the sad want of sunshine.——*Tolla*—The Moscow Queen is an early fruiter.——*S E N*—Ampelopsis quinquefolia may be increased either by laying in autumn, by cuttings in spring, or by eyes, in the same way as those of Vines are managed. Place them in a dung-frame early in spring.¶——*Maria Perplexa*—You had better sow your Pelargonium seeds in spring. The bulbs of Lilium lancifolium will be better out of the reach of frost in winter. In regard to the directions given for managing Phlox Drummondi, if No. 1 pots were mentioned it must have been a mistake; the writer no doubt means thumb pots. Of your Mimuluses, those that are annuals will die off in autumn; the others must be kept free from frost.‡

SEEDLING FLOWERS.

Antirrhinum—*W M*—White common; yellow and white good; deep crimson good; but we have seen darker and better.*

Calceolaria—*A Subscriber*—The specimen sent of the spotted Calceolaria is very pretty, but not uncommon.*

Carnations—*Christian*—The greatest fault in your scarlet bizarre is the dullness of the ground colour, the scarlet stripe also wants brilliancy; the petals are well formed and the striping good. The scarlet Flake possesses good properties, but it is too thin.*

Dahlia—*W G*—Your seedling is a compact and beautiful flower; white, with purple tip; fine outline, with the centre well filled and well elevated, and with great depth; it is of average size. There is a slight ridge in the petal, which may probably arise from the staleness of the flower.*

Fuchsias—*G N*—Your seedling Venus Triumphant is a pretty flower, but not so good as Venus Victrix; the tube and sepals have too much colour, and the corolla wants the violet hue.*——*J B*—None of the specimens now sent possess sufficient merit or novelty to send out as desirable varieties; some are coarse, and others want colour. The corolla of 13 is very pretty in colour, but the tube and sepals are coarse; 12 is the best, but there are many like it.*——*G R*—There is no novelty in No. 3, it is monotonous in colour; 2 is better, large and showy, but the sepals are long and hide too much of the corolla.*——*H M*—Of your seedlings No. 17, light pink tube, sepals tipped with green, having a light purple corolla, is a very pretty variety; 18 is a good light variety, but a little coarse; 19, larger, but somewhat similar to 17, but not so distinct; 20, there are too many similar to this in cultivation; 21 appears too feeble in colour; 22, large, coarse, and ill-formed; 23, common in colour, and not good in form; 24, good dark variety; 25, similar to 18, but smaller.*——*Z*—There are many varieties in cultivation very superior to your seedling, which is coarse in texture, common in colour, and deficient in beauty of form; the sepals do not expand sufficiently, and hide the best part of the flower, which is the rich coloured corolla.*——*A Sub*—Your large light variety is a fine and showy seedling, the tube is quite white, and the sepals are tinged with a very delicate tint of pink, corolla vermilion. The dark variety is also attractive from the contrast in its colours; the corolla is unusually large and of a bright violet. They are both good and showy specimens.*——*Anon*—Your seedlings are too monotonous in colour, with the exception of No. 3, which is brilliant, from having a bright violet corolla, contrasted with the scarlet tube; the rest are very inferior to the varieties commonly cultivated.*——*M T*—The sepals of your seedlings are too long and pointed, and there is a want of contrast in the colours that gives them a faded appearance; this is particularly the case with 2 and 3, both want a deeper coloured corolla; No. 1 is a prolific bloomer, but the tube and sepals have too much colour, and the latter are too long and pointed.*——*C J*—Your seedling is an extremely pretty flower; texture and colour good, but it is not new; there are three or four in cultivation very similar to it.*——*W M*—The colours of your seedling are good, but the flower is disfigured by the length of the sepals; it is not so good as either of its parents.*——*T W B*—There is scarcely any distinction in colour between the tube and corolla of your seedlings. This is a great blemish, and as the colour is not high, it gives them a watery appearance. They are much behind the fine flowers of the present day.*

Gloxinias—*Mountjoy and Son*—Your seedlings are too much like one another, and not sufficiently distinct from kinds already in cultivation.‡

Pansies—*Anon*—Both your seedlings are flowers of good form, but they are very inferior in size to the sorts generally grown.*——*D W*—Your seedlings are flowers of second-rate quality; they are not flowers of superior form, and they are deficient in substance.*——*H B*—Your seedlings are quite second-rate flowers; they want the size, substance, and decided colours of fine Pansies. Your specimens are undersized, and generally with run colours. No. 1 is novel, and singular in colour and marking.*——*A Subscriber*—Your seedling possesses size, form, and substance; the ground colour is rather blurry, where it joins the marginal colour.*

Pelargoniums—*J P*—Your seedling, Duke of Northumberland, is a pretty flower, common in colour, white centre, pink under petals, with veiny spots in the top petals; under petals very good.*——*H*—The pips of your flower had fallen to pieces, so that we could not form an opinion of the set of the petals when expanded. It is beautiful and uniform in colour, with a small intense spot in the upper petals, apparently rather puckered on the edges of the top petals.*

Petunia—*S G*—Your seedling, No. 76, lavender-veined, with patches of light grey, is a fine specimen, of good form and substance; 77 is not sufficiently decided, and inferior to 81, in which the purple veins are strong, and which is a stout and good flower; 78, fine deep crimson; 79, dark centre, veined upon a peach-blossom ground; 80, peach-blossom ground, with crimson veins, stout and fine; 82, in the same way, but inferior to 80.*

Picotee—*Y Y*—The seedling named the President is a handsome heavy-edged purple; white good; petals of good substance, large, and well feathered; but a little rough on the edge, but not more so than we generally see; good size, and with a fine crown.*

Scarlet Geraniums—*G F*—Both your seedlings are brilliant in colour, equal to the sorts in general cultivation.*——*J C B*—Your seedling is a most brilliant and handsome flower; the individual flowers are larger than usual, and of a dazzling scarlet. The truss before us contains 12 expanded flowers, and 27 buds in different stages of progress; stem stiff, but not stout. We consider this the largest and one of the best of the scarlets we have seen.*

Verbenas—*S G*—208, dull light pink, wants novelty; 294, bright lavender, good and large; 295, there are better in the same way out, it is rather dull; 296, light pink, with crimson spot in the centre, is a pleasing and novel variety.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

GREAT NATIONAL CATTLE SHOW, and Exhibition of Implements, &c., to be held at BALLINASLOE, on Tuesday the 30th September, and the days following:—

WEDNESDAY, the 10th of September, will be the last day for receiving notices of Entry for the Show. All Stock and Implements regularly entered for Exhibition, will be conveyed free of Expense, by the City of Dublin Steam-packet Company's Vessels, from London and Liverpool to Dublin, and thence by Canal to the Show.

All Exhibitors will be required to take out a Ticket of Admission from the Secretary in Dublin; and Exhibitors of Implements are requested to send in a list and full description of their articles, in order that they may be published in the catalogue.

Reference to be made to the City of Dublin Steam-wharf, Lower East Smithfield, London, and to No. 24, Water-street, and the Clarence Docks, Liverpool, from whence the steamers are dispatched to Dublin.

All Implements must be in Dublin on, or previous to, Tuesday the 23d inst., in order to be dispatched in time for the trial of Implements previous to the Show.

Application to be made to the Secretary in Dublin, by whom premium sheets and blank forms of Notices of Entry for Stock, will be forwarded when applied for.

EDWARD BULLEN, Secretary.

Society's Rooms, 41, Upper Sackville-street, Dublin.

The Agricultural Gazette.

SATURDAY, AUGUST 23, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

THURSDAY, Aug. 28.—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUB.—Aug. 26.—Bromsgrove.

IN 1817 Mr. BLAKIE, Lord LEICESTER's agent, published a tract "ON THE CONVERSION OF ARABLE LAND INTO PASTURE," from which, and from an appendix to Mr. SINCLAIR's "Hortus Gramineus Woburnensis," we shall make some extracts, in answer to the inquiries of correspondents on the practice of transplanting turf. This mode of laying down land to Grass, invented by Mr. WHITWORTH, of Acre House, Lincolnshire, was first practised to any extent by Mr. BLOMFIELD, of Warham, Norfolk, who converted 32 acres of tillage land in this manner in 1812.

In 1816, Mr. COKE offered a premium to encourage this practice, and the following account of the expences connected with it was given in by Mr. BLYTH, of Burnham, one of the candidates:—

	A.	R.	P.
Extent of Grass land pared to procure plants for transplanting . .	1	2	18
Extent of arable land transplanted with the above	11	0	15
EXPENSE.			
	£	*s.*	*d.*
Paring 1 acre, 2 roods, 18 perches, at 10*s.* per acre	0	16	1½
Carrying 600 loads of turf 50 days, of one horse, at 3*s.*	7	10	0
Boys driving carts, one at 1*s.* 2*d.*, another at 10*d.*, 14 days . .	0	19	8
Scarifying 11 acres and 15 perches, at 2*s.* 6*d.*	1	7	8¾
Filling, cutting, spreading, and planting the turf on this extent of land, at 30*s.* per acre	16	12	9¾
	£27	6	4

Which amounts to 2*l.* 9*s.* 2¾*d* per acre.

Besides this, as Mr. BLAKIE observes, there should have been charged the expense of summer fallowing the land thus planted, as well as that of restoring the pasture land from which the turf was taken, and one year's rent and taxes must also be taken into account.

Mr. SINCLAIR says:—"In laying down land to permanent pasture by this mode, it is essential that the soil should be free from the seeds and roots of weeds, and made perfectly clean by a thorough summer fallow. The autumn is the best time for transplanting turf, and the sooner the work is begun at this season the better, provided the autumnal rains have sufficiently moistened the turf to fit it for paring off. It is also essential that the turf be taken from the very best pasture, as otherwise weeds and inferior grasses will be propagated.

"If the field from which the turf is to be taken be intended for a course of tillage crops, then the whole of it may be pared off, and employed in forming the new pasture to the required extent. But should the field be required to remain in permanent Grass, a portion only of the turf must be taken, a sufficiency of the sward being left standing for that purpose."

This is done as follows:—By means of a paring plough—the wing of the share being turned up at about 6 inches from the coulter—slices of turf are cut, 6 inches wide and about 2 inches thick, ribs about 3 inches wide being left standing between adjacent furrows. This turf is removed and the paring plough is then drawn successively across the ribs which are left, thus cutting off all except patches 3 inches square, surrounded by furrows 6 inches wide and 2 inches deep. As soon as all the loose truf has been removed, plenty of good compost should be spread over the field, and Grass-seeds sown at the proper season, those varieties being selected in which the natural turf was deficient. "The turf will soon unite, and in many instances will be found materially improved, particularly where it had previously been *hide-bound* or mossed."

The land which it is intended to lay down to Grass in this manner should first be thoroughly well cultivated and manured. The turf may then be brought on the field, and after being cut into pieces 3 ins. square, it should be spread regularly over the land, at the rate of 50 cart-loads per acre. The field is then worked up and down, and afterwards across by a scarifier, the teeth of which move in paths 9 ins. apart; the surface is thus marked out in squares of 9 ins., and in the intersections of these lines the turf which is lying about must be immediately placed and pressed home by the foot, care being taken that the green side of each piece be uppermost. If these pieces be upon an average 3 ins. square, then one acre of turf wholly removed, will furnish a sufficient number of plants for 9 acres of arable land.

It is recommended as an improvement upon the practice detailed by Mr. BLAKIE, that the paring plough should be made to open furrows, 3 ins. only in width instead of 6 ins., and that the Grass-plots left standing in the field from which the turf is taken should be 6 or even 12 inches square, instead of 3. Less injury is thus done to the pasture supplying the plants, and but little additional expense attends the operation.

Mr. SINCLAIR's remarks, at the close of his paper on this subject, are rather unfavourable to this mode of obtaining a sward of Grass-land. He says that, in the trials which have been made in order to compare it with the ordinary method by seeding, strict justice has never been attended to—a proper mixture of seed has not been employed—or the land has not received a dressing equal in value to that of the rich mould which is conveyed upon it in the transplantation of turf. He says that "had the seeds of the proper permanent pasture Grasses, of which the richest and most fattening pastures are shown to be constituted, been at the command of the eminent agriculturists who have adopted this mode of converting tillage land into pasture, the comparative value of planting the turf and sowing the seeds of the Grasses would have been satisfactorily determined; and the superior advantages accruing to the farm from the propagation and extended increase of the valuable permanent pasture Grass seeds would then have been demonstrated." Notwithstanding, however, the opinion of one so well qualified to judge, the fact that this method of converting arable land to pasture is still preferred in most parts of Norfolk, leads us to conclude that there is greater difficulty in obtaining a good permanent pasture by the use of seed than that merely of procuring a mixture of the proper varieties.

EFFECT OF AIR AND RAIN ON MANURE.

THE contradictory statements put forth by scientific agriculturists on the best mode of using and economising manure are enough to puzzle the most intelligent farmer, and positively bewilder the humble cultivator of the soil, who is anxious to avail himself of the suggestions of science. He finds science and theory quite at variance with daily practice, in regard to the use of manure. He is told to protect his heap and his liquid manure from wasteful exposure to air, while he is also advised to top-dress his crops, and to fold his sheep upon his land, as the best mode of enriching his soil. Now, both these plans cannot be right; it cannot be sound practice to expose manure to the extrinsic action of the atmosphere in one case, and to protect it from exposure in the other. Top-dressing and folding sheep on land are either a very wasteful use of manure, or the fashionable system of covering up the manure-heap from rain and air is based on no very sound principle; and I believe the latter to be the real state of the case. Top-dressing is becoming more general, if what I gather from your pages be correct. I occasionally read of large crops being obtained by spreading the dung over the land, instead of digging or forking it into the soil.; and it has this strong testimony in its favour, that it is the plan which Nature herself employs in returning to the soil what the crops have taken from it.

In the autumn the leaves and other decayed vegetable matter are strewed over a large surface and exposed to the rain and air during the autumn and winter, until they are reduced to an inorganic state, and presented in a state of extreme division to be mixed with the soil It is the minute subdivision of the fertilising ingredients of manure that renders top-dressing often so preferable to the common mode of coarsely mixing the manure with the soil. Crops are often injured by masses of manure clinging to a young plant, which, instead of feeding it, poisons by its very richness; and it not unfrequently happens that in the best manured land the crop is found to be by no means the most abundant Besides, in the common method of dressing land, a great waste ensues; the fertilising salts are carried down to a great depth in the soil before the spongioles of the plant are ready to feed upon them, and are for ever lost to the plant by being drained away. This cannot happen in top-dressing; the manure slowly undergoes decomposition; its soluble part is slowly carried into the soil to meet the wants of the growing plants, and thus every part of the manure is in its turn gradually presented to the plant in the best possible condition to be absorbed, because in the utmost state of division. A question, however, naturally arises, whether there is no waste in top-dressing; that is, whether air and wet do not carry off some of the most fertilising parts of the manure? To this I will reply in my next.—*Oxygen.*

SMALL FARMS.

WELL rotted farm-yard manure is a compound which may be considered as possessing within itself every variety of nourishment requisite to increase the growth of vegetable matter, and therefore more desirable for dressing the land than any of the chemical manures. The latter are certainly cheaper for one crop; but they take so much out of the land by forcing it, that it must be again manured on the following year to insure a good harvest; not so with composts taken from the regular "muck-heap;" this will feed two or three sowings, if justice is done to the land, in fairly ploughing and cleaning it. Farmers may say they are now obliged to have recourse to artificial manures to enable them to cultivate land which formerly remained idle in fallow. To this it may be answered, why rent a larger farm than you can profitably and judiciously manage? Reduce your number of acres according to the extent of your capital, increase your stock of beasts, and by stall-feeding, economise both the solid and liquid refuse, and you will become independent of guano, &c. By this means you will find your income gradually increasing, and you will leave your neighbour enough land, which he in like manner can till with advantage to himself and the labouring poor. It is not necessary to travel far through the country to be convinced of the palpable error of large farms with a small capital. On every side are to be seen abundance of weeds growing in all their native luxuriance; half-ploughed fields and scanty ears of grain.

Often has a garden been instanced as an example of what may be accomplished by skill and industry; and although farming-land cannot be brought immediately into such complete cultivation, yet agriculture must ultimately tread close on the heels of horticulture if foreign grain is to be kept out of the market. Why does it not do so at the present time? 1st, because farms are generally too large for the occupier's capital; 2dly, having an extensive farm at a cheap rate, the tenant can indulge in a little negligence in order to keep up the price of produce; 3dly, the landlord, not understanding the economy of farming, is induced to take off 10 per cent. for what is termed a bad year.

1st. As things in general go, 20*s.* will only purchase a certain quantity of bread and meat, say for the sake of argument, sufficient for the daily consumption of forty individuals. Now, if it is necessary to provide sustenance for eighty men, women, and children, the weight of food must be doubled in order to meet the demands of hunger. Apply this to a case of vegetable growth, and it will appear that as well might we attempt to satisfy the appetite of man on external air, as to raise Wheat, roots, and Grasses, by merely throwing the seed on the ground, and harrowing it in, without properly stirring the soil in the usual manner, destroying the weeds, and draining off the superfluous moisture. But this cannot be done without money. Now, suppose a man has 200 acres in his hands, and scarcely available funds to keep 150 in order, of what use are the other 50 to him? So far from being a benefit they are a hindrance, by inducing him to sacrifice part of his means and time in the vain endeavour to farm the whole, and thus proving by the appearance and yield of his land, the grand mistake of being too greedy. This is a picture of what is the rule, rather than the exception, in too many localities, and must continue to be so, unless a different system is produced with regard to overgrown holdings. Then, again, a paucity of hands at a critical period is the result of an empty purse, which has in too many instances been exemplified this year to the great loss of the agriculturists. Tons and tons of hay which might have been cut and saved during the fine weather are now rotting on the ground, either because farmers would not or could not set on sufficient hands to do the work. There can be no mistake in this assertion, as the few who did exert themselves have saved their property; whilst others, under the same circumstances of climate and opportunity, have suffered severely.

2dly. The large farm system is a great disadvantage to the landowner; inasmuch, as the same number of acres divided, and under the superintendence of several small capitals, would pay better interest for improvements than when under one man whose resources are too limited to enable him to do justice to the land. It may be said that the extra farm-buildings requisite would be too great an expense to incur under existing circumstances. Men are ever ready to lay out their cash in railroad speculations; it would be more sensible to look nearer home, and permanently improve that which is certain to remunerate. Let us hope soon to hear of farms being let, not to the man who promises the largest rent, but to the tenant who will show the largest capital to be expended on the land he rents, backed by practical knowledge on the science of agriculture. It is a question whether theory does not, in these experimental days, rather occupy too much of the far-

mers' thoughts, to the disadvantage of sound knowledge.

3rdly. At two periods of the year, most of the provincial newspapers rejoice to record the liberality of landlords, in giving back to their tenants 10 per cent. This always seems symptomatic of one of two things, either the land is let too high, or the tenants do not understand their trade, however they may look after their own interests. Providence does not always please to grant us propitious seasons, and the variableness of our climate leads us to anticipate, occasionally, a bad year, and this is always allowed for in valuing a farm; and a farmer, with common prudence, and energy, is generally well able to make the plentiful year pay for that which does not promise so abundantly—provided he has not more acres than he can manage, which is often the case, when the cry is, a bad harvest! Misfortunes will sometimes overtake the honest pains-taking husbandman; but such reverses are easily distinguished from those brought on by carelessness. The foregoing remarks have been written in the humble hope of inducing owners of property to attend personally to the management of their broad acres; they may depend upon it, there is many an estate in England but half cultivated, that might be made to yield at least one-third more than is annually gathered from its green and yellow crops. My object in advocating the small system is, because the men who generally follow the occupation of agriculturists have but little money to lay out in improvements, and I think few will differ with me when I repeat that the number of acres a farmer rents should be regulated by the extent of his available capital, unless he intends to ruin both himself and his landlord.—*Falcon.*

MALAYAN GUANO ("TY BURONG.")

(*Continued from p. 567.*)

Application of Ty Burong. — Scarcely 10 years have elapsed since the birds' manure was first introduced in Prince of Wales' Island by some Chinese agriculturists in the cultivation of Cocoa-nut trees. The success of the first experiments led to repetition, and the application has by degrees been extended to Nutmeg, Clove, and Sirih Vine (Piper siriboa) plantations and fruit trees in general. It has also been used to Sugar-cane, and successfully as far as growth is concerned, but the Chinese planters assert, that cane thus manured, however fine in appearance, loses in saccharine matter, and have therefore discontinued the application to this branch of cultivation. Neither in Prince of Wales' Island, nor in Province Wellesley, has this kind of manure been tried in Rice cultivation. During the last five or six years it has been applied by some of the European agriculturists in the different branches of cultivation mentioned in the preceding. Mr. Brown, of Glugor, the owner of the most extensive plantations in the Straits colonies, applies annually increasing quantities of Ty Burong. Likewise, Major Low, on his estates in Province Wellesley, Mr. Lewis, the assistant Resident Councillor of Prince of Wales' Island, has, by way of experiment, tried some in the flower-garden of the Government House on the great hill (2,460 ft. above the level of the sea), and the result is represented as having proved very successful. If applied unmixed and immediately, this manure, like the Peruvian guano, destroys vegetation. It has, therefore, been found necessary to mix it with what is here denominated "burnt earth," which signifies rubbish of all sorts reduced by fire to ashes. In the proportion of the mixture of burnt earth and birds' manure, the agriculturist must of course be guided by a thorough knowledge of the nature of his soil and the subject of cultivation. The method followed in the cultivation of Nutmegs will be perceived by the following, kindly supplied by Forbes Brown, Esq., of Glugor.

Memorandum.—Ty Burong, as manure to Nutmeg trees, has been applied in a variety of ways, and the manner of applying it, as well as the proportion, is still very different in different plantations. I first tried it at Glugor, in 1838. It was applied to trees of about 10 years of age, unmixed, and about 12 gantons per tree spread over the roots. The result was most unfavourable; all the trees were more or less injured, and several were killed. After this, I did not try it again at Glugor for several years, but the Chinese manager of a plantation (Battu Lanchang Hill) in which I hold a half interest, recommended it in 1839, and had my permission to apply some to the trees in this plantation, which were then about nine years old. He applied it thus: a trench of about 18 inches was dug all round the trees at the extremity of the roots, into which surface earth and Grass was first put, and upon this layer was spread about 16 gantons of Ty Burong, unmixed. The result in this instance was found very encouraging, and ever since the same mode of manuring has been continued in that plantation, the trees of which, considering their size and age, have been the most fruitful I have met with, and no manure except Ty Burong has been applied, to which, therefore, must be attributed the success. Some time after this favourable experiment, I was induced to give the manure another trial at Glugor, where I have applied it in different ways, both by itself and mixed with burnt earth, and buffalo dung, and on the whole I have been well pleased with the results. The Chinese estimate the proportion as one to five, but I should think with good Ty Burong, that the difference ought to be greater. On the whole, I prefer using it mixed either with burnt earth or cattle manure (the latter more especially on the plains, where it can be easily procured), and my usual proportion is about eight of burnt earth, or cattle manure, or both mixed, to one of Ty Burong. The Chinese generally use it in the proportion of three to one. The quantity given depends much on the size of the tree. A trench of from 18 to 24 inches in depth and breadth is generally dug, in which earth, Grass, and rubbish are first put; upon these is spread the mixture. One of our large trees would take about 400 gantons, and those of a medium age—say 12 or 15 years old—about 15 gantons; this I should expect to last some two to three years. Other European planters adopt proportions different from mine, but few follow the proportions used by the Chinese; and the use of this manure is still principally confined to the latter planters.

Glugor, Nov. 25, 1844. (Signed) Forbes A. Brown.

Price.—The importation of bird's manure in Prince of Wales' Island has hitherto been in the hands of Chinese merchants, who receive the orders of the agriculturists; and accordingly during the N.E. monsoon despatch large junks to the well-known depôts. With the increased demand, the price has, during the last four or five years, nearly doubled. Mr. Forbes A. Brown, of Glugor, paid in 1840, 5 Span. drs. (about 1*l.* 2*s.* 6*d.*), per coyan of 800 gantons (equal to about 2½ tons). The price of that quantity is at present from 7½ to 9 Span. drs. (1*l.* 13*s.* 9*d.* to 2*l.* 0*s.* 6*d.*), or about 11*s.* 3*d.* to 13*s.* 6*d.* sterling per ton. According to the statement of Dr. Van Martius (Report upon guano), the price in Peru of 238 lbs. of guano is from 5*s.* to 8*s.* sterling, which is about 2*l.* 2*s.* to 3*l.* 7*s.* per ton of 20 cwt. Should, therefore, future results create a demand for the Malayan guano, the price will greatly be in favour of the latter, which to the Indian agriculturist offers the additional advantage of easy access. The annexed Table of the present freights per ton, from Prince of Wales' Island to different ports, will afford some estimate of the rates at which the commodity may be shipped.

From Prince of Wales Island to	Freight per ton.			Prime cost added to Freight.					
	£.	s.	d.	£.	s.	d.	£.	s.	d.
England and Sydney..	4	0	0	4	11	3	to 4	13	6
Calcutta and Madras..	1	0	0	1	11	3	.. 1	13	6
Bombay	1	5	0	1	16	3	.. 1	18	6
Hong Kong	2	0	0	2	11	3	.. 2	18	6

To the above must be added all minor incidental charges.

The Malayan localities, where the guano is found, are most accessible during the N.E. monsoon. The parties hitherto engaged in the importation to Prince of Wales' Island declare, that they are prepared to meet orders to any extent, and have, as yet, punctually executed those received. Should, however, the results of future experiments prove such as to render the Malayan guano an object of desirable importance beyond the Straits, a survey of the depôts, and a report of their capability will be necessary.

Other Animal Manures.—The soil of the Prince of Wales' Island may, generally speaking, be said to be light. That of the Valley is alluvial; near the coast, the surface is a light vegetable mould, about 4 inches in depth, resting upon the sand, but gradually increasing in thickness and richness, as the country rises towards the foot of the hills. Beds of whitish clay are interspersed throughout. The soil of the hills consists of disintegrated granite, forming with the decomposed vegetable matter, a crust varying in depth, and frequently of reddish or rust colour. The European spice-planters chiefly use cattle manure (buffaloes' and cows'), the cost of which may be estimated at 20 cents of a Spanish dollar, or about 10*d.*, for a rather small cart-load. It is not only much less efficacious, but far more bulky than birds' manure. The latter quality becomes a matter of consideration where labour is expensive, and the manure has to be carried to a distance, particularly up-hill. A coolie will carry a basket on his head, whether the contents are light or heavy, no matter, he carries but a basketful. In the cultivation of hill-plantations, inaccessible to cattle, Mr. Forbes Brown has experienced a considerable saving of hands, owing to the less bulkiness, and consequent greater portableness of the birds' manure.

The Chinese agriculturists, in everything proverbially tenacious of their native customs, are less exclusive in the selection of manure, and in addition to the latter and birds' manure, employ also night-soil, urine, fish-manure, and the residue of the fluid in which fish is salted, and shells of shell-fish. The Chinese will willingly undertake the renovation of houses for the sake of the night-soil. A strange characteristic caprice has come to my knowledge as superintendent of six hospitals. Five of these the Chinese refuse to renovate, and the alleged reason is the supposition that European medicines principally consist of mercury, and the night-soil therefore would "purge the trees." But to a sixth hospital (a lunatic asylum), they have no objection, as it is their opinion that "calomel is not used in curing fools." Night-soil is principally used in the cultivation of vegetables; urine for Sirih-Vine; fish-manure for spice; residue from the salting process for Cocoa-nuts; and shells of shell-fish for Onions and Water-Melons; but all are also indiscriminately applied to spice plantations. The Malays, in different parts of the peninsula, use powdered calcinated bones in the cultivation of Rice; not, however, as a manure, but as a supposed preservative against the attacks of insects, for which purpose a quantity of this powder is spread over the paddy-fields during the season of irrigation.

Mr. Edward Solly stated that he had roughly analysed the specimens of Ty Burong, which accompanied Dr. Cantor's paper; and found 100 parts to contain about 5 parts of ammoniacal salts, 10 parts of nitrates, nearly 20 parts of organic matter containing very little nitrogen, 30 parts of insoluble earthy matters, consisting chiefly of silica and alumina, with a trace of phosphates of lime, and 35 parts of water. The different specimens varied slightly in the proportion of these substances which they contained; in all, however, there was found a very large quantity of moisture, and but a small quantity of nitrogen. The animal matter contained in the Ty Burong, consisted almost wholly of the undigested remains of ants, and various insects; it was insoluble in water, contained but little nitrogen, and at the common temperature was very little liable to decay. Almost the whole of the nitrogen which originally existed in the manure was now present in the form of nitric acid, combined with lime and potash. Mr. Solly had no doubt, from its composition, that it was an excellent manure, as well as a valuable addition to many soils, but he doubted whether it would be worth while to carry it to a great distance, as from the large proportion of water and useless earthy matter present in it, amounting to nearly two-thirds of its whole weight, it was evident, that the cost of carriage to any distance would be very high, as compared with its real value as manure.

A Spanish dollar=4*s.* 6*d.*; a coyan, 800 gantons; a ganton, 1½ gallon; a pecul, 133⅓ lbs.

A VISIT TO MR. HEWITT DAVIS'S FARMS.

[*From the "Maidstone Gazette."*]

The report of the deputation from the members of the Maidstone Farmers' Club, who inspected Mr. Davis's farms in October last, incited a desire in many other members to see his crops as they were approaching maturity. Mr. Davis was, therefore, kind enough to give a general invitation to the members of the club, of which about 20 availed themselves on the 19th ult. Although this course did not render any report imperative, yet the previous report of the deputation from the club having excited considerable public attention, it has been deemed desirable to make one, and the following remarks embody the opinions as to Mr. Davis's system of cultivation, the nature of the soil, and the estimated quantities and state of the crops, of the most experienced agriculturists of the party. The historical portions are founded on information derived from Mr. Davis himself.

In giving an estimate of the growth of crops, the first considerations must always be the nature of the soil, and the cost of such crops. On entering Spring Park farm, the members were unanimous in their opinion as to the very great inferiority of the soil, which, as was stated in the former report, consisted of beach-gravel and black sand, with a hard subsoil of white sand; in some parts of the field more resembling the sea beach, or a gravel walk, than a cultivated soil. This land has been drained, subsoiled, and is now ploughed by the Kentish plough, once in every course, to the depth of 12 inches. Mr. Davis's rotation, quantities of seed, and times of sowing, are the following:—

1st year .. Rye and Tares, for green-meat and feeding-off with sheep, in April May, June, and July, and followed by
,, Mangold Wurzel
,, Swedes .. .. .. } With a liberal dressing of farm-
,, Cabbages .. .. } yard dung.
,, Turnips .. .. ..
2d year .. Oats or Barley, sown with Clover.
3d do. .. Clover, twice mown for hay.
4th do. .. Beans or Peas { The Beans have Turnips drilled between the rows, and which come into feed in Sept. and Oct.
5th do. .. Wheat.

The quantities and periods at which he sows are the following:—

Rye	1½ bushels..	in August and September.
Tares	1½ ,,	in 3 sowings, Aug. Sept. & Oct.
Mang. Wurzel ..	6lbs.	in April.
Swedes	1 quart ..	in May.
Turnips	1 ,, ..	in July.
Cabbages	1 every 3 ft.	in June.
Oats	7 pecks ..	in Jan., Feb., and March.
Barley	6 ,, ..	in Jan. Feb. March and April.
Wheat	3 ,, ..	in September and October
Peas	3 ,, ..	in Dec., Jan., and Feb.
Beans	3 ,, ..	in September and October.

Mr. Davis's Rye and Tares for green-feeding are sown in rows at 9 inches apart; all his white crops, at 10½ or 12 inches; his pulse at 27 inches, as are also his root-crops and Cabbages on the ridge.

The first piece of Wheat on entering Spring Park farm was on a piece of rough heath land, of about 10 acres, recently broken up, which few persons except Mr. Davis would have sown with Wheat. Its preparation had cost a bushel of seed per acre and once ploughing, for which the two quarters per acre, at which the crop was estimated, was deemed a profitable return.

The average of the crops which the members saw on Spring Park farm, was cautiously estimated at from 3½ to 4 qrs. per acre; Barley, 5½ to 6 qrs.; Oats, 7½ to 8 qrs.; Beans, 4½ qrs.; and it was a matter of surprise to most of the members, that such crops should be grown under any system, on the very inferior land which Mr. Davis cultivates. The tillering of the plants was this season apparently greater than that of the plants of last year (as stated in the last report, from the appearance of the stubbles.) A considerable number of roots were examined, when the number of stalks to each root appeared to range as follows:—Wheat from 10 to 14; Oats, from 10 to 20; and Barley, from 10 to 15. The ears of all the crops were perfect and well filled, and the plants were very uniform and even in growth, much judgment having been apparently exercised in putting into the land rather a less than a greater number of plants than its capacity could mature. Judging from

the general vigour of the plants, and the fulness of the grain, in no case did the land appear to be overdone. The strength of the straw deserves particular notice. It was more like reeds than straw. Indeed, Mr. Davis stated that he had last year sold his own straw at 50*s.* per load, and purchased inferior straw at 30*s.* for his own purposes. The Beans were observed to be podded much lower on the stalk than is usual when more thickly sown. The most striking features of Spring Park farm were most certainly the cultivation of the Turnip and the Cabbage. Mr. Davis drills his Turnips on the ridge, and the workmanship was admirable. The plants had all "taken," and to the eye of a farmer, a more beautiful sight than one of Mr. Davis's Turnip fields could scarcely present itself. Amongst the implements noticed on this farm were a nine hollow-ringed presser, and a Scotch expanding horse-hoe for cultivating between ridges, which were much noticed. The presser Mr. Davis uses both before and after sowing his seed, the effect of which is to chequer the land into little squares, and almost wholly to defeat the wire-worm, which can scarcely make its way from one square into the next so as to do much damage.

The members next walked over Shirley farm, the greater part of which is also evidently very poor land, and before Mr. Davis took it, had had four tenants in seven years. The most remarkable objects on this farm were a splendid piece of Mangold Wurzel, which, for forwardness and uniform vigour, excited the admiration of every member of the party; a very fine piece of Peas, which were exceedingly well-podded, and some Beans, with Turnips sown between the rows, attracted much notice. Both farms were in admirable cultivation; excepting annuals, there was scarcely a weed to be seen.

The party then visited Selsden farm. Mr. Davis states that this farm, in 1833, came into his hands for cultivation, as agent to the late George Smith, Esq. The soil, which lies on the chalk, was considered very poor, and scarcely worth cultivation; indeed, it was offered, with excellent farm-buildings, to a farmer of the neighbourhood, at 10*s.* per acre, free of tithe, and the only offer that could be obtained for even a portion of it was 8*s.* per acre. It was deemed too poor to grow either Beans or Clover, the stack-yard contained only three stack frames, and the hay, Oats, and straw for keeping the 14 horses which were found necessary to do the work of the farm and the estate, had to be purchased. The number of sheep kept was only 67. The whole of this farm has been since trench-ploughed, 15 inches deep, and some thousand loads of flints carried off from it. The result has been that nine new stack-frames have been added to the stack-yard, and there has been sold off the farm annually about 600*l.* worth of Clover hay, Beans, and Oats, besides the fattening of about 260 wethers, 100 couples (ewes and lambs), 12 bullocks, and about 150 pigs. Nine horses now do the work, which before required 14 horses; and the weekly wages are little more than half the amount which they reached under the old system. Manure was formerly purchased, but none has been bought for many years, and Mr. Davis considers that no more will in future be required than is furnished by the stock, so long as the present system of high feeding with oil-cake, and rotation of cropping, are continued. The cattle are fatted on oil-cake and straw; all the dressings are reserved for the green and root crops, the rotation observed separates widely the same crops, and care is taken not to put two plants into a space of land which has only the capacity to mature one plant. The total results of this experiment Mr. Davis was kind enough to give to the party in figures. After deducting agent's salary and bailiff's wages, and all other charges which a farmer would not have to pay, giving a higher rate of wages than that generally paid by the district, and all other expenses,—the following sums have been handed over to the proprietor by Mr. Davis, as profit on the last five years. For the year ending Michaelmas :—

1840	£225 17 8
1841	497 19 1
1842	334 14 3
1843	259 4 1
1844	158 3 8

The falling off in the years 1842 and 1843 is attributed to the sudden and general depreciation of agricultural produce, on account of the alteration in the tariff and Corn-laws. The profits of 1844 would also, as Mr. Davis estimates, have reached between 300*l.* and 400*l.*, had it not been for the serious injury done to the crops by rabbits. Part of Selsden farm adjoins some hundreds of acres of woodland, of which the game, as well as that on two adjoining estates, is strictly preserved; and Mr. Smith, the owner of the farm, having himself taken to preserve in 1842, the rabbits increased so rapidly that of one 12-acre piece of Wheat, only three acres were cut at harvest, the rest having been completely destroyed. Leave has since been given to destroy the rabbits.

The party were highly interested by the appearance of this farm, which is generally in admirable condition. The average yield of Wheat was estimated at not much less than four quarters, but one piece, from a bushel of seed per acre, drilled at 12 inches, was unhesitatingly set at five quarters. A piece of Barley was declared by several experienced farmers to be one of the finest they had ever seen, and was estimated, at least, at from six to seven quarters. The Clover showed exceedingly well for a second cut. The Cabbages and Swedes were excellent, one piece of Swedes being particularly forward. The winter Beans were rather patchy, evidently from having been eaten by birds, and the only field which could be said not to be in the cleanest possible state of cultivation, was a piece of Peas, of which, however, the pods were remarkably good. A field of Buckwheat attracted much attention. The field had missed for Clover, had been once ploughed, and a bushel of Buckwheat drilled per acre. Mr. Davis highly recommended this crop in cases where Clover misses, and calculated on getting five quarters per acre from this piece, which certainly looked very promising. The members were much pleased with the state of the crops on this farm, which were very greatly superior to those which might have been expected even from much better land; and although not prepared to recommend the immediate adoption of such thin sowing in all soils, they were yet much impressed with the general superiority of Mr. Davis's system on the soils he cultivates, the very rational principles on which he appears to have founded every part of it, and the unconquerable zeal and determination with which, in the face of many difficulties, he had so triumphantly carried it out. The members were no less sensible of the readiness and candour with which Mr. Davis courted and met every inquiry; and the general urbanity which they experienced at his hands.

GEORGE WHITING, Hon. Sec.

P.S.—The secretary having written to Mr. Davis for the statistical matter relating to Selsden farm, that gentleman has favoured him, in addition, with the assurance that he grows all his Wheat at a cost of 35*s.* per quarter, and that "This can be proved by calculating the labour and the rent on one side, and the return of corn and straw on the other."

FLAX A RESTORATIVE, NOT AN EXHAUSTING CROP.

[AUTHORITY:—PROFESSOR KANE.]

IN my letter of the 5th July I brought forward some observations on this subject, which you thought worthy of space in your Paper, but I cannot expect farmers to give the subject of which I am the humble advocate, the consideration that they would do if the same was placed before them by a man of more influence; and I must, therefore, endeavour to support my argument by the observations of men whose efforts in agricultural improvement have earned for them the thanks of the agricultural interest of Great Britain. I have already used the names of Flax-spinners, and in order to corroborate my statements I shall now add that of another, Mr. Crosthwaite, of Dublin, who stands in Ireland as Messrs. Marshall and Co. do in England—at the head of the Flax spinning trade, and I must couple with this gentleman the name of a professor whose works are acknowledged to be of national importance. The following is a quotation from Dr. Kane's writings :—

"Mr. Crosthwaite, whose intimate acquaintance with all branches of this industry renders his authority highly valuable, considers that there are about 100,000 acres under Flax in Ireland, and that the produce is about 80,000 tons, of an average value of 5*l.* per ton. This is 6*s.* 3*d.* per stone, and should give about 12*l.* 10*s.* for the usual produce of the statute acre."—"The Flax, when it has grown to a suitable maturity, according as the design is to allow it to ripen its seed or not, is pulled, and either immediately, or in the next spare season, according to the circumstances of the locality, it is subjected to the process termed rotting or watering. In the stem of the Flax there may be recognised three structures—the outer skin or epidermis, covering a close network of fibres which incloses the plant as in a sheath, and in the centre a stem of dense pithy material. The fibrous network is connected together by a glutinous matter which must be decomposed before the fibres can be separated from the stem, and it is to soften and rot this substance that the plant is steeped. If the steeping be continued too long, the fibre itself may rot, and be weakened and injured in quality; if the steeping be not continued long enough, the fibres are not thoroughly separated from each other, and the quality of the Flax is coarser than it might be."—"When the Flax is steeped, the water acquires a darker colour, a disagreeable odour, and, it is well known, becomes poisonous to fish. This arises from the solution of the glutinous material which had cemented together the pure fibres."—"The author of the 'Survey of Somersetshire' (Mr. Billingsby) says 'Having myself cultivated Flax on a large scale, and observing the almost instantaneous effect produced by the water in which the Flax was immersed, I was induced, some years ago, to apply it to some pasture land, by means of watering-carts similar to those used near London watering the roads. The effect was astonishing, and advanced the land in value 10*s.* per acre.'"

This extract shows that Professor Kane has conversed with Flax spinners, and has been made acquainted with the details of Flax culture. The following passage on the same subject is taken from the *Scottish Farmer*, and as the writer of the article is already partly convinced against his will, I hope fully to convince him that Flax is not an exhauster of the soil :—

"The landlords of Scotland have hitherto been opposed to the growth of Flax, in consequence of its being a 'scourging' crop, and in the majority of leases a clause is introduced prohibiting or restricting its growth. Professor Low says (and all our Agricultural authorities agree with him) that Flax is an exhauster of the soil and farm, and more so when its seeds are permitted to arrive at maturity. When pulled green its effects are less injurious, in which respect it follows the general law of other cultivated plants. But still, at whatever period reaped, it is thus far an impoverisher of the farm, that its stems yield no return in manure, and that its seeds only do so when consumed upon the farm. In a paper read by Dr. Kane before the Royal Irish Academy, that gentleman attempts to prove, that in the production of the fibre no exhaustion of the soil takes place, that substance being exclusively composed of organic matters derived from water and the atmosphere. He says, 'in this respect the fibre differs from the woody stem which it surrounds, as the latter, by combustion, yields a considerable quantity of ash, consisting of inorganic compounds derived from the soil; but then, the woody part of the plant is not removed off the farm, it being of exceedingly little value; and, however the cultivation of the crop may exhaust the particular part of the farm on which it was grown, by the matters contained in this woody fibre, it is apparent, that the farm itself will not thereby be exhausted, as these matters are returned to some other portion of it, in conjunction, perhaps, with the manure of the farm-yard. The proportion of inorganic matters contained in the seeds is very small compared with its entire bulk, so that the consumption of the seed on the farm not only makes the Flax a non-exhausting crop, but absolutely a restorative one."

Dr. Kane is supported in his theories by the Report of the Belfast Society, which says—"The principal objection urged against the extended growth of Flax is, that it exhausts the soil without returning anything to it. But by saving the seed and seed-bolls, and feeding upon them, the manure thus produced, can be returned to the ground, and will supply most of the valuable constituents abstracted from it during the growth of the plant. The Flax shaws from the mill, and the putrescent water from the Flax pools, should be fermented together and returned to the soil. The land would thus have replaced almost every particle of matter formerly abstracted by the crop, as it has been ascertained, beyond a doubt, by chemical analysis, that the more, from which the Flax plant is cultivated, is produced entirely from the atmosphere."

If we consider the quantity of seed for consumption on the land given by the Flax crop, we may well call it a manure-producing crop rather than an exhauster of the soil. At the monthly Meeting of the Belfast Flax Society, held on the 16th July, the following letter was read by the Secretary, which had been sent by one of its members :—

"I am happy to be able to bear my testimony to the fact, that, if Flax be judiciously grown, and well handled, there is *no other crop that will pay like it*. I had, last season, not quite 8 Irish acres of Flax, from which I had 295 stones, which brought 8*s.* per stone, in Cookstown market, and 31 stones, at 6*s.*, besides 4½ cwt. of scutching tow, at 9*s.* per cwt. :—

295 stones, at 8*s.*	£118 0 0
31 stones, at 6*s.*	9 6 0
4½ cwt. tow, at 9*s.*	2 0 6
	£129 6 6

being upwards of 16*l.* per acre; besides this, I had an exceedingly large quantity of bolls, which fed my cattle, to the greatest advantage, during *the whole season*, and as much seed saved on the Courtrai system, as sowed about 3 acres this year."

The seed in the bolls, if it amounted to an average Norfolk crop, would be equal at least to 319 bushels, so that I may add to the . .	£129 6 6
The value of 319 bushels of seed, at 6*s.* 3*d.* per bushel	99 13 9
	£229 0 3

And 11 English acres, if it cost 100*l.* to bring it to market, would have 129*l.* profit, on what I call a very middling or very light crop of Flax, viz. 30 stones per acre.

Now with all deference to Professor Low, I must believe experiments before his assertions; and I believe that Flax has never got a fair trial in Scotland, to enable him to tell us how much more it exhausts the soil than a crop of Wheat, or to answer this question—How much manure will it take to bring the ground into the same condition after growing Flax, that it would be in if it had been sown with Wheat? It is only in this way we can come to anything like a correct idea on the subject; and, as I have said before, I have had as abundant a crop of Oats, and also Clover, after Flax, as ever I had after Wheat or Barley. I challenge the opponents of Flax to answer this question, and then we can calculate the expences of restoration, and the means we have of doing it, by growing Flax; for according to every calculation I have seen, showing the expense and profit on Wheat, or any other crop, there is none to be compared with even a middling crop of Flax, as the most remunerating crop for the farmer.—*J. H. Dickson*, 6, *De Beauvoir Square, London.*

WHAT IS THE FOOD OF PLANTS?

THIS has long been the study of philosophers and chemists, but no positive and final conclusion on the subject has yet been arrived at. It is, however, understood that water, carbon, oxygen, and earthy salts, constitute a part. In the experiments, however, on this subject which have been instituted, it has been ascertained beyond doubt that the whole food is not supplied by these substances. Every farmer knows if crops of corn or vegetables be successively raised on the same ground, they at last exhaust and render it unproductive. To remedy this, agriculturists are under the necessity of supplying their lands periodically with fresh manure, without which, or some equivalent, no productive crops can be obtained; for neither water, air, earth, or salts thus unassisted will bring them to perfection. Among various combinations employed for that purpose, the drainings from stables and cattle sheds, and water from dunghills have the most decided effect. Giobert and Lampadius, the great agricultural chemists of their day, after years of minute investigation and experiment, ascertained that water from dunghills contained more effective vegetable fertilising qualities than any or all of the known earths, separately or combined. Giobert mixed together the four earths, silica, alumina, lime, and magnesia, in proportions to form a fertile soil, and having added water to them, planted a variety of vegetables therein, but none of them grew till he moistened the soil with water from a dunghill. Lampadius planted, in different compartments, various vegetables, each compartment containing only one of the pure earths, and watered them with the liquor exuded from the dunghill; they all grew, notwithstanding the variety of soil, and each on being subjected to correct analysis, were respectively found to contain the usual earthy constituents of plants, notwithstanding the absence of these constituents from the soil. A greater proof cannot be given that it is not the earths, either combined or separate, which constitute a fertile soil; but that, whether combined or separate, the drainings of dunghills had the desired effect of procuring a luxuriant vegetation. Innumerable other results, from the experiments of eminent chemists and farmers might be quoted to show the advantage to be derived by the agriculturist in the application of the drainings of stables and cattle sheds as a manure. Many agriculturists are beginning to discover the loss they sustain in allowing this valuable liquid to run to waste, and landlords are likewise becoming aware of the value of this heretofore

neglected fertiliser, and, to stimulate the tenantry to the preservation and proper application of it, are contributing to the expense of making tanks to receive the liquid matter. But after they have so done, it appears they have not arrived at a correct and economical method of applying it to the land. The general plan is to carry it on the land in carts constructed for the purpose; the difficulty of getting it on some lands at certain seasons of the year, the trampling and breaking the swathe on Grass lands by the cart wheels, but most of all, the great loss sustained by the exposure of the liquid matter to the action of the atmosphere; for, as the liquid becomes decomposed and putrid, its fertilising ingredients are generated, and, at the same time, they become more volatile; and although the tank may increase in quantity from rain and other causes, yet the article itself is greatly reduced in value in consequence of the volatile alkali escaping. Some agriculturists are in the habit of putting lime in their tanks and on their dunghills, a more injurious application of lime cannot be adopted. Lime, on some lands, and when judiciously applied, is often an excellent fertiliser, but when mixed with any of the alkaline manures, such as guano or drainings of stables, &c., nothing can be more injudicious and useless than such a practice—as its tendency is to drive off the ammonia and render the guano of no avail.

The value of manure, and carefully husbanding it, very early attracted the attention of mankind. The Greeks, in particular, were very severe in the punishment of those who stole dung; yet it does not appear that they paid any attention to the liquid matter flowing from their stables or dunghills any more than modern agriculturists. In order to accomplish and effectually carry out this desirable system, it is necessary to seek out for that which is the most retentive absorbent, and possesses the greatest affinity for volatile alkali. I mention this because I understand that there is for sale what is called a stable purifier, which acts by its affinity for ammonia, and perfectly deserves its name.—*R. M., Gravesend, July* 29, 1845.

Home Correspondence.

Wheat, and its Varieties.—The following is an extract from a quaint book, little known perhaps, but well worth reading. A copy of the title page is subjoined:—"A Treatise on the Art of Baking, with a Preliminary Introduction, showing the various productions of the different quarters of the globe. Observations on the present state of agriculture. The farmer and middleman. Strictures on the Corn-bill, &c. With a number of valuable receipts, original and selected, for the baker and domestic circle. By John White, Baker, Dunbar. Edinburgh: Printed by Anderson and Bryce. 1828."—*Art of Baking* (*p.* 139).—It was stated before that those species of Wheat which are cultivated in Great Britain cannot, in general, be termed the best in the world; but I am happy to inform my countrymen and agricultural friends, that perhaps the time is not far distant, when the best that the world can produce, is fated to become naturalised to the soil of Britain. For this national blessing, as I would call it, we are indebted to a foreigner, who has spent both time and money upon the purchase of the different species of Wheat, Barley, and Oats, from every kingdom of Europe, as well as other quarters of the globe; and it would certainly be a piece of folly, not to call it ingratitude, to suffer this man to live unpatronised by the British public, and his valuable gift of corn to perish, or to pass away to another land. Perhaps I will not need to apologise for the insertion of the following letter, with which I was favoured lately from Mr. A., the head-gardener of the Botanic Gardens in Chelsea.—"Botanic Gardens, Chelsea, Aug. 22, 1827. Dear Sir,—Your letter of the 13th inst. was received in course, but we waited returning an answer until we had seen those varieties of Wheat that are growing in Hampstead. To your inquiries, Mr. Marinus Lasasca did not intend to replant any of his corn this season, until we alarmed him as to the perishing state of those already planted, and we got him to sow 350 of the best varieties on the last week of February and the first week of March; 332 of these grew, the others did not, being rotten in the ground; this made him sow 400 varieties more at a friend's at Hampstead, and the remainder at his own house, at Camden Town, making in all 52 distinct species of Wheat, containing 992 varieties. Of the first 332 species, 310 are already ripened, and safely housed, 18 are nearly ripe, but the others are not likely to flower this season, so we will put them into pots and try to save them through the winter. From what we have seen of those species that have come forward, we can safely affirm, that about 60 of them (the varieties) are much more productive than any we have as yet seen in the country; and have no doubt but that the whole may be cultivated with advantage in some part or other of this country; we began our harvest on the 23d July. Mr. Lasasca does not intend to part with any of his grain until he publishes their history, which he intends doing the beginning of January. We should have told you that some of those at Hampstead are ripe, though they were only sown about the middle of April last; these are not so fine as the others, owing to the dryness of the summer, and the shaded situation in which they grew; but there are many fine fertile kinds amongst them, and we will renew the most of them next season. As there is little appearance of poor bigotted Spain calling home her persecuted patriots, it is very likely that both the patriot and his corn will become the inhabitants of this country. He has been 40 years in collecting them, and while in Madrid, for that purpose, they cost him upwards of 15,000*l.*, and are now his principal property, so we hope that these statements will satisfy your inquiry, and am, &c, W. A." "P.S. It is much to be regretted that no agriculturist or agricultural society has as yet offered to patronise this worthy man; the value of what he possesses in corn cannot be calculated in a country like this. He has corn from every kingdom of Europe, from Barbary, Egypt, Palestine, Syria, Turkey, Georgia, Astracan, Circassia, Tartary, Greece, &c. We should have also informed you that besides the numerous species of Wheat, he has at the same time about 70 varieties of Oats and 30 of Barley, many of which are far more productive than any at present cultivated in Britain." Is anything known of the results of the experiments in the Chelsea Botanic Gardens to which this extract relates.—*T. C.*

Glass Milk-pans, &c.—In reply to your correspondent "Aliquis," I beg to state that last year I made trial of the glass pans for milk, and found that in my dairy, which is fitted up with slate shelves, the pans cracked across at a temperature of 25° or 26° Fahrenheit, and I have in consequence been obliged to discontinue their use, and think that well-glazed earthenware are the best.—Perhaps some of your correspondents would state whether there be any composition which will protect the bark of young trees from being gnawed by rabbits, sheep, and calves, without risk of injury to the trees or the animals. It would be desirable that the composition should be as much as possible the colour of the bark, and that the mode and cost of preparing it should be stated.—*R. H.*

Yeast.—The recipe in a late Number is of no use to me, as I do not want to know how to remove the bitter from yeast, but "the process of making yeast," in any way besides fermenting beer. A correspondent of yours about a month back, says, "there is a well-known method of making yeast from Potatoes," but he does not state the process.—*M. B.*

Poultry.—Can you inform me whether a coarse bread, made of Barley and Oatmeal, is good and proper food for fowls. I find that mine prefer it to any food I can give them, whether whole grain or in the form of meal; but as I do not know whether it is good for them as a constant food, I do not like to give it without some information on the subject. Is it likely that bread would keep them in as good condition as grain? would it be good, now and then, as a change of food? If any of your correspondents have tried it, and would report their experience on this head, and also on the subject of keeping fowls in a yard—in which case they depend entirely for food on what is given them—they will deserve the thanks of all amateur poultry keepers. —*X. Y. Z.* [We can hardly suppose anything to be better food for fowls than this coarse bread. For statements on poultry keeping, see pages 407, 423, 444, 499, 535.]

Artificial Egg-Hatcher.—Will any correspondent of your's favour me with the best means of forming an artificial hatching-house, somewhat similar, but on a far less scale than the one lately, or still in work at London. I should like to know the probable least expense at which one on a small scale—say 25 feet by 20—could be wholly completed for, and whether it would be better or more economical, heated with hot air or water; and I should feel greatly obliged if you think it worth while to give a plan of such a building.—*Zeta.*

Weeds on Railway Banks.—I wish you could impress upon railway companies the good they might do to farmers by employing the poor in the parishes their railways pass through, at any rate for a week or two, in cutting the Thistles and other weeds on the banks and sides. In travelling along the Croydon line the other day, I saw most luxuriant crops of Thistles and other weeds coming into full bloom, and preparing abundant trouble for the neighbouring farmers for next year, upon the dispersion of the seed. I am sure, if road trustees and railway directors would have but the weeds mown throughout the country on the road-side, it would be a vast saving of labour to poor farmers.—*Civis.*

Machine-makers.—I would just add, that, if you could effect a change with the makers of agricultural implements, as you have happily succeeded with glass manufacturers, in obtaining a reduction in prices, you would do much good to the agricultural interest. When the prices charged for successful implements are compared with those of similar instruments (though perhaps not so good) made by private manufacturers, it is no wonder that the generality of farmers are backward in procuring them. The makers themselves I am persuaded would in the end profit more, were they to sell them cheaper, and afford facilities to country purchasers. —*Clericus.* [Thanks for your suggestions; some of them, however, we are unable to adopt, that, for instance, regarding an early country edition of the Paper. As regards the implement-makers who obtained prizes at Shrewsbury, the following is a list, with the addresses, &c.

Name.	Address.	Implement.	Price.	Premium.
Earl Ducie	Uley, Gloucestershire	Wrought-iron Cultivator	20*l.*	10*l.*
,,	,, ,,	Corn Crusher	10*l.*	2*l.*
,,	,, ,,	Cart for general purposes		5*l.*
,,	,, ,,	Thrashing and Dressing Machine		10*l.*
John Cornes	Barbridge, Nantwich	Chaff Cutter	10*l.*	10*l.*
Saunders and Co.	Bedford	Iron Harrow	5*l.* 10*s.*	5*l.*
Richard Hornsby	Spittlegate, Grantham	Drill Presser to deposit Manure	14*l.* 10*s.*	10*l.*
,,	,, ,,	Oilcake Breaker	8*l.*	3*l.*
James Richmond	Salford	Churn	5*l.*	5*l.*
,,	,,	Steaming Apparatus	9*l.*	5*l.*
,,	,,	Potatoe Washer	4*l.* 10*s.*	Silver Medal.
Henry Locock	Westerland, Paington	One-way Plough	5*l.* 10*s.* to 6*l.* 6*s.*	5*l.*
John Bruce	Teddington, Stratford-on-Avon	Paring Plough	5*l.* 15*s.*	5*l.*
John Read	35, Regent-circus, Piccadilly	Subsoil Pulveriser	5*l.* 5*s.*	10*l.*
,,	,, ,,	Fire Engine	65*l.* to 85*l.*	5*l.*
William Crosskill	Beverley Iron-works, Hull	Clod Crusher	24*l.*	10*l.*
,,	,, ,, ,,	One-horse Cart	10*l.* 10*s.*	2*l.*
J. W. Newberry	Chipping Norton	Horse Seed-dibbler	60*l.*	15*l.*
Alexander Dean	Birmingham	Linseed Crusher	6*l.* 15*s.*	10*l.*
,,	,,	Steam Engine	160*l.*	10*l.*
Edward Hill	Brierly-hill Iron-works, Dudley	Moveable Sheepfold	5*l.* 5*s.*	10*l.*
,,	,, ,,	Granary Crane	6*l.*	2*l.*
,,	,, ,,	Gates, Hurdles, &c.		Silver Medal.
George Frere	11, E. Claremont-st., Edinburgh	Norwegian Harrow	6*l.* to 8*l.*	10*l.*
W. H. Viago	Penzance	Seed Planter	27*l.*	10*l.*
Mrs. M. Cartnell	34, London-road, Liverpool	Weighing Machine	5*l.* 5*s.*	2*l.*
David Harkes	Mere, Knutsford	Horse Hoe	3*l.* 10*s.*	2*l.*
Thomas Dickon	Thoresway, Caistor	,, ,,	1*l.* 10*s.*	Silver Medal.
E. H. Bentall	Heybridge, Maldon	Hand Seed-dropper	7*s.* 6*d.*	,,
William Sanday	Holme-pierre-point, Notts.	Winnower	14*l.* 14*s.*	10*l.*
C. Philipps and Co.	Bristol	Turnip Cutter	5*l.*	5*l.*
James Spencer	Hopton, Worksworth	Chaff Cutter	10*l.* 10*s.*	5*l.*
Wedlake and Thompson	Hornchurch, Romford	Haymaking Machine	14*l.* 14*s.*	3*l.*
Lieut. Vibere	Chilleswood-house, Taunton	Compound Lever-power	23*l.*	5*l.*
W. C. Cambridge	Market Lavington, Devizes	Steam Engine	150*l.*	5*l.*
Evan Thomas	Keel Meifod, Welshpool	Leverage applied to Scarifier	10*l.*	Silver Medal.

With regard to your other question, we do not think that you can do better than sow Rye now as spring food. See a paragraph by Mr. Baker in the Miscellaneous section. Your third question is inserted in the Notices to Correspondents.]

Societies.

THE YORKSHIRE AGRICULTURAL SOCIETY.

The Annual Meeting of this Society, which has just been held at Beverley, is stated in the *Hull Packet*, from which we extract the following particulars, to have been one of the largest and best for stock, implements, and company which the Society has ever had. An interesting discussion took place at the Council dinner, on the Preservation and Application of Liquid Manure, which we take the liberty of transferring to our columns in an abridged form. Geo. Legard, Esq, in opening the discussion, said—It will be necessary that we first consider of what liquid manure consists. I have consulted the best authorities on the subject to which I have had access. Sprengel has given the composition of the urine of cows (fed on Grass) examined under three conditions—when fresh, when it has undergone decomposition, and when allowed to putrify with the addition of its own bulk of water. Professor Johnston has given an analysis of urine which corresponds pretty nearly with that of the German analyst, and their researches show that fresh urine consists of about 92½ per cent of water, 4 per cent. of urea, and 3½ per cent. of saline ingredients, such as potash, soda, ammonia, phosphates of lime and magnesia, &c.; so that 7½ parts in 100 of fresh urine consists of dry, solid, fertilising matter. Of this 4 parts are urea—a substance which, when dissolved in water only, will remain unchanged for many months; but in urine it will, by the action of the other ingredients, putrify more or less rapidly according to the temperature of the atmosphere, and finally resolve itself almost entirely into carbonate of ammonia. The carbonate of ammonia thus generated is of a highly volatile nature, and, unchecked, has a constant tendency to escape into the atmosphere. It is to ammonia generated in the soil by the decomposition of animal manures that much of their effect on crops is due. It is to this substance that guano owes its chief value over other imported manure. If, therefore, it is proved that urine, when properly preserved, contains as large a per centage of ammonia as the best imported guano, it follows that this hitherto neglected substance is equal as a fertilising agent to that commodity in quest of which our ships are sent to all quarters of the globe, and for which, when brought to our shores, we freely give from 6*l.* to 10*l.* per ton It is hardly possible on an occasion like the present to avoid adverting to the loss which is so very generally sustained by farmers, in allowing this valuable substance to run waste. Mr. Alfred Gyde, of

Painswick, Gloucestershire, seems to me to have put this question in so striking a point of view, in a series of letters which he published in the *Agricultural Gazette*, of last year, entitled "Black Horse Ponds," that I may, perhaps, be allowed briefly to refer to them. Mr. Gyde says, that each cow voids annually 13,000 lbs. of urine, containing 8 cwt. of solid matter. This solid matter being equal, as we have seen, to the best guano, may be valued at the same price, viz., 10*l.* per ton. Thus the value of the fertilising matter contained in the urine of a cow is annually 4*l.* Now, in the case of a farm of 1500 acres, it is said (and I think fairly) that there should be kept a stock of 50 head of cattle, 20 horses, and 60 pigs. If this be so, then it follows that, from the urine of these animals, 45,000 lbs., or 20 tons of fertilising matter, of the value of 200*l.* sterling is annually produced, and, by the indifference of the occupier, three-fourths of it permitted to run off into the nearest ditch or pond, occasioning a loss of 15 tons, or of 150*l.* in money. In this there is doubtless a certain over-statement, occasioned by the assumption that the cattle are folded during the whole year. If, however, we take the loss at half the amount stated by Mr. Gyde, and say that the waste of this material upon a farm of 500 acres equals 75*l.* in money, we have sufficient ground for the assertion that this matter demands the attention of practical farmers. Having thus endeavoured to prove the importance of this substance, it remains to show how it may be preserved and applied. With regard to the preservation of it, the first consideration is how to prevent the escape of that most important ingredient—ammonia, which, as I have stated, when existing in a state of carbonate (a state induced by the putrefaction and the decomposition of urea), is a highly volatile substance, in other words, the consideration is how to fix the ammonia. There are various modes of doing this. 1st, it may be effected by adding to the urine an equal bulk of water—water having the property of absorbing and retaining ammoniacal gases. In this case it becomes necessary that at least double the quantity of the diluted liquid must be applied to the land to produce equal effects. 2d. Gypsum, or sulphate of lime (or plaster of Paris), powdered, introduced into the tank will have the effect of fixing ammonia—and the low price at which this substance can be obtained is a recommendation for its use. It is requisite, however, that the gypsum used for this purpose should be reduced to an impalpable powder; for being a substance by nature not easily soluble in water, it would remain in the tank comparatively inert, unless more finely reduced than it can be by crushing or grinding, —therefore, it is desirable that it should be burnt or calcined; and it should be frequently stirred from the bottom, and the residuum, when practicable, removed, and fresh gypsum added,—the residuum becoming, by the process of conversion, carbonate of lime or chalk. 3d. There are two acids—sulphuric and muriatic, which may be successfully used in fixing the ammonia in liquid manure—and in a chemical point of view they both of them possess recommendations for this purpose, for they combine readily and speedily with the carbonate of ammonia, and leave no sediment in the tank—in these respects having the advantage over gypsum. But, though the most certain, they are clearly not the cheapest means (as by some has been said) of fixing the ammonia —the former of these substances being now commonly sold at 1*d.* per lb., or 9*s.* 4*d.* per cwt.; the latter at ¾*d.* per lb., or 7*s.* per cwt.; for if, as it is stated by, I believe, good authority, that 1 lb. of sulphuric or muriatic acid is required to fix the ammonia in 4 gallons of urine, then 4000 gallons—the quantity of liquid manure that we will suppose is required for an acre—will have had 4*l.* 3*s.* 4*d.* expended in its fixation (or neutralisation), by means of sulphuric acid, or 3*l.* 2*s.* by means of muriatic acid. No farm-buildings can be considered complete without the appendage of a tank to some part of them for collecting the liquid manure. If stall-feeding should be the plan adopted on the farm, then it will be necessary that drains should be made from the feeding-house, with gratings to carry off the urine into a tank contiguous to the buildings; but if, as is the practice on many large farms, especially in this part of the country, the cattle be fed in open yards (well shedded), then I do not think it is necessary to make a tank within the yards themselves; for if, before admitting the cattle into them in autumn, the yards be well bottomed with the dead Couch-grass and weeds that have been collected (instead of being burnt) from the farm during the previous summer, and if a sufficient supply of straw (bedding) be added from time to time as it is required, the shed also being well spouted, the greater part, if not the whole, of the liquid excrements of the cattle will be absorbed. If overflow there should be, in a very wet season, means should be provided to carry it off into the tank, which, as I think, will be most conveniently placed immediately adjacent to the platform, or site, or floor, upon which the manure is annually carted. This site, should be, if possible an inclined plane, or better still, where the ground admits of it, an excavation. Upon that platform all the manure made in the course of the winter must be carted, and carefully and solidly piled up; and close to it, connected by transverse underdrains (made of larger tiles), should a capacious tank be made. Before quitting the subject of the manure hill, I would mention that I have experienced great advantage from covering it (when duly built up, and trodden and shaped) with about 2 inches of burnt gypsum. I do not speak of the fixing by this means of the ammonia contained in the dung-hill, but, at least, it has checked evaporation, and caused the preservation of considerably more liquid than was the case before the use of gypsum was tried. The size of the tank should perhaps be made with reference to the quantity of manure from whence the drainage of liquid is to take place, still, upon the whole, my advice on this subject would be identical with that of Mr. Crompton, last year, at Richmond—"Make your tanks large enough;" for it should be remembered that when once made, it is impossible to increase their size. On a farm which I occupy, at Garton, a tank was made last year of the following dimensions, viz., 15 feet in depth by 12 feet in width; circular walled, with brickwork the thickness of one brick, backed with clay, and cased with Roman cement. A tank of this dimension is capable of containing about 13,000 galls., and it was made at the following cost, viz, excavation, 2*l.*; 7400 bricks, 9*l.* 2*s.*; bricklayers' work, &c, 1*l.* 14*s.* 6*d.*; 72 stones of Roman cement, 3*l.* 12*s.*; lime and sand, say 1*l.*; total, 17*l.* 8*s.* 6*d.* The next question is—how to make use of the liquid in the most profitable way? There seems to be two modes of using it in general operation; one in a liquid state, the other in combination with refuse vegetable matter, soil, and road scrapings. The former is greatly in vogue in Flanders, and other parts of the Continent; the latter is recommended by many able farmers in this country, among whom I may name, Mr. Hannam, Mr. Dixon, Mr. Thompson, of Kirby, and various others. I so far agree with Mr. Hannam that where a farm can supply a quantity of waste soil, such as old banks, head-lands, road-sides, &c., sufficient to absorb the whole of the liquid annually saved, its fertilizing ingredients are in this way conveyed to the land in the most economical and effectual way. But wherever this is impracticable, as on very many farms it must be (on the Wolds of this riding, for example, farms of 500 or 600 acres, with perhaps 4 or 5 inches only of soil above the chalk rock), where this is impracticable, then it will be best to apply the liquid to the land separately; because refuse vegetable matters, such as stubble, Couch-grass, weeds, &c., are, as I think, more advantageously converted into manure by bottoming the fold yards and dunghills with them than by heaping them together and pouring liquid upon them. Where horse litter forms a chief ingredient of the hill, then its saturation with liquid is advantageous. As to the quantity to be applied, Sprengel recommends the application of about 3400 gallons per acre of urine that putrefied five or six weeks, and states that, by this means 9 or 10 per cent. of actual manuring matter will be conveyed to the acre. If the subject of our present discussion were less varying in its nature than it is, such recommendations as these might be advanced with greater confidence. But when we consider the innumerable combination of circumstances upon which the formation of liquid manure depends,—the food and drink of the animals, their health, the temperature of the atmosphere, &c.,—it must be obvious that the application of weights and measures to this question is less trust-worthy than in the case of other manuring substances, and this is the reason why so much difference of opinion exists as to its advantages, and why in so many cases it has been attended with disappointment. I may, however, mention one or two successful instances; at Sledmere, which, as is well known to many here, is situate on the chalk, Sir T. Sykes has used liquid manure on his Grass-land for several years with much advantage. He applies not less than from 4000 to 5000 gallons per acre, he has three or four tanks, none of less size than 10,000 gallons, and from his large horse establishment, &c., these are all filled yearly; the time of application is in spring, I happened to be there on the 20th of May, 1844; a Grass paddock had been eaten quite bare by mares and foals, and the liquid applied two or three days previously. I was informed afterwards that this produced his best crop of hay. At Garton, where I occupy a farm, a field of five or six acres of similar soil was laid down with permanent Grasses in 1844; it had an application of liquid manure—drainage of dunghills—in April or May last, at the rate of 5000 gallons to the acre. This summer, although the second year of its pasturage, that part on which the liquid has been applied is a much better pasture than the remainder of the field, having much more white Clover in it; much difference is perceptible where the liquid was not applied, and much less white Clover. I believe that it will be best to apply liquid manure in the spring; vegetation then proceeds with greater rapidity, and consequently is in a fitter state to absorb nutriment, in rainy weather, if possible,—at all events when the ground is damp; if done in dry hot weather, an incrustation is apt to be left on the leaves of plants, which injures their growth.

Thomas Short, Esq., jun., of Mastin, said — The method which he had found to be best, of disposing of surplus urine was to fix with sulphuric acid or gypsum. One hundred pounds of gypsum would fix the ammonia of 780 gallons of horse urine. This urine was conveyed into open tanks, into which were thrown any absorbent materials that could be found. The materials, of course, differed in powers of absorption. The best he had met with was dried peat, one ton of which would absorb 1,000 gallons of urine. Couch, or Twitch-grass, too, was an excellent absorbent. After it had laid three weeks or a month in the tank, it was spread over the fold-yard. The preceding speaker had said that 100,000 gallons of urine would produce 4,000 gallons of urea when putrefied; when putrefied with water only 400. Now this urea, when it became a compound substance, contained 74 per cent. of nitrogen, the whole of which was lost (?) by being converted into carbonate of ammonia during putrefaction. And although great results had followed the application of urine, he was well satisfied that the whole of its qualities must depend entirely on the phosphates and soluble salts it contained. One excellent quality in the human urine was the exceedingly rich phosphate it produced. There was a manure which he believed could be made equal to it, and at a very little expense, namely, a compound in the proportion of one bushel of burnt bones with 10 gallons of urine, solidifying the whole with well-burnt gypsum, and then by breaking down it crumbled into powder, and produced one of the richest manures they could have. In conclusion, after all that had been said, they might depend upon it the best liquid manure was the rain of heaven. It dissolved the soluble salts provided by man, as well as the more indissoluble salts of nature, much more effectually than the art and ingenuity of man can.

H. G. Thompson, Esq., of Kirby Hall, said two methods of fixing ammonia had been strongly recommended. One was by means of sulphuric acid, and the other by means of gypsum. These were the two he undertook to compare, in the first instance. The first step he took was to mix a quantity of carbonate of ammonia and gypsum, which were easily soluble, and though gypsum had been strongly recommended, he was rather sceptical of its effects in tanks. He therefore took a certain quantity of ammonia, which would chemically combine with a certain quantity of gypsum. A certain effect was produced, but in no case was more than half the ammonia fixed by the use of gypsum. He did not say burnt gypsum, because then it was plaster of Paris, and the moment they mixed it with water, it would set so hard that it would be of no use whatever. They had better, therefore, use ground gypsum. In another instance he wished to ascertain if gypsum would act on solids, and for that purpose he took a large basket, which he filled with alternate layers of manure and gypsum, and buried the whole two or three feet deep, in a manure heap. After it had been there about a week, he took it out, and having washed it, he found on examination that a considerable action had been produced on the ammonia by gypsum. A certain quantity of ammonia had been fixed, and therefore he was justified in saying that in all cases common ground gypsum would fix ammonia to a certain extent, although he never succeeded in fixing it to a greater extent than 50 per cent. So much for the efficiency of gypsum. The next point was the comparative economy of using sulphuric acid. Those who resided at a moderate distance from a market town might procure gypsum at 34*s.* a ton at the most, which was rather less than 3-16ths of a 1*d.* per lb. Sulphuric acid would cost about ¾*d.* per lb., and was considerably more effective than gypsum, but gypsum was three times as cheap as sulphuric acid. He strongly recommended gypsum, and for this reason: it was almost impossible to know the amount of sulphuric acid which ought to be put in the tanks. All who had had any experience in the matter knew that it was a very awkward matter to have to do with carboys of sulphuric acid. If, also, they poured in ever so little too much of the acid, it acted on the tanks as well as on the manure, and a speedy effect of the excess of sulphuric acid would be the tumbling to pieces of the tank. The farmer would, therefore, be under a dread of pouring in too much acid, and the result would be that he would always be under the mark, and would thus approach very nearly to the same effect as would be produced by gypsum. Therefore, both as to safety and economy, he would strongly recommend gypsum; and although its efficiency was not so immediate and great as that of sulphuric acid, he would mention an additional circumstance in favour of its use, and that was that it could be applied better and with more safety in compost, and that an excess of gypsum, so far from being destructive, as in the case of sulphuric acid, would help to fix the ammonia on the compost heap. Therefore he thought, under all the circumstances, that gypsum ought to be fairly recommended, for whatever advantage might be obtained by the great and speedy effect of sulphuric acid, was compensated sufficiently by the safety and comparative cheapness of gypsum. The next point was what quantity of gypsum should be used to a certain sized tank. He would tell them the quantity of ammonia which he had found in different tanks. The highest that he had met with was 1⅝ oz. of carbonate of ammonia to an imperial gallon of urine. But that was by far the largest quantity of ammonia he had ever met with. A fair sample of the quantity of ammonia in a gallon of liquid manure is a quarter of an ounce; that was only one-seventh of the former quantity; and thus would be seen the great difficulty of fixing a certain amount of gypsum or acid. He thought that the application of about a ton of gypsum per year would be found a great advantage, and he would also recommend that the tank should be cleaned out once or twice a year. If they did not do so, they would soon find them filled with carbonate of lime. Mr. Thompson concluded by saying that he would only detain them on one other point, and that was what size the tanks should be with reference to particular sized farm buildings. He found that in his own case, having a fold-yard 100 feet long, by 80 feet broad, consequently containing 8000 square feet, with a tank sufficiently large to contain all the liquid caused by rain and urine, must be capable of holding 100,000 gallons. Now, that was probably a much larger tank than any one present would like to make. He might say, therefore, that he had found a tank capable of containing 10,000 gallons, if emptied

twice during the year, sufficiently large for all useful purposes. It was quite impossible to lay down a rule upon this point, and therefore would recommend, in order that they might ascertain how large a tank would be required, that each farmer intending to have one should place a cask in a situation so as to receive the liquid manure from the yard, and by observing the number of times it required to be emptied, during, say three or six months, they would get to know the size of tank suitable to their respective farms.

Wm. Dickenson, Esq., of London, strongly recommended the use of covered drains for the preservation of ammonia in liquid manures; it was well known that by exposure to air it lost the greater part of its ammoniacal properties. He was of opinion that in pumping out the liquid into the manure cart, great care should be taken that the spout of the pump should be so fixed that the air should not get to the contents of the cart; and also that in distributing it on the land the manure should be conveyed to the earth with as little exposure as possible. By attending to these precautions, he had last year produced 10 crops of Grass in succession upon the same land. The first was cut in March, with about 10 inches of Grass; it was cut a second time on the 13th of April; a third time on the 4th of May; a fourth time on the 24th of May; a fifth time on June the 14th; a sixth time on July the 22d, with ripe seeds, and three loads of hay-straw to the acre. Immediately after each of these crops, the land was watered once from a London street water-cart, with two parts of urine from the stables and one part of water; the produce of each crop increasing with the temperature of the atmosphere from three quarters of a load per acre, as hay, to three loads per acre. The crop having shed a quantity of seed, he was doubtful the urine might injure its growth, so he discontinued to water it, but well harrowed it with iron harrows, expecting nothing more from it. It produced, however, four light crops afterwards; and he had standing upon it in July last, three loads to the acre, the third crop for seed. This first cutting during the present year was not until the 6th of April, the second on May the 3d, the third on June the 9th, the fourth (2½ feet long) was standing in last month. The Grass to which he had referred was Italian Rye Grass, and which he thought it necessary to state differed as much in quality and variety as English Rye Grass or English fruits. There were Italian Rye Grasses that bloomed a foot and a half high, and that which he grew stood from 4 to 5 feet. They had heard that ammonia applied to the land in dry weather, would not answer, but last year, when he made his experiments, there was nothing but dry weather. [For Mr. Dickenson's experiments on this subject, see page 536].

Rebiews.

A Lecture on the Application of Chemistry to the Details of Practical Farming. By Albert J. Bernays, Member of the Chemical Society. Ridgway, Piccadilly.

Any one wishing for a summary statement of the present condition of the theory of agriculture, will find it in this pamphlet. Mr. Bernays has described, so far as is possible within the limits of a single lecture, the compositions of soils, of air, of water, manures, and to some extent of plants; and he has also explained the benefits arising from many tillage and other operations.

As an illustration, we extract the following passage in answer to the question:—To what cause must we attribute the usefulness of irrigation?

"Irrigation resembles fallowing in many respects, indeed in the neighbourhood of the Rhine and Nile, the former quite supersedes the latter process. It is because the water of streams contains oxygen in solution, that it, says Liebig, effects the most rapid and complete decomposition of the vegetable matter contained in the soil, which it penetrates and in which it is continually renewed. It is, however, not sufficient to flood the land, and to allow the water to remain upon it for months, for it is then converted into a marsh, and we all know that marshes are not the most fertile. Hence we perceive that it is not the water alone, and that it will be necessary, to ensure beneficial results, to renew the water frequently. The depth of the layer of water is immaterial, provided it be frequently renewed." And hence is inferred what experience had already taught—the necessity of drainage in water meadows.

Miscellaneous.

Feeding of Animals, (Boussingault, vol. ii. p. 425.)—Observation II. Introduction of Jerusalem Artichokes into the Meal.—Jerusalem Artichokes answer very well in feeding horses; they are consumed with avidity, and their good effects, when given in sufficient abundance, are soon visible. In the present case 30.6 lbs. were substituted for 11 lbs. of hay, assuming their equivalent to be the same as that of Potatoes. The allowance then consisted of

Hay	11 lbs.
Straw ..	5.5
Oats....	7.4
Jer. Art	30.8

The same precautions having been taken as before after eleven days the result was

1st Weighing—		The 2 teams.	Mean per horse.
No. 1, 4568.6	No. 2, 4356.8	8925.4	1115.7
2d Weighing—			
4623.7	4323.7	8947.5	1116.6
In 11 days—Gain	55.1 Loss.. 33.1	Gain 22.1	Gain .. .9

whence it appears that the equivalent assigned to Jerusalem Artichokes is not far from the truth. *Observation III. Hay and Potatoes.*—In this case 11 lbs. of hay were replaced with 30.8 lbs. of Potatoes, on the supposition that

100 parts of Hay = 280 of Potatoes.
50 of Oats.
520 of Straw.

The allowance then was composed of

Hay	26.6 lbs.
Potatoes	30.8

It was the more interesting to observe the effect of this regimen, because Liebig (Chimie Org., Intro. p. cxxx.), on theoretic grounds declares that on such a regimen horses cannot be kept in health. The experiment was continued 14 days.

1st Weighing—		The 2 teams.	Mean per horse.
No. 1, 4632.6	No. 2, 4323.7	8956.3	1119.5
2d Weighing—			
4687.7	4709.8	9397.5	1174.4
In 14 days—Gain	55.1 Gain.. 386.1	Gain 441.2	Gain .. 54.9

The daily increase, per horse, then amounted to 3.9 lbs. Allowing then the most that can be allowed for accidental variation, the daily increase cannot have been less than 1.7 lb. The condition of the horses was most satisfactory. The only inconvenience arose from the too great bulk of the food, and in consequence, from the time required to consume the food. This was especially manifest in the case of old horses. Besides the two teams, twelve horses employed on the farm had the same food, and with equal success. The equivalents, then, adopted in the preparation of the regimen, may be considered as available. The experiment, however, seems to indicate that the nutritive properties of Potatoes have been rated too low. *Observation IV. Substitution of Oats and Straw for a portion of the Hay.*—The same equivalents being assumed as in the last experiment, the regimen was as follows:—

Hay	11 lbs.
Straw ..	11
Oats....	12.2

The horses were weighed after they had been submitted to this regimen two days. The experiment continued 11 days.

1st Weighing—		The 2 teams.	Mean per horse.
No. 1, 4597.3	No. 2, 4360.1	8957.4	1119.7
2d Weighing—			
4606.1	4364.5	8970.6	1121.3
In 11 days—Gain	8.8 Gain.. 4.4	Gain 13.2	Gain .. 1.6

Under this regimen there was then scarcely any alteration in the weight. We see from this experiment how important it is to wait a day or two before making our observations. Had this precaution been neglected, the result would have been unfavourable to the particular regimen. In fact, at the end of the third experiment the horses, after having been fed on hay and Potatoes, weighed 9397.5 lbs. Under the new regimen, two days after having been submitted to it, they weighed only 8957.4 lbs. We cannot, however, admit that in these two days they lost 440.1 lbs. The difference is doubtless in part attributable to a less nutritious regimen.—*M. J. B.*

Notices to Correspondents.

Cutting Corn by Scythe or Sickle—*D C L*—The paper you allude to is at p. 346, 1844. You shall have extracts next week.

Fences, &c—*Zeno*—With pleasure. Will you be kind enough, in the first place, to favour us with a perusal?

Improvement of Land by Incumbents—*Clericus*—"What acts exist for facilitating the improvement of land awarded to incumbents? Generally it is taken from commons, or waste, or moorlands, and requires a greater outlay for buildings and drainage than one having only a life-interest can be expected to undertake."

Ploughs—*Monmouth*—We should use the Scotch Swing Plough; simply, however, because that is the one we are accustomed to.

Pond-mud as Manure—*S Horton*—You must get it dried and broken up before you use it: that is all that is *necessary*; but it would be much improved if you could make a compost of it with lime or with farm-yard dung. Grass land should be manured in autumn, *i. e.*, in August or September. Wood-ashes will be the cheapest form in which you can buy potash for manure: you may apply 20 or 30 bushels per acre.

Prize List of the Agricultural Society—*M R E A S*—Your observations are too late for publication this week.

Rot in Sheep—*Monmouth*—There is no cure. Give them plenty of salt; it will act as a preventive.

Subsoil Plough—*Economist*—In our opinion the subsoil plough of Mr. Smith, of Deanston, is *much* the best implement of its kind. Messrs. Barrett and Exall, of Reading, have invented a three-toothed implement for loosening the subsoil; and Mr. Read has received a prize from the Society for *his* form of subsoil plough. We do not know the relative power required to work these implements. The subsoil at Shrewsbury was as easy to work as almost any subsoil could be.

Subsoil Ploughing—*W Northumbrian sis*—It is not safe to loosen the soil deeply, without first draining it.

Thin Sowing—*Monmouth*—The proper quantity must depend on the quality of the land. We have been in the habit of drilling from 5 to 6 pecks of Wheat per acre, in rows 9 inches apart.

Wheat—*Monmouth*—Red straw, white, and Shirreff's varieties have been sown in November, December, January, February, March, and even April, and in all cases they have yielded well.

Markets.

SMITHFIELD, Monday, Aug. 18.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0	to 4s 4	Best Long-wools	4s 6	to 4s 10
Best Short Horns	3 10	4 2	Ewes and second quality	4 0	4 4
Second quality Beasts	3 0	3 6	Lambs	4 8	5 8
Calves	4 0	5 0	Pigs	3 8	4 8
Best Downs & Half-breds	4 8	5 0			

Beasts, 3400; Sheep and Lambs, 26,240; Calves, 134; Pigs, 315.

We have to-day a large market of Beasts, and a consequent depression in the trade. Our top quotations are quite the extreme prices of the best qualities. Several inferior are left unsold.—The number of Sheep and Lambs is not large for the time of year. Good Mutton continues dear.—Lamb trade is dull.—Good Calves are readily disposed of at from 4s. 8d. to 5s.—The weather being good, Pork is dearer.

Friday, Aug. 22.

There is a full supply of Beef to-day, and trade is heavy; the best Scots, &c., make scarcely anything over 4s. 2d., and the best Short-horns 4s.; inferior qualities are difficult to dispose of, several remain unsold.—Sheep are rather shorter, and prices fully supported; best Downs, &c., 4s. 8d. to 5s.; best Longwools, 4s 6d. to 4s. 10d.; Ewes, &c., 4s. to 4s. 4d.—Lambs are not much in request; a few of the best make rather more than 5s. 4d.—Good Calves are as dear, being worth quite 5s.—Pork, 3s. 8d. to 4s 8d.

Beasts, 924; Sheep and Lambs, 7800. Calves, 265; Pigs, 311.

4l, West Smithfield.

HOPS, Friday, Aug. 22.

We have had a good trade in Hops this week at an advance of from 8s. to 10s. per cwt. The accounts still continue to come unfavourable from the plantations, and the duty is called £165,000 to £170,000.

Pattenden & Smith, Hop-Factors.

COVENT GARDEN, Aug. 23.—The Continental fruit season being now at its height, the market has been abundantly supplied during the week with foreign fruit, chiefly Gree.-gage and Orlean Plums, Apricots, and Apples and Pears, from Havre, Rotterdam, and Antwerp. Of Pine-apples, very few foreign sorts are in the market, and the prices for good English-grown fruit are rather on the rise. In regard to Grapes, a few Portugals have just made their appearance on the stalls; Hothouse varieties are good and abundant. The supply of Peaches and Nectarines continues to be well kept up, and prices for them are on the decrease. Cherries, with the exception of Morellos (for which trade is getting better), are all but over for a season. English Melons are plentiful, and very good in quality; Dutch varieties continue to be imported in considerable quantity. Gooseberries and Currants are scarce, and very few Strawberries are to be met with. Of Vegetables, Peas are not quite so plentiful as they have been, and they are rising in price; French Beans have not altered since last week, and Cauliflowers also remain nearly the same. The prices of Potatoes are likewise the same as quoted in our last report; several of the samples we examined were tainted with the disease mentioned in another column. Carrots and Turnips are good and plentiful; and Celery is increasing in quantity as well as improving in quality. Mushrooms have been very plentiful, and Salading of every kind is abundant. Among Cut Flowers, we noticed Vincas, Gesneras, Begonia venusta, Gardenias, Gladioli, Heliotropes, Phloxes, Pelargoniums, Verbenas, Carnations, and Roses.

FRUITS.

Pine Apple, per lb.,	4s to 6s	Melons,	3s to 6s each
Grapes, Hothouse, per lb.,	2s to 5s	— Dutch,	1s to 3s each
Peaches per doz.,	6s to 10s	Gooseberries, per sieve,	3s to 4s
Nectarines, per doz.,	4s to 12s	Walnuts, per bushel.	2s .. 7s
Plums, per hf.-sv.,	3s to 5s	Oranges, per dozen,	1s to 3s
— Orleans, per hf.-sv.,	4s to 6s	— per 100,	8s to 20s
— Green Gages, per hf.sv.,	5s to 7s	— bitter, per 100,	10s to 16s
— Violets, per hf.sv.,	4s to 6s	Lemons, per dozen,	1s to 2s
Apricots, from 1s to 3s per doz		— per 100,	7s to 16s
Cherries, wall, per lb.	2s to 5s	Almonds, per peck,	6s
Apples, Dess., per bush.,	2s 6d to 5s	Sweet Almonds, per lb.,	2s 6d to 3s
— Kitchen,	2s 6d to 4s	Filberts, English, p 100 lbs.,	50s to 60s
Pears, per hf.-sv.,	2s to 5s	Nuts, Barcelona,	22s
— Jargonelles, per hf sv.,	6s to 8s	— Brazil,	30s
— Windsors,	3s to 3s 6d	— Spanish,	25s
Strawberries, per pottle.,	6d to 2s	— Cob,	14s
Currants, per hf.-sv.,	2s 6d to 4s		

VEGETABLES.

Cabbages, per doz.,	2d to 4s	Onions, per doz.,	2s to 6s
Cauliflowers, per doz.,	1s to 5s	— Spanish, per doz.,	3s to 5s
French Beans, per hf.-sv.,	1s to 3s	Shallots, per lb.,	6d to 10d
Sorrel, per hf.-sieve,	6d to 9d	Lettuce, per score, Cab.,	1s to 2s
Artichokes, per doz.,	1s 6d to 2s 6d	— — Cos,	2d to 1s 3d
Potatoes, per ton,	40s to 80s	Radishes, per doz. hands	6d to 1s
— cwt.,	2s 6d to 5s	Mushrooms, per pottle,	8d to 1s 6d
— bushel,	1s 6d to 3s	Small Salads, per punnet,	2d to 3d
— Kidney, per bushel,	2s to 3s	Basil, green, per bunch,	4d to 9d
Turnips, per doz.,	2s to 3s	Fennel, per bunch,	2d to 3d
Red Beet, per doz.,	9s to 2s	Savory, per bunch,	4d to 6d
Carrots, per doz. bchs.,	2s to 5s	Thyme, per bunch,	4d
Peas, per bushel sieve,	2s 6d to 5s	Watercress, p. 12 sm. bun.	4d to 6d
Horse Radish, per bundle,	1s 6d to 6s	Parsley, per half sieve.,	6d to 1s
Cucumbers, per doz.,	1s to 6s	— Roots, per bundle,	9d
Spinach, per sieve,	9d to 1s 6d	Tarragon, per bunch,	4d
Leeks, per doz.,	2s to 3s	Mint, per bunch,	4d
Garlic, per lb.,	3d to 10d	Marjoram, per bunch,	4d
Celery, per bunch,	1s to 1s 6d	Chervil, per punnet,	2d to 3d
Vegetable Marrows, p. doz.	4d to 1s		

HAY.—Per Load of 36 Trusses.

Smithfield, Aug. 21.

Prime Mead. Hay	105s to 115s	New Hay	60s to 85s	New Clvr.	80s to 105s
Inferior Hay -	— —	Clover	— to 130	Straw	32 28

John Cooper, Salesman.

Cumberland Market, Aug. 21.

Prime Mead. Hay	105s to 112s	Old Clover	128s to 135s		
Inferior -	90 92	Inferior do.	110 120	Straw	32s to 42s
New Hay -	65 94	New Clover	— —		

Joshua Baker, Hay Salesman.

Whitechapel, Aug. 22.

Fine Old Hay -	105s to 112s	Old Clover	—s to 123s		
Inferior Hay -	— —	Infe. ,,	— —	Straw	36s to 40s
New Hay -	70 90	New Clover	95 110		

Mark-Lane, Monday, Aug. 18.

The supply of English Wheat by land carriage samples this morning, although considerably less than the last two weeks, was large for the season; a few of the best qualities were taken at a decline of 2s. per qr. upon the prices of this day se'nnight, but no progress could be made with the secondary and inferior sorts, although freely offered at this reduction, and they consequently remained unsold; in free Foreign nothing doing; bonded was also neglected, but holders are generally careless of selling.—Barley must be written 1s. dearer than last Monday.—Beans and Peas fully maintain our quotations.—Good sweet Oats meet a fair demand and are fully as dear, but all inferior and out-of-conditioned qualities are a very heavy sale.

British, per Imperial Quarter,	S.	S.		S.	S.
Wheat, Essex, Kent, and Suffolk . . White	50	54	Red .	50	54
Norfolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 26s to 30s	Chevalier	30	33	Grind.	24	27
Oats, Lincolnshire and Yorkshire . .	Polands	20	23	Feed	19	22
— Northumberland and Scotch . .	Feed	20	22	Potato	21	24
— Irish	Feed	20	22	Potato	21	23
Malt, pale, ship		54	60			
— Hertford and Essex		58	65			
Rye		29	32			
Beans, Mazagan, old and new	32 to 38	Tick	32	39	Harrow	34	40
— Pigeon, Heligoland .	37 to 44	Winds	—	—	Longpod	—	—
Peas, White	36 to 39	Maple	36	39	Grey	33	36

Friday, Aug. 22.

Quite at the close of Wednesday's market, nearly the whole of the English Wheat was cleared off for country account, at about 2s. over the rates of Monday. This morning there was very little offering, and holders refusing to accept a decline upon the rates of last day, little was done, the fine weather inducing millers to hold off. Free Foreign and bonded were neglected, but there were buyers of Mediterranean cargoes afloat, at a decline of 1s. per qr.—In Barley, Beans, and Peas, we observe no alteration.—Fine Oats remain as last quoted, but ordinary qualities are the turn cheaper.

Imperial Averages.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
July	12 per Quarter.	48s 10d	29s 0d	24s 6d	33s 11d	39s 8d	38s 11d
—	19 . . .	50 0	29 6	23 4	32 8	39 9	40 2
—	26 . . .	51 7	29 8	22 5	31 7	40 8	38 10
Aug.	2 . . .	51 3	29 8	22 5	34 6	40 5	41 0
—	9 . . .	55 3	29 7	22 8	33 10	41 0	39 10
—	16 . . .	57 0	29 4	23 2	34 4	41 2	39 7
6 weeks' Aggreg. Aver.		52 8	29 4	22 5	33 6	40 4	39 7
Duties on Foreign Grain		18 0	9 0	6 0	9 6	9 6	3 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Aug. 16.

Prices.	July 12	July 19	July 26	Aug. 2	Aug. 9	Aug. 16
57s 0d	..	..	..	..	..	..
55 3	..	..	..	..	..	..
53 3	..	..	..	..	..	..
51 7	..	..	..	..	..	..
50 0	..	..	..	..	..	..
48 10	..	..	..	..	..	..
— 2	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, Aug. 22.

Canary - - per qr	50s to 54s	Linseed Cakes, Foreign, p. ton	7l 10s	to	9l
Carraway - per cwt	42 44	Mustard, White - p. bush.	—	—	—
Clover, Red, English -	— —	— Superfine ,,	—	—	—
— — Foreign -	— —	— Brown ,,	—	—	—
— White, English -	— —	Rapeseed, English, per last	24l		26l
— — Foreign -	— —	Rape Cakes - per ton	—	—	—
Coriander - - -	12 18	Saintfoin - - -	—	—	—
Hempseed - per last	35 36	Tares, Eng. winter p.bush.	4		6
Linseed - per qr	58 60	— Foreign - -	3		5
— Baltic - -	38 44	Trefoil - - per cwt	18		23
— Cakes, Eng. per 1000 lb	0 11l 10	Turnip (too variable for quotation).			

Kingsford and Lay.

Sales by Auction.

KINGSLAND NURSERY—FINAL SALE.

MESSRS. PROTHEROE & MORRIS have received instructions to submit to public competition by Auction, about the end of September, in consequence of the Lease having expired, the whole of the valuable Stock, consisting of a large assortment of EVERGREENS, FRUIT, and FOREST TREES, SHRUBS, &c. Further particulars will be given next week.—American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

THE SALE by Messrs PROTHEROE & MORRIS of the Nursery and other Stock of Mr. CHAPMAN, of Bedford Lane, Clapham Road, advertised for the 28th inst., is postponed for the present.

KENT.

AN ENTIRE FAR-FAMED PURE SOUTHDOWN FLOCK.

VERRALL AND SON have received instructions from the Executors of HENRY BOYS, Esq., of Malmains, Waldershare, lately deceased, to Sell by Auction, without the slightest Reservation (the Farming business being about to be relinquished by the family), The ENTIRE SOUTHDOWN FLOCK, consisting of Ewes and Ewe Lambs, Rams and Ram Lambs, in the whole upwards of One Thousand, which have been bred with the greatest care and attention, regardless of expense, by the late owner and his father for the last Forty Years, from the very best Flocks on the Southdowns, The Sale will take place on Friday, the 5th of September, at 12 o'clock, at Broome, halfway between Canterbury and Dover. The Auctioneers beg to state from the best authority, that in consequence of Mr. Boys having paid such particular attention to the Wool, for quantity and quality combined this Flock is superior to any other in the kingdom.

TO BE DISPOSED OF, THE POOLE NURSERY, DORSETSHIRE.—In consequence of the proprietor of this Nursery being too actively engaged in another business to give it proper attention, he wishes to dispose of it. It is well situated in a fast increasing neighbourhood, and might be had on easy terms. Any one thinking of taking it might, if he wished, come as a Foreman for a few months previously, or a person of *known abilities and good standing* might be engaged as a permanent Foreman, at liberal salary, or as a Partner.
Aug. 23. A. BELSTOW.

MOST ELIGIBLY SITUATE, IN THE WEST OF ENGLAND.

TO BE DISPOSED OF.—An excellent and extensive NURSERY BUSINESS, established upwards of half a century. Persons desirous of availing themselves of an established and improving business, will find such an opportunity of rare occurrence. The whole or part of the Stock, on the Grounds, may be taken as suits the convenience of the purchaser.—For Particulars, apply to Messrs. NOBLE, Fleet-street, London.

The above will be suitable only to those who can command a respectable capital.

TO HORTICULTURAL AND OTHER SOCIETIES.

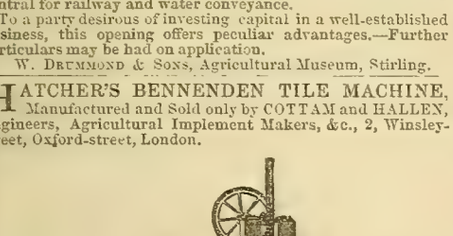
TO BE SOLD, a MARQUEE, a great bargain, capable of holding 400 to 500 persons, admirably adapted for public or private shows of Flowers, Fruits, &c.; it is easy of erection, and very portable, and will be sold for half its value; the proprietor having no use for it.—Direct to W.N., 15, Tower Royal, Watling-street.

NURSERY GROUNDS AND STOCK AT STIRLING, N.B.—The Subscribers, being so much occupied with their Agricultural trade at Stirling and Dublin, are desirous of relinquishing the Nursery branch of their business, and are therefore ready to treat for the disposal of the whole of their NURSERY STOCK at a valuation; also for the unexpired term of the Lease of the GROUNDS, a long period being still to run. These Grounds, consisting of 12½ statute acres of excellent free soil, neatly subdivided and sheltered, are furnished with Dwelling House and Offices. The Stock is select, and of the most saleable description. The situation at Stirling central for railway and water conveyance.

To a party desirous of investing capital in a well-established business, this opening offers peculiar advantages.—Further particulars may be had on application.

W. DRUMMOND & SONS, Agricultural Museum, Stirling.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1⅞ inches diam. of Tile,	5,800
1¼ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

PROTECTION OF LIFE AND PROPERTY.—The daily occurrence of Fire, with loss of Life and Property, is enough to arouse the attention of every thinking mind. J. READ begs to inform the Public that he has just taken out a NEW PATENT for improvements in his FIRE ENGINES and MACHINES for domestic purposes, viz. for Mansions, Villages, Factories, or wherever there is danger of Fire, by reducing the size without diminishing the power. The above Engines will discharge from 20 to 100 gallons of water per minute, will pass through any common doorway, may be worked with two-thirds the labour of the common engines, and drawn by two men. The valves are so constructed that they cannot get out of repair, but if standing by for years will be ready to act in an instant. The above may be seen and proved at the Patentee's, REGENT-CIRCUS, PICCADILLY.

Engines of any power or dimensions made to order.

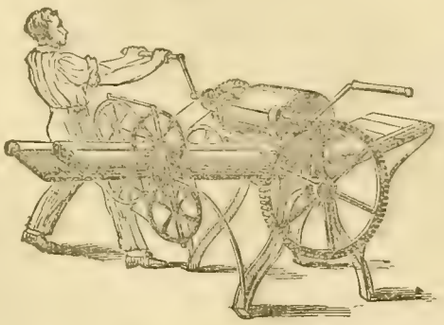
N.B.—None are genuine except stamped "Read's Patent."

The above Engines obtained a Prize at the late Agricultural Shows at Southampton and Shrewsbury.

REAPING SCYTHE.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and may be recommended with every confidence; are furnished by the Subscribers at their establishments, at 10*s.* each, and delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, or Londonderry, at 11*s.* 6*d.* each, and when more than three are taken at 11*s.* each. N.B.—No order will be attended to from unknown correspondents without a remittance.

W. DRUMMOND and SON, Agricultural Museum, Stirling, and 58, Dawson-street, Dublin.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.

These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2¾ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2¾ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.



DINGLE'S HAND DIBBLING MACHINE for Depositing all kinds of Seed in any soil.

Registered in pursuance of the Designs Copyright Amendment Act, 6 and 7 Victoria, C. 65, No. 469.

WILLIAM E. RENDLE and Co., PLYMOUTH, have purchased the sole right and license for manufacturing and disposing of this valuable machine, which will be found to be one of the most desirable inventions ever offered to the Agriculturist.

The Machine is so constructed that it will, at the same moment, make the hole and deliver the exact quantity of seed. It is simple in its construction, and not liable to get out of order.

THE DIBBLING POINT IS OF SUCH A SUPERIOR CONSTRUCTION THAT THE SOIL CANNOT CHOKE IT.

The Machine is confidently recommended by the Proprietors, as they feel assured it will give satisfaction. It having but recently been invented, it was too late for entry at the Shrewsbury Show; they feel confidence, however, in saying that had it been shown there, it would have received the prize.

It will be found most valuable for dibbling Wheat, Mangold Wurzel, Barley, Peas, Beans, &c. &c.

PRICE, THIRTY-FIVE SHILLINGS EACH.

Including Box and Carriage to London, Liverpool, or Bristol.

Agents required in the principal towns in Great Britain and Ireland. A liberal commission will be allowed. Unknown correspondents are respectfully desired to give a reference in London.—Union-road, Plymouth, Aug. 9.

DINGLE'S HAND-DIBBLING MACHINE.—Many have been the complaints raised against Dibbling Machines, hitherto invented, of their great liability to become choked with soil, and their irregularity in discharging the seed. Mr. Dingle has been the fortunate inventor of a machine which will overcome these difficulties, the dibbling point being so constructed that the soil cannot by any possibility choke it, and the discharging cups so arranged that the exact quantity of seed must necessarily be deposited into each hole. One trial will be sufficient to convince any one of the correctness of this.

Price 35*s.* each, including box and carriage to London, Liverpool, or Bristol; apply to WILLIAM E. RENDLE, and Co., Plymouth.

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

THE AGRICULTURAL MEETING, AND GENERAL SHOW OF LIVE STOCK, IMPLEMENTS, SEEDS, ROOTS, AND PLANTS, under the patronage of the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, takes place at DUMFRIES on the 7th, 8th, and 9th of October next.

TUESDAY, 7th October.—The Trial and Exhibition of Agricultural Implements, Show of Dairy-produce, Seeds, Roots, and Plants.

WEDNESDAY, 8th October.—The General Show of Cattle, Horses, Sheep, Swine, Poultry, and the whole of the articles enumerated above, exhibited on Tuesday.

THURSDAY, 9th October. The Exhibition of the Prize Stock, Implements, and other articles.

THE PREMIUMS ARE FOR

CATTLE.—1, Galloway Breed; 2, Short-horned Breed; 3, Ayrshire Breed; 4, West Highland Breed; 5, Polled Breed; 6, Any Breed.

HORSES.—1, Draught Stallions; 2, Stallions, Coach or Chariot; 3, Draught Mares; 4, Draught Geldings; 5, Draught Fillies.

SHEEP.—1, Leicester Breed; 2, Cheviot Breed; 3, Blackfaced Breed; 4, Southdown Breed; 5, Crosses.

SWINE.—POULTRY.

DAIRY-PRODUCE.—1, Curing Butter; 2, Making Cheese.

Extra Stock, Implements and Machines, Seeds, Roots, and Plants.

The Competition is open to every part of the United Kingdom.

The Certificates for Stock and other articles to be exhibited, must be lodged, at the latest, by Wednesday the 17th of September, with the Secretary of the Society at Edinburgh; or with Robert Threshie, Esq., of Barnbarroch, the Local Secretary at Dumfries; from either of whom may be had Certificates to be completed, and Copies of the Bill of Premiums and Regulations.

The Secretary of any Local Association will, on application, obtain Copies of the Bill of Premiums for the use of the Members of the Association. CHARLES GORDON, Sec.

Society's Hall, Edinburgh, 6th August, 1845.

The COMMITTEE DINNER, open to Members of the Society, will take place on Tuesday the 7th of October, the first day of the Meeting.

The GREAT DINNER, on the day of the General Show (Wednesday the 8th of October), at Half-past Five. As Tickets must be reserved for many attending the Meeting from a distance, gentlemen residing at Dumfries and the neighbourhood are requested to secure their Tickets by early application. Members of the Society will be entitled to a preference up to Saturday the 27th of September.

The Agricultural Chemistry Association have made arrangements for two Public Breakfasts on the 7th and 9th of October. Subjects of interest have been selected as topics of conversation at these Breakfasts.

CHEAP AND DURABLE ROOFING,

AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company, and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—PRICE ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

SILVER SUPERSEDED, and those corrosive and injurious Metals, called Nickel and German Silver, supplanted by the introduction of a new and perfectly matchless ALBATA PLATE. C. WATSON, 41 and 42, Barbican, and 13, Norton Folgate, aided by a person of science in the amalgamation of Metals, has succeeded in bringing to Public Notice the most beautiful Article ever yet offered; possessing all the richness of Silver in appearance, with all its durability and hardness—with its perfect sweetness in use, undergoing, as it does, a chemical process, by which all that is nauseous in mixed Metals is entirely extracted—resisting all acids—may be cleaned as silver, and is manufactured into every Article for the Table and Sideboard.

	Plain Fiddle.	Threaded Fiddle.	King's Pattern.	Albert Pattern.
Table Spoons per doz.	16*s.* 6*d.*	30*s.*	35*s.*	42*s.*
Dessert do. do.	12*s.* 6*d.*	25*s.*	28*s.*	32*s.*
Tea do. do.	5*s.* 6*d.*	13*s.* 6*d.*	13*s.* 6*d.*	17*s.* 6*d.*
Table Forks do.	16*s.* 6*d.*	30*s.*	35*s.*	42*s.*
Dessert do. do.	12*s.* 6*d.*	25*s.*	28*s.*	32*s.*

C. WATSON begs the Public will understand that this Metal is peculiarly his own, and that Silver is not more different from Gold, than his Metal is from all others—on its intrinsic merits alone he wishes it to be tested, and from the daily increasing eulogiums he receives, he is convinced that nothing can prevent its becoming an article of universal wear.

C. WATSON'S handsomely ILLUSTRATED CATALOGUE and PRICE CURRENT, is just Published; and Families who regard economy and elegance, should possess themselves of this useful Book, which may be had *Gratis*, and Post Free, from the above Address.

Publishing in Monthly Numbers, One Shilling each,

THE O'DONOGHUE; a Domestic Tale of Ireland Fifty Years ago. By HARRY LORREQUER. With Illustrations by Phiz. Nos. 1 to 8 are now ready.

"The interest of this beautiful story steadily increases. We believe it will be pronounced the Author's best."—*Leeds Times.*

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"This delightful tale is the best we have ever perused."—*City Chronicle.*

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Sold by all Booksellers.

Lately published, illustrated with several Plates, price 3s.,

THE HISTORY AND MANAGEMENT OF BEES, with Notices of a New Hive, on the Polish plan, invented by the Author, JOHN WIGHTON, Gardener to Lord Stafford.

"We strongly recommend this book to all who keep bees, more especially to gentlemen's gardeners."—*London's Gard. Mag.*

"A Treatise on the subject, apparently the result of experience and careful observations, cannot be without its interest."—*The Editor of the Gard. Chron.*

"The respectable list of subscribers shows confidence placed in the author."—*Sussex Advertiser.*

London: LONGMAN & Co., Paternoster-row. Norwich: BACON & Co. May be had of all Booksellers, or free by Post, on the receipt of 4s. in Post Stamps, addressed to the Author, near Norwich.

A CATALOGUE OF THE FRUITS CULTIVATED IN THE GARDEN OF THE HORTICULTURAL SOCIETY OF LONDON. Third edition, containing the Names, Synonyms, Colour, Size, Form, Quality, Use, Time of Ripening, and many other particulars concerning all the most important varieties of hardy Fruit cultivated in this Country.

Sold at the House of the Society, 21, Regent-street, and also by LONGMAN & Co., Paternoster-row; J. HATCHARD, Piccadilly; RIDGWAY, Piccadilly; RIVINGTONS, Waterloo-place: and by the principal Booksellers in all parts of the Empire. Price 3s. 6d. to Fellows of the Society, and 5s. to others (or, postage free, upon receipt of a Post-office order, price 5s. to Fellows of the Society, or 6s. 6d. to others).

A few copies of the second edition of this Catalogue may be had at the reduced price of 1s. 6d. each.

Now Published, Nos. 1 to 12, price 2s. 6d. each,

BRITISH WILD FLOWERS.—By MRS. LOUDON. With about 20 coloured figures in each Number. Demy 4to.

This work will only include those British Plants which are at once common and ornamental, as it is intended principally for the use of Ladies taking country walks, who may wish to know the names of flowers they meet with in the fields and hedgerows, and some particulars respecting them. It is intended to comprise the whole in 20 numbers.

London: WILLIAM SMITH, 113, Fleet-street.

In small 8vo, price 3s. 6d. cloth lettered,

THE EMIGRANT'S GUIDE; or, Ten Years' Practical Experience of a Bush Life in Australia. By the Rev. DAVID MACKENZIE, M.A. Exhibiting the Climate—Soil—Seed-time—Land and Squatting Regulations—Live Stock—Bush Amusements—Travelling in the Bush—with Practical Advice to Emigrants.

London: WM. S. ORR & Co., Amen-corner.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 35.—1845] SATURDAY, AUGUST 30. [Price 6*d*.

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GRAND METROPOLITAN EXHIBITION OF DAHLIAS.—The Annual SHOW will take place at Cremorne House and Gardens, Chelsea, on Thursday, 25th September, when upwards of 200 guineas will be distributed in prizes, 10 or more prizes in each Class, and varying from 10*s*. to 5*l*.—Particulars at the *Gardeners' Gazette* Office, Tavistock-street; and the principal Seed shops.

ANNUAL DINNER OF HORTICULTURISTS of GREAT BRITAIN. Established 1833.—To prevent any supposed or real interference with the Benevolent Society's Dinner in January, the next Festival will take place in the Saloon at Cremorne House, Chelsea, on Thursday, 25th Sept. Open for business at 1. Dinner on table at 3. Tickets to entitle the holder to dinner, dessert, and entrance to the Gardens on Show Day, at 6*s*. 6*d*., to be had at the *Gazette* Office, and the principal Seed shops.

SOUTH ESSEX HORTICULTURAL SOCIETY.—The Third Exhibition for this season takes place in the Grounds of the INFANT ORPHAN ASYLUM, WANSTEAD, on Thursday, 4th of September. A Military Band will attend. The Grounds open for Visitors from 1 till 6 o'clock, P.M.

R. Anderson, Sec.

DAHLIA SHOW—OPEN TO ALL ENGLAND—At the Royal Rock Ferry, on the Cheshire side of the River Mersey, opposite Liverpool, on Thursday, 18th September next.

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Best 24 blooms	6*l*.	Entrance	5*s*. 0*d*.
„ 12 do.	3*l*.	do.	3 6
„ 1 do.	1*l*.	do.	2 6

Of any colour.

Competitors for the above to enter on or before 11th Sept. next. There will be in addition Amateur prizes for Dahlias, Plants, Fruit, &c.

Schedules and other particulars to be obtained of Thomas Aspinall, Secretary.

N.B.—Steamers leave George's Pier, Liverpool, every half hour, for Rock Ferry. The Bebington Station from Chester is only ten minutes' walk from the Ferry.

DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY.

A GRAND DAHLIA EXHIBITION, OPEN TO ALL ENGLAND, FOR AMATEURS AND GENTLEMEN'S GARDENERS ONLY, will take place at Congdon's Public Rooms, in Exeter, on Friday, the 19th of September next.

A List of the Prizes (which amount to upwards of Twenty Guineas) and the Rules and Regulations may be obtained on application to Mr. Wm. Spreat, Librarian to the Society, 263, High-street, Exeter.

Exeter, Aug. 28. T. William Gray, Hon. Sec.

N.B. This Advertisement will not be repeated.

ANALYTICAL AND EXPERIMENTAL CHEMISTRY, KING'S COLLEGE, LONDON.—LABORATORY CLASS, conducted by W. A. Miller, M.D., F.R.S., Professor of Chemistry, and John E. Bowman, Esq., Demonstrator of Chemistry in King's College. In order to afford to the Manufacturer, to the Agriculturist, and to the Student of Medicine and of Science in general an opportunity of acquiring such a knowledge of Analytical Chemistry as is now essential to the practice of their respective professions, or of prosecuting research in any particular branch of chemical inquiry, considerable additional accommodation has been provided in the Laboratory of King's College.

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A Prospectus containing full particulars may be obtained on application either personally or by letter, at the Secretary's Office.

R. W. Jelf, D.D., Principal.

August 30.

PERMANENT GRASSES.—This being a proper season for laying down land to permanent Pasture, and for improving old Grass Lands, Messrs. SUTTON and SONS respectfully intimate that they have now ready for delivery NEW SEEDS of the most proper kinds of GRASSES for these purposes, and having had nearly forty years experience in this department, they have the privilege of referring to estates in most parts of England where pastures of very superior quality have been produced from Seeds supplied by Messrs. Sutton.

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Reading Seed Warehouse, Reading, Berks, Aug 30.

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Intending competitors must notify their intention to the Honorary Secretaries previous to the 1st September next, when they will receive such information as may be required for their assistance and guidance.

The successful competitors will have the preference in the superintendence of the execution of their designs.

No plans and drawings can be received later than the 20th September. The adjudication will take place on the 1st October.

Malcolm Ross, } Hon.
Edward Watkin, } Secretaries.

Committee Room, Town Hall, Manchester, August 1st.

LYNE'S "MARMION" AND "HESPERUS."—Engravings of these Splendid GERANIUMS will appear in "The Florists' Journal," on the 1st of September. Catalogues and descriptions can be obtained of William E. Rendle, Plymouth.—Aug. 30.

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, begs to offer his new ALSTRŒMERIAS at the following rates, viz.—12 varieties, 21*s*.; 25 varieties, 31*s*. 6*d*.; 50 varieties, 52*s*. 6*d*. Orders received by Mr. George Rahn, 52, Mark-lane, London; or application may be made (post paid) to Mr. Van Houtte, at Ghent. The deliveries will commence on the 15th September next, the plants being forwarded to London free.

The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle*, 12th July last), says of these plants:—"They are of every tint from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, is the following gratifying account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstrœmeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them.

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Ditto CHRYSANTHEMUMS	..	12*s*. do.
Ditto VERBENAS	.. ..	6*s*. do.
Ditto PETUNIAS	.. ..	12*s*. do.
Ditto PANSIES	.. ..	10*s*. do.

For particulars, see former Advertisements.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s*. per 100.
"PRINCESS ALICE MAUDE," „ 10*s*. „
Great Yarmouth Nursery, Aug. 30.

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Hindsia longiflora, 3*s*. 6*d*.	Hoitzia coccinea, 2*s*. 6*d*.
" violacea, 10*s*. 6*d*.	Thunbergia chrysops, 2*s*. 6*d*.
" longiflora alba, 31*s*. 6*d*.	Fuchsia serratifolia, 21*s*.

Early in September.

R. White & Co., Poole Nursery, Dorsetshire.

TO AMATEURS OF CAPE BULBS, &c.

BERNARD SAUNDERS, Nurseryman, &c., begs respectfully to call the early attention of Amateurs and the trade in general to his extensive collections of IXIAS, SPARAXIS, TRITONIAS, BABIANAS, GLADIOLUS, WATSONIAS, OXALIS, IRIS, and LILIUMS, which are now ready for delivery. Catalogues of which may be had on application.

Island of Jersey, Aug. 30.

EXHIBITION OF LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London. By Appointment FLORIST to HER MAJESTY the QUEEN, and to HIS MAJESTY the KING of SAXONY, begs to inform the Nobility, Gentry, and Amateurs, that his extensive assortment of this most beautiful LILY, which has been so universally admired, is in flower, and will continue in perfection during the month of September; and may be viewed every day, Sundays excepted. Admittance gratis.

GLADIOLUS GAUDAVENSIS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, respectfully offers strong bulbs of the above at 5*s*. each, to be had also of Messrs. Warner & Warner, Cornhill, London, from the 1st of October next.

The usual allowance to the Trade.

LISIANTHUS RUSSELLIANUS.—Two large greenhouses full of the above most beautiful Plant are now in bloom, forming a numberless multitude of flowers, of a rich porcelain blue. Ladies, Gentlemen, and Gardeners, are invited.

James Cuthill, Denmark-hill, Camberwell, Surrey.

*** A Lad about 17 or 18 wanted as an Apprentice.

PINE APPLES.—A most excellent preserve for the Dessert, of superior flavour, may be made from the British or the Foreign PINE APPLES now imported into this country by COOPER'S PATENT APPARATUS and Vessels for the Preservation of Fruits of all kinds. May be seen at the Manufactory, 7, the upper end of St. John-street, Clerkenwell, London, where Particulars and Testimonials may be had or forwarded by post, if required. The Apparatus, &c. may be seen at the Adelaide Gallery, Charing Cross, London.

FUCHSIA "CONSTELLATION."—Strong plants of this Splendid FUCHSIA may still be had of the raiser, or his London Agents, Messrs. Hurst and M'Mullen, 6, Leadenhall-street, at 12*s*. 6*d*. each.

William Miller, Providence Nursery, Ramsgate.

FINE TEA-SCENTED, NOISETTE, CHINA, and BOURBON ROSES, in pots, on their own roots, now sending out. Twelve distinct and fine-named varieties of the above, including the "Cloth of Gold," for 13*s*. Twelve fine climbing varieties, including "Queen of the Prairies," for 10*s*.

The above will be well packed; Baskets and Carriage free to the Wendon Station of the North Eastern Railway, on receipt of a Post-office Order, payable at Halstead.

S. and J. Dillistone, Nurseries, Sturmer, Aug. 30.

FUCHSIA "SERRATIFOLIA."
SPLENDID NEW PERUVIAN FUCHSIA.

MESSRS. VEITCH & SON beg to inform those who have already ordered the above lovely plant, and the Public generally, that plants will be ready for delivery early in September. A beautiful specimen of it was exhibited at Chiswick on the 12th ult., when it was awarded the First Prize for New Plants (the large Silver-gilt Medal), and was universally admired.

For the information of those who may not have seen it, Messrs. V. would add, that it was imported by themselves from Peru, and is solely *in their own possession*. The flower is a delicate waxy rosy-pink, of large size, and great substance; the sepals tipped with green, the corolla with vermilion-scarlet; the foliage very fine and distinct, and the habit remarkably good; it is very free blooming, and altogether a most beautiful plant.

Strong plants in September, 21*s*. each.

N.B. The Trade will be allowed one plant over on every three they may purchase, and a List will appear in a future Advertisement of all those Nursery and Seedsmen who having secured early plants will be enabled to supply them.

A London reference, or Post-office Order, from unknown correspondents.

Orders executed in strict rotation as received.

Exeter, August 30.

BECK'S SEEDLING PELARGONIUMS of 1844.—Edward Beck informs the Public that he will send out the following varieties, at the prices annexed, in October, delivered free in London, for cash only.

Rosy Circle	£1 1 0	Isabella	£1 1 0
Sunset	1 1 0	Margaret	0 10 6
Mustee	1 1 0	Favorita	0 10 6
Marc Antony	1 1 0	Zenobia	0 10 6
Desdemona	1 1 0		

No more remittances can be received for ARABELLA, BELLONA, OTHELLO, and JUNO, until further notice, the present stock being engaged.

As E. B.'s terms of pre-payment will be strictly adhered to, priority of remittance will ensure priority of selection.

N.B. No discounts, allowances, or abatements can be made in any case.—Worton-cottage, Isleworth, Aug. 30.

ROSA BERBERIIFOLIA HARDII, 2*s*. 6*d*. each.

A. PAUL & SON have a large stock of the above rare and beautiful Rose, healthy and well-established plants, for sale at 2*s*. 6*d*. each. They are growing in pots on their own roots, the only way in which they can be successfully cultivated. To those who are unacquainted with this unique variety, they beg to offer the following description:—An evergreen shrub, of small growth, blooming through the autumn; flowers single, of a bright yellow, with a rich chocolate spot at the bottom of each petal, resembling Cistus formosus. Package 6*d*. extra—carriage free to London.

AUTUMNAL ROSES.

The collection at the Cheshunt Nurseries are just coming into second bloom, and bear promise of a perfect and abundant flowering. The communication between the Metropolis and the Nurseries is now so rapid and easy, that all lovers of Roses should avail themselves of it to inspect them. Trains of the Eastern Counties Railway to Waltham-cross in half an hour, whence there is an Omnibus to the Nurseries in 15 minutes.

ROSE CATALOGUE.

A. Paul & Son's Catalogue for the approaching season is in course of preparation in an improved form, and will be ready for circulation early in September, of which due notice will be given.—Nurseries, Cheshunt, Herts.

ABELIA FLORIBUNDA (Vesalea floribunda).—Nice plants of the above species may be had at Mr. Van Houtte's Nursery, Ghent, Belgium, at 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each. Orders forwarded to Mr. George Rahn, 52, Mark-lane, London, will be also attended to.

The usual allowance to the Trade.

HÆMANTHUS MULTIFLORUS.—Very strong bulbs of the above, just imported from Africa, to be had at LOUIS VAN HOUTTE'S Nursery, Ghent, Belgium, at 31s. 6d. per dozen. Orders received also for the same, by Mr. GEORGE RAHN, 52, Mark-lane, London.

The usual allowance to the Trade.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

YOUELL AND CO.'s stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter in this the most eastern point of England proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season:—

2 years old	.. ..	9s. per dozen.
3 ,,	.. ..	12s. ,,
4 ,,	.. ..	18s. ,,
5 ,,	.. ..	30s. ,,
6 ,,	.. ..	60s. ,,
Cedrus Deodar, 1 year, fine	.. ..	18s. ,,
,, ,, 1 foot	.. ..	30s. ,,
Pinus excelsa, 3 inches	.. .. ..	9s. ,,
,, ,, 4 to 5 inches	.. ..	18s. ,,
,, ,, 18 inch, fine bushy plant		42s. ,,
,, Gerardiana, 2 years	.. ..	30s. ,,
Abies Khutrow, 2 years	.. ..	9s. ,,

Also fine specimen plants of older growth from 10s. 6d. to 2l. 2s. per plant.—Great Yarmouth Nursery, August 30, 1845.

ROSES, 1845-6.—GREAT BERKHAMPSTEAD, HERTS.

MESSRS. H. LANE & SON'S CATALOGUE OF ROSES for the ensuing autumn and following spring will be ready for delivery in a few days, and may be had by a prepaid application, enclosing a 2d. postage stamp. As a copy of the Catalogue will be sent to all their customers, they will be obliged by being informed if the same should not be duly received.

It might not be considered arrogant or out of place here to mention, as a proof of Messrs. Lane & Son's superior stock and mode of cultivation of ROSES in POTS, that they have obtained, during the last season, the First Prize at each of the Horticultural Shows at Chiswick, and Two First Prizes out of three of the Royal Botanic Society's Shows at the Regent's-park.

Their new Bulb Catalogue, and new General Catalogue of Fruit and Forest Trees, Shrubs, Hardy Climbers, and Greenhouse and Herbaceous Plants, may also be had on application as above, inclosing a 2d. stamp.—August, 1845.

BRIGHT YELLOW BOUVARDIA (BOUVARDIA FLAVA, DNE).

LOUIS VAN HOUTTE, FLORIST, at Ghent (Belgium), intends to send out, beginning on the 15th of September next, good bushy plants of his new bright YELLOW BOUVARDIA (Bouvardia flava, Decaisne), a coloured drawing of which will accompany each plant, which will be sent to London free. Not one plant of this YELLOW BOUVARDIA has hitherto left his Nursery. Price 21s., without discount, unless four plants be taken. Orders also received at Mr. GEORGE RAHN'S, 52, Mark-lane, London.

N.B. The coloured drawing of the above Bouvardia is also to be seen at the Office of the *Gardeners' Chronicle*.

J. S. COOK, Prince's Risborough, wishes to inform his numerous customers that his Descriptive List of first-class Seedling Pansies can be had by applying as above; also the first-class Seedling Geranium and Pansy Seed, from 2s. 6d. to 5s. a packet.—Longwick, August 30.

ARAUCARIAS, PHILLOCLADUS, PODOCARPUS, &c., SLOUGH NURSERY.

W. CUTTER BROWN will have his Collection of CONIFERÆ ready for inspection on Monday, Sept. 8, to which he calls the particular attention of the lovers of this beautiful tribe of Plants, and to give every purchaser the same opportunity of selecting, he will not commence disposing of them till the 15th inst. Some of the most interesting and finest specimens are Taxus fastigiata, 11 ft.; Podocarpus latifolius, neriifolius, elongatus, nucifer, &c.; Dacrydium cupressinum, excelsum, elatum; Phylloclados rhomboidalis (one fine specimen), trichomanoides; Pinus Banksiana, Pallasiana, serotina, ponderosa, Sabiniana, Coulteri, Gerardiana, Teocote, patula, Slaveana, Montezumæ, pygmæa, excelsa, Lambertiana, Abies Douglasii, 10 ft., Menziesii, Picea picta, grandis, Webbiana, Religiosa (three very fine); Cedrus Deodara, 3 ft. to 12 ft.; Araucaria excelsa, Cunninghami, and imbricata; Dammara australis, with a great variety of Cypress, Juniperus, &c., &c. Many of the specimens are from 6 ft. to 12 ft. high, in pots or tubs, and in the finest health, numbering over 400, and as a collection, supposed to be the finest in the kingdom.

W. C. B. invites the studiers of Coniferæ to inspect them during the week.

TO GROWERS OF PANSIES.—The present being a favourable season for planting the above, the undersigned begs respectfully to offer the following and many other equally fine varieties from his extensive collection, strong healthy plants at 12s. per dozen, 20s. for two dozen, 36s. for four dozen, hamper and package included, or free by post in any quantity not less than one dozen, the selection left to purchasers:—Thompson's Beauty of Bucks, Cyclops, Cyclops Superb, Desdemona, Desirable, Fair Maid, Formosa, Isabella, Jehu, Juliana, Lilac Queen, Lavallaire, Madonna, Maid of Lodi, Malibran, Marginata, Montem, Nestor, Nymph, Phœbe, Pizarro, Princess Alice, Regulator, Romeo, Milton's Antagonist, Mountjoy's Victory, Earl's William Tell, Henchman's Success, Sir R. Sale, Downton's Rory O'More, Fryer's Standard, Antagonist, Cormack's Nereus, West's Conqueror, Gibbion's Marginata, Backhouse's Yorkshire Eclipse, Beauty of Holdgate, Earl of Zetland, Pearson's Black Prince, Hinda, Cook's Black Bess, Eliza, Beauty of Aylesbury, Mulberry Superb, North Star, Pilot, Attila, Watchman, Edmonds's Blue Bell, Blue-eyed Maid, Herbert, Delicata, Old Robin Gray, Cowdrey's British Queen, Welch's Blue Perfection, Brown's Cotherstone, Curion, Ceres, Hale's Dark Seedling, Maule's Duchess of Beaufort, King's Exquisite, Sulphurea elegans, Mary Ann, Goode's King of Yellows, Warne's Rob Roy, Foster's Man of Kent, Bridges's Princess Alice, Joan of Arc, Silverlock's Prince of Wales, Honourable Mrs. Harcourt, Lane's Venus, &c. Also many good showy varieties at 6s. and 9s. per dozen, and fine selected seed of this season 1s. and 2s. 6d. per packet. All orders containing Post-office Orders will meet with prompt attention.

JOSEPH FRYER, Clarendon Nursery, Camberwell, London.

PELARGONIUM—HOYLE'S "CHIMBORAZO."

H. SILVERLOCK having purchased the above very fine variety, exhibited by Mr. Hoyle, of Guernsey, at the May Chiswick show, is now prepared to receive orders for a limited number of plants at 63s. each, for cash only. The plants are well established, and will be delivered in London as soon as a sufficient number of orders are received.

His Emperor Nicholas, 5s., and Chance, 3s. 6d., with the usual discount to the trade. Ten varieties of Mr. Smith's Fuchsias of this season for 20s.; fine Pansy seed at 5s. per packet, sent free on receipt of a Post-office order.

Chichester, August 30.

DOUBLE ROMAN AND PAPER-WHITE NARCISSUS, 4s. per dozen. The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived at A. CORBETT'S, late Mr. Barron's, Italian and Foreign Warehouse, 18, Pall Mall, London.

Orders by post punctually attended to.

ENGLISH IRIS AND OTHER BULBS FOR AUTUMN PLANTING.

T. AND C. LOCKHART, FLORISTS, 156, Cheapside, London, respectfully recommend the month of September as the best for planting ENGLISH IRIS. They are the more particular in mentioning this as orders are generally sent too late for them. They are now sending out their best collection of 30 varieties for 1l., and 36 varieties of their most showy early Tulips for 15s.; the latter are the most beautiful and early ornament for the drawing-room or conservatory, and they appeal with confidence in this respect to those gentlemen who honoured them with their orders last season. The collection is perfectly unique, and almost exclusively in their possession, the greater part being seedlings of their own, and much surpass the old kinds in brilliancy of colour and luxuriance of growth.

Their List of Dutch and other Bulbs for the present season has just been published, and will be forwarded, post free, on application. The prices have been made as moderate as possible, and they trust that from the long experience they have had both at home and abroad in the cultivation of Bulbs generally, together with the care and expense incurred in selecting the best kinds, that they may share in the patronage of the public.

	£	s.	d.
In addition, they have now ready to send out—			
Picotees, of the best kinds, per dozen pairs	1	10	0
Carnations, do. do.	1	10	0
Hollyhocks, very double and distinct, per dozen	0	18	0
Pansies, of excellent quality, do.	0	12	0
Do. do. seed saved this season by us, per packet	0	2	6
Myatt's British Queen Strawberry plants, per 100	0	7	6
Elton Pine do. do.	0	5	0
Keen's Seedling do. do.	0	4	0
White Alpine do. do.	0	5	0
Red Alpine do. do.	0	5	0
Roses, standards, in great variety in Nov., per dozen	1	10	0
Do. dwarf, do. do.	0	18	0

They beg also to call particular attention to their fine collection of Ranunculus and Anemones, which have invariably obtained the prize wherever exhibited. They possess likewise an extensive collection of Hardy and Half-hardy Herbaceous plants.

DUTCH FLOWER ROOTS.

CLARKE & CO., SEEDSMEN and FLORISTS, 86, HIGH STREET, BOROUGH, beg to inform their Customers and the Trade, that they have received their Annual Supply of DUTCH ROOTS, ex "Columbine." Catalogues are now ready, and will be forwarded on receipt of a Postage-stamp.—London, Aug. 30.

FOREIGN SHEET GLASS.

FREDERICK ELPHICK having opened a communication with one of the

FIRST HOUSES IN THE FOREIGN GLASS TRADE,

IS ABLE TO OFFER

SHEET GLASS, OF EXCELLENT QUALITY, FOR HORTICULTURAL PURPOSES,

Cut to any dimensions, from 6 in. by 4, to 24 by 20 in. square, at 5d. per ft., all above that size to 42 in. by 36 in. square at 5½d. per foot, for ready money only.

Apply to FREDERICK ELPHICK, 28, Castle-street East, Oxford-street.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26s. 0d.	Milled Lead in Sheets, per cwt.	s. 21	d. 0
Linseed Oil, per gall...	2 3	Cut to Size	22	0
Turpentine	3 3	Pipe all Sizes	22	0
Warranted Varnishes and Colours.				

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

SMALL GLASS FOR HOTHOUSES, MELON PITS, &c. &c.—Several thousand feet of 4 ins. by 2, 4½ ins. by 2, 4½ ins. by 2½, 5 ins. by 2, 5½ ins. by 2, and 6 ins. by 2, from 1d. per foot—Address, R. COGAN, Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.—Bee-Glasses, Fish Globes, French Ornament Shades, &c. &c.

BRITISH SHEET OR HORTICULTURAL GLASS.

In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

SEEDS.—CORNER OF HALF-MOON-STREET, PICCADILLY.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	.. ..	11s. 0d.	20 inches	.. ..	22s. 6d.
15 inches	.. ..	12 6	22 inches	.. ..	25 0
16 inches	.. ..	16 0	24 inches	.. ..	32 0
18 inches	.. ..	19 0			

Slate Works, Isleworth, Middlesex.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

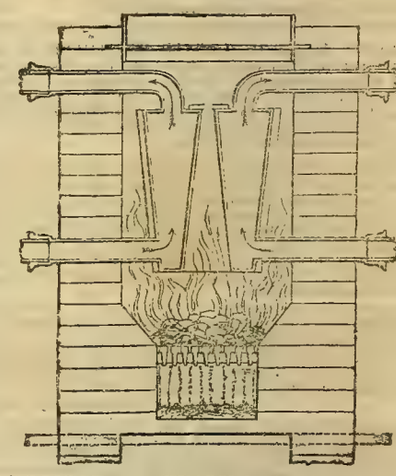
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, August 30.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

WILLIAM MILLER informs his numerous patrons and the public that he will send out the under-named varieties at the prices annexed, in October. (Printed Circulars with descriptions can be had.)

Augusta	21s 0d	Lord Morpeth	21s 0d
Alice	21 0	Duke of Orleans	21 0
Gipsy Maid	21 0	Josephus	21 0

The set of six for 5l. 10s., or 5l. when cash accompanies the order. Trade-price 4l. 10s., or 4l. cash accompanying the order, which will in either case ensure strict priority of selection.

HOYLE'S SET OF 12, viz., Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, and Sarah Jane, sent out last season at 10l. 10s., may be had for 3l. 3s., or cash accompanying the order for 3l.

100 CHOICE HYBRIDISED SEEDS, 10s.; 50 ditto, 5s.; 25 ditto, 3s. A general List of GERANIUMS, priced very cheap, from 8s. 6d. per dozen, is now ready, which should be in the hands of every Geranium grower, as it contains all the principal sorts for exhibiting.

W. M. finding that pots are frequently broken, and the Plants damaged in hampers, he has prepared a quantity of strong Fir boxes for the purpose.—Providence Nursery, Ramsgate.

The Gardeners' Chronicle.

SATURDAY, AUGUST 30, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Monday,	Sept. 1	Entomological	8 P.M.
Tuesday,	Sept. 2	Horticultural	3 P.M.
Friday,	Sept. 5	Botanical	8 P.M.
		COUNTRY SHOWS.	
Thursday,	Sept. 4	South Essex Horticultural. Chepstow Horticultural.	
Wednesday,	Sept. 10	Manchester Botanical and Horticultural.	
Thursday,	Sept. 11	Berkshire Horticultural.	

ANOTHER week has added little to what we know about the POTATO MURRAIN; but that little is important.

In the first place, we appear to have been right in supposing the distemper to have confined its attacks mainly to the southern parts of the country. We hear nothing about it in the North, and Mr. BERKELEY writes that he cannot find a trace of it in his part of Nottinghamshire.

As we anticipated, its virulence too seems to have abated; and we feel warranted in the hope that the worst is over; that is to say, that no more tubers will be attacked than those in which the distemper has already manifested itself. But we fear that their number is far beyond what is imagined; it is certainly greater, in the places we have personally inspected, than we anticipated. We have this morning been examining a field in which the pest has assumed a comparatively mild form, and we find that, among Bread-fruits, six in nine, among Jersey-blues, all or nearly so, and among Dr. HENDERSON's black Scotch Potato, a large proportion, indicate unequivocal signs of its presence. It is not, however, easy to discover it in the dark-coloured Potatoes without cutting them; and, therefore, we speak doubtingly as to them. In the Bread-fruits, it appears in the form of dull, livid patches, or specks, looking much like contused flesh, or, to use a familiar comparison, like the skin round a blackened eye when it is beginning to recover its natural colour. This appearance is, however, not to be seen plainly unless the Potatoes are washed; a little earth, or even the skin while adhering to the Potato, hides it; and this deceived us on our first inspection.

We fear that every Potato which is affected, in ever so small a degree, is lost; for we have too much reason to believe that the disease is of the nature of a canker, eating down into the flesh. At least we find that Potatoes which a week ago were taken out of the ground, and placed in the dark on the floor of a dry stable, are infinitely worse than they were. It is this which leads us to suppose that every Potato, in ever so small a degree touched, will rapidly decay. This is, unfortunately, rendered the more probable by the appearance of a kind of mouldiness, mentioned elsewhere by Mr. BERKELEY, which appears on the cankered spots, and which will no doubt add greatly to the mischief, though we are quite persuaded that it is the consequence, and not the cause of it.

The cause is, we think, beyond all doubt, that which we last week suggested; excessive wet, and a low temperature, acting upon the debilitated organisation of a haulm which sudden warmth had forced into preternatural vigour. Some of our correspondents think, indeed, that the spot in the leaf is the cause; that it is cold or some other thing acting upon the foliage which has caused a disease which spreads downwards. If we may be certain of anything, when considering the obscure phenomena connected with vegetable disease, we may be certain that this is not so. The evil always begins next the old set, and underground; then the haulm becomes brown and rots; the spots in the leaves are merely the symptoms of the underground malady. It is only necessary to take up a few patches of sound and unsound Potatoes to be convinced of this. In fact, in some places, it will be found that when the attack on the stem, beneath the ground, has been slight, no indication of its presence is traceable in the foliage. We suspect, indeed, that in every case the Potato-straw has been damaged above the old set; for where Potatoes are perfectly sound, they now seem to have little communication with the parent—to have ceased growing—and the sound parts of the haulm are here and there throwing out a fresh crop of Potatoes, now about a week old.

Of course the grand point to settle is, what can now be done? Where the mischief is severe—nothing. We should abandon the crop to its fate, and plough up the field, if time will permit. This is, however, not very important, because we do not apprehend that the rotten Potatoes will leave any contagion in the ground; *unless it be for another crop of the same kind*; we certainly should not like to grow Potatoes in such fields next year; otherwise, we presume that the decayed tubers will act like any other decayed matter, and manure the land.

Is there any gain in mowing off the haulm that remains, when the disease is less severe? If we thought that such haulm was at all in communication with the Potatoes themselves, we should say cut it off by all means. But the cords of union are apparently broken; and if so, there seems at first to be no advantage in removing it. If, however, what remains of the foliage is still in communication with the sound Potatoes, it will affect them; and, therefore, perhaps it is a wise precautionary measure to mow the haulm down. Its remaining can do no good; and at all events cutting it off will do something towards enabling the ground to become dry.

We last week spoke of pitting the crop forthwith in dry earth, when circumstances will allow of its being done. But harvest time is so unfavourable to such operations, in consequence of the scarcity of labour, that in all probability the great Potato growers will be compelled to leave their crop in the ground for the present. If the pitting system is resorted to, we fear it will be necessary to carry the operation of *sorting*, which we also recommended, much further than we contemplated. Indeed, we do not see how the Potatoes can be sorted, unless they are washed in the first instance; for we find that the first sign of the distemper manifests itself in small specks, which a piece of earth may effectually conceal. Yet such sorting is, we fear, indispensible; for it is impossible to foresee whether or not the distemper may not spread from sound to unsound tubers, and we have already satisfied ourselves that it does spread quickly in a tuber once infected.

Upon the whole we suspect that Potato growers will be compelled to leave their crops to their fate, until harvest is more advanced.

Can the decay be arrested in those Potatoes in which it is now manifesting itself? That is another most important inquiry, to which the novelty of the distemper renders it impossible to give anything more than a conjectural answer. For ourselves, we fear that external applications like lime, whitewash, or charcoal-powder will be inefficacious, for this reason, that the disease eats into the core of the Potato, and the action of all such substances, if of any advantage whatever, will be merely on the surface. Upon this point, however, we trust that our correspondents may be able to offer some suggestions. They can do no more, for no one can tell how to deal with a disease, never before known, except by repeated experiments, and for those we have unfortunately no time, for the mischief is at our doors, and before the result of any experiments can be had the evil will be past all cure.

Suppose the infected cankered pieces were cut out, and the wound dressed with quicklime or whitewash—would that stop it? The plan may be tried.

One thing, and one only, strikes us as a probable remedy; and that is destroying the vitality of the Potato, by driving off its moisture. This may be done by kiln-drying, and we fear by no other means. It might be worth the while of those who have the means to try this experiment; and if it should produce any advantage this year, it may be useful to know of it, in case we should again be exposed to such a melancholy visitation.

One other, and that a most important question remains behind. Will those Potatoes, which to the eye are sound, and which in sorting would be put aside as beyond all danger—do they contain already the seeds of the disease, and will they too rot in the long run? Who knows?

If it is any consolation to Potato-growers to know that they do not stand alone in their misfortunes, we can add, that acres of pickling Cucumbers have gone off in the same manner, from the same cause, and with the same symptoms. We have now before us a Gourd, whose roots and main stem seem to have perished about a month since; but the plant has not died, because the succulent stems have thrown out fresh roots from the joints. The same thing is happening to Potatoes; but, from the lateness of the season we fear to no practical purpose.

Since these remarks were in type, several more letters have reached us, and are printed elsewhere. We can only refer to them, especially to one from Mr. PRIDEAUX, whose suggestions for curing the evil deserve consideration.

A first-rate MELON, in a very bad Melon year—a fruit rich and delicious in a season which is in general incapable of imparting flavour to anything—is something worth especial notice. Such a case has occurred with the Sweet Melon of Ispahan, a variety brought, with great difficulty and long-continued crossings, to the highest point of excellence by the late Mr. THOMAS ANDREW KNIGHT. Of this precious variety a few genuine seeds were left in the possession of Sir JOHN SEBRIGHT, and this year has been taken for the purpose of trying their quality. They prove to be, as was expected, thorough-bred. Grown in a hot-water pit, their fruit has acquired the weight of 6 or 7 lbs., and in quality is fully equal to what they were in the days of their lamented parent, for so Mr. KNIGHT may be called, so much are they improved beyond their original Persian condition.

We are happy to know that means have been taken to insure the preservation of the variety quite uncontaminated; and that Melon growers will now be able to procure once more that which we had feared was almost lost to the country.

FANCY ROCK WORK.

HAVE you not been a little too hard on the humour of one of your correspondents (p. 562), the ingenious inventor of red rock coral for garden purposes, who to an ardent love of the art of gardening, and an entire devotion, according to his light, to the much vaunted science of it, unites the highest admiration of your own genius, and is moreover a constant reader of the *Gardeners' Chronicle*? How else could he have brought his own garden into such excellent culture, and what otherwise would he have known of conservatories and Vineries, and succession pits, and heatings by tanks and by stoves, and of the several merits of these contending agencies; of the comparative excellence of manifold manures, of gypsum and guano, of bones and burnt earth, of salt and soap-ashes, of humus, and a hundred other helps, which a "centenary of inventions" have produced for the perfection of his beloved art, in this our day.

Although your worthy correspondent has had the modesty to conceal his name, I know him perfectly well, and I will endeavour to describe the garden of which he has so much reason to be proud, and which he has taken so much pains to embellish. What my excellent friend has been is not now to the purpose. By a strict adhesion, through life, to the maxim which he repeated when he laid out his garden—"We should cut the coat according to the cloth," he is now the owner of a very pretty cottage between Peckham Grove and Rosemary Bank; is his own gardener, with the assistance of an occasional labourer, and a fresh importation of plants now and then from the nurseries, to supply the place of such as decline and die off in spite of science and the "Theory of Horticulture;" and this I am sorry to say will occur too frequently, although he follows the directions of his great oracle, the *Gardeners' Chronicle*, with the greatest exactitude; or, as his niece, who has just returned from Boulogne, says, "O. P., de letter."—His garden is in front of his house, and measures 120 feet by 60. It is bounded on the east and west by stone walls about 5 ft. high, on the north by the house, and on the south by a low wall, surmounted by a light pallisade. In the area thus formed he has contrived to have a conservatory, 15 feet by 12, well stocked with Pelargoniums, Fuchsias, and Ericas, and a few other greenhouse plants; and in which, also, he is proud to show half a dozen Vines in pots which sometimes produce grapes, though he confesses he can obtain better in Covent-garden market. To the right of the conservatory is an arbour, the half of which is clipped Yew, and the remainder made up of Scarlet-runners. To the left is a small erection to hold garden tools, garden seeds, and other indispensibles, which is so constructed that, with the help of a French paper, coated with Jefferies' marine glue, and a little wire-work, it passes for an aviary. In front of these buildings the ground is paved with small rounded boulders and slips of slate set quater wise, with a central cinque foil, composed of horses' teeth got at the knackers' yard in Whitechapel—altogether forming the prettiest tesselated pavement imaginable. From this little *plateau* is projected a central walk made firm with asphalte, and crossed by a similar one, thus dividing the garden into four equal parts. In one upper compartment stands a dial on a stone pedestal; in the other a a vase from the Ewel manufactory, supported by a little mound of flints, white and fresh from the quarry. The other two compartments comprise "the lawn" in which zigzags, half moons, and heraldic Roses and beds of various forms disport themselves filled with many very pretty flowers.

But not to be tediously minute, I will come at once to the rockwork, the great and distinguishing feature of my friend's garden. It covers, as he says (p. 562) half the wall of one side, and terminates in a charming grotto occupying the site of a less sightly building, which his predecessor (my friend, with much complacency, observes) had the bad taste to allow to stand there, despite the modern improvements in domestic pla[illegible] hydraulics. The rockwork, the *opus magnum* of the

garden, is of itself a perfect parterre of many colours. It is a compound of a substratum of chalk, brought from Croydon by the railway, and large fragments of Plymouth lime-stone brought in ballast to the London Docks; this last, with some broken Welsh slate, form the blues. Then there are cart-loads of brown slag from the brick-kilns, and as many ditto from the Sunderland glass-houses for the greens. These again are relieved by an intermixture of chalk-flints, and of the coloured compo of which our fancier is so justly proud, the bright vermilion of which eclipses the hue of all the Phloxes and Mesembryanthemums that can be made to grow amongst these everblooming indestructible rocks.

There are several other notable circumstances in the construction of my friend's pretty garden—his fountain and Artesian well, and ingenious methods of irrigation, &c. &c.—which, I fear, I cannot now enter into the description of without tiring your readers' patience. I trust that I have said enough to prove that my friend's suburban garden is not to be sneezed at; and that in small and retired localities modes of embellishment may be more appropriate, or, if you please, less incongruous than attempts at landscape-gardening, and the impossible combinations of the beauties of green vistas and aerial perspective, with brick walls and quick-set hedges. The rockworks and cascades of Chatsworth consort well enough with a conservatory which gives admission to a coach and six. But my friend declares that the make-believe of a Doric Temple at the lower end of the lawn at the Chiswick Gardens is no better than his aviary; and the tunnel and rockery at the Zoological no more than an amplification of his own, without its neatness and its happy and harmonious arrangement of colours. Moreover, I must think that I am fully borne out in my estimate of the merits of my suburban gardening, when I see with what delight my friend watches his Pansies and his Sedums, as they trail amongst his shell-work; or sits down in his grotto to smoke his cigar, whilst his pretty niece sings his favourite air:—

"Come with me, and we will go
Where the rocks of coral grow."

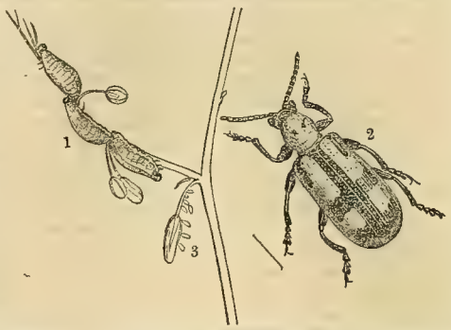
—*P. P.*

ENTOMOLOGY.

Crioceris Asparagi (*the Asparagus Beetle*).—The sudden appearance of particular species of insects over vast tracts of land, and even entire countries, is far more surprising than their rapid disappearance, which is frequently accomplished by parasitic agency or a change of temperature. It is only a few years since I searched through many acres of Asparagus beds, from Battersea to Kew, and could not find a single beetle or the larvæ, yet in some seasons, as in 1836, every stem on the same ground, as well as at Hammersmith, was covered with them during the months of summer and autumn. The larvæ, beetles, and eggs are found at the same periods, often inhabiting the same plant, from Midsummer to Michaelmas; the former feed upon the leaves and flowering stems, which they completely destroy, perforating the buds on one side as represented in the engraving, and they will also nibble away the the rind of the stems. It was said that in the July of the above year, they did considerable damage in some market-gardens round London, but I should not think they can do much mischief to old beds, although seedling plantations may be severely injured by their attacks, and it is possible that the succeeding crop may be weakened by them in any case.

The larvæ were abundant and full grown the end of last June in many places: they are shining, fleshy, and of a dirty olive-green or slate colour; they are nearly cylindrical, attenuated a little anteriorly and thickened behind, the tail being curved and holding fast by a fleshy foot; the head is small, globose, and shining black, the six pectoral feet are small, stout, and black also; they are placed far apart: the sides are plaited and the belly is covered with fleshy tubercles or nipples; the spiracles are very minute and black; there is a dark dorsal line vanishing before, and two callous darkish spots on the first thoracic segment (fig. 1). These animals, if disturbed in the slightest degree, emit a fluid from the mouth of a greenish-black colour, which directly spreads over the head and makes it look twice its natural size, but as soon as they recover from their alarm, they commence sucking it up with their mouths. When arrived at maturity, which requires only a fortnight, they leave the plant and descend into the earth to undergo their transformations; they first spin a case or cocoon, which is tough and parchment-like, and within this they change to a white pupa, which lies in a curved position. In two or three weeks the perfect beetle emerges from its cell and ascends the Asparagus plants to reproduce its species, but in other respects it appears to be harmless, as it does not feed, I believe, at this period of its existence. There is little doubt, I think, that the Asparagus beetles hibernate in the same manner as the Crioceris cyanella, which is far from uncommon beneath the bark of Willow trees in the winter; these I imagine are the males, for the graved females usually die as soon as they have deposited their eggs, and if it be true that some pass the winter in their cocoons in the earth, they are probably females, which pair with the hibernating males in the spring, and lay their eggs as soon as the Asparagus shoots up: later in the year these are frequently attached to the flowering stems and buds (fig. 3); they are elliptical, the ends rounded, and hatch in a short space of time.

Linnæus described this handsome beetle under the name of Chrysomela Asparagi, but it is now called Crioceris Asparagi: it is of a deep blue-green colour, and very shining: the head is punctured most thickly on the face with a channel between the eyes, which are very prominent and black; antennæ moderately long and black, pubescent, except at the base, 11-jointed, basal joint globose, second smaller, third and fourth obovate, following larger and oblong, the apical joint conical; thorax subcylindric, reddish, with two black dots on the disc, sparingly punctured; scutellum small, trigonate, and blue-green: the elytra, which are nearly twice as broad as the thorax, and elliptical, are of a clear ochreous colour, with about nine punctured striæ down each; there is a small long green spot on each shoulder, a broad space down the suture, and two short transverse bars of the same colour, one at the middle and another towards the apex, forming altogether a double cross; the two wings are ample for flight; the six legs are moderately long; the base of the shanks is ferruginous; the feet are 4-jointed, the third joint bifid, the fourth clavate and furnished with two minute claws (fig. 2); the line showing the natural length.*



There is a species not uncommon upon the Continent, and called Crioceris duodecim-punctata, which is so similar in its habits and economy, that some naturalists are inclined to consider it only a variety of C. Asparagi; it is however very rare in England, and nothing is therefore to be apprehended from its attacks.

Picking off the larvæ and beetles, in order to destroy them, has been recommended, but I think they might be shaken into nets, which would be a more speedy method of accomplishing the desired object.—*Ruricola.*

Home Correspondence.

Potato Blight.—We find the Potato crop in this neighbourhood (Havant) is also affected, but not to so great an extent as your columns describe the injury to have been in the Isle of Wight. On digging up the roots, the tubers nearest the surface of the ground are in general the only ones affected, though in some plants the injury extends throughout the Potatoes belonging to that root; but where it does not so extend, the rest of the tubers appear perfectly well grown and healthy. It certainly is not a disease of the root, but appears to be the consequence of injury done to the haulm and leaf. Is not the cause to be attributed to the severe winds and white frosts experienced a short time ago, injuring all above the ground and preventing the vessels of the plant from drawing up the juices from the roots, and these tubers, full of stagnated fluid, immediately decay? Supposing this to be correct, I have practised the cutting off the haulm with a reaping hook, about 1 inch between the earth, into where the frost and winds might be supposed not to have injured the vessels of the plants, hoping by these means to induce them to bleed, and thereby relieve the tubers of their stagnated fluids. This is not capable of curing the injured, but it might probably prevent other tubers from becoming affected. I also suppose that if Nature form a leaf from this proceeding that the Potato will certainly be saved, and if a leaf be not formed, then, by leaving the Potato an extra time in the ground, the tubers not affected might ripen and become wholesome food, which they cannot be if not allowed to fully ripen. The leaving the Potato in the ground will also have the advantage of allowing the injured to be easily and perfectly separated from the good, which cannot be done in their present state without great cost and time, and which no doubt ought to be effected with the greatest possible care when pitted to secure their wholesomeness as food, and for their perfect keeping. If this injury had not taken place, the crop would have been enormous; as it is, we are likely to find an average realized.—*H. S.*——I have reason to believe that you are perfectly correct in ascribing the Potato disease to excess of moisture in the plant, consequent on the late continual rain, and absence of sun-light; and that it has been greatly aggravated by a too retentive soil. Our garden is, from its locality, and the nature of its sub-soil, so thoroughly drained, that in most summers we suffer excessively from drought; and, though the haulm of the Potatoes grown in it is more or less affected, the tubers themselves are comparatively uninjured; while in a piece of ground, apart from the garden, having a stiff clayey sub-soil, the disease has been much more violent. I am also inclined to agree with you in connecting with the disease the sudden heat of the end of June, and beginning of July, as in a piece of Dutch Potatoes, which was not planted before that time, scarcely a symptom of the disease is perceptible. I may also remark that, in the garden, the disease originated in a part of the Potato ground which is shaded by a large Apple-tree, so that for a time, the outline of the blackened haulm exactly represented the shadow of the tree.—*E. J., Oxon.*——The Potato murrain is creating an alarm here. Up to the 14th inst. the crops appeared healthy and vigorous, but about this time the plague appeared. Now, the fields and gardens present more or less the appearance of winter; the late Potatoes, in most places, have as yet not suffered much. This part of Surrey presents a great variety of surface. The pestilence made its first appearance in the low, cold situations, completely destroying the haulm and many of the tubers; but the hills and slopes are also now more or less affected; the site of an old stone-pit on high ground was clearly traceable in a large field by the first appearance of the disease and early decay of the Potatoes. In the vegetable garden here is a great diversity of surface, the sides being 30 or 40 feet higher than the centre. We cultivate several kinds of Potatoes, in various parts of the garden, a sample of each. I examined this morning, and find though all the early kinds are denuded of foliage, and some of the late kinds spotted, yet the tubers of all are perfectly sound, except an early white Kidney, growing on one of these steep slopes, the tubers of which are rotting: this is the more remarkable as a few plants of a late kind, accidentally got in with the dung, are growing in this piece quite vigorously in the midst of desolation. I also find my Onions (an excellent crop) attacked similarly to the Potato. While I write the men are pulling them up to dry; the leaves are all spotted; the roots and outer coating of the bulb decaying; the whole piece is affected; but a low corner particularly so.—*H. Bowers, Bushbridge, Surrey.*——I am sorry to say the new disease among the Potatoes still goes on attacking those which had hitherto escaped; but we have not suffered so very severely as in Belgium, the Isle of Wight, and some other places. The want of proper drainage certainly does not account for the disease, as I have several crops attacked in perfectly dry and well-drained spots. It is more probably owing (as you suggest) to the great quantity of moisture, and small quantity of heat.—*T. H. Calcraft, Dorset.*——The Potato crops in the north are looking well; at present I have not observed here any sympton whatever of the disease, and I am in hopes, for the reasons given in the Leading Article of last week, that we shall not be visited by the malady. Owing to the cold weather which we have experienced all the season, vegetation was nearly at a standstill, and things did not perceptibly advance until about six weeks ago. The garden ground here is not good, the subsoil consisting partly of a blue, and partly of a yellow clay, which, not being properly drained, is in all seasons naturally cold and wet; so that in order to grow Potatoes light and mealy, I have been obliged to practise a scheme, which I find to succeed very well; my plan is now to throw up the land in ridges of from 4 to 5 feet in height, and then to plant the Potatoes across the ridges; by these means the wet, as it falls, runs from the Potatoes into the alleys, which act as drains, relieving the crop of all superfluous moisture; the surface obtained being much larger: another advantage gained by this mode is, that a greater crop can be raised on the same quantity of land than can be done by the usual method of planting. The kinds of Potato that I chiefly use are "Cuitt's Victoria," and one called here the "Pink Eye;" the former is, in my opinion, a very superior variety, though not generally known, as I have never met with it in any market; it is a light coloured Kidney, slightly stained with pink about the eyes, and rather rough-skinned; it is a good cropper, of a tolerably good size, and in flavour superior to any Potato that I have ever tasted. I have hitherto only used it as a second early, but I have no doubt it will prove equally good for a store Potato.—*J. L. Snow, Swinton Park.*——Upon a Vine-border lately made according to Mr. Hoare's directions, with a large proportion of road-sand, mortar rubbish, Oyster-shells, and other dry materials, and having moreover a drain of tiles running through its entire length, which effectually carries off all surplus water, have been growing this summer a few Potatoes. These were quite as much affected by "the murrain" as those which are growing upon the more tenacious and less drained soil of the rest of my garden and a field adjoining. This fact will tend to show that the evil has not been caused by want of drainage as has been supposed.—*A. B., near Ipswich, Suffolk.*——The following facts respecting the Potato-blight may possibly settle several points in the Leader of last Saturday. In the first place the most perfect drainage does not cure but accelerates the evil, as Potatoes on well-drained ground are more forward and in better condition (*cæteris paribus*), than those on soil in worse condition; consequently, some are destroyed; as a certain state of the root seems to be all that is necessary to insure this. This has been borne out by all the cases under my observation; some with me, planted upon a drain at the bottom of a bank were destroyed before more distant parts of the field were harmed, and upon a large scale the same fact is rendered apparent by an allotment field composed of very dry loam upon a point overhanging the sea, one side with a perpendicular of, say 150 ft., consequently tolerably drained; here the crop was a total wreck for a fortnight before mine, growing upon strong loam, was at all injured, and part of the field late in being planted, and later sorts, stood unharmed for a considerable time; in fact, until they had reached the fatal crisis when a single day rendered their destruction apparent. This being the case accounts for the northern parts being

* The dissections, &c., are given in Curtis's Brit. Ent. pl. 323.

still apparently safe, although ultimate escape may be impossible. In the second place your advice respecting taking up and storing the crop, may be the best that can be offered, but it will not preserve the Potatoes; in the present case it is hopeless to attempt it, as roots fully exposed to the sun become putrid in a week; the bine (so virulent is the disease) is in a few days reduced to putrid stinking paste, without a particle of fibre remaining. But before the present proof of rapid decay I had arrived at the same conclusion, from the ruinous experience of last season, when the same disease, much later and in a modified form, prevailed here to a great extent, and under altogether different circumstances; those attending my own, I may cite as they occurred. The crop was got up during the bright weather in October, laid in narrow ridges on the ground, in the best possible condition; yet, by spring, 75 sacks of every 100 were a mass of corruption; and many, very many others in Kent had theirs in the same condition. There was nothing to alarm at the time of taking up, save a too rapid dying off of the bine; and the time at which this occurred led me to hope it had previously performed its functions. Dahlias also in many parts of this district rotted off during last winter in a most unprecedented manner, as many can testify. Last year's failure I consider the most alarming part of the matter, as tracing the disaster to other causes than the peculiarities of the present season.—*Jas. Mickle, Folkestone.*——I have read with interest the various accounts given in last week's Paper relative to the fearful failure of the Potato crop. Perhaps the following particulars may be useful, though from every inquiry I have made, I myself can arrive at no satisfactory means of accounting for such a very alarming visitation. I have myself eight different sorts of Potatoes planted in different situations, both as to climate and soil. I can also speak as to the effect of the failure in my father's grounds at Chewton Mendip, a village at the foot of the Mendip-hills. I find the Potatoes very generally injured in the neighbourhood; indeed, in some places they are so far gone as to be offensive from their smell. I will give you in detail the state of my several crops. No. 1. Ash-leaf Kidneys, planted on a raised border dug out last week for seed; none injured. I have some in a damp situation, but a warm (south) aspect; they are likewise safe. No. 2. Early Betties, a white early Potato, planted in April, in a high, exposed situation on a slope, the rock about a foot from the surface; they are much injured—the haulm quite withered, and the tubers to a great extent unfit for food. No. 3. Prolifics, an early white Potato, planted in March, in a low situation, deep mould, in a south aspect; the wall behind low, but the spot is sheltered. There is a small drain under this piece, made roughly, with loose stones. The crop is remarkably fine, though not yet ripe. I have tried several parts, and can find none injured. No. 4. A Kidney Potato (name not known) planted for winter crop in April, in ground of the same nature as No. 3, but higher, and with a western aspect, wall behind high; they are ripened, and I fear the disease is spreading. No. 5. A plot adjoining No. 4, a red winter Potato, injured, but not so much as No. 4. No. 6. A large piece of red Roughs, planted late after Vetches, some ashes and refuse lime dug in in planting; not injured, and growing still most luxuriantly. No. 7. Half-an-acre of a coarse kind of white Potato, called here Chapman's; they grow very freely, and are used generally for cattle only. They were planted in April and May, with a setting stick, on a piece of lea turned over with the spade, the turf buried about eight inches. Until last week they looked most luxuriant; the blight (if blight it be) appeared in a spot in the centre; this place is now quite withered, and the tubers injured; around, I fear, the disease is spreading, though, at present, no appearance on the roots. This plot is in a high exposed situation, the ground very strong, black loam, on clay about 1 ft. 6 in. from the surface. No. 8. Evergreens planted in various situations, some adjoining No. 6, not injured, yet on close inspection the disease may be found in its first stage just commencing with the black spot. I leave you to draw conclusions from these statements—any other information I will give with pleasure, and shall feel deeply obliged for advice as to what I should do. I feel inclined, myself, to dig them out. At Chewton Mendip I find the various kinds equally injured; no difference, whatever may be the aspect, in a very prolific, walled garden, on a dry gravelly soil, but highly manured. I understand, on the tops of the Mendips, where the turf is usually burnt, and the Potatoes the same description as No. 7, planted roughly in the ashes, whole tracts, some time since most luxuriant, are now quite gone.—May I add the result of an experiment of manuring Cauliflowers with salt, which I have found to succeed to an extraordinary degree this summer. It was put on the surface round the plants; where the least quantity too much for the plants was applied it killed them; where the necessary quantity seemed to have been hit on, the Cauliflowers have been large beyond conception.—I have to apologise for thus addressing you, but being much interested for the sake of my poor parishioners, who, I fear, will suffer so severely from the loss of their Potato crop, I shall be glad of any advice, which I will make useful to my field garden tenants whom I meet on Monday next.—*H. Milward, Incumbent of Paulton, Bristol.*——The same disease, or one very similar, is almost universal throughout this island as it is in the Isle of Wight; it commenced about 10 days or a fortnight since, and early and late Potatoes are all equally affected. The tops of the late Potatoes being as withered as the early ones. On Saturday last I visited a farm in the immediate vicinity of this town, at an elevation of 200 ft.; the tops of the Potatoes were as if burnt, and the leaves quite black. The owner of the farm accompanied me, and I requested him just to dig up some of the early Potatoes which were ripe before the disease showed itself; he did so, and the specimen (Early White), looked very well; but on rubbing off the clay there appeared below the outer skin an innumerable number of small brown specks, interspersed with holes. The next turned up, in a few furrows removed from the former, was a Kidney Potato, presenting exactly a similar appearance. We next went to a part of the field where the late Potatoes were; the tops were quite withered, and the specimen obtained was anything but satisfactory. On removing the dirt and outside cuticle the surface of the Potato was covered with small white specks projecting from the surface of the Potato. [This is just the case with ours, even where the crop appears healthy. I never noticed it before.—*J.C.M.*] I can only state that all the Potatoes in this island are in nearly a similar position, and are fast rotting away in the ground. The farm on which these Potatoes grow, is that of Lindondelle, the property of Mr. Poindegstie, at Moule-au-Pretié. I will try and send specimens of these Potatoes to you by the first opportunity. I must also inform you that the fields have a very noxious smell at night, and the Potatoes when cooked are unpalatable. Since I wrote my former note this day, I have been on another farm, the Potato crop on which is exactly in a similar state to that stated in the other. I enclose two of the upper stems, the lower part of the stalk is burnt and scorched all the way to the root. I find the tubers are more decayed at the lower end, that nearest the stalk is unpunctured, whereas that at the opposite is in a decaying state. The attack on the crop took place about the 4th or 5th of August, at which period the barometer was very low, and had been so for some time, and continued in that state until 21st, since then it has been gradually rising. I must also state that electric matter has filled the air from the 22d July, and descended in gales and rain, without thunder. Could the blight be the effect of electricity? Under the hedges the stalks are free, and the flowers uninjured. I will send further particulars in a few days. The corn is being rapidly cut and housed; the crop good, but deficient—say one-third less than the average.—*W. W. Childers, 34, La Motte, St. Helier, Jersey.* —— The great importance of this root, one acre of which will feed more people than three of Wheat, makes the present blight a matter of national interest. It seems, from the reports, to be not merely an aggravation of the old Potato disease, but a peculiar rot occasioned by the extraordinary wetness of the season. The old disease has engaged much of the attention of agricultural chemists, who may have something to say about it when satisfied with the information collected; but this rot is advancing with such alarming rapidity, that no time is to be lost in attempting to arrest its ravages, without waiting the experimental confirmations or improvements which may be going on in many places at once. Amongst the most effectual preventives and correctives of putrefaction are chloride of lime and salt, both quite wholesome, and consisting of elements suitable for manure. For arresting the decay in the ground, a mixture of these, say 1 cwt. of chloride of lime and 3 cwt. salt per acre, may be strewed round the plant, and immediately covered in (for daylight kills the chloride of lime). Or if the weather should, happily, become dry, it may be applied liquid, at the rate of 1 gallon water to 1 lb. of the mixture, upon soil so wet as the present. Potatoes dug apparently sound, and subject to rot afterwards, may be first washed in water, and then steeped in the above solution 12 hours, (perhaps less time may suffice). The same liquid will do for many successive quantities of Potatoes, by adding more of the mixed salts and chloride as they absorb it out, for which the taste may be a sufficient guide. The salt should be clean, such as is sold about 1*s.* 6*d.* per cwt., for agricultural purposes; foul salt would exhaust the purifying quality of the chloride. The chloride of lime (bleaching powder) should be of the very best quality, which is the cheapest for use, as it is a perishable article. The salt should be well mixed with the chloride first, as the latter is apt to curdle in water alone, and no iron or metal of any kind should touch it, either in mixing or in solution, as metals quickly exhaust its qualities.—*J. Prideaux, Plymouth.*

Disease in Potatoes.—The malady by which Potatoes are so generally affected this year, both in this country and on the Continent, does not appear to prevail in this neighbourhood. I have inquired in every direction, and can hear no tidings of it; indeed, my own Potatoes were never more abundant or finer. I have this morning received from Dr. Montagne, of Paris, some leaves affected with the mildew, together with an admirable analysis of it, and it proves to be a minute mould of the genus Botrytis, very greatly resembling that which is so very common on the Shepherd's Purse, especially on those plants which are attacked by the white uredo. It is also allied to Botrytis destructor (Berk.), which is occasionally a perfect pest amongst the different species of Allium. I have seen whole beds of Shallots entirely destroyed by it, and it is occasionally very prejudicial to Onions. The parasite of the Potato does not appear to have been observed before by systematists, and differs in several particulars from those of the same genus which have been long known as attacking the leaves of various plants. Dr. Montagne purposes to call it Botrytis infectans, and will doubtless take an early opportunity of publishing his observations. He does not undertake to say that the spots on the tubers are owing to the ravages of the Botrytis, or whether two causes of disease coexist. The primary cause is doubtless the continued wet, combined with certain peculiarities of soil. It may be observed that the dry-rot in Potatoes so ably described by Martius, arose from the attack of a fungus of a very different structure from that by which the leaves and stems are attacked in the present instance.—*M. J. B., King's Cliffe, Aug.* 26.

Potatoes.—I had intended giving a fair trial to the plan I suggested of taking off the blossoms of the Potato just previous to the seeding time, but as I shall unavoidably be absent from home at the critical period, I hope some of your correspondents will endeavour to carry out the experiment, under their own observation, and report the result in the *Gardeners' Chronicle.*—*Falcon.*

Walnuts.—I have observed several articles in your columns, from time to time, about the right time of pruning Walnut-trees. Any sized branch may be taken from a young Walnut-tree of very considerable size (I do not speak of old trees, for I have no experience), without doing injury, if it is cut in autumn, exactly at the time the foliage first begins to change colour, and if it is cut close to the main stem. If left long it always pipes and rots; if cut at any other time it never heals.—*X. Y.*

Seedling Pelargoniums.—I sincerely hope that the regulations for exhibiting seedling Pelargoniums which were found to work so well in the season that is past, will be enforced in the one to come. The exhibition of those two years old, in moderate-sized specimens, showing their habit, blooming, &c., is a very great advantage to purchasers, and is a protection to their pockets. To the seller it is also advantageous, as it forms the very best advertisement, if his productions are really fine. The missing the regulations I allude to in the printed schedule leads me to fear they are not to be enforced in 1846. I sincerely hope, however, that I am mistaken.—*Veritas.*—[The old regulations remain unaltered].

Wasp-Traps.—A description of a glass wasp-trap was given at p. 473, intended for taking them from wall fruit, the season for which has not yet arrived in North Shropshire; but these glasses* will also serve for receiving the wasps which are abroad when their nests are taken; and if some such plan of taking them be not pursued, the business can be but half done. I will state briefly a few facts:—The nests may generally be taken as well in the day as at night. On the 5th and 6th of August five nests were taken, each with a penny squib, and a bottle and funnel containing a little comb, and two or three wasps were carefully packed in each hole. One intermediate day was allowed for the wasps to get into the glass-traps, which contained each from 200 to 404; or, altogether 1424 wasps, and scarcely one had escaped. I will mention particularly the proceeding in taking a very strong nest, on the 11th of August, at six o'clock in the afternoon, under a very hot sun, performed rather as an exhibition than described as a precedent for imitation. This ought to have been deferred till night; but a number of persons wished to see the nest taken. A penny squib was used, and the ground dug out till the top of the nest was laid open; it was then taken out with both hands bare, and put into a bag like a coarse pillow-case, in which the inmates were afterwards drowned. A great many wasps were on the wing during the whole time, and it would not have been safe to put the glass into the hole without the aid of another squib. Upon looking at the glass-trap at 10 o'clock next morning, there were many wasps on the wing, and in the glass they were in great commotion, and some getting out, when the funnel was stopped with a tuft of Grass, the glass taken away, and the wasps drowned, 505 in number. A pint fruit-bottle with large mouth, forms the best and cheapest trap, with a funnel made out of a broken wine-bottle, the lip being cut off, and the neck, with a small part of the body of the bottle reversed.—*T. N. P.*

Cultivation of Cotton in India.—In resuming the subject of the cultivation of Cotton in India, I must request your attention to an error which has crept into my communication. I had stated that the American species—that is, Gossypium peruvianum and G. Barbadense, though long introduced into India, still retain their distinctive characters. I then mentioned some corroborative facts, and concluded by stating that these facts show "persistence" of character, even in the midst of the Indian species. Your printers have made me say "perverseness" of character, which is a manifest contradiction to what was before said. I am glad, however, of recalling attention to this part of the subject, hoping that some of your correspondents may say something respecting the influence of different species of the same genus in hybridising each other when grown in large quantities in the same open country. I have said on each other, because if the Indian species, from their vicinity, deteriorate the American species, these, on the contrary, ought to have some influence in improving the species indigenous to India. Some, indeed, are disposed to look with hope in this direction. Dr. Burn, indeed, in the very last letter (dated in May) which I received from him, says "I am full of hope that something good may be obtained by crossing the foreign with our native Cottons." In the meantime, however, he has made an experiment in crossing the two Indian species with each other. Of these G. arboreum, as its name indicates, grows to a tree, bears comparatively little Cotton, but this little is of a fine silky nature, and com-

* Sold by Sarah Bedford, 16, New-street, Birmingham.

paratively long in staple; the other species, G. herbaceum, which ought rather to be called G. indicum, as it will grow into a shrub, though only herbaceous in the south of Europe, is the source of the different cultivated varieties of Cotton in different parts of India, some of which are of very excellent quality, as I hope afterwards to show. I give the results of Dr. Burn's experiment in his own words, which were communicated in a letter to Col. Sykes, and which has been lithographed at the India House, and of which I send you a copy, with coloured drawings of the plants:—

"The plant from which this is a specimen was sown at the beginning of the monsoon, in July 1844, along with other plants of the G. arboreum; it grew up and ripened its produce. But it differed from them in habit considerably. They grow and blossom all the season from November, until checked by the heat in April. It blossomed and yielded all its produce in the space of two months, as the G. h. does, and it was free from the chief fault of the G. a., viz., that of yielding too small a quantity of produce. In short, it had all, or nearly all, the good qualities of the parent plants. The plant grew to the height of six feet, and the lower lateral branches, four in number, were two feet in length each; the remaining ones being shorter gradually up to the top of the plant. The number of blossoms was 60; but only about 50 remained to yield produce, the others falling off. The colour of the stem and other parts was greener, like the G. h., and not so black or dark coloured as the G. a.; the whole plant was also more hairy than the G. a., and resembled in this respect G. h., the most hirsute of all the varieties of the genus Gossypium. The colour of the blossoms was chiefly red, but at the roots of the petals the yellow colour of the G. h. flowers was vivid, and more distinct than is shown by the dried specimen. The produce from the 50 bolls weighed equal to four rupees and three quarters, or 855 troy grains; and for the sake of comparison in results, an equal weight of produce from G. a. was examined at the time along with that of the cross plant. The results were as follow:—

Cross-plant wool, grains	239	= 28	per cent,
,, ,, seed, ,,	607½	= 71	,,
,, ,, loss & dust.,	8½	= 1	,,
	855	100	

G. arboreum wool, grains,	191½	= 22½	per cent.
,, seed, ,,	658	= 77	,,
,, loss and dirt ,,	5½	= 0½	,,
	855	100	

This shows clearly that improvement as to quantity of wool has been one result of the crossing; 28 per cent. is, I believe, equal to the yield of the best New Orleans produce in America; and in this instance the quality of the wool in my opinion is quite equal to the best New Orleans to be found in the English markets. It is superior to the best Broach or "Surats." One fact, however, should be noticed, the yield of the G. h. here on fallow land is commonly 33 per cent.!! The G. a. and G. h. are eminently suited to the climate here, which none of the foreign varieties are; a knowledge of the climate, as to distribution of moisture, is the grand desideratum in India for successful Cotton culture. The average fall of rain at Broach for 1843 and 1844 was 38 inches 31¼ cents. The average of Bombay, as given, I believe, by Mr. Noton, is 76½ ins., showing an excess over Broach of 38.18¼, or double in amount. Now, the two last seasons at Broach are considered to be above the average fall, and too much for successful cotton crops. Cotton cannot be raised near Bombay; and if at Broach the fall of rain was anything like that at Bombay, it is clear no Cotton-bushes could grow; they would be rotted by the excess of moisture as they have been in all low places during the past two seasons. These latter remarks apply chiefly to G. h. and G. a., for each variety of Cotton plant varies much in habit. Crossing appears to me to be a very likely mode of obtaining a better and more productive kind of plant than is at present cultivated in India. Witness the varieties of the Potatoe thus acquired; of the Hopetoun Oat now so universally esteemed in the Lothians. Use the pollen of some of the fine foreign Cottons to impregnate the blossoms of the hardy and suited to climate, G. a., and is it too much to expect to permanently improve upon it? In the case now under notice, I am perfectly satisfied of the success so far; but will the produce from the seed of any plant retain the improvement? We must try and see the results next season. If an acre of land were planted with 7000 plants (not too many), and they yielded at the rate above stated, or take it only at grains 720 each plant, then the wool would amount to 201 lbs.; and at 4*d.* per lb., or 6 lbs. per rupee, its value would be 34 rupees, a sum one-third of which would be ample to cover the expenses of cultivation, if judiciously gone about. The number of seeds from the 855 grains of produce was—

Cross plant . .	676 good	G. a. 762 good; difference in
,,	27 bad	3 bad [number 62.
	703	765

"*Broach, Jan.* 25, 1845. (Signed) A. Burn.

"P.S.—It is clear the cause of the partial success attending the experiments in cultivation of the American Cotton plant, both at Coimbatore and Dharwar, depends on the moisture of both monsoons affecting the atmosphere of those two places, on different sides of the Gats, with a degree of moisture, the continuance of which is sufficient to admit of the growth and maturation of the produce. The pass in the Gats at P. admits of this.

"(Signed) A. B."

[a] A sample parcel is sent along with this, by same post.

I sent Colonel Sykes a specimen of a hybrid Cotton plant, raised here. I am full of hope that something good may be obtained by crossing the foreign with our native Cottons—what think you?

Dr. Burn, commenting on this result says, "Crossing appears to me to be a very likely mode of obtaining a better and more productive kind of plant than is at present cultivated in India. In the case now under notice I am perfectly satisfied of the success so far; but will the produce from the seed of any plant retain the improvement?" I must conclude with asking what do you, and what do your correspondents say to the course of experiment and to its probable results.—*J. F. R.*

Pine-growing.—May I ask of "T. P., Cornwall," one or two further particulars respecting the culture of the Pine in tanks? First, the depth of soil (?) in the tank, and, secondly, whether any stratum is placed immediately on the surface of the tank, which I presume is of slate, to protect the roots of the Pine from penetrating to a medium, the great heat of which would I conceive prove injurious. I have constructed in a Vinery a tank, in which I attempted this year to grow Melons, but failed in consequence of the drip from the Vines and the moisture necessary to keep under the red spider, occasioning the Melons to damp off. Another thing, too, I should like to know is, whether it is necessary in the tank system to have the Pines immediately under glass?—*Clericus.*

Manchester Floral and Horticultural Society.—The report of this in last week's paper makes it appear that the whole of the Orchids exhibited were from the collection of the Rev. J. Clowes; but I beg to mention that the best specimens, and greatest display of flowers, were from the collection of T. Brocklehurst, Esq., Macclesfield. They consisted of the following, to which three first prizes were awarded, viz:—Cattleya Harrisoniæ; C. crispa; Miltonia spectabilis, and a variety of M. spectabilis, together with Oncidium luridum, and Rodriguezia suaveolens.—*Wm. Pass.* The Providence Pine-apple from Thornycroft, said to weigh probably about 6 lbs., was 8¾ lbs. avoirdupois.—*John Povey.*

Cropping a Kitchen-garden (see p. 530.)—When one has determined upon the best system of cropping, the greater difficulty often remains behind, viz., to get the gardening man to follow it out, without a constant supervision, irritating to both master and man. My way of thinking is, that the more directions a man has in white and black, and the less he is interfered with, by word of command, the better; and if it were not so, yet surely, if practicable, it is desirable, that the master should be able to decide once for all, in order that he may have leisure to devise new plans on other subjects. Suppose any of your readers approve of the course of cropping at p. 530, and mean to follow it, I would advise them this autumn to divide their garden into four portions, and having procured 20 neat stakes, and painted the numbers from (11) to (20) upon them, to subdivide these four portions each into five subdivisions, and to place one stake at the corner of each of the 20 sub-divisions. The numbers for the 1st of the four portions will be (1), (5), (9), (13), (17); of the 2nd, (2), (6), &c., and so on; a list of successive crops must then be made out from the tabular form I sent you (with any variations thought desirable), setting them (with a bracket where two crops are got in one year) against their respective numbers, which are given in the corner of each compartment. Your man has now got his garden divided into 20 pieces and numbered, and he has got a list of 20 crops for the year also numbered; and all he has to do is, to put each crop into its corresponding border, always considering (what he also sees by his list) what is to follow it the present or the next year. All that now remains to be done is, to go round at the commencement of each year, and take up stake (20), and put it where stake (19) stood, (19) going to (18), and so on, till at last (1) will occupy the hole that (20) had left. In old gardens it will probably be desirable to divide the whole into eight portions, whereof four will be of the best and most open ground, four of the worst—a sort of weighing meat to be taken with the best joints. Nevertheless, each pair of portions will be divided into five between them; and in altering the stakes each year, those of any one pair of portions may be interchanged, where they allow of it without leading to confusion, so as to keep the best ground for the crops that most want it.—*G. U.*

The Bear's-foot (*Helleborus fœtidus*).—Do the flowers of this stupify insects that enter them? This season I observed a number of bees (Bombus terrestris and Bombus muscorum) in a sluggish state about a plant of the Bear's-foot; they were unable to fly away to any great distance when they came from the flowers; some of them had enough to do to walk on the ground, and others tried to use their wings, and rose 2 or 3 feet into the air and tumbled back again into the plant.—*Peter Mackenzie.*—[Very likely. The plant is a narcotic poison.]

Arrangement of Colours in Flower Gardens.—It appears to me that although we arrange the colours of different flowers in one bed harmoniously, even to the best advantage, we get but an imperfect view of them, compared with what we have, when individual masses of each plant are relieved by contrast with some other plant differing in colour. If we arrange a bed with different plants, but more or less agreeing with each other in colour, no definite impression is produced on the eye, on account of one colour succeeding another so rapidly. Names are given to colours to point out their distinctions, and therefore that system which enables me to realise most fully these differences is what is most consonant with my views of flower-garden arrangement. Mr. Errington states, at p. 560, that a bed is harmoniously arranged as follows:—Fuchsia fulgens as a principal, next variegated Pelargonium, and then as a band or edging to the whole, Musk. I agree with Mr. E., that bands or edgings are at times justifiable, especially when the mass is of a cold colour, as by the introduction of a warm coloured band or edging, both the Grass and the principal mass are seen to better advantage.—*John Caie.*

Societies.

REIGATE COTTAGE GARDENERS' SOCIETY.

On Saturday evening the 2d inst., the fourth anniversary of this Society was held at the Town Hall, for the distribution of premiums for the best cultivated cottage gardens within the parish; when the members, with their wives, and some of their children and friends, attended, and exhibited a very respectable display of vegetables, flowers, and a few fruits, the products of their gardens. William Price, Esq., kindly accepted the chair. The Treasurer stated, that, by the report of the inspectors of gardens, the cultivation and keeping of the cottage gardens were every year in continued improvement. In proof of which, the superiority of the productions then on the tables would show. At the monthly meetings, the members were frequently bringing specimens of improved cultivation. At these monthly meetings also, books were distributed and exchanged amongst them, and they enjoyed the conversation which took place on gardening, and on kindred subjects. The members having been supplied with a good assortment of books strictly on gardening, the committee have recommended the adoption of other books of an instructive and entertaining nature. Among these is "The Farmer's Boy, and other Poems," by Robert Bloomfield, of which a new and handsome edition has been published recently by Mr. Van Voorst, who has given a copy to this Society. The perusal of these pleasing poetical descriptions of farming operations, and of rural and natural phenomena, has afforded much satisfaction to the members and their families. In fact, "The Farmer's Boy" is always in very great request. Those who are partial to the country (and who is there that is not!), and the contemplation of its scenery—who pay attention to the processes of husbandry, and who are duly impressed with a sense of the beauties of the animal and vegetable creation, will derive from the perusal of these poems a gratification the most permanent and pure.

"Bloomfield! thy happy omen'd name,
Is earnest of thy future fame,
Sense, Feeling, Taste, this sentence give,
While Fields shall Bloom thy verse shall live."

V. L. G.

The Treasurer had the pleasure to state that Mr. Tilley had benevolently presented to the members "The Wonders of Nature and Art," in 12 volumes, a well adapted and useful work. Last year, a case was mentioned of the remarkable industry and ability of a labourer in Sussex, as showing what might be effected by the exercise of those good qualities, so creditable to a working man, and the attendant rewards of comfort, improved condition, and respectability; and as an example, that "what man has done, man may do." Although the combinations of a strong arm, a willingness to labour, and their ingenious application, may produce results much to be admired and approved in man, yet they are neither rare nor wonderful. We, however, sometimes see what may in the same way be accomplished by woman. In a general way, where civilisation prevails, and in this part of the kingdom, the more laborious operations of rural life are not expected or required of the wife of a labouring man, although she and her children may be highly useful to the husband in the cultivation of the garden; yet circumstances occasionally bring forth the astonishing results of female courage and persevering industry on the part of a wife; as an instance of which, the Treasurer mentioned the case of a woman in Sussex, about 60 years of age, whose husband was crippled by sickness and infirmity, not only rendering attendance upon him, and on a grandchild, of which she had the care, and having her cottage clean and in excellent order, but she cultivated the garden attached to the dwelling, together with an allotment, of the dimensions of 38 perches; this latter, chiefly with Wheat, Potatoes, and Beans, digging and planting the whole with her own hands, without any assistance whatever, having her gardens in a state of neatness and order quite to the admiration of her neighbours, and entitling her to the highest premium of a neighbouring society like this. She has, moreover, several hives of bees, of which she takes the swarms, and manages herself. Honour to this spirited and indefatigable woman!

Several of the members on being requested to sign the book of rules, acknowledged the humiliating fact of their inability to write their names—these have been advised to learn to write sufficiently to be enabled to write, at least their names; and by a few lessons, with adequate practice, two of them particularly, one a grandfather, with hands and fingers stiffened by labour, had been taught to write very legibly, of which a specimen was handed round; and by different members of their families have been taught to read. The attention of the rich, and the great, and of the legislature itself, has been of late awakened to the miserable and over-crowded state of the dwellings of the poor in towns. It may be affirmed, with perfect truth, that those in the country are almost as much in need of their attention. And if a wise legislation should comprehend the regulation of the construction of houses in the metropolis, so also should those in the country participate in such regula-

tion, seeing the inadequate and insufficient accommodation which too often subsists, having a degrading and deteriorating effect on the moral and physical condition of their inhabitants. For example, the striking and obvious inferiority of those who occupy tenements in rows, to those who are more conveniently in the occupation of detached cottages, with sufficient gardens. Henceforth, there should not be even two dwellings built in absolute contact, but certainly not more than two, in rural districts. The occupant of a detached dwelling, with an appropriate garden, has the best chance of being the happiest and the best member of his class; and the best, and most industrious, and most desirable labourer for the farmer; of such pre-eminent importance is the comfort, or dis-comfort, of the dwelling, to the morals, manners, and habits of the labouring man and his family. That this would not be an improper interference with private rights is manifested by the repeated regulations of the legislature in respect of house building in the metropolis, and the acknowledged important truth that the "*salus populi*," &c.—the welfare of the whole people, is the supreme law. The parents of families were reminded, that additional facilities for the school education of their children were about to be afforded, and they were admonished to take the most assiduous care for their moral and religious instruction.

The premiums were then distributed as follows:—Josiah Ede, 2*l*; George Brewer, 1*l*. 10*s*.; Henry Stone, 1*l*.; Joseph Risbridger, 15*s*.; Charles Charlwood, 10*s*.; Joseph Webb, 5*s*.; Thirty-two other members, each, 2*s*. 6*d*. Gardening or farming tools to the value of 2*s*. 6*d*. more to each, and a woodman's leathern jacket and gloves to James Whitmore.

Mr. Morrison, in rising to say a few words to the meeting, observed, that he, for one, experienced great pleasure in seeing so full an attendance of the cottagers and their families, the greater part of whom he had known for many years; and he was glad to find that they so well deserved the approbation of the friends of the Society, as it was evident they did, from the productions of their gardens which were then spread before them in the hall, and for which, with the general good cultivation of their gardens, many had obtained prizes; trusting that each succeeding year he, Mr. Morrison, would find the cultivators of gardens equally, or still more, deserving of the rewards which were offered for their acceptance. Observing that the plates of Gooseberries and Currants then on the table were not very numerous, he proposed to offer 10*s*. in two prizes, for those fruits in the next year—5*s*. for the best plate of Gooseberries, and the same sum for the best plate of white Currants. He was aware that these were not very profitable subjects for cultivation, but the wives of the cottagers might of themselves rear this description of fruit without much interference with the ground cultivated by their husbands, for vegetables.

Mr. Spencer Charrington expressed his approbation of the objects sought to be obtained by this association for mutual improvement in gardening, and his satisfaction on seeing such an assemblage of worthy industrious people; for he was assured that no Englishman was afraid of hard work, and the proofs there before him, of their gardening skill—proofs at the same time of the interest they all take in their common pursuits, so efficacious in inducing habits of industry and sobriety, as well as of moral and religious improvement. He should be always happy to do everything in his power to promote the objects of this Society, of which he very highly approved.

The Chairman, after expressing his regret at the absence of the noble patron of this Society, observed, that it was in the power of every person to improve his condition by industry and perseverance, and the agricultural labourer was deserving of the highest approbation for the due fulfilment of his duties, and the exercise of his best abilities in bringing up his family in habits of industry and morality, and setting them a good example. He was happy to see the increasing prosperity of the Society, and was sure the members would have the warmest wishes of all the subscribers for their welfare. In addition to whatever other premiums which might accrue next year, he would be happy to give 5*s*. each for the best exhibitions of red Currants, Peas, and early Potatoes. He concluded with a repetition of the expression of his gratified feelings on observing so many industrious working people united in one common interest of moral, social, and industrial improvement. The items of expenditure for the year were as follows:—Garden seeds, 4*l*. 5*s*.; tools, 4*l*. 15*s*.; woodman's leathern jacket and gloves, 12*s*. 6*d*.; inspectors of gardens, 3*l*.; amount of premiums in cash, 10*l*.; books, 1*l*. 16*s*. 1*d*.; printing, 2*l*.

DAIRY GARDENERS' SOCIETY.

The Committee of the Dairy Free Gardeners' Society held their quarterly meeting on Friday, August 15th, when Captain Blair, of Blair, was admitted a member. This Society is now attracting the notice of the heritors of the parish, Colonel S. Neill is also about to become an honorary member, as well as several others of the proprietors. This is as it should be, the Society having been of great use. Its funds amount to nearly 1800*l*., lent out at the best interest. Each member pays annually 6*s*., and gets, when confined, 6*s*. a week, and 4*s*. when walking about, during illness. Societies of this kind ought to be established in every parish.

Garden Memoranda.

R. Philips', Esq., Thornfield, near Stockport.—All the world of gardening has, of course, heard of Mr. Hamilton's peculiar method of growing Pines, but it happens, somehow, that the mere knowledge of any great fact, is one thing, and the just and full appreciation of it is frequently another. Having, myself, a strong desire to possess ocular demonstration of so interesting a subject, I took some pains, as well as time, to investigate the matter. Mr. H. has but two moderate sized houses for the whole of his processes, as far as Pine growing is concerned; in one of these, the principal fruiting-house, he grows winter and spring Cucumbers; the only crop which can (according to Mr. H.) be grown with propriety in a house, the primary object of which is to produce abundance of first-rate Pine-apples. Mr. H. entirely repudiates the idea of growing Grapes over Pines, more especially late Grapes; as, if such be the case, it must be done at considerable sacrifice. The amount of atmospheric humidity, necessary to carry out the Hamiltonian system, would be extremely prejudicial, if not ruinous, to both the general health, as well as the productions of the Vine. The first, and most peculiar feature in Mr. H.'s system, is fruiting the sucker on the old stool; which I need hardly say is Nature's own way of doing the business. This is at once, in my opinion, a recommendation of this part of the system. The second feature is the preservation of the old roots for a much longer period than is commonly practised—say for nearly seven years. The third, although much at variance with preconceived opinions, appears to answer, and is the maintenance of a high and moist atmosphere all the winter. The fourth consists in a much more moderate use of bottom-heat than is customary. Mr. H. considers about 82° to be the most wholesome maximum. Now, alluding to the preservation of the old stool, it seems strange to me that, seeing this was so long since recommended by the late Mr. Knight, that it has not crept more fully into practice. If it can be proved (and I have no doubt it can) that the old stump is a storehouse, or ready provided fund of organisable matter, which it had taken some expense of both time and material, as well as vital energy, in the system of the plant, to provide; if, I say, this can be shown, why not, in the name of common sense, retain it? Who would think of cutting away all the green pseudo-bulbs of a new and choice Orchid? The second feature, viz., the preservation of all the old roots for an almost indefinite period, stands boldly opposed at once to all disrooting systems. Mr. H. considers (and, in my opinion, most justly) that old friends, taken care of, are sometimes superior to new ones. According to Mr. H., two serious evils are involved in the attempt to get abundance of new white fibres up the stem, viz, the necessity of stripping a considerable amount of valuable foliage, and, secondly, that these white surface roots, if procured, will in all probability produce premature constriction, if not decay in the original roots, thereby losing the valuable assistance of thousands of mouths, adhering fast to various media, capable of supplying all the wants of the plant. The third feature, viz., a high and moist atmosphere through the depth of winter, appears to me to be the most disputable ground in the whole. However, since facts are stubborn things, I will say no more on that head at present. Fourthly, in regard to bottom-heat, it strikes me that although Mr. H. may be very right in so moderate a use of bottom-heat (when coupled with the rest of his system), yet, that such a moderate degree, if the best for plants thus circumstanced, is by no means binding on those who cultivate them by the old or any other system. Mr. Hamilton has a heated chamber under his fruiting bed, and this circumstance enables him to preserve his roots undisturbed as long as he pleases. I may add, in conclusion, that Mr. H.'s Pines are rooted over the top and through the bottoms of the pots, drawing quite as much nourishment, in all probability, as though they were planted out in the bed. The open grounds at this place in general do Mr. Hamilton great credit; the lawns are very dressy, gay, and neat.—*R.E.*

Miscellaneous.

Polar Expedition.—From Mr. Goodsir, who is collecting objects of natural history with this expedition, we have seen letters which are of a highly satisfactory kind. The vessels had a boisterous voyage, being driven almost to Iceland, and then doubled Cape Farewell in a gale of wind. Mr. Goodsir is being most efficiently assisted by the officers, from Sir J. Franklin downwards, and also by the men. The rough weather has prevented him from collecting on more than a few days, but those have been very productive in new and highly interesting animals. As this is not a Zoological newspaper, we do not enter into details. In Davis's Straits they were able to sink a dredge to the depth of 300 fathoms, and obtained many living animals from that great depth. This is believed to be the greatest depth from which dredgings have been obtained, as those got by Professor E. Forbes in the Levant, and which far exceeded all previous ones, were not obtained from more than 230 fathoms. It is not long since it would have been considered as ridiculous to expect to find life under the immense pressure of 1800 feet of water, but now we learn that animals can live even there, and that since there are animals there must also be some vegetable bodies to supply them with food. The expedition having now started for the Polar regions, with three years' provisions on board, we must not expect to hear of them again for a long time; probably not until they have either passed the north of America and entered the Pacific, or else on their return, having found that to be impossible. In either case, the results to natural science must be of great value. The letters are dated from Disco in Baffin's Bay.—*B.*

Bees.

Pillars' Bee Hive.—Having tried almost every kind of hive, my curiosity was excited in seeing (p. 579), a section of a novelty in this way by Mr. Pillans, with the remarks upon it, by "W." I am not prepared to discuss the merits of this invention, which, like many others, may do well enough; but I wish to observe that as the projector is influenced by a desire to avoid the inconvenience of the sun's rays falling on Nutt's hives, when exposed to them, why not at once place the hives under a shade or cover? Who can possibly expect that bees should thrive well with a burning sun shining upon a thin wooden box, melting the honey as fast as the bees store it, and compelling the latter to leave it, and cluster on the outside? It is bad enough for a straw hive to be exposed without any cover or protection, but no wooden hive should at any time be left unshaded from both wet and sun. It is a mistake to suppose that bees like exposure to the heat; on the contrary, they delight in the cool shade; and it is as cruel to leave them exposed to the burning sun as it is to hang out a caged bird (a very common practice) against a hot wall in the midday. Let the wood of which bee-boxes (whatever be their shape), be thick enough, and placed under a roof or cover impervious to weather, and bees require nothing farther than common attention; if the locality be a good one.—*An Old Apiarian.*

Answers.—*Certis.*—At p. 563 you mention that "an annual swarm is conducive to the health of a stock;" and why so? The fact is, it is only healthy bees that do swarm, and, as I before observed, when swarming occurs to any extent, there is a loss, especially in bad seasons like the present. This you admit, for you say that you condemn the practice of frequent swarming, and consider "that it arises from mismanagement." It is perhaps unnecessary to say that it is natural for bees to swarm more than once in good seasons. And if you study Huber, you will find that his views on this point not only accord with what I have said, but likewise with Mr. Golding's words, namely, "after-swarms will come off, room or no room."—See Dunbar or Bevan on this subject. The following extract, respecting the increase of colonies by first swarms, is from my own book:—"The instinct for extending colonies under her (old queen) acts so powerfully, that the original head of a hive has been known to found three in the same season. Of this, Huish mentions one instance which happened at Melville-house, Fifeshire, and I recollect the circumstance, for the bees were under my father's care." That, however, was a very rare occurrence, like the circumstance respecting the lady's bees, of which you speak, "that are in a hive whose dimensions are 12 inches by 12 and 7 inches in height," and which you say is "considerably less than those of Bevan," whose boxes I find are 11⅝ inches square by 9 inches in the clear.—*W.*——*Cork.*—Your bees seem not to have had any comb containing eggs or brood to enable them to rear a queen. However, that may be attained by merely enlarging a cell to give room for the proper growth of the insect, which appears in about 20 days. I suspect there was a queen with them in the box when taken off the stock, otherwise they would not have begun to work without one. You may unite your weak colony with the swarm, and the sooner the better, for it cannot have much brood, and there will be no loss in that way. In order to do this, in the evening fumigate both hives with smoke from fungus or puff-ball. Destroy one queen, and mix the bees together on a smooth surface, and allow them to ascend into the hive that contained the swarm; confine the bees till the evening of the following day (except an air-hole) in order to cement their friendship. See remarks on this subject in the *Chronicle* for August 17th, and also in the previous Number under the head "Driving bees." This is done by turning a hive full of bees upside down, and placing an empty hive over it, taking care that the two hives fit closely together to prevent the escape of the bees. Tap the under hive, and the bees will ascend into the upper; take away the one containing their store, and put the other where it formerly stood, the bees will then begin afresh. Bees may also be united by this simple plan, but they must be imprisoned the following day in order to break their courage, otherwise they may fight desperately. Indeed it is not safer than the old one, of merely sprinkling the bees with honey or sugar, or beer, and mixing them together, leaving the queens to their fate. The great object in uniting bees is to prevent a sudden attack when they first meet. Sprinkling tends to disable both parties awhile. The coldness of the season prevented your bees filling the box with honey, and not the length they had to climb through the hive. Bees are fond of ascending; even if they have ingress at the top of a very deep hive, they generally prefer the lower entrance. As the weather gets warmer the bees can better attend and procure proper nourishment for the larvæ or brood, and I suspect you will see no more dead ones cast out from the hive.—*W.*——*Whitfield.*—As your plot of ground is 60 yards in length by 30 feet in width, it would make good bee-pasturage, to plant the front with Crocuses, then to have a 10-feet bed of Mignonette, backed with a row of Currant and Gooseberry bushes (whose blossoms are good for bees), about 2 yards apart, with a 2½-feet path on each side of the bushes, edged with Lemon-thyme. The remaining part may be filled with Salvia nemorosa, or wood Sage, and blotched-leaved Pelargonium, planted about 2 feet

apart, and backed with a row of Hollyhocks. The following plants are likewise favourites with bees, and may be introduced :—Borage, common Marjoram, Hyssop, great Willow-herb, Turnip, and all the Cabbage tribe ; Mezereon, Snowberry, Tree Box, and all sorts of fruit-trees, and Filberts. If you have room, sow Dutch Clover, and fill up blanks with Buck-wheat. In spring, spare the weeds which bees frequent ; for instance, Archangel, Chickweed, and even the Dandelion, are amongst the first to attract them ; but take care not to allow them to poison your ground with their seeds. —*W.*——*J. W.*—To what length do the Brehon laws extend ? We should be willing to print them : but can we find room ? Can you lend us a copy for a few days ?

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

The different kinds of shading on plant houses and pits may now be removed, especially as we have had little bright sunlight during summer. Light is now more than usually important to elaborate and consolidate the juices before the winter arrives, for unless every means is taken to accomplish this, we may expect sad failures during the next winter among our tender and more valuable exotics. To protect them from rain and to expose them to light should now more than ever be our earnest study, in regard to choice specimens, especially those which have been recently shifted, and which are in vigorous growth. Pelargoniums intended for specimens should have their wood well ripened by thorough exposure to the sun and air ; their strength will thereby be husbanded, and their constitution improved by this practice. The foliage will not be so likely to damp off during winter, and they will thus be better prepared for their spring work. Should dry weather set in, we should immediately turn our attention to the compost yard ; this on no account should be neglected, for it is the magazine that must supply the principal munitions of gardening, and it is always best to get in loam, peat, and all kinds of compost in a dry mellow state.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES

Pinks which have bloomed the second season should be removed from the borders, if there is a sufficient stock of young plants struck to replace them ; if not, some of the best old plants should be cut closely back, they will break again, and make nice healthy plants for next year. Many kinds of plants are now ripening their seeds, which should be carefully collected in fine weather, and laid by for cleaning and storing at a more convenient time, when out-door work cannot be proceeded with. The leaves of trees, &c., being now beginning to fall, more attention must be paid to sweeping and cleaning walks, lawns, &c. Sow Ten Week Stocks and other hardy annuals for next year. *Pits and Frames.*—Sow Mignonette in pots for next spring : keep the pots in a pit or frame until autumn, when they should be removed to the shelves of a greenhouse. Look carefully over cuttings, and remove all damp leaves as they appear, admit air freely in gloomy weather.—*B.*

III.—FLORISTS' FLOWERS.

Carnations.—Seedlings, which had been pricked out on beds from the seed-pans, may now be finally transplanted where they are to bloom, six inches apart. Look over the layers occasionally, as even in the most carefully managed compost a wireworm will sometimes escape the grower's vigilance, and unless caught when the first layer is destroyed, will often cause the death of the remainder in the same pot. Keep the layers free from weeds, and water in dry weather. Carefully protect seed-pods ; when these are of fine quality, or where the seed has been cross fertilised, it will be valuable. Florists seldom part with their best seed ; and it is notorious that the semi-double and inferior varieties produce most. Continental seed is often saved from flowers differing widely from our ideas of excellence. *Polyanthuses and Auriculas.*—Observe the same directions as given last week. *Tulips* should be divested of their loose coverings when opportunity serves ; the drawers looked over, and inferior sorts marked during blooming time, removed, and their places occupied by either superior strains or fresh varieties. In getting fresh sorts in, ever keep in view "quality before quantity," for many fine and new varieties are yearly finding their way into the market, a good break of which the amateur should endeavour to be possessed of.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Little can be added at present respecting the stock in fruit, as gaps occur in consequence of cut fruit ; they will of course present opportunities for making new arrangements to meet the coming winter. See that all shadings are at once dispensed with ; our climate, this summer, if summer it can be called, has furnished shade enough for tropical fruits. It is to be hoped that we shall hear no more of shifting Pines late in the season ; this doctrine is nearly exploded, both root and top should be well established and matured, to meet the exigencies of the approaching dull and dark season. Give abundance of air early in the morning to dung pits, but be as careful also of shutting them up early in the afternoon, with an atmospheric heat at that period of 90° when the mats are put on, and a mild, not strong, bottom heat of 80° or 85°. *Vineries.*—Give abundance of air to late Grapes, if they colour badly through a paralysed action of root ; do not hurry them ; rather give them more time, having less energy, to perform their appointed labour, as also to give a chance for reaction of root. *Melons.* —Late Melons will want every attention both in regard to atmospheric warmth, and bottom heat ; they should have a slight sprinkling over the leaf twice or thrice a week about eight o'clock in the morning, to assist in keeping down the thrips, as well as to keep the functions of the leaf fresh, as on the latter circumstance depends in a considerable degree the quality as well as size of the fruit. *Mushrooms.*—Continue to lay by fresh dung from the stable-yard to undergo fermentation. Good beds have been made without previous fermentation, but I am of opinion that they can be made deeper, and consequently more lasting, if the dung is deprived of part of its fiery qualities, by several turnings and sweatings previous to forming the bed.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

As soon as the fruit of Peach and Nectarine trees have been gathered, a portion of the shoots that have borne fruit may be cut out, in order to allow more space for the shoots of the present year's growth intended for bearing next season. In doing this, it is not advisable to cut out all that will ultimately require to be removed, for such would occasion too great privation of foliage. The most naked of the shoots that have borne fruit should be first dispensed with ; the succession shoots can then be laid in their place, and the trees should be well syringed. Leaves that are preventing the fruit from colouring, should be put aside, but no farther than is absolutely necessary, and so as their upper surface may still face the light. Frequently examine budded trees to see that the matting does not become too tight. Cut out the old wood from Raspberry plants, leaving only about six of the strongest shoots of this year's growth. *Kitchen Garden.*—The latest sowing of Spinach for spring use should now be made. Continue to plant out Cabbages ; earth up the earliest crops of Celery, previously removing all suckers ; sow Lettuces and Onions ; attend to the taking up and storing the main crop of Onions—these, when the stems and roots are withered, should be taken under cover, and picked and sorted, according to their sizes and qualities, in wet days—they keep best in a dry, cool, and dark place, for they are still living vegetables, and as such cannot be unaffected by light. In many cases there will be a risk of losing the varieties of early Potatoes, owing to the disease rendering them unfit for sets, It will be advisable to expose those intended for sets to the sun till they become tough and green, and then store them in a perfectly dry place. All portions of the tubers evidently unsound should be cut away. Where the main crops are affected, frequent inspection will be necessary after they are taken up, but exposure to light should be avoided as much as possible.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Prune underwood carefully, and see that all water-courses and hedge-rows are in proper condition. *Nursery.*—Prepare for planting next month ; layer and replant evergreens ; put in cuttings of Laurels, Yews, Privet, &c., retaining a small portion of last year's wood to each cutting. Destroy weeds and insects by all possible means.—*F.*

State of the Weather near London, for the week ending Aug. 23, 1845, as observed at the Horticultural Garden, Chiswick.

Aug.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 22	19	30.207	30.184	72	49	60.5	W.	
Sat. 23	20	30.139	30.004	70	50	60.0	S.W.	.07
Sun. 24	☾	29.979	29.975	72	44	58.0	W.	
Mon. 25	22	30.004	29.934	73	50	61.5	S.W.	.04
Tues. 26	23	30.030	29.850	74	46	60.0	W.	
Wed. 27	24	30.182	30.080	71	51	61.0	N W.	
Thurs. 28	25	30.296	30.217	68	47	55.5	N.E.	
Average		30.118	30.019	70.7	48.1	59.5		.11

Aug. 22—Cloudless ; very fine ; clear at night
23—Overcast, with thin haze ; fine ; rain at night
24—Clear and cool ; very fine, with light clouds
25—Foggy ; very fine ; densely overcast ; rain at night
26—Very fine throughout ; clear
27—Very fine ; cloudy ; clear at night
28—Clear ; cloudy ; very fine ; overcast.
Mean temperature of the week 1 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Sept. 6, 1845.

Aug.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 31	66.1	49 5	57.8	11	0.92 in.	—	4	1	2	2	2	4	4
Sept.													
Mon. 1	69.8	49 2	59.5	10	1.53	1	3	1	4	2	4	2	2
Tues. 2	71.2	49.5	60.3	8	0.23	4	3	1	1	2	3	5	—
Wed. 3	69.5	49.0	59.3	8	0.48	1	3	1	1	3	4	5	1
Thur. 4	70.2	50.0	60.1	11	0.58	4	3	1	—	4	3	3	1
Fri. 5	69.5	48.6	59.2	9	0.30	2	4	2	—	3	8	4	1
Sat. 6	71.1	49.2	60.2	8	0.70	—	2	2	—	3	8	5	1

The highest temperature during the above period occurred on the 1st Sept., 1841—therm. 84° ; and the lowest on the 1st., 1841—therm. 36°.

Notices to Correspondents.

Fruit-room—*A*—The best construction of a fruit-room is that which is fitted up with close drawers, in a dry, cool situation.‖

Gardeners—*W T Harding*—We will attend to your absurdity when we have a little time.

Glass—*Salop*—No glass like Mr. Elphick's is at present to be had ; but we find that it runs uneven, and you had better look to that.

Heating—*Tolla*—You can grow Melons, Cucumbers, and Pine-apples, in divisions in the same range of pits. Queen Pines are the best to begin with.‖

Insects—*Maria Perplexa*—I must request you to send a leaf or two with the insects upon them, in a pill-box, before I can advise you. *R*——*H G*—If you can detect the Ants' nests, pour some boiling water upon them, if not, place some vials in the frames, with a little diluted treacle or honey in them ; they will serve as decoys, when the ants can be easily destroyed. *R W*—Your Vine leaves are infested with a Coccus, but the failure may probably be attributed to low temperature, want of sun, and the house having been too much crowded with flowering plants. *R.*——*Tolla*—In order to get rid of woodlice which infest your Melon frame, you must remove as much of the dung and soil at the sides as can be safely done without injuring the roots ; replacing it with fresh soil and stirring the same every day. Those that withstand this annoyance, you must endeavour to trap, using sliced Potatoes for bait, or employing toads.‡

Names of Fruits—*S F G*—Your Apple No. 1, is the Sugar-loaf Pippin. The others are too green.‖——*E V*—Your Pear is the Citron des Carmes ; Apple, the Red Astrachan.‖——*A Gardener*—1, Court of Wick ; 2, 5, Old Nonpareil ; 3, 4, 6, London Pippin ; 9, Hall Door.——*J A*—You may rest assured that the Grape you have, under the name of Sir Abraham Pytche's Black Hamburgh, is just the Black Hamburgh.‖——*M*—Your Apple is the Early Harvest, an American variety, a good bearer, and one of the best early Apples.‖

Names of Plants—*P*—Some species of Bryony ; but not worth the time required to determine what species.——*L M*—Mahernia incisa.——*A Young Gr*—We never name Florists' Flowers. Judging from the blooms sent, all of them appear to be worth cultivation.‡—— *S F G.*— Comptonia asplenifolia.—— *Ventnor*—Gentiana campestris.——*R Murray*—Your plant is Chitonia mexicana, *a very fine* thing, and quite new in Europe. If you will send us a good specimen we will have it published in the "Botanical Register."——*T G*—We thought so. Your Scotch Thistle is not Carduus lanceolatus, but Onopordon acanthium.——*W C*—Lycopodium clavatum.

Manures—*A Sub*—Instead of trying to rot your Fern you had better cut it green and dig it into the ground ; or if you cannot do that, burn it and use the ashes. Certainly you will kill your Fern by frequent cutting ; so you will every other sort of plant. You should take care of all your grass mowings, old vegetables, haulm, straw, and refuse of every kind ; and if you can get a little gas-water, pour it upon such stuff while making into a heap. It will cause a vile smell : but that you may entirely stop by dissolving sulphate of iron in water and adding it to the heap as you proceed——*Northwood*—Apply it in the spring, by no means in the autumn, unless for Asparagus or such crops. Have no fear of insects. Don't use lime.

Melons—*Falcon*—Thanks. If it is not inconvenient to you, we shall be obliged.

Morphology—*T Ann*—This sort of change of the red calyx leaves of the Fuchsia into true leaves is very common, and well assists to support the doctrine of the transformation of leaves.——*A Constant Reader*—The Rose is perhaps the most perfect monster of the kind we have yet seen. It is a Rose in the ordinary state at the base, except that the great calyx tube is absorbed ; then the growing point is lengthened, changed to a branch, and clothed itself with leaves ; but, while a portion of those leaves are green, woolly, and leaf-like, another portion, mingled with them, are red, woolly, or smooth, tinged with green or not, quite petals in texture, and are producing buds in the axils. This is a capital season for studying morphological phenomena.——*G Kn*—We should have been much surprised if an observer, with such clear perception as yours, had continued to be an unbeliever in this theory. No man of common-sense, who will take the trouble to examine facts, and is capable of connecting two ideas with a third, can have the smallest doubt about it.—— *Original*—You will find no end to the anomalous condition of the flowers around you. The cold, damp season has given a subalpine climate to all the lowlands, and whenever that happens, we have on all sides disturbances of structure, which elucidate its true character. In the present case, one of the floral leaves of the first umbel of your Pelargonium has, contrary to usage, but conformably to its theoretical powers, produced a branch, at the end of which another umbel has appeared : and it would not be at all surprising to see that the second umbel acts like the first. We have occasionally seen the variety of Wheat-ear Carnation doing exactly as you describe ; that is to say, losing its "ears," and flowering a Picotee. The ears are formed by supernumerary bracts, which it seems that the plant cannot form in the absence of a certain temperature and dryness, beyond what this season will supply.



Pits—*H W D*—The cheapest mode of heating your pit is with horse-litter, if you have it at hand. The best way is by a tank on which soil rests, and between the sides of which and those of the pit warm air may ascend to heat the part where the leaves are. Wood will do very well for the tank. We have no experience with galvanised iron. The cheapest boiler you can get will answer your purpose. The tank should be 6 inches deep, and as wide nearly as the pit ; so as to leave about 4 inches clear between its sides and those of the pit. ——*M P*—A hollow wall will not now be necessary. How large it is prudent to employ glass in sash-making, is still a matter of experiment. If the sashes are fixed, we should incline to making them as large as the glass will allow ; but when they are moveable, there is the danger of "wringing" or twisting, which causes the glass to break, and increases in proportion to the size of the panes, unless the glass is stouter than any at present to be procured. In a new house, building in the garden of the Horticultural Society, it is decided to try Elphick's stoutest glass, in squares 1 foot wide and 20 inches long. By no means use astragals ; they are very inconvenient and expensive, and the channels cut for carrying off the water will soon choke up and cease to draw. Overlap the squares a little, *without* putty—by all means ; and stiffen the sashes by strong cross iron rods. Putty in such pits is useless, and when bits of it drop out, water gets in, expands by frost, and splits the squares.

Potatoes—*J M M*—We dare not recommend you to give your Potatoes to the pigs. It might be worth trying them after being steamed or boiled, but in a raw state they would be dangerous.

Protection—*A Subscriber*—On no account use a lining of manure. The art is to keep the plants dry, and just free from frost. It does not matter how it is done, if it is but done efficiently. Throw up earth round your wooden frame ; otherwise it will not be a sufficient guard ; and you must use mats as well. Divide cuttings just *below* a joint. Turn out Orange-trees as soon as frosts are over, and place them where they are kept warm and sheltered from cold winds. A south gravel walk, well screened, is the best place. Keep them out till the frosts threaten in the autumn. There is no such work on the Pelargonium.

Seedling Flowers—*A F B C*—Your seedling Heaths are very beautiful things, as all Heaths are ; but they are not sufficiently distinct from kinds already in cultivation.‡

Strawberries—*D*—The leaves you sent as those of the Princess Alice Maud Strawberry, cannot be distinguished from the leaves of Keen's Seedling.‖

Vines—*R W*—You must light fires at night, and in order that your Grapes may be well flavoured, you should give them all the air you can through the day-time whenever the weather will allow.‡——*A D and H B*—Your Muscat of Alexandria has been starved. It is a hothouse variety, and requires more heat than the Black Hamburgh and many others.‡

Misc—*A Constant Sub*—We do not keep portfolios for the paper. ——*B C L*—Æschynanthus grandiflorus is not an Orchid.‡ ——*Rural Chemistry*—Turn some pea-fowls among your ant-hills, or Guinea-fowls ; or kill them with boiling-water, or try the effect of gas-tar poured into the hills.——*Querist*—We know of no means of keeping boilers from inside rust ; if they could be emptied of their water while hot, and a current of air then allowed to pass through them—that might do something. Remove all trees in November. The hardiest Fuchsia is F. discolor, next Riccartonia ; but many others are as hardy as gracilis.——*Dublin*—Consult the works of Humboldt, Meyer, Schouw, Martins, &c. Vegetation ceases in equatorial America at the height of about 15,000 feet.—— *Œ Æ*—Analyses cost *5l. 5s.* and upwards ; that is what is paid. If you wish to have it done, we shall be happy to put you in communication with a *good* analyst.——*S C W*—Cold and damp at the root is most probably the cause of disease in the tops.‖——*Tolla* wishes for information respecting the Dropmore Melon.‖

SEEDLING FLOWERS.

Calceolarias—*C L and S*—Your spotted seedling is too small.*

Dahlias—*S G*—Your seedling, to be named the Queen of Perpetual Dahlias, is a flower of good form ; colour between lilac and peach ; the centre is not as we like to see it, the petals standing too upright, but it will prove a useful flower, pleasing in colour.*

Fuchsias—*J Z*—Gigantea globosa is a large and coarse flower, with an ill-formed corolla. Kentish Hero very much resembles Curtisii in its brilliant colours ; it is a most prolific bloomer, as in the specimen sent there are six flowers from one joint.*——*J M R*—The prettiest flower in your collection is the light variety No. 3 ; it is of good texture and form, and the sepals expand well, light pink tube with vermilion corolla ; the rest of the specimens are good flowers, but they possess no novelty to recommend them to general cultivation.*——*A Constant Subscriber*—Your seedling is a large and rich coloured flower, but not better than many in cultivation.* —— *C L and S* — Your seedlings are very good flowers, but not surpassing the varieties at present in cultivation ; the light coloured variety and the smaller of the dark sorts are the best.*——*W G*—A flower was sent out two years since precisely like your seedling ; it is a very pleasing specimen.*——*E J L*—We have many much better specimens than Achilles, the sepals of which do not expand sufficiently, and the shape is not good.*——*Clara*—There are two or three varieties raised much resembling your flower, but none of them are better than your seedling.*

Pansies—*C L and S*—The yellow seedling is of no use, it is small and thin.*——*H B*—None of your seedlings are of any use, they are not better than the commonest border varieties.*

Picotee—*Y Y*—The centre petals of your seedling are too narrow for the size of the flower ; we have better varieties in the same way.*

Verbenas—*Y Y*—Your specimens are some of the largest we have seen, but generally the colours want decision. 1 and 5 are the best, the former a lavender, and the latter a light lilac, with yellow tube, and they appear to fade in a less degree than the others ; 3 is a fine flower but too much like 5.*—— *G S*—Queen of Beauties, delicate pink with a small rose-coloured spot, a novel and very pretty variety. Merry Monarch, deep bright rose with crimson centre, a good variety. Duc de Nemours, rose with light centre ; the least pleasing of the three.*——*J Z* — Both your seedlings are large and good flowers. Comet, French white with lilac centre, somewhat resembles a variety in cultivation. Samye, pink with a blotch of light purple in the centre, is a large, handsome, and distinct flower.*——*J W D*—Among your seedlings 4 and 5 are the brightest and most distinct colours ; these are worth preserving. The striping in 6 is not sufficiently distinct, and the remainder are repetitions only. 4 is the greatest novelty in colour, but the flowers are small.*

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LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

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The Agricultural Gazette.

SATURDAY, AUGUST 30, 1845.

MEETINGS FOR THE FOLLOWING WEEK.
THURSDAY, Sept. 4—Agricultural Imp. Soc. of Ireland.
FARMERS' CLUBS.
Sept. 1—Darlington. | Sept. 1—Stewponey

WE have published in adjoining columns a report on THE CROPS in Scotland and the northern counties of England, which has been compiled for us by Mr. LOWE, of Nottingham, and it is well worthy of a careful perusal; only this must be kept in mind that most of the letters from which extracts have been made are at least ten days old, during which time most crops, and especially that of Potatoes, have generally been suffering from excessive wet weather. We shall continue the report next week.

ABOUT this time last year we brought Mr. HANNAM'S experiments ON THE PROPER TIME TO REAP WHEAT under the notice of our readers. They showed, it will be remembered, that grain crops ought to be cut at least 10 days before they become dead ripe. The present harvest, on account of its lateness, will probably put to a severe test the assertions which have been made on this subject, and we therefore again call attention to it.

Mr. HANNAM'S experience was to this effect—that by cutting Wheat 10 days earlier than usual he obtained a more valuable produce both of grain and straw. The superior quality of the grain was evidenced by its price in the market; by the decision of judges at the Wetherby Agricultural Society, and by the testimony of the miller as to the weight and quality of the flour yielded by it. Thus, in one case the raw Wheat produced more flour than the ripe by nearly 6½ lbs. per bushel; and always there was a greater produce of it to the amount of 5 or 8 per cent. in favour of the former. But the quality of the grain has also been tested by analysis, and Mr. HANNAM shows, on the authority of Professor JOHNSTON, that the flour of raw Wheat contains more gluten than that of ripe Wheat.

Again, the straw of raw cut Wheat, whether as an article of food or as the staple of manure, is much more valuable than that of a dead ripe crop; it is heavier, and this increase of weight is caused by the soluble and nutritive matter which it contains, which, when the straw has stood to be dead ripe, has become *woody fibre*. This increase of weight amounts to about 14 per cent.

In our last year's volume, we spoke generally of the testimony which had then been promulgated in confirmation of the conclusions deduced from Mr. HANNAM'S experience. Since then further evidence has accumulated. Let us call attention to some of these corroboratory and explanatory details. And first, as regards the *rationale* of the practice recommended.

Professor JOHNSTON, in his "Elements of Agricultural Chemistry," particularly refers to Mr. HANNAM'S investigations, the grain and flour from each experimental plot having been subjected to his analysis. The following are his remarks:—

"The *rawer* the crop is cut, the heavier and the more nourishing the straw. Within three weeks of being fully ripe, the straw begins to diminish in weight, and the longer it remains uncut after that time, the lighter it becomes and the less nourishing. On the other hand, the ear, which is sweet and milky a month before it is ripe, gradually consolidates, the sugar changing into starch, and the milk thickening into the gluten and albumen of the flour. As soon as this change is nearly completed, or about a fortnight before ripening, the grain contains the largest proportion of starch and gluten; if reaped at this time, the bushel will be heavier, and will yield the largest quantity of fine flour and the least bran. At this period the grain has a thin skin, and hence the small quantity of bran. But if the crop be still left uncut, the next natural step in the ripening process is, to cover the grain with a better protection—a thicker skin. A portion of the starch of the grain is changed into woody fibre—precisely as in the ripening of hay, of the soft shoots of the Dog Rose, and of the roots of the common Radish. By this change, therefore, the quantity of starch is lessened, and the weight of husk increased; hence the diminished yield of flour, and the increased produce of bran. Theory and experience, therefore, indicate about a fortnight before full ripening as the most proper time for cutting corn. The skin is then thinner, the grain fuller, the bushel heavier, the yield of flour greater, the quantity of bran less; while, at the same time, the straw is heavier, and contains more soluble matter than when it is left uncut until it is considered to be fully ripe."

The facts exhibited by Mr. H. have also met with corroborative testimony. We alluded last year to the conclusions arrived at by the Leominster, Stewponey, and Wetherby Farmers Clubs, in favour of early cutting, viz.:—1st. That a greater weight of corn is thus afforded, and that it is of a superior quality. 2d. That the straw contains more nutritive matter. 3rd. That there is a better chance of securing the crop.

In addition to these the advantages of not allowing the grain to become dead ripe were similarly confirmed at the last quarterly meeting of the Loughborough Agricultural Society. And in the "Farmers' Magazine" of this month, Mr. SULLIVAN gives retrospective evidence, which is well worthy of attention.

"Although," says he, "Mr. HANNAM is justly entitled to the credit of being the first who has shown, by satisfactory and conclusive experiments, the advantages to be derived from cutting corn in a raw state, his interesting experiments merely corroborate an opinion that has long been entertained upon the subject by some intelligent farmers." Thus, he says, "I may mention that, about 24 or 25 years ago, Mr. BRODIE, an extensive farmer in East Lothian, cut down a field of Wheat of upwards of 20 acres in a green state, as an experiment which he was induced to make in consequence of having frequently found that, when, in order to finish a field, he had cut a part of it in a state that he considered too green; yet, when it came to be thrashed, the quality was not perceptibly inferior to that which was completely ripened."

"In 1823," Mr. SULLIVAN adds, "Mr. BRODIE continued his experiments on the Wheat crop, by cutting one-half of a large field on the 2d of September, when the corn was just beginning 'to break into spots,' being then considered as within eight days of proper ripeness; the other half, which did not arrive at the ordinary degree of maturity at the time expected, was not cut until the 12th. The first-reaped portion was carried into the stack-yard on the same day the last was cut; the last stood nine days before it was stacked, and sustained no injury in the stook. Upon being thrashed, there was little difference in quantity between both lots; and when exposed for inspection in Haddington-market, the farmers were generally in favour of the ripe; the bakers and corn-dealers were, however, more divided in their opinions. Parcels of both kinds were subsequently exhibited in Dalkeith-market, Mid-Lothian, and though the prevailing opinion of the farmers was still in favour of the ripe cut, yet the bakers, and those who were considered the best judges, gave the preference to the other sample. Upon being ground, the latter yielded 4 lbs. per boll more fine flour than the former, and the baker was also satisfied that its flour baked better."

These results are, it will be seen, in exact accordance with those obtained by Mr. HANNAM; both show a better yield and a better quality of flour.

Amongst others, who agree in this conclusion, is our correspondent "J. C. X.," who, in our last volume (page 643), cites a case in support of this system, and also gives a criterion by which we may judge when the grain is in a proper condition for cutting.

"I was visiting," says he, "a friend in an excellent Wheat-growing district beyond Hounslow, and when conversing with a neighbouring gentleman in whose Wheat-field we were walking, my friend remarked that his piece of Wheat was the forwardest thereabouts, and would be fit to cut in a fortnight. The gentleman said he meant to cut early, as he had understood was often done in parts of Hertfordshire, the millers liking the Wheat all the better for it; and he intended to begin on Monday week. Upon which I remarked that if the grain had ceased to derive nutriment from the straw it might be cut to-morrow, and that it would be easy to ascertain that by examining the thread-like connection of the grain (which I shall call the umbilical thread) to the receptacle, whether the grain had ceased to receive nutriment. Whereupon we first searched for and found at the edge of a cart-way a plant in a quite green and growing state, and examining it, saw that the umbilical thread was in a healthy and growing state, and the grain still milky. We next selected several ears from the crop (not the ripest), and on examining them saw that the umbilical thread was in a withered state, and incapable of conveying nutriment. Afterwards we selected some of the ripest ears, and saw the umbilical thread quite withered and dry, But these ripest ears were far short of being dead-ripe. The gentleman said, 'This examination has convinced me, and I will begin to-morrow.' He did so, was satisfied with the result, and continues the practice."

The American farmers have also taken up the subject, and in the various agricultural journals of that country many experiments are recorded in support of the practice. Thus we find in the Report of the Commissioners of Patents of the United States, an account of an experiment on 60 acres, made by a Michigan farmer, the grain being cut 10 days before being ripe, and the result of which was that it *yielded more flour* and *less bran* than usual.

Our limits will not allow us to quote any more details, or to comment on these. Sufficient grounds for any farmer to risk a trial are already before the public; and the facts brought forward since last year, in confirmation of the original results, are sufficient to stimulate the inquiring farmer to make such a trial. To those who are sceptical even yet, the best method of ascertaining the truth of the theory is one of a simple nature. Let them take two ears of grain from one field, in different stages of ripeness; that is to say, fully ripe and raw. After being well dried, take a penknife and cut a grain of each in two parts, when the flour-cells of both will be exposed to view; and we venture to assert that the inspection will convince that the raw-cut Wheat must produce more flour and less husk than the other. In the raw grain it will be found that the flour is free, and ready to start out of the skin; while in the ripe, the free flour is confined to the centre of the grain by a coat of hard *vitreous* matter, which has been formed from the flour during the process of over-ripening. In grinding ripe grain, this horny substance breaks up into coarse particles, and tends to increase the pollard and "roughs;" while, under the same process, the flour in the raw-cut grain, owing to there being no *flinty* substance around it, shells out freely under the pressure of the stone, and leaves a thin, clear, and light-weighing bran.

Independent of these advantages, however, there is another reason, which renders this subject of early cutting one of importance at the present moment. This we stated in the outset to be, that the present season is especially calculated to put to proof the claims of the system to other merits, as well as those already discussed; for amongst the benefits to accrue to the farmer from the practice, it is contended that it affords not only a more valuable crop, but also probability of a better harvest.

In the present season, therefore, the practice may prove a boon, indeed; and at a time when so much injury has already been received by the crop, and when the fickleness of the weather and the backward state of the crops render still further danger imminent, it is on this score alone worthy of all attention.

PRIZE LIST OF THE ENGLISH AGRICULTURAL SOCIETY.

The proceedings of any public body are fairly open to criticism, but those who complain publicly of injudicious management, and suggest alterations, must be prepared to make good their assertions, and show, when called upon so to do, that what they recommend would, if carried into effect, be really an improvement. It was on these grounds, involving the principle of common fairness, that I addressed to you some weeks since a letter, in which I endeavoured to point out that the R. A. Society was not fairly open either to the imputations or objections urged against it by Mr. Twynam, and to the terms of these observations I still adhere. In your Paper of August 16, some remarks are addressed by an "Old Farmer," to the members of the R. A. Society, urging a revision of the list of prizes, and a total change in their mode of distribution, on the ground that at present, to use his own words, an annual sum of 1000*l.*, as at Shrewsbury, disappears, without giving a chance for the working farmer to benefit by it, without, in fact, effecting anything but a removal from the hands of one rich landowner to another.

If this statement were literally correct, the proceedings of the Society would amount to a mere farce; but is it so? Does not your correspondent, in the first place, entirely mistake the great object, to attain which these prizes are offered? Are they not in fact a means to an end? Not mere pecuniary compensations or rewards, but rather the best means, within the reach of a Society so constituted, to carry out such a system of competition, as will test the comparative merits of stock, modes of cultivation, and efficiency of implements in the largest sense, and by raising in each department the standard of excellence, so useful in a national point of view. How far individual members of the agricultural community, be they great or small, will avail themselves of the results produced, must necessarily depend upon their own energies and intelligence.

2dly. Does your correspondent appreciate correctly the legitimate duties of a national Society? Many minor matters, which would form very fit subjects of competition at a district Society, or Farmers' Club, are, from their very nature, excluded from these more extended operations. In that wide field, the practical man, with the best share of intelligence, by the most judicious and liberal application of capital, will meet with most success; and deservedly so. Could a Society of such a nature, with a due regard to the legitimate objects it must endeavour to carry out, by paring down its premiums to the minimum, hope to obtain that amount and quality of information which would be generally useful to all classes of agriculturists. I think not. Again, if we look to the published reports of the Society, we shall find accurate details in those very subjects for which your correspondent proposes, as an alteration, to offer prizes, viz:—the best cultivated farm—due regard being had to size; the rotation of cropping adopted; the most improved system of farm buildings; the best methods of collecting and applying manure; and the greatest number of acres permanently drained at least expense. To obtain the best information on these subjects, amongst many others, and to circulate it in the most generally useful form has been the main objects of the Society in its progress, and by which means it may fairly, I think, be stated to have "done the state some service."

In conclusion, I must beg to state that I offer these observations in a perfectly friendly spirit, simply as a member of that Society to which your correspondent appeals, but as little responsible for, and as entirely unconnected with those in authority in it, as he is himself. As a farmer, on a small scale, I really feel grateful for the means of information afforded to all classes, in the published reports of the Society, in which the recorded failure of experiments, often of an elaborate and expensive character, teaches us what to avoid in practice; and where those who have been successful, instead of hiding their light under a bushel, have, in a liberal spirit, imparted the same means of success to their brother agriculturist.—*A Subscriber and Member of the Royal Agricultural Society.*

APPEARANCE OF THE CROPS.

[By Edward Joseph Lowe, Esq., Highfield House, near Lenton, Nottingham.]

On comparing the appearance of The Crops in England, Scotland, and Wales, I have obtained the following general results, viz:—Wheat is a tolerably good crop, though below an average, owing to the very rainy summer. From personal observations upon this grain in Lancashire, Cheshire, Yorkshire, Derbyshire, Staffordshire, Warwickshire, and in some parts of Nottinghamshire, it is my opinion that the heads of corn that have sprung from each seed are fewer than usual, although the crop of straw is very regular. Owing to the very humid state of the atmosphere for such a lengthened period the quality must be inferior. Oats and Barley appear to be quite an average, although, no doubt, the latter will suffer in quality. Beans will be more than an average, and are very long in the straw. Peas appear to be below the general crop. The Hay crop has been very heavy throughout the whole of Great Britain, but owing to the constant heavy rains much of it has been injured before it could be housed; a considerable quantity is yet out in the fields, as well as some which is not yet cut. Clover crops seem an average. Turnips are, in most places, good, but appear in some localities very late, and in others to have been attacked by the fly. Potatoes promise to be a most abundant crop. In passing through Yorkshire by the north branch of the Midland railway on the 20th inst., I observed that the whole of the low land from Barnsley to Woodhouse Mill, which is a distance of nearly 20 miles, was flooded; and in some places the water was completely over the hedge tops. The floods were only rising when seen, therefore serious damage may be anticipated. In this neighbourhood, on the 19th of this month, rain came down in torrents from 8 o'clock in the morning until 11 o'clock at night; and in the locality east of the Midland railway, near Barnsley, I have been told that many miles of grain are in and under water already. The following are statements from Scotland:—

Fifeshire: *Dunino School, by St. Andrews.*—Wheat looks extremely well, but from the lowness of the temperature and perpetual cloud, is making very little progress towards ripening, in many districts its hue being scarcely changed; it is the general opinion of farmers that its quality will be inferior. Barley in general has a full average appearance, but in some localities it is slightly lodged by heavy showers; its quality and quantity depend upon weather to come. Oats everywhere promise abundance, and have been several weeks in ear; they are reported to be slightly affected by smut: they will be late in the elevated portions of the county. Turnips in general look well, and in spite of the low temperature, and perhaps moisture to excess, promise an abundant crop. Potatoes are for the most part rank and luxuriant, and give good symptoms of turning out well. Hay in general is an average crop over the county, and, notwithstanding the weather, has been secured in good order. The prospect of an abundant crop of everything is around us, and all depends upon the weather in futurity. Mean temp. for July, 1844, 57.03°; ditto for 1845, 55.83°. Rain fallen in July, 1844, 3.04 inches; ditto in 1845, 2.93 inches.—*David Tennant.*

Roxburghshire: *Kelso.*—The crops are generally good with the exception of Oats, which, though not a bad crop, do not appear nearly so bulky in proportion as the others. Hay is excellent, and a heavy crop. Turnips are a magnificent crop everywhere; there is some loss from the disease called "finger and toe," but not to a great extent. Potatoes also look very promising, with very few exceptions. Winter-sown Wheat is heavy and promises to yield well, but the spring sown is very short in the head; it is a fair average-looking crop as to bulk. Barley is a very heavy crop; the heads are not so long, however, as I have seen them, like the spring Wheat; and I may add, there will be some loss because of its having been early lodged with the heavy rains in many parts. The Oats have the appearance of being rather below an average. We have had as yet very little fine weather, consequently there is little appearance as yet of harvest. There will be no general harvest here for three weeks to come, unless the weather improves very much.—*G. Thompson.*——*Deanfoot, near Hawick.*—The Hay and Clover crops are heavy. The weather was rather unfavourable for securing them, but on the whole little damage has been sustained. Turnips look very well. The weather during the time of sowing was almost all that could be wished, having occasionally slight showers, which caused a regular braird. Potatoes also have the appearance of being good. The Wheat crop, with good weather, would be abundant, but as the harvest is likely to be fully two weeks later than usual, and as the weather is still unsettled, the probability of an abundant crop is from these causes materially lessened. Owing to the lateness of the season apprehensions are entertained for the safety of this crop, but there is not at present any indication of more disease than is usual in its present stage. Barley is considered to be the best crop; the lateness of the season is not likely to be so hurtful to this as to the other crops. Oats are also a very good crop. Beans look everywhere luxuriant, and are podded well; but being in some places attacked by myriads of plant lice they will be considerably injured. Peas are very long in the straw, and late, and cannot be a productive crop.—*J. Brodie, jun.*

Dumfriesshire: *Glencæ House.*—The crops generally are good throughout this county. Hay far exceeds an average, and though much is yet in rick, it may be stacked in good order before harvest. Turnips have larger bulbs than for many years I have seen at this date; and although wire-worm has destroyed a few fields and injured others, yet the crop at present promises to exceed that of last year by perhaps one fourth, even including a large breadth sown late. Potatoes promise to be abundant. We have never had a more flattering promise of winter-foods for live stock, and the quantity fed in this county must exceed that of any former year. Barley must exceed last year; Wheat is said to be thinly planted, but otherwise looks well; Oats on poor soils are thin and short in stalk—on early and fertile soils, luxuriant, but smutted to the extent of about five per cent. Before this date last year much of our grain crops were lodged; at present nearly all stand erect, and the warm showery weather of late must have contributed to give us unusually heavy grain. Sunshine has been deficient, and crops scarcely begin to change colour. We may begin harvest two weeks later than last year; on very late soils it may be delayed a month.—*P. Garden.*——*Hillside.*—The temperature of July has been very low for the season. The falls of rain have been moderate, but there has been great lack of sunshine; crops have progressed very slowly. Wheat has scarcely changed its hue; and though there are yet no indications of blight or rust, there is every reason to fear it may fill poorly at this late season. Oats on the colder and higher lands, are not well shot out. The month of August, with heat and sunshine, might, however, yet make good produce in this county, the bulk of all sorts of grain crops appearing to be above an average in straw. Potatoes and Turnips, notwithstanding the cool weather, have progressed beyond expectation; the former show a healthy colour, and on low warm lands a strong straw. Turnips are unusually regular and healthy, though rather late. We only want heat to make both great crops. The Rye-grass hay, got up in tolerable order, is a very bulky crop. The meadows are a great crop; but the broken weather of the last week has much retarded the winning of what is cut, and stopped many farmers in their mowing. We have never had such abundant pasturage for the whole of the three summer months, as in this season; every field, it may be said, yet remaining luxuriant and fresh.—*C. Stewart.*

Wigtownshire.—Owing to the high winds and heavy rains, all heavy crops of Wheat have been beaten down, and on such rust and mildew have made their appearance. A portion of the Barley crops have been beaten down; the great bulk of Oats are standing. Oats are not so weighty on the straw as was anticipated. Barley is the lightest of the grain crops. Beans are improving wonderfully. Rye Grass hay is mostly stacked, and the return above an average, and of fine quality. In the earlier situations, a part of the meadow hay is in stack, but in general that species of crop is only being cut, and the moist state of the weather is very unfavourable to it; the produce is also fully an average. Turnips are doing well. Potatoes in point of straw look very well in general; but it will require more warmth imparted to the soil to produce even a fair crop of tubers.—*Dumfries Herald.*

ENGLAND AND WALES.

Northumberland—*Bewick by Alnwick.*—The hay crop throughout this district generally has been large, particularly the old Grass. It has all suffered from the showery weather which has prevailed since cutting commenced; but chiefly in colour. Considerable quantities are still lying about, and the bulk of the hay is still in the fields; though it is chiefly in large cocks, called pikes, containing about a load. Turnips generally look well, and promise to be a good crop. Potatoes are variable; but there are some very good. Wheat is good, except on thin lands, where it is thin. Most spring Wheat is thin, but well headed. Barley is a very bulky crop, and promises to be a good one, if the rains do not now injure it past recovery. Oats are a great crop—except on cold wet land. Beans and Peas on many good soils are a great crop also. All appear to have suffered from cold north winds, which we had some time ago, wherever exposed to their influence. The late rains have laid all the large crops very much, though there is no injury done yet. The whole of the crops are quite green. The weather has been showery and variable, and there is a greater flood from the overflowing of several of the rivers than has been known for many years, and is now greatly injuring the crops, which are under water.—*J. C. Langlands.*

Cumberland: *Harraby, Carlisle.*—Crops are very favourable, grain as well as green. The hay has been a very abundant crop, and has been almost universally well got in. The grain here looks as well as it possibly can; it is all standing (for we escaped the heavy rains which have fallen in many localities), and promises to yield abundantly. The harvest will, of course, be late this year. I never remember seeing the Potatoes and Turnips looking so well.—*J. Atkinson.*

Westmoreland: *Kirkby Thore.*—Crops of every description here are remarkably full and promising, and only require dry weather with warmth, to secure a most abundant harvest.—*John Crosby.*——*Lazurgh, near Kendal.*—The hay crop which was cut early was light, but those crops cut in July were very abundant, and although we have had very unsettled weather, yet the hay has not suffered much. There were cool intervening winds which were of great benefit to the Wheats, in preventing mildew. Turnips, of which an extraordinary great breadth are sown, promise to be a most abundant crop. The Potato crop is very good. Wheat, Barley, and Oats, an average crop (in this district), but not more.—*W. Eleison.*

Yorkshire: *North Deighton, Wetherby.*—The crops in central Yorkshire are unusually abundant; grain crops are extremely heavy on the ground. The Wheat suffered much by the severity of the winter and the wireworm, but has perfectly recovered, and the plants have tillered in an extraordinary degree, and no "wants" are now seen. Although, however, one evil has been remedied, another has ensued; the same weather which has given us bulk of crop, I am afraid has, by its continuation throughout the blooming season, seriously deteriorated the yield, both in quality and in quantity. Indeed, mildew, rust, blight, &c., have, in my opinion, already affected the yield to the amount of 10 per cent. on the whole Wheat crop. Where crops have branched most, these evils are felt in the greatest degree; and the grain, in these cases, where so many stems depend upon one root, both for chemical and mechanical support, has fed very unevenly, and is much broken down. These are evils to which thin sowing renders us especially liable, however true in principle it may be, that three out of four of the grains usually perish, or become of no use. In fact, were it not that these dangers are peculiarly imminent to the thin planted crop, the wireworm and the slug would be our friends. Although the yield of grain cannot, from these causes, be great in proportion to the weight of straw, it is my firm opinion that should the weather be favourable for harvest operations, we shall have a crop much

above the usual average. The extra bulk will more than make up for the injury which has yet been received. We are yet, however, three weeks from harvest, and much depends on the event, whether sunshine or shower shall predominate until, and during, that period. A week ago prospects were gloomy, we were still in the rainy season, and from week's-end to week's-end we had not been able to catch a gleam of the sun. The atmosphere and our countenances wore the same hue; since then, however, a change has come over the spirit of the scene. Three or four fine days—fine, with the exception of a few heat drops, as they are called in Yorkshire parlance, have made a wonderful difference, both in the appearance of the crops and in farmers' spirits. The Wheat looks brighter than could be expected, and hopes which had almost perished have again revived—this time, I trust, to be realised; for, should we have pretty moderate weather, the improved method of harvesting which is adopted, and the knowledge which has lately become diffused that Wheat is better in quality, and suffers less from change of weather in the field, for being cut in a raw state, will enable us to secure the crop in half the time that was formerly required. To Barley and Oats the same remarks apply as to Wheat; the fields are extremely full—not a failure in a thousand. Tartarian Oats are, generally speaking, backward. Beans and Peas are as great a crop to the eye as could be wished for; even upon thin soils Beans are luxuriant; there are complaints abroad, however, that they are not very full of corn. Perhaps this arises from the fact that the stems are so large that the pods are farther apart. Peas are blooming yet, and require dry weather much. Turnips are uniformly full of plant; I never saw the Swede crop more regular upon the land; the fly has had no power this season. There are very few early crops of white Turnips, and many very late ones, which will not be fit to cut until very late in the season; they look very well, but will perhaps never get larger, but will answer for keeping over the winter; altogether, I consider the Turnip-crop to be a safe and a full one. I have yet seen no symptoms of the grub. The hay crop is the heaviest ever known, being more than double that of last year; one half the crop is more or less injured by the weather; some of the early stacked is too warm, and there are a few fields in this district yet uncleared. After all, there is plenty of good hay to make the article a cheap one.—*John Hannam.*

York.—Hay and Clover—the crop unusually heavy, but equally expensive in making, and much damage generally incurred by its being ill gotten. The meadows adjoining the Derwent and other rivers flooded, and the hay in consequence was wasted. Turnips came up well, and the early sown ones are now very promising; but those which were sown at a later period are surcharged with moisture, have turned yellow, and probably the crop of these will be deficient. Potatoes have been planted to a greater extent than formerly, and were of great promise; but here, again, the heavy rains have done much mischief it is apprehended on the low lands. Wheat heavy upon the ground, and in a more favourable season would have been great, as the ears are large and well filled; but it is much laid, and great damage was sustained by the wet weather of last week; very little is cut, none ripe, and an average yield can scarcely be hoped for. Barley is perhaps the best and most favoured crop this year. Oats good, but as yet in general very green, and in colder districts many acres can never ripen.——*Cooperbridge.*—All grain crops here are good, especially Wheat and Beans; Oats are very nearly ready to cut.—*E. J. Lowe.*——*Wakefield.*—Wheat is good and nearly ready to cut. Barley and Oats are likewise very good and nearly ready. Turnips and Beans are very promising. Potatoes do not look very well; and some fields of hay are still to be housed.—*E. J. Lowe.*——*Barnsley.*—Barley, very good; Wheat, good; Turnips, very late. All low lands here are under water, from the immense rain which has fallen.—*E. J. Lowe.*——*Doncaster.*—The corn crops in this neighbourhood exhibit a rich green appearance, and unless we have a succession of fine hot weather, there will be a tendency to mildew. At present they look remarkably well, and a few hot days would make a material change in the colour of the grain.—*Doncaster Chronicle.*

Lancashire: *Chaigelcy Manor, near Clitheroe.*—The hay crop is generally speaking good, almost two-thirds being well housed, and about a sixth suffering by the rain, and the remainder still to be cut. Clover is a good crop. Turnips are going on favourably. Potato crops are better than usual in this neighbourhood. Beans are very strong and tall. Wheat, a fair average. Oats and Barley, good; Tares, good. Since the 30th of July, it has rained every day.—*W. Winstanley.*——*Longridge.*—Much hay has yet to be housed, and indeed much yet to be cut. Oats are the most promising and prevailing crop. Potatoes are good, and so are Wheat and Turnips.—*E. J. Lowe.*——*Preston.*—All grain crops are very promising; much hay has yet to be got in.—*E. J. Lowe.*——*Bolton-le-Moors.*—All crops in this county are considered very good; that is, abundant, but sun is much wanted to ripen them.—*H. K. Watson.*

Lincolnshire: *Boston.*—Hay a large crop, but much spoiled; Clover a good crop, and all housed; Turnips, good; Potatoes, plentiful, except where damaged by the wet; Wheat said to be damaged partially by the heavy rain; scarcely any Barley grown in this neighbourhood, but where it is grown in this county I understand it is very good; Oats damaged by the wet; Beans, a good crop. Harvest scarcely begun in this neighbourhood; nearly 3¾ inches of rain fallen since July 31.—*S. Veall.*

Nottinghamshire: *Ruddington Grange.*—The Wheat crop cannot reach an average in quantity, and will fall very short in quality; the Barley will be an average crop, but the worst in quality I have known for 20 years; Beans are the most promising crop of the year; Peas have too much straw, and little corn; Oats bear this cold, wet season well, and the small breadth sown in this district are a fair crop; the produce of meadow-hay has been unusually great, but a considerable part has been injured by the rain; Turnips look well, as do Mangold Wurzel, Potatoes, and the second crops of Clover promise to be better than the first.—*C. Paget.*——*Chilwell.*—The present appearance of the coming harvest in the parishes of Chilwell and Attenborough is decidedly in favour of the farmer; the hay crop was invariably good, three-fourths stacked without damage; about one-fourth spoiled grain, or stacking before being ready. The Clover, a heavy crop, almost entirely got well; Turnips looking exceedingly well, with the exception of one field of Swedes, which is nearly destroyed with what the farmer calls the wire-worm; the latest sown ones have rather a starved appearance, which no doubt a few warm days would restore to health. The tops of Potatoes, particularly those on strong ground, look well, but I fear when they are got up the roots will be found watery. Wheat very much beaten down with the rains, plenty of straw, the head in some cases light. Barley good and bold in the corn. I counted in one field many heads with 26 to 28 corns on each, and one with 30. Oats will be found above an average both in straw and corn; there are several fields in Chilwell with full heavy heads, standing perfectly erect, from 5 to 6 feet on the straw.—*A. Burson.*——*Highfield House, Lenton.*—The hay-crop has been much above an average, and, considering the very rainy weather we had during the period it was being cut, it was tolerably well housed. The Barley-crop is very heavy, but in some instances has been laid, and fresh buds, &c., have sprung through; the quality must be inferior. Wheat and Oats are both tolerable crops, the latter the best; both are well off for straw. Turnips look extremely well, and many crops are very forward; Potatoes promise well. Harvest has commenced here.—*E. J. Lowe.*——*Morton Grange, East Retford.*—The hay-crop has been abundant; much is secured, but not in the best condition. A considerable quantity is yet abroad, and a small portion not yet cut. The Clover upon the light soils, in consequence of the dry season of 1844, is almost a failure, which will in a great measure be supplied by Tares, and other substitutes, such as Oats and Rye, for chopping; upon the better deep soils there are a few fair crops. The Turnips have hitherto progressed well, with some exceptions, where the wire-worm has made its appearance and done considerable injury; the rainy weather prevents either the hand or horse-hoeing being effectually performed, which will probably affect the crop. Potatoes upon my light soil are, so far, good in quality, and yield well. The Wheat, I regret to say, appears to be suffering from the continued wet weather, and is partially affected with mildew; there are also, in several instances, blighted ears prematurely ripe. Barley is generally a good crop, and, upon all well-managed soils, is very much lodged, and must inevitably sustain considerable damage. Oats, which are not much cultivated in this neighbourhood, are a great crop. I consider the corn crops generally good, and if well secured would be a full average; though I do not think that, under any circumstances, Wheat will equal last years' produce either in quantity or quality.—*R. Hodgkinson.*

Derbyshire: *Chesterfield.* — Wheat, an average; Oats, a good crop; much hay out in the fields; several good fields of Clover yet standing; Turnips, a fair crop. —*E. J. Lowe.*

Rutland: *Empingham.*—The crop of Grass is much greater than in any year since 1839, but the weather being showery a considerable portion of the hay is badly got, and much still remains abroad; Clover is very bad, and in a majority of instances a complete failure; and hence, a great breadth of land was ploughed in the spring and sown with pulse crops. Early sown Turnips look well, but many fields have been much injured by insects, especially earwigs. Wheat, Barley, Oats, Beans, Peas, and Tares are very good, although Wheat and Barley have been somewhat injured by blight, and Beans and Peas by the fly; but, notwithstanding, there is every appearance of all kinds of grain producing quite if not more than an average quantity. The depth of rain fallen here during the growing months (April, May, June, and July) was 8·36 inches; a quantity nothing extraordinary when compared with that of some former years.—*W. Fancourt.*

Leicestershire: *Castle Donnington.*—We have had very rainy weather from the middle of June. Harvest will be late. Exceedingly heavy crop of hay; very little well got; much is now out, mown three weeks ago, and is injured by the continued and very heavy rain; and a large quantity is not yet mown. Wheat: about half the crops are thick and half thin; where the crop is thick the heavy rain has thrown it down, and the ear will not fill: the crop whether thick or thin will not yield an average. Barley and Oats: full crops, not much injured by the rain. In two places the mowing of Oats is begun. Peas and Beans, favourable at present.—*K. Swann.*

Cheshire: *Baddiley Cottage, near Nantwich.*—Since 2d of August a most unfavourable change in the prospect of the crops has taken place, owing to the continued heavy rains. At the commencement of the present month the farming crops of all kinds promised an abundant produce, more especially the hay crop, which in quantity I never knew exceeded. There is, however, unfortunately, at least one-third still abroad and greatly injured; still the fine fortnight of weather at the latter end of last month, doubtless afforded opportunities of housing more hay than the whole of the crops of last year; and had it not been for the generally insecure state of the hay-ricks at the time of the change of the weather, the farmers would, notwithstanding the quantities now abroad, have secured an average crop of good quality and in excellent condition. A precarious hay harvest in Cheshire, I think, is attended with as great a loss, from want of hay shed or covering, as, most probably, any other county—from the fact that very few have availed themselves of the many recent inventions for the protection of produce; consequently, there are at the present time thousands of hay-ricks that have been got together in good condition, but have since been exposed to the incessant rains for nearly a fortnight, at full breadth, waiting to be made up with the portion out, and in those cases the damage sustained by the rick is equivalent to the loss of that abroad. How much anxiety would have been prevented, and benefit derived, had each farmer in this locality been in possession of a felt or other covering, which, besides the protection it would have afforded, would have remunerated the purchaser for the outlay in a short time, by the saving of thatch. I have no doubt that this subject will, in future, be more regarded by the farmer; for at no season has the want of covering been more manifested. As regards the Wheat-crops, there is more than an average in bulk, but, I am afraid, of indifferent quality as to grain. This is not a corn-growing county, and consequently a great portion in this locality is after green crops; in this case the ears of corn are exceedingly ill-fed, and the crops (wearing an unhealthy appearance) are much laid, ripening very irregularly, and the harvest will be unusually late. At the time at which I write I have not seen any cut. Serious apprehensions are now entertained by the farmers, both as to the quality of the yield, and the improbability of housing it in good condition. The fallow Wheats on poor clay soils are decidedly the most promising. They still stand well, and the crop bears a more healthy appearance; should a favourable change immediately take place in the weather, there would be hopes of obtaining an average crop upon clay soils. The red gum and smut have, however, partially made their appearance in the latter. The high winds at the time the Wheat was in blossom might have had an injurious effect to some extent. The second Clover crop is not yet cut. The late rains appear to have injured the root, and the crop will be deficient. A few weeks ago the Turnips and Potatoes were very promising, but during the last fortnight the rot has begun in Potatoes; and Turnips, more particularly on cold wet soils, are already fading from superabundance of moisture. As to the failure of Potatoes generally, it is still uncertain. The summer fallow is so wet that fears are entertained as to whether it will be dry in time to be got ready for the grain being sown. I sowed Bedman's Imperial Pea on a strong poor field of mine, instead of fallowing. I sowed them on the 1st of April, with a drill, and afterwards hoed them. The field is about three statute acres. I sold the Peas green; its produce was 800 bushels in the pod. Barley is very little grown in Cheshire, the district not being well adapted for it. The portions grown this year are heavy crops, but very much laid, and will soon suffer from the wet. Oats are the best grain; they are very good, and getting ripe fast. We have had four days of incessant rain, and it now comes down in torrents.—*R. Owen, August* 21.

(*To be continued.*)

RELATIVE PRODUCTIVENESS OF WHEAT AND FLAX.

I beg to offer a few observations on a statement on this subject that lately appeared in your Paper, and which was, in my opinion, calculated to frighten persons unacquainted with the cultivation of Flax from ever trying the experiment. The writer has certainly been driven to unnecessary expenses from his inexperince, and perhaps from the same cause he had not even half a crop on the ground, or hill-side (it could be only ploughed down hill), which he selected for his experiments. Flax seed was sown on a steep hill containing 11 English acres; this ground was 200 feet above the level of the sea; the shelter was "injurious;" the crop suffered damage from game—the amount of it should have been stated; "it was always considered good Flax land;" the writer says that until this year he had "no experience of the growth or management of the Flax crop;" the ground, he says, was some years in Grass, and then in Oats, but was ploughed all down hill (I suppose this was the only possible mode of doing it), and planted in Potatoes and Turnips in 1843, and in April 1844 sown in Flax—4 bushels to the acre" (nearly one too much). "The Flax when growing looked remarkably well on that part of the field which had been in Potatoes; and that which grew on the Turnip—with the exception of the ridges on which Turnips had been grown with guano, and on which the Flax was miserable—had the appearance of being a fair crop, though not so good as that which grew on the Potato-land."

We are here again in ignorance; we cannot form an idea of what quantity of land he had in Potatoes, on which he says he had good Flax, or what quantity he had in Turnip-ground, or on the guano, which he describes as "miserable;" and from the result we cannot but conclude that there was deficiency in the manure, as well as error of judgment in selecting ground so ele-

vated for the experiment of Flax culture. The result has been a failure; he had scarce half a crop off 11 English acres—he had only 306 stones of Flax, or about 28 stones to the acre, in place of from 50 to 70 stones, no uncommon crop. And what has Mr. Filgate done with the seed, which is in itself little inferior to a crop of Wheat? Even with his half crop of fibre, he should have 15 bushels to the acre of seed, or 165 bushels, at 6*s.* 3*d.*, value 51*l.* 11*s.* 3*d.*, which should go to increase his profits.

I certainly think Mr. Filgate is unjust in his comparison of a Flax crop, thus grown, with the 2A. 2R. 30P. field of Wheat, which had the benefit of being manured for Potatoes in 1841, yielding a crop of Oats in 1842, and manured again for Potatoes in 1843. I am glad to see that he admits his inexperience in the growth and management of the plant, as the experiment having proved so great a failure, if the report of it had come from a man of experience in Flax culture, it would have been very disheartening. However, I observe he "intends to continue an account of the profits of the Flax and Wheat crop this season," and I shall look forward with anxiety for the results. I would advise him to ask the Belfast Society what should be the cost of managing 11 acres of Flax from the time sown until ready for the mill.

I consider the expenses he has incurred are extraordinary. Let me select a few items:—

Men Making Drains	£1 10 0	
,, Cutting Sods	2 3 6	
,, Filling Sods	0 10 6	
,, Drawing	0 15 0	
		£4 19 0
Drawing Water to Grass		3 12 0
Steward's Expenses		2 15 0
Extra Seed, more than required		5 12 6
Overcharge in Drawing from Mill		0 10 0
		£17 8 6

If the first four items, 4*l.* 19*s.*, be charged, then also should the Wheat be charged with the expense of a thrashing-machine, winnowing-machine, riddles, rakes, sacks, &c., for surely the pit, of which these items are the expense, will last many years.

Drawing water to Grass, 3*l.* 12*s.*, is a useless and unnecessary expense, and such as is not at all practised; and I cannot understand how the Flax should be charged with the steward's expenses, for the owners of Flax mills may surely be trusted to scutch a couple of tons of Flax as well as corn millers to grind a couple of tons of corn, without being overlooked.

Mr. Filgate's expenses have been 17*l.* 8*s.* 6*d.* more than enough. 5*l.* 10*s.* per acre should have left the produce of his 11 acres in the market, rent, ploughing, &c. not being included.

I am glad to find that there is such improvement in Wheat-growing in Ireland. I can recollect some years ago I considered 25 cwt. of white Wheat to the acre on town parks at Armagh, for which I paid 4*l.* 4*s.* per acre, a very abundant crop, and that, at 11*s.*, would only make 13*l.* 15*s.*; and I may call upon him to examine the reports of other people's experience in Flax-growing, as given by me in former letters, and he will find that his account is a comparison of a most extraordinary crop of Wheat with but half a crop of Flax, so that he need not be surprised at its results; and as regards the saving of the seed, I have samples of Flax at present from gentlemen that grew it last year in Norfolk, Essex, Suffolk, and Scotland, equal to the best Dutch or Belgian, and they declare that they have had from 29 to 32 bushels of seed per acre. I beg to ask Mr. Filgate if he thinks that had he sown with Wheat 1 acre of the ground where he had but 35 stone of Flax, he would have harvested 35 cwt. of Wheat off it? only under such circumstances would the trial have been fair. But I will quote another experiment to show that the trial was *not* fair, by proving that he had little better than half a crop of Flax. The Rev. G. H. Ash, Glebe Ballaghy, in writing on the 14th of February to the Secretary of the Belfast Flax Improvement Society, tells him of the success of his first experiment, and says, "I sowed 53 pecks of seed on 3 acres and 3 roods of ground, Irish measure, and I have had 236 stone of 16 lbs., or, in Armagh market stones, 266½. I have 2 sacks, grown from the same seed, saved for my own sowing; and I have 2 tons of Linseed Meal, which saves me purchasing bran." Here is the first experiment of a gentleman unacquainted with Flax cultivation: he sows 13¼ bushels on about 5 English acres, and has 266½ stones, or 53¼ stones to the acre; 2 sacks of seed; and 2 tons of meal; while Mr. Filgate has only, on 11 English acres, 306 stones, and compares this with an over-abundant crop of Wheat, such as is very rarely experienced.

From this statement it is evident that if Mr. Filgate had been able to produce a good crop of Flax, he would have had, on 11 acres, 585½ stones of fibre—at 9*s.* 6*d.*, 278*l.* 4*s.* 3*d.*; and giving him credit for only 24 bushels per acre of seed, he would have also had

264 bushels at 6*s.* 3*d.*		£ 82 10 0
Total value of crop		360 14 3
Deduct expenses, 11 acres, at 5*l.* 10*s.*		60 10 0
Profit		£300 4 3

Mr. Filgate grew an *enormous* crop of Wheat, and should have compared it with a great crop of Flax. He has not done so, but I have done it for him; and I leave your readers to study the comparison I have drawn.—*J. H. Dickson*, 6, *De Beauvoir Square.*

ON THE MANUFACTURE OF DRAINING-TILES.

[The following paper was read on the 4th inst. before the Stewpony Farmers' Club, by Mr. Maughan. We have abridged it from the *Wolverhampton Chronicle*].

Construction of the Kiln and Tile-shed. — On the economical construction of our tile yards, on the cheap production of our pipes and tiles, and on the consequent reduction of the cost of draining, depend the employment of many thousands of our labourers, many thousands of capital, and the creation of many millions of national wealth.

There are two aspects in which the term economical is to be viewed. It will be undoubted economy in the construction of a kiln intended for a sale yard, and where fuel is dear, and where a considerable business is to be carried on, to incur the expense of the most improved plans of construction; but it will be a very questionable economy to adopt an expensive plan of construction where fuel is extremely cheap and the kiln is to be used for a temporary purpose, or for a very small trade, or for a small private consumption of the goods to be produced.

The kilns in general use in our own district are the round kilns or ovens, and the oblong kilns, various in length and breadth—some of them arched over at the top, and some of them open at the top. I find, amongst practical brick-makers, that their opinions vary as to the comparative merits of these modes of construction. The round kilns are said to be "quickest;" that is, they raise a higher degree of heat, and burn in less time. They are, however, on that account said to be unsuited for the burning of some particular qualities of clay.

The number of bricks required in the construction of an oblong kiln of any given capacity varies with the strength of the side walls and the general substantialness of the structure; but, as a rule of general application, it may, I apprehend, be laid down that it will require 10,000 bricks to construct a kiln calculated to burn 10,000 bricks, and that it will require 17,000 or 18,000 bricks to construct a kiln calculated to burn 20,000 bricks, and about 25,000 bricks to construct a kiln calculated to burn 30,000 bricks, and so on. The small kiln requires ends as well as the larger ones, and hence the difference in the proportion of bricks required in their construction. If any one desires to know the cost of a well-made brick kiln, adapted for the burning of any given number of bricks, if he adds for the brick-laying 6*s.* or 7*s.* per 1000 to the cost of the bricks as required by the foregoing general rule, he will arrive at an approximation to the outlay to be incurred on that head.

As regards the mortar for the kiln, lime should not be used in the inner part of the walling. Some persons use mortar made of soil only, throughout the walls inside and outside. It is, however, considered best to use mortar to the courses laid outside. The action of the fire cements the soil used for mortar inside, and runs it and the bricks into one compact surface. The escape of the heat through the walls is thereby materially prevented. But the use of lime in the outside courses and buttresses adds to the strength and durability of the structure. Of course, in situations where suitable stone is near at hand, a kiln may sometimes be most substantially constructed at a less cost than if made entirely with bricks.

In the fifth volume of the "Journal of the Agricultural Society," Thomas Law Hodges, Esq., of Hemsted, near Cranbrook, in Kent, states that his neighbour, the late Mr. Hatcher (the inventor of the valuable tile machine that bears his name) had devised a method of constructing a kiln of considerable durability for the sum of 5*l.* He thus describes the construction of the kiln:—"The form of the clay kiln is circular, 11 feet in diameter, and 7 feet high. It is wholly built of damp earth, rammed firmly together, and plastered inside and out with loam. The earth to form the walls is dug round the base, leaving a circular trench about 4 feet wide and as many deep, into which the fire holes of the kiln open. If wood be the fuel used, three fire holes are sufficient; if coal, four will be needed. About 1200 common bricks are wanted to build these fire holes and flues; if coal is used rather fewer bricks will be wanted, but then some iron bars are necessary—six bars to each fire hole. The earthen walls are 4 feet thick at the floor of the kiln; are 7 feet high, and tapering to the thickness of 2 feet at the top; this will determine the slope of the exterior face of the kiln. The inside of the wall is carried up perpendicularly, and the loam plastering inside becomes, after the first burning, like a brick wall. The kiln may be safely erected in March, or whenever the danger of injury from frost is over. After the summer use of it it must be protected by faggots or litter against the wet and the frost of winter." I have not had an opportunity of seeing any kilns of this construction, but it is likely enough that a kiln so constructed may answer a temporary purpose extremely well, and that with one of the best of the pipe making machines of the present day, at a cost of 15 guineas, and a few thatched hurdles, or, better still, some lightly constructed frames covered with the patent asphalted felt, for roofing, at one penny per square foot, made by M'Neill, of No. 44, Finsbury Circus, or by Mr. Croggon, of No. 2, Ingram Court, Fenchurch-street, London, the establishment of a tilery is practicable, at a very small cost—a tilery, too, capable of producing many more pipes and tiles in a season than many gentlemen are disposed to incur the cost of burying. Mr. Hodges says a kiln of the dimensions described will enable a pipe maker to turn out 705,000 1-inch pipes in the course of the summer, 487,000 1¼-inch, or 300,000 of 1½-inch diameter.

The right construction of the kiln (especially where fuel is dear) is a matter of considerable importance. Making all due allowance for the difference in coals and the difference in clays, I have been astonished at the discrepancies in the statements of practical brick-makers in regard to the quantity of fuel required for the burning of 1000 bricks. Some idea may be formed of those discrepancies when I state that whilst some brick-makers boast of being able to burn 1000 bricks with 4 cwt. or 5 cwt. of coal, there are others who state that it cannot be effected with less than 12 cwt. or 13 cwt. and that in some cases it will require 18 or 20 cwt. It appears that there is a great deal depending upon the quality of the coal, a geat deal upon the nature of the clay, very great deal upon the attention and judicious feeding and management of the burner, and no doubt there is a good deal depending upon the construction of the kilns. I have not had opportunity of instituting any experiments on these subjects. But I may mention, as suggestion for experiment, that, at a place called the Cape, about a mile from Warwick, there are two kilns constructed upon the plan of Mr. Etheredge (where is also to be seen in operation one of his pipe and tile machines driven by horse power). Almost side by side with those kilns, and burning clay of the same quality precisely, there is a kiln upon the old plan of construction.

The manager of this kiln, and of the yard to which it belongs, appears to entertain the most perfect contempt for all the new devices employed at the rival establishment, and I have no doubt he would be ready to back his old kiln and his own skill against the modern structures and science of the adjoining yard. It is probable (with the consent of the proprietors) that a small sum of money to be disbursed amongst the men, and to defray, during the experiment, the expenses of a competent superintendence, would enable the public, after two or three trials of skill, that is to say, after two or three burnings, to appreciate the advantages of Mr. Etheredge's plan of constructing his kilns.

This experiment, or one similar to it, would certainly be desirable; and it is, I should say, almost due to the members of the Royal Agricultural Society, because to Mr. Etheredge has lately been awarded the Society's prize of 20*l.* offered in 1844 for "The best essay on the cheapest and best method of establishing a tile yard." I do not happen to know how or in what manner the council of the Society give the members and the public the benefit of their prize essays. Upon inquiry recently made, I found Mr. Etheredge's essay was not published, and I, moreover, rather understood that it was not intended to publish it. I believe the practice of the Highland and Agricultural Society of Scotland is to print and publish all their prize essays; and it appears rather odd that the Royal Agricultural Society of England should award prizes of 20*l.* for essays, and not deem them of sufficient importance to be afterwards printed, and made available, at least, to the members of the Society, if not to the public at large.

Next as regards the tile sheds, and the best and most economical plan of construction. Where permanency is aimed at, and where a business of some extent is to be carried on, an amount of expenditure made in the erection of a good shed would be justifiable, which would not be so in a case where the shed was intended for a temporary service only, or for a very small manufacture.

Mr. Law Hodges, in the article before referred to, states the expense of a tilery thus:—

Hatcher's machine for pipes or tiles	£25
Pug Mill	10
Kiln	5
Straw for shed (exclusive of hurdles, as they can be used for sheep folding in the winter)	10
Total	£50

Or the matter may be presented thus:—

Beart's machine for pipes or tiles	£15 15 0	
Pug Mill	10 0 0	
Kiln	5 0 0	
A shed of M'Neill's construction, with 1000 feet of his asphalted felt roofing, or that of Mr. Croggon (see M'Neill's estimate at page 15 of the catalogue of implements at Shrewsbury in July, 1845), and see what Mr. Croggon says at page 61	19 19 1	
Total		£50 14 1

There are, however, besides the foregoing, many little matters to be thought of. The brick ground is to be formed, soil to be removed, a roadway to the tilery made, drying shelves to receive the tiles to be fixed, a hut for the brick-makers to shelter in, or, perhaps, for one of them to live in, or, at all events, a lock-up for the machine and dies, and other small matters to be provided. Hence, if we do not desire to deceive ourselves, the proper way to deal with the foregoing estimates will be to double them.

In a debate upon draining at the Cardiff Farmers' Club, in February or March last, Mr. Fothergill, one of the members, furnished an account, from actual expenditure, of the cost of making his own tilery, and it stood thus:—

Sheds capable of containing 11,000 tiles	£105	0 0
Kiln, to hold 12,000 tiles	85	0 0
A cast iron mill	13	0 0
A Tweeddale patent tile machine	40	0 0
License	2	12 6
Incidentals	10	0 0
	255	12 6

I have estimated the probable cost of a small snug tilery, very fairly constructed, situate near Holly Hall, near Dudley. There are two kilns, one to contain 10,000 bricks, the other 15,000. The kilns are oblong, and arched at the top. The shed is 70 ft. by 15 ft., and contains flues and shelves, made of four strips or laths, 2 inches broad, placed 2½ inches apart, to admit of a free circulation of air amongst the pipes; and that, I consider, is the best plan for the shelves.

he estimate stands thus :—

The two kilns	£80	0	0
The shed and shelves and flues, &c.	80	0	0
The rollers to grind the clay, and setting the same	30	0	0
The forming of the road	10	0	0
Levelling, draining, and incidentals	20	0	0
	220	0	0

dd for a pipe and tile machine from 20*l.* to 30*l.*

do not happen to know how many pipes or tiles of given size the kilns will contain. Bricks are always nt with the tiles and pipes there, and no accurate culation has been made of the number of pipes they ld contain. No doubt the tilery would turn out in year 200,000 or 300,000 bricks, and as many pipes iles.

(To be continued.)

Home Correspondence.

The Use of Saltpetre in Curing Bacon.—I observe t both receipts lately recommended for this purpose correspondents advise the use of saltpetre, and I be- e in almost all receipts for curing meat this salt is ays mixed with other ingredients. I had, however, de a memorandum respecting the use of this salt, ich is very strongly condemned by Professor Re- sque in your *Gazette* of the 22d February last; his ory is that the nitric acid of the salt is a deadly son, and that the diseases common to mariners are ng to the use of this salt in the brine. He advises entire disuse, and recommends sugar, which renders meat more wholesome, sweeter, and equally as able. It appears to me, therefore, that it would a very fitting time to have this subject better un- stood; and if other chemical professors will turn their ention to this important matter, it would confer enefit upon all who are engaged in pickling meat.— ere is another subject to which I would wish to draw r attention. From the great bulk of our root crops, ch damage and great inconvenience often arises in r preservation through the winter. This great k, however, arises from the large proportion of water, ch is one of the chief elements of which the roots composed, and which often occasions fermentation decay, Would it not be possible to rasp all the ts (I remember seeing a machine which effected this n a large scale, and in a very short time), and after- ds evaporate all the water; the residue would then reduced to a small compass, and easily preserved in ry place. Would this residue be equally nutritious hout the water? Our Potato farina (or English ow-root) is, I believe, made in this way, and is use- y applied in various ways.—*Inquirer, Banwell.*

The Distemper.—I should be glad if any of your ders could afford information as to the cause of the emper which has this summer prevailed amongst beasts and sheep in several parts of England. Last r we did not have it, but this, and the years 1840, 1, 1842, and 1843, it raged fearfully. No stock that ve heard of have died from it, but the beasts and ep are greatly reduced in condition, especially the s and lambs, and the milk of the former is almost en- ly taken away during summer; and this at a period n both should be improving. It attacks them first he feet, when the fetlock joint becomes greatly en- ed, the feet ulcerated, and they (both beasts and ep) lose generally their clees. I may observe that feet only of sheep are affected. The beasts are affected by blisters and ulcers in the mouth, and ble to take nourishment. There is a report of Pro- or Sewell's on this epidemic, in the 2d vol. of the ricultural Journal," but it affords little knowledge as he cause of this new disease, or any particular mode eatment to effect a cure.—*A Country Gentleman.*

Farmers' Clubs, Berkshire.—It has often astonished that Berkshire, so professedly an agricultural county, ld not possess itself of the advantages of farmers' s. Literary societies and mechanics' institutions e latterly sprung up for the purpose of disseminating n education as is found advantageous to the callings ose classes; but nothing yet has been done to meet professional wants of the farmer. Why is this? Is cause the driving of a quill or the retailing of cot- , or the mechanical operations of the workshop, re- e a greater degree of knowledge than that necessary bringing a sterile soil into cultivation; or is it be- e that writings or dresses, pots or kettles, are of ter consequence than our daily food? No, but ly because other classes now see the necessity for ducation suitable to their several employments, h the farmers of Berkshire apparently cannot yet

Almost every county excepting this boasts of its ers' clubs in some shape or other. Many facts are ese means brought to light, which would otherwise st; the best mode of effecting any particular opera- in agriculture is thus collected from a fair and full ssion of the subject, and from the expressed ions of many results, of the greatest importance to nexperienced, are made known. Other advantages arise from these clubs—libraries of the best and st works on agriculture and the sciences as appli- to agriculture are opened; lecturers are engaged ve information upon the most improved methods of ulture—all which could not be obtained without a greater expense than a single individual could, aps, well afford. We hope soon to see measures set ot for the formation of farmers' clubs in or near market-town in Berkshire.—*H.*

Disease in the Wheat Crop.—Almost every Wheat in this neighbourhood is infested with a parasite has not before come under my notice, and which must, I think, be injurious to the grain. It makes its appearance at first under the form of little discoloured depressed spots on the knots of the stem, especially the upper one; these soon spread till they infest the whole knot and utterly prevent any further circulation through the sheath, sometimes indeed causing the sheath to separate at the base. I do not find that it extends into the straw, but as in the latter stage of growth the perfect maturation of the seed must depend in some measure on the circulation through the knot, the grain can scarcely fail to suffer more or less. If the spots which are much depressed, and of a pale fawn colour, are examined under the microscope, they will be found to be studded with a number of minute somewhat raised dots, which are at first reddish, but eventually black. Each is perforated with an extremely minute aperture, and is filled with a multitude of oblong very slightly curved or irregular spores, which contain a row of minute globules. The parasite is a species of the genus Depazea or Septoria, for they are synonymous, and is undescribed. I therefore beg to propose for it the name of Depazea nodorum, which may be characterised "Spots pale fawn coloured with a dark border, depressed at length confluent; perithecia slightly prominent; spores oblong, very slightly curved, or irregular, containing a row of granules." Its nearest ally is (Depazea pallor, Berk. in Ann. of Nat. Hist. vol. 6,) a species which grows in the autumn on the long almost mature shoots of brambles. In external appearance, indeed, it very closely resembles a species which forms little concave spots in the pods of Peas, and is in wet seasons extremely destructive, but the spores in that species are of a totally different form. On the same stem with the Depazea the common mildew occurs in every stage of growth, and from an examination of various specimens, I am convinced that Professor Henslow was quite right in his notion that rust and mildew are but different states of the same thing, and that there is no real difference between Uredo rubigo-vera and Uredo linearis. In the same spot every stage of transition from the two supposed species to the true mildew may be traced. I fear that mildew will be extremely prevalent amongst the later Wheat. Nothing can be worse than the specimen I enclose with some of the diseased joints.—*M. J. B., King's Cliffe, August* 25.

Wheat Sowing—Newberry's Dibble.—Your correspondent "G. U." who writes an article headed "Hand versus Machines," assumes two things respecting the horse dibbler which gained the prize at Shrewsbury, viz., that a dibbler which costs 60*l.* must be very heavy, or very intricate, or both. In reply to these assumptions, I beg to say that, as to the weight of the machine it has not been found too heavy for any but heavy lands (and even on this the one-rowed machine is perfectly available); on the contrary, its weight has been proved to be one of its most valuable properties, and as to being very intricate, this can be denied *in toto*, as a more simple machine in its different movements could scarcely be conceived. I mean not to enter into any discussion on the merits of hand dibbling, though I suppose the merits of that method which gained its ends with the most advantageous results to the farmer will have the preference. Having purchased one of these horse dibblers of Mr. Newberry, I will make a simple statement of facts respecting it. My farm consists of about 180 acres, useful Turnip soil, of which 140 acres are arable. I bought a four-rowed machine last autumn, which cost me 50*l.* I dibbled 30 acres of Wheat, with from 1 to 2 bushels per acre, 3 bushels per acre being my usual quantity, the price of Wheat being then 6*s.* 2*d.* per bushel; my saving in seed amounted to 12*l.* 12*s.* I let the machine for hire at 3*s.* per acre. I planted 233 acres, which amounted to 34*l.* 19*s.* and by Christmas I found my account with the machine to stand as follows :—

By saving of seed	£12	12*s.*	0*d.*
By work for hire, deducting man	31	7	0
Total	43	19	0

I ought to have mentioned the saving of labour, which was also considerable, the land only requiring to be ploughed previous to dibbling, and harrowing afterwards. In the spring I dibbled 5 acres Barley, as an experiment, with 2½ bushels per acre, and I only regret that I did not dibble more. I also tried Vetches, for which it answers quite as well. From the present appearance of my crops, I estimate that I shall have from 30 to 40 bushels per acre Wheat, and 6 quarters Barley. The average number of stalks from each root is about 30, having counted on many the extraordinary number of 60. This I attribute in part to the pressure which the machine gives to the land, which I consider of incalculable benefit to it. With these facts before me, I think I have every reason to be satisfied with my bargain, as independent of all I have my machine as good as ever to do the same again for me.—*A Farmer.*

Poultry.—Can you give me any information as to a disease with which some of my fowls are affected, and which I do not find mentioned in any work on Poultry? The feathers seem to have been eaten up to the quills, and so great is the irritation of the skin, that in many instances they have torn their flesh in a shocking manner to gain relief. I was at first in hopes that it might merely be that they were moulting, but I find that is not the case. Thinking it might be vermin, I have used a strong decoction of tobacco, without any beneficial results. They are otherwise in good health, laying frequently, and eating heartily. Their house is airy and white-washed, and they have also plenty of fresh water in their yard.—*A Constant Reader.*

Fences.—At p. 568, a "Villager," referring to my Essay on Fences, is desirous of ascertaining whether I am right in recommending weak Hawthorn plants to be placed closer to each other than strong ones. There can be little doubt, I presume, of the soundness of such a direction. If a "Villager" can procure stout plants about the size of a man's finger, he will do well to plant such in preference to any other; and if he can get such as have been removed in the nursery during last season, which will be provided with bushy roots, he may place them at a foot apart, and reckon on having a strong fence in three or four years. I would strongly recommend him to discard the hedge-shears, and use a hedge-hook instead. The plants should be sorted as recommended, in the 17th paragraph of the Prize Essay.—*James Grigor, Norwich.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

At the weekly meeting of Council, Aug. 14, the Secretary stated that he had attended the meeting of the Yorkshire Agricultural Society, at Beverley, where he had been most successful in inducing many of the leading exhibitors of stock and implements to send to Ballinasloe on the 30th of September next. Nothing could be more gratifying than his reception on that occasion. From all that he had seen he was convinced that there would be a great attendance of strangers at the show, as nothing could equal the anxiety all parties displayed to receive information on the subject. The Secretary stated that Monday, the 1st of September, would be the last day for receiving the essays for Mr. Lambert Disney's premium for the best mode of ameliorating the condition of the labouring classes in Ireland. Wednesday, the 10th of September, is the last day for serving notices of entry for the cattle show at Ballinasloe, and no applications can be received after that, as the interval between that and the show will be occupied in preparing the catalogue and making the necessary arrangements for the stock previously entered. From the arrangements entered into with the Grand Canal Company, it was also requested that all the implements going to the show should be dispatched from Dublin on or before Tuesday, the 23d of September, in order that they may be in time for the trial of implements that would take place previous to the show.

FLAX IMPROVEMENT SOCIETY.

On the 13th instant, the monthly meeting was held in Belfast, S. K. Mulholland, Esq., in the chair. The Treasurer's report showed an addition to the funds, since last meeting, of 106*l.* Among the correspondence was a letter from "Hermann von Bielke," of Bau, near Flensburg (Duchy of Schleswig), from which we give the following extract :—"The culture of Flax cannot become general, where the seed is not saved at home; for, where foreign seed is brought in, it is impossible wholly to prevent imposition, through which the wished-for results will frequently be frustrated, and the farmer deterred from further trials. Being convinced of the importance of this matter, I make free to communicate the following observations from my unpublished work :—'Although, in general, the saving of Flax-seed for sowing is rather injurious to the Flax, yet it is advisable, for many reasons, that every Flax-grower should, yearly, appropriate a small part of his Flax-ground, and especially that where it grows thinnest, for the saving of seed; in the first place, because the Russian seed does not generally produce such fine Flax as that which has been saved on the spot; and, secondly, because the grower is certain that, by proper treatment of the home-saved seed, he will have what he can depend upon. This is not always the case with the Russian seed, for it is frequently either too old, or too much dried by storing, by which it always suffers, and at least becomes partly unsuitable; or it is mixed, by greedy merchants, with other inland seed which is only half ripe. Thirdly, because the Russian seed, in the spring season, is often at so high a price, that it would be madness to give away ready money for an article which can be produced at home of a better quality. With respect to the seed that is to be saved at home, it is particularly remarked, that it should be allowed to come to a proper degree of ripeness, and should be treated as nearly as possible after the Courtrai method, according to which the Flax that has been saved is dried in bundles in the field, and not taken off until the winter or spring, in a proper barn. The seed bolls should not be clean thrashed out, but merely so far as to get the first seed (*vorsaat*) out of it, leaving the after seed (*hinterkomer*) in the bolls, which can be used as excellent cattle food. Should the seed of the previous year not generally be used for sowing in the season after (as, on account of its strong hold of fresh oil, it gives the plants too luxuriant and irregular a growth, owing to which it produces more coarse, woody, and unsuitable parts than fine fibres), seed of two or three years old is always better for sowing. If one wishes to use the seed saved in the previous year, then spread it, weeks before, upon an airy floor, thinly, and turn it, during its lying, carefully; by which a part of its oily contents is decomposed, and it acquires more of the property of old seed. As regards the degeneracy of the home-saved seed, it has been hitherto supposed, that this seed must be, from time to time, renewed by Russian; but this is quite unnecessary, if proper attention be given to saving the seed, and a small part of the Flax be allowed to remain unpulled till fully ripe. The home-saved seed must not be sown for several successive years, at least not by itself; but every third or fourth year be changed, or mixed with other seed,

saved in the same country. The seed which is purchased must not be procured from one, but from several Flax-growers, and particularly from such as live on a poor and open soil. When the bought Flax-seed is mixed with the seed saved on the farm, it is well, shortly before sowing, to fan all, partly for the purpose of intimately mixing them, and partly to bring out the light seeds (*hinterkorn*) which are found among it, and which give only poor and indifferent Flax. Seeds which are procured, in the above manner, from different poor districts at home, and are either sown alone, or mixed with the home-saved seed, may not only be put in comparison with the Russian seed, but surpass it, by far, in quality. In order, therefore, to guard against the degeneracy of the Flax, one has no occasion to use Russian seed, a circumstance which, in many respects, is of the greatest importance, and which cannot be too often spoken of to Flax-growers; so that, from the previous opinion, we may gradually and finally cease paying to Russia the hitherto voluntary tribute.'"—*Abridged from Dublin Farmers' Gazette.*

Miscellaneous.

Feeding of Animals.—(*Boussingault, vol.* ii., p. 429).—*Observation V.* The regimen recorded in my first experiment, consisting of Hay, Straw, Oats, and Potatoes, is of such consequence in the numerous instances where it is necessary to economise hay, that I thought it important to submit it to another trial. The proportions used were—

Hay	11 lbs.
Straw	5. 5
Oats	7.25
Steamed Potatoes	30. 8

The first weighing took place after the horses had been put upon the regimen nine days; the second at the expiration of 63 days. In the first team one of the horses, in consequence of indisposition, was replaced by another nine years old, weighing 1160 lbs.

	lbs.	lbs. The two teams.	Mean per horse.
1st weighing—No. 1,	4498 No. 2,	4374	8872 lbs. 1109 lbs.
2d Weighing—No. 1,	4513 ,,	4440	8953 1119
In 63 days—Gain	15 Gain ..	66 Gain .. 81	Gain .. 10

We see, then, that during two months the horses remained stationary, when 30.8 lbs. of Potatoes were substituted for 11 lbs. of hay. The equivalent then does not differ much from 280. *Observation VI. Jerusalem Artichokes replacing part of the hay.*—This may be regarded as a continuation of the second Observation, the horses being in the state in which they were left at the end of that Observation. The second team only were experimented on. 30.8 lbs. of tubers were substituted for 11 lbs. of hay.

	lbs.		lbs.
1st Weighing—No. 2,	4407.58	Mean per horse. ...	1101.89
2d Weighing—	4408.68		1102.17
In 16 days—Gain	1.1	Gain	.28

This confirms the result obtained from our second Observation. *Observation VII. Introduction of Mangold Wurzel.*—Horses are soon accustomed to Mangold Wurzel. It is cut into slices and mixed with chaff. 44 lbs. are given in lieu of 11 lbs. of hay; the equivalent being estimated at 400. The regimen then becomes—

Hay	11 lbs.
Straw	5. 5
Oats	7.25
Mangold Wurzel	44

A horse some days after it had become accustomed to the food was submitted to the regimen for 15 days—

1st Weighing	1016.9 lbs.
2d Weighing	1025.7
Gain in 15 days.	8.8

The horse was sharply but regularly worked, being employed at the mill eight hours a day. During the winter of 1841-42 our cows consumed a great quantity of Mangold Wurzel. In lieu of 33 lbs. of hay, which is the allowance for each cow, we substituted

Hay	11 lbs.
Mangold Wurzel	72.7
Straw	4.4

Under this regimen the weight of the inmates of a stall was

On the 29th of January	24682.9 lbs.
On the 21st of April	26560.2
Increase due to Births and Growth	1877.3

The portion of Mangold Wurzel, then, may be considerable. Its nutritive value is but low, for we substitute for the hay nearly four times its weight. Our Mangold Wurzel at Bechelbronn contains only 12 per cent. of dry matter, that in other localities may possibly be less watery.—*M. J. B.*

Cultivation of Rye.—To succeed to perfection, a fine tilth must be obtained, and the land should be of a sandy or gravelly quality. The Rye should be sown when the weather is perfectly dry, and the land harrowed previously, so that it may be covered as lightly as possible. If sown upon a whole furrow, or during wet weather, or if put in deep, it rarely succeeds. These are the three points that require particular attention in its cultivation. My plan is to plough a clean Wheat eddish immediately after the Wheat crop is removed; and with two or three scarifyings or additional ploughings, reduce the soil to the finest possible degree of pulverisation. After the last ploughing I harrow the land before depositing the seed; and about the middle of September or early in October, I sow three bushels of seed per acre, which is harrowed in lightly, and the land left without rolling, unless with a very light roller between the harrowings. If the Rye is very forward (which, from having a mild autumn, is sometimes the case), it will, in the event of a heavy fall of snow succeeding, be sometimes greatly injured for spring use; but it must on no account be fed off with sheep, as it never comes well to the scythe afterwards. A portion should be manured for the first cutting, to enable its being used a week or ten days earlier. When ready for use, which in ordinary seasons takes place at the commencement of the month of April, it is carefully mown, and cut by a chaff-cutting machine, with the addition of a moiety of straw and hay, the proportion of the former being as four to one of the latter; and the cutting should so proceed that it may be adapted to the consumption of each day, using it as soon after being cut as possible. The chaff-boxes used by me are of the common sort, having an adjustment, invented by Dyball of North Walsham, for feeding without assistance of the person using them. The cost of cutting is from 14*d.* to 15*d.* per 60 bushels, and a man cuts from 100 to 120 bushels per diem. The horses are fed in the stable with Oats, in addition, and in the yards at night with cut chaff only. The cows and neat stock are fed with the addition of oil-cake, broken fine, or not, as may be requisite, and no portion whatever is allowed to be wasted; for by supplying it from time to time as required, every particle will be eaten. As the Rye advances into ear, less straw and hay are then used; and of every 100 bushels added at the present time, 56 lbs. of hay and 72 lbs. of Wheat-straw are the proportion, some Tares being grown in conjunction with the Rye.—*—R. Baker, in Royal English Agricultural Society's Journal.*

Notices to Correspondents.

BARLEY HARVEST—*A Gardener*—When so badly down that it is resprouting from the root, it should be cut at once.

CONTENTS OF CESS-POOLS—*Novice*—Suppose them to contain such a quantity of nitrogen as in the process of putrefaction will form 1½ lb. per cent. of ammonia. The sulphuric acid in about 10 lbs. of sulphate of iron (green vitriol, 5*s.* a cwt.) will suffice to fix this. Powder it and mix it up in the half liquid mass, and then throw it all out amongst a lot of sawdust, charcoal-dust, turf-ashes, &c., and mix it well up. It will make a valuable manure.

DRILL-PROPER—*Sub*—See page 94, Ransome's "Implement of Agriculture." We presume the implement you refer to must be the same as is referred to at the bottom of that page.

HAND THRASHING MACHINE—*T P, Cornwall*, asks for information as to the best implement of this kind. That is, he wants the experience of some of our correspondents as to power required to work it, and the amount of work done? We cannot give prices.

HARVEST—*Enquirer*—If your Wheat is "laid and tangled" you must use the sickle. The Oats should be tied the same day as they are cut; and, if the weather be unsettled, the binders should be close upon the mowers. White Mustard—"how late may it be sown with any chance of a crop?"

LOLIUM ITALICUM—*W Northumbriensis* thanks *T F* for his article on this subject, and hopes he will communicate the results of his later crops. It is well to sow 8 or 10 lbs. per acre of mixed Clover seeds along with the Rye-Grass.

NAME OF PLANT—*J Austin*—This is not "a stalk of Barley," but a specimen of Lolium temulentum.

PASTURE-WEEDS—*W Abb*—Your plant is Hieracium Pilosella, Mouse-ear Hawkweed. You had better dig up the patches and remove the roots.

PATCHES IN GRASS—*Querist*—These patches are often owing to the manure dropped in the previous year. It is a good plan to sow over green patches in spring some wood-ashes. You should cut them down with the scythe.

POTATO-MURRAIN—*J W*—Most of the provincial papers, excepting those in the north of England and Scotland, speak of it.

POULTRY—*To Correspondents*—My breed is the White Dorking, my hen-house is kept very clean, and dust-limed twice a-week, but of 200 hatched chickens I have not saved above 50, and many of those appear to be going. On opening one last week, it appeared very healthy, except the gizzard, which was swollen almost sufficient to burst the chicken, and this appears to be the evil. Can the cause of it be in their feeding? they have groats and the best Barley.——*H Gilbert*—The Poland fowl is one of the best breeds, as an "every-day layer;" and we do not know that any one breed is superior to another in ability to accommodate itself to the unnatural confinement of a small yard in a town. How many eggs has a fowl been known to lay in a year?

SALT—*Monmouth*—If your land be light and inland, you may use from 3 to 4 cwt. per acre beneficially. Sow broadcast early in April.

THREE ACRES TO KEEP FOUR COWS ALL THE YEAR—*E R*—Plant 1 acre to Potatoes—the produce should buy you 3 tons of hay =during the months of Nov., Dec., Jan., Feb., and March, to 10 lbs. per cow each day. Plant ½ of an acre to Mangold Wurzel, ¼ of an acre to Carrots, and ¼ an acre to Parsnips—the first will give you 25 lbs., the second 15 lbs., and the third 20 lbs. per cow each day during the same time: but in feeding during winter you would need to keep the Mangold Wurzel untouched till March or April: this will more than provide for you during winter. For summer sow ¼ of an acre of Rape and ¼ of an acre of Rye, as soon as you have dug that extent of your Potatoes; these will be ready for March and April use; the ground on which they stand will come in for Mangold Wurzel and Carrots. Your third acre may be planted half of it to Lucerne, and the other half may be sown to Vetches at successive sowings in Oct., Nov., March, and April. These, with what may be left of the hay and Mangold Wurzel—and some of the latter will remain as late as June—will last you from April to October. You should cultivate all these with the spade; and your success will depend much upon your care and proper application of the manure.

☞ As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Aug. 25.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 4	Best Long-wools	4s 4 to 4s 8
Best Short Horns	3 10 4 2	Ewes and second quality	4 0 4 4
Second quality Beasts	3 0 3 6	Lambs	4 3 5 4
Calves	4 0 5 0	Pigs	3 8 4 8
Best Downs & Half-breds	4 8 5 0		

Beasts, 3178; Sheep and Lambs, 25,850; Calves, 211; Pigs, 300.

The number of Beasts to this day's market is smaller, but still there is a good supply. We have a very fair attendance of buyers, who purchase the best qualities more freely at our top quotations. Second-rate Beasts are a heavy trade.—Trade is dull for Sheep, but as the supply continues short the best qualities suffer very little reduction in price. Big Sheep are selling worse, owing to the warm weather.—Very little is doing in Lamb.—Veal and Pork remain about the same.

FRIDAY, Aug. 29.

Good Beef is not quite so plentiful, and fully maintains its price. Second quality is still unselling.—Although Mutton is not very heavy in quantity, there is quite enough for the demand, which is very limited. The best qualities with difficulty maintain Monday's quotations.—Lamb is about the same. —Veal trade is worse; a good Calf makes very little over 4s. 8d.—Pork trade is hardly so good.

Beasts, 545; Sheep and Lambs, 8310; Calves, 894; Pigs, 314.

41, West Smithfield.

HOPS, FRIDAY, Aug. 29.

The market is firm for Yearlings. One pocket of new Sussex Hops has arrived, and been sold for 8*l.* 8*s.* per cwt. Duty is estimated at £175,000.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, AUGUST 30.—The fine weather we had during the week has caused an abundant supply of fru be brought to the Market; Vegetables are also sufficient the demand. Several kinds of foreign fruit are likewise pl fully supplied. Considerable quantities of Apricots for bott have been brought from Antwerp, and Peaches and Nectar of tolerably good quality have also been produced from same quarter. Of Plums from Havre, the supply of G Gages and Orleans has been somewhat limited; but com sorts have been brought in abundance. Among Pine-ap there has been little alteration since our last report. A foreign sorts have been brought to the Market, and have with a ready sale at pretty high prices. The supply of Pea and Nectarines, both forced and from the open wall, tinues to be well kept up, and prices for them are on decrease. Hothouse Grapes are good and abundant, Portugals are becoming more plentiful. Melons, of Eng growth, are also good and plentiful; Dutch varieties are sca as are also Cherries, Gooseberries, and Currants. An Vegetables, Peas are not quite so plentiful as they have b they are still, however, sufficient for the demand. Cauliflo are scarce; but Cabbages, French Beans, Carrots, and Tur are good and plentiful. The supply of Celery, both red white, is also on the increase. The prices of Potatoes rem the same as quoted in our last report. Tomatoes, of a rently good quality, have just made their appearance; M rooms are plentiful, and Salading of every kind is abund Among Cut Flowers, we noticed Pelargoniums, Verbe Heliotropes, Phloxes, Gardenias, Gesneras, Vincas, Beg venusta, Carnations, Picotees, Heaths, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Pears, per hf.-sv., 2s to 5s
Grapes, Hothouse, per lb., 2s to 5s	— Jargonelles, per hf.-sv., 6s
Peaches, per doz., 8s to 10s	— Windsors, 2s to 3s 6d
— Wall, per doz., 2s to 6s	Currants, per hf.-sv., 2s 6d to 4s
Nectarines, per doz., 4s to 12s	Gooseberries, per sieve, 2s to 4s
Melons, 3s to 6s each	Oranges, per dozen, 1s to 3s
— Dutch, 1s to 3s each	— per 100, 8s to 20s
Plums, per hf.-sv., 2s to 3s	Lemons, per dozen, 1s to 2s
— Orleans, per hf.-sv., 3s to 4s	— per 100, 7s to 16s
— Green Gages, per hf.sv., 4s to 6s	Almonds, per peck, 6s
— Violets, per hf.sv., 4s to 6s	Sweet Almonds, per lb., 3s 6d to
Apricots, from 1s to 3s per doz.	Filberts, English, p. 100 lbs., 30s
Cherries, wall, per lb., 2s to 5s	Nuts, Barcelona, 2s
Apples, Dess., per bush., 2s 6d to 5s	— Brazil, 16s to 20s
— Kitchen, 2s 6d to 4s	— Turkey, 16s

VEGETABLES.

Cabbages, per doz., 3d to 1s	Onions, per doz., 2s to 6s
Cauliflowers, per doz., 1s to 5s	— Spanish, per doz., 3s to
French Beans, per hf.-sv., 1s to 3s	Shallots, per lb., 6d to 10d
Sorrel, per hf.-sieve, 6d to 9d	Lettuce, per score, Cab., 1s to 2
Artichokes, per doz., 1s 6d to 2s 6d	— Cos, 2d to 1s
Potatoes, per ton, 40s to 80s	Radishes, per doz. hands, 6d to
— cwt., 2s 6d to 5s	Mushrooms, per pottle, 3d to 1s
— bushel, 1s 6d to 3s	Small Salads, per punnet, 2d t
— Kidney, per bushel, 2s to 3s	Basil, green, per bunch, 4d to 9d
Turnips, per doz., 2s to 3s	Fennel, per bunch, 2d to 3d
Red Beet, per doz., 9d to 2s	Savory, per bunch, 4d to 6d
Carrots, per doz. bchs., 2s to 5s	Thyme, per bunch, 4d
Peas, per bushel sieve, 2s 6d to 5s	Watercress, p. 12 sm. bun. 4d
Horse Radish, per bundle, 1s 6d to 2s	Parsley, per half sieve, 6d to 1s
Cucumbers, per doz., 1s to 6s	— Roots, per bundle, 9d
Spinach, per sieve, 9d to 1s 6d	Tarragon, per bunch, 4d
Leeks, per doz., 2s to 3s	Mint, per bunch, 2d
Garlic, per lb., 8d to 10d	Marjoram, per bunch, 4d
Celery, per bunch, 1s to 1s 6d	Chervil, per punnet, 2d to 3d
Vegetable Marrows, p. doz. 4d to 1s	

WOOL.—BRITISH, FRIDAY, Aug. 29.

The market has not varied much since our last report. The stock of C ing Wools in the Staplers' hands is rather on the increase, as consume cautiously, and only for immediate use. Short wools continue to be scarce in good demand.

	£ s.	£ s.		£ s.	£ s.
Down fleeces	12 10 to 13 10	p.pk.	Hoggets	14 0 to 15 0	
Hoggets	14 0 to 15 10		Kent fleeces	14 10 to 15	5
Lg. wools, whts.	13 0 to 14 0				

JAMES PERRIN, Wool-Brol

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Aug. 28.

Prime Mead. Hay	105s to 115s	New Hay	60s to 90s	New Clvr.	95s t
Inferior Hay -	— —	Clover	110 to 135	Straw	33

JOHN COOPER, Salesm

CUMBERLAND MARKET, Aug. 28.

Prime Mead. Hay	105s to 112s	Old Clover	130s to 135s		
Inferior -	80 98	Inferior do.	110 120	Straw	33s
New Hay -	60 92	New Clover	95 110		

JOSHUA BAKER, Hay Salesm

MARK-LANE, MONDAY, Aug. 25.

The supply of Wheat by land carriage samples, alth small this morning, sold slowly on terms barely equal t prices of this day se'nnight; there were a few samples of at Market, total quantity under 100 qrs., the condition generally bad and only saleable for starch and kiln-dr prices varied from 48s. to 63s. per qr.; free Foreign and bo were neglected. Barley is firm and brings extreme prices Beans and Peas there were scarcely any at Market, and value must be considered nominally unaltered. Fine meet a fair demand and are quite as dear, but Foreign tha pressed for sale, and inferior qualities, barely maintain week's rates.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		
Wheat, Essex, Kent, and Suffolk	White	60	64	Red
—— Norfolk, Lincolnshire, and Yorkshire	— —			White
Barley, Malting and distilling 28s to 32s	Chevalier	30	34	Grind.
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed
—— Northumberland and Scotch	Feed	20	23	Potato
—— Irish	Feed	20	22	Potato
Malt, pale, ship		54	60	
—— Hertford and Essex		50	56	
Rye		29	32	
Beans, Mazagan, old and new	35 to 38	Tick	34	39	Harrow
—— Pigeon, Heligoland	39 to 44	Winds	—	—	Longpod
Peas, White	34 to 40	Maple	36	40	Grey

FRIDAY, Aug. 29.

There was little English Wheat fresh up for this morn Market, and factors not being generally inclined to a lower prices, it remained unsold late in the day; free Fo is much neglected, as is also bonded. Barley continu demand at full prices. Beans and Peas are unaltered. meet a sale at our quotations.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.
July	19 per Quarter	50s 0d	29s 6d	22s 4d	32s 8d	39s 9d
	26	51 7	29 2	22 5	31 7	40 8
Aug.	2	53 3	29 8	22 5	34 6	40 5
—	9	55 3	29 7	22 3	33 10	41 0
—	16	57 0	29 4	22 2	34 4	41 2
—	23	57 0	29 9	22 8	33 4	41 8
6 weeks' Aggreg. Aver.		54 0	29 6	22 5	33 5	40 8
Duties on Foreign Grain		18 0	9 0	6 0	9 6	9 8

Diagram showing the fluctuations in the price of Corn on the average six weeks ending Saturday, Aug. 23.

Price.	July 19	July 26	Aug. 2	Aug. 9	Aug. 16	A
57s 0d	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 3	..	..	..	..	..	..
53 3	..	..	..	..	..	..
51 7	..	..	..	..	..	..
50 0	..	..	..	..	..	..
48 10	..	..	..	..	..	..
— 3	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 10	..	..	..	..	..	..
— 7	..	..	..	..	..	..
46 3	..	..	..	..	..	..

SEEDS, Aug. 29.

Canary	per qr	50s to 54s	Linseed Cakes, Foreign, p. ton	7
Carraway	per cwt	42 45	Mustard, White - p. bush.	—
Clover, Red, English	— —	—	— Superfine ,,	—
— — Foreign	— —	—	— Brown ,,	—
— White, English	— —	—	Rapeseed, English, per last	2
— — Foreign	— —	—	Rape Cakes - per ton	—
Coriander	14	16	Saintfoin	—
Hempseed	per qr.	35 36	Tares, Eng. winter p. bush.	—
Linseed	per qr	54 60	— Foreign	—
— Baltic	—	42 —	Trefoil - per cwt	1
— Cakes, Eng. per 1000 lil.		0 11 10	Turnip (too variable for quota	

KINGSFORD AND

ORCHIDACEOUS PLANTS.

TO BE SOLD, a small collection of about Thirty ORCHIDACEOUS PLANTS, containing Stanhopeas, Dendrobiums, Oncidiums, and Cymbidiums. The above will be disposed of in one Lot, for the sum of 7*l.* 10*s.* Also a few STOVE PLANTS, consisting of Musa rosacea and Cavendishii, Alpinia nutans, Crinum, Astrapæa Wallichii, Strelitzia reginæ, &c.—For particulars, apply to Messrs. PAYNE & FREER, *Advertiser* Office, Leicester.—August 30.

TO BE DISPOSED OF, THE POOLE NURSERY, DORSETSHIRE.—In consequence of the proprietor of this Nursery being too actively engaged in another business to give it proper attention, he wishes to dispose of it. It is well situated in a fast increasing neighbourhood, and might be had on easy terms. Any one thinking of taking it might, if he wished, come as a Foreman for a few months previously, or a person of *known abilities and good standing* might be engaged as a permanent Foreman, at liberal salary, or as a Partner.
Aug. 30. A. BULSTROW.

MOST ELIGIBLY SITUATE, IN THE WEST OF ENGLAND.

TO BE DISPOSED OF.—An excellent and extensive NURSERY BUSINESS, established upwards of half a century. Persons desirous of availing themselves of an established and improving business, will find such an opportunity of rare occurrence. The whole or part of the Stock, on the Grounds, may be taken as suits the convenience of the purchaser.—For Particulars, apply to Messrs. NOBLE, Fleet-street, London.
The above will be suitable only to those who can command a respectable capital.

PINERY AND PINE PLANTS.

TO BE SOLD, the Contents of a PINERY, comprising upwards of ONE HUNDRED QUEEN PINE and SUCCESSION PLANTS of the best description, and in excellent condition. For further particulars, apply to A.B., 15, St. Helen's-place, Bishopsgate-street, London.

TWO VINERIES in excellent bearing condition, nearly new, either with or without brickwork, and heated by hot-water, are to be disposed of; both are 76 feet long, and 15 feet wide. For further particulars apply to Mr. LEIGH, Carpenter and Builder, No. 12, James-street, Marlborough Road, Chelsea.

FOR SALE immediately, at a moderate price, 100 fine healthy fruiting PINE PLANTS, with about 60 succession plants.—For particulars apply to Mr. HALLEY, Gardener, Willenhall, East Barnet, Herts.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.
S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.
Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

GUANO, &c.—TO MARKET AND AMATEUR GARDENERS.—The undersigned begs to offer GUANO and other Manures for the Autumn Vegetables, &c., at the following prices, guaranteeing the quality of each by analysis of Dr. Ure or Mr. Teschenacher:—

At the Import Warehouse.	*At 40, Upper Thames-street.*
Guano, Peruvian, imported by A. Gibbs & Son, 10*l.* 10*s.* to 11*l.* per ton, according to quantity.	11*s.* to 12*s.* per cwt., according to quantity.
Do., Ichaboe, 6*l.* 15*s.* to 7*l.* 0*s.* per ton, according to quantity.	7*s.* 0*d.* to 7*s.* 6*d.* per cwt., according to quantity.
Do., Saldanha Bay, 6*l.* to 6*l.* 5*s.* per ton, according to quantity.	6*s.* 6*d.* to 7*s.* per cwt., according to quantity.
Do., Potter's	9*l.* per ton.
Do., Do. Liquid	18*s.* per doz. bottles.
Nitrate of Soda, 19*s.* 6*d.* to 20*s.* per cwt.	20*s.* to 22*s.* per cwt., according to quantity.
Gypsum, at the Factory in Derbyshire, 12*s.* per ton.	30*s.* to 35*s.* per ton, according to quantity.
Do., at Waterside Warehouse, London, 27*s.* 6*d.* to 30*s.* per ton	
Compost for Cabbages	10*s.* per cwt.
Sulphate of Magnesia	8*s.* 6*d.* to 10*s.* do.
Do. of Soda	5*s.* to 6*s.* do.
Do. of Potash	20*s.* to 24*s.* do.
Do. of Ammonia	17*s.* to 20*s.* do.
Do. of Iron	5*s.* to 5*s.* 6*d.* do.
Do. of Copper	34*s.* to 36*s.* do.
Sulphuric Acid (with instructions for making Superphosphate of Lime).	¾*d.* to 1½*d.* per lb., according to strength.
Bone Dust	21*s.* to 22*s.* per quarter.

Pamphlets on Guano, Gypsum, and Nitrate of Soda, gratis to purchasers.—MARK FOTHERGILL, 40, Upper Thames-street.

NOTICE.

POTTER'S GUANO, patronised by Sir R. Peel; the Duke of Northumberland; the Earls of Essex and Zetland; Lord Braybrooke; Lord Portman; Sir John Lubbock; D. Barclay, Esq., M.P.; P. Pusey, Esq., M.P., &c. &c.
Mr. POTTER has Reduced the price of his GUANO to 9*l.* per Ton, delivered FREE to any Wharf or Railway in London, bags included. Terms, Cash.
If Five Tons are ordered, it will be delivered FREE to any Wharf or Railway Station within 100 Miles of St. Paul's, or to any Principal Port of the United Kingdom.
CAUTION.—It having come to Mr. Potter's knowledge that some unprincipled dealers have fraudulently mixed his Guano with other substances, he begs to signify that he cannot be answerable for Manure not had direct from his Manufactory, or through authorised persons, a List of whom, with Testimonials, will be sent free, per post, on application.—Manufactory, 28, Clapham-road-place, London.
N.B. Mr. Potter has no London Agent for the sale of his Manure.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.
40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* per ton; ICHABOE 6*l.* 5*s.* to 7*l.* per ton, according to quantity; with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.
Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.
GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.
GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.
FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.
Steam Works, Thomas-street, Stamford-street, Blackfriars-road, London.

DIBBLED WHEAT.—All who are desirous of Dibbling Wheat during the coming season, are recommended to make a trial of

DINGLE'S HAND DIBBLING MACHINE,

which is so constructed that the soil cannot choke it. Price 35*s.*, including box and carriage to London, Liverpool, or Bristol.
Apply to WILLIAM E. RENDLE and Co., Union-road, Plymouth.—August 30.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.
F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile, 11,000	1¾ inches diam. of Tile, 5,800
1½ ,, ,, 8,000	2½ ,, ,, 3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.
The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

DENTON AND CHARNOCK'S PATENT DRAIN-TILE AND PIPE MACHINE.
A PREMIUM OF £10 was awarded to this Machine at the recent Meeting of the Yorkshire Agricultural Society, at Beverley, as the Best Machine of the day. Price £20.
Particulars may be obtained, and a Machine seen, on application to Mr. BAILEY DENTON, 9, Gray's Inn-square, London, or Graveley, near Stevenage, Herts; to Mr. T. H. Charnock, Wakefield; or to the makers, Messrs. Bradley and Co., Engineers, Wakefield.
DENTON'S "A" LEVEL for workmen in cutting drains may also be had. Price 30*s.*

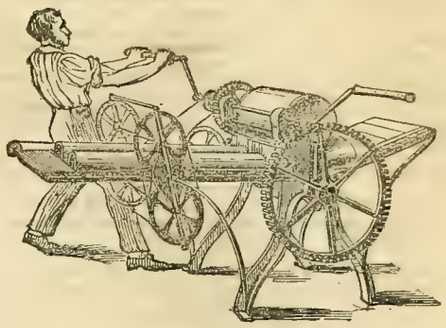
SAUNDER AND NEWBERRY'S PATENT DIBBLING MACHINE gained two Prizes from the Royal Agricultural Society; one at Liverpool, of 10*l.*, and another at Shrewsbury, of 15*l.*; also, Two Prizes at Local Agricultural Meetings. Manufactured by J. W. NEWBERRY, Hook-Norton, Oxon; R. CLYBURN, the Earl of Ducie's Iron Works, Uley, Gloucestershire; and R. HORNSBY, Grantham, Lincolnshire.

PRICES:

Five Rows	£60
Four Rows	50
Three Rows	42
One Row	13

J. W. NEWBERRY recommends his implement to the notice of the public with the most perfect confidence, after it has experienced a test of four years; he can give the most satisfactory references; and he would advise any person who may be inclined to try it, but fears the expense, to purchase one of his one-rowed machines, which will follow the plough, and is particularly adapted for heavy land; he begs to add that he thinks there can be no comparison made by a practical man between even his one-row and a Hand-Dibble.

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These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.
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TO AMATEURS, GARDENERS, AND NURSERYMEN.

GRAND DAHLIA SHOW OPEN TO ALL ENGLAND, at Mr. Kirkpatrick's, the "George Canning," Grove-lane, Camberwell, on Thursday, the 18th of September, 1845.

Class 1.—For Nurserymen: Entrance, 2s. 6d., with 10s. added by Mr. Kirkpatrick, for the Best Twenty-four Dissimilar Blooms. Class 2.—For Amateurs and Gardeners: Entrance, 2s. 6d., with 10s. added by Mr. Kirkpatrick, for Twelve Dissimilar Blooms. Class 3.—For Amateurs and Gardeners: Entrance, 2s. 6d., with 7s. added by Mr. Kirkpatrick, for Nine Dissimilar Blooms. Class 4.—For Amateurs and Gardeners: Entrance, 2s. 6d., with 5s. added by Mr. Kirkpatrick, for Six Dissimilar Blooms.

Persons intending to show in any of the Classes must pay their entrance money on or before MONDAY, the 8th of September next, when a Special Meeting will take place to arrange the general business relative to the show. All Flowers intended for show to be in the room by Three o'clock, or to be excluded, and the entrance money forfeited. All communications addressed to Mr. Kirkpatrick, "George Canning," Grove-lane, Camberwell, will be immediately attended to. Four persons to compete in each Class, or the Premiums not to be added.

THE GRAND PROVINCIAL DAHLIA SHOW FOR ALL ENGLAND will take place on Tuesday the 16th of September, at the Shire Hall, Chelmsford, Essex, under the Patronage of the Essex Society of Horticulturists, Professional and Amateur.

Class.	*Entrance.*
1—Amateurs, 12 Blooms, Four Prizes, 5*l*., 3*l*., 2*l*., 1*l*.	10*s*. 6*d*.
2—Amateurs & Gardeners, 12 Blooms, Four Prizes, 5*l*., 3*l*., 2*l*., 1*l*.	10 6
3—Open Class, 24 Blooms, Four Prizes, 5*l*., 3*l*., 2*l*., 1*l*.	10 6
4—Fancy, 6 Blooms, Two Prizes, 20*s*., 10*s*.	5 0
5—Seedlings, 1844, 3 Blooms, Certificate	2 6
6—Seedlings, 1845, 1 Bloom, Certificate	2 6

All Seedling Dahlias are requested to be exhibited at this Show, as it will be the only provincial test as a criterion of judgment for new flowers. Further particulars as to plants, flowers, fruits, or vegetables, intended for exhibition at this Show will be forwarded on application to

G. Wicks, Honorary Secretary, Chelmsford, Essex.

UNIVERSITY COLLEGE, LONDON.—JUNIOR SCHOOL.

Under the Government of the Council of the College.

Head Master—Thomas Hewitt Key, A.M.

The School will Open on Tuesday, the 23d September. The Session is divided into three Terms, viz.:—from 23d September to Christmas, from Christmas to Easter, and from Easter to the 4th August.

The Yearly Payment for each Pupil is 15*l*., of which 5*l*. are paid in advance in each term. The hours of attendance are from a Quarter past Nine to Three-quarters past Three. The afternoons of Wednesday and Saturday are devoted exclusively to Drawing.

The subjects taught are Reading, Writing, the properties of the most familiar objects—natural and artificial, the English, Latin, Greek, French, and German languages, Ancient and Modern History, Geography—both physical and political, Arithmetic and Book-keeping, the Elements of Mathematics and of Natural Philosophy and Drawing.

Any Pupil may omit Greek, or Greek and Latin, and devote his whole attention to the other branches of education. There is a General Examination of the Pupils at the end of the Session, and the Prizes are then given. The Discipline of the School is maintained without corporeal punishment. A Monthly Report of the conduct of each Pupil is sent to his parent or guardian. Several of the Masters receive Boarders.

Further particulars may be obtained at the Office of the College. Chas. C. Atkinson, Secretary to the Council.

The College Lectures, in the Classes of the Faculty of Medicine, commence on the 1st October; those of the Faculty of Arts, on 15th October.—September, 1845.

FUCHSIA "CONSTELLATION."—Strong plants of this Splendid FUCHSIA may still be had of the raiser, or his London Agents, Messrs. Hurst and M'Mullen, 6, Leadenhall-street, at 12*s*. 6*d*. each.

William Miller, Providence Nursery, Ramsgate.

GLADIOLUS GAUDAVENSIS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, respectfully offers strong bulbs of the above at 5*s*. each, to be had also of Messrs. Warner & Warner, Cornhill, London, from the 1st of October next.

The usual allowance to the Trade.

HURST & M'MULLEN, Seedsmen and Florists, 6, Leadenhall-street, beg to inform their friends and the public that they have just received their assortment of Dutch and Cape Bulbs, in fine condition. Catalogues of which may be had on application.

Fuchsia Serratifolia (imported by Messrs. Veitch and Son)	..	£1 1 0	each.
Princess Alice Maude Strawberries	..	0 10 6	per 100.
Deptford Pine do.	.. ..	0 10 6	,,
British Queen do.	.. ..	0 5 0	,,

6, Leadenhall-street, London, Sept 6.

LYNE'S NEW SEEDLING GERANIUMS.

WILLIAM E. RENDLE has much pleasure in stating to the Nobility, Gentry, and the Trade, that he has again obtained the valuable collection of GERANIUMS raised by

PHILIP E. LYNE, Esq., of Lipson,

which have been carefully selected from at least 1200 Seedlings.

The following are recommended as first-rate show flowers:—

		£	*s*.	*d*.
Lyne's Hesperus	each	1	11	6
,, Marmion	,,	1	11	6
,, Princess	,,	1	1	0
,, Merry Monarch	,,	1	1	0
,, King of Saxony	,,	1	1	0
,, Rosebud	,,	1	1	0
,, Chaplet	,,	1	1	0

The whole set as above for 6*l*. 6*s*.

The following sorts are recommended more for their novelty and brilliancy of colour, than for their qualifications as show flowers:—

Lyne's Vampire .. 7*s*. 6*d*. | Lyne's Aladdin.... 7*s*. 6*d*.
,, Picta ..... 7 6 | ,, Moonbeam . 7 6
Or the set of Four for 21*s*.

The following were sent out last autumn, and are now offered at 10*s*. 6*d*. each, or 40*s*. the set:—Lyne's Princess Alice, White Perfection, Imogene, Redworth, and Confidence.

Strong established plants of all the above will be ready on and after the 1st of November next. All orders will be executed in strict rotation. *The usual allowance to the Trade.* In consequence of the large demand for Mr. Lyne's Seedlings last year, all the late orders could not be executed; to prevent disappointments therefore, it is desired that all orders will be forwarded as early as possible.

DESCRIPTIONS OF ALL THE GERANIUMS CAN BE OBTAINED ON APPLICATION.

Union-road Nursery, Plymouth, September 6.

ARRIVAL OF DUTCH BULBS.

YOUELL and CO. have just received their importation of the above, in the finest condition, Catalogues of which may be had on application.

Hyacinths, Double and Single, Red, Blue, White, and Yellow, of the most approved kinds, by name, 9*s*., 12*s*., and 18*s*. per dozen. With an extensive assortment of other bulbs at equally moderate prices; also, 50 kinds of first class Show TULIPS, by name, including the "True Norwich Black Baguet," for which this neighbourhood is so celebrated, for 4*l*.; 25 ditto, 2*l*. 5*s*.

CAMELLIAS.

12 Finest and Newest varieties, by name, 30*s*.

ARAUCARIA IMBRICATA.

2 years old	9*s*.	per dozen.
3 ,, ...	12*s*.	,,
4 ,, ...	18*s*.	,,
5 ,, ...	30*s*.	,,
6 ,, ...	60*s*.	,,
Cedrus Deodar, 1 year, fine	18*s*.	,,
,, ,, 1 foot	30*s*.	,,
Pinus excelsa, 3 inches	9*s*.	,,
,, ,, 4 to 5 inches	18*s*.	,,
,, ,, 18 inch, fine bushy plant	42*s*.	,,
,, Gerardiana, 2 years	30*s*.	,,
Abies Khutrow, 2 years	9*s*.	,,

Also fine specimen plants of older growth from 10*s*. 6*d*. to 2*l*. 2*s*. per plant.

Also, the very best FUCHSIAS, by name,		12*s*.	per doz.
Ditto	CHRYSANTHEMUMS	,, 12*s*.	do.
Ditto	VERBENAS ..	,, 6*s*.	do.
Ditto	PETUNIAS ..	,, 9*s*.	do.
Ditto	PANSIES	,, 10*s*.	do.

20 sorts of finest Show PINKS, by name, ... 1*l*.

For particulars, see former Advertisements.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s*. per 100.
"PRINCESS ALICE MAUDE," ,, 10*s*. ,,
Great Yarmouth Nursery, Sept. 6.

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, begs to offer his new ALSTRŒMERIAS at the following rates, viz.—12 varieties, 21*s*.; 25 varieties, 31*s*. 6*d*.; 50 varieties, 52*s*. 6*d*. Orders received by Mr. George Rahn, 52, Mark-lane, London; or application may be made (post paid) to Mr. Van Houtte, at Ghent. The deliveries will commence on the 15th September next, the plants being forwarded to London free.

The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle*, 12th July last), says of these plants:—"They are of every tint from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, is the following gratifying account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstrœmeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD and SON having on hand an immense Stock of all the New and approved STRAWBERRIES, they are now sending out strong plants at the following reduced prices: *Warranted true to name.* Price per 100.

Myatt's British Queen	3*s*. 6*d*.
,, Deptford Pine	7 6
,, Eliza	2 6
,, Prince Albert	7 6
,, Princess Alice Maud	10 0
,, Princess Royal	5 0
Elton Pine	2 6

Plants will be presented gratis to defray the expense of carriage; a remittance or reference is respectfully solicited from unknown Correspondents.

ROSES IN BLOOM.

W. W. and Son's Collection of PERPETUAL ROSES are now coming into fine bloom, and will continue in flower during the autumnal months. Admittance gratis, daily (Sundays excepted). Maresfield is 12 miles distant from the Hayward's Heath Station on the London and Brighton Railway, from which place conveyances may be obtained.

DUTCH FLOWER ROOTS.

WARNER and WARNER, Seedsmen & Florists, 28, Cornhill, opposite the Royal Exchange, London, beg most respectfully to inform the Nobility and Gentry that they have just received their annual supply of HYACINTHS, NARCISSUS, TULIPS, &c. from Holland; amongst which will be found many New and Beautiful varieties, a Catalogue of which will be forwarded by post on application.

BECK'S SEEDLING PELARGONIUMS of 1844.—Edward Beck informs the Public that he will send out the following varieties, at the prices annexed, in October, delivered free in London, for cash only.

Rosy Circle . .	£1	1	0	Isabella . .	£1	1	0
Sunset . . .	1	1	0	Margaret . .	0	10	6
Mustee . . .	1	1	0	Favorita . .	0	10	6
Marc Antony .	1	1	0	Zenobia . .	0	10	6
Desdemona . .	1	1	0				

Worton-cottage, Isleworth, Sept. 6.

BECK'S SEEDLING PELARGONIUMS of 1844.—After the 10th of the present month, I shall feel obliged by my friends making no more remittances until further notice, my present stock being nearly, and in some instances wholly, engaged.—E. Beck, Worton Cottage, Sept. 6.

HÆMANTHUS MULTIFLORUS.—Very strong bulbs of the above, just imported from Africa, to be had at Louis Van Houtte's Nursery, Ghent, Belgium, at 31*s*. 6*d*. per dozen. Orders received also for the same, by Mr. George Rahn, 52, Mark-lane, London.

The usual allowance to the Trade.

FUCHSIA "SERRATIFOLIA."

MESSRS. VEITCH & SON beg to inform those who have ordered plants of the above beautiful FUCHSIA that it is their intention to commence sending them out on the 15th inst. The following Nurserymen and Seedsmen having already secured strong Plants, will be able to supply them True. The names of any additional Subscribers will appear in a future advertisement.

Strong plants 21*s*. each, with one plant sent over when three are taken.

N.B.—A reference or remittance from unknown correspondents.—Exeter, September 6, 1845.

Ball, Mr. F. C., Taunton
Brown, J. and H., London
Bass and Brown, Sudbury
Bigland and Co., Manchester
Burgess and Kent, Penkhull
Backhouse and Son, York
Bryan, Mr. S., Grantham
Bell, Mr., Norwich
Buck and Sons, Regent's-park
Catleugh, Mr. W., Chelsea
Cruikshanks, Mr., Birmingham
Cunningham & Son, Liverpool
Cattell, Mr., Westerham
Cunningham, J., Edinburgh
Dickson and Son, Edinburgh
Drysdale and Co., Glasgow
Epps, Mr. W., Maidstone
Edwards, Mr. J., York
Fryer, Mr. J., Camberwell
Fisher, Holmes, and Co., Sheffield
Fairbairn, Messrs., Clapham
Fox, Mr. J., Penzance
Gaines, Mr. N., Battersea
Glendinning, Mr., Chiswick
Girling, Mr. S., Stowmarket
Gregory, Mr., Cirencester
Garaway, Mayes, & Co., Bristol
Gill, Mr., Blandford
Hally, Mr., Blackheath
Henderson, Messrs., Pine-apple place
Hurst & Co., Messrs., London
Hancock and Son, Durham
Ivery, Mr., Peckham
I'Anson and Finney, Gateshead
Jeffries and Son, Ipswich
Knight and Perry, London
Kellock and Co., Birkenhead
Knight, B. W., St. Leonards
Kendal, Mr., Stoke Newington
Keynes, Mr. J., Salisbury
Lee, Messrs., Hammersmith
Low and Co., Clapton
Leroy, Mr. A., St. Augers
Laird, Mr. W., Dundee
Mountjoy and Son., Ealing
Miller, Mr. W., Ramsgate
Mackies and Ewing, Norwich
May, Mr. W., Bedale
Meldrum, Mr. J., Kendal
Makoy, Mr., Leige
Newberry, Mr., Upway
Ottey, Mr. J., Peckham
Pope and Sons, Birmingham
Pearson, Messrs., Nottingham
Pontey, Mr. A., Plymouth
Paul and Son, Cheshunt
Rollisson, Messrs., Tooting
Ronalds, H. & Son, Brentford
Smith, Mr., Islington
Smith, Mr. J., Dalston
Standish, Mr. J., Bagshot
Silverlock, Mr., Chichester
Schlachter, Mr. C., Loos-le-Lille
Stedman, Mrs., Isleworth
Tiley, Mr. E., Bath
Van Houtte, Mr., Ghent
White and Co., Poole
Whitley and Osborne, Fulham
Walters, Mr., Hilperton
Webber, Mr., Merriott
Warner and Warner, London
Wallace, Mr. J., Maidstone
Widnall, Mr., Grantchester
Wood, Mr. F., Plymouth
Youell and Co., Yarmouth

TO AMATEURS OF CAPE BULBS, &c.

BERNARD SAUNDERS, Nurseryman, &c., begs respectfully to call the early attention of Amateurs and the trade in general to his extensive collections of IXIAS, SPARAXIS, TRITONIAS, BABIANAS, GLADIOLUS, WATSONIAS, OXALIS, IRIS, and LILIUMS, which are now ready for delivery. Catalogues of which may be had on application.

Island of Jersey, Sept. 6.

BULBOUS FLOWER ROOTS.

MESSRS. SUTTON & SONS having imported more largely this season than heretofore, have the pleasure of offering their HYACINTHS, ANEMONES, IRISES, TULIPS, &c., at considerably reduced prices; and having, during the blooming season, selected the favourite sorts from each of the celebrated Florists in and near Haarlem, they feel confident that their Collection is equal to any imported into England this season.—Priced descriptive Catalogues will be sent post free on application.—Reading Nursery, Reading, Berks., Sept. 6.

DUTCH FLOWER ROOTS.

CLARKE & CO., FLORISTS AND SEEDSMAN, beg respectfully to acquaint the Nobility, Gentry, and the Public, that they have received their annual supply of HYACINTHS, TULIPS, NARCISSUS, &c. &c., direct from the best growers in Haarlem, which have arrived in excellent condition; the bulbs being large and handsome. Catalogues will be forwarded on application.—86, High-street (opposite the Town Hall), borough of Southwark.

NEW AND RARE PLANTS.—SIPHOCAMPYLUS COCCINEUS, a most beautiful shrubby greenhouse Plant, of fine habit and free blooming, strong plants, 42*s.*

CALANDRINIA UMBELLATA, a fine hardy herbaceous plant, 10*s.* 6*d.*

CALCEOLARIA FLORIBUNDA, an imported species from Peru, admirably adapted for bedding out, 7*s.* 6*d.*—The usual allowance to the Trade.

Messrs. VEITCH & SON beg to offer the above fine Plants, which have received numerous prizes at the London Exhibitions, and which may be relied upon as really good. For the convenience of persons wishing to have them in the same package with Fuchsia serratifolia, they will be ready for delivery on the 15th inst.—Exeter, September 6.

PANSIES AND CALCEOLARIAS.

H. MAJOR, Knosthorpe, near Leeds, begs to intimate that he can now supply a few sets of his three beautiful SEEDLING PANSIES, viz., Purity, Bridal Ring, and Duke of York, for 10*s.* post free. Also the following select kinds, for 21*s.* post free:—Duke of York (Major's), Purity (do.), Fanny (do.), Ovid (do.), Miss Battye (do.), Rob Roy (Campbell's), Standard (Fryer's), Topaz (Schofield's), Brilliant (do.), Pizarro (Thompson's), Hale's (dark seedling), Malibran (Thompson's). Most of the leading varieties at very reduced prices, an abridged catalogue of which may be had on (post-paid) application. Select Pansy-seed, at 2*s.* 6*d.* per packet. And, by the 1st of October, will be ready, sets of 12 of his best Seedling Shrubby CALCEOLARIAS, sent out for the first time this spring, price 25*s.* A remittance from unknown correspondents is respectfully requested with the order.—Sept. 6.

JOHN SCHOFIELD'S NEW PANSY, "PRESIDENT," 7*s.* 6*d.* per plant. The above Splendid Seedling PANSY was in the first pan of 12 Seedlings at the Grand Open Show, held at York, August 19th; also in the first pan of six Seedlings at Leeds, August 28th. J. S. will have three others to offer next Spring. A few plants of the following fine sorts can now be had, viz:—Topaz (Schofield's), Brilliant (do.), Purity (Major's), Duke of York (do.), Pizarro (Thomson's), and Miss Hornby (Michie's), 3*s.* 6*d.* each, or the six for 15*s.*; good sorts, from 6*s.* to 12*s.* per dozen, a list of which is now ready, free; a large stock of Carnations, Picotees, &c.; select Pansy Seeds, 2*s.* 6*d.* per packet.—Knosthorpe, near Leeds, Yorkshire.

EXHIBITION OF LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON. By Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to inform the Nobility, Gentry, and Amateurs, that his extensive assortment of this most beautiful LILY, which has been so universally admired, is in flower, and will continue in perfection during the month of September; and may be viewed every day, Sundays excepted. Admittance gratis.

J. S. COOK, Prince's Risborough, wishes to inform his numerous customers that his Descriptive List of first-class Seedling Pansies can be had by applying as above; also the first-class Seedling Geranium and Pansy Seed, from 2*s.* 6*d.* to 5*s.* a packet.—Longwick, Sept. 6.

ROSES, 1845-6.—GREAT BERKHAMPSTEAD, HERTS.

MESSRS. H. LANE & SON'S CATALOGUE OF ROSES for the ensuing autumn and following spring will be ready for delivery in a few days, and may be had by a pre-paid application, enclosing a 2*d.* postage stamp. As a copy of the Catalogue will be sent to all their customers, they will be obliged by being informed if the same should not be duly received.

It might not be considered arrogant or out of place here to mention, as a proof of Messrs. Lane & Son's superior stock and mode of cultivation of ROSES in POTS, that they have obtained, during the last season, the First Prize at each of the Horticultural Shows at Chiswick, and Two First Prizes out of three of the Royal Botanic Society's Shows at the Regent's-park.

Their new Bulb Catalogue, and new General Catalogue of Fruit and Forest Trees, Shrubs, Hardy Climbers, and Greenhouse and Herbaceous Plants, may also be had on application as above, inclosing a 2*d.* stamp.—September, 1845.

DOUBLE ROMAN AND PAPER-WHITE NARCISSUS, 4*s.* per dozen. The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived at A. COBBETT'S, late Mr. Barron's, Italian and Foreign Warehouse, 18, Pall Mall, London.

Orders by post punctually attended to.

CHAPMAN'S PRINCE OF WALES PLUM.—This Seedling variety was raised by Messrs. CHAPMAN at Brentford-end, in 1830, from the Orleans Plum. It is a much freer grower, a better bearer, a much larger, handsomer, and better flavoured Plum than the Orleans. Its colour is a purplish pink, and it may be considered the handsomest and most prolific Plum in cultivation; it immediately succeeds the Orleans in ripening, and will never crack, be it ever so ripe. Strong Maiden Plants 5*s.* each; 3-years old Fruiting ones, 10*s.* 6*d.* All orders, with a remittance for the amount, will be attended to at the proper season; if by Post-office order, payable at Brentford.—Messrs. C. & T. CHAPMAN, Nurserymen, Brentford-end, Middlesex.

PINE APPLES.—A most excellent preserve for the Dessert, may be made of the Foreign PINE APPLES by COOPER'S PATENT APPARATUS and Vessels for the Preservation of Fruits of all kinds. Sold at the Manufactory, No. 7, the upper end of St. John-street, Clerkenwell, London, where Particulars and Testimonials may be had, or they will be forwarded by post, if required. May be seen at the Adelaide Gallery, near Charing Cross, London.

WIDNALL'S CHOICE PANSY SEED.

S. WIDNALL, Grantchester Nursery, Cambridge, has much pleasure in again offering his choice PANSY SEED, and trusts it will meet the universal approval which was so justly bestowed upon that which he sent out last year, being collected from named varieties in fine condition. Packets containing sufficient Seed, with careful cultivation, to grow 500 Plants and upwards, may be had free, upon forwarding 30 postage stamps, or a post-office order, at 2*s.* 6*d.* each, or three packets for 6*s.*—Grantchester, Sept. 6.

BRIGHT YELLOW BOUVARDIA (BOUVARDIA FLAVA, DNE).

LOUIS VAN HOUTTE, FLORIST, at Ghent (Belgium), intends to send out, beginning on the 15th of September next, good bushy plants of his new bright YELLOW BOUVARDIA (Bouvardia flava, Decaisne), a coloured drawing of which will accompany each plant, which will be sent to London free. Not one plant of this YELLOW BOUVARDIA has hitherto left his Nursery. Price 21*s.*, without discount, unless four plants be taken. Orders also received at Mr. GEORGE RAHN'S, 52, Mark-lane, London.

N.B. The coloured drawing of the above Bouvardia is also to be seen at the Office of the *Gardeners' Chronicle*.

The following Gentlemen have already subscribed: R. Glendinning, Chiswick, 1 plant; H. Groom, Clapham Rise, 1; J. Harrison, Downham, 1; T. A. Henderson and Co., Pine-apple-place, 4; Knight and Perry, Chelsea, 6; Hugh Low and Co., Upper Clapton, 4; H. Major, Knosthorpe, 1; T. Nant, Guernsey, 1; W. Rollisson and Sons, Upper Tooting, 2; Willmot and Chaundy, Lewisham, 4; W. Wood and Son, Maresfield, 4; C. Young, Epsom, 6.

THOMAS LANG (lately partner of W. & T. SAMSON), has commenced Business on his own account, as NURSERYMAN, SEEDSMAN, and FLORIST, at 64, Portland-street, Kilmarnock. The Nursery is in the immediate neighbourhood of the station of the Glasgow Railway.

SEEDS.—CORNER OF HALF-MOON-STREET,
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the
"ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

BRITISH SHEET OR HORTICULTURAL GLASS. In consequence of the entire removal of the duties, J. WELCH, Jun. (late with Mr. DRAKE, of Jermyn-street and Oxford-street), begs to call the attention of Noblemen and Horticulturists generally, to the great reduction in the price of the above article, which can now be obtained of increased substance in the long lengths, so successfully used at Chatsworth, for much less than the former thin Crown. He also begs to solicit their inspection of Stained and Ornamental Glass, which he at all times has in Stock at his warehouse, where lists can be obtained on application by post or otherwise.

12, Panton-street, Haymarket.

SMALL GLASS FOR HOTHOUSES, MELON PITS, &c. &c.—Several thousand feet of 4 ins. by 2, 4½ ins. by 2, 4½ ins. by 2½, 5 ins. by 2, 5½ ins. by 2, and 6 ins. by 2, from 1*d.* per foot—Address, R. COGAN, Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.—Bee-Glasses, Fish Globes, French Ornament Shades, &c. &c.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26*s.* 0*d.*	Milled Lead in Sheets,	*s.* *d.*
Linseed Oil, per gall...	2 3	per cwt.	21 0
Turpentine	3 3	Cut to Size	22 0
Warranted Varnishes and Colours.		Pipe all Sizes	22 0

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

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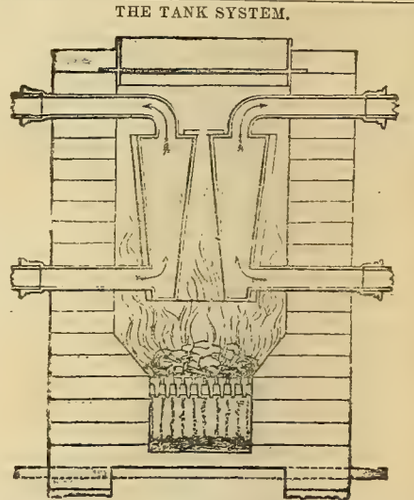
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Proprietor, Mr. THOMAS CLARK, Jun.

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These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hothouses glazed in the ordinary way.

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FIVE THOUSAND STRONG ESTABLISHED PLANTS,
Which will be ready for sending out after the 22d of September next. The first orders will have the best plants.
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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 6, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, Sept. 17—South London Floricultural . 1 P.M.

COUNTRY SHOWS.
WEDNESDAY, Sept. 10—Manchester Botanical and Forticultural.
THURSDAY, Sept. 11—Berkshire Horticultural.
WEDNESDAY, Sept. 17—Hexham Floral and Horticultural.
FRIDAY, Sept. 19—Devon and Exeter Botanical and Hort.

ALL that we see, hear, or read of the POTATO CROP, convinces us that the extent of injury which has befallen it is in no degree exaggerated, but the contrary, and that there is no present help for it. We see no prospect of stopping the murrain by human agency, and we believe that the best thing to do, under the circumstances, is to let the crops alone, unless means can be found of consuming them immediately; and in that case they should be taken up and dried. Much will be found not worth the digging. In other cases, where a part only of the tubers are attacked, it will be better for the symptoms to become more distinct before what remain are sorted and pitted. If any means exist for consuming those which are just beginning to decay, it will be prudent to take advantage of them; for unless the rot has eaten deep into the tubers they may certainly be given to pigs or other animals, with safety, provided they are boiled or steamed, and mixed with a little salt. This has been done within our own knowledge; and we have ourselves eaten roasted Potatoes, in which the canker was only skin deep. Many idle reports are current on this subject, which deserve no attention.

It is some consolation to know that those tubers which were sound a week ago remain so, and manifest no signs of being attacked. We have just examined some samples put by in a dry place, and we see that those which were sound at the time of sorting are sound still; while, on the contrary, those in which the disease had shown itself but a very little, are much worse, and are decaying fast. In the open field, too, the mischief does not seem to spread, and we are persuaded that if we had had hot sunny weather, the evil would have gone no further. Unfortunately, however, the gloomy state of the air, and the low temperature, have been imperfectly compensated for by absence of rain.

A letter from Mr. BERKELEY, in another column, connects the Potato murrain with the attacks of a kind of mould, analogous to that to which Mr. HASSALL attributes the destruction of decaying Apples (see p. 771, 1842), and Professor BELL has favoured us with some observations which entirely confirm this opinion. And this is only what was to be expected; for as soon as living matter loses its force, as soon as diminished vitality takes the place of the customary vigour, all sorts of parasites acquire power, and contend for its destruction. It is so with all plants, and all animals—even with man himself. First comes feebleness, next incipient decay, and then spring up myriads of creatures whose life can only be maintained by the decomposing bodies of their neighbours. Cold and wet, acting upon the Potato while enervated by excessive and sudden growth, caused a rapid diminution of vitality, portions died and decayed, and communicated the contagion to the parts in contact with them; thus was prepared a field on which the mouldiness could establish itself, and the moment this was effected the evil gained new vigour; for once in possession of a decayed spot, the spawn (or *mycelium*) of the mouldiness spreads rapidly into parts to all appearance still uninjured. And thus an evil in itself too great becomes infinitely increased.

This fact is of the first importance, with reference to the preservation during winter of what may remain of the crop. It will never do to pit the Potatoes in heaps, covered with straw and earth. If this system is pursued, we anticipate the total decay of such heaps. It is very improbable that, with all possible care, the Potatoes will be so sorted that no infected tubers shall be left in the heaps. One such tuber will communicate the malady to a ton; for it will soon form mouldiness on its own surface; the Potatoes in contact with it will be infected; they will give it to their neighbours, and so on. In the process of pitting, every Potato must be separated from its neighbour by solid earth. Then, if one tuber decays, it will not be able to spread the mischief, because, being imbedded in soil, it will not be in contact with others. Potatoes therefore should be stored in heaps; a single layer of them should be covered with earth, well worked in between them; then another layer should be thoroughly imbedded as before; and so on. If straw could be had, we should even be inclined to thatch the heaps, so as to keep them dry; and at all events, if they are in the open air we should draw trenches round them so as to carry off all the water. Wet is favourable to decay, and also to the attacks of mould plants; dryness is an enemy to both. The drier, therefore, the Potatoes can be kept in their pits the more chance there will be of keeping sound those that are so when laid up. We cannot too strongly impress upon gardeners the extreme importance of this precaution.

It has been observed that some varieties of the Potato are more attacked by the murrain than others, and a Petworth correspondent gives a striking example of the fact. It is well worth inquiry whether the sorts which are suffering the most are not old and long cultivated varieties, and whether newly-raised kinds are not comparatively free. Perhaps our correspondents will be so obliging as to turn their attention to this point. For if it should be so, that will be a very powerful argument in favour of raising seedling Potatoes to a much greater extent than has hitherto been done: a practice upon the importance of which we have frequently insisted, without reference to the murrain. All old varieties of those cultivated plants which are propagated by division of the stem, and not by seed, seem to become feeble as they grow old, there being in this respect some analogy between plants and animals. Feebleness of constitution is certainly the great predisposing cause in cases of murrain, and all such maladies; and, therefore, it would seem that the constant introduction of newly raised and vigorous varieties would offer some guarantee against such calamities.

A SHORT time since one of our correspondents drew attention to the hardiness of the CEYLON TREE RHODODENDRON; and as his account is confirmed by others, we have thought it worth mentioning what facts relating to it have come to our own knowledge.

The species has been generally regarded as a mere variety of the tree Rhododendron of Continental India. In our gardens it is commonly called Rhododendron Rollissonii; and in the "Botanical Register," for 1843, it is figured at t. 25 under that name. A suspicion, however, was at the same time expressed that it might be the Ceylon Rhododendron, but the leaves being brown underneath instead of silvery, as is the case in wild specimens from that island, led to the supposition that R. Rollissonii was not identical with the Ceylon plant. We perceive, however, that the colour of the leaves is variable, for upon turning to a volume of Ceylon drawings, executed by an artist employed in the Botanic Gardens there, one of the leaves is represented as being brown. The Ceylon plant and Rhododendron Rollissonii may be regarded, then, as identical. It is also called Rhododendron nobile; but we do not find it described anywhere under that name, which is understood to have originated with Dr. WALLICH.

The first knowledge that we had of this plant was derived from the late Mr. MACRAE, who many years since communicated specimens of it with the drawing above alluded to. At a later period, Mrs. WALKER, in her entertaining narrative of the ascent of Adam's Peak, the highest mountain in Ceylon, mentioned some particulars about it, which are important. This lady found it growing on the cone which terminates the mountain, associated with a low Bamboo, and species of the hardy European genera Valerian, Houndstongue, and Sium. On the 4th February the thermometer stood at 54° at daybreak on the summit of the peak; but the climate where the Rhododendron grows is not so mild as it would appear to be from this observation, for on another occasion Mrs. WALKER speaks of the great difficulty she experienced in keeping herself warm, of nights being so cold that even the weariness attendant upon mountain travelling failed to procure sleep, and of "frosty mornings which had blighted everything; even the young shoots of the Rhododendron were shrivelled up as if they had been scorched, and not one of the common vegetable productions, which generally blossom all the year round, had a single flower upon them."

More recently the Rhododendron tracts have been visited by Mr. GARDNER, from one of whose letters to a friend in England we are permitted to make the following extract:—"I have lately paid a visit to a health-station on the mountains, about 50 miles distant from Kandy, and upwards of 6000 feet above the level of the sea. I found some splendid Balsams and Ferns on the way up; and in the plain itself it was quite delightful to botanise, from the great variety of European forms of plants which are to be met with at every footstep. Thus my collection contains species of Rubus, Potentilla, Anemone, Ranunculus, Berberry, Alchemilla vulgaris, Agrimony, Hypericum, Heracleum, Bupleurum, Pedicularis, Viola, &c. One of the greatest beauties of the place is the tree Rhododendron, but I rather suspect that it is different from the Nepaul plant. It is scattered in great abundance through the plain, and often reaches to the height of from 20 to 30 feet, with a trunk 4 feet in circumference."

These statements certainly lead to the inference that the Ceylon Rhododendron will possess hardy habits, and most especially its growing amidst so many forms of common European vegetation. But we must not trust too much to such indications. The constitution of plants is affected by so many circumstances, of which we have no means of judging accurately, that we can only say, in this case, that probability is in favour of the tolerable hardiness of the species.

CULTURE OF CHILIAN ALSTRŒMERIAS.

MR. VAN HOUTTE'S directions, though given for Chilian species generally, are probably founded merely on his own culture of his hybrid Alstrœmeria Van Houttei. They are not applicable to the species generally; nor do I believe them to be suitable for his own cross in all situations. Indeed, the method adopted was probably the cause of the great failures in parts of his beds, and the less accurate observance of them was perhaps the cause of great superiority in the vigour of some portions.

The golden Alstrœmeria of Chiloe is perfectly hardy in our climate, and that of Valparaiso not much less; and, if we could obtain those from the mountain pastures of Antuco behind Conception, where according to Pœppig they vary with every shade of vermilion, orange, lemon colour, and white, no English frosts would injure them. This species grows with surprising vigour, and as close as the stems can stand, in peat, in the dampest part of the garden, where water does not actually stagnate. In loam it is less vigorous and healthy, and is much strengthened by a winter top-dressing of dung. In peat it sows itself so as to be troublesome. Alstrœmeria hæmantha and its varieties, such as Barclayi, &c., and ciliaris, thrive perfectly without protection in many gardens in the south, but not so freely in all situations as aurea. A. pulchra, Cumingiana, and psittacina stand well in front of a greenhouse in Yorkshire, with a mat thrown over at night, and in frosty weather during the winter, whether in peat or not; their greatest enemies are the snails. A. pulchra in a peat border, with leaves thrown over in winter, rotted; in a dry south border of sandy loam it has stood seven or eight years unprotected, but requires to be watered when growing in such a position; frost seems to have no effect upon it.

Mr. Van Houtte has not had sufficient experience of his mules to know how they should be best cultivated in England; nor even near Ghent, as appears by the inequality of his beds. That which might be suitable on the Ghent sand, might be quite inapplicable to a different subsoil and the moister climate of England. It is probable that the great quantity of dung in his compost had destroyed many and injured others amongst his plants; none of which, though very beautiful, were in particular vigour in those beds. Mr. Barclay's gardener, who has been remarkably successful in the growth of Alstrœmerias, perhaps from the vicinity of a peculiar loam, like that of Norwood, would probably be able to give us much better directions as to compost, &c. Alstrœmeria peregrina and Bomarea variabilis stand well in a peat border in Yorkshire, with a few leaves thrown over in the winter.—*W. H.*

CULTURE OF THE PINE-APPLE.

WHEN the philosopher failed in his attempts to burn the diamond he did not despair, because he felt assured from his knowledge of the nature of the subject, that the day would come when his successors in science would accomplish it; and in due time his prophecy was fulfilled. And when the learned President of the Horticultural Society, the late T. A. Knight, Esq., tried to grow good Pines without the aid of bottom-heat, his experiments proved signal failures. Yet such was his knowledge of the true principles of the art, that, like the philosopher above alluded to, if Mr. Knight had not felt assured that it might be accomplished he would not have attempted it, and in all the cavils that have arisen between theory and practice among gardeners since Mr. Knight's time, this failure of his has ever been the rallying point and the stronghold for the practical man to fly to—a something purely practical beyond the reach of science to impugn—that the President, with all his horticultural physiology, failed to grow Pines on the shelf; and I think I may safely affirm that if there be one point in practical gardening at the present day more clearly established than another, it is this, that good Pines cannot be produced without the aid of bottom-heat.

"But this the Gods in later times perform."—*Homer.*

In easter-week I undertook a journey to Bicton, principally to see that celebrated garden, where, among other things, the Pine-apples particularly engaged my attention. Some three or four score were just showing fruit, and a splendid show they made; but not satisfied with this superficial observation, I poked my fingers into the bark-bed, in which they appeared to be plunged, when to my surprise I found they were not plunged at all, but standing on pillars of brick, with a little loose

dry tan between the pillars to fill the bed up, so that bottom-heat to these Pines was as effectually denied as it was to those of Mr. Knight when placed on a stage. I need not say any more respecting these Pines at Bicton, since they have been already noticed, at p. 473, by Mr. Barnes himself. "Twenty-one Queen Pines, 106½ lbs.!"—a feat of Pine-growing the most extraordinary on record; for the fact of Mr. Mills swelling out two or three Providence Pines, in a small pit heated by dung-linings, to 15 lbs. weight, although it may astonish at first sight, loses much of its importance when it is known that the average weight of a well-grown Providence is about 8 lbs., whereas the average weight of a well-grown Queen is little more than 3 lbs., consequently any one versed in these matters will judge of the two productions by separate standards; in this case, it is not an isolated sample of two or three large Pines cut once in a lifetime, but an even crop annually—a score at a time, and that score above a cwt. How is this done? aye, there lies the secret. Two things, however, I observed which may give some clue to their culture; the first was, that ordinary Pine-growers use raw materials, whereas Mr. Barnes's fine soil is roasted, or otherwise cooked; in fact, his soils and their preparations form quite a theory of his own, differing essentially from ordinary practice. Other people's Pines are, generally speaking, water-drinkers, whereas Mr. Barnes brews a sparkling liquor expressly for his. But I must stop here and refer the reader for further information in this matter to an account of the culture and management of the Pine, published by the late Mr. Loudon, from Mr. Barnes's own manuscript in the concluding Number of the "Gardeners' Magazine."—*Alexander Forsyth, Alton Towers.*

Home Correspondence.

Disease in Potatoes.—Since I last wrote to you I am sorry to say that the Potato-murrain has made its appearance in Northamptonshire and the neighbouring parts of Huntingdonshire, and is spreading very rapidly, and will, I fear, do great damage unless the improved state of the weather checks the evil, about which I am not very sanguine. I have seen it on various kinds of soil, and on both early and very late planted Potatoes—on some, indeed, which are now in full blossom. It is quite as virulent on well-drained fields, whether the soil is bad or good, as on the cold, undrained clay of our forest-land. The worst case that I have seen is in Huntingdonshire, on an excellent piece of well-drained land, but lying within a few yards of the river, not however subject to be flooded. I do not find that the tubers are at present affected, but the haulm is decaying very rapidly, and in every case the blighted spots are covered with Botrytis infestans, Mont. You will be interested to learn that the mould upon the Potatoes which you sent me is identical with that upon the leaves, and the same with what I have received from Paris. On making a very fine vertical section through the less diseased portions of the tubers, I find incipient plants of the mould in the more healthy cells; for, in general, the brown spots do not at first consist entirely of decayed cells, but still retain many in a tolerably healthy state. At a later period, probably, all the cells would be more or less altered. Those which are uncoloured exhibit their usual appearance; but the walls of the diseased cells are thickened, and have a granulated appearance. Both in the coloured and discoloured cells the grains of fecula remain apparently unaltered, and are as sensible to the effect of iodine as ever. It is probable, therefore, that, at least in an early stage of the disease, the tubers would yield as good starch as those which are sound. There is not the slightest appearance of any processes upon the grains of fecula, as in the disease so admirably illustrated by Martius. It is the cellular tissue alone which seems to be affected. The cells immediately beneath the cuticle, especially where there is a depressed spot externally, are often impregnated with the mycelium to such a degree, that the pure white of the mycelium predominates, and the brown tint in a great measure vanishes. Even in this case I find the grains of fecula healthy and abundant. It appears, then, that the decay of the tuber is produced by the same cause which affects the leaves, viz., by the growth of a mould whose development has been promoted by the excessive wet. The parasite does not appear to have been observed before, but there is little doubt that it will now be found to be more or less prevalent in damp and ill-drained spots even in the driest years. The excessive development of the mould, and its consequent injurious effects, depending entirely upon the season, it will beyond doubt be impossible to find a remedy; nor does it seem from what has been stated above, that even the best cultivation will insure exemption. It is greatly to be desired that as such points are seldom, if ever, taken in hand by Government, some of our Agricultural Societies would from time to time take proper steps to insure the best information possible as to the extent and circumstances of any plague like that which is at present so injurious. The most valuable facts are thus obtained upon the Continent when the commissions are properly instituted; and in some cases, as in that of the calamity by which the Vines in France were for some time affected, such inquiries have been attended by the most beneficial results. It is impossible from any number of independent documents to arrive at the complete history of any disease like the present. A continued series of observations, conducted both by practical and scientific men, and thus embracing every possible point, and extending through remote districts, with the power of comparing individually the different phases it exhibits, or the varied circumstances under which it appears, can alone lead to anything satisfactory. The expense, doubtless, would be considerable; but the utility, whether immediate or more remote, would be fully commensurate with the expence.—*M. J. B., King's Cliffe.*——As you have laid great stress upon the want of drainage as being the cause of the murrain, I beg to inform you that the disease is as great on my premises and in my neighbourhood, on the driest chalk soil, as it is in low swampy situations. The other day my servant brought in a basket of three kinds, some of which were planted in October, flattering himself they were uncommonly fine; the soil from whence they were taken was remarkably dry. The foliage of the early planted beginning to turn, he was led to suppose they were ripe; but on a close examination of the sorts they were found to be infected just in the manner described by "J. C. M." in last week's paper. Our poor are making sad cry. They have not one peck in five free from disease.—*A. Gall.*——As I have already troubled you once on this subject, I think I may as well go on. As we are now eating in my family my No. 3 (Fox's Seedling), I had a quantity dug up on Friday the 22d, when, finding the disease had increased seriously in the tubers of this particular sort, during the interval from the previous Monday, I directed them all to be taken up and stored away. Your letter induced me to wait till Monday before I took any steps with regard to the rest of my crop. Yesterday I carefully examined all my Potatoes, and the result is as below:—1. Ash-leaved Kidney, haulm entirely gone, tubers sound, and in good order. —2. July, in three different situations: (*a*) Light soil verging on hazel mould, situated high and dry, sloping to south and trenched, subsoil sandstone rock with fissures—leaves partially affected, haulm almost clear, tubers quite sound; (*b*.) Thirsty sand, similar result; (*c*.) Moist clay, similar result, tubers remarkably juicy. —3. Fox's Seedling, dug up.—4. Peeler, leaf destroyed, haulm much spotted, tubers uninjured.—5. Lancashire Red, haulm entirely gone, tubers sound and full of juice; soil or rich garden mould, same as Julys (*a*).—6. Canada Pine; soil same as Julys (*a*), leaf much injured, haulm less hurt, tubers sound; a backward sort, not half ripe.—7. Dr. Henderson's, haulm nearly gone, tubers sound, in garden mould.—8. Mangold Wurzel, in same soil as Julys (*a*), almost entirely free, with the exception of a few spots on leaves, apparently not increasing; the plant continues in full vigour. —9. London Kidney, in garden and with Julys (*a*), haulm quite gone, tubers perfect, and in excellent condition for present eating.—10. Downton Yam, leaf gone, haulm almost gone, but still very green and fresh-looking under the skin, tubers perfect and very juicy; situation same as Julys (*a*)—11. Pheasant Eye, wet loam, not drained, leaf partially gone, haulm luxuriant and fresh-looking, tubers sound. I venture to hope, with Dr. Bell Salter, that the disease has made very little progress since my last; in fact, though I have made many inquiries, I have ascertained no new case of mischief within the last eight or ten days, and very little additional injury in those spots which were only partially damaged before. In some places, and with some sorts of Potatoes, the injury has been much greater than in others, and probably the early planted ones have on the whole suffered most. The panic is very great in the towns, and Potatoes are therefore unsaleable. In the villages the consumption is certainly diminished, and a cottager's wife told me yesterday, that her family had not eaten half so many Potatoes as usual this season, not because they had other food in abundance, but because, to use her own expression, "they seemed to go further." I suppose they have been less palatable. In reference to your remark, that the disease commences underground, I must beg leave, though no physiologist, to doubt it. I have, in very many instances, split, or divided the haulm from the blossom to the root, and in only two instances did I find any defect below the ground; both these were in the Julys (*b*); the outside appearance was that of mildew, the stalk at the lower end both above and below the surface of the ground was dry, wiry, and scarcely flexible; but this occasionally happens in ordinary seasons. I have found only one instance of the disease having penetrated the haulm more than skin deep, without destroying it; in this case, it assumed the appearance of a reddish brown canker. My observations would not lead to the inference that well-drained land has in any material degree escaped the scourge, and I feel fully justified in making the remark, from the very porous character of the soil around me, and my knowledge of the manner in which a large portion of it has been cultivated. It is a somewhat remarkable circumstance, that on Friday, the 8th of August, we had an unusual quantity of electricity in the atmosphere, and lightning from all parts of the heavens. We had also three nights' consecutive frosts at that time, and on Saturday, the 9th, the disease was first noticed in this neighbourhood. I do not pretend to infer that electricity has introduced the disease, but as the coincidence occurred, I have thought right to mention it. I am disposed to attribute the mischief to the cold, wet, and generally ungenial season, and perhaps to our want of sufficient knowledge of the habit of the Potato. Is there anything in the nature of the Mangold Wurzel Potato different from that of other kinds, or is my observation in its favour a solitary testimony?—*H. H., Petworth.*——Although the press has teemed with reports of the sad failure in the Potato-crop, nothing of the sort has been remarked in this part of the country, as far as I am aware, hitherto; and I live in a part of the country, the centre of Cheshire, where the Potato forms a most important part of the routine of tillage. The other day, however, my attention was arrested by a black-looking patch in my garden, and on close examination I soon discovered all the symptoms so much complained of, and which seem to identify it with this almost universal disaster; and which I at once must pronounce to be neither more nor less than mildew. I may, of course, be wrong in my assumption: this, time must prove; but mildew in general has such distinct features, that long experience in such matters can hardly be mistaken. I feel astonished (assuming for the moment that I am right in the opinion) that this had not been discovered before. In the specimens which I have examined, in three distinct stages, the points all agree with those related from the southern parts of the country. In the first stage, the black spot looks as though a hot coal of small dimensions had been laid on a given point. Had it not been for the unambiguous character of the second stage, I should have fancied that it was a parasite belonging to the genus Uredo. The second stage, if I may so divide the matter, appears to be the rolling or curling up of the leaves all over the plant, exhibiting thereby the back of the leaves, and the whole plant at this period appears white with mildew. This is soon succeeded by a general blackness and rottenness; the leaves are totally perished, the stem denuded, and the rot proceeding so rapidly, that portions of the stem soon become a pulpy mass. I cut into some tubers this morning, which belonged to roots nearly in the third stage, and I found the end discoloured in a considerable degree; more especially at that point where the string forms a junction with the Potato; this is just what I had expected. The Potato plant abounding so much in watery matter, appears to furnish a better subject than most plants for such rapid and astounding effects of destructive fermentation, or decay of the whole system. It is pretty clear to me that from the circumstance of its attacking the crop in the more southern parts of the island first, as also the earliest kinds in general, that this mildew requires a highly elaborated state of sap in the plant to facilitate its progress. Thus it is with the Pea mildew. If the general elaborations of the plant move, through the influence of heat and light, at a greater rapidity than can be sufficiently supplied by the ascending current, the mildew spreads with great rapidity. I think it likely that the incessant rains, accompanied with such low temperature, have been quite sufficient to warrant the assumption that the fibrous action of the root has been much paralysed. It is certain that the atmospheric conditions have not been as in ordinary summers. I take it for granted, that whatever arrests the secretions of the Potato, robs the tuber of a portion of accretive matter, and consequently of keeping, as well as nutritious qualities. I should, therefore, advise those who are troubled with this sad affair, to take them up, and use or sell them before the rot in the stem takes place; as it is known to proceed with prodigious rapidity, and may in its advanced stage produce disease amongst stock, if used in that state. I may add that I used two samples, carefully boiled, yesterday. One from a plot at a corner badly injured; the other from another corner at present free from this pest; the difference was considerable, both in colour and flavour.—*R. Errington, Oulton.*——I beg to mention that, so far as the Isle of Wight is concerned, the crop may be considered as destroyed. All the plans suggested at p. 575 have been tried in vain; apparently fine Potatoes have been carefully dug up and stored away, and after the lapse of a few days have been found all rotten and unfit for use. I have visited numerous localities in the island, and everywhere the fatal disease presents itself.—*G. F. Crossthwait, Ryde.*——As far as I have had an opportunity of observing, the South of Bedfordshire is only partially visited with the evil; its ravages are more manifest in some places than in others, and in all the disease appears in a milder form than is described in your paper. I have a piece of ground of about an acre and a half planted with Potatoes. The soil is a fine hazel loam, and the field slopes towards the south. Most probably Potatoes were never grown here before. I had the ground trenched 18 ins. deep in the autumn, and thrown up in hacks. The Potatoes were planted in April, with more than a usual quantity of stable-dung placed over the sets, so that they had every advantage both of drainage and manure. The plants were very promising until within the last three weeks, when an appearance of premature ripeness became visible. At this time, Monday Sept. 1, the Early Shaws have but little green remaining on their tops; the Pink-eyed Kidneys not much more; and the later kinds, though not withered, are as brown as they were last year at the end of October. I cannot find in any case that the stems have rotted, but they have turned black, and the foliage has quite disappeared. I dug up three rows of Early Shaws this morning, and the produce has proved better than I expected. The quantity is very small, when the expensive mode of culture is considered; but the proportion of unsound tubers is not large. This unsoundness appears most on the Potatoes nearest the surface, and presents a dirty-brown colour, which extends in various degrees into the structure of the tuber. The most remarkable circumstance is that this discolouration is not associated with rottenness, since the part affected is as hard and as juicy as that which is sound. I observed also that one Potato which had received a wound in the discoloured part was fast healing over, which I presume could not be the case if rottenness had commenced. The sound Potatoes of this lot of Early Shaws are as fine as any I ever saw brought to table. I took up nearly 60 bushels of Ash-leaved Kid-

neys last month, and there was scarcely an unsound tuber among them.—*H. Burgess, the Bury, Luton, Beds.* ——In the garden of my employer we have a small plot of ground expressly set apart for early Potatoes; it is not drained, and is rather of a wet and cold nature (a very unsuitable place for such a purpose you will think), still it has always grown them very well till this season, when the whole have been destroyed by the prevailing disease. Half of the piece is planted with an early Kidney, and the other half with a round sort called here the "Second Early;" they are now totally unfit for use, and becoming daily worse. The symptoms of the disease are precisely the same as those described to have taken place elsewhere. The Kidneys were spoiled first; none of them seemed to be attacked till they arrived at the full size. I have some later ones growing on a piece of drained ground about 60 yards distant; these I hoped had escaped, and I was beginning to ascribe the whole blame of the catastrophe in the others to the want of drainage, but within the last fortnight I find that these are also infected, and the disease is fast spreading amongst them. This is the only instance of the kind I can hear of in this neighbourhood (10 miles north of Carlisle); the crops in the fields are looking very well, and have not at present, either in root or haulm, the slightest indication of being contaminated.—*William Smith, Netherby, Cumberland.*——I am sorry to experience the reverse of your anticipations respecting the abatement of the Potato murrain. Although it was a fortnight later in making its appearance here than in most districts, during the past week it has ravaged as I witnessed in Kent; the haulm of early kinds was completely blackened in three days, and in the late kinds it is much discoloured with black spots. Some Potatoes are rotting; others have many specks, as you describe, resembling contused flesh.—*W., Gloucester.* —— The Potato plague has made its appearance in this neighbourhood, but its attacks at present are only partial; and it does not run its course in anything like so brief a period as some of your southern correspondents describe. A warm aspect and a well-drained soil seem to be no safeguard from its attacks; for I happen to know of an instance where Ash-leaved Kidneys, fromthe same seed, were planted on a dry sunny border, in a private garden in this city, and on a cold, shady, damp border in the same garden; yet the Potatoes in the warm and dry aspect are destroyed, while the others, under the shade and drip of trees, have shown no symptoms at present of being injured. In the case mentioned, however, I cannot help suspecting that the latter will suffer by-and-bye; the disease appearing to me to be in the nature of a fermentation or decomposition, which, when once induced, is encouraged and promoted by the presence of warmth. This view of the case also serves to explain the reason why the southern counties have been the first to suffer from this alarming desolation, and why the northern parts of the country may look out for its appearance amongst their crops before many days.—*W. Marshall, Ely, Cambridgeshire, September* 4.——I cannot agree with you in attributing the disease which affects the Potato-crop to excessive moisture. In the first place, is it a fact that the earth has been saturated with moisture to an unusual degree? Taking the deficiency of moisture during the last year I imagine not. But with respect to the Potato-crop, as far as I can perceive, there is not the slightest difference between those grown in light and heavy soil. In the neighbourhood of this place there are acres on the light ferruginous sand, on the edge of the cliffs, and consequently thoroughly drained, on which there is not at this moment a plant that is not infected. What the cause may be I do not pretend to say; but I do not think it can be traced to the excessive moisture of the summer. Had this been the cause, would not the decay have been more gradual? Would the destruction of the plant have been so very rapid?—*W. E. H., Sandown, Isle of Wight.* [It is not merely wet that has done the mischief; it is the combination of cold and wet acting upon very tender tissue. About that we entertain no doubt. We inquired as to drainage rather than asserted anything about it, as you will perceive if *our* remarks are again perused.]

Potato Disease, effect of Autumn planting upon.—I have perused Dr. Salter's letter (p. 561) with much attention, as describing, in my opinion, most correctly the alarming condition of the Potato crop in this county. As far as I can judge from personal observation, and also from what I can learn, the failure is all but universal. What the cause of this new disease really is, has not, I think, been as yet satisfactorily explained. I think that some of your correspondents will turn their attention to this subject, so as to discover, if possible, some means for preserving such portions of the crop as are not yet affected. In the description given by Dr. Salter, I have nothing to add, as I consider it very correct; but I confess that my observations lead me to differ from that gentleman as to the part in which the disease first takes its origin. He thinks it a kind of blight, beginning in the leaves and stems, extending downwards, and finally affecting the tuber; I confess my inability to explain satisfactorily what the real nature of this disease may be. Dr. S. seems to think that we must trust to microscopical observations to discover a parasite on the plant. I am not aware that the disease, which, when occurring in the animal world, is termed gangrene, or mortification, can be correctly applied to the vegetable kingdom, otherwise I should consider these brown spots to be incipient mortification, and that as the effect of this condition the death of the leaves and stem follows. A circumstance accidentally discovered seems to support this view. Previous to the appearance of this disease in any of the Potatoes in this neighbourhood, I was using at table some Ash-leaved Kidneys, of excellent quality, and so ripe, that from natural decay the haulm was withered. A small quantity of them intended for seed were left, and a few days more, upon digging them up, great was my disappointment in finding them all more or less affected with this disease. Now in this case, there was not any portion of the plant above ground which could be at all affected by "blight," or any other state of the atmosphere. I am, therefore, disposed to suggest whether the disease is not one primarily affecting the tuber, and probably the effect of continued wet and cold, together with an absence of solar heat and light, whereby the chemical changes necessary for the formation of starch, albumen, and other inorganic products have not been produced in the proportions necessary for assimilation. Chemical analysis of the tubers thus affected can alone prove how far this view may be a correct one. But what is of more importance is to suggest any plan for checking or preventing mischief to those crops that are not as yet at all, or only very slightly affected. As with the decay of the haulm all further growth is at an end, no good can accrue by leaving them in the ground; therefore, the sooner dug up the better. By exposure for a day or two to air and solar heat, such of them as are not very extensively affected may be checked from farther decay, sufficiently so for seed at any rate, and probably by cutting out the diseased portions before cooking, and by mashing, they may be wholesome as food. If superabundant moisture has in any way contributed to this disease, ridging up the rows very highly, so as to leave trenches below the level of the roots would not only keep them dry, but would expose a larger surface for the influence of solar heat and light to ripen the tubers. Nevertheless, a correct analysis of those Potatoes that are affected is most desirable, to satisfy the public how far it may be safe to use them, either for themselves or for pigs or other animals; as it has been stated that even animals fed upon them have died in consequence. As connected with the present subject, and as proving, in my opinion, that cold and excessive moisture have produced the failure, allow me to allude to the plan of autumn planting, as recommended by you in your volume for 1844. Last November I planted 3 gallons of the sort called "No-blowers," which with us generally ripen early in the autumn. The sets were planted whole, quite a foot deep in the ground, and imbedded in long stable manure not very rotten, and the rows 2½ feet apart. They remained the whole of last winter, which was a most trying one, without any kind of cover or protection. No appearance of vegetation took place till late in the spring, later indeed than the early sorts which were planted in the spring, which I attribute to the great depth at which the sets were put into the ground. About three weeks ago they showed the usual signs of ripening, and this day they were taken up; the produce of the 3 gallons being a sack (3 bushels). They are perfectly ripe, free from blemish of any kind, and altogether a very fine sample, and a most excellent Potato when dressed. This experiment I consider is highly favourable to autumn planting, and would seem to afford immunity from disease in such seasons as the present. It may at first appear contradictory to what I have said, relative to the condition of the Ash-leaved Kidneys, for certainly in this, as in the other instance, the haulm had decayed previous to the appearance of any disease in the crops in this neighbourhood. I can only account for those planted in the autumn having escaped a similar fate owing to the great depth at which they grew, thus keeping them comparatively dry and warmer, for on digging them up the long litter in which they were imbedded was scarcely more rotted than at the time of planting. The result of this experiment is, to my mind, so satisfactory that I consider the plan of autumn planting well worthy the more extended trial, for certainly there are few winters so severe as the last, or so adverse to the success of this system. We may, therefore, presume that in more open seasons the plan would answer still better.—***, *M.D., Eastbourne.*

Gutta Percha.—About two years ago some account was given of a new vegetable substance called Gutta Percha. This new material gives promise of considerable importance as connected with various manufactures. I find that I can with facility roll it out or spread it on cloth, by simply submitting it to a temperature below 200°, which renders it quite soft, and in this state it is readily pressed into moulds, or made to assume any pattern, by rollers or pressure similar to embossed leather. When minutely sub-divided and washed it is nearly white, and in this soft state readily tinted by the most delicate colours. The essential oils dissolve it at a temperature below 100°, and in this state it combines with solutions of caoutchouc; affords an excellent medium for mixing colours for painting, and forms a strong flexible cement for uniting fibrous textures. I have also combined it with caoutchouc in the mode sometimes called masticating, without the least difficulty. A substance possessing such qualities, and capable of being wrought with such facilities, will be brought into use for a thousand purposes. The country is indebted to Dr. Montgomerie, of the Bengal Medical Establishment for this boon, which is the more valuable, as he gives it together with such information as he has collected, gratuitously to the public without any reservation for his own benefit. I owe to him the first specimen I obtained, and I have just received a considerable quantity imported through his exertions. —*T. H.* [We are indebted to the kindness of our correspondent for some most interesting specimens o fabrics obtained from this singular vegetable product.]

Glass Trade.—Under the conviction that your sundr articles, on the subject of glass, have been written in th same spirit of fairness and justice between the supplie and consumer, which distinguishes your Paper fro many others, I feel satisfied that you will be ready t receive any statement that may tend to show that th charges for home-made glass are not, with some compa nies, open to the animadversions so justly made by yo on others. I have just received a supply of substanti and flat sheet glass, cut into the sizes ordered, but th greatest quantity 26 ins. by 8, delivered at this town, a 5½*d.* per square foot, 16 ozs. to the foot. A lighter so would have been sent at 4¼*d.*, by Messrs. Hartley an Co., Wear glass-works, Sunderland. Their list of price in the way desired by your correspondent of last wee having been shown me at a nursery garden in the nort led me to apply to them.—*Justus, Nottingham.* [W are extremely glad to print this letter. If our corr spondent will turn to p. 343, he will see that we lon ago pointed out Mr. Hartley as the man to break throug the intolerable combination among the English gla trade.]

Wasp-traps.—The greatest number of nests taken i one season by my directions was 84. They we squibbed at night in the usual way, dug up, and smashe on the spot; but I do not recollect whether a gre quantity remained or not for the destruction of frui I have reason to believe that taking nests in that ma ner does not destroy half the wasps. It is not enou to say that there are a great many, or very few wasps, should be stated how many, at what season, &c. I wi therefore give a minute account of one night's work :- On the 27th August four nests were taken at 4 o'clock the afternoon; the combs, grubs, and wasps were p into a bag, and they weighed 14½ lbs. Glasses a funnels were put into each hole. On the 29th of Augus at 5 o'clock in the morning, the funnels were ea stopped up with a tuft of Grass, and the wasps caug therein were 1234, 850, 420, 404—Total 2908! Near 60 nests have been taken, and I cannot think wh these insects now subsist upon. Not one has been se on the fruit, and only two or three stragglers occasio ally in the garden. Currants, Gooseberries, Cherri Apricots, and Grapes have hitherto escaped, as ha also Plums, Peaches, and Nectarines, which are ju ripened. A person looking on, when two holes out the three were stopped of one nest, the wasps came o and stung him twice on one hand at the same instan Taking a nest with a squib, even at noon, and diggi it out, puts the wasps on the look out, but I do not fi that they are particularly inclined to sting at that tim —*T. N. P., North Shropshire.*

The Nerquis Plantations.— Having read in yo columns many different opinions respecting these pla tations, and the mode in which they have been manag in planting, pruning, thinning, and protecting—perha you will receive the opinion of one, who, by the cour he is pursuing—a course affecting his own perso interest—will at least prove his sincerity. I have pu chased four thousand of the trees at Nerquis, the thi nings of Dr. Thackeray's woods, and having contract for the fences on the railroad from Chester to S Asaph, on the Chester and Holyhead line, I hope purchase thousands more. I must therefore be fu satisfied that the system pursued for so many yea together in all respects has proved efficient to secu sound and wholesome timber. As might be expected a matter of such deep interest to me, you will easily b lieve that I have repeatedly and minutely examined t forest of Nerquis, and the result of my anxious inves gation is, that I know not where finer or sounder you Larches of their age could be found than those I pu chased from these mountains. They are clean and fr from dead wood and knots, all in a healthy conditio Now this state of the young timber must be eviden that the system so long pursued by Dr. Thackeray planting, pruning, thinning, and protecting the woo is a system to be approved of, and not to be condemne as I have sometimes seen it by writers in your Pape but, as far as I can recollect, by none, excepting M Billington, that have availed themselves of the invi tion given them to examine for themselves these exte sive plantations, and with or without the wood-keep Now if such be the state of the young timber on N quis mountain, what may not be expected in that whi remains to grow old? and for the improvement of whi the former are removed gradually as there is occasi for it.—*R. L. Jones, Minerva Lime Works, Denbig shire.*

Pine Apples.—Of late a great deal has been writt respecting the culture of the Pine-apple. At p. 473 have an account of 21 Queens when cut weighing 106 l 8 oz. imperial. Now, it would put an end to all m givings in the matter if gardeners would send their pr ductions to 21, Regent-street, in order that the judg of the Horticultural Society might give the circumfe ence, length, and weight of fruit; for, although I kn that results equal to the above have been obtained several establishments, yet some are sceptical on t matter. Pines from Bicton were sent to Chiswick sh in July last year, of which it was said, at p. 479, th the Enville, Providence, and Otaheites did not maint the character of that establishment. If such Queens a cut at Bicton, why not produce them at the Hortic tural meetings? I expect to cut a few good Quee this season, and should they come near Mr. B.'s, I w send them to Regent-street.—*H. M.*

Yucca gloriosa, &c.—Two curiosities have appear

in my garden this year; one is a monster Melon (12½ lbs. in weight); its girth one way is 2 feet 7 inches, and the other, 2 feet 4 inches. The other is a Yucca gloriosa in blossom for the first time these 11 years; its flower-stem is 10 feet high, and on it are 36 small branches, with from 16 to 18 blossoms on each, nearly all now fully expanded, and looking at a little distance like so many large hen's eggs strung on a tall pole! It grows in the open ground, and is a very healthy plant. Will you inform me whether the Yucca, when arrived at maturity (as this I suppose is), blossoms every year or not?—*J. B.* [Yes].

Seedling Pelargoniums.—Being an admirer of Pelargoniums, I have read with interest the descriptions given in the *Chronicle*, from time to time, of the new varieties that have appeared in the character of seedlings at the exhibitions at Chiswick and Regent's-park; and I was glad to find from Mr. Beck's advertisement that several of these varieties were to be obtained at the moderate price of a guinea a plant, direct from his establishment at Isleworth. I have been surprised, however, to observe several advertisements in the *Chronicle* lately of new varieties, at two and three guineas each, which I believe have never appeared at the public exhibitions alluded to. Now, it appears to me most important to the cultivators of this beautiful flower that some impartial standard of merit should be established, and this may now easily be accomplished, if the public refuse to purchase any new plants that have not been exhibited either at Chiswick or Regent's-park. By such an exhibition, the thousands who attend these attractive scenes would have an opportunity of forming their own opinion of the merits of each new variety as it appeared, whilst we in the country, who cannot often enjoy this pleasure, should obtain, through the medium of the *Chronicle*, the opinions of competent and impartial judges. If the growers, or the purchasers of new varieties, consider their plants worth two and three guineas a-piece, why not advertise their merits by a public exhibition; but, if they shrink from this test, it is too much to expect the public to depend on their own individual opinion, which must necessarily be interested, even if their descriptions are not intentionally exaggerated. If, however, after the example set by Mr. Beck, of sending out only such flowers as have been publicly exhibited, people are foolish enough to order flowers, at high prices, upon the mere *ipse dixit* of the parties interested in their sale, they will only have themselves to blame if they find themselves disappointed or taken in. In conclusion, permit me to express my earnest hope that the recent admirable regulations of the Horticultural Society, as to the exhibition of seedling Pelargoniums of the first and second year, will in future be strictly adhered to.—*Anti-puff, Gloucester.*

Societies.

HORTICULTURAL SOCIETY.

Sept. 2.—R. W. Barchard, Esq., in the chair. J. Ridgeway and H. Winch, Esqrs., were elected Fellows. It was announced that it was the resolution of the Society to publish a Quarterly Journal of Horticulture, of which the first part would appear on the 1st of January, 1846. In this work it is intended to give periodically an account of the proceedings of the Society, the journals of the Society's collectors, papers on horticultural practice or subjects connected with gardening, reports upon the new esculents, fruits, or ornamental plants that may from time to time be introduced, an account of all experiments made in the garden, and such other matters bearing upon horticulture as may appear interesting to the public. It will be distributed gratuitously to Fellows of the Society instead of the Transactions, which will be discontinued after the completion of the current volume.—In regard to the subjects exhibited, several things well worthy of remark were produced. Messrs. Rollisson, of Tooting, sent Catasetum Russellianum, the pretty white flowering Burlingtonia candida, Dendrochilum filiforme, and Miltonia spectabilis, for which a Certificate was awarded.—From Messrs. Veitch and Son, of Exeter, was a Heliotrope from Peru, probably H. incanum, very inferior both in beauty and fragrance to the common species; and a perfectly new species with yellow flowers of the almost forgotten genus Salpiglossis. This was from Chili, and was stated to be blooming freely at Exeter in the open border; a Banksian Medal was awarded for it.—Mr. Ayres, gr. to J. Cook, Esq., was awarded a Certificate for the new Campanulaceous plant, mentioned at p. 579. It proves to be the long-lost Campanula grandiflora, which Mr. Fortune has again introduced, and whose beautiful large blue flowers, standing well up on long pedicels above the foliage, render its re-introduction a great desideratum. Mr. Ayres was also awarded a Banksian Medal for a well-bloomed plant in a pot of the beautiful Echites splendens. It was mentioned that the great secret in flowering this well in a pot was, to give it a brisk bottom heat, and, considering that it comes from Brazil, where the soil is heated to a considerable depth by a warm sun, this is no doubt just the secret; the specimen formed a good example of what may be done with such things in pots, under good management. From Mr. Robertson, gr. to Mrs. Lawrence, were two beautiful plants of Dendrobium chrysanthum, whose long streaming branches, covered with bright orange flowers, produced an exceedingly gay appearance; Oncidium microchilum, a Guatemala species, the Chinese Vanda multiflora, whose flowers are prettily marked with concentric brown bars; a fine Curcuma Roscoeana, having a long close spike composed of large orange bracts, which nearly hide the flowers, a well cultivated Aphelandra cristata, together with Epidendrum ciliare, Mormodes aromaticum, Pitcairnia odorata, and cut flowers of the beautiful stove-twiner, Dipladenia crassinoda; a Knightian Medal was awarded for the Aphelandra cristata, and the Dendrobiums. From the Royal Botanic Garden, Kew, was Chirita zeylanica, a rare stove plant, with dull purple Foxglove-like flowers. Mr. Carton, gr. to the Duke of Northumberland, at Sion, sent a group of seedling Gloxinias, which had been raised between Sinningia hirsuta and G. caulescens; the object being to obtain the arborescent character of the former with the better-coloured flowers of the latter, and although the flowers were generally without brilliancy, yet this object was in some measure effected; for some of the seedlings having coloured blossoms, evidently partook of the character of the male parent; a Certificate was awarded for this effort, which was considered to be a step in the right direction towards obtaining something good. From the same collection was a cut branch of a Clerodendron, said to be a hybrid between squamatum and infortunatum; it was not different, however, from fallax.—Seedling Petunias came from Mr. Marsh, gr. to Col. Smith; Mr. Kendall, of Stoke Newington, sent a seedling Fuchsia named Enchantress, and from Mr. Beck, of Isleworth, were blooms of his seedling Pelargonium Rosy Circle, which has been successfully exhibited at the late great Horticultural Meetings.—Mr. Glendinning, of Chiswick Nursery, sent a Veronica from New Zealand—a neat, graceful-looking greenhouse shrub, with numerous spikes, 6 or 8 inches in length, of minute blue flowers; it is one of the plants called V. salicifolia; a Banksian Medal was awarded for it.—From Mr. Dawson, of Brixton Hill, were two magnificent Cape Heaths, Irbyana and infundibuliformis, for which a Knightian Medal was awarded; and Mr. Jackson, of Kingston, also sent a famous specimen of Erica retorta, together with Chironia floribunda, the purple Statice Dickinsonii, a noble plant of S. sinuata, which is so seldom seen well cultivated, and four cut specimens of seedling Phloxes; a Banksian Medal was awarded for the plants.—Finally, Mr. Gaines, of Battersea, sent a Lobelia lutea from the Cape of Good Hope, several pots of seedling Achimenes, his Duchess of Sutherland Fuchsia, and his seedling Dahlia named Princess Radziwill. — Of Fruit, Mr. Chapman, of Brentford, sent specimens of his Prince of Wales Plum. This was stated to be a seedling from the Orleans, which it much resembles; it is apparently a great bearer, and it is said that it never cracks though ever so ripe. A Certificate was awarded for it.—From Mr. Fleming, gr. to the Duke of Sutherland, was a Lateef Melon, weighing 6 lbs. 6 ozs. This large yellow Gourd-like Persian variety was mentioned by Mr. Fleming to be excellent in a good season; and his opinion is, that it will take the place of the Cabool, which he finds does not ripen well in seasons like the present.—Mr. Meads, gr. at Mr. Glendinning's, Turnham-green, sent a specimen of the white Ispahan Melon, weighing 6 lbs. 9½ ozs. This is the rare rich variety mentioned in the Leader of last week, which the late Mr. Knight took great pains to bring to the highest state of perfection. The fruit was raised from seeds left by him, and is therefore perfectly genuine.—From Mr. Scott, gr. to Sir G. Staunton, Bart., were three ripe Mangoes. It was mentioned that this is believed to be the second instance of this highly esteemed fruit having been ripened in England. The other instance was that of the late Lord Powis, who ripened several at Walcot. The specimens now produced were of nearly the same size, and of a better variety (a gentleman present pronounced it to be the famous Alphonso kind), and abundantly proved that with proper care this kind of tropical fruit can be brought to table. They were beautiful specimens of growth. A Knightian medal was awarded for them.—Mr. Elliott, gr., Ripley Castle, sent a bunch of Grapes, named the Trebiana, weighing 2lb. 8oz.; it appeared, however, to be the Syrian in an unripe state. —Mr. Mills, of Gunnersbury, sent excellent specimens of Champion, Browston Hybrid, and Jewess Cucumbers. —And, finally, Mr. Lawrence, of Parliament-street, sent a handlight for Cauliflowers, &c., which had two openings in the pyramidal or top part, through which a stream of fresh air might pass without chilling the plants.—From the garden of the Society were several specimens of Achimenes, in pans, which, as mentioned in our last report, were grown in a pit without the aid of artificial heat; the useful Niphæa oblonga; Roscoea purpurea, a plant related to the Ginger; Statice mucronata; and a yellow flowering species of Statice, sent by Mr. Fortune from China. This, having a straggling appearance, has not realised the expectations formed of it. Mr. Fortune mentions that it grows in sand on the sea-coast, where the flower-stem rises only about 6 or 8 inches in height; it is, therefore, probable that it has been treated too kindly; if it were grown in poor sandy soil, it might possibly be rendered dwarf, when it would be well worth cultivation. From the same collection were Coronilla juncea; a fine plant of Fuchsia fulgens; a specimen of the white Maurandya; and a blooming plant of Lilium lancifolium album, which had been grown from a single scale, and brought to the state in which it was shown in the short period of four years. In addition to these were several novelties, among which may be mentioned a pretty greenhouse-plant, Indigofera decora, recently sent by Mr. Fortune, producing its purple flowers (which are somewhat hid by the foliage), but feebly after its voyage; it promises, however, to be a profuse bloomer. Along with this were Chirita sinensis, a handsome stove-plant, with lilac flowers, having yellow spots in the interior; Anemone japonica, a new and possibly hardy species from the north of China, with red blossoms, and apparently a free bloomer; Tacsonia mollissima, whose long pink flowers are probably as handsome as those of the old Tacsonia, which some time ago excited so much attention; and cut flowers of Cestrum aurantiacum, a pretty autumn-flowering greenhouse shrub, whose bright orange blossoms are succeeded by small white berries similar to the Snowberry. From the same collection were two species of Begonia, a Cape Heath, Stanhopea Wardii, Oncidium microchilum, and a plant of Achimenes longiflora, which was flowering for the second time this season; it first came into flower in May; when the blossoms had begun to fade, they were picked off, and the plant placed in a moist stove, where it came again into flower, and is now in great perfection. The fruit from the garden consisted of the Caillot Rosat Pear, a good bearer, and better flavoured than most early varieties; and two Melons, the Cabul, weighing 7 lbs. 14 oz., and the Kashan Melon, raised from seeds received from T. Farrant, Esq., from Persia, being the first of its fruit that has been raised in this country. These were, however, scarcely ripe, and therefore nothing can be said respecting their quality.

Country Shows.

Newcastle Botanical and Horticultural Society.—This was the fourth exhibition for the present year. The *Pine-apple*, a Queen, which gained the first prize, was from Lambton Castle; another, an Enville, came from the same garden.—Of *Grapes* there were four magnificent dishes, to which a first prize was awarded, from Wylam Hall.—The *Melon* which gained the first prize came from Close House; it was a fine full-flavoured specimen of Ispahan.—Of *Peaches* and *Nectarines*, from the open wall, there were some good dishes from Shotley Grove; one, a Royal George, measured 10 inches round. —A few *Plums* were also produced from the same garden.—The first prize for the best collection of *Carnations* was gained by Mr. Hobkirk, who sent Twitchet's Don John, March's Duke of Sussex, Wilson's Harriet, Sherwood's Corinthian, Butt's Lord Rodney, Selby's Queen, and Sandon's Lady Kay; his *Picotees* were Will Stuckley, Martin's Queen Victoria, Pike's Defiance, Grace Darling, Uncle Ben, Sharp's Hector, and Master Campbell.—A collection of *Cut Roses* was exhibited from Dissington Hall, to which a prize was awarded; it contained Devoniensis, Charles Duval, Aurora, Queen of the Bourbons, William Jesse, Duke of Devonshire, Cambronne, Coupe d'Amour, Coutard, Daphne, Jaune Desprez, &c.—Of *Dahlias*, Mr. Cook sent Lady Antrobus, Phenomenon, Beauty of the Plain, Exquisite, and Marquis of Lansdowne; with the self-coloured ones, Standard of Perfection, Aurantia, Nonpareil, Admiral Stopford, Mrs. Shelley, and Lady Harland; and from Jesmond Cottage, were Empress of the Whites, Bee's-wing, Aurantia, Vivid, Rouge et Noir, and Antagonist.—Of *Miscellaneous Plants*, Dr. Young sent the beautiful Lilium lancifolium rubrum, the elegant Humea elegans, Erica eximia, E. ampullacea rubra, Nemotanthus longipes, Achimenes grandiflora, A. longiflora, Justicea carnea, J. glabrata, Vinca rosea, V. rosea alba, Gloxinia maxima, G. Youngii, &c.; from Jesmond Park were Lilium lancifolium album, and several varieties of Erica, &c.

Haddrick's Mill Florists' Society.—This was their Show of Carnations, Picotees, and Gooseberries. The prizes were awarded as follows:—*Carnations*: Mr. T. Wilson, 1st, 2d, and 3d, with Brook's Flora's Garland, Cherrywood's Corinthian, and Sandon's Lady Kay; Mr. F. Mitchinson, 4th, with Sealey's Princess Royal. *Picotees*: Mr. R. Rawling, 1st, 2d, and 3d, with Dickson's Trip to Cambridge, Norman's Defiance, and Giddon's Tamer; Mr. F. Mitchinson, 4th, with Master Campbell. *Gooseberries, Red*: Mr. J. Dees, 1st, with Champion, 22 dwt. 11 grs.; Mr. Bates, 2d, Roaring Lion, 22 dwt. 9 grs. *Yellow*: Mr. J. Dees, 1st, with Hilot, 20 dwt. 12 grs.; Mr. R. Ramsay, 2d, Gunner, 20 dwt. *Green*: Mr. J. Champly, 1st, with Peacock, 21 dwt. 11 grs.; Mr. M. Ford, 2d, Peacock, 20 dwt. 1 gr. *White*: Mr. J. Dees, 1st, with Eagle, 20 dwt. 15 grs.; Mr. M. Ford, 2d, Eagle, 18 dwt. Mr. Robert Ramsay, of Kenton, produced a fine dish of *Seedling Gooseberries*, many of them weighing 15 dwt. and upwards.

Reviews.

A Treatise on the Forces which Produce the Organisation of Plants. By J. William Draper, M.D. Professor of Chemistry in the University of New York.

If ever we are to advance our knowledge of the secrets of organisation, it must be by calling in the aid of all classes of investigators of the properties and functions of matter. A single cell, invisible to the naked eye, may be disregarded by a general observer of nature, one who is fond of contemplating nature in its collective form and broader features, but it is of individual cells that the whole vegetable and animal kingdom is built up, and before we can understand the functions of the collective masses they form we must know the functions of the individual cells. Because these cells are mostly invisible to the naked eye, the microscopist has appropriated the investigation of this subject to himself, and frequently dogmatised upon the properties of the cell to the exclusion of every other inquirer. The chemist, on the other hand, has regarded the living cell as a globule, has imagined it to possess no other properties than those of inert matter, and endeavoured to account for the phenomena of the organic world upon the principles deduced from an observation of the physical

properties of matter. In this latter class we must place the author of the volume before us, and we do this without any wish to depreciate the labours which he details in this volume, which are, we think, of the highest importance to science, and not wanting in practical value.

The object of this treatise is to point out the precise influence of agents on plants which are not often alluded to in physiological inquiries, viz., electricity, and light. If the author is not supported in some of his conclusions by the facts he has brought forward, we have no hesitation in saying that he has pursued his subject in the love of it, has opened up new paths of inquiry, and produced a volume which no one can read without interest and advantage. One of the subjects which he discusses here with much ability is the cause of the ascent of the sap, and descent of the proper juices in plants. He refers this to capillary attraction, and reduces this phenomenon, and that called by Dutrochet endosmose and exosmose to the relative attraction existing between the sides of cells, tubes, and particles of matter for fluids of different density, depending on the induced state of electricity existing between them. We regard the explanation given in this work as altogether the best that has appeared on this intricate subject. That it explains all difficulties we cannot assert.

Another portion of this volume, which we have read with peculiar interest just now, is that of the influence of light upon plants. Dr. Draper is well known in the scientific world for his researches upon light. He divides the rays of light into luminous, tithonic, calorific, chemical, and phosphorescent. We cannot here enter into the detail of the experiments by which he establishes the essentially different properties of these classes of rays of light, but by various arrangements he has succeeded, to a greater or less degree, in isolating each of these rays, and examining their properties. One of the conclusions arrived at by Dr. Draper, which is of some practical importance, is that light transmitted through yellow solutions, decomposes carbonic acid in vegetable tissues. The substance through which he allowed the rays of light to pass was a solution of the bichromate of potass; this solution was found to possess the property of absorbing all the rays of the spectrum, except the luminous rays. Under the influence of these rays, the decomposition of carbonic acid, the formation of chlorophyle, and the greening of plants were observed to go on with the greatest rapidity. This is in accordance with the observation made by Mr. Hunt (*Gard. Chron.*, Aug. 16), that the luminous rays acted an important part in "the formation of woody fibre." Although we believe that the phenomena of germination do not, as far as the growth of the embryo is concerned, differ from the other processes of vegetable growth, it is quite in accordance with this view that plants do not germinate under the amount of light that is required for developing the coarser tissues and older parts of plants.

It is curious to observe how sometimes the most recondite and abstract inquiries of science suddenly lead to a practical application. Thus the the inquiries of Ampere and others into the nature of electro-magnetism has terminated in the formation of the electric telegraph, whilst the researches of Newton and Herschel, in the hands of Hunt and Draper, are promising practical principles for the growth of plants.

Dr. Draper has in some parts of his work indulged in speculation; but it is precisely to a mind constituted as his is that we give a right to speculate, because we know it cannot depart far from the sober path of induction.

The following extract will give an idea of the work:—"From considering what takes place when a green leaf is enlightened by the sun, we are thus allured to pass on, step by step, to reflections on the history of the solar system, and to changes which have happened to the earth. In the same way that the stem of an exogenous tree is a lasting record and memorial of the returning summers it has witnessed, each ring that we see pointing out the growth of one season, and being, so to speak, an index of the amount of light which has been at play; or when casting our eyes over the climates of the earth, we observe in the tropics a rank vegetation, and trees and flowers flourishing all the year round; or, coming to the temperate zones, we find a hardier growth, and the soil only yielding its fruits to human industry and skill; or, passing towards the poles, the stunted plants, and lichens, and mosses, and great plains covered with perpetual snow, and even in these inclement regions all vital operations under the control of astronomical causes. Do not all these serve to set forth the entire control which the solar rays have over these phenomena, and teach us that the same kind of reasoning which applies to things taking place in our time, applies also to things which have preceded it; that if the section of an exogenous stem, or the climate distribution of plants, point out a present connexion and present relations with the sun, so do those fossils which are dug out of the ground point to similar relations in former times; their magnitude and luxuriance indicate a more brilliant ray. From the beginning of things no natural law has ever changed; results are obtained in these times by the same operations or mechanism by which they were obtained of old. As with us, so then, when the sun-beam falls on a leaf the yellow ray is absorbed, and if carbonic acid is present it undergoes decomposition, green matter is rapidly formed, a mixture of oxygen and nitrogen gases is emitted, and carbon, oxygen, hydrogen, and nitrogen are fixed in the plant. The seat of this action is now as it was then; that face of the leaf which is exposed to the sky, and the nutritious juice thus formed, turning over to the under face of the leaf, is there concentrated by the evaporatory action of the stomata. From these chemical changes mechanical force arises, and the nutritious sap is impelled downwards or brought into relation with all parts of the plant. From it, sugar, gum, starch, woody fibre, albumen, fibrine, &c. are formed, and these are lodged in various parts, or stored up for the further purposes of the economy."—*L. E.*

New Plants.

GARDENIA STANLEYANA. Lord Derby's Gardenia. (*Stove Shrub.*) Cinchonaceæ. Pentandria Monogynia.—The first intelligence which the public received of the existence of this noble stove plant was derived from the Horticultural Society, at one of whose meetings in London a specimen was exhibited from the Royal Botanic Garden at Kew. It bore several of its huge flowers, which resembled vegetable trumpets, and was a most remarkable production. The flowers had, however, faded a little, and the snow-white edge of the corolla, in which much of the beauty resides, was spotted and discoloured. The mere fact, however, of a plant having flowered with blossoms eight or nine inches long, and nearly five inches broad, was quite enough to attract attention to it. It flowered in the Nursery of Mr. Glendinning of Turnham Green in June last. Sir William Hooker has named the plant after the Earl of Derby, one of the great patrons of natural history of the present day, and in whose service Mr. Whitfield was engaged when he discovered the plant. A species better suited to bear the name of this distinguished nobleman could not have been selected. For ourselves we have had small opportunity of studying the species, and we therefore gladly avail ourselves of the following memorandum, with which Mr. Glendinning has been so obliging as to favour us. "Mr. Thomas Whitfield, a most successful investigator of the most unhealthy parts of Africa, succeeded in introducing along with other rare species from Sierra Leone, all which are now in my possession, this remarkable and beautiful Gardenia. The flowers are sent up in great profusion from the base of the numerous shoots, which under good cultivation are always abundant and healthy. They thrust themselves upwards through the beautiful green foliage in a nearly erect position, and are nine inches long, resembling a series of spotted trumpets, thus presenting a very singular and attractive object. The flowers themselves are not unlike the spotted Japan Lilies, and like them also very fragrant. What will render the plant a great favourite in our stoves is its easy cultivation. I would recommend rough peat, leaf mould, and silver sand in nearly equal proportions; let the pots be well drained, and place a little moss over the drainage before potting, to prevent the compost from mixing with the drainage; place the plant in a rather high temperature in a close house or pit, and give abundance of atmospheric moisture; under these circumstances the cultivation and flowering of this choice exotic will be certain and complete."—*Botanical Register.*

Garden Memoranda.

Mr. Mitchell's, Kemp-town Brighton.—The nursery here contains about 5 acres within the walls; it occupies a cold, bleak situation, near the South Downs and the sea-coast, and is divided into squares by cross walls. In one of the Vineries we noticed some well-swelled Black Hamburgh Grapes, which were remarkably well coloured; from long experience Mr. M. has found that the art of colouring Grapes well rests entirely in judiciously admitting air when the house is opened, and he attributes his success solely to this system. The house is heated with a common flue, and the Vine-leaves were perfectly healthy and free from insects. The Vines have been planted about five years, and each is producing on an average about 33 good bunches of fruit. Upon an east wall were some well-swelled Peaches, on trees which had been removed from a south aspect, where all efforts to grow them had failed, the aspect being very cold. The trees are not summer pruned, but the young shoots are allowed to grow out from the wall during the summer months, and are afterwards nailed and pruned at the same time, in the proper season; that being all the management they receive. The young shoots are left untouched, in order to protect the fruit from the sea breeze. Some idea of the bleakness of the place may be formed, when we say that Dwarf Kidney Beans are protected in squares by hedges of Scarlet-runners, and tall varieties of Peas, which are secured by firm tying. In the corners of the walls are some fine old Fig-trees, which seem to be quite naturalised; they are never pruned, and they bear and ripen an abundance of fruit.—*W. S.*

Mr. Groom's, Clapham Rise.—The magnificent collection of Japan Lilies for which this establishment is remarkable, is now in great perfection, and it is scarcely possible to imagine a more beautiful display. Several of the plants measure between 6 and 7 feet in height, and have from six to eight stems, each producing about 14 blooms. The greater proportion of them consisted of the white variety, but punctatum, roseum, and rubrum, the latter perhaps better known as speciosum, were also coming fast into bloom. Of these, rubrum has the most beautiful flowers; but the others are also exceedingly handsome. Album and punctatum are the most common, and roseum the rarest. Not only are these Lilies extremely handsome on account of their showy blossoms of the richest colours, but they have also an agreeable aromatic fragrance, which adds considerably to their value; they moreover possess the additional recommendation of blooming at this season when flowers are scarce, and for decorating the greenhouse and conservatory they are invaluable, as they continue to expand their gaudy blossoms in succession for a considerable length of time. In the open border, quite exposed in front of one of the houses, Mr. Groom has a prepared bed containing about 200 bulbs, which, although covered only about 4 inches in depth with soil, have stood the severity of last winter with impunity, and, judging from the number of flower-buds, will soon be a complete sheet of bloom. All the kinds have proved perfectly hardy here, Mr. Groom having grown them in the open air for nearly four years. The plan pursued in the pot culture of these Lilies is to grow them in pots of a large size, having plenty of drainage, in peat only, mixed with a small quantity of fine sand. One great point is to insert the bulbs at a depth to allow a sufficient quantity of soil above them for the stem fibres to root into. They should only be re-potted when the bulbs are in a dormant state, as they do not like the soil about their fibres to be disturbed; they are easily increased by their thick fleshy scales, or by placing pieces of turfy peat round the stems of the plants, at a sufficient distance to allow room for finer peat to be put next the stems.

Miscellaneous.

A Monster Cucumber.—A Cucumber was cut a few days since by Mr. Smith, gardener to E. Stedman, Esq., of Belle Vue House, Sudbury, Suffolk, from the middle of which grew a perfectly-formed leaf, with a footstalk at least 3 inches in length springing from the very heart of the fruit.—*Essex Standard.*

Orchis sambucina.—The only marked distinction between the beautiful yellow and white Orchis sambucina of the Alps and Orchis provincialis is, that the latter has the tubers undivided, and the former belongs to the division which has palmate tubers, sambucina having short prominences at its base. In colour, fragrance, and the habit of growing on parts of high mountains where the soil is blackish and where the clouds frequently rest, they agree perfectly. Having cultivated Orchis fusca in a large pot of strong alluvial soil, mixed with a little of pulverised chalk (the pot being plunged in sand, and the tubers set about 3½ inches under the surface), I examined the state of the new tubers this morning, as the leaves had died entirely away. The new tubers of those which had survived the winter frosts were large, and of the purest healthy white; and although the plant belongs to the section with undivided tubers, and those last year were undivided, the largest of the new tubers had two strong lobes at the base. This circumstance, arising in the very season of cultivation, shows how Orchis provincialis may, in a different locality, acquire the prominences which have been supposed to distinguish sambucina from it. The plants called sambucina, as far as I have seen, are more vigorous and grow in colder quarters. The fine crimson Orchis with an orange throat, called O. Schleicheri by Sweet, grows in company with the yellow on the southern brow of the Alps, and differs in being scentless, and a little also in the length of the spur; but, although it is difficult to understand why those peculiarities should attend the change of colour, from the manner in which they grow intermixed and in contact with each other, with foliage and tubers precisely similar, it can scarcely be doubted that they are seminal variations. I saw one plant on the brow of the St. Gothard of an intermediate colour, with the peculiarities of the crimson plant.—*The Hon. and Rev. W. Herbert, in Botanical Register.*

Bees.

Swarming of Bees.—As it must be desirable to apiarians to compare notes with each other, I beg to give some account of what has occurred in the way of swarming in this neighbourhood (junction of the counties of Ayr and Wigton) this season. In an apiary about three miles north of me, favourably situated, two stocks have produced eight swarms, that is, the stocks swarmed three times; the first swarms each casting once. In another apiary three or four miles south of me, is an equally favourable district: two stocks produced exactly the same result; and two or three years ago, in that locality, one stock produced seven swarms, throwing off four swarms itself, and its first swarm leaving off three! I much doubt if this is not almost a singular fact, in this climate at least. In my immediate neighbourhood, a hive swarmed on the 11th June, a very large swarm, which must have weighed 7 or 8 lbs. On the 30th July this swarm threw off a cast weighing 5 lbs., and on the 10th inst. it again threw off a colony weighing 2 lbs. Is not the circumstance of a swarm throwing off two swarms in the same season very rare? The weight of the swarms (with the exception of the first, which I estimated at 8 lbs.) I ascertained myself, by weighing the empty straw-hives, and again weighing them subsequently to the bees being hived. I have myself only two hives, which I obtained respectively on the 12th and 26th of June, being a first and second swarm from the same stock; they were both very weak, the one being only 2½ lbs., and the other 1½ lb. During the first month the one increased in weight 10 lbs., and the other only 5¾ lbs.; during the second month the increase was only 1½ lb. for one, and the other made no addition whatever to its stores, which, if anything, were rather diminished by a few ounces; thus the two hives agreed in giving unequivocal testimony to the unfavourable state of the weather for apiarians.—*Edgar Slade.*

ANSWERS.—*Northwood.*—Whenever cold or wet weather happens in summer or autumn, bees are sure to eat the honey farthest from the heart of the hive first. If your bees continue to do so, you had better take away the quantity of honey you think proper. Your collateral hive being fitted with three distinct colonies instead of one strong one, you must not let the bees get together, by merely opening the holes between the boxes, otherwise they will fight, and the loss occasioned may be more than the gain. Respecting the proper way of uniting bees, see remarks on this subject in the three last Nos. After you have smoked the bees, put them on a cloth; you may find out the queen by spreading them about with a quill. If you think that the centre box will not hold them, you may give them one of the end boxes, leaving the brood combs in it; perhaps it will be as well to do the same with the other box also. By that you may obtain the brood, which is a great object. At the end of the season, the bees draw closely together; confine them to the centre box. What you say respecting the quantity of honey sufficient for winter is not clear, viz., "will the honey of last year, with which the bees filled the centre box, which has been untouched, be sufficient to keep them through the winter." As the bees were in that box during last winter, how came the honey to be untouched? Of the plants frequented by bees, noticed at p. 595, I forgot to mention the Lythrum salicaria. This wild flower grows in damp places, and is particularly worthy of the attention of bee-keepers.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—As the nights become cold, a little fire must be given, not with any intention to promote growth, but to assist in ripening the succulent wood which has been made during the late dark summer. As all liberally-potted specimens have made unusual progress, it now becomes a serious matter with the cultivator how to sufficiently harden their growth, in order to make it stand the winter; admit all sunlight, and give air abundantly, when the temperature exceeds 80°. *Greenhouse.*—Climbers will always require attention to keep the shoots in their proper places; take care in training that the part of the trellis or stakes nearest the bottom does not get bare of flowering shoots, as the beauty of these depends upon being clothed with foliage and flowers from the rim of the pot upwards. Pot off seedling Calceolarias into small pots, and keep them close in a frame for a few days; get in cuttings of all the best kinds which will strike readily in a common frame. Lilium lancifolium will now be in its beauty; supply it bountifully with water, and shade the flowers from powerful sunshine to prolong their gaiety. Pay attention now to Chrysanthemums, they must not be stopped later than this, to have fine heads of bloom; a little liquid manure will assist them; let it be applied twice a-week, if your desire is fine plants with large flowers.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES

As the numerous varieties of Verbena are now in bloom, the best kinds should be selected for bedding out next year, also the particular habit and colour should be noticed for the better arrangement of them at planting time in the in-coming season. The same observation holds good in regard to the new Petunias, Fuchsias, Pelargoniums, &c. Where there are conveniences for storing up in winter, as many kinds should be grown as possible for planting on rockwork, in borders, &c., to produce variety, but in clumps nothing but first-rate kinds should be planted. Hoe and rake borders as often as they require it, and carefully weed beds that are filled up. *Pits and Frames.*—Continue to pot off such cuttings as are rooted; place them in a close pit or frame for a few days, in order that they may get established in the pots, when they should be removed to a sheltered situation to harden. Keep every pit or frame well filled, as no time should be lost in getting a sufficient stock for next year.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas must be sheltered from bright sunshine, as well as from excessive rain, keeping the pots free from weeds, and occasionally stirring the surface of the soil with a blunt stick. It is now a good time to get in plants from a distance, that they may be established before winter. *Carnations and Picotees.*—Layers, where sufficiently rooted, may now be taken off the stools, and potted in pint pots; the soil should be of a sandy texture, without any manure being mixed with it, in order to prevent the plants assuming too gross a habit, which is prejudicial to their health during winter. *Pinks* should be planted in their blooming beds without delay; occasionally, they are potted and sheltered, in a similar manner to the Carnation, and then turned out with the ball entire in the spring; where there is the necessary convenience, this latter mode is best. *Pansies* may now be divided and planted out; cuttings of the weakest shoots strike root easily, and make better plants than those of more robust habit. *Dahlias* should have all malformed flowers removed as soon as perceived; and, where necessary, some of the branches may be thinned out. Trap earwigs in every possible way, and keep the ground clean round the plants.—*C.*

IV.—PINERIES, VINERIES, &c.

Mushrooms.—As little can be added at present to former Calendars about Pines or Grapes, it will perhaps be as well to say something more about Mushrooms. The best way to secure good and lasting crops of Mushrooms through the autumn and up to Christmas, is to make the beds in good time, and to give them plenty of time, that they may work slowly, depending more on the warmth of the atmosphere than upon fermentation in the manure. The natural warmth of the last fortnight in August, and the first three weeks in September, will guarantee the safe working of the spawn, provided a proper medium is procured. Three things are requisite, in the dung, to ensure success in getting the spawn to work well; viz.—what is technically called "sweetness," an open texture, and a medium degree of moisture. It is a good plan to make the beds in the Mushroom-house at twice, that is to say, if the shelf be one foot in depth, which is not too much for substantial beds, eight inches might be made any time in July or August, and the remaining four inches as wanted. In this case I would get new droppings from the stable-door, with a deal of fresh litter amongst them; and add one-third of strong loam, at least, beating the whole into a solid mass. For the surface of such beds, well-fermented dung alone should be used, only made at least two months before the Mushrooms are required, giving it plenty of time, without the hurry of fermentation, to establish itself all through the mass. It should be borne in mind, that depth in the bed, and loam mixed with the dung, tend at all times to render the bed more durable. Remember that Mushrooms are as fond of abundance of air, and even light, as other plants. They grow most in the fields at night, not because they hate light, but because they can enjoy abundance of atmospheric moisture, which is so quickly dispersed by the returning day. Let, then, abundance of atmospheric moisture be secured, at all times; as also an unfluctuating temperature of 55° or 60°, and no fear need be entertained of injury from light or air, either day or night.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Particular attention now requires to be directed to the gathering of the earliest varieties of Apples and Pears. As a general rule, the latter may be considered fit when the stalk parts from the spur by merely raising the fruit to a horizontal position, without pulling. The Flemish Beauty is, however, an exception, and must be gathered whilst it still retains considerable hold, otherwise it becomes dry and musky, instead of being melting and sweet. The particular tinge of colour which Peaches and Nectarines acquire when ripe should be particularly observed, in order that they may not be touched till they readily part from the tree. Funnel-shaped gatherers, lined with velvet, have been recommended; but the hand is far preferable, if applied so as to grasp the fruit with gentle and equal pressure on five points of contact. In some cases the flavour of these fruits will be improved if they are not used till the day after they are gathered; but they must be laid softly on cloth, or on cotton covered with tissue paper. *Kitchen Garden.*—Onions are not generally so sound as usual, and are likely to keep badly. They will therefore require to be spread out thinly, and frequently looked over. Sow Cauliflowers on a warm border, in case the earlier sowings prove too forward. Sow and plant Lettuces. Thin Winter Spinach to three or four inches apart in the rows; vacancies may be filled up by transplanting, and by this means also the crop of Lettuce-leaved Spinach may be extended.—*E.*

State of the Weather near London, for the week ending Sept. 4, 1845, as observed at the Horticultural Garden, Chiswick.

Aug.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 29	28	30.303	30.271	69	42	55.5	N.E.	
Sat. 30	27	30.295	30.262	72	47	59.5	N.E.	
Sun. 31	28	30.288	30.263	75	54	64.5	N.E.	
Sept.								
Mon. 1	●	30.278	30.200	66	50	58.0	N.E.	
Tues. 2	0	30.179	30.168	64	47	55.5	N.E.	
Wed. 3	1	30.201	30.185	63	41	52.0	N E.	
Thurs. 4	2	30.205	30.180	64	43	53.5	N.E.	
Average		30.249	30.219	67.5	46.3	56.9		.00

Aug. 29—Fine; very fine, with bright sun; clear at night
30—Clear and fine; bright sun and dry air; clear
31—Slight haze; fine; partially overcast
Sept. 1—Uniform thick haze; very fine in afternoon; clear at night
2—Cloudy; overcast: partially overcast at night
3—Overcast; cold easterly wind; overcast and cold at night
4—Light clouds; overcast; dense dark clouds in afternoon; clear and cold.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Sept. 13, 1845.

Sept.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 7	68.8	49.6	59.2	12	0.55 in.	1	2	—	2	4	7	2	1
Mon. 8	69.0	50.3	59.6	10	0.65	1	2	1	2	4	6	2	1
Tues. 9	68.5	50.8	59.7	11	1.09	—	1	1	1	5	4	6	2
Wed. 10	68.9	48.7	58.8	11	1.27	—	—	1	—	5	5	7	1
Thur. 11	68.6	48.1	58.4	8	0.46	2	1	—	—	4	4	6	2
Fri. 12	67.2	46.0	56.3	7	0.49	3	1	—	2	1	2	10	—
Sat. 13	66.9	46.7	56.8	8	0.49	1	1	4	—	2	5	5	1

The highest temperature during the above period occurred on the 12th, 1841—therm 84°; and the lowest on the 10th, 1838—therm. 34°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ARTIFICIAL ROCKWORK—*Obtuse*—You must judge for yourself.

BOOKS—*A Regular Subscriber* will find no such book as he inquires for. The information may be found scattered through multitudes of volumes, but nowhere collected. A good deal of matter relating to such subjects is introduced into the "Theory of Horticulture."——*Botanico*—All works containing numerous plates are very expensive, if the plates are well executed. Newman's "British Ferns," Hooker's "Muscologia Britannica," Hassall's "British Algæ," Greville's "Algæ," are works that are perhaps within your means. We have no cheap books on Lichens; the best English plates, and very good ones they are, are in "English Botany." As to Fungi, all the illustrated works are expensive. Bolton's "Fungi" may sometimes be had cheap, and for the large species the book is useful. Small square vials are the best to keep seeds in. You can learn their price at any glasshouse. We never give prices. They are very cheap.

CUCUMBERS—*A Correspondent*—Your Cucumbers have probably not been fertilised.‖

FRUITS—*Ligne Mont*—In your small orchard 75 feet square you may plant of *Pears*—3 Marie Louise, 3 Passe Colmar, 2 Thompson's, 2 Glout Morceau, 2 Knight's Monarch, 1 Winter Nelis, 2 Beurré Rance. *Apples*—2 Court of Wick, 1 Golden Rennette, 2 Scarlet Nonpareil, 2 Reinette du Canada, 3 Pearson's Plate, 2 Golden Harvey. *Plums*—1 Royale Hâtive, 2 Green Gage, 1 Washington, 2 Purple Gage, 1 Coe's Golden Drop, 1 Early Orleans, 2 Kirke's. Distance 15 feet apart one way, and 10 ft. the other. The ground should be well trenched and manured.‖

GREENHOUSES—*A G*—You require no stove at all for your Rose and Camellia house. They will bear all the cold that we can have if the house is well built and glazed with *stout* glass. All we doubt is the sufficiency of your ventilation; both ends ought to open completely, if the roof is to be fixed. Why not make your sashes removable for the summer? If you want to force your house, then, indeed, you must have some kind of heating apparatus, and a *good* Arnott will do: only you must contrive to avoid the dust caused by carrying away ashes, and a *large* pan of water must be kept on the top of such a stove. We have not yet seen any green glass that we can recommend; nor do we expect to see any for the present. Apply to Mr. Elphick, or to Mr. Hartley, of Sunderland.

HEATING—*T W*—If you employ a Joyce's stove, it must be with good charcoal, and merely to drive away very severe cold. If your fuel is not very good, you will probably take off the leaves of your plants.

INSECTS—*W S*—The caterpillars on the Scotch Firs are the Lophyrus Pini, whose history we hope shortly to illustrate. The Coccus is not uncommon on the Ribes. *R.*——*E M F*—We would willingly give you some *new* directions how to kill the woodlouse; but we really have nothing to add to what has been mentioned so very often. Toads are the best agents; they live on woodlice, and will eat them all. If the woodlice are very numerous have several toads. They are poor harmless creatures, and will not hurt your Cucumbers. See also the directions given last week at p. 596.

MORPHOLOGY—*H R*—Thanks; the Arbor Vitæ is forming its fruit prematurely. Is there anything more in its condition?

NAMES OF FRUITS—*J G*—Your Apple is the Downton, esteemed by those who prefer a sharp flavour.‖

NAMES OF PLANTS—*H G*—The Fern-leaved Beech; Fagus sylvatica heterophylla.——*T J*—In what respect does your Erythrina differ from E. laurifolia? We see no difference.——*A Lady*—The white Jasmine is Jasminum azoricum; the yellow one in flower J. humile; the other J. revolutum.——*S Warnford*—Œnanthe fistulosa, a very common plant.——*S H R*—A pale variety of Clarkia elegans.——*R Murray*—We cannot ascertain the name of your Mimosa, without its fruit.——*T S*—1, Bravoa geminiflora; 2, Aster Cabulicus; 3, a variety of Phleum pratense.§——*E K S*—1, Achillea Ptarmica flore-pleno. Plants cannot often be named from leaves only.§——*W S*—Triteleia uniflora.

POTATO MCBRAIN—We find it impossible and useless to answer in detail all the questions put to us on this matter. We, therefore, beg to refer our correspondents to the remarks in our Leading Article of to-day, and to the letters we publish, for all the intelligence we can procure upon the subject. As to using the decayed Potatoes for food, there is, no doubt, danger in doing so unless they are first cooked; and if the mortification has spread very deep, they are certainly unfit for the food of anything, even if cooked, as we stated a fortnight ago.——*S Bryon*—Your seedling Potato, from the Ash-leaved Kidney, is of a handsome flattened oval shape, and appears to be deserving of cultivation.‖

POTTING—*Querist*—We hardly know how we can be more explicit, but we will give your letter to Mr. Reid. Andromeda or Leucothöe floribunda, is quite hardy. It is of no consequence what manure you give your Pelargoniums and Roses, so that it be judiciously administered. Roses are very greedy of it, but Pelargoniums will not bear a great deal. In using guano, steep a double-handful in 4 gallons of water, and leave it for 12 hours before using it. Give it to your plants when they are beginning to grow. It is of no use to apply it now. Rosa Hardii is a very shy plant; hardy, but delicate and unmanageable.

PINES—*M*—Do not sow your seeds till the spring. A cold frame is protection enough for Mexican Pines, provided it is dry.

SEEDLING FLOWERS—*T S*—Your seedling Lophospermum is curiously mottled; but it wants brightness of colour. It will always have a faded appearance.‡

STRAWBERRY-PLANTS—*D M N*—These may be sent during winter to any part of the Continent if packed in close wooden boxes. They will not travel long in summer, except in glazed Ward's cases.

TURK'S-HEAD CACTUS—*J Newman*—This will succeed in a greenhouse in summer, but it requires a dry stove in winter, where the temperature is not less than 50°. The soil should be equal parts of rough sandy-loam and leaf-mould. In summer it will require water about once a week, but in winter it may be kept almost dry. Your plants being newly-imported, they should not be watered until they begin to grow.§

VASSALIA FLORIBUNDA—*A Reader*—We are unacquainted with this plant. No such name occurs in any botanical work that we have consulted; it is said to be a mistake for Russelia floribunda; but if any reliance is to be placed upon a rude figure published of the plant a few days since, that cannot be. Send us a specimen in flower, and we will give you a more satisfactory answer.

VINE-BORDERS—*M W K*—Old turf, with bone-dust, forms unquestionably a good mixture, and probably better without the leather shavings, the tannin of which might prove injurious.‖——*T T L*—Your plan will answer; but you might save expense by dispensing with Elm planks, and their supports of brick-work, if you lay slates over the compost, and on them the gravel.‖

MISC—*A Regular Subscriber*—We have not a copy left; 1*s.* 6*d.* will be given for No. 4, 1843.——*Z*—We believe only at Sevenoaks. Marine glue will shortly be advertised. We do not sell volumes on commission.——*J F M*—Your water is not the worse for forming green confervæ so quickly; it is probably all the better. By no means give your Asparagus plants any more salt.——*F J F*—All your seeds belong to stove plants. The following only are worth growing—5, 6, 11, and 38; the greater part are worthless. Phaseolus Caracalla, No. 41, is worth having, if you can find room for it; but it rambles to a great distance, and will not flower without plenty of room.——*J L*—We see no probable inconvenience in the use of such epiphyte baskets as you describe.——*B and C*—Of your Pinuses only Lambertiana and Abies grandis will stand where the thermometer falls occasionally to zero.¶——*T S*—The Lychnis from China flowered last year; it was not named.§——*Teifside*—The seeds of Fuchsia corymbiflora will keep good for some time if they are perfectly ripe and kept free from damp.‡——*Homo*—A coarse mixture of peat and loam, with plenty of drainage.——*A M S*—We doubt whether Wistaria would take on the Laburnum; it is, however, not impossible. Your Passionflower suffers either from a cold wet soil, or from its roots not having room to grow in; probably the former.

SEEDLING FLOWERS.

CALCEOLARIAS—*Ganstead*—There is no novelty in either of your seedlings, similar sorts are raised by most growers.*

DAHLIA—*Z J V*—The centre is the deficient point in your seedling, in each of the blooms sent this part is irregular; in outline, form of petal, and depth, it is very good.*

FUCHSIAS—*G N*—The greatest novelty among your seedlings is No. 10, this arises from the sepals being half green and rather reflexing, which exposes a large crimson purple corolla. No. 1 is a good flower in the light class, but not better than those out; 11, common; 12, sepals too long, and better already out; 13 is a very bright and pretty flower, about the size of globosa, with polished tube and sepals, good corolla, well exposed, and a prolific bloomer.*——*W K*—A very pretty light variety, having a fine crimson purple corolla.*——*J M*—When your specimen reached us, it was too dried up to form an opinion of its qualities.——*W*—There are no novelties among your seedlings, they are mere repetitions of others.*——*W M*—The additional sepal is no improvement to your seedling, which in colour makes a showy variety.*——*G N*—No. 16 is an elegant little flower, but it contains too much colour in the tube and sepals.*——*Dahlia*—Your dark varieties 4, 5, 7, are of no use to the public, better flowers of the same kind are already in cultivation. The sepals of No. 1 are too long; No. 2 is the best in form, substance, and colour, and equal in its way to most of the varieties that are out.*

PICOTEES—*Ganstead*—Your specimens are good border varieties, but they do not possess the properties of florists' varieties.*

PETUNIAS—*W M*—The colours of your seedling are precisely similar to those of P. punctata, with this difference, that the colour runs more in stripes than in the older variety.*——*E J L*—The colour of your seedling is very good, and uncommon.*——*J M H*—Of your seedlings the most distinct and best are Nos. 4, 6, 11, 21, and 25, the rest consist of flowers with slight variations of colour, not sufficiently differing from those generally grown, and such as would be raised by any person growing seedlings.*——*M B*—No. 1, beautiful pink, with pencilled centre; and 2, crimson pencilling upon a peach ground, are two very pretty flowers. 3 is like the Pe', but not so distinct; 4, common and not worth sending out; 5, we have seen sorts very similar to this, the pencilling is too faint; 8 is a large well-formed rich crimson variety, not novel, but a fine flower.*

VERBENAS—*G A*—There is a trifling novelty in the peculiar colour of your seedling not generally appreciable, and it appears to be rather a coarse grower.*——*E A H*—Your specimen of a striped seedling is very distinct and pretty, but we think this quality in so small a flower scarcely an object worth attaining.*——*W M*—Coquette, when fully blown, has the newly-opened flowers on the crown of a beautiful rosy-pink, while those below are nearly white; when bloomed in the style of the present specimen, it forms a very handsome object. The same observation applies to the Comet, which is large, having a tinge of lilac on the face of the flower, which is ornamented with a crimson purple centre; we have lately seen one somewhat similar to this, but not quite so large and distinct. Red Rover is smaller than the preceding varieties, and not so attractive or distinct from other varieties.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

SEED WHEAT.—RED STRAW WHITE WHEAT, AND HOPETOUN WHITE WHEAT FOR SALE, at WHITFIELD FARM, near WOTTON-UNDER-EDGE, GLOUCESTERSHIRE. Price 8*s.* per bushel. These varieties may be supplied from off a clay, sand, or limestone soil, according to order. Where a change of seed is desired, this point will perhaps be considered important.—JOHN MORTON.

SAUNDER AND NEWBERRY'S PATENT DIBBLING MACHINE gained two Prizes from the Royal Agricultural Society; one at Liverpool, of 10*l.*, and another at Shrewsbury, of 15*l.*; also, Two Prizes at Local Agricultural Meetings. Manufactured by J. W. NEWBERRY, Hook-Norton, Oxon; R. CLYBURN, the Earl of Ducie's Iron Works, Uley, Gloucestershire; and R. HORNSBY, Grantham, Lincolnshire.

PRICES:

Five Rows	£60
Four Rows	50
Three Rows	42
One Row	13

J. W. NEWBERRY recommends his implement to the notice of the public with the most perfect confidence, after it has experienced a test of four years; he can give the most satisfactory references; and he would advise any person who may be inclined to try it, but fears the expense, to purchase one of his one-rowed machines, which will follow the plough, and is particularly adapted for heavy land; he begs to add that he thinks there can be no comparison made by a practical man between even his one-row and a Hand-Dibble.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 6, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

THURSDAY, Sept. 10—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Sept. 9 { Abergavenny, Rochford Hundred, Framlingham
Sept. 11 { Grove Ferry, Richmondshire
Sept. 12 { Stoke Ferry, Wrentham
Sept. 13 { Cardiff, Swansea

WE beg the attention of our readers to Sir GEORGE MACKENZIE'S remarks in another column, ON THE FEEDING AND BAKING QUALITIES OF CERTAIN VARIETIES OF WHEAT. It seems that under the common method of baking, good bread depends in some measure upon the use of good flour, and the interests of the manufacturer and consumer being thus alike, those of the latter are to some extent attended to. But under the patent process of baking, which will probably become general, it appears that the lightness of bread hitherto indicative of good flour, is altogether independent of its quality, and that well raised and white bread may be manufactured out of inferior, and, indeed, hitherto worthless flour.

Even, as the matter *at present* stands, it is of great importance that the farmer should know and cultivate those varieties of Wheat which yield the most and *the best* grain, and the pamphlet published last year by Sir G. MACKENZIE (p. 73, *Agricultural Gazette*, 1844) on this subject, did well to call the attention of our Societies to it, as one on which they might most usefully labour. But the probability of this new mode of baking being generally adopted furnishes the advocate of this view with a most powerful argument. Innutritious flour may soon answer the baker's purpose as well as that which contains plenty of sugar and gluten. Of what importance, then, is it that only those varieties of Wheat be grown which analysis prove to produce flour of the best quality?

This is now a subject which our Agricultural and Agricultural Chemistry Societies *ought* to investigate, for the interests of consumers as well as those of producers are involved in it. Hitherto Sir G. MACKENZIE has been the only labourer in this field. We do hope his efforts will succeed in drawing general attention to it.

ONE of the advantages claimed for the PRACTICE OF CUTTING WHEAT EARLY is that it affords us a better chance of securing the crop. This furnishes an argument in favour of the system which, as we stated last week, is peculiarly apposite to the circumstances of the season.

It may be thought that we are late in calling this attention to the subject; but the fact is, that although a good deal of grain is secured in the southern counties, yet the whole of the most promising crops in the midland and northern counties are yet unfit for the sickle; and these crops, it is obvious, by being cut *raw* will be secured a fortnight earlier than if permitted to become thoroughly ripe, and at the same time their produce will be improved.

The advantage of this gain of a fortnight of time can scarcely be appreciated; in fact, the real advantage which this method gives us is, that it allows us a fortnight's time to choose when we will begin harvesting a crop, and this is of vital consequence to a man of judgment, who would rather depend upon his own observation than on the chapter of accidents.

And there are two other important advantages which the system of early reaping affords us. The grain is less liable to sprout in showery weather, and less subject to be shaken out by winds, and during the operations of reaping, carting, &c. These are matters of fact well known, and they are of importance, especially in doubtful harvests; the same changeable weather which causes the grain to sprout weakens, by the alternations of heat and moisture, the capsule in which the grain is held, and no inconsiderable portion of the crop in such cases is wasted. After a rainy season, such as the present has been, the danger from "shedding" is greater than common; for the grain is then unusually large, and the capsule unusually weak. There are several other arguments which may be urged in favour of the system, such as the advantage arising from extending our harvest over a wider period, so that all our crops may not be ready together; and from getting our stubbles sooner cleared, so as to be able to get a better crop of autumn Turnips, or of spring food, Rye, &c.

But we have not space for a full consideration of the general question, and these, the minor merits of the system, must therefore be passed over. Last week we gave an epitome of the fresh facts brought to bear upon the theory, and we have much pleasure in publishing the following additional evidence contained in a circular just received from Mr. W. H. FLETCHER, of Pentrich Mills, near Alfreton, Derby. It fully corroborates Mr. HANNAM'S original deductions most positively; and coming from such an authority, will no doubt be as pleasing to that gentleman as it is conclusive in support of his investigations.

"In the *Agricultural Gazette* of Aug. 16, 1844, you gave the public an extract from Mr. HANNAM'S report of his experiments on cutting Wheat at various periods, to show the advantage of early reaping; and I am thoroughly convinced that unless experiments continue to be made and reported annually, about the time of harvest, by individuals whose veracity they have no reason to doubt and whom they personally know, farmers in general will continue to let their Wheat become unduly ripe before they cut it, and thus suffer loss themselves; and through so doing, the country in general sustains no small loss. By cutting Wheat 14 days before it is dead ripe, they have a better opportunity of carrying it in good condition, and incur no risk of any shedding; they have, I am of opinion, quite as much in measure, brighter colour, greater weight of straw and much better quality, for food, for litter, and for bonnet-manufacture; and as the straw is much more nutritious and digestible, it follows, as a matter of course, that the manure made therefrom is of greater value than that made from dead-ripe straw. I can assure them that Wheat cut as above recommended yields more and better flour, and the flour was made into bread by a baker in whom I have the most entire confidence; and the bread made from the Wheat first cut was not only more in quantity, but better in quality. One square chain of Wheat was cut for each lot from the same field, adjoining each other, and most carefully kept separate through the whole trial. The quantity of the first and second cut was exactly alike, both in measure and weight of grain (16 stones each), but there was a slight increase both in measure and weight of the last cut in grain, but I am of opinion that that arose from there being more plants on that lot; but I intend this season to try again, and, with your permission, will lay the result before the public. To make the advantage of early reaping more apparent to all, I give the result of my experiment per acre—by cutting the cypher off, the quantity per square chain is given:—

First Cut—22d August, 1844.

	lbs.	cwt. qr. lb.	*s.d.*	£	*s.*	*d.*		Bread.	£	*s.*	*d.*
Straw .	3840	34 1 4	at 2 0	3	8	6½	lbs.				
Flour .	1770	126st. 6	at 1 8	10	10	8½	2524½	at 1½*d*	13	2	11½
Sharps.	150	10 0 10	at 10	0	8	11½					
Bran .	290	20 0 10	at 8	0	13	10					
Waste .	30										
				15	2	0½					

Second Cut—29th August, 1844.

	lbs.	cwt. qr. lb.	*s.d.*	£	*s.*	*d.*		Bread.	£	*s*	*d.*
Straw .	3150	28 0 14	at 2 0	2	16	3	lbs.				
Flour .	1730	123st. 8	at 1 8	10	5	11½	2407¾		12	10	9¾
Sharps.	170	12 0 2	at 10	0	10	1½					
Bran .	310	22 0 2	at 8	0	14	9					
Waste .	30										
				14	7	1					

Third Cut—6th September, 1844.

	lbs.	cwt. qr. lb.	*s.d.*	£	*s.*	*d.*		Bread.	£	*s.*	*d.*
Straw .	2930	26 0 18	at 2 0	2	12	3½	lbs.				
Flour .	1680	120st. 0	at 1 8	10	0	0	2347½		12	4	0½
Sharps.	185	13 0 3	at 10	0	11	0½					
Bran .	325	23 0 3	at 8	0	15	10½					
Waste .	50										
				13	19	2					

Clear gain of first over last in straw and flour . . £1 2 10½ In bread. . £0 18 11½

Making the following total—

Straw, flour, &c., in excess, on the raw cut	£1 2 10½
Making more bread per stone, ½ lb. × 126st. 6 lbs.	. . 0 7 10½
Total gain of raw-cut grain	£1 10 9

"I therefore say to one and all, try; for, on fair trial, I have no doubt but like results will follow; and thereby know, one and all, how much we are indebted to Mr. HANNAM for giving publicity to his experiments on this subject."

THE QUALITIES OF WHEAT NECESSARY FOR THE MANUFACTURE OF BREAD.

[FURTHER REMARKS, BY SIR G. S. MACKENZIE, BART., F.R.S., &c.]

IT was announced in my last communication that I was to defer the publication of some analyses of Wheats until some others now growing had been examined. Having reason to fear the season will not prove so propitious as to make their examination of value, inasmuch as they may not be perfectly ripened; and it having been suggested that by now giving the analyses I have, greater interest may be felt in the subject, I will now submit eight, six of which are complete, two having been accidentally left imperfect, though they are sufficient for the purpose I had in view. These analyses were made under the superintendence of my relative Professor Gregory, and may be relied on as affording an accurate comparison of the different varieties.

TABLE I.

WHEAT.	Husk.	Gluten.	Albumen.	Starch.	Salts.	Sugar and Gum.	Moisture.	Loss.
Wolgost*	12·5	8·6	1·7	57·2	2·0	4·3	11·0	2·7
Tremois*	15·6	12·0	2·4	51·6	1·7	3·4	13·1	0·2
Finest Silesian ‡	11·7	8·8	3·3	55·4	1·15	6·5	12·6	0·55
Talavera†	10·9	9·3	1·7	60·2	2·5	3·4	12·0	
Finest Dantzic ‡	10·2	9·5	1·2	56·9	2·5	4·3	12·5	2·9
Coul‡	9·5	12·8	9·0	54·0	1.4	5·6	15·5	0·3
Hunter's§	11·6	7·7	1·5	49·9		4·5	12·9	
Ducksbill	11·18	9·20		57·62		4·5	12·9	

* This variety is bearded; and was said by my friend Colonel Le Couteur, of Jersey, from whom I received it, to answer well as a spring Wheat; but I have found that, in the latitude of Shropshire it is best to sow it in autumn. It is of strong growth and prolific, succeeding perfectly with me in a rather rich light soil. I have tried it on two different farms in the vicinity of Edinburgh; but it did not succeed in either case, from what cause I have not been able to discover, unless the soil, in both cases, had been in bad order. Some of it is now growing in East Lothian.

† This is the original variety, which though excellent for baking when ripened in a fine season, is not suitable for cultivation in our climate. The sample now analysed is much inferior to one formerly examined.

‡ This is a hybrid of my own raising, and to which I paid but little attention; but since analysis has proved its value, it deserves to be propagated.

§ This sample of Hunter's Wheat was found to bake exceedingly well. Its proportion of sugar is as large as some Baltic Wheats. The proportions of sugar and moisture in this and the next, not having been ascertained, the average of all the others is assumed.

We have now to arrange these Wheats in their order of real value; first, for the purpose of baking in the ordinary way, in which the amount of sugar and gum regulates precedence. The amount of gluten being stated shows how curiously the proportions vary.

TABLE II.

Showing the Comparative Value of these Wheats for the ordinary process of Baking.

	Gluten and Albumen.	Sugar and Gum.
Silesian.....	12·1	6·5
Coul	21·8	5·6
Hunter's	9·2	4·5
Ducksbill.....	9·2	4·5
Dantzic.....	10·7	4·3
Wolgost	9·3	4·3
Tremois	14·4	3·4
Talavera	11·0	3·4

The true value of Wheat as an article of food, depending on the sum of the nutritive portions, another arrangement must be made. The whole of these, as before remarked, are presented in the patent process of baking. In so far as nutrition is concerned, biscuit is doubtless the best form of bread; and this is what the labouring man should use; for, besides its being the most nutritious, if made of good Wheat, and without admixture, it keeps long, and might be stored when cheap. On shipboard biscuit often is attacked by worms. If it were packed in casks when warm from the oven, and were the casks covered with tarpaulin or some such thing, it is probable biscuit might be kept for any length of time. It is easily softened in milk, tea, or water.

TABLE III.

Showing the Comparative Nutritive Qualities, and the Comparative Value for the Patent process of Baking.

SUM OF NUTRITIVE INGREDIENTS.

Coul	27·4	Talavera	14·4
Silesian	18·6	Hunter's	13·7
Tremois	17·8	Ducksbill	13·7
Dantzic	15·0	Wolgost	13·6

Although the effects of climate and soil may be to alter the actual amount of gluten and sugar, it may not affect their relative sums; so that while the best varieties in a good season have their full amount, so also will the worst; and in a bad season, while the amount is low in the best sorts, it will be low also in the worst; the best sorts still retaining their relative superiority. Hence, sowing what appear to be the finest Wheats is at all times proper. This is, however, mere theory; and the question can be settled only by analyses made in good and bad seasons.

The uncertainty and trouble attending the old process of baking will, most probably, in no long time, cause its being abandoned for the patent process; the materials for which in their purest state, are very cheap. It is therefore, unnecessary to make any further remarks respecting it. The public is interested only in getting bread of the most nutritious quality; and thus it becomes the duty of the great agricultural associations to expend their means not on what has long been well understood, and will improve without their aid, but on the chemical examination of every sort of grain used as food for man, and the animals which serve him, that the best sorts only may be cultivated. The first thing to be done is to establish

an experimental farm; the next to collect varieties of seeds from all quarters, to treat them in different modes, and to select what is best for our climate and average seasons. We are yet in a state of utter ignorance in reference to the Cerealia, for we do not know their comparative merits in regard to nutrition, nor the effects of cultivation on these. That such should be the case is discreditable, when we have it in our power to command the knowledge of which we stand so much in need. The use and aim of agriculture is to produce the largest amount of nutriment in the smallest possible bulk; but the usual mode of proceeding is to produce the largest bulk, disregarding entirely the quantity of really useful matter contained in it; a bushel of one kind of Wheat may contain twice as much nutritive matter as another kind. Why then should not this momentous subject be attended to? The Agricultural Chemistry Association of Scotland, an institution which might, with the help of a little farm, do more good than any institution for promoting agriculture ever formed, has begun at the wrong end. Common sense tells us we ought first to seek for the preferable subjects for cultivation, and having found them, then to study how they may be made to yield the greatest returns. To go on cultivating bad varieties, when by the help of chemistry, the best may be found, is to exhibit a low state of perception. There is a degree of perversity and obstinacy in rejecting what is best, and in adhering to what is plainly the worst, of no small extent, pervading all manufactures, and which it is extremely difficult to root out. This remark is applicable to the great agricultural societies, as well as to individuals. They have been going on with cattle shows, when it is notorious that farmers knew as well how to fatten a beast properly a quarter of a century ago as now.

Human beings want such food as will keep them in health, and to have a given amount of nourishment in as small a bulk as possible. The lower animals require the same thing. It is hard on a poor man to pay for a pound of meat, and find the half of it bone and fat, which he does not want. It is equally hard for him to pay for a loaf in which there is but 12 or 13 per cent. of real food, when, if the agricultural bodies did their duty, he might, for the same price, have a loaf doubly nutritious. By attending to the qualities of all vegetable substances used as human food, and that of animals, and which the chemist can display, we should be able, in the same bulk of matter, to comprise double the quantity of nutriment; so that to look for greater bulk, as is now done, is needless, when it is in our power to make the land we have and the bulk we make it produce doubly nutritive. This is evidently to double the produce of the land, to maintain a double population.

Let me ask, of what use are premiums for samples of corn? A Wheat may be of superior appearance and weight, and be an early and productive variety, and yet be unfit for the ordinary process of baking, and improper for being used in the patent process. External characters are not to be depended on. Chemical analysis is the only test on which we can rely, and yet it is not resorted to.

A more interesting and valuable investigation cannot be conceived than that which would ascertain the value of all the Wheats known; and, after a selection of the best—that is, of those which yield the largest amount of nutritive matter, ascertaining their suitableness to various soils and climates, and what kind of manure renders them most productive. Were the Scottish Agricultural Chemistry Association to set about collecting samples of Wheat to be sown in a field as nearly uniform in its soil and condition as possible, then the whole, being produced under similar circumstances, might be chemically compared, after their habits of growth had been noted. The known talent of its professor might thus be most beneficially employed—more so than in going about giving lectures which, on account of the auditors not having been previously taught what Chemistry means, cannot be of any essential service. Let farmers place confidence in men of science and character, and seek the results of investigation, which is all they want, and the time of a professor may be profitably employed.

When a selection of varieties of grain has been made, after a comparison of their qualities on a single soil, each should be sown in different soils, so that it may be known in what soil each thrives best; and the deficiencies of those soils in which the best sort of grain do not thrive, may be discovered. Such investigations will do more good than public shows, competitions for premiums, and dinners, because they bear directly on the chief object to be attained by agricultural skill—the largest proportion of nutriment in a given bulk of grain of any kind. Agricultural chemistry is in everybody's mouth; but the really useful applications of that science are yet to be seen.—*G. S. Mackenzie, Rosebank, Roslin, Aug.* 23.

EFFECT OF AIR AND RAIN ON MANURE.

Some remarks from the pen of Mr. Goodiff, of Granard, on the "Action of Manures applied to the Surface of the Soil," bear the stamp of good-sense and truth so clearly, that I should cordially acquiesce in them, if the explanation given were consonant with the best chemical doctrines. The superiority of top-dressing, by which the plant and not the soil is said to be supplied with food, is beginning to be acknowledged. Experimentalists are discovering, though slowly, that manure does not lose any of its fertilising properties by exposure to air and moisture; and one day they will, no doubt, find out that the hitherto received opinions as to the value of putrid manure (for in this state manure is commonly used), is not sound. In the *Chronicle* almost weekly statements are made of the superior crops of Potatoes, and other esculent vegetables, obtained by top-dressing; are these produced by digging in the manure? Of the fact, no one who observes for himself will long entertain any doubt. Your correspondent, Mr. Goodiff, is at a loss to account for this, and endeavours to explain it, by supposing that the gases emanating from the decomposition of the material are absorbed by the stomata of the under surface of the leaves of plants. "The manure," he says, "cannot enter the soil;" and, therefore, he has recourse to this supposition to explain the action of manure applied on the surface of the ground. A better and more intelligible solution of the problem will be found in the laws that regulate the decomposition of animal and vegetable matter, according as air and water are admitted or excluded.

Manure is looked upon as being rich in fertilising matters, when the decomposition furnishes to the senses abundant evidence of the escape of ammonia. This form of decomposition may be regarded as putrefaction, in which, from the exclusion of air and water containing oxygen, the nitrogen and sulphur, and the other ingredients of the decomposing mass, combine with hydrogen, and escape in the form of volatile compounds. The solvent powers of hydrogen are well known to chemists; in its nascent state (that is, when it is first generated), it will dissolve a great variety of substances, and being of very light specific gravity, soon escapes into the atmosphere. It is there that, in putrefactive decomposition, so much of the valuable part of manure-heaps is lost; and so many devices are employed to fix the ammonia, &c. The fumes of a dung-heap are not only wasteful, but are poisonous to animal life; and when applied to vegetables, in a concentrated form, are often found to be injurious to the delicate spongioles. Hence, in soils into which rich manures are dug in large quantities, seeds will either not germinate at all or in a feeble manner. The masses of the manure are still undergoing the putrefactive process, and poison the plants. In the experiments on Vines, conducted according to Mr. Hoare's plan, it is probable that the failure has arisen from the injudicious manner in which the food is presented to the plant; rich cattle dung is mixed in too large quantity with the compost, and the plant is poisoned by exhalations which it cannot assimilate.

The popular prejudice that has so long existed in favour of well-rotted dung, and which, we trust, will ere long be dispelled by sounder views as science advances, had its origin in an experiment of Sir H. Davy, who tried the effect of stable-dung upon land; using in this experiment the manure in three different stages. Three plots of ground were trenched, and an equal quantity of dung, fresh from the stable—of the same dung, in the usual state of decomposition—and a similar quantity of thoroughly-rotted dung—were respectively dug into the three plots. When the crops were mature, it was found that the produce of the rotten manure was very small; that of the fresh dung not large; while the ground manured with the dung in a state of moderate decomposition was the most productive. On these experiments is founded the present practice of allowing manure to remain in the farm-yard, or collected in heaps, a sufficient length of time to prepare it by decomposition for the food of plants. The well-rotted dung in the above experiment, in which putrefactive decomposition had dissipated most of the fertilising ingredients, failed, as might have been expected, in producing a good crop. The effect of the experiment with fresh stable-manure failing, led to a wrong conclusion as to the cause. It failed because one form of decomposition had not been allowed to take place, namely, the putrefactive; and the other form to which I will now allude, namely, the oxygenous form, was prevented by burying the manure under the soil, and preventing the access of oxygen; the manure being dug into the ground in a fresh state, could not be reduced to an inorganic state quickly enough for the supply of the plant, and the crop consequently failed. Had the fresh manure been laid upon the ground, instead of being dug into it, decomposition, but not of the putrefactive kind, would have ensued, and the plant would have been supplied with abundance of food. This requires a little explanation from chemistry before the changes occurring in top-dressing can be understood or appreciated.

It is a well-known chemical fact that in the decomposition of all animal and vegetable matters, oxygen has a greater affinity for the nascent elements than hydrogen has. Take, for example, ammonia, or its elementary constituent, nitrogen. If nitrogen, the essential element of animal tissue, be free to combine with oxygen, or with hydrogen, it will prefer the former; and instead of a volatile compound, *i. e.* ammonia, a solid compound, *i. e.* nitric acid, is formed. The same may be said of sulphur; instead of sulphuretted hydrogen being formed, it will combine with oxygen in preference to hydrogen, and sulphuric acid is formed. The acids so formed soon combine with an alkaline or earthy base, and are preserved for future food for plants, instead of being carried into the atmosphere and lost. Now, it rests with the preparer of manure, whether he will have the wasteful compounds of hydrogen formed by the putrefactive process, or the more economical and equally fertilising compounds of oxygen. The admission of air and rain favour the latter; and in this consists the advantage of top-dressing; it presents to the plant a larger quantity of food in a given quantity of manure than can be procured in the wasteful process of generating ammonia and other gaseous compounds.

It is not from the air that oxygen is obtained so readily as from rain. All water that has been exposed to air for any length of time holds a large quantity of air in solution; and the air so held in solution is found to contain 35 per cent. of oxygen, instead of 21 per per cent., the common proportion contained in atmospheric air. This large quantity of oxygen dissolved in water depends on the greater solubility of oxygen than the two other constituents of the atmosphere, nitrogen and carbonic acid gas. The oxygen so dissolved in water is presented to the decomposing elements in a state of extreme subdivision, and highly favourable for rapid combination with the sulphur and nitrogen. It is not possible, perhaps, wholly to prevent the generation of ammonia; but in the oxidising process it is not lost, but combines with the newly-formed acids to form sulphate or nitrate of ammonia. It is thus that rain acts so beneficially on manure; constantly charged with fresh supplies of oxygen, it prevents the wasteful putrefactive process, and substitutes for the volatile compounds of hydrogen a formation of solid ingredients, which, as they are formed, are gradually carried by the rain into the soil. This, then, is some answer to the question,—Is top-dressing a wasteful process? I will return to the subject, as connected with the late failure of the Potato crops.—*Oxygen.*

ON THE MANUFACTURE OF DRAINING-TILES.

(*Continued from p.* 601).

We come next to the consideration of the plans in use for making draining tiles. I need not describe the form of the old draining tile, nor the sole made for it to rest upon in all properly executed drainages. There are, however, two or three sorts of tiles before us. (1). The length 12½ inches; height, 4⅜ inches; breadth, 3¾ inches inside, or in the bore; weight about 7lbs.; the sole made of clay necessary to sustain it weighs about 2½ lbs., so that 1,000 ft. of those tiles, and 1,000 soles to accompany them, weigh at least 4 tons 5 cwt. The cost of making by hand and of burning these tiles and soles—the cost of producing them cannot, I apprehend, under average circumstances, be laid at less than 32*s.* per 1,000 feet for the tiles and the soles. If we drain at distances of 8 yards, about 1,800 feet of tiles and about 1,800 feet of soles are required. A few years ago tiles of this enormous size and weight were deemed indispensible. (2). There is a small tile before us 12 inches in length, 2½ inches in height, and 2½ inches in breadth inside or in the bore, weight 4 lbs. 3 ounces. A thousand feet of these tiles, and one thousand soles to accompany them, weigh from 2½ to 2¾ tons. In circumstances parallel to those before described, 1,000 ft. of those tiles, and 1,000 ft. of soles for them, cannot, I apprehend, be produced by hand for less than about 22*s.*

I have used these small tiles for some years past in all situations, excepting that I have occasionally used the larger sizes for the main or carrier drains; but to this moment, many of the farmers have a great prejudice against them, as being, as they consider, too small. What those parties will say to the fact that, so far from their being too small, they are really unnecessarily large (and consequently unnecessarily heavy and unnecessarily costly), I know not; but of that fact experience is daily affording incontestible evidence; and, I believe, I may say that the time is fast coming when parties engaged in the surface-draining of clay soils will almost refuse the old large heavy draining-tiles and soles even as a gift—certainly in cases where they would be subjected to many miles of carriage.

(3). There have lately come into use a great number of machines for making pipes for draining. Experience seems to have demonstrated that pipes of one inch in diameter are sufficiently large. Here is one of such pipes, 12 inches long and 1 inch in diameter—weight 1 lb.; a thousand of them weigh about 9 cwt. No soles are required. Made under circumstances parallel to those I have described, they cost at the utmost 6*s.* or 7*s.* per 1000. Some parties say they can have them produced, where fuel is three times dearer than with us, at 5*s.* 9*d.* or 6*s.* I am informed that, in Kent, they may be purchased in the sale-yards at 10*s.* per 1000.

There are some other pipes before us of other sizes. I myself make, with a machine of my own contrivance, pipes of 1-inch diameter inside—the clay or rim of the pipe being ⅝ths of an inch when first made, and when dry ½ an inch thick. Along with these 1-inch pipes I make a pipe 2 inches diameter inside, and of the same strength of clay. The 1-inch pipe is burnt inside of the 2 inch, and I have adopted hitherto the plan of using them together in the drains, putting the ends of the 1-inch pipe into the ends of the 2 inch. The 2-inch pipe weighs 2 lbs. or 18 cwt. per 1000 feet, and will cost about 10*s.* per 1000, when the 1 inch costs 6*s.* or 7*s.*, so that the average cost of 1000 feet of those 1 and 2 inch pipes used in the drain is about 8*s.* or 8*s.* 6*d.* made at the proprietors' own kilns, but exclusive of any consideration for capital, royalty, repairs of kilns, sheds, &c. I deem this plan of laying a safer and better plan than that of using the 1-inch pipes by themselves, laid end to end, and risking displacement. There are specimens of socketed pipes before us, made by Mr. Ford's Patent, which is a very simple and very effective contrivance. It must add 5*s.* or 6*s.* per 1000 feet to the cost of production. There is, however, a plan of laying these pipes better than that now described, which consists of putting a collar about 2 inches long over the ends of the pipes at their junction with each other. Thus, supposing you are using a pipe 1 inch in diameter, let a pipe 2 inches in diameter be cut in lengths of 2 inches. Place in the drain your 1-inch pipes end to end with the collar

over their junction, and you render displacement impossible. Care should be taken in laying so to pack the pipes that they do not lie hollow. If you are surface draining with a pipe 1½ inch in diameter (large enough beyond all doubt) then, of course, the collars must be formed of pipes 2½ inches diameter. I believe the merit of this suggestion respecting the collars is due to Mr. Clayton, the patentee of the excellent pipe and tile machine which bears his name.

I was conversing at Shrewsbury the other day with Mr. Beart, the patentee of another most excellent machine, on this subject. He admitted the merit of Mr. Clayton's contrivance, but observed, and justly, that the manipulation and cost attending the making of 1000 of these collars were little less than what attended the making of 1000 pipes, and that they would add considerably to the cost of the drainage. At that time I thought so too; but, I believe, I have since that conversation devised a very simple and effective method of making these collars, and that the cost of them may be laid, say for collars 2 inches in diameter, at the almost incredibly small sum of 1*s.* 10*d.* per 1000, or about 2*d.* per 100—so that in draining at 8 yards apart they would not add above 2*s.* 6*d.* or 3*s.* per acre to the cost of the drainage.

Mr. Clayton's process of producing these collars is, as I understand, to cut the pipe into lengths of 2 or 3 inches, and when dry to put them over the 1 inch to be burnt. Now, when you have to deal with 1000 of these collars —the handling of them—the drying of them—the setting of them in the kiln—the removing of them after burning —the loading them into the carts—the laying of them by the side of the drains, these various manipulations must add considerably to the expense. I obviate it thus :—

The rim of the pipe, when it comes through the die, is, say three-eighths of an inch thick—the pipe itself is, say 14 inches long. I have a board like that now before us with knives laid along it at distances rather more than 2¼ inches apart. Those knives stand up about three-sixteenths of an inch—a roller being introduced into the pipe, the pipe is rolled over the knives and put back on the shelf to dry. By contraction, the collars are reduced to little more than 2 inches in length.

The nick made by this rolling process does not cut the pipe in pieces. It still adheres, and admits of being placed in the kiln, and of being drawn from the kiln entire; and these pipes being properly distributed in the field by the side of the drains, the drainer there will have nothing to do but to break off a collar in the manner that we break off a piece of nicked gingerbread. The board with the knives and the pipes before us perfectly illustrate what I have been describing.

A boy or girl at 1*s.* per day, will roll and replace on the shelf many more than 1000 pipes. If one pipe, 14 inches long, when fresh from the die, makes six collars, 1000 pipes will obviously make 6000 collars. If 1000 pipes, 2 inches in diameter, cost as before stated 10*s.* the 6000 collars will cost only 11*s.*, or rather less than 1*s.* 10*d.* per 1000.

I believe I am entitled to appropriate to myself the merit of this simple contrivance. Simple though it be, I deem it important, very important, in relation to our present subject, because, at a cost of some 2*s.* 6*d.* or 3*s.* per acre (a consideration really not worth mentioning), it renders the introduction of soil into the ends of the pipes, and the displacement of the pipes themselves, impossible, and it gives a quietus, and puts an end to those uneasy apprehensions respecting displacement which I have heard almost a thousand times expressed by men distrustful, on the ground of displacement alone, of the small pipe system of draining.

I shall pause here for a moment to discuss the cost of a drainage executed with such tiles and soles as were universally in use in these districts five or six years ago, and are partially so still, and of a drainage executed with the pipes. Suppose an acre to be drained at eight yards apart, three feet deep in soils such as I have before mentioned, including the mains, we should have about 80 perches of our local measure of eight yards. Can we have the drains cut three feet deep in the furrows, and three feet six when they occur out of the furrows, and the tiles carefully laid and the drains refilled three feet, and three and a half feet deep, in a district where the wages of labour are about 14*s.* a week, for less than 1*d.* per yard? I apprehend not.

Now, with the large sized tiles, and suppose the kiln or sale yard three or four miles from the drainage—

	£	*s.*	*d.*
Eighty perches (or 640 yards) of drains, cutting, laying the soles and tiles, refilling the drains, 3 ft. and 3 ft. 6 in., &c. 8*d.*	2	13	4
Carriage of 1800 soles and tiles, weighing nearly 8 tons, say three or four miles, and suppose the work going on partly in rough winter weather, the teams plunging over two or three wet heavy fields, going twice one day and once the next, and laying the tiles conveniently along the drains for the drainers. Say 3*s.* per ton	1	4	0
Cost of the tiles and soles, even where the landlord makes them, 32*s.*; add for capital and wear and tear and repairs of kilns, sheds, roads, &c., 10*s.* per 1000, and say	4	4	0
Cost per acre	£8	1	4

A drainage with the smallest sized tiles will stand thus:—

	£	*s.*	*d.*
Eighty perches (or 640 yards) at 8*d.* per perch	2	13	4
Carriage of nearly 1800 feet of tiles and soles, nearly five tons	0	15	0
The tiles and soles at 22*s.* and 8*s.* for capital, &c. &c.	2	14	0
	£6	2	4

The cost of a similar drainage executed with the one and two inch pipes would be—

	£	*s.*	*d.*
Eighty perches cutting, laying, refilling, &c.	2	13	4
Carriage under circumstances parallel to those before mentioned of 1800 pipes and collars, weight nearly 20 cwt.	0	3	0
Cost of the 1800 feet of pipes and collars at 8*s.* 6*d.* per 1000, add for capital, wear and tear, &c. 5*s.* per 100	1	4	3
	£4	0	7

From the foregoing calculation it will be seen that when the drainage is executed with the drains, say at eight yards apart, and three feet 6 inches deep, more than 4*l.* per acre is saved by using the pipes instead of the large heavy tiles and soles, and 2*l.* 1*s.* 9*d.* per acre saved by using the pipes instead of the tiles and soles of the smallest sizes yet adopted.

Of the efficacy of the pipes there is not the least room for doubt; some years of experience in other counties, as Kent, Sussex, Essex, and Suffolk, have demonstrated their efficiency. In the course of last winter I drained some lands in the occupation of Mrs. Russell, at the Straits, near Askew Bridge, about a mile from Himley, and I laid the drains (3 ft. deep) alternately with 1-inch pipes, 2-inch pipes, and with tiles and soles. The main or carrier drain has been left open, that the neighbours might observe, if they thought proper, the action of the different drains. The 1-inch pipes have discharged after heavy rains as freely as the others. I purpose leaving the main drain open for some little time to come, and I hope that parties in the neighbourhood, both farmers and tile-makers, who have any prejudice against pipes, will take occasion to observe the action of those drains after a fall of rain. I was myself at first rather distrustful of the 1-inch pipes; I never doubted their sufficiency to carry off the water required of them in ordinary frequent or furrow draining; but I was apprehensive of displacement at the ends, and consequently of obstruction. If care be taken in laying the inch pipes, experience has assured us that they are efficacious. To make certainty, however, doubly sure, and to guard against any displacement at the ends, I have adopted and shall continue the plan, of laying the end of the 1-inch pipe into the end of the 2-inch pipe, or rather of laying the pipes end to end, with a collar as before described, which is perhaps the better plan.

It is hardly possible to over-estimate the importance of bringing down the cost of drainage from 8*l.*, 10*l.*, and 12*l.* per acre to 3*l.* or 4*l.* It will be observed that it is in the cost of production, and in the cost of carriage, that the saving under the pipe system arises. The cost of labour remains as before, or nearly so; indeed, in many soils, entirely so.

The next desideratum in practical draining is a plough to diminish the spade work. I remarked in the proceedings at the Farmers' Club, London, that Mr. Smith, of Deanston, was directing attention to the plough of Mr. M'Ewen, of Blackdub, near Stirling, by which, with 12 and 16 horses and eight or 10 men, the cost of the spade-work admitted of being greatly reduced; indeed, Mr. Smith states the expense of a drainage with that plough at 9*d.* for 36 yards, or exactly ¼*d.* per yard!

I feel, however, that a plough like M'Ewen's, requiring such a power as 12 or 16 horses, will be slowly adopted. The machine is too unwieldy; and in small drainages and in small enclosures must be of doubtful economy.

(To be continued.)

Home Correspondence.

Dibbling Wheat.—It has been an object with me to prove the results of sowing Wheat by the dibble, so far at least as limited experiments in the garden, which I myself could conduct throughout, might determine them. The poorest plot—that is to say that portion of which the ochreous hazel loam was the pure and most simple, having been little worked, and still less manured —was dug early in November, 1843, after scattering over it a very little leafy compost, and a few handsful of bruised bones from the house, containing all their gelatinous and fatty constituents. The season was so wet that the garden dibble became clodded at every attempt. Holes were at length made about 1½ inches in depth, and 8 inches apart, and into each four seeds of Navarre Wheat were dropped. These vegetated slowly, but the plants, though small, remained pretty healthy throughout the winter 1843-4. In March I first perceived that secondary process of rooting from a ring or collar (mentioned and figured some weeks since), above the first series of seed roots, with an interval of slender stem at least an inch long. At this time the plants were thinned out to one in a hole, and a row was formed by transplanting the supernumeraries. It soon became evident that these removed plants could never tiller or increase in any way equal to those which remained undisturbed. The plants were kept cleaned, and would have ripened completely by the 15th of July, 1844, had it not been for the birds, which so soon as the milkyness of the grain was solidified, assailed the row, and in one night strewed the ground with chaff. But the object had been attained, the increase by tillering was ascertained; none of the plants had protruded fewer than 5 or 6 shoots, many 8 or 9, and others 12 to 16. About 36 such plants from the original row were exhibited entire before the Council of the Royal Agricultural Society on the Wednesday prior to the Southampton meeting. Thus fewer than 40 seeds had produced upon an average nine times as many ears, which were on the whole larger and more prolific than those grown by ordinary cultivation. In 1844, Nov. 3, I pursued the inquiry by sowing three rows in a plot of the same ground, manured by digging into it a few green vegetable remains; but the experiment was thus varied—seeds of the red Chevalier Wheat were steeped 48 hours in Mr. Campbell's (of Dundee), chemical preparation, then dried in the air for a few hours; seeds of white Suffolk Wheat steeped 60 hours, and others of the same variety without any preparation. One row of each was sown in holes dibbled about one inch deep, some two, some three seeds in a hole. The plants were left till March, but the intense severity of the winter, to the 21st of March, retarded progress, and when the weather became mild, upon removing supernumeraries, it was seen that the secondary series of spring-roots did not form as those of 1844, the plants being almost destitute of the seed-stem, and the new roots and tillers protruding as those of spring-sown Wheat, nearly from the base. It would admit of question whether this variation was owing to the difference of depth in the two sowings, or to the retardation and torpor occasioned by the protracted cold of the season. In May and June it became quite evident that the two steeped rows had in every respect the pre-eminence over that in which the unprepared Wheat was deposited. The culms were stronger, like reeds, the verdure much more intense, and the ears very long, some measuring between 5 and 6 inches. As the season advanced, the central blossom of the spikelets showed signs of being abortive, and this failure, termed here "white blight," seems to have been rather prevalent; still the yield of the rows from so few seeds promised to be enormous, the average being from 6 to 20 tillers from one seed. The season however was greatly protracted, till at length finding that the Shrewsbury meeting took place long before there was an approach to maturity, and therefore that there could be no chance of exhibiting the specimens to the Council, I gradually pulled up the corn in order to ascertain, as far as might be, the effect of cutting corn in different conditions of immaturity, and the results I now notice. Those collected early in August were still green at the bottom of the straw, above the soil. I send a specimen [The seeds are good, but shrunken a little]. I find several roots with 16 to 20, and 24 perfect tillers, and reckoning the ears to average 40 grains, the result is 16,000 fold! This is enormous, and in the field might be hopeless to contend for; but surely some corn now wasted might be saved, and much more tillering produced. I have not one plant of more than 100 with fewer than six tillers, but if 10 or 20 seeds had fallen and germinated, as it happens in fields, within the compass of 3 inches, would each have sent up two tillers? or rather must not five of six been eventually stifled in their attempts at growth. Facts call for a wise and liberal economy, for insects devour and ravage not in thinning order, but at their own free will, leaving plenty of blots and patches in their work of devastation.—*J. Towers.*

Albinos.—I suppose the white mice of the domestic sort, which are commonly sold, are an accidental variety perpetuated by breeding; and furnishing support to the theory that all peculiarities of form would become perpetual, if preserved from intermixture of blood. I have lately obtained from a field in this neighbourhood a specimen of the short-tailed meadow mouse, milk-white, and with red eyes. It is a very robust and vigorous animal; is half-tame, and does not try to escape, but snatches and tears rudely the food that is offered to him; and on most occasions grunts and squeaks like a little pig. Mr. Pennant has a notion that this mouse seldom infests gardens, and that cats will not eat it. I can only say they abound in my garden more than any other [illegible]; and my cats devour them.—*A. H., Cambridgeshire.*

What is the Food of Plants? [p. 583].—Soils should upon analysis be found to contain—

8 Oxides of Metals—viz., lime, clay said, magnesia, potash, soda, and the oxides of iron and manganese.
5 Airs—viz., oxygen, nitrogen, hydrogen, chlorine, and fluorine.
3 Solid inflammable substances—viz., phosphorus, carbon, and sulphur.

Total 16

All these substances should exist in small portions in soil, except carbonate of lime, clay sand, carbon, oxygen, and hydrogen.

Proportions of each for good soil.

Various salts	3	
Silica	60	
Alumina	12	
Carbonate of lime	15	
Decayed	10	Animal or vegetable substances, which consist principally of oxygen, hydrogen, and carbon.
Total	100	

The salts may be as follows :—

Containing substances which ought to exist in small proportions in all soils:
Sulphate of Potash
Muriate of Potash
Carbonate of Potash
Nitrate of Potash
Nitrate of Soda
Muriate of Soda
Phosphate of Lime
Nitrate of Lime
Sulphate of Lime
Fluate of Lime
Muriate of Ammonia
Sulphate of Magnesia

In making soil this may be omitted, as it commonly exists in sand and clay:
Oxide of Iron
Oxide of Manganese.

Good soil may be formed from mixing the 16 substances, but if salts exist in it in a greater proportion than 3 per cent., few plants will grow in it. The nitrates and salts of ammonia are the most powerful manures among the salts. The greatest improvement that can be made to soils is to carry sand upon clay ground, and clay upon sandy or gravelly lands.—*C. A. A. Lloyd.*

Home Manures.—Is it generally supposed that beds of rivers and brooks fill up or wear away, and become deeper by age? Or do they remain the same? If they fill up as I am inclined to think, how much may be gained by deepening and spreading the finest alluvial soil on the adjoining meadows, as well as gaining a greater fall for inland draining. We read also of clearing away peat earth by running water and floating it out to sea—an entire waste—in order to uncover and bring into cultivation the soil below. Now, if we put ourselves to so much expense in guano and chemical preparations, is it not rather surprising that it should not have occurred to hundreds that this very peat would be the finest possible manure on sandy and clay soils? and would be more durable than any animal manure whatever. The drifting and blowing sands on our seacoasts, particularly about Liverpool, might be advantageously covered with peat, and the peat land again with this sand to the great advantage of both occupiers; so might also the sea beach about Lid lighthouse and Pevensea levels be covered and brought into use. And where lime has been used for ages the peat would be the very best manure that could be used, to restore that vegetable portion of the soil that the lime has destroyed. This, it appears to me, would be a source of home trade more beneficial by far than the distant and disappointing guano trade, where so many ships are unable to procure cargoes, and mix up their half ship loads with sand and loam, to the injury and disappointment of us poor farmers.—*Z——x, Rochester.*

English Agricultural Society's Prize List.—The letter signed by an "Old Farmer," which appears in the *Gazette* of the 16th inst., is, I trust, only the commencement of a series, containing information by practical men on so interesting a subject as the distribution of prizes at agricultural meetings. It cannot be the wish or intention of any correspondent to speak harshly of societies, for what seems to have been an inadvertent omission of a certain class of animals entitled to prizes, viz., those which from breeding and character require the smallest quantity of food to fatten them for the first-rate markets. This would open a field for competition amongst all classes of farmers, from the holder of 50 acres to the man who lorded it over 1000. The struggle between the parties would then be, not who could smother an unfortunate animal in fat, regardless of expense, but who could bring the best and cheapest food into the market, which would be the true criterion of skilful and judicious management. Men in authority should never be ashamed of receiving hints from individuals however humble their station in life. One of our most talented engineers acknowledged himself indebted to an insect for a model, which enabled him to construct one of the wonders of the present day. It is therefore to be hoped that hints thrown out with the sincere wish of advancing the prosperity of the landed interest, will be acted upon in the true spirit of scientific liberality.—*Falcon.*

Yeast.—For the information of your correspondent "M. B.," respecting "the process of making yeast," I send you the following, which is copied from a communication of Sir W. Elford, The Priory, Totness, to the editor of the "Domestic Magazine" for March, 1837; for the very elaborate detail of Sir William I must refer to the book: for your sake I have considerably abridged it. I have not tried the process, but I am quite confident of its success:—Put 1 gallon of ground malt into a wooden vessel and pour on it 3 gallons of water short of boiling, say 190° Fahr.; stir the mixture frequently and cover with a cloth; in two hours strain the liquor from the malt, and boil it for three hours; and when nearly cold, say 90° Fahr., add something less than ½ a pint of the best yeast, which must be well incorporated with it: keep the vessel in a moderately warm situation, covered with a cloth; fermentation soon takes place, and in a few days the liquor may be poured off, and the yeast at the bottom collected and preserved in bottles. A fresh batch may be made at any time, observing the above directions, and being set to work with some of this yeast instead of the bitter yeast which was of necessity used at first.—*S. J. B.*

Railroads.—The letter of your correspondent "Civis" has recalled to my mind a subject on which I have often pondered, whilst travelling on railroads, viz: that the sides of both the cuttings and embankments might be turned to excellent purpose, instead of being a nuisance to the neighbouring lands by fostering weeds and maturing their seeds. That they might be cultivated profitably, is evident from the luxuriant growth of the weeds in most parts, and of the cultivated plants on those small portions generally near the stations, where cultivation has been attempted. At present, however, the attention of the directors of railroads is engrossed by more exciting subjects; but a time will no doubt arrive, when they will be glad to turn every part of their property to the most profitable use. In the meantime, all parts of the cuttings and embankments, even those which are too steep for profitable culture, might be rendered beautiful and highly interesting, during the greater part of the year, by very little trouble and expense. First, let the weeds be destroyed (and that ought to be imperative on all railroads, for without it they are a nuisance to their neighbours) and then let the seeds of the various ornamental plants, generally grown in gardens, especially of half-hardy exotics, both annuals and perennials, be scattered on the sides of the banks and cuttings; for which purpose the ensuing month is perhaps the best in the year. There are, probably, no places within this kingdom so well adapted to the acclimatising of half-hardy, and even many tender exotics, as the chalk cuttings and embankments on many of the southern railways; for instance, on the Brighton railway, through the greater part of its course. And what an alteration this would effect, at a mere trifling expense in labour and for seeds! I doubt not that there are many railroad directors amongst your readers, and that a word from you would have great weight with them; and I really think it a subject well worth both your attention and theirs. I believe the money which they would expend would be even profitably laid out. There are thousands of persons who, at this season of the year especially, take trips on railroads for mere pleasure, and to whom one railroad is much the same as another; but suppose, sir, there was some one railroad in particular, the banks of which were beautified in the way I have suggested, is it not probable that road would be preferred by a very great majority of those pleasure travellers? Why, the disposition which such an act on the part of the directors would evince to conciliate and please the public (a disposition which, strange to say, seems to be entirely wanting in most of those bodies), would of itself be sufficient to make that road popular. At present, it is lamentable to look on those banks which might be so easily covered with beauty, but which, from entire neglect, are both a nuisance and an eye-sore.—*J. N. Aug.* 28.

Drilling Machines.—I have to-day seen a single row drill, on the cup principle, which is screwed on to the plough, and rests upon it: it is adapted to sow any kind of seed, and, I understand, is much used for Turnips not far from here. It has one wheel about 18 inches in diameter, which runs in the new furrow, and gives motion to the cups as in the common drill. Might not such a drill be more extensively used in sowing Wheat on wet land, and generally by small holders. There is so little of it that it cannot well cost much, and yet I think that it would be better at once to connect it with a stronger beam, and give it a mould-board and share, thus forming a complete drill plough, all except the loads, which could be borrowed from any common Norfolk plough or scarifier. The whole would cost more than it now does, but not much, as a good part of its present appendages, formed to fix it to the plough, would then be dispensed with. When used for Turnips on the flat, it is customary to have boys and women precede it and rake into the furrow (which it and the seed will cover) all the manure, which is first scattered over the whole ground; and according as there are one or two common ploughs at work besides, *i. e.*, according as the Turnips are to be got in every second or third earth, do these women rake into the furrow the manure lying on 18 or 27 inches in breadth. As to Wheat, however, I believe, if, as I wrote you the other day, a plough, by the addition of a back coulter, were simply to form a drill, and a person were well paid to drop the grain evenly in it, a boy after him or the next plough covering it, that Wheat and Barley, being such curiously-shaped grains and so valuable, they would be by this method better sown than by any drill. I told you that I had ascertained by weighing and counting (and I have since verified by taking the quantities used in some trials last year), that 1 bushel of Wheat would sow an acre in drills 9 inches a part and a grain to every inch. Dibbling is generally done here (in Norfolk) with two holes on a 10-inch flag, there being two holes in 9 inches. When, therefore, 2 bushels are used (a common allowance), it is seen, by supposing the lines to run the cross-way, that there is a bushel to every other row, they being at intervals of 9 inches, and therefore that there are five seeds jammed into every hole, the holes being at every 5 inches; and that when 3 bushels are used, as is not uncommon, seven or eight seeds are dropped together. I tried dibbling six different ways last year, using from 1½ pecks to 9 pecks—from one seed to a hole to half a dozen—the result is this, as far as can now be judged, where the land was clean and the seed got in early, the thin sown has beat; and where late and on foul ground, completely failed.—*G. U.*

Farmers' Clubs.

WAKEFIELD.—*Application of Steam Power.*—This subject was illustrated by Mr. Heanley at a late meeting of this club. He said, steam power is one of the agents which has advanced the manufacturing, the mining, and the maritime interests of our country. Why is it not applied to agriculture? A great saving can be effected by using steam for thrashing, grinding, chopping hay or straw, and steaming food for cattle:—On thrashing corn by steam power, the saving is 2*d.* per load, for if Wheat costs 5*d.* per load by horse-power, it can be thrashed for 3*d.* per load by steam. I speak from experience of the last two years. Another advantage is a portion of the crop might be thrashed out immediately as it is carried from the field; Wheat carried immediately from the field measures better than at any other time; and in this respect is in the most profitable state for selling upon the general average of years. By the application of steam thrashing the farmer would have it in his power to sell his corn at the time it fetches the highest price, and this could only be partially done by the application of horse-power.

I make the difference in cost of steam thrashing and that done by horses as follow:—

By Steam Power say	£	s.	d.
3 men at 2*s.* per day	0	6	0
2 women at 1*s.* do.	0	2	0
2 lads at 6*d.* and 8*d.* do.	0	1	2
Oil for machine and engine	0	0	10
Coals and slack for engine fire	0	1	6
Allow for wear and tear	0	3	6
	£0	15	0

Thrashing 60 loads per day would be 3*d.* per load.

By Horse Power.	£	s.	d.
3 men at 2*s.* per day	0	6	0
2 women at 1*s.* do.	0	2	0
2 lads at 6*d.* and 8*d.* do.	0	1	2
Oil	0	0	4
8 horses at 2*s.* do.	0	16	0
	£1	5	6

Which makes it cost a fraction more than 5*d.* per load of 3 bushels.

	£	s.	d.
The cost of an engine and thrashing-machine fixed ready for work is	125	0	0
The cost of horse-thrashing machine, &c. about	90	0	0
Extra cost of engine	35	0	0

Mr. Andrews, of Kirkham Lodge, said—I calculate a horse cannot last on an average above 15 years, whilst an engine with moderate care will last 100 years. Horses, whether working or not, are expensive in keeping; but when an engine stands still, it is costing nothing. A 4-horse engine will do more work than eight horses—I mean yoked at the same time—for they never are all of one mind for pulling together. I recollect once employing 18 horses to do some work, that is, six at a time, in three sets, relieving each other as they required it; but it proved tiring work. I put up a 6-horse engine and it did the same work well. Ten per cent. upon the first cost will keep an engine in repair which works every day for 20 years; but the cost of those used for farming purposes, as has been stated, may be about 7 per cent.

MAIDSTONE.—*Thin Sowing.*—The Secretary said that he had heard from Mr. Davis, that the late deputation had rather underrated some of his crops. Mr. Davis said that he considered the estimate of the Wheat was about right, but that of the Beans was decidedly too high. He believed that his crop of Oats, however, would yield considerably more than the deputation had estimated (from 7½ to 8 quarters). The error probably arose from the head of all thin sown corn being much heavier than that of thickly sown corn. A friend of his (Mr. Davis's) had imagined that the head of his thick sown Oats was heavier than the thin sown, and brought a remarkably fine head to compare them, which had 140 grains. One of his own was matched with it, which contained 195 grains. His thin sown Barley had generally 16 or 17 grains on each side, the general number of thick sown Barley being 13 or 14 grains. Now this made a great difference in the yield. If one piece had 16 grains, and another 18 grains, it made a difference of one-eighth of the crop. He thought, from his experience of thin sown Oats, the deputation had not estimated his Oats high enough. Last year, when the season was not so favourable for Oats, he had grown between 10 and 11 quarters on two of his farms, leaving out Spring Park farm. Another point in which the deputation might have been deceived, was that the Red Oats which he grew had generally more grain in proportion to the straw than the Tartar and many other sorts. A member of the late deputation said that he could bear out what Mr. Davis had said respecting the larger number of grains in thin sown corn than in thick sown, as regarded Barley. When at Selsden he went into two pieces of Barley, one on Mr. Davis's farm, and another which belonged to somebody else, which adjoined it, and which was a very excellent piece. He had brought home a handful of ears from each piece, as fairly as he could gather it, and when he got home he had counted the 10 best ears of each lot. Mr. Davis's 10 ears had contained 318 grains, and the other 10 ears only 245 grains, making a difference of 73 grains in the 10 ears. The average of Mr. Davis's was 31⅛ grains, and those of the others, 24½ grains per ear. Another member said that a gentleman, a neighbour of his, had at his suggestion tried an acre of thin sowing last year at Barming. It was sown as late as the last week in December, in which it differed from the plan of Mr. Davis. It was uncommonly thin in April and March; indeed, so much so that his friends asked him whether or not he should plough it up. He advised him to let it stand. Judging by the appearance of the crop on the part of the field which had been thinly sown, there was perhaps from 3½ to 4 quarters per acre, whilst on the other part of the field which had been thickly sown there appeared to be from 4 to 5 quarters. Mr. Davis said that last winter was a very unfavourable one for thin sowing. In many districts Beans and Peas which had been put in in January, had never come up at all. In December frost had prevailed till about Christmas, when they had a short interval of fine weather, but the frost set in again in the beginning of January, and never broke up till the middle of March. The Wheat put in in December was attacked in the most tender period of its growth. It had just swollen and got into milk when the hard frost came, which lasted three months. He did not think that the experiment mentioned was one which told any way as regarded thin sowing, to test which fairly a piece of ground must be similarly prepared and sown on the same day. As the subject had been introduced, he would make a remark or two, with the permission of the members, on the reasons which had induced him to adopt thin sowing. When he began farming, he had sown three bushels per acre, and had only reduced the quantity very gradually, first to 2½ bushels, then to 2 bushels, then 1½ bushel, till he got down to his present quantity of 3 pecks, which quantity, from several years' experience, he had found to produce more grain than any larger quantity. To ensure success from thin sowing, however, it was necessary to sow early, and keep the land clean. A member said that he had last year sowed a piece with a little more than 1 bushel per acre, on the same day, and in a similar manner as he has sown another piece with 2½ bushels, and the thinly-sown seemed quite as good as the other. A member having asked at what distance it

was considered best to sow Peas, Mr. Davis said that he sowed his at 27 inches, but he was convinced that this was not wide enough, and he intended next year to sow them at 32 inches. When Peas which were sown at 27 inches grew 3 feet high, the top of one row generally covered the bottom of the next row. Now, when Peas had room enough, it was always at the bottom of the stem that the earliest blossoms came, and the best pods were grown; but when the top of one row covered the bottom of the next, the bottom, and consequently the best pods, were altogether smothered and lost. When thickly-sown Peas rotted, they always rotted at the bottom. In the neighbourhood of London gardeners paid as much as 10*l.* per acre, and everybody might be assured that they would lose no land if they paid so highly for it. The gardeners, however, sowed their Peas 3 feet apart, and say that they cannot afford to sow at any less distance; for if the Peas do not have sun and air, they will not pod. The gardeners stick their Peas, and yet sow them at 3 feet, and it was more necessary for farmers, who did not stick their Peas, to give them plenty of room, so that they might get air and light. The same system should be adopted with smaller plants as with larger plants. If they wanted to grow Apples, they would never think of putting three or four trees to grow on a space which they knew could only sustain one. So with corn, which required precisely similar treatment in this respect with trees. What he had learned on this subject had been from close observation and experience. When he had begun the world he was a very poor man, and his object was to save everything that could be saved; and when he found that he could grow as much with a small quantity of seed as with a large quantity, he should have considered it pure waste to have sown the larger quantity. He had with some difficulty managed to get Spring Park farm, of 500 acres of poor land, and if matters had gone wrong with him for the first two years he must have been ruined. A man who had six children, and who began the world without a farthing, could not afford to lose money in pursuit of any theory. All that he had advanced on this subject he had practically gone through, and had adopted his plans, not from any previous knowledge of them, but because they had naturally arisen out of the desire to farm economically and profitably. All he had preached, he had first practised; he had commenced many years since, and had gone on gradually improving from time to time, till experience had confirmed him in his preference. A member, who said that he was favourable to thin sowing generally, wished to ask Mr. Davis whether he did not think that he would get more spring feed, such as Barley and Tares, if he sowed more thickly. He had availed himself of Mr. Davis's invitation to walk over Haling farm, and had seen some Tares there. He fancied that in some of his own Tares, where he had sown about 3 bushels, he had got about three times as much feed as Mr. Davis had got from a bushel and a half. Mr. Davis said that he felt certain that in his land 12 inches apart was the best distance. He had observed that the Tares of some farmers of his district, who had sown more thickly than himself, had always had a considerable quantity of their crop rot at the bottom, which the sheep would never touch; whilst he had universally found that the sheep had always eaten his own off bare to the ground. This saving of seed, when Tares were 10*s.* a bushel was of considerable consequence. He (Mr. D.) had already told the members something of the Selsden farm, which would be surely contradicted by his neighbours, if untrue. If it were not by thin sowing and deep cultivation that he had got the crops he had grown there, by what other means had he done so? He had not purchased any manure for many years, excepting when he had drawn his Swedes and sent them to London. He wished everybody to see his crops, and compare them with those of his neighbours, and ask themselves which was the best system? Then with reference to Spring Park farm. When he had taken that farm in 1833, it consisted of 370 acres, and had been let at 60*l.* a-year, when Wheat was at from 4*l.* to 5*l.* per quarter. The last tenant, in 1808, had failed, and the landlord lost two years' rent. The next person who bought it took it into his own hands, and from his hands it came to him (Mr. D.) in a wretchedly poor state. Surely a farm like this must be considered a fair specimen of what the system would do. The gentleman who owned Selsden farm was not in England when he had ploughed up the chalk, or from the outcry that was raised about it, in the district, he probably would not have permitted it to be done. Everybody said it was burying the good soil, and bringing up the bad soil, and that the land would be ruined. He knew, however, that this lower soil would immediately become ameliorated by exposure to the air, the sun, and the rain. The plant, in growing, strikes its root downwards, and not upwards. The bad soil which was turned up soon became good soil, whilst the good soil which was turned under, served to sustain the plant in the last stage of its growth. Soil dug out from the bottom of a well, or a railway cutting 25 feet deep, he had observed to be soon fitted, by the influence of the atmosphere, for growing plants. As an instance of the effect of deep cultivation, he would mention the case of some of his labourers, who had grown Potatoes, year after year, for 15 to 20 years, from the same ground. This ground was in a sand-pit, had very little dressing, and was entirely rendered productive by deep cultivation. Whether the season was wet or dry, these men always had a good crop of Potatoes, and these Potatoes were so good that he had frequently bought them for his own table. The result was entirely attributable to deep tillage. In some parts of the pit, the roots of the Potatoes had been traced as deep as 20 feet. Near Spring Park farm was a hill, which was a bed of gravel, and which, about 15 years since, had been bought by a publican, who run up some cottages on it with some old building materials; and on seeing him digging a deep trench round the place, he (Mr. D.) asked him what he was about. He replied that he was going to grow a quickset hedge, but he was not going to do as Mr. Maberly (the former owner of Spring Park) had done. "When," he said, "Mr. Maberly had planted quick hedges, he had collected the top soil and mixed it with dung on the top of a bank, but he had never grown a quick hedge, and never would, on that plan; but" (added the publican) "I do mean to grow a quick hedge, as you will see." Not only had the hedges so treated grown well, but the cottagers on this poor land had, by trenching, grown excellent crops of vegetables, with very slight dressings, which they had almost invariably carried off the ground. This was the result of trenching, constantly presenting a fresh surface to the air, and keeping the land clear of weeds, on some of the very worst land in England. He felt certain that no processes in agriculture produced such certain benefits as trenching deeply, and putting into the land only that number of seeds which the land could bring to maturity. It would be considered absurd to put four acorns into a hole to produce four Oak trees, where the space of earth could only bring one to perfection. The man who did this would only get slight poles, whilst his neighbour, who might have only planted one acorn in the same space, would grow a good Oak tree, and get a good crop of acorns, too, if he wanted them. There was no good reason why this system should not apply to Corn crops as well as acorns. If one bushel was sown, and only 20 bushels were harvested, it was only an increase of 20 fold. It was often observed, however, that one grain of Wheat would produce 2000 fold, from 25 stems with 80 grains in each ear. One bushel of seed must, consequently, be considered thick sowing, not thin sowing. The following resolution was eventually carried unanimously:—"Resolved, That every friend of agricultural improvement and national prosperity ought to try the system recommended by Mr. Hewitt Davis, if only on a small scale; and that the thanks of the Club be presented to that gentleman for the urbanity with which he has received its deputations, and the pains he has taken this evening to explain every part of his system."

Miscellaneous.

Feeding of Animals.—(*Boussingault, vol. ii., p.* 432).—*Observation VIII. Part of the Hay replaced by Swedish Turnips.*—Swedish Turnips, combined with dry food, answer admirably for horses. Analysis having given 280 as their equivalent, two horses were submitted to experiment, 11 lbs. of hay being replaced by Swedish Turnips. The daily allowance then consisted of—

Hay	11 lbs.
Straw	5. 5
Oats	7.25
Swedish Turnips	30. 8

It was soon found that this allowance was not sufficient, for—

The first weighing had indicated for the weight of the two horses	2289.8 lbs.
Average per horse	1144.9
The second weighing at the expiration of nine days	2183.9 lbs.
Average per horse	1091.9
Loss	53. Loss 105.9

The equivalent, then, was erroneous; accordingly I made a new estimate of the moisture and azote contained in these roots. The equivalent resulting was 676 instead of 280. Another experiment, however, was made, in which 400 was assumed as the equivalent, and the same horses were submitted to the new regimen for 13 days.

1st weighing	2183.9 lbs.	Mean per horse	1091.9 lbs.
2d weighing	2194.9 ,,	,, ,,	1097.4 ,,
Gain	11.	Gain	5.5

The horses did not recover their strength, or indeed their primitive weight. the true equivalent, then, is probably somewhat above 400, and, from analysis, it may be concluded that common Turnips also have as low a nutritive value.

Observation IX. A portion of the Hay replaced by Carrots.—Horses are extremely fond of Carrots. Their nutritive powers, however, have been much exaggerated. Chemical analysis gives 350 as their equivalent. In one case in which they were substituted in equal weight for Potatoes the result was far from good. Afterwards the theoretic equivalent was followed, but without completely answering our expectation. We are now of opinion that the equivalent is not below 400. The crop having, in great measure, failed in 1841, I experimented on a single horse only, 28.6 lbs. of Carrots being given for 11 lbs. of hay. The horse having been submitted a few days previously to the regimen, weighed—

1027.9 lbs. at the expiration of 15 days.
1016.9 ,,
11. loss in 15 days.

The horse was in good condition, therefore the equivalent adopted (350) seems tolerably exact, but our grooms consider it as giving rather too high a nutritive value, which is in some measure justified by the diminution of weight, provided the difference of the two weighings is not due to some accidental circumstance.

Observation X. Boiled Rye substituted for Oats.—It has been stated that Rye, boiled till the skin just bursts, may be given weight for weight, instead of Oats. Our experiments do not confirm this statement. By preliminary experiments we found that when the Rye is boiled its bulk is doubled. Two horses were subjected to experiment who had for a long time been fed on a daily allowance of 22 lbs. hay and 5.5 lbs. of Oats=5 litres (1.321 gallons). For the Oats the same measure of boiled Rye was substituted, but in fact weighing only 4.1 lbs. On the 11th day it was considered advisable to terminate the experiment, of which the result was—

	lbs.		lbs.
1st Weighing—			
Weight of horses	2016	Mean per horse	1008
2d Weighing	1932	Ditto	966
In 11 days—Loss	84	Loss	42

In this experiment water was evidently substituted for Oats, and, if continued, it must have been injurious. Rye slightly boiled may certainly be substituted for Oats, but if so the nutritive equivalents given in the Table must be followed. M. Dailly adopted this ratio, and, at a time when the relative prices of Oats and Rye allowed the substitution, used it with decided advantage for post horses at Paris. It appears, then, from the foregoing observations, that the equivalents of Potatoes, Beet-root, Jerusalem Artichokes, Carrots, as ascertained from the proportion of azote which they contain, may be admitted without inconvenience as regards the health of horses. Theory in general gives too low a nutritive value, or, in other words, too high an equivalent, so that by the substitution for a part of the hay of any of these substances, the regimen will probably be more substantial. So that 100 parts of hay are equal to—

280 of Potatoes, or according to analysis	315
280 of Jerusalem Artichokes, or	311
400 of Beet-root, or	548
400 of Swedish Turnips (too low)	676
400 of Carrots, or	382

—*M. J. B.*

Tabular Statement of Observations, taken at Four Farms in Cheshire:—viz., Nos. 1 and 2 in Bucklow Hundred; No. 3 in Nantwich Hundred; and No. 4 in Eddesbury Hundred.

No.	Day of Observation.	No. of Cows.	Quantity of Milk at Two Milkings except No. 2.	Heat of Milk when the Rennet was put in.	Quantity of Rennet.	Time occupied in Coagulation. h. m.	Heat of Curd and Whey after Coagulation.	Heat of Dairy or Room in which the Cheese was made.	Time occupied in gathering the Curd and completing the formation of the Cheese. h. m.	Quantity of Salt used internally. lb. oz.	Weight of Cheese a day or two after making. lbs.	Weight at some subsequent period. lbs.	Quantity of Cream taken from night's Milk. Qts.	Quantity of Whey. Gall.	Quantity of Whey Cream. Qts.	Quantity of "Fleetings." Qts.	Size of Cheese. Inch.
No. 1.	Nov. 21.	42	Galls. 43	83°	About 3 sq. in. of skin, 1 pint of water.	0 50	73° but raised with hot whey to 79°	..	5 0	1 1	55	Aug. 17 following. ..	..	374	54½	4	15½ Diam., 6½ Deep. Aug. 17.
No. 2.	Aug. 17 following.	48	Two Cheeses made in 2 Tubs. 59 53	88° 86°	3 sq. in. skin, ½ pint of water to each Cheese	1 0 1 0	83° 79°	68° at 7 o'clock.	..	2 4	55	Aug. 17 following. ..	..	102	13½	..	....
No. 3.	Aug. 10.	26	24 4 milkings. 56	78°	3 sq. in. skin, ½ pint of water.	0 45 1 0	74° ..	78° at 11 o'clock. Morn. 64° Noon 67°	4 0 5 15	0 4 1 0	60	53 ..	1	47½	3	3	16 Diam., 7¼ Thick. Aug. 30.
No. 4.	Aug. 19.	53	107	77°	12 or 16 sq. in. of skin, 1 pint of water.	1 45	72° ..	..	..	4 4 handful in one milk.	2 Cheeses made; weight not ascertained.	57 53 Sept. 16. ..	..	98	..	..	15 Diam., 8¼ Thick. 15 Diam., 8 Thick. Sept. 16.

These Observations are not so complete as might be

wished, not having been taken at the time in a tabular form, and with a view to publication. *Note.*—Cheese loses about 15 per cent. in weight the first year.—*H. White, English Agricultural Society's Journal.*

Hedge-rows in Norfolk.—In four different arable districts of the county of Norfolk, I have measured respectively 1 square mile, or 640 acres, and the result is as detailed in the Table below. This Table, as will be seen, is founded on the acknowledged fact that a space of land equal to that shaded by a tree is as completely lost to the farmer as if it were actually occupied by a fence ;* or, in the words of one of the gentlemen whose testimony I have already embodied in this essay, that "the utter extinction of the land overshadowed by trees would be gladly submitted to by every farmer, provided the trees were to be annihilated at the same time, and this without any sought-for deduction of rent."

SECTION I.—TREES.

Name of Parish.	Number of Hedge-row Trees per Square Mile.	Average Space overspread by each Tree, independent of Fence, in Square Mile.		Total Space covered by Trees in Square Mile.		
		Sq. Ft.		A.	R.	P.
Lakenham	3664	461		37	3	29
Bixley, Arminghall, & adjoining parishes....	2048	301		16	3	35
Dereham	3084	602		42	2	19
Hethersett	4004	586		63	3	18
Average....	3200	500		37	3	16

SECTION II.—FENCES.

Length of Fence in Square Mile.			Average width of Fence in Square Mile.		Space occupied by Fence in Square Mile.			Total Space occupied by Trees and Hedges per Square Mile.			Per Centage occupied by Hedges and Hedge Trees.
M.	fur.		Ft.	In.	A.	R.	P.	A.	R.	P.	
28	0	0	8¾		28	3	15	66	3	4	10½
19	2	7	11½		26	3	18	43	3	13	
26	4	0	12		38	2	7	81	0	26	12½
27	2	0	8½		28	0	12	81	3	30	
26	2	1	10		30	2	13	68	1	28	10½

—*James Grigor, in the Royal English Agricultural Society's Journal.*

Comparative Value of Farm Dung and Guano.—I have said that the cow yields 16 tons of dung, as carted to the field yearly. In the same time she yields about 5 tons of urine. Thus for every ton of dung, she voids 700 lbs. of urine. The mineral matters in this appear in the second column (analysis by Richardson).

	In 1 ton dung.	In 700 lbs. cows' urine, (Sprengel).	In 1 cwt. guano.
	lbs.	lbs.	lbs.
Water	1,455·104	..	..
Azotized organic matter .	553·504	..	..
Potash	7·481	4·62	2·558
Soda	6·317	3·92	3·202
Lime	21·427	trace	13·806
Magnesia	4·337	0·28	0·820
Alumina	trace	..	0·116
Manganese	trace	..	..
Peroxide of Iron	4·623	..	..
Silica	62·585	0·07	..
Carbonic acid from earthy carbonates	11·393	..	..
Sulphuric acid	7·571	2·31	2·881
Phosphoric acid	17·468	1·05	13·653
Chlorine	7·280	1·89	4·883
Sand	71·702	..	..
Carbon	1·926	..	..
Alkali and loss	7·280	..	..

Thus, in potash, 2 cwt. of dried dung, or 4 cwt. fresh dung, equal 1 cwt. guano ; but in dung, as the farmer carts it to the field, he gives a vast excess of all the mineral ingredients of plants, compared with what he gives in 5 cwt. of guano to the acre; for, supposing a cow to manure 1 Scotch acre yearly, her dung yields 2,225·424 lbs., and her urine 226·24 lbs. of mineral matters, while 5 cwt. of guano yield only 209·594 lbs. of the mineral food of plants. Thus, in guano, the farmer gives only about one-twelfth of the manure which the well-managed dung and urine of one cow can yield. It is not, then, without cause that some have protested against guano as a rapid exhauster of the soil ; but the disintegrating and oxydizing power of guano is very great : I have found it capable of destroying the texture of red granite. It may thus, in the soil, liberate potash and peroxidate iron. On Mr. R.'s analysis of dung, the Table shows only the potash and soda, which he could extract by water. A portion after this (in the undecomposed stalk) tenaciously remained with the silica, and, while he expelled organic matter by heat, formed a glass with the silica, and intercepted a portion of carbon. As he could not accurately estimate this, he gives it in the last line of the Table along with loss. The analysis has evidently been conducted with much skill and precision.—*P. Garden. Dublin Farmers' Gazette.*

* It is not the mere surface of land shaded by trees or occupied by fences which is the measure of deduction from the crop. The relative mass requiring nourishment must be taken into calculation. The carbonic acid and ammonia derived from the atmosphere, and which form the woody fibre and albumen, in fact the chief proportion of the substance of the former, would, in their absence, become so much starch and gluten in the latter. Take away your trees and hedges, and you gain every year a quantity of nutritious food equal to the annual increase of their substance. It is a remarkable provision that the industry of an increasing population, which extracts iron from the interior of the earth, permanently to supersede timber, at the same time leaves those elements, otherwise required for the growth of trees, at liberty to form food for the support of our increasing numbers.—*W. H. Hyett.*

Notices to Correspondents.

BARN FLOORS—*Correspondent*—The lime, clay, and scoriæ of the composition floor are in equal proportions, and the mixture is tempered to a working consistency by the blood. There are slight variations in these proportions required by the varying qualities of the materials, but these an intelligent workman soon learns how to make. *J.N.*

BELGIAN RYE—*G G*—Messrs. Gibbs and Co., Half-Moon-street, Piccadilly.

CAST-IRON PLOUGH-SHARES—*Querist*—When broken, or worn down, they are only worth the value of old iron.

CLOVER-SEEDS—*Querist*—We have already got our sheep on our stubbles. It is, however, said to be injurious to the young Clover, if it should prove to be a severe winter : and in the north of England and Scotland the practice is dangerous.

COW-FEEDING—*E T W*—Mangold Wurzel, Swedes, Carrots and Parsnips, will probably be eaten in the following proportions : —12, 10, 12, 8. Cows vary exceedingly in the quantities of food they will eat ; the above figures assume the roots to be all in good condition for food. Mangold Wurzel should not be consumed till March and April, by which time all the Swedes should have been eaten. In addition to 10 lbs. of hay, a cow may eat from 40 to 50 lbs. of roots daily.

DEANSTON PLOUGH—*W C*—Thanks : but we cannot insert it. At the same time, we quite agree with you that "the productive capabilities of British soils are capable of a degree of development beyond what they have at present attained, such as presents scope enough for the profitable investment of all the capital and labour that can be spared."

DIGGING IN GREEN CROPS—*A Subscriber*—It is an uneconomical practice under the best circumstances ; and on naturally light land it is positively injurious. If the land be poor, dig in some good, *fat*, well-rotted dung now, and take a crop of Potatoes next year. If you are inland, salt is a good thing to apply, especially on light land.

FLAX—*J E*—We have already devoted space sufficient to this subject. We have already had the pleasure of reading "The Lease :" many thanks for your offer, which, however, as we already have a copy, we decline.

INCLOSURES—*Petto*—We rather think that not above 2 feet from the hedge can be claimed.

MAIZE—*S Brightfoote*—Towards the end of April dibble 2 or 3 inches deep in rows about a yard asunder, and at intervals of a few inches in the rows. The soil should be moist and rich, and the situation warm and sheltered. Place three or four seeds in each hole. At harvest time gather the ears and strew them on a dry floor, till perfectly dry. The straw may be cut up and used as fodder. It is only in very dry and hot summers that Maize will ripen here.

PIGEONS—*R J*—What is the best modern book on Fancy Pigeons?

PLANT OF WHEAT—We beg to acknowledge the kindness of the Editor of the *Hull Packet*, in forwarding for our inspection a Wheat Plant, with between 80 and 90 straws. It grew in a border by itself, and exhibits to what an extent, under favourable circumstances, the development of the plant may be carried. These circumstances mainly are, sufficient space of well-cultivated ground, and good weather.

ROTATION OF CROPS—*T B H*—For light soils :—1, Wheat ; 2, Swedes ; 3, Wheat, Oats, or Barley, with Clover seeds ; 4, Seeds, mown and depastured ; 5, Wheat ; 6, Carrots and Potatoes ; 7, Wheat, Oats, or Barley ; 8, Mangold Wurzel and early Turnips. On this system a small breeding flock of sheep might be kept, but there would not be summer food sufficient for a flock calculated to consume the winter crops, and it would be necessary to buy stock in autumn and sell in spring. For clay soils :—1, Wheat ; 2, Beans ; 3, Wheat, or Oats, with Clover seeds ; 4, Seeds, mown and depastured ; 5, Wheat, part of stubble sown to Vetches ; 6, Mangold Wurzel and Cabbages, &c.——*Petto*—In speaking of, for instance, a five-years' rotation, it is meant that one-fifth of the farm is each year in each crop.

SCAB—*H G S* — Hydrochlorate of mercury, powdered, 4 oz., White hellebore, powdered, 6 oz ; Whale oil; 3 gals ; Rosin, 1 lb ; Tallow, 1 lb. The two first ingredients to be mixed with a little of the oil, and the remainder being melted together, the whole to be gradually mixed. A portion of the above ointment to be rubbed into the affected parts every second or third day.

SEED TO BE SOWN AFTER HARVEST, FOR A CROP OF HAY BEFORE TURNIPS NEXT YEAR—*A B C*—What do you say to Italian Rye-grass ? It would answer very well ; only the probability is that your crop of it in May would be so good and promising that you would deem it advisable to leave it rather than break it up for Turnips. Sow a bushel and 6 or 8 lbs. of mixed Clover-seed per acre. It *prefers* sandy soils, but will grow on clays.

SPALDING'S WHEAT—*T K*—It is a prolific, but not very *fine* variety. We do not know "Barwell's Brown."

STABLE PURIFIER—See our advertising columns, p. 604. For the rest, next week.

TURNIP-CUTTER—*Teifiside*—Gardner's, price 5*l*. 5*s*. You can hardly do better than what you propose regarding the cow. She will take the Warne's Jelly readily enough after trial for a day or two.

TURN-WREST PLOUGH—*Anon*—One of the best is that of Mr. Comins, of South Molton, Devon. Lowcock's, though somewhat cumbrous, is also a good one ; it combines more effectually than any other, excepting Smith's, of Deanston, the advantage of a well-shaped mould-board with that of a turn-wrest plough. Two horses work it in ordinary land. It would, doubtless, answer your purpose.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Sept. 1.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s	10	to 4s	2	Best Long-wools	4s	4 to 4s 6
Best Short Horns	3	8	4	0	Ewes and second quality	3	8 4 2
Second quality Beasts	2	10	3	4	Lambs	4	8 5 6
Calves	4	0	4	8	Pigs	3	8 4 8
Best Downs & Half-breds	4	8	4	10			

Beasts, 2650; Sheep and Lambs, 28,140 ; Calves, 148 ; Pigs, 309.

We have to-day a very large supply of Beasts, with a heavy trade, especially amongst the second-rate Short-horns. Best Scots were also lower, but more readily disposed of than other qualities.—Our supply of Mutton has increased, both as to numbers and weight. The big Sheep were very difficult to sell, and scarcely made 4s. 4d.—Lambs are more in demand.—Veal trade is steady.—Pork trade is good.

FRIDAY, Sept. 5.

Our supply of Beef to-day is but small, there is, however, sufficient for the demand. The best Scots more freely make, but cannot be quoted at more than 4s. 2d.; and Short-horns 4s.—Sheep are also rather shorter, but trade is scarcely any better; some few of the best old Downs make 5s.; and the most sizeable Longwools about 4s. 8d.; large Sheep and Ewes, 4s. to 4s. 4d.—Lamb, 4s. 8d. to 5s. 8d.—Veal trade is better; a choice Calf readily makes 5s. —Pork, 3s. 8d. to 4s. 8d.

Beasts, 748 : Sheep and Lambs, 7130 ; Calves, 294 ; Pigs,' 321.

JOHN COOPER, Salesman. 4, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Sept. 4.

Prime Mead. Hay	105s	to 115s	New Hay	65s	to 90s	New Clr. 105s to 130s
Inferior Hay	—	—	Clover	—	to —	Straw 36 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Sept. 4.

Prime Mead. Hay	108s	to 112s	Old Clover	128s	to 136s	
Inferior	90	98	Inferior do.	110	120	Straw 37s to 42s
New Hay	70	92	New Clover	98	110	

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Sept. 5.

Fine Old Hay	100s	to 112s	Old Clover	120s	to 132s	
Inferior Hay	—	—	Infr. ,,	—	—	Straw 36s to 40s
New Hay	60	90	New Clover	100	115	

Supply large, and trade dull at the above prices.

COVENT GARDEN, SEPTEMBER 6.—The Market has been supplied with abundance of fruit and vegetables of almost every kind ; but trade for some things is dull. Pine-apples are good and plentiful, particularly the Queen, Black Jamaica, and Providence ; they bring nearly the same prices as last week. Hot-house Grapes of good quality are sufficient for the demand ; a few Portugals have also been offered. Peaches and Nectarines from the open wall are abundant, as are also Apricots ; these, however, in consequence of want of sunlight during the time of ripening, are not well flavoured. The supply of Plums of English growth is tolerably well kept up ; and considerable quantities continue to be imported from Havre. English Melons are becoming very plentiful ; Dutch varieties are at present scarce. Fine samples of Morello Cherries may be met with, and a few dessert varieties are also in the Market. In general, little alteration has taken place in the prices of vegetables. Peas, although not quite so plentiful as they have been, are still selling at the prices mentioned in last week's report. Cauliflowers, although scarcer, are sufficient for the demand. Cabbages, French Beans, Carrots, and Turnips, are good and abundant. Potatoes are nearly all affected with the disease mentioned in another column, and although there are plenty in the Market, trade for them is, in consequence, bad. The supply of Celery is on the increase, as is also that of Tomatoes, which are very good in quality. Mushrooms are plentiful, and Salading of every kind is abundant. Among Cut Flowers, we noticed Camellias, Anemones, Asters, Pelargoniums, Verbenas, Heliotropes, Gardenias, Phloxes, Begonias, Carnations, Heaths, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s
Grapes, Hothouse, per lb., 1s to 4s
— Spanish, per lb., 9d to 1s
Peaches, Wall, per doz., 2s to 6s
Nectarines, per doz., 2s to 6s
Melons, 2s to 4s each
— Dutch, 1s to 3s each
Figs, green, per doz., 2s to 3s
Plums, per hf.-sv., 2s to 3s
— Orleans, per hf.-sv., 3s to 4s
— Green Gages, per hf.-sv., 4s to 6s
— Violets, per hf.sv., 4s to 6s
Apricots, from 1s to 3s per doz.
Cherries, wall, per lb., 2s to 5s
Apples, Dess., per bush., 5s to 7s
— Kitchen, 2s 6d to 4s
Pears, per hf.-sv., 2s to 5s
— Jargonelles, per hf.sv., 6s to 8s
— Windsors, 4s to 3s 6d
Currants, per hf.-sv., 2s 6d to 4s
Gooseberries, per sieve, 3s to 4s
Oranges, per dozen, 1s to 2s 6d
— per 100, 8s to 18s
Lemons, per dozen, 1s to 2s
— per 100, 7s to 16s
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s 6d to 3s
Filberts, English, p. 100 lbs., 25s to 40s
Nuts, Barcelona, 24s
— Brazil, 16s to 20s
— Turkey, 16s

VEGETABLES.

Cabbages, per doz., 2d to 1s
Cauliflowers, per doz., 1s to 5s
French Beans, per hf.-sv., 1s to 3s
Sorrel, per hf.-sieve, 6d to 9d
Artichokes, per doz., 1s 6d to 2s 6d
Potatoes, per ton, 40s to 80s
— cwt., 2s 6d to 5s
— bushel, 1s 6d to 3s
— Kidney, per bushel, 2s to 3s
Turnips, per doz., 2s to 3s
Red Beet, per doz., 9s to 2s
Carrots, per doz. bchs., 2s to 5s
Peas, per bushel sieve, 2s 6d to 5s
Horse Radish, per bundle, 1s 6d to 6s
Cucumbers, per doz., 2s to 6s
— ridge, per doz., 1s to 3s
Spinach, per sieve, 9d to 1s 6d
Leeks, per doz., 2s to 3s
Garlic, per lb., 8d to 10d
Tomatoes, per hf.-sv., 5s to 7s
Celery, per bunch, 1s to 1s 3d
Vegetable Marrows, p. doz. 4d to 1s
Onions, per doz., 2s to 6s
— pickling, per hf.-sv., 2s to 3s 6d
— Spanish, per doz., 1s 6d to 4s
Shallots, per lb., 6d to 10d
Lettuce, per score, Cab., 1s to 2s
— — Cos, 9d to 1s 3d
Radishes, per doz. bunches, 2d to 1s3d
Mushrooms, per pottle, 8d to 1s 6d
Small Salads, per punnet, 2d to 3d
Basil, green, per bunch, 4d to 9d
Fennel, per bunch, 2d to 3d
Savory, per bunch, 4d to 6d
Thyme, per bunch, 4d
Watercress, p. 12 sm. bun. 4d to 6d
Parsley, per half sieve, 6d to 1s
— Roots, per bundle, 9d
Tarragon, per bunch, 4d
Mint, per bunch, 2d
Marjoram, per bunch, 4d
Chervil, per punnet, 2d to 3d

HOPS, FRIDAY, Sept. 5.

The market continues very firm at full as much money as last week, with a steady demand for consumption. Hops of all sorts, are getting very scarce ; indeed, the picking will not be general before the 20th inst. The cold nights prevent the backward Hops getting out ; and the duty varies from £170,000 to £175,000; many think it will fall under £150,000.

PATTENDEN & SMITH, Hop-Factors.

MARK-LANE, MONDAY, Sept. 1.

There was a fair supply of Wheat from Essex, Kent, and Suffolk, this morning, about two-thirds of which were of the new crop, principally Essex; the quality and condition proved better than might have been anticipated, the weight 2 lbs. to 3 lbs. lighter, and its value 5*s*. to 7*s*. less than last year ; old met a slow sale, excepting at a decline of 1*s*. to 2*s*. per qr. ; free Foreign and bonded were neglected.—Barley, Beans, and Peas, maintain the prices of last week.—Oats are a dull sale, and all descriptions, excepting the very finest, must be noted 6*d*. per qr. cheaper.—The quantity of new Mustard at market was small ; White, of which there are about 200 qrs., sold at 14*s*. to 18*s*. per bushel ; Brown brought 10*s*. to 14*s*. per bushel.

BRITISH, PER IMPERIAL QUARTER,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White 46	54	Red	46	53
—— Nortolk, Lincolnshire, and Yorkshire	—	—	White	—	—
Barley, Malting and distilling 28s to 32s	Chevaller 30	34	Grind.	26	28
Oats, Lincolnshire and Yorkshire	Polands 20	23	Feed	19	22
—— Northumberland and Scotch	Feed 20	22	Potato	21	24
—— Irish	Feed 20	22	Potato	21	23
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	22	23			
Beans, Mazagan, old and new 35 to 38	Tick 36	39	Harrow	38	40
—— Pigeon, Heligoland 39 to 44	Winds —	—	Longpod	—	—
Peas, White 34 to 40	Maple 38	40	Grey	34	38

FRIDAY, Sept. 5.

There were a few samples of English Wheat fresh up to this morning's market, which sold at Monday's prices ; in free Foreign not much doing, but the trade was firm, and also for bonded ; low qualities were inquired after for export.—Barley and Beans maintain their value ; Grey and Maple Peas must be written 1*s*. to 2*s*. cheaper ; White are unaltered.—The Oat trade is rather better, with the exception of low Irish qualities ; Archangel must be noted 6*d*. dearer.

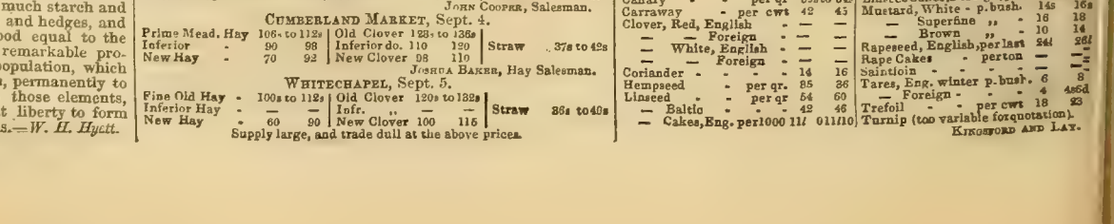
IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
July 26 per Quarter.	51s 7d	29s 2d	22s 5d	31s 7d	40s 3d	38s10d
Aug. 2 . . .	53 3	29 8	23 5	34 6	40 5	41 0
— 9 . . .	55 3	29 7	23 8	33 10	41 0	39 10
— 16 . . .	57 0	29 4	22 2	34 4	41 2	39 7
— 23 . . .	57 0	29 9	22 8	33 4	41 8	38 11
— 30 . . .	56 6	30 0	22 4	35 7	42 1	38 4
6 weeks' Aggreg. Aver.	55 1	29 7	22 6	33 10	41 1	39 3
Duties on Foreign Grain	17 0	9 0	6 0	9 6	1 6	3 6

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	5910	160	40	3330 Sks
Irish . .	—	—	—	—
Foreign . .	16080	3200	9410	—

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Aug. 20.



SEEDS, Sept. 5.

Canary	per qr	59s	to 64s	Linseed Cakes, Foreign, p. ton	7	10 to 8
Carraway	per cwt	42	45	Mustard, White - p. bush.	14s	16s
Clover, Red, English	—	—		— Superfine ,,	16	18
— — Foreign	—	—		— Brown ,,	10	14
— White, English	—	—		Rapeseed, English, per last	24l	26l
— — Foreign	—	—		Rape Cakes - per ton	—	—
Coriander	—	14	16	Saintfoin - - -	—	—
Hempseed	per qr.	35	36	Tares, Eng. winter p. bush.	6	8
Linseed	per qr	54	60	— Foreign - -	4	4s6d
— Baltic	- -	42	46	Trefoil - per cwt	18	23
— Cakes, Eng. per 1000	11l	0 11l	10	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietor, in consequence of the Lease having expired, to submit to public competition on the premises, Camden Nursery, Camden Town, on Tuesday, September 16th, 1845, at 11 o'clock, a very valuable collection of GREENHOUSE PLANTS, comprising large Azalea indica and Camellias well furnished with bloom, Chorizema, Erica, Epacris, Brachysema, Corræa, Combretum purpureum, Passiflora of sorts, including a splendid specimen of Passiflora Buonapartia. The newest varieties of Geraniums, Fuchsias, &c., may be viewed prior to sale. Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition on the Premises, Great Bride-street, Liverpool-road, Islington, on Monday, September, 15, 1845, at 11 o'clock (by order of the Proprietor, in consequence of the land being let for building), the whole of the STOCK, consisting of two small GREENHOUSES and BRICKWORK, seven one and two light Boxes, the whole of the Greenhouse Plants, and also the general Stock of a Gardener.—May be viewed prior to the Sale, and Catalogues may be had of the principal Seedsmen, on the Premises, and of the Auctioneers, American Nursery, Leytonstone.

TO GROWERS OF ORCHIDACEÆ.

MESSRS. J. C. & S. STEVENS beg to announce that they have received notice of a few cases of CHOICE ORCHIDACEÆ, which are daily expected, per "Crusader," from Chantla and the frontiers of Soconosco and Chiaspas, with a few very rare from Coban. Catalogues will be given in due course, and the day of sale announced.

38, King-street, Covent-garden, September 6.

TO BE DISPOSED OF, THE POOLE NURSERY, DORSETSHIRE.—In consequence of the proprietor of this Nursery being too actively engaged in another business to give it proper attention, he wishes to dispose of it. It is well situated in a fast increasing neighbourhood, and might be had on easy terms. Any one thinking of taking it might, if he wished, come as a Foreman for a few months previously, or a person of *known abilities and good standing* might be engaged as a permanent Foreman, at liberal salary, or as a Partner.

Sept. 6. A. BULSTOW.

TO CORN DEALERS, HOP MERCHANTS, and SEEDSMEN.—An excellent opportunity now offers to any party who may be disposed to enter into the above trades, of purchasing a retail business, which has been carried on most successfully for about 12 years; the returns being from 8000*l.* to 10,000*l.* per annum, and which may be considerably extended, especially by any one who is well acquainted with the Seed-trade. The business is in an excellent situation, in one of the principal towns in England. The Stock, which could be reduced, may be taken to at a valuation.—For particulars, apply to Messrs. WARNER and WARNER, Cornhill, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

NOTICE.

POTTER'S GUANO, patronised by Sir R. Peel; the Duke of Northumberland; the Earls of Essex and Zetland; Lord Braybrooke; Lord Portman; Sir John Lubbock; D. Barclay, Esq., M.P.; P. Pusey, Esq., M.P., &c. &c.

Mr. POTTER has Reduced the price of his GUANO to 9*l.* per Ton, delivered FREE to any Wharf or Railway in London, bags included. Terms, Cash.

If Five Tons are ordered, it will be delivered FREE to any Wharf or Railway Station within 100 Miles of St. Paul's, or to any Principal Port of the United Kingdom.

CAUTION.—It having come to Mr. Potter's knowledge that some unprincipled dealers have fraudulently mixed his Guano with other substances, he begs to signify that he cannot be answerable for Manure not had direct from his Manufactory, or through authorised persons, a list of whom, with Testimonials, will be sent free, per post, on application.—Manufactory, 28, Clapham-road-place, London.

N.B. Mr. Potter has no London Agent for the sale of his Manure.

ENGLAND INDEPENDENT OF ICHABOE.

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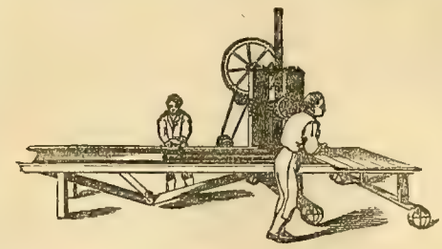
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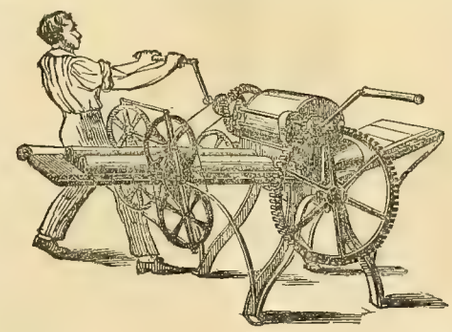
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*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

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ROWLAND'S ODONTO, OR PEARL DENTRIFICE, patronised by Her MAJESTY, H.R.H. Prince ALBERT, the Royal Family, and the several Courts of Europe. A FRAGRANT WHITE POWDER, prepared from Oriental Herbs of inestimable virtue, for strengthening, preserving, and cleansing the teeth. It eradicates the factitious formation of tartar, and, by the removal of that extraneous substance, lends a salutary growth and freshness to the gums. It removes from the surface of the teeth the spots of incipient decay, polishes and preserves the enamel, substituting for discolour and the aspect of impurity, the most pure and pearl-like whiteness; while, from its salubrious and disinfecting qualities, it gives a sweetness and perfume to the breath, bestowing at once cleanliness, and the appearance and reality of health. Price 2s. 9d. per box, duty included.
CAUTION.—To protect the public from fraud, the Hon. Commissioners of Her Majesty's Stamps have authorised the Proprietors' Signature to be engraved on the Government Stamp, thus,—A. ROWLAND and SON, 20, Hatton Garden, which is affixed to each Box. Ask for ROWLAND'S ODONTO. Sold by them, and by Perfumers and Chemists.
. All others are SPURIOUS IMITATIONS.

ABERNETHY'S PILL for the NERVES and MUSCLES.—The proprietor of these pills is a medical man. The brother of a patient of his applied to Mr. Abernethy for advice; he gave him a prescription, and those pills are prepared accurately from that prescription. The patient's complaint was a nervous one, and it was utterly impossible for any one to be in a worse condition than he was. Muscular power was also lost in some parts, and his legs fairly tottered under him. He had a box of the pills prepared, and the effects were all but miraculous, for not only did nervousness leave him, but muscular power returned to all parts deficient of it. The proprietor has since tried them on hundreds of his patients, and he can conscientiously state that their effects in restoring nervous energy and muscular power have quite astonished him. The nervous invalid should lose no time in resorting to this truly wonderful medicine. They are so harmless that they may be administered with perfect safety to the most delicate constitutions, as they do not contain a particle of mercury, or any other poisonous ingredient. As before stated, their effects are all but miraculous—one box will prove the truth of this assertion. As regimen and diet are of the utmost consequence in all nervous disorders, the particulars as recommended by the late Mr. Abernethy in such complaints will be enclosed round each box, price 4s. 6d.—Appointed agents for London: C. King, Napier-street, Oxford New Town; Barclay, Farringdon-street; Edwards, St. Pauls; Sutton, Bow Church-yard; Johnston, 68, Cornhill; Prout, 229, Strand; Hannay, 63, and Sanger, 150, Oxford-street. By sending 58 stamps to Mr. King (as above) a box may be had post free.

A BAD BREAST OF AN EXTRAORDINARY NATURE CURED BY HOLLOWAY'S PILLS AND OINTMENT.—A short time since the wife of Mr. Henry Pocock, a turner, residing at Bucklebury, Berks, was considered to be in a very precarious state in consequence of her breast becoming alarmingly swollen, and bursting into ulcers, the first medical aid in the country was of no service, her case was considered as incurable. Notwithstanding this hopeless condition, the ulcers have been all healed; and so perfect is the cure that she is now suckling another child at the breast. This wonderful cure has been solely brought about by the use of HOLLOWAY'S Pills and Ointments.—Sold by all medicine vendors, and at Professor HOLLOWAY'S establishment, 244, Strand, London.

THE POPULAR MEDICINE.—Read the following account from Mr. HOLLIER, Bookseller, Dudley:—
Tipton, Staffordshire.
I, Joshua Ball, hereby testify that I had been dreadfully afflicted with Rheumatic Gout for 17 years, so that I have at times kept my bed for months together, and could not get anything to do me good, till I took PARR'S LIFE PILLS, which I am very happy to state have restored me to perfect health.
JOSHUA BALL.
TO THE PUBLIC.—This famous remedy has been established by undoubted proofs of its efficacy, and by a mass of Evidence and Testimonials which no other medicine ever yet called forth. These facts have had the effect of producing a very large sale—more than 15,000 boxes per week. When this large sale came to the knowledge of some unprincipled persons, who for the sake of gain to themselves, and reckless of the injury it may do to others, are attempting to foist on the incautious various imitations, and in order that purchasers may be able to detect these frauds, care must be taken to look at the Government Stamp pasted round each box, and be sure it has the words "PARR'S LIFE PILLS" in White Letters on a Red Ground engraved therein, and forms part of the Stamp; also that the signature of T. ROBERTS & Co., Crane-court, is printed with the directions wrapped round each box.
N.B. Ask for PARR'S LIFE PILLS, and inquire for the little book, containing the Life of Old Parr, 32 pages, with engravings, also the numerous testimonials, which may be had, gratis, on application, of all agents and respectable vendors throughout the United Kingdom.
Sold in boxes at 1s. 1½d., 2s. 9d., and 11s., by every respectable medicine vendor.

ONLY TO BE KNOWN TO BE VALUED.
DR. ROBERTS'S CELEBRATED MEDICINES.—The excellent OINTMENT called "THE POOR MAN'S FRIEND," is confidently recommended to the Public as an unfailing remedy for Wounds of every description, and is a specific for Eruptions that sometimes follow vaccination. Sold in pots at 1s. 1½d. and 2s. 9d. each.—Also his PILULÆ ANTISCROPHULÆ, confirmed by more than 40 years' successful experience as an invaluable remedy, and presents one of the best alteratives ever compounded for purifying the blood, and assisting Nature in all her operations. They are efficacious also in Rheumatism, and form a mild and superior family aperient, and may be taken at all times without confinement or change of diet. Sold in boxes at 1s. 1½d. and 2s. 9d. each. By the late Dr. ROBERTS'S will, Messrs. BEACH and BARNICOTT (who have been confidentially intrusted with the preparation of his medicines for many years past), are left joint proprietors of the "Poor Man's Friend" and "Pilulæ Antiscrophulæ," &c., with the exclusive right, power, and authority to prepare and vend the same. The utility of these Medicines is fully testified by thousands of persons who have been benefitted by their aid.
Beware of Counterfeits.—No Medicines sold under the above names can possibly be genuine unless "BEACH and BARNICOTT, late Dr. ROBERTS, Bridport," is engraved and printed on the stamp affixed to each package. Sold wholesale by the Proprietors, BEACH and BARNICOTT, at their Dispensary, Bridport; by the London Houses; and by most respectable Medicine Vendors in the United Kingdom.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, September 6, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1845] SATURDAY, SEPTEMBER 13. [Price 6*d.*

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ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Under the patronage of Her Most Gracious Majesty the Queen.

The GRAND DAHLIA MISCELLANEOUS FLOWER SHOW of the above Society, being the fifth and last for the season, will be held in the ROYAL SURREY ZOOLOGICAL GARDENS on Wednesday, September 17. 1845.

OPEN TO ALL EXHIBITORS.

When upwards of 70*l.* will be awarded, in Gold and Silver Medals, for Dahlias, Miscellaneous and Specimen Plants, Roses, Fuchsias, Verbenas, Cut Flowers, Floral Devices, Fruit, Vegetables, and Honey.

List of Prizes, and the Rules of the Society, may be obtained from John Taylor Neville, Secretary.

Ebenezer House, Peckham, Sept. 13.

HAMPSTEAD FLORIST AND FLORICULTURAL SOCIETY.

—The second Exhibition for 1845, will take place at the Holly Bush Tavern, Hampstead, on Tuesday, September 16th. The Exhibition will open at one o'clock.—Admission one shilling; children half-price.

James Miller, Secretary.

THE GRAND PROVINCIAL DAHLIA SHOW

FOR ALL ENGLAND will take place on Tuesday the 16th of September, at the Shire Hall, Chelmsford, Essex, under the Patronage of the Essex Society of Horticulturists, Professional and Amateur.

Class.	*Entrance.*
1—Amateurs, 12 Blooms, Four Prizes, 5*l.*, 3*l.*, 2*l.*, 1*l.*	10*s.* 6*d.*
2—Amateurs & Gardeners, 12 Blooms, Four Prizes, 5*l.*, 3*l.*, 2*l.*, 1*l.*	10 6
3—Open Class, 24 Blooms, Four Prizes, 5*l.*, 3*l.*, 2*l.*, 1*l.*	10 6
4—Fancy, 6 Blooms, Two Prizes, 20*s.*, 10*s.*	5 0
5—Seedlings, 18 Blooms, Certificate	2 6
6—Seedlings, 1845, 1 Bloom, Certificate	2 6

All Seedling Dahlias are requested to be exhibited at this Show, as it will be the only provincial test as a criterion of judgment for new flowers. Further particulars as to plants, flowers, fruits, or vegetables, intended for exhibition at this Show will be forwarded on application to

G. Wicks, Honorary Secretary, Chelmsford, Essex.

THE NEW DOUBLE RIBES (R. Sanguineum fl. pleno.)

JAMES DICKSON AND SONS beg to inform their friends and the Public that they are now in stock of the above interesting plant. Its colours are of equal brilliancy with the single, and its curious appearance has excited the admiration of all who have seen it. See the Horticultural Papers and Magazines for August.

Strong Plants in pots, 10*s.* 6*d.* each.

Inverleith Nurseries, Edinburgh, September, 1845.

ROSES.—HERTFORD NURSERY.

E. P. FRANCIS'S SECOND DESCRIPTIVE CATALOGUE of ROSES for 1845 and 1846, containing all the new and approved varieties, will be ready for delivery in the course of a few days, and will be forwarded Gratis to his Customers, and to prepaid application. His Stock of Roses is unusually fine, embracing at the same time a large collection in large and small pots.—Sept. 13.

NEW AND RARE PLANTS.—SIPHOCAMPYLUS COCCINEUS,

a most beautiful shrubby greenhouse Plant, of fine habit and free blooming, strong plants, 42*s.*

CALANDRINIA UMBELLATA, a fine hardy herbaceous plant, 10*s.* 6*d.*

CALCEOLARIA FLORIBUNDA, an imported species from Peru, admirably adapted for bedding out, 7*s.* 6*d.*—The usual allowance to the Trade.

Messrs. VEITCH & SON beg to offer the above fine Plants, which have received numerous prizes at the London Exhibitions, and which may be relied upon as really good. For the convenience of persons wishing to have them in the same package with Fuchsia serratifolia, they will be ready for delivery on the 15th inst.—Exeter, September 13.

TAYLOR'S "LORD BYRON."

—This Splendid Purple Flake CARNATION will be let out in 20 shares, at 7*s.* 6*d.* each share, on the 22d of September, at the Half-Moon Inn, Carter-gate, Nottingham. Post-office orders to be made payable to J. C., Wasnige, at the above place. The first Twenty applicants will be entered, if more, they will be returned; should there not be Twenty Subscribers, it will not go out. Gained the premier and first prizes in class-showing at the Coppice Show, held 8th August this year. Stock about 20 Pairs.

WIDNALL'S CHOICE PANSY SEED.

S. WIDNALL, Grantchester Nursery, Cambridge, has much pleasure in again offering his choice PANSY SEED, and trusts it will meet the universal approval which was so justly bestowed upon that which he sent out last year, being collected from named varieties in fine condition. Packets containing sufficient Seed, with careful cultivation, to grow 500 Plants and upwards, may be had free, upon forwarding 30 postage stamps, or a post-office order, at 2*s.* 6*d.* each, or three packets for 6*s.*—Grantchester, Sept. 13.

ARRIVAL OF DUTCH BULBS.

YOUELL AND CO. have just received their importation of the above, in the finest condition, Catalogues of which may be had on application.

Hyacinths, Double and Single, Red, Blue, White, and Yellow, of the most approved kinds, by name, 9*s.*, 12*s.*, and 18*s.* per dozen. With an extensive assortment of other bulbs at equally moderate prices; also, 50 kinds of first class Show TULIPS, by name, including the "True Norwich Black Baguet," for which this neighbourhood is so celebrated, for 4*l.*; 25 ditto, 2*l.* 5*s.*

CAMELLIAS.

12 Finest and Newest varieties, by name, 30*s.*

ARAUCARIA IMBRICATA.

2 years old	9*s.* per dozen.
3 ,,	12*s.* ,,
4 ,,	18*s.* ,,
5 ,,	30*s.* ,,
6 ,,	60*s.* ,,
Cedrus Deodar, 1 year, fine	18*s.* ,,
,, 1 foot	30*s.* ,,
Pinus excelsa, 3 inches	9*s.* ,,
,, ,, 4 to 5 inches	18*s.* ,,
,, ,, 18 inch, fine bushy plant	42*s.* ,,
,, Gerardiana, 2 years	30*s.* ,,
Abies Khutrow, 2 years	9*s.* ,,

Also fine specimen plants of older growth from 10*s.* 6*d.* to 2*l.* 2*s.* per plant.

Also, the very best FUCHSIAS, by name, 12*s.* per doz.
Ditto CHRYSANTHEMUMS ,, 12*s.* do.
Ditto VERBENAS ,, 6*s.* do.
Ditto PETUNIAS ,, 9*s.* do.
Ditto PANSIES ,, 10*s.* do.

20 sorts of finest Show PINKS, by name, 1*l.*

For particulars, see former Advertisements.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s.* per 100.
"PRINCESS ALICE MAUDE," ,, 10*s.* ,,
First-rate POLYANTHUSES, by name, 18*s.* per dozen.
Great Yarmouth Nursery, Sept. 13.

MESSRS. J. & H. BROWN are now sending the following desirable plants, Hyacinths, &c., to any part of the United Kingdom.

Double and single Hyacinths, of the most approved sorts by name, 6*s.*, 9*s.*, and 12*s.* per dozen.

Narcissus, six sorts, 4*s.* and 6*s.* per dozen.

Early Tulips, 1*s.* 6*d.* per dozen, and other bulbs, a list of which can be had.

The following six new Lilies for 12*s.*, can be sent by post free—lancifolium album, punctatum, venustum, eximium, longiflorum, and superbum.

Small bulbs of Speciosum, 7*s.* 6*d.* each.

Double white and other Camellias, 2*s.* 6*d.* to 5*s.* each.

Pinus miranda, six inches, 12*s.* per dozen.
,, excelsa, six inches, 18*s.* do.
,, Gerardiana, two and a-half years, 30*s.* do.
,, Chilrow, two years, 30*s.* do.

Geraniums, 12 of the most approved sorts (grown this year), 18*s.* per dozen.

Geranium General Tom Thumb, 2*s.* 6*d.* each.

New tea-scented Roses, one of a sort, 12*s.* per dozen.

Devoniensis, Yellow Noisette, and Elise Sauvage, 9*s.* per dozen.

New yellow Picotees, 3*s.* per pair.

Bright scarlet and other best Carnations and Picotees, 3*s.* 6*d.* per pair.

British Queen Strawberry, 5*s.* per 100.
Alice Maude do. 10*s.* do.
Deptford Pine do. 7*s.* 6*d.* do.

A List of Exotic and Hardy Herbaceous Plants can be had.—Albion Nursery, Stoke Newington, London.

FUCHSIA "SERRATIFOLIA."

MESSRS. VEITCH & SON beg to inform those who have ordered plants of the above beautiful FUCHSIA that it is their intention to commence sending them out on the 15th inst. In addition to the list of Nurserymen and Seedsmen which appeared in last week's advertisement as having secured early Plants, the following names have since been added:—

Chandler and Son, Messrs., Vauxhall.
Dickson and Co., Edinburgh.
Fairbairn, Mr. E. F., Wandsworth-road.
Forrest and Co., Messrs., Kensington.
Groom, Mr. Walworth.
Harbaszewski and Makowski, Messrs., Fulham.
Ingram, Mr. J., Southampton.
Lendon, Mr. J., Wellington.
Lake and Evans, Messrs. Bridgewater.
Lucombe, Pince, & Co., Messrs. Exeter.
Miller, Mr. R., Newcastle.
Nutting, Mr. J., London.
Stephens, Mr. P., Taunton.
Van Geert, Mr. C., Antwerp.
Wheeler, Mr. J. C., Gloucester.
Wood and Son, Messrs., Maresfield.

Strong Plants 21*s.* each, with one plant sent over when three are taken.—Exeter, Sept. 13.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON having on hand an immense Stock of all the New and approved STRAWBERRIES, they are now sending out strong plants at the following reduced prices: *Warranted true to name.*

	Price per 100.
Myatt's British Queen	3*s.* 6*d.*
,, Deptford Pine	7 6
,, Eliza	2 6
,, Prince Albert	7 6
,, Princess Alice Maud	10 0
,, Princess Royal	5 0
Elton Pine	2 6

Plants will be presented gratis to defray the expense of carriage; a remittance or reference is respectfully solicited from unknown Correspondents.

ROSES IN BLOOM.

W. W. and Son's Collection of PERPETUAL ROSES are now coming into fine bloom, and will continue in flower during the autumnal months. Admittance gratis, daily (Sundays excepted). Maresfield is 12 miles distant from the Hayward's Heath Station on the London and Brighton Railway, from which place conveyances may be obtained.

EXHIBITION OF LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, by Appointment FLORIST to HER MAJESTY the QUEEN, and to HIS MAJESTY the KING of SAXONY, begs to inform the Nobility, Gentry, and Amateurs, that his extensive assortment of this most beautiful LILY, which has been so universally admired, is in flower, and will continue in perfection during the month of September; and may be viewed every day, Sundays excepted. Admittance gratis.

FUCHSIA "CONSTELLATION."

—Strong plants of this Splendid FUCHSIA may still be had of the raiser, or his London Agents, Messrs. Hurst and M'Mullen, 6, Leadenhall-street, at 12*s.* 6*d.* each.

William Miller, Providence Nursery, Ramsgate.

DOUBLE ROMAN AND PAPER-WHITE NARCISSUS,

4*s.* per dozen. The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived at A. Cobbett's, late Mr. Barron's, Italian and Foreign Warehouse, 18, Pall Mall, London.

Orders by post punctually attended to.

SUPERB NEW SEEDLING CALCEOLARIAS.

JAMES DICKSON AND SONS beg to inform their floricultural friends that they intend sending out early in spring, the following splendid CALCEOLARIAS, raised at Castlecraig, in Peebleshire, which were exhibited at the June Show of the Royal Caledonian Horticultural Society, and pronounced by qualified Judges to be fully equal (and in the three first superior) to any that have yet appeared.

1. WEIRII.—Form fine, medium size; colour light chocolate fading to sulphur in the centre; spots well defined, of a rich crimson. This will be found, in every respect, a first-rate flower—15*s.*

2. SIR THOMAS CARMICHAEL—Form beautiful, medium size; ground colour light; marking large and dark in the centre, smaller towards the edge. A flower of surpassing beauty—15*s.*

3. MAID OF CAMBUS—Ground colour pale yellow, darkest at the edge; large size; fine form; markings irregular: quite unique and very lovely—15*s.*

4. MARCHIONESS OF LORN—Rich yellow ground; form excellent; medium size; spots numerous, with the largest in the centre. This is a very fine flower—10*s.* 6*d.*

5. LORD ABERCROMBY—Size above average; form good, with ground colour rich yellow; lower segment of corolla marked all over with spots of a uniform size; much admired—10*s.* 6*d.*

6. COUNTESS OF HOPETOUN—Light yellow ground; form fine; markings dark and of various forms, small towards the edge. A striking variety in all respects—10*s.* 6*d.*

7. LADY STAIR—Pale ground, small size; upper segment of corolla very light; spots on lower in clusters; very peculiar in its markings—7*s.* 6*d.*

8. MRS. AINSLIE—Red ground; second size; marking very dark. Equal to any of its class yet sent out—7*s.* 6*d.*

9. COUNTESS OF HADDINGTON—Pale yellow ground; medium size. A flower of excellent form, with the markings numerous and decided. Likely to prove a good competition flower—7*s.* 6*d.*

10. LADY HAY—Ground colour light at the throat, darkening towards the edge; spots dark and regular. A very superior flower—7*s.* 6*d.*

11. MRS. CAMPBELL, OF POSSIL—Colour as former flower; medium size; form fine; marking irregular, having a pale spot in the centre of each. An excellent flower—7*s.* 6*d.*

12. NINAN—Red ground, richly marked towards the centre; medium size; likely to improve much—7*s.* 6*d.*

The price of the set will be 5*l.* 5*s.*, and extra plants will be given to compensate for long carriage.

Inverleith Nurseries, Edinburgh, September, 1845.

IMMENSE STOCK OF GERANIUMS.

WILLIAM E. RENDLE has this season a most extensive Stock of GERANIUMS,

Including all the newest and best sorts in cultivation,

Amounting to more than

FIVE THOUSAND STRONG ESTABLISHED PLANTS,

Which will be ready for sending out after the 22d of September next. The first orders will have the best plants.

GERANIUMS.—Lyne's Seedlings of 1844.—The following set, including hamper and package, for 40*s.*:—Princess Alice, White Perfection, Imogene, Redworth, and Confidence.

Selection of 12 from the following List, including hamper and package, for 50*s.*:—Foster's Robustum, Foster's Duke of Devonshire, Foster's Rosetta, Cock's Hector, Magicienne, Gaines' King of Saxony, Gaines' King of the Belgians, Gaines' Duchess of Leinster, Hoyle's Titus, Unique, Queen of England, Claude, General Pollock, Flora, Rosalia, Sarah Jane, Princeps, Diomede, and Coronet.

Selection of 12 from the following List, including hamper and package, for 30*s.* (or 20 for 45*s.*):—Beauty of Walthamstow, Hebe, Lord Chancellor, Thurtell's Othello, Regulator, Fascination, Lady Villiers, Guide, Hybla, Pulchellum, Conflagration, Symmetry, Jersey Maid, Thunderer, Hermione, Cordelia, Favourite, Oberon, Sir Robert Peel, Prince of Waterloo, Evelyne, Witch, Gipsy, Creole, Count d'Orsay, Lyne's Duke of Cornwall, Modesty, Sunrise, Lord Ebrington, Hamlet, Constellation, Cynthia, Lavinia, Aurora, Fanny, Penelope, Attila, Cornish Gem, and Rising Sun.

Selection of 20 from the following List, including hamper and package, for 20*s.*:—Lady Cotton Sheppard, Fair Maid of Devon, Wonder of the West, Countess of Mount Edgcumbe, Ne plus Ultra, Portia, Duenna, Life Guardsman, Jupiter, Elizabeth, King John, Vulcan, Wildfire, Amethyst, Sultan, Grand Monarch, Queen of the Fairies, Camilla, Flash, Enchantress, Van Amburgh, Glory of the West, Ivanhoe, Circassian, Princess Royal, Erectum, Consort, Mabel, Bridegroom, Sylph, Unique, Sirius, King, Conservative, Peri of the West, Prince Albert, Acme of Perfection, Cyrus, and Sybil.

*** *All Orders above 3l. will be delivered, free of Carriage, to London, Bristol, Exeter, or Falmouth; or above 6l. to Liverpool, Dublin, Cork, or Edinburgh.*

Unknown Correspondents are respectfully desired to give a reference in London.

Union-road Nurseries, Plymouth, 1845.

UPWARDS OF SEVEN THOUSAND Established plants of all the Newest and Best GERANIUMS as sent out by the most successful raisers, offered at the following low prices. (Package included.)

CLASS I.—Per Doz., 3*l.* 3*s.*, or 3*l.* when Cash accompanies the order.

Titus	*Hoyle's*	Meeance	*Robson's*
Vesuvius	*Dobre's*	The Cid	*Foster's*
Elegans	*Miller's*	Rosetta	,,
Princess Alice	*Lyne's*	Magician	,,
Imogene	,,	Duchess of Inverness	*Hoyle's*
White Perfection	,,	Louis Philippe	,,
Sultana	*Foster's*	Beauty of Sudbury	*Holmes's*
Alice Hawthorn	*Gaines'*	Lady Vernon	*Rogers's*
Trafalgar	,,	Lord Vernon	,,
Duchess of Leinster	,,	Constellation	*Foster's*
Defiance	*Hoyle's*	Dr. Lindley	,,
Sarah Jane	,,	Robustum	,,
Stewartii	*Stewart's*	Duke of Devonshire	,,
Princess de Joinville	,,	King of Saxony	*Lyne's*
Emperor Nicholas	*Silverlock's*	King of the French	*Gaines'*
Chance	,,	Revenge	*Hoyle's*
Lady Ramsden	*Robson's*		

Class II.—Per Doz. 2*l.* 2*s.*, or 2*l.* Cash.

Sir W. Massey Stanley	*Gaines'*	Foster's Conflagration	
Mogul	*Miller's*	Lady Tamworth	*Rogers'*
Mulberry	*Catleugh's*	Pride of Essex	*Sorrell's*
Hybla	*Foster's*	Eclipse	*Catleugh's*
Coronation Superb	,,	Duchess of Sutherland	*Gaines'*
Mogul	*Gaines'*	British Hero	
Maid of Honour	*Cock's*	Hector	*Cock's*
Princeps	*Lyne's*	Duchess of Sutherland	*Catleugh's*
Redworth	,,	Conspicua	*Gaines'*
Ackbar	*Gaines'*	Cleopatra	*Beck's*
Duchess of Leinster	,,	Meteor	,,
King of Belgium	,,	British Queen	,,
King of Saxony	,,	Fire King	*Pamplin's*
Coronet	*Lyne's*	Elegans Nova	*Gaines'*
Shield of Achilles	*Foster's*	Patriot	*Hoyle's*
Nabob	,,		
Oddity	,,		

Class III.—Per Doz., 1*l.* 1*s.*, Cash 1*l.*

Lady Sale	*Gaines'*	Mercury	*Appleby's*
Duke of Clarence		Queen Phillippa	*Gaines'*
Constellation	*Garth's*	Mrs. Lawrence	*Stewart's*
Count d'Orsay	*Pamplin's*	Leonora	*Beck's*
Prince of Wales	*Miller's*	Clio	
Rosetta Superb	*Catleugh's*	Queen of Bourbons	
Marchioness of Waterford		Black Dwarf	*Garth's*
North Star		Sir R. Sale	*Gaines'*
Martha	*Beck's*	Beauty of Salthill	
Pulchellum	*Foster's*	Circassian	*Lyne's*
Beauty of Walthamstow		Fair Maid of Devon	
Celestial	*Chandler's*	Pluto	*Thurtell's*
Tom Jones	*Miller's*	Lucy	*Beck's*
Oberon	*Hodges'*		

Class IV.—15*s.* per Doz., Cash.

Princess Alice Maud		Madelina	*Daniell's*
Una		Sapphire	*Foster's*
Princess Royal	*Lyne's*	Matilda	,,
Glory of the West		Emperor	
Sir Robert Peel		Geraldine	*Beck's*
Evening Star	*Beck's*	Black Prince	,,
Gipsy	*Foster's*	Duke of Cornwall	*Lyne's*
Elegans		Sunrise	,,
Stella	*Beck's*	Rising Sun	
Nestor	*Foster's*	Queen of Fairies	
Favourite	,,	Symmetry	*Garth's*
Armyntor	,,	Hebe	*Beck's*

Class V.—8*s.* 6*d.* per Doz. Cash accompanying the order.

Erectum	Gem of the West	Lifeguardsman	
Laneii	King of the Priories	Juba	
Camilla	Anne	Jubilee	
Prince of Waterloo	Cyrus	Gipsy Maid	
Dido	Priory Queen	Countess of Ashburnham	
Sappho	Nymph	Sultana	
Firebrand	Conservative	Coronation	
Jewess	Tom Jones	Coquette	*Garth's*
Gen. Tom Thumb	Hebe	Rotunda	
Wonder	Zenobia	Striata Superb	
Flash	Erectum Superb	King	*Gaines'*
Prima Donna	Enchantress		
Comte de Paris			

HOYLE'S 12, as sent out last season at 10*l.* 10*s.*, are now offered for 3*l.* 3*s.*, or 3*l.* Cash.

Titus	Queen of England	General Pollock
Pompey	Claude	Flora
Champion	Amelia	Rosalia
Unique	Majestica	Sarah Jane

NEW SEEDLING GERANIUM—MILLER'S "SUNBEAM."

A very striking and attractive variety, on account of its novel colour—a Shiny Orange-Scarlet, with Dark Spot on the upper petals (a Seedling from Gaines's "Rising Sun"); it is of good substance, free bloomer, and good habit.—Price, per Plant, 10*s.* 6*d.* This flower will be certain of pleasing every purchaser.

W. MILLER has again this season just been supplied by Mr. HOYLE with some of his choice Geranium seed: 100 Seeds 10*s.*, 50 Seeds 5*s.*, 25 Seeds 3*s.*, in Sealed Packets, sent Post-free. MILLER'S Hybridized Fuchsia Seed, 2*s.* 6*d.* per Packet, from a Collection of 325 sorts.

Finding that pots are frequently broken, and the Plants damaged by being sent in hampers, W. M. has prepared a quantity of strong Fir Boxes for the purpose. Plants put to compensate for long carriage.

Fuchsia serratifolia (Veitch's) 21*s.* Lilium lancifolium album from 1*s.* 6*d.*, Punctatum from 2*s.* 6*d.* Speciosa from 10*s.* 6*d.* the bulb.

To suit purchasers at a long distance, if required, the Geraniums can be sent safely by Post. A remittance or reference expected from all unknown correspondents.

*** Now ready a descriptive Catalogue of Mr. HOYLE'S New Seedlings for the present season.

WILLIAM MILLER, Providence Nursery, Ramsgate, Sept. 13.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

WILLIAM MILLER informs his numerous patrons and the public that he will send out the under-named varieties at the prices annexed, in October. (Printed Circulars with descriptions can be had.)

Augusta	21*s* 0*d*	Lord Morpeth	21*s* 0*d*
Alice	21 0	Duke of Orleans	21 0
Gipsy Maid	21 0	Josephus	21 0

The set of six for 5*l.* 10*s.*, or 5*l.* when cash accompanies the order. Trade-price 4*l.* 10*s.*, or 4*l.* cash accompanying the order, which will in either case ensure strict priority of selection.

HOYLE'S SET OF 12, viz., Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, and Sarah Jane, sent out last season at 10*l.* 10*s.*, may be had for 3*l.* 3*s.*, or cash accompanying the order for 3*l.*

100 CHOICE HYBRIDISED SEEDS, 10*s.*; 50 ditto, 5*s.*; 25 ditto, 3*s.* A general List of GERANIUMS, priced very cheap, from 8*s.* 6*d.* per dozen, is now ready, which should be in the hands of every Geranium grower, as it contains all the principal sorts for exhibiting.

W. M. finding that pots are frequently broken, and the Plants damaged in hampers, he has prepared a quantity of strong Fir boxes for the purpose.—Providence Nursery, Ramsgate.

C. HART, FLORIST, &c., GUILDFORD, begs to announce that his Catalogue of Pansies, for the autumn, is now ready, and may be obtained on application.

ROSE CATALOGUE.—NEW EDITION.
NURSERIES, CHESHUNT, HERTS.

A. PAUL AND SON, beg to apprize their friends and all lovers of ROSES, that their ROSE CATALOGUE for 1845-6 is now ready for circulation, and will be forwarded gratis, on application by letter containing two penny stamps for postage. The Catalogue appears this season in an extended and improved form, and besides giving a full description of colours, size, shape, &c., it embraces the following important points: Paragraphs at the end of each section contain hints on cultivation, and point out any peculiarities in the group. The best forcing Roses, and those proved best suited for pot culture are severally pointed out; and further, the habit of growth is attached to each variety. *No pains or expense have been spared to render the descriptions accurate, and the Catalogue complete and useful.* With regard to the health and condition of the plants, A. PAUL and SON would refer to those gentlemen and horticulturists who have visited the Nurseries during the season. They will not eulogize their own stock, but frankly invite inspection.

The Nurseries are within an hour's ride of the Metropolis, by Eastern Counties Railway to Waltham Cross Station; Day Tickets are now issued, Fares—First Class, down and up, 3*s.*; Second Class, down and up, 2*s.* 3*d.*

THE AUTUMNAL ROSES are still finely in bloom and will continue so throughout the autumn. The FRUIT Catalogue and HERBACEOUS Catalogue, weighing respectively under half an ounce, are now ready, and will be sent to all applicants enclosing one stamp each for postage.

CARNATIONS, PICOTEES, AND PINKS.—Catalogues of Messrs. NORMAN'S Select Show Varieties can be had on prepaid application.—Bull Fields, Woolwich, Sept. 13.

DUTCH FLOWER ROOTS, &c.

JAMES DICKSON & SONS, 32, SOUTH HANOVER-ST., EDINBURGH, have just received their first annual Importation of DUTCH FLOWER ROOTS, in excellent condition. They have been selected with the greatest care from the best cultivators in Holland, and consist of the most choice varieties of HYACINTHS, and of all the other sorts usually imported. Early orders are respectfully solicited, which shall meet with immediate and most careful attention.

They would also remind their friends that for many years the best specimen of Hyacinths, which gained the Nurseryman's Prize at the Horticultural Society's Exhibition were imported by them.

J. D. and SONS will in a short time have completed their full supply of NATURAL GRASS SEEDS, now so much in request, and proved to be so advantageous for laying down permanent Pastures.

At their Nurseries at Inverleith and Broughton Park, J. D. and SONS have always a large Stock of EVERGREENS and FLOWERING SHRUBS, FRUIT and FOREST TREES, Seedling and Transplanted. Their Evergreens they would particularly recommend to the notice of their friends and the public, being persuaded that in point of extent and quality, they are not to be equalled by any Nursery in the Kingdom. Hollies, Portugal Laurels, Laurel Bays, Laurustinus, and the leading kinds, being all twice and three times transplanted, the finer sorts first raised in pots and then planted out, can be lifted with the balls entire, and transported with safety to any distance: also an extensive collection of DAHLIAS, PANSIES, GREENHOUSE, STOVE, and HERBACEOUS PLANTS, &c., to which they regularly add such new sorts as are considered worthy of cultivation.

*** Farm Overseers, Gardeners, Foresters, and Hedgers, recommended.

UNAVOIDABLE SACRIFICE.

Worthy the notice of Noblemen and Gentlemen engaged in Ornamental Planting, &c., &c. Also suitable for the Trade generally.

W. DENNIS AND CO., KING'S-ROAD, CHELSEA, having received notice to give up possession of a large part of their densely-stocked Nursery at Christmas next (the land being let for immediate building), they are obliged to offer for private sale, or public competition, almost the entire Stock of Trees, Shrubs, Plants, &c., consisting of a splendid selection of ROSES, both Dwarf and Standard—very large and fine Pillar Roses.

Fine Standard LILACS and other Ornamental Trees. Extra fine Plants of the new Lilac Syringa Rothamagensis. Large and handsome Mulberry-trees in full bearing. The largest collection of prize Gooseberries ever offered, in fine full bearing Trees, and a large Stock of smaller Plants. Immense Stock of AUCUBA JAPONICA, extra large IRISH IRISES, and other Evergreens. A large quantity of BULBS, and many Varieties of Flowering Plants.

DUTCH BULBOUS ROOTS.

RICHARD FENNESSY has the pleasure of informing his numerous Friends and the Public, that his annual supply of DUTCH BULBOUS ROOTS have just arrived from Haarlem, in very fine condition. R. F. begs leave to say his Catalogue will be found to contain none but the choicest and most approved Varieties, and such as he feels confident will give general satisfaction. The prices are fixed as moderate as possible. Orders by post promptly attended to, and executed in the very best manner.

Seed Warehouse, 17, Newington Causeway, Southwark.

THOMAS LANG (lately partner of W. & T. SAMSON), has commenced Business on his own account, as NURSERYMAN, SEEDSMAN, and FLORIST, at 64, Portland-street, Kilmarnock. The Nursery is in the immediate neighbourhood of the station of the Glasgow Railway.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt.	26*s.* 0*d.*	Milled Lead in Sheets, per cwt.	*s.* *d.* 21 0
Linseed Oil, per gall.	2 3	Cut to Size	22 0
Turpentine	3 3	Pipe all Sizes	22 0
Warranted Varnishes and Colours.			

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1*l.* 8*s.* Garden-Lights made and glazed from 1*s.* per foot, at JAS. WATTS'S Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

FOREIGN WINDOW GLASS.

THOMAS MILLINGTON regrets having disappointed many of his friends of the Glass they required. He will receive a further parcel in a week of about 20,000 feet, in various sizes. He hopes that his friends will send their orders soon, to prevent disappointment. A List of Prices may be obtained, by application, at THOMAS MILLINGTON'S, 87, Bishopsgate-street Without.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

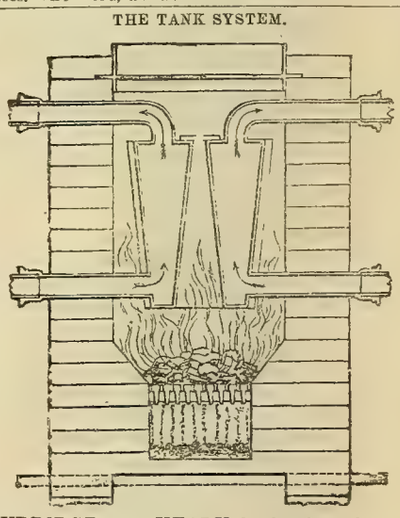
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

WIRE-WORK, HOT-WATER APPARATUS, GREEN-HOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

BULBOUS FLOWER ROOTS.

MESSRS. SUTTON & SONS having imported more largely this season than heretofore, have the pleasure of offering their HYACINTHS, ANEMONES, IRISES, TULIPS, &c., at considerably reduced prices; and having, during the blooming season, selected the favourite sorts from each of the celebrated Florists in and near Haarlem, they feel confident that their Collection is equal to any imported into England this season.—Priced descriptive Catalogues will be sent post free on application.—Reading Nursery, Reading, Berks, Sept. 13.

N.B. Carriage paid to any part of London, or to the Great Western Railway Station at Bristol.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 13, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Sept. 17—South London Floricultural . 1 P.M.

COUNTRY SHOWS.

WEDNESDAY, Sept. 17—Hexham Floral and Horticultural.
FRIDAY, Sept. 19—Devon and Exeter Botanical and Hort.
THURSDAY, Sept. 25—Surrey Horticultural and Floral.

WE stop the Press, with very great regret, to announce that the POTATO MURRAIN has unequivocally declared itself in Ireland. The crops about Dublin are suddenly perishing. The conversion of Potatoes into flour, by the processes described by Mr. BABINGTON and others in to-day's Paper, becomes then a process of the first national importance; for where will Ireland be, in the event of a universal Potato rot?

WE earnestly invite the attention of our wealthy readers to an advertisement in this day's Paper, soliciting subscriptions for the purchase of Mr. GOADBY's unrivalled collection of microscopical preparations. The small sum that is required for the purpose ought to be furnished at once by some public institution—the British Museum for instance; or the College of Surgeons, which Mr. GOADBY so long and truly served; for this assemblage of microscopical preparations is invaluable to the public. We hope that this will happen, for 500*l.* is no such mighty sum for a nation or even a rich corporation to pay. In the meanwhile it is desirable that subscriptions should be announced in the event of no such purchase being made.

It is reported that the Trustees of the British Museum have demurred to becoming purchasers, in consequence of some zoological adviser having given it as his opinion, that moist preparations are unsuitable to the objects of the Museum! But we cannot believe this. It is inconceivable that any person so ignorant, as not to know the great scientific value of such preparations as those of Mr. GOADBY, should hold office in our great national establishment. In former days, the skins of animals and the shells of molluscs were regarded as all in all in zoology: but it would require very strong evidence to convince us that even the porters in the Museum are now ignorant of the immense importance of osteology and minute anatomy; or, as a well-known naturalist is said to call the latter, of "meiste" preparations. A zoological museum, consisting exclusively of skins and shells, may be compared to a man's head minus the brains.

A "PURCHASER in Derbyshire," has expressed a wish that Mr. BECK should make known his mode of treating his PELARGONIUMS. Seeing that Mr. BECK is one of the most skilful of the great growers and breeders of this favourite flower, we quite agree that such information will be among the most acceptable communications that could be made to our readers. We have therefore very great pleasure in now presenting the public with the wished-for information, which we give in Mr. B.'s own words.

"It is with pleasure I reply to the inquiries of 'A Purchaser in Derbyshire' as to our mode of treatment of Pelargoniums, and I cannot better begin than by describing our arrangements for soil, for on the compost much of course depends. We obtain from a common in the neighbourhood a top spit of turfy loam, which does not bear sufficient to keep a Welsh sheep; it is nearly a mass of fibre. This we pile layer for layer with the literal muckings out of the stable; the more straw the better, provided it is well saturated with the urine of the horses. It lies in this heap until the dung is well rotted, when it is chopped down and turned over, and this is done repeatedly in frosty weather until it forms a mass of mould. In a rough shed, open back and front, but secure from the intrusion of wet, are a number of bins; one of them is filled with the above compost, another with Shirley peat, chosen for its abundance of vegetable matter, another with cow-dung three years old, which has been turned in the winter till it assumes the character of black mould, and another holds a store of silver sand.

"We will suppose it the end of the blooming season; the plants are allowed to become quite dry, and are then cut down as closely as the leaving sufficient eyes will allow; they are then placed in the greenhouse, with plenty of air, and when the wounds are healed they are watered and kept close, to induce them to break strongly. This they soon do, and as the shoots lengthen more air is given until they attain their requisite length of an inch or more. They are now again allowed to dry and are completely shaken out, and the main roots cut off with a sharp knife to within a couple of inches, leaving attached to the remainder the smaller fibres at their natural length. They are then potted into as small pots as will contain them, say 6-inch, with a proportion of two-thirds turfy loam, as above described, and the remainder peat and silver sand, not sifted, but rubbed down and only the larger stones picked out. They are now plunged into gentle bottom-heat, and kept close until in a few days they root round the pots, when more air is gradually given until they are entirely exposed to it; the great object being to ripen their wood, and strengthen the young shoots. Care is taken to keep them from getting too wet, and fumigation is resorted to if the green fly appears. As the winter comes on its frosts are excluded, and the plants are kept as dry as is consistent with life; the old wood assumes a smooth nut-brown hue, the leaves look yellow, and the whole plant is stiff and rustles under the hand when passed over it, and thus they are kept until January. About the middle of this month they are shifted into the blooming pots; the compost three-fourths turfy loam, the remaining fourth peat, cow-dung, and silver sand. Dull weather is favourable for this operation. The plants are allowed to dry as before, and the outsides and the top of the ball are rubbed off by hand. They are potted moderately solid, and with about an inch of small crocks over the oyster-shell covering the hole. If the weather comes bright they are shaded, and the house is kept close until they feel at home in their new quarters, which is soon the case. As the shoots grow, they are stopped according to the time their bloom is required, and training commences from the moment their shoots are sufficiently plastic. Fire-heat is avoided as much as possible; the air given is admitted in the morning, and the afternoon sun warmth is shut in from 2, 3, or 4 o'clock, according to the months. As general rules, keep the night temperature no higher than 45°, when fire is required; when aphides appear, smoke the house directly, and be sure and do so immediately before the blooming commences, whether their presence is detected or not; do not allow the plants to become dirty, wash without fear with rain water, of which there ought to be a good supply in every well-arranged house. As the season advances, draw the syringe over the plants when the temperature of the house is raised, from closing it in the afternoon sunshine. Water two or three times, just before the plants bloom, with water in which sheeps' dung has been steeped, but avoid any further stimulants; they more frequently promote fine foliage than fine bloom. Bear in mind that the best preparation for a race in spring and summer, is *repose* during the winter months.

"Such are the broad outlines of our general practice. But the careful cultivator will find there is much room for the exercise of his observation and judgment in the treatment of individual plants; and it may be well to give 'A Purchaser,' and others interested, a little evidence on this point—the result of experience with the varieties I am sending out:—Arabella and Juno are two plants very impatient of the knife, and if it be too greedily used for cuttings, they are very likely to throw blind shoots. Again, Othello, when in perfect health, scarcely shows a root at the outside of the ball, nor have we by any arrangement of soil induced it to do so; yet its foliage will be quite robust, and it has produced a good head of bloom. Marc Antony requires some confinement in the pot to make it throw its flower-stems well up from the foliage; this is the case with another flower of mine, now extensively grown, Zanzummim. Some varieties bloom well from the opening of the season, others at the close; and these distinctions require to be noticed when the cultivator is an exhibitor. Of the former sort are Arabella, Rosy Circle, Sunset, Mustee, Isabella, Juno, Bellona, Favorita, and Zenobia; of the latter, are Marc Antony, Desdemona, Othello, and Margaret, which improve as the summer advances. But the above cannot be laid down as a *rule*; season, situation, soil, and many other things, exercise their influence and produce different results in a variety of hands. The sporting of flowers, at present so inexplicable, is also worth close attention. Our plan is to destroy all parts of a plant that have produced false flowers, and propagate only from those cuttings which are true; but even with this care, the tendency remains, and is productive of great mortification."

WE had hoped that the GLASS question was no longer to occupy our columns, now that success has crowned our efforts at procuring good glass at a moderate price. We are, however, constrained to advert to it once more, in consequence of the following letter having been published in the "Builder" of August 30th, which we have just received:—

"The article upon the glass trade, quoted from the *Gardeners' Chronicle* in your Journal of the 16th inst., is a misrepresentation of facts, and we shall feel obliged by your giving the following observations publicity:—The quotation of second quality at gross prices, from our list, in comparison with foreign glass net is unfair, British glass of fourth quality being fully equal to the best sheet yet imported; and if from our price be deducted the large discount we allow, the difference does not exceed one farthing per foot. Again, when British glass for horticultural purposes or skylights is made above 40 inches in length, our net charge is only three farthings per foot extra, and not from one penny to three shillings, as erroneously set forth. The price of foreign glass is for squares not exceeding 40 united inches; thus 20 by 20, 30 by 10, and not 40 inches long, as stated; or, as we sell British glass 40 by 30, in sheets, from 4½*d.* to 5¼*d.* per foot, according to the substance required.—CHATER AND HAYWARD."

This letter alludes to a Leading Article published in this paper at p. 511. We have not forgotten Mr. CHATER's attempt at smothering the facts of the glass duties beneath a cloud of figures, among which the carriage of glass from the north to London, was estimated at the small price of 33*l.* 6*s.* 8*d.* per ton (see p. 343). We, therefore, might safely leave this gentleman without further notice. But the high respectability of the journal in which the foregoing letter was published, induces us very briefly to notice it.

If we have misrepresented the price of English glass, as Messrs. CHATER and HAYWARD assert, we can only say that we have done so at second hand; for the prices we quoted are taken from the printed tariff circulated by these very gentlemen, and sent to us by themselves; that price-list is now before us, and we assert that we have made no mistake whatever; unless, indeed, it is to be read by some other rule than that which is usually observed in arriving at the meaning of English documents.

We have no intention to perplex ourselves and our readers with prices gross or prices net, and discounts large or small. These are mere inventions to deceive the unwary. The case is this:—A gentleman wanting glass, goes to Messrs. CHATER and HAYWARD, and asks for glass 12 ins. by 10 ins.; they will charge him for that glass 1*s.* 1*d.* per foot, if we are to believe their tariff. If he goes to Mr. ELPHICK he will be charged 4½*d.* or 5*d.* for what we consider the same quality, per foot. That is a fact which there is no gainsaying. It is also undeniable that the English glass-cutters increase the price of squares enormously in proportion to their size; so that the less the trouble of cutting, the higher the charge to the consumer. As to discounts, they are a mere glazier's and builder's question. We know very well that large discounts are allowed by the glass-cutters to the glaziers; but what is that to English gentlemen? They do not get these discounts, and it is for them that we have been fighting the glass battle, and not for glaziers and builders, who can take care of themselves. It is, or was, a rule of the glass-makers and cutters not to supply private individuals at all, but to compel them to buy of the glaziers; and that being so we beg to inquire how private individuals are to profit by the large discount that is spoken of. We are aware that Messrs. CHATER and HAYWARD have broken through that rule; but we also know that others have refused to do so on the ground of its being against the rules of their trade.

But the quality of the foreign glass now selling in London is, by the gentlemen who have permitted themselves to charge us with misrepresentation, asserted to be inferior in quality to that with which we have compared it in the article that has made them so very sore. That is a matter of opinion. In our opinion the foreign glass is quite as good as English sheet of second quality; at least, it is as good as that which was charged last September 2*s.* 2*d.* a foot in squares 16 × 12. Some of that glass is now before us; it is very green, and so unequal in thickness that of two squares which we have just compared, one is more than half as thick again as the other. The only fault of the foreign sheet-glass is that it is of unequal thickness.

But this pretence about quality is part of the glass-making fudge. Last year, a London glass-cutting firm supplied certain sheet-glass at 1*s.* 9*d.* a foot; a few weeks after, a further supply was ordered, and when the invoice was delivered, it was found that 2*s.* 2*d.* had been charged; the difference in the two cases amounting to 5*d.* per foot. As nobody had discovered any difference between the one sample and the other, a complaint was made of

the overcharge, and the answer was—"Oh! the quality of the two is very different." So that the *small* (!) addition of 5*d.* per foot was made for a difference in quality which nobody could find out. But that is the way with the glass dealers. Their trade will be wonderfully improved by the application of some English common sense.

We observe that Messrs. Chater and Hayward make little allusion in their letter to their printed tariff. We, therefore, presume that they are heartily ashamed of it, as they well may be. What they say is that their charge *is* this, and *will be* that; and that they are, after allowing for their large discount as aforesaid, but little *above* the foreign prices. Be it so: we congratulate the public on the fact, if it be one. But, if it is really so, how does it happen, let us ask, that the English glaziers go abroad for their glass? Why do great Railway Companies transfer their orders from England to foreign agents? Will Messrs. Chater and Hayward explain how it is that the demand from England for Belgian glass has raised the price of the article 20 per cent. in the markets of Brussels and Antwerp? The English buyers there are glaziers, not private individuals. It would therefore seem that the English glaziers are, like ourselves, unable to discover the wonderful cheapness which Messrs. Chater and Co. talk about, although the said glaziers get the "large discount" which the private consumer does not get.

We cannot give a more striking instance of the folly of paying English prices than the following:—In the reconstruction of an old greenhouse in the garden of the Horticultural Society, it has been found necessary to renew all the lights. The glass for the purpose was bought of Mr. Elphick for 13*l.* 2*s.* 6*d.* The cost of such glass, in squares, according to Messrs. Chater and Hayward's printed price-list is at this moment 37*l.* 18*s.* 4*d.* Is it not insanity on the part of these dealers to pretend to defend such preposterous charges?

However we have done. The public are put in possession of all the facts that are material to the question: and they now can judge for themselves. That English glass must be sold to the consumer, not the glazier, at foreign prices, we are perfectly certain. Indeed it appears, from a letter which we last week published, that Mr Hartley, the great Sunderland glass-maker, has already broken through the absurd English combination, as we long ago said that he would do; and we have just learned that in other cases, where glass-dealers have had the choice given them of executing orders at foreign prices, or losing them altogether, *they have executed them.* They have "tried it on," as they told us they would; and they have failed, as they deserved.

We, therefore, regard the main object of our discussions accomplished, and with this we take our leave of this brittle subject.

ON THE DISEASES OF POTATOES.

[Extracted principally from Die Kartoffel—Epidemie von Dr. Martius. Munich, 1842.]

It is not a matter of surprise that a plant cultivated under such various circumstances as Potatoes should be subject to various diseases. Some of these have been more or less imperfectly described in the older agricultural works; but in the absence of all minuter detail, it is almost impossible to ascertain precisely what is meant. Indeed, before the improvements which have been made in microscopes within the last 10 or 15 years, it was scarcely possible to enter into some points in the diseases of plants which are now comparatively easy.

The principal diseases which have been noticed in Potatoes are the curl, the rust, the blue pock, the scab, and the dry-rot. The disease of the present year is different from them all. The three first have not at present been sufficiently observed; for an admirable account of the two latter we are indebted to the zeal of the Bavarian Government, and the scientific researches of Dr. Martius.

The Curl is described in the "Hanover Magazine," p. 1779, as follows:—"Soon after their first appearance the shoots become curled, and make but little progress afterwards; sometimes, indeed, they disappear altogether. Some, however, remain nearly stationary, either not producing blossoms at all, or only very weak ones, which soon fall off and yield no seed. They produce no tubers, or only a few minute ones, which are stony and unfit for food. These, however, when set do not always produce plants infected with the disease. It is said that at the base of the shoots, where they spring from the set, there is a hole, which the author attributes to the agency of some insect.

"This disease was extremely prevalent in England towards the end of the 18th century, and prizes were offered for the discovery of some means of arresting its progress. It is probable, from some of the descriptions that were published, that it was accompanied in some cases by rust and scab; but in what degree the diseases are connected, it is at present impossible to say. Various causes were assigned by those who first observed it; at present the more general opinion is, that it arises from the use of over-ripe tubers. A fuller description is given of the disease in the 'Monograph of Potatoes,' published by Putsche and Vertuch, at Weimar, in 1819.

"The plants which are affected by this disease have an extremely meagre appearance. The stem is unbranched, brownish green or mottled, and here and there sprinkled with rusty spots, which penetrate to the pith, so that it is not white but rust-coloured, or sometimes black. The upper surface of the leaves is not so smooth as usual, but rough, wrinkled, curled, or crumpled. The leaves are far more sessile than usual, and are not of a uniform brownish or dark green, but spotted. The passages for circulation, imbibition, and respiration, are none of them in a healthy state. The pith is often discoloured, or dried even in the young shoots. The starved plant often perishes early in autumn, when the tubers should be making the most rapid growth. These are scanty and tasteless, juicy, and almost unfit for food. Even the colour of the outer coat of the tubers is changed. The same tuber is in parts brown, in parts of a dirty yellow, and sometimes the two tints run into each other. Some sorts of Potatoes are more subject to the disease than others; it is more prevalent in flat countries than in more elevated districts."

The second disease mentioned by Martius is the Rust, which, however, as in the case of the curl, he has not himself had an opportunity of observing. It is described in the monograph quoted above as allied to the rust of Wheat. Rust-coloured spots appear upon the leaves, which are at first small, but gradually increase, and at length overrun the whole leaf. As the respiration of the leaves is in consequence impeded, the stems are thin, and at last wither. When, however, this does not take place, the flesh of the tubers is infested with black knots, which resemble ulcers, and are harder and more fibrous than the rest of the flesh. The cause of this disease is unknown. It is often only of short duration, and is ameliorated by mild rains, so that the produce is not much affected.

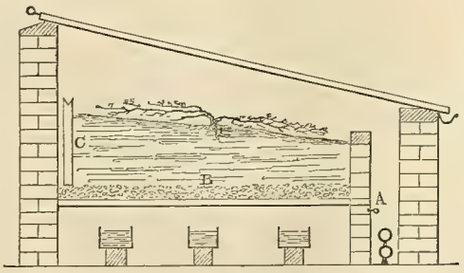
The nature of this disease is evidently very obscure. It is probably the same with that mentioned by Staudinger, in the Isis of 1832, as occurring at Altona, in land highly manured with herrings. The peasants about Hamburgh and Altona attributed the rust in Wheat to the introduction of Potatoes. Holland had the monopoly of Potatoes, and supplied Hamburgh, but at length they depended on a home supply, and Potatoes being largely cultivated on highly manured land, in consequence of a rise in the price of Wheat, they believe that their Wheat became infected with rust. There is great doubt as to its being really allied to the disease in corn which bears the same name.

The third disease is the Blue Pock. Martius has not himself observed it. Hampe describes it as first appearing under the form of blue spots, and elevations on the skin of the tubers. At a later period, dark rhizomorpha-like threads (probably the Mycelium of a Fungus) invest the tubers, or even penetrate their substance. Blue spots and stripes at length appear in the flesh of the tubers, which are not eatable. It is said that it arises in very wet weather, from undecomposed matter, such as sawdust (which in the infected districts is used extensively for floors instead of sand), being mixed with the dung.—*M. J. B.*

(To be continued.)

CULTURE OF THE MELON.

A new era may be said to have sprung up in the culture of this fruit, as bottom and atmospheric heat can be readily and effectively supplied by other means than by fermenting manure, which very considerably deteriorated the flavour and value of the fruit.



The system of cultivating Melons on dungbeds has long been practised, and it is not astonishing that some gardeners, even at the present day, should imagine that good Melons cannot be successfully produced, unless by the means which Abercrombie and Nicol adopted. But these gentlemen have passed away, and the sun has nearly set upon their system. It must, we imagine, be quite clear to every unprejudiced person, that Melons produced and ripened off in a pure and sweet atmosphere, surcharged at pleasure with moisture in a wholesome state, must attain a higher degree of flavour than such as are subjected, during all the stages of their growth, to the sweltering fumes of a dunghill. I have, this season, seen Melons grown in pits heated both at top and bottom by hot water, and without the aid of dung, or any fermenting substance whatever, finer than I ever saw them, and most excellent in flavour. This I consider a most important fact, especially as it has been the worst season during my remembrance for ripening fruit.

This is one of the evidences which may be adduced of the rapid strides which gardening is now making, for although in this case we have struggled long and arduously in the midst of doubts and difficulties, a new light has at last broken in upon a most important page in the history of gardening. There are, however, still some difficulties, or, rather, some points not sufficiently investigated, in this system of Melon culture, which have been the means, in some cases, of producing disappointment. And one of not the least of these difficulties is that of supplying moisture to the bottom of the bed, where the heat first enters from the hot water beneath; but even this I consider an attainable desideratum.

The accompanying woodcut shows a Melon pit, constructed and arranged with this object in view. The gutters of water are confined in the chamber beneath, but when steam is required in the pit, valves are provided at A, by which it is allowed to escape, when required, into the pit amongst the plants. The soil in which the Melons are planted, is supported in its position by strong slate, which completely shuts out all moisture escaping from the gutters unless when the valves are intentionally opened. Immediately upon the slate is placed a layer of brickbats, or flints at B, and over this some rough turfy loam. Communicating with the rubble are small tubes through which water can be poured, when any doubt arises as to the roots of the Melons suffering from dryness.

The water thus applied spreads itself over the surface of the slate, producing that moisture so congenial to their roots, and which forms in this mode of culture so desirable an attainment, particularly as the roots are only supplied with the proper amount of moisture to maintain the plants in luxuriance and health, and that this moisture can be withheld, when the period arrives that a cessation of the supply of all fluids is desirable to promote the ripening of the fruit. Were water poured upon the bed sufficient to reach the roots so as to counteract the drying influences, the soil would become a perfect puddle, and healthy action would soon cease; but in the manner above described the evil is very simply and efficiently cured without producing any bad effects, and the Melons ripened in an atmosphere peculiarly calculated to ensure the highest degree of flavour of which this fruit is capable of attaining.—*R. G.*

Home Correspondence.

Potato Murrain.—The destruction of the Potato crop, I am sorry to say, has reached here, but not to the alarming extent described by your correspondents; but the worst feature of the case is that the rot goes on after the Potatoes are dug out of the ground, and as one bad one taints every one it touches, there is no knowing how far the evil may extend. The early kinds seem to have suffered most here; the Ash-leaved Kidney, and the varieties raised from it, are the worst I have seen. I spread all my Potatoes intended for seed on a piece of bare ground, so that they scarcely touch each other, and every second or third day they are carefully looked over, and every one which appears to be tainted in the slightest degree is immediately picked out and thrown away. This, in my early Potatoes, has now been going on three weeks, and we still keep finding some which are tainted, although every Potato reserved for sets appeared at the time it was dug to be perfectly sound and good. Probably, one-fifth of what had been reserved have been rejected. These Potatoes were grown in heavy clay land, and are far worse than those which were grown in gravel, where, unless the Potatoes go on rotting after they are got up, there seems to be little to complain of. Of course, this plan is not at all suited for Potatoes intended for eating; but for those intended for planting it will be found excellent for two or three reasons. If there were no fear of rot it is good for them, as it gives an excitability to the Potato which makes it earlier when planted; but when rot is found it gives an opportunity of looking them over time after time, and throwing out all those which are tainted, whereas, if all were put into a heap, and covered up (as is usual), if there are only a few bad ones at first, they will spoil those they touch, and the evil will go on spreading until there is, probably, not one fit to plant in the whole parcel. You say, "One other, and that a most important question, remains behind—Will these Potatoes, which to the eye are sound, and which in sorting would be put aside as beyond all danger, do they contain the seeds of the disease, and will they, too, rot in the long run? who knows?" This appears, however, to be answered above; as I have shown that when spread on the ground, the disease does go on, and, doubtless, it will do so with those which are covered up, although, perhaps, not so rapidly in the first instance; for no really sound Potato has its vegetating powers injured by being exposed to the sun, but, on the contrary, its excitability is much increased.—*T. G.*—Having examined the tubers infected with the prevailing disease, I have scarcely a doubt left upon my mind that it is that moist ulceration, gangrena saniosa, to which all bulbs and tubers are liable if exposed to ungenial circumstances at the time when their ripening processes should commence. At such time they require increased degrees of heat and dryness, and if subjected to the opposite extremes, as the Potato has been this year, they, for the most part, ulcerate and decay. Take the Tulip and Hyacinth for examples. In confirmation or refutation of this opinion, I have instituted researches which I hope to conclude in time for publication in the *Gardeners' Almanack*, in November next, but they have extended sufficiently already to remove almost every doubt from my mind. If the July and August of next year are dry and warm, I do not hesitate to prophecy that there will be no Potato murrain, and I think no preventive measures necessary beyond avoiding planting on plots of ground which have borne infected

Potatoes this year.—*G. W. Johnson.*——The antiseptic qualities of chloride of lime are well known ; it is cheap as a wholesale purchase. What will be its effects in neutralising or extracting the poisonous quality of the injured tubers ? My own experiments are not ripe for publication, but my belief is, that I have killed the disease in the affected tubers which I have dug up, and shall have no hesitation in eating the parts of such tubers which I consider to be preserved. To such as remain in the ground, it may be worth the trial of irrigating the whole ground with a solution of the powder, and those which have been prematurely exhumed may be possibly cured by being carefully dredged with the powder, or washed in a strong solution, and afterwards carefully dried. All this may be rash and wild, but in such a fearful exigency, which threatens little less than a famine to the million, the humblest suggestion may be deemed worthy of attention.—*A. Walton.*——I believe you have been led to attribute the disorder to excess of wet, because you have had about London and northward of the metropolis, much more rain than we have had here (in Hants). So far from an excess of wet, our ponds, brooks, wells, &c., are all drier than usual. It is true we had, previous to the 15th of August, some rainy days; but the actual deposit of water was very inconsiderable, as is testified by our water-butts. The ground is quite parched two inches below the surface, and the best drained and the highest grounds have suffered equally with the low and moist. On or about the 18th of August we had a light breeze at south, with thick haze, upon which I remarked "there is a blight in this wind, if we had anything to lose." In a day or two afterwards I observed patches of my Potatoes going off in the haulm very early for the season, with a strong odour ; then I read the accounts from the Isle of Wight, and decided at once on pulling up the haulm and leaving the Potatoes in the ground until we had leisure to dig them out ; but I only removed the haulm from my principal bed, leaving some smaller plots from want of time, and to see the effect ; and this is the result: (I have dug them all). On a bed 400 square yards, of Jersey Blues, from which the haulm had been taken, five rotten tubers. Out of a bed of York Reds (haulm not taken off), one half rotten. A bed of pink Kidneys (haulm left on till they were dug), one-half rotten; two beds of Jersey Blues ditto, about one-third rotten. My opinion is that the disease is a blight, beginning at the haulm above-ground, and that the rottenness arises from morbid sap sent down.—*Woodend.*——I have observed some diseased Potatoes which were only planted about three weeks ago, and also some Ash-leaved Kidneys that happened to grow in a dry Cucumber-pit. In neither case wet nor cold could hardly cause the disease. And what I did not expect my early sorts which grew on dry borders, and were partly ripened before the wet commenced, are the worst. —*J. Wighton.*——I wish what you say about Potatoes in the north was true. Last year, as well as this year, the Potatoes have rotted in the ground in our village gardens. The ground was well drained, and the cultivators attributed the disease to the ground being too well drained.—*P., Darlington.*——I learn, by letters from several foreign friends, that the disease which now affects the Potato crops in the Channel Islands, and in several parts of England, is universal in Belgium, and almost all through France ; and as Professor Morren, of the University of Liege, has described the malady, and the remedy to be immediately applied, I have seized the first moment of leisure to translate part of a letter which he has inserted in the *Indépendance* of Brussels, for the benefit of those whom it may concern. The real cause of the disease is a mildew fungus, which scientific men class under the head Botrytis; but which the farmers will easily distinguish, and will name a spot, scorch, or burn. Some will attribute it to humidity ; others to dry winds, to insects, &c. Nevertheless, it is of consequence to know the real cause of this phenomena, for the knowledge of it puts the farmers on the road to diminish or destroy, if it is possible, the evil. The Professor has, for several days, followed the progress of the disease in several Potato-fields, and has come to the following results :—The malady decidedly commences by the upper part of the leaves; in several instances he has seen the flowers and the seed-vessels first attacked. A part of the green tissue loses its colour, and becomes yellow ; the spots soon after become grey, and it is always on the under part of the leaf, or on the seed-vessels, that the next day, or two days after the leaf has turned yellow, that you perceive the formation of a white down. The microscope shows that this down is formed by a fungus, which fructifies between the numerous hairs garnishing the under parts of the Potato-leaf. This fungus is extremely thin ; but it fructifies immensely, and reproduces itself by millions. The Professor after having given a minute detail of the size, &c., of this fungus, concludes this part of his letter by saying:—"Farmers will tell me that this is a very small body to cause such immense ravages; but I will answer that the itch is not a malady less to be feared because the acarus which causes it is a microscopic object. It is after the leaves have turned yellow, and the botrytis has made its appearance, that the stem is affected. Here and there the epidermis turns brown and black, and when you follow, with the use of the microscope, the infection, you soon perceive that it is by the skin that the stem is attacked. The morbid agent carries its action from the skin to the epidermis, and though you do not perceive fungus on this last part, it is not the less struck with death. For those who have a few notions of vegetable physiology, these effects are easily explained. The sap modified in living juice, in vegetable blood, forms itself in the leaf, and descends through the skin in the stem and the roots. There the sap being sickly, deadly, carries the poison from the leaf into the stem, and kills it. The fact is, that as soon as the black spots are seen on the stem, the leaves dry and die, and struck with death by a poisonous mushroom, they fall unfortunately to deposit in the ground the germs of the poison. The infection soon descends into the Potato, and if the malady follows its natural course it is soon affected with the gangrene ; it turns brown or yellow, sometimes grey and dark, is soon spoiled, and the smell is so disagreeable, that the animals refuse to eat them." The disease being now known, the attention of agriculturists ought to be turned to diminish as much as possible the evil; because it is well known that all diseases which affect the corn crops, &c., once introduced into the country, remain and propagate more and more. This year the epidemic seems to be universal ; the germ is everywhere ; and if a remedy is not immediately applied, the crops will be affected next year, and then it will become more difficult to extirpate the evil. 1. When the Potato-haulm is infected with the disease, mow it down, and immediately burn it.—2. Act in the same way in Potato-fields that seem to have escaped the infection ; for though they may appear so to the eye, yet they may not have escaped the disease.—3. The Potatoes diseased ought also to be burned.—4. The seed for next year ought to be steeped like corn, &c., with lime, sulphate of copper, and common salt, diluted in water, in order to kill the fungus, if any, on the Potato. —5. The Potato-fields ought to be next year as far off as possible from those of this year.—6. A mixture of lime, common salt, and sulphate of copper, to be powdered on the Potato-fields infected : this mixture having the power of destroying the poison left in the ground by the infected plants. For my part, I still hold to the opinion by me emitted, and I have seen nothing as yet to make me alter it,—that the disease, in the first place, has taken its origin by the dampness and cold air which has been so prevalent during the summer season. Since the warm weather has set in, about three weeks, the disease seems to have made but little progress ; the tuber has been but partially affected, and though swelling but little, seems to be sound and good. Nevertheless, the crop is a failure, averaging about half a crop.—*Richard Giffard, Bellevue Cottage, St. Peter's, Jersey.*

On Starch from Diseased Potatoes.—It is desirable that no delay should take place in communicating to the unfortunate possessors of diseased crops of Potatoes a use to which they may be applied advantageously. I have very recently had an opportunity of being present at a microscopical examination of the structure of the bad Potatoes, made by Dr. Paget, and Mr. I. Anthony, both of Caius College, Cambridge, in which it was observed that the globules of starch were not at all injured by the fungus which was destroying the other parts of the Potato. It immediately occurred to those gentlemen that good starch might be prepared from the bad potatoes. They, accordingly, obtained some of the *very worst* Potatoes that could be got at Cambridge, and, by reducing them to a pulp, and then washing it, they were successful in obtaining the starch in quite as good a state as any that could have been made from Potatoes in the most healthy state. This seems to be a very valuable fact, as it shows that some good use may be made of even those Potatoes in which the disease has made great progress, and which have become unfit for food, owing to the decay of the vegetable tissue, and the spreading of the fungus. I see that Mr. Berkeley has observed that the globules of starch are uninjured ; we may, therefore, probably conclude that such is always the case, and that crops apparently only fit to be destroyed, may now be converted to use. I need say nothing concerning the many valuable purposes to which Potato starch may be applied, nor the mode of preparing it, as they are well known—better, probably, to most of your readers than to me.—*C. C. Babington, St. John's College, Cambridge.*

Culture of the Potato.—A great deal has been published respecting the culture of the Potato ; but as I have seen nothing which agrees either with my practice or theory, I will detail my plan. My own family well know we can buy none equal to those which I grow, and that on a stiff surface soil over brick-clay at the depth of 12 to 16 inches. In every other kind of propagation we are careful in the selection of the parents, so am I with my Potatoes. Instead of planting, as too many do, just those which in the spring may happen to be left, my plan is this :—When my Potatoes are dug in autumn, in picking them off the ground, the best of a middling size, or perhaps I might say of a size just larger than the small, are put aside for next year's planting. It is not necessary to cook Potatoes to know the best. They are those which are truest to the proper shape of the sort, with a rough skin, but no canker or other blemish. Much as has been said to the contrary, I am very careful that they should be quite ripe. The sorts I chiefly use are—Ash-leaved for early ; Golden Reed or Golden Dun, both most excellent, for second ; and the Pine-apple Kidney for late. The two former I always plant whole at 2½ feet apart in the rows and 1 foot between the sets. The last I give 3 feet between the rows. The ground, of course, cannot be too light and friable before planting, and I always think it better to have been well manured for the previous crop ; but if I use any manure for the Potatoes I put it over the sets. These I put in very shallow, just covered with the earth ; in fact, theoretically I believe they would be just as well placed on the top of the ground. When they are 6 or 8 inches high, I draw the earth to them from the middle space, which, being tolerably wide, gives them a bank sufficient to grow and mature their tubers in. I never think of having curl, or mildew, or any other evil, nor have I any blight this year. I have to-day, Aug. 29, been digging some Ash-leaved, grown under the shade of large Apple-trees, but quite sound and good.—*Corylus.*

Joining Glass Labels.—Though glass labels are nothing new, we are indebted to Mr. Grant for a better material for attaching the glass. Unfortunately Jeffrey's glue in common hands is a very intractable substance. The water-bath or glue-pot failed with me ; the sand-bath was better, but wasteful in the end. I have succeeded best in the following manner :—Cut sheet zinc of the size desired, and punch a small hole through the top ; then cut your glass less than the zinc, so as to leave a margin ; then the paper label less in like proportion ; then the glass ; with a sharp penknife cut slices of the glue, place them upon the zinc, and the zinc in an oven or the bar of your grate ; as the glue melts stir and spread it evenly over the metal. To one side of the glass you must attach the label by a little moisture applied to a corner, and on removing the zinc must press the glass evenly upon it. The edges may be afterwards finished off with a hot iron, or pressed while warm against the glass. The glue should appear through the glass perfectly free from air or speck, of one uniform colour, otherwise the label will damp. I think it might answer to the manufacturers of such articles to supply them with the glue ready spread on the metal and glass of a suitable size. The gardener would then have no trouble of moment.—*Beta.*

Pine Growing.—In answer to "Clericus," I beg to state that I place loose faggots about one foot in depth on the slate covering of my tank, and on that sufficient leaves and soil to plunge the pots or plants—say about 18 ins. in depth. I find on examination that the bottom-heat produced by the tank is about 85° (the thermometer being placed among the faggots). This gives about 80° or 82° to the plants. As some difficulty seems to have arisen from an excess of moisture arising from the tank, I may add that I have inserted upright pipes, of 3 in. diameter, into the slate covering, all the joints being covered close with cement ; these pipes convey the steam into the pit, and the moisture is regulated easily by merely placing a piece of slate over the top of the pipe. I have now one Ripley Queen just out of blossom, 13 pips in height, a very promising fruit. *T.P., Cornwall.*—In reply to your correspondent "N." as to the best mode of checking the crown in the Pine-apple, or whether it is prudent to check it at all, I beg to make the following remarks :—In the first place, it is notorious that very large crowns are not the admiration of the present generation ; and that to obtain smaller ones, under the circumstances of a very high temperature, combined with a very considerable amount of atmospheric moisture, artificial means must be resorted to. Now, such things have not only been accomplished, but are also approved of in some first-rate Pine establishments. The means employed, as far as I am aware, are, in the first place, to pierce, or screw out by a small instrument, the centre, or growing principle of the sucker, soon after the Pine has done blossoming : another plan, and one I am informed (whether credibly or not I cannot say) that has been practised at Oakhill, is to thrust a penknife through the base of the crown, about the same period as that before named. Now that it will check the size of the crown, ultimately, I am confident ; but, I am sorry to say, that it always, as far as I have observed or heard, leads to distortion ; which, unless the process has been very tenderly performed, is, or ought to be, as a matter of taste, more unsightly than the large crown. It appears to me, that the most reasonable way after all of keeping the crown in check, so as to avoid distortion, is to give air more freely, to avoid extremes of temperature in periods of comparative darkness, and to persist in coupling high temperature with much solar light. I think it must at once be admitted, that whatever condition of atmosphere "draws," technically speaking, the young or growing plant, must also in degree, tend to "draw" the crown. In other words, an unwieldy crown is a drawn crown. As to the question of whether it improves the flavour, or adds to the weight of the fruit, I can only say that I am not physiologist enough to decide. No writer, or practitioner, as far as I am aware, has ever fairly determined the true character of the crown in its relation to the plant in general and the fruit. That it possesses powers of elaboration in common with the other leaves, there can be little doubt ; but what becomes of the accretive matter when prepared ? does it merely increase the volume of the future plant, now a crown ; or does it cater for the swelling fruit ? I have little doubt but it tends to increase flavour.—*D.*

Pelargoniums.—In answer to "Anti-Puff's" remarks, I would beg to submit that it is possible for these flowers to be raised fully equal to any that are exhibited at Chiswick, and that nurserymen may wish to be making returns upon their capital without being able to submit them for inspection at either of these shows. I do not know who is alluded to as having advertised new varieties at two and three guineas, without first submitting them to the approval of competent judges ; I can only say I am sure it is not me ; for, although I have for the past three years purchased every new variety that I considered worthy to be added to a really good collection, and have spent all my leisure time in carefully hybridising and raising seedlings, I have not yet succeeded in bringing any of my plants into bloom early

enough to show at the metropolitan exhibitions. Since the last show at Chiswick took place, and consequently when there was no possibility of showing the plants there, I have flowered some sorts that I consider to be truly good and beautiful, and I have submitted them to very competent judges, whose opinions coincide with my own. Now, I would ask "Anti-Puff," with all due respect to his better judgment, what is to prevent my sending out these plants immediately, if I choose to do so, which I shall not. In my opinion the man who sends out a flower with a false description, gives his name to a lie, which no respectable tradesman will willingly or knowingly do. Then, I say, if you find a man doing such things, mark him—mark him well, and let him have his deserts; but do not make the whole trade suffer for the guilt of the few who have attempted to do such things.—*A. Balston, Poole Nursery.* [We have been obliged to omit a passage or two from this letter, or it would have subjected us to advertisement duty.]

Large Strawberries.—A short time ago you considered a British Queen weighing 1½ oz. worth noticing. Now my present object is to show that that Strawberry may be grown very much larger than the one figured at p. 527. The Rev. E. Smythe, of Elkington, near Louth, Lincolnshire, informed me that he cut one a short time ago, weighing 2¾ oz., and that at the same time there were two others partially destroyed, which he is quite sure would have weighed as much. This one of 2½ oz. measured 9½ inches in circumference. It was seen by several gentlemen, there being at that time a cricket match close by. Mr. Smythe also says, that during the season he thinks he had eight which would have weighed 2 oz. each. I believe Mr. Smythe adopted the method I have done some time with every kind of Strawberry; it is the late Mr. Knight's plan. Runners are taken from an old bed, and planted in the spring; no runners or blossoms are allowed for the first year. The second year of growth is their first and last for bearing fruit. In consequence of the organisable matter stored up in the plants during a full summer's growth, without any abstractions by runner or blossom, a greater quantity of fruit, and superior in quality, will be obtained the first bearing season than during any future season; therefore, my motto is, why not always have the most fruit, and crop Strawberries like any other vegetable.—*Tolla.*

Melon Growing.—In the Leader (p. 591), you say, "that a first-rate Melon, in a very bad Melon year, is something worth especial notice," &c. When I inform you, that in this same untoward season, I have grown the Beechwood to the weight of 10 lbs. 10 oz.; the Ispahan to that of 12 lbs. 8 oz.; and a variety of Cantaloupe to 16 lbs., all of first-rate quality, I hope you will deem these facts worthy of especial notice also, more especially when I inform you that the above Melons were brought to such perfection, planted in a common Vinery border, and, consequently, without bottom-heat! At the request of many gardeners, and a great number of gentlemen who have seen them growing, I have promised to give the details of my practice; and if you can spare a corner, I know it will gratify a number of your readers on this side of the Channel (who intend putting up houses forthwith exclusively for Melons and Cucumbers) to have the facts stated in detail.—*J. Walker, Vice-regal Gardens, Dublin.* [Pray give us your practice. It must be interesting.]

Rosa Berberiifolia Hardii.—This Rose, mentioned at p. 612, to be delicate and unmanageable, has grown and bloomed here in great perfection, and the following account of this pretty variety may perhaps not be altogether devoid of interest:—The Rosa Berberiifolia Hardii was raised from foreign seeds by Mr. Hardy, of the Jardin du Luxembourg at Paris, and was first imported into England about nine years ago. It was generally known to be a delicate plant, and various methods were taken to increase it. It was a practice with some to root-graft it on Berberis aquifolium; but in this way it was not likely to thrive for any length of time, on account of the opposite nature of the stock and scion. The former was robust, and liable to sucker, the latter of delicate growth; it was also budded on the Dog-rose, in which way it grows vigorously; but it is a difficult matter to get soundly-ripened buds, and from their diminutiveness the operation is a very delicate one, requiring to be executed with great nicety to succeed. There are now in bloom here two or three plants that were budded on the Dog-rose last September, and which have shoots from 12 to 18ins. in length; the tips of some I inclose that it may be seen they are in perfect health. These will be removed to a north wall, and sheltered on the approach of winter. During the severe winters of 1841 and 1842, some scores of budded plants unprotected were killed here, and the variety was, I believe, generally killed throughout the kingdom; since that time no stock seems to have been established anywhere. With regard to its cultivation, an airy and dry situation is the chief thing to be looked to. It cannot endure much or continued wet; under such circumstances mildew invariably attacks it, and I have seen plants dead in November, while others in a more favourable situation have outlived the winter, and bloomed throughout the following season. It cannot, however, be considered perfectly hardy, and should be placed in a cold pit, or airy situation in the greenhouse during winter, and kept close to the glass, watering it very sparingly. In the case of mildew occurring, to which most Roses are liable, the plants should be sprinkled with sulphur, and if attacked by green-fly, fumigated or washed with Tobacco-water. About the beginning of May they may be turned into the open ground, sheltering for a few days in case of frosty or biting weather, that they may become gradually inured to their new situation. They thrive very well planted on raised rock-work in a roughish soil of sandy peat; or, in fact, in almost any dry open situation, where not too much exposed to cutting winds. Thus treated, they will continually give forth their flowers from July till the commencement of the autumn frosts, when they may be taken up, potted in sandy peat in pots well drained, and again placed in a pit or greenhouse for the winter. If under any circumstances the removal of the plants is not desired, a hand-glass may be placed over them, lifting it off in mild favourable weather. This plant being known as delicate, has probably deterred many from attempting to cultivate it; but the same may be said of many of the choicest and most interesting productions of Flora—they are delicate; yet, by a right system of treatment, are they not often made so to change their nature as to repay a hundred-fold the additional care of the painstaking cultivator? That this plant is not unmanageable may be gathered from the fact advertised a month ago, that there were nearly 400 plants here in perfect health. —*W. Paul, Nurseries. Cheshunt, Herts.* [The specimen which accompanied this was in beautiful condition].

Morphology.—I send you a curious and interesting illustration of this doctrine. The specimen is, as you will perceive, a double Dahlia, in which the sepals are perfectly grown leaves or bracts. The plant was raised last year in Mr. Girling's seedling bed, and the present specimen is taken from a cutting raised from that plant. All the flowers are the same, though smaller than that represented by the woodcut. I regard the specimen as



particularly interesting on two grounds. 1st. As an exceedingly good illustration of morphological phenomena; and 2d, because it proves that those phenomena are not, as it has been contended, necessarily monstrous; but that they can be perpetuated from year to year, showing that such an appearance is the effect of an essential character in the organisation of the plant.—*C. R. Bree, Stowmarket.*

Wasp-Trap.—The most simple and efficacious trap I have ever tried for wasps is a very simple one, which I had made a great many years ago, and now, when glass is so cheap, it may be universally employed, and many garden enemies kept down. It is nothing else than a bottle containing about a pint, having the neck and mouth shaped as in the annexed figure, and the shoulders a little raised. When a wasp or fly of any kind goes in, it cannot escape. The bottles are filled about one-third with small beer, and brown sugar dissolved in it, or treacled-water, and hung up on the wall, on branches of trees, or bushes, wherever wasps frequent. They may be emptied every two or three days, and replaced with fresh liquid. The quantity of wasps and flies is often so great as to render the emptying of the bottles rather troublesome. The operation is facilitated by repeatedly filling the bottle with water, and shaking it as the water is poured out. It is not necessary to empty them thoroughly. They may be made of bottle-glass just so clear as to show what is in them.—*G. S. Mackenzie.*

Bottom Heating.—In the report of the meeting of the Horticultural Society (p. 610), it is mentioned that Mr. Ayres finds the secret of blooming Echites splendens well in a pot to depend on giving it a sufficient bottom-heat. This leads me to remark that I have now in my stove, which is heated with Stephenson's boiler and tank, strong young plants of Echites splendens, showing trusses of bloom in 3-inch pots. I have also a specimen of it in an 8-inch pot with four trusses, on each of which there are not less than eight of its beautiful blooms. This I attribute to the genial and moist heat thrown from the tank into the sand, in which the plants are either plunged or stand. I imagine if this system were generally adopted, the cultivation of stove plants would be much more easy than at present, and the expense of cultivation not essentially more than that of growing greenhouse plants. I have found every plant I have put in bottom-heat to grow remarkably well, and with comparatively little attention, especially I may name the genera Echites, Luculia, and Gardenia.—*A. Balston, Poole Nursery.*

Gardenia Stanleyana.—I have grown this in the compost recommended (p. 611), by Mr. Glendinning, but I prefer using broken pieces of good peat with a little loam and sand, if required; to these I have added a small quantity of half-inch bone, and some charcoal. I find the roots go entirely out of their natural course to luxuriate on the bone, of which I would, however, advise not much to be given to any plant.—*A. Balston, Poole Nursery.*

Weeds on Gravel Walks.—Seeing in your columns receipts for eradicating weeds on gravel-walks, and thinking "prevention better than cure," I beg to mention a plan which I have always found to answer. It is simply, when forming your gravel-walks, and before laying on the gravel, to spread a layer of the dark-coloured soapwaste, which may be got from any soapery, if in the neighbourhood, and then putting the gravel on it and rolling both of them, after spreading, as firmly as possible. This will not only prevent weeds from growing, but will form a walk as hard and solid as cement.—*A Subscriber.*——"Woglog" mentions that the arsenic and hot water have not killed weeds in paths.

Reviews.

1. *Notice sur la Vie et les Ouvrages de A. P. De Candolle, par M. Le Professeur A. de la Rive.*
2. *Théorie Elementaire de la Botanique, par Aug. Pyr. De Candolle.*

THE interest which attaches to the name of De Candolle will not be speedily exhausted, and in the history of his life from the pen of M. de la Rive, we have a closer view of the man as he lived and moved than in any preceding notices. These notices have not been few. Martius pronounced an *éloge* before the Royal Botanical Society of Bavaria; Flourens before the Institute of France. Morren has given an account of his labours, at the sitting of the Royal Academy of Brussels, and Dr. Daubeny of Oxford, has published a sketch of the writings and philosophical character of De Candolle. The time, however, is not yet come, when independent of loving friends and admiring contemporaries, a just estimate can be formed of the influence of De Candolle.

Auguste Pyrame De Candolle was born at Geneva on the 4th of February, 1778. As a child he gave no great indication of talent, but was fond of collecting plants. His taste for botany was developed under the teaching of Vaucher, who though not a profound botanist, possessed a love of nature that kindled the same feeling in the minds of his pupils. On concluding the usual course of general education at Geneva, De Candolle repaired to Paris. Here he found every facility for pursuing his favourite science, and was constantly seen studying the plants in the Jardin des Plantes, and from his habit of sitting there for the whole day on a watering-pot, obtained the appellation of the "jeune homme a l'arrosoir." He became acquainted with Desfontaines, and was recommended by him to draw up the descriptions for a work on succulent plants, illustrated by Redouté, He shortly afterwards published an essay on the Sleep of Plants, which at once brought him into notice, and caused him to be elected a Member of the Academy of Sciences. This was followed by his editing the third edition of Lamarck's "Flora of France." He remodelled the whole work, travelled into various parts of France for the purpose of obtaining new matter for its pages, and added an introduction which contains the germs of those principles which he afterwards elaborated in his celebrated "Théorie Elémentaire." Although using an artificial method of analysis, he arranged the plants according to a natural system, and pointed out in his introduction the insufficiency of all artificial systems of science. In this work he proved that a natural method was as available for the study of a local Flora as for arranging the great mass of plants that cover the surface of the earth.

On determining to graduate in medicine, the thoughts of De Candolle took another direction. No use had then been made of the arrangement of plants according to their structure and functions, for the purpose of obtaining a knowledge of their peculiar properties, and De Candolle, in his inaugural dissertation, presented a paper on the "Medical Properties of Plants," in which he pointed out the fact, that, in many cases, the structure and properties of plants bore a constant relation to each other, and that the properties of a group of plants may frequently be inferred from an individual. This, and his other papers, recommended him to the Government, and he was employed for the purpose of making botanical and agricultural reports on the various plants of the empire of France. During the excursions he made for the purpose of drawing up these reports, he became interested in the subject of the geographical distribution of plants; and the article on the "Geography of Plants," in the "Dictionnaire des Sciences Naturelles," was the result of his knowledge on this subject.

He was thus occupied when the death of Broussonet caused a vacancy in the chair of botany at Montpellier. To this chair De Candolle was appointed, and speedily became distinguished as a lecturer and teacher. He

was the first to break through the system of reading lectures, and to deliver himself extemporaneously. He became so popular, that his course of botany, in the Faculty of Arts, was attended by between 300 and 400 persons. De Candolle, however, was not so much distinguished, during his residence at Montpellier, for his teaching, as for the production of his "Théorie Elémentaire"—a work on which much of his early fame as a botanist rested. This work, of which a third edition has been published by his son since his death, appeared in 1813. In drawing up the "Flora of France," De Candolle had proceeded on the principles which he developed at length in this work. The great idea of this book is, not that there exists in the vegetable kingdom a fundamental and primitive type, but that all the forms of plants are departures from a fundamental or primitive type, and that this type is symmetrical. The consequences of this idea are, that all existing forms of plants have departed from the primitive type, from the action of assignable causes. These are—1st, the abortion, or non-development of organs; 2d, the multiplication of particular organs; 3d, the degeneration or imperfect development of the parts of plants; and 4th, the adhesion or growing together of the same or different organs. By the operation of these causes he explained all the peculiarities of structure presented by the great classes, families, or sections of plants. In the elementary theory of botany these first principles are worked out, and their application to the arrangement of plants pointed out in connection more especially with what he calls the subordination of characters, by which he means the relative importance to be attached to the various organs of plants in instituting a comparison between one and the other. This work also contains several chapters on the mode of describing plants, and a copious glossology. In this book, more than any other, is seen the peculiar characters of De Candolle's mind. His views are clearly expressed, the arrangement of the matter is admirable, and there is a due subordination of the details to the great principle which they support. It is the development of a theory which could but produce order, to whatever department of the vegetable kingdom it was applied. But whilst it has the merit of being a system very much superior to any that preceded it, it has all the defects of a method which takes for granted that which is not proved. The use of the microscope, and a profounder study of vegetable function, show that the greater part of the elementary theory depends on terms framed in the logical head of its propounder, and not on an accurate investigation of the structure of plants. Such, however, as it is, it was invaluable at the time it was published, and became subsequently, in the hands of its author, the great instrument by which he was enabled to describe and arrange in his nearly completed "Prodromus," the members of one great class of the vegetable kingdom.

But to return to his life. He remained at Montpellier till 1816, when a chair of natural history having been made for him at Geneva, he returned to his native city, and there spent the remainder of his days. Here he commenced the great work of describing all known plants on the principles laid down in his theory. The two first volumes of the "Systema Regni Vegetabilis," appeared in 1818 and 1820, but he found the plan was too large, and was obliged to continue it in the form of his well known "Prodromus." The first volume of the "Prodromus" appeared in 1824. Of this work he lived to complete the seventh volume, which did not, however, comprehend the whole of the class of exogenous plants. It includes the great order Compositæ, to which he devoted many years of his life, and his labours on which are said to have contributed to the shortening his days. Since his death this work has been very ably continued by his son, and there is every prospect of the exogenous plants at least being completed.

In addition to his "Prodromus," he published, at Geneva, his "Organographie," and "Physiologie Vegetale." These works were the substance of his lectures on structural and physiological botany. Both contain much valuable matter, but they give indications that the author was not fully alive to much that was going on in these departments of science, even at the time they were written, and fall far behind the state of science at the present day. His biographer, M. de la Rive, mentions, as proof of the value and importance of the "Vegetable Physiology," that it was crowned with the gold medal of the Royal Society of London. No one could be jealous of such a mark of merit conferred on De Candolle, but we should imagine that De Candolle himself would have been the first to acknowledge that there was nothing in his "Vegetable Physiology" that could claim for it that honour. De Candolle was the author of numerous papers, reports, and works of greater or less importance. He resigned his professorship at Geneva in 1835, and died in 1841. Few men were more respected in public and beloved in private life than De Candolle. He has left behind him a son, who inherits his father's tastes, and has shown himself quite able to carry on those works which his father left uncompleted, and to pursue, with success, the same distinguished career.

New Plants.

Chloræa virescens. Green-veined chloræa. *(Greenhouse perennial.)* Orchidaceæ. Gynandria Monandria.—This is one of those beautiful terrestrial Orchids which, under the names of Pichiguen, Gavilu, Azuzena, Pica de Loro, &c., are most charming ornaments of the subalpine pastures of the Cordilleras of Chili. The present, which is one of the finest, has been reared by Mr. Cameron, the intelligent and skilful Curator of the Botanic Garden, Birmingham, by whom it was exhibited at the last May exhibition, in the garden of the Horticultural Society. Mr. Cameron regarded it as the Chloræa chrysantha of Pöppig, in which he is probably correct; but it is also the Chl. virescens, so called on account of the green veins which are drawn over the orange ground-colour of the gaudy flowers, and the latter name being the oldest, must be retained. At the foot of the column are visible two honey pores, which had been previously overlooked in the descriptions of the genus. Now that the possibility of cultivating these plants has been shown, and that they are found not to be more difficult of management than a Spiranthes or Sarcoglottis, it is to be hoped that some pains will be taken to procure their roots. They are as common over all the subalpine country between Conception and Valparaiso, as the Meadow Orchises here. It will be necessary, however, to mark their stations when in flower, and to take them up only when the stem and leaves are withered. This species requires to be grown in a warm greenhouse. The soil best adapted for it is rough sandy peat, and, like most of the terrestrial Orchids, it requires an ample supply of water during the growing season. After flowering, the stem and leaves will naturally die off; this being its season of rest little or no water will be required, until it begin to put forth new leaves, when it should be repotted and encouraged to grow.—*Botanical Register.*

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—Since we last gave an account of this establishment, several important alterations have been effected in the way of heating. In addition to the hot-water pipes which heat the atmosphere of the large stove, means of supplying bottom-heat to the centre bed has been devised. The bed, which is 26 feet in length, and 12 in width, is warmed by hot water flowing in open metal tanks, erected by Burbidge and Healy. These consist of two flows, uniting in one return down the middle of a hollow chamber, which is closed in with slates, with apertures in the sides which can be shut or opened as required for the escape of moisture. The plants are placed immediately on the inch thick slate covers, which have a neat clean appearance, and have been found to answer admirably in every respect; the whole contrivance is similar to that erected some time ago in the Orchidaceous house, which has been found to answer so well, as is abundantly proved by the healthy condition of the plants. It is worthy of remark, that the large specimen of Lælia superbiens, growing on a block suspended from the roof of this stove is throwing up five strong flower-spikes, likely soon to be crowned with a rich display of blossoms. The range of pits in front of this house, which was formerly heated by brick and cement gutters, is now warmed by hot water flowing in iron pipes, which are laid along in the hollow of the gutters, the whole being in a hollow chamber covered in with slate, on which is placed the plunging material. A steady bottom-heat is thus secured, and means of supplying surface-heat is also afforded by apertures along the front and back of the beds. These can be opened or shut as required, and the plan appears to embrace all that could be desired in heating a pit of this kind. The supply of surface-heat having been found to be deficient in the house which was formerly employed as a Pine stove, another set of pipes has been added to those already in operation; and the small house to the west of this, belonging to the hardy department, has been taken down and a new one is about to be erected in the same place. This is to be a span-roofed structure, about 26 feet square, having a path down the middle, and is to be heated by hot water in iron pipes. The side of the roof is 14 feet 9 inches in length; the upper sashes, which are fixed, being 8 feet in length, and the under ones, which are moveable, 6 feet 9 inches in length, and 3 feet 6 inches in breadth. These are glazed with Elphick's glass, the panes being 2 feet in length and 9½ inches in width. The brick and cement gutters, by which the pits, forming two sides of the square of which this house makes a third side, used to be heated, are also being removed, and hot water in iron pipes substituted for them; the whole being supplied from one of Garton and Jarvis's double-drum boilers. In the Orchidaceous house was a plant of Phalænopsis amabilis, which, by continually pinching off the flowers had been made to produce suckers on the flower stems, thus offering occasional means of increasing it. Along with it were also in flower Epidendrum cuspidatum, and Spathoglottis Fortuni, the latter remarkable for the length of time it keeps in bloom. Of the plants received a short time ago from Mr. Fortune, some of the Azaleas were setting for bloom; the red-flowered Anemone japonica, mentioned at p. 610, was throwing up abundance of flower-buds; Abelia rupestris, a dwarf greenhouse shrub, with a fine habit, from the Chamoo-hills, will also apparently soon flower, and, probably, a few others. In the hardy department was an East Indian Plumbago, with white flowers; excellent young plants of Cryptomeria japonica; a Silver Cedar, from Mont Atlas, resembling in its young state a Deodar quite new and, probably, hardy; and plants of the Shan Le, or Wild Apple of the Chinese, which appears to be a new and distinct variety of Cratægus. It comes from the north of China, and bears glossy, red, smooth fruit, not unlike that of the Siberian Crab. It is stated that the pulp is made into red translucent cakes, which are pleasantly tasted. The fruit is reputed medicinal by the Chinese in bowel complaints among children. A fine specimen of Paulownia imperialis, growing in the open border of the walk leading to the conservatory, has stood the severity of last winter uninjured. The wood is firm and short-jointed, the foliage tolerably small; and, in fact, the plant seems altogether perfectly acclimatised; a plant of the new Juniperus flaccida, sent from Mexico by Mr. Hartweg, about 6 feet in height, has also stood in the same border uninjured. We may mention in passing that the numerous experiments on electro-culture do not appear to have been productive of even the slightest effect. The Potatoes have suffered from the prevailing disease. Of fruit, several kinds of Apples and Pears are already in the fruit-room. Of the former, we, in particular, remarked the Early Harvest. This variety is nearly the size of a Hawthornden, and somewhat like it in appearance; but possesses a brisk rich flavour. The tree is a good bearer, and the fruit usually ripens about the 1st of August; but this season it was three weeks later. Wall-fruit appears to be good, and pretty abundant; but the crop of Apples and Pears on standards is deficient,—a circumstance probably arising from the coldness of the weather in the early part of the season.

Miscellaneous.

Important to Potato Growers.—My attention has been given to the disease which has shown itself so extensively amongst growing Potatoes. I find, in almost every instance, that the epidermis of the stalk, below the surface of the ground, is more or less in a state of decay often disintegrated, and completely rotten; the leaves and branches accord with the state of that part of the stalk below the ground. The tuber, beneath the outer skin, is first spotted brown (like a bruised Apple); these spots extend and penetrate towards the centre, quite changing the nature of the Potato. Those near the surface are most injured; in some cases the lowest on the root are not at all affected, while the upper ones are useless. I should therefore expect that the longer the crop remains in the land, the greater the injury will be. It seems, from the microscopic appearances, that the starch escapes injury for a long time after the skin and cellular parts are gone; and as the whole of the nutritive powers of the Potato reside in the starch, I should recommend that wherever the disease has shown itself to any extent, the crop should be dug whether ripe or not, and the starch extracted by the following simple process:—After washing the roots, let them be rasped fine and thrown into a large tub or other vessel, pour a considerable quantity of water, and well agitate and rub the pulp with the hands; all the starch or fecula will, from its great weight, fall to the bottom, while the skin and fibrous matter will be carried away by the water; wash the starch with one or two more waters, allowing it to fall after each washing; spread it upon cloths in a warm room to dry. In this way about 20 lbs. or 21 lbs. will be obtained from every 100 lbs. of Potatoes, and it contains as much nourishment as the original roots; it will keep any length of time, and might be used with flour to make bread, pies, pudding, &c., as well as farinaceous spoon-meat. This is much better than throwing away the diseased roots, and will furnish food for tens of thousands who might otherwise want it.—*William Herapath, in the Bristol Mercury.*

Bees.

Mr. Pillans' Beehive.—"An Old Apiarian," while noticing this hive, p. 595, says, "why not at once place the hive under a shade or cover?" This may be right, but at the same time it should be borne in mind that, when Mr. P. projected his hive, he also had another important object in view, namely, keeping damp from the bees. He observes, "who can possibly expect that bees should thrive well with a burning sun shining upon a thin wooden box, melting the honey as fast as the bees store it, and compelling the latter to leave it, and cluster on the outside?" This cannot rightly apply to Mr. P.'s hive, neither does it agree with the uproar that takes place in a hive when the combs happen to collapse, from the effects of a hot sun. It is not possible for bees to collect or store up honey, while a hive is in that state. Those that escape the wreck turn out, not to cluster, but to escape the drenching deluge of their own store. What are we to understand by "bees delight in the cool shade?" There has been plenty of that this season, and, perhaps, it is unnecessary to state the results. Bees glory in the sun while their hives are shielded from its rays, except about the doorways.—*W.*

Answers.—*X.*—A foreign writer mentions that "two hives of bees do not consume so much honey when together as when separate, on account of the warmth being greater;" and Dr. Playfair observes that "they have less occasion for consuming the honey, which is their fuel." This is contradicted by the fact that bees eat least during winter, when kept cool. I consider that, in order to reconcile this contradiction, more depends on the weight of the hives than on the real consumption of honey; for instance, if two hives were weighed first in autumn, and again in spring, the stronger would have lost less in weight than the other, especially if the season was advanced at the second weighing. Not that there had been less consumption of honey, but the greater increase of brood would make up for the diminution of the honey and pollen. In regard to Mr. Cotton removing his bees to winter-quarters behind a north wall, Mr. C. states, "I removed the hives to a shed which had a northern aspect; it was tolerably dry. I omitted to raise them to let the damp run out; I confined them with perforated tin, which is a bad plan. * *

Only two stocks got through, and the combs of those were in a bad state." Gelien complains of the same thing, and observes that "at the end of March, the bees were far less prosperous than those that were left out of doors;" forming a good lesson for those who prefer removing bees to winter-quarters.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Winter decoration, which forms so important a part of the gardener's duty, must engage at this season a share of his attention. Primula sinensis must be forwarded by frame protection, and the size of the pots increased; heat will not be necessary, but confinement in a frame will promote their growth and secure their early flowering. Successions of Mignonette for winter and spring use should be sown every three or four weeks. Protect it from the weather in a common frame, keep it near the glass and well thinned, leaving only six plants in a 5-inch pot. Roses of the tea-scented and Chinese kinds should also be placed under glass, and if requisite repot them, to promote immediate growth and early blooming. Pots of Violets should also be placed in cold frames near the glass, to secure a supply of them during winter. Pot Anne Boleyne, and other Pinks, that they may be thoroughly established before winter. Scarlet Verbenas should also be well established for the purpose of forcing, Well harden Heliotropes for winter flowering, and indeed attend to all similar plants which produce perfume and gaiety. No Calendar can teach gardening; rely, therefore, rather upon your own observation and industry to secure profusion and variety of bloom during winter and spring, for that is indeed a high attainment in the art.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES

Neapolitan Violets, which were parted and planted out in spring, should now be carefully taken up with good balls, and removed to a frame or pit for flowering during winter; the soil most suitable for them is well rotten turf, but if that cannot be procured, equal portions of leaf mould, sweepings of roads, and any light soil, will answer. Late planted beds, and plants turned out into borders, should now be occasionally watered; this should be done early in the morning, as the nights are now cold and frosty. Sweet Peas, Dahlias, and other plants requiring tying up, should now be attended to, before they are destroyed by wind; climbers on walls should again be pruned and nailed if they require it. Mow, sweep, and clean Grass lawns, hoe and rake borders during this fine weather, and destroy all weeds before rainy weather sets in. *Pits and Frames.*—Mignonette to come in in spring should be thinned and pricked out into other pots, kept close, and shaded for a few days. Cuttings of Pelargoniums should be occasionally looked over, picking off any leaves that exhibit a tendency to damp off. Continue to put in cuttings of new or scarce plants; a close frame without artificial heat will answer to keep them in at present.—*B.*

III.—FLORISTS' FLOWERS.

Carnation layers that are rooted may be taken off as directed last week, placing them in a close cold frame for a few days, in order to accelerate their again striking root. During dry weather, those that are not ready to remove from the parent stool must be regularly watered. I have found it a good plan to place a smooth flat pebble over each layer where it is inserted in the ground; this most assuredly hastens the emission of roots. Seed must be well looked after, the pods being carefully covered from the wet; caps of oiled paper will be found to afford the best protection. *Tulips.*—The amateur will now be arranging his bulbs for planting, removing those which did not please him last season, and replacing them with better strains or breaks. Some splendid new flowers have been broken and exhibited during the present year, notices of which will be shortly forthcoming. This is a good time to obtain fresh varieties, as surplus stock may often be bought cheap. The bed for the reception of the bulbs should be occasionally turned over, exposing it to the influence of the sun and air. If the bulbs have been grown in it two years together, it will be necessary to remove it, and substitute some decayed turf soil; this, when well rotten, grows them cleanest and finest. Continue to attend to Polyanthuses, Auriculas, Dahlias, &c., as directed last week.—*C.*

IV.—PINERIES, VINERIES, &c.

Fruiters.—Endeavour to make all progress possible in swelling your late or winter fruit, whilst the days are tolerably long, and abound in solar light; in order that no occasion for hurry in these matters may exist, when the dark days arrive. To this end keep up a very high and moist atmosphere on all dry and bright days, more especially in the afternoons, when towards 3 o'clock the thermometer may reach 95°. Attend to former directions concerning the maturing of the growth, as also to hardening the young stock in dung-pits by abundance of air, and a moderate use of water. Late Grapes should now be thoroughly coloured, if good keeping and high-flavoured fruit is expected; the ripening of the wood, too, a most important point, should be accomplished by solar warmth, rather than by artificial heat. It is not possible after this period to keep too dry an atmosphere for ripe Grapes, both as regards the wood and the fruit. Give considerable attention to late Cucumbers. Those who have not the advantage of a Cucumber-house (a thing which, before many years pass, will be considered indispensable in every respectable garden) would do well to make up a fresh bed at this season, or rather it should have been done a fortnight back; and healthy young plants, which have been stopped several times, should in this case be ridged out in fresh soil. If the bed is built on brush-wood, and can be made at first to carry a bottom-heat of 80°, it may he worked to advantage for two months by a common dung-lining. Plants layered in pots a month ago from the old stock, and very strong, are the best by far for this plan; they begin to fruit directly: and I may here apologise for not naming this point three weeks ago at least.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Gathering the various kinds of fruit as they become fit will be for some time the principal occupation in the fruit-garden. The skins of Apples and Pears should not be rubbed, for they are covered with a sort of bloom, although not so conspicuously as those of the Plum and Grape; yet it does exist, and should not be displaced, as it prevents moisture from soaking into the skin. The common varieties of Apples and Pears may be stored in heaps, and covered with kiln-dried straw; but the choice kinds of Pears should be carefully placed in close drawers, made of non-resinous wood. Peaches and Nectarines are generally packed for carriage much too loosely, for fear of bruising; the consequence is that they jostle against each other during the journey, each giving and receiving a thousand concussions, which may indeed be very slight, but ultimately the effects are too evident. Therefore, after packing these fruits, shake the box or basket, and observe if the whole appear as fixtures; if any do not, plug them more securely with cotton-wadding. *Kitchen Garden.*—Gather various productions for pickling. Sow Lettuces in frames. Earth up Celery. Prepare ground for Cabbages. Blanch Endive; there are various well-known modes of doing this: the Spanish method detailed in vol. ii, p. 452, may be referred to:—"The blanching is generally performed by pressing the heart of the plant gently down, on which a fragment of tile is laid; over this a light covering of earth is sifted. The fringed edges of the leaves are carefully freed from earth, and exposed to light, having small bits of tile laid over that portion of soil from whence they protrude, to render the blanching perfect, and produce what gardeners particularly pride themselves on, viz., a plant of Endive white all over, excepting the edges of the outer leaves, which should show about two inches of green."—*E.*

State of the Weather near London, for the week ending Sept. 11, 1846, as observed at the Horticultural Garden, Chiswick.

Sept.	Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 5	3	30.140	30.103	60	50	55.0	N.E.	.01
Sat. 6	4	30.149	30.131	63	48	55 5	N.E.	
Sun. 7	5	30.137	30.122	69	40	54.6	N.E.	
Mon. 8	6	30·115	30 098	71	37	54.0	N.E.	
Tues. 9	)	30·102	30.002	78	40	59.0	S.W.	
Wed. 10	8	30.085	29.971	70	53	61.5	N E.	.01
Thurs. 11	9	30.038	29 966	61	54	57.5	N.E.	
Average		30.109	30.056	67.4	44.6	56.0		.02

Sept. 5—Cold and overcast throughout
6—Drizzly, with uniform haze; dry air and fine; partially overcast
7—Heavy dew; cloudless and very fine; clear at night
8—Foggy; cloudless; bright sun and very fine: clear at night
9—Foggy; clearing; dry air and cloudless, with bright sun; clear
10—Foggy; hazy; uniformly overcast; dark clouds; slight drizzling rain at night
11—Overcast throughout; light clouds, and fine at night.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Sept. 20, 1846.

Sept.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 14	67.3	47.0	57.3	10	0.34 in.	1	1	5	2	2	3	5	—
Mon. 15	67.2	45.6	56.9	10	0.63	—	2	2	2	1	3	5	
Tues. 16	68.0	48.2	58·1	8	0.60	1	3	3	—	3	1	2	1
Wed. 17	69.0	48.1	58.6	8	0.50	1	1	2	2	2	5	4	2
Thur. 18	66.5	46 0	56.2	10	0.76	—	5	1	1	2	5	3	2
Fri. 19	67.0	46.9	56.9	9	0.60	3	2	3	—	4	4	1	2
Sat. 20	67.1	45.0	56.0	7	0.45	—	2	3	3	—	4	4	3

The highest temperature during the above period occurred on the 17th, 1843—therm 84°; and the lowest on the 17th, 1840—therm. 29°.

Notices to Correspondents.

To CORRESPONDENTS—An empty letter cover, torn to pieces, it having been made from tissue-paper! and bearing what appears to be the Feversham post-mark, has been sent us from the post-office. It contained nothing when it reached the post-office. It seems that 8*d.* had been paid for the postage.

CARNATION—*D B R*—The distinction between the Carnation and Picotee does not depend upon the nature of the edges of the petals, but in the distribution of the colour; in the Carnation it runs in stripes, from the edges of the petals where it is the broadest, down into the stalk of the petal, where it is lost. In the Picotee, the colour is confined to the edge of the petal, either in a fine narrow line or to about the 16th of an inch in width, which marks the distinction between the light-edged and heavy-edged flowers; the remainder of the petal should be quite free from colour. The Clove has the flower all of one colour. The Pink is a smaller flower, differing altogether in colour from the Carnation.*

CHAPMAN'S PLUM—*Woglog*—The Prince of Wales's Plum is certainly a new variety; it is like a very fine sort of EarlyOrleans, and appears from the specimens exhibited to be an immense bearer. You must not, however, compare such Plums with the Greengage.

COUNTRY SHOWS—*Mansfield*—Perhaps you will find the rules of the Hoddesden Society most suitable to your purpose. We feel sure that a letter addressed to C. B. Warner, Esq., at that place, will receive a reply. You should also consult our remarks upon such associations at p. 147. If, indeed, you will, or can, find exhibitors ready to show for "honour," and not for money, you will set an example worthy of all praise.

DACRYDIUM—*Maria Etrusca*—When this plant has lost its point it cannot again make it; but if it is in vigorous health, and in a good climate [is Florence damp enough?], a lateral may be trained up, so as to take the place of the leader, in about two years. This is the case with all the *flexible* kinds of Conifers.

DECAYING POTATOES—*C W M*—Potato starch is made by cleansing the tubers, grating or rasping them, and washing the pulp so produced in a sieve; the water as it runs through the sieve carries with it the starch, which settles to the bottom if the water is allowed to stand for a short time, in a tub or vat. The water having been poured off, fresh water is added, and the starch stirred up and again allowed to settle, after which the water is poured off, the starch set to drain, and finally dried. The sound parts of diseased Potatoes may be used for this purpose, but the starch must be well washed, and not suffered to remain longer than possible in the first liquid; and the slime or foul scum which collects at the top of the deposited starch must be carefully removed, otherwise the starch will be very liable to spoil. No more Potato pulp should be made than can be washed at once, and the pulp should be washed as soon as possible, because, if kept, it very soon begins to ferment and putrify.

FRUIT-TREES—*D M*—Clear off the Moss as much as possible, by scraping; wash the stems occasionally with lime-water, and dust the trees with quick-lime; prune them well in autumn to encourage fresh vigorous wood, and as they are from 15 to 25 years old, you may give the soil plenty of manure. You might, in autumn, remove the youngest trees, trench and manure the soil, and replant the trees to much advantage.‖

HEATING—*J S*—It is not because of the carbonic acid that is evolved, that Joyce's stoves require to be charged with very good charcoal, but because, when bad materials, such as coke, for example, or ill-burnt charcoal, are used, other gaseous matters are extricated. For some purposes this sort of stove is really useful, especially when it is merely desired to keep frost out of small pits or houses. A chafing dish of charcoal is altogether inadmissible: one of the advantages of a Joyce is, that it radiates heat in all directions, for which its form is well suited.——*Tolla*—We don't think wood the *best* material for tanks, and only name it occasionally, when circumstances prevent any other material being employed. Wooden tanks will give off some lateral heat, but not much, and must not be depended upon for that purpose. You may get hot air from brick and cement gutters, or troughs, but it will necessarily be *damp* air.

INSECTS—*C M*—The animal from the Potato is the Geophilus longicornis. I cannot well account for the Broccoli going blind—many of mine are the same; but I found the pupa of of a fly in the stalk of the leaf: may not that be the cause of the mischief? *R*——*E H*—Your letter arrived too late for an answer. Your plans appear to be good, but I can give no efficient advice without seeing a leaf or two with the insects you complain of. *R.*

MELON-SEEDS—*Falcon*—Thanks; your supply is abundant.

NAMES OF FRUITS—*A Constant Subscriber*—The Pear is most probably the Crassane, a shy bearer; the curved mode of training you propose, will be conducive to fruitfulness. Plums: 1, Gisborne's; 2, Sharp's Emperor; 3, Red Magnum Bonum; 4, which you have under the name of the London Plum, is an early sort of Damson; 5, Michaelmas Plum is a late Damson ‖

NAMES OF PLANTS—*J C L*—The Acroperas are all varieties of Loddigesii, and have not been distinguished by name; they seem to differ principally in colour.——*F R*—Catananche cærulea.——*T P*—Apparently a very bad specimen of Epidendrum odoratissimum.—— *Chepstow*—African Marigold.‡——*E B F*—Melilotus leucantha, called Bokhara Clover.——*M W*—Centaurea Calcitrapa.——*Z*—Cynoglossum glochidiatum, an annual; and Antirrhinum sempervirens. We are not acquainted with Campanula Barkerii.¶——*Mr. Plumbly*—Pinus apulcensis ¶——*E A H*—Podotheca gnaphalioides.¶——*G W*—Papaver hybridum. Don't think of relying on marks of colour. Chorispora stricta.——*J C L*—A nearly spotless state of the rare Stanhopea guttulata.

PEARS—*Hortensis*—Pears have been kept suspended by the stalks; but in close drawers the temperature is more steady. It would be worth making a comparative trial of both methods.‖

PENTSTEMON—*B H*—Your seedling, if tall, will make a handsome border variety; the shining foliage is handsome, and the red flowers with white throats will be very ornamental.*

POTATOES—We have been favoured with many more communications upon this subject, and we have again selected a few for publication. We are, however, compelled, by want of room, to omit all those which contain no fresh information, or which are merely *echoes of the opinions we have ourselves expressed* upon this subject.

POTTING—*Querist*—The practice of elevating the ball in potting plants merely consists in removing a plant from one pot to another, instead of placing the ball on a level with the surrounding soil—as is the common practice—to raise it up an inch or two above it, leaving a hollow space all round between the ball and the rim of the pot. The one-shift system means, instead of moving a plant out of a small pot into one only a size larger, to move it into a large pot at once—a pot large enough for the plant to attain its full size in. *R. R.*

PROTECTION—*Flower Fancier*—Under this head, at p. 580, you will find general directions for managing pits for this purpose. The principal thing is to prevent damp from below; and in order to effect this object a deep drain should be made round the pit to lay the inside high and dry. Then if sashes glazed with stout glass be employed, there will be no risk from the winter, unless the weather be very severe, when mats, or other protecting material, can be added. No doubt it was damp which caused the mischief you complain of.‡

PRUNING—*Hortensis*—If your Pear and Apple-trees, planted and not shortened last spring are sufficiently vigorous, you need not cut them back, except where additional branches are required. But if the buds are not well developed along the branch, you must shorten, otherwise you will have too much naked wood.‖

ROSES—*Chromatella*—None of the tea-scented sorts are perfectly hardy; they all require protection in winter. We should select Bougère, Comte de Paris, and Elise Sauvage. We fear your reproach is merited. There is great difficulty in the matter. We are *very* anxious, and if *you* would favour us with some hints they would be invaluable.

SCARLET GERANIUM—*A*—You will find Compactum one of the best for the purpose.*

THE ELM—We have measured leaves of Mr. Gill's new Elm; 10 ins. long, and 6 ins. wide. If the tree continues when old to bear such leaves, it will be a very remarkable variety. It belongs to the species called by botanists Ulmus montana, the Witch Elm.

WALLS—*Ignoramus*—Fruit-trees will bear against a wall not more than 6 ft. in height; but of course the accumulation of heat will not be so great as would be the case if the wall was higher. The coping of a fruit-wall ought not to project more than two inches.‖

WASPS—*Dorset*—We have lately inserted some receipts for wasp killing, because people are never satisfied till they have half-a-dozen ways of doing the same thing, but we really cannot spare any more room for the subject. Turpentine is an effectual destroyer, and what more *can* a man want? Sulphur and gunpowder, and such things, are quite inferior in their effects.

MISCELLANEOUS—*H S*—No doubt tea-scented Roses will be hardy enough to stand the winter in the south of Ireland, although they are tender in the neighbourhood of London.‡——*Perignarus*—We know nothing regarding the objects exhibited at the Newcastle Horticultural Meeting further than what was given at p. 610. The account was abridged from a Newcastle paper.‡——*A O T*—Camellias. For instance, the old double-white is not so long lived, and does not bloom so well on its own bottom as when grafted or inarched in the usual way.‡——*Tippo*—You have done right so far; but in a month hence you may shorten a few of the roots.‖

SEEDLING FLOWERS.

CALCEOLARIAS—*A Subscriber*—Your seedlings are very good varieties, very varied in their colour and marking, and generally they are flowers of good form.*——*W H H*—The specimen marked 23 is the best of its kind we have seen; bright brown ground, with deep velvety marking: it is a rich looking flower, and valuable in a collection. The dark self is also a good flower, those with yellow grounds, and deep crimson brown markings, are fine in colour, but not equal to the others in form, and they have also less novelty.*——*I W*—Neither of your seedlings are sufficiently large.——*Tweedside*—Your seedling wants a clearer ground colour.*

CARNATION—*J M L*—There are good qualities in your Rose Flake, but in the specimens sent there is a want of petals; if well filled, it would make a handsome flower.*

DAHLIAS—*J R*—Your seedling is imperfect in the centre, the petals open irregularly, and we do not consider it equal to specimens of its colour in cultivation.*——*C D*—No. 1 is a round flower of medium size, and of an agreeable primrose colour; it is too flat in front, but it will, we think, prove a useful second-class flower. No. 2 is a variety of good general form, having a finely-formed petal; colour, carmine rose; it is under the average size.*

FUCHSIAS—*W H H*—Your specimen is large and showy; but we consider it no improvement, having so many divisions in the corolla.*——*G N*—No. 20; this is a superior flower, stout, of a fine and glossy texture, bright carmine tube and sepals; the latter expanding well, exposing the corolla, which is of a purple maroon colour. 21, a bright and showy flower, but not superior to sorts already out.*——*Y Y*—No. 1, a pretty and elegant light variety, but not superior to flowers of its class now in cultivation.*——*A Constant Subscriber*—Your seedling named the Maid of Orleans is a large, stout, light variety, possessing less coarseness than is common with flowers of its size; the sepals expand well, and expose the corolla, which is crimson purple in colour; this is a very good variety: in the Lady of the Lake, the sepals are too large and too long for the size of the flower.*

PANSIES—*La Reine*—The colours of your flower are good, but the specimens were so dried up, that we can form no opinion as to its shape.*——*O*—Pansies require to be packed in something that retains moisture, as moss or blotting-paper; your blooms were quite curled up when we received them, we can say nothing as regards shape; colour and substance good.*——*J M*—Delicate and pretty in colour, but deficient in form and substance.*——*J L*—The colour of this variety is very good, but it appears rather deficient in the outline and wanting in substance. The bloom appears an imperfect one, as the three lower petals are well formed, and the deficiency in the outline is in the upper part of the flower.*——*J S J D*—Flowers similar to the Pansy, being composed of petals differing in form and marking, do not look well when double; we have seen specimens somewhat similar to the one sent, but not so perfect.*

PETUNIAS—*W H H*—Your seedlings are not equal to the varieties sent out by other florists; the veining is not so decided. No. 11 is a stout and good flower, and the best among the specimens sent.*——*K L*—Your flower appears to be a pretty veined variety, but it was too dried up for us to tell much about it.*——*B H*—The colour of your seedling is agreeable, but the form is very bad.*——*W G*—Your flowers did not arrive in good condition; what we could see of the dark varieties was favourable, the colour appeared of a superior order.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

NORTHAMPTONSHIRE FARMING AND GRAZING SOCIETY, 1845.

The Most Noble the MARQUIS OF EXETER, K.G., *President*.

THE TRIAL OF IMPLEMENTS will take place on WEDNESDAY, Sept. 24; the PLOUGHING and EXHIBITION of IMPLEMENTS, on THURSDAY, Sept. 25, at Rowell, near Kettering.

PLOUGHING OPEN TO ALL ENGLAND.

Class III.—To the Ploughman of any county, including Farmers' Sons, Farming Bailiffs, Agricultural Pupils, or Tenants who shall plough in the best manner with two horses abreast without a driver, half an acre of land not less than five inches deep, within 3½ hours. 10*l*. 10*s*. Persons intending to send teams to compete for the foregoing Prize must give notice to the Secretary on or before the 13th of September. The Teams must be on the ground before 7 o'clock in the morning.

IMPLEMENTS.

	£	*s*	*d*
To the Maker or Patentee of the best Plough (work and draught to be taken into consideration) a piece of plate value, or	5	5	0
To the Exhibitor of the best Turn-wrest Plough (to be tried) a piece of plate value, or	5	5	0
To the Maker or Patentee of any Implement or Machine applicable to husbandry (other than those above specified) which from its utility in saving labour or expense, simplicity or cheapness of construction, or other circumstances should be deemed by the Judges deserving of public notice, a piece of plate value, or	5	5	0

The Implements must be on the ground by 8 o'clock of the morning preceding the show, on which day the Trial will take place, and for which horses will be provided by the Society, if necessary.

Persons intending to exhibit for these Prizes must give notice to the Secretary on or before Saturday the 13th of September, and must state whether they wish their Implements to be tried.

H. B. WHITWORTH, Honorary Secretary, George Row, Northampton.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 13, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

THURSDAY, Sept. 17—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Sept. 15—W. Market, Yoxford | Sept. 17—Harleston
Sept. 16—Blofield and Walsham | Sept. 19—Halesworth

THE results of experiments in ELECTRO-CULTURE are by this time generally ascertained: our own and all others of which we have heard show that no influence is exerted on the growth of plants by an electro-conducting connexion between elevated and buried wires, arranged either as Dr. FORSTER has recommended, or according to other plans which have been tried. The word *electro-culture*, in fact, must, for the present, be considered a misnomer.

There has been no want of electric disturbance this season in the atmosphere—hail and thunderstorms have been more than usually frequent—and we are, therefore, bound to believe that the experiments which have been tried are conclusive upon the subject. Their results leave everybody at liberty, just as before, to form their own opinions as to the influence of atmospheric electricity on the growth of plants—they only determine our ignorance of any means by which this influence can be increased or controlled.

We understand that many hundred acres, in various parts of the kingdom, have this year been subjected to Dr. FORSTER's process. Has all this labour been lost?—that depends on the object of those who undertook it. Doubtless, some, believing in the evidence which previously existed on the subject, have speculated in electro-culture as a means of profit—*their* labour certainly has been useless, and they must now blame either their own carelessness in not having previously sufficiently examined that evidence, or their own credulity in reference to what we must consider the imperfect observations of others. But, wherever the subject has been tested by any one anxious merely to determine for himself the accuracy of Dr. FORSTER's theory, the expense and labour which have been incurred cannot be considered lost, for the object of their outlay has been attained. An intelligently-planned and carefully executed experiment, if its results be ascertained and recorded, cannot fail: it is simply a question asked of nature, and what the experimenter wants is—an answer: and thus the success of an experiment depends not upon the *character*, but upon the *obviousness* of its results. Now, the results of the experiments we allude to have been most unequivocal, and accordingly those who performed them ought to be perfectly satisfied.

The history of the excitement which has prevailed on this subject during the past year is very instructive: it strikingly exhibits the willingness of farmers to adopt the suggestions of scientific men—a willingness which greatly increases the responsibility of those who set themselves up as guides to agricultural improvement.

WHEAT IN EAST NORFOLK rarely follows any other crop than Clover. The most usual deviation is in the case of the failure of the Clover plant, which was very extensive last summer, when Peas or Tares are resorted to. Few Potatoes are grown in this county, even in the vicinity of the large towns. Wheat is occasionally sown instead of Barley after Turnips, but its very general failure last year after that crop will probably operate to check the increase of the practice.

Sowing takes place generally in the month of October. When, owing to the want of rain, it is difficult to plough the Clover layers with that even, shallow, and unbroken flag (furrow-slice or sward), which is considered desirable, it is sometimes later than this. The *ollands* (old lands or two-year old layers) are the first sown, and their preparation differs from those of only one year. They are first "*rice or wrest-baulked*," ribbed as it is sometimes called—a very thin furrow often less than 2 inches deep, and having a breadth of 12 inches, being turned completely over upon an equal space of unbroken ground. After lying some little time in this state the land is cross-harrowed. The design of the operation of baulking is the destruction of the Couch, with which the ollands are usually infested, and the formation of a crumb or small portion of fine mould, into which the roots of the young plants may strike, without, at the same time, the whole soil being reduced to too fine and broken a state; because it is considered that Wheat likes a firm bottom. As far as the attainment of the first object is concerned, the process of baulking must be regarded as a complete failure; we never examined a field in which the Wheat was coming up, and which had been baulked, without finding that but a small portion only of the Couch was actually destroyed, while a large portion (which had become sufficiently withered to appear dead) was beginning again to revive, and to renew its struggle with the farmer, with the advantage of increased numbers; the result of the baulking and harrowing having been, for every root of Couch that was killed, to make three or four out of every root that was left alive. A better plan for the propagation of a plant with a creeping root could not be devised, if it were valuable, and if it were desirable to keep the soil constantly stocked with it. The use of the cultivator or scarifier (see p. 193) would be preferable to that of the plough, under these circumstances; one turn of it on the light soils of Norfolk, and with the active habits of the Norfolk ploughmen, would cover five acres a day; and if two turns, one crossing the other, should be found necessary, more than two acres would be scarified in the same time. Or the Kentish broadshare might be used, and it might easily be made out of an old Norfolk plough, and this would broadshare two acres and a half in a day without leaving any ground unmoved. By either process the whole of the soil, to the depth of 2 inches, would be loosened, without any of it being turned over, and the cross-harrowing, which ought immediately to succeed, would bring the Couch bodily to the surface, without a particle of earth adhering. There it might be left to die, and in this state, if the weather continued hot and dry for a sufficient length of time, it *would* die, and might be turned under with the seed furrow. But the better because the safer plan, would be to gather it together with a horse-rake, and burn it or cart it off the land. The production of a crumb, without too much breaking of the ground, would be secured as well either by scarifying or broadsharing, as by baulking. The remainder of the operation of Wheat sowing on the ollands is the same as on the layers of one year which form the chief portion of the land sown with Wheat. The seed furrow, in each case, does not exceed 4 inches in depth, with a width of 12, and a rolling follows closely on the ploughing. On both descriptions of Clover-layer drilling and dibbling are indiscriminately used. None is sown broadcast. The drilling is performed with the well-known machine, and the drills are in the direction of the lands, contrary to the practice to which we have been accustomed of drilling across them, which obviates any inconvenience arising from irregularities in their size.

The most common distance between the drills is six inches; though some, who imagine their land not to have sufficient strength for that distance, sow as closely as four or five inches. A few have this year tried nine-inch intervals with such success that they mean to adopt that distance on the better portions of their farms, though they contend for the necessity of narrow intervals on the inferior soils. Wheat is rarely sown without receiving a light dressing of dung or a compost of marl or clay with dung, or of marl or clay alone. On the ollands this is given before the baulking; on the one-year layers, sometimes just before the seed furrow, sometimes as early as August, when it lies exposed for weeks to the effects of the atmosphere. Such treatment, where marl or clay are used alone, is beneficial; but where well-rotted animal manure forms part of the mixture, the practice of leaving it thus exposed cannot be too strongly reprehended. The quantity of seed usually drilled is ten pecks.

We publish this statement in the hope of exciting a discussion on some of the subjects that it touches upon. The policy of applying manure directly to grain crops—the propriety of endeavouring to preserve a firm subsoil on which to grow Wheat—the question what quantity of seed should be used per acre—all involved in the Norfolk practice, as regards the cultivation of Wheat, are well worthy the attention of our correspondents.—*E. W.*

APPEARANCE OF THE CROPS.

BY EDWARD JOSEPH LOWE, ESQ., HIGHFIELD HOUSE, NEAR LENTON, NOTTINGHAM.]

(*Continued from p. 599.*)

YORKSHIRE: *North Deighton, Wetherby.*—I omitted the Potato crop in the notice of central Yorkshire. It is uniformly good, no dry rot this season, and I am happy to say that I can find no symptoms of the newer, but not less destructive disorder, which we are informed is destroying the Potato produce of the south. The harvest has now begun.—*J. Hannam.*

LINCOLNSHIRE: *The Wolds.*—Wheats upon light soils are very much mildewed and broken down; but upon the heavy and Wheat lands I think the crop will be fair; but not an average in point of quality, as it was all thrown down by the rain early in the season. The Barley is a great crop of straw, and very badly down; the quality will be very bad. The Oat crop I consider good all over, excepting about the Wolds on Caistor-top. Turnips appear to have given over growing; in fact, the young and late sown Turnips never can grow into a crop, as the land is very much out of condition and backward. In the neighbourhood of Wakefield, too, the Turnip crop appears just the same. As regards the Bean crop, wherever I have been, it has appeared to me to be very good, as far as straw is concerned, although it is to be feared there will be a deficiency in the corn, the flowers having in many instances set very ill.

The Fens.—Harvest in the west fen has been going slowly on the last 10 days, and the report of the Wheat is very unfavourable, both as to quantity and also quality, which must be very various; and that observation will apply generally throughout the county. The east fen suffered very much by the ravages of the wireworm and the cold spring, which caused a great breadth to be ploughed up, and many acres that were allowed to stand make now a wretched appearance, and are ripening very slowly, and appear to be attacked with mildew. Altogether, from what I have seen, the Wheat cannot be an average crop in this county; the Barley is very various, though generally too much laid and "through-grown" to be a yielding crop; it must be coarse in quality, a deal having been down before it was in ear, from the wet weather, and now the young seeds having made their appearance in it, will make it very bad to harvest: we shall require much fine weather for it, and have had within these last few days a most agreeable change, with, I trust, a prospect of its continuing. The Oat crop generally is very good; new Oats selling to-day in Boston Market at 21*s*. per qr. (12 st. per bag). The hay crop was very abundant, but a most miserable season to get it, and very much damaged; the old hay was nearly all consumed; so that, although bad, yet on the whole we shall be better off than last season. People generally were more fortunate with their seed crops, which were generally secured before the very heavy rains. The Turnip crop must be very indifferent, although within these last few days much improved; yet, it is most difficult to find a piece growing in full vigour, they having about them many yellow and copper-coloured leaves; in some districts they look woefully. Cole generally in the fens partake of the Turnip appearance, and some pieces have given over growing altogether. Lean sheep have given way very much in value, from the unfavourable report of the Turnip crop; it is said they are very indifferent more north. There was one sample of new Wheat sold this day in Boston Market, which from its price, 40*s*. per quarter (16 stone per bag), you may judge to have been of only moderate quality. —*W. B. Wingate, Hareby, Bolinbroke.*——The merchants here to-day do not report favourably of the quality of the new Wheat; what they have seen (of course not much), is very inferior. Last year our Lincolnshire Wheats were remarkably fine, averaging over 18st. net. This year 17 st. will top them; if, indeed, they reach that—a matter of some doubt to my mind.—*Boston.*

CAERNARVONSHIRE: *Brynybria, near Conway* —The crops never looked better. Hay in general was good, though some which was late got in, suffered slightly from the wet. Wheat, Barley, Oats, and Potatoes, never looked more promising, but are sadly in want of better weather, which of late has been wet and stormy. A partial commencement of the harvest has taken place in some early places, and good reports are given of the grain; if the weather takes up I have no doubt we shall have a splendid and abundant harvest. Some districts complain slightly of mildew, and the corn being laid, but I do not hear that it has suffered to any great extent. Turnips do well everywhere here.—*J. Williams.*

SHROPSHIRE: *Whittington, near Oswestry.*—Crops of all agricultural produce have the appearance of great abundance. The late rains have injured the Wheat in places. The crops of hay have been most abundant, and well got in, but persons who cut their Grass late are now having it destroyed by the rains. Garden produce has been very late this year. We have had about 3 inches of rain since the 26th of July, and rain every day. Tuesday, the 5th, was the worst of all.—*C. A. A. Lloyd.*

WORCESTERSHIRE: *The Firs, near Bromsgrove.*—The hay crop, owing to the scarcity of keep in the spring pastures intended for mowing, were grazed late, which has retarded the hay, but the showery weather has nevertheless brought forward pretty good crops of Grass, about one-third of which remains to be cut; one-

third of it having been ricked, some in doubtful condition ; and the remaining one-third being out and seriously damaged by the present rainy season. Clover is a pretty general failure. Turnips very good. Potatoes look very luxuriant, and are generally expected to turn out well. The grain crops are good but very late, and much laid by the present heavy rains ; they are becoming of a dark and unpromising appearance. Harvest will not be generally commenced here under about two weeks.—*J. Fardon (Aug.)*

Warwickshire : *Birmingham Philosophical Institution.*—Several farmers have had large quantities of hay spoilt by the late rains, but that which was stacked early is very good. As regards Clover, Turnips, and Potatoes, there is every likelihood of an abundant produce. With respect to Wheat, Barley, and Oats, there never has been seen more promising crops, but it is feared much will be spoiled or else deteriorated by the long-continued wet weather. A report is abroad that in many instances the Wheat is attacked both by mildew and a peculiar kind of worm.—*J. Onion, Curator.*

Northampton : *Courteen Hall.*—Hay crop large in bulk, the early crop well got, the late crop nearly all more or less damaged. Clover crop nearly a failure from drought of last year. Turnips a full crop, but wanting dry weather. Mangold Wurzel very good. Potatoes good, but want warm weather. Wheat, on the strong lands, stood the winter well, and at one time bade fair for a very good crop, but from the wind and rain is much laid, and consequently a good deal blighted. The Wheat on the light lands lost plants in winter, but has tillered out to be a good crop ; the same remark will apply to that as to the other, but from being later, which is always the case with Wheat after losing plant and filling up in the spring, there is more danger from mildew and blight. I consider the Wheat crop to be in a precarious state. Oats a very heavy crop, but not much grown in this county. Beans heavy in the straw, but badly corned. Barley a very good crop, much laid, and the sample must be bad.—*W. Gray.*

Huntingdonshire : *Little Barford, St. Neots.*—There appears to have been an abundance of hay obtained, with less injury than one might have expected from the frequent showers all summer. Clovers are rather deficient. Turnips and Potatoes remarkably good ; but the Wheat, Barley, and Oats, may yet be considered doubtful. Wheats are thin on the ground, and assumed a very unfavourable appearance in the spring, after which they rallied fast and threw out a good bold head ; now again a variety of symptoms evince themselves, which will terminate favourably or otherwise as the state of the weather during the next month may happen to be.—*J. Arlington.*

Cambridge : *Observatory.*—Hay, generally speaking, good and got in well. Clover crops good, but some damaged by the rains before they could be taken in. Potatoes at present very good. Turnips in abundance ; we have had very favourable weather for them. Barley crops very heavy. Oats good. Wheat for the most part thin ; the farmers appear under great apprehensions that the Wheat will be mildewed.—*A. G. Berry.*

Gloucestershire : *Thornbury.* — The hay crop is heavy, and the bulk of it has been harvested well, but there has been a good deal of bad hay made. All root crops are looking extraordinarily well. The Potatoes cannot be surpassed. Many crops of Potatoes have been sold already at from 2*s.* to 2*s.* 6*d.* per sack of 2¼ cwt. at harvest time. Wheat crops look pretty well, but the late rains are rapidly injuring them. Wherever the straw is heavy, much of it has been long laid and injured. Barley crop promises well, and Oats are looking pretty fair. Harvest will not be general for two weeks yet.—*J. C. Morton.* [Since this was written the Potato-fields have become withered and black, and the tubers are rotting]. *Hanham.*—In a soil so varied as the county of Gloucester, and with systems of farming so opposite, it is not easy to give a general report of the crops, which would apply equally to the several localities ; but in a journey through the Gloucester Vale last week, a district principally pasture, I find the experience of many to be similar to my own, *i. e.* that the season is at least a month later than usual with regard to the maturity of Grass for mowing, as well as other crops ; that those who were fortunate enough to have their Grass earlier than their neighbours, and in a position to embrace the first fine weather, were fortunate, but they were few ; and that the crop of Grass, though not a heavy one, has been full an average ; but an unprecedented quantity, for this season of the year, now remains unsaved, and much of it materially injured. On my return over the Cotswold Hills, I find the Clover has been generally saved well, with full an average crop. Potatoes and Beans look remarkably promising, and the Turnips and Swedes, though occasionally patchy, and not quite so forward as they have been known at this season, yet promise on the whole to be a good crop. The Barley and Oats are generally heavy ; but with regard to Wheat, much doubt hangs over us as to whether it is not injured in the ear, and it is to be feared that unless a kind Providence sees fit to favour us with some genial sunshine, whether that which is not already injured or laid may not shortly become so. My impression is, that in the localities which I have visited, that although the straw looks ample, vigorous, and healthy, yet the ear is much smaller than that of last year, and although a much greater breadth of Wheat is sown this season than last, we shall not have such a bulk of grain on the whole, even supposing we should have favourable weather for ripening it from this time. My belief that a much greater breadth is sown to Wheat than usual arises from the knowledge that many farmers failed in raising their quantity of Swedes and Turnips last year, which, had they succeeded in, the land would now have been in Barley or Oats. Some fields failed of the Clover plant, which were afterwards also prepared for Wheat ; and I think no casual observer can ride in almost any direction without being struck with the fact that a much greater breadth than usual is sown to that grain.—*E. Burnell.*

Oxfordshire : *Henley-on-Thames.* — The Wheat crops on the Chiltern-hills are generally good, although in places thinner on the ground than last year ; the straw is losing its blighted black appearance, and assuming its proper golden colour, and will prove an average crop. The Barley is most abundant on the ground, ripe, and fit for cutting. Oats also an abundant crop. Beans, not many grown here. The Turnip crop generally good ; I never saw the Swedes looking better. The Potato crop will now be abundant and productive. The Clover crops are rather defective from loss of plants, from last year's drought. The early crops of Grass were abundant and well-housed ; the late crops have suffered much from the cold and wet of July. Generally speaking, the crops have suffered less from the last 14 days' rain and showers than could have been expected.—*T. W. Jeston.*

Buckinghamshire : *St. Mary's College, High Wycombe.*—Hay crop very good ; much of it injured by the wet. Clover crop very bad, as there was not a plant. Turnip crops generally very good ; requires dry, warm weather for a good growth. Wheat crops, on the strong lands, generally very good, but thin on the light lands. Barley crops very good on all kinds of land ; but where the crops are large, it is much laid by the wet. Oat crops good, and not so much laid as the Barley.—*J. G. Tatem.*——*Stone Observatory.*—The greater portion of the hay was got in well, though amidst showery weather ; the crops were almost invariably good. Wheat crops are barely an average ; and mildew appears rather seriously. Oats and Barley are in good quantity and condition at present ; they, however, are late in ripening, from the want of warm winds and sun. The second crops of Grass look well, and if the weather brightens, will prove a better crop than the first of last year.—*J. Glaisher.*

Monmouthshire : *Pilston, near Chepstow.*—All clay-land Wheats promised an enormous crop up to the middle of July ; since then, both those which were early and late sown have been much blighted ; sandy-land Wheats are not so good ; but upon the whole, we may yet expect an average crop. The present appearance of the Barley and Oat lands promise a great crop. All green crops look well. Many hay crops have been good, but not great, and a good deal has been spoiled. —*R. W. Purchas.*

Norfolk and Suffolk : *Redenhall.*—The crops in East Norfolk and Suffolk are extremely variable—as much so, indeed, as is the farming. In fact, the means and talent of the producer have a great deal to do with the amount of the produce, and these are two qualities of which, however much our yeomanry may be possessed of them, they are apparently unwilling to give exhibition. It is, however, evident that great variety in the Wheat crop does exist, and although this season, on well manured and well cultivated soils, those which have hitherto been considered profitable Wheat growing lands, the crop is not so abundant as it was last year by 6 or 8 bushels per acre, yet when beef and mutton are abundantly produced by the use of oilcake and other artificial food, crops are very strikingly augmented yearly, and in this part of the country a difference of from 30 to 50 per cent is visible, and it is obvious that where the large farmer has security from his landlord extra production will suffice to meet a lower price, but where the occupations are small, scarcely any lease or security is either sought or offered; and, in the absence of these, what degree of disinterestedness can we attribute to those who, at our Agricultural Meetings, harp upon the cry, "Improvement of the art by the aid of science," "Spare no expence in the production of your crop." I have now a Russian gentleman with me, of much intelligence, travelling for agricultural information, and I was pleased with his rational inquiry, why I made so much beef and mutton? for in that lies the essence of success in farming. I told him I lived under an excellent country squire, whose estate was *his own*, and whose opinion was that those were the best tenantry who showed the value they set on their own resources by developing them to the utmost in the growth of large crops for *their own* profit ; for, in so doing, not only their own interests, but those of their landowner were served—his estate was benefited. I intended this to have been an agricultural report : I must describe the state of the crops. Barley is a greater crop than last year, but the lateness of the season, and the vigorous growth of the young Clover, will greatly affect the quality, and when it is lodged early, cutting will be necessary, though a ripe kernel is advisable for the maltster. Oats are but little grown in these counties. The Bean crop is like the Wheat, extremely variable, but I think it is an average crop, and a greater breadth is sown; for as tenants may not sell hay, the Bean crop is more agreeable to their pockets. Would it not be better for owners of land to exchange all sorts of produce for oilcake or other artificial food : for a tenant at will, though hindered by prudence from *purchasing* linseed, would gladly do this, for he would then have security for his outlay, and thus produce fat in lieu of lean meat, and the owner would ultimately be a gainer by the improvement of his property. Peas are well podded, but the wet weather has much diminished their quantity. Turnips on cold land do not look promising, but on kind soils they are good. Mangold Wurzel is good. Clovers, with understanding-clover farmers, are good.—*John Gedney.*

Essex : *Harding Bower.*—Hay crop, about an average ; mostly well got. Clover less than an average; second crop not looking favourably. Turnips, good plants and growing well. Wheat an average crop, and would have been much better but for the weather ; the heads have not filled up so well in the middles, and there are some blighted in this neighbourhood. Barley but little grown on the London clays ; they are above an average by a quarter to the acre. Oats, very various ; some excellent, and others most deficient. Peas, in places, never better, and in other places ruined by blight. Beans, above an average. (These observations refer to the south-west portion of Essex.)—*C. Wells.* ——*Dunmow Agricultural Society, Great Dunmow.*—The hay crop here has been one of the largest for some years. Clover, capital. Turnip plants, too, very good, there being no complaint anywhere in this district. There is doubtless some defect in the set of Wheat, particularly white Wheat ; but still there is a prospect of an average crop. Barley shows for an abundant crop ; and Oats are also good.—*A. Barfield.* —— *Saffron Walden.* — The spring crops are excellent : Barley abundant ; Oats generally good ; and Turnips very fine. Hay is an abundant crop, better than has been seen for years ; but in many cases it is badly got up, from the weather being unpropitious. Wheat is generally good, but in some places badly set, and liable to red gum and blight, from continued moisture and want of sun. Clover and after-feed, from the same causes, will be abundant, but the getting up of small seeds has been precarious. The harvest in this neighbourhood is a full fortnight later than usual.—*T. Spurgin.*

Berkshire : *Kingston-inn, near Abingdon.*—There has been a great crop of Grass everywhere ; and on the earlier and higher land the hay has generally been well got in, but on the low meadows, near the Thames, much of it must be partially injured. Some of the Clover-fields were so much injured by frost, that they were broken up, and planted with Beans ; where frost did not injure, the Clovers, like the meadows, are very abundant. Swedes and other varieties of Turnips, Beet, and most other root crops, are very promising. Wheat is a heavy crop, long eared, and stands well up ; the same may be said of Barley, which is everywhere a heavy crop, but some of it lodged by thunder showers. Oats are little cultivated here ; the principal variety is the Tartar Oat ; it is a heavy crop, but quite green. Peas are a good crop ; mostly lying on the ground, cut and damaged by wet. Beans seem free from fly, and look well. All these crops will be nearly a month later than last year. The mean temperature of July was about 60° ; the rain 3·6 inches, which fell on 23 days ; and cloudy throughout. And, since August began, "the rain, it raineth every day." (This report is for the district from Abingdon to Farringdon.)—*A. Murdoch.*

Middlesex : 62, *Beresford-street, Walworth.*—Notwithstanding there has been rain in July on 21 days, yet the quantity fallen has only been 2·07 inches, or nearly 1 inch below the average, so that the crops in the Middlesex and Surrey districts have received less damage than in many other counties. In Surrey the hay has been a good average crop, and well got in ; and the Clover in some places was very heavy, and housed without damage. The Turnips, from constant showers, look well. The after-math is very plentiful, and, in the Clover grounds, luxuriant. Wheat looks exceedingly well, and, from the few heavy rains, very little is beaten down ; some of the ears are four or five grains deficient, owing to the heavy rains during the blooming season. Barley promises a good crop ; and Oats, although nearly a fortnight later than usual, will not be deficient either in grain or straw.—*W. H. White.*

Kent : *Sandwich.*—Hay crops generally good, although the produce has been somewhat injured by the frequent occurrence of rain incidental to the harvesting. Clover, exceedingly good, but not well harvested in general, owing to rains. Sainfoin abundant ; early crops got up well, the late suffered from rains. Turnips remarkably fine. Potato crop deficient, and suffering from a remarkable endemic disease, causing the tubers to rot.—I will add my own opinion that this disease originates in a peculiar mouldiness or minute vegetable fungus, which has generated in the soil. Wheat promises about an average crop. Blight is by no means prevalent. Barley, pretty near an average crop, in quantity and quality. Oats good, as reported in all quarters of the county. Beans look well, but by some the crop is not expected to be great ; I consider that they may be regarded as quite equal to the average produce. Peas exceedingly good and abundant ; locally they are somewhat injured by the attacks of "dolphin." —*W. H. Weeks.*——*Wingham.*—The crop of Wheat is not more than ¾ of an average, full four sacks deficient of last year's crop ; but then the crop of Wheat of 1844 was much more than an average crop ; there is not only a very great deficiency in the ears, but a vast many, in some fields one-third dead ears, what we call here the "white blight." We are not withal yet clear of the mildew ; I have known it, and only a few years since, have an extraordinary effect, just on the ear, and at the commencement of harvest, and when it was not possible to reap it in time to save it ; this may occur this year. On a close examination of the ears, instead of four sets, in most cases there are

only two. My brother, who is a large farmer in Essex, says, Wheat is sadly deficient in that county. The hay crop never was greater, but it has been stacked mostly in a bad state. Clovers are mostly spoiled. Turnips are exceedingly good. Potatoes are nearly a failure; the tops are all either dead or dying, and the Potatoes are rotten, hundreds of acres will not pay for digging up: this is a new disease. My Barley is good, but it is not generally about here; the Barley tilths are bad. This is not an Oat country. Peas are a great crop, with the exception of some of the late sown ones, which have suffered by the louse. Beans are likely to be a heavy crop, the louse has attacked many fields, but there is a remedy for this by cutting off those tops which are found attacked by them. I do not think there is any deficiency in any corn crop but Wheat. Turnip-seed is nearly a failure. The second Clover crop appears to me blighted.—*R. Matson.*

Sussex: *Parham.*—The hay crop is a pretty abundant one, but the late rain has much retarded its being carted in good condition. The young Clover and Grasses are looking very healthy; the late rains have kept them growing. Turnips are a good crop; the wireworm has been very destructive, in many instances the land has been sown two or three times without success. The Wheats on good soils have been much lodged, consequently will be much short of an average crop; on inferior soils it looks much brighter in the straw, and much freer from mildew. Barley and Oats, indeed all late sown corn, look well, and if we have a favourable harvest, I hope the Wheat will yield better than is anticipated.—*J. Morton.*——*Folkington.*—The hay crop is very bulky, but the quality must be bad, as we had scarcely two fine days together during the hay harvest. Clover is a partial crop, the long drought of last summer left the plants in a weakly state, so that many were unable to stand the winter, consequently hundreds of acres were ploughed up and sown to corn. Turnips are a partial crop, the wireworm being very prevalent, many are ploughed up, and the land sown to Rape. Lucerne, in many places, is much affected by blight, which I fear will injure the crop to a great extent. Wheat is very heavy in straw, and on our best Wheat lands the crop is much laid and greatly affected by mildew on light land, such as Clover leas, &c.; the wireworm has committed great ravages. We also find that the best crops are very deficient in the ear, the number of corns or grains are by no means large, and in many places the rust or red gum is showing itself to some extent, and as a backward harvest is seldom found to be a good yield in Wheat, our prospects for an average crop are faint. Barley is an unusually heavy crop, but in many places too much straw for the maltster. Oats are also an abundant crop in most places. Peas, such as were sown early, are a good crop, but those which were sown backward, and the white boilers, are consequently destroyed by an insect called the "dolphin." Beans have an abundance of haulm, which is not so thickly set as at some seasons, but the crop must be a very good average.—*J. Shoosmith.*

Hampshire: *Limehouse.*—The Wheat, in consequence, I believe, of the stormy weather during the blooming season proves deficient; and I hear this is also the case in Berkshire, and it is said will reduce the anticipated crop as much as a sack per acre. Our district may be said to be forward, although the fields are going off to maturity, unequal in colour and quality. Our Oats and Barley are almost as variable as the fields they grow in, and the samples will prove equally so as to colour and quality, but I think will be quite an average. The earliest sown is invariably the best. Beans and Peas an average, but many forward Peas spoiled by the long-continued showery weather. Winter Beans, where they stood the spring frost, a good crop. The most forward sown Turnips and Swedes are the best this year. The wireworm grub and earwig (Forficula auricularia) are attacking the latter most annoyingly, and in most instances they have been ploughed up and the land resown, but where the land has not been highly manured and cultivated they will even then prove failures. Bones and sulphuric acid of every strength have been tried very extensively, and I have not heard of its disappointing any one. The most approved mixture appears to be a sack of bone per acre, dissolved, and a sufficient quantity of ashes to make it drill.—*J. W. Clarke.*——*Southampton.*—The crop of pasture hay may be considered as abundant, though not equal in quantity to that of 1843. Clover has been an unequal crop, in some places being very abundant, but in most instances deficient. The latter may be attributed to the remarkable dry weather of last year throughout the sowing season. The crop of Sainfoin, on the chalk hills, is very good. The greater part of the Clovers and Sainfoins was stacked before the rain, but a small portion has been injured in the field, and a large portion in ricks before they were thatched. A considerable quantity of meadow hay has been injured by the wet weather, and salt has been greatly in requisition in rendering damaged hay palatable. The Wheat at one time exhibited throughout the county the promise of great abundance, and notwithstanding the ravages of the wireworm in the spring, a bad field of Wheat formed the exception to the rule. The long continuance of cold, ungenial, and cloudy weather, has had a more injurious effect on this crop than on any other. Blight is greatly complained of. In places the corn is sadly beaten down, and in others an unhealthy appearance is exhibited, and the great absence of sun throughout the month of July must unquestionably have a considerable effect upon the quantity and quality of the grain. The Barley crop which was put into the ground under, perhaps, the most favourable circumstances ever remembered, is remarkably thick on the ground, but is considerably beaten down by the weather, even more so than Wheat; and though the quantity no doubt will still be large, we opine that inferior samples will predominate. Oats are likely to be a good crop, and Peas and Beans abundant crops, except in those instances where the latter were planted in the mild weather of January, and previous to the severe frosts of February and March. Straw of all descriptions will be abundant. Tares have proved an inferior crop, having suffered greatly from the severity of the winter, and the consequently unusual ravages of hares, rabbits, &c. To those causes also may be attributed the remarkable abundance and luxuriance of weeds of all descriptions. The Turnip crop, on the whole, promises well; the season has been favourable to the effect of land tillage and artificial manure. On travelling, however, through a part of the chalky districts of this county, a few days since, I was somewhat surprised to find that in some instances the Turnip-crop had failed, and in others proved scanty and patchy. Harvest will, unquestionably, be very late, and in many instances Barley will take the precedence of Wheat.—*W. C. Spooner.*

Dorsetshire: *West Bucknowle, Corfe Castle.*—The Clover crop has been deficient; meadow hay very abundant, and the herbage good; some has been damaged by the wet and damp weather, but much is gone into stalk in good condition. Wheat has plenty of straw, but it has been injured by the high winds and damp and misty atmosphere; for some time past the ear is not well-filled, and a good yield is not expected, particularly on the high lands; we have none yet cut, and the harvest will not be general for two or three weeks at many places. Barley and Oats are very good; Peas have the appearance of a deficient produce. Potatoes, Turnips, and Mangold Wurzel very good; Grass and all keep in great abundance; and all sorts of stock fetch a high price.—*W. Voss.*

Somersetshire: *Beckinton, near Bath.*—According to my own observations, and the inquiries which I have made in this immediate neighbourhood, with regard to the Wheat, the ear is, perhaps, not so full as in a year of plenty, but there is little blight, and ample straw. Barley and Oat crops decidedly good; Turnips never better. With respect to the hay, there has been some made very good, but for the most part it is indifferent; the crop has been abundant. On the whole, we may hope for more than an average harvest. This is the 11th of August, and already 2·14 inches of rain has fallen.—*C. Blathwaite.*

Devonshire: *Plymouth.*—The Wheat crop about an average; it would have been large, but the grains in many parts are likely to be light. The crop of Barley is very fine, considerably above an average; Oats are also reported as very fine; Turnips are looking well, but it is rather early to say much about them. With regard to hay, it is a little above an average, but a good deal has not been well saved, from the recently very unsettled state of the weather. No rain has fallen here since the 10th.—*R. Bishop.*——*Chagford.—Hay:* This crop was generally a heavy one, and that portion (Clover &c.) which was cut early was saved in fair condition, but a large portion of the crop, consisting of meadow Grass, the almost incessant rain of July and the beginning of this month has very seriously injured; we had fine weather last week, which gave farmers an opportunity of getting it all in, though much of it was scarcely worth saving. *Clover and After-Grass.*—This is now abundant, and indeed the grazing ground throughout the season has been full of Grass, though from the lengthened time required for feeding bullocks, it does not appear to have been so fattening as the lighter crops of last year. No doubt the wet weather has tended in some degree to keep back cattle. Of *Wheat* it is difficult to form a correct opinion, but I think on the whole we may set it down here to be an average crop; the burthens are certainly heavy, but the samples will not at all equal those of last year. *Barley* is considerably in advance of the Wheat crop in ripening, and it is generally thought will be a most abundant yield, though the colour may be somewhat impaired by the rains. *Oats* look well, and will be, I think, a good average; it is generally backward. We had very fine weather for preparing the land and getting in the Swedes, and the crops of Turnips generally are looking quite as well as we could possibly expect after such wet and cold weather; they are regular in the ground, and the fly has done no damage since the very earliest sowing of Swedes, when some few fields were destroyed, but quite in time for a second sowing, which has been successful. *Potatoes.*—This most valuable crop is very irregular in quality, though on the whole I believe the late Reds are pretty good in appearance; all the early sorts and pigs' Potatoes fail in all this district, to an alarming extent. I hear very general complaints of the early Potatoes being found on cutting them to be (what is called here) dead; that is, they look perfect outside, but have a sort of dry rot in the inside; the stalks also in almost every field are here and there looking as though they were dying away, the leaves being quite withered. The curl also is prevalent. The early crops on some farms have entirely failed from these causes.—*Richard L. Berry.*

Cornwall: *Kilkhampton, near Stratton.*—My own personal observations extend to about 20 miles north, and 20 miles south of the west and east. The straw crop is almost, without an exception, very heavy. Barley and Oats promise a remarkably good yield of corn as well as of straw. Of the Wheat, I confess I have my doubts; the very chilly wet weather of which we had a considerable degree from the time of the Wheat coming into blossom to the present day, accompanied frequently with heavy gales of wind, has proved, I fear, somewhat injurious to that grain; the top part of the ear, generally speaking, has been much beaten about, and is consequently deficient, so that there can be little doubt that the yield will be bad compared with last years' crop; but yet the heavy burden of straw may in some measure, compensate for that injury. The Oats I consider, generally, as heavy a crop as any we have had for many years, both as to straw and corn, yet the great drain there has been for some months past upon the stock of Oats in hand, owing to the deficiency in last year's crop must render that stock very small, and therefore I do not anticipate so great a reduction in the price of that grain as some may do, even if the present crop be well saved. There is a very fine plant of Clover in those straw crops (Barley and Oats) where seeds were sown, and which the rainy weather has caused to grow of late very luxuriantly, in some cases to nearly half the height of the straw or more; there will, therefore, be some difficulty, and a length of time required, in getting such crops, so late in the season, in a proper state to mow. The Oat harvest in the great Oat district (the Moors) will scarcely commence till the beginning of September. Barley, from the nature of the soil on which it is generally grown, will be cut earlier. The hay harvest has been a very catching one; I think I may venture to say that in this neighbourhood not more than one-third of the crop has been saved prime, though a great deal has been put together in middling condition. The crops of Clover and Grass were good, though some complaints were made that the bottom Grass in the meadows was not so thick as in some years. Grass is now very abundant everywhere; before Midsummer, the farmers on dry soils felt a want of Grass, owing to their having been obliged from the want of keep in the spring to eat it as fast as it came. The green crops, Turnips and Mangold Wurzel, are very promising. In some cases the Swedes may be too much so, for if wet weather continue, they are so advanced that mildew may probably ensue.—*John Davis.*

[The greater portion of these observations were written about the middle of August.]

ON THE MANUFACTURE OF DRAINING-TILES.

(*Continued from p.* 615.)

In the few estimates I have made in this lecture, I have founded them upon a supposition that the drainage was executed at 8 yards apart. I must guard myself against having it supposed that I consider that the distance to be adopted in all cases. It is hardly practicable to lay down a rule on that head applicable to all soils and situations. There is, however, much justness in an observation somewhere made by Mr. Smith, of Deanston, that from 18 to 25 feet from drain to drain will be found a good practical distance. The depth of the drain should never be less than 3 feet, and there are those who affirm confidently that 4 feet is far better than 3.

I am fully convinced that a great majority of drainers are cutting their drains much too shallow. I advise men who have any doubt upon the subject, and who consider 20 or 24 inches sufficient, to try in the same field depths of 2 feet, 3 feet, and 4 feet, and to leave their mains open, and to observe the working of the different drains, and their effect upon the condition of the land.

Connected with this branch of the subject is the important matter of refilling the drains. When Mr. Smith, of Deanston, first propounded his views on draining and subsoiling to the public, he advised that the drains should be 30 inches deep, and should be filled 12 to 14 inches with stone, and with materials as porous as it was practicable to obtain. From the results of an enlarged experience, and with a candour which does him credit, Mr. Smith has recalled this opinion, and now admits that they involved an unnecessary expense, and that better cannot be done than to throw in over the pipes, or tiles, or stones the very clay that is brought out by the cutting of the drains. It may be necessary to explain the manner in which the water finds its way to the pipe or tile laid in a drain filled up with clay. If we cut a drain in a soil with a subsoil however clayey, however stiff, and throw in again the clay brought out, it is obvious that no junction takes place between the side of the drain and the soil which has been replaced in that drain. To effect a perfect junction a very troublesome and costly operation of puddling would be necessary. The water that falls upon the surface descends, where the subsoil is impervious, through the upper soil, until it meets with the impervious clay or subsoil beneath it. It then percolates to the drain, and finds its way to the pipes or tiles down the fissures made by the imperfect junction of the sides of the drain and the clay thrown back in the process of refilling the drain; when, however, a permeable soil rests on sand or gravel, the surface water filtrates thither, and reaches the pipes or tiles, for the most part, from the bottom of the drains. The drier the land becomes, by the action of the drains, the more those fissures open in the manner we constantly see effected by the contraction of, and by the fissures made in, clayey soils by evaporation in dry summers. This contraction of soils by drying is often lost sight of in the operation of filling in the drains, especially in Grass lands. I doubt not most gentlemen present have noticed where Grass fields have been drained there has often been a subsidence of the soil thrown

back into the drain, and a somewhat unsightly shallow gutter thereby produced. That arises partly from the occupier being in too great haste to spread the soil lying on the tops of the drains, and from the consolidation and contraction the soil in the drain undergoes in the process of drying. Hence it should be observed that all the soil brought out of a drain is required to refill that drain, even where a moderately-sized pipe has been buried in it; and that in Grass lands especially no part of the soil should be spread. I have no hesitation in saying that this information as to refilling with the clay or other soils brought out of the drains will save 5*l.* or 6*l.* per acre to many a drainer of the old school. I have repeatedly seen men wasting more than that sum per acre in raising and breaking stones, and carting and plunging over their wet lands with them to get them to their drains, and then filling them in. The draining of many an acre of land has thus been made to cost 10*l.* or 12*l.* where 3*l.* or 4*l.* would now, upon the plans of recent adoption, effect the object equally well.

I see that at a meeting of the Durham Farmers' Club, a few weeks ago, the subject of draining was discussed; and many of the farmers of that county (as elsewhere) are still imposing upon themselves the unnecessary expense of carting "refuse coke and small coals" to maintain the porosity of their drains, and that they are "keeping all the clay out of the drains," to be spread over, and to be intermixed with, and to deteriorate, the lands so drained. The cost of draining 28 inches deep is there from 6*l.* to 8*l.* per acre.

As regards the laying out of drains, some drainers contend for the propriety of running the drains across the slopes of the land; others of running them down the slopes. I believe that either plan will drain the land, but that the drains down the slopes will effect it soonest. Where, however, it is intended to subsoil, or where possibly a disposition to subsoil may thereafter arise, it is most undoubtedly the best plan to run the drains down the slopes, if the drains be, say, 8 yards apart, the water has then only 4 yards to percolate to reach the drain. In the other case it has often to travel nearly the whole distance of 8 yards from drain to drain.

On the subject of subsoiling I wish to speak with diffidence. I have not seen any instance of an experiment in any field fairly tried, which was calculated to show how much the field had been benefited by the draining, and how much by the draining and subsoiling combined. I have not done much in the way of subsoiling myself. I have lain by to see how it answered in the hands of others. I have noticed attentively some fields of clay-bottomed soils on the estates of the Hon. R. H. Clive, in Worcestershire and Warwickshire, which were drained and subsoiled a few years ago with great care, and the beneficial effects have been in the highest degree questionable. Indeed, I think I may say that the opinions of some of the tenants are that not only has no benefit been induced, but rather an injury. That is certainly the opinion entertained in the case of a 20 acres field held by Mr. Wharford, of ———, near Alvechurch. Some of the land on the Cofton farm, held by Mr. John Penn, has been drained and subsoiled. No perceptible advantage resulted from the subsoiling. Both those gentlemen are exceedingly good farmers, and free from all prejudice against subsoiling. The lands in question were drained 2½ feet deep, at a distance of from 7 yards to 8 yards—those on Mr. Wharford's farm being filled in over the tiles laid on soles, with cinders and gravel, at considerable expense. The clay was thrown out, intermixed with, and worked with, the soil. The subsoiling was executed with the utmost care.

The 20 acres field before mentioned has received the very best and most generous treatment during the six or seven years which have elapsed since the subsoiling; and it is doubtful to this hour whether any, the least, improvement in it is perceptible. Moreover, Mr. Wharford and Mr. Penn alike noticed that the grain does not ripen so early on the subsoiled pieces as on those adjoining which have not been subsoiled; and Mr. Wharford is of opinion that the water does not percolate to the drains so freely in this 20 acres field, and the land is not after heavy rains so speedily restored to condition for working, as in the adjoining fields not subsoiled.

I have no explanation or theory to offer for these facts. If I were to hazard any conjecture upon the failure of this subsoiling (Mr. Wharford's more particularly)—if I were to hazard a conjecture on the causes of the questionable improvement of the soil and the lateness of the ripening of the crops, it would be that the many tons per acre of clay which were thrown out of those drains and worked into the soil were of themselves calculated materially to damage a soil already too stiff and clayey. I deem it, too, not improbable that in such a subsoil the drains at 7 or 8 yards apart are too distant for free and ready filtration after subsoiling, and that the subsoil becoming, by the operation of the subsoil ploughing, a depository for the water, a redundancy of water rests there until carried off by evaporation, the water in the meantime obstructing the absorption of heat—in other words "starving the land."

On the subject of draining it should further be stated that there are situations in which surface draining three or four feet deep alone will not lay the land sound and dry. In such cases the application of Elkington's system of tapping the springs by deep cuttings or borings should be resorted to. This system of draining requires infinitely more experience and judgment than that of mere surface draining. There is at this time on Gouldsborough Moor, not far either from Harrowgate or Knaresborough, in Yorkshire, on the estate of the Earl of Harewood, perhaps one of the best exemplifications of this system to be met with in England. The Moor, properly so called, consists of some 250 acres, lying very flat and level, composed of a deep alluvial soil, which in its wet condition appears as impervious as a clay; but when dry is absorbent and permeable. There are perhaps 250 acres more affected by the drainage. Numerous attempts have from time to time been made to lay the Moor dry, but without success, until about two years ago, when a line of boreholes was put down at the bottom of long and deep cuttings. The water rushes up with astonishing force from a porous stratum from depths of from 15 to 20 feet, and the bore-holes discharge along the mains which have been cut a quantity of water equal to that of a not inconsiderable river. The pressure and force of the water have enlarged many of the bore-holes five or six feet in diameter. The springs and bogs have been laid totally dry. When I saw the drainage about 12 months ago, I doubted whether surface drainage to some extent would not be required. I am however told by parties who have seen it more recently, that from all present appearances the surface waters will percolate downwards with perfect freedom beyond the reach of vegetation, and that the probability is surface draining will not be required. It may certainly be worth while to delay surface draining for a time; a short period will test the efficacy of the present excellent drainage.

(To be continued.)

Home Correspondence.

Employment of Capital in Farming.—Labour being so abundant, the apathy and indifference of agriculturists in gathering in their abundant crops bears me out in condemning the system of large farms with small capitals. It is impossible to attribute the apparent negligence of tenants to any other cause. Providence has been most bountiful in clothing our fields with the richest treasures, the earth positively groans with the weight of a propitious season, the Wheat stands erect in full head ready for the sickle, and yet the husbandman protracts his exertions, and seems to wait for a change of weather, which may enable him to complain of a bad season. Having lately had occasion to travel through many of our counties, I have been grieved to observe the indolence evinced by the farmers; large enclosures in which at least a dozen men should have been employed in saving the harvest, only two or three were reaping, at probably a low rate of contract wages. Now what is the consequence of this pitiful economy? If the rain does not frustrate these tardy proceedings, the length of time the grain has to remain on the ground in a ripe state, causes a great proportion to shake out of the head, which would have been prevented, had the common precaution been taken of cutting the crop before it became too dry, (as recommended by a celebrated practical farmer, a native of Yorkshire), and at the same time setting on as many hands as possible. The loss sustained through ignorance, and wilful blindness, would more than compensate for any extra outlay occasioned by a call upon the labour market. A letter from an unknown correspondent can but call the attention of the Editor of the *Agricultural Gazette* to facts, which that journal, it is to be hoped, will seriously notice. We hear on all sides "Let us have cheap bread!" At the very time this cry is spreading through the land, and the season is most promising, the price of the staff of life is raised; and why? the answer is, because it is the usual custom at this period of the year! We must not shut our eyes to what will follow the frequent repetition of such conduct on the part of those who have the command of the market. It will evidently tend to alienate the friends of the agriculturists. Tampering with the food of the poor, and allowing the gifts of Providence to waste, in order to fill the pockets of a few avaricious persons, will ultimately be most prejudicial to the farming interest, and *compel* those in power to adopt some measures to insure a regular and cheap supply of food. At this moment there is a large quantity of old grain in the hands of capitalists; I am told more than enough for twelve months' consumption, without touching the new. Should this be true, we cannot say there is no reason for grumbling and dissatisfaction. The irregular supply of grain, and the carelessness in harvesting, are characteristic of a bad system in letting land, and prove the limited means of the tenant, who is dependant upon a quick sale to the monied man, in order to keep his head above water; selling at a cheap rate to the capitalist, who can afford to wait for opportunities of high per centage, regardless of the landed interest. Agriculturists should endeavour to regulate the supply so as to meet the demand, and keep foreign Wheat out of the country, not by an outcry for protection, but by an improved cultivation, and better management. It is in vain to lecture upon chemistry, and the analysis of the soil, when the foundation upon which these ought to be built is, in too many instances, in a tottering condition: we might as well expect a tree to grow without nourishment, as a farm to be in a thriving state without available funds to answer the calls of an increasing population, and the advance of scientific knowledge. I may be thought rather severe in my remarks, but I have not intentionally written anything which I believe to be founded in error; all persons are liable to mistakes, and should I have stated what may appear contrary to common sense, I shall feel obliged to some of your correspondents, if they will point out my failings in treating so imperfectly this important subject.—*Falcon.*

Bread.—Good bread being most essential to every condition of life, information as to the difference with respect to the fermentation of Wheat, Barley, and Rye, will greatly oblige; likewise the beneficial effects of Pea-meal, said to be used in the manufacture of French bread—so called by English bakers. The receipt for Potato-yeast (page 149, in 1844) answers well. —*H. B.*

Common Salt to Kill Weeds.—Your correspondent who killed his weeds on a pavement with salt, will find in the end that he has manured the ground, and that the weeds will grow more vigorous at some future time. Sulphate of iron in solution is very injurious to weeds upon walks, and especially in dry weather.—*C. A. A. Lloyd.*

To Defend the Bark of Trees.—I find that a partial covering of the bark of young trees with coal-tar for 2 feet from the ground, is an effectual prevention from hares and rabbits eating the bark. I have not in any instance hurt the trees by the use of coal-tar in frequent spots on the bark.—*C. A. A. Lloyd.*

Yeast.—A "Constant Reader" begs to inform correspondents that for many years the following receipt for yeast has been in use in his family, and produces excellent bread, with little trouble:—4 oz. of Malt, 2 oz. of Hops, 2 pints (English) of boiling water; boil altogether for 20 minutes, then strain the liquor to 8 oz. of flour, when milk-warm add a gill of good yeast to work it up, when ready to fall bottle it close. The brewer's yeast need not be put in after the first time of making it; to keep good it should be made twice a week in warm weather, and once in cold weather, oftener if requisite, as the bottle should never be allowed to be more than half empty, or it will turn sour; when an opportunity occurs, a little brewer's yeast is added, say once in two or three months; when the fresh mixture is added to that in the bottle, the greatest care must be taken that it be all but cold before putting it in.—*S. A. R.*

Wood as a Manure.—I have noticed many a time plantations of Firs, and other wood, on poor land, which, after having occupied the ground for a number of years, have at length been cut down and sold; but in consequence of the distance from market, and the wood itself being of little intrinsic value, it afforded small return in the shape of rent. Instead of being sold and removed off the land, they might be turned to a much more profitable account, by being (with the aid of chemical combination) converted into a fertilising manure. It has been satisfactorily demonstrated that wood-shavings are the most durable of all manures as yet applied to land. I have myself witnessed their beneficial and permanent effects; and should this meet the eye of any of your readers possessing land encumbered by unprofitable timber on a plantation of Firs, destined for the axe, I shall be happy to communicate my ideas as to the most eligible method of converting them into manure, and rendering the most unproductive soil fertile, by giving to the land a surface of vegetable mould. —*R. M., Gravesend.*

Agricultural Statistics.—At this juncture, the great importance of accurate returns of the corn produce, and market price, and, indeed, of agricultural information in general, especially in regard to the regulation of the prices of the corn markets, must be evident. I make this observation from seeing the accounts given in the *Mark Lane Express* of the 1st inst., of the prices of new Wheat at Mark Lane that day. I am the more surprised at this, as that journal is the professed authority in the corn trade. The following extracts are taken from four distinct reports, appearing in that paper of the above date.

Mark Lane Reports in the Mark Lane Express, Sept. 1.

The new (Wheat) was mostly cleared off at prices varying from 45s. to 55s. per qr., some parcels bringing 58s. to 60s. per qr.	The demand was almost exclusively confined to new, which our millers took off at various prices, from 50s. to 57s. per qr. for runs, and a little more for selected samples.
Most of the best runs of new were cleared off at 48s. to 58s. per qr.	The new Wheat sold at from 50s. to 54s. per qr., picked samples up to 60s. per qr.

The returns made from the different corn markets regulating the averages, it is to be regretted, are, and, I suppose, will continue to be faulty and incomplete. I will quote an instance in which, from the want of accurate information of the corn produce of the land, serious and unforeseen consequences have resulted. The harvest of 1837 was so deficient, that, before the yield of 1838, the great superabundance of the two previous harvests was totally consumed, and the stock of grain in the kingdom was in quite an exhausted state, so that, if recourse could not have been had to foreign Wheat in port, privations would have ensued before the produce of 1838 was in the market. The public was, we are told, so misinformed of this, that, instead of an advance to check consumption, the markets fell in August, September, and October, 1837, from 60s. 1d. to 51s. per qr., and not till May following was the average again as high as before the harvest of 1837.—*H.*

Removal of Leaves from Mangold Wurzel.—In previous Numbers of the *Gardeners' Chronicle*, I have endeavoured to combat the arguments of the advocates of forest tree pruning, and to dissuade owners of woods and plantations from following a practice which, I am fully persuaded, counteracts their object. It may seem a leap downwards to descend from an Oak tree to a humble annual; nevertheless, there is a kindred practice perpetrated, I fear too extensively, upon a very useful and valuable, and extensively cultivated root, which I would fain dissuade your numerous readers from following. In my immediate neighbourhood there are several acres of fine Mangold Wurzel, belonging to

ne who farms a wide extent of land ; I took some inte-
st in watching the process of preparing the ground,
ne experimental dressing different portions of it, and
ne subsequent management of thinning, clearing, &c.
esterday I walked along one end of the piece, which I
ad not seen for some time, and was vexed to see all
ne outer leaves, to nearly one half of the whole, cut
osely off, and lying wetted between the rows ! ! I am
ware some agriculturists have recommended such a
actice in former times, but at this period of advanced
ysiological knowledge, to see a man absolutely waste
me and labour actually to deteriorate and check the
owth of his otherwise very promising crop by such a
rbarous practice, is such a piece of ignorant absurdity,
at one could hardly expect to see in the month of
eptember, 1845.—*Quercus.* [We quite agree with
u. As long as the leaves of the plant are green, they
e engaged in feeding its roots ; when they are
thered, they are both useless and harmless.]

Societies.

GRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

At the weekly meeting of Council, Thursday, Sept. 4,
e following extracts were read from letters from per-
ns to whom portions of the seeds of the Tussac Grass
om the Falkland Islands, had been given at the re-
est of the Board of Trade, viz. :—

From William Blacker, Esq., Armagh, Letter, No. 1.

" I much fear that the governor of the Falkland Is-
nds has been imposed upon, in regard to the seed of
e Tussac Grass he sent home. The plants obtained
om it here and at Kew gardens appear just the same,
hich proves that they came from the seed; but I am
aid there is little chance of any of them growing to
emble the real plant, which grows like a reed in the
lk, and is full as thick as a quill. I went twice to
w, and, on the last occasion, saw a plant that had
en imported in a garden-pot from the island, about
ich there could be no mistake. It was nearly dead
en received, but seemed to be recovering. The
nts from seed, both here and there, seem to be a ten-
succulent grass, disposed to stool, and throw up
ny stalks, but not at all like the stamina of the im-
ted plant."

From Mr. J. T. Mackay, College Botanic Gardens, Dublin.

" Although I sowed a quantity of the seeds of the
ssac Grass in pits, and in different kinds of mould,
e have come up. In one or two of the pots the
er Grasses have appeared, which have not yet flow-
d, one of which is, I think, a Lolium, and the other
Agrostis. The seeds of these were probably in the
ould."

From William Blacker, Esq., Armagh,—Letter No. 2.

Since writing you last, respecting the Tussac Grass,
m rather in better spirits in regard to it. Some
nts which were not sown in pots, and which I had
seen for a considerable time, are coming now to re-
mble very much the spread of the original plant, as
cribed ; and some young plants that I have taken
I have found the original seed sticking to the root
it has burst, so that I have not a doubt as to its
g the produce of what came from you ; I have about
hundred young plants that I can depend on being
uine—these from the sowing of last year will, I think,
seed this year."

From Mr. J. Smith, Royal Botanic Garden, Kew, to W. Blacker, Esq.

It is quite true that the young seedling plants of
Tussac Grass do not, at present, look like the im-
ed plants ; but, nevertheless, we have every reason
elieve them to be correct. We are quite certain
they grew from the seed sent home ; and we are
more confirmed that that seed was genuine, by hav-
lately received the seed still on the spikes, which
W. Hooker pronounces to be the Tussac Grass spe-
ens. The seed from these is the same as what we
inally had, and from which we have the young plants.
e of the latter-received seed has yet grown to enable
o say anything about it. One thing is certain, that
y will be disappointed by the seeds of other Grasses
ng been in the mould wherein the Tussac Grass
sown ; and there have been many instances where
have grown, and been taken for Tussac. The im-
ed plants we have are growing but rather slowly
esent. The reed-like appearance of the imported
ts make many persons think that cattle will not eat
they can get other food ; but, according to all ac-
ts, they eat it voraciously in its native country."

From Mr. D. Moore, Royal Dublin Society's Botanic Garden, Glasnevin.

Immediately on getting the Tussac seeds, I had
u sown, and in the course of three weeks after-
is observed gramineous plants vegetating, which
nued to make little progress during the winter,
April, when they began to show themselves ; and
n found most of them were those of our indigenous
es, with some plants of the true Tussac, along with
eraceous plant, mixed. I had the two latter trans-
ed ; and although this operation was performed
great care, some of the Tussac damped. The
gest plant is now about eight inches high, begin-
to throw out offsets, and assume its natural habit.
others are smaller, but also beginning to tuft. I
, therefore, no doubt of having, in this instance,
ed the much talked-of Tussac Grass to Ire-
I should say the seed was as perfect as could
been looked for, after undergoing so long a voyage ;
hat it vegetated, in most instances, where properly
ged, though in many it lost afterwards. Indeed,
e only seen one other genuine plant in this coun-
I may further state that, by way of experiment,
I kept a few of the seeds over the winter, and sowed them in March, some of which also vegetated, and two plants of the produce are now growing."

From John George, gardener to W. B. Wade, Esq.

" Cardens, Clonbrany, Sept. 1, 1845.

" According to your directions, I beg to lay before you how the Tussac Grass has succeeded here. I received the seed from you about the middle of December last, and immediately sowed some of it. Plants of Grasses soon made their appearance, which were all nursed with great care—one plant has proved to be the Tussac Grass. I have divided it into several plants, and, I am glad to say, all are doing well ; the largest plant is now more than a foot high—there can be no doubt of its being true. It was submitted to the inspection of Mr. Moore, of the Glasnevin Botanic Gardens, who at once pronounced it to be Tussac Grass. It is now growing in a cold frame, and seems to like that situation well. I have no doubt of having a quantity of it propagated this autumn. I fear we will never succeed well in raising it from seed ; the seed looks well, and seems to have been well saved, and yet it does not grow."—*Dublin Farmers' Gazette.*

Miscellaneous.

The Appointment of "Agriculturists" in Agricultural Union Societies—a method of Agricultural Improvement.—[*Continued from p.* 570.]—" But it is not by arguments alone the value of the plan for appointing agriculturists to Agricultural Union Societies is to be estimated ; the case referred to of Ballinasloe affords such facts as place the matter beyond contradiction, and will, I think, fully justify me in laying before you the statements made by Mr. Clapperton, the agriculturist there, and Mr. L. Egan, one of the small farmers in that neighbourhood, at the last meeting of the Society, in the third year from its formation ; upon which occasion Mr. Clapperton being called upon, spoke as follows, addressing the Earl of Clancarty :—'My Lord, I am happy to say I receive the most ample and efficient support from both landlords and agents, in trying to accomplish the philanthropic designs of this institution ; and when coupled with the efforts and energies of the small farmers, furnishes efficient machinery to work the Society onward in the general march of improvement, with a steady and progressive motion. The landed proprietary in this Union, beyond a doubt, have done much in opening up facilities for improvements, which were otherwise impracticable ; but the small farmers have done a good deal more in carrying into practical effect the improvements for which these facilities opened the door, and of whom I can safely affirm, in the hearing of this noble assembly, and in the face of the world, that in very many instances their zeal and energy surpass their ability. It has, I presume, been a hundred times asserted and re-asserted, that the small farmers of Ireland are so tenaciously wedded to systems derived from their forefathers, that it is with difficulty they can be persuaded to abandon them ; but as far as my experience goes in the matter, I have invariably found that all which is requisite to obtain their ready assent to carry into practical effect (as far as their circumstances will admit of) the improved system of agriculture, is to meet them on equable and friendly terms ; for anything in the shape of pride or supercilliousness on the the part of an agriculturist, my Lords and Gentlemen, I am persuaded would neutralise the very best advice ; but only meet them on fair ground, and I presume there is not a race of men in this extended universe will evince a more kindly and tractable disposition than the small farmers in Ireland. This year, as far as I am concerned, they have manifested the deepest interest in green-cropping generally, but particularly in the sowing of Turnips, and for which operation the weather has seldom been less propitious, and indeed was in every way calculated to blunt their energies, and even obviate their very best intentions ; but, to their credit be it spoken, their anxiety was so intense to realise that invaluable crop (Turnips), that a failure was no sooner indicated and rendered apparent, than the seed was resown, and, in many instances, several times repeated. But this failure, my Lords and Gentlemen, was by no means attributable to the seed, but the fault of the season. But, to proceed,—we have this year 702 Turnip-growers, 32 of Mangold Wurzel, 275 of Rape, 454 of Vetches, and 296 of Clover and Grass ; exhibiting an increase over last year of 227 Turnip-growers, 17 of Mangold Wurzel, 131 of Rape, 159 of Vetches, and 109 of Clover and Grass. And the extra breadth of ground under these crops is fully in proportion with the extra number of persons who have sown them. We have an increase of 34 acres of Turnips, 3 acres of Mangold Wurzel, 156 acres of Rape, 11 acres of Vetches, and 146 acres of Clover and Grass ; giving a total increase of green crops over last year of 351 Irish acres, and the total breadth of ground under the different green crops this year is the following, viz., under Turnips, 146 acres ; under Mangold, 5 acres ; under Rape, 306 acres ; under Vetches, 58 acres ; under Clover and Grass, 363 acres ; giving a total breadth of ground under green crops of 880 acres, adequate to support throughout the year about 2000 head of black cattle. In furrow draining, there are executed since November last, 17,484 Irish perches, calculated to put a drain in every perch over an extent of 109 Irish acres. Seeing that we have such an ample quantity of green crops and other improvements effected, my Lords and Gentlemen, it may be a natural inquiry, what fruits have they or are they likely to produce. The benefits derivable from furrow draining, recently executed, are not as yet developed in the scale of remuneration ; but the earth will, in due time, make an ample return from her prolific bosom for every farthing invested, to carry off the surplus water, by which her productive powers were chained down with the iron fetters of sterility ; but the benefits already derived are in many instances strikingly exemplified. Much ground (to say the least of it) that was lying comparatively waste, useless to the farmer, and a burden upon the rest of the farm, is now brought under profitable cultivation, and paying for itself ; and I consider that every acre of such ground, which is brought from a state of sterility to a state of fertility and productiveness upon an eight-acre farm (and more or less in proportion), reduces the rent upon the entire farm fully 2*s.* per acre, taking the average rent at 1*l.* per acre. The good effected in this respect is both felt and seen, although as yet upon a moderate scale ; and there are many farmers present can bear ample attestation to the truth of other statements I am about to make, viz., that many who did not possess a cow for several preceding years have now realised one ; others, who had only one, have now two, with a proportional increase of minor stock ; and many of them can send Potatoes to market now, who could not previously raise an adequate supply for their own families. And I can tell you more, my Lords and Gentlemen, I know a good many instances (and many here know it as well as I do) where the farmers would have been put out of their farms before this, had it not been for the improved system of husbandry which they adopted. Green-cropping and house-feeding have also stamped their character very perceptibly upon both the quantity and quality of the dunghill, the virtues of which are also being exemplified in the increase of manured ground, and the quantity and quality of the produce. In fine, green-cropping and house-feeding are the most rich and fertile source of acquiring an adequate supply of manure to answer all the demands of the farm ; and in the absence of that, the best farmer is incompetent to farm upon a remunerating scale.' Mr. Laurence Egan said, 'My Lord, I feel not a little embarrassed on being called on to respond to a toast in the presence of so many respectable and distinguished individuals, all of whom are better calculated to speak than me ; for I am but a young as well as a small farmer ; for although I held the farm which I now hold previous to the organisation of this Society, I was only a farmer in name, for I farmed without profit or advantage. I may, therefore, date the commencement of my farming with the commencement of the Ballinasloe Agricultural Society, and the arrival of Mr. Clapperton in my neighbourhood. Not that I am yet an experienced farmer ; far from it, for I have much yet to learn. However, as I am a child of the Society's, I shall give some account of my proceedings during the past year ; and as my name has been connected with draining as a successful candidate, I will first make a few remarks on it. Draining I believe to be the root and general work of farming. I had a very wet piece of land attached to my farm ; the upper stratum consisted of heavy adhesive clay, about 6 or 8 inches in depth ; this rested upon a substratum of a gravelly nature, exceedingly hard, and quite impervious to water, or to anything except the crow-bar. This subsoil was a depth of about 8 inches ; and when broken up, under it was another substratum, consisting of a heavy clay, yellow, 10 inches deep ; and under this a blue-black clay, or gravelly substance, with an odd stone, perfectly black and rotten from water. So that the water in the bowels of the earth had no way of escape, and the water from the clouds could not get down, or get away, except by evaporation. The land grew nothing but Flaggers, Rushes (Carices), a kind of Grass which no animal would eat—this land would also rot sheep. Mr. Clapperton pointed to me the great loss which I sustained, in allowing this land to remain as it was, and advised me to commence at once and drain it. I pleaded want of capital, the fall in the markets, and the low price of agricultural produce, the danger of coming short of my half-year's rent, and many other powerful arguments. However, he overcame all my scruples, and I commenced draining ; and drained about five Irish acres. I put all this drained land under Potatoes, as it could not be properly prepared for Turnips and Mangold, and put all my farm-yard manure under the Potatoes. I prepared for the Turnips and Mangold crop by ploughing and furrow-ploughing the land, and made up a heap of compost, composed of guano, bones, night-soil, and black mud. The Mangold all failed ; but I got as many plants from the model-farm of the Society, after the thinning out, as transplanted the rood of ground, and this rood of Mangold obtained the first prize. My Lord, if I were to contrast the state of my farm now and six years ago, the contrast would be very striking indeed. Five years ago my farm was so poor that it would grow nothing ; five years ago I could plant but one acre of Potatoes, and those badly planted, because the manure was bad. Well, the consequence was a bad crop of Potatoes, and a scarcity of Potatoes the following year, so that I had to buy Potatoes for my family, to the amount of 27*l.* 10*s.*, and oatmeal to the amount of 8*l.* This state of things could not continue long. But this year I have been able to manure 5 acres of Potatoes, 1 of Turnips and Mangold, and I have 7 acres of Oats, and this of a superior quality. I have also this year 8½ acres laid down under Clovers and artificial Grasses, and this has a most luxuriant appearance. I am happy to be able to congratulate your lordship on the success of your tenants, and

the very great and rapid improvements which are being carried on.' Now, taking 1730, the number of persons stated by Mr. Clapperton to have become converts to the improved system, to be able, after being fairly embarked in that system, to manure merely 2 acres more than they formerly did, which will be far short of what Laurence Egan states, this would make an extra quantity of manured land equal to 3460 acres, which would be qualified, according to the four-course rotation, to give, after the manured crop, a crop of Wheat or Oats, laid down with Clover and Grass for next year's soiling, and another grain crop after the Clover, which four crops would, upon an average, be worth above 7*l.* 10*s.* per acre, Irish measure, or 30*l.* for the four crops; which, multiplied by 3460, comes to above 100,000*l.* (at a valuation nearly one-third under the fair estimate), brought into a small district by the exertions of one man, in a little more than two and a half years, at an expense not much exceeding 160*l.*, which his wages would about amount to for that time. But this is far from being a true estimate of the benefit likely to be derived, for the number of converts will be increasing from year to year, and the produce of the land will be augmented by the new converts likely to follow the successful examples given them by so many of their neighbours, until the mind is actually lost in astonishment in the contemplation of results of such magnitude, arising out of an outlay apparently so inadequate; and a contribution of 50*l.* annually towards the wages of an agriculturist, in each Union, would most probably be the means of inducing the resident gentry in each district to unite to provide means of making the appointment practically useful, by providing for an advance of manure, seeds, &c., and in some cases, money, in order to enable the poorer classes to avail themselves of the instruction afforded them. If it is calculated what the return to government, in the revenue, from the additional outlay of 100,000*l.*, in any one district, expended in whatever way it may, the contribution of 50*l.* in each will appear to be a profitable investment for the public, instead of an expense, and this is the true way of viewing the matter in."—*Appendix No.* 8, *Evidence taken before H. M. Commissioners of Inquiry into the state of the Law and Practice in respect to the Occupation of Land in Ireland. Part I.*

Shed Feeding of Sheep.—Having observed that sheep in wet weather on our downs always select the most beaten roads for their bed, it occurred to me that not only when under sheds should they lie on boards, according to your own experiment, but also that the courts to which they have daily access whilst their houses are being cleaned should be covered, not with soft litter, but with hard chalk or sand, or other materials to form a solid bottom. My little yards attached to the sheds are floored with a sort of asphalt made of chalk beaten small, covered with gas-tar and sand. In constructing sheds for my sheep I have kept in view the strictest economy; and I venture to send these minute details, which I hope will serve to prove that the protection of sheep from the inclemency of the weather is within the reach of every tenant farmer. Each of these sheds contains about 50 sheep. They are erected on a very simple plan:—A couple of fir poles, 12 feet long, are nailed together at the top; their extremities, at a distance of 15 feet, are driven into the ground; another couple, 10 feet distant, are united with this, and held firm by a ridge-pole nailed into and lying between the tops of the fir poles. Side pieces are nailed parallel to the ridge-pole, and small hazel-wood is interlaced so as to support the thatch, which a labourer ties on with tar-twine. The thatch in front and behind reaches to about 3 feet from the ground; behind, a bank of turf is raised to meet the thatch; the front is guarded by a hurdle, moveable at pleasure, to allow the sheep to go into the court, which is of the same size as the shed. It is important that both ends of the shed should be protected with bavins only, which will secure a free ventilation, yet keep out rain. My sheds, about 50 feet long (not charging the straw), cost about 41*s.* each. These sheds are covered with 1-inch boards, separated (each strip from the other) by $\frac{3}{4}$-inch intervals. The cost of the timber and mode of preparing the floor were as follows:—White pine timber was used for its cheapness, being 1*s.* 3*d.* the cube foot, which would therefore give eleven 1-inch boards. On account of the particular width of the logs which I bought, the board was sawn into pieces 7 inches broad and 1 inch thick. These, for economy, are hand-sawn into three parts, and are nailed upon joists at a distance of $\frac{3}{4}$-inch. By this plan nearly one-third of timber is saved: so that each sheep, requiring 9 feet of space, lies actually on 6 feet of 1-inch board. The cost of timber for joists, nails, and carpenters' work, raises the total expense of placing the sheep on boards to 1*s.* 4*d.* per head. Instead of sleepers I used small blocks, 6 inches thick, to keep the rafters from direct contact with the manure. The boards are put together into frames about 10 feet by 4, so that they may be easily taken up by one man. Beneath the boards the floor, excavated 8 or 9 inches, is puddled and made water-tight, and covered with 6 inches of sawdust, burnt clay, or good dry mould. This receives and absorbs the manure which falls, or is swept below twice a-day. The boards, after sweeping, are watered with a solution of 3 lbs. of sulphate of iron, which instantaneously removes the odour not only of the ammonia, but of the more offensive sulphuretted hydrogen. The boards should be laid perfectly flat, to prevent the sheep slipping about. The sheep are fed under the sheds, not in the courts. The results of this arrangement have been most successful, both in the health and well-doing of the sheep. It is true that I have lost four head, which seem to have died from apoplexy; but I lost the same number in the flock which were at large, and treated in the usual manner. Though I have had more than 300 Southdowns so shedded, some of them longer than five months, yet I have never seen any instance of lameness, even in the least degree.—*Rev. A. Huxtable; Royal English Agricultural Society's Journal.*

Sulphuric Acid and Bones.—With reference to Mr. Pusey's suggestion as to the propriety of using bone-dust (dissolved in sulphuric acid) along with compost instead of water for Turnips, I can confirm his idea from practice, having last year manured 5 acres with only 13 bushels of bone-dust dissolved in 270 lbs. of sulphuric acid and 150 gallons of water. After standing 24 hours, the liquid was mixed with 3 cart-loads of coal-ashes, and left to remain for a week, during which time it was turned over two or three times. The mixture was then drilled along with the seed, and the result was a fair crop of common Turnips, off a piece of poor land, without other manure, and at the cost of only 12*s.* 9*d.* per acre.—*P. Davis; Royal English Agricultural Society's Journal.*

Notices to Correspondents.

DIBBLING MACHINE—*B O S*—We do not know which of the two dibbling-machines you allude to—Newberry's or Yingo's best. The former has been longest in use. The Rhomboidal form is the best for the barrow. A pair of harrows should cover a width of at least 9 feet.

DRAINAGE——*Northwood*—It is the best policy to take a drain straight down the hill: if, however, the surface be so steep that the water in running would be apt to form a rut, you may cut the drain obliquely. If your land be naturally dry, artificial drainage is, of course, useless.

FARMERS' CLUBS—*J P U*—See pages 232, 233, *Ag. Gaz.* 1845. If you have not got the Number, we will communicate further with you.

GAS-LIME—*W S*—Expose it as much as possible. The best way is to make it into a compost with some loose material, such as leaves and vegetable rubbish, and turn it over frequently.

GRASSES—*E K S*—On "a piece of land open at surface with a clayey subsoil," sow—Alopecurus pratensis, 2 lbs.: Dactylis glomerata, 5 lbs.; Festuca duriuscula, 2 lbs.; F. heterophylla, 1 lb.; F. pratensis, 3 lbs.; Lolium italicum, 3 lbs.; L. perenne, 12 lbs.; Phleum pratense, 1½ lb.; P. trivialis, 2 lbs.; Trifolium pratense perenne, 4 lbs.; T. repens, 5 lbs.; with 1 bushel of Rye. Authority, Lawson.

ITALIAN RYE-GRASS—*W E H*—You must not sow it so late as the month of November, before which you will not have removed the Mangold Wurzel. You had better wait till spring.

LIME-KILNS—*R J*—They vary according to their construction—in the quantity of coals required—from 1 to 1½ measures for every three measures of lime-shells produced. The kilns most economical for coal are those constructed by Sir C. S. Monteath, of Closeburn, Dumfries. They are of a circular horizontal section, and 28 feet high from the bottom; 5 feet wide at bottom, increasing to 6 at 18 feet high, and then contracting to 4 feet wide at the top.

PLOUGH—*F W*—Apply to Messrs. Ransome, Ipswich.

POULTRY—*PME* would be much obliged if any one could tell how to cure a disease with which his fowls are affected. Their feathers appear eaten to the quills, and the irritation of the skin is such that they peck themselves in a shocking manner to gain relief. He has carefully examined them and applied Tobacco-water, thinking it might be caused by vermin, but he perceives nothing to justify such an idea. They are otherwise in good health, eating heartily, and laying frequently, and he cannot account for their miserable appearance.

SAINFOIN—*Newton Abbot*—If there be already a crop on the ground, you may as well fold sheep on it. It is a common practice to treat young Clover so, and, excepting in the northern part of the kingdom, there appears no danger of injury.

SPLIT PEAS—*T Osborn*—Dry Peas are watered and they swell; they are then rapidly dried in a kiln and put through a common mill for grinding Oats. The husk, rendered separable by the previous operation, is easily broken off from the grain.

STALL-FEEDING—*Northwood*—Hillyard's "Practical Farmer and Grazier:" Essay by G. Dobito, in last Number of the "English Agricultural Society's Journal."

WARTS—*A Sub*—Next week.

WHEAT—*R Giffard*—Your "Petit Blanc" Wheat is a very beautiful sample.

ERRATA—In Sir G. S. Mackenzie's paper on the baking and feeding qualities of Wheat (No. 36 *Ag. Gaz.*), for "Shropshire" in note*, read "Ross-shire," and for "presented" in the "4th line below Table II. read "preserved."

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Sept. 8.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s 0 to 4s 4	Best Long-wools	4s 4 to 4s 8
Best Short Horns	3 10	4 0	Ewes, and second quality	4 0	4 4
Second quality Beasts	3 0	3 6	Lambs	4 8	5 8
Calves	4 0	5 0	Pigs	3 8	4 8
Best Downs & Half-breds	4 8	5 0			

Beasts, 2349. Sheep and Lambs, 26,670; Calves, 141; Pigs, 300.

We have again a good supply of Beasts but trade somewhat more cheerful, with a small advance in price. Mutton is rather shorter, and the best qualities selling more freely at our top quotations; in few instances they have been a little exceeded. There is a considerable demand for Lamb, the time of the year considered, and the best quality is selling well. Good Veal continues dear. Pork trade is good.

FRIDAY, Sept. 12.

Our trade for Beef is heavy to-day, the demand being but small; still in the best qualities scarcely any difference in price is observable. Best Scots, &c. are making from 4s to 4s 4d, and Short Horns 3s 8d to 4s. Second quality Beasts are a very heavy sale, at rather less money. Good Sheep are not very plentiful to-day. Monday's prices are well supported; a few of the choicest make 2d per 8lbs. more. Lamb hardly so much in request. Good Veal maintains its price; a choice Calf is worth 5s. Pork, 3s 8d to 4s 8d.

Beasts, 829; Sheep and Lambs, 5300. Calves, 328. Pigs, 280.

4:. West-row Enfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Sept. 11.

Prime Mead. Hay	105s to 115s	New Hay	65s to 90s	NewClr. 105 to 130s
Inferior Hay	— —	Clover	— to —	Straw 36 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Sept. 11.

Prime Mead. Hay	105s to 110s	Old Clover	130s to 137s		
Inferior	90 98	Inferior do.	110 120	Straw	38s to 42s
New Hay	65 92	New Clover	90 120		

JESSE BAKER, Hay Salesman.

WHITECHAPEL, Sept. 12.

Fine Old Hay	100s to 110s	Old Clover	126s to 132s		
Inferior Hay	— —	Infr.	— —	Straw	36s to 42s
New Hay	70 90	New Clover	90 110		

HOPS, FRIDAY, Sept. 12.

THE accounts from the plantations are conflicting, in some places we hear the Hops are progressing favourably; from other parts that they have stopped growing, and that the fire-blast and red rust is doing much damage; at Farnham and Worcester they have still much vermin; Mid Kent has a considerable quantity of mould; on the whole we think the Duty cannot reach the present estimate 175,000*l.*, unless we get favourable weather for the next month. Picking will not be general before the 22d inst. Another Pocket of new Hops has arrived from Birling, Kent, but are very small and unripe. The Market continues very firm for all good Hops.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, SEPT. 13.—The market continues to supplied with abundance of Vegetables of excellent quali Fruit of all kinds, in season, is also plentiful; nevertheles trade for some things is dull. Pine-apples, though not lar are good in quality, and sufficient for the demand; and abu dance of hothouse Grapes, of the best kinds, may be pu chased at last week's prices; Portugals have also been offer Peaches and Nectarines are plentifully supplied, and lar quantities of Plums continue to be imported, chiefly fr Havre; varieties of English growth are also plentiful. Ap cots begin to get scarce. Morello Cherries are good, and su cient for the demand; and good Melons are abundant; a f Spanish Melons are also making their appearance. The supp of Filberts is on the increase, and they are cheaper in con quence; trade for them is, however, dull. The prices of Ve tables in general have not altered much since last week. Fo are becoming scarce, as are also Cauliflowers; but Broccoli, good quality, begins to make its appearance. Potatoes offered at nearly the same prices as quoted in our last repo they are better in quality than they were last week, and pre free from the prevailing disease. The prices of Celery, Tom toes, French Beans, Carrots, and Turnips, remain unalter Endive begins to get more plentiful, and Salading of every ki is abundant; Mushrooms are dearer. Cut Flowers chiefly c sist of Camellias, Auriculas, Pelargoniums, Heliotropes, A mones, Verbenas, Gardenias, Carnations, Heaths, and Rose

FRUITS.

Pine Apple, per lb., 4s to 6s	Apples, Dess., per bush., 5s to 7s
Grapes, Hothouse, per lb., 1s to 4s	— Kitchen, 1s 6d to 4s
— Spanish, per lb., 9d to 1s	Pears, per hf.-sv., 2s to 5s
— Blk. Portugal, p. lb., 1s to 1s 6d	— Jargonelles, per hf sv., 6s to
Peaches, Wall, per doz., 2s to 6s	— Windsors, 3s to 3s 6d
Nectarines, per doz., 2s to 6s	Oranges, per dozen, 1s to 2s 6d
Melons, 2s to 4s each	— per 100, 8s to 18s
— Dutch, 1s to 3s each	Lemons, per dozen, 1s to 2s
Figs, green, per doz., 2s to 3s	— per 100, 7s to 16s
Plums, per hf.-sv., 2s to 3s	Almonds, per peck, 6s
— Orleans, per hf.-sv., 3s to 5s	Sweet Almonds, per lb., 2s 6d to
— Green Gages, per hf.sv., 6s to 8s	Filberts, English, p. 100 lbs., 25s to
— Violets, per hf.sv., 4s to 6s	Nuts, Barcelona, 2s
Apricots, from 1s to 3s per doz.	— Brazil, 16s
Cherries, wall, per lb., 2s to 5s	— Turkey, 16s

VEGETABLES.

Cabbages, per doz., 3d to 1s	Vegetable Marrows, p. doz. 4d to
Cauliflowers, per doz., 2s to 6s	Onions, per doz. bunches, 2s to 6s
Broccoli, per bunch, 6d to 1s 6d	— pickling, per hf.-sv., 2s to 3
French Beans, per hf.-sv., 1s to 3s	— Spanish, per doz., 1s 6d to
Sorrel, per hf.-sieve, 6d to 9d	Shallots, per lb., 4d to 8d
Artichokes, per doz., 1s 6d to 2s 6d	Endive, per score, 1s to 1s 6d
Potatoes, per ton, 40s to 80s	Lettuce, per score, Cab., 9d to 1s
— cwt., 2s 6d to 5s	— Cos, 6d to 1s 8
— bushel, 1s 6d to 2s	Radishes, per doz. bunches, 3d to
— Kidney, per bushel, 2s to 3s	Mushrooms, per pottle, 1s to 2s
Turnips, per doz., 1s 6d to 3s	Small Salads, per punnet, 2d to
Red Beet, per doz., 1s to 1s 6d	Basil, green, per bunch, 4d to 9d
Carrots, per doz. bchs, 2s to 5s	Fennel, per bunch, 2d to 3d
Peas, per bushel sieve, 2s 6d to 5s	Savory, per bunch, 4d to 6d
Horse Radish, per bundle, 1s 6d to 6s	Thyme, per bunch, 4d
Cucumbers, per doz., 2s to 3s	Watercress, p. 12 sm. bun. 4d t
— ridge, per doz., 1s to 3s	Parsley, per half sieve, 6d to 1s
Spinach, per sieve, 9d to 1s 6d	— Roots, per bundle, 9d
Leeks, per doz., 2s to 3s	Tarragon, per bunch, 4d
Garlic, per lb., 3d to 10d	Mint, per bunch, 2d
Tomatoes, per hf.-sv., 4s to 6s	Marjoram, per bunch, 4d
Celery, per bunch, 9d to 1s 6d	Chervil, per punnet, 2d to 3d

WOOL.—BRITISH, FRIDAY, Sept. 12.

THE demand for most descriptions of Wool continues steady, and price firm. The Market has varied but very little from our last report. I current as before.

JAMES PERRIN, Wool Brok

MARK-LANE, MONDAY, Sept. 8.

The supply of English Wheat by land carriage samples morning was small, consisting almost entirely of new; the lity was inferior to last week, and the whole sold readily at extreme rates of this day se'nnight. In free foreign the little doing, prices are nominally the same. The arriva foreign last week amounted to 27,800 qrs., since which sev more cargoes have arrived; very little is offered for sale, hol generally preferring to land in bond, with the exception little demand for export, it was not much inquired after. Ba Beans, and White Peas, maintain our quotations; Grey are 1s. to 2s. cheaper, and Dun 2s. to 3s., being generally in condition. There is a fair inquiry for Oats, at an advan 6d. to 1s. per qr. Owing to the failure of the Potato cr Belgium, that Government has opened its ports for the admission of every description of Corn, Potatoes, and The Dutch Government, for the same reason, has also decl the importation of Rice and Buck-Wheat free of duty, T were about 700 qrs. of white Mustard at Market, which so 10s. to 16s. per bushel, according to quality and condi brown moves off slowly at 13s. for fine qualities.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		
Wheat, Essex, Kent, and Suffolk	White	46	54	Red
—— Norfolk, Lincolnshire, and Yorkshire	—	—		White
Barley, Malting and distilling 28s to 32s	Chevalier	30	34	Grind.
Oats, Lincolnshire and Yorkshire	Polands	20	23	Feed
—— Northumberland and Scotch	Feed	20	22	Potato
—— Irish	Feed	20	22	Potato
Malt, pale, ship		54	60	
—— Hertford and Essex		60	65	
Rye		29	32	
Beans, Mazagan, old and new	35 to 38	Tick	26	29	Harrow
—— Pigeon, Heligoland	29 to 44	Winds	—	—	Longpod
Peas, White	34 to 40	Maple	34	38	Grey

FRIDAY, Sept. 12.

There has been little English Wheat fresh up durin week; both new and old meets a good inquiry, and is di to buy on Monday's terms. Old foreign is held firmly, b did not hear of any sales in bonded, excepting of inferior lities for export, for which the demand continues good. B Beans, and Peas fully support our quotations, and are ea quired after in bond for export. The supply of Oats being enables factors to realise a slight advance upon Monday' tations.

IMPERIAL AVERAGES.

	2 per Quarter.	Wheat	Barley.	Oats	Rye.	Beans.
		53s 2d	29s 8d	22s 5d	34s 6d	40s 8d
Aug.	9	55 3	29 7	22 3	33 10	41 0
—	16	57 0	29 4	22 2	34 4	41 2
—	23	57 0	29 9	22 8	33 4	41 8
—	30	56 6	30 0	22 4	35 7	42 1
Sept.	6	55 10	31 8	22 10	33 5	42 2
6 weeks' Aggreg. Aver.		55 10	30 0	22 6	34 2	41 5
Duties on Foreign Grain		17 0	8 0	6 0	8 8	1 6

Diagram showing the fluctuations in the price of Corn on the averag six weeks ending Saturday, Sept. 6.

PRICE.	Aug 2	Aug. 9	Aug. 16	Aug. 23	Aug 30	
57s 0d	..	..				..
56 6	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
— 3	..	..	..	..	..	..
53 3		..	..	..	..	..
51 7	..	..	..	..	..	..
50 10	..	..	..	..	..	..
48 0	..	..	..	..	..	..
— 12	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, Sept. 12.

Canary	per qr	50s to 54s	Linseed Cakes, Foreign, p. ton			
Carraway	per cwt	42	45	Mustard, White	p. bush.	
Clover, Red, English	—	—	—	— Superfine	„	—
— Foreign	—	—	—	— Brown	„	—
— White, English	—	—	—	Rapeseed, English, per last		
— Foreign	—	—	—	Rape Cakes	per ton	
Coriander	—	14	16	Saintfoin	—	—
Hempseed	per qr.	35	36	Tares, Eng. winter	p. bush.	
Linseed	per qr	54	60	— Foreign	—	—
— Baltic	—	42	43	Trefoil	per cwt	
— Cakes, Eng. per 1000	11l	0 11l 10		Turnip (too variable for quot		

KINGSFORD &

Sales by Auction.

GREAT SALE OF NEW AND BEAUTIFUL ROSES.

MR. GLENNY has been instructed by the raiser to submit for Sale by Auction, without reserve, the stock of Twenty or Thirty Novelties, which far exceed in quality four-fifths of even the popular varieties now in cultivation. The sale will take place in October, and due notice will be given, with descriptive Catalogues.

NEW AND SPLENDID TULIPS.

MR GLENNY has the honour to give notice that Messrs. Lawrence, Wilmer, Holmes, Delaforce, and Baron, five of the most celebrated growers of this noble flower, have authorised him to sell by Auction, early in October, without reserve, each of them, a few lots of new and splendid varieties, and some others which are in great request, and of the most scarce and favourite kinds. Catalogues will be printed in a few days.—*Gardeners' Gazette* Office, 2, Tavistock-street, Covent-garden.

BUNNEY'S FINAL SALE.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

MESSRS. PROTHEROE & MORRIS will submit to Public competition, by Auction, on the Premises, Kingsland Nursery, Balls-pond-road, on Monday, September 22d, 1845, and following days, at 11 o'clock each day (by order of the proprietor in consequence of the Lease expiring at Michaelmas), the whole of the valuable NURSERY STOCK; consisting of Fruit and Forest Trees; a considerable quantity of Evergreens and Shrubs; fine specimens of Magnolias, &c. Also a collection of Choice Auricula, including all the leading varieties, and some fine Seedlings, lately the property of J. Hatchet, Esq., deceased; Garden Frames, Hand-Glasses, Rotten Dung, &c. May be viewed three days prior to Sale. Catalogues 6*d.* each, returnable to purchasers. May be had on the Premises of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FARMERS, MARKET GARDENERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition on the premises, Woodford-green, Essex (opposite the Castle) on Friday, September 19, 1845, at 11 o'clock, by order of Mrs. Rayment, in consequence of her tenancy having expired, the whole of the FARMING STOCK, consisting of about Six Acres of Potatoes, Wheat, Rye, Turnips, Onions, Coleworts, &c.; several hundred large Fruit-bearing Trees, also Two useful Cart-horses, Pigs, Carts, Chaise, Harness, Plough, Harrows, a Stack of excellent Meadow Hay, Baskets, Sacks, Ladders, Hand-lights, Rotten Dung, Household Furniture, Sundry Tools, and other effects, may be viewed prior to sale. Catalogues may be had on the Premises, at the Castle Inn, Woodford; Eagle, Snaresbrook; of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietor, in consequence of the Lease having expired, to submit to public competition on the premises, Camden Nursery, Camden Town, on Tuesday, September 16th, 1845, at 11 o'clock, a very valuable collection of GREENHOUSE PLANTS, comprising large Azalea indica and Camellias well furnished with bloom, Chorizema, Erica, Epacris, Brachysema, Corræa, Combretum purpureum, Passiflora of sorts, including a splendid specimen of Passiflora Buonapartia. The newest varieties of Geraniums, Fuchsias, &c., may be viewed prior to sale. Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, Leytonstone.

TO BE SOLD, THREE GREENHOUSES, WITH PLANTS, ROCKWORK, &c. A Gentleman who is leaving his present residence wishes to dispose of the above, together with the Rockwork, Slate Tank, Slate Borders, &c. Also all the Plants, among which are good specimens of Rhododendron arboreum, both the red and white varieties; R. alta-clerense, Grevillea robusta, Azalea sinensis and variegata, Daphne indica, Yuccas, Camellias; Lilium speciosum, punctatum, and album; Lonicera japonica, Strelitzia regina, &c.; a collection of hardy and greenhouse Ferns; also some hardy Azaleas and Rhododendrons of large size, among which are R. Smithii, Russellianum, and grandiflora maxima; the Rockwork consists partly of Tufa, from Derbyshire. The whole to be disposed of, a great bargain. To be viewed at Mr. Browne's, 130, Camden Villas, Camden Town, between the hours of one and six o'clock.

NURSERY TO LET.

TO BE DISPOSED OF, on Advantageous Terms, the LEASE, GREENHOUSES, and STOCK of a NURSERY, well situated about seven miles out of London, in a populous and respectable neighbourhood, and on one of the principal turnpike roads. There are about three acres and a half of land, well stocked with Evergreen and Flowering Shrubs, &c., extensive ranges of Glass, and a valuable stock of Greenhouse and other Plants in pots. Attached to the Nursery is a very genteel and commodious Dwelling-house, and everything necessary for carrying on a respectable business. From £1100 to £1200 would be required to complete the purchase.

For further particulars, apply to Messrs. H. Low and Co., of the Clapton Nursery.

TO CORN DEALERS, HOP MERCHANTS, and SEEDSMEN.—An excellent opportunity now offers to any party who may be disposed to enter into the above trades, of purchasing a retail business, which has been carried on most successfully for about 12 years; the returns being from 8000*l.* to 10,000*l.* per annum, and which may be considerably extended, especially by any one who is well acquainted with the Seed-trade. The business is in an excellent situation, in one of the principal towns in England. The Stock, which could be reduced, may be taken to at a valuation.—For particulars, apply to Messrs. Warner and Warner, Cornhill, London.

TO LET near Bracknell, Berks, A COTTAGE VILLA, containing Two Sitting and Seven Bed-rooms, with convenient Offices, Coach-house, and Stables, Good Gardens, and a Meadow. Rent 40*l.* per annum. Also a small Farm.—Apply to Mr. Costen, Infant School, Old Bracknell.

TO MARKET GARDENERS.

TO BE LET, for a term, in the Parish of Hackney, about 22 ACRES OF MARKET GARDEN GROUND, in a high state of cultivation, with House and Shed thereon. The crops may be taken at a valuation, and immediate possession obtained.—For further particulars apply to Protheroe and Morris, American Nursery, Leytonstone.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

14 inches	.. ..	11*s.*	0*d.*	20 inches	.. ..	22*s.*	6*d.*
15 inches	.. ..	12	6	22 inches	.. ..	25	0
16 inches	.. ..	16	0	24 inches	.. ..	32	0
18 inches	.. ..	19	0				

Slate Works, Isleworth, Middlesex.

Farm to Let.

CARDIGANSHIRE, SOUTH WALES.

TO BE LET, AND ENTERED UPON NEXT MICHAELMAS, all that very Desirable MESSUAGE FARM and LANDS, called BLAENPISTILL, containing, by admeasurement, 190 acres, or thereabouts, and situate in the several parishes of Tremain and Llangoedmore.

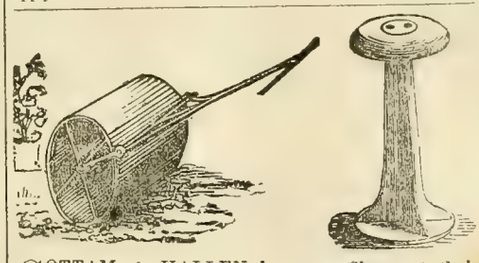
The above FARM is conveniently situated near the turnpike road leading from Cardigan to Aberystwith, and is distant from the former place about three miles, and from the village of Aberporth about 2¼ miles, where lime and sea-sand can be obtained.

The DWELLING HOUSE (which is fit for the reception of a respectable family) and the out offices on this Farm are in excellent repair, having been lately rebuilt.

Any person desirous of taking the above can be accommodated with about 70 acres more of excellent pasture and arable Land, immediately adjoining the said Farm at Michaelmas 1846.

For particulars, apply to John Propert, Esq., 6, New Cavendish-street, Portland-place, London; or to Mr. R. D. Jenkins, Solicitor, Cardigan.

TO LET, with Possession at Michaelmas, a FARM, consisting of about 236 acres of Arable and Pasture land, situated at Hoddesden, Hertfordshire, one mile and a half from the Broxbourne Railway Station. For further particulars, apply to the Bailiff at Broxbournebury.



COTTAM & HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* 10*s.* per ton; ICHABOE 7*l.* to 7*l.* 10*s.* per ton; Saldanha Bay, 5*l.* 10*s.* to 6*l.* per ton; according to quantity; with an Analysis, by Dr. Ure.—Wm. Northcott, 13, Rood-lane, Fenchurch-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS and SONS, LONDON; Wm. J. MYERS and CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, and PRYOR, LONDON; GIBBS, BRIGHT, and CO., LIVERPOOL and BRISTOL.

47, Lime-street, September 13.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. Purser, Secretary.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by Benjamin Fowler, Engineer, &c., 63, Dorset-street, Fleet-street, London.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.

Mark Fothergill, 40, Upper Thames-street, London.

P. S.—Agents wanted for the sale of the Wheat Brine.

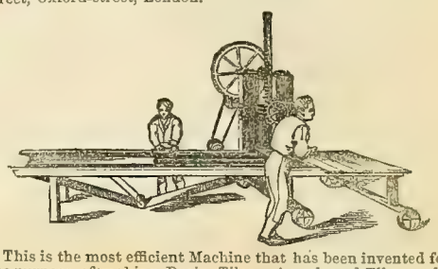
SEED WHEAT.—RED STRAW WHITE WHEAT AND HOPETOUN WHITE WHEAT FOR SALE, at WHITFIELD FARM, near WOTTON-UNDER-EDGE, GLOUCESTERSHIRE. Price 8*s.* per bushel. These varieties may be supplied from off a clay, sand, or limestone soil, according to order. Where a change of seed is desired, this point will perhaps be considered important. Orders should be accompanied by a reference or remittance.—John Morton.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



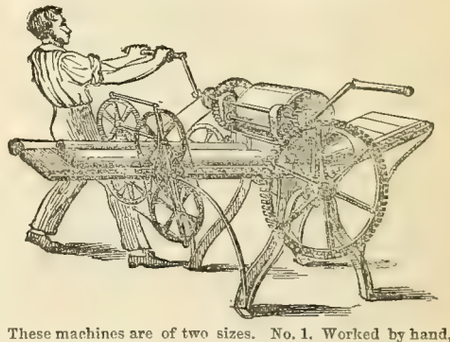
This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

WORKS ON HORTICULTURE.

THE FLOWER-GARDEN; containing Directions for laying out Garden-grounds, a Calendar of Work to be done every Month, and copious Lists of choice Flowering Plants, with their height, colour, and time of Flowering, with Directions for their Cultivation.

Coloured Plates, price 10*s.* 6*d.* cloth, gilt edges; and 7*s.* without Plates.

THE GREENHOUSE, HOTHOUSE, AND STOVE; With Selections of most choice Exotic Flowering Plants, and Directions for their Cultivation.

By CHARLES M'INTOSH, C.F., C.S.H.

With 18 Plates, beautifully coloured, price 10*s.* 6*d.* cloth, gilt edges; without Plates, price 6*s.* 6*d.*

THE ORCHARD AND FRUIT GARDEN; Including Forcing Houses for all kinds of Fruit, with selected Lists of the best varieties, with their Synonyms.

By CHARLES M'INTOSH, C.F., C.S.H.

With 18 Plates, beautifully coloured, price 10*s.* 6*d.*, cloth, gilt edges; without Plates, price 6*s.* 6*d.*

EVERY LADY HER OWN FLOWER-GARDENER;

Instructing Ladies how the mind may be adorned, and their bodily health improved by attending to the Flower-garden.

By LOUISA JOHNSON. Price 2*s.* cloth lettered.

"Exactly what its title portends, and all lady floriculturists should possess it."—*Naval and Military Gazette.*

"This volume will be highly acceptable where there is a garden, much love for flowers, and small means to cultivate either."—*Atlas.*

"A cheap and pretty little manual of simple and concise directions for the management of a flower-garden."—*Spectator.*

ON THE POT-CULTURE OF THE VINE.

By JOHN MEARNS, Curator of the Leeds Botanical Garden. Price 2*s.* cloth lettered.

HINTS ON LANDSCAPE GARDENING.

By JAMES MAIN, A.L.S., with Illustrations. Price 2*s.* cloth.

HORTUS DIETETICA.

An Historical and Botanical Account of Edible Vegetables, with Directions for their Cultivation, Storing, and preparing for the Table. By JAMES MAIN, A.L.S.

Price 3*s.* cloth lettered.

London: WM. S. ORR & Co., Amen-corner, Paternoster-row.

CHARLES COLLETT, of SUNBURY, MIDDLESEX, will send free, on the receipt of 14 Postage Stamps, a "COMPLETE READY RECKONER" for Measuring and Valuing Hay-ricks, with very Plain Instructions for taking the Dimensions and for judging the Density of the Hay. By Mr. EDWARD RYDE, Land and Engineering Surveyor, Sunbury; Author of several Scientific Works.

London: GILBERT, Paternoster Row.

EDINBURGH REVIEW, No. CLXVI.—ADVERTISEMENTS for insertion in No. 166 of The Edinburgh Review, must be sent to the Publishers' by Wednesday, the 24th; and BILLS on or before Friday, the 26th instant.

39, Paternoster-row, Sept. 12, 1845.

NEW FRUITS.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 38.—1845] SATURDAY, SEPTEMBER 20. [Price 6*d*.

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GRAND METROPOLITAN DAHLIA SHOW, AND ANNUAL MEETING AND DINNER OF THE HORTICULTURISTS OF GREAT BRITAIN, Cremorne House and Garden, Chelsea.—7 classes of Dahlias, 10 prizes in each; 2 classes of Seedlings; 2 of Pansies; 1 of Fuchsias, 6 plants; 1 of Verbenas, 12 cut blooms; New Plants and Flowers of any class and description. Dinner on Table at 3 o'clock. Tickets 7*s*. 6*d*., freeing the holder to the Gardens.
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N.B.—Exhibitors to show in the Metropolitan Stands.
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,, Leucomigista	5	0	Siphocampylus duplo-serratus	3	6
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,, polyantha ..	3	6	Tetranema Mexicana ..	1	6
Hallia flaccida	2	6	Tropæolum Lobbianum	2	6
Hindsia longiflora	3	6	Veronica nova sp. New Zealand	7	6
,, violacea	10	6	Veronica salicifolia	3	6
Juanulloa parasitica ..	3	6			
Lisianthus Russellianus	2	6			

Plants will be presented to compensate for distant carriage. Unknown correspondents are respectfully desired to accompany their orders with a reference.

ROSE CATALOGUE.—NEW EDITION.
NURSERIES, CHESHUNT, HERTS.
A. PAUL and SON beg to apprize their friends and all lovers of ROSES, that their ROSE CATALOGUE for 1845-6 is now ready for circulation, and will be forwarded gratis, on application by letter containing two penny stamps for postage. The Catalogue appears this season in an extended and improved form, and besides giving a full description of colours, size, shape, &c., it embraces the following important points: Paragraphs at the end of each section contain hints on cultivation, and point out any peculiarities in the group. The best forcing Roses, and those proved best suited for pot culture are severally pointed out; and further, the habit of growth is attached to each variety. *No pains or expense have been spared to render the descriptions accurate, and the Catalogue complete and useful.* With regard to the health and condition of the plants, A. Paul and Son would refer to those gentlemen and horticulturists who have visited the Nurseries during the season. They will not eulogize their own stock, but frankly invite inspection.
The Nurseries are within an hour's ride of the Metropolis by Eastern Counties Railway to Waltham Cross Station; Day Tickets are now issued, Fares—First Class, down and up, 3*s*.; Second Class, down and up, 2*s*. 3*d*.
THE AUTUMNAL ROSES are still finely in bloom and will continue so throughout the autumn. The FRUIT Catalogue and HERBACEOUS Catalogue, weighing respectively under half an ounce, are now ready, and will be sent to all applicants enclosing one stamp each for postage.

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.
LOUIS VAN HOUTTE, Florist, Ghent, Belgium, begs to offer his new ALSTRŒMERIAS at the following rates, viz.—12 varieties, 21*s*.; 25 varieties, 31*s*. 6*d*.; 50 varieties, 52*s*. 6*d*. Orders received by Mr. George Rahn, 52, Mark-lane, London; or application may be made (post paid) to Mr. Van Houtte, at Ghent. Deliveries commenced on the 15th September, the plants being forwarded to London free.
The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle* 12th July last), says of these plants:—"They are of every tint from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."
In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, is the following gratifying account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstroemeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."
N.B. Each packet contains directions for planting and cultivating them.
Orders have been already received from the following parties, viz.:—

Backhouse & Son, York.	Mackenzie, Sir G., Dt., Leith.
Belfield, Rev. F., Torquay.	McGrayson, Mr., Bury St. Edmunds.
Burrell, Lady, Knep Castle.	Bridge.
Bunting, Mr., Colchester.	Ord, W., Esq., M.P., Haydon
Burlington, Earl of, Holker Hall.	Robinson & Sons, Upper Tooting.
Chandler & Sons, Vauxhall.	Thickins, W., Esq., Coventry.
Egerton, Mrs., Knutsford.	Varnham, A., Esq., London.
Hanbury, R., Esq., Spitalfields.	Waterer, Mr., Bagshot.
Hunt, C. B., Esq., Gloucester.	Western, J. B., Esq., Rivadon.
Ivery, Mr. Wm., Peckham.	Wood & Son, Maresfield.

LYNE'S NEW SEEDLING GERANIUMS.
WILLIAM E. RENDLE has much pleasure in stating to the Nobility, Gentry, and the Trade, that he has again obtained the valuable collection of GERANIUMS raised by
PHILIP E. LYNE, Esq., of Lipson,
which have been carefully selected from at least 1200 seedlings.
The following are recommended as first-rate show flowers:—

		£	*s*.	*d*.
Lyne's Hesperus	each	1	11	6
,, Marmion	,,	1	11	6
,, Princess	,,	1	1	0
,, Merry Monarch	,,	1	1	0
,, King of Saxony	,,	1	1	0
,, Rosetta	,,	1	1	0
,, Chaplet	,,	1	1	0

The whole set as above for 6*l*. 6*s*.

The following sorts are recommended more for their novelty and brilliancy of colour, than for their qualifications as show flowers:—

Lyne's Vampire ..	7*s*. 6*d*.	Lyne's Aladdin	7*s*. 6*d*.
,, Picta	7 6	,, Moonbeam .	7 6

Or the set of Four for 21*s*.
The following were sent out last autumn, and are now offered at 10*s*. 6*d*. each, or 30*s*. the set:—Lyne's Princess Alice, White Perfection, Imogene, Redworth, and Confidence.
Strong established plants of all the above will be ready on and after the 1st of November next. All orders will be executed in strict rotation. *The usual allowance to the Trade.* In consequence of the large demand for Mr. Lyne's Seedlings last year, all the late orders could not be executed; to prevent disappointments therefore, it is desired that all orders will be forwarded as early as possible.
DESCRIPTIONS OF ALL THE GERANIUMS CAN BE OBTAINED ON APPLICATION.
Union-road Nursery, Plymouth, September 20.

CHOICE HYACINTHS, JONQUILS, TULIPS, NARCISSUS, LILIES, GLADIOLUS, IRIS, RANUNCULUS, CYCLAMEN, ANEMONES, AMARYLLIS, CROCUSES, &c. &c.
CLARKE and CO. beg leave to apprize the Nobility, Gentry, and their customers, of their having lately received their ANNUAL IMPORTATION of DUTCH FLOWER ROOTS direct from the most approved Cultivators in Haarlem, which have come to hand in the finest possible condition. The very flattering reports which C. and Co. received of the success of their Hyacinths last season, induces them again to call the attention of their friends to their UNRIVALLED COLLECTION, in hopes of receiving that esteemed patronage which they were last year favoured with.
*** Early Orders are requested to ensure fine Bulbs. Catalogues are now ready, and will be forwarded on application.
86, High-street (opposite the Town Hall), Borough, London.

KENSINGTON, NEAR LONDON, AND READING, BERKSHIRE.
MESSRS. RICHARD FORREST & Co., Nurserymen, Seedsmen, and Florists to the QUEEN, beg leave to direct attention to their extensive collection of BULBOUS and other Roots just arrived from Holland in very fine condition. From the long connection of their predecessor, the late William Malcolm, and themselves with the most extensive growers in Holland, and the extent of their importations annually, they can supply their numerous friends upon the most reasonable terms.
F. F. & Co. also beg to draw the attention of the Public to their fine stock of young healthy plants of STATICE MACROPHYLLA, 12 to 15 inches, at very reasonable prices. Catalogues may be had on application at Kensington Nursery, and at Reading, Berkshire.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON having on hand an immense Stock of all the New and approved STRAWBERRIES, they are now sending out strong plants at the following reduced prices: *Warranted true to name.* Price per 100.

	s.	d.
Myatt's British Queen	3	6
,, Deptford Pine	7	6
,, Eliza	2	6
,, Prince Albert	7	6
,, Princess Alice Maud	10	0
,, Princess Royal	5	0
Elton Pine	2	6

Plants will be presented gratis to defray the expense of carriage; a remittance or reference is respectfully solicited from unknown Correspondents.

ROSES IN BLOOM.

W. W. and Son's Collection of PERPETUAL ROSES are now coming into fine bloom, and will continue in flower during the autumnal months. Admittance gratis, daily (Sundays excepted). Maresfield is 12 miles distant from the Haywards Heath Station on the London and Brighton Railway, from which place conveyances may be obtained.

DUTCH FLOWER ROOTS.

WILLIAM E. RENDLE has made arrangements with one of the largest Florists in Holland, and will be enabled to supply his customers this Season with Hyacinth, Tulip, and other Bulbous Roots, at very reduced Prices.

HYACINTHS.—Fine Blooming Roots, well selected. Selection of 20 Sorts from the following List for 11s. 6d.—*Double Dark Blue*—Antoinette, Bleu Foncé, Parkames, Habit Impérial, La bien aimée, L'amitié, Lord Wellington, Nigritienne, Violet Foncé. *Porcelain Blue*—Comtesse de Salisbury, Duchesse de Normandie, Grand Sultan, Maréchal de France. *Double Red*—Acteur, Waterloo ou Pourpre tendre, Cramoisie Royale, Flos Sanguineus, Hirsilia, Madame Zoutman, Marie Louise, Panorama, Rose Mignonne, Rouge Charmante. *Double Pale-coloured*—Comtesse de la Coste, Diadem de Flora, Euterpe, Grand Vainqueur, Illustre Pyrimidale, Il Pastorello, La Superbe Royale, Lord Castlereagh, Orange Rouge, Rose Agréable. *Double White*—Admiral Zoutman, Altesse Royale, Belle Forme, Bijou des Amateurs, Blanche Fleur, Constantia Elizabeth, Couronne Blanche, Duchesse de Richard, Don Gratuit, Furius Camillus, Hermione, Jeannette, La Chaste, La Déesse, Matilda, Minerva, Nanette, Penelope, Passe Virgo, Triomphe Blandina, Violette Superbe, Virgo. *Double Yellow*—Bouquet d'Orange, Chrysolora, Jaune Pyramide, Oubri Pur. *Single Dark Blue*—Amicus, Appius, Hailey, L'amitié de Cœur, Passe Tous. *Single Porcelain Blue*—Agathe Pyramidale, Emilius, L'Empereur des Russes, Lord Nelson, Lyra, Nimrod, Orandates, Staten General. *Single Red*—Acteur, Charlotte Marianne, Homeras, La Victoire, Rouge Brillante, Thalia. *Single Pale-coloured*—Aimable rosette, Emilius, Elfride, Grand maître Royal, Keisteldo Vrede, L'amie de Cœur, La Mirconne, Talma. *Single White*—Blandina, Favorite Blanche, Grandeur Triomphe, Impériale, Monarque du Monde, Premier Noble, Staten General, Triomphe Blandina. *Single Yellow*—Adonis, Belle Jaune, Couronne d'Audaan, Couronne Jaune, La pâle Roi, Tamerlan.

Selection of 20 Sorts from the following List for 17s. 6d.—*Double Dark Blue*—Bouquet Pourpre, Commandant, Pourpre Superbe, Susanna Elizabeth, Veeurs Pourpre. *Porcelain Blue*—Belle Mode, Duc de Normandie, Grand Violette, Georgius Tertius, Habit Brillant, Passe tout, Prince Frederick. *Double Red*—Belvidere, Délice de Flore, La Beauté Suprême, Marquise de la Coste, Rex Rubrorum. *Pale-coloured*—Agathe Catherine, Délice de Printemps, Temple d'Apollon. *Double White*—A la mode, Camilles Vinaceites, Dame d'Elphèse, Duc de Valois, Gloria Florum, Illustre Beauté, Perle Brillante, Reine de Prusse, Sphœra Mundi. *Double Yellow*—Jaune Constante, La Favorite, L'or Vegitable, Louis d'or. *Single Dark Blue*—Plucher, La plus Noire, Madame la Vollaire, Talent Claim, Vulcan. *Single Porcelain Blue*—Duquin, La Parfaite, Porcelain Sceptre, Robinson. *Single Red*—Bouquet tendre, Diana, Eclatante Parfaite, Mars. *Single Pale-coloured*—Comtesse Christiana, La Baleine, Princess Wilhelmina, Temple d'Apollon, Tubidora. *Single White*—Duc de Cumberland, Mercures, La Candeur, Noble de Vénice, Reine d'Hollande, Themistocles, Voltaire.

Fine Mixed Double and Single Hyacinths, 3s. 6d. ℔ dozen.

TULIPS.—*Double Tulips.*—Fine Mixtures, 5s. ℔ 100; Duc Van Thol, 6s. ℔ 100; Rex Rubrorum, Beauty, 10s. *Early Tulips for Forcing.*—Fine Mixtures, 8s. ℔ 100; Duc Van Thol, 5s. ℔ 100; Ma pius Aimable, 15s. ℔ 100; Duchess de Parma, 15s. ℔ 100. *Parrot Tulips.*—Large Yellow, 12s. ℔ 100; Constantinople, 12s. ℔ 100; Perfecta, 12s. ℔ 100. *Late Tulips.*—Fine Mixtures, 8s. to 12s. ℔ 100; Fine Named sorts, from 1s. ℔ dozen, upwards.

ANEMONES.—Fine Double Mixture, 7s. ℔ 100; Finest Single Mixture, 5s. ℔ 2s.; Fine Named sorts, 1s. ℔ dozen, upwards.

RANUNCULUS.—Finest Double Mixture, 7s. ℔ 100; Scarlet Turban, 3s. ℔ 100; Yellow Turban, 5s. ℔ 2s. 6d.; Black Turban, 6s. ℔ 100.

IXIAS.—Finest Mixture, 1s. ℔ dozen; Fine Named sorts, 3s. ℔ dozen.

CROCUS.—Selection of the following, at 6s. ℔ 100.—Cloth of Gold, Cloth of Silver, Large Yellow, Large White, Large Blue, Large Striped, Large Scotch, Fine Dutch Mixtures, 1s. ℔ 100; Fine New Named sorts, 4s. ℔ 100.

POLYANTHUS NARCISSUS.—Grand Sorts, fine, 2s. 6d. ℔ dozen; Staten General, 3s. 6d. ℔ dozen; Finest Mixtures, 2s. ℔ dozen.

GLADIOLUS.—12 Fine Named sorts for 3s.; Floribundus, 3s. 6d. ℔ dozen; Psittacinus, 2s. per dozen.

IRIS, &c.—Fine Named Anglica, 3s. 6d. ℔ dozen; Fine Mixed ditto, 1s. 6d. ℔ dozen; Fine Mixed Hispanica, 1s. ℔ dozen: Persica, 2s. ℔ dozen: Pavonia Major (or Peacock's Eye), 2s. ℔ dozen. Oxalis Bowiei, 2s. ℔ dozen. Tropæolum Tricolor and Brachyceras, 4s. ℔ dozen. Choice Show Pinks, 1s. 6d. ℔ 100: Double ditto, 2s. ℔ 100. Double Anglica, 3s. ℔ dozen: Single ditto, 1s. 6d. ℔ dozen.

All other kinds of Bulbs as low as can be consistently.

All Orders are requested to be forwarded before the 1st of October, to ensure a supply.

*** *Orders above 5l. will be delivered Free of Carriage to London, Bristol, Exeter, Falmouth, or Barnstaple: or above 6l. to Liverpool, Dublin, or Monmouth.*

No charge for Package. Unknown Correspondents are respectfully desired to give a reference in London.

Union Road Nurseries, Penge, by Sydenham, Surrey.

H. CORSTEN, 19a, Davies-street, Berkeley-square, Florist to Her Majesty the Queen, begs to inform the Nobility and Gentry that he has arrived from Holland with a large assortment of DUTCH BULBOUS ROOTS, and warranted to bloom fine. He has now for sale large collections, containing 24 Hyacinths, named sorts, good for glasses or pots, 2s. 6d.; 24 Narcissus in all colours, 2s.; 24 Jonquils, 1s. 6d.; 24 Crocus (fine), 50 double mixed Ranunculus, 2s.; 50 Anemones (fine), 24 Iris Anglica, new sorts, 2s.; 24 Persica, 2s.; 12 Gladiolus, 100 Crocuses (mixed), 2s. 6d.; 24 Tulips, 2s. 6d.; for 1l.—Remittance required.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen. The former is a beautiful flower, which is so justly esteemed for its strong but delicate fragrance, and the latter for its purity and elegance. Just arrived at A. Conzerius, Importer, Barnard's Inn, Holborn, from Warehouse, 18, Pall Mall, London.

Orders by post punctually attended to.

PINE-APPLES.—A most excellent preserve for the Dessert may be made of the FOREIGN PINE-APPLES now imported into this country by COOPER'S PATENT APPARATUS, and Vessels, for preserving all kinds of Fruit in the most effectual manner.





Any Lady or Gentleman growing their own Pines may have them preserved for the above purpose at a small expence, by the Patentee, in the presence of their own servants, male or female, if it will be convenient for them to attend, and accommodation will be provided for them if they come from a distance.

Patent Preserved Fruits are now on sale at the Manufactory, No. 7, the upper part of St. John-street, Clerkenwell, London, at the usual prices.

Pine-apple, in half-pint samples, 3s. each.

Particulars and Testimonials may be had as above, or they will be forwarded by post, if requested.

The Apparatus, &c., may likewise be seen at the Adelaide Gallery, Charing-cross, London.

NEW AND SPLENDID ORNAMENTAL ELM—"ULMUS MONTANA SUPERBA."

J. GILL, NURSERYMAN, Blandford, Dorset, begs respectfully to invite the attention of Noblemen, Gentlemen, Nurserymen, and others, to the above, which he flatters himself he can, without exaggeration, recommend as one of the most ornamental trees introduced of late years. Its growth is of a very luxuriant character; the size and weight of its ample foliage give to its side branches a most graceful pendulousness, and, in fact, render the tree itself an object of great beauty and attractiveness. It has not only been seen and admired, but also ordered by many of the leading Nurserymen in different parts of the kingdom; and in addition to the recommendation thus conveyed, its ornamental qualities have secured it the favourable suffrages of many gentlemen and Amateurs in the neighbourhood, who have had the opportunity of observing its habits and character. See also Dr. LINDLEY'S opinion in the *Chronicle* for Sept. 13, page 628:—"We have measured leaves of Mr. GILL'S new Elm, 10 inches long and 6 inches wide. If the tree continues when old to bear such leaves it will be a very remarkable variety."

An engraving or specimen of foliage will be furnished if required, on receipt of two penny stamps.

Fine strong plants, 10s. 6d. each. Strict rotation will be observed in executing orders. The usual discount to the Trade when not less than six plants are taken.

N.B. A reference or remittance from unknown correspondents.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(By Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Price Lists of Agricultural Seeds are always ready, and may be had on application.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt.	26s. 0d.	Milled Lead in Sheets,	s. d.
Linseed Oil, per gall.	2 3	per cwt.	21 0
Turpentine	5 3	Cut to Size	22 0
Warranted Varnishes and Colours.		Pipe all Sizes	22 0

BED, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and 1 Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1l. 8s. Garden-Lights made and glazed from 1s. per foot, at JAS. WATTS'S Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea. By special appointment to the QUEEN, and H.R.H. PRINCE ALBERT.

PHEASANT POULTS.—Gentlemen stocking their preserves are respectfully informed they can be supplied with any quantity of TAME BRED PHEASANT POULTS, as above, also a great variety of useful and ornamental Water Fowl. Domestic Poultry, including Malay, Cochin China, Dorking, Spanish, &c., Fancy Bantams, &c., &c., 3, Half-moon-passage, Grace-church-street.

N.B. Just arrived, some PURE CHINA PIGS.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1s. 6d. each.

"Mr. HUNT'S new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

HOT-WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 66, Dorset-street, Fleet-street.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROBERTS, Esq., are made of various sizes by JAMES SCRIVEN, Ironmonger, Sevenoaks. They are applicable to all kinds of Apparatus, and are in use at Messrs. LOCKE, BLAIR, & Co.'s, Chandos, Vauxhall; Messrs. [illegible], Dartmouth; Mr. Henderson's Nurseries, Pine-apple-place; and in the Horticultural Society's Gardens.

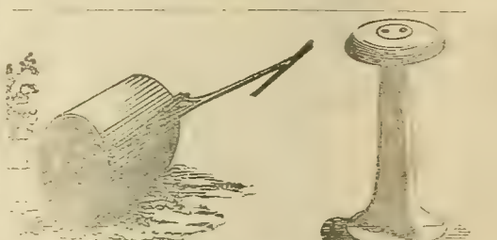
HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

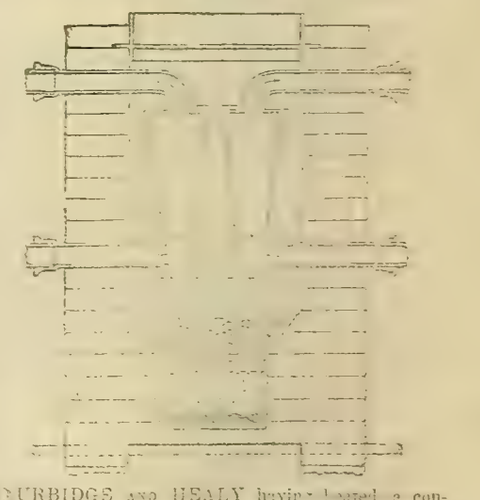
HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

THE TANK SYSTEM.



DURBIDGE AND HEALY having erected a considerable number of Pits and other Horticultural Structures, for the cultivation of Vines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that any kind of structure may be heated by Bramhall and Healy's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Burdett Coutts's Gardens, Stanmersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

WIRE-WORK, HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Hanging Flower Stands, Phasianries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

BRIGHT YELLOW BOUVARDIA (Bouvardia flava, Dne.)

LOUIS VAN HOUTTE, Florist, at Ghent (Belgium), commenced sending out, on the 15th of September, good bushy plants of his new bright YELLOW BOUVARDIA (Bouvardia flava, Decaisne), a coloured drawing of which will accompany each plant, which will be sent to London free. Not one plant of this YELLOW BOUVARDIA had previously left his Nursery. Price 21s., without discount, unless four plants be taken. Orders also received at Mr. George Rahn's, 52, Mark-lane, London.

N.B. The coloured drawing of the above Bouvardia is also to be seen at the Office of the *Gardeners' Chronicle*.

The following Gentlemen have already subscribed :—

	Plants		Plants
Backhouse & Son, York	1	Major, Mr. H., Knosthorpe	1
Chandler & Sons, Vauxhall	1	Mallison, Mr., Claremont	1
Glendinning, Mr. R., Chiswick	1	Mountjoy & Son, Ealing	4
Groom, Mr. H., Clapham-rise	1	Nant, Mr. T., Guernsey	1
Hancock & Son, Durham	1	Rendle, Mr. W. E., Plymouth	4
Harrison, Mr. J., Downham	1	Rollisson & Sons, Upper Tooting	2
Henderson & Co., Pine-apple-place	4	Veitch & Sons, Exeter	1
Ivery, Mr. Wm., Peckham	4	Willmot & Chaundy, Lewisham	4
Knight & Perry, Chelsea	6	Wood & Son, Maresfield	4
Lawson & Son, Edinburgh	1	Wooler, H., Esq., Brixton	1
Low & Co., Upper Clapton	4	Young, Mr. C., Epsom	6
M'Grayson, Mr., Bury St. Edmunds	1		

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 20, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Friday, Oct. 3 - Botanical . . . . . 8 P.M.

COUNTRY SHOWS.

Thursday, Sept. 25 { Surrey Horticultural and Floral. Newcastle and Gateshead Dahlia.

The attention of everybody is so absorbed by the Potato-murrain, that we should be wanting in our duty towards the public if we did not continue to advert to the melancholy subject. Not that we have much to add either by way of advice or consolation; for the topics connected with the disease have all been already touched upon, more or less amply, by ourselves or our correspondents; and every week's experience satisfies us that there is little, if anything, to modify in the opinions we have ourselves already expressed.

The mischief is, undoubtedly, extensive to a most alarming degree. If we estimate the amount of loss at five-sixths, we shall hardly exceed the fact. In many places the crop is hardly worth the digging; in others it is totally putrid; in many more, it seems to be spreading fast; and, as we mentioned last week, it has certainly broken out in Ireland. "All *my* Potatoes," says a correspondent near Dublin, "as well as those of the poor people here, are destroyed by the murrain. Two days ago, 12 acres were still safe: they are now gone." Germany, Holland, and Belgium, are in the same state as England. A dysentery, which has already appeared at Erfurt, is said, by the *Gazette de Cologne*, to be traceable to the use of bad Potatoes. The Belgian papers speak of cholera, at Ghent, produced in the same way. Poland, according to the same journals, is so threatened by famine, that the Prussian authorities on the frontier have been obliged to take precautionary measures for keeping the starving population out of the Prussian territory; and, finally, the authorities of some districts in France and Germany have either prohibited or threatened to prohibit the exportation of Potatoes, lest there should be no seed for another year.

Such is the state of the case. It is useless now to speculate on the first cause of this murrain. Our original opinion (see p. 575) was, we believe, correct; at least, we have not at present seen anything to shake our confidence in it; and we find that, with the single exception of Professor Morren, the universal opinion among the Belgian cultivators is the same as ours, except when meteors, electricity, and other unknown forces, are appealed to. It is true that a minute fungus has made matters infinitely worse; but that is, we quite believe, a secondary cause. The consideration of this part of the question may, however, be very well deferred. What we have now to look to is an immediate remedy for the evil.

From the very beginning we have pointed to dryness as the first means of arresting the progress of this disease. We even ventured to suggest kiln-drying, where means are at hand to employ it. We now learn from the Belgian *Moniteur*, that a Dr. Varlez, of Brussels, has proved experimentally the efficacy of the process. The following is his account of his manner of proceeding:—"I caused an oven to be heated to the temperature of something less than 180° Fahr. I placed in it diseased Potatoes, both whole and cut, in order to be able to obtain an exact comparison between the parts baked and those not exposed to heat. After having been exposed to this temperature for a few minutes, a copious blackish matter oozed out of the Potatoes, and they emitted a nauseous fetid smell. The corrupted matter came out, and when the Potatoes were not too much diseased, they became white again, and nothing remained of the rot except a slight brownish layer adhering to the skin, and easily removed by peeling. This layer is compact, and will permit nothing to pass through it into the interior; it loses, moreover, all power of injuring the sound parts that remain. As soon as Potatoes are *quite dry* on the surface, they may be removed from the oven. I found from 18 to 22 minutes long enough, when the temperature was such as I have described." We are unable to say how long Potatoes thus treated may be kept: but we imagine that there will be no difficulty on that head, if they are stored away in a perfectly dry place. The question is, how far the cost will render the process of practical value.

Others recommend a steep of some kind as a means of stopping the mischief. This, if it will produce the effect, is the simplest process; but we are not aware of any positive result having been obtained by it. For ourselves we have no great expectation of advantage. The mould-fungus which is now working so much havoc upon a debilitated constitution, buries its spawn in the tubers, far, we fear, beyond the reach of steeps; and as to its seeds, why they are finer than the motes in a sunbeam, and will insinuate themselves everywhere. We shall, however, be much obliged to any one who has tried any of the plans that have been proposed, for some account of the result. Mr. Prideaux has recommended chloride of lime and salt at page 593. Professor Morren also directs attention to the importance of salt as a means of repelling the disease. He recommends the tubers to be plunged in a steep composed of 54 lbs. of lime, ½ lb. of sulphate of copper, 7 lbs. of salt, and about 25 gallons of water. But if the Potatoes are to be eaten, the sulphate of copper must be left out; in fact, he recommends the steep for seed-Potatoes only. There is one circumstance connected with the supposed action of salt that deserves to be mentioned. In another column will be found a letter from a known correspondent, signing himself "Ambulator," who speaks of the healthy state of the Potato crops on the coast of Somersetshire, although the murrain has committed its usual havoc beyond the reach of the sea influence. We also read in a Belgian newspaper, the following statement:—"A person who has been travelling through Belgium, and especially the two Flanders, has remarked that on the coast, as far as the air is impregnated with saline particles, the Potatoes are sound and perfectly healthy; but, elsewhere, more inland, the epidemic is raging, and the Potatoes become more and more rotten every day." Are these coincidences? or do they indicate any protecting influence on the part of salt? The question is worth consideration. Has any one used salt in planting his Potatoes? and if so, with what effect?

We find, however, that public opinion is turned more to the extraction and preservation of the *flour* which lies in the Potato, and which constitutes an important part of its nutritive quality, than to any processes for saving the tubers by heat or steeps, the first of which is expensive and the last uncertain. It is a fact, that in spite of the ravages of the mould-fungus, or the progress of putrefaction, the internal flour is as yet uninjured, and that it is practicable to extract it by very simple and cheap processes. This course is recommended by the members of the Hadleigh Farmers' Club, as will be seen from their resolutions printed in another column; and we have received both from Mr. Berkeley and Professor Henslow, excellent samples of fine Potato flour, extracted from decayed Potatoes. The latter gentleman found that while half a bushel of sound Potatoes yielded 4 lbs. 10 oz. of flour, the same quantity of diseased and decaying tubers furnished 3 lbs. 1 oz. We have also received from a farmer at Hadleigh, some good bread made by a labourer's wife from gleaned corn, and rather more than half Potato flour, roughly prepared from very bad Potatoes, and some sponge cake, worthy of Gunter, made exclusively of such flour by Mrs. Patteson, the mistress of Hadleigh workhouse. In fact, the labourers' wives in Suffolk are setting in good earnest about the extraction of the flour.

This being so, we think it important to direct particular attention to this practical point, and in connection with it we print the following valuable observations by Mr. Edward Solly, who is directing his attention to the chemical facts connected with the murrain.

"Attention is now generally being drawn to the manufacture of Potato-flour, with a view to save some portion, at least, of the useful matter of the crop, instead of losing the whole, which appears to be the inevitable result, if those tubers which are affected with the rot are left in the ground to ripen, or even stored up with others which are sound. The putrid matter which has been formed in certain parts of the plant, chiefly in the underground stem and roots, having been circulated through all parts of the plant, has induced decay or putrescence sometimes in the stem, sometimes in the leaves, and sometimes in the tubers. This putrid matter or *ferment* as it may be termed, contains nitrogen; it is, in fact, the gluten and albumen of the plant in a state of decomposition, and wherever it has caused decay, it has done so by causing the gluten and albumen of that part of the plant to enter into a similar state of decomposition. The next substance which begins to change is the cellular tissue, which under the influence of the putrid azotised matter, putrifies also; and lastly, the granules of flour undergo the same change. It is almost impossible to arrest this effect in the tubers; for, when once commenced, it proceeds rapidly and with increased power, not only causing the whole of the tuber itself to decay, but also spreading to the surrounding ones, the putrifying juice being fully able to develope putrescence in sound tubers. The value of Potatoes as food depends on the flour and azotised matter which they contain; in the diseased tubers the latter is already destroyed; the former, however, remains sound, and therefore by proper means may be separated from the other substances which are already destroyed as constituents of food.

"Water is essential to this species of decay, which would not proceed so rapidly if the Potatoes of this year did not contain an unusually large proportion of water; hence the decay may be checked, or altogether arrested, by drying the tubers; this prevents the further spread of putrefaction; but it does not at all remedy the mischief already done.

"The best plan at present appears to be that of separating the flour from the fibre, &c., of the diseased tubers. Those Potatoes, the haulm of which is already dead, should be taken up at once, and partially dried by exposure to the air; this will check the progress of decay, and not interfere with the subsequent extraction of the flour. The following is a brief outline of the process requisite for this purpose:—

"The tubers must be washed, and then grated or reduced to a pulp. Machines for this purpose may be obtained from agricultural machine makers, which will save a good deal of time when any quantity of Potatoes is to be operated upon. The pulp as it falls from the grater should be collected in a canvas bag, as then the juice which contains the greater part of the azotised matter will drain away from the flour and fibrous portion of the tuber. The pulp must then be washed; this may be done on a sieve, or in a coarse canvas bag; the pulp being well stirred whilst a small stream of water is suffered to run through it into a tub or other convenient vessel placed beneath. The water comes through milky, carrying with it the flour, and leaving in the sieve or bag the fibrous matter of the tubers, which may probably be used with advantage in feeding pigs; but as this is a matter perhaps open to doubt, it should be given with caution at first. The floury water, after standing for about 10 minutes, is to be poured off, when there will be found at the bottom of the vessel in which it stood a quantity of impure flour; this must be washed by stirring it up again with a quantity of fresh water, and then allowed to settle; the lower part of the flour will then be found to be pure and white, whilst the upper part is dark-coloured, and contains a good deal of decayed fibre; this should be separated from the clean flour, which is to be drained and placed to dry in a warm room, but not dried by the artificial application of fire, which, if incautiously used, would be be very likely to spoil it by converting it into gum. By this process good flour may be obtained from Potatoes which are brown and perfectly unfit for any other use; but as it is difficult to separate the decayed fibre from the flour in these tubers, it will be as well to separate as much as possible those which are quite rotten from those which are but slightly tainted before grating.

"The quantity of flour in different kinds of Potatoes varies considerably; on an average a cwt. yields about 18 lbs. of good starch; but some kinds yield considerably less. The quantity of flour in Potatoes this year appears rather less than usual; but this is occasioned by their containing, for the most part, rather more than the usual proportion of water: the average proportion of water in good Potatoes, is about 80 lbs. per cwt."

The great advantages of proceeding thus with the diseased Potatoes are that, in the first place, the process is certain to succeed, and in the second, that it costs nothing beyond a little labour of women and children, and such an apparatus as every cottager must have, except a bread-rasp; and for that an old coarse file, or even a brickbat, or anything else having a rough and hard substance, may be substituted; or the Potatoes may be crushed by a heavy instrument. The arm of an old shirt, or the leg of a pair of worn out-canvas trowsers, or a

piece of an old flannel petticoat, will make strainers, fine or coarse, according to what is wanted; and no fuel is required to dry the material. All that the labourers have to attend to is not to allow the water and starch to stand for more than 10 minutes at a time. It is true that all the azotised matter will thus be lost, but what is saved will have considerable value, and there is no sort of difficulty in the extraction of the flour, which, where cottagers are concerned, will be best effected by the first of the Hadleigh processes.

There is one additional point on which a word of advice may be given. Professor MORREN recommends that the haulm should be removed and burnt, wherever it is quite withered. The practice of cutting it off and raking it in heaps has been practised by many persons from the first appearance of the disease, and, as we have before stated, there may be some advantage in doing so. This at least is certain, that no advantage is gained by leaving decayed haulm on the field. We do not, however, attach much importance to the burning; it can do no harm, and that is all. Nor would we advise the haulm to be removed unless it is very bad; because as long as it is green and healthy it has a daily tendency to ripen the tubers, and thus to keep off the evil. If, however, the leaves are yellow, we should take up the crop.

The above was all in type when we received the following very important and interesting communication from the Rev. Mr. BERKELEY.

"I have just received from Dr. MONTAGNE specimens of a very curious parasite, which occurs in the intercellular passages of Potatoes during the process of germination, or just after it is completed. It was discovered in the course of some experiments by Doctor RAYER, Chief Physician of the Hopital de la Charité at Paris, who has been paying great attention to the disease with which Potatoes are now affected, and who purposes to publish an account of his observations, which I am assured are most interesting. Amongst other points he finds that though the grains of fecula which are found in the cells of the diseased Potatoes are not injured, they gradually diminish in number, as in the germinating sets, till in some cases all are completely absorbed. It will be important, then, to convert the diseased tubers into flour at as early a period as possible.

"Dr. MONTAGNE considers the parasite above-mentioned to belong to a new genus allied to Sepedonium and Asterophora. He has given the little mould the name of Artotrogus hydnosporus.*

"Those who have access to the late Numbers of the Journal of the Institute will find some interesting matter respecting the Potato Murrain."

The importance of this communication consists in its revealing the fact that the flour is itself disappearing, though not undergoing decay. It is therefore of the first consequence that those who mean to operate upon their decaying crops, should do so without a day's delay.

ENTOMOLOGY.

SCOLYTUS HÆMORRHÖUS *Megerle* (*The Apple-tree Scolytus*).—A nearly allied insect having occupied the attention of scientific men for many years, it is with much pleasure I make known the economy of a species which, if it be not the Scolytus picicolor of Kirby,† is, I doubt not, the S. hæmorrhöus, whose habits have been detailed by Schmidberger. In cutting out some dead and dying branches from a cankered Hall-door Apple-tree, I observed the traces of a larva in the wood, and on removing the dead bark, a leading channel, which had been excavated by a female beetle, became exposed to view (fig. 1); from this diverged numerous smaller and less perfect channels, eaten by the larvæ which had hatched from the eggs, deposited on either side of the channel by the parent beetle, and of course these branching channels are very small at the base, and gradually increase in size to their extremity, where they are rounded, and in two of these I found a little fleshy yellowish-white maggot, with an ochreous shining head and brown mandibles considerably like those found in Filberts and other nuts.

Having made this discovery, I shut up the branch in a tin box, and about last July I had the satisfaction to find two minute beetles (fig. 3), which appear to be identical with the S. hæmorrhous. This species is not a twentieth part so large at the S. destructor ‡; it is also less shining, the sculpture of the elytra is very different, the thorax is not so smooth, and the head is more sparingly clothed with pubescence. It is pitchy-black and shining; head thickly and minutely punctured, covered with pale hairs; eyes long and elliptical; antennæ inserted close to their interior margin, shorter than the head, somewhat ochraceous, capitate, 11-jointed, basal joint comparatively large, second subglobose, third and five following very short, the club ovate-conic, and apparently composed of three united plates; thorax oval, strongly punctured, the anterior and posterior margins ferruginous; elytra short, elliptical, the apical portion ferruginous, thickly punctured, forming approximating lines of unequal strength; two wings very long and narrow: six legs short and strong; tibiæ with a curved spine at the apex; tarsi short and 4-jointed, two basal joints elongated, third bifid, fourth clavate, terminated by two minute claws. Fig. 2, highly magnified and represented flying; fig. 3, showing the natural size.

As it is my wish to give the history at some future period of the Scolytus destructor, which has infested such numbers of Elm-trees in various parts of Europe, I shall confine myself at present to some remarks by Schmidberger relating to the Apple Scolytus, which he has also bred from that tree. It appears that a young dwarf Apple-tree, which had been infested in 1834 by another beetle called Bostrichus dispar, was thrown away with the ball of earth attached to the roots, after cutting off all the infested branches; it was then left in a half fresh and half withering state, when the stem was attacked by the S. hæmorrhous, which in size and colour agrees with my specimens. Towards the end of May there were numerous passages formed in the inner bark, in each furrow was a white egg, which shortly produced a white larva, these lived upon the bark until the autumn, occasionally feeding upon the sap-wood, and left the outer bark as a protection from the weather and to conceal themselves from their parasitical and other natural enemies. In the autumn, being full grown, they changed to pupæ, or at least spun cocoons, and became perfect beetles the end of March, sallying forth from their quarters in April.



M. Schmidberger says, it is evident that when a tree is attacked by this Scolytus in great numbers, it must perish, as no tree can live with the bark and sapwood injured. From his not having found the Scolytus again, he concludes that it is an inhabitant of forests rather than of orchards, and I have been unable to discover the least trace of any more in my garden, but this may be owing in some measure to their minuteness, which is against one's finding them. Schmidberger farther states that he did not observe the Scolytus on any of the healthy trees standing near to the half withered one, and he consequently infers that it attacks only sickly trees. It appeared to multiply very fast, for the few females which he allowed to inhabit the stem of the tree, laid so many eggs that the larvæ produced from them destroyed the bark nearly a foot in length. The only mode of extirpating them is to remove and destroy the infested trees, which ought to be done early in the spring, before the beetles hatch. Kollar also says, that the S. destructor will attack fruit trees, and Mr. Spence found specimens of another species which had destroyed many of the Mountain Ashes in the public garden at Rouen.—*Ruricola.*

Home Correspondence.

Disease in Potatoes.—Notwithstanding the fineness of the weather, the Potato-blight is making rapid progress. Patches which were perfectly green a week ago are now blackened as if by frost. In every case I find the Botrytis infestans preceding the work of destruction. It appears while the leaves are yet green or yellowish green, and the parts attached soon became brown and withered. The appearances exhibited by some smooth Ash-top Potatoes in my garden convinces me that the spots upon the tubers arise from the attack of the mould, and that the mould is not an after organisation. The spots form most distinct concentric circles, disposed in one or sometimes two systems, exactly as in Oidium fructigenum, as figured by Ehrenberg in his Mycetogenesis, and as it may be seen almost every autumn on fallen Pears and Apples. In re-examining specimens in which there was no external appearance of mould, I found the spawn very evident in the diseased cells, but, as I before observed, the grains of starch sound and unaffected. Some of the cells contained little cubical colourless or brownish crystals, which I had not previously met with. If the infected tubers are shut up for a day in a tin box, the mould appears externally in little white patches, and soon fructifies. The grains of starch being perfect, it was a matter of interest to ascertain whether the tubers would produce good Potato-flour. I accordingly chose six highly infected tubers, of a moderate size, some of which were strongly impregnated with spawn, and others partially decomposed, and I was pleased to find that they yielded about an ounce of flour, of which I send you a sample. You will perceive that it is *very slightly* discoloured, but otherwise it is apparently of good quality, and I doubt not that, if made on a large scale, very pure fecula might be obtained. My specimen indeed would have been of a purer white but for a little accident. I am not exactly aware whether the manufacture of Potato-flour in private families is prohibited by the revenue laws; if not, the infected Potatoes may be immediately put to some good use. At any rate, the subject is not unworthy the consideration of the manufacturer.—*M. J. B., King's Cliffe.*——The Potato crops on the north coast of Somerset and Devon appear to be almost wholly untouched by the calamitous disease so universally prevalent throughout the country. I have lately been on a little pedestrian excursion along that coast, and I was quite delighted to see the fields in many parts of it in full blossom, and promising an abundant harvest of this excellent vegetable, which now becomes almost the staff of life to the labouring poor. I remarked that wherever the crops were fully exposed to the influence of the sea-breeze, especially on the sides of the hills sloping down to the shore (facing N., N.W., and N.E.), they were altogether free from any appearance of disease. In conversing with the labourers on the subject, I found that rumours had reached them of the state of the crops in other parts of the country; but they could hardly credit them, so thoroughly good and promising appear their own. An interesting question may arise from this, as to what the effect of a saline atmosphere may be in preventing the attacks of the fungus.—*Ambulator.*——Many Potatoes of the early description, dug six weeks ago and more, then apparently free from blight, have now become unfit for food, and are useless; indeed, as far as the produce of this island is concerned (the exportation of Potatoes from which was very considerable, both to the Mediterranean as well as the home market), there will this season be no export, and a probable loss of at least 10,000*l.*, and a large importation will be required, as the consumption here is considerable, we having a population of 20,000 British residents in addition to our own 30,000 native population. Is it not probable that one of the causes of the disease arose from the poisonous matter belonging to the fungus-mould being rapidly thrown back into the plant in the cold weather, in the early part of June; following, as it did, rapidly on the excessive heat of a few days previous. On the 12th, 13th, and 14th of June, the thermometer in the shade marked 77°, in the sun 95°; and on the 18th it was as low as 47°; the average temperature being 69° on the three first days, with bright sunshine, and no more than 57° on the 18th and 19th, with cloudy weather. All the Potatoes examined present a similar appearance, and first begin to show symptoms of disease where the tuber is attached to the fibre; it thence gradually appears round the rim through a vein, whence it rapidly spreads through the whole Potato.—*W. W. Childers*, 34, *La Motte, St. Helier.* —— As you wish to know how Potatoes recently raised from seed have stood with respect to the prevailing disease, I beg to mention that youth does not appear to be any preventive. I took up a row to-day, about 10 yards in length, of Ash-leaved Kidneys that were raised from seed of 1843, and found about one-half of the tubers infected. Those planted in autumn seem to have stood the best, at least they have done so here, there being about one in 10 diseased; the variety is the Bread Fruit; and of the same kinds planted in spring, about one-third are infected, and of Late Shaws quite two-thirds.—*A. A., Woodford.*——I send you some of a sort (No. 1) that I have grown this year for the first time; they have been cultivated two or three years by a farmer in this neighbourhood, who raised them, and you will see the disease has shown them no favour. [1 clean, 2 rotten]. No. 2 is a seedling sent me from the neighbourhood of Leeds, called Haighs, a good keeping and early sort, and prolific. These were planted in June, I think, and are better than No. 1. [They are quite sound]. The late sort, planted in July (Chapman's seedling), are not forward enough to judge of them; but the few little tubers that were raised to-day seemed very clean. Of the earlier sorts, the Ash-leaved Kidney is the worst. The Early Shaws are better. The Cambridgeshire Kidney and Pink-skin do., that were sent at the same time with the No. 1 seedling, are but little affected, though in the same border; the No. 3 are above the No. 4, and below the No. 1. [Both are quite sound]. It is not, however, so easy to detect the disease in the darker-skinned sorts. No. 5 is an Ash-leaved Kidney, from the garden of a neighbour, and I strongly suspect an insect has been at work upon it, or may now be at work under the skin, which seems but little affected on the surface, considering the great progress that the disease has made. [Quite decayed].—*H. B., South Essex.*——I beg to suggest that, as the starch of the tubers remain uninjured although surrounded by the disease, the following plan be adopted upon a large scale, so as to obtain the starch pure:—The Potatoes, after being well washed, should be laid out upon a barn floor in a single layer, and well packed, and the iron or stone roller of the farm passed over them. The sides of the bed must be protected by a board 3 inches high. The roller may be propelled by a horse outside the barn, attached by means of a rope (the shafts being kept up by a man walking in the centre); the roller may be reversed by connecting the rope behind. This process will be found to smash the Potatoes, which being shovelled off the floor and placed into a tub half full of water (such as is used for steeping Wheat), and well stirred, will completely separate the starch, which will fall to the bottom.

* He characterises the genus as follows:—Flocci branched, continuous, flexuose, creeping through the intercellular passages. Spores terminal, or inserted in the middle of the proliferous branches; at first smooth, red-brown, filled with a granulous mass; at length free and clothed with short bristles. There are two kinds of flocci present, of which one is much more slender than the other; the latter creep widely in the intercellular passages, and are evidently the hypothallus or mycelium.

† Curtis's Guide Gen. 334, 2. ‡ Brit. Ent. pl. & fol. 43.

Strain the whole through a sieve into another tub, and pour the water off. The starch now procured may be rewashed or directly laid out to dry. The same process may be carried out in the field by means of a wooden trough of just sufficient size to receive the roller, and about 18 to 20 feet in length; horses may here be attached to the sides of the roller.—*W. Elliott, M.R.C.S.L., Cowper-house, Retreat, Old Brompton, London.* [Some such process may be employed: but how is the sand of the floor to be separated?]——I beg to mention that, in this part of Cheshire, the disease is not only unabated, but spreads with the rapidity of wildfire. Patches, nay whole fields, merely spotted in the leaf, 10 days since, are now totally withered; and in all the cases that I have examined, the number of which is considerable, the spot in the leaf invariably precedes the decay of the stem, and the decay of the stem that of the tuber. I have been advising the country folks here to mow off the haulm the instant the spot becomes general; and I have little doubt that, if I can persuade them to do this, I shall have done much good. On my attention being first drawn to this disease, I took up a few Potatoes, which were just beginning to spot, and I must add that, in some places, the blackness in the stem had just commenced; these looked to all appearance perfectly sound; but having been compelled to sort them over (within a fortnight of their removal from the ground), about 10 per cent. were found decayed, with the usual symptoms. I have examined several of the neighbouring fields, and the conclusion I have come to is, that, with regard to sorts, those of the grossest habit—and, with regard to land, that which is richest and oldest tilled—are the most unfortunate under the attacks of this pest. On very poor soils, the disease would appear to merge itself finally into a sort of desiccation—the stems, which, on gross soils, become pulpy, on weak and poor upland soils, appear to wither and dry up. I would advise everybody to be on the look-out after good seed for next year; and as it is well known that under-ripe seed is far better than over-ripe, Potatoes on maiden soils, and on hill-tops or sides, which are at present not affected, or but slightly so, should be mowed forthwith, and reserved for seed; for I fully believe that such would realise very firm prices next March.—*R. Errington, Oulton.*——The appearances that the leaves of the Potatoes in this neighbourhood have lately assumed is so similar to that described in late Numbers as the first stage of the disease, that I am induced to send you specimens for inspection. I have not seen any instance, however, in which the tuber, or any considerable portion of the stalk has decayed, though I have heard of some cases along the sea coast. Do you consider this to be the commencement of the same disease that prevails in the south of England, and if so, can anything be done to arrest it in its present stage? Would it be a good plan to cut off the stalks, or would it be preferable at once to dig the Potatoes, though not yet ripe? [See Leader]. My chief reason for hoping that it is not identical with the English disease is, that it could not have been caused in this country by cold and wet, having first appeared about a week ago, after a fortnight of dry and bright weather. As far as I can learn, it was first observed on the evening of the 8th inst., which was a very hot day, succeeding a slight hoar frost.—*Wm. R. Meads, Kinsale.* [We fear the disease is our English murrain].——In answer to the inquiry, what kind of Potatoes have suffered most, I will mention, that I have two sorts, Pink Kidneys, and Shaws; these were in four divisions; two sets were in the kitchen garden, one of which, the Kidneys, was planted in October last, and has failed entirely; the second, planted in April, is partially good; the third set was in the open ground, and is not so good as the last; the fourth, which was under, and very much surrounded by Elm trees, was Early Shaws, and is perfectly good; these two last were also planted in April.—*A. Gall, Baldock.*——I am happy to add that the Potato murrain has not been detected in this neighbourhood.—*T. P., Llangollen.*

Potato Blight, effect of Autumn Planting upon.—I only grow two sorts of Potato for seed, the Early Frame and the Ash-leaf Kidney, and both of these I planted last autumn, each set being a whole Potato. The ground was slightly manured, but not by any means in a high state of cultivation. It lies near to a river, but is well drained with brick rubbish. Upon taking up the Potatoes, I find that, notwithstanding the last inclement winter, I have gathered a fair average crop of each sort, free from the murrain, or any disease, and as clean and as fine flavoured as I have ever dressed. Nothing, I think, can be more strengthening to the opinion which seems now to prevail, that autumn planting with whole sets generally succeeds the best.—*J. A. Dorant, Sopwell Nursery, St. Albans.*

Bouvardia flava.—This free-flowering species is a very interesting and entirely new acquisition to our gardens, and pruned in closely, so as to render it dwarf and bushy, it will long continue to form a spring ornament for the greenhouse, into which it must be placed during winter. The beautiful yellow colour of the flowers forms a happy and agreeable contrast to the dark purple and varied shades of the foliage. In order, however, to obtain the latter effect, the plant must be exposed during the summer season, if not to the direct rays of the sun, at least to tolerably bright light in an open airy situation. It delights in a rich soil, and, in consequence of its almost continued growth, likes plenty of water, except in winter. It will prosper in the open ground, if planted towards the end of May; but it must be taken up again and re-potted about the 10th of September, and placed in the shade or in a cold pit, and afterwards brought into the greenhouse about the beginning of October. It may be easily increased from cuttings of the young wood, which should be struck in a hot-bed, under a bell-glass, where they will root in a few days, and may be afterwards treated like the mother plants. Precaution should, however, be taken not to expose the tender shoots to the open air, or to sun-light, before they have been hardened by degrees to endure it. It may be mentioned that it does not make a good plant for early forcing, the flowers coming small and of a bad colour; but when left to break of its own accord in spring, it grows vigorously, producing large leaves spotted with red, and numerous flowers of a most beautiful yellow, which acquire twice the size of those produced from plants forced early in spring. Nature should, therefore, be allowed to do her own work in regard to this beautiful species.—*Louis Van Houtte, of Ghent.* [We are unacquainted with this plant; which, we understand, has received its name from M. Decaisne, an excellent authority.]

Proper Food for Robins, and other Soft-billed Caged Birds.—About two months ago, "J. D.," Perth, expressed himself desirous of information about robins, and other soft-billed birds, and more particularly about their proper food. In few words, therefore, I beg to convey to him, what he wishes to know; observing, *in limine*, that all soft-billed birds may be similarly treated. This is just the time for caging young robins, or "greys," as they are called; old birds are of no use whatever. Three, or more, of the former should be procured, and placed in separate cages; the length of the cages should be 2 feet, in width 10½ inches, and the height 14 inches. The back, top, and sides of each should be boarded, with wire in the front only. Two perches should be placed in each cage, crosswise, and one long perch from end to end at the front, where the birds come to eat their food. Besides these, there should be two brass-fronted tin pans for food; and a hole in the wire large enough to admit the bird's head, when drinking. Add to this a small round glass, moderately deep, filled with water, and placed in one extremity of the cage for washing in, and the habitation is completed. It will be highly requisite to hang the cages one above (or side by side with) the other, so that the birds can never see each other, else, such is their inherent jealousy, song will be out of the question. The reason of my recommending three or more birds to be caged up, is, that out of the number one or two fine songsters may be secured; for it does not always follow that because a robin is a cock bird he should be a good bird. When satisfied as to the merits of your birds, let those which are least musical fly; they will never leave the garden after you have once tamed them; but will be constant visitors at your window. As robins, and indeed all birds of the soft-billed kind, are for the most part insectivorous, it is absolutely necessary to feed them upon what most closely assimilates with their natural and proper aliment. This, from long experience, I have proved to be raw meat and yolk of egg, boiled very hard; providing them at the same time with a small quantity of other food, composed of bruised Hempseed, stale buns, and German paste (not "Sterry's," which is very heating and coarse, and ill adapted to their constitution), or mild cheese;* the whole rubbed small and mixed well together with the white of the same egg whose yolk you have already used. This must be fresh every morning, as must also the water for washing and drinking. The meat must be rump, or very tender lean beef-steak, scraped (the smooth way of the grain), with a sharp table-knife, and must afterwards be carefully freed from strings and fibres. Add the yolk of a hard-boiled egg, and moisten with cold water, till the whole substance assumes a moderately soft, but not "watery," paste; and give some of it, when so prepared, to each bird, in a small round tin patty-pan, or doll's-plate. These observations form only the pith of what I would say; but *multum in parvo* must be my motto. I will only add my belief, that when the vocal powers of the robin become more extensively known, they will rank among the first, the very first of our soft-billed warblers—the nightingale not excepted: nor shall we hear any more of its being "unlucky" (I speak with all due reverence of the old ladies' pet adage), to keep such noble and joyous birds among our "household gods." They repay us for our kind attention, by singing ten months in the year, and are perfectly indifferent as to whether they sing by day or by night. In the latter case, however, as it is "over-time," and as such ought to be paid for, we must not of course grudge them the light of an extra candle, and a tit-bit in the form of a meal-worm or spider, of both which they are passionately fond.—*William Kidd, New Road, Hammersmith.*

Seedling Pelargoniums.—It is very much to be desired that artists would represent more faithfully the shape as well as the colours of the new Pelargoniums figured in floricultural works. It matters not what may be their peculiarities or defects, all are drawn to one formal pattern, and the consequence is that purchasers are much disappointed in blooming them, and are ready to give up the pursuit altogether. Of course this applies only to such as are not able to attend the great exhibitions, as those who can do so must be equally aware of the exaggeration with myself. As a case in point I may mention the last Number of Harrison's "Floricultural Cabinet," in which there is a figure of Beck's "Desdemona," a very attractive prize flower; but whilst it has good broad petals of a beautiful texture and colour, there is in it a tendency to twist when fully expanded, of which the drawing in question would give no idea, though it is correctly described in the letter-press. Now, as we are sure there is this inaccuracy in a flower shown several times last season we naturally conclude the seedling of Mr. Hoyle's, figured with it, and also two of Mr. Lyne's, which appear in the "Florist's Journal" of the same month, are equally incorrect. I do not say they are so, but this is the natural inference.—*Veritas.*——I will tell Mr. Balston why he should not send out his seedlings, which have bloomed since the last show at Chiswick, although they have been submitted "to very competent judges, whose opinions coincide with his own." No seedling Pelargonium ought to go forth to the public until it has been bloomed a second season. In 1844 the writer received at Chiswick and Regent's-park three prizes for flowers, which in the present season (though they have been inquired for) he has not felt justified in letting out, because they displayed no sufficient improvement on older varieties.—*A Raiser.*

Hoare's System of Vine Culture.—I have just read Mr. Hoare's statement, p. 545. Any one who has read his "Treatise on the Vine" and the article above alluded to, must see that his directions are quite at variance with each other. We erected two pillars here this spring, and sent to Mr. Hoare for three-year old Vines. In case of any accident we inserted two Vines in each pillar carefully, according to the directions in Mr. H.'s book, and after all was finished we covered the pillars with straw, that no frost could have any effect upon the Vines. Although we did all this, and gave them a clean pair of flannel sheets well washed in soap-suds (with the exception of one Vine, which has sent out a poor starved shoot about 4 inches long) they have turned out a failure.—*D.*——I beg to offer the following observations in reply to those of "C.," which have appeared at pp. 489 and 577, and which refer to the failure of Vines which he had planted under glass, in a bed of materials made agreeably to the directions given in my late work on the roots of Vines. From the last letter of "C.," I am led to infer, in the absence of any statement to the contrary, that after his Vines were planted they were never assisted in their growth by the application of water or liquid manure to their roots, and this, therefore, at once accounts for their failure. It is not within the scope or design of my book to treat in any way of the culture of Vines under glass, beyond that which relates to the planting and disposal of their roots, for which purpose it contains a description of certain substances, with their respective proportions, and the mode of mixing them together and depositing them so as to constitute a border for the reception of the roots, and which is assumed for the reasons therein distinctly set forth, to surround them with such conditions as shall approximate nearer to those they enjoy in their native country, than any which have been provided for them by the various composts or soils that are usually employed for that purpose in this country. This is the substance of the information intended to be conveyed in my work, as far as the glass culture of the Vine is concerned. It does not, therefore, contain any directions whatever, nor was it intended so to do, nor is the title of the work indicative of any such intention, as to the culture of the Vines after the operation of planting them has been completed, but leaves the future management of them entirely in the hands of the cultivator. His own judgment, therefore, is left unfettered to guide him in adopting such a routine of management as shall best attain the end he has in view, whether that be the early or late ripening of the fruit, or the moderate retardation of it, and having regard to the particular sorts of Grapes about to be produced; the most suitable temperature to be preserved; the construction of the Vinery; its aspect and means of ventilation, and various other circumstances connected therewith, all of which involves the judicious application of a greater or less degree of heat, air, and moisture, in all their various and modified forms. And the first movement in the active growth of a Vine being the bursting of the buds and the consequent expansion of the leaves, the first corresponding step to be taken in the management of it is, to supply the roots with a proper degree of moisture to counterbalance the loss occasioned by the perspiration of the leaves, and this must, of course, be done artificially, seeing that the atmospheric supply is entirely cut off, and that the roots, therefore, are, in that respect, in a completely helpless state. And that this may be effected easily at any time when necessary, express provision is, in my book (p. 45) directed to be made, when the upper surface of the border is paved, by laying the middle course of bricks in each compartment without cement, so that any or all of them may be taken up for that purpose, and replaced with facility. And although this artificial supply of moisture to the roots of a Vine so situated as soon as the leaves expand may be withheld for a time without injury, in the case of Vines already established in their growth, it cannot be delayed with such as have been recently transplanted without risking the very existence of them, and this without reference to the sort of border they may be planted in, whether it be made of soil, or compost, or hard porous substances. Your correspondent "C." will therefore see that the cause of his Vines not growing was the non-supply of a proper degree of moisture to their roots, and this cause is not at all affected by the fact of the two Vines he planted in turf having managed to scramble on so as to show a specimen or two of highly coloured fruit. The same cause, I have no doubt, operated to check the growth of the

* Cheese need not be given to your birds more than twice a week.

Vines of the Rev. T. Canning, described at p. 563. Before I conclude, I beg to mention that what "Duro" (p. 577) says the public have a right to demand of me, the public will in due time have, and in a way that will prove beyond doubt or cavil the correctness of the principles I have promulgated.—*C. Hoare, Aug. 27.*

Weeds on Gravel Walks.—With respect to the suggestion made by "J. W., Chichley Hall," (p. 578), of destroying weeds by salt, there is one consideration which appears to have escaped him. "J. W.," as well as everybody else, is, no doubt, aware that there are certain plants the growth of which is very much promoted by the presence of common salt, but he may suppose that such plants are those of the sea-shore, and therefore not likely to be produced by salting. In the main he is right in this supposition, but, unfortunately, there are some plants which require much saline matter, but are indifferent whether the salts of potass or soda be afforded them; and others which, though they usually subsist on the former, and are generally and abundantly distributed where decomposing vegetable matter (and especially straw) is afforded, yet appear to prefer soda, and flourish even more luxuriantly in situations occasionally visited by the tide. Such plants, it may be expected, would be increased by the plan recommended. In these remarks I am not supposing an imaginary evil; Polygonum aviculare is a plant of such habits as I have described above, and I witnessed an instance many years since in Scotland. A gentleman, by attempting to destroy the weeds in the drive through his park, by means of salt, so increased this plant that the road was literally rendered green by it. Unfortunately, this plant is of such general distribution that in most places the same result might be feared. The same means would, probably, increase one species of Plantain (Plantago coronopus), if already in the ground. Many other species might be enumerated.—*F. L. S., Ryde.*

Fruit of Cydonia japonica (*Pyrus japonica*).—Having seen in a former Number, some time since, an account of a trial of this fruit, I am induced to mention, as the fruit is now maturing, that I have been in the habit of using it for many years. Cut in thin slices, or finely minced, it is a great improvement to Apple-tart. One fruit is sufficient for a small tart, and two for a large one.—*F. L. S., Ryde.*

The Toad.—Wishing to decide whether the common toad can exist entirely in water, I selected several of various sizes about two months ago, and enclosed them in a large earthen pot containing several gallons of well water. As I had ample opportunity of observing their motions, I found that, for the first few days of their imprisonment, they were most anxious to gain the top of the water, as I imagined for the purpose of respiration. After a few days had elapsed I frequently found them at the bottom of the vessel, where they would remain tranquil for many hours when they would again ascend to the surface. It fully appears that some of the respiratory animals can exist under water, when not in a state of hybernation. In reference to a statement lately made in your columns that the toad devours its own skin after tearing it off, I beg to observe that my toads have not been guilty of such acts of cannibalism, as their skins are distinctly observable floating in the water. I have several toads buried at various distances in the earth for many years; when I take them up I will inform you of the result. Since the preceding remarks were written, the process of desquamation has commenced in another of my toads. The skin is quite separated on the back and hinder extremities, and only seems to require a gentle pull in order to slip off. If you would like to have the exuvia, I will willingly forward it to you.—*H. I. Raines, Newport, near Howden, Yorkshire.* [No, thank you].

Fraudulent Seedsmen.—I have been much disappointed this year in my annuals. I have been nursing a plant raised from seed of what I thought was Ipomœa rubro-cærulea, which turns out to be the common Major Convolvulus. Again, seed sent for a "splendid" new dark Convolvulus, has produced flowers snow white; Verbena seed, "extra fine," produced the old variety venosa, and one even older than that; Queen's Bouquet Stock seed (14 seeds for 1s.) have turned out to be the purple Brompton; to say nothing of old flowers sent out under new names. I am sure your able exposition of the glass trade will warrant my expectation of a word of reproof from you to seedsmen. —* * [Never again deal with the man who has cheated you.]

Prodigious Mushroom.—A short time since a Mushroom was gathered in a pasture adjoining Brightwell-park, Oxon, the seat of Wm. F. Lowndes Stone, Esq., which measured 1 yard 4 inches in circumference, and weighed 1¾ lb.—*Joseph Melony.*

Stupefaction of Bees.—One of your correspondents, Mr. Peter Mackenzie, has (p. 594) noticed the sluggish state of the Bombus terrestris, and Bombus muscorum, after extracting honey from the flowers of the Bears-foot, or fetid Hellebore, and he imagines that the narcotic nature of the plant produces this torpidity. As I have frequently remarked a similar effect to be produced upon these bees after partaking of the honey of the most innocuous flowers, I am induced to attribute it to another cause; namely, the intemperate habits of the insect itself. The rich blossoms of Lime-trees afford them a most luxuriant feast, and they may be found in great quantities on the ground beneath the branches of that tree during the flowering season, in what (if they were human beings) would be called a stupid state of intoxication. The old bees generally recover from the effects of their debauch, but the young ones die in consequence of it, their bodies becoming the prey of a small apterous insect, after having been decapitated by water wagtails, which make a savory repast of their heads only.—*Oswald Mosley, Rolleston Hall.*——In reply to Mr. Mackenzie, I would say that the narcotic nature of the plant might possibly produce the torpidity he mentions, but not likely; at least, the same thing happens to them on many other plants, which are certainly not narcotic, as the Sunflower, the large Thistle, the Knapweed, and many other compound flowers; it appears that they are so long in extracting all the honey to be found in such large flowers that they get benumbed before they have done, and so are unable to fly. As they are chiefly drones which are found in this way, I have frequently taken them into my hand, and a little warming up enables them to fly away as briskly as ever.—*T. G.*

Ants.—Some of my Nectarine trees being much infested with ants, I had recourse to the remedy pointed out in last year's *Chronicle*, of placing inverted saucers, smeared with honey, on the ground at the foot of the trees; but in the course of a very few hours I found that my garden was swarming with bees to an extent which was quite astonishing, so that the remedy is one hundred times worse than the disease.—*A very Old Subscriber.*

Glass and Guano.—At the meeting of the Monmouth Farmers' Club, Sept. 3, 1845, it was resolved unanimously "That the best thanks of this club be given to the Editors of the *Gardeners' Chronicle and Agricultural Gazette*, for their exposure of the infamous practices of dealers in guano in adulterating it; and for the great service they have rendered the country in relation to the trade in glass. (Signed) R. W. PURCHAS, Secretary." [We are happy to find that our conduct has been thus satisfactory to our country friends.]

Shrivelling of Grapes.—Some are of opinion that this arises from the foot-stalk of the berry not being sufficiently firm and hard; and to remedy this, they recommend early-forced Grapes to be grown in a dry atmosphere; as they argue that humidity elongates the foot-stalk, causing it to become slender, with a black speck on it, and hence the cause of the disease. Others think that, in conjunction with too much moisture, heat also increases the evil; this, however, could be easily avoided by admitting a sufficiency of air. Over-cropping is also blamed for the disease; but I believe that this notion is not well founded, although over-cropping would certainly cause the bunches to be small. The evil is also attributed to wet borders, and deep planting. Now, among these causes, it is not easy to determine which is the right one. The evil may not proceed exclusively from any one of them in particular; and yet there may be, and doubtless is, much truth in most of the causes assigned. I have seen shrivelled Grapes in houses where the borders were neither wet nor deep; and, on the contrary, I have seen houses free from this disease where the borders were 5 feet deep, and by no means dry. I have also seen shrivelled Grapes in a dry atmosphere, as well as in that of a humid nature. I have likewise observed them shrivelled where the crop has been abundant, as well as where it has been scanty; and I have witnessed the same evil arise from rich as well as from poor borders; also in cases where the foot-stalks were elongated, as well as where they were short and strong. I have never been able to arrive at a satisfactory conclusion respecting the cause of the disease. I invariably grow my Grapes in a moist atmosphere and high temperature, till they begin to colour, when I keep the house as dry as possible; admitting on all favourable opportunities abundance of air, without which precautions the Grapes would neither be well coloured nor good flavoured. This year I have from 21 to 30 bunches on each Vine, and only two bunches have shrivelled, and these were both on the same Vine, which was the white Frontignan. With the exception of these two, the bunches were all well coloured, the black sorts being as black as Sloes, and covered with a fine bloom. Several Graperies, in this neighbourhood, are affected with this disease; and the bunches which are free from it are badly coloured (in fact, they are quite red); and in the same houses I have seen, in other years, Grapes not free from the disease beautifully coloured. This has been a bad season, however, for producing well-coloured and good-flavoured Grapes. —*W. B.*

Societies.

BOTANICAL SOCIETY OF LONDON.

August 1.—The Treasurer in the chair. Various donations were announced. Mr. F. Barham exhibited specimens of Œnanthe fistulosa (*L.*) collected by him in Battersea fields, Surrey. They were growing in water, on a very moist spot, and on pasture of the usual character. Mr. B. observed the roots of the plants in water to be of a fibrous nature, in the moist soil somewhat stoloniferous, and in some more dry situations, tuberous, of the fusiform character. One plant that grew on the spongy soil at the edge of the water, and had fibrous roots, possessed also large decaying tubers of last year, the result, Mr. B. imagined, of the very dry summer. Read "Remarks on the Botany of that section of Staffordshire, included by the rivers Trent and Dove, from their junction to eight miles up the course of each," by Dr. Spencer Thomson.

CALEDONIAN HORTICULTURAL SOCIETY.

Sept. 4.—At this, the quarterly meeting, a keen competition took place among the cultivators of Carnations and Picotees, Hollyhocks, and Phloxes.—In Carnations each competitor exhibited six flakes and six bizarres. The Silver Medal was awarded to Mr. Thomson, gr. to W. E. H. Vere, Esq., for Sealy's Princess Royal, Appleby's Prince of Wales, Hogg's Champion, Ely's Lovely Ann, Brooks' Flora's Garland, Mausley's Beauty of Woodhouse, Rainsford's Gameboy, Ely's Lord Milton, Mausley's Bonny Bess, Headley's Will Cobbett, Ely's Lady Ely, and Lady Gardener. A second premium for Carnations was voted to Mr. Young, gr. to Mrs. H. N. Ferguson.—The Picotees made a fine display, the competitors being numerous, each producing six varieties, and a pair of each kind. The Silver Medal was assigned to Mr. Young, for Sharp's Duke of Wellington, Gidon's Teazer, Nulli Secundus, Wilson's Octavia, Ely's Field Marshal, and Ely's Mrs. Lilly. A second premium was voted to Mr. Foulis, gr. to J. Tytler, Esq.; and a third award was made to Mr. Thompson.—The show of Hollyhocks was very extensive and brilliant, there being seven competitors, each producing 12 sorts, and many of the flowers being of the most gorgeous description. The Silver Medal was voted to Mr. Foulis, gr. to T. Smith, Esq., for Sulphurea, Polton Beauty, Brown's Superb, and the Purple, with eight seedlings of 1844. A second premium for Hollyhocks was awarded to Mr. Foulis, of Woodhouselee, who was also awarded a Silver Medal for Phlox Van Houttei, striata, omniflora, elegantissima, Pontey's superb white, and pallida rosea; a second premium was given to Mr. Downie, gr. to J. Russell, Esq.—On this occasion various extra articles were produced, for several of which honorary premiums were awarded. In particular, to Mr. Purdie, Stanwell Lodge, for a magnificent Lilium lancifolium speciosum, bearing upwards of 30 flowers; Mr. Reid, gr. to Professor Syme, for admirably grown plants of Achimenes longiflora and A. grandiflora, and for very large and beautiful specimens of Celosia cristata; Messrs. Carstairs, Kelly, and Co., for a remarkably fine flowering plant of the Fuchsia named Duchess of Sutherland, and for rich collections of Carnations, Hollyhocks, and Dahlias, sent for exhibition; Messrs. P. Lawson and Son, for excellent specimens of the new white glass Kohlrabi and blue Kohlrabi, and of the new Paris green Artichoke, recently introduced by Mr. C. Lawson.—Mr. Forrester, gr. to Capt. Falconar, for a hybrid Lathyrus latifolius, the white having been crossed with the pink-coloured, producing blossoms prettily veined, and for Yucca flaccida, in flower.—Mr. Street, gr. to Mrs. Ferguson, for a seedling Myrtle, raised from seed of a broad-leaved variety, ripened in the open air; a variegated seedling Mimulus, &c.—Mr. Gibson, gr. to J. T. Murray, Esq., for seedling Petunias, some of the flowers being of large size and bright colours.—Thanks were voted to Messrs. J. Dickson and Sons, and to Messrs. Handasyde, for rich collections of Dahlia blooms sent for exhibition only; likewise, to Mr. Haukin, gr. to Capt. Mitford, for samples of two seedling Gooseberries, one called Striped Warrington, and the other Mitford seedling; but the fruit was considerably injured by carriage.—From the Garden of the Society the following articles were exhibited:—A branch of the Coul Orleans Plum, thickly set with fruit, showing its great productiveness; a pot containing a large tufty plant of the Tussac Grass, of the Falkland Islands; a flowering specimen of the Achimenes multiflora; fine stalks of Victoria Rhubarb, taken from seedling plants raised since April last; and tubers of the Black-snake Potato.—A report of the Curator's recent visit to England was read, and the meeting was much gratified to hear of the handsome and liberal way in which his proposal for interchanging plants had been received and acted on. A communication from Mr. Lothian, gr. at Ormsary, was also read, containing interesting remarks on the management of the Gooseberry quarter, on forming small division hedges of the common sorts of Fuchsia, and on an improved mode of keeping a garden journal.—At this meeting 16 new members were enrolled.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Sept. 17.—This Exhibition, the last for the season, was held in the Surrey Zoological Gardens. Notwithstanding the unfavourable state of the weather on the occasion, the display of DAHLIAS, which always form the chief feature of the September Meeting, was excellent, both in regard to quantity and quality. The following report contains the names of the flowers which appeared in the winning stands:—In Class 1, for private growers, the first prize (the Gold Medal) was awarded to Mr. Proctor, for 24 dissimilar blooms. This stand contained Antagonist, Pickwick, Beauty of Sussex, Vivid, Perpetual Grand, Nonpareil, Indispensable, Mrs. Shelley, Queen of Roses, Consolation, Favourite, Standard of Perfection, Raphael, Beeswing, Lady St. Maur, Victory of Sussex, Catleugh's Eclipse, Unique, Essex Triumph, Competitor, Sir R. Sale, Lord Howden, Admiral Stopford, and Blue Bonnet. The second prize (the Large Victoria Silver Medal) was won by Mr. Cook, with Admiral Stopford, Alice Hawthorn, Cleopatra, Andrew Hofer, Lady St. Maur, Mrs. Shelley, Antagonist, Victory of Sussex, Sir J. S. Richardson, Nonpareil, Aurantia, Sir R. Sale, Essex Triumph, Princess Royal, Burnham Hero, Lord Howden, Beauty of Sussex, Standard of Perfection, Empress of the Whites, Raphael, Pet Rival, Blair Athol, Rembrandt, Beeswing. Third, Large Linnean, Mr. Trenfield; fourth, Small Linnean, Mr. Legg. Neither of these collections had the names of the flowers attached. Fifth, Small Linnean, J. Edwards, Esq., for Princess Royal, Essex Triumph, Vivid, Lady Harland, Marchioness of Ormonde, Sir R. Sale, Burnham Hero, Pickwick, Queen of Roses, Aurantia, Nonpareil, Queen of Trumps,

Duchess of Richmond, Mrs. Shelley, Favourite, Candidate, Beauty of Sussex, Eclipse, Cleopatra, Standard of Perfection, Miss Abbot, Victory of Sussex, Lady St. Maur, and Vivid. For the best stand of 12 dissimilar blooms, the first prize (the Large Victoria Silver Medal) was given to H. W. Collison, Esq., of Bath, for the following blooms:—Lady St. Maur, Aurantia, Nonpareil, Blue Bonnet, Princess Royal, Victory of Sussex, Cleopatra, Essex Champion, Northern Beauty, Eximia, Beeswing, and Gloria Mundi.—2. Large Linnean Silver Medal, to Mr. Cousins, for Victory of Sussex, Competitor, Nonpareil, Princess Royal, Indispensable, Admiral Stopford, Springfield Rival, Raphael, Beauty of the Plain, Alice Hawthorn, Mrs. Shelley, and Standard of Perfection.—3. Small Victoria Silver Medal to Mr. Wick, for Victory of Sussex, Essex Champion, Nonpareil, Alice Hawthorn, Admiral Stopford, Bathonia, Queen of Roses, Standard of Perfection, Empress of the Whites, Beeswing, Princess Royal, Essex Primrose.—4. Small Linnean to Mr. Hatchman, for Mrs. Shelley, Nonpareil, Bathonia, Standard of Perfection, Pickwick, Princess Royal, Admiral Stopford, Essex Triumph, Perpetual Grand, and Prince of Wales.—5. Small Minerva Medal to Mr. Wildman. In the Nurserymen's Class, the 1st Prize, the Gold Medal, was awarded to Mr. Turner, of Chalvey, for the following 24 varieties: Perpetual Grand, Princess Royal, Victory of Sussex, La Grand Baudine, Beeswing, Alice Hawthorn, Competitor, Admiral Stopford, Indispensable, Beauty of the Plain, Springfield, Rival, Aurantia, Gloria Mundi, Ophie, President, Cleopatra, Raphael, Pickwick, Standard of Perfection, Essex Triumph, Mrs. Shelley, Bermondsey Bee, Mrs. J. Richardson, and Nonpareil.—2. The Large Silver Victoria Medal to Mr. Widnall, of Grantchester, for Consolation, Beeswing, Essex Triumph, Marchioness of Exeter, Lady St. Maur, Alice Hawthorn, Queen of Roses, Standard of Perfection, Virgil, Princess Royal, Cleopatra, Antagonist, Aurantia, Empress of the Whites, Duchess of Richmond, Nonpareil, Gloria Mundi, Lady Harland, Competitor, Mrs. Shelley, Sir J. S. Richardson, Admiral Stopford, Dazzle, Duchess of St. Albans.—3. Large Linnean Medal, to Mr. Brown, Slough; no names.—4. Small Victoria Medal, to Mr. Girling, Stowmarket, for Standard of Perfection, Antler, Princess Royal, Blue Bonnet, Rob Roy, Alice Hawthorn, Beeswing, Essex Triumph, Trafalgar, Aurantia, Highgate Surprise, Mrs. Shelley, Gloria Mundi, Victory of Sussex, Delight, Raphael, Duchess of Richmond, Lady Harland, Seprine erfurteria, Nonpareil, Admiral Stopford, Empress of the Whites, Elizabeth Robertson, and General de Cank. — Mr. Corbin received a small Silver Victoria Medal, for eight Fuchsias in pots, comprising: Corbinii, Chandlerii, Cassandra, Splendida, Pecciola, Meteor, Exoniensis, and Transparens; and a small Victoria Medal was also awarded to Mr. Gaines, for Exoniensis, Britannia, Rembrandt, Cassandra, Champion, Fosterii, and Goldfinder. —Mr. Seldon's prize (a small Silver Linnean Medal), for the best 24 Verbenas, was awarded to Mr. Smith, Hornsey, whose collection contained the following sorts: Smith's Vesta, Rose d'Amour, Superba, and Delicata; Youell's Speciosissima, Pearson's Avalanche, Queen of England, Giant, Fair Rosamond, Poultii, Duc de Nemours, Atrosanguinea, Enchantress, Garland, Excelsa, Emma, Beauty Supreme, Hebe, Gladiator, Grandis, Boule de Feu, Merry Monarch, and Duchess of Sutherland. 2d. Mr. Henbrey, for Ivery's Queen, Hudibras, Emma, Howardii, Smith's Elegans, Sabina, Rosea grandiflora, Bridesmaid, Groomii, Tweediana, Excelsa, Antwerpensis, Barkerii, Princess Royal, Picta, Garland, Melindres, Beauty, Carnea superb, Youell's Princess Royal, two Seedlings, and Superb.—Good stands of Heartsease were exhibited by Mr. Hall, of Enfield, Mr. Hart, Guildford, and by Mr Buxton, of Wandsworth.—Of the several Seedling Dahlias of the present season placed on the tables, three only were awarded certificates. 1st. A pale yellowish flower, from J. Collison, Esq. 2d. A light lavender, of good form, from Mr. Brown, and 3d. A flower of the same colour, from Mr. Bushell.—Seedlings of 1844 were exhibited in trays of four blooms each; and the following flowers were awarded certificates. 1st. To Mr. Keynes, for a noble flower named Sir E. Antrobus. 2d. To Mr. Gaines, for Princess Radziwill, white with purple tip. 3d. To Mr. Trenfield, for Lady Stopford, rosy red. 4th. To Mr. Girling, for the Queen of Perpetuals, lavender. 5th. To Messrs. F. and A. Smith, Hackney, for Newington Rival, purple crimson, and Prometheus, light purple.—Mr. Whale also exhibited specimens of a white, named Marchioness Cornwallis, and a dark, the Marquis of Aylesbury.—Mr. Turner, of Chalvey, showed blooms of four Seedlings, to be sent out in 1846, named Magician, a mixture of yellow and red; Miss Prettyman, white having the ends of petals on the back tipped with lavender, Vanguard, and Mrs. Caudle.—The prize presented by Mr. Cook for the two best blooms of Albion, was adjudged to Mr. Bushell.—A Seedling Fuchsia, named the British Queen, was awarded a certificate; the flower is large, having light pink tube and sepals, with the corolla of a deep blood colour.—Mr. Agate, of Croydon, exhibited a remarkably fine stand of China Asters.

Miscellaneous collections of plants, considering the season, were tolerably good. The best present was that sent by Mr. Bruce, gr. to B. Miller, Esq. In this group we remarked Erica Aitoniana, Gesnera splendens, Gardoquia Hookeri, a pretty variety of Epiphyllum speciosum, a large Crowea saligna, Cytisus racemosus, and several other plants equally exhibiting good cultivation. The Gold Medal was awarded to Mr. Young, of Camberwell, for a collection, in which were Erythrina Crista Galli, Lilium lancifolium speciosum, a promising Leschenaultia formosa, Clerodendron squamatum, and several Heaths. Groups were also sent by Mr. Doran and Mr. Hamp, the former gaining the first prize.—In the Nurserymens' Class the first prize was awarded to Mr. Pamplin, who sent well-grown plants of Crowea saligna, Angelonia salicariæfolia, and some Gloxinias and Achimenes. Mr. Munnoch received an extra prize for a good Lilium lancifolium speciosum, and a prize was also awarded to Mr. Cuthill for a famous collection of Lisianthus Russellianus. For single specimens the first prize was awarded to Mr. Dawson, of Brixton Hill, for a remarkably fine Erica Irbyana, rather past its best; the second to Mr. Bruce, for a very fine plant of Witsenia corymbosa; and finally, Mr. Cuthill received a third prize for a fine Lisianthus Russellianus. We also observed a very large plant of Lilium lancifolium album, and Mr. Pamplin sent a good Gardoquia Hookeri. A collection of Cockscombs was contributed by Mr. Connolly. The Cut Flowers and Roses were not the least interesting feature of the Exhibition; the latter, which were chiefly from Messrs. Lane and Paul, in particular were fine, the former gaining the first prize. For Vegetables, the first prize was awarded to Mr. Martin, and for Fruit to Mr. Parker, who sent several varieties of Plum, Elruge Nectarine, Royal Kensington and Barrington Peaches, Jargonelle Pears, Brown Ichsia Fig, a green-flesh Melon, and Morello Cherries. Mr. Cuthill sent good black Hamburgh Grapes, the Passingham green-flesh Melon, Violette Hâtive Plums, and other fruit. The best Grapes were produced by Mr. Parsons; white Muscats and black Hamburghs were also sent by Mr. Chapman, Mr. Doran, and Mr. Stowe.

Rebiews.

Rose Catalogues.—The season for planting is at hand, and Rose-growers are in the field. We have before us *Mr. Rivers's Catalogue* for 1845, well arranged, well furnished with notes of a most useful character, and capitally selected. As he was the first to publish a good classed catalogue of these favourite flowers, so he still remains without a superior. His directions for cultivation are always to be relied upon, as is his recommendation of select sorts for small gardens. Some idea of the extent to which the propagation of Roses is carried by Mr. Rivers may be gathered from the fact, that one quarter of dwarfs, this year budded, contains 80,000 plants. Twenty-four persons were occupied in budding, from 5 to 7 o'clock daily, during the whole of August. Such scraps as the following, on the management of Roses, are of much value:—"To form beds for these, and the two preceding families (China and Bourbon), take out the soil 9 inches or 1 foot deep, fill up with manure about half rotted, beat it down firmly, on it place 2 inches of mould, and plant in the usual way."

Another very useful list is that of *Messrs. Wood and Son*, of Maresfield. It extends to 24 pages 8vo, and has the varieties carefully classed and described. All such catalogues should be in the hands of Rose buyers, who can then select from each what suits them best. We cannot say much in favour of the orthography of the names in Mr. Wood's list: Fidelle for Fidéle, Lyçoris for Lycoris, Renoncille for Rénoncule, &c, &c., are sad blemishes.

New Plants.

Cymbidium Mastersii. Masters's Cymbid. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—This was received from the East Indies by Messrs. Loddiges in the year 1841, and blossomed in December, 1844. It is a very distinct species, with snow-white flowers, sweet-scented, with the fragrance of almonds. Its erect flower-stalk, closely covered with long green sharp-pointed equitant imbricated sheaths, is quite unlike that of any other species. It was, we understand, named by the late Mr. Griffith after Mr. Masters, one of the principal assistants in the Botanical Garden, Calcutta. It should be potted in turfy heath-mould, well mixed with potsherds, and liberally supplied with water during its period of growth. To maintain a humid atmosphere, so very essential to the growth of all Orchids, it will be necessary to use shading in sunny weather; by this means the temperature, which should be kept about 80° by day, may be regulated without admitting much air. In winter it does not require much water, but should not at any time be kept too dry.—*Botanical Register.*

Callipsyche eucrosioides. Two-coloured Fairy Bloom. (*Stove Perennial.*) Amaryllidaceæ. Hexandria Monogynia.—The Dean of Manchester states that this is a plant with a roundish bulb, which was brought from St. Blas or S. Felipe, on the west coast of Mexico, and that a similar plant, from Guatemala, is in his collection. It seems to like shade and heat, and flowered without leaves in the month of March. Mr. Herbert thus describes the plant. "Leaves few in number, green, with a blade a foot long, and about 4 inches wide, a good deal tesselated and pitted. The scape with 10 flowers, glaucous, tapering, smaller upwards, about 28 inches long. Spathe and bracts withering. Pedunceles green, equal, about an inch long. Ovary oblong, three-cornered, with three furrows, green; cells with about 23 ovules in each. Tube green, curved downwards, scarcely ¼ inch long, full of honey. Limb of the flowers somewhat scarlet, scarcely an inch long, with obtuse petals. Stamens pale green; style 4⅜ inches long; filaments about 4⅝ inches long, unequal, the lowest the most extended. The genus is regarded as an ally of Eucrosia, because of the tubercles in its orifice. This bulb should be potted in sandy loam and leaf-mould. In summer, while growing, it requires to be kept in a temperature of 75° or 80° by day, and shaded in sunny weather. In autumn the leaves will naturally die off, when it should be kept in a warm greenhouse, quite dry, for a few weeks. As soon as the scape makes its appearance, which will be in spring, water should again be given gradually, and the heat increased."—*Bot. Reg.*

Garden Memoranda.

James Newton's, Esq., Cheadle Heath.—This is a very interesting little place. The landscape features on the lawns are striking and good, and the careful preservation of breadths, together with the fine style of grouping, reminds me strongly of the style of Uvedale Price. Mr. Newton has commenced Pine growing according to the Hamiltonian school, about 12 months, and the progress he has already made is very considerable. Several of what are called the Montserrat, in some parts of the north, but which is in reality the Black Jamaica of the Horticultural Society's Catalogue, are making great progress; as also several Enville. One Enville had two ripe fruit on a pair of suckers, which together would weigh about 9 or 10 lbs., and this plant is stated to have produced a fruit of considerable weight, in August, 1844. The amount of atmospheric humidity maintained here is truly surprising; the soil in which the plants are growing, in pots, over a heated chamber, is completely saturated—in fact, warm mud. The deposit of dew on the leaves, in the morning, at five o'clock, reminded me of a luxuriant meadow in the beginning of June. The floors are kept continually wet, and very little air is admitted; the syringing is copious. There are some other interesting villa gardens in the neighbourhood of Stockport, in most of which a gay little conservatory is kept up, the roof of which is frequently devoted to Grapes.

Rev. John Clowes', Broughton-hall, Manchester.—At this place, as is well known, is one of the richest collections of plants in the kingdom—but I can only say that the plants are in fine health. The mode of creating atmospheric humidity here deserves some notice. The ground plan of the stage is a kind of oval, from the outlines of which the shelves rise equally on all sides until within about a yard of the glass. These shelves are all waterproof, with narrow ledges, and pounded crocks, or roach, covers the surface of them. Water is secured in a reservoir, or other source, at the top of the stage; and by turning a tap it flows over all the stages, or shelves, in a few minutes. Would space permit, much might be said of the beauty of Mr. Clowes' grounds in general.

Manchester Botanic Garden.—This place is looking very well—the plant houses particularly. I had the pleasure of examining a plot of Grass lawn devoted to the experiments of electro-culture. A pair of wires are suspended longitudinally over a parallelogram, and descending at each end down a pole, they terminate in a horizontal wire, round the exterior buried in the soil; from whence, I was given to understand, the electric principle was transmitted, or equalised, progressively, by means of the pointed blades of Grass. However, there is not the slightest advantage to be seen although it has been established three months. There is an immense crop of Grapes in three or four houses, designed and planted by Mr. Campbell; and everything here proves him to be a clever gardener.—*R. E.*

Hampton Court Palace.—The gardens here are in excellent order; the gravel walks clean, and the Grass lawns neatly mown. In the flower-beds which skirt the lawn are many of the newest annuals, such as Lobelia ramosa, Viscaria oculata, Lupinus Hartwegii, the different kinds of Zinnia, with their various shades of colour, and many other showy annuals. Among border plants in the square beds are some of the new Petunias, Verbenas, and scarlet Pelargoniums, together with greenhouse plants of the most free flowering kinds, and in one of the recesses of the Court is a fine old Catalpa syringifolia, with a few blooms in perfection out of the many produced this season. We also observed in one of the borders a good collection of Phloxes, comprising P. Van Houttei, and a number of beautiful hybrids. It may also be worthy of notice that, by way of experiment, two beds have been planted with Veronica speciosa and Rosa Devoniensis, for late flowering; the former looked very healthy. In some of the recently formed shrubberies, which are planted with shrubs of the best kinds, were Spiræa Lindleyana, and two young plants in good health of Paulownia imperialis. In the private garden on the walk leading to the Vinery, was the collection of fine old Orange trees, which being arranged on each side of the walk, had a very pleasing effect. The Vinery, containing the large Vine, is 70 feet in length, and 14 in width; the Vine, which is loaded with fruit, is the admiration of everybody. It cannot have less than 1400 bunches of Grapes on it at the present time, and the crop is estimated to weigh about 11 cwt.; we were informed that the longest branch extends 110 feet, and that the stem at 3 feet from the ground measures from 27 to 28 inches in circumference. The fruit is very regularly dispersed over the house, the best bunches being at the extremities of the long shoots. In conclusion, it may be mentioned to the credit of the thousands of people of all classes who annually visit the gardens here that little or no damage is ever done to the flowers or shrubs.—*W. S.*

Bees.

Answers.—*C. C.*—It is rather unusual for drones to be in a hive at this season. Your colony being weak

perhaps the bees were rendered careless about their own condition. As they are now strengthened by the other bees being added to them, the case may soon be different with the drones; if not, you may destroy them whenever they appear outside the hive. But if you suspect that the hive is queenless, delay the operation about a month, during that time the bees may settle the matter. *W.*——*G.M.H.*—Your friend's bees have either declined on account of the unfavourable season, or from want of sufficient pasturage. Dahlias have no ill-effects on bees; indeed, excepting the single sorts they seldom frequent them. The reason why that flower is blamed for such a thing, may be owing to the male bees of the wild species sheltering in their blooms, as they also do in Hollyhocks and other large flowers in a benumbed state. When hive-bees are found so, they have been either rendered weak by age, or have been overtaken in a storm. *W.*—*Edgar Slade.*—Now is the time to strengthen your weak hive, by adding the other bees to it. They ought to be brought carefully to your apiary before you begin the operation. In order to enable you to do this, see our remarks on "Uniting Bees" at p. 595. You may commence with a little feeding as soon as the bees are friends, and if the weather is bad, give a more liberal supply about the middle of October for the winter. The 1½ lb. of honey "laid up in the capes," during the second month, has nothing to do with the "propriety of nadiring the swarms." If you had adopted that plan, the bees would not have stored honey below while there was room above.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stoves.—Keep a vigilant eye over all stove plants at this season, taking care that they are perfectly clean before they are placed in their winter quarters; for no advantage can be obtained from wintering vermin; and as this is rather a leisure time, employ it in this way. See that all plants are properly staked and divested of dead leaves; tidiness in all gardening operations is a great recommendation; an ill-grown plant is bad enough, but when vermin is added to bad cultivation, it becomes intolerable. Encourage the different kinds of Begonias for winter flowering, giving them larger pots if required; promote also the growth of Achimenes picta, and Gesnera zebrina, plants which add much to the beauty of the stove during winter. They are justly considered two new and very valuable acquisitions for this purpose. Look also after Euphorbia fulgens and splendens, they are likewise two first-rate plants, either for enlivening the stove or bouquet, when scarcely anything else can be had. *Greenhouse* plants which are in the open ground should still remain as long as the weather continues favourable for maturing their growths. Boronias are much benefited by exposure a short time during autumn, and being ticklish plants to deal with, they require and deserve every attention. All the Chinese Azaleas should also be exposed for some weeks; they will be invigorated and improved by this treatment, but they should not be permitted to remain out late in autumn, as the cold and wet is apt to make them cast their foliage.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Ten-week Stocks sown when recommended some time ago, should now be potted off and placed in a shady situation for a few days, and then exposed until they are stored away for the winter. Cuttings of China Roses that are rooted should be planted out in the reserve garden, or potted off. Clip and fresh lay Box edging. Gather all seeds as they ripen, particularly the cones of Abies and Piceas, as a few hot days at this season opens them, and the least wind shakes out the seed. Plants in beds that are constantly overgrowing Box or other edgings, should be cut back for cuttings, or taken to the rubbish yard. *Pits and Frames.*—Take particular care during the present damp weather not to water cuttings too freely, unless they are very dry; no shading will be required, but give air every morning. Continue potting off the most forward struck cuttings, and fill the pots again with choice or scarce kinds.—*B.*

III.—FLORISTS' FLOWERS.

Tulips.—From information received from various quarters, much business has been done in these favourite flowers, and we anticipate, in consequence, strong competition throughout the floral world during the next blooming season. As advised last week, purchasers should lose no time in making the desired acquisitions; many north and south country flowers, valuable additions to even the most select beds, may be obtained now at moderate prices. *Carnations and Picotees.*—Where additions to collections are required, this is a good time to get them in; the amateur should bear in mind that early potting, to insure the plants being well established before winter, is indispensable for their perfect preservation and health. In potting off rooted layers, the pots must be well drained, and the compost as simple as possible; it is advisable to have the soil in which they are wintered rather poor than otherwise. *Dahlias* are now receiving their share of the florists care, and where attention has been paid to the directions given in the *Chronicle*, we doubt not the result has been satisfactory; these attentions ought not, however, to slacken, as the bloom will probably be prolonged to a later period than usual this year. Pluck off all malformed buds, and support side branches with small stakes, and diligently examine the traps for earwigs, &c. &c. *Pink and Pansy Beds* must be kept constantly free from weeds, by careful hand-picking, &c. &c.; and a watchful eye must be had to all seedlings which are pricked out, fastening those dragged from the ground by worms, &c.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—It must be borne in mind, that as the natural light of the season diminishes, so must the atmospheric temperature, more especially that of the night; humidity must also follow the same course, especially in dung pits. They are fortunate who have a hot-water pipe in the latter, be it ever so small, by which they can, on proper occasions, without the aid of a continual fire, carry away accumulated damps, and thereby promote a healthful circulation of atmosphere. I am of opinion that much of the unwieldy size of the crown, in Pines, which is so often the subject of complaint, is attributable to the tenacity with which people stick to some precise amount of heat, not taking fully into consideration the effects of the enlargement of the vegetable structures in the dark. My advice, therefore, with regard to late and swelling fruit is, to qualify your high temperature by a free admission of air; even in the night if possible. However, to avoid draught, I would give little or no back air; as also in order to retain sufficient atmospheric moisture. *Vineries.*—Persist in a dry atmosphere and constant circulation of air to late Grapes, and be watchful of the depredations of wasps, birds, and mice. *Mushrooms.*—Attend well to your spawning process; the heat of the bed should not exceed 80°; 70° however is a safer point. Keep the floors saturated, to prevent the bed becoming too dry; if such takes place, no after watering can fully compensate. Do all you can for your late Melons and Cucumbers, in the way of heat and light; all the lights should now be clean washed; this is of great benefit.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The propriety of cutting off the leaves of Strawberry plants has been frequently questioned. The runners should be all cleared away, but the foliage should be allowed to remain to decay and form manure. Most of the varieties have been obtained from species originally natives of America, and consequently well adapted for pushing through the mass of foliage with which they must have been annually covered in that wooded country, in addition to that of their own decay. If an old plant be taken up, it will be observed that the lower portion of the roots has a tendency to die off; but divest the stem of some of the lower leaves, and it will be seen that fresh spongioles are forming higher up the stem, ready to push in any accumulation of decayed foliage or other congenial substance. In some cases Strawberries produce a superabundance of foliage and but little fruit; either fresh plantations should be made, or the old should be thinned into patches not less than two feet apart. *Kitchen Garden.*—The taking up of the Potato crop will require to be done with more than usual care. Separation must be made of the perfectly sound, the doubtful, and the bad. The former may be immediately pitted in narrow ridges, and secured by soil or turf from the access of frost and wet. Those that are doubtful had better be laid where they can be readily inspected. The effect of washing them with lime-water should be tried. Prick out Cauliflower plants; draw earth as support to the stems of Broccoli; expose the fruit of Tomatoes to the sun.—*E.*

State of the Weather near London, for the week ending Sept. 18, 1845, as observed at the Horticultural Garden, Chiswick.

Sept.		Moon's Age.	Barometer.		Thermometer.			Wind.	Rain.
			Max.	Min.	Max.	Min.	Mean.		
Frid.	12	10	29.955	29.934	70	42	56.0	N.E.	
Sat.	13	11	29.930	29.750	71	53	62.0	S.E.	.04
Sun.	14	12	29.599	29.470	71	39	55.0	S.W.	.02
Mon.	15	○	29.611	29.353	57	43	50.0	N.E.	.45
Tues.	16	14	29.699	29.487	64	54	59.0	S.E.	.47
Wed.	17	15	29.478	29.397	64	55	59.5	S.W.	.19
Thurs.	18	16	29.493	29.271	65	48	55.5	S.W.	.07
Average			29.667	29.523	66.0	47.7	56.8		1.24

Sept. 12—Slight haze; very fine; clear at night
13—Thick fog; very fine; partially overcast; rain at night
14—Densely overcast; cloudy, with showers; clear and fine
15—Hazy; very heavy rain; clear at night
16—Thickly overcast; heavy rain; boisterous at night
17—Overcast; rain; boisterous throughout
18—Very boisterous, with showers; clear at night.
Mean temperature of the week ½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Sept. 27, 1845.

Sept.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 21	66.5	45.5	56.0	9	0.30 in.	2	1	4	1	5	2	2	2
Mon. 22	66.5	45.5	56.0	9	0.40	—	1	4	1	5	5	2	1
Tues. 23	66.0	46.1	56.0		0.38	—	4	3	1	5	3	2	1
Wed. 24	65.3	47.3	56.3	9	0.75	—	3	2	1	4	6	2	1
Thur. 25	65.7	46.0	55.9	8	0.30	1	4	1	1	3	5	3	1
Fri. 26	66.7	44.5	55.1	12	0.69	1	2	1	2	7	5	—	1
Sat. 27	65.0	45.3	55.1	10	0.57	—	1	1	1	4	4	6	2

The highest temperature during the above period occurred on the 30th, 1832—therm 82°; and the lowest on the 27th, 1828—therm. 24°.

Notices to Correspondents.

BACK NUMBERS OF THE GARDENERS' CHRONICLE—The volume for 1844 can be had, bound in cloth, price £1 10*s.* The following Numbers in the respective years can also be had. Any subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are required, will have them sent free by post.

1841—1, 8, 11, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 47, 48, 49, 52.

1842—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 42, 50, 51, 52, 53.

1843—8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 40, 41, 42, 43, 48.

1844—All but Number 50.

ANTHOLYZA—*M*—Plant in a large pot, or in the earth of a brick pit; keep it just clear of frost and exposed to sun during winter. In summer let it take its chance out of doors, observing, however, not to let it suffer from drought. The best Artichoke is the Green Globe.

CHLORÆA—*A H*—Our remark applied to the stove species of Spiranthus, and not to the hardy kind, which, we believe, is very unmanageable. It is said to like sand.

CONIFERS—*A Sub*—We will hasten to oblige you. The following Conifers have been ascertained to suit our climate, and to survive such frosts as we are subject to: *Mexican*—Pinus Hartwegii, Russelliana, Devoniana, apulcensis, Montezumæ, Teocote, patula, macrophylla, and Llaveana. *Indian*—Pinus Gerardiana and excelsa, Abies morinda, Smithiana, Brunoniana, Deodar, Webbiana, and Pindrow (the two latter are, however, injured by late spring frosts). *N. W. American*—Pinus Sabiniana, macrocarpa, and insignis, Abies Menziesii, nobilis, grandis, and amabilis. *European*—Abies cephalonica and Pinsapo, Pinus brutia. Juniper squamosa, excelsa, recurva, occidentalis, flaccida, and tetragona. Cupressus torulosa and Lambertiana. Thuja pendula.¶

FRUITS—*W*—Ten dwarf Apple-trees for a small garden may consist of the following varieties:—Early Harvest, Ribston Pippin, Claygate Pearmain, Court of Wick, Pearson's Plate, Golden Harvey, Scarlet Nonpareil, Old Nonpareil, Courtpendu Plat, and Sturmer Pippin. Plant when the leaves begin to drop generally. Three Peach-trees: Noblesse, Grosse Mignonne, and Bellegarde. Glass will be much cheaper after October, 1846, than it is now, but we fear not sooner.‖

FUCHSIAS—*Oti*—Take up your Fuchsias which are in the open ground about the middle of October, and pot them in the usual way, giving them a moderate watering; afterwards let them remain for a week or two in a cold pit or airy shed until their leaves drop; then store them away in a cellar or any place where they will be secure from damp and frost.¶

GLASS—*G T—n*—Your case is not singular. In many villages and country towns the glaziers pretend that *they* cannot sell glass any cheaper than they did a year ago; that is to say, they expect half-a-crown for what is worth 5*d.* Since these worthy persons cannot sell cheap glass, dispense with their services; follow the example of our friend "Jaroslav;" buy a good diamond, a small box of foreign glass, in the rough, and set your gardener to be his own glazier. You will soon bring Mr. Putty to his senses.——*N*—Yellow glass will not do. Green, of the colour of soda-water bottles, is unobjectionable; so is pale blue. (See p. 559).

GLAZING—*Iota*—Why use small glass when large glass is so cheap? You will lose more by glazing than you can save by buying trumpery bits of glass. You should putty the laps. Grow Balsams, Cockscombs, and Amaranths in your house in the summer. We give no legal advice.

GOOSEBERRIES—*Inquisitor*—At p. 811 of the vol. for 1844, you will find the names, colours, and weights, of the largest prize Gooseberries that have been exhibited between 1817 and 1844. The ground should be well trenched and highly enriched by manure previously to planting, and afterwards trench and manure in advance of the roots. Plant 8 or 10 feet apart. You will find the growers' names in the Lancashire Prize Lists.‖

HEATING—*An Old Sub*—The reason why a chafing dish is objectionable is, that there is no possibility of regulating its rate of combustion, and it may burn so rapidly as to do mischief, or it may go out by the morning when cold is greatest: and, moreover, its form is very ill contrived for exposing a large radiating surface. It is true that Joyce's stove is only a chafing dish; but then it is on an *excellent* principle.——*G A P*—Good *well* burnt charcoal will do very well. Coke will not. The small amount of carbonic acid evolved will do no harm. Dryness will be secured. All you have to do with your Fuchsias is to keep them in a light well ventilated place, where frost cannot penetrate, and not *over* dry, for being young they will perish. It is probably want of a little bottom-heat that causes your Pelargoniums to die before they can form fresh roots. Why not try some of the schemes for obtaining bottom-heat in Ward's cases? They have been described in former volumes, and answer perfectly.

INSECTS—*F I G*—The insects upon your Potatoes are a small green froth fly, called Eupteryx, I believe. I cannot think they are the cause of the disease in the Potatoes. *R*——*S H*—The flies on your Turnips are apparently the Anthomyia brassicæ, figured and described in the Royal Agricultural Journal, vol. 4; the dead flies, with white banded bodies, are diseased by a fungus. Please to send us some of the Smother-fly in a pill-box. *R*——*J C X*—Your beautiful fly is the Asilus crabroniformis; it is not injurious to cattle, but at present we cannot enter further upon its history. You will find the genus figured in Curtis's "Brit. Ent." pl. 46. *R*——*G B*—It is the larva of a fly, named Thereva, which has been accused of doing mischief, but is never abundant (see the *Gard. Chron.*, p. 169). You must, if possible, fumigate your Picotees with tobacco, and scatter powdered tobacco round the roots to get rid of the aphides. *R*——*A G N*—Your Pine is infested with a thrips, and we fear you will have great difficulty in getting rid of it, as it resists heat and the fumes of sulphur to a great amount. It will be very desirable to extirpate it, otherwise your crop will suffer next year. *R.*

MELONS—*J H, Doneraile*—We shall be much obliged.

NAMES OF FRUITS—*M H S*—1, Violette Hâtive Nectarine; 2, Red Roman; 3, Elruge; 4, Royal George Peach; 5, Royal Charlotte.‖——*D I*—Grosse Mignonne.‖——*W F*—Plums. 1, Washington; 2, Drap d'Or.‖——*S F G*—3, 14, Keswick Codlin; 5, Kirke's Lord Nelson; 8, Gravenstein.‖——*Besborough*—1, 2, Summer Franc-réal; 3, Passe Madeleine; 4, 5, Hampden's Bergamot; 6, Windsor; 7, Vallée Franche.‖

NAMES OF PLANTS—*W S*—Campanula aurea.——*Oti*—Claytonia perfoliata.——*Amateur*—Escallonia rubra.——*Philalethes*—Nepeta cyanea, a pretty herbaceous plant.—*G M & Co*—Acacia dentifera.——*Leda*—Torenia asiatica.——*A Constant Reader*—Gesnera faucialis. If your Grobya grows well it will certainly flower in time, if you give it heat enough.——*J Pope*—Cattleya Loddigesii, Stanhopea insignis.

PLUMS—*J J*—The Plums you sent are good Green-gages. Those from suckers are unquestionably the same kind of fruit as that from the old tree, the stem of which you state is 3 feet in circumference. But Plums are sometimes worked very low so as to admit of the soil being easily drawn up to the clay to prevent the latter from drying. Supposing, then, the graft to be partially below the surface when the tree is planted it would most likely send out roots, and from these suckers, which, without careful tracing, would be supposed to proceed from an original seedling instead of a grafted tree.‖

POTATOES—*D, Grantchester*, is unintelligible. Give us facts, not dreams. We thought the electrical absurdity had been sufficiently exposed.——*R J*—We are obliged to beg you and a large number of other kind contributors will rest satisfied with our thanks. If a newspaper were as large as a mainsail it would not hold half our letters. We endeavour to make the best use we can of the information we receive.——*T C C*—See the Leading Article of to-day. See the plan proposed by the Farmers' Club at Hadleigh, which answers every purpose. But it is better to strain and wash the pulp *thoroughly* through some coarse linen.

REEDS—*F P B*—Apply to Mr. Lawson, Seedsman, Edinburgh, We know of no one nearer. If you have any friend on the Norfolk coast, he can help you. Plant any time in winter.

ROSES—*Sub*—China and other soft-wooded Roses may be struck from cuttings put in about the end of June or July, in light sandy soil. They should be covered with a hand-glass, and placed in a shaded situation. The Garden, Moss, and other hard-wooded kinds are increased by layers in the open borders, either in spring or autumn.¶——*J R*—A healthy specimen of what appears to be one of the Roses allied to Devoniensis and the yellow China.

STRAWBERRIES—*S S S*—As regards general merit there is, perhaps, none of the new Strawberries equal to Keen's Seedling. There is an Alice Maud not distinguishable from Keen's Seedling. The British Queen forces well, and produces a good large fruit in the open ground; but the plants are somewhat tender. Myatt's Eliza is hardier, and an excellent bearer, worthy of cultivation. The merits of the other new varieties you mention have not been sufficiently ascertained.‖

VINES—*Sub*—The leaves you sent are remarkably large; and the particulars of your mode of cultivation would be most acceptable.‖——*A Sub*—In excavating so deep for your border, you should make sure that you have not gone below your drainage, nor into land-springs. The soil appears to be turfy and good, and requires only to be mixed with some ½-inch bones and a moderate quantity of rotten dung. If you concrete the bottom so much the better. The varieties you intend planting are very proper.‖——*J H*—The cracking of the berries of your Horsforth Seedling Grape, which is much the same as the black Morocco, is probably owing to the roots being too dry. Their being without seeds is chiefly owing to too damp an atmosphere when in flower.‖

MISC—*2s. 6d.* will be given for No. 4, 1843.—*A B*—You had better keep your Fuchsia-seeds free from damp, and sow them in spring, or early in summer.‡——*A F S*—Plants of the same variety may be raised from the scaly bulbs formed at the axils of the leaves of the Achimenes. Keep them in dry sand through the winter, and plant them early in spring, and by good management they will flower well in the same season.‡ 1*s.* will be given for No. 49, 1843.

SEEDLING FLOWERS.

ANTIRRHINUM—*Y Y*—*A. pencillata* is a repetition of an old variety, it forms a handsome spike of delicate blooms; elegans is compact and pretty.*

FUCHSIAS—*W K*—The corolla of your specimen wants colour; it has a faded appearance; in other qualities it is equal to most of the light varieties out.*——*J F, Jersey*—No. 1 is a large stout flower, but the sepals are coarse, and the corolla has a faded appearance; there are better in cultivation. 2, too little colour in the corolla. 3, this is the best, having a more decided contrast in the colours; but there are specimens in cultivation equal to it.*——*Y Y*—No. 1, an elegant flower; light tube and sepals, with purple crimson corolla. 2, very large and showy, but wanting novelty. 3 is very showy, from its having a very large corolla, with a good contrast in the colours. In 4 the corolla is rather lighter than the tube and sepals; a rich-coloured flower.*

PELARGONIUM—*H G*—A dwarf scarlet named the Graces contains trusses of bloom with 17 expanded flowers, and about 26 buds in different states; colour not superior to other sorts.*

PETUNIAS—*G M & Co*—There is nothing uncommon in either of your seedling Petunias; they are surpassed, in their way, by many in cultivation.*

PHLOX DRUMMONDII—*G M & Co*—Your seedling is a very pretty and desirable variety; white, with a star-formed spot of violet surrounding the tube.*

VERBENAS—*W J*—The seedling you have named the Wonder of the Scarlets is a very fine variety; the individual flowers are large, brilliant in colour and form—a fine head of bloom.*

——*Anon*—None of your seedlings are worth preserving; such faint and broken colours as 3, 10, 13, 19, and 36 have been frequently raised; 31 is too uncertain, and better scarlets than 9 are already cultivated.*——*T D*—La Polka is of no use; it is inferior to the sorts grown of the same colour.*

Farm to Let.

MONMOUTHSHIRE.

TO BE LET ON LEASE, with entry at Michaelmas, a FARM, TITHE-FREE, containing 182 acres 3 roods of Arable, Meadow, and Pasture Land, about 55 of which are Arable, the remainder Grass-land of superior quality, well supplied with Water. The Farm has been for some years in the occupation of the Proprietor, who has spared no expense in thorough draining and subsoiling, to bring it into an improved state of cultivation. It is situated within 5 miles of two good market towns; lime and coal cheap, and of easy access; roads good and rates very low. There is a comfortable Farm-house, with good Garden, Barn, Stables, Cow, Calf, and Turnip-houses; and Four Acres of good Orchard. For further particulars, or to treat, apply to Mr. JOHN MORTON, Whitfield Farm, near Wotton-under-Edge, Gloucestershire. An adjoining Farm of about 55 Acres, of which 40 are Arable, may be had with the above.

SEED WHEAT.—RED STRAW WHITE WHEAT AND HOPETOUN WHITE WHEAT FOR SALE, at WHITFIELD FARM, near WOTTON-UNDER-EDGE, GLOUCESTERSHIRE. Price 8s. per bushel. These varieties may be supplied from off a clay, sand, or limestone soil, according to order. Where a change of seed is desired, this point will perhaps be considered important. Orders should be accompanied by a reference or remittance.—JOHN MORTON.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 20, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Sept. 24—Agricultural Imp. Soc. of Ireland.

WEDNESDAY, Sept. 30—{Annual Meeting and Cattle Show of the Agricultural Imp Soc. of Ireland, at Ballinasloe.

FARMERS' CLUBS.

Sept. 29—Chepstow | Sept. 30—Bromsgrove.

WE have great pleasure in directing the attention of our readers to an admirable article in the current Number of THE NORTH BRITISH REVIEW* ON CHEMISTRY IN ITS RELATION TO AGRICULTURE. It is a most eloquent popular exposition of the theory of Agriculture in that stage of its development to which, during the past few years, it has been brought by the labours of chemists in Great Britain, France, Germany, and Holland.

Statements of this kind, unencumbered by scientific technicalities, but giving, nevertheless, as this does, an accurate and intelligible account of those improvements in farming which science has suggested or explained, and indicating at the same time the direction in which, under her guidance, the future progress of agricultural improvement may be expected, cannot to be too highly valued. It is extremely desirable that farmers should have such a general acquaintance with the theory of their art as will enable them to distinguish the well-founded suggestion of scientific men from the visionary, though they may be plausible, conjectures of the enthusiast. This has been well illustrated during the past year by the useless excitement which has prevailed on the subject of electro-culture. And the kind of knowledge which is required in order thus to direct the labours of an experimental farmer into useful channels, is that which writings such as these are calculated to impart.

In the limited space to which we are confined, it would be impossible to give even a mere abstract of the contents of this essay; strongly recommending our readers to obtain and study it for themselves, we shall, therefore, confine our remarks to one of the subjects which it illustrates—the nature of fertility in soils—To what is it owing?—How does the ordinary practice of the farmer affect it?—When exhausted, how may it be restored?

Fertility is a quality which good cultivators know how to confer upon their farms; it is dependant upon more than one condition—thus, its absence may be caused by stagnant water in the soil, and then they undertake its drainage—or, by a faulty texture of soil, and then they endeavour to alter it by the admixture of clay, chalk, ashes, &c.—or, lastly, the absence of fertility may be owing to previous bad cultivation, to previous *cross cropping*; and then, by the introduction of fallow crops, by folding stock on the land, by the application of bought manures, they endeavour to restore it. The explanation of all these operations has been beautifully given by the researches of the chemist. Drainage and an improvement in the texture of soils, are beneficial in a different way from that in which *good farming* acts—the latter fills those store-rooms of vegetable food existing in the soil, to which those only confer upon plants a readier access. And in further explanation of this subject we may here begin our extracts, which we shall give almost without comment—they are so instructive.

"A soil which is so naturally fertile that it will grow a long succession of crops without any addition of manure, always contains in its inorganic part a *notable* quantity of ten or eleven different chemical substances. These are potash, soda, lime, magnesia, alumina, silica, iron, manganese, sulphur, phosphorus, and chlorine."

"On the other hand, such soils as require to be manured—which will not naturally grow good crops, or which will not grow crops at all—such soils have been found either to be wholly devoid of one or more of those substances, to contain them in too small a proportion, or to have some of them present in too great an excess. Thus the nature of the chemical, and consequently the main cause of the practical differences being known, the method of removing these differences springs up of itself almost without an effort of thought. Make the soils chemically and physically alike, and you will make them agriculturally equal. Add what is wanting in the less productive, and bring it into the same physical condition, and you will make it equal to the more productive. Take away what is in excess in the one, and you will make it as valuable as another from which it differs only by this excess."

"But further, soils change in character by continued cropping. The most naturally fertile decline gradually in value and productiveness. They sink slowly down into the class of soils which yield abundant crops only when they are regularly and abundantly manured. What was the cause of this? Did the soil gradually lose some of its constituents? Did the manure constantly restore them? If so, which of its constituents had the soil lost during this degenerating process? What had carried them off? Where had they gone to? Could they be recovered? How, and in what form did the manure restore them?"

To answer these questions the reviewer turns his attention to the plant.

"All vegetable substances consist of a combustible and an incombustible part. This incombustible part—the ash they leave behind when they are burned—forms, in general, only a small proportion of their weight. A hundred pounds of Wheat leave when burned something less than two pounds of ash, the same weight of dry wood often leaves less than half a pound, while straw and hay leave from five to ten pounds from every hundred. Thus the proportion of ash varies from half a per cent. to 10 per cent of the weight of the dried plant."

"The analysis of the plant informs us that this ash is never absent, and is, therefore, without doubt, in some way necessary to the growing crop."

"But whence do plants derive this inorganic matter they always contain? It is taken up by the roots from the soil."

"Some plants, as we have said, leave more ash than others, and in some parts of the same plant it is more abundant than in other parts. A ton of leaves, for example, often contains 10 times as much as a ton of the wood of the same tree, and a ton of straw contains five or six times as much as a ton of grain. But if it be wholly taken from the soil, that plant, or that part of a plant which contains the most, must exhaust the soil the most. Thus, one clear reason appeared for what had been so long observed by practical men. Crops exhausted the soil, because they actually took up and carried off a portion of its inorganic substance—and one crop exhausted the soil more than another, because it robbed it of a larger proportion of these inorganic substances."

And now what is the nature of this ash?

"When subjected to a rigorous chemical analysis, the ash of the plant, like the incombustible part of the soil, was found to contain nine or ten different substances. These were potash, soda, lime, magnesia, silica, iron, manganese, sulphur, phosphorus, and chlorine—the same exactly as are present in the inorganic part of the soil."

"Here at once a bright light casts itself back upon the constitution of the soil itself. All fertile soils—so careful analysis had said—did contain a notable proportion of all these substances; but the reason did not appear. This reason now breaks in upon us of itself. The plants contain all these things; they form a part—a necessary part, as we shall afterwards see—of its substance; and as it can get them only from the soil, it is clear that the soil must contain them, if the plant is to grow in a healthy manner upon it."

But are there any special differences in the quality of this ash? Do plants possess a power of selection from amongst the various articles of food stored up for them in the soil? The answer to this question is most instructive.

"We have already seen that the absolute quantities of ash left by the leaves and the stem, by the straw and the grain, are very different, but the nature of the ash left by these different parts also varies. It has been found, for example, that the same sample of Hopetoun Oat gave from its several parts an ash which in 100 lbs. contained respectively of sulphuric acid and alkaline matter, the following very different proportions:—

	Potash and Soda.	Sulphuric Acid.
Grain	31.15	2.54
Straw	18.24	23.00
Leaf	15.68	15.23
Chaff	4.36	6.51

"And not only are the proportions of the several substances unlike, but in certain parts of the plant some of them are almost entirely absent. Thus, the grain and the straw of Wheat leave an ash which contains of phosphoric acid and silica respectively—

	Phosphoric Acid.	Silica.
Grain	50 per cent.	None.
Straw	1 to 3 ,,	30 to 60 per cent.

The presence of phosphoric acid in large proportion characterises the grain, while that of silica in large proportion characterises the straw. Similar results are obtained by the examination of the ash of different plants. Some contain more lime and magnesia, others more potash and soda, others more sulphur, or phosphorus, or chlorine; and thus the general law appears to hold, that, under precisely the same circumstances, one kind of crop will usually take up from the soil more of one kind of inorganic matter, another crop more of another kind."

We wish there were room to continue our extracts on this interesting subject, the want of it obliges us to defer them till another opportunity. We must, however, add one more:

"In its relations to practical agriculture, this result of experiment involves two distinct conclusions:—1. As different parts of the same plant require different proportions of these inorganic substances, they must, at different seasons of their growth, draw these substances in different proportions from the soil—more of one thing at one time, more of another thing at another. They may flourish, therefore, on a given soil, at one period of their growth, and not at another. That soil which clothes the tree with luxuriant verdure, may yet not be able to ripen its fruit—that which causes the straw to rush up to early maturity may refuse to fill the ear. 2. As different plants also draw from the soil the same substances in unlike proportions, they will grow with unlike vigour in different soils. Hence that which bears a profitable crop of one kind, is often unable to yield a good return of another; hence also the varied flowers and herbage which diversify the surface of all our fields. The beautiful principle involved in these conclusions, is susceptible of many interesting applications—explains many practical points long known, though little understood—and is rich in suggestions for the future improvement of every branch of husbandry."

It enables us to distinguish between what may be called a specific and a general exhaustion of the land, and thereby teaches how with economy to remedy the one or the other. It throws much light on the rotation of crops. It explains apparent anomalies in our experience regarding the action of manures. These subjects, however, we cannot now enter upon. We end as we began by strongly recommending the reader to study this essay for himself.

The above is an instance of the satisfactory explanation which farm management sometimes receives from the researches of scientific men. These, in our opinion, are then most useful when used simply to explain and enforce the superiority of the existing practice in our best cultivated districts over that which is still generally prevalent. The practice of agriculture, as known to the few, is, for the most part, still in advance of its theory; and therefore it is that the cause of agricultural improvement is, we think, in general better served by holding up for general imitation and emulation the proceedings and the experience of our best practical men than by too frequent a reference to the sayings and doings of the chemist or geologist. We make this remark in reference to the communication of a correspondent in another page. And here fully admitting the importance of these in their proper place, let us just consider for a moment, what influence they yet have on the practice of agriculture.

The fact is that the business of the farmer is made up of many departments, besides that of which chemistry unfolds the theory—of so many, indeed, that very considerable and varied qualifications are necessary for its successful prosecution. Of this any one may satisfy himself by inquiring into the condition of the "agricultural interest" of his own neighbourhood. He will find amongst the tenants of the land some in prosperity, others hardly paying their way, and probably some who, if all were known, are in a state of insolvency. Is this variety caused by variety of soil?—by variety in the extent of the tenancies? By no means: *on the same farms*, before now, one man has failed where his predecessor had succeeded, and another has prospered where his predecessor failed. Was success, here, owing to the command of sufficient capital? It may have been; the want of capital enough has often been the cause of failure where every other condition of success has been present. This, however, is not always, nor, perhaps, is it generally the main cause of successful farming. Thus, there have never been many money-making amateur farmers, though want of success with them has not been owing to a deficiency of funds. Can we, then, declare this variety in farming experience to be caused by the want of a *general* acquaintance with the doctrines of BOUSSINGAULT, JOHNSTONE, and LIEBIG? No one can say so. But we may put the question more strongly. Has ignorance of the theory of agriculture, or inability to adopt the suggestions of the chemist, ever yet been the cause of a farmer's bankruptcy?—Never.*

A union of many circumstances is necessary to the occurrence of successful farming; and, disregarding for the present the energy and industry, without which no business can be successfully prosecuted, the chief among these is the possession by

* North British Review, No. VI. Hamilton, Adams, and Co., London.

* Of course we refer here to that ignorance which the scientific man *alone* could remove.

the farmer of that practical skill and dexterity only to be acquired by experience, which teaches him how to direct his labourers in the performance of their work, when and how to perform his various farm operations, how and when to conduct his market transactions—which enable him, in short, to act with true economy in every department of his business.

Have we, then, been wrong in hitherto directing the attention of our readers chiefly to the details of farm *practice?*

CONCLUDING REMARKS ON THE SUBJECT OF WHEAT.

By Sir G. S. Mackenzie, Bart.

Before we can sufficiently understand what varieties of Wheat should be preferred for cultivation, an inquiry must be made into the actual effects of the process of baking on the nutritious portions. Part of the flour to be baked by the different processes must be analysed, and also the bread made from it, and the results compared.

Bread may be very nourishing, and yet disagree with some stomachs, and be even disagreeable to the palate. The patent bread has been found, in some cases, to cause uneasiness while ordinary bread has been innocuous. This, however, ought not to excite prejudice against the patent bread. If it shall be found to disagree generally, when all the ingredients are perfectly pure, then it must be given up. Common bread disagrees sometimes, and many can eat it only when it is stale. It is, however, with sound stomachs only the baker has to deal; his business being to furnish the largest quantity of nutriment in the smallest bulk. Weak stomachs must be suited with what they can bear, and not be regarded as the regulators of diet for the strong. It was not intended that man should live by bread alone, nor by any one or more constituent of grain. Many substances used singly as food for a length of time, even any one of those esteemed most nutritious, would probably destroy the human frame. Man being omnivorous, is a fact that puts beyond question that the body requires a variety of substances for its due support. We know, as yet, but little of the fluid into which the food is assimilated by the gastric juice. Whether the chyle and chyme are always uniform in chemical composition, has not, so far as I know, been ascertained, nor what their most favourable condition is. The processes of the internal animal laboratory are hidden from us, and are really mysterious. We have no reason for believing that the non-azotised portions of Wheat do not act an important part in the support of the body, under circumstances with which we are altogether unacquainted. They are prepared in the stomach to enter into new combinations, what is superfluous being excreted. It is proper, however, to look to the acknowledged nutritious matter, and we are fully justified, by what is known, in looking to it and preferring Wheat that contains the largest quantity.

It appears, then, to be the duty of the great agricultural associations to employ able chemists to collect all the Wheats known to be suited to the climates of Britain and Ireland, and to examine them with care, not only in their chemical composition, but in reference to the bread made from them by different processes. The expense of numerous accurate analyses is too great for private individuals, and many will be required in such an investigation. When the best sorts of Wheat, in all respects, have been ascertained, then let experiments be made in reference to the best modes of cultivating them, and the best manures for them. In the same manner let the varieties of Oats be examined, both in reference to human food and that of horses and other animals. There is much money wasted at present in animal food, which might be saved, probably by selection. For the direction of the brewer and distiller, Barley in all its varieties ought to be chemically examined; and every organised substance used as food, carefully selected.

The subject has now been brought under public notice, and it will not be denied that it should be taken up by those associated bodies who profess to have the interests of agriculture at heart. I will not abandon it altogether, but continue to do the little my means can effect, having at command the assistance of very able chemists and most intelligent bakers, full of the spirit of improvement. I now leave it for the present, and will rejoice to see it in better hands.—*G. S. Mackenzie.*

EFFECT OF AIR AND RAIN ON MANURE.

To combat popular prepossessions and prejudices is at best but an invidious or even thankless task; and I would not, though convinced of the truths which my observations convey, venture to attack established errors on the subject of manure, were there not at this present time some ground for believing that practice and science are beginning to open the eyes of agriculturists to the errors of the old system. Top dressing is in itself a practical refutation of the vulgar opinion, that exposure of manure to air and rain is detrimental to its fertilising properties by carrying off ammonia, and, as I have explained, is fully borne out in theory by sound chemical principles. It would be useless for science to show that the formation of oxygenous compounds is attended with less waste, and equally capable of imparting fertility to land as the compounds of hydrogen, did not practice also show that the exposure of manure to air and rain, as in top-dressing, is not only not wasteful, but is followed by a remarkable degree of fertility. It is better in all the practical walks of life that science should follow in the wake of practical experience. It is my wish, in the remarks that I have made on the subject, to reconcile the acknowledged (in many instances) superiority of top-dressing with well-known chemical principles; and I think it will appear to those who examine the matter dispassionately, not only that the economy of manure is greatly increased by the admission of oxygen through the medium of water, but that some of the evils arising from the common mode of manuring may be in a great measure avoided. This part of the subject bears upon the occasional failure of crops, such as now appears to be the case with the Potato crops in many parts of England and Belgium.

From the accounts received from various parts of the country, it seems that the Potato plants, leaves, stems, and tubers, die from the effects of a disease. The plant seems poisoned; dying under the influence of some unknown agent. It seems to die much in the same way as an animal does from the effect of a morbid poison absorbed and carried into the circulation. It becomes, therefore, a necessary inquiry whether plants are affected by poisons as the human subject is known to be. The first step in such an inquiry would be to ascertain if plants are exposed equally with man to the same causes that generate poisons which are known to be fatal to animal life. The question therefore suggests itself, how are the poisons generated that are occasionally found to scourge the human species and produce a mortality as striking as that which now affects the Potato crops?

All the evidence that has been collected from all parts of the globe tends to prove beyond dispute that the poison of fever is produced by the decomposition of animal and vegetable matter. Whether it be the fever of the Pontine Marshes near Rome, the malaria of Brazil, or the jungle fever of India, they are all caused by the hydrogenous compounds evolved from decaying vegetable matter in a stagnant state. The malignant typhus of towns has its origin in the putrescent decomposition of animal refuse collected about the dwellings of the poor, or in sewers and drains that are imperfectly supplied with fresh water. Both these forms of poisons are generated by the putrescent process, and are carried by the solvent power of hydrogen into the atmosphere; poisons too subtle and too small in quantity for analysis, and known only by their effects. A well-known instance of the generation of a poison from specific decomposition is to be found in a virulent form of fever formerly prevalent in India during the Hemp season, and found to arise from the refuse of Hemp being allowed to stand in heaps exposed to a tropical sun. The fever was soon found to disappear with the removal of the masses of decaying Hemp. The remedy for the prevention of these and similar diseases is to be found in a free supply of oxygen through the medium of fresh water. The presence of oxygen in this form prevents the generation of the pestilential compounds of hydrogen, and disease disappears.

If, then, disease in the human subject is found to be produced by a poison emanating from putrefaction of animal and vegetable matter, is it not reasonable to infer that a poison may be generated by putrid manure, detrimental to vegetable life. Masses of putrid animal and vegetable matter are buried in the soil for the purpose of feeding a plant—in most instances the purpose is obtained—the manure is properly decomposed—the plant is well nourished, and the crop thrives; but under certain conditions of heat, moisture, and solar light, the changes that ensue in the lumps of manure are other than beneficial; compounds are formed that disagree with the plant and stint its growth, or poison the sap and kill the plant. May not the fly in the Turnip crop be the result of manure undergoing hydrogenous decomposition, and thus favouring the development of larvæ which would otherwise never have been matured into life? The generation of insect life under putrefaction may be observed in the early part of the summer in the droppings of animals on a meadow, if left in heaps upon the ground long enough to become slightly putrescent; if turned over they are seen to teem with insects, some just hatched and others in the full activity of life.

The manner in which food is presented to plants is as important to them, and as essential to their full growth and development, as it is to the health and vigour of an animal to be well and duly fed. If the human subject is improperly fed, the mass of the blood is poisoned, or morbid secretions are formed, in which worms and other parasitic animals are generated. Can it be affirmed that plants are exempt from such influences? When we see them liable to a variety of diseases, as fly, canker, smut, rust, &c., is it not consistent with the known analogy of nature to suspect that food improperly prepared and unduly assimilated, is the cause of such morbid products? The farmer, anxious to save the goodness, as he terms it, of his manure, is in haste to dig it at once into the ground, and the plough, instead of mixing it with the soil, merely covers the putrid masses of the manure from the effects of air and rain. Such treatment of plants is as if the human intestines were to be filled with masses of undigested and unmasticated food; due nourishment and consequent vigour are not to be expected from such a mode of feeding, and imperfect nutrition is the result.

I will close these remarks on the probable connexion between improper feeding and the failure of the Potato crop, arising, as it appears to me, from a morbid poison generated by the absence of solar light, by quoting from the *Chronicle* of the 23d inst., a remark by a correspondent. It may be only accidental, but it affords a striking comment on the effect of top-dressing, standing out as it does in contrast with the disastrous accounts given in the same Paper of disease prevailing among Potatoes. "I planted a few rows of Ash-leaved Kidneys on the 5th of December last (before I had seen the article in your Paper on the subject), ridging them one foot high, with long dung over them. I did not hoe off till the end of March. The crop has been magnificent, and the tubers excellent." With your permission I will resume the rationale of top-dressing in my next.—*Oxygen.* [Many thanks: your remarks on this subject are most interesting, and deserve serious attention.]

ON THE MANUFACTURE OF DRAINING-TILES.

(*Continued from p. 632.*)

It may be useful to say a word here to the manufacturers of the old-fashioned heavy draining-tiles, most of whom, I am aware, dislike the introduction of the pipe or tile-machines, and some of whom have set their faces altogether against them. I earnestly advise those gentlemen to march with the times, to provide themselves with machines suitable to the nature of their respective trades, and to offer their goods at a fair price. I would urge them to reflect that if the cost of draining can be brought down from 8*l.* or 10*l.* to 3*l.* or 4*l.* per acre, they may safely speculate that, for 1 acre drained heretofore, 5 acres will be drained henceforth, and that their increased sale will yield them as good a profit under the new system as the old.

It might also be suggested to gentlemen who are about to drain their estates in different and distant situations, to pause in some instances before they incur the expense of erecting tileries of their own; because a tilery can seldom be placed, upon a large estate, within a convenient distance of all the tenants, and the carriage is consequently rendered onerous to many. If there be existing tileries in the country, and the proprietors of them reasonable men, a landowner, possessing a portable pipe-machine, might have it shifted from tilery to tilery, the proprietor to be paid a proper consideration for making and burning any given number of pipes or other goods. By arrangement, the man, rendered by practice expert in the use of the machine, might travel with it. Several of the pipe-machines are now so portable, that they can be placed in a cart, and conveyed with perfect ease.

There were 14 pipe and tile machines exhibited at Shrewsbury last month, all perfect and in good working order. A pipe maker would not make a great mistake who purchased any one of them; but, certainly, some were better adapted for particular purposes and objects than others. The following is a list, preceded by the number of the stand in the Shrewsbury catalogue:—

2. Mr. Beart, of Godmanchester, Huntingdon, had one, price 15*l.* 15*s.*
8. Mr. Webster, of Hounsdown, near Southampton, ditto, from 20*l.* to 50*l.*
14. Mr. Etheridge, of 15, Park-street, Westminster, had three machines of different constructions, prices from 25*l.* to 50*l.*
25. Mr. Clayton, of 21, Upper Park-place, Dorset-square, ditto, 26*l.*
31. Mr. Harkes, of Mere, near Knutsford, ditto, from 16*l.* to 20*l.*
36. Mr. Chamberlain, of Bredicot, near Worcester, ditto, 20*l.*
38. Mr. Hatcher, of Benneuden, Kent, ditto, 25*l.*
54. Mr. Charnock, of Wakefield, and Mr. Denton, of Gray's-inn, ditto, 20*l.*
60. Mr. Weller, of Caple, near Dorking, ditto, from 15*l.* to 30*l.*
70. Mr. Scragg, of Calveley, near Tarporley, Cheshire, ditto, 21*l.*
72. Mr. William Ford, of Fulham, near London, ditto, 28*l.* 7*s.*; License, 3*l.* 3*s.*

Mr. Ainslie, of Acton, Middlesex (not in the catalogue—not having complied with the rules as to time of application for admission to the show yard), price 30*l.*

The respective machines of Messrs. Clayton, Beart, and Scragg were set apart by the judges for further experiment. To which of those gentlemen the honor of the Society's prize for the best machine will be awarded is not yet known.

It may not be out of place here to mention that the honour of being the inventor of the pipe system of draining is due to Mr. John Reid, now of Regent Circus, who about 36 years ago was a farm servant to the late Rev. Dr. Marriott, of Horsmonden, in Kent.—(See p. 372, vol. 4 of "Journal Royal Agricultural Society.") At all events, Mr. Reid was an inventor, and the first who applied the invention to practical purposes. It must be gratifying to him to have lived to witness the important consequences which have already resulted from the invention of his youthful days, and to contemplate the benefits to arise from it in time to come. It should, perhaps, in justice to all parties, be mentioned that at the Cardiff Farmers' Club, in November, 1844, the Rev. E. W. Richards acquainted the meeting that his ancestor, T. Edwards, Esq. of Llandaff House, had taken out a patent for making draining pipes upwards of half a century ago, and which patent he (Mr. Richards) had then in his possession.

In the consideration of the advantages of draining should be noticed (as respects heavy clay lands especially), the striking effect produced in the working condition of the land. It is not too much to say that many lands which in their undrained state require the power of three or four horses in the plough, particularly when strung one before another, after the fashion of our midland counties, may, after a thorough and perfect drainage, be worked with two horses. Without perplexing the subject with too many figures, it may be stated that the economy of working through a rotation with two horses, instead of three or four, will amount, at least, to 4*s.* or 5*s.* per acre. Let it be considered by tenants what this amounts to on farms of a few hundreds of

acres, and by landlords to what it amounts on estates of 10 or 12,000 acres; and the vast importance of the subject, to both landlords and tenants, will strike the mind with a force which ought to stimulate to prompt and decisive action. Perhaps one of the best applications of the funds of the agricultural societies of the midland counties would be to defray the expenses of an intelligent deputation into the northern counties to investigate, and report on, the causes which enable the farmers there to work their heaviest lands with two horses in a plough, whilst here, in parallel circumstances, we persist in stringing on three or four.

I feel that I ought not to conclude a lecture on this subject without pointing attention to the valuable papers on draining dispersed through the journals of the Royal Agricultural Society, and most particularly to that of Mr. Josiah Parkes, contained in the 5th volume—a paper which I hesitate not to say will open out to most men who will take the trouble to read it many new views on draining, and will furnish many most valuable suggestions. The paper in question is "On the Influence of Water on the Temperature of Soils," and "On the Quantity of Rain-water and its Discharge by Draining." It affords a striking illustration of the value of science and of general intelligence when brought steadily to bear upon any given subject; and will, I think, go far to dispose the merely practical agriculturist who may read it to receive sometimes with some degree of complacency and respect the suggestions of men of science on agricultural topics, although those men might not have been trained to hold the plough nor to dig in a ditch. In Mr. Parkes's own language, "the discovery of causes is of the highest importance to the arts, and a correct theory of any action so rapidly accelerates, extends, and perfects sound practice, that we cannot too highly prize its possession." To those who value the possession of a correct knowledge of the causes which render it of importance to drain land 3 or 4 feet deep, instead of 20 inches or 2 feet deep, I earnestly advise them to peruse Mr. Parkes's essay; and perhaps this recommendation is the most valuable suggestion I have this night to offer, and is the best compensation I can make for having presumed to occupy the time and attention of the present meeting.

Postscript.—On Saturday last (the 2d inst.) I chanced to be in the neighbourhood of Alvechurch, on a visit to a friend. I took occasion to cast my eye over the subsoiled fields of Mr. Penn and of Mr. Wharford, to which reference is made in a foregoing part of this discourse. There is a good crop of Wheat growing on Mr. Penn's field, and an exceedingly good crop of Beans on Mr. Wharford's—the first fair crop seen on the latter field since it was subsoiled. It was in Wheat in 1844, and was a very shy crop (about 22 or 23 imperial bushels), even in parts not damaged by the game. The farm adjoining to that of Mr. Wharford, sen., is The Grange, occupied by his son, Mr. Wharford, jun., who is likewise an exceedingly good tenant. Upon this farm there is a field of Beans, part of which field was drained about three years ago, 2½ feet deep in the furrows, at distances of 16 or 17 feet, but not subsoiled, and the remainder was neither drained nor subsoiled. There is a very marked difference in the crop—the Beans on the drained part of the field being an excellent crop, alike in ridge and furrow, and being at least 17 or 18 per cent. better than that growing on the undrained part of the field. I think there is more growth—more straw—on this drained land of Mr. Wharford, jun., than there is on the subsoiled land of Mr. Wharford, sen.; but I think the Beans of the latter are rather the best podded, and, from present appearances, will yield the most per acre. The Beans of Mr. Wharford, jun., on the land drained have come up too thick. It may and should perhaps be stated that this field of Mr. Wharford, jun. is naturally a better field than the subsoiled field of Mr. Wharford, senior.

At the conclusion of the lecture, a vote of thanks was voted to Mr. Maughan; and the following resolution, after a very interesting discussion, was passed:—

That the usual construction of kilns for burning bricks and pipes and tiles for draining is imperfect, and that the subject requires further investigation; that the construction of a shed for drying should depend upon the purpose for which it is intended; and that the best method of using pipes or tiles in draining is at depths of 3 or 4 feet, generally at distances varying from 15 to 25 feet, the drains being carried down the slopes of the land rather than across them. That, for temporary purposes, the meeting approves of the plan for a tilery suggested by Mr. Law Hodges; and that the use of pipes of small diameter, instead of tiles and soles, is calculated to effect a most important reduction in the cost of draining.—*Abridged from the Wolverhampton Chronicle.*

Home Correspondence.

Importance of Science to the Cause of Agricultural Improvement.—I trust you will excuse my addressing a few words to you on the management of your valuable Paper. My object in writing is to say that I think you have not paid sufficient attention of late to the scientific department of your Journal. Might I mention, with all deference, the want of articles on the application of chemistry to agriculture, &c. (we must keep the theory well forward as the guide of practice); inquiries regarding the use of sulphuric acid, and the acids in general, with a view to the fixation of ammonia, and the whole state of the inorganic question, &c. I wish to thank you, as far as an individual can do, for the great service your Journal has rendered to the agricultural interest, especially the flying hints of the writer on draining (*C. W. H.*), which, as I think, are singularly felicitous. —*G. T. W.* [We are always obliged to intelligent correspondents for hints on the management of our Paper. Remarks on this subject will be found in a leading article in another page.]

Electricity and Agriculture.—I have been looking for your republication of the accompanying letter for the last few weeks; but, as it has not appeared, I infer that you have not seen it. The "additional pickle dung" explains part of the astonishing results of Mr. Forster's experiments, and if the thrashing and weighing of his crop were conducted with equal care or good faith, we may form an idea of the mode in which 13½ quarters of Barley per acre were raised. I am not aware that Dr. Forster has replied to Mr. Cowie's letter, but the "additional pickle dung" was either applied by his orders, or it was not. In the former case, remark is superfluous, and in the latter Dr. Forster is almost equally culpable, as a person who takes it upon himself to set at nought all that has been ascertained, during the last century and a half, of the laws which regulate the distribution of electricity, and to induce farmers to spend money upon the faith of his representations, ought to have personally superintended the preparations for his experiments, so that no mistake of the kind could occur.—*F. G. G.* The following are extracts from the letter alluded to. It appeared in the *Caledonian Mercury*, August 7th. "I have been induced to send you this communication, on account of my having a few days ago visited the northern counties, where I had an opportunity of seeing and examining into the *modus operandi* and results of Dr. Forster's experiments. I was accompanied on the occasion by two crack practical farmers. We drove our vehicle to the stables of Findrassie, where we intended to put up our horse for a short time. While I was engaged in searching for Dr. Forster, who, however, had left home, my friends got into conversation with a very communicative lad, a servant on the farm, respecting the experiments on electricity. The lad seemed rather astonished that we had come to see what was thought nothing of in the neighbourhood. On being asked if the crops were better where the poles and wires were placed than on the rest of the field, he answered—'Weel the crap sud be better, considering the additional pickle dung it got beside the wires, but that he could not say there was really any difference observable.' After this *exposé* our expectations were very moderate, but we determined to have ocular demonstration on the subject, notwithstanding the absence and want of permission of the lord of the manor, whose public announcements have, however, laid that portion of his grounds under experiment, in some measure, open to public exhibition. The poles and wires are placed in two very small fields, one of which is in pasture, and the other is a crop of Barley. The first had not a living animal upon it, and humane and considerate it certainly was, for the total want of anything in the shape of Grass beyond the roots would have starved any hill ewe—nibble she never so eagerly. The devoted field, instead of being electrified, seems to be paralysed, and will to all appearance require some more 'pickles of additional dung' to revive its sensibilities after the shock it has sustained. Then, as to the Barley, it seems neither to have suffered nor been ameliorated by the magic wires, for no perceptible difference can be seen over the field. The crop, what with electricity, the 'pickle additional dung,' and all, looks at less than four quarters per acre.—*James Cowie, Haulkerton Mains.*" [Mr. Cowie adds—"Dr. Forster may have been himself deceived, and we must give him credit for wishing to enlighten his brethren, but he should now either acknowledge the failure of his experiments or submit them to the inspection of some of those shrewd Morayshire farmers by whom he is surrounded." Here we quite agree with him; for, judging from all the similar experiments reported to us, the extraordinary results obtained last year at Findrassie, must surely have been owing to some oversight or error.]

Manure-making.—I propose to make a manure-tank—in addition to my present stable, cow-house, and piggery ones—formed of Ashlar stone (6 inches thick), coal-ash mortared; sunk in the ground, and embedded in clay, to prevent leakage; paved well; of sufficient depth, width, and length, to receive all the weeds and refuse vegetable matter collected during the year. It will be placed so near a water-course, that I shall be able to convey at pleasure, by means of a few feet of pipe, the water necessary to immerse all this vegetable matter for its total decomposition; and so situated, as to admit of a cart shooting its contents into it. I think of making a division in the middle of it, so as to have one part of it in a state for use, while the other is preparing. It can be mixed with earth, sand, loam, marl, coal-ashes, gypsum, or other manures. I propose to use salt at all times whenever fresh weeds are added, and to mix gas-water with it when I can get it. As I fancy this plan of making use of all the weeds collected, and the refuse matter of the garden, by which the seeds and roots of weeds will be rendered incapable of reproduction, which, in the common and usual farm-heaps, is seldom if ever effected—and so easy a method of producing valuable manure, which, in most cases, is carried out and placed in some waste part of an adjacent road, there to revegetate, and cover our neighbours' and own land with weeds again—that I presume to send this plan of mine to you, for the purpose of eliciting your ideas regarding it; after which it may recommend itself to others similarly possessed of the same materials, and with similar desires of improving their land. May I, therefore, request you will favour me with any hints. When in a high state of putrefaction, would you recommend oil of vitriol, or sulphate of iron, to be mixed to fix it, and in what proportion, for instance, to a cart-load? Need it be covered with any but a shed roof? What effect would gas-lime have on it? is it neutralised enough not to destroy the ammonia? Will a thatch wattle suffice as a roof or covering to this tank?—*Waterhouse.* [You may mix gas-lime with your compost; as it gradually absorbs oxygen from the air, it becomes gypsum, and will then be a useful manure. It is impossible to say how much ammonia will be evolved during the fermentation of such a mixture as you will gather together in your tank—perhaps not above ½ per cent., and then you would need to add about 10 lbs. of sulphuric acid to every ton of the compost. Any sort of roof capable of keeping out the rain will answer as cover to a tank the contents of which are not volatile.]

Preserving Eggs.—In page 480, under the head "Preserving Eggs," I read, "A pint of lime and a pint of salt mixed with a pail of water will preserve eggs for any reasonable time.—*B. F.*" I should be glad if "B. F." would inform myself and others how long it is necessary to keep the eggs in the lime-water, and whether after being dipped for a few minutes they may be packed away.—*Cautus Futuri.*

Early reaping in Ireland.—Having read in your paper remarks relative to the cutting of Wheat, while the subject is fresh it may not be uninteresting to your readers, particularly those of Ireland, to know that according to the recommendations published in the *Chronicle* last year on the same subject, I cut my Wheat about a week before the usual time, harvesting it carefully, and having prepared it, I sent it at once for sale to the various buyers around me; it was rejected. I was then obliged to unsack and loft it; and, after a week's daily turning, to send it to Limerick market by car, a distance of 30 Irish miles, and with difficulty disposed of a good grain at a reduced price. I mentioned to you this circumstance at the time, but you did not take notice of it; I now again acquaint you of it to show you the loss farmers must sustain here, and, I believe, in Ireland generally, by harvesting crops while fresh, as sale cannot be made of them. I however agree in the opinions set forth in the *Chronicle*, but they cannot be effected here until the buyers be made acquainted with their interest as well as the farmers', in this mode of preparing their corn.—*John Bindon, M.D., &c., Moneygall, Ireland.* [Why was it necessary to turn the grain repeatedly in the granary? Was the grain damp? If so, *that* doubtless was the cause of the difficulty you experienced in its sale. You stacked it before it was properly dried—before it was "won." Of course in advocating earlier reaping than is common, we do not recommend the farmer to harvest the crop before it is dry. And we cannot suppose that cutting a piece of Wheat one week earlier than common, provided it was harvested well, could have any other influence on the sample than that of improving its quality.]

Early Reaping Wheat.—I have read with interest your remarks on the early reaping of Wheat; as you remark there is nothing new in it, but it is very satisfactory to see it tested by experiment. When I have heard it canvassed (many years since), I have heard apprehension expressed that it would not answer for seed Wheat, and that thus disappointment would frequently arise were it generally adopted. Excuse my calling your attention to this point.—*W. P.* [Well ripened seed we should conclude to be best.]

Draining-tiles.—Having read with much interest the paper on the "Manufacture of Draining-tiles," in a recent Number of the *Agricultural Gazette* (pp. 214, and 215), might I be allowed to ask your correspondent (or any one else who has tried the system of draining as recommended by him, viz.: pipes, and short collars between them), whether the interstices between the pipes and the collars are not liable to be clogged up with soil, mud, &c., from the water entering them, so as to prevent in time the free entrance of the water into them. I conclude, of course, that the pipes he recommends (viz., those of 12 inches long by 1 inch diameter) are made without any holes for the admission of water by their sides.—*R. G.*

Soils.—In order that I may be as intelligible as possible to the reader, I will make distinct divisions between the various kinds of soils, as without such an arrangement it would be impossible to convey anything like a clear idea; and I deem it necessary to place the soils under the generally understood names by farmers, &c. I must here remark that those soils agriculturists and gardeners usually call loam, peat, clay, &c., would distinctly and universally be known by them under those denominations; still the great variety, from numerous causes, in similarly-named soils renders this subject very ill defined. It is to be hoped that agricultural chemistry will do much to overcome the present difficulties in the way of a good classification of soils. At present we must content ourselves with common names:—1, brown loam; 2, black loam; 3, clay; 4, black peat free from sand; 5, black peat with sand; and 6, sand. Brown loam may be considered the best of all soils, more especially for raising strong crops. In going over a field the earth of which is brown loam, and which has not been under a system of draining, allowing the substrata to be of a stiff nature, the vegetation of such soil under these circumstances presents all the appearance of having grown on barren and useless soil; yet this is the produce of good land,

though, from unfavourable circumstances, in a state of unproductiveness. The natural herbage of such soil is of a stunted appearance ; its foliage is of a yellow cast ; even common stubble on such land distinguishes itself by partaking of the same weak look, and its unhealthiness is caused by a lack of porosity in the soil and lack of skilful husbandry. I may add that a great deal of difference is to be found in the composition of this kind of earth, nevertheless its spontaneous productions are in most cases similar. Deep ploughing, or spade husbandry, applied to brown loam will, in some degree, ameliorate its effects on vegetation ; and even a mixture of any substance of a porous kind with it, will act beneficially on its texture, without having a system of draining applied to it. Still, if we consider such effects, it will at once appear obvious that deep ploughing, spade husbandry, and a mixture of porous material, act in a much inferior degree to draining. The loam in both cases, however, is made more porous, warm, and becomes pulverised ; in consequence, also, more exposed to atmospherical action. The beneficial effects of spade husbandry and deep ploughing are only of short duration, whereas draining, being applied, imparts permanent benefit to the land and its occupier. One of the best signs to determine the barrenness or fertility of loams generally will be by their herbage, whether produced by nature or by the skill of the husbandman. I shall, for instance, take three common plants as examples, and with which I presume most people are familiar, viz., the common Sorrel plant (Rumex acetosa), the common broad-leaved Dock (Rumex obtusifolia), and the common plume Thistle (Carduus lanceolatus) ; these plants—under the unfavourable circumstances of growing in brown loam, without free drainage—even though they be plants primitive to the spot, will, nevertheless, possess every feature of bad health ; and it is to be observed that good land, under bad management, and impoverished land, will produce the same sickly effects on all plants.—*Orford.*

Farmers' Clubs.

Hadleigh.—*The Potato Crop.*—At a meeting of this Club, held on Friday, Sept. 13th, the lamentable failure of the Potato crop formed the principal subject of discussion. In the hope of allaying the alarm which prevails in the neighbourhood respecting the use of Potatoes that have become partially injured, and also of suggesting a method by which a large amount of wholesome food may be saved from such as would otherwise be thrown away, or given to pigs, it was resolved that a statement should be circulated, expressing the opinions of the Club on these subjects. 1. It appears to be certain that the failure is entirely owing to the season having been unsuited to fully perfecting the tubers of most of the varieties of the Potato. 2. Wherever the leaves and stems are dead, it is advisable to dig up the crop as speedily as possible ; and to select the best tubers (to be kept apart from the rest) for seed Potatoes. It is probable there will be a great scarcity when sets will be wanted, unless precautions are pretty generally adopted for saving the best. 3. The Potatoes thus separated for sets should be preserved with more care than usual. They should be kept as dry as possible, and examined at intervals, to see whether any of them are beginning to decay, and all such should be immediately removed. 4. The spotted and decaying Potatoes should be carefully picked out from among such as are to be preserved in store for winter and spring use. 5. As there is great danger from a single decaying Potato being left in contact with others in the same heap, lest it should tend to rot all around it, care must be taken to stack the store Potatoes in layers, with sand or dry earth between them, and so that each Potato may be prevented from touching its neighbours. A trench might be advantageously dug around the store ; and if the whole were thatched it would tend to keep them very dry. It will be advisable to delay the operation of clamping as long as possible, to allow the Potatoes to dry the more thoroughly. 6. The progress of decay in the spotted Potatoes may be stopped (at least for some time) by exposing them in dry situations to the light, but their decay will proceed if they are placed in the dark, or on moist ground. 7. If the decaying parts are pared off, or cut out, the rest of the Potato is perfectly wholesome. Many idle rumours have prevailed to the contrary, which are unworthy of credit. 8. If the decaying Potatoes have not passed to a state of putridity, they may be safely given to pigs : but they would be improved by being scalded, with the addition of a little salt. 9. It seems to be a providential arrangement that as yet the really nutritive portion of the Potato is very little injured ; even in those tubers which have become partially decayed, and appear to be wholly unfit for food, the nutritious portion of the Potato consists of delicate white grains of starch-like matter, which are inclosed in little cells. When the cells are broken the grains fall out, and collecting together form a beautifully white flour. It is very easy to separate this flour from the rest of the substance of the Potato ; and if a few persons in different villages would undertake to make the method generally known among the poor, a vast amount of wholesome food may yet be secured to them, which otherwise they will suffer to perish. From an experiment that has been tried during the past week, it appears that where 12 lbs. of flour can be extracted from a bushel of sound Potatoes, 8 lbs. can be procured from such as have become so far decayed as to be useless as an article of food. 10. To obtain the flour separate from the decaying cells, the Potatoes should be first very thoroughly washed, so that not a particle of dirt remains upon them ; they should then be finely grated with a bread grater into a tub of water, and the pulp well stirred about to separate the particles of starch as much as possible from their cells. The whole should then be left to settle, and the heavier particles of starch will soon fall to the bottom, whilst the lighter skin and cells will settle above them, and may be poured off with the water. The mass of flour formed by the settling of the particles should be washed two or three times more, by pouring water upon it and stirring it about, and again leaving it to settle as before. After the flour is considered to be sufficiently washed, it must be spread upon a cloth, placed on a board in the sun, or in a warm room, to dry ; or it may be dried in the oven after the bread has been removed. It may then be kept for any length of time, and when wanted, used like Wheat flour for making puddings, &c. This process will be sufficient for common purposes, but a more perfect method may be described, by which the Potato flour can be procured in its purest state, in which it is frequently sold for Arrow-root, and by a variety of other names as a delicate food for weak digestions, for children, and for the sick. 11. The more perfect process for obtaining the flour in the form of "British Arrow-root" is as follows :—*a.* Thoroughly wash the Potatoes ; *b.* Peel away the skin, without cutting off much ; *c.* Grate the peeled Potatoes finely into a pulp ; *d.* Place the pulp on a hair sieve, pour water over it, stirring it about well, till the water ceases to pass through with a milky appearance ; *e.* The pulp left on the sieve may be thrown away, and the milky water put aside to settle ; *f.* When the particles of starch have all settled, the water should be poured off, and fresh water added ; the whole stirred up afresh and allowed to settle again ; *g.* These washings may be repeated four or five times, when the starch will have assumed the character of Arrow-root, and will have become white as snow, whilst the water will now be perfectly clear ; *h.* The prepared flour must be thoroughly dried, and may be kept for any length of time in jars or casks. 12. When a dish of Potatoes is about to be obtained from the inside parts of such as are only partially decayed, instead of peeling them, the decayed parts may be grated, and whatever starch can be extracted from these parts might be added to the boiled Potatoes. Thus very little will be lost of the whole amount of nourishment which the Potatoes would have contained if they had been quite sound. In many cases it may be more convenient to keep such gratings for three or four days, till enough has been collected to make it better worth while to complete the process. 13. In times of scarcity it may be useful for persons to be made aware of the fact, that excellent starch-like Arrow-root may be procured from certain wild plants. In the Isle of Portland, some of the poor are in the habit of preparing it from the tubers of the plant commonly called "Lords and Ladies" (*Arum maculatum*). The tubers are well washed and grated, and the pulp treated like that of the Potato. The process gets rid of an acrid juice with which the fresh tuber abounds. This sort of Arrow-root is sold in the neighbourhood of Weymouth for about 8*d.* the pound. 14. It was suggested that local companies or societies might be formed, to buy up the decaying Potatoes, and to employ some of the poor to prepare the starch, which could be sold at little or no loss. It is the practice in Scotland, when the store Potatoes are found to be frozen, to extract the starch from them in the manner described.

Wakefield.—*Guano as a Manure.*—At the meeting of this Club on August 15, H. Briggs, Esq., opened a discussion "On the beneficial effects of Guano as a Manure." He began by observing—I shall make a few observations, which I hope will provoke a discussion. Farm-yard manure is thought to be the best manure—but this is certain, that that kind of manure is best which has most of the nutritive properties of food for plants in it. Now, let us compare the analyzation of manure and guano:—

A ton of manure	yields	2 lbs.	4 oz.	of potash.
Do. guano	do.	66 lbs.	8 oz.	do.
Do. manure	do.	1 lb.	10 oz.	soda.
Do. guano	do.	36 lbs.	15 oz.	do.
Do. manure	do.	5 lbs.	1 oz.	phosphoric acid.
Do. guano	do.	283 lbs.	9 oz.	do.
Do. manure	do.	1 lb.	4 oz.	sulphuric acid.
Do. guano	do.	93 lbs.	8 oz.	do.
Do. manure	do.	1 lb.	9 oz.	chlorine.
Do. guano	do.	62 lbs.		do.

From which it will be seen that one ton of guano contains about as much potash as thirty tons of manure. One ton of guano contains about as much soda as 19 tons of manure. One ton of guano contains about as much phosphoric acid as 55 tons of manure. One ton of guano contains about as much sulphuric acid as 80 tons of manure. One ton of guano contains about as much chlorine as 45 tons of manure. Bones are said to be a valuable manure ;—the principal fertilizing ingredients in bones are phosphoric acid and lime. Now, a ton of raw bones gives 580 lbs. of phosphoric acid. A ton of guano gives 283 lbs. of phosphoric acid. So that bones give double the phosphoric acid that guano does, but bones give no potash, soda, sulphuric acid, or chlorine ; in yielding lime they are but equal. *Rape dust* contains no potash, soda, or sulphuric acid ; so that if the land does not contain these, rape dust would be an inefficient or only partial manure, so far as the above three ingredients are concerned. There are only four manures which will do to be applied alone, viz.: yard manure, guano, night soil, and urine. The following are only partial manures:—soot, blood, bones, rape dust, and nitrate of soda. A comparison of night soil * and guano is as follows :—

A ton of night soil	yields	6 lbs.	7 oz.	of potash.
Do. guano	do.	66 lbs.	8 oz.	do.
Do. night soil	do.	4 lbs.	10 oz.	soda.
Do. guano	do.	36 lbs.	15 oz.	do.
Do. night soil	do.	120 lbs.		phosphoric acid.
Do. guano	do.	283 lbs.	9 oz.	do.

The comparative value of farm yard manure and guano (leaving out the gaseous ingredients) appear to be this :—Guano is worth thirty times as much per ton as farm yard manure, as far as solid fertilising matter go. Practice confirms this—we have in our farm as good Turnips from less than five cwt. of guano per acre, as from twenty tons of farm yard manure ; but it may be asked, is it equally durable ? I say more so—farm yard manure, it is admitted, yields more gaseous ingredients, but being very volatile, much more flies off than can possibly do from guano. On the ground we tried with five cwt. of guano for Turnips, and twenty tons farm-yard manure, the crops of Turnips were equal. The next crop, which was Wheat, the part which was tilled with guano produced the best crop. There is a clear benefit to the farmer ; he can raise more Turnips by the aid of guano, which gives him more food for his cattle, and of course makes more manure for him afterwards. The prices of guano vary—say Peruvian 10*l.* per ton, Ichaboe 7*l.* 10*s.*; but I find there is not such a difference in their virtues, so that I conclude Ichaboe is the cheapest. I cannot omit observing that guano is also useful in killing worms when it is applied to Grass land ; they may be seen in immense numbers on the surface, but I think guano should be mixed with salt.—Mr. Farrer, of Oulton, said he applied guano last year, and there was less Grass in June on the part where the guano was put than on those parts where it was not sown ; but when I mowed it in August, it yielded five tons from four acres, and the fog or after Grass was perhaps the best in the neighbourhood : the quality of the hay was very good. I have tried it for Turnips as follows :—I put 6 cwt. per acre of guano, and 20 tons of manure, a mixture of horse, pig, farm yard, and night soil. I spread each on the ground, and ploughed it up into ridges, sowing the Turnips on the top. The manured Turnips took the lead, and kept it until about ten days since ; but now the guano has outgrown them. I also tried guano on four large patches of Grass in one place particularly. The Grass was distinctly better the first and second year. Mr. Hislop.—I have not used it extensively, especially in its dry or powdered state, but made into a liquid, two ounces to a gallon of water. I have applied the liquid twice in the year to Carrots and Cauliflowers. Its effects in killing the grubs on Carrots was wonderful, although next year it did not seem to do such execution on the vermin. When I tried 4 cwt. per acre with manure, the tops were greener, but no material difference in weight produced ; but where I tried eight cwt. per acre, I had a bushel of Potatoes more in a row of eight chains long. On the crop of Barley the next year I observed a want of freshness where the guano had been sown. Where I sowed it on Grass last year, it did very poorly, but this year it shows clearly its beneficial effects.—The members came to the following resolution—"That, in the opinion of this meeting, guano is an important auxiliary to the resources of the farmer in obtaining luxuriant crops, and is the cheapest and most important substitute for farm yard manure, in some instances being found to produce as good crops at half the cost."

Reviews.

An Address to the Agriculturists of Great Britain, explaining the Principles and Use of his Artificial Manures. By Professor Justus Liebig. Muspratt and Co., Liverpool, Manufacturers of the Manure.

"Twenty-five years ago, when the manufacture of spa and mineral waters began, they met with violent opposition from the members of the faculty, as being deprived of all the good qualities of the natural ones—as wanting, in a certain *conditio, sine qua non*—in a *spiritus rector*, or vital power, which alone gave them any medicinal qualities. Those times have passed now—chemistry has demonstrated to a certainty what the constituents of those various waters are, and under what forms and compounds they are united in them. It has succeeded in combining them exactly in the same proportions, and in rendering them not only equal to the natural ones, but even more effective. Only from that time physicians were induced to connect certain effects on the human body with certain elements in the waters, and were enabled, by the light of science, to add more of this element, or more of that ; nay, to apply, instead of the waters themselves, the one active element alone, as is, for instance, the case with iodine in indurations and struma. It is well known, that at this moment there are extensive manufactures of mineral waters in England, at Berlin, at Dresden, at Vienna, &c."

The above is a paragraph with which Dr. Liebig commences a chapter on artificial manures in this pamphlet, and the application of the fact thus broached to the subject he discusses is very easy.

"I believe," he says, at p. 23, "that the same principle may be applied, partially, at least, to the use of manufactured manures, which, in England, has just been called into existence. Guano, that powerful manure, the efficacy of which, in a judicious application, has been clearly demonstrated by the testimony of the most intelligent farmers, cannot be supplied for a much longer period, because the rich stores in Chili and Africa must be shortly exhausted. As it is only in very dry countries that it is found, we cannot expect to discover many

* This night soil includes the urine with it.

more places containing it, and what are we then to do? My attention has often been directed to the question, whether, according to our experience, and the present state of science, a manure might not be composed which could replace the genuine guano in its effects, and whether I could not, by a series of experiments, point out a way of preparing one equal to it in all its chemical and physical properties."

The fact that guano, like the mineral water, occurring in nature, may be advantageously replaced by artificial preparations has long been acknowledged. Such a manure "applicable to all descriptions of soils," should contain, according to Professor Liebig, earthy and alkaline phosphates, the alkalies, sulphate, muriate of potash, common salt, salts of lime, especially gypsum, and salts of ammonia. *The proportion*, however, in which these should occur in manure must differ according to the crop it is to be applied to; for—and this is a fact which has been illustrated to a great extent during the past few years, and to which doubtless the attention of chemists will be devoted for many years to come—the mineral food required by one plant is different from that needed by another.

"Hundred weights of the ashes of the following plants contain—

	Straw of Beans	Peas.	Potatoes.	Clover.	Ashes of Hay.
Alkaline Carbonates	22.38	12.43	4.34	31.63	3.0
Carbonate of Lime	39.50	47.81	43.68	41.61	6.9
Phosphate of Lime	6.45	5.15	5.73	1.180	40.8
Phosphate of Magnesia	6.66	4.37	7.82	0.91	..
Sulphate of Potash or Soda	12.40	10.15	..	2.23	8.84
Magnesia	..	..	..	..	21.8
Chloride of Sodium or Potassium	0.28	4.63	2.8	2.27	3.06
Phosphate of Iron	..	..	..	..	1.27
Phosph. of Alumina, &c.					

"In these analyses Silica has not been taken into account, as it is found in all soils, and need not be supplied. One hundred weight of the ashes of Potatoes, and the seeds of the following plants, contains—

	Potatoes.	Wheat.	Beans (Vicia faba).
Alkaline Phosphates	15.75	52.98	68.59
Phosphate of Lime and Magnesia	9.00	38.02	28.46
Phosphate of Iron	0.20	0.67	0.00
Sulphate of Potash	15.07	0.00	1.84
Carb. of Potash and Soda	51.70	0.00	0.00

"What is wanting of the 100 in the above analyses is sand, coal, or loss. From these researches it appears, that for stalks and leaves we require other elements than for seeds. The former contain no alkaline phosphates, but they require for their development and growth a rich supply of alkaline carbonates and sulphates. On the other hand the carbonates are entirely wanting in the seeds, which, however, are very rich in phosphates. It is sufficiently obvious that a rational farmer must supply both, as well as all the others. If he supplies only phosphates, and does not restore the alkaline carbonates, his soil will become gradually barren—it will be exhausted in those necessary elements for the development of stalks and seeds, without which no formation of seed can be expected. If he supplies the alkalies, lime, and sulphates alone, in a given time he will get no more grain. All constituents of the manure, if they are supplied alone, have this great defect, that by them the soil is impoverished in other equally important substances. No one of itself can maintain the fertility."

The theory of artificial manuring seems to be now perfect; but it is questionable if a perfect practice can yet be founded upon it. What we want to enable this, is a perfect knowledge of the mineral and organic constituents of plants, and *that* we do not yet possess, as any one may ascertain by comparing the statements of chemists on that head. However, Professor Liebig is certainly one of the best existing authorities on the subject; and, if in the present stage of chemistry in its application to agriculture, farmers are to trust to chemists at all, we know not to whom they should give more of their confidence than to him. He has prepared prescriptions for manures to be used for the different cultivated plants, and he has intrusted the execution of them, under competent superintendence, to Messrs. Muspratt of Liverpool.

There is much very useful information in this pamphlet which these gentlemen are circulating as an advertisement of their connection with Professor Liebig, and which will doubtless interest the reader even though he should not test its accuracy by the purchase and use of Professor Liebig's manure. In saying this, we do not mean to cast any doubt upon the soundness of the principles on which this manure is prepared—that is unquestionable — but there may be variable circumstances connected with the action of manures with which we are yet unacquainted. Certain it is, that though we may know how to manufacture a successful manure, we have not yet the means of making a perfectly economical one. Ability to adopt true *economy* in the art of manuring, depends not only on a knowledge of what plants require in order to their full development in all the different stages of their growth; but also on a knowledge which we do not possess, of the stores which nature has ready for their use, both in any particular soil and in the air. It would be wasteful to supply them with all they want independently of these.

Miscellaneous.

Feeding of Animals.—(*Boussingault, vol.* ii, p. 437).—In the following Table of nutritive equivalents I have joined to the numbers given by theory, the results as far as known to me, obtained by practical observers. The normal quantity of water contained in the several kinds of food and the proportion of azote are also indicated. When the theoretic equivalents do not differ too greatly from the figures furnished by direct experiment, I should be inclined to give them the preference, on account of the great difficulty in practice of arriving at accurate results. The equivalent of Mangold Wurzel was found to be 400 on introducing 44 lbs. into the daily allowance; 500 would have been obtained as the equivalent, had we substituted 55 lbs. of the roots for 11 lbs. of hay, and it may be doubted whether the final result would have been affected by this substitution. Direct experiment is, in my opinion, indispensable; but only to control within sufficiently wide limits, the results of chemical analysis.

EQUIVALENTS OF THE NUTRITIVE VALUE OF DIFFERENT KINDS OF FOOD.

Names of Different Kinds of Food.	Normal water per cent.	Azote per cent. in the substance when dry.	Azote per cent. in do. before being dried.	Theory.	Block.	Petri.	Meyer.	Thaer.	Pabst.	Flottow.	Pohl.	Rieder.	Gemerhausen.	Crud.	Weber.	Dombasle.	Krantz.	Schwertz.	Schnee.	Middleton.	Munre.	André.	Boussingault.
Common natural Meadow-hay	11,0	1,34	1,15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0
Ditto of very choice quality	14,0	1,50	1,30	98																			
Natural Meadow-hay picked	18,8	2,40	2,00	58	108	100	..	..	..	100													
Hay free from the more woody stems	14,0	2,44	2,10	55																			
Ditto Lucerne	16,6	1,66	1,38	83	..	90	..	90	100	..	..	90	90	90	90	90	90	100	90	..	..	90	
Red Clover of the second year cut when in flower, dried	10,1	1,70	1,54	75	100	90	..	90	100	..	..	..	..	90	..	..	..	100					
Ditto Green	76,0	..	9,64	311	430	..	..	450	425	500	450												
New Wheat-straw (Alsace, 1841)	26,0	0,36	0,27	426	200	360	150	450	300	175	..	500	500	..	..	..	..	..	500				
Old Wheat-straw, from the military stores at Paris	8,5	0,53	0,49	235																			
Ditto lower parts of stems	5,3	0,43	0,41	280																			
Ditto upper parts, including spike	9,4	1,42	1,33	86																			
New Rye-straw (Alsace)	18,7	0,30	0,24	479	200	500	150	666	350	175	..	..	660	..	..	..	..	..	666				
Old ditto (Paris)	12,6	0,50	0,42	250																			
Oat-straw	21,0	0,36	0,30	383	200	200	150	190	200	175	..	..	190	..	150	..	..	400	182				
Barley-straw	11,0	0,30	0,25	460	193	180	150	150	200	175	..	..	150	..	..	..	..	400	154				
Pea-straw	8,5	1,95	1,79	64	165	200	150	130	150	200	90	..	..	..	..	..	..	..	143				
Millet-straw	19,0	0,96	0,78	147	..	250																	
Buckwheat-straw	11,6	0,54	0,48	240	..	200	..	..	..	..	..	..	..	..	..	..	..	..	191				
Lentil-straw	9,2	1,18	1,01	114	160	200	..	130	150														
Tares cut in flower and dried	11,0	1,16	1,14	101	..	125	..	..	100	..	..	..	90	90	..	..	..	..	90				
Potato-leaves	76,0	2,30	0,55	209	..	300																	
Mangold-Wurzel leaves	88,9	4,50	0,50	280	600	..	..	..	600	..	..	..	..	600									
Carrot-leaves	70,9	2,94	0,85	135																			
Leaves and green stems of Jerusalem Artichokes	86,4	2,70	0,37	311	..	..	..	..	325														
Lime-leaves	55,0	3,25	1,45	79	73																		
Canada Poplar-leaves	62,5	2,29	0,86	134	67																		
Oak-leaves	57,4	2,16	0,92	125	83																		
Acacia-leaves (Autumn)	53,6	1,56	0,72	160																			
Hearted Cabbages	92,3	3,70	0,28	411	556	500	250	429	600	600	..	600	600	500	600								
Swedish Turnips, 1841 (Alsace)	91,0	1,83	0,17	676	..	300	..	300	250	..	350	370	350	..	..	..	..	200	..	..	..	350	
Common Turnips	92,5	1,70	0,13	885	533	600	290	526	450	560	525	525	525	525	500	..	..	450	..	800	677		
Mangold-Wurzel, 1838	67,8	1,70	0,21	548	366	400	250	460	250	300	..	..	460	255	..	261	..	333	..	..	..	..	400
White Silesian Beet	85,6	1,43	0,18	669	..	..	..	..	..	..	..	..	..	..	..	220							
Carrots	87,6	2,40	0,30	382	366	250	225	300	250		266	270	263	260	266	307	266	270	..	338	..	..	280
Jerusalem Artichokes, 1839	79,2	1,60	0,33	348	205	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	280
Ditto, 1838	75,5	2,20	0,42	274																			
Potatoes, 1838	75,9	1,50	0,36	319	216	200	150	200	200	250	200	..	..	210	..	187	227	200	..	..	..	..	280
Ditto, 1836	79,4	1,80	0,37	311																			
Ditto, preserved in pits	76,8	1,18	0,30	383	400																		
Refuse of Cider-press dried in the air	6,4	0,63	0,59	195																			
Pulp of Sugar-beet from the press	70,0	..	0,38	303																			
Tares in seed	14,6	5,13	4,37	26	30	54	..	66	40														
Field Beans	7,9	5,50	5,11	23	30	54	50	73	40	..	50												
White Peas dried	8,6	4,20	3,84	27	30	54	48	66	40	..	47												
Kidney Beans (white)	5,0	4,30	4,58	25	..	39																	
Lentils	9,0	4,40	4,00	29																			
Yew	18,0	2,00	1,64	70	..	52	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59
Indian Corn	12,5	2,40	2,10	55	..	64																	
Buckwheat	13,2	2,02	1,76	65	33	61	53	76	50	..	..	52	..	..	..	47							
Barley, 1836 (Alsace)	13,0	2,46	2,14	54																			
Barley-meal from military stores (Paris)	13,0	2,20	1,90	61																			
Ditto (Alsace)	20,8	2,20	1,74	68	..	71	..	86	60	..	50	55	..	..	..	..	..	..	..	..	..	40	50
Oats, 1838 (Alsace)	12,4	2,22	1,92	60																			
Oats, military stores (Paris)	14,0	1,93	1,70	68																			
Rye (Alsace), 1838	11,5	1,70	1,50	77	33	55	51	71	50	44	38	52	..	..	..	..	65	..	52				
Ditto, 1836	11,5	2,27	2,00	58																			
Wheat, 1836 (Alsace)	10,5	2,33	2,09	55	27	52	46	64	40	..	..	..	..	..	..	44							
Ditto, 1838	14,5	2,30	2,00	57																			
Wheat (ditto), from highly-manured land	16,6	3,18	2,65	43																			
Wheat-flour (Alsace)	12,5	2,60	2,80	41																			
Fresh bran from the mill (Alsace)	37,1	2,18	1,36	85	105																		
Bran, from military stores (Paris)	13,8	2,77	2,30	50																			
Wheat-chaff	7,6	0,94	0,85	135	160	..	..	..	..	..	175												
Rice (Piedmont)	13,4	1,39	1,20	96																			
Seeds of Madia sativa	8,0	4,00	3,67	31																			
Cake of ditto	11,2	5,70	5,06	23																			
Oil-cake (Linseed)	13,4	6,00	5,20	22	42	108	..	..	..	..	..	..	..	..	57								
Rape-cake	10,5	5,50	4,92	23																			
Old of Pleasure cake	6,5	5,93	5,51	21																			
Hemp-seed cake	5,0	4,78	4,21	27																			
Poppy-seed cake	6,8	5,70	5,36	21																			
Nut-cake	6,0	5,59	5,24	22																			
Beech-mast cake	6,2	3,53	3,31	35																			
Earth Pea cake (Arachis)	6,6	8,89	8,33	14																			
Pickled Acorns	..	..	0,80	143																			
Refuse of Grapes dried in the air	48,2	3,31	1,71	68	..	62	..	..	75														

Tenant's Right to Unexhausted Improvements.—The usual allowances in the north of Lincolnshire to outgoing tenants for unexhausted improvements are as follows:—Bone-dust.—This is considered to last for three years, and a tenant quitting in the spring of 1845 receives therefore two-thirds of the cost of what he put on in 1844 (one-third being supposed to be exhausted by his Turnip crop), and one-third of what he put on in 1843, of which he has had the benefit of the other two-thirds in the crops of that year and of 1844. Precisely the same principle is adopted in the following improvements, the only difference being the number of years which each is assumed to last, and which are as follows:—Marl or chalk, seven years; lime, five years; clay, put on sandy land, four years, and on some estates seven years, which is probably a fairer allowance. Draining with tiles or stone, when the tenant pays the whole cost, seven years. This is, however, now a rare case, the usual practice being for the landlord to find the tiles. In this case the tenant has generally no allowance for putting them in if he has had a crop off the land, though he certainly ought to have a proportion of the cost, as it must often happen that the first crop will not pay for the labour of draining. It would probably be right to put this on the same footing as bones. Draining with sods or Thorns, four years. This allowance, I believe, is not always made. Indeed, this mode of draining is now not much practised. The tenant is also paid the cost price of the seeds sown the spring previous to quitting, and for the labour of sowing, &c., provided they are not stocked after the 1st of November, and have not been unfairly stocked before. When seeds are ploughed up for Wheat the autumn previous to

M. J. B.,

quitting, he is allowed for herbage until the end of the term; but it is not usual to allow anything on ploughing up Clover-stubble for Wheat, that being considered the crop which ought to follow Clover as a matter of course. For naked fallow, on strong land, he is allowed for ploughing and all the labour performed, but not for rent or taxes, unless he paid for them on entry. The cost of seed and labour on corn sown for the incoming tenant is of course always paid by the latter. The tenant has the right to remove, or can claim to be paid for, any buildings put up by himself on "bay stones," where the buildings do not enter into the ground, but he cannot remove a building attached to the freehold, nor even claim an allowance for it except by special agreement. On some estates buildings are allowed for like other improvements on a term of 20 years. A tenant cannot break up Grass-land without permission, nor sell any straw, hay, or manure. He is bound to keep the buildings, fences, gates, and ditches, in good repair, and to leave them so. All these claims and matters are left to be settled by two arbitrators, one to be named by the outgoing tenant, and the other by the landlord or incoming tenant; and if they cannot agree, then by a third party, to be named by the arbitrators before they begin to act. These customs are all so well established on this estate, that it is quite unnecessary to insert them in the ordinary agreements for farms; and I find on Lord Yarborough's property the simple form of agreement, which I believe you have seen, quite sufficient. They are also pretty generally followed through this part of the county, unless where modified by regular agreements. In addition to the allowances I have mentioned, a fresh one has just been established on this estate, having become desirable from the increasing importance of its subject. It is an allowance for oil-cake given to stock, which you are aware has a most important effect in improving the quality of the manure, though there is seldom much profit to be made from it on the stock itself. The allowance is based on the assumption that the manure is improved to the extent of half the value of the oil-cake consumed; but, to get a fair average as to both quantity and price, it is made to extend over the last two years, and the allowance is two-sixths of the cake used in the last year, and one-sixth of that used in the previous one; making together the half of a year's consumption. Oil-cake given to horses is excluded, as I conceive the benefit to their manure would be comparatively trifling, and an allowance for it would tend to make cake supersede the legitimate food of the horses in the last year of a tenancy. Cake given to sheep in the field is also excluded. This decision has been come to after careful consideration and inquiry, partly on the ground that the benefit to the sheep is sufficient to make it worth while to give cake without regard to the manure, and partly from the greater difficulties attending the getting a correct account, and the increased liability to fraud.—*G. M. Williams; English Agricultural Society's Journal.*

How to Judge an Animal that will Fatten Easily.—The first criterion for judging of the disposition of the beast to fatten quickly, in my opinion, is that peculiar soft, supple feel of the skin which is commonly called handling well; this is generally accompanied by hair of a soft, fine quality, in great plenty; the eye should be full and clear, and the head well formed; the shoulders not upright, but lying well back; the chest full, the ribs deep and well arched out, the flanks well down, the hips nearly level with the backbone, and, in proportion to the rest of the carcass as to width, the rumps wide, and not too low down, appearing as if, when fat, the tail and rumps' ends would be level (but this the butchers in my neighbourhood are in the habit of calling the fool's point); the purse should be of a full size, and soft to the the touch (this I consider a material point); the twist good, and the legs short and small in proportion to the carcass, as the offal will be light in proportion to the legbone. Next observe the temper of the animal: in selecting from a considerable drove you will often find beasts possessing many of these good points yet in lower condition than some of the animals of a worse appearance; consider well whether this may not arise from the masterful disposition of the ill-made one, and whether, when put to fatten where every beast may eat his share of food without disturbance, the good-bred one will not soon surpass his more masterful neighbour. If you observe a beast that is constantly watching an opportunity of goring any other that comes in his way, leave him behind, even if he is much heavier than those you select; he may be a great trouble to you; and although the jobber may think you have selected them badly, he will sell them according to what they are worth at the time, and the present weight is the great point with him. For this reason always select the animals before purchasing, rather than agree to give a certain price per head to pick where you like from the drove. I think the quality of an animal is of more consequence than his form, for common fattening purposes, but have both good if you can. But if you are thinking of fattening an animal to show for a prize, be sure to have his form as perfect as possible; for all the flesh you may lay on him will not hide any great defect in his form: also ascertain, if possible, how the animal is descended; 10 to 1 but the progeny becomes similar to the progenitor. But this is generally a most unprofitable affair, and I strongly recommend all young farmers to leave it in the hands of those gentry who can afford the loss, many of whom there are in the country, and they deserve our best thanks for their patriotism, for it certainly shows the capabilities of different breeds, and thereby enables the observing farmer to profit by the experience of others. Never buy any animals that are excessively poor; they will consume a great deal of food before they are got into health enough to fatten.—*G. Dobito; English Agricultural Society's Journal.*

Use of Bones as Manure.—Both the organic and inorganic parts of bones are fertilisers: the total action of the inorganic is greater than that of the organic; when applied in conjunction the latter has a tendency to retard the action of the former; this tendency may be counteracted by pulverising the bones; it may be most effectually accomplished by dissolving the bones in a diluted acid; and the fertilising influence of the bones thus treated will be quadrupled. This latter conclusion is, moreover, a practical truth of the greatest value, as it offers a saving of one-half the usual cost of the manure; and the various circumstances under which the several applications which support this conclusion were tried, without one contradictory result, place that conclusion beyond the possibility of error, and justify us in asserting that practice has already realised what theory previously promised—"the most important saving which was ever held out in the use of manure."—*J. Hannam; English Agricultural Society's Journal.*

Notices to Correspondents.

BAKING BREAD—We have received inquiries regarding the patent process referred to in Sir G. Mackenzie's paper lately published: will any one connected with the patent, or acquainted with the process, describe it in detail?

BARLEY—*G A*—The six-rowed variety is not commonly cultivated. A six-rowed *naked* Barley is grown in some parts of Germany and France.

CHAFF-CUTTER—*C R*—We are unable to choose for you, where there are so many professing to be, and indeed which are nearly of equal value. If you consider the judges appointed by the English Agricultural Society to be safe guides, you may follow them—see Prize Lists of the Society's shows. But even then you will have to exercise your own judgment, for their decisions in successive years are various.

CIDER—*An Old Subscriber* asks for information about making cider, particularly how long fermentation should be suffered to continue, and how it can be stopped without injury to the liquor?

FARM BUILDINGS—*T T*—Your paper cannot be published till next week. We have not yet determined regarding the plan. There are two or three objections we should make to some of its details:—There is no immediate connection between stall and straw-room; the cart-shed has a southern exposure, &c. There is time enough before we put it in type for you to inform us whether you will submit to the publication of the paper without the plan; which, under any circumstances, cannot be published for two or three weeks. Have you noticed remarks on the subject at pages 447, 461, 533, and 551.

GAS LIQUOR—*P M Fisher*—What per centage of ammonia does it contain? ascertain this, and then soak sawdust, or any absorbent material, with it, so that in the quantity of compost you apply, there shall be from 50 to 100 lbs. of ammonia per acre.

GUANO—*A Bowick*—We would sow it in wet weather, early in April; and harrow it well in over the young Wheat. It is wasteful policy to apply soluble manures to land in autumn.

HORSE-HOES—*C R*—You will not find one equally applicable to corn and green crops. Probably Messrs. Garrett's horse-hoe, working in as many furrows as their drilling machine, is as good a corn horse-hoe as any; and the points you must look to in choosing one for green crops are cheapness, simplicity, and ability to stir or pare the ground at pleasure, and at various widths. There are many implements which profess to do all this, and we cannot choose for you.

STABLE PURIFIER—*J R*—We do not know what it is, excepting that it acts by fixing the ammonia. Of course, in our ignorance of it, we can give no opinion.

WARTS ON A COW'S UDDER—*A Subscriber*—Muriate of ammonia 2 drachms, powdered savin 1 ounce, lard 1½ ounces; to be rubbed well together, and applied daily to the warts. If the cow is not in milk, and the warts are large, they may be removed by operation, either with the knife or cautery. *W. C. S.*

WEEDS—*Grub*—Succulent weeds may be converted into a blackened and lifeless mass, applicable as manure by mixing them layer for layer in a compost with quicklime.

WHEAT—*F Fairbank*—It is a large and rather coarse-grained Wheat. The ears are very prolific, but too chaffy for a wet season.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Sept. 15.—Per stone of 8 lbs.

	s.	d.	s.	d.		s.	d.	s.	d.
Best Scots, Herefords, &c.	4	0	4	8	Best Long-wools	4	4	4	6
Inf. Short Horns	3	8	4	0	Ewes and second quality	4	0	4	2
Second quality, Beasts	3	10	4	4	Lambs	4	8	5	6
Calves	4	6	4	10	Pigs	4	0	4	8
Best Downs & Half-breds	4	8	5	0					

Beasts, 4849; Sheep and Lambs, 26,340; Calves, 138; Pigs, 321.

We have an unusually large supply of Beasts to-day, but a great many of very inferior quality; the best descriptions are consequently not much lower, although the quantity causes a depression. The best Scots are still worth 4s. to 4s. 2d., and best Short-horns 4s.—The supply of Sheep is about the same as of late; trade is very heavy; the best old Downs maintain their price, but other qualities are lower.—Lamb trade continues brisk.—Veal and Pork barely a good.

FRIDAY, Sept. 19.

Trade is heavy for Beef; the best qualities are making the same as on Monday. Second-rate are difficult to be disposed of; several remain unsold. Calves not very plentiful, and fully realise Monday's quotations. —Lamb is dear; the best qualities are worth about 5s 8d.—Good Calves are in request; choice quantities readily make 6s.—Pork, 4s to 5s.

Beasts, 7923; Sheep and Lambs, 6100; Calves, 289; Pigs, 288.

4, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Sept. 18.

Prime Meadow Hay	105s to 115s	New Hay	60s to 90s	New Clover	75s to 115s	
Inferior Hay	— —	Clover	— to 135	Straw	36	42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Sept. 18.

Prime Meadow Hay	100s to 110s	Old Clover	lower 120s to 133s			
Inferior do.	65 90	Inferior do.	100 110	Straw	38s to 42s	
New Hay	— —	New Clover	— —			

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Sept. 19.

Prime Old Hay	100s to 110s	Old Clover	120 to 130s			
Inferior Hay	— —	Infr.	— —	Straw	32s to 38s	
New Hay	65 90	New Clover	100 115			

Inferior articles extremely dull sale.

ENGLISH TIMBER AND BARK.—Sept. 16.

Round Timber, per load.			Plank, per foot cube.		Inch board, p. ft. sup.	
Oak	5l 10s to 8l 0s		3s 6d to 5s 0d		4½d to 6d	
Ash	5 0	7 0	2 6	4 0	2	4
Elm	3 0	4 0	1 9	2 3	2	3
Beech	2 10	3 0	1 6	2 0	2	2½
Lime	3 10	4 10	2 6	3 6	3½	5

Oak Bark (per load of 45 cwt.), 12l. to 15l. J S.

HOPS, FRIDAY, Sept. 19.

The late winds have done very considerable damage to the plantations; we have more doing in Hops, and duty has fallen to 100,000*l*.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, SEPT. 20.—There has been a good supply of Fruit and Vegetables of almost every kind during the past week, and they have been, generally speaking, of excellent quality. Pine-apples have not altered in price since last week; they are pretty plentiful, as are also good specimens of Black Hamburgh and Muscat Grapes; foreign sorts are likewise pretty abundant at last week's prices. Peaches and Nectarines are very plentiful. Large quantities of Plums still continue to be imported from Havre, and English-grown varieties are sufficient for the demand. Cherries are becoming very scarce; the supply of Melons, both Spanish and English, is tolerably well kept up. Filberts are increasing in quantity, and realise a better trade than they did last week. A considerable quantity of foreign Walnuts is also in the market, and, being good in quality, they meet with a ready sale. The prices of Vegetables have not altered much from those quoted in our last report. Peas are scarce, and Cauliflowers are not so plentiful as they have been; the supply of Broccoli is, however, on the increase, and Cabbages, Turnips, and Carrots are good and plentiful. The greater portion of the Potatoes brought to the market is still tainted by the prevailing disease; the demand for good samples is in consequence brisk, and prices are rather on the rise. Celery is good and plentiful. French Beans are rather dearer. Endive is getting more plentiful, and salading of every kind is abundant. Mushrooms are cheaper. Cut flowers chiefly consist of Camellias, Pelargoniums, Auriculas, Heliotropes, Anemones, Verbenas, Gardenias, Heaths, Alstrœmerias, Fuchsias, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Pears, per hf.-sv., 2s to 4s
Grapes, Hothouse, per lb., 1s to 4s	— Jargonelles, per hf.-sv., 6s to 8s
— Spanish, per lb., 9d to 1s	— Windsors, &c. to 3s 6d
— Bl. Portugal, p. lb., 1s to 1s 6d	Cherries, wall, per lb., 2s to 5s
Peaches, Wall, per doz., 1s to 4s	Oranges, per dozen, 1s to 2s 6d
Nectarines, per doz., 1s to 4s	— per 100, 8s to 18s
Melons, 2s to 4s each	Lemons, per dozen, 1s to 2s
— Dutch, 1s to 3s each	— per 100, 7s to 16s
Figs, green, per doz., 2s to 3s	Almonds, per peck, 6s
Plums, per hf.-sv., 2s to 3s	Sweet Almonds, per lb., 2s 6d to 3s
— Orleans, per hf.-sv., 3s to 5s	Walnuts, green, per peck, 7s
— Green-gages, per hf.-sv., 6s to 10s	Filberts, English, p. 100 lbs., 30s to 40s
Apricots, from 1s to 3s per doz.	Nuts, Barcelona, 24s
Apples, Dess., per bush., 4s to 7s	— Brazil, 16s
— Kitchen, 1s 6d to 4s	— Turkey, 16s

VEGETABLES.

Cabbages, per doz., 3d to 1s	Vegetable Marrows, p. doz. 4d to 1s
Cauliflowers, per doz., 2s to 5s	Onions, per doz. bunches, 2s to 6s
Broccoli, per bunch, 6d to 1s 6d	— pickling, per hf.-sv., 2s to 3s
French Beans, per hf.-sv., 1s 6d to 3s	— Spanish, per doz., 1s 6d to 4s
Sorrel, per hf.-sieve, 6d to 9d	Shallots, per lb., 4d to 6d
Artichokes, per doz., 1s 6d to 2s 6d	Endive, per score, 9d to 1s 3d
Potatoes, per ton, 40s to 80s	Lettuce, per score, Cab., 9d to 1s 3d
— cwt., 2s 6d to 5s	— — Cos, 6d to 1s 3d
— bushel, 1s 6d to 3s	Radishes, per doz. bunches, 3d to 1s 3d
— Kidney, per bushel, 2s to 3s	Mushrooms, per pottle, 1s 6d to 2s
Turnips, per doz., 1s 6d to 2s 6d	Small Salads, per punnet, 2d to 4d
Red Beet, per doz., 1s to 1s 6d	Basil, green, per bunch, 4d to 6d
Carrots, per doz. bchs., 2s to 5s	Fennel, per bunch, 2d to 3d
Peas, per bushel sieve, 2s 6d to 5s	Savory, per bunch, 4d to 6d
Horse Radish, per bundle, 1s 6d to 2s	Thyme, per bunch, 4d
Cucumbers, per doz., 2s to 3s	Watercress, p. 12 sm. bun. 4d to 6d
— ridge, per doz., 1s to 3s	Parsley, per bunch, 2d to 3d
Spinach, per sieve, 9d to 1s 6d	— Roots, per bundle, 9d
Leeks, per doz., 2s to 3s	Tarragon, per bunch, 4d
Garlic, per lb., 6d	Mint, per bunch, 2d
Tomatoes, per hf.-sv., 2s to 5s	Marjoram, per bunch, 4d
Celery, per bunch, 9d to 1s 6d	Chervil, per punnet, 2d to 3d

MARK-LANE, MONDAY, Sept. 15.

The supply of English Wheat from Essex, Kent, and Suffolk, this morning was small, consisting almost entirely of new; quality and condition much the same as last week; the whole was cleared at an advance of 2s. per qr.; free Foreign and bonded were held for a similar enhancement, which checked business.—Barley meets a slow sale at our quotations.—There were scarcely any Beans at market, their late value is fully supported.—Grey, White, and Maple Peas are in great demand, at an advance of 2s. per qr, and Blue 4s., the three latter being purchased for export to Holland.—The show of Oats was small, which enabled factors to realise an advance of fully 6d. per qr. —Having about 1000 qrs. of White Mustard fresh up, crushers refrained from buying, and we must note a decline of 3s. to 4s. per bushel, a great part remaining unsold late in the day.—The top price of Flour is settled at 49s. per sack.—According to the Amsterdam letters of the 12th, prices of Wheat in bond there rule from 45s. to 52s., which is 4s. to 7s. per qr. above the rates for similar qualities in this market.—All the accounts from Poland agree in representing the harvest in the districts of the Upper Vistula, Bug, Weiprz, Zaan, including the Provinces of Volhynia, Podolia, Sandomir, Cracow, and Gallicia, as having proved nearly a total failure; prices in consequence have risen to such an extent, that Wheat and Rye, instead of arriving from thence, is being forwarded up the Vistula from Neisrawa and Wloclaweck, where the yield, as in the whole country between Dantzic and Warsaw, is also very deficient, so much so that purchases were again making in Dantzic for East Prussia at 2s. to 3s. per qr. above the prices offering from this country.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	50	56	Red	48	52
—— Norfolk, Lincolnshire, and Yorkshire	54	60	White	52	58
Barley, Malting and distilling 28s to 33s	Chevalier	30	34	Grind.	26	28
Oats, Lincolnshire and Yorkshire	Potatoe	20	22	Feed	19	21
—— Northumberland and Scotch	Feed	20	22	Potato	21	24
—— Irish	Feed	20	22	Potato	21	24
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		29	32			
Beans, Mazagan, old and new	35 to 38	Tick	36	39	Harrow	38	40
—— Pigeon, Heligoland	39 to 44	Winds	—	—	Longpod	—	—
Peas, White	34 to 42	Maple	34	40	Grey	40	42

FRIDAY, Sept. 19.

The little English Wheat fresh up since Monday has been cleared off at 1s. to 2s. per qr. over that day's quotations; free Foreign there is little doing, and late prices would be accepted; bonded is generally held at an advance of 2s. per qr. Barley fully maintains its late value.—Beans are 1s., and White, Maple, and Grey Peas, 2s. per qr. dearer.—Oats are scarce, and realise 6d. to 1s. per qr. more money.—The top price of Flour is raised to 53s.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats	Rye.	Beans.	Peas
Aug. 9 per Quarter.	55s 3d.	29s 7d.	22s 8d	33s 10d	41s 0d	39s
— 16	57 0	29 4	22 2	34 4	41 2	39
— 23	57 0	29 9	22 8	33 4	41 8	38
— 30	56 6	30 10	22 4	33 7	42 1	38
Sept. 6	55 10	31 8	22 10	33 5	42 2	36
—5 13	54 1	31 0	22 3	33 2	42 10	36
6 weeks' Aggreg. Aver.	55 11	30 2	22 6	33 11	41 10	38
Duties on Foreign Grain	17 —	8 0	4 0	9 0	1 0	4

Diagram showing the fluctuations in the price of Corn on the average of six weeks ending Saturday, Sept. 13.

PRICE.	AUG. 9	AUG. 16	AUG. 23	AUG. 30	SEPT. 6	SEPT.
57s 0d	..				..	..
56 6	..	..	..	..	..	..
56 0	..	..	..	..	..	..
55 6	..	..	..	..	..	..
— 3		..	..	..	..	..
54 1	..	..	..	..	..	..
53 7	..	..	..	..	..	..
53 0	..	..	..	..	..	..
52 10	..	..	..	..	..	..
48 0	..	..	..	..	..	..
— 12	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, Sept. 19.

Canary	per qr	50s to 54s	Linseed Cakes, Foreign, p. ton	7l 10	8l 0
Carraway	per cwt	42	45	Mustard, White	p. bush.	9s	11s
Clover, Red, English	—	—	—	— Superfine	„	11	12
— — Foreign	—	—	—	— Brown	„	10	11
— White, English	—	—	—	Rapeseed, English, per last	24l	25l
— — Foreign	—	—	—	Rape Cakes	per ton	—	—
Coriander	—	14	16	Saintoin	—	—	—
Hempseed	per qr.	56	58	Tares, Eng., winter p. bush.	6	7
Linseed	per qr	54	60	— Foreign	—	—	4
— Baltic	—	42	46	Trefoil	per cwt	18	20
— Cakes, Eng. per 1000	11l	0	11l 10	Turnip (too variable for quotation)			

KINGSFORD AND I

BUNNEY'S FINAL SALE.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

MESSRS. PROTHEROE & MORRIS will submit to Public competition, by Auction, on the Premises, Kingsland Nursery, Balls-pond-road, on Monday, September 22d, 1845, and following days, at 11 o'clock each day (by order of the proprietor in consequence of the Lease expiring at Michaelmas), the whole of the valuable NURSERY STOCK; consisting of Fruit and Forest Trees; a considerable quantity of Evergreens and Shrubs; fine specimens of Magnolias, &c. Also a collection of Choice Auriculas, including all the leading varieties, and some fine Seedlings, lately the property of J. Hatchet, Esq., deceased; Garden Frames, Hand-Glasses, Rotten Dung, &c. May be viewed three days prior to Sale. Catalogues 6d. each, returnable to purchaser. May be had on the Premises of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

TO GROWERS OF ORCHIDACEÆ.

MESSRS. J. C. & S. STEVENS beg to announce they will sell by Auction at their Great Room, 38, King-street, Covent-garden, on Friday, Sept. 26, at 12 o'clock, a Small but Valuable Collection of MEXICAN ORCHIDACEÆ, which have just arrived, per Crusader, from Chamla and the Frontiers of Soconosco and Chiapas, with a few very rare from Coban, including several Plants introduced for the first time into this country. They will be on view the day previous to the Sale, and Catalogues had on application.

TO BE DISPOSED OF, the Acting-Partnership of a well-known and Old-Established NURSERY and SEED-BUSINESS in the vicinity of London, and within three miles of the Bank. Parties commanding from 600*l.* to 700*l.* will find this an opportunity rarely to be met with.

For Particulars, apply to Messrs. HURST and M'MULLEN, 6, Leadenhall-street, London.

TO BE LET, A SMALL NURSERY, in a high state of cultivation, and exceedingly well cropped; Rent very moderate, no Taxes whatever. It has been cultivated as a Nursery 60 years, and ill health is the only reason for the owner parting with it.

Particulars may be known by applying at Messrs. NOBLE and Co.'s, Seed Merchants, Fleet-street, London; or to J. S., Post-Office, Rickmansworth, Herts. Letters to be pre-paid.

TO LET, with Possession at Michaelmas, a FARM, consisting of about 236 acres of Arable and Pasture land, situated at Hoddesden, Hertfordshire, one mile and a half from the Broxbourne Railway Station. For further particulars, apply to the Bailiff at Broxbournebury.

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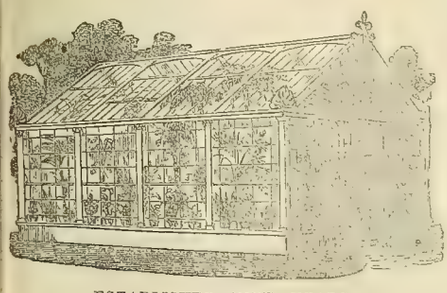
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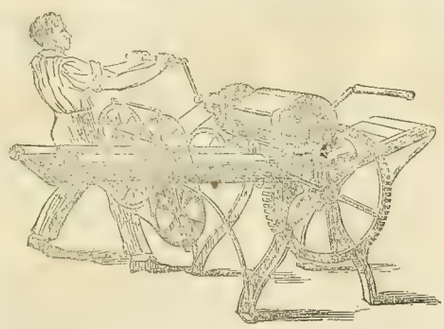
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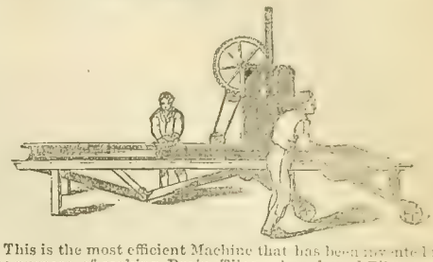
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1¼ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

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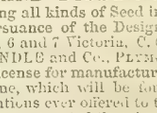
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CHARLES COLLETT, of SUNBURY, MIDDLESEX, will send free, on the receipt of 14 Postage Stamps, a "COMPLETE READY RECKONER" for Measuring and Valuing Hay-ricks, with very Plain Instructions for taking the Dimensions and for judging the Density of the Hay. By Mr. EDWARD RYDE, Land and Engineering Surveyor, Sunbury; Author of several Scientific Works.

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ABERNETHY'S PILL for the NERVES and MUSCLES.—The proprietor of these pills is a medical man. The brother of a patient of his applied to Mr. Abernethy for advice; he gave him a prescription, and those pills are prepared accurately from that prescription. The patient's complaint was a nervous one, and it was utterly impossible for any one to be in a worse condition than he was. Muscular power was also lost in some parts, and his legs fairly tottered under him. He had a box of the pills prepared, and the effects were all but miraculous, for not only did nervousness leave him, but muscular power returned to all parts deficient of it. The proprietor has since tried them on hundreds of his patients, and he can conscientiously state that their effects in restoring nervous energy and muscular power have quite astonished him. The nervous invalid should lose no time in resorting to this truly wonderful medicine. They are so harmless that they may be administered with perfect safety to the most delicate constitutions, as they do not contain a particle of mercury, or any other poisonous ingredient. As before stated, their effects are all but miraculous—one box will prove the truth of this assertion. As regimen and diet are of the utmost consequence in all nervous disorders, the particulars as recommended by the late Mr. Abernethy in such complaints will be enclosed round each box, price 4*s.* 6*d.*—Appointed agents for London: C. King, Napier-street, Oxford New Town; Barclay, Farringdon-street; Edwards, St. Pauls; Sutton, Bow Church-yard; Johnston, 68, Cornhill; Prout, 229, Strand; Hannay, 63, and Sanger, 150, Oxford-street. By sending 58 stamps to Mr. King (as above) a box may be had post free.

ELECTRO PLATE, in great variety, and of warranted quality, only at the establishments of

ELKINGTON & Co. {22, Regent-street, corner of Jermyn-st, and 45, Moorgate-street, City.

The Patentees, from their great experience in England and France, are enabled to decide the quantity of silver necessary to ensure durability and economy for every article they manufacture, and which invariably bears their marks, E. and Co., under a crown. Having granted numerous licenses to use their patented processes, they beg to intimate to purchasers that they are not responsible for the quality of goods sold as plated by their process, unless they bear the above marks.—Re-plating and gilding.—Old plated and other articles repaired and re-plated, or re-gilt, and the quality warranted, if sent direct to either of the above establishments. No other party in London is authorised to re-plate. Persons infringing these patents by using the processes, or by purchasing goods so plated or gilt, will be proceeded against.

ROWLAND'S ODONTO, OR PEARL DENTRIFICE, patronised by Her MAJESTY, H.R.H. Prince ALBERT, the Royal Family, and the several Courts of Europe. A FRAGRANT WHITE POWDER, prepared from Oriental Herbs of inestimable virtue, for strengthening, preserving, and cleansing the teeth. It eradicates the factitious formation of tartar, and, by the removal of that extraneous substance, lends a salutary growth and freshness to the gums. It removes from the surface of the teeth the spots of incipient decay, polishes and preserves the enamel, substituting for discolour and the aspect of impurity, the most pure and pearl-like whiteness; while, from its salubrious and disinfecting qualities, it gives a sweetness and perfume to the breath, bestowing at once cleanliness, and the appearance and reality of health. Price 2*s.* 9*d.* per box, duty included.

CAUTION.—To protect the public from fraud, the Hon. Commissioners of Her Majesty's Stamps have authorised the Proprietors' Signature to be engraved on the Government Stamp, thus,—A. ROWLAND and SON, 20, Hatton Garden, which is affixed to each Box. Ask for ROWLAND'S ODONTO. Sold by them, and by Perfumers and Chemists.

*** All others are SPURIOUS IMITATIONS.

VENTILATION.—"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool. —BAILLIE'S PATENT TRANSPARENT VENTILATOR ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee-rooms, and, moreover, a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London: Messrs. Stock and Sharp, and Mr. Samuel Beals, Birmingham: Messrs. John Hall and Sons, and Messrs. Dixie and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool: Messrs. Davidson and Armstrong, Manchester: Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 250, Blackfriars-road: Mr. Edward Baillie's, 12*B*, Cumberland-market, Regent's-park: Mr. Sexton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the Office of this Paper.

CORNS AND BUNIONS.

Patronized by the Royal Family, Nobility, Clergy, &c.

PAUL'S EVERY MAN'S FRIEND is a sure and speedy cure for those severe annoyances without causing the least pain or inconvenience.

Unlike all other remedies for Corns, its operation is such as to render the cutting of the Corns altogether unnecessary (indeed, we may say, the practice of cutting Corns is at all times highly dangerous, and has been frequently attended with lamentable consequences, besides its liability to increase their growth); it adheres with the most gentle pressure, producing an instant and delightful relief from torture, and, with perseverance in its application, entirely eradicates the most inveterate Corns and Bunions.

Testimonials have been received from upwards of one hundred Physicians and Surgeons of the greatest eminence.

Prepared by JOHN FOX, in boxes, at 1*s.* 1½*d.*, or three in one for 2*s.* 9*d.*, and to be had of C. KING, Napier-street, near the Albert Saloon, Hoxton, London: and all wholesale and retail medicine venders in town and country. The genuine has the name of JOHN FOX on the stamp.

A 2*s.* 9*d.* box cures the most obdurate Corns.

Ask for "PAUL'S Every Man's Friend."

THE POPULAR MEDICINE.—Read the following account from Mr. HOLLIER, Bookseller, Dudley:—

Tipton, Staffordshire.

I, Joshua Ball, hereby testify that I had been dreadfully afflicted with Rheumatic Gout for 17 years, so that I have at times kept my bed for months together, and could not get anything to do me good, till I took PARR'S LIFE PILLS, which I am very happy to state have restored me to perfect health.

JOSHUA BALL.

TO THE PUBLIC.—This famous remedy has been established by undoubted proofs of its efficacy, and by a mass of Evidence and Testimonials which no other medicine ever yet called forth. These facts have had the effect of producing a very large sale—more than 15,000 boxes per week. When this large sale came to the knowledge of some unprincipled persons, who for the sake of gain to themselves, and reckless of the injury it may do to others, are attempting to foist on the incautious various imitations, and in order that purchasers may be able to detect these frauds, care must be taken to look at the Government Stamp pasted round each box, and be sure it has the words "PARR'S LIFE PILLS" in White Letters on a Red Ground engraved therein, and forms part of the Stamp; also that the signature of T. ROBERTS & Co., Crane-court, is printed with the directions wrapped round each box.

N.B. Ask for PARR'S LIFE PILLS, and inquire for the little book, containing the Life of Old Parr, 32 pages, with engravings, also the numerous testimonials, which may be had, gratis, on application, of all agents and respectable vendors throughout the United Kingdom.

Sold in boxes at 1*s.* 1½*d.*, 2*s.* 9*d.*, and 11*s.*, by every respectable medicine vendor.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, September 20, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 39.—1845] SATURDAY, SEPTEMBER 27. [Price 6*d*.

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WINDSOR and ETON ROYAL HORTICULTURAL SOCIETY.

The Grand Show of this Society is fixed to take place on Tuesday, the 30th September, 1845.

OPEN TO ALL ENGLAND.

DAHLIAS, 24 blooms—Prizes, 5*l*., 3*l*., and 2*l*.; entrance, 10*s*. 6*d*. Ditto, 12 blooms (exclusive of growers for sale)—Prizes, 5*l*., 4*l*., 3*l*., 2*l*., 1*l*., and 10*s*.; entrance, 10*s*. 6*d*.

Seedling Prizes for all First-class Flowers. 1844, 3 blooms; entrance, 5*s*. 1845, 1 bloom; entrance, 2*s*. 6*d*.

Schedule of particulars to be had of Mr. Wright, Hon. Sec., Windsor.

N.B.—Exhibitors to show in the Metropolitan Stands.

The Slough Show is postponed to the 7th October.

WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

WILLIAM WOOD and SON have the pleasure of offering to their friends and the public the following new and desirable plants.

Price per Plant	*s.*	*d.*	Price per Plant	*s.*	*d.*
Azalea indica Apollo ..	7	6	Nerium Oleander Tangle	2	6
,, Carminata	10	6	Pentas carnea.....	1	6
,, Exquisita	10	6	Ruellia azurea	1	6
,, Leucomigista	5	0	Siphocampylus duplo-serratus	3	6
Echites picta	3	6	Spiræa Douglasii	3	6
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Hallia flaccida	2	6	Tropæolum Lobbianum	2	6
Hindsia longiflora.....	3	6	Veronica nova sp. New Zealand	7	6
,, violacea	10	6	Veronica salicifolia	3	6
Juanulloa parasitica ..	3	6			
Lisianthus Russellianus	2	6			

Plants will be presented to compensate for distant carriage. Unknown correspondents are respectfully desired to accompany their orders with a reference.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

WILLIAM MILLER informs his numerous patrons and the public that he will send out the under-named varieties at the prices annexed, in October. (Printed Circulars with descriptions can be had.)

Augusta . . .	21*s*	0*d*	Lord Morpeth . .	21*s*	0*d*
Alice	21	0	Duke of Orleans .	21	0
Gipsy Maid . .	21	0	Josephus . . .	21	0

The set of six for 5*l*. 10*s*., or 5*l*. when cash accompanies the order. Trade-price 4*l*. 10*s*., or 4*l*. cash accompanying the order, which will in either case ensure strict priority of selection.

HOYLE'S SET OF 12, viz., Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, and Sarah Jane, sent out last season at 10*l*. 10*s*., may be had for 3*l*. 3*s*., or cash accompanying the order for 3*l*.

100 CHOICE HYBRIDISED SEEDS, 10*s*.; 50 ditto, 5*s*.; 25 ditto, 3*s*. A general List of GERANIUMS, priced very cheap, from 8*s*. 6*d*. per dozen, is now ready, which should be in the hands of every Geranium grower, as it contains all the principal sorts for exhibiting.

W. M. finding that pots are frequently broken, and the Plants damaged in hampers, he has prepared a quantity of strong Fir boxes for the purpose.—Providence Nursery, Ramsgate.

EXHIBITION OF LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY), begs to inform the Nobility, Gentry, and Amateurs, that he has above 5,000 blossoms of this most beautiful LILY now in flower, including the rare and splendid variety *Speciosum*, which is held in such high estimation by the Japanese; they will continue in perfection during the month of September; and may be viewed every day, Sundays excepted. Admittance gratis.

H. G. begs to say that his CATALOGUE OF BULBS for this Autumn is now ready, and will be forwarded on application.

Foreign orders executed.

RIBES SANGUINEUM FLORE PLENO, or DOUBLE BLOOD RED FLOWERING CURRANT.

(Figured in "Paxton's Magazine of Botany," July 1, 1845.)

THOMAS JACKSON being the largest holder of this new and most beautiful Shrub, begs to offer plants well established in pots at 10*s*. 6*d*. each; for every three ordered one will be added gratis.

N.B. To be disposed of cheap, a handsome, well-grown, healthy specimen of Araucaria excelsa, or Norfolk Island Pine, 10 feet high, and clothed with branches to the ground.

Kingston Nursery, Surrey, Sept. 27.

GREAT YARMOUTH NURSERY, NORFOLK, 1845.

YOUELL and CO.,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN, HIS MAJESTY THE KING OF THE BELGIANS, NURSERYMEN and FLORISTS BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN DOWAGER.

SUPERB NEW PICOTEE,

"BURROUGHES'S PRESIDENT."

YOUELL and CO. in offering the above Splendid Heavy-edged Purple PICOTEE for the first time of its being sent out, beg to observe they will guarantee it to be the finest of its class, and refer to the following report of it in the *Gardeners' Chronicle* of the 16th of Aug. last, p. 580, as follows: "YY.—The Seedling named the 'President' is a handsome heavy-edged purple; white good, petals of good substance; large, and well feathered, good size, and with a fine crown." Price 15*s*. per pair.

CARNATIONS AND PICOTEES.

Y. and Co.'s Collection of this beautiful tribe of flowers will be found the most extensive and select in Europe, comprising every known variety of merit. The plants are remarkably strong and healthy, and will be ready for sending out to any part of the United Kingdom and the Continent in the early part of October at the following prices.

				£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers				2	10	0
25	ditto	ditto	ditto .	5	0	0
12	ditto	ditto	Show Flowers	1	10	0
25	ditto	ditto	ditto .	3	0	0
12 pairs of extra fine Show Pinks				0	12	0
25	ditto	ditto	ditto .	1	1	0

The Selection being left to Y. & Co.

*** *Catalogues may be had on application.*

ARRIVAL OF DUTCH BULBS.

YOUELL and CO. have just received their importation of the above, in the finest condition, Catalogues of which may be had on application.

Hyacinths, Double and Single, Red, Blue, White, and Yellow, of the most approved kinds, by name, 6*s*., 9*s*., 12*s*., and 18*s*. per dozen. With an extensive assortment of other bulbs at equally moderate prices; also, 50 kinds of first class Show TULIPS, by name, including the "True Norwich Black Baguet," for which this neighbourhood is so celebrated, for 4*l*.; 25 ditto, 2*l*. 5*s*.

CAMELLIAS.

12 Finest and Newest varieties, by name, 30*s*.

ARAUCARIA IMBRICATA.

2 years old	9*s*.	per dozen.	
3 ,, ...	12*s*.	,,	
4 ,, ...	18*s*.	,,	
5 ,, ...	30*s*.	,,	
6 ,, ...	60*s*.	,,	
Cedrus Deodar, 1 year, fine	18*s*.	,,	
,, ,, 1 foot	30*s*.	,,	
Pinus excelsa, 3 inches	9*s*.	,,	
,, ,, 4 to 5 inches	18*s*.	,,	
,, ,, 18 inch, fine bushy plant	42*s*.	,,	
,, Gerardiana, 2 years	30*s*.	,,	
Abies Khutrow, 2 years	9*s*.	,,	

Also fine specimen plants of older growth from 10*s*. 6*d*. to 2*l*. 2*s*. per plant.

Also, the very best FUCHSIAS, by name, 12*s*. per doz.
Ditto CHRYSANTHEMUMS ,, 12*s*. do.
Ditto VERBENAS .. ,, 6*s*. do.
Ditto PETUNIAS .. ,, 9*s*. do.
Ditto PANSIES .. .. ,, 10*s*. do.
20 sorts of finest Show PINKS, by name,..... 1*l*.

For particulars, see former Advertisements.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s*. per 100.
"PRINCESS ALICE MAUDE," ,, 10*s*. ,,
First-rate POLYANTHUSES, by name, 18*s*. per dozen.
Great Yarmouth Nursery, Sept. 27.

DUTCH FLOWER ROOTS.

WARNER and WARNER, Seedsmen & Florists, 28, Cornhill, opposite the Royal Exchange, London, beg most respectfully to inform the Nobility and Gentry they have received their annual supply of HYACINTHS, NARCISSUS, TULIPS, &c., from Holland; amongst which will be found many New and Beautiful varieties, a Catalogue of which will be forwarded by post on application.

FLORIST FLOWERS.

JOHN HOLLAND, Market-place, Middleton, near Manchester, Lancashire, respectfully informs Gentlemen, Florists, &c., that his Catalogues of CARNATIONS, PICOTEES, PINKS, AURICULAS, ALPINES, POLYANTHUSES, &c., for the present season, are now ready. His extensive stock embraces all the leading varieties in the above flowers, and Gentlemen, Amateurs, &c., purchasing would do well to possess his Catalogue, which will be forwarded on a pre-paid application.—Market-place, Middleton, September 27.

CHRYSANTHEMUMS.

MESSRS. SUTTON and SONS, having an immense Stock of the best sorts of CHRYSANTHEMUMS in pots, well set with bloom, have the pleasure of offering them at the following low terms:—

	£	*s.*	*d.*
25 fine plants, well set with bloom-buds, by name— in 25 distinct varieties	1	5	0
25 ditto ditto, in 12 distinct varieties	0	18	0
12 ditto ditto in 12 ditto	0	10	6
12 ditto ditto in 6 ditto	0	9	0

Messrs. Sutton also beg to call attention to their recent importation of BULBOUS FLOWER ROOTS, which are selling at very low prices; as see Catalogue.

*** Parcels delivered free to any station of the Great Western Railway between London and Bristol inclusive.

Reading Nursery, Reading, Berks, Sept. 27.

NEW HARDY HYBRID GLADIOLUS, AND FINE NAMED TULIPS.

WILLIAM MAY begs to call the attention of the Floricultural Public to the above valuable and beautiful hardy bulbous roots. The Gladiolus are hybrids raised from seed originated by the Dean of Manchester, the most eminent bulb grower in the kingdom; they are perfectly hardy, and of various shades of colour from light blush white to scarlet, flowering in the open ground in July and August. Price, 20*s*. per dozen.

The Tulips consist of upwards of 200 selected sorts in their various classes of Bizarres, Byblœmen, and Roses, of which 100 sorts will be sent for 5*l*., 50 sorts for 2*l*. 12*s*. 6*d*., and 25 sorts for 1*l*. 10*s*.—Directions for cultivating the Gladiolus will be sent with each parcel.—Hope Nursery, Bedale, Sept. 27.

CAMELLIAS WITH FLOWER BUDS.

CHARLES VAN GEERT, Florist, Antwerp, begs to offer to his correspondents in Great Britain the Catalogue of his selected collections of nearly 150 sorts of Camellias with flower-buds, in young and healthy plants. The prices are reasonable, and include the freight to London. Orders addressed to Mr. George Rahn, Broker, 52, Mark-lane, London, will meet with prompt attention.

Belgium Bell and Hand Glasses for Horticultural purposes.

NEW AND RARE PLANTS.—SIPHOCAMPYLUS COCCINEUS,

a most beautiful shrubby greenhouse Plant, of fine habit and free blooming, strong plants, 42*s*. each.

CALANDRINIA UMBELLATA, a fine hardy herbaceous plant, 10*s*. 6*d*. each.

CALCEOLARIA FLORIBUNDA, an imported species, well adapted for bedding out, 7*s*. 6*d*. each. — The usual discount to the Trade.

Messrs. VEITCH & SON beg to offer the above fine Plants, which have received numerous prizes at the London Exhibitions, and which may be relied upon as really good.

Exeter, September 27.

ROSES.—HERTFORD NURSERY.

E. P. FRANCIS'S SECOND DESCRIPTIVE CATALOGUE of ROSES for 1845 and 1846, containing all the new and approved varieties, is now ready for delivery, and will be forwarded Gratis to his Customers, and to prepaid application. His Stock of Roses is unusually fine, embracing at the same time a large collection in large and small pots.

Sept. 27.

TULIPS, RANUNCULUS, AURICULAS, &c.

GEORGE LIGHTBODY, Florist, Falkirk, N. B., respectfully intimates to Florists, that Catalogues of his SUPERB COLLECTIONS of the above Flowers are now ready, and may be had on prepaid application. He requests all orders may be sent direct, having no authorised agent in London.

Ranunculus and Auricula seed 2*s*. 6*d*. per packet. Select Pansies, Carnations, Picotees, Calceolarias, Fuchsias, &c. &c.

NEW AND SPLENDID ORNAMENTAL ELM—"ULMUS MONTANA SUPERBA."

J. GILL, Nurseryman, Blandford, Dorset, begs respectfully to invite the attention of Noblemen, Gentlemen, Nurserymen, and others, to the above, which he flatters himself he can, without exaggeration, recommend as one of the most ornamental trees introduced of late years. Its growth is of a very luxuriant character; the size and weight of its ample foliage give to its side branches a most graceful pendulousness, and, in fact, render the tree itself an object of great beauty and attractiveness. It has not only been seen and admired, but also ordered by many of the leading Nurserymen in different parts of the kingdom; and in addition to the recommendation thus conveyed, its ornamental qualities have secured it the favourable suffrages of many gentlemen and Amateurs in the neighbourhood, who have had the opportunity of observing its habits and character. See also Dr. Lindley's opinion in the *Chronicle* for Sept. 13, page 628—"We have measured leaves of Mr. Gill's new Elm, 10 inches long and 6 inches wide. If the tree continues when old to bear such leaves it will be a very remarkable variety."

An engraving or specimen of foliage will be furnished if required, on receipt of two penny stamps.

Fine strong plants, 10*s*. 6*d*. each. Strict rotation will be observed in executing orders. The usual discount to the Trade when not less than six plants are taken.

N.B. A reference or remittance from unknown correspondents.

SPLENDID NEW PINKS.

E. F. FAIRBAIRN has much pleasure in offering the following PINKS, which he can recommend with confidence as first-rate show flowers, being all rose-leaved, and approved by the best judges:— per pair.

	s.	*d.*
FAIRBAIRN'S MISS KATE, splendid large, back row flower, very light purple lace, quite distinct, and first-rate	5	0
,, BEAUTY, extra fine dark purple laced..	5	0
NEVILLE'S ENCHANTRESS, very broad petals, clearly defined, purple laced; one of the best Pinks in cultivation	7	6
,, ACHATES, extra fine, rose-leaved, purple laced	5	0
WARD'S GREAT BRITAIN, splendid large back row flower, rose-leaved; second to none	5	0
OTTEY'S DR. EDWARDS, dark, red laced, very fine ..	5	0
WALLACE'S ALFRED, splendid dark, red laced, extra fine show flower, quite new	5	0
,, HENRY, extra fine, dark laced; one of the best Pinks in cultivation	5	0
24 pairs extra fine show Pinks .. .. 18*s*.		
12 do. do. do. 10*s*		

PANSY, "BRILLIANT PERFECTION."—One of the most brilliant flowers in cultivation. It has been submitted to Mr. Glenny for his opinion, who pronounces it first-rate. Price 1*l*. 1*s*. per plant; no discount, the stock being small.

Orders addressed to E. F. Fairbairn, accompanied with a remittance from unknown correspondents, will have immediate attention.—Wandsworth-road, Sept. 27.

PINE PLANTS.—The different varieties of Blacks and Queens of any size may be had on reasonable terms on application to W. Davis, Green-street, Marlborough-road Chelsea, by letter or otherwise.—Green-st. Gardens, Sept. 27.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

	£	s.	d.
100 TULIPS, in 100 fine sorts, named	7	7	0
100 ditto in 50 ditto ditto	5	5	0
Superfine Mixtures, per 100, from 7s. 6d. to 21s.			
25 HYACINTHS, in 25 fine sorts, named	1	5	0
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 .. .. 7s. to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named ..	2	2	0
A New Collection of 50 Superfine sorts	1	5	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named ..	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto ..	2	10	0
25 pair of PICOTEES, in 25 ditto ditto ..	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto ..	3	10	0
Good kinds, per doz. .. .. from 12s. to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
" " PUNCTATUM .. "	0	7	6
" " SPECIOSUM, (true) .. from 21s. to	3	3	0

H. GROOM begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.

Foreign Orders executed.

FUCHSIA "SERRATIFOLIA."

MESSRS. VEITCH & SON beg to say that Plants of the above beautiful FUCHSIA are now ready for delivery.

Early orders should be given to insure Strong Plants, price 21s. each, with one plant sent over on every three taken.

N.B.—A reference or remittance expected from unknown correspondents.—Exeter, Sept. 27.

ROSES.

T. RIVERS respectfully informs the Public that his descriptive CATALOGUE OF ROSES, No. 1, Edition for 1845, and Supplement, are now ready for delivery; the former contains a selection only from his large Collection, with paragraphs to guide the purchaser, and hints for culture. The latter contains the Roses grown in pots for exhibition, or with instructions for their culture. The above will be sent post-paid, on receipt of applications inclosing three penny stamps.—Sawbridgeworth, Herts, Sept. 27.

IMMENSE STOCK OF GERANIUMS.

WILLIAM E. RENDLE has this season a most extensive Stock of GERANIUMS,

Including all the newest and best sorts in cultivation,

Amounting to more than

FIVE THOUSAND STRONG ESTABLISHED PLANTS,

Which will be ready for sending out after the 22d of September next. The first orders will have the best plants.

GERANIUMS.—LYNE'S SEEDLINGS OF 1844.—The following set, including hamper and package, for 40s.:—Princess Alice, White Perfection, Imogene, Redworth, and Confidence.

Selection of 12 from the following List, including hamper and package, for 50s.:—Foster's Robustum, Foster's Duke of Devonshire, Foster's Rosetta, Cock's Hector, Magicienne, Gaines' King of Saxony, Gaines' King of the Belgians, Gaines' Duchess of Leinster, Hoyle's Titus, Unique, Queen of England, Claude, General Pollock, Flora, Rosalia, Sarah Jane, Princeps, Diomede, and Coronet.

Selection of 12 from the following List, including hamper and package, for 30s. (or 20 for 45s.):—Beauty of Walthamstow, Hebe, Lord Chancellor, Thurtell's Othello, Regulator, Fascination, Lady Villiers, Guide, Hybla, Pulchellum, Conflagration, Symmetry, Jersey Maid, Thunderer, Hermione, Cordelia, Favourite, Oberon, Sir Robert Peel, Prince of Waterloo, Evelyne, Witch, Gipsy, Creole, Count d'Orsay, Lyne's Duke of Cornwall, Modesty, Sunrise, Lord Ebrington, Hamlet, Constellation, Cynthia, Lavinia, Aurora, Fanny, Penelope, Attila, Cornish Gem, and Rising Sun.

Selection of 20 from the following List, including hamper and package, for 20s.:—Lady Cotton Sheppard, Fair Maid of Devon, Wonder of the West, Countess of Mount Edgcumbe, Ne plus Ultra, Portia, Duenna, Life Guardsman, Jupiter, Elizabeth, King John, Vulcan, Wildfire, Amethyst, Sultan, Grand Monarch, Queen of the Fairies, Camilla, Flash, Enchantress, Van Amburgh, Glory of the West, Ivanhoe, Circassian, Princess Royal, Erectum, Consort, Mabel, Bridegroom, Sylph, Unique, Sirius, King, Conservative, Peri of the West, Prince Albert, Acme of Perfection, Cyrus, and Sybil.

*** *All Orders above 3l. will be delivered, free of Carriage, to London, Bristol, Exeter, or Falmouth; or above 6l. to Liverpool, Dublin, Cork, or Edinburgh.*

Unknown Correspondents are respectfully desired to give a reference in London.

Union-road Nurseries, Plymouth, 1845.

GRASS SEEDS.

GRASS SEEDS can be had of Mr. H. R. SMITHE, of Eastling, Faversham, Kent, warranted to form good pasture, of the most approved mixtures, according to the soil and situation, for forming permanent pasture and meadow, at 8s. per bushel, including Clovers. The seeds can be had separate at reduced prices. Directions for sowing and treatment will accompany the seeds if desired. The seeds are collected by H. R. SMITHE himself.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) to the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

PINE-APPLES.—A most excellent Preserve for the Dessert may be made of the FOREIGN PINE-APPLES now imported into this country, by COOPER'S PATENT APPARATUS, and Vessels, for preserving all kinds of Fruit in the most effectual manner.





Any Lady or Gentleman growing their own Pines may have them preserved for the above purpose at a small expence, by the Patentee, in the presence of their own servants, male or female, if it will be convenient for them to attend, and accommodation will be provided for them if they come from a distance.

Patent Preserved Fruits are now on sale at the Manufactory, No. 7, the upper part of St. John-street, Clerkenwell; Lo[illegible] at the usual prices.

Pine-apple, in half-pint samples, 3s. each.

Particulars and Testimonials may be had as above, or they will be forwarded by post, if requested.

The Apparatus, &c., may likewise be seen at the Adelaide Gallery, Charing-cross, London.

RARE MEXICAN CACTI.—Growers of succulent plants are respectfully informed that a CASE of RARE MEXICAN CACTI has just arrived from Tehuacan in excellent condition, and will be sold intact by TENDER. Apply to C. J., 45, Frith-street, Soho, London, before the 6th of October, on which day all letters will be opened, and the Case of Plants appropriated absolutely to the highest offer.

CACTUS GARDNERII.—Pronounced by all who have seen it a new, distinct, and splendid variety, and recommended to all growers. For one authority and good opinion publicly announced, see *Gardeners' Chronicle*, May 10, 1845, p. 316.

"S. J., your Seedling Cactus is one of the richest varieties we have seen, the petals, which are finely-formed, have the rich purple hue of Speciosissimus, with a scarlet crimson stripe up the centre of each; it opens well, and forms a very handsome variety."

Good plants, price 10s. 6d. each, will be sent out on and after the 8th of October, on application to S. JOHNSON, Gardener, Chaseley Hall, Pendleton; THOS. D. WATKINSON, Seedsman, &c., Market-place, Manchester; or to Mr. CHARLWOOD, Covent-garden, London. Delivered free of carriage.

J. D. PARKS informs the Public that he has still some fine plants of his new variety of LABURNUM INTERMEDIUM, at 2s. 6d. to 3s. 6d. per plant. It is of a most robust habit (quite a tree), branches very long and pendent. Flowers deep yellow, very sweet; racemes 15 to 18 inches long. Something later in flower than the common kind.—Dartford Nursery, Dartford, Kent.—Sept. 27.

J. D. PARKS'S PAMPHLET ON THE HUMAN SPINE, 1s.

OPINION ON THE SPINE, 2s. 6d.

Attendance 1s. per hour, with travelling expenses. Patients in the house, board, &c., 1l. 1s. per week.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4s. per dozen. Dutch Hyacinths for forcing at 4s. per dozen; also Narcissus, Tulips, Iris, Jonquils, Anemones, and Ranunculus, from 1s. to 12s. per dozen. Large Dutch Crocus, 2s. 6d. per 100; at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall. Priced Lists per post, &c.

FOR SALE.—Six pairs of the Genuine HARE RABBITS, at the following prices, viz.:—One to two months old, 10s.; three to four months, 15s.; and older, 20s. per pair; see *Gardeners' Chronicle* of the 12th July.

Apply to Mr. JNO. BRETT, Market-place, Great Yarmouth.

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is now in general use amongst Botanists, and has been proved to be far superior to anything hitherto employed for the purpose of Drying Specimens of Plants. The proprietors have been honoured with Testimonials from Sir W. J. Hooker, Professor Lindley, Professor Balfour, and various other eminent Botanists.

Full particulars, with Testimonials, will be forwarded on the receipt of a postage stamp, by the Manufacturers, W. & T. BENTALL, Halstead, Essex. Agents: E. NEWMAN, 9, Devonshire-street, Bishopsgate, London; R. T. M'INTOSH, 4, North St. Andrew-street, Edinburgh; G. DAVEY, Broad-street, Bristol; H. WHITMORE, 119, Market-street, Manchester.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1s. 6d. each.

"Mr. HUNT'S new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

FOREIGN SHEET GLASS, for Horticultural purposes, cut to any dimension within 30 inches by 24 inches, at 5d. per foot superficial, at FREDERICK ELPHICK'S, 23, Castle-street East, Oxford-street. For Ready Money only.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26s. 0d.	Milled Lead in Sheets,	s. d.
Linseed Oil, per gall...	2 3	per cwt.....	21 0
Turpentine.....	3 3	Cut to Size	22 0
Warranted Varnishes and Colours.		Pipe all Sizes.....	22 0

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

DUTY OFF GLASS.

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable Reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for immediate use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1l. 8s. Garden-Lights made and glazed from 1s. per foot, at JAS. WATTS'S Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea. By special appointment to the QUEEN, and H.R.H. PRINCE ALBERT.

PHEASANT POULTS.—Gentlemen stocking their preserves are respectfully informed they can be supplied with any quantity of TAME BRED PHEASANT POULTS, as above, also a great variety of useful and ornamental Water Fowl. Domestic Poultry, including Malay, Cochin China, Dorking, Spanish, &c., Fancy Bantams, &c., &c., 3, Half-moon-passage, Grace-church-street.

N.B. Just arrived, some PURE CHINA PIGS.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted.)

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	
Garden Edging	Orange Tubs, Flower Boxes, &c.

EDWARD BECK will be happy to answer any inquiries, either personally or by post.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

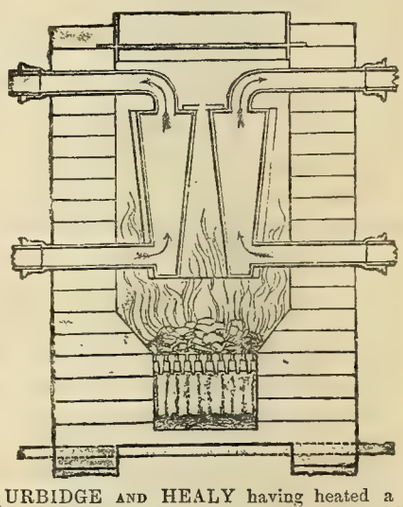
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Ho Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

WIRE-WORK, HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

ARRIVAL OF DUTCH FLOWER ROOTS.

WILLIAM E. RENDLE has this season a very large Stock of HYACINTHS and other Flower Roots imported direct from one of the first merchants in Holland. They are offered at very reasonable prices. See the *Chronicle* of Sept. 20 for a general list and prices.

Union-road Nursery, Plymouth, Sept. 27, 1845.

TO FLORISTS.—Any Agent for HUNT'S PATENT GARDEN POTS having in stock the 7½-in. Pot and stand, described in List as Blue Bas-relief, Flaxman's Cameos, will oblige by reselling the same to the Patentee. The retail price will be paid, being wanted for a shipping order. An early account of the number on hand will oblige.

29, Queen's-row, Pimlico.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 27, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

FRIDAY.	Oct. 3—Botanical	8 P.M.
MONDAY.	Oct. 6—Entomological	8 P.M.
TUESDAY.	Oct. 7—Horticultural	8 P.M.

ALTHOUGH the POTATO question is almost exhausted until more positive evidence upon many points can be collected, yet a passing notice may still be given to some matters which the present time is best suited for answering; and we trust that our readers will excuse our at once drawing their particular attention to them.

Are autumn-planted Potatoes better or worse than the same kinds under the same circumstances, when set in spring? We do not mean, are they more or less productive; for all experiments touching that point must be repeated, no conclusions being deducible from a season like the present; but are they more or less affected by the murrain? An anonymous correspondent asserts that while his Potatoes are elsewhere rotten, those planted last autumn are excellent, not a bad one being found among them. We cannot, however, confirm this statement; for in our own Potato-field the crop of MACLEAN'S seedling, an excellent new variety, planted in December, is as much affected as the same variety planted in March. In the former instance there is some gain in produce, but none in the power of resisting the disease.

How can the crop, or what remains of it, best be stored? We have already given our own opinion, and we adhere to it, that careful sorting and packing in dry earth offers as good a chance of success as any other. In an interesting letter in another column, Mr. PRIDEAUX advises the soil to be dried by heat, which would, doubtless, be advantageous when it can be effected economically. All our hopes of saving what is still untainted depend, however, upon the supposition that the Potatoes which appear to be sound are really so. If it is otherwise it is to be feared that they will rot hereafter, be our precautions never so wise. As far as we have any means of judging, from personal inspection, we should say that Potatoes which are quite sound when taken out of the ground will remain so if kept dry. At least we have now before us some taken up three weeks ago from amongst a set of rotting ones, and they show not the smallest tendency to disease. Mr. BERKELEY, however, writes word that he finds it otherwise.

"Those Potatoes which were apparently entirely free from disease, when taken up a month since for seed, are now rapidly becoming spotted. Two samples, which were remarkably healthy and productive, and were exposed to the air, with a view to their becoming green before being housed, now exhibit a number of spots, which are, indeed, at present only skin deep, as though the chlorophyl were in this case the seat of disease. I had recommended this plan of greening the tubers to some of my neighbours, as likely to prevent the occurrence of the disease in those tubers which may be saved for seed; but in my own case, at least, it has not answered."

It is also reported that 2000 tons of apparently sound Potatoes, bought at Hull and exported to Belgium, proved to be rotting when they reached their destination. We mention this as a mere report; and chiefly for the purpose of observing that, if true, it may not really affect this question; because the watery state of even sound Potatoes this year will probably give them an unusual tendency to heat, when piled in large masses or thrown into the hold of a ship, and we know that heating is followed by putrefaction.

This leads us to observe that it will be as well, after sorting and pitting the Potatoes, whatever plan may be adopted, to open the heaps in a week or two, for the purpose of examining and re-sorting them. One plan that is practising is, to pack them dry in *small* ridges, well thatched with straw or some such material, and to leave them so for a short time, in the expectation that when exposed to the air, in darkness, the lurking disease will declare itself. That it will soon come out, in many cases, is certain; it even shows itself in the course of the few hours during which the Potatoes are lying on the ground while digging; and this has led to the notion that exposure to the sun causes decay. This is, no doubt, a misapprehension. The Potatoes which begin to decay under the action of a few hours' bright light, were, in fact, decaying before; all that exposure to the air does, in such cases, is to alter the colour, which alteration would have taken place more slowly, but not less surely, if the Potatoes had remained buried in the ground.

Some inquiry has been made as to the probable advantage of dusting Potatoes with slaked lime, when they are pitted. It may be well to try the experiment; but we do not see what the lime is to do, beyond drying somewhat the surface of the tubers.

Another important question is, whether applications of salt either naturally, as from the vicinity of the ocean, or artificially, as in manure, have had any tendency to keep the murrain off. We alluded to this matter last week, and then asked for information. It then appeared that two independent observers, one in England and the other in Flanders, had remarked that Potato fields near the sea were unaffected. A correspondent has since directed our attention to a statement in one of the daily papers that the crop is entirely free from disease wherever sea-weed has been used for manure. Is this true? Our Isle of Thanet friends can easily answer that question. In the meanwhile Mr. IVES, of Goldhill, near Gerrard's Cross, Bucks, informs us that last winter he sowed about 2 cwt. of salt to the acre on his field, and afterwards chalked it. This field early in the spring was planted with Potatoes, four or five sorts, and the result has been that while his neighbours have lost more than half their Potatoes from the fatal disease, his Potatoes have in a great measure escaped. He adds that the haulm is seized, and he had feared at one time that he should lose his crop, yet very few of the tubers are yet affected. He has taken up 40 bushels without a peck of bad ones. He attributes his success to the use of *chalk and salt*; the one absorbing the wet and the other acting as a preservative against infection. He has 3¾ acres. He is of opinion that if he had sowed more salt he should have had a better crop still. His soil is a sharp gravel.

On the other hand, a correspondent, whose gardener by mistake dressed his ground with 7 cwt. of salt instead of 2 cwt. as ordered, finds no advantage in the application. But here the overdose may itself have done the mischief. Letters, too, from Eastbourne and Torquay state that in these places, Potatoes near the sea are as much affected as those inland; and it also appears that at Clevedon, in Somersetshire, which is washed by the Bristol Channel, the murrain has shown itself; there, however, it is added that the crops in the low and wet lands are those which have suffered.

In conclusion, it will be found most convenient to those who wish to investigate the causes of this disease, if gentlemen who are obliging enough to furnish reports will more especially confine their attention to the instances in which it has *not* appeared. In such cases we require to know—

1. What kind of Potato is spoken of?
2. At what time it was planted?
3. What manure or mode of cultivation was adopted?
4. What the soil is?

(The finest *looking* Potato-field we have ourselves seen was on the side of a chalk hill between Twyford and Henley-on-Thames, beyond the village of Wargrave. Has chalk-land, with a very steep incline, anything favourable in its action?)

If a large number of returns of this kind, with as much more, but not less, information as may occur to the writer could be gathered together, we should hope that some correct conclusion might be arrived at. A few returns only are of little real value, because it is impossible, in matters like the present, to distinguish correctly between accidental coincidences and genuine results, without comparing a large mass of evidence. At present, all that can be said is mere conjecture, which may be altogether worthless.

We would also add that this Potato-murrain seems to have been known in the United States, where it is stated to have produced much mischief, and we publish elsewhere extracts from a letter first printed in the *Albany Cultivator*, a Canadian newspaper, for which we are indebted to the kindness of a correspondent signing himself JEAN BAPTISTE. In this will be found an account of the experience which has been gained in Canada, and which may be useful to us another year, if we should be again afflicted by such a visitation.

We see that doubts are expressed as to whether the mischief to the Potato-crop is not exaggerated. We hope it is: we are too much persuaded that it is not. Ireland has not escaped. The North of England and Scotland, indeed, probably have, at least to a great extent; and from the beginning we said so. But what if Hull is able to export Potatoes? So much the better for the Yorkshire growers—but it is in no degree in opposition to our repeated warnings and statements.

IN consequence of some remarks made a few weeks since concerning the beauty of the sessile-flowered OAK, several correspondents have desired information concerning the actual measurements of fine specimens of this native species. We are, however, unable to supply the information. In all the reports upon the subject, which we have examined, either the two species of native Oak are not distinguished at all, or it appears very doubtful whether slight varieties of the stalked-cup Oak have not been mistaken for the sessile-fruited. Almost the only authentic statement that we can find is that by Mr. JUKES, in Loudon's "Arboretum," page 1745, where a true Q. sessiliflora is stated to be 118 feet high, in Studley Park.

If any of our readers should possess large trees of the sessile-fruited species, and will send us their dimensions, we shall be happy to publish them. But in that case we must beg that two or three leaves of each specimen spoken of may be also forwarded, for so only shall we know that the plants called sessile-flowered are so indeed, and not stalkless varieties of the common Q. pedunculata.

THE MACHINERY to be employed in extracting POTATO FLOUR seems to puzzle our country friends. For cottagers a hundred schemes may be hit upon by persons with a little ingenuity; we will mention one. Take an old tin saucepan or watering pot, or any other tin vessel; with a nail punch it full of holes, and rub the Potatoes on the other side. It will be found to be an excellent rasp or grater.

Corn mills, or other machinery of that sort, will do for farmers; or heavy rollers, or such an apparatus as that described by a friend in the following memorandum:—

"I have seen Potato Starch manufactured on a large scale on a farm in the north of Fife. The process was as follows:—The power employed was a small steam-engine, and, by means of a strap from its fly-wheel, motion was given to the machine for grinding the Potatoes and washing the starch out of the pulp. My only object in sending this note is to describe this machine, in order that when it is determined to adopt this process as the best method, under the circumstances, of disposing of the Potato crop, some such implement may be provided, roughly knocked together to serve a temporary purpose. It consists of two parts—one to grind the tubers, and the other to separate the starch from the pulp. The first of these is simply a hopper, in the bottom of which and close to one of its sides revolves a cylinder of sheet iron, whose surface has been roughened and pierced by holes punched from the inside outwards. As this cylinder continually revolves, clean potatoes placed in the hopper gradually pass out at the bottom of it in a pulpy condition. And along with a small stream of water, conducted thither by a pipe, this pulp falls into the second part of the machine, where the starch is washed out of it. This is a cylindrical framework of wood or iron, coated with wire-cloth of the requisite fineness, and slanting at an angle, as far as I remember, of about 20°. This cylinder slowly revolves; and by the action of the stream of water and the continual rolling of the stream of pulp, as during the revolution of the cylinder it gradually descends, it will easily be understood that the starch is entirely separated before the refuse pulp has left the machine: it has run away with the water through the wire-cloth in a milky stream into vessels placed for its reception, where it soon settles in a hard mass, and whence it must be removed to the drying room whenever hard enough." Why cannot the Union workhouses undertake the preparation of Potato flour?

POTATOES: STORING AND PRESERVING.

As the hope of saving the important Potato crop precludes waiting the results of our experiments, I have again to offer suggestions for others also to consider, correct, or improve. The failure of the last, where the added moisture counteracted the benefit of the salts, has been a guide to my present experiments, which have not yet had time to test their efficacy.

It must, however, have fallen under the observation of others, that of two parcels of the same Potatoes, whilst one, heaped together, will putrify, the other, spread on a dry floor, will make no progress in decay, but rather lose its offensive smell. Hence, without staying at present to discuss the cause of the rot, drying appears to be one of the readiest means of checking it; and accordingly kiln and oven-drying have been recommended; both of which appear to me quite inadequate to the great quantity of the subject, with its large proportion of juice. Before suggesting another method, let me ask whether others have also observed three

varieties of the rot, either different degrees or belonging to different kinds of Potato?

1. The tuber not much discoloured, inside or out; but having a pungent odour when cut, like putrid Horse-radish, and decaying quickly; this chiefly in white Potatoes.

2. Brown spots or patches more or less throughout the tuber, with little offensive smell and much slower in progress than the first; this chiefly in red Potatoes.

3. Coating, limited to the compact outside layer, the inner side of which is often marked by a distinct brown outline, the heart remaining sound and sweet; this only in reds.

This division is not taken as the basis of the classification below, being drawn from local and limited observation; but if found coincident with the appearances in other places may assist in the selection.

Dr. Lindley (*Gardeners' Chronicle*, Aug. 30), whilst recommending kiln-drying, does not overlook its inadequacy generally, and suggests pitting in dry earth, so as to prevent contact and communication (by perspiration). Can we not, by using fire-dried earth, which will absorb much moisture from the Potato, effect the double purpose of drying and separation? With this view the Potatoes may be divided into three classes or conditions:—

1. *Apparently sound*, to be pitted in fire-dried earth entire.

2. *Infected, but not hopelessly decaying*, to be cut and pitted in the same manner, with or without salt.

3. *Putrescent, unfit for use or keeping*, to be ground into starch without delay.

A brief explanation of each of these three methods may be sufficient for our present purpose.

1. *Apparently sound.*—However impracticable it may be to find oven or kiln room for our Potato crop, there is no difficulty in fire-drying any requisite quantity of earth, which may be done in heaps in the field, in some of the methods practised for clay or marl burning, only using small coke, brise, or cinders for fuel, as the ashes of wood or soot from coal might excite vegetative action, and thus prevent the good keeping of the Potato. Air-dried earth contains much moisture, which may be driven off by a heat a little above boiling water, leaving the earth very greedy for damp, which it will suck from the air, or from any juicy substance in contact with it; but if made red hot, it loses much of this attraction for moisture, and should, therefore, be rather dried than burned. The sooner it is pitted with the Potatoes after cooling the better, that it may have the less time to draw moisture from the air. It should, however, be quite cold, because Potatoes spread out in the sun are said to have rotted quickly. There should be earth enough to fill in between the Potatoes, and keep them in separate layers; and it is almost superfluous to add that they should be pitted in very dry ground, and covered from the rain. The poorer the earth in humus the less smell it will acquire in fire-drying, but sandy soil is very little absorbent.

2. *Slightly infected.*—These may be cut in halves, from stem to nose, when such as appear past hope may be turned over to the third class for starch. The less damaged may be pitted with the dried earth, in separate pits from the sound ones, when the earth in contact with the cut sides will rapidly suck out the diseased sap, allowing no time for rotting. It is a question whether the earth for these might not be mixed with some salt (say 1-6th or 1-8th), which would not only help to suck out the sap, but would more or less enter the substance of the Potato, and probably contribute to its preservation. The salt might be tried in a pit or two only at first, and extended in its use afterwards, if found to answer best, as the Potatoes come to be taken out for sale and consumption. From some of the experiments, however, it appears that they are best dried with heat. This may also be done in the pits or heaps, by the aid of quick-lime. The lime may be broken small, but not slaked, and spread in the layers of earth, between the layers of Potatoes, taking care that the lime does not touch the Potatoes. The more lime, the greater the heat, which should be too great to allow their sprouting, but not enough to dress them. No salt must be used with the lime.

3. Those which are far gone, even half rotten and quite stinking, will still make good, sweet, Potato-starch (see note), which will keep for years, and, with ½d flour, make excellent bread, puddings, or pastry. For this purpose nothing more is required (as already stated in the Papers) than a grater, a fine hair sieve, two or three pans, trays, or tubs, and plenty of clean water. The Potatoes must be thoroughly washed, the very rotten parts cut out, and the clean part grated in the sieve; here it must be continually stirred about, and watered with a watering-pot, to wash the starch through the sieve into a pan or tray to settle. While the starch is settling, the pulp remaining in the sieve may be pressed in a cider-press, or otherwise; and if well squeezed, will keep a few weeks, sprinkled with salt and vinegar. It may be boiled for pig-feeding; and as vinegar is the best preservative of vegetable substances, palliates the action of vegetable poisons, and has a particular tendency to fatten pigs, it is a very desirable addition. Where, however, vinegar is wanting, other acids may answer, as the muriatic or sulphuric in very small quantities; perhaps, even the Apple-pomice; or the Potato-pulp itself will often turn sour by standing open in cold water 24 to 36 hours. When the starch is settled, the best and whitest will be at the bottom, covered with particles of peel and discoloured fibre; and a little management is necessary in washing off the upper part from vessel to vessel, and letting it settle repeatedly, to get as much of the clean white as possible from the coloured. The last coloured residue may be thrown back with the pulp. After several washings the water may be poured away, and the white starch laid out on a cloth upon some bricks or dry earth, to absorb the moisture, and then very gradually dried.

This is, however, a tiresome process; ill suited to the economy of a farm; the grating is slow, the repeated washings tedious, and the drying much in the way. It would be better done at the Union workhouses, where the clean Potatoes could be ground in a mill (figured and described in Parnell's "Applied Chemistry," vol. ii. p. 133; and Ure's "Dictionary of Arts and Sciences," p. 1166). This mill is not costly, and would grate 2 or 3 tons in 12 hours. There must be, of course, several sieves and watering-pots, and a drying-room is easily contrived in such an establishment. When wanted for cattle only, most of this trouble may be spared. The defective Potatoes may be cleaned and roughly crushed in the Apple-pound, or with a roller, upon a clean floor; then pressed, and water-soaked and pressed a second time, to get out all the unwholesome juice. The juice and water should be caught and let settle, to save the starch which presses out; but the greater part will be retained in the cakes, if not crushed too fine. Of course, the drier it is pressed the longer it will keep.

Note.—In the microscopic examination of a great number of Potatoes I have never found the starch damaged; it was either perfect and colourless, even when the cells and fibrous matter were quite brown; or, if affected at all, it was completely dissolved, leaving the cells empty.—*J. Prideaux.*

DISEASES OF POTATOES.

[FROM MARTIUS KARTOFFEL—EPIDEMIE.]

(*Concluded from p.* 624).

THE disease, to the examination of which the greater part of Martius's book is dedicated (the dry rot), makes its appearance on the tubers after they are stored in the pit or cellar, and when, in early summer, the sets are committed to the ground. In the latter case they perish before they have thrown out any shoots, or merely produce one or two minute tubers, which either do not produce shoots at all, or only such as are extremely weak and soon perish. If there is little moisture the tubers become hard and dry, and as soon as the soil becomes wet the greater part perish, so that the fields appear like fallow fields sprinkled with a few stray Potatoes of the last year's crop. The disease is often accompanied by scab, which, however, is not so universally diffused through the infected districts as the dry rot, but is sporadic in its appearance, while the dry rot is a complete epidemic.

It was first observed in 1830, but it had increased in the year 1840 in various parts of Germany, to such an extent as to cause very serious alarm, and even to threaten the total extinction for a time of the cultivation of Potatoes. The Potato pits, when opened, exhibited a greater or less degree of corruption, three parts out of four occasionally having become altogether useless; and of the residue, when planted, the greater part often failed entirely. In the early stages of the disease the use of the tubers was not found to be injurious to man or cattle; in the latter stages of growth, however, the decay is such as to make it quite impossible to use them.

The disease is very insidious in its progress. When the crop is harvested there is little to attract the superficial eye. The surface of the tubers is rather dull and wrinkled, and then gradually exhibits little round brownish spots, which soon become confluent. The surface then appears more than usually cracked and reticulated, and at length scaly, the edges of the scales being free. Sometimes, however, the tubers become transversely wrinkled, in which case their colour remains nearly the same as in healthy individuals. Within the tuber is clouded and discoloured and has an unpleasant smell, and is soon more or less impregnated with a peculiar species of mould, which forms white elevated compact spots on the outer surface, and is distinguished by its curved fusiform articulated spores. The grains of starch are found not to be in their normal state, their surface being covered with variously-shaped processes.

This disease does not appear to have been sufficiently prevalent in this country to attract much notice. Whether it depends upon the growth of the mould, or whether the mould is merely subsequent to the disease is uncertain. The mould itself is either very variable, or two or three species of a very similar habit occur on diseased tubers. As, however, English and French specimens, though they exhibit a form of spores different from what Martius figures, present very material differences of form in the same tuft of mould, I am myself inclined to think that the different kinds may all be referred to one species.

The disease is often accompanied by scab, which is easily recognised by its rather cup-shaped bordered pustules, the concave surface of which is covered with a stratum of large—more or less globular, somewhat reticulated—spores, which are at first greenish, and at length acquire a ferruginous tint. The spores are attached at first by a little somewhat lateral thread, and usually exhibit a sort of hilum, which Martius has not noticed. They agree in structure with those of a parasite, which is sometimes common at the base of different species of Orobanche, and which has been described by Fries under the name of Tuburcinia. A similar fungus occurs on the leaves of Trientalis Europæa. Martius has referred it to the genus Protomyces, in consequence of not having observed the little thread by which it is attached. The scab occurs principally in ground which has been dressed with rubbish from old buildings, or where the soil is in a very raw and ill-drained condition. It is sometimes very destructive, and is usually to be met with in greater or less quantities in some portion of every crop.

Martius has entered into very minute details, and at very considerable length, as regards both the dry rot and scab, but we have stated sufficient to enable any one to recognise them. As in most cases of the diseases of plants, it is more easy to discover the cause than to suggest a remedy, the suggestions given by Martius are confined within a short compass. If the disease arise from the attack of a species of mould, it will, of course, be advisable to take all possible precautions against infection; though where the spores are so subtle, this is almost a hopeless task. Some good, however, may be expected to result from change of soil, and proper purifying and disinfecting of the storehouses; and more, perhaps, from such a system of culture as will ensue the vigorous, but not exuberant growth of the crop. I have seen occasionally a good deal of damage amongst store Potatoes, arising, I believe, from this disease; but as I have not been able at present to obtain specimens of infected tubers from Germany, I cannot positively state that it is identical. The disease of the present year is altogether different from any that has been recorded.—*M. J. B.*

ON THE CIRCULATION OF THE SAP IN PLANTS.

IF we attach credit to the observations of De Candolle—and I believe no man stands higher in the philosophic world as a vegetable anatomist, and no searcher into the secrets of nature deserves to stand higher for candour and honesty in detailing the results of his inquiries—we shall be forced to admit that there exists strong evidence that the vessels of plants do not carry either the crude ascending sap, or the elaborated descending sap; but if we admit that the stomata are the orifices of these vessels, we have a further proof of the improbability of their being so employed, for they terminate in the leaf, and the continuity in the vessels which is indispensable for the circulation of the sap, does not exist; and, again, did they contain a fluid, as the stomata are generally found in the lower sides of the leaves, it must discharge itself through these orifices.

De Candolle, who does not question the circulation of the sap, supposes the intercellular spaces to be the media of the conveyance of the ascending sap, which he supposes elaborated in the cells, but admits with all botanical writers the doubt as to whether the quality of absorbing water lies in the tissue of the parenchyma or in the interstices caused by the spherical form of the cells, which he calls "meats intercellularies;" but that the power of taking up water does exist to a very great extent in the parenchyma of plants is indisputable. "This property of absorbing water," observes De Candolle, "had long appeared to him as well as to Sénebier one of the principle bases of the phenomena of vegetable life;" and he adds, that "M. Kieser has also insisted in later times on its importance."

Now the roots of plants consist alone of cellular tissue and of woody fibre; they have no vessels, they are covered with a skin almost impervious to water, and it is only by their extremities, which are spongy, that they take in water; the root then consisting of cellular tissue and taking up water through its absorbing powers, and this cellular tissue existing in all plants and in all parts of plants, it is more probable that this water should be carried through the same medium into all parts of a plant than by any other. I conclude, then, that it is so taken up and so pervades a plant, and that every part of the tissue is fully charged with water. The cause of the ascent of water in a plant has long been a fertile source of theories and most fanciful machineries; to me it appears very simple. I think evaporation furnishes us with a sufficient solution; this must be very great in a plant of any elevation, and in exposed situations it must be, and we know it is, in excess; the greater the height of the tree, the greater must be its amount, and the greater its rapidity. This evaporation causes a consumption of the water in the leaf, which is supplied immediately by the particles of water next in contact by force of that attraction which exists between all bodies in immediate contact; it is true that water will not ascend in vacuo to a greater height than about 30 feet, and that water in despite of this law of gravity is carried up to the top of a tree 100 feet high; but as the attraction of the medium through which the water travels has all the force of capillary, that of near contact, it may well be held sufficient to overcome the gravity of the water. Evaporation, possibly from its rapidity, the greater attractions of homogeneous parts, and immediate contact, possesses then a power capable of overcoming both the attraction of gravity, of heterogeneous parts, and of near contact. And here Nature has admirably disposed—in the extent of their surfaces and flexibility of their branches, in their height and motion, and possibly in their greater attraction of the electric fluid—the loftier trees to evaporate more rapidly than the more humble shrubs. This evaporation is so great, that I am induced to think it impossible any of the water which reaches the leaves can return, for, excepting in very rich or moist soils, or where considerable moisture exists in the atmosphere, and to this circumstance we must attribute the immense vegetation of the tropics more even than to the heat of them; as our hothouse gardeners have discovered, the supply of moisture to the leaves is not sufficient for their ample

development. Nor is there a necessity for this water to return, enough exists within the parenchyma for all the uses of the plant. We have seen that De Candolle contends that the vessels are air vessels, and that the stomata are their mouths; by English writers these are considered organs of respiration. De Candolle also says they give out gases; he also considers them organs of perspiration, for that they give out moisture. He further states that they may inhale gases and imbibe moisture. In all this I cordially agree, and I go yet farther, for I say that they not only inhale gases, but that they inhale all the gases that constitute, with water and various chemical agents (or matters active in promoting chemical changes, and possibly capable also of being assimilated), the food of plants.

It is admitted that plants absorb by their leaves carbonic acid gas, and that by the action of solar light they appropriate the carbon, and leave the oxygen of the gas free, which escapes, we are led to believe by De Candolle, by the stomata of these vessels; can it then be questioned that the same organs which admit carbonic acid gas, also admit ammoniacal or any other gases that may present themselves to them? He is an extreme analogist who gives them an option. That such other gases do present themselves cannot be denied. It is stated by Liebig that the atmosphere contains ammonia; it must, for ammonia is continually escaping into it; that this ammonia is brought down by rain, and, by him supposed, washed into the earth and taken up by the roots, thus supplying the plants with nitrogen; but is there not a very strong probability that in its descent much of it may be caught in the current? It is admitted at least of carbonic acid gas, that sets in towards the leaves. Is there not fully as strong a probability that in matters so volatile as ammonia, and of so little elective attraction as nitrogen, that the ammonia so brought down to the earth by rain and deposited on its surface, possibly hardened by the drying winds of March! (and Liebig observes justly, that by the accumulation of ammonia in the air, a greater quantity descends in the first rains after drought). Is it not much more probable that the rain brought down by the sunny showers of April, proverbially growing weather, should, with the evaporation which commences the moment the shower is over, again ascend into the atmosphere with the evaporating moisture, and be caught in its way upwards by the streams of attraction setting into the stomata of the leaves (this attraction not depending, as analogists would infer, on irritability in the vessels, for there is no necessity of alternate contraction and expansion to cause this inward flow of gases, the consumption of them alone is sufficient to effect it), and thus immediately be rendered available to the uses of the plant, than that it should sink into this hardened earth, in which, if we shall examine it, we shall perhaps find the rain-water has not penetrated half an inch, and take the circuitous road by the roots to find its way to the leaves, and that through a medium (the soil) so replete with chemical action, that it would amount to a miracle should the ammonia retain its exclusive character, or should the nitrogen of it not attach itself to some of those effluvia that were continually making their way to the surface, and that precisely at a time of their greatest activity? It is well known that every time we stir the earth gases escape from it—this is perceptible even to our senses—we see on a warm sunny morning the moisture issuing forth in clouds of steam, and we know the steam must carry with it the effluvia of decaying matters in the earth—we are even frequently sensible of this from the strong scent that often accompanies it, in fresh moved soil, and the ranker the soil the more it is apparent, as in burying-grounds we are sensible of a peculiar odour; in ground recently manured with the more pungent manures, we are equally sensible of the escape of ammonia. Can it be supposed that with stomata open to the absorption of carbonic acid gas, the vessels will not receive these gases which so copiously offer themselves? Shall the ammonia of the atmosphere descend 40 feet into an earth unstirred but by the growth of the roots themselves to find a passage by these roots to the leaves of the Oak, possibly 100 feet above the surface, when it could with so much more ease, with so much less obstruction, have found its way to them, the organs formed for its reception.

But why are the stomata placed in the under side of leaves? merely to respire air? for this purpose they would more appropriately have been placed in the upper sides. No, but the more readily to receive the effluvia that arise from the earth. Why do leaves if inverted recover their original position? Why do leaves in pendent boughs turn their under surfaces, "contrary to what appears natural," to the earth? but that they may the more readily receive the ascending effluvia. Why are the leaves of the Grass tribes furnished with stomata on both sides? because from their upright or curved positions each side equally presents itself to receive these effluvia. It is also possible that the particles of light may enter by the finer pores of the upper sides, for pores there must be in them. I think we may in these answers find the true cause of these phenomena, which as De Candolle says have been hitherto unknown.

I have here endeavoured to show that the vegetable principles found in these gases of the air and effluvia from the soil, may be received by the leaf, and I think I shall be able to show that there is strong probability they are not, and cannot be offered to the roots, but this shall form the subject of another paper.—*J. M. Goodiff, Granard, July* 26. [This Paper, which completes Mr. Goodiff's argument, should have been published before the last communication. The second and third papers were transposed by an oversight.]

HEATING AND VENTILATING.

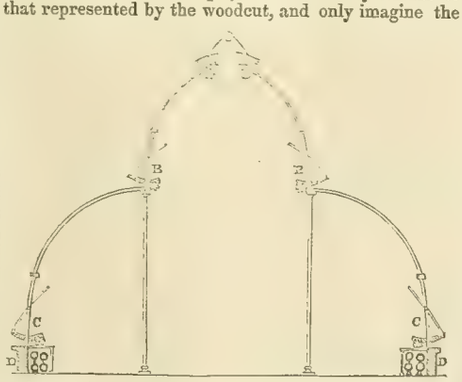
[*Third Notice.*]

Some may consider this subject quite exhausted, and any further notice of it may be regarded by them as unnecessary. Those, however, who have been the victims of the system of reposing confidence in individuals utterly incapable of forming the most distant idea of the wants and necessities of the inhabitants of such buildings will hold this as no metaphysical abstraction of a great and important question, and no plant owner should be content until a more satisfactory exposition of the subject is obtained and diffused amongst those whose business it is to thoroughly understand it; indeed, they ought not to rest satisfied until it is as clearly defined as the erection of a Grecian column, or a gothic arch.

The great error which has been committed in constructing large metallic conservatories is the want of providing ample means for effectually cooling the air within them during powerful sunlight, which can only be done by having readily at command means of admitting to any extent the exterior colder atmosphere. When the interior of any plant structure is heated beyond a natural temperature, the capacity of the air in such a building for moisture is increased just in proportion, hence as a natural and inevitable consequence the vigorous green foliage parts with its sap, and the result is, that autumn enters where spring and summer should be everlasting. Any one at all conversant with the management of a Cucumber frame, need not be told how important it is to admit air when the sun shines out fiercely; and the means of accomplishing this are at once simple and effective, by merely tilting the sash; prompt attention to this all gardeners know to be necessary, in fact, the least negligence would to a certainty endanger the crop. Now, let us examine for a moment the ready and effective means in the hands of the cultivator to cool the temperature of this frame.

It will appear rather astonishing that each sash will require to be raised from 3 to 6 inches; this, of course, depends upon the season of the year; were this not done, the foliage would be immediately destroyed. These openings will appear very large to regulate the temperature of so small a portion of air; but they are not larger than are absolutely required for the purpose. Now, let any one reflect for an instant upon the amount of cool air admitted, and the importance of it here, and not more here than elsewhere, and ask himself how it can be possible that the pigeon holes at the roof of a huge mass of inflated sheet glass, covering a rood of ground, ever can produce such a modification in the atmosphere as would admit of a plant existing at all. To a mind divested of prejudice, and having experience in gardening to the extent only of a Cucumber frame, the above reasoning will be clear and conclusive; not so to him who calculates much more nicely than wisely the exterior character of the building only, and without any regard whatever as to the object for which the immense outlay is incurred, beyond decorative effect.

In house architecture we frequently hear the exterior elevation praised, while the interior arrangement is loudly denounced because of its inconvenience. In the case of the conservatory, inconvenience would be nothing; the effects fall little short of destruction and death. Take, for example, a conservatory similar to that represented by the woodcut, and only imagine the



sashes at A A to open, with small ventilators in the wall at D D, and with a clear summer sun striking fervidly upon it. The heat in a house of this kind, it will be readily admitted, would be quite insufferable; neither animal nor vegetable life could long withstand it. But true it is that buildings of this kind are not uncommon, and gardeners are expected to produce tropical vegetation, clothed in its most verdant mantle, where the Pelican would perish. Now, if provision had been made in this conservatory for the sashes to open at B B, and C C, which, undoubtedly, ought to have been the case, the temperature could instantly and easily be reduced to any desirable extent consistent with the kind of cultivation in progress; and the very simple contrivance for effecting this will be perfectly understood by the woodcut.—*R. Glendinning.*

THE USE OF LIQUID MANURES.

Science, as well as mere practice, has long since pointed, in the most emphatic way, to the immense utility of liquid fertilisers in horticulture, more especially to plants in pots. Yet I am led to believe that their use in the present day, is not by any means general, and far from being systematic. When we take into consideration the difference between a plant circumscribed by the narrow bounds of a pot and one in the open soil, having unlimited power to range in quest of food, it will hardly appear unreasonable to suppose, that for the former to rival the latter, artificial stimuli must be had recourse to, in order to exhibit in a proper degree the qualities of the plant in question.

In order to show the necessity that exists, in another point of view, for the constant use of some revivifying property, to fill up the loss occasioned by the waterpot, I would here suggest, that the mere action of the waterpot has, at all times, a tendency to carry off by force the soluble properties existing in the soil. It is not the quiet and steady rain, much less the mere dew, in the general course of nature that feeds the vale with alluvium, of which the mountain range has been robbed. No, it is, I presume, the storm—the mountain torrent, which is the chief agent in thus fertilising the plains. It is a matter of very common remark amongst practical men, that plants root much more strongly through the bottom of the pot than elsewhere, and this, whether they are placed on ashes, soil, or mere sand. What then causes this? What but the aggregation of soluble matter at this point, together with a readier access to a qualified and moistened atmosphere?

The chief idea of the first experimenters in the use of liquid fertilisers, seems to have been confined to what is commonly termed "dung water;" or, in other words, the thick and muddy drainage of the dung-heap. Mere quality, without any regard to its clogging properties, was the only thing aimed at; and had the only object been to apply a stimulus to some field crop, the means would probably have proved sufficient to the end in view. However, in pot culture, one of the main principles on which successful cultivation is based, is so to proportion and arrange the particles of the soil, that cohesion of the parts cannot take place; which would ultimately lead to the exclusion of the atmosphere, through the arrest of water, tending instantly to disease and ultimately to destruction. Now this, it is well known, when once recognised, was the principle which led to the more general use of turfy soils in masses or lumps, in contradistinction to the disintegrated mixtures of the old gardeners of former days.

How far this has produced real improvements in the general health, as well as individual beauty of pot plants in general, is best attested by comparing the exhibition plants of the current year with those of the period in which the spirit of rivalry in this way began to be excited. Having premised thus much, I will return to the point, by observing that the use of turbid liquid manures is decidedly antagonistic to the principle of securing a slow but certain access to the influence of the atmosphere. When I first began to try the effects of liquid manures, which is some 15 years ago, I commenced with the common dung-hole drainage, dark and turbid; I thus groped in the dark for a year or two, until finding my pets more yellow and sickly than their slighted neighbours, I was well nigh tempted to repudiate the use of liquid manures altogether. On emptying these pots at the end of 12 months, I have generally found, not only the mass of soil nearly of the consistence of glue, but the interior of the pot lined throughout with a substance resembling tar; and on asking the cause of the sickly character of the plants experimented on, I was told they were dying of plethora. Subsequent experience has, however, convinced me that it was more of the nature of dyspepsia.

I come now to my main purpose, which is, to suggest the eligibility of some kinds of urine, combined with good guano in solution, for plants in pots. I have used this mixture constantly for the last two years, and its effects on many plants is quite astonishing, whilst I am not aware that I could quote a single case of injury traceable to this fertiliser. Sometimes I use that from the cowhouse, sometimes horse refuse; and I am not prepared at present to point out any perceptible difference. I have a reservoir in which these fluids lay to ferment a fortnight; they are then transferred to another, when I add highly clarified guano-water, made by dissolving the best Peruvian guano, in clear tepid water, after the rate of four ounces to every gallon of the above fluids. My mode of applying it is to give it weak, but constant; from half a pint to a pint to a three gallon can of water is all I have been accustomed to use: how much stronger it might, or ought to be used, I am not prepared to say. Its effects on Camellias is truly astonishing; my Camellias surprise every one who sees them; they are so dark a green that they are almost black, whilst the texture of the leaves is like that of the Hoya carnosa, and the buds, with which they are covered thoroughly, are of immense size. They are now beginning to bloom, and by the middle of November will be generally so. Fibrous masses of soil, then, in conjunction with thorough drainage, coupled with the constant use of weak and highly clarified liquid manure, constitutes, in my opinion, the *ne plus ultra* of plant cultivation, as far as the root management is concerned.—*R. Errington, Oulton.* [We recommend this statement to the very *particular* attention of amateurs as well as gardeners.]

Home Correspondence.

Potato Murrain.—It appears to me of some importance that naturalists should be careful to distinguish effect from cause. That minute and rapidly propagating fungi have been observed on the affected Potato-plants there is no reason to doubt. But when we know from other facts that such appear on plants after they are dead or diseased, and not when they are alive and

healthy, we are justified in affirming that we are yet ignorant of the cause of the malady in question. To prevent its re-occurrence is what is desired; and it is worth while to try everything that may suggest itself from the consideration of any theory of the disease. It has not been ascertained whether it commences in the roots or the leaves; and to determine this may be a difficult matter. If in the latter, it is to be feared that prevention is impossible. But it may commence in the tubers; therefore, without pretending to know the nature of the disease, or its cause, I will assume it to commence in the tubers, and offer advice accordingly. It is a well-known fact that some insects re-appear after long intervals of time, on various members of the vegetable kingdom. It is not too much to affirm that some of these insects may be too minute for observation, and that this has given rise to many very improbable explanations of disease; that the most minute, as well as the largest insects, pass through several stages of existence, may be safely assumed; and also that one or more, or all of these, are passed in the earth. It is also known that insects deposit their eggs either on or near to that which is to be the food of the worm; and, in some cases, the worm may take up a position for its change into a chrysalis, so that the fly may not have to go far for its first meal. These facts induce me to advise that it should be a constant yearly practice to wash all Potatoes, to be used for sets, when they are taken up, and to clear the eyes by means of a brush. This operation being done when the tubers are taken up, the eyes not having pushed, are not injured by the brush, which they would be were the operation deferred. This will clear the tubers of all eggs and chrysalids, and may be of service, while it can do no harm. —*G. S. Mackenzie, Rose Bank, Roslin, N.B.*—— I beg to differ from the opinion that the disease may be prevented by deep planting, and I do not see any advantage to be derived from it, the Potatoes neither come so early nor is the produce so great. On the 5th of December last I began planting, having three sorts of Potatoes planted in drills 12 inches in depth, in which I had placed some stable dung slightly fermented; some were Early Shaws and two sorts of Kidneys: a very severe frost, which lasted several days, prevented my finishing them until the 9th, but the frost did not injure them; they came up later in the spring than those planted in the latter end of March. Ten rods of the Shaws planted in December produced 2 cwt.; 10 rods of those planted in March produced 3 cwt. 1 qr.: they were taken up in the first week in July. In taking up the Kidneys in August I found both sorts blighted. On examining this day some Pink-eyed Nonsuch, an early red Potato, planted on the 26th of May, I do not detect any blight, the haulm having decayed naturally; but some Devon Reds, planted on the 2d of June, in the same field, although the haulm is vigorous, are tainted. In some Victoria Potatoes, planted on the 2d of May, I do not detect any disease. Some early sorts, imported this spring from Bermuda, and planted on the 27th of May, are infected; the haulm growing vigorously, the stems perfect, but some few of the leaves black; the same may be said of some Hundred-fold Potatoes, growing equally vigorously. I have not been able to detect any defect in the haulm of the Potato, with the exception of some of the leaves becoming black, some are dying at the extremity, but where split down the stems are juicy to the very tuber. On those where the haulm is apparently dead, on splitting it, appears dry, clear, and hollow, like a reed. The infected tubers, generally speaking, show the discoloration from ⅛ to ¼ of an inch deep—those I am boiling for the pigs, with salt added when washed. Those which do not show the infection I purpose packing away with light mould, which I have under cover drying for the purpose. I have all the best, or ware, as they are termed, washed, finding it next to an impossibility to detect them without so doing. I am much surprised to-day in turning over some small middling Shaws, which were placed in an airy cellar in July for seed, to detect very many infected with the white mould, showing itself in spots. When taken up we were not aware of the existence of disease, nor was any complaint made of several acres; but it must, I apprehend, have been then latent in the Potato.—*Robert Gunter, Earl's-court, Brompton, Middlesex, Sept.* 18.——I am induced to trouble you again upon this subject, from the fact that all who have written upon the disease seek for the cause in the circumstances of the season, altogether disregarding the important facts regarding its existence last season both here and in America—facts that are indisputable, and demand the first consideration in any inquiry as proving the disease alarmingly progressive under all circumstances; and although the present season may be most favourable to the spread of the disease, it has no claim to its origin—a fact that renders the future culture of the root a matter of great hazard. Everything tends to confirm the opinion I previously expressed, that a certain degree of ripeness or maturity is necessary to feed the disease. Early sorts, from all reports, fall the first victims. Those upon dry, rich, well-drained soils, follow; and late sorts, on cold wet soils, on hill-tops, or with north aspects, that tend to retard growth, seem for a time safe, and flatter the possessor they have escaped; but such no sooner reach the apparently required condition, than they may literally be said to wither in an hour. As a case in point, "Ambulator," in last Number, mentions being delighted with a field in full bloom. According to my view of the matter, Potatoes in bloom are safe from attack. In my last communication I mentioned some of my own that passed that stage safely, within a few feet of earlier sorts reduced to a mass of putrefaction. "Ambulator's" will, no doubt, also decay: when I hope he will report progress. Salt in culture is no preventative: has not the sea-coast been worst affected generally? The allotment field I mentioned as the first seat of the disease was in many parts manured with fish and sea-weed, and washed by the spray. This, and the fact that the scourge first appeared upon the coast to an alarming extent last year, sets the supposed influence of salt at rest. The parts affected last season were the first by a month to exhibit its fatal symptoms this year—a circumstance worth the attention of investigators. Last year bullocks were fed to a considerable extent upon the tainted tubers, both in a boiled and raw state, and did well. Pigs now fed upon them boiled do well, although seemingly unfit for food, resembling when mashed so much peat. Tubers thoroughly greened, and that have been exposed to the sun a week, are still rapidly decaying. They were planted in autumn and early spring. Saving seed here to any extent will be utterly impracticable. Carrots, both in the ground and harvested, are rotting rapidly. I have proofs of the latter.—*James Mickle, Folkestone Nursery.*—— I am afraid that the murrain is not confined to particular districts, but that it is general through the kingdom. I have seen several hundred acres of Potatoes lately, and I am certain that not one perch of them is free from the disease. I have about 16 acres myself, and all have it more or less. There are black spots on the leaf, some on the stalk, and some of the Potatoes, under each stalk, look as if they were bruised. The same appearance is in dry fields with light soil, and heavy bog-land drained last winter. I am going to dig them all up next week, and pit as many as I can believe to be sound. I purpose putting them in narrow pits, with dry mould between each layer, which mould I purpose taking from some old banks that I have been at much trouble lately in knocking down; the earth is perfectly dry, and I suppose has been here in broad banks for the last century. If the murrain proves as disastrous here as it appears to have been in England, I do not know what the consequences may be to the poor of this country; whose chief and almost only food is the Potato. The weather is very unfavourable here; up to this date we have had constant rain and strong winds. I am afraid you have been mistaken in advising any use to be made of distempered Potatoes, as I have known three instances of pigs dying in the course of 48 hours from eating them.—*A Subscriber, Cloughfodda House, Cork, Sept.* 20. [If decaying Potatoes are boiled with salt, pigs, cows, and poultry will eat them; at least, that is the case in England. We long ago stated that it would be dangerous to employ them without boiling.]

The Potato Murrain in North America.—Visiting Canada this summer I learned that a disease had attacked the Potato crop last year for the first time, and destroyed the greatest part of it. From the description given to me I think it must be of the same nature as that which is doing so much mischief at this moment in many parts of England, and I am sorry to add of Canada also again. I have sent the inclosed slip from a Canadian newspaper; the author resides in the state of New York, not far from the borders of Canada; the contents may interest you.—*Jean Baptiste, Sept.* 17. "Last fall we ventured an opinion on the cause of the disease, which as yet we have found no reason to relinquish; but on the contrary, from the facts we have collected and observations we have made, we have become more tenacious of its correctness. It was simply this: that from some cause which we did not then, and cannot now, define to our own satisfaction, the Potato vine was attacked with a rust, similar to that we frequently see on the straw of Rye and Wheat. That in the case of the Potato it first showed itself in a very small blotch on the side of the stalk, which continued to spread until it had gone round and through the stalk, when the latter, at the particular point of disease, became dry and hard as though it had reached its maturity. The death of the top of the stalk of course soon follows, but the lower part remains green for a while. The conjecture (it was mere conjecture), we threw out, was this: whether the sap, which was now stopped by the dryness of the stalk, in its usual channel of circulation, and, of course, prevented from passing into the leaf, its natural laboratory for preparation to return to the tuber and fulfil its accustomed service in giving it nourishment, did not necessarily return prematurely, and either from excess of quantity, or by bringing back some quality which had better been given to the winds, induce the disease in the tubers. Our own Potatoes were too far gone to experiment much upon, when we hit upon a simple plan to adopt. It appeared to us, as soon as we saw how the mischief was progressing, that mowing the tops was the best and perhaps only efficient method to pursue. A neighbour, whose crop was smitten long after our own, tried this experiment, by mowing about half a field, as soon as the tops exhibited symptoms of the disorder, and the result was satisfactory and cheering. Where the tops were so mown, no appearance of the rot was ever discovered, and the Potatoes gave all the evidence of maturity which the circumstance of the case could possibly admit of, while the other part of the field suffered as much from the rot as any in the vicinity. Here, then, is one instance in favour of our theory. Other experiments were tried, of which we shall cite but one or two. In one case, a farmer dug a very few hills when the vines first showed symptoms of disease, and carefully buried them and let them remain until the usual time of digging, when they were taken out all sound, whilst most of his crop had suffered essentially. There can be no doubt, we think, that when Potatoes are dug so early as the rot came last year, that they must be put in small bodies and kept cool, and excluded from the atmosphere. Their tendency to heat, and thus become heavy and insipid, warrants us in that conclusion, and so we infer that the letting them remain in hills with the tops taken off, until the usual time of digging, is a much cheaper and better way than to dig and put in cellars, or on floors in piles. Another course of proceeding which has come under our observation, was adopted by some Irishmen, who had known this enemy to their favorite esculent 'in the old country.' When they saw the crop smitten, they dug it immediately, and piled the Potatoes on the surface of the ground, taking care to guard them from sunshine until the job was completed, when they covered the pile entirely with clay. The result was probably as they had known it to be aforetime. Their crop was saved, and their Potatoes of good quality. The clay undoubtedly acted as a two-fold agent, kept them cool, and excluded the atmosphere and storms."—*W. Bacon, Mount Osceola, June* 22, 1845. *From the Albany Cultivator.*

Employment for the Workhouse Poor.—Would it not be well to recommend to the guardians of the various unions the expediency of having the partly injured Potatoes purchased, and converted into starch in the way pointed out in last week's Paper; as the workhouses possess every facility for its execution as well as the equally great benefit of finding an easy and profitable employment for the inmates; indeed, might not the benefit be deemed sufficiently national to justify the Poor Law Commissioners at once directing that such employment shall be adopted in all Unions situated where the Potatoes are thus injuriously effected. The difficulty of a poor man is the want of means for drying off the starch, but a large room in a workhouse, with an Arnott's or some like stove therein, would create dry heat sufficient to perfect very large quantities. This means, and the extra care in keeping the small Potatoes for next year's seed, would leave for man's use very nearly the average quantity of Potato food, even in the most affected districts.—*J. S.*

Expediency of Earthing-up Potatoes.—I have long had doubts relative to earthing-up Potatoes being a beneficial practice, and now I am convinced that it is detrimental. The variety employed in my experiments is the Pink-kidney; all the sets were planted at the same time (the first week of April), in rows 2 feet apart and 18 inches in the rows, and taken up this day (Sept. 24) and weighed. The average of all my experiments gives exactly an increase of one-fourth in favour of not earthing-up; but some of the plots gave still more, viz., as 42 lbs. is to 31½ lbs. The experiment has been made on the sixteenth of an acre of good deep loam, with a cool, moist subsoil. My experiments confirm also the opinion, that the Potato murrain (*Gangrena saniosa*) was caused by the frosts of July; for, in the unearthed-up rows, the infected Potatoes were more numerous, in the proportion of 22 to 9; though of very rare occurrence anywhere. The tubers of the unearthed-up were nearest the surface, and the disease was almost entirely confined to those at the very top. The earthed-up rows died off the earliest, though rather the strongest, and they did not leave so many greened tubers, from exposure to the light, as were in the rows unearthed-up.—*George W. Johnson.*

Hoare's System of Vine Culture.—I see, p. 641, Mr. Hoare chooses to infer from my letter, p. 577, that after the Vines were planted here, I gave them no water. Now I think this is hardly a legitimate inference, seeing that I described our culture "that generally followed with young plants." I never heard of water being withheld from the roots of young Vines under glass, and am sorry Mr. H. supposed me guilty of such an absurdity; for the fact is, the Vine plants had ample supplies of water, therefore dryness at the roots could not be the cause of failure, and more, the bones were "not fresh." I am glad Mr. Hoare is likely to exhibit his fruit; farther writing till then seems needless.—*C.*

New Disease in Peas.—I send you a sample of Peas (the Bean-pea, as I hear, from Pennsylvania). It is curiously affected with rot, as you will see by splitting one open, yet so fair in appearance that a dealer in Mark-lane would have bought them without suspicion. I think the disease is confined to this sort of Pea, for another variety growing in the same field was sound. This sort grows from 7 to 8 feet high, and is very prolific. I cannot hear of any other Peas so affected.—*R. B.* [The Peas which you have been so good as to forward to me, are attacked by much the same disease as the Potatoes; at present, however, I have detected no mould in the cells, though I see some mucedinous threads externally on one of the seeds which was moistened yesterday. The fecula remains uninjured for some time, but at length is replaced by a grumous mass. The seat of the disease is evidently the cellular tissue, which, in an early stage of the attack, exhibits rather a different tint when subjected to iodine; the intercellular passages are completely gorged with a yellowish gummy substance. I have placed some of the Peas in a position where, should there be any rudiments of mould in the cells, it will be almost sure to develope itself, and, should it offer any interest, I will write to you again upon the subject. I perceive in those portions of the epidermis which are more or less discoloured, that there are a number of minute fissures, in general scarcely visible except under a good lens,

by which moisture is very readily imbibed, and in consequence of which the diseased seeds are much more quickly saturated with water than sound ones.—*M. J. B., King's Cliffe.*]

Scale.—The following is a sure, simple, and easy method of cleaning plants infected with scale:—Take a handful of gum arabic, and dissolve it in as much water as will thicken it to the consistency of oil; then take a small painter's brush (if a new one so much the better) and commence at the top of the plant, and paint both leaves and stem, with the dissolved gum, down to the soil. The plant may then be removed to its proper place for a week or two, at the expiration of that time it must be taken and washed with soft water, using a sponge, or, what is still better, an old tooth-brush, to remove the gum that may adhere to the plant; after the washing is finished, if carefully done, the plant will be completely cleansed from scale. I have done plants so infected that I never had any hopes of ever cleaning them, and now there is not a scale to be found upon them, and the plants have a fine bright glossy appearance.—*F. G. A., Leeds.*

Do Snakes Eat Grapes?—I have been troubled with the mice eating my Grapes, and as a young man with me was watering plants in a Vinery a few days since, his attention was attracted by a rustling among the Vine leaves; suspecting it to be caused by a mouse, he readily gave the Vine a gentle shake, when a large snake fell suddenly across his arm. His fright may be more readily imagined than described, he bounded out of the house with trembling limbs, and was some few minutes before he could summon resolution to re-enter, which he eventually did, and bestowed the death blow upon the poor reptile. Had it a palate for the Grapes? We examined the contents of its stomach, but no proofs could be traced.—*W.* [The snake would not have hurt the man.]

Broccoli.—In "Notices to Correspondents," p. 628, it appears that somebody has asked the cause of Broccoli going what is technically called "blind," and is told in answer that the imperfection has probably been caused by some kind of insect. This blindness, which has been more prevalent this summer than I ever before saw it, *is* produced by an insect, allied to Aphis, preying upon the heart of the plant when it is very young. Cabbages and Savoys frequently reproduce the heart or central buds; but Broccoli and Cauliflowers have not that power, and therefore those affected should be pulled up, and replaced by perfect plants.—*J. B. W.*

Melia Azedarach.—In reference to a paragraph which appeared in the *Chronicle* some time ago, I beg to observe that seeds of this were given me by J. B. Scott, Esq., of Bungay. They were collected in Syria in 1831, and from them several plants were raised in the greenhouse, and subsequently planted in a south border; one of these which was trained to a wall, and without protection, is now 11 feet high, and extends 4 yards, producing abundance of bloom annually; those apart from the wall send up vigorous shoots, which die back and do not flower. I have heard this beautiful shrub called the Maltese Lilac.—*N. S. Hodson, Bury St. Edmunds.* [We never could get it to succeed near London.]

Rain.—The following is the amount of rain which has fallen at Florence Court from July 1844 to July 1845.

		Inches.			Inches.
1844	July	3·585	1845	January	4·575
—	August	4·613	—	February	2·494
—	September ..	3·445	—	March	2·801
—	October	7·412	—	April	4·106
—	November	2·090	—	May	2·704
—	December	·816	—	June	3·876
					42·017

Bog Fir Tree.—The following are the dimensions of a Fir tree, apparently Pinus sylvestris, which was dug out of a bog near Florence Court the other day. The girth at the butt was 8 feet, and at 45 feet up 3½ feet. The top had been broken off at 45 feet up, and was not found. The number of concentric rings was 270.—*E.*

Country Shows.

Dorking Horticultural Society, Sept. 5.—At this, the third and last meeting for the season, fruit forms the principal attraction; but, owing to the ungenial season, the exhibition in this respect was not equal to that of former years. Out of 28 dishes of Peaches and Nectarines the judges considered that there was not one dish of perfectly ripe fruit. Plums, Grapes, and Melons, were not so plentiful as formerly, and Pine-apples were very indifferent. Of plants, the exhibition was creditable for the time of year, more especially the Fuchsias. A numerous and respectable company visited the exhibition-room during the day. The principal prizes were awarded as follows:—*Pine-apples*: 1, Mr. Gadd, Betchworth Castle; 2, Mr. Gorrard, gr. to W. J. Evelyn, Esq. *Melons*: 1, Mr. Ansell; 2, Mr. Broadbridge, gr. to the Countess of Rothes. *White Grapes* (1 bunch): 1, Mr. Gadd; 2, Mr. Hislop, gr. to Col. Howard. *Black Grapes* (1 bunch): 1, Mr. Pitt; 2, Mr. Heritage, gr. to the Right Hon. H. Goulburn. *Peaches* (9): 1, Mr. Rowland; 2, Mr. Bowers, gr. to — Wilder, Esq. *Nectarines* (9): 1, Mr. Pitt; 2, Mr. Gadd. *Pears* (9): 1, Mr. Scott; 2, Mr. Bowers. *Green-gage, or Washington Plums* (12): 1, Mr. Reid, gr. to J. Smallpiece, Esq., for Washington; 2, Mr. Heritage, for ditto; 3, Mr. W. Scott, for Green-gage. *Plums*, of any other variety (12): 1, Mr. Whiting, for Imperial Diadem; 2, Mr. Ivery, for Denyer's Victoria. *Dessert Apples* (12): 1, Mr. Ivery, for Kerry Pippin; 2, Mr. Pitt, for Red Astrachan (?); 3, Mr. Winton, for Kerry Pippin. *Filberts* (2 lbs.): 1, Mr. Ivery; 2, Mr. Whiting. *Celery* (6 heads): 1, Mr. Heritage; 2, Mr. Ivery. *Fuchsias* (4 varieties): 1, Mr. Ivery, for Sir Henry Pottinger, Sir William Magnay, The Queen, and Formosa elegans; 2, Mr. Tomlinson, for Exoniensis, Formosa elegans, Eppsii, and Highland Hero; 3, Mr. Whiting, for Formosa elegans, Eppsii, Kentish Hero, and Highland Hero. *Collection of 6 Plants*: 1, Mr. Rowland, for Boronia viminea, Erica Lambertiana, E. Irbyana, Phænocoma prolifera, Achimenes longiflora, and A. grandiflora; 2, Mr. Whiting, for Boronia viminea, Erica taxifolia, Sollya heterophylla, Thunbergia Fryeri, Lilium lancifolium album, and Achimenes grandiflora. *Specimen Plant*: 1, Mr. Heritage, for Lilium lancifolium rubrum; 2, Mr. Rowland, for Lisianthus Russellianus; 3, Mr. J. Gadd, for Erica Irbyana; 4, Mr. Whiting, for Euthales macrophylla; 5, Mr. Ansell, for Thunbergia Fryeri; 6, Mr. Pitt, for Cypripedium venustum. 12 *Dahlias* (Amateurs): 1, Mr. Baker; 2, Mr. Savage. 24 *Dahlias* (Nurserymen): 1, Mr. R. Gadd; 2, Mr. J. Gadd. 24 *Dahlias* (Amateurs' and Gentlemens' gardeners): 1, Mr. Broadbridge; 2, Mr. Scott. Extra Prizes were given to Mr. Bowers, for *Apricots*; Mr. R. Gadd, for *Figs* from standard trees; Mr. Reid, for *Apricots*, and for *Figs* from wall-trees.

Ipswich Horticultural Society, Sept. 11.—The following prizes were awarded at this, the last, exhibition of this Society:—Best *Plant in bloom*, in a pot, 5*s.*, to Mr. Jeffries, for Lilium lancifolium; second ditto, 4*s.*, to Mr. Canham, for Gloxinia rubra; third ditto, 3*s.*, to Mr. Scrivener, for Achimenes pedunculata. Best four *Verbenas*, 5*s.*, to Mr. Mayes, for Triumphant, Ingramii, Englefield Scarlet, and Alba Superb; second ditto, 4*s.*, to Mr. E. Smith, gr. to R. D. Alexander, Esq., for Englefield Scarlet, Ingramii, Rubens, and Armathistina. Best four *Fuchsias*, 6*s.*, to Mr. Jeffries, for Zenobia, Vesta, Colossus, and Madonna; second ditto, 5*s.*, to Mr. E. Smith, for Crimson Superb, Transparens, Eppsii, and Toddiana. Best 10 *Miscellaneous Plants*, 10*s.*, Mr. J. Smith, for Petunia Beauté parfaite, Lilium lancifolium punctatum, Achimenes grandiflora, Erica vestita coccinea, Hibiscus Cameroni, Lilium lancifolium album, Prince Albert Petunia, Erica Ewerana, Lantana mutabilis, and a Fuchsia; second ditto, 7*s.* 6*d.*, to Mr. Jeffries, for Statice puberula, Achimenes longiflora, A. grandiflora, Fuchsia Vesta, Petunia Nixonii, Fuchsia globosa, Erica Bowieana, Elichrysum proliferum, Agapanthus umbellatus, and a Petunia; third ditto, 5*s.*, to Mr. Canham, for Erica rubens, Agapanthus, Begonia octopetala, Brugmansia floribunda, Niphæa oblonga, Vinca rosea alba, Fuchsia Exoniensis, Gloxinia rubra, Spotted Balsam, and Thunbergia aurantiaca superba. Best 12 double *Dahlias*, 7*s.* 6*d.*, to Mr. Girling, Nurseryman, Stowmarket, for M. Rignon, Cleopatra, Beeswing, Mrs. Shelley, Standard of Perfection, Athlete, Bermondsey Bee, Gloria Mundi, Capt. Warner, Bridesmaid, Admiral Stopford, and Princess Royal; second ditto, 6*s.*, to Mr. Jeffries, for Cleopatra, Sir J. Richardson, President of the West, Essex Triumph, Standard of Perfection, Lady Harland, Beeswing, Cheltenham Queen, Vivid, Perpetual Grand, Princess Royal, and Lady St Maur. Amateurs.—Best *Plant in bloom*, in a pot, 5*s.*, to Mr. Johnson, for Erythrina laurifolia; second ditto, 4*s.*, to Mr. Hines, for Petunia Attraction; best Fuchsia, 4*s.*, to Mr. Cuthbert, for Exoniensis; best six double Dahlias, 5*s.*, to Mr. Hines, for Phenomenon, Lady Harland, Princess Royal, Nonpareil, Antagonist, Dodd's Prince of Wales; second ditto, 4*s.*, to Mr. Knight, for Sproughton, Aurantia, Essex Triumph, Mrs. Shelley, Nonpareil, Antagonist, Competition. In addition to the above, several other prizes were awarded; but we have only been furnished with a list of rewards without the names of the flowers for which they were given.

Erratum—In our report, p. 642, of the South London Floricultural Society's Show, we omitted to mention that Mr. Francis, of Hertford, was awarded an extra prize for six boxes of cut Roses, which were little inferior to those of Messrs. Lane and Paul.

New Plants.

Labisia pothoina.* Pothos-like Spoonflower. *(Stove perennial.)* Myrsinaceæ. Pentandria Monogynia.—This very singular plant flowered last June in the garden of the Horticultural Society. It has been received from Penang, without a name, in a collection of curious things liberally presented to the Society by T. Lewis, Esq. Before it flowered it was taken for a Pothos or some such plant: for its leaves had such regularly parallel veins, and were so entirely unconnected with the stem by a joint, that no suspicion occurred of its being an Exogen. It proved however to be an Ardisiad in its flowers, and a specimen which Mr. Griffith sent home having proved to be in fruit, the structure of the seed has been ascertained to agree exactly with that order. But, although an Ardisiad, it is quite a new form of that order, remarkable not only for its singular way of growth, but for the æstivation of its corolla, which is neither twisted nor imbricated, nor simply valvate, but what is called induplicato-valvate; that is to say the sides of the lobes of the corolla are so turned inwards that they fit together where they come in contact, in the same way as happens with carpellary leaves. By this means each lobe of the corolla resembles the bowl of a small spoon, in the hollow of which lies a stamen. There is also another circumstance which deserves to be noted. Although the plant has no obvious sensible properties, yet it is filled in all directions with little tubes, or cells, or cysts, or passages, containing a brown substance of unknown nature. This extends even into the pith, but misses the wood. From the appearance of Mr. Griffith's specimens, we presume that the plant occupies very damp shady situations. It is a stove plant, and requires to be grown in a humid atmosphere, where it may have a gentle bottom heat. It appears to succeed best potted in sandy loam, mixed with a little rough peat. Although it is one of very slow growth, still it will require to be repotted every season; this should be done in March, so that the roots may not be disturbed during the growing season. In summer an ample supply of water should be given to its roots, and it must be syringed over-head night and morning when the weather is fine. In winter little water will be required for a few weeks; if the soil is kept moist it will be quite sufficient. The only way of multiplying the species is probably by seed, for the stems offer no means of doing so.—*Botanical Register.*

* From λαβίς, a spoon, in allusion to the form of the divisions of the corolla, which resemble the bowls of small spoons.

Eremostachys laciniata. Jag-leaved Desert-rod. *(Hardy perennial.)* Lamiaceæ. Didynamia Gymnospermia.—This showy herbaceous plant is a common inhabitant of the eastern side of Caucasus and of the adjoining countries, where it is found on dry hills. Its great fleshy roots are evidently adapted to such situations only; it appears intended by nature to resist even a Persian summer. It flowered in April last in the garden of the Horticultural Society, where it had been raised from seeds received from the Imperial Botanic Garden at Petersburgh. It proves to be a hardy perennial with large spindle-shaped roots, and a stem from four to six feet in height. It is rather difficult to cultivate in the open border on account of the large fleshy roots suffering in winter from excess of moisture, but it succeeds tolerably well if grown in pots during the winter, and kept nearly dry in a cold pit or frame. It grows freely in a light rich sandy loam, and flowers in May or June. It is only increased by seeds, and the plants are two or three years before they bloom. In potting or planting, one-third of the fleshy roots should be left above ground, otherwise they soon perish.—*Botanical Register.*

Miscellaneous.

The Tea Plant in Ceylon.—Our Ceylon friends are rejoicing in the cultivation of the Tea plant, which has been imported by the house of Messrs. Worms into that island, and is said to be in a thriving condition, many young plants having been raised from the seeds of those originally introduced; and they anticipate that, ere long, Tea may become another important branch of their colonial trade. We wish them all the success they hope for; but as they do not seem to have tested the quality of the leaf, we would advise them not to be too sanguine in their expectations. Ceylon lies too far within the tropics to offer a climate like Assam, which lies without them; the plants may thrive to appearance, but that is not a demonstration of their quality; we have seen them 6 feet in height at Penang, and in as healthy a state as could be desired, but the leaf had no flavour, and although thousands of Chinese husbandmen and gardeners cultivate spices and other tropical productions on the island, yet not one thinks it worth while to extend the cultivation of the Tea plant; those we saw were in the Company's garden, then rented to Chinese, but they laughed at the idea of converting the leaf into a beverage. The Ceylon planters should put the leaf to the proof before speculating on a large scale.—*Madras Crescent.*

The Glandular Almond Tree. (Amygdalus glandulosa, Sieb.).—M. Paillet without doubt possesses the most beautiful collection of plants from Japan of any Parisian gardener; his practised eye teaches him how to choose from among all the species brought over by Siebold those which are best suited to nurserymen. Among these he cultivates a charming little shrub from Japan, under the name of Amygdalus glandulosa, covered in April with pretty single rose-coloured flowers, which have numerous stamens. Its shoots are slender, and its leaves straight, lanceolate, and sharp pointed. I do not find the name in the work of Siebold and Zuccarini. I think from the habit of this shrub that it is a Plum having much affinity to Prunus chinensis, which nurserymen call the double dwarf Almond; indeed, it may be no other than the single-flowered type of that species. It is hardy, and bears the winter in the open air without protection.—*Pépin, in the Revue Horticole.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—The temperature of the stove should continue rather cool for some time to come. Keep the night temperature under 70°, and give air on all favourable occasions. *Greenhouses.*—All the plants in this department must be got into their winter quarters as fast as possible, the winter having made its appearance in right earnest. In arranging them, let some of the winter-flowering specimens stand out in bold relief from the rest. Give abundance of air by night and day in the absence of frost; be moderate in the supply of water, and by such treatment the young wood will be matured for winter.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The different kinds of double Rockets should now be taken up, parted, and replanted in borders or beds; the strongest plants should never be allowed to stand over for flowering the second season, as they either rot off in winter or in spring. This is a good time for transplantiug shrubs which are too much crowded together, as they get well established in th ground before winter. Choice Azaleas, Rhododendrons, &c., might also now be layered, if not already done. Remove rooted layers of Cloves, Picotees, Carnations, &c., and plant them in borders, or in the reserve garden, for transplanting into

the flower-garden next spring. Herbaceous plants struck under hand-glasses should now be planted out, in order that they may be sufficiently established before winter. Keep gravel-walks weeded, rolled, and swept, during this showery weather; if the gravel does not bind well, roll them the oftener when very wet. *Pits and Frames.*—The nights being now cold and wet, cuttings recently put in will require more heat; a lining should therefore be applied immediately, or other means of heating at once resorted to. If any of the cuttings first put in have failed, they should be replaced by a fresh stock. See that damp does not injure those already in.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas may now be removed into their winter quarters, though some defer this till a later period; at all events, being now in nearly a dormant state, they must be kept from any very heavy rains, removing decayed leaves as required, and keeping the surface soil in an open and friable state. Offsets must be examined which have been recently potted off, taking care that the collar of the young plant stands well above the soil, for this is a material point in their winter cultivation. *Polyanthuses*, when grown in pots require similar treatment to the above; when cultivated in beds, they must be carefully examined, and fresh soil, composed of decayed leaves, put round the roots; the large earth-worm is apt to drag newly transplanted seedlings and young plants from their proper places; a small quantity of lime-water poured into their holes will effectually rid the beds of these troublesome guests. *Tulips.*—Offsets, seedlings, and roots that are at all diseased, ought to be in the ground as soon as the weather will permit; if any part of the bulb is decayed, it ought to be cut away previous to planting with a sharp penknife, removing if possible all trace of the complaint; envelope the roots in Calais sand before the bulbs are covered in. Continue arranging the best bed, making additions by purchase or exchange. *Dahlias* have been severely cut by the late frosts, which will make their removal from the ground a matter of necessity, much sooner than was anticipated.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Every moment of sunshine is now most valuable to late or winter ripening Pines. The true Black Jamaica, by some called Montserrat, is of all others perhaps the most eligible for that purpose. If these are desired for the table through December, January, and February, they should now be in three distinct stages; viz., just done blooming, half swelled, and three parts swelled. The main business now with them, is to make "all the sail" possible, on sunny and bright days, and to keep a highly moderated temperature on dull days, and at night. These directions will appear the more reasonable, when we take into consideration the comparative absence of light at this period, as compared with the middle of July. I am persuaded that all extremes of temperature in this matter, unless accompanied with a corresponding amount of solar light, only tend to increase the crown, as well as the depreciation of flavour. High and moist temperature, and a free circulation of air, accompanied with abundance of solar light, are then the conditions under which high cultivation must be sought. Young stock must now be prepared for winter by abundance of air. To that end, keep strong dung linings to those in dung-pits. Cucumbers and Melons will want nearly the same management. Take care to sweeten the air in the pits or frames betimes in the morning, as also to shut them up with plenty of solar heat. Mind that your Mushroom-beds do not overheat; the heating should be done in the fermenting process, before the bed is made; the bed, after, should never by any means exceed the temperature of new milk. We had last night, Sept. 23-4, a most intense frost, which has destroyed Dahlias, and almost everything tender out of doors. The ground this morning was a thorough hard crust. Wind N.W. by W.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

As frost is likely to set in early, temporary covering at night should be provided for Figs; for although these will bear a slight frost without injury, when their shoots are mature and their leaves have fallen, yet at the present time the extremities of the shoots are nearly as susceptible of frost as is the foliage; and it is only the recently formed embryos, situated near the ends of the shoots, that will stand the winter, so as to ripen next summer. Protection should, therefore, not be withheld till too late. The gathering of Apples and Pears, as they easily part from the trees, should be proceeded with. Those varieties that naturally hang late will not suffer from a little frost, because they are in more active communication with the comparatively warm juices of the tree than those are which have become fit for gathering. All choice fruit should be gathered when perfectly dry; and even the inferior kinds if possible; but it is better to gather the latter carefully without bruising, although a little moist at the time, than to handle them roughly in the hurry of collecting them in the sometimes only short periods in which they can be obtained dry. *Kitchen-garden.*—The most forward of the Cardoons will require to be tied round with hay-bands, and then earthed up. Earth up Celery when the plants and soil are dry; the latter should be previously made fine with the spade, then, holding the leaves together and upright with one hand, bring the soil close with the other; but in doing this, care should be taken that the heart-leaves are not crushed, nor even too much confined. Clear the ground of Potato crops without delay; dry the tubers as quickly and with as little exposure to light as possible, and avoid storing them in large heaps. Those that are partially unsound may be laid out to green for sets; if there be any sound vegetation in them, it will be strengthened by exposure to light, and, as the eyes spring, the unsound adjoining parts should be cut off.—*E.*

State of the Weather near London, for the week ending Sept. 25, 1845, as observed at the Horticultural Garden, Chiswick.

Sept.	Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 19	17	29.996	29.681	65	34	49.5	S.W.	
Sat. 20	18	29.982	29.690	62	52	57.0	S.	.29
Sun. 21	19	29.538	29.3.5	65	49	57.0	S.	.12
Mon. 22	20	29.946	29.682	64	42	54.0	W.	
Tues. 23	((	30.223	30.011	54	30	42.0	N.E.	
Wed. 24	22	30.242	30.013	62	37	49.5	E.	
Thurs. 25	23	29.852	29.692	62	38	50 0	S.	.01
Average		29 963	29.726	62.0	40.3	51.1		.42

Sept. 19—Light clouds, and windy; boisterous; clear at night
20—Cloudy and fine; bright sun; rain at night
21—Densely overcast; rain; clearing; showery
22—Clear; very fine; partially overcast; hazy at night
23—Slightly overcast; cloudy; clear and frosty at night
24—Clear and frosty; very fine, with bright sun; clear
25—Densely and uniformly overcast; drizzly; overcast at night.
Mean temperature of the week 5 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Oct. 4, 1845.

Sept.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 28	65.1	45.3	55.2	8	0.52 in.	—	2	1	1	7	4	2	2
Mon. 29	64.7	45.2	55.0	11	0.35	—	2	2	2	5	4	2	2
Tues. 30	64.5	44.2	54.4	9	0.32	2	1	3	—	5	3	5	—
Oct.													
Wed. 1	64.2	46.5	55.3	9	0.53	2	1	2	2	6	4	2	—
Thur. 2	64.8	43 1	53 9	9	0.43	1	2	1	—	5	5	3	2
Fri. 3	63.1	45.1	54.1	9	0.14	1	2	—	1	6	6	1	2
Sat. 4	64.1	42.6	53.4	11	0.36	—	5	1	—	5	5	2	1

The highest temperature during the above period occurred on the 29th, 1832—therm 79°; and the lowest on the 3d, 1826, and 4th, 1842—therm. 29°.

Notices to Correspondents.

Artichokes—*Sub, Darlington*—What sort of Artichoke do you mean?

Banks—*Constant*—Your bank will stand if sloped at an angle of 45°: but it would look better if the slope were faced with turf, which might also extend a foot over the bed to give a finish to it next the slope. Of course such turf must be kept nicely mowed.

Books—*Y Z*—The book can be obtained by any bookseller who will take the trouble to inquire for it. It has been advertised in our columns.——*F*—The "Vegetable Kingdom" has arrived at p. 784, fig. 519: but there is still a good deal to print. The index, alone, will probably make 50 or 60 pages. A prospectus of it has appeared at the end of "School Botany." We hope to have it out before Christmas.——*H H*—A Gardener's Almanack was last year published by Mr. Johnson, and another is in preparation for the ensuing season. We cannot undertake another.

Camellias—*A O T*—Although the more tender kinds of Camellia will not stand so much hardship on their own bottoms as when grafted or inarched, yet many of the varieties under good treatment will succeed equally well with grafted plants. Your plants may be kept during winter in a temperature say about 40°, and when they begin to push, which will probably be about March, let the heat be gradually increased to about 60° or 65°, giving them plenty of water at the root, and keeping up a moist atmosphere by frequent syringing, &c. Continue to supply them with heat and moisture, of which the Camellia when growing is extremely fond, until the plants have made their young wood and set their flower buds, which will be perhaps in July or August, when they should be gradually hardened off and ultimately exposed to the air, either by pulling the lights off the house, or by placing the plants out of doors. About this season they should be taken in doors again. By this treatment you will probably succeed in blooming them.‡

Climbers—*T P*—The following are suitable for training up the rafters of your small Heath-house, viz.:—Sollya linearis, Billardiera longiflora, Kennedya Marryattæ, Rhodochiton volubile, and Brachysema latifolium.‡

Cucumbers—*Inquirer*—The Sion House is a good prolific variety, well adapted for early forcing. Plants from cuttings are not so apt to damp off in winter as those raised from seeds.‖

Glass—If *A Country Gentleman* or *F G H* will be so good as to consult our advertising columns, they will see that the dealers in foreign glass are Mr. Elphick and Mr. Rahn. He should apply to them. We are sure that his gardener will be glad to learn the use of the diamond and to be his own glazier in small matters, until the glazier by trade shall come to his senses. The attempt, on the part of the country glaziers and others, to charge the old prices for glass is a most impudent attempt at extortion, and should be effectually put a stop to. They are of opinion that country gentlemen are helpless. As to "F G H" being puzzled with glass-cutters' figures, we are not surprised at it: the figures are well suited to puzzle anybody; but we cannot occupy more time in exposing that system. The foreign glass trade has nothing to do with such devices, and does not dream of charging more and more for any few inches of additional size; that is a mere glass-cutters' trick, which we long ago exposed, to the infinite annoyance of our glass-cutting friends.——*J M*—Good foreign sheet-glass is not more blistered than other sheet-glass, all of which has some defects, unless of very superior quality, and it is quite good enough for all common glazing purposes. There is, however, a good deal of difference in the quality of foreign glass, and some is said to be very bad: but we have not seen any such. If you want glass as true as plate-glass, then you must go to the home market, and pay English prices. As to the price of English glass, that depends upon your skill as a buyer. In your purchase go to the glass *makers* themselves, and not glass *cutters* and retail dealers; if you cannot make a good bargain with the sellers, why go without their material, which will be much cheaper by another season. The larger your squares the better they will look; but it is not safe to employ squares wider than a foot if your sashes are to be lifted about, for they will be apt to wring and break the panes.——*T H*—The statement which you have investigated was not ours, but that of a correspondent. You see that the statement is true, although we were mistaken in the inference we drew from it. You also see what the glass trade is. If the manufacturers are so ill-advised as to persevere in playing into the hands of glass-cutters and dealers, who are their worst enemies, it is of no consequence to anybody but themselves. We can procure foreign glass of as good quality as theirs, without any trouble, and they may say farewell, a long farewell, to their trade, which is already moving rapidly to the Elbe and the Scheldt.

Glazing—*F P*—We feel your difficulty. Buy and cut your glass, and give your glazier 1½*d.* a foot for putting it in, he finding putty, and leaving it in a workmanlike state; and if he will not, buy putty and do it yourself. Do not be imposed upon by the country glaziers. The allowance is ample.

Grapes—*R Josling*—Your seedling Grape is excellent. It is very rich and sugary, with a Frontignan flavour. It deserves extensive cultivation.‖

Guano—*N*—We did not intend to state that Messrs. Gibbs and Sons, of London, are the *only* importers of this manure from Peru. It is divided between Messrs. Myers and Co., of Liverpool, and Anthony Gibbs and Sons, of London. The trade is exclusively in their hands for Peruvian and Bolivian guano. If you want Epping and Bow guano, apply to Mr. ——, in Mincing-lane.

Heating—*An Amateur*—Your plan cannot be improved, and with skill you may do all that more costly contrivances can affect. You may even avoid the expense of plastering the inside of your earth pit. It will be as well to secure a few toads before winter, in order to keep woodlice down. These creatures (not woodlice) are invaluable. A boiler 12 in. by 10 will do for a very small greenhouse; but it will be impossible to charge it with fuel for a night's consumption, unless it is fitted with a "hopper," that is to say, a reservoir of fuel, which will feed the fire during the night. Two inch pipe is too small. Why not 4 inch? Certainly not less than 3 inch. If the pipes are along the front only, and the back wall is not too cold, you may keep the frost out, except in very bad weather, and then we fear you must have recourse to mats, unless you can command a brisk fire. The only seeds worth raising are Quamoclit, Martynia diandra, and Stachytarpha.——*W Northumbriensis*—Your present apparatus will do very well provided you extend your pipes as far as the addition to the house extends; but you cannot heat the new length with the same extent of pipe as you already have. It will be convenient, in extending the pipes, to make the addition to the east end, because you will then have your fire-place in the centre of the house.——*J H R*—Heat your propagating house by an arm, added to the hot-water pipes you already have, carried into a tank of some sort. You will find a good plan of such a place at p. 116. As to glass, we now learn that Mr. H. will not continue to supply private buyers, because of the dealers and glaziers. You have, therefore, no remedy but to buy foreign glass. We have just bought *excellent* Belgian glass at 3½*d.* and 4*d.* a foot, in 100 feet boxes; so do not let your country glaziers impose upon you. Elphick's glass is stouter than the Belgian, and, for large squares, we prefer it.——*J H G*—The simplest mode of heating so small a place will be by means of a portable stove. We have never seen one of Dean's used; but it will probably do very well, as its principle seems to be good. If hot-water pipes could be introduced in connection with the boiler of the kitchen range, that would be the best source of heat; but considering the distance, it would probably be too expensive. The house seems to be well planned.

Insects—*L H*—You had better wash the floor with very hot water and soft-soap, and when it is dry brush it well over with spirits of turpentine, or corrosive sublimate. The beams must be subjected to the same operation, and if they could be painted afterwards with oil-colour, it would stop the ravages of the insect. *R.*——*S W*—No. 1 is a false wireworm, called Julus pulchellus, whose history you will find in the *Gardeners' Chronicle*, vol. i., p. 196, and the "Royal Agricultural Journal," vol. v., p. 228. No. 2 is Oxytelus sculpturatus, or an allied species; 3, is a Rhyzophagus; 4, a Trechus; and 5 was empty. *R.*——*S H*—Thanks for the smother-flies: they are the Aphis Brassicæ described and figured in the "Royal Agricultural Journal," vol. iii. *R.*——*C M H*—A decoction of tobacco-water poured into the pans in which the pots are set, will, I expect, destroy the insects; or watering the plants with it, so that it percolates through the soil, may prove equally successful; but try the plans upon a plant or two first, to ascertain the effect. *R.*——*H L K*—We know of no better method: trenching the beds in winter, and watering them with lime and soot, would be serviceable in reducing the pest. *R.*——*Sub*—You may destroy the Thrips on Cucumbers by dusting the infested parts with flowers of sulphur, and allowing it to remain on for three or four days, when it should be washed off with a syringe.‡

Jeffrey's Marine Glue—*G Lawford and A Walton*—We can at present do no more than refer to the directions given at p. 562 by Mr. Grant, and at p. 625 by "Beta," both of whom appear to have effected an adhesion in the manner they describe.‡

Morphology—*H B*—It is quite curious to see how many of the Calceolarias are this year assuming the tubular form, and thus attempting, as it were, to exchange their irregular structure for a regular one.

Names of Fruits—*J Waldron*—The berry was bruised; but it appeared like the Black Lombardy.‖

Names of Plants—*Datchet*—Adonis autumnalis, or Pheasant's Eye.——*Z Z*—We do not name florists' flowers; 1, Clematis integrifolia; 2, C. flammula; Mesembryanthemum blandum.——*Querist*—Polygonum Persicaria. Cut back Rhododendrons in April. Some Fuchsias will stand all the winter in the open ground; to insure it, cover the crown of their roots with a cone of sand or coal-ashes.——*Joe*—Mahernia incisa.——*B*—Stanhopea graveolens.——*S W*—Chelone obliqua.——*A Lady*—Convolvulus Sibthorpii.——*F M W*—We never name florists' flowers.——*T C S*—Gomphocarpus fruticosus.——*J M K*—We do not recognise your plant, and cannot name it without flowers, and some reasonable amount of information concerning it.——*George*—Mormodes citrinum, Catasetum Claveringi; we cannot determine the Epidendrum from a single withered flower.——*Northumbriensis*—A parasitical fungus, called Uredo cylindrica; it is not known to do harm.

Potatoes—*A*—If the starch or flour of corn, Potatoes, and Rice be separated from the matters mixed with it we apprehend that a pound of each will be equal in nutritive effect. Their difference depends upon the quantity of azotised matter among which the starch is deposited, and in their compactness.——*J P*—The account of the rot in Germany is published in the form of a 4to pamphlet, with the name given at page 624.

Rose-blight—*Amateur*—Your Rose leaves are affected with mildew, which is very common and often very injurious. It is Asteroma Rosæ.

Tobacco—*A Subscriber*—Tobacco should not be allowed to flower unless for the seeds only. It should be stopped when growing, so as to produce broad thick leaves. The plants should be pulled up or cut close by the ground, and then hung up in a dry warm place till the leaves wither thoroughly on the stem. They should then be made damp, stripped off, sprinkled with water, and kept pressed, moist, and warm for some time, till oil is sufficiently formed; and this, it should be borne in mind, cannot be formed unless a little water is supplied as above mentioned. Fumigating with dried leaves possessing little or no oil, is more injurious to plants than to the insects which are intended to be destroyed.‖

Teredo navalis—*Anon*—Who calls this an insect? We can find no such passage, and do not know what you mean.

Vines—*A Correspondent* inquires which is the largest Vine, the one at Hampton Court or that at Cumberland Lodge, Windsor Park? The latter is said to be hardly equal to its celebrated rival.

Misc—*O P*—You will find the information you seek respecting the Rose of Jericho given in a Leading Article at p. 363 of our vol. for 1842.‡——*A Lady* will find general directions for constructing pits for wintering plants in at p. 628. The principal thing to be guarded against is damp. "Shirley peat" is peat obtained from Shirley common; it is excellent for growing Heaths, Epacrises, &c. in.‡——*Y Z*—Cuttings of Pelargoniums, made of tolerably ripe wood of the average strength, will strike readily enough; a leaf or two should be removed from the base of the cutting where it is to be inserted in the soil.‡——*Sowerby Park*—Seeds from the Gold Coast or Ashantee may be useful: it depends on what they are. The Rosa berberifolia Hardii is figured in "Paxton's Magazine of Botany," vol. 10, p. 195. It is there stated to be a hybrid, raised between R. berberifolia and R. involucrata by Mr. Hardy, of the Luxembourg Gardens, Paris, and it has been named after its originator.‡——*J M*—The stems of your Dahlias should be cut down as soon as they are blackened by frost, and the tubers taken up on a dry day in November. They generally keep best over winter in a dry cellar, free from frost, and packed in dry sand or sawdust; but any dry place will do which is not too hot. Take care that the tubers are perfectly dry before they are stored away.‡——*Murphy*—You will find the history of your production given at p. 85 of our vol. for 1842, and at p. 293, 1844.‡——*Wm C* and *Old Sub*—Much obliged, we have the Number.

SEEDLING FLOWERS.

Calceolaria—*Tweed*—Chuta is a pretty little variety, and not uncommon.*

Pansies—The Queen is quite a second-rate flower, with serrated edges, and the lower petals want size.*

Pelargonium—*E J L*—The seedling you have sent is of no use whatever.*

Petunias—*S A*—The seedling you have named Centenary is an extremely pretty variety; the colour is agreeable, being of a purple rose, and adorned with a white centre.*——*Z*—No. 3, a deep violet purple, is a very good flower; No. 4 is not equal to many varieties we have, similar in colour and marking.*

Fuchsias—*A R*—The sepals of your seedling have a coarse and faded appearance; in other respects it is a good and very showy flower.*——*E J L*—Clara is your best seedling, but there are several like it; Carlotta is very pretty in colour, but this again is not superior to others in cultivation; Pixy, Mercury, and Blue-bell, are pretty, but too small, and resemble each other too much; Orion is worthless; and any one possessing Carlotta would not care to have Lion.*——*W M*—Your seedling possesses a good contrast in the colours; it is a very good but rather small variety.*——*A Subscriber*—None of your seedlings are sufficiently good for general cultivation.*——*F J*—The Giantess is a very large light variety, but it wants distinctness of colour to make it agreeable; there is too much colour in the tube and sepals, which are also very coarse.*——*J Y B*—Your seedling is a beautiful specimen of a light variety; tube and sepals white, the latter slightly tipped with delicate green; it is smooth, shining, and waxy in texture; the sepals expand well, fully showing the corolla, which is of a clear rosy purple; this is the best and most decided of the light varieties we have seen, there being no tinge of pink in the tube.*——*T D*—Your specimens are inferior to the sorts now generally grown; there is too great a similarity between the colour of the tube and corolla; this prevails through all your seedlings. One named Demure is the best in the collection.*

DINGLE'S HAND DIBBLING MACHINE.

WILLIAM E. RENDLE AND CO. have to apologise to those persons who have not yet received the Machines. They have found the demand far exceed their expectation: but they have now a regular set of men constantly employed in the manufacture of them, so that they will be enabled to supply any quantity at the shortest notice.

Price 35s. each, including Box and Carriage to London, Liverpool, or Bristol.

Office—Union Road, Plymouth, Sept. 27, 1845.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 27, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

TUESDAY, Sept. 30
WEDNESDAY, Oct. 1 } Annual Meeting and Cattle Show of the Agriculture Improvement Institution at Bridgwater.
THURSDAY, Oct. 2
FRIDAY, Oct. 3

FARMERS' CLUBS.

Sept. 29—Chepstow
Sept. 29—Bromsgrove
Oct. 4—Collumpton

We beg the attention of our readers to the communication, in another column, from Professor HENSLOW, "ON THE FIXATION OF AMMONIA BY GYPSUM." This article, originally published in the *Bury Post*, has been in type for some weeks—for so long, indeed, that we have to apologise to its author for the delay. And we should beg pardon of our readers also, on this account, did we not believe that to them the value of the information given remains undiminished. The lesson now offered to them, as to the value and the practicability of a combined system of experimenting among farmers, is useful at all times; and the bearing of the experiments, which Professor HENSLOW has collated, upon the economical manufacture of farm-manure, though only now published, is not too late to exert what influence properly belongs to it upon farm-practice, in that particular, during the ensuing winter.

UPON the careful PREPARATION OF WHEAT FOR SEED depends, to a considerable degree, the value of the future crop. Several diseases to which the plant is subject are believed or known to have their germs resident in the seed or on its surface, and to remove these should always be the object of a careful operation at seed time. All that is known on this subject is given in Professor HENSLOW's valuable report in the 2d Volume of the "English Agricultural Society's Journal." From that and other publications we shall proceed to make some extracts.

The two diseases, to avert which is the main object of steeping and otherwise preparing seed Wheat, are the Smut and Pepper-brand; in the latter, which is the more dreaded of the two—because the grain retains its form and appearance in the sample—the parasitic fungus which produces it has a peculiarly fetid odour; in the former this smell is wanting, and the seed-vessels burst, dispersing their sooty contents before the general ripening of the crop. Smut is more common in Oats and Barley than in other grain crops—probably, because *there* no efforts have been made to check it.

It has been known long before those who adopted the practice possessed any definite idea of the cause of these diseases, that the best method of avoiding them was thoroughly to cleanse the seed. Botanists have since informed us that the success of this operation is owing to its removing from the surface of the seed the germs of those fungi to which these diseases are owing—germs of inconceivably small size—not above $\frac{1}{16000}$ of an inch in diameter—so small in fact that they are absorbed by the root of the young plant.

The following passages are extracted from Professor HENSLOW's report. Referring to the Bunt or Pepper-brand, he says:—

"Upon simply immersing the grain in water, the infected seeds float, and on the water being poured off nothing but the sound ones remain in the vessel. This simple process, however, is never perfectly effective, because in thrashing the Wheat, many of the infected grains (smut-balls), are crushed, and the spores are dispersed in the form of a fine powder, which adheres with considerable obstinacy to the surface of the sound grains, by means of an oily or greasy matter found in the fungi. In order to detach them thoroughly, it has been considered useful to add some alkaline ley to the water in which they are washed; because oil and alkali unite and form a soapy substance, and then the spores will no longer adhere to the surface of the grains of Wheat. Lime, possessing alkaline qualities, has been long employed for the purpose. Common potash, and substances containing ammonia, as the liquid portion of stable manure, have also been used. But as some persons employ brine, sulphate of copper, arsenic, and a variety of other materials which do not possess alkaline properties, it is supposed that all these solutions act rather by destroying the vegetative properties of the fungi, than as a means of removing them from the surface of the grains. It may therefore be worth while to institute a set of experiments to determine which supposition is really correct. Perhaps some portion of the effect may be owing to the increased specific gravity of the liquid; or perhaps some portion of the solution may be imbibed by the steeped corn, sufficient to prevent the sporules of the fungus from germinating within the substance of the plant; just as corrosive sublimate, essential oils, and Russia-leather, prevent the formation of mouldiness. I may also add that the temperature at which the solutions are applied may be of some importance."

In the section "on the precautions to be taken against Bunt and Smut," a suggestion is offered which, we think, well worthy the attention of farmers: Professor HENSLOW says:—

"From a variety of considerations, it has always appeared to me strange that practical agriculturists are accustomed to pay so little attention to the raising of pure seed-crops. There may be reasons which I do not properly appreciate, that would render it inexpedient to cultivate a seed-crop apart from the rest of the produce raised on a farm; but I should have thought that it was always worth while for every farmer to set aside some portion of ground to be more carefully tended than the rest, for the purpose of securing good and perfectly clean seed. Among other reasons for such a practice, he would then be able to weed his crop from every plant infected with bunt or smut, before the fungi ripened."

It is certainly the interest of the farmer either to do this or to purchase his seed from those who pay particular attention to its cultivation.

We shall make only one more extract, in which a series of experiments are recommended with the view of ascertaining what substances in solution are the most effectual preventives of these diseases; and should any one feel sufficient interest in the subject to perform them, we should be happy to publish his report.

"A parcel of thoroughly bunted or smutted seed should be divided into a number of small packets, each of the same weight; or if very small, each containing the same number of grains. When any of these packets are steeped or washed, the floated grains and the fungi which rise to the surface may be kept apart for separate experiments, being carefully labelled 'F. 1,' 'F. 2,' &c., to show that they were obtained from the packets of seeds, 'No. 1,' 'No. 2,' &c. by this process.

No. 1. Seeds unwashed, to serve as a comparative experiment.
— 2. Washed in cold water only—(2'), in scalding water.
— 3. Washed in water with lime, the proportions specified.
— 4. Washed in water and brine.
(a) Mixed in the proportion of 2 water to 1 saturated brine.
(b) " " " 1 " 1 "
(c) " " " 1 " 2 "
(d) Saturated brine.
— 5. Washed in sulphate of copper.
— 6. Sprinkled, but not washed, with lime.

"Another set of experiments may be prepared with clean corn, to be infected with the floated fungi obtained in washing the above.

"No. 7 rubbed with—
(a) F. 2, to serve as a comparative experiment.
(b) F. 3
(c) F. 4
(d) F. 5

"Another set may be prepared with clean corn, which should first be steeped in different solutions, and then rubbed with the fungi obtained by simply washing in water (No. 2).

No. 8. Steeped in lime, and rubbed with F. 2.
— 9. " brine and do.
— 10. " sulphate of copper and do.

"These last may be repeated by washing the seeds clean after they have been steeped, to remove any of the mixture that may here adhere to the *surface*.

No. 11. Prepared as No. 8.
— 12. " " 9.
— 13. " " 10., &c. &c."

We may add the following report of *experience* on this subject, which is taken from a statement by Mr. DAVID to the Cardiff Farmers' Club on the 17th of September, 1842.

"In November, 1822, I selected 3 bushels of Wheat, which I had grown that summer, and which was exceedingly smutty, but to render it still more so, I had a quantity of smut-ball rubbed into it, until the whole was much blackened. The lot was then divided into six half-bushels, and having dissolved half a pound of blue vitriol in boiling water, the Wheat was pickled as follows:

No. 1.—Immersed in the vitriol water for three hours.
— 2.—Washed and skimmed until it was clean, then immersed in the vitriol water as above.
No. 3.—No preparation.
— 4.—Washed and skimmed well until clean.
— 5.—Washed and skimmed as above, then sifted quicklime over it, and mixed a quarter of a pound of salt with it.
No. 6.—Pickled in the mode usually adopted, with a mixture of lime, salt, and water.

"The seed was sown the following day on a Clover lea, in six separate ridges, each 112 yards long, by 4 yards wide, half a bushel to each ridge, being at the rate of near 5 bushels per acre.

APPEARANCE OF THE BRAIRD:

Nos. 1, 2, and 5 came up thin, seemed to be at the rate of only two bushels per acre.
No. 6, appeared to be at the rate of about 2½ bushels per acre.
— 4, appeared to be at the rate of about 3 bushels per acre.
— 3, appeared at the rate of about 4 bushels per acre.

"Sept. 5th, 1823.—The whole was reaped, each lot being carefully kept separate, and the result proved as follows:

No. 2.—Found only two smutty ears in the whole lot, which notwithstanding the care taken, might have come from an adjoining ridge.
No. 1.—Had several smutty ears in it.
— 5.—From 30 to 40 black ears in the ridge.
— 6.—About a 20th part smutty ears.
— 4.—About a 5th part smutty ears.
— 3.—About one-half smutty ears.

"From which it appeared that vitriol, coupled with washing and skimming, proved to be an effectual cure, even to a sample of the description sown. Ever since, I have invariably used vitriol, and have found, from 20 years' experience on upwards of 100 acres of Wheat annually, that one pound to a sack of Wheat will prevent the disease, as I have never had smutty Wheat since. I believe the cure was effected in the above by destroying the vegetative powers of the damaged seed, for it will be observed that the produce was clean in proportion to the thickness of the plant."

We have only to add that we have found the use of blue vitriol (sulphate of copper) to be perfectly efficient, though at the rate of only 2 ozs. per bushel. But to add quicklime to the Wheat after having steeped it in this solution, as was done in one of the above trials, is entirely erroneous. Lime will decompose sulphate of copper, and to add it to the Wheat after steeping it, as above, would, therefore, be an attempt to neutralise all the benefits which are expected from the use of that substance for this purpose.

DEEP DRAINAGE IS BETTER THAN SHALLOW DRAINAGE.

A SPONGE will hold water, by capillary attraction, till its pores are filled, and a large sponge will hold more than a small one; consequently it is longer in getting wet and longer in getting dry. The earth when drained is in fact a sponge, the deeper the drains the greater the body of water it will hold: and as earth, air, and water are the food of plants, the larger the sponge the more food it contains. Now, we all well know that water passes through earth and runs away out of the drains, but we must never forget that it will only do so when more has fallen than the earth chooses to retain by capillary attraction. You may drop water by drop on a sponge or loaf sugar, and none will escape till the pores are all filled; but then it refuses to receive any more and the rest is carried away. The same thing occurs precisely in drained land.

In deeply-drained land but little rain will pass through the drains during the spring and summer. It is retained to moisten this large sponge, and rise by capillary attraction and be carried off through the plants by their roots and leaves, or evaporated at the surface as steam or vapour. In shallow-drained land (the small sponge) plants are quickly dried up in a hot summer, or drenched in a wet one; and as roots only search amongst the porous earth for their food, of course they not only get less food, but are subjected, by their proximity to the surface, to greater atmospheric vicissitude. It is a seeming contradiction, that deep drains should discharge more water and more quickly than shallow ones, such is however the fact. In a very long or deep sponge, the water will drip through at the lowest end, the force of gravity overcoming partially that of capillary attraction; of course, this dripping permits its absorbing more water at its surface. In a short or shallow sponge, little or no dripping takes place, because the capillary power is too strong; consequently when filled it will absorb less at the surface, and more must run off. It is notorious, that in very porous vegetable soils, shallow drains are of little use, for spring or bottom water passes by them and rises in preference to the surface, by the force of capillary attraction, and by the plants called bog pipes.

The greatest possible objection to shallow drainage is, that the falling water robs the surface soil of its heat and manure, and carries it away through the drains, or allows it to pass off the surface, whilst in deeply drained land the heat carried down by the water is taken from the water by the colder subsoil, and retained to rise again in the water to the roots and surface by capillary attraction. Thus the depth of drainage influences vegetation, warmth being carried down from the surface is laid up in store, and re-ascends to the surface with the expanded water.

Deeply drained land receives and retains the soluble parts of the manure we apply to the surface, and sends them up again for the use of plants by evaporation and capillary attraction. Water is not only a carrier of heat downwards and upwards in soils, but it also conveys down and brings again to the surface the solutions of manure that colour it. A nice warm summer shower that would only be enough to moisten comfortably 5 or 6 feet deep of parched earth, would be carried through shallow drains.

Like strong tea the solutions from our manure contain its most valuable properties. Farmers who consider how worthless is the second mashing of their malt, or the second water from their tea, will hardly allow the essence of their manure heaps to run away down their ditches with the water from their roofs, or down shallow

drains. It has been objected that in certain soils the filtration of water would abstract from them their metallic properties, and encrust or choke up these small pipes. It is possible in an occasional instance, and in course of time this might occur, but this exception can be no valid objection to the general rule of their success in the majority of soils. Instances too may occur where the supply of water from springs, or from some neighbouring ground, may be more than a small pipe can carry, rendering it necessary to employ a larger pipe, or several smaller ones side by side, or on each other. This also can only now and then occur. The inch-pipes will always take all the water that does fall as an average from the clouds on a given space in a given time.

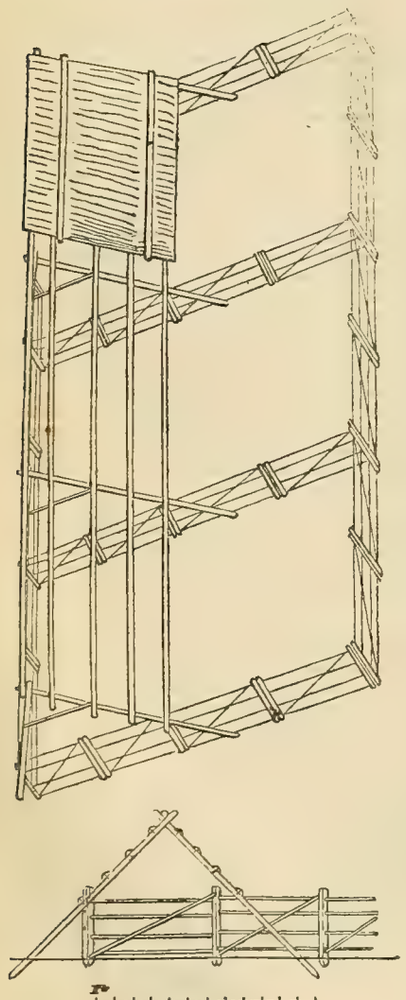
The whole system of deep drainage in heavy land is dependent on its cracking by contraction. These cracks, which take place, first, by evaporation, and then by percolation, can be promoted in two ways—by leaving the drains open as long as possible after the pipes are placed in them, and covered with a few crumbs, or by the heat of a dry summer. Rolling heavy land solid in wet weather will cause it to crack readily in warm weather; when once a system of cracks has commenced, they extend in every direction, each fissure draining the soil adjoining it, until the whole mass of earth to the floor of the drains becomes a network of fissures. Once established, filtration, capillary attraction, and evaporation, must go on regularly—improving the soil from year to year, aided by worms and by roots.

I would strongly recommend every agricultural improver to bore or cut a 4-feet trench in every acre of soil, to the depth of several feet, much in the same way as we would ascertain the quality of a cheese. The expense is but trifling, but the saving or gain would be, in many cases, enormous. A bed of calcareous earth, of clay, or of gravel, may be found where least expected and much required. Perpendicular strata of clays, &c., may be thus at once detected and cut through which have possibly for centuries headed back springs, or surface water, and caused a large extent of land to be always wet. Such boring may give upward vent to a spring, which being pent in has shown its evil effects in numerous other places.—*I. J. Mechi*, 4, *Leadenhall-street, July*, 1845.

ON SHED-FEEDING SHEEP.

EARLY last year you directed the attention of your readers to the benefits derivable from shed-feeding sheep. Will you be kind enough to republish the engraving by which you then illustrated your remarks. Some erection, such as you then described, and which I have for some time used, might, I am persuaded, be advantageously employed this season.

[We give the engraving alluded to.]



Certain it is, that from the present high prices of stock every means which the farmer can command must be made use of, if he is to profit this winter by the consumption of his green crops; and such means as warmth and shelter, and that cleanly and careful supply of cut roots which can be provided only by the proper implements *under shelter*, are undoubtedly efficient in the economical production of mutton, and are such as any farmer can supply at very little expense. The construction of the shed, represented above, is intelligible without any further remarks—indeed it is not so much my purpose to write a long article as simply to call the attention of those interested in the subject, to this matter—and to ask them to furnish you with their experience for the benefit of others. My own is to this effect: that sheep in sheds eat about 4-5ths of what they do out in the field, and that they make mutton faster; so much to the credit of the practice: unfortunately, however, there is much to be said on the debit side also; sheep fed in sheds under any system I have yet tried, are liable to lameness—this they doubtless acquire from the dampness and softness of what they tread on—they want something rough and dry to walk on to grind down the natural growth of the hoof. Perhaps the suggestions of Mr. Huxtable, at page 634, may prove effectual for the removal of this fault in the practice. Notwithstanding this, however, I believe that shed-feeding of sheep is the most economical mode of consuming Turnips. I should add, that there is the additional expense connected with the practice of carting the food to the shed, and the dung from it; but this I believe to be balanced by the greater value of the dung so manufactured.—*John Morton, Whitfield.*

FIXATION OF AMMONIA BY GYPSUM.

[*Taken from the Bury Post.*]

Schedules	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
					tons cwt. lbs.									tons cwt. lbs.		
A, nothing	..	..	..	..	..	15 7 16	..	..	..	..	..	..	..	4 8 6	..	Turnips.
						*								*	ts. cwt. lb. *	
B, gyp. dung	..	..	..	..	..	20 2 96	..	..	..	..	..	..	..	13 13 6	10 1 48	
C, ½ gyp. dung	..	..	..	..	..	16 5 26	..	..	..	..	..	..	..	..	..	
D, dung	..	..	..	..	..	17 1 8	..	..	..	..	..	..	..	13 7 4	7 17 16	
E, dung gyp.	..	..	..	..	..	18 8 64	..	..	..	..	..	..	..	..	..	
	lbs.°	lbs.			lbs.°	lbs.°										
F, nothing	3395	1611	..	..	2271	1700	..	..	..	..	..	..	..	..	..	Straw.
	*				*											
G, gyp. dung	3587	2148	..	..	2502	1830	..	..	..	..	..	..	..	..	..	
H, ½ gyp. dung	3578	1611	..	..	..	..	..	..	..	..	..	..	..	..	..	
					2409	*										
I, dung	3500	2148	..	..	———	1900	..	..	..	..	..	..	..	..	..	
					3206											
	†	†														
J, dung gyp.	3745	2255	..	..	..	..	..	..	..	..	..	..	..	..	..	
				°	°	°	°									
K, nothing	2520	2309	1599	2165	2943	2270	1720	..	..	..	..	..	..	..	..	Wheat.
			°		*		*	*	*	*	*	*				
L, gyp. dung	2476	2685	1353	2178	3804	2430	2464	2944	4380	3229	1931	..	..	..	..	
	°	°	†	†												
M, ½ gyp. dung	2412	2255	1822	2295	..	..	..	..	..	..	..	..	..	..	..	
	*	*	*	*	3050	*										
N, dung	2528	2738	1599	2249	———	2450	2185	2530	4186	3087	1591	*	*	..	..	
					3545											
	†	†														
O, dung gyp.	2712	2792	..	2191	..	..	..	..	..	..	..	..	..	..	..	
P, ½ dung	..	..	1931	..	..	..	..	..	..	..	..	..	..	..	..	

This Table includes a digest of the returns with which I have been supplied by 15 of the parties who undertook the gypsum experiment, suggested to the farmers of Suffolk in 1843. The results have been reduced to a common standard, exhibiting the weights obtained per acre. If the co-operation had been more extensive, it would have been worth while to have entered into much greater detail, and to have exhibited the relative quantities of seed sown, manure applied, &c.; and also to have stated the measures, as well as the weights obtained. For the purpose of readily referring to any of the results in this Table, I have placed the letters A, B, &c., in a vertical column to the left, and the numerals 1, 2, &c. (which refer to the schedules that have been returned to me), in a horizontal column above. Thus, for example, K 6 shows that 2270 lbs. of Wheat were raised from an acre to which nothing was done, and A 6, that 15 tons 7 cwt. 16 lbs. of Turnips were raised from another acre to which nothing was done, by the same individual who returned me schedule No. 6. A glance at the Table will show that Nos. 7 to 13, and No. 15, have neglected to return the comparative experiment of "nothing done;" and that Nos. 12 and 13 have further neglected to state the measure of the land upon which the experiments were tried. In the two last cases I have been unable to do more than place an (*) in the squares, Nos. 12 and 13, which show that the results were in favour of the ungypsumed dung, compared with those which were obtained from the gypsumed dung. As the chief, and perhaps the only, results for which most practical men will look in this Table, will be those which have been produced by the gypsumed and ungypsumed dung, I have placed an (*) to guide them at once (along the columns B and D, G and I, L and N respectively) to the figures which show on which side the advantage lies. It will be seen (by contrasting B and D) that with Turnips the effect has been uniformly in favour of the gypsumed dung. With the straw (contrasting G and I) the result is twice in favour of the gypsumed dung, once against it, and in one case there is no difference. With the Wheat (contrasting L and N) it is six times in favour of the gypsumed dung, and six times against it. The practical inference to be deduced from this part of the inquiry favours the idea of using gypsumed dung for a Turnip crop; but shows that it produces no better effect than ungypsumed dung upon a Wheat crop.

If we examine further into the results obtained by those who have extended the experiment, by applying only half a proportion of gypsumed dung to an additional space (as at C, H, M); and to another space a portion of dung previously rotted, and then having gypsum added to it (as at E, J, O), we may be inclined to suppose that it is not from the gypsum having failed in fixing some of the ammonia that there is no apparent advantage in applying it to dung prepared for a Wheat crop; but that the direct application of dung (whether strengthened or not with sulphate of ammonia) often produced little effect upon this crop, and that in certain cases it is absolutely injurious to it. I am unwilling to speculate upon such scanty materials as this Table affords, but will recommend attention to the results at L 3 and M 1, 2, where an (o) indicates the returns to have been the least from those acres; less even than from those to which nothing was done. On the other hand, the greatest returns (indicated by a †) are O 1, 2, in two cases; and M 3, 4, in other two! Under No. 3 it should seem that the application of dung (at N 3) produced no effect over the result where nothing was done (K 3), whilst the application of half the quantity (at P 3) materially increased the effect; and that, whilst the gypsumed dung absolutely injured the crop (L 3), one-half the quantity produced a favourable result (M 3). In No. 5, a double return is given, at I 5 and N 5, the numbers under the line representing the amount of produce obtained from common farm-yard dung, contrasted with the dunghill prepared without any gypsum for this experiment.

I shall forbear, on the present occasion, from indulging in certain speculations which present themselves to my mind, upon a general review of the Table. I hope it has been made sufficiently evident that a combined system of experimenting, upon the limited scale suggested (where the spaces set apart need never exceed the tenth of an acre) may be made capable of furnishing results that would rapidly decide questions of considerable importance in agriculture; and that such a system would lead to further suggestions for experiments necessary to be performed for promoting the desired connection of science with practice. A considerable improvement, as I lately mentioned, might be made in the method of experimenting, by naming precisely the size of the spaces to be adopted, the amount of seed to be sown, and the precise quantities of material to be used as manure. The results obtained would then need no reduction to a common standard, and the errors which may possibly be introduced from omitting the consideration of certain circumstances belonging to one experiment, and not in another, would be avoided.—*J. S. Henslow, Hitcham, July* 31.

Home Correspondence.

Prize List of the Irish Agricultural Society.—As in my several letters I have solicited the attention of the Royal Agricultural Society of England to consider my propositions respecting the encouragement of Flax growing in this country, it gives me much pleasure when so many observations have been made on the good that such societies are likely to cause amongst farmers, to place before the members of the English Agricultural Society the views and opinions that the Royal Agricultural Improvement Society of Ireland must have formed on the subject, previous to their having agreed to give Flax culture a permanent place in their prize list, in order to bring it before the notice of the farmers in every county in Ireland. That Society has very wisely considered that prizes for the cultivation of Flax come altogether within the reach of the cultivators of the soil, the small labouring farmers, who require something to arouse their energies; and they have, in the reports of their transactions for 1844, published their list of premiums to be awarded at the Cattle Show at Ballinasloe, next Tuesday; the following is the list of prizes:—

CLASS S.—IMPROVEMENT OF FLAX.

In order to encourage the cultivation of Flax in Ireland, the Central Society proposes to give the following Premiums, to be competed for at the next Cattle Show at Ballinasloe for 1845.

For the best specimens of Mill-Scutched Flax, grown by the exhibitors, not less than 16 lbs in weight each.

Sec. 1. First Prize	.. ..	Five Sovs.
Second ditto	.. ..	Three Sovs.
Third ditto	.. ..	Two Sovs.

For the cleanest and best handled specimens of Hand-Scutched Flax, without reference to quality, prepared by the Exhibitors, not less than 16 lbs. in weight each.

Sec. 2. First Prize .. .. Five Sovs.
Second ditto .. .. Three Sovs.
Third ditto .. .. Two Sovs.

For the best of all the prize specimens of Flax, exhibited at the Show .. .. The Medal.

For the best bushel of Flax Seed, grown and saved in the province of Connaught .. .. Three Sovs.

Class W.—Domestic Home Manufactures.

A sum of money not exceeding Twelve Pounds will be also allocated for premiums for the best specimens, of Home-made Linen, Frieze, Flannel, Stockings, and other articles of Domestic Manufacture, to be confined to the wives and families of working farmers living principally by husbandry, and holding under 25 acres Irish only in their possession.

Premiums awarded for specimens of Flax and samples of yarns, at the Great National Cattle Show in Dublin, on the 14th and 15th August, 1844 :—

Class V.—Improvement of Flax, Yarn, &c.

For the best specimens of Scutched Flax, grown by the exhibitors, not less than 112 lbs. in weight each. Sec. 1. First prize, five sovs., to David Hutcheson, Tanderagee; second ditto, three sovs., to Matthew Russell, Newry; third ditto, two sovs., to James Mathews, Mount Hanover, Duleek.

For the cleanest and best-handled specimens of Flax, without reference to quality, prepared by the exhibitors, or in their own mills, not less than 112 lbs. in weight each. Sec. 2. First prize, five sovs., to John Galbraith, Belfast; second ditto, three sovs., to Richard Walker, Tullygirvan; third ditto, two sovs., to Thomas M'Kee, Courtrai, Keady.

For the best of all the prize specimens of Flax exhibited at the Show—the Medal.

Yarn.

For the best four hanks of Yarn, of the fineness of 25 hanks of 300 leas or cuts, or upwards, to the pound, spun on the ordinary spinning-wheel. Sec. 3. First prize, three sovs, to Mrs. Jane Hill, Waringstown, Lurgan; second ditto, two sovs., to Hannah M'Clements, Toumagrove, Dervock; third ditto, one sov., to Grace M'Clements, Toumagrove, Dervock,

For the best piece of Cambric, from yarn of Irish manufacture, the produce of an Irish loom—the Medal, to John Henning, Waringstown.

For the best piece of Damask, from yarn of Irish manufacture, the produce of an Irish loom—the Medal, to Michael Andrews, Esq., Ardroyne, Belfast.

For the best piece of Linen of Irish manufacture—the Medal, to Thomas M'Cay, Dromore.

As I have occupied so much space in your valuable Paper on this subject, I shall conclude my observations for the present by calling the attention of those landowners who consider the well-doing of the farmers of this country, to the above described Prize-list. They will observe the Irish landlords show their wisdom by connecting, as far as in their power, the manufacturing with the agricultural interest; they do not stop at offering prizes for the raw material, which the farmers produce, but they give prizes for the article when in yarns and manufactured goods. It may be said that prizes for goods or yarns are a waste of money, as Ireland is second to no country in the world for her linens: however, as the linen merchants and Flax spinners in the north of Ireland are the farmers' best friends in that quarter, there is no doubt but the connecting of those interests will continue to add to the increasing prosperity of the north; and it is to be hoped that some rays of prosperity may extend to the more remote and neglected parts of that island, through the influence of the Agricultural Improvement Society, whose usefulness has been already felt in that country.—*J. H. Dickson*, 6, *De Beauvoir Square.*

Farming on the Cotswolds.—The season is sufficiently advanced to enable me to give according to promise an account of our crops on the Cotswolds. I may say the Wheat is of very bad quality through this district, and will, I fear, be very deficient in yield. The Oats and Barley were rarely ever so good before. I had some Chevalier Barley kindly sent me by a friend from Hampshire; the crop was prodigious. I carried 66 harvest loads from 16 acres, and to show that the change of seed had something to do with it, I planted one acre with some excellent seed from this neighbourhood, and that was not so ripe by a week, and was not so stout a crop, though the land was in quite as good condition. I have tried various experiments with artificial manure for Turnips this year. I find sulphuric acid and bones to be a complete failure; I have tried it on lands of various quality, and in every instance it is my worst crop; this only strengthens the opinion I had before formed, that most, if not all, our hill land is held by an acid, and that this is the true reason why paring and burning answers so well by driving off the acid and leaving an alkali, which is, I believe, not only favourable to the growth of every plant, but which also assists the decomposition of any vegetable matter left in the soil. Bones with ashes have produced as usual tolerable crops; but in every case guano has acted quite magically, the Turnips exceeding at present all others planted at the same time by at least one-half. Generally speaking, our early planted Turnips and Swedes are good, but those planted later are "set" by the rain and cold weather, and will be a bad crop; the late sown Turnips are almost, without exception, a failure. The grub is busily at work, destroying half-acres in places. I cannot account for it, but no part of England seems so subject to this pest; we have them nearly every year. I am glad you are exciting discussion upon the best way of applying manure to land. I am inclined to agree with "Oxygen" as to top dressing. We generally put our manure for our Turnips after Wheat, drawing out the manure in winter in large heaps, and applying it at the time of sowing. I have after ploughing the land in autumn put the long manure which has undergone a slight fermentation upon a few acres of land, and I find the crop is as good if not better than where it was dunged in May. If this is just, it is a great saving of manure and of labour, in putting it on the land at a time when we have little else to do. Many farmers are asking these questions, perhaps Professor Johnson, "Oxygen," and some of your scientific readers will kindly give their opinion. Whether manure is injured by being spread upon the ploughed land in frost? whether it should be partially covered as soon as possible, by raftering,* or be ploughed in; and if so, whether there is not danger of its being washed below the reach of plants into the stony subsoil? if manure is injured by being exposed to the rays of the sun in summer, does it follow that being exposed at a season when the sun has little power that it will be injured? One thing we have all experienced, that where we spread our manure on the surface late in the autumn or in winter, the land works better in spring. —*T. Beale Browne, Salperton.*

Pickling Wheat.—One of the best materials for freeing Wheat of smut is chloride of lime, as the result of the following experiment shows. I gathered some smutted ears, and rubbed some Wheat with the dust, making it almost black. Some of this was sown without preparation, and the produce was all smutted. The rest was steeped in a pretty strong solution of chloride of lime, and none of the produce was smutted. No injury is done to the seed by this substance, as was proved by allowing some to steep in it for several days, and which came up vigorously.—*G. S. M'K.*

Dibbling Wheat.—There is an objection to dibbling Wheat that I have already somewhere noticed; but I beg to repeat it now, in order to discover whether any of your readers have observed the fact on which it is founded. There is no doubt that if you give a plant of any of the cerealia room, it will throw up many stems; but the ears formed on these additional stems do not ripen at the same time, some being far behind the others. If we wait till the late ones be ripe, the earliest get so ripe as to shed the grain either on the wind rising, or in carting home. It is a question whether the loss thus occasioned is equal to any loss sustained by broadcast sowing. It is of great importance to have a field to ripen equally; and there is no advantage in having green straw tied up in the sheaves with what is ripe. Where it is required to multiply a new variety, dibbling is desirable, because a small quantity is easily attended to, and the ears may be gathered as they ripen. But I doubt the supposed advantages of allowing plants to tiller too much in a field. This is one of many points which might be ascertained by an experimental farm being established by some of the great societies.—*G. S. M'K.*

Steam Power for Agricultural Purposes.—Having a large quantity of corn to thrash out, and not being able to withdraw my horses from the ordinary business of my farm, I am anxious to erect a steam engine of four or six horse-power to work my threshing machines, &c.; can any of your correspondents inform me where I could see one at work, or how I could obtain the best information on the subject. Such information would very much oblige *A Subscriber in West Kent.* [Steam engines on farms are common in East Lothian. Had you not better apply to some one in that quarter as to his experience on the subject? There is a steam engine, too, on Lord Ducie's farm at Whitfield, Wotton, Gloucestershire.]

Guano and Dung.—I have been rather late in fulfilling my promise to acquaint you with the result of my experiments with guano and stable dung, but this delay has arisen from three reasons :—1st, from the difficulty I had in accurately measuring the land; 2d, because I waited to see which latter Grass was the best; and 3d, other business with forgetfulness to boot.

A.	R.	P.	Y.	F.	
From 2	3	17	26	0	manured with guano, I obtained 22 cart-loads of hay.
From 2	0	13	3	6¾	manured with stable dung, I obtained 15 cart-loads of hay.

The after Grass, where the dung was, is far superior to that where the guano was laid, thicker and longer. So much for the hay. I attended last Tuesday the Show of the Agricultural Society of Carmarthenshire, and the premium of 3*l.* "for the best cow in milk," was awarded by the judges to a half fat cow, without a drop of milk in her udder. The man who had the charge of her owned that she had been dry some time, and would kill her fat in about a month's time. Might I ask your opinion whether this dry cow was entitled to the premium for "the best cow in milk." [We should think not.] The judges seemed also to look at the size of the animals generally rather than their points of symmetry. —*A Carmarthenshire Subscriber.*

Poultry.—I fancy your corresondent's fowls suffer from want of change of food. I should think they must be confined in a yard where they cannot procure any insects or green food, such as grass, cabbage leaves, or any fresh vegetable matter, and that he feeds them upon one sort of grain, such as Oats; if so, I would recommend him to give his poultry Barley generally, and occasionally, say twice a week, Oats, with a regular supply once a day, will not be too much, of good fresh boiled Potatoes. Fresh, clean water is indispensable; and also particular attention to the roost house. The hens should not be allowed to lay and set in the roost house; if they do, it will be very troublesome to keep them free from vermin. The nests should be composed of fresh heather and Wheat straw, at all times avoiding Barley straw. Your correspondent should not apply tobacco water to the defective plumage; it will only add great irritation to an already highly inflammatory disease. Fowls which have their liberty will but rarely suffer as your correspondent's poultry appear to have done.—*Alpha.*

"*Falcon*" *and the Tenant Farmer.*—Your correspondent, "Falcon," after a flight over the many counties of England, has alighted with fury on the whole host of the tenant farmers. He has fixed in them his talons, introduced his beak, and at the same time he evinces sad dissatisfaction with his prey; he appears to see nothing in his unfortunate victims but poverty and folly. I, for one, do not like this treatment; it is harsh, and devoid equally of judgment and feeling. He begins his attack by charging farmers in general with apathy and indifference in harvest! Is this correct? Can the farmer who has had long patience, and waited for the precious fruits of the earth, whose property is all abroad at this season of the year, be indifferent? The charge is opposed to reason and to truth. He, indeed, afterwards calls it apparent indifference, and falsely imagines (according to my judgment) that he has ascertained its cause. Aware that your Paper is read by many not engaged in agriculture, I am anxious such should know that it has been impossible to proceed rapidly with the harvest this year. This "Falcon" has surely soared so near the sun as not to have felt the coldness of our atmosphere below, which has held the corn in a state of almost perpetual greenness. We have had our patience most sorely tried; but it is a palpable proof of ignorance in any man (this season especially) to charge us with apathy. Never did I know corn cut so green; never did I witness such an amount of anxiety to get on; cutting a little here and a little there, as it became any way fit, and much has been carried to the barns and stacks too soon. I consider it absolutely cruel, amidst all this, to call us wilfully ignorant and blind, and to tell us that we waited for a change of weather, that we might complain. He seems sorely vexed that corn is raised in price, and tries to charge us with tampering with the food of the poor, while there is old grain enough in the country for 12 months' consumption! and he plainly tells us that agriculturists should regulate the supplies. This is both fanciful and foolish. Can we command an average crop equal to the produce of 1844, and regulate foreign supplies into the bargain? Thanks to Providence, we have a little old corn in the land; but the eye only of a "Falcon" could discover enough for 12 months' consumption. It is my opinion that the produce of Wheat in the Isle of Thanet will be nearly 1 quarter per acre less this year than it was last year. This deficiency, together with the loss of our Potato crop, will quite dispose us to risk "Falcon's" displeasure—whatever may be his ability to injure us—if we can possibly obtain somewhat higher prices. I hold it to be unwise for any man to occupy a greater breadth of land than he can cultivate well, but I object to the treatment which these unfortunate beings have received from your correspondent, and more particularly that he should deal thus unreasonably and unmercifully with all of us who happen to be tenant farmers.—*James Smeed, Bromston, St. Peter's, Thanet.*

* *Raftering, i. e.* half-ploughing or ribbing the land.

Foreign Correspondence.

Farming in Holland.—You will perceive from the date of the letter I inclose, that you should have received it earlier, but since my return home, having been so much occupied by harvest operations, I have had no time to look over and correct what should have reached you a month ago.—*T. C. M.*

Rotterdam, August 19, 1845.—I have just returned from a visit to a farm, or rather, as it consists of about 3500 acres, I should call it an estate, under the management of one person, in South Beveland. The land is of excellent quality, alluvial, and consisting either of a light sand, heavy clay, or of a mixture of both, forming a good loam—not a stone to be seen anywhere. The country here, as almost the whole of of Holland, is very low and secured from the influence of the sea by high dykes. If it had not been thus indebted to art, the land which now bears the best of crops would be a useless marsh. Rescuing the land from the waters, and subsequent struggles to maintain possession of it, bespeak that enterprising and persevering character which the Dutch are well known to possess. The farm which I have visited is about 8 hours' sail from this. I reached it on the evening of the 11th, and on ascending the dyke from the boat, saw the whole lying out before me—nearly a dead level, intersected by deep ditches, which serve the double purpose of conveying the water from the land and forming boundaries to the fields; these are again divided by parallel open drains, to convey the water to the ditches, and they vary in distance from one another, according to the nature of the soil, whether clay or otherwise. The water flows from the ditches to a reservoir, which, when the tide is down, is emptied by sluices into the sea. This farm is entirely under arable culture, it is quite out of the dairy district, where the vast quantities of butter and cheese which we import from Holland are made. The crops grown are Wheat, winter and summer Barley, Oats, Rye, Peas, Beans, and alternating with these are Potatoes, Madder, Flax, Poppies, Coleseed, Clover, and, on this farm, Turnips; the Clover is mown twice, the first year for hay, and then allowed to remain three years in pasture. The proprietor of this farm has introduced the culture of the Turnip with much success, and he considers it will be of great utility in doing away with the naked fallows, which still form a part of every rotation of crops. I hope to furnish you hereafter with particulars of the expenses and returns of the different crops, as well as the different rotations which the farmers follow. I will only state at present with regard to those crops, which are in general cultivation with us, that the management of them in South Beveland much resembles our own; one main exception being connected with the Flax crop, about which I may

add a few particulars. From the badness of the water in the island, it is not steeped there, but the land having been ploughed is taken by farmers from South Holland who furnish and sow the seed, and are at all the expense of weeding and harvesting the crop; for this they at the commencement of the year engage to pay so much, reserving a right of giving up the bargain at midsummer if the appearance of the crop should not then be so good as was anticipated. This often obliges the farmer to make a new arrangement; of course always to his disadvantage. This circumstance, as well as a wish to employ their own labourers during portions of the year when they are comparatively idle, has induced some farmers to attempt steeping their own Flax. From a Paper read before the Farmers' Club there by a very intelligent member, I extract the following calculation on this subject, and it will give you a good idea of the expenses incurred during the different processes of manufacture, &c. I reduce the statements of cash to English money.

EXPENSES.	£	s.	d.
3 bushels best seed	1	0	10
Sowing £0 0 6			
Weeding 0 8 4			
Pulling and binding 900 bundles .. 0 9 0			
	0	17	10
Rippling, &c. 0 9 9			
Thrashing seed 0 3 4			
Clearing ditches for steeping .. 0 1 10			
Spreading, turning, and binding .. 0 6 11			
Horse-work 0 8 4			
Scutching 2 10 0			
Payment to overseer 0 10 5			
	4	10	7
Tear and wear of implements	0	1	8
Building, rent of	0	2	8
Interest on capital employed	0	10	8
	£7	4	3
RETURNS.			
Value of seed	3	19	2
75 stones at 2s. 4d. (6 lbs. per stone)	8	15	0
Chaff used as fodder	0	2	6
	12	16	8
Deduct expenses	7	4	3
	£5	12	5

Out of which, of course, in both cases the farmer has to pay his rent, &c.

The average sum received from the South Holland farmer for the last 30 years for the land is about 5*l.* 8*s.* 4*d.*, so that this leaves a slight advantage in favour of steeping their own Flax; so slight, however, as to exert but little influence in inducing the farmers to change their usual practice; but when the advantage to the labourer is considered, as well as ultimate freedom from the charge of an overseer to instruct them (and which is stated in the payments to amount to 10*s.* 5*d.* per acre), it is hoped, says the writer of the pamphlet, that many farmers will avail themselves of a means of employing their labourers, and at the same time be gainers to a considerable extent. To return to the farm on which I resided—the harvest was in full operation, and I never saw better crops on such an extent of land in Wheat, Barley, or Beans, none of which seemed to have suffered from the weather, as the heavy Wheats in England have done. In fact, all the crops were remarkably fine, with the exception of the Potatoes, and these had every appearance then of being a complete failure, as further accounts have proved them to be. In the above statement the reader will observe that the information I have given him relates merely to the small island of South Beveland; there being, doubtless, as many systems of agriculture, varying in the extent of the holdings, the status of the farmers, and the products of cultivation in Holland, as there are in our own country.—*T. C. M.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

AT the weekly meeting of Council, Thursday, Sept. 18, the Secretary stated that he had received several communications respecting the prevailing disease in the Potato crop, from different parts of the country, and that it had been discussed at the last meeting of the Council whether it would be prudent to institute a general inquiry among the different local societies, as to its nature and extent, for fear of exciting alarm unnecessarily; but it appearing to be the general opinion of the Council, now that such an inquiry should be made, the Secretary, on the motion of Mr. Bankhead, was directed to prepare a circular letter accordingly, to be sent to the secretaries of the above bodies, requesting them to furnish the necessary information on the subject, respecting the prevalence or existence of the disease in their several districts, and all the particulars connected with it, in order that the fullest and most accurate information may be procured upon the subject.

The Cattle Show at Ballinasloe. — The Secretary stated that he had visited Ballinasloe by the directions of the Council, since the last meeting, and he found all the arrangements in the most advanced and satisfactory state. The show-yard was most admirably situated on the Fair-green, and contained upwards of six acres, completely inclosed; and there were sheds erected for upwards of 400 head of cattle, which were covered over, so as most effectually to protect them from the weather. The new Agricultural Hall, adjacent to the show-yard, was a splendid building, and would afford ample accommodation to the Council and the different Committees during the meeting. The banquet-hall was completely finished, and would be capable of accommodating 800 persons at dinner with ease. It was one of the finest rooms in Ireland, and would add considerably to the effects of the meeting. The ball would take place in the Farming Society's rooms, which were admirably adapted to the purpose, and would be most numerously attended by all the leading nobility and gentry of the province. The most effective arrangements had been also made for the accommodation of strangers. Upwards of 3000 beds had been prepared, and a registry of apartments established, whereby every person could be accommodated on applying to Mr. Gill, the local assistant-secretary, for the purpose. The charges were reasonable; and persons, by applying in time, could secure ample accommodation both for the show week and the fair. Arrangements had also been made to secure additional accommodation all along the different lines of intercourse. Special coaches would be despatched from Dublin; and the fly-boats on the Grand Canal would run all through to Ballinasloe at, and previous to the show, exclusive of the accommodation by steam-boats on the Shannon. Several noble and distinguished families had taken apartments in Ballinasloe, or were expected at the different mansions in the neighbourhood; and, on the whole, the meeting promised to be the most interesting and successful that had yet taken place under the auspices of the central society. After considering the different matters fully in detail, and with the view of giving full effect to all the objects of the meeting, the Council then agreed to the following arrangements, or programme:—

Programme of the Proceedings.—That all implements intended for exhibition must be in the show-yard on or before Saturday, the 27th September, to be classified and arranged.

September 29.—There will be a trial of implements this day, under the direction of the judges. Professor Kane will deliver his first lecture on the application of chemistry to agriculture. Admittance one shilling each lecture. There will be a general meeting of the Society at two o'clock—his Grace the Duke of Leinster, president, in the chair—to nominate judges and stewards of the yard for the day following, and to receive deputations for holding the annual cattle show next year. All stock, sheep, swine, and other articles, will be received into the show-yard this day; the exhibitors having first taken out the necessary tickets of admission from the clerk of the yard.

September 30.—All the remaining stock and other articles must be at the show-yard gates before six o'clock on the morning of this day, to be placed for exhibition; but horses will be received until eight o'clock, when the gates will be closed, and the yard cleared, to enable the judges to proceed with their adjudications. Professor Kane will deliver his second lecture at eleven o'clock this day. The gates of the show-yard will be opened at one o'clock, for the admission of the public, at two shillings and sixpence each person. The council dinner will take place at six o'clock, in the New Agricultural Hall; the Earl of Clancarty, chairman of the council, in the chair. Tickets one guinea each.

October 1.—The show-yard gates will be opened at nine o'clock this day, for the admission of the public, at one shilling each. The banquet dinner will be held in the Great Agricultural Hall, this day, at five o'clock, when his Grace the Duke of Leinster, president of the Society, will preside, supported by Lord Clonbrock, and the other vice-presidents of the provinces. Tickets ten shillings each. Admittance to the different entertainments to be confined to the members of the central society, who shall have paid up their annual subscriptions for 1845, subscribers to the local fund, and such strangers from England and Scotland as shall honour the meeting with their presence.

October 2.—Mr. Hugh Ferguson, of Dublin, will deliver a lecture this day, open to the public, on the prevailing epidemic among cattle in Ireland. There will be a general auction of stock, horses, sheep, implements, &c., at twelve o'clock this day in the show-yard. Professor Kane will deliver his third lecture at two o'clock, this day, and his fourth lecture on the day following. The remaining two lectures of the course to be delivered on Monday and Tuesday, the 6th and 7th of October, during the fair. The proceedings of the meeting will terminate with a grand ball and supper, on Thursday night, the 2d of October, under the immediate patronage of the leading nobility and gentry, members of the central Society. Catalogues and lists of stock, implements, &c., to be had in the show-yard, after the judges shall have given in their report. The Secretary also stated that the entries were more numerous than at any of the former meetings of the Society, exceeding 600 in number. Upwards of 120 notices for short-horned stock had been received, including some of the finest animals in the country. There were about 160 entries of other kinds of stock; and upwards of 250 sheep had been entered, which would form one of the most splendid and unprecedented show of sheep that had ever taken place in the three kingdoms. The entries for poultry were also very numerous, and the show of horses and implements would be most creditable to the locality. No efforts were spared to procure the best and most experienced judges from England and Scotland, as it was an invariable rule of the Society to have one from each of the three countries, associated together in the different adjudications. On the whole, the Council considered the different arrangements most satisfactory; and the greatest credit was due to Lord Clancarty, the noble patron of the town, and the different local gentlemen, for their exertions on this occasion.—*Dublin Farmers' Gazette.*

Farmers' Clubs.

DARLINGTON.—*On Breaking up of Old Grass.*—At the September Meeting of this Society, Mr. Thomas Dixon, their Honorary Secretary, said that he had been deputed to bring forward the following subject, viz.:—The comparative advantages and profitable cultivation of old Grass Land, as compared with Arable Land of similar quality, and that he believed it to be a question of very considerable importance in a national point of view, as well as a question of profit with the owner and occupier of the land. "It may be considered by some of you," he said, "that I am not the proper person to introduce this subject, inasmuch as being myself a land agent, I should be likely to give a one-sided view of the question, and lean to the side of the land-owners—my employers, who are generally tardy in allowing old Grass land to be broken up; but I assure you that such is not my inclination. I am the advocate of truth, and the sincere well-wisher of all parties concerned, and feel at the same time convinced, so far as the present question is concerned, that whatever is for the benefit of all must be for the interest of every party. To take the subject in the order in which it is proposed, we must begin with the comparative advantages of Grass and arable land, and in this part of the question, whether we take it in its most limited sense, that is, merely the advantage to the owner or occupier of the land, or whether we take it on its broadest basis, and consider the advantage to all parties concerned, that is the owner, the occupier, the labourer, and the nation at large; in either case I fancy we shall arrive at pretty nearly the same conclusions. I think a good deal must depend on locality, for this simple reason, that so long as the present system prevails of turning milch cows and other stock on the pastures to graze, so long must old Grass land be actually necessary and indispensable; but in the vicinity of large towns and populous districts to a much greater extent; and old Grass will generally in such localities yield a higher rent to the landlord, a greater profit to the tenant, and an equivalent benefit to the labourer, and the public by keeping up the supply of milk and butcher's meat, so that the supply may keep pace with the demand and the price be kept reasonable. In the present discussion, however, it is desirable, I think, that we turn our attention to the subject generally without regard to any particular locality. You will recollect that at a former discussion, the conclusion was come to that it was desirable to keep draught horses and heavy horned cattle in the house or yard on Clover, Tares, and other green cut food during summer, in preference to turning them out on the pastures as at present; therefore it appears that it is not in all cases actually necessary to have a large portion of a farm in old Grass, if the same land would yield a greater and more profitable produce by being ploughed and cultivated; for in such a case by being ploughed it would give a greater profit to the tenant, a greater rent to the landlord, more work for the labourer, and more food for the nation. But although it might in some cases be desirable to plough out old Grass lands for the general benefit more than what is sometimes done, yet there are two powerful obstacles in the way, but more particularly with regard to the cold and wet lands of this neighbourhood. I mean the want of proper draining and the want of longer leases; for it cannot be expected that a landlord will allow his old Grass to be broken up unless he is confident that it will be kept in a proper state of cultivation, without having its productive qualities exhausted; neither can we expect generally to have really good cultivation until the occupier's interest is more bound up in the land than is the case generally at present, and this I conceive can only be produced by the land being occupied on longer leases, in order that the occupier at all times may have a prospect of reaping the benefit of his outlay, and by that means feel it his interest and advantage to cultivate in the best way he is able. Gentlemen—I think all cold and wet lands, until properly drained, are quite as well; indeed, I may say, far better, lying still in bad Grass; for wet arable land cannot be cultivated to advantage. Now, for a few words on the profitable cultivation of old Grass-land, as compared with arable land of similar quality. A three-years-old feeding beast would eat at least one acre of Grass in the summer six months; but this is only half the year; therefore we may reckon another acre for the other six months to make one year; but as I am reckoning on a beast being ready for the butcher at three years old, and as it would not eat so much the two first years of its life, I will for brevity's sake throw off one year, which will leave only two years, which requiring an acre of Grass for each six months, it will take four acres to be equivalent to grow a fat beast weighing, say 50 stones; or, in other words, it would take the eatage of four acres of Grass-land of good quality to produce 600 lbs. of beef. A full-grown milch cow will consume an acre and a half of Grass during summer, and to keep her through the winter another acre and a half would be consumed in hay, which is equal to three acres per year as a cow's keep. An acre of land of similar quality under the plough properly cultivated would produce 250 bushels of Potatoes per year. An acre would produce 32 bushels of Wheat, which would make 1912 lbs. of bread. An acre would produce 60 bushels of Oats; or an acre would produce 40 bushels of Barley. Now, gentlemen, it would take some time to go into calculations sufficiently accurate to show precisely how the matter would stand between arable and Grass of similar quality; but before I sit down I will just make a comparison or two,

which may probably assist you in discussing the subject thoroughly. It is, I believe, generally considered that 3 lbs. of bread is equal to 1 lb. of beef; now, if we admit this to be the fact, it at once shows that the produce of an acre of land, when under the plough, and properly cultivated, the Wheat-crop alone is equal in value to the nation of more than four acres of old Grass; or, in other words, it shows that tolerably good land is of much greater value to the nation when cultivated as arable land than when in Grass; but not in other years in the same proportion as in the year in which it is in Wheat. In the Potato-crop, also, there will not be a less advantage to the nation than in the Wheat-crop of arable land over Grass; but as Potatoes are not generally introduced in the rotation of crops, we will leave them out of the question, and take Turnips instead. As regards the benefit to the occupier and the landowner, the advantage must be considerably in favour of arable land, as it may, I think, be clearly seen that the occupier will be able to pay more rent, and yet reap more profit under good cultivation; whilst, at the same time, it is very clear, that in the proper cultivation of arable land, a great deal more labour is required than in the cultivation of old Grass; therefore, arable land is also an advantage to the labourer. Now, to give some idea as to how far it may be to the advantage of the landlord and occupier of the land, I will just refer back to the items of produce which I before mentioned, and will begin with a fat beast requiring four acres of Grass to produce it, and which when fed might weigh 50 stones, which at 6*s.* per stone, would give 15*l.*; but as we must deduct the value of the calf to begin with, say 1*l.*, it will leave 14*l.* as the value of the produce of four acres of Grass to the occupier; or 3*l.* 10*s.* per acre. Then, on the other hand, if we take an acre of arable land of similar quality through a four years' course, say—

1st year, Turnips, value	£3	10	0
2d year, Barley, 40 bushels at 4*s.*	8	0	0
3d year, Clover, value	5	0	0
4th year, Wheat, 32 bushels at 6*s.*	9	12	0
Gross produce of 1 acre in four years	£29	2	0

Now, from the above four years' produce we must deduct the expenses, which will run pretty nearly as follows :—

To ploughing and cultivating 1 acre of Turnips	£4	0	0
To seed and labour for the Barley crop	2	0	0
To ,, ,, ,, Clover crop	0	10	0
To ,, ,, ,, Wheat crop	2	10	0
Total expenses to deduct	£9	0	0
Nett value of the four years' produce	£20	2	0

The average of which is 5*l.* per acre per annum, being 30*s.* per acre in favour of arable over Grass. Now, gentlemen, it would appear from this, in cases where there is a surplus of old Grass-land upon a farm, that it may be beneficial to both landlord and tenant to plough some portion of it, providing always that there be a certainty of its being kept in proper condition after being broken up. With these remarks, gentlemen, I leave the subject in your hands." In the discussion which ensued, the members generally were of opinion that, in the majority of farms, it was a rare occurrence to meet with more old Grass of good quality than was essentially necessary to the profitable cultivation of such farms; and although many individual fields of useful Grass-land, by being converted into tillage, might be made to yield a greater profit to the landlord and tenant, yet when taken collectively with the rest of the other lands in the same farm, it would generally be found that the proportion of useful Grass is limited enough for the beneficial cultivation of the farm as a whole. It was, nevertheless, considered that there are considerable quantities of the middle quality of land now laying in permanent Grass, which, in consequence of the herbage being poor and benty, would be much better and more profitably cultivated in tillage, provided it were first properly drained; but, as the Secretary very justly observed, the want of longer leases is a great barrier to improvements of this description. Mr. Johnson then described at some length the very great improvement he had made by proper draining and cultivation in some lands of very inferior old Grass, which he had latterly broken up, on a farm which he occupied under His Grace the Duke of Leeds. At the close of the meeting it was resolved unanimously, that it is not desirable where land is at present in old Grass, to break up or convert into tillage either the best or the worst qualities of land, but some of the middle quality now in inferior Grass might be very beneficially converted into tillage.

Northamptonshire Agricultural Book Club.—*What should constitute tenant rights?*—The following resolutions were agreed to at a meeting held at the George Hotel, on Saturday Aug. 16, 1845, John Beasley, Esq., in the chair :—1st. That a well-defined tenant right, made applicable to every part of the country by a legislative enactment, would be very beneficial to both landlords and tenants, and to the general interests of agriculture. 2d. That in making valuations between outgoing tenants and the landlord, the actual condition of the farm (compared with the state in which it was when entered upon), should form the basis of such valuation. 3d. That it is the opinion of this club, tenants' rights should include every improvement that has been made upon the land by the tenant, and from which he has not derived full remuneration, as well as the increased quantity and value of the manure upon the farm above what was upon it at the time of entry, as also all artificial manure, and artificial food converted into manure remaining unexhausted.

Miscellaneous.

Hybrid Clover.—This sort of Clover (Trifolium hybridum) has for many years been cultivated on a large scale to make artificial meadows; M. Vilmorin brought it into notice, and tried experiments with it and other Clovers. I have repeated these experiments, and acknowledge that it possesses the advantages M. Vilmorin attributes to it. It is described as coming originally from Italy; it has not, however, at all suffered during the winters of 1838 and 1839 in the environs of Paris; it would even appear that in more northern countries it thrives very well. The hybrid Clover is one of the earliest; it flowers about the same time as red Clover, but it has the advantage over this latter of tillering more, and so producing a greater number of stems. The flowers are sweet scented, like Mélilot, whilst those of red Clover have little or no scent. M. Bové found this species in a wild state at Jaffa (Syria) in 1831, and gave me a specimen of it on his return from Egypt, and it appears from many botanical travellers that it has been found in other parts of the world, and is still little known by farmers, but as an artificial Grass; it has great value on account of its earliness; the young leaves show themselves as soon as the severe frosts are past, and it will even go on growing during winter.—*Pépin, in the Revue Horticole.*

Stall-feeding.—I think, in many instances, stall-feeding is not commenced early enough in the autumn; as soon as the weather becomes damp, and the days shorten much—say some time in October—the Grass in my neighbourhood loses its feeding properties, and then the sooner your bullocks are put up the better; for this purpose I recommend having some of the large, forward descriptions of Turnips provided, perhaps the "Red Tankard," although watery, and soon becoming of little value, are at this very early season the best of any, from their early maturity. These are sown in April, at the rate of an acre to every eight bullocks, which will last them three or four weeks, according to the crop, and leave a light fold to begin the sheep upon; at the end of which time the forward Swedes are ready to begin. During this period I give them little or no oil-cake, if they are only in moderate condition; but they have half a stone of pollard a day, mixed with an equal quantity of hay or straw-chaff. Some persons may fancy this food is of too loosening a nature, but I can assure them, from several years' experience, that although pollard is loosening itself, yet it has the effect of preventing the watery white Turnips from purging too much. Although the bullocks do not gain much in weight during this time, yet I am satisfied they go on faster afterwards; the reason of which, I suspect, is that their bodies are more prepared for the artificial state they have to live in for the next few months. Early in November the food must be changed to Swedes, cake, &c.; the quantities of each must vary according to circumstances; the following I consider a good allowance where Swedes are not scarce; if they are, more oil-cake must be given instead of a part of them; or, if very plentiful, they may be allowed even more :—The morning's bait, 1 bushel of Swedes, well cleaned from dirt, and cut small, given a few at a time (I always use Gardner's sheep Turnip-cutter in preference to any other); then, the refuse pieces being well cleaned out, a dry bait, consisting of 2 lbs. of oil-cake, 3 lbs. of pollard, and a little hay-chaff. While they are feeding, the manure and wet litter must be well cleared away, and any which may be on the bullocks taken off, the floor swept clean, and plenty of fresh litter put in; then have every bullock well brushed with what is called a dandy-brush (being a brush made with whalebone, for taking the rough dirt off horses). Let not any slovenly farmer fancy this to be a whim of mine; depend upon it the bullocks are kept in much better health and greater comfort for it. They must now be left quiet; they will soon lie down and rest, and chew the cud till after dinner, when another bushel of Swedes is given as before, in small quantities, followed by a similar dry bait of cake, pollard, and hay-chaff, but with the addition of 3 lbs. of Bean-meal; this is left with them at night. Be careful that the shutters are opened or closed, according to the weather, so as to maintain an even warm temperature, but not hot enough to make them perspire, if it can be avoided. Be also careful that the mangers are well cleaned out between every bait. I have mine cleaned at the commencement of the season, and as often afterwards as I think necessary, with scalding water and the scrubbing-brush. After a month or so the cake may be increased; and, if it is thought more convenient, the Swedes may be changed for Mangold Wurzel. Many persons object to using Mangold until the spring; they certainly are more valuable than Swedes in the spring, and therefore should always be used last. Never change from Mangold Wurzel to Swedes after you have once begun them, or the bullocks will not go on so fast; but if, from having a bad crop of Swedes, or from any other cause, you want to begin Mangold early, you have only to lay them exposed to the air for a week or two to wither, and they may be used as early in the season as is required.—*G. Dobito; English Agricultural Society's Journal.*

Paring and Burning. — About 18 years ago, my father reclaimed a plot of thin cold-bottomed Heath-land, containing about 20 acres. The season was a wet and unfavourable one for burning parings; and, in consequence, a few patches in several parts of the field could not be burnt, or at least were not burnt—in all about four acres. An additional quantity of lime was put upon these patches, with the view of compensating for the want of ashes; the parings were turned down, and great pains taken in getting them well ploughed in. Two crops of Oats were taken off the field in succession, and afterwards a crop of Turnips, which were consumed on the land by sheep. In the following year the land was sown down in Oats, with a good variety of Grass and Clover seeds. Amongst all these several crops of Oats, Turnips, and Grass seeds, any person, on looking at the field, might have told to a yard the patches whereon the parings had not been burnt; the produce being so much inferior to the rest of the field, even with the additional quantity of lime, which did not supply the defect. The land was all of the same quality, so that the difference could not be attributed to that cause; but afforded a decisive proof that the ashes were of much more value than the unconverted substance from which they were made; and a still further proof was that, for several years afterwards, when the land was in pasturage, these dark, inert, and unproductive patches might still have been traced out. I could point out many other instances of a similar kind; some, where the parings were carted off into large heaps, and made into compost with a sufficiency of quicklime, and afterwards recarted to the parts in that state, with little better effect. Such proofs as these have convinced me of the extraordinary fertility of ashes made from turf; and also that the system of paring and burning the surface in reclaiming Heath land may be safely adopted, not only without temporary or permanent injury to the land, but even to its permanent benefit; and both with immediate and ultimate advantage to the farmer. However, let it be distinctly understood that I should object to a repetition of the practice on all thin soils. On deep clay lands, or where we have an access of vegetable substance, it might be repeated with safety and advantage. It renders the former more friable and porous, and relieves the latter of its superfluities.—*J. Watson, English Agricultural Society's Journal.*

Improvements in Hop-poling.—Mr. Knowles's plantation consists of about 42 acres, lying on a very beautiful slope of the ragstone hills, in a warm aspect, and an excellent soil, which, however, evidently owes much of its productiveness to liberal dressing, and spirited cultivation. Mr. Knowles digs his land twice; once early in the winter, and again at the usual period in the spring; nidgets or harrows all through the summer, and generally farms upon four very good maxims, which perhaps may be more easily remembered by the reader, if thrown into a distich.

Cut early,
Pick late,
Well mend
And cultivate.

The new plan of poling was exhibited in about seven acres of splendid Goldings, at the back of Mr. Knowles's residence. The weather sides of this piece had been poled four hills deep with handsome, straight, 21 ft. larch poles, placed in rows. These were lashed to similar poles placed horizontally across them, about 8 ft. high, from end to end of the rows of hills; and the rows of hills were similarly bound to each other, by poles placed from the outside rows to the inside ones. By these means a phalanx of poles offers sufficient resistance to the wind to shelter the whole ground. Mr. Knowles was led to devise this plan as a means of shelter. In one year, he calculates that he lost a bag an acre of his Goldings, from the effects of the wind—a loss amounting to about 140*l.* Notwithstanding that the winds of the present season have been rather troublesome, this arrangement has been found a complete protection. Another result has been obtained from it, which was scarcely anticipated, viz., a very great improvement in the quantity of Hops grown on the outside poles. In many cases these poles are covered with from 13 ft. to 14 ft. of Hops from the top, besides the cross-poles being clustered most heavily, thus clearly showing the great advantage of keeping the plants and poles firmly fixed, instead of allowing them to swing about. We have certainly never seen anything so beautiful in Hop growing as the side of the ground which is poled in this way. It is worth going many miles to see, and will probably lead to Mr. Knowles's plan being adopted throughout many grounds. The increased expence of poling a ground throughout in this way is estimated at about 30*s.* per acre, besides an extra man required in pulling. The saving, in windy seasons, would, doubtless, be very considerable.—*Maidstone Gazette.*

Advantage of Thick Sowing.—The following is the result of some experiments which I made last year, in order to ascertain the relative merits of thin and thick sowing Wheat, drilling, dibbling, and by broadcast. They were conducted with great care upon 5 acres of level land of uniform quality, being a good deep loam on a chalk subsoil, following a clover ley folded by sheep. The land was ploughed about 5 inches deep, as it was not thought desirable to bury the sheep-dressing below that depth. The seed was put into the ground about the 7th December, 1843, and the Wheat was hoed in the spring of 1844, except the acre sown by broadcast, which was harrowed instead of being hoed. The plants in Nos. 2 and 3 (thin sowings) were by much the strongest, and looked the best throughout the season, until the approach of harvest, when it became evident that the quality of the grain and straw was inferior, more particularly on No. 2, which appeared to have suffered a little from mildew. Samples of the different lots were submitted to an eminent miller, and the value of each determined by him; the straw was valued at the market price. The results of these experiments are very remarkably in favour of thick sowing, and particularly of the old broadcast system; and if not conclusive against the doctrine of thin sowing,

so strongly and, I may add, so ably advocated in the present day, should at least induce caution on the part of farmers before they depart from the practice of their forefathers. Indeed it is difficult to believe that so great an advantage as the saving of a bushel or a bushel and a half of seed per acre can have been overlooked for so many generations. It seems more reasonable to suppose, that long practical experience has taught the farmer the more prudent course of a liberal supply of seed. It may, however, be contended, that had the ploughing been deeper and the seed put earlier into the ground, the result would have been different: this is not improbable, and it is possible the deficiencies in the quality and quantity of thin-sown Wheat and straw might have been less observable, but the large differences which my experiment indicates could hardly, I think, have been made up. I have this year repeated the trial of thin-sowing, having drilled one acre on the 26th of October last (the land having been deeply ploughed) with 1 bushel of seed, the rest of the field having 2 bushels per acre. The result I shall be happy to communicate if desired.

Account of Experiments on the relative Merits of Thin and Thick Sowing, Drilling, Dibbling, and Broadcast, conducted on Eastwick Farm, in the county of Surrey.

No.	Quantity of Seed used per Imp. Acre.	System pursued.	Grain produced.	Weight per bushel.	Straw produced.	Value of Grain.	Value of Straw.	Total Value of the Produce per Acre.
1	2½ bushels.	Drilled 9 inches apart.	bshls. 37 Head 34 Tail 3	lbs. 62½	Trusses. 51	Head at 7s. per bushel ..... £ 11 18 0 Tail at 6s. 0 13 0 £12 16 0	At 33s. Per load.	£ s. d. 12 16 0 Straw 3 10 0 16 6 0
2	1 bushel	Drilled 12 inches apart.	29 Head 25 Tail 3 28	62½	51	Head at 6s. 6d. per bush. Tail at 5s. 6d. 7l. 10s. 6d.	At 30s.	Grain 10 0 0 Straw 2 2 0 12 2 0
3	1 bushel	Dibbled 12 inches apart.	Head 28 Tail 3 31	63½	63	Head at 6s. 9d. per bush. Tail at 5s. 9d. ,,	At 33s.	Grain 10 6 3 Straw 2 17 9 13 4 0
4	1 bushel and 3 pecks.	Dibbled 9 inches apart.	Head 34 Tail 3 37	64	72	Head at 6s. 9d. per bush. Tail at 5s. 9d. ,,	At 33s.	Grain 12 6 9 Straw 3 6 0 15 12 9
5	2½ bushels.	Sown broad-cast.	Head 37 Tail 3 40	66	84	Head at 7s. per bushel. ,,	At 30s.	Grain 13 17 0 Straw 4 4 0 18 1 0

—*D. Barclay, M.P., Royal Agricultural Society's Journal.*

The Wheat-midge.—Larvæ of the British Wheat-midge detected in July, 1795, attacking from one to several grains in an ear. The infested grains appeared yellow, or prematurely ripe. They contained an orange-coloured powder and minute yellowish-white or deep yellow larvæ. The same larvæ, Mr. Markwick says, inhabit the husks of the "wild-bearded Oat," Avena fatua. Some agriculturists in Sussex formed an idea at first that the larvæ did no mischief to the corn. The Wheat-midge was very abundant the middle of July, 1797. These flies had spotted or rather obscurely clouded wings. The larvæ were exceedingly abundant later in the season, but very few pupæ were found. One of the flies was bred in September, but they probably do not generally hatch till the spring. As many as seven or eight florets in an ear inhabited by the larvæ and as many as 30 in a single floret. The pupæ never found within the florets where the larvæ resided. Parasitic Ichneumons destroy the greater part of the larvæ. The larvæ feed upon the pollen, and the germen never swells. In June 1798, there were innumerable hosts of the female Wheat-midge, but not any males; 12 at one time were laying eggs in a single ear. They begin to fly about seven in the evening and disappear about nine o'clock. They may be found in the morning by shaking the corn, and will then fly about the ground. The female deposits her eggs between the valvules of the corolla by means of her long ovipositor. Patches of the eggs found the 7th of June; on the 17th the larvæ was newly hatched. This or a similar species has been detected in France. In August 1840, I found the larvæ inclosed in their cases upon the grain in Suffolk; which was also affected by red-rust. All the cases were fractured at the head, as if the larvæ had attempted but failed to make their escape. They voluntarily left their cases and died. In January 1841 they were abundant in the dust, after winnowing the Wheat. The skins or cases inclosing the larvæ adhered to sound grains and the chaff-scales. Some quitted the ears and buried themselves; had these been punctured by a parasitic Ichneumon? It seems evident that they lie in an inactive state during the winter. Very desirable to ascertain if the larvæ enter the earth to become pupæ, and under what conditions. Where do the parent midges come from which deposit the eggs in the standing corn? It is possible the same species may inhabit both corn and Grasses. The Wheat-midge has been observed in Scotland and Ireland, as well as in a great many counties of England. In June, 1842, I found both the Wheat-midge and its parasite in Dorsetshire. Nearly 30 species of Cecidomyia have been found in this country, and they vary greatly in their economy. Three different parasites check the multiplication of the British Wheat-midge. Five coombs calculated as the loss in a field of 15 acres. At least two grains in each ear injured by the larvæ. In Scotland one-third of the crop was lost, and the farmers suffered severely, in 1828 and three following years. In Suffolk the yield of Wheat was one-third less in some districts in 1841 than was expected. The larvæ were found in myriads in the dust from the chaff and dross of the Wheat. Probably most readily extirpated by means of a sieve to be used in winnowing, to separate the chaff from the pupæ and dust.—*Mr. Curtis in the Royal English Agricultural Society's Journal.*

Notices to Correspondents.

BREAKING UP PASTURES—*A Whitaker*—You are mistaken in supposing that we attached any importance to the remarks of our correspondent; his accusation was unfounded, and we paid no attention to it. The subject has been taken up since; see pp. 261, 277, and will be constantly referred to. In breaking up with the spade pasture on a good sandy and deep loam, if it be naturally or artificially dry, we would dig it a full spit deep in beds a perch wide; and let it lie till spring, when we would hack it over and plant one-third to Beans, one-third to Potatoes, and one-third to Turnips. Where you can get an easy sale for Potatoes, there is no more profitable rotation of crops than that of Dimmery on Hinchcombe farm (see Agricultural Society's Journal): 1 grain crop, 2 Turnips, 3 Potatoes; feeding half the Turnip crop on the land to serve along with 20 bushels of soot per acre (bought), as manure for the Potatoes, the other half being carried home to feed in the yard and convert the straw of the grain crop into manure for the next year's Turnip crop. The grain crop may be Wheat; only we have named it Beans the first year, as that is better suited to newly broken up land.

GUANO—*Arator*—It would probably prove more immediately efficient on a light than on a heavy soil, much of its value being due to substances which require the free access of *air* and water to bring them into the condition of vegetable food. Apply it broadcast in April over the young Wheat.

HOPS—*T T*—Next week.

LIME—*R r*—Cart 100 bushels per acre on to the headland now, and throw up 3 or 4 inches deep of the soil into a heap along with them. Two or three weeks hence, some fine day, cart the compost on the land after it has received its winter ploughing, and spread it broadcast. In about a fortnight thereafter scarify it into the land, sow your Wheat, open up the water-furrows, and leave it for the winter. All soluble manures should be sown in spring. If you are inland, salt will be useful.

MOWING-MACHINES—*A Sub*—Budding's is, we believe, efficient for lawns, when men have learned how to use it and keep it in order; but it is difficult to work in wet weather.

POTATOES—*J H J*—Can I with safety and benefit, and in what quantities, give Potatoes that are only slightly affected by the murrain in a raw state to bullocks that are fatting on oil-cake and hay?—We must beg for a reply from some one who has tried the experiment. If boiled with salt, such Potatoes are used near London by the cow-keepers.

STRAW—*C*—Its nutritiveness depends on its state of ripeness. Under similar circumstances the best straw for fodder is that of the Oat. Barley is however generally preferred, because Clover is grown generally in it, and some of it thus harvested along with it. If it be cut before becoming ripe, as it is generally in Scotland, Bean-straw is the best fodder you can get.

TOP-DRESSING FOR WHEAT—*Novice*—You had better try Professor Liebig's "Wheat Manure," Muspratt and Co., Liverpool; and, in addition to this, you should apply some light top-dressing about the middle of April. Nitrate of soda has been found generally useful in that way.

WHEAT—*H L D, Wilts.*—You will find just what you want in Le Couteur "On the Varieties, Properties, and Classification of Wheat." Talavera is a spring Wheat.

WHEAT MANURE—*Constant Reader*—"Seven bushels of (old) wood-ashes, and the like quantity of soot," per acre, would be a useful application. If your land be "*poor*," you ought not, in our opinion, to drill less than 6 pecks of Wheat per acre.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Sept. 22.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 2	Best Long-wools	4s 4 to 4s 8
Best Short Horns	3 8 4 0	Ewes and second quality	4 0 4 4
Second quality Beasts	3 10 3 4	Lambs	4 8 5 4
Calves	4 0 5 0	Pigs	4 0 4 8
Best Downs & Half-breds	4 8 5 0		

Beasts, 3764; Sheep and Lambs, 26,780; Calves, 121; Pigs, 300.

We have a large supply of Beasts to-day, but a great proportion is of inferior quality. The best descriptions are sold quite as dear, and there is more trade for the Second-rate; very few are left unsold.—The number of Sheep is still small, and the best qualities are readily sold at a small advance.—Lamb trade is rather heavy.—Veal and Pork continue brisk.

FRIDAY, Sept. 26.

Trade is very dull for Beasts, and a slight reduction is submitted to. The best Scots make very little over 4s. and Short-horns about 3s 10d.—Sheep are not plentiful, and Monday's prices are well supported.—Very little Lamb is now wanted, the season being nearly over; the very best make from 4s 8d to 5s 4d.—Veal trade is very heavy, still a good Calf makes about 4s 8d.—Pork trade continues steady.

Beasts, 811; Sheep and Lambs, 6550; Calves, 342; Pigs, 291.

41, West Smithfield.

HAY.—Per Load of 36 Trusses,

SMITHFIELD, Sept. 25.

Prime Mead. Hay	105s to 112s	New Hay	85s to 90s	New Clr.	110s to 120s
Infr. New & Rowen	60 75	Clover	— to —	Straw	38 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Sept. 25.

Prime Mead. Hay	100s to 110s	Old Clover	126s to 133s		
Inferior	88 96	Inferior do.	110 115	Straw	38s to 42s
New Hay	65 92	New Clover	99 120		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Sept. 26.

Fine Old Hay	100s to 102s	Old Clover	120s to 130s		
Inferior Hay	— —	New Clover	100 115	Straw	36s to 40s
New Hay	75 90	Infr. ,,	60 80		

HOPS, FRIDAY, Sept. 26.

We have now a good supply of Weald of Kent and Sussex Hops at market, which are freely selling from £6 to £7 per cwt. Not any of the choice Golding Hops have as yet been brought forward. There is a great want of Hop-pickers in Kent and Sussex; the duty is estimated at £165,000, but the feeling is much against it, as the Hops are said to fall short of expectation.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, SEPT. 27.—The supply of Fruit and Vegetables during the week has been good, but trade has been somewhat dull. Pine-apples are good and plentiful; and the same may be said of Grapes, which have not altered in price since our last report. Peaches and Nectarines are also sufficient for the demand. Large quantities of foreign Plums have been imported during the week, which have had the effect of bringing down the prices of the common kinds; but good samples of Green-gages (which are scarce), and Coe's Golden Drop, bring good prices. Apples and Pears are sufficient for the demand; the best dessert variety among the latter, at present in the market, being William's Bon Chretien. Melons, of English growth, are rather scarcer than they have been; a few Spanish ones may be met with. Filberts are increasing in quantity; but trade for them is dull. Walnuts are plentiful, 4000 baskets having been imported from Belgium during the week. Vegetables remain nearly the same as last week. Peas are nearly over, and French Beans are beginning to get scarce; Turnips and Carrots are excellent in quality, as is also Celery, which is sufficient for the demand. Cauliflowers and Broccoli are also good and plentiful; and good samples of Potatoes bring rather higher prices than they did last week. Endive and Lettuces are well supplied, as are also Artichokes, Vegetable Marrows, and Tomatoes; the latter in particular are good. Mushrooms are a trifle dearer. Salading of every kind is plentiful. Cut Flowers chiefly consist of Camellias, Pelargoniums, Auriculas, Agapanthus, Salvias, Sweet Peas, Amaryllises, Larkspurs, Heliotropes, Picotees, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s
Grapes, Hothouse, per lb., 1s to 4s
— Spanish, per lb., 9d to 1s
— Blk. Portugal, p. lb., 1s to 1s 6d
Peaches, Wall, per doz., 1s to 4s
Nectarines, per doz., 1s to 4s
Melons, 2s to 4s each
— Dutch, 1s to 3s each
Figs, green, per doz., 2s to 3s
Plums, per hf.-sv., 2s to 3s
Green-gages, per hf.-sv., 6s to 10s
Damsons, per hf.-sv., 2s 6d to 3s 6d
Apricots, per doz, 1s to 3s
Apples, Decs., per bush., 4s to 7s
— Kitchen, 1s 6d to 4s
Pears, per hf.-sv., 2s to 4s
— Jargonelles, per hf.-sv., 6s to 8s
— Windsors, 3s to 3s 6d
Cherries, wall, per lb., 2s to 5s
Oranges, per dozen, 1s 6d to 2s
— — per 100, 12s to 24s
Lemons, per dozen, 1s to 2s
— per 100, 7s to 16s
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s 6d to 3s
Walnuts, per peck, 7s
Filberts, English, p. 100 lbs., 30s to 40s
Nuts, Barcelona, 24s
— Brazil, 16s
— Turkey, 16s
Barberries, per hf.-sv., 2s to 4s

VEGETABLES.

Cabbages, per doz., 3d to 1s
Cauliflowers, per doz., 1s to 4s
Broccoli, per bunch, 6d to 1s
Greens, per doz. bunches, 2s 6d to 3s
French Beans, per hf.-sv., 1s 6d to 3s
Sorrel, per hf.-sieve, 6d to 9d
Artichokes, per doz., 1s 6d to 2s 6d
Potatoes, per ton, 60s to 80s
— cwt., 3s to 5s
— bushel, 1s 6d to 3s
— Kidney, per bushel, 2s to 3s
Turnips, per doz., 1s 6d to 2s 6d
Red Beet, per doz., 1s to 1s 6d
Carrots, per doz. bchs., 2s to 5s
Peas, per bushel sieve, 2s 6d to 5s
Horse Radish, per bundle, 1s 6d to 6s
Cucumbers, per doz., 2s to 8s
— ridge, per doz., 1s to 3s
Spinach, per sieve, 9d to 1s 6d
Leeks, per doz., 1s 6d to 2s 6d
Garlic, per lb., 6d
Tomatoes, per hf.-sv., 3s to 5s
Celery, per bunch, 9d to 1s 6d
Vegetable Marrows, p. doz. 4d to 1s
Onions, per doz. bunches, 2s to 6s
— pickling, per hf.-sv., 2s to 3s
— Spanish, per doz., 1s 6d to 5s
Shallots, per lb., 4d to 8d
Endive, per score, 9d to 1s 3d
Lettuce, per score, Cab., 9d to 1s 3d
— — Cos, 6d to 1s 3d
Radishes, per doz. bunches, 9d to 1s 3d
Mushrooms, per pottle, 1s 6d to 2s 6d
Small Salads, per punnet, 2d to 3d
Basil, green, per bunch, 4d to 9d
Fennel, per bunch, 2d to 3d
Savory, per bunch, 4d to 6d
Thyme, per bunch, 4d
Watercress, p. 12 sm. bun. 4d to 6d
Parsley, per bunch, 2d to 3d
— Roots, per bundle, 9d
Tarragon, per bunch, 4d
Mint, per bunch, 2d
Marjoram, per bunch, 4d
Chervil, per punnet, 2d to 3d

MARK-LANE, MONDAY, Sept. 22.

THE supply of English Wheat by land carriage samples from Essex, Kent, and Suffolk, this morning was small, consisting almost entirely of new, and sold readily at an advance of 5s. per qr. over the prices of this day se'nnight. Of free foreign there was scarcely a sample on sale; it was held firmly for a similar advance. Bonded was taken on speculation at a rise of 2s. to 3s. per qr.—Old Barley is fully as dear, and difficult to obtain on late terms. Of new we have scarcely any arrivals yet.—Beans are from 1s. to 2s. higher, and scarce.—Peas have been sold at very variable prices; we raise our quotations for Maple 4s. per qr., White 10s. to 12s.; Blue readily command 6os. per qr.—Oats are in good demand at an advance of 1s. per qr. Mustard Seed was held at 1s. to 1s. 6d. per bushel over last week's rates.—The top price of flour is advanced to 56s. per sack.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White 55	61	Red	50	58
—— Norfolk, Lincolnshire, and Yorkshire	57	65	White	59	65
Barley, Malting and distilling 28s to 32s	Chevalier 30	34	Grind.	26	28
Oats, Lincolnshire and Yorkshire	Polande 20	23	Feed	19	22
—— Northumberland and Scotch	Feed 20	22	Potato	21	24
—— Irish	Feed 20	22	Potato	21	22
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	29	32			
Beans, Mazagan, old and new 35 to 38	Tick 36	39	Harrow	38	40
—— Pigeon, Heligoland 39 to 44	Winds —	—	Longpod	—	—
Peas, White 50 to 54	Maple 42	46	Grey	40	44

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	2973 Sks. — Brls.	3425	297	2355	15	—	105	616
Irish	300 ,, — ,,	—	653	60	11777	—	—	—
Foreign	— ,, 4812 ,,	2874	885	—	4830	—	664	—

FRIDAY, Sept. 26.

There was a little English Wheat fresh up for this morning's market by land carriage samples, which sold readily at Monday's prices; in free Foreign we observe no alteration; bonded was more generally inquired after; but holders were too high in their demands to admit of business being extensive.—In Barley or Beans there is no alteration: White and Blue Peas are fully as dear; Maple sell less freely than of late.—The arrival of Foreign Oats is large, which induces buyers to refrain from purchasing, but in the sales effected late prices are obtained.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	5540	430	1690	3960 Sks
Irish	—	520	5740	—
Foreign	38870	740	28520	—

IMPERIAL AVERAGES.

	Wheat	Barley.	Oats.	Rye.	Beans.	Peas.
Aug. 16 per Quarter.	57s 0d	29s 4d	22s 2d	34s 4d	41s 2d	39s 7d
— 23	57 0	29 9	22 8	33 4	41 5	38 11
— 30	56 6	30 0	22 4	35 7	42 1	38 4
Sept. 6	55 10	31 8	22 10	33 5	42 2	36 9
— 13	54 1	31 0	22 3	33 2	42 10	36 5
— 20	52 6	30 9	21 7	32 8	42 5	37 0
6 weeks' Aggreg. Aver.	55 6	30 5	22 4	33 9	42 1	37 10
Duties on Foreign Grain	17 0	8 0	6 0	9 0	1 0	4 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Sept. 20.

PRICE.	AUG. 16	AUG. 23	AUG. 30	SEPT. 6	SEPT. 13	SEPT. 20
57s 0d	..	..	..	..	..	..
56 6	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
55 3	..	..	..	..	..	..
54 1	..	..	..	..	..	..
52 6	..	..	..	..	..	..
50 10	..	..	..	..	..	..
48 0	..	..	..	..	..	..
— 12	..	..	..	..	..	..
47 11	..	..	..	..	..	..
— 0	..	..	..	..	..	..

SEEDS, Sept. 26.

Canary	per qr	50s to 54s	Linseed Cakes, Foreign, p. ton	7l 10s to 8l
Carraway	per cwt	42 45	Mustard, White	p. bush. 10s 12s
Clover, Red, English	— —	— —	— Superfine ,,	12 14
— — Foreign	— —	— —	— Brown ,,	10 13
— White, English	— —	— —	Rapeseed, English	24l 26l
— — Foreign	— —	— —	Rape Cakes	per ton — —
Coriander	— —	14 16	Saintfoin	— — — —
Hempseed	per qr.	36 36	Tares, Eng. winter	p. bush. 6 8
Linseed	per qr	54 60	— Foreign	— — 4 4s6d
— Baltic	— —	42 46	Trefoil	per cwt 18 23
— Cakes, Eng. per 1000		11l 10s 12l	Turnip (too variable for quotation).	

KINGSFORD AND LAY

Sales by Auction.

TO AMATEUR PIGEON FANCIERS AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to Public competition, at the Auction Mart, Bartholomew-lane, on Friday, Oct. 10th, 1845, at 12 o'clock, a STUD of PIGEONS, comprising Almond Tumblers, Short-faced Baldheads and Beards, with varieties of Toys, consisting of Jacks, Owls, Nuns, Turbits, &c., the property of a Gentleman declining the fancy. May be viewed the morning of sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

THIRTEENTH ANNUAL SALE OF DUTCH BULBS.—TO GENTLEMEN, FLORISTS, SEEDSMEN, & OTHERS.

MR. JAMES IZOD will SELL BY AUCTION, at the Auction Mart, Bartholomew-lane, on Tuesday, Sept. 30, at 1 o'clock precisely, direct from Mr. HOGERBEEST, Florist, a quantity of very fine Double and Single named Hyacinths, Double and Single Duc Van Thol Tulips, named Crocus, very fine Byblœmen and Bizarre Tulips, Double and Single Ranunculus and Anemones, very fine named Narcissus, Snowdrops, Crown Imperials, Amethyst, and other choice roots. The whole are warranted to name. May be viewed on the morning of Sale, and Catalogues had at the Auction Mart, and of Mr. IZOD, at his Office, the Sheriffs' Sale Rooms, 46, Watling-street, City.

PUTNEY, SURREY.—VALUABLE INVESTMENTS.

MR. J. ELLIOTT has received instructions from Mr. Dendy to SELL BY AUCTION, at the Half-moon Tavern, Putney, on Tuesday, the 7th of October, 1845, at 2 for 3 o'clock, Two Lots.—Lot 1 consists of the Lease for 41 years of a well-built Brick Cottage, situate on the Upper Richmond-road, Putney, producing a Rental of 40*l.* per annum, subject to a Ground-rent of 6*l.* 10*s.* per annum. Lot 2 consists of the Lease for 18 years of a capital Market Garden, containing 7 Acres, well stocked with Fruit-trees, situate on the Lower Richmond-road, Putney. For particulars, apply to Messrs. BRINDRETT, RANDALL, SIMMONS, & BROWN, Solicitors, King's Bench-walk, Temple; Mr. GAINES, Covent-garden; Mr. CLARK, Seedsman, Bishopsgate-street; and of the AUCTIONEER, Putney, Surrey.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

TO BE DISPOSED OF, the Acting-Partnership of a well-known and Old-Established NURSERY and SEED-BUSINESS in the vicinity of London, and within three miles of the Bank. Parties commanding from 600*l.* to 700*l.* will find this an opportunity rarely to be met with.

For Particulars, apply to Messrs. HURST and M'MULLEN, 6, Leadenhall-street, London.

Farm to Let.

TO LET, with Possession at Michaelmas, a FARM, consisting of about 236 acres of Arable and Pasture land, situated at Hoddesden, Hertfordshire, one mile and a half from the Broxbourne Railway Station. For further particulars, apply to the Bailiff at Broxbournebury.

WANTED, TO CONTRACT for a Supply of Two to Twenty Hundred Thousand Three-years Transplanted QUICK-SET THORNS, to be delivered as they may be required for planting, between the present time and the last day of April 1847. Address, with particulars, H. K. B., C. Townend's, Esq., George-street, Manchester.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences. Wire Work, &c. &c.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, September 27.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* 10*s.* per ton; ICHABOE 7*l.* to 7*l.* 10*s.* per ton; SALDANHA BAY, 5*l.* 10*s.* to 6*l.* per ton; according to quantity: with an Analysis, by Dr. Ure.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.

MARK FOTHERGILL, 40, Upper Thames-street, London.

P. S.—Agents wanted for the sale of the Wheat Brine.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

DIBBLED WHEAT.—All who are desirous of Dibbling Wheat during the coming season, are recommended to make a trial of

DINGLE'S HAND DIBBLING MACHINE,

which is so constructed that the soil cannot choke it. Price 35*s.*, including box and carriage to London, Liverpool, or Bristol.

Apply to WILLIAM E. RENDLE and Co., Union-road, Plymouth. —September 27.

DENTON AND CHARNOCK'S PATENT DRAIN TILE AND PIPE MACHINE.

A PREMIUM OF £10 was awarded to this Machine at the recent Meeting of the Yorkshire Agricultural Society, at Beverley, as the Best Machine of the day. Price £20.

Particulars may be obtained, and a Machine seen, on application to Mr. BAILEY DENTON, 9, Gray's Inn-square, London, or Graveley, near Stevenage, Herts; to Mr. T. H. Charnock, Wakefield; or to the makers, Messrs. Bradley and Co., Engineers, Wakefield.

DENTON'S "A" LEVEL for workmen in cutting drains may also be had. Price 30*s.*

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

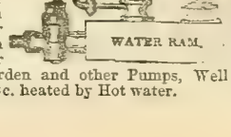
1 inch diameter of Tile,	11,000	1⅝ inches diam. of Tile,	5,800
1¼ " "	8,000	2¼ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

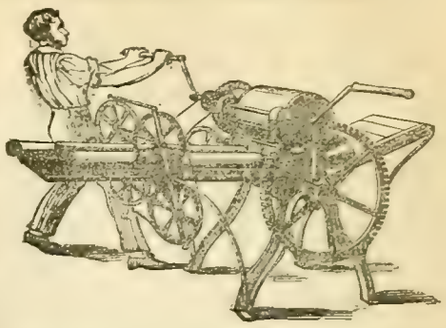
The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber. JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

MATLAND'S AGRICULTURAL COMPOUNDS.—The Stable and Cattle-shed Purifier, for absorbing urine, effecting an immediate and complete decomposition, fixing the volatile alkali, phosphates, &c., thereby forming a durable and powerful fertilizer, promoting the health of Cattle, and dispensing with the use of tanks. Also, the WIRE-WORM DESTROYER, and DESICCATED AMMONIA, a substitute for Sulphate of Ammonia. Sample bags, containing 1½ cwt., at 4*s.* per cwt., bags included, forwarded on receipt of a Post-office order (with directions for use) by G. MATLAND, Chemist, 10, Nassau-place, Commercial-road East, London.

ELECTRO PLATE, in great variety, and of warranted quality, only at the establishments of

ELKINGTON & Co. {22, Regent-street, corner of Jermyn-st, and 45, Moorgate-street, City.

The Patentees, from their great experience in England and France, are enabled to decide the quantity of silver necessary to ensure durability and economy for every article they manufacture, and which invariably bears their marks, E. and Co., under a crown. Having granted numerous licenses to use their patented processes, they beg to intimate to purchasers that they are not responsible for the quality of goods sold as plated by their process, unless they bear the above marks.—Re-plating and gilding.—Old plated and other articles repaired and re-plated, or re-gilt, and the quality warranted, if sent direct to either of the above establishments. No other party in London is authorised to re-plate. Persons infringing these patents by using the processes, or by purchasing goods so plated or gilt, will be proceeded against.

VENTILATION.—"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered June 7, 1845, before the Mechanics' Institute, Liverpool. —BAILLIE'S PATENT TRANSPARENT VENTILATOR ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee-rooms, and, moreover, a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London; Messrs. Stock and Sharp, and Mr. Samuel Beals, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixie and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 259, Blackfriars-road; Mr. Edward Baillie's, 12 B, Cumberland-market, Regent's-park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the Office of this Paper.

ROWLAND'S UNIQUE PREPARATIONS.—(Under the Patronage of the several Sovereigns and Courts of Europe, and universally preferred.)—ROWLAND'S MACASSAR OIL, for the Growth, Preservation, and for Beautifying the Human Hair.—Price, 3*s.* 6*d.*—7*s.*; family bottles (equal to four small) 10*s.* 6*d.*, and double that size, 21*s.* per bottle.

ROWLAND'S KALYDOR, for improving and beautifying the Skin and Complexion.—Price, 4*s.* 6*d.* and 8*s.* 6*d.* per bottle, duty included.

ROWLAND'S ODONTO, or Pearl Dentifrice, for the Teeth and Gums.—Price, 2*s.* 9*d.* per box, duty included.

CAUTION.—SPURIOUS COMPOUNDS are frequently offered for sale, under the same names, (some under the implied sanction of Royalty,) the Labels, Bills, and Advertisements of the original articles are copied, and either a FICTITIOUS NAME, or the word "GENUINE," is used in the place of "ROWLAND'S." It is therefore imperative on purchasers to see that the word "ROWLAND'S" is on the Wrapper of each Article. For the protection of the Public from fraud and imposition, the Hon. Commissioners of Stamps have directed the Proprietors' Signature to be engraved on the Government Stamp, thus—

A. ROWLAND AND SON, 20, HATTON GARDEN.

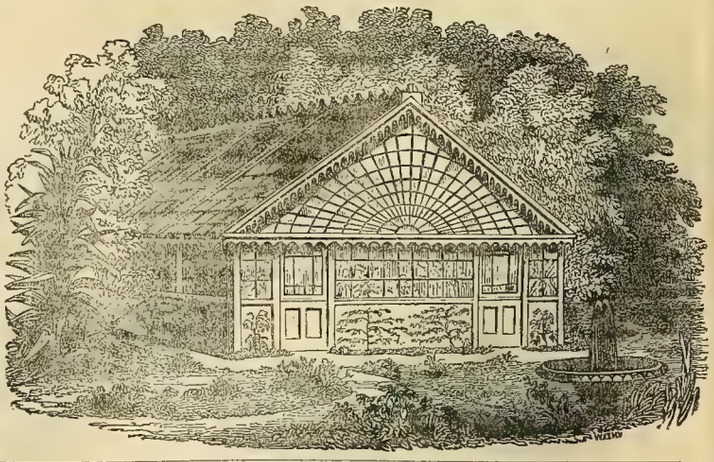
Which is affixed on the KALYDOR and ODONTO.

Sold by the Proprietors, and by most Chemists and Perfumers.

*** All others are FRAUDULENT COUNTERFEITS!!!

LANDSCAPE GARDENING, HOTHOUSE DESIGNING AND BUILDING, BY J. W. THOMSON, LATE HEAD-GARDENER TO HIS GRACE THE DUKE OF NORTHUMBERLAND, AT SYON HOUSE, AND FOR MANY YEARS IN THE BOTANIC AND OTHER GARDENS OF HER MAJESTY.





J. W. THOMSON, after 25 years' practical experience as HEAD-GARDENER TO HIS GRACE THE DUKE OF NORTHUMBERLAND, at Syon House, and in the BOTANIC AND OTHER GARDENS OF HER MAJESTY, has succeeded in Inventing a NOVEL AND ECONOMICAL BOILER, which, for efficacy, simplicity, and economy of FUEL AND LABOUR, stands unrivalled. The success of the Inventor's plan of Heating, either by his improved Tank, Trough, or Pipe System, will be unequivocally guaranteed. Estimates furnished for Warming every description of Garden Structure; and defective plans of Ventilating and Warming by Hot Water, remedied on Scientific principles. The Boilers may be seen in use at Messrs. LEE'S NURSERY, Hammersmith; Mr. WILMOTT, Isleworth; Messrs. WHITLEY & OSBORN, Nurserymen, Fulham; and at Mr. THOMSON'S own Nursery, King-street, Hammersmith, where four small Boilers effectually warm, to Stove Temperature, above 12,000 SUPERFICIAL feet of Glass Erections.
Address J. W. THOMSON, Hothouse Designer and Builder, King-street, Hammersmith.

WORKS ON HORTICULTURE.

THE FLOWER-GARDEN; containing Directions for laying out Garden-grounds, a Calendar of Work to be done every Month, and copious Lists of choice Flowering Plants, with their height, colour, and time of Flowering, with Directions for their Cultivation.
Coloured Plates, price 10*s.* 6*d.* cloth, gilt edges; and 7*s.* without Plates.

THE GREENHOUSE, HOTHOUSE, AND STOVE; With Selections of most choice Exotic Flowering Plants, and Directions for their Cultivation.
By CHARLES M'INTOSH, C.F., C.S.H.
With 18 Plates, beautifully coloured, price 10*s.* 6*d.* cloth, gilt edges; without Plates, price 6*s.* 6*d.*

THE ORCHARD AND FRUIT GARDEN; Including Forcing Houses for all kinds of Fruit, with selected Lists of the best varieties, with their Synonyms.
By CHARLES M'INTOSH, C.F., C.S.H.
With 18 Plates, beautifully coloured, price 10*s.* 6*d.*, cloth, gilt edges; without Plates, price 6*s.* 6*d.*

EVERY LADY HER OWN FLOWER-GARDENER; Instructing Ladies how the mind may be adorned, and their bodily health improved by attending to the Flower-garden.
By LOUISA JOHNSON. Price 2*s.* cloth lettered.
"Exactly what its title portends, and all lady floriculturists should possess it."—*Naval and Military Gazette.*
"This volume will be highly acceptable where there is a garden, much love for flowers, and small means to cultivate either."—*Atlas.*
"A cheap and pretty little manual of simple and concise directions for the management of a flower-garden."—*Spectator.*

ON THE POT-CULTURE OF THE VINE.
By JOHN MEARNS, Curator of the Leeds Botanical Garden.
Price 2*s.* cloth lettered.

HINTS ON LANDSCAPE GARDENING.
By JAMES MAIN, A.L.S., with Illustrations. Price 2*s.* cloth.

HORTUS DIETETICA.
An Historical and Botanical Account of Edible Vegetables, with Directions for their Cultivation, Storing, and preparing for the Table. By JAMES MAIN, A.L.S.
Price 3*s.* cloth lettered.
London: WM. S. ORR & Co., Amen-corner, Paternoster-row.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1845] SATURDAY, OCTOBER 4. [Price 6*d.*

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THE LAST DAHLIA SHOW OF THE SEASON will take place on Wednesday next, at the North Star, Slough Station, open to all England, Amateurs. 12 blooms for a Silver Cup and other prizes, and a Sweepstakes for Fancy Flowers, 6 blooms. Entrance, each class, 10*s.* 6*d.* Seedlings, 1845, 1 bloom, 1*s.*; 1844, 3 blooms, 2*s.* 6*d.* Metropolitan judges are engaged, and Certificates will be given for all worthy new flowers. T. Bragg, Slough.

ARRIVAL OF DUTCH FLOWER ROOTS.

WILLIAM E. RENDLE has this season a very large Stock of HYACINTHS and other Flower Roots imported direct from one of the first merchants in Holland. They are offered at very reasonable prices. See the *Chronicle* of Sept. 20 for a general list and prices.
Union-road Nursery, Plymouth, Oct. 4, 1845.

CARNATIONS, PICOTEES, and PINKS.—Catalogues of Messrs. Norman's Select Show Varieties can be had on prepaid application.—Bull Fields, Woolwich, Oct. 4.

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JOHN DICKSON, of Acre Lane, Brixton, respectfully announces that his STOCK OF NEW FLOWERS and established favourites was never more healthy than at present, and they are ready to be sent out in collections or single pairs. Catalogues on application by letter or otherwise.

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NOTICE.—Those Persons who have sent Seedling FUCHSIAS and VERBENAS during the last three weeks under the following initials—"G. N.," "W. K.," "W. J.," "J. Y. B.," and "A Constant Sub.," will oblige the Advertiser by calling for, or sending to, the *Chronicle Office*, for letters addressed as above.

GLADIOLUS GANDAVENSIS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, respectfully offers strong bulbs of the above at 5*s.* each, to be had also of Messrs. Warner & Warner, Cornhill, London, from the 1st of October next.
The usual allowance to the Trade.

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October 4, 1845.

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Great Yarmouth Nursery, Oct. 4.

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4, Eyre-street-hill, Hatton-garden, Oct. 4.

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Union-road Nursery, Plymouth, October 4.

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WM. IVERY, Nurseryman and Florist, Peckham, near London, begs to inform his Friends and the Public, that he can supply good Plants of CINERARIA NOBILIS white, tinted with purple, very large flower, and extra fine shape, 7*s.* 6*d.* each, figured in "Florist's Journal," June, 1845.

EMPEROR OF RUSSIA, white ground, tipped with cherry colour, fine, 5*s.* each. Figured in "Paxton's Magazine," August, 1845.

Also the following fine show Varieties:—Ivery's "Beauty of Wonham," 2*s.* 6*d.*; do. Nosegay, 2*s.* 6*d.*; do. "Captivation," 2*s.* 6*d.*; do. "Criterion," 3*s.* 6*d.*; do. "Compacta," 2*s.* 6*d.*; do. "Red Rover," 2*s.* 6*d.*; do. "Fanny Ellsler," 2*s.* 6*d.*; do. "Pickwick," 2*s.* 6*d.*; do. "Beauty of Cyston," 2*s.* 6*d.*; do. "Wee Pet," 2*s.* 6*d.*; do. "Regina Victoria," 1*s.* 6*d.*; do. "Pride of Peckham," 1*s.* 6*d.* Henderson's "Sombre Agréable," 2*s.* 6*d.*; do. "Pilot," 1*s.* 6*d.*; do. "Azurea," 1*s.* 6*d.*; do. "Eclipse," 1*s.* 6*d.*; and other distinct named Varieties, from 9*s.* to 18*s.* per dozen.

N. B.—Strong Plants of Ivery's Fuchsia SIR H. POTTINGER, very distinct, 3*s.* 6*d.* to 5*s.* each.

NEW AND CHOICE PLANTS.

W. J. EPPS begs most respectfully to offer the following Select List:—

	s.	*d.*		*s.*	*d.*
* Aphelexis purpurea grandiflora	7	6	Fœderia fœtida, from China	10	6
Campanulacea species (China)	21	0	Ribes sanguinea fl. pl.	7	6
Veronica, New Zealand species	5	0	Chorizema ericoides....	2	6
Veronica salicifolia	2	6	Pentas carnea	1	6
Spiræa Douglasii	2	6	Whitfieldia lateritia....	7	6
Luculia gratissima	2	6	Saurauja spectabilis....	7	6
Habrothamnus cyaneus	2	6	Begonia hydracotilifolia	1	6
Cereus crenatus.....	5	0	Echites melaleuca	7	6
Abutilon vitifolium	5	0	Dipladenia crassinoda..	5	0
Chrysanthemum, species from Chusan, very distinct	10	6	Tropæolum Lobbianum	2	6
			Rhexia, species from China.....	21	0
			Cestrum aurantiacum ..	3	6

* This is the splendid dark variety exhibited by Mr. Barnes, of Bromley, at the last Chiswick Fêtes.
*** A remittance or reference from unknown correspondents.
Bower Nursery, Maidstone.

BECK'S SEEDLING PELARGONIUMS OF 1844.

EDWARD BECK informs the Public that having now sent out the Plants for which he has received remittances, he can supply the following Varieties at the prices annexed, *for prepayment only, without abatement,* delivered free in London:—

Rosy Circle ..	£1	1	0	Isabella	£1	1	0
Desdemona ..	1	1	0	Marc Antony ..	1	1	0
Sunset	1	1	0	Favorita	0	10	6
Mustee	1	1	0	Margaret	0	10	6
Juno	1	1	0	Zenobia	0	10	6

A few small Plants of "Othello" now ready, at 1*l.* 10*s.*; also a few struck cuttings of "Arabella" at that price in November.
N.B.—No orders can be received without a remittance.

TO BE LET OUT THIS AUTUMN,

THREE SEEDLING CARNATIONS, grown by James Elliott, Florist, Wombourn.

DOCTOR NEWTON, Scarlet Bizarre, 7*s.* 6*d.* per pair, or 10*s.* per lot of three layers. MARTHA, Rose Flake, 5*s.* per pair, or 7*s.* per lot of three layers. ELLEN, Purple Flake, 5*s.* per pair, or 7*s.* per lot of three layers. The layers are strong and healthy; they are worthy of a place in every collection. They will be ready to send out the second week in October. The blooms have been exhibited at Messrs. Lowe's establishment, Wolverhampton, and very highly approved of.
Direct, James Elliott, Wombourn, near Wolverhampton, Staffordshire. Post-office orders to be made payable in Wolverhampton.—Wombourn, Oct. 4.

FOR SALE.—Six pairs of the Genuine HARE RABBITS, at the following prices, viz.:—One to two months old, 10*s.*; three to four months, 15*s.*; and older, 20*s.* per pair; see *Gardeners' Chronicle* of the 12th July.
Apply to Mr. Jno. Brett, Market-place, Great Yarmouth.

CHOICE NEW PINKS.

CHARLES TURNER (from the Slough Nursery), respectfully announces, that in addition to his two beautiful Seedlings, MASTERPIECE and BEAUTY, he has purchased the entire stock of Hale's QUEEN OF ENGLAND.

MASTERPIECE was exhibited at the Royal Botanic Society, Regent's-park, when it was awarded a first-class Certificate. See *Gardeners' Gazette*, July 5:—"Seedling Pinks of high character were shown. Turner's Masterpiece, a very beautiful lilac rose, lacing exceedingly true, and the flower in all respects an acquisition, being a decided beat on Gem."—Also, *Gardeners' Chronicle* of the same date:—"Several good Seedling Pinks were shown. Those selected for rewards were Turner's Masterpiece, a delicate light rose, lacing regular and unbroken, flower large and full." It also obtained the Society's prize for the best Seedling Pink at the Slough open Show, July 7, and first class Certificate at the Metropolitan Society, July 8th. 5*s.* per pair.

QUEEN OF ENGLAND.—This flower obtained the first prize for flowers raised in 1844, three blooms, at the Slough open Show; also, at the same time, second prize for Specimen Bloom, open to all flowers; a first-class Certificate at the Metropolitan Society, July 8; ditto at the Royal Philanthropic Society of Gardeners' Exhibition, Cremorne-house, July 16. Purple lacing, with fine open space of pure white in each petal. 5*s.* per pair.

BEAUTY.—Rich light purple lacing, 3*s.* 6*d.* per pair.

Strong Plants of the above are now sending out. Catalogues of Pinks and Heartsease may be had on application at Chalvey, or Messrs. Hurst and M'Mullen, Leadenhall-street.

Chalvey, near Slough, Oct. 4.

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, begs to offer his new ALSTRŒMERIAS at the following rates, viz.—12 varieties, 21*s.*; 25 varieties, 31*s.* 6*d.*; 50 varieties, 52*s.* 6*d.* Orders received by Mr. George Rahn, 52, Mark-lane, London; or application may be made (post paid) to Mr. Van Houtte, at Ghent. The plants will be forwarded to London free.

The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle* 12th July last), says of these plants:—"They are of every tint from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, is the following gratifying account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstrœmeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them.

Orders have been already received from the following parties, viz.:—

Backhouse & Son, York.
Ball, Mr. F. C., Taunton.
Bass and Brown, Sudbury.
Belfield, Rev. F., Torquay.
Brown, Mr. J., Rockingham Castle.
Burrell, Lady, Knep Castle.
Bunting, Mr., Colchester.
Burlington, Earl of, Holker Hall.
Chandler & Sons, Vauxhall.
Cocks, Charles L., Esq., London.
Coventry, T., Esq., Swindon.
Dickens, C. T., Esq., Coolhurst.
Egerton, Mrs., Knutsford.
Hall, Samuel, Esq., Town Head.
Hanbury, R., Esq., Spitalfields.
Hankey, the Hon. Mrs., Fetcham Park.
Hunt, C. B., Esq., Gloucester.
Ivery, Mr. Wm., Peckham.
Knight, Mr. B. H., St. Leonards-on-Sea.
Mackenzie, Sir G., Bt., Leith.
McGrayson, Mr., Bury St. Edmunds.
[Bridge.
Ord, W., Esq., M.P., Haydon
Rendle, Mr. W. E., Plymouth.
Rollisson & Sons, Upper Tooting.
Scott, W., Esq., Bury Hill.
Selwin, — Esq., Down Hall.
Thickins, W., Esq., Coventry.
Varnham, A., Esq., London.
Warner and Warner, London.
Waterer, Mr., Bagshot.
Western, J. B., Esq., Kelvedon.
Willinck, De Esq., Liverpool.
Wood & Son, Maresfield.
Youell and Co., Great Yarmouth.

RENÉ LANGELIER, Nurseryman and Florist, St. Helier, Island of Jersey, begs to draw the attention of the public to his unrivalled collection of PEARS, of which a Catalogue may be had on application as above.—All letters to be prepaid. The trees are unusually fine this year.

R. L. having received numerous applications for specimens of Fruit of the above collection, and as it is attended with great expence, both in time, boxes, and packing, he has come to the resolution this year to sell them, which will give an opportunity to amateurs and growers of Pears to become acquainted with a collection of so desirable Fruit, to come into maturity from the end of October till June following, at a time we have no other Fruit. Only one Fruit of each sort will be sent with each order so t at as many orders as possible shall be supplied, as this is more for information than profit. Each Fruit to be from 6*d.* to 1*s.*; boxes at the expense of the purchaser. Orders to be executed in October, and will strictly be forwarded in rotation. Post-office orders will be required from unknown correspondents, and returned if the order was too late and could not be supplied, which is the reason of sending only one Fruit of each, having several Horticultural Societies to supply, which is done gratis; but any nobleman or gentleman wishing to have a quantity of Pears for their use, such as are grown in the Island, R. L. will undertake to supply them at the Jersey market price.

R. L. takes this opportunity to inform the public that LANGELIER'S BEURRÉ PEAR will be sent out fine, healthy trees, at 10*s.* 6*d.* each; the parent trees having some fine fruit, it will enable him to send it with the collection, as well as Van Mon Leon le Clerc.

BILBERGIA ZEBRINA.—R. L. has the honour to inform the public that he has some fine plants of the above, at 10*s.* 6*d.* each; it was exhibited at Chiswick, June 21 (see the Report of the Society). It is a beautiful plant; though classed with stove plants it will keep well in a greenhouse if the heart is kept dry in the winter. The plant was much admired at the Horticultural Show at Chiswick.

R. L. wishes to inform the public that he will send out FIVE SEEDLING GERANIUMS, which are of first-rate merit as Show flowers, and of which a List and Description can be had by application to him.

Also his List of Bulbs; a very extensive variety of Camellias; and a superb collection of Roses, consisting of the newest sorts introduced. Ixias and Sparaxis in great variety.

This Advertisement will only appear once.

FLORIST FLOWERS.

JOHN HOLLAND, Market-place, Middleton, near Manchester, Lancashire, respectfully informs Gentlemen, Florists, &c., that his Catalogues of CARNATIONS, PICOTEES, PINKS, AURICULAS, ALPINES, POLYANTHUSES, &c., for the present season, are now ready. His extensive stock embraces all the leading varieties in the above flowers, and Gentlemen, Amateurs, &c., purchasing would do well to possess his Catalogue, which will be forwarded on a pre-paid application.—Market-place, Middleton, Oct. 4.

HOLLYHOCKS.

W. JACKSON and CO., Nurserymen, beg to announce that they intend sending out their HOLLYHOCKS this month at the following prices, including basket and package. Early applications are solicited to prevent disappointment, as was the case last year, in consequence of orders being sent late in the season.

100 fine proved Varieties, transplanted .. .. 40*s.*
12 prize Varieties per names .. .. 21*s.*

A reference is respectfully solicited from unknown correspondents.—Cross Lanes Nursery, Bedale, Yorkshire.

TWO OF THE MOST SPLENDID NOVELTIES OF THE SEASON.

H. BENTON & Co. inform the public that they have now ready for delivery the undermentioned plants:

'PENTSTEMON GIGANTEA ELEGANS.—This superb variety grows 3½ to 4 ft. high, and has now upwards of 100 trusses of flowers in bloom; its magnificent appearance is very much admired. Colour, brilliant shining scarlet with white throat, which is very large; the foliage is also particularly handsome—5*s.* each. See Dr. Lindley's very favourable opinion, initials "B. H.," in *Chronicle*, Sept. 13.

PANSY MIDNIGHT — Is the most superb variety ever offered; in shape perfect, large; petals very thick; colour, velvety black. It has the appearance of a circle cut from black velvet—5*s.* each. See Dr. Lindley's opinion in *Chronicle*, June, last year. "Your Pansy, No. 2, is intensely dark, and quite of a velvety character; it would have been an improvement to it, had the side-petals been a little higher; it is, however, a very fine self."

London Agents, Messrs. Clarke & Co., 86, High-street, Borough; where specimens of the Pentstemon can be seen.—Monument-lane Nursery, Edgbaston, Birmingham.

J. and J. BEST beg to inform the admirers of CALCEOLARIAS, that they have now ready to send out a few strong plants, in 60-sized pots, of their beautiful Seedling CALCEOLARIA LEOPARDII. The above was awarded a Certificate of Merit at the Chiswick July Show. Colour, creamy white, with crimson and maroon spots; dwarf and compact habit, and a free bloomer. Price 5*s.* per plant.

J. & J. Best beg also respectfully to intimate to the lovers of CINERARIAS, that they have some Thousands of Seedlings, all the leading varieties. By name, 6*s.* to 9*s.* per dozen, very strong. The Seedlings are all from carefully impregnated and good varieties, strong, healthy plants, in 60 and 48 pots, 6*s.* per dozen, package included. A remittance or reference is respectfully requested.—Abbey Nursery, Reading, Oct. 4.

UNRIVALLED NEW PICOTEES.

CHARLES TURNER (from the Slough Nursery), begs to inform admirers of the PICOTEE that he shall be prepared to send out, the middle of the present month, those two beautiful light-edged flowers raised by the Rev. A. H. MATTHEWS, Weston-on-Green, Oxon, viz., ENCHANTRESS and NE PLUS ULTRA. ENCHANTRESS has been submitted to Mr. Glenny, who describes it thus in the *Gardeners' Gazette*, August 9th:—"One of the most complete outlines of a circle, one of the best pods, one of the stiffest petals in cultivation. The smooth edge above the average, and nearly half a circle in the outline of a side view; the guard petals lay admirably; and we shall be disappointed if it does not bloom without tying the pod." To this might be added, one of the most delicate and even light-purple lacings ever seen; size full, and white good. Also see *Gardeners' Gazette*, August 16th:—"There 'may' be some as good, but certainly not *one* better." It obtained the first prize at the South London Show, July 23d, 1844; and first prize for the best purple edge, open to all growers and flowers, at Manchester, August 13th, 1845. NE PLUS ULTRA, light red edge, which is equally fine, and the best of its class.

Enchantress, 15*s.*; Ne plus Ultra, 10*s.* 6*d.* per pair; or one pair of each on receipt of a remittance of 1*l.* 1*s.*

The Stock being limited, C. T. pledges himself to strict priority as received. Catalogues of Pinks and Heartsease may be had on application at Chalvey, or Messrs. Hurst & M'Mullen's, Leadenhall-street.—Chalvey, near Slough, October 4.

ROYAL PINE STRAWBERRY.—This superior Hybrid Strawberry (produced between Myatt's Pine and Keen's Seedling, by Mr. Bain, gardener to Captain Rait, of Amiston), is larger and more productive than Keen's, with the delicious flavour of Myatt's Pine; and has been pronounced by the best judges as a most valuable acquisition for a general crop, both for table and market. The stock being wholly in our possession and limited, early orders are invited. Price 20*s.* per 100.—Dicksons & Co., 1, Waterloo Place, Edinburgh. Oct. 4, 1845.

NEW AND SPLENDID ORNAMENTAL ELM—"ULMUS MONTANA SUPERBA."

J. GILL, Nurseryman, Blandford, Dorset, begs respectfully to invite the attention of Noblemen, Gentlemen, Nurserymen, and others, to the above, which he flatters himself he can, without exaggeration, recommend as one of the most ornamental trees introduced of late years. Its growth is of a very luxuriant character; the size and weight of its ample foliage give to its side branches a most graceful pendulousness, and, in fact, render the tree itself an object of great beauty and attractiveness. It has not only been seen and admired, but also ordered by many of the leading Nurserymen in different parts of the kingdom; and in addition to the recommendation thus conveyed, its ornamental qualities have secured it the favourable suffrages of many gentlemen and Amateurs in the neighbourhood, who have had the opportunity of observing its habits and character. See also Dr. Lindley's opinion in the *Chronicle* for Sept. 13, page 628—"We have measured leaves of Mr. Gill's new Elm, 10 inches long and 6 inches wide. If the tree continues when old to bear such leaves it will be a very remarkable variety."

An engraving or specimen of foliage will be furnished if required, on receipt of two penny stamps.

Fine strong plants, 10*s.* 6*d.* each. Strict rotation will be observed in executing orders. The usual discount to the Trade when not less than six plants are taken.

N.B. A reference or remittance from unknown correspondents.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s.* per dozen. Dutch Hyacinths for forcing at 4*s.* per dozen; also Narcissus, Tulips, Iris, Jonquils, Anemones, and Ranunculus, from 1*s.* to 12*s.* per dozen. Large Dutch Crocus, 2*s.* 6*d.* per 100; at A. Corbett's Italian and Foreign Warehouse, 18, Pall Mall. Priced Lists per post, &c.

EXHIBITION OF LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY), begs to inform the Nobility, Gentry, and Amateurs, that he has above 5,000 blossoms of this most beautiful LILY now in flower, including the rare and splendid variety *Speciosum*, which is held in such high estimation by the Japanese; they will continue in perfection during the month of September; and may be viewed every day, Sundays excepted. Admittance gratis.

H. G. begs to say that hi. CATALOGUE OF BULBS for this Autumn is now ready, and will be forwarded on application.

Foreign orders executed.

TO BE SOLD.—TWO GREENHOUSES, with PLANTS, ROCKWORK, &c., for 80*l.*—A Gentleman, who is leaving his present residence, wishes to dispose of the above, including the Slate-tank, Slate-borders, &c. The houses cover a space of about 340 feet (superficial), and have only been built a few years. The plants consist of Rhododendron arboreum, both red and white varieties; R. alta-clerense, Grevillea robusta, Azaleas, Daphnes, Yuccas, Camellias, Lilium speciosum, punctatum, and album; Lonicera japonica, and many others: a collection of Hardy and Greenhouse Ferns. Also some hardy Azaleas and Rhododendrons of large size, among which are R. Smithii, Russellianum, grandiflora maxima, and others.—To be viewed at Mr. Brown's, 130, Camden Villas, Camden Town

GRAND TULIP SALE, comprising the finest varieties from the unique collections of Messrs. Lawrence, Delafosse, Baron, Wilmer, and Holmes, at the Auction Mart, on Wednesday next, October 8th, at 12 for 1 o'clock precisely. Among the flowers will be found Earl Douglas, Lord Strathmore, Maid of Athens, Thalia, Musidora, Pompe fenebre, Lalla Rookh, Bysantium, Groom's Adelaide, Jove, Duke of Devonshire, Parmizeno, Collingwood, Walker's Coronation, Wilmer's Cardinal Wolsey, Salvator Rosa, Apelles, Lac, Lyde's Nora Criena, Pandora, and many other new and first-class flowers. Catalogues at the principal Seed-shops, and of Mr. Glenny, at the *Gardeners' Gazette* Office, 2, Tavistock-st., Covent-garden.

ROSE CATALOGUE.—NEW EDITION.
NURSERIES, CHESHUNT, HERTS.

A. PAUL and SON beg to apprize their friends and all lovers of ROSES, that their ROSE CATALOGUE for 1845-6 is now ready for circulation, and will be forwarded gratis, on application by letter containing two penny stamps for postage. The Catalogue appears this season in an extended and improved form, and besides giving a full description of colours, size, shape, &c., it embraces the following important points: Paragraphs at the end of each section contain hints on cultivation, and point out any peculiarities in the group. The best forcing Roses, and those proved best suited for pot culture are severally pointed out; and further, the habit of growth is attached to each variety. *No pains or expense have been spared to render the descriptions accurate, and the Catalogue complete and useful.* With regard to the health and condition of the plants, A. Paul and Son would refer to those gentlemen and horticulturists who have visited the Nurseries during the season. They will not eulogize their own stock, but frankly invite inspection.

The Nurseries are within an hour's ride of the Metropolis, by Eastern Counties Railway to Waltham Cross Station; Day Tickets are now issued, Fares—First Class, down and up, 3*s.*; Second Class, down and up, 2*s.* 3*d.*

THE AUTUMNAL ROSES are still finely in bloom and will continue so throughout the autumn. The FRUIT Catalogue and HERBACEOUS Catalogue, weighing respectively under half an ounce, are now ready, and will be sent to all applicants enclosing one stamp each for postage.

NEW HARDY HYBRID GLADIOLUS, AND FINE NAMED TULIPS.

WILLIAM MAY begs to call the attention of the Floricultural Public to the above valuable and beautiful hardy bulbous roots. The Gladiolus are hybrids raised from seed originated by the Dean of Manchester, the most eminent bulb grower in the kingdom; they are perfectly hardy, and of various shades of colour from light blush white to scarlet, flowering in the open ground in July and August. Price, 20*s.* per dozen.

The Tulips consist of upwards of 200 selected sorts in their various classes of Bizarres, Byblœmen, and Roses, of which 100 sorts will be sent for 5*l.*, 50 sorts for 2*l.* 12*s.* 6*d.*, and 25 sorts for 1*l.* 10*s.*—Directions for cultivating the Gladiolus will be sent with each parcel.—Hope Nursery, Bedale, Oct. 4.

RIBES SANGUINEUM FLORE PLENO, or DOUBLE BLOOD RED FLOWERING CURRANT.

(Figured in "Paxton's Magazine of Botany," July 1, 1845.)

THOMAS JACKSON being the largest holder of this new and most beautiful Shrub, begs to offer plants well established in pots at 10*s.* 6*d.* each; for every three ordered one will be added gratis.

N.B. To be disposed of cheap, a handsome, well-grown, healthy specimen of Araucaria excelsa, or Norfolk Island Pine, 10 feet high, and clothed with branches to the ground.

Kingston Nursery, Surrey, Oct. 4.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, and LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (removed from Walworth,) by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

		£	*s.*	*d.*
100	TULIPS, in 100 fine sorts, named	7	7	0
100	Ditto in 50 ditto ditto	5	5	0
	Superfine Mixtures, per 100, from 7*s.* 6*d.* to 21*s.*			
25	HYACINTHS, in 25 fine sorts, named	1	5	0
100	RANUNCULUSES in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures, per 100 .. .. 7*s.* to	1	1	0
100	ANEMONES, in 100 Superfine sorts, named ..	2	2	0
	A New Collection of 50 Superfine sorts	1	5	0
	Superfine Mixtures, per 100	0	10	6
25	AURICULAS, in 25 Superfine sorts, named ..	3	3	0
25	pair of CARNATIONS, in 25 ditto ditto ..	2	10	0
25	pair of PICOTEES, in 25 ditto ditto ..	2	10	0
25	GERANIUMS, in 25 Superfine sorts ditto ..	3	10	0
	Good kinds, per doz. .. .. from 12*s.* to	0	18	0
	LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
	,, ,, PUNCTATUM .. ,,	0	7	6
	,, SPECIOSUM, (true) .. from 21*s.* to	3	3	0

H. Groom begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.

Foreign Orders executed.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea. By special appointment to the Queen, and H.R.H. Prince Albert.

PHEASANT POULTS.—Gentlemen stocking their preserves are respectfully informed they can be supplied with any quantity of TAME BRED PHEASANT POULTS, as above, also a great variety of useful and ornamental Water Fowl. Domestic Poultry, including Malay, Cochin China, Dorking, Spanish, &c., Fancy Bantams, &c., &c., 3, Half-moon-passage, Grace-church-street.

N.B. Just arrived, some PURE CHINA PIGS.

FOREIGN SHEET GLASS, for Horticultural purposes, cut to any dimension within 30 inches by 24 inches, at 5*d.* per foot superficial, at Frederick Elphick's, 28, Castle-street East, Oxford-street. For Ready Money only.

BRIGHT YELLOW BOUVARDIA (Bouvardia flava, Dne.)

LOUIS VAN HOUTTE, Florist, at Ghent (Belgium), begs to offer good bushy plants of his new bright YELLOW BOUVARDIA (Bouvardia flava, Decaisne), a coloured drawing of which will accompany each plant, which will be sent to London free. Price 21s., without discount, unless four plants be taken. Orders also received at Mr. GEORGE RAHN'S, 32, Mark-lane, London.

N.B. The coloured drawing of the above Bouvardia is also to be seen at the Office of the *Gardeners' Chronicle*.

The following Gentlemen have already subscribed :—

	Plants		Plants
Backhouse & Son, York	1	M'Grayson, Mr., Bury St. Edmunds	1
Chandler & Sons, Vauxhall	1	Major, Mr. H., Knosthorpe	1
Coventry, Thos., Esq., Swindon	1	Mallison, Mr., Claremont	1
Glendinning, Mr. R., Chiswick	1	Mountjoy & Son, Ealing	4
Groom, Mr. H., Clapham-rise	1	Nant, Mr. T., Guernsey	1
Jamesock & Son, Durham	1	Rendle, Mr. W. E., Plymouth	4
Jarrison, Mr. J., Downham	1	Rollisson & Sons, Upper Tooting	2
Henderson & Co., Pine-apple-place	4	Veitch & Sons, Exeter	1
Ivery, Mr. Wm., Peckham	4	Webber, Mr. Jno., Meriott	2
Knight & Perry, Chelsea	6	White & Co., R., Poole	2
Knight, Mr. B. W., St. Leonards-on-Sea	1	Willmot & Chaundy, Lewisham	4
Lawson & Son, Edinburgh	1	Wood & Son, Maresfield	4
Low & Co., Upper Clapton	4	Wooler, H., Esq., Brixton	1
		Young, Mr. C., Epsom	6

The Gardeners' Chronicle.

SATURDAY, OCTOBER 4, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY, Oct. 6—Entomological . . . . 8 P.M.
TUESDAY, — 7—Horticultural . . . . 3 P.M.

We are happy to announce the DEPARTURE OF MR. HARTWEG on a new expedition, on behalf of the Horticultural Society. Upon the present occasion the ground to be investigated is California, the riches of which were scarcely touched by Mr. DOUGLAS. It is a country abounding in handsome annuals and perennials, beautiful bushes, and noble trees, all of which will be hardy enough to bear the climate of England. The expedition is to last three years, and the experience which Mr. HARTWEG possesses of Spanish America, together with his zeal and activity, and the ample protection which has been extended to him by Her Majesty's Government, authorise us to congratulate the Fellows of the Society beforehand upon the valuable plants which they may expect to obtain through his means.

Now that the season for planting the TREE ROSE is approaching, we wish to bring under the notice of our readers a point in its cultivation which is of great importance, although little thought of. We mean the management of its branches, so as to cause them to present the largest possible surface to the eye, and at the same time to be secured effectually from destruction by wind.

We all know that Tree Roses necessarily become top-heavy. We know, too, that in consequence of this, very strong stakes are required to maintain them steady in their places; and that these stakes must be renewed as the plants increase in age and beauty. Even supposing that by great care in this respect the tree is maintained in an upright position, still the long brittle branches are constantly broken by winds, and if that is avoided, there is this remaining difficulty, that the centre of the head, unless very closely pruned, becomes filled with half-dead wood.

Among the contrivances that have been thought of to prevent these inconveniences, that of bending the branches down over wire-work, so as to force the heads into a hemispherical form, has been imagined, and when skilfully managed it is a great improvement upon wild pruning; but its effect is wholly marred by the perverse scheme of securing the wire-work to the stem of the Rose, the effect of which is to force the branches into the form of a balloon, and to increase the top-heaviness of such plants tenfold. And thus in gardens where Roses are so managed, one may see them rocking in all directions, instead of maintaining their perpendicular. All these evils are remedied by a simple contrivance.

Annexed is an exact portrait of a fine white Tree-Rose, which was last year the admiration of all who beheld it. The proportions are carefully observed, and there is not the slightest exaggeration in the effect produced:

It is certainly not easy to find a Tree-Rose so perfect in all its parts as this three-year-old; for such was its age. Its branches are all regularly displayed; it stood so firm, that nothing short of a hurricane could disturb it; and on whichever side it was viewed, still the perfection of its form was the same. Other Roses near it were also extremely beautiful; but this was the finest.

The manner it was managed was this:—When the tree was planted, a circle was drawn round its stem on the ground, say with a radius of 2½ ft. In this circle three iron rods, 6 ft. 6 ins. long, were pushed obliquely, at equal distances, their upper ends leaning towards the head of the tree. The upper end of these rods was hammered thin and flat, and then turned down, so as to be easily bent still further. Then an iron hoop was provided, 2 ft. in diameter, and placed a little below the level of the place where the head of the Rose-tree branches; by applying the hoop to the thin end of the rod, and forcing the latter downwards with a pair of strong nippers, it was made to clip the hoop, and the latter was securely fastened. The same process being repeated with the two other rods, the hoop was finally fixed in a horizontal position. Fig. 1 in the annexed cut shows the form of the upper end of the iron rod, as it is prepared for clipping the hoop when required.

This first operation being performed, the Tree Rose is inclosed within an iron triangle, forming a kind of skeleton truncated cone, the base of which is 5 feet across, and the apex 2 feet.

The next thing to do is to drop another iron hoop, 3 feet in diameter, on this skeleton cone. It will be detained at a short distance below the upper hoop by the spread of the iron rods, and being placed level, is then to be secured in its place by a few turns of copper wire. This completes the frame-work, which is so stiffened by the second hoop that no ordinary power will disturb the apparatus.

The last point to attend to is, to secure the stem of the Rose-tree in a steady and perpendicular position. To effect this, two slender wooden rods are placed crosswise, as in the cut, upon the lower hoop. They are to be tied to the hoop on the one hand, and to the stem of the Tree at the place where they cross each other; and this being done, the Tree requires no further aid till the pruning season, when it is treated as usual; its branches bent down over the hoops at equal distances, and secured by bast, until at last the two hoops are covered.

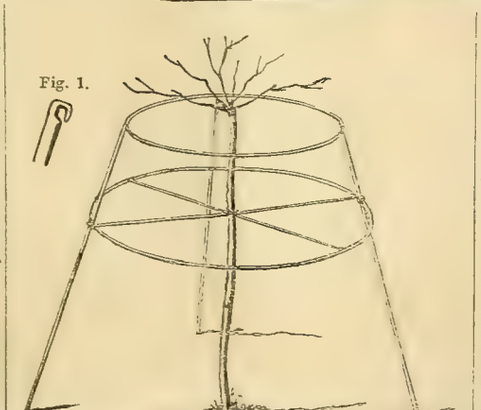
A blacksmith will make such frames for 3*s.* or 3*s.* 3*d.* each, the iron rods included, and they will last for ever. But it is needless to state that wooden stakes and wooden hoops may be used if they are preferred.

It is plain, too, that the details of this little scheme may be varied according to the taste of the amateur. The size of the hoops, the relative diameter of the base and apex of the cone, and the height of the frame-work, will admit of obvious modifications; indeed the effect of dwarf Tree Roses treated thus is even better than that of standards, because the whole of the flowers are below the eye. All that is indispensible to the effect is that the framework should be triangular and conical; for so only will the apparatus be able to stand stiffly and resist the wind.

It may give confidence to those who may doubt the feasibility of this plan, if we add that a mass of such Roses is about to be prepared in the garden of the Horticultural Society, 100 iron frames being in course of construction. It must also be added that this sort of treatment, although applicable to all Tree Roses, yet applies best to strong-growing sorts. It is not, however, so well suited to Tea Roses, because of their tenderness: but in the gardens of rich persons that difficulty may be removed by the use of moveable covers, made of thatch, which might be so contrived as to house in the bushes during winter. Tea Roses are well worth such care, and will amply repay us for giving it to them.



Fig. 1.



We do not as yet propose to return to an inquiry into the cause of the POTATO MURRAIN; but shall continue to confine ourselves to a consideration of what can best be done under existing circumstances.

It is stated in a daily paper that M. BOUCHARDAT, a French gentleman, has discovered a simple and economical process by which Potatoes already attacked may be rendered fit for every domestic purpose. They are to be cut into thin slices, to be placed for 30 hours in water slightly acidulated with muriatic acid, then to be washed in pure water, and soaked for 12 hours. After which they are to be dried in the sun, when they will again become white, with a healthy savour, and will keep any length of time.

We have tried this operation and doubt its value. It is not said how much muriatic acid is to be employed; but if making water just acid is all that is intended, then we have followed the directions exactly. The result is, that the slices become very white by the time they are taken out of this steep; but soon after they have been washed and exposed to the air to be dried, they change colour, become livid, and have so uninviting an appearance, that no English peasant would eat them unless pressed by actual famine. In a few days, however, the livid appearance goes off, and some of the slices become of a glittering white. This appearance is caused by the sides of the empty bleached cells, in which the starch laid, and not by the starch itself. Beneath is found a thin brown crust, and below the crust the Potato seems to be exactly what it was before being plunged in the steep, or to be as livid as the surface was after the exposure to air took place. While, however, some of the slices dry in this manner,

others refuse to do so, although laid on a dry board in a room heated by an Arnott's stove, and then in fact, although placed next a window, speedily putrefy, and are attacked by mouldiness. We have, therefore, nothing to allege in favour of M. Bouchardat's process.

It appears from *Galignani's Messenger* that at the sitting of the French Institute of September 22, an immense number of communications on the disease of the Potato were announced. Amongst them, one in the name of M. Clerget, the inventor of a new process for making a Potato-flour, was particularly mentioned; this flour is stated to be equal to nearly one-third of the entire mass—namely, 20 per cent. of the starch principle, and 10 per cent. of the bran and fibre. "His process is a scientific application of the old woman's process of mixing Potatoes in the making of bread. This is well-known. The Potatoes are first boiled, then dried before a fire, and rubbed up with the Wheat flour. M. Clerget produces the same result in the form of flour, omitting all the extraneous and useless portions of the vegetable, and providing for commerce on a large and improved scale a means of subsistence as cheap as it is wholesome." We do not profess to understand this account, but give it as we find it. Hereafter we shall learn from the *Comptes Rendus* what it really means.

Various other schemes may be found in the English and French papers, but they are either repetitions of what has already appeared in our own columns, or visionary schemes not worth the paper they are printed upon.

We are convinced that two plans for turning decaying Potatoes to useful account, namely, by drying as we at the very outset recommended, or by converting into starch, are the only ones worth serious attention.

As far as we can judge, the first plan, where practicable, answers the purpose of arresting the advance of the disease, which cannot make progress in the absence of moisture. We still, therefore, think that if kiln-drying can be applied, or if by any contrivance currents of heated air could be passed among the Potatoes which, as is the case to a great extent, have the disease only in an incipient state, it might be arrested. It is not worth constructing buildings for this purpose, for the mischief would be past remedy before they could be built; but it is worth attempting it with existing means; we would also apply it even to those which seem to be sound.

Here and there are buildings contrived for the purpose of drying damp or damaged corn; elsewhere are malt kilns. Some Union workhouses have rooms warmed by stoves, on Dr. Arnott's plan; all through the country are old greenhouses, heated with flues. In all such places the drying process could be carried on; and there also earth might be dried to pack the tubers in. We see that somebody advises the employment of dry sawdust as a packing material. We do not concur in that recommendation.

No doubt, however, in the great majority of cases, the separation of the flour from the other matter is the most advisable course to pursue; for the process is easy, and the result certain. As to the means of crushing the Potato, everybody should use his own ingenuity in effecting that; various contrivances* will occur to men of sense. And we are informed that some of the machine-makers have turned their attention to this subject; if, however, they are to do any good, they must lose no time in announcing their plans. In the meanwhile, we are able to state that, where the operation has been tried, it has been attended with satisfactory results. Professor Henslow, always foremost in good works where the agriculturist or the labourer is concerned, informs us that he has put out Potatoes to grate, with the following result:—"The cost of grating 7 sacks, 17*s.* 6*d.*; the flour saved, 122 lbs.; call this 8 stone, which will be used instead of 8 stone of Wheat-flour, at 2*s.* 6*d.* per stone, and I lose nothing: whilst the poor graters have gained, and the amount of human food saved will tend to keep down prices."

The idea of putting out the Potatoes to be grated is a good one, and well worth adoption. One of the farmers at Hadleigh has put out 20 sacks to be grated, at 2*s.* a sack, which remunerates both the women who grate and himself. One great drawback is the time it takes to dry the flour. This part of the process may be considerably accelerated by changing the cloths from time to time upon which it is spread, and drying *them* before the fire. But it will not answer to apply even the heat of boiling water to the flour itself whilst it is wet; and a hot oven converts it at once to a substance which has been called and sold for "British Tapioca." A little more heat will, as has been elsewhere stated, convert it into gum.

Dr. Ure, in a paper in the last Number of the "Pharmaceutical Journal," proposes to leave the starch in water in a warm place, with occasional stirring, for a few days, when "a little vinegar is formed, which dissolves out much of the remaining impurity, and leaves a tolerably white and quite wholesome fecula." Although this operation is not necessary unless the condition of the grated Potatoes should have been unusually bad; yet the fact is important, because it shows that the wet flour may be conveyed from cottages, without injury, to be dried elsewhere.

It is of far more importance to conduct the operation carefully. Professor Henslow obtained nearly 6 lbs. of Flour from a bushel of very bad Potatoes; others, however, complain of not getting more than half the quantity. This probably depends entirely upon the care that is given to the rasping or crushing process. It is to be borne in mind that a Potato is a mass of bladders, held together by organic force, and tolerably tough. It is in the *inside* of these bladders that the starch is deposited by nature. If we could separate such bladders from one another, and could place them in a row, we should find that from 150 to 200 would come within the compass of an inch. Now it is necessary to burst or cut into all these bladders if all the flour which a Potato contains is to be extracted. But no machinery yet thought of is capable of doing that. If, indeed, the Potatoes could be placed between millstones, yet the latter could not be set fine enough to crush every one of these extremely small bladders. There must therefore be some loss of flour in the operation of crushing, prepare it as we may; and of course the loss is great in proportion to the carelessness with which the grating or mashing is performed. One man will throw away a third of his flour, in the midst of the pulp separated by the strainer; another half; some more, some less; and it is to be remembered that no amount of washing will of itself separate the flour. Crushing, mashing, pounding, and so forth, must be trusted to. It is therefore worth the consideration of the public whether the pulp should not be subjected after the first washing to some other operation, such as rubbing between two stones, or grinding, whereby the bladders which escaped the first process may be broken in the second.

We close these long statements with a word as to the amount of loss that the Potato countries of Europe may be estimated to have sustained by this visitation. Our own computation has been five-sixths of loss. This is said to be too high, and altogether an exaggeration. Be it so; we do not think it is, and shall be too happy to find that we are mistaken. We shall know by Christmas. In the meanwhile we do not for a moment deny that the disease is unknown in many places; we have always said so. There is little of it in Scotland; or the north of England; on some of the hot dry sandy *uplands* of the midland and southern counties the appearances of the Potato-crops are satisfactory; and the West of England is reported to exhibit little sign of it. But in Shropshire, at least, it is very doubtful whether the Potatoes are as sound as they seem to be. As to Ireland, murrain exists in a formidable degree near Dublin, notwithstanding what some of our contemporaries are pleased to say; we have it from the county of Cork; we know, on the highest authority, that there is a great rot generally through the north of Ireland, and also in Meath and other parts, whatever the kind of disease may be; and in a modified form in Fermanagh—east, north, and south. Is not this sufficiently alarming, all things considered? Then look to the price of Potatoes even now. We do not speak of the great markets, which are glutted with sellers, and where buyers dare not purchase, in the uncertainty of the Potatoes keeping. But look at the places where these causes do not operate. Why, we hear that they are already quoted at 16*s.* a sack at Colchester, and 15 francs at Liége.

But our space is more than exhausted, and we must for the present break off, with a renewal of our exhortation to Potato growers to attend to dryness above all things, dry days for taking up, dry places for storing away, dry soil for pitting, and every other precaution by which the dryness of the crop can be best secured against the dangerous months of winter.

Amongst the many statements which have been made respecting the origin of the Potato Blight, there is perhaps not one which has been more widely spread than that which attributes its development to the use of highly azotised manure. A few words on this subject will not be unacceptable to those of our readers who are in the habit of using guano, and similar strong manures. The effect which azotised manures exert on growing plants, is tolerably well understood; it increases the growth of the plant, facilitating the formation of organised matter, and, provided the other constituents of vegetable food are also present, it causes a strong, vigorous, and healthy growth. Now, the substances required by plants are nearly all contained in guano, and therefore if light and heat are not wanting; in fact, if the weather is favourable to vegetation, there is every reason to expect that plants thus manured will become strong and healthy; there is no theoretical reason which should lead us to fear unhealthy or irregular growth.

There is no doubt that large and quickly-grown plants are more liable to be attacked by any disease than such as are smaller; but the rapid growth of the former never *causes* disease, it only renders them more liable to suffer, when other causes have combined to produce disease; at the same time, even this tendency is much diminished by the superior vital energy of the larger and more vigorous plants. It is, therefore, not to be expected that plants supplied with azotised manures should be more liable to the influence of such a rot as that at present common amongst Potatoes, than those manured with farmyard dung, or not manured at all; and this, indeed, is the truth, for so far from those plants only being attacked which were strongly manured, it appears that those which received no kind of manure at all are quite as much subject to the disease as those most highly manured with guano.—*E.*

THE TULIP.

Having during the blooming season taken rather an extensive survey of the principal Tulip beds in several of the midland counties, perhaps I may be doing the Floricultural world an acceptable service by describing some of the novelties, as well as fine old flowers, which came under my observation.

Leicester was the first place which I visited; here the amateurs have established an exhibition, and, considering that the members are nearly all young growers, many good flowers were produced. Strong's King and Cataline in good character, appear rather plentiful with them, and they muster some of the better varieties of London flowers in good force. They are behind-hand however, in seedlings, and have but few flowers decidedly new amongst them, though I understand some of Brown's varieties have been, in one or two instances, added to the collections this season.

I reached Derby several days before their show, and had a regular inspection of the principal beds, which gave me a better idea of their style of growing, &c. Here I saw the Earl of Nottingham, flamed bizarre, a flower of excellent properties, more like a first-rate Leonatus Posthumus than anything else with which I am acquainted; the flame being fine, distinct, and vividly pourtrayed, with an intense dark feather. A flower called there Imperatrice de Maroc, a flamed byblomen, pleased me much, though I question whether it is correctly named, the cup being shorter than the one usually grown under that title; the flame heavy and well defined, and the base perfectly pure; the ground-colour also is extremely good, and altogether it was a first-rate flower, and far from plentiful in the neighbourhood. Here again Sarah Ann, noticed last season, was in a finely feathered state, the markings being nearly black, the white of a most dazzling purity and the feather well laid on, without any disposition to bar down the centre of the petals. Passe Perfecta, a feathered bizarre, certainly different from the variety known in the metropolis by that name. This appears to me like a fine strain of Charles X., and I fancy is synonymous with Brisson; also a splendid feathered bizarre; and I may here observe that there appears to exist a good deal of confusion amongst the sorts grown here.

I paid a visit, as usual, to Chellaston, and found a fine bloom of both breeders and broken flowers. Amongst the varieties that particularly took my fancy was Britannia, a tall and splendid feathered byblomen, which was informed had been purchased by a gentleman in Manchester, who declared it superior to Louis XV. This was the only root broken; it was large, with fine cup; pure, with a famous dark and broad feather, though it struck down rather deeply in the centre of the petals. Grand, or Sable Monarch is somewhat in the same style, with the cup slightly longer, and is apparently a first-class flower. Maid of Orleans was inferior in size to the two just mentioned, but beautiful, distinct, with a black, sharp feather, on a ground of snowy whiteness. In character it is very similar to Sarah Ann, noticed at Derby. Amongst flamed byblomens, the following were very fine:—Countess of Harrington, Prince Albert, Princess Royal, and Grace Darling. If the heroine of the Feroe Islands had not been otherwise commemorated, she would have been immortalised in the splendid flower bearing her name. I know not that I shall be able to do justice to the one that came under my notice, its cup put me most in mind of a blue glass sugar-basin, having a peculiar bright and glossy hue; it was, when I saw it, perfectly pure, though when opening I understand it inclines to be creamy. The beaming and feathering were superb, and though I am rather prejudiced in favour of a good Queen Charlotte (which I allow to be too long in the cup), still I am obliged to confess that the Queen in her best state was far, very far, behind this splendid and unique flower. The collection here is rather short of bizarres, the

* In our last Number there is a typographical error which requires correction. We had intended to recommend the use of the Cider-mill, but, by an error of the press, we are made to recommend Corn-mills.

Pilot is a good flame, of fine form, marked in the style of Captain White; the colours are more evenly distributed, and it does not show the breeder colour as the last-named flower. Competitor is a variety of singularly good properties, with a drawback, which I am bound in justice to notice; it is slightly tinged at the base, otherwise the feathering is sharp, form and colour good; and most certainly were it not for this defect, it is a most superb show-flower. There are some other flamed bizarres, only one of which needs comment; this has a perfect cup, or nearly so; the inside is purity itself, with a singularly red flame up the centre of each petal, but wholly destitute of feathering; it is not yet named, but will be grown and admired by many.

In Roses there also appeared a striking deficiency, Lady Stanley being one of the best; this is a noble heavily-flamed flower; perhaps the colour too thickly laid on to suit some tastes; but when in good character, it is quite a favourite here. Fanny Cerito is another; but not so good as the preceding, and there appears some little confusion as to this variety. Lady Flora, as a young flower, may be shown as a rose; but as the bloom ages, it becomes a decided byblomen; it is a flower of very fine properties, with a short cup, well formed, thick petal, and will stand in bloom for a month. It is singular enough that all this fine race of flowers were raised from a feathered bizarre, known in this neighbourhood as Count Villaflor, and Rose Vesta.

My next point was Stapleford, near Nottingham; here I arrived in time for the exhibition, and found many flowers broken from the Chellaston breeders, the owners of which were perfectly unacquainted with their names; Sherwood's varieties were also fine, Lady Middleton being certainly in her best attire. There were excellent blooms of Lilliard violet or Bienfait, Lady Crew, and Royal Sovereign, Feathered Triomphe Royale, Magnum Bonums, &c., in abundance, and all of the finest possible strains. The next day I proceeded to Leeds to the open Yorkshire show, and here I may observe, that the quantity of flowers brought together was amazing; as a matter of course the inferior ones greatly predominated, and Rose Vestas, Uniques, Trafalgars, Crown Prince or Sultana, Sidney Smiths, Count de Virgennes, with many others of like pretensions, crowded the room. In fact, Leeds and the neighbourhood appear rather in in the background as to new varieties, though they evidently grow well what they have, and I understand they are fast infusing new blood into their collections, and appear thoroughly alive to the importance of "going a-head." After the judges had decided on the winning pan, the flowers were brought into the public room for inspection. The first comprised the following flowers:—Charles X., Cotterell's Victory, Grand Cid, Incomparable, Count de Virgennes, and Unique. The second consisted of Royal Sovereign, Sanzio, Incomparable, Vorhelm, Bienfait, Unique and Aglaia. As far as externals went, the judgment appeared to me to be correct, but as the flowers were passed round the room, I perceived that Charles X., in the first pan, had been a seven petalled flower. This with me, and with most judges with whom I may have acted in concert, would have disqualified the pan. I entertain the greatest respect for the censors, and I am perfectly sure that they acted up to the best of their knowledge, supposing that the rule of judging a Tulip and other florists' flowers are alike, namely, that it is allowed to extract or remove a defective petal, but that no addition can be made.

Now, in all regular-petaled flowers like the Tulip, where six petals are the acknowledged number that form the cup, I most certainly think that five petals have as much right to win as seven; and though one may have been extracted, to bring the flower down to the required standard, still the want of the requisite number, or a superfluity, ought in either case to disqualify. In conclusion, I may add that, during the many years I have judged flowers, I have set aside blooms otherwise unexceptionable, and that judgment has never yet been impugned.—*W.*

Home Correspondence.

Potato Murrain.—I have this year had for the autumn gathering only two kinds in my garden, Breadfruits and a red Potato, perhaps a sort of Stafford Red. The former have proved far superior, in their powers of resistance to the disease, to the others. Of the Breadfruits about three-quarters were good, while of the Reds hardly one tuber in 20 was sound, nearly the whole crop being utterly useless. These Reds were planted on the same piece of ground as some Breadfruits (the rows of the former adjoining the latter), and on the very same day. In both kinds the sound Potatoes were always at the most remote point from the haulm, the bad ones being invariably just at the bottom of it; and the ends of the tubers, which seemed to be first affected, in very many instances, were also those ends attached to the haulm, while the crowns remained quite sound and good. This seems to me to be pretty conclusive evidence that the disease has been first generated in the haulm and not in the tuber, and has been invariably transmitted downwards by the elaborated sap. Many of the Reds were quite rotten, the inside having become a brown pulpy semifluid mass. But in the Breadfruits this was seldom the case, the disease being confined either to the haulm end or to a circle running all round the outer edge of the whole Potato, or merely to a few apparently isolated patches, so that in most tubers there will be a sound heart, which will afford food for pigs, if good for nothing else. Our geological stratum is chalk, which insures of itself good drainage. Field Potatoes are said to be better than garden ones here generally. I mean in being less affected by this disease.—*W. H., Leatherhead.* —— Having planted some Ash-leaved Kidneys in my garden early in the spring 7 inches deep, I find them nearly all affected with the disease, while the same seed planted a little later, and more shallow, are not at all affected, nor are any other sorts in the garden which are planted shallow. It is my opinion, from the observations and inquiries I have made, that the complaint is entirely the effect of wet; that it will not infect other Potatoes in contact with it farther than any other decay affecting either vegetables or fruit, and that on exposure to the air the moisture is absorbed; and that when cooked it is not injurious to us, nor, when raw, to cattle.—*R. C. Browne, Tamworth.*——In order to preserve seed for next year's crop, of which the murrain will cause a great scarcity, I dried some of the best sorts and rolled each Potato in paper. This was done a month ago, and they are now, and promise to continue, perfectly sound. They are kept in a dry and cool place. The disease hereabouts is said to have been caused by lightning early in the summer.—*Z., Tonbridge, Kent.* ——I have nearly 2 roods of Potatoes planted in my garden, the sorts being Ash-leaved, which were planted in the end of February; Shaws, planted at the same time; and a Pink-eyed and a Scotch Red, which were planted in April. The garden contains different kinds of soil, viz.:—black mould, a light loam upon a gravelly bottom, about 15 inches in depth, and a stiff loam. I first dug the Ash-leaved and Shaws, about the 20th of June, the former in black mould and the latter in stiff loam, at which time there was no appearance of disease; but at the end of July, from the same places, I found the Potatoes diseased. The cause, therefore, whatever it may be, did not apparently exist till the middle of July; and that moisture was either the cause or medium is, I think, certain, for this has been, from early in June, a decidedly wet season. The Red and Pink-eyed Potatoes are the least affected, which I attribute to their possessing a large proportion of farina, which does not decompose readily, preserving its character even in frosted tubers. In these I have not more than 1-50th bad, but in the early kinds one half are affected. The latter average from 5 to 8 lbs. of farina to the ½ cwt., but the former sorts yield 14 or 16 lbs., showing, as regards nutriment, their great superiority. In early sorts the farina is not fully developed, being fibrous and watery, and the tubers are not so wholesome as when two-thirds grown. I have not heard of an instance where the affected Potatoes have injured pigs; on the contrary, I can mention several parties who have for the last month been giving bad Potatoes, without washing, boiling, or other preparation, to pigs, which received no other food; and this being contrary to the general opinion, I personally visited the parties to be satisfied of the fact. The affected Potato cannot be cured; and I believe the soil is not capable, from having once grown them, of producing the disease next season; and that the chlorides and other purifiers are, so far, useless. There is a great difference of opinion as to the cause of this calamity. I attribute it wholly to electrical agency. During the summer the atmosphere has been very much charged with electric fluid, the moist state of the skin of the haulm acting as a powerful conductor, conveyed the fluid to the roots, and in its passage over the surface, and from thence to the next best conductor—probably another Potato—it has produced the appearances which we perceive. The skin and tissue at the surface of the Potato (but not the farina), loses vitality from the conducting power of the watery state, and is decomposed by the electric fluid, and which effect is probably increased when a ready conductor is not at hand. Upon this principle Potatoes grown on stiff soil on clay bottom will turn out the worst; and on gravelly, or other porous soils, freer from disease. When first attacked, vitality is nearly destroyed, by the sap being changed in character and obstructed in its passage through the vessels; the leaves and haulm become, as is usual in autumn, yellow, but from a different cause, and fungus may or may not generate itself in consequence of this premature decay. Some of Professor Morren's observations I think are wrong. He ascribes the disease to dampness and cold air. A damp summer of itself is congenial to the growth of the Potato, and when well moulded up, cold air cannot effect it. Besides, I find Potatoes lying on the surface, and consequently green, not attacked at all, the air, as it were, "case-hardening" them; and these Potatoes are not attacked with insects, but the wire-worm, &c., if there are any, very much infest the diseased tubers. I should say the Potatoes cease to grow when first attacked, from the absorbents, which take up and afford them nutrition, being destroyed. I am told by a friend at Wantage, in Berks, that several old farmers spoke of seeing "white rain" fall during August, and expected unfavourable effects from it. What this white rain may have been I cannot tell, but blight has been very prevalent; and, as I before observed, an undue electric state of the atmosphere has also been prevalent. About 16 years ago I published, in the "Mechanics' Magazine," the method as practised by me of obtaining Potato flour, its valuable uses, particularly in fattening pigs; and the valuable application of the residue of the root when boiled, for previously feeding the store pigs with. Pigs fed only upon Potatoes thus managed, will fatten fast, and make fine Pork.—*G. L. Smartt, Enfield.*—— Very little of the murrain has appeared in Yorkshire, but there certainly are decided instances of it. I have been taking up my Potatoes for three days, and a more beautiful, healthy, and abundant crop I never had—not a single diseased Potato occurs—either in the haulm or tuber. The circumstances are as follow:—The Potato is called the "Irish Red;" seed grown upon my own farm last year, planted the 29th of April whole tubers. The ridges were manured with 3 cwt. of African guano only. The soil was a thin peat upon grey and yellow sand, containing a large proportion of oxide of iron, and very bad land. It was Grass, very unlevel, and in the autumn of 1843 I had it dug with the spade, with a view to give employment to some of the labourers then out of employment. It was sown with Oats, and was a bad crop. In the spring of this year, 1845, it was ploughed, set in ridges, guano sown broadcast, and a horse-hoe passed along the ridges to mix the guano intimately with the soil. A portion was done with farmyard manure alone, and two ridges with nothing. All were an excellent crop except that without any manure, where they were small, but all were quite free from the disease. I always allow my Potatoes to be quite ripe. I think this essential both for preservation and for seed. I never have had any curl or dry rot since I planted in the month of April, which I invariably do.—*M. M. Milburn, Thornfield, Thirsk.* ——Having been particular in my examination of the plant, from the first appearance of the spot on the leaf, which attracted my attention in less than a week after its appearance, I feel confident that your explanation is quite correct, namely, that it is atmospherical and not terrestrial; or, in other words, it is caused by the want of due ventilation, evaporation being stopped by the damp and cloudy weather of July and August. Previously the plants grew with almost unexampled rapidity and luxuriance, so that the disease is more like apoplexy than anything else. I found that when the disease first showed itself on the leaf that the tubers were sound to all appearance, but when dug up for some time some showed the "plague-spot;" but if the Potatoes were forward enough to be dug up before the disease appeared on the leaf they are still sound. The kinds I have examined are an early Kidney, and an early round Potato, having no particular name, and both having been grown on the same spot for 12 years; and of the later sorts, the Peach and the Red Rough are the only two I grow. These are but little affected, yet I find that every hill has one or more bad tubers. The diseased tubers of the early sorts are now shooting out in the ground where there is a sound eye in the root, and I have this day seen some with nearly half the tuber decayed, and from the other a shoot of 2 inches long, looking fresh and healthy. This has suggested to me the plan of endeavouring to save seed for next year by autumn-planting; and I mean to proceed thus: Have all dug up as soon as I can, take out the sound ones, and leave those partially diseased on the ground to green, if they will, for about a week or 10 days, and then to plant them as for a crop. Should they rot nothing will be lost; for I consider they are more likely to rot above ground, and there will be time enough to plant again if seed can be procured; but I am convinced they will grow, as the very early sprouting of the diseased tuber (the healthy ones not having made the least shoot) shows that Nature is taking her own course to preserve the plant. I shall not hesitate to plant in the same ground, but without fresh manure, as I do not wish to urge vegetation too fast, as I am quite convinced that the disease is only infectious by contact, and that it is not at all in the ground, but solely caused by the absence of sun, and excess of cold and damp. The sound tubers I shall put on a dry floor in a barn exposed to air, and with very little light, and keep them there, culling out the diseased ones as they appear; and after a month, or when quite dry, put them into a dark dry cellar made on purpose to stow away roots. I may add, that although, in this district, a very great proportion of the Potatoes are quite rotten, yet I do not think that the disease has spread so decidedly through every field or patch as to warrant so complete a panic as has occurred. The diseased tubers have been given to hogs, by several of my workmen, without any ill effect.—*J. M. Tylden, Milsted, Sittingbourne.*—— Last winter my employer gave me instructions to prepare a piece of ground for a nursery, out of an old pasture close—the extent about 3 acres, the soil being deep loam on the side of a hill. About the third week in April I planted I acre with Potatoes, viz., Ash-leaved Kidneys and Golden-dones, the ground receiving no manure of any sort. The leaves became spotted about the end of August, and in the course of a fortnight the stems were dead, and I feared the crop was lost. Last week I dug them up, and to my agreeable surprise, out of a crop of 400 bushels only between 5 or 6 bushels were at all infected, and the most of them were in a little hollow where the wet had remained stagnant. I find the largest tubers are more infected by the disease than the small ones. I can only attribute such good success to the ground being so well drained some few years ago, and to the absence of manure.—*A. M'F., Oxfordshire.*

Potatoes in Scotland.—The Potato-crop in the neighbourhood of this place has in general a very promising appearance, and no serious complaints are to be heard, from any quarter, of failures caused by disease or otherwise. But, nevertheless, I must allow, that any which I have seen dug from the ground, in this locality, are somewhat deficient in size and number, although not in quality, to those of last season. On taking a survey of the Potato fields around us, I find that the more elevated ones, which have suffered least from the soaking rains of June and August, have now assumed the yellow leaf, and the Potatoes are much better grown

than those reared on, comparatively, low marshy soils, which at all times retain a greater degree of humidity than the former; and where the hoar-frosts and rimy mornings, which pay us an annual visit, about the end of September, have in some places left the foot-prints of premature decay. However, should the dry weather, which now enables the husbandman and farmer to gather their sheafy store to the stack-yard, keep up as it now promises, and enable them to secure this other valuable portion of their crop also, I am fully persuaded that any deficiency arising from any cause whatever may be classed among the *minutiæ* of temporary evils, and will be, consequently, very little felt by any class of the community.—*G. D., Forfar, Sept.* 29.

Potatoes in Ireland.—The ravages of the Potato-murrain have not appeared here yet; but there has been a disease in this locality for the last three or four years which has done much mischief; instead of commencing above ground, it seems to commence with the decay of the old set. The tubers as soon as they are formed, are attacked with dark-coloured ulcerated blotches, which soon spread over the whole tuber, and end in putrefaction; meanwhile, the plant becomes languid, the leaves have a sickly yellow colour; yet the plant still exists, and forms more tubers, which are also attacked and carried off; the plant becoming more and more unhealthy, most frequently dies a month or six weeks before the healthy plants arrive at maturity. Nor does the evil rest here; such tubers as escape the ravages of the disease in summer, are attacked after they are dug during the whole winter; so that before the planting season again arrives, the stock is in many cases completely destroyed. The disease is quite local, it is not known beyond six or eight miles from here in any direction. Various remedies have been tried, such as having sets from a great distance, planting in drills instead of beds (which is the common mode of planting here), planting in ground which has not been broken up for a long time, planting very thinly, &c, &c.; but almost all the trials have been attended with failure. One method, however, so far as it has been tried, seems to remedy the evil; that is greening or sunning the sets; for the last two years those planted in the garden have undergone that process, and there has been no failure; previously, they were as much diseased in the garden as in the field. The experiment has been tried this season in the field, and from a partial examination seems to have answered equally well; but the crop will be dug in a day or two, when you shall know the result. Enclosed are some diseased stems, with the late growth of tubers attached.—*T. P. Elliot, Florence Court.* [We are sorry to add that this disease is our English murrain in a mild form.]

Potatoes and Salt.—In a late Number you inquire whether any one has used salt in planting Potatoes. I have not done this; but it may not be uninteresting to know that I dressed three half-acres of newly and well-drained peaty meadow, just before breaking up for Potatoes, and which were equally well worked and manured afterwards, as will be seen by the following statement:—

No.	Lime.	Salt.	When planted.	Kind of Potato.
1	5 one-horse carts.	3 Win. bush.	April 24 and 25.	1, First early; 2, Second early; 3, Highland early.
2	Ditto.	—	April 25.	1, Strawberry, late; 2, Orange early.
3	—	3 Win. bush.	May 1.	1, Purple Kidney (late); 2, Highland (early.

The lime and salt were ploughed in immediately (Jan. 11) after the salt was sown. No. 1. All tops, except first early, gone long ago, but apparently from frost; tops of first early all killed night of Sept. 22; I find no tubers affected yet, but a mouldiness is to be seen on the haulm of many. No. 2. Ditto. No. 3. Far more of the mould, and a worse appearance. The Potatoes in my garden (very dry, sand), much as No. 1.—*A Constant Reader.*——Perhaps there is no person in the Isle of Thanet more interested in the growth of Potatoes than myself. I generally plant about 20 acres, and purchase about 100 acres, (which on an average produce about 10,000 sacks,) for the London market. With reference to the disease, I believe it to be the same as that with which we were visited last year, occasioned by a sudden check to the growth of the plant, commencing in the top, producing premature death, and thus causing decay in many of the tubers. I am sorry to be obliged to inform you that it is as general and as fatal in the Isle of Thanet as it is anywhere. All my Potatoes are affected with it, and they are of various sorts—Ash-leaved Kidneys, Sheep-tail Kidneys, Irish Kidneys, Jersey Blues, and Yorkshire Regents. I expected (from the tilth) about 120 sacks per acre, but shall not get above 20 sacks per acre, and about half of them will be totally useless. Our earliest Potatoes are, generally speaking, rather best, as they seemed to attain their maturity before the appearance of the disease; still, even where they have been got up and stored in a satisfactory state (ripening too soon from the sudden changes of the weather in July), they are showing symptoms of decay as extensive as those which have remained in the ground. I must also add that our chalkiest and driest fields, and even those of the driest which were manured with a portion of sea-weed, are amongst the worst of the bad. I have 8 acres on the top of Broadstairs-hill (land almost as high as any in our elevated locality) that are extremely bad. My neighbour has 30 acres on the side of the same hill, close to the sea, which he is now selling at 30*s.* per acre, which fact (when I tell you that I have sometimes bought his Potatoes for 18*l.* per acre) will give you some idea of his loss. I have carefully looked over the whole island, and the principal Potato-growing districts of East Kent, and in every variety of soil, and under every variety of treatment, and from plants of every description obtained from different parts of the kingdom, all, without exception, are affected. The plan of storing which I recommend, and shall adopt, is, to pile the sound Potatoes, as dry as possible, in ridges (without dirt) 3 feet wide at the bottom, and brought to a point at the top—to cover them over with straw—let them lay a month in this state, then look them over very carefully; store the sound ones again in a similar way, and when the winter sets in, cover the banks with stable-dung, so as to secure them from frost.—*James Smeed, Bromston, St. Peter's, Thanet.*——From the observations I have made in this neighbourhood I am inclined to think that the saline properties of the sea-air do not prevent the disease, as some fields in the immediate vicinity of the sea have partially, and some have completely failed; others are at the present time looking quite healthy in the haulm, and the tubers but little, if at all, affected. Now, does it not appear probable that, if the sea-air had any influence on the prevailing malady, it would have been more general in its effects; at any rate, on those similarly situated? The sea-girt Island of Jersey gives a strong proof of the non-effect of the saline air on this malady. And, again, with regard to the effect salt has had, when applied to the Potato at the time of planting, a patch of ground in my garden was planted in the early part of May, in the following manner:—the rows were opened with the spade about 4 inches deep, the sets were then placed in the bottom of the trench; the first lot was covered with refuse manure, the second with lime in a half-slaked state, the third had a moderate quantity of salt sprinkled over the sets, and the fourth was covered with long fresh-cut Grass; they all came up about the same time, and were very strong in the haulm, till within the last fortnight, when the tops began to die away very rapidly, and they were all cut off about a week since. The tubers have just been lifted, and I find the result with regard to the murrain to be as follows:—Those manured with refuse dung were affected, as near as I can judge, to about 5 per cent.; those with lime, 10 per cent.; those with salt, about the same as the first; but those covered with fresh-cut Grass, I do not think the loss amounts to 1 per cent. The Potatoes, a pale-red Kidney; they go here by the name of Farmers. The soil light, resting on a mixed subsoil, consisting of gravel and clay.—*G. S. H., Nicholastan, Glamorganshire.*——I have about 1 acre of garden-ground about half planted with Potates, and it is situated within the reach of the spray of the sea, and abundantly manured with sea-weed. The result is as follows:—First, my Ash Kidneys, planted in November in very light soil, are very little affected; Cornish Kidneys, planted in December in light soil, are more than half affected; Pink frame, in clay soil, about one-third affected; Early Shaw, in clay soil, a total failure; Chapman's Kidney, planted in June and July (some in clay soil, and some in very light soil), two parts out of three affected. All the above were planted after the spade, and covered with sea-weed. I have about 2 rods of Chapman's Kidney, planted as late as the 6th August, which have been looking remarkably green and well, until within the last fortnight, but they are now completely cut off with the disease; so sea-weed has not given me any protection whatsoever.—*James Wood, Harwich, Essex.*——This parish extends along the shores of Mount's-bay, and consequently a constant deposit of saline particles is going on, more especially when we have heavy gales from the south. Sea-weed also is very extensively used as a manure for Potatoes, as also the beach-sand. The result of extensive inquiries has shown that no parish in our neighbourhood has suffered to an equal extent with ourselves. We must, therefore, admit the conclusion that the application of salt, at least by Nature, has not proved any preventive of the terrible scourge.—*W. W. Wingfield, Gabriel (?) Vicarage, Penzance.*——I have made a circuit of several miles around this place (Teignmouth, Devon) and have found only one instance, with the exception of my own crop, where the Potatoes are not affected with the murrain inland, as well as on the very top of the sea-cliffs. In a field where I found that they were not diseased, I inquired what manure had been used, and the reply was, fresh sea-weed. My own crop is planted on a high exposed hill, in a light gravelly soil, on a subsoil of sharp gravel. The manure I used was 1 load of stable-dung, 2 loads of ashes of burnt weeds, 2 cwt. guano, and 2 cwt. salt per acre, mixed together, and sown in the furrows 30 inches apart, before planting the sets; the greater number of which were whole Potatoes. I was informed that I should have very poor, watery, close Potatoes; because always when salt or guano was used, they were sure to be so, and, as I had used both, they would be very bad. But, instead of being so, I never had better Potatoes; when dressed, they are like balls of flour. The sorts I had planted were Early Whites, planted in the middle of April. I took them up in August, and out of every 100 score not quite 2 score were bad, and in those the disease was only skin-deep, and has not extended to the present time; and those were found near the surface. Early reds (affected with the curl) were planted on the 16th and 17th of May. The two former have been taken up this week, and are not affected. There is a large crop of blues, but the reds are small; the late reds are as green and luxuriant as ever. I have also some Mangold Wurzel Potatoes planted on the 20th May, which also appear to have escaped. In the fields adjoining mine half of the crops are rotten, and in some parts the whole of them are gone. Potatoes here are rising rapidly in price; they were down to 5*d.* per score, and they are now 10*d.*—*Courtenay M. Kingdon.*

Beck's Seedling Pelargoniums.—As I have received a great many letters respecting the terms on which I have sent out my seedling Pelargoniums, and in some instances considerable censure, I ask the indulgence of space in your columns to reply to them, believing that a principle being involved, it may not be uninteresting to your readers generally. The points of objection are, first: that I require pre-payment; and, secondly, that I make no allowance to the trade. In reply to the first objection, experience has taught me that, as a certain amount of bad debts must be incurred when credit is given, it is necessary as a principle of business to take this into consideration when estimating the charge at which such business can be done; in other words those that do pay must pay more, because there are those who do not pay at all, or very badly. Again, experience has taught me the expense in time, &c., of keeping accounts is not the only one; bills have to be made out, and unhappily a great many have to be applied for repeatedly, till, disgusted with the task, one is ready to wish there was a commercial barn-door where you could affix the names of defaulters as the gamekeepers do vermin. I dare say the proprietors of the *Gardeners' Chronicle* find it the case with some advertisers, and no doubt, if there were none such, others who use this channel of communication, myself among the number, would have to pay less. But the extra charge on those who do pay is not the only evil. We often see it stated: "orders will be executed in strict rotation." Now, if this is strictly adhered to, the worst to pay being the most ready to order, they obtain the first selection, and consequently the best plants. This I resolved should not be the case with my seedlings, and having resolutely refused to reserve plants for any one, even my intimate friends, without pre-payment, those who have remitted may rest assured the evil I last alluded to has not been inflicted on them. For the second objection, that of making no allowance to the trade, I can only say that I expected "the trade" would have been the principal purchasers, as I am well known to a great many of them, and I framed the list accordingly. I had no aid of any private growers purchasing the set; I marked them at 10*l.* 10*s.* for the 13 varieties, which I thought them worth to that interest, as a very useful lot of flowers for either sale or exhibition; six gold medals, or their value, proved they were such to me. Ready money is a difficult person to ask questions of. Had I mentioned two prices, one for the public, and less one for the trade, it would have involved my asking every unknown purchaser whether he was a dealer or not, and there is no doubt as to the answer I should have received. If it had been, what it most likely would, "there is my money, send it back, or the plants," I am too much of a man of business to let fly "a bird in the hand," and too fond of fair play to let one man pay 13*l.* 13*s.* when another in circumstances which I might have every reason to suppose precisely similar, paid but 10*l.* My plan is, however, on trial. The plants engaged to this time are gone to their several destinations, and I shall be glad if it forms the commencement of a more healthy system of sending out horticultural novelties.—*Edward Beck, Worton Cottage.*

Seedling Pelargoniums.—I was prevented from answering last week the query put to me by "A. Balston of Poole Nursery," in reference to my communication on seedling Pelargoniums. He inquires "What is to prevent my sending out these plants (his seedlings of the present year) immediately, if I choose to do so, which I shall not." My answer is that, in the first place, the notorious uncertainty of seedlings of the first year maintaining their character in the second or future years' cultivation, ought to prevent any nurseryman who is anxious to uphold his reputation from sending out plants which are so very liable to disappoint the expectations of himself and his customers. In the second place, I contend that no plants ought to be sent out without having been submitted to the scrutiny of judges in whose competency and impartiality the public, as well as the seller, can place full confidence. It is very fine to tell us poor amateurs that if we are cheated by some puffing nurseryman, we should "mark him, mark him well, and let him have his deserts." But the writer does not inform us how this said marking is to be accomplished. His words savour much of the horse whip, but of course he does not mean that sort of marking. Well, if you publicly advertise him, you render yourself liable to an action at law, for he may assume that his judgment of the flowers that have disappointed you is better than yours, and how are you to prove it is not? It is true you may "mark him" by refusing to deal with him in future, but that is no recompence for your loss and disappointment, and leaves him at liberty to cheat some one else just as he cheated you; for these false advertisements, like Joseph Ady's letters, may be continued for many a long year, and still catch some new victims. Depend upon it, the only effectual way of protecting the public, and of serving the respectable nurseryman (which I am most anxious to do), is to "lock the stable door before the horse is stolen," in the way recommended in my former communication. It is no excuse to say that seedlings of the current year cannot be got into bloom in time for the metropolitan exhibitions, since it is of very little importance whether they are shown in that year or not; the exhibition will

ought to decide the character of the flower for the public, and for which the Medals of the Horticultural Society are most judiciously given, is that of the second year of blooming, and surely he must be a dunce in his profession who could not get seedlings of 1845 ready for exhibition in 1846.—*Anti-Puff, Walton.* [We do not think that any such evil as this writer represents exists among nurserymen, who are generally most respectable persons: but if it is so, and we must interfere, why then we will do so, and the names of offenders must be exposed.]

The Weather.—I beg to state that we had two very severe frosty nights, in this neighbourhood, on the 22d and 23d ult., which destroyed all my Dahlias—not a single solitary flower having escaped its effects. Many annuals were also killed, among the prettiest of which, to my taste, was the beautiful Hibiscus Africanus. Several greenhouse plants, which were placed out of doors, suffered more or less, such as Ericas, Pelargoniums, Salvias, Heliotropiums, Genistas, Epacrises, Pultenæas, &c.; even the beautiful deciduous shrub, the Button-wood (Cephalanthus occidentalis), suffered considerably. I may also remark, that my Peas were almost destroyed. French Beans (Phaseolus vulgaris), and Scarlet-runners (P. multiflorus), are totally detroyed. A catastrophe like this, at the beginning of autumn, I never remember to have witnessed. The nearest approach to it was, I believe, on the 3d and 4th of October, 1842, when I had all my Dahlias killed; being a difference of 10 days against the current year.—*W. Boardman, Fallowfield, near Manchester.*

Societies.

BOTANICAL SOCIETY OF LONDON.

Sept. 5.—The President in the chair.—The Secretary announced that British plants had been received from Dr. Bossey, V. P.; Dr. Dewar; Dr. Wood; the Rev. W. S. Hore; the Rev. C. A. Johns; Mrs. F. Russell; Mr. Freeman; Mr. S. Hailstone; Mr. G. Fitt, and Dr. Taylor. Mr. W. Mitten presented a species of Carex, recorded in the "Annals of Natural History" under the name of Carex montana (L.); but owing to the imperfect condition of the one specimen before the Society (in which the flower-stems had withered without perfecting fruit), it could not be certainly referred to the Carex montana (L.) of the continental authors. The specimen was collected "in the county of Sussex, a mile south of Tunbridge Wells, in the way to Eridge, in July last." Read, communication from Mr. T. Bentall on the Luzula congesta of British authors, in which Mr. B. supported the views set forth in Koch's "Synopsis," and repeated in Babington's "Manual," where the plant is described under the specific name of Luzula multiflora. Mr. Bentall's remarks run as follows:—"I beg to lay before the Society the inclosed specimens of Luzula multiflora (Babington's 'Manual'), which, after a close examination, I am disposed to consider as a perfectly distinct species, although often confounded with L. campestris. This error has, probably, arisen from the great variation of the inflorescence in different specimens. The flowers are often collected into an almost orbicular head, when it becomes the L. campestris var. congesta of Hooker and others; at other times they form a panicle of numerous sessile and stalked clusters, when it bears a strong resemblance to the common form of L. campestris, and is often mistaken for it. There appears to be a decided and strongly marked difference in the form of the seeds of the two plants, those of multiflora being usually nearly twice as long as broad, whilst those of campestris are nearly globular; the basal appendage with which they are furnished I find to be much more conspicuous in the latter than in the former. The character pointed out by Mr. Babington as existing in the filaments I believe to be constant. L. multiflora generally inhabits woods and shady places, being seldom found in dry open pastures, in which campestris usually abounds."

CALEDONIAN HORTICULTURAL SOCIETY.

Sept. 18.—This was the Fruit and Dahlia competition. The display of the former was extensive, especially in Peaches, Apricots, Grapes, and Plums; and, considering the unfavourable season, it was in general of fine quality. For the prize offered for the best Peaches, three sorts, three specimens of each, there were 11 competitors. The Silver Medal was voted to Mr. Robertson, gr. to Lord Gray, for Royal Kensington, Noblesse, and Galande, all from the open wall. A second premium was assigned to Mr. Thomson, gr. Strathallan Castle, for Red Mignonne, Galande, and Red Magdalen; and a third to Mr. Crocket, gr. to Colonel Ferguson.—In Nectarines there were seven competitors, each producing two sorts. The first prize was again awarded to Mr. Robertson, for Elruge and Scarlet, from the open wall; and a second premium was assigned to Mr. Young, gr. to Mrs. H. N. Ferguson, for Elruge and Duc de Tello.—For the best Grapes, three sorts, exclusive of Muscat, Hamburgh, and Frontignan, there were four competitors. The Silver Medal was voted to Mr. Ramsay, gr. to Sir G. Clerk, Bart., for Victoria, Royal Muscadine, and Southfield Black; and a second premium was assigned to Mr. Gow, gr. to Count Flahault, for Cannon-hall, Black Prince, and Chasselas Musque. For the best two clusters of Muscat of Alexandria, the premium was gained by Mr. Goodall, gr. to the Marquis of Lothian, his specimens being quite ripe and high flavoured, although not the largest exhibited. Seven competitors produced Black Hamburghs; the Silver Medal was voted to Mr. Aitken, gr. to P. G. Skene, Esq.; a second premium to Mr. Crocket; and a third to Mr. Young. The prize for Frontignan Grapes was gained by Mr. Crocket, the kinds being the Grizzly and the White.—There was no proper competition in Pine-apples, and this was the only fruit in which there appeared a deficiency. Small awards were, however, made to Mr. Thomson, for a New Providence, and to Mr. Weir, gr., Grangemuir, for a Black Antigua. In Moorpark Apricots the competition was very extensive, there being no fewer than 15 competitors, all of them producing beautiful specimens. The Silver Medal was voted to Mr. Robertson; a second premium to Mr. Ramsay, gr. to Sir D. Baird, Bart.; and a third to Mr. Murray, gr. to A. Fletcher, Esq. For the best two sorts of Apricots, other than Moorpark, the premium was awarded to Mr. Crocket, for the Hermskirk and Royal.—In Green-gage Plums there were 11 competitors. The Silver Medal, as first prize, was voted to Mr. Goodall, his specimens being the highest flavoured, although not the largest. The Bronze Medal, as second prize, was assigned to Mr. Russell, gr. to Miss Rae; and a third award was made to Mr. Maclachlan, gr. to W. R. Ramsay, Esq. For the best three sorts of Plums, exclusive of Green-gage; there were five competitors. The Silver Medal was awarded to Mr. Crocket, for Washington, Purple Gage, and Magnum bonum; and a second premium to Mr. Young, for Washington, Kirke's, and White Magnum.—For the highest flavoured Melon there was a keen competition among nine gardeners. The Silver Medal, as first prize, was voted to Mr. Lyall, gr. to Sir John Hope, Bart., M.P., for Irish green-fleshed Melon; and a Bronze Medal to Mr. Kerr, gr. to R. Brown, Esq., for the green-fleshed Melon called Duke of Bedford.—For very large Jargonelle Pears, an award was made to Mr. Jack, jun., Causewayside; and for Apples another award to Mr. Robertson, the kinds being Golden Drop, Oslin Pippin, and Ribstone Pippin.—The display of Dahlia blooms was very extensive and rich. In the Nurserymen's department there were five competitors; and the highest prize was assigned to Messrs. J. Dickson and Sons; the kinds being Bermondsey Bee, Antlea, President of the West, Gloria Mundi, Nonpareil, Standard of Perfection, Princess Royal, Rouge et Noir, Antagonist, Paul Pry, Dazzle, Beeswing, Prince of Waterloo, Admiral Stopford, Lady Harland, Marquis of Lansdowne, Mrs. Shelley, Sir Robert Sale, Bathonia, and Burnham Hero. The Society's Silver Medal, as second prize, was voted to Messrs. T. and W. Handasyde, of Musselburgh. Among practical gardeners there was a keen competition, eleven being in the field. The highest prize was awarded to Mr. Thomson, for Antagonist, Mrs. Shelley, Nonpareil, Gloria Mundi, Admiral Stopford, Standard of Perfection, Rouge et Noir, Beeswing, Bathonia, Burnham Hero, Phenomenon, Eclipse, Emperor of Whites, Lady Harland, Raphael's Aurantia, Rembrandt, and Beauty of Bucks. A second premium was voted to Mr. Sharpe, gr., Pitfour Castle; and a third to Mr. Thom, gr., St. Germains. The competition among Amateurs was interesting, all of them producing excellent specimens. The first prize was voted to Mr. A. Ambrose, for Phenomenon, Lady Harland, Windsor Rivals, Rembrandt, Bridesmaid, Essex Triumph, Nonpareil, Hope, Duchess of Richmond, Yellow Defiance, Mrs. Shelley, and Beauty of Bucks. A second premium was awarded to Mr. Martin; and a third to Mr. Sanderson. No prize was, on this occasion, awarded for Seedling Dahlias. Among extra articles sent for exhibition, for new species of the genera Cleome, Nuttalia, Ipomopsis, and Centaurea, raised from seeds received from the Rocky Mountains, the Silver Medal was voted to Messrs. P. Lawson and Son; and an honorary premium was awarded to Messrs. Carstairs, Kelly, and Co., for a fine flowering specimen of Cestrum aurantiacum. They also exhibited a collection of named Hollyhocks and Dahlias. Messrs. Handasyde sent a series of white-edged or tipped, and also light striped Dahlias, which attracted much attention. Thanks, and in some cases small awards, as marks of approbation, were voted as follows:—To Mr. W. Smith, for good Peaches and Plums, from an open wall in a garden 460 ft. above the level of the sea; to Messrs. J. Dickson and Sons, for a magnificent plant of Gesnera zebrina, and other showy specimens; Mr. Addison, for seven varieties of Grapes; Mr. W. Baxter, Riccarton garden, for baskets of retarded Strawberries, Victoria and Elton; Mr. Lyon, gr., Leith, for a very large specimen of the Ice-plant, Mesembryanthemum crystallinum, grown in Dawson's animal charcoal manures; Mr. Cathie, gr., Airthrey Castle, for a cluster of Cannon-hall Muscat Grape, produced on a graft put on in March last; W. Lothian, Esq., for Jargonelle Pears of very large size; Mr. Foulis, for a stand of beautiful seedling Hollyhocks in the first year of flowering; and Mr. Anderson, gr., Drylaw, also for fine seedling Hollyhocks; Mr. Frances, gr., Balbirnie, for a pretty seedling Fuchsia; Mr. Kidd, gr., Rossie Priory, for a tray of seedling Dahlias, of considerable beauty; and to Mr. Rutherford, for beautiful late Pansies. The collections of French and African Marigolds and China Asters were numerous and brilliant, particularly those from Mrs. Gray, W. Young, Esq., J. Logan, Esq., J. Weddell, Esq., Mr. Young, Newington Lodge, and Mr. Gemmell, Hermitage Park.

Country Show.

Kincardine Horticultural Society, Sept. 10.—This was the seventh Annual Show of flowers, fruits, and vegetables. The exhibition room was, through the kindness of Mr. Gow, richly decorated with beautiful Heaths and plants from Tulliallan Gardens. Among articles for exhibition were a large stand of some hundreds of blooms of beautiful Pansies, from Mr. Finlayson; a fine Cactus, from Mr. Wright; and collections of Pansy blooms, from Messrs. Oliver Brothers, of Falkirk, and Messrs. Carstairs and Kelly, of Edinburgh. Several prizes were awarded; but we have only been furnished with a list of rewards, without the names of the flowers for which they were given.

Reviews.

Darwin's Journal of a Voyage round the World. Parts II. and III. 12mo. Murray.

The manner in which we introduced to our readers the 1st Part of this most interesting work (see p. 546), renders it unnecessary to do more on the present occasion than announce the appearance of the two last. Nevertheless, we are unwilling that our readers should not participate at once in the pleasure we have experienced in its perusal, and therefore we add a few short extracts:—

New Holland Scenery.—"The extreme uniformity of the vegetation is the most remarkable feature in the landscape of the greater part of New South Wales. Everywhere we have an open woodland, the ground being partially covered with a very thin pasture, with little appearance of verdure. The trees nearly all belong to one family, and mostly have their leaves placed in a vertical, instead of, as in Europe, in a nearly horizontal position: the foliage is scanty, and of a peculiar pale green tint, without any gloss. Hence the woods appear light and shadowless; this, although a loss of comfort to the traveller under the scorching rays of the summer, is of importance to the farmer, as it allows Grass to grow where it otherwise would not. The leaves are not shed periodically; this character appears common to the entire southern hemisphere, namely, South America, Australia, and the Cape of Good Hope. The inhabitants of this hemisphere, and of the intertropical regions, thus lose perhaps one of the most glorious, though to our eyes common, spectacles in the world—the first bursting into full foliage of the leafless tree."

Brazilian Scenery.—"Learned naturalists describe these scenes of the tropics by naming a multitude of objects, and mentioning some characteristic feature of each. To a learned traveller this possibly may communicate some definite ideas; but who else from seeing a plant in an herbarium can imagine its appearance when growing in its native soil? Who from seeing choice plants in a hothouse, can magnify some into the dimensions of forest trees, and crowd others into an entangled jungle? Who when examining in the cabinet of the entomologist the gay exotic butterflies, and singular cicadas, will associate with these lifeless objects, the ceaseless harsh music of the latter, and the lazy flight of the former—the sure accompaniments of the still glowing noonday of the tropics? It is when the sun has attained its greatest height that such scenes should be viewed; then the dense splendid foliage of the Mango hides the ground with its darkest shade, whilst the upper branches are rendered from the profusion of light of the most brilliant green. In the temperate zones the case is different—the vegetation there is not so dark or so rich, and hence the rays of the declining sun, tinged of a red, purple, or bright yellow colour, add most to the beauties of those climes."

Mangroves.—"The channel by which we went to and returned from Olinda, was bordered on each side by Mangroves, which sprang like a miniature forest out of the greasy mud banks. The bright green colour of of these bushes always reminded me of the rank Grass in a churchyard; both are nourished by putrid exhalations; the one speaks of death past, and the other too often of death to come."

Tahitian Cookery.—"They then proceeded to make a fire, and cook our evening meal. A light was procured by rubbing a blunt-pointed stick in a groove made in another, as if with intention of deepening it, until by friction the dust became ignited. A peculiarly white and very light wood (the Hibiscus tiliaceus) is alone used for this purpose; it is the same which serves for poles to carry any burden, and for the floating outriggers to their canoes. The fire was produced in a few seconds, but to a person who does not understand the art it requires, as I found, the greatest exertion; but at last, to my great pride, I succeeded in igniting the dust. The Gaucho in the Pampas uses a different method; taking an elastic stick about 18 inches long, he presses one end on his breast and the other pointed end into a hole in a piece of wood, and then rapidly turns the curved part, like a carpenter's centre-bit. The Tahitians having made a small fire of sticks, placed a score of stones, about the size of cricket balls, on the burning wood. In about 10 minutes the sticks were consumed, and the stones hot. They had previously folded up in small parcels of leaves, pieces of beef, fish, ripe and unripe Bananas, and the tops of the wild Arum. These green parcels were laid in a layer between two layers of the hot stones, and the whole then covered up with earth, so that no smoke or steam could escape. In about a quarter of an hour, the whole was most deliciously cooked. The choice green parcels were now laid on a cloth of Banana leaves, and with a Cocoa-nut shell we drank the cool water of the running stream; and thus we enjoyed our rustic meal."

Bees.

Closing of Hives.—As the season for collecting honey is nearly, if not altogether, ended, it is absolutely necessary, should the weather continue unusually fine, that the doorways or entrances of beehives should be considerably contracted. Bees have a natural propensity for collecting honey by any means, and from any quarter, if it is not to be collected from bee-pasturage; and where the entrance into the hives is too large, attempts are often made by robbers to obtain admittance for plunder, and if once an entrance is made by a few only, the hive has but a poor chance of standing the attacks of the many that will soon follow, and which often baffle the attempts of the unskilful apiarian to prevent destroying the hive, which by timely care and attention might be preserved by closing the doorways with a moveable slide, so that but few bees can obtain admittance during the autumnal and winter months, and even in the following spring. Glasses and side boxes, or remunerators, must now be taken without delay, the honey being in a fine state for draining from the combs. The virgin combs should always be separated from the brood and darker ones, whether for draining or the breakfast-table; they ought never to be mixed together. After 45 years of bee management, the month of September of this year has produced the greatest quantity of honey from the Heather in Norfolk, owing to the bloom being so very abundant and late in the season, and but for this autumnal supply, but few stocks would stand through the winter, numbers having already perished during the wet season.—*W. Savage, Swaffham.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stoves.—Forcing must be avoided as much as possible, still the cold nights must not be permitted to affect the temperature so as to check materially the declining growth; get into winter as quietly and naturally as you can; to accomplish this without sensibly affecting the healthy appearance of your plants is a great desideratum, and with care quite within the reach of the anxious cultivator. *Forcing Pit.*—This important and indispensable erection now begins to claim our attention. It may be termed the workshop of decorative horticulture, for it is out of this department that ornament and perfume must be obtained; I mean ornament of the highest degree. Greenhouses and conservatories always afford some flowering specimens, even in the midst of winter; but aided with this auxiliary they may be stocked at all times during the winter and spring months with suitable subjects in bloom. Get in an ample supply of all kinds of shrubs fit for this purpose; pot them and plunge them in old tan. This will apply more particularly to American plants. All kinds of Dutch bulbs must also be immediately potted and plunged in a convenient situation ready to be removed, when wanted, to the forcing-pit; a few of them may at once be excited. Lily of the Valley should be potted for the same purpose, so that an uninterrupted supply of this favourite flower may be had during winter. Mignonette also will be required for early winter flowering. This must always be protected from rain and frost, and as the plants advance, they should be placed in the forcing-pit to bring them into flower. *Greenhouse.*—Give water sparingly, and admit air freely.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Some of the more tender and choice plants in borders and beds, if wanted for store plants, should now be potted and placed in a close house or pit until they are rooted, when they may be removed to their winter quarters. Anemone roots should now be planted in beds and borders—those that have remained in the ground all summer, and that are now coming up, should be examined, and if grubs are destroying them, care must be taken to eradicate them before the roots are destroyed. Transplant shrubs, lay Box edgings, &c.; mow Grass lawns, and clip the edgings of walks, in order to render the whole neat and in good order for winter. Plants dying off in borders should be removed, and seeds collected on fine days, and stored away in wet weather. *Pits and Frames.*—Early struck cuttings should be removed to shelves in greenhouses or pits for winter. If cuttings are now taken from Chrysanthemums showing bloom, and put singly into small pots and placed in a nice heat, they will soon root, and bloom beautifully for decorating the fronts of stages or clumps; large plants in pots should also be set under glass before the frost destroys them. All cuttings that are now required must have more heat and air, to prevent damping off.—*B.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Fruiters—late shows, in sight, or about coming, should now be placed in a pit by themselves, be they of what kind they may; indeed, as to late shows, of such as Queens, unless there is a most eligible situation for them, in regard to a perfect command of heat, combined with a very light roof, they had better be thrown away at once. Jamaicas, however, will answer at almost any period, with good management. The main business with shows in October, is to get the blossom well set; to accomplish which, both more air, and a drier atmosphere, is necessary, than will be suitable to those fast swelling. Give, however, air, night and day, to the swelling fruit. The chief cause of huge crowns, as I have before stated, is the want of air; or, in other words, a due circulation of the atmosphere. Attend well to the linings of those in dung pits, and if you have no hot water pipe to assist you, endeavour to get one as soon as you can. Never rest till you have obtained this; it will be found of eminent use, and will also prove to be more economical when rightly understood. All glass roofs should now be cleaned, or washed, forthwith; no trouble should be considered too great in this respect. Mats and other covering matters should, after this, on no account be allowed to lie on the ground, but hung on rails, or the clean glass will be as bad as ever in a short period. Continue to apply warm linings to Cucumbers and Melons in frames; give air freely to the set bloom, and prevent rot, and shut up early and warm. Continue to make more Mushroom beds in the house as opportunity offers, on the principles before laid down. Sprinkle those beds slightly which are soiled and not yet in bearing; not however with the idea of penetrating the dung, which might be ruinous, but to prevent the soil from becoming husky; keep the floors constantly wet, and as soon as Mushrooms appear, endeavour to combine a due circulation of air (without draught), with a just degree of atmospheric moisture and warmth.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Most of the Peaches and Nectarines on walls will have been gathered; it will strengthen the buds on shoots intended to be trained for fruiting next season, if the wood which has borne in the present year be cut out, provided such do not form part of a branch necessary to be retained for the extension of the tree. Continue to gather Apples and Pears, many of which appear not disposed to hang long, although their usual degree of perfection has not been attained. In storing, wherever an extensive surface of fruit is exposed, air must be freely admitted; for at this period of the season exhalations are most abundantly given out, and more especially by the early varieties, on their becoming fit for use. These, in fact, ought not to be in the same apartment with the more valuable late-keeping sorts. *Kitchen Garden.*—The growth of weeds, favoured by the late rains, should be forthwith checked, and the quarters should be made to exhibit a neat appearance; for this cannot be so well effected should a period of constantly damp weather ensue. Potatoes greening for sets should be housed when perfectly dry, after the process has been sufficiently effected; and if room can be afforded they should be spread out rather thinly. It was recommended not to store those intended for winter use in a large heap, but as it appears that some would not consider a ton as constituting such, it is necessary to be more definite. As the state of the crop is in the present season, it may be safely affirmed that not more than half a ton should be without a division of turf or dry soil. Plant Cabbages. Take up Carrots. Tomatoes may be cut and placed in dry frames, or on the shelf of a forcing-house, to ripen. Plant Endive and Lettuce in frames.—*E.*

State of the Weather near London, for the week ending Oct. 2, 1845, as observed at the Horticultural Garden, Chiswick.

Sept.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	26	24	29.975	29.740	65	40	52.5	W.	
Sat.	27	25	29.914	29.790	60	48	54.0	S.W.	.02
Sun.	28	26	29.947	29.854	63	26	49.5	W.	
Mon.	29	27	29.949	29.753	62	48	55.0	S.W.	.06
Tues.	30	28	29.800	29.704	62	41	51.5	S.W.	.01
Oct.									
Wed.	1	●	29.946	29.844	61	46	53.5	S.W.	.03
Thurs.	2	1	29.74	29.680	64	58	61.0	S.W.	.07
Average			29.891	29.766	62.4	45.3	53.8		.19

Sept. 26—Slight haze; cloudless and fine; clear at night
27—Uniformly overcast; slight drizzle; rain at night
28—Cloudy throughout; clear at night
29—Fine; cloudy; densely overcast; rain
30—Overcast and damp; cloudy and fine; densely overcast
Oct. 1—Faintly overcast; very fine; overcast
2—Drizzling rain; densely overcast; cloudy and mild; rain.
Mean temperature of the week 1 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Oct. 11, 1845.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 5	63.4	41.6	52.5	7	0.57 in.	4	2	2	1	4	4	2	—
Mon. 6	60.7	42.0	51.4	8	0.73	1	2	2	3	4	4	4	1
Tues. 7	61.2	43.7	52.8	6	0.58	1	5	2	—	2	5	3	1
Wed. 8	60.6	45.2	52.9	8	0.63	—	4	3	2	4	2	4	—
Thur. 9	60.1	44.2	52.1	9	0.52	—	4	1	1	3	5	4	1
Fri. 10	61.6	44.2	53.0	8	0.63	—	1	3	—	6	5	2	2
Sat. 11	63.2	45.1	54.2	8	0.31	—	2	2	—	3	8	3	1

The highest temperature during the above period occurred on the 6th, 1834—therm 79°; and the lowest on the 9th, 1829, and 7th, 1844—therm. 29°.

Notices to Correspondents.

GARDENERS' CHRONICLE—Full price will be given for the Number for Sept. 13, No. 37.

ARTICHOKES—*Sub*—These may be protected in winter by placing some rough stable-yard manure round their stems.‡

BEES—*W Hunt*—We should think you could not hit upon a better method of driving your bees away than to expose them to the smell of coal-tar. Bees abhor bad smells, and have very delicate noses. You must take off your new covering, for you cannot hide or stop the smell.

EXHIBITIONS—*D Murray*—It is difficult to give you a satisfactory answer. The finest possible specimen of Clethra arborea would be better than an ordinary specimen of Lilium speciosum. But, then, the latter has novelty in its favour; and if also very fine, would probably deserve a preference. All depends upon circumstances. We should be much obliged for the Hydnum.——*Citrus*—Ginger—no; anybody can grow that. The other things—yes.

GLASS HOUSES—*W*—Fixing sashes has the advantage of avoiding breakage, and they are rather less expensive than moveable ones. But then the ventilation; if you are *sure* that you have enough you may fix them; but we should doubt the fact. How are you to get rid of heated air in summer if the whole upper part of the house is as close as a glass bell?

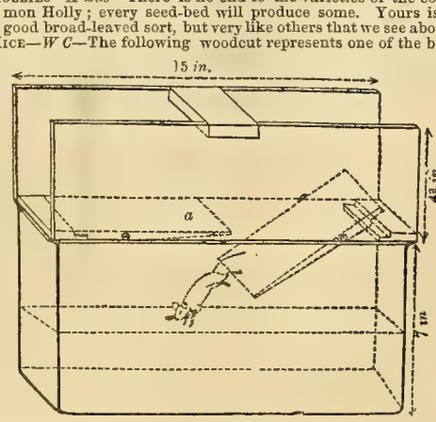
GLAZING—*An Amateur*—Your shower of questions can only be answered partially. It is quite impossible for us to go into long answers to all sorts of conjectures and surmises. Ground glass is excellent for roofing. The reprint of the *Gardeners' Chronicle* has been often suggested: and we will undertake it as soon as any responsible person will produce 5000 purchasers; but we really are not chivalrous enough to ruin ourselves. Gladiolus Gandavensis is a fine salmon colour and very handsome. For other matters consult previous and reiterated answers to correspondents. As to Belgian Gladioli they have no certain names; but you must apply to the dealers. Mr. Van Houtte, of Ghent, will supply you *well*.

GRAPES—*Chertsey*—Your question has been answered before. See p. 825, 1843.‡——*A B*—This has been an unfavourable season for keeping Grapes long after being ripe. Your Muscat Grapes, ripe in July, now exhibit nothing extraordinary, and only the usual appearance of the commencement of decay, which has been doubtless accelerated by the application of a little fire-heat after the latter had been too long withheld.‖

HEATING—*A Kentish Sub*—Keep your flues; you cannot replace them at a moderate price, nor need you.——*J H G*—An Arnott is what we should use; but can you depend upon its management. As we have already stated, a Dean's stove may be a very good thing, and it promises fairly, but we have not tried it.

HOLLIES—*A Sub*—There is no end to the varieties of the common Holly; every seed-bed will produce some. Yours is a good broad-leaved sort, but very like others that we see about.

MICE—*W C*—The following woodcut represents one of the best



traps with which we are acquainted. It consists of a box with two sides open at the ends, having a false bottom, in two lengths, hung by pivots. Each piece of board forming the swing bottom is made to taper at one end in the form of a wedge, the thin end being placed inwards as at *a* in the fig. A pan filled with water may be plunged in the corn to its rim, and the trap placed on it, so that the mice in running along the bottom are precipitated into the water.‡

MOSS ON FRUIT TREES—*G C*—Scrape off as much of the Moss as you possibly can without injuring the buds, and wash the trees with lime-water. Shorten the branches, with a view to the production of young wood, a portion of which will greatly invigorate the trees.‡

NAMES OF FRUITS—*W G R*—Your Pear is not what it ought to have been—the Beurré Diel; nor is it the Beurré de Capiaumont. Better graft the tree with a good variety.‖——*M T*—2, Red Quarrenden; 4, Carlisle Codlin; 5, Oslin; 6, Pomme Roi; the Pear is the Windsor.‖——*S F G*—7, Manks Codlin; 16, Wormsley Pippin; 22, Crimson Queening; 33, Yellow Ingestrie.‖——*Falcon*—1, Blenheim Pippin; 2, Kerry Pippin.‖

NAMES OF PLANTS—*Mr. Gray*—We make it a rule never to name florists' flowers.——*A Campbell*—Houlletia Brockelhurstiana.——*Sub*—Eupatorium cannabinum.——*G W*—The flowers are very much shrivelled; but they look like Gongora truncata.——*Falcon*—The specimens are in such a state that it is scarcely possible to name them. One is a Solidago, the other a Helianthus; but we dare not venture upon determining their species in their actual condition.——*C M*—The mould on Oak leaves is Torula Fumago.——*B A*—It looks like a bit of Lastrea oreopteris. Newman's British Ferns by all means.——*Jack*—Apparently Dolichos lignosus, a greenhouse climber.——*Maria*—Nepeta Cataria and Diplotaxis tenuifolia.

OAKS—*Snelsmon*—Thanks. Your Oak is Q. pedunculata. The Q. sessiliflora has the *leaves* on very long stalks.

ORANGE TREES—*A Young Gardener*—Take your trees out of their tubs, wash the decaying roots quite clean, prune them with a sharp knife, and repot them in coarsely broken turfy loam, mixed with plenty of good rotten manure and some soft charcoal. Cut the branches well in. Place them on a brisk hotbed, or in a hothouse; keep them close, and give them all the light you can. They will break strongly, and when they have made some progress harden them by degrees. But as this operation is best performed in the spring, wait till then, and in the meanwhile withhold water, keep off frost, and let them become dry for the winter.

ORNAMENTAL SHRUBS, &c.—*H C*—You may plant the following about the beginning of November; large plants of many of them may easily be procured from any nurseryman. Evergreens:—Common and Portugal Laurel, Common Yew, Chinese Arbor Vitæ, Laurustinus, Common or Scarlet Arbutus, Berberis aquifolium, Balearic Box, Aucuba, Cotoneaster rotundifolia. Deciduous:—New Scarlet Thorn, Aronia Thorn, Laburnum, Common and Persian Lilac, Calycanthus floridus, Pyrus spectabilis, Ribes sanguineum, Philadelphus Gordonianus, Spiræa ariæfolia. A few Rhododendrons and Azaleas would very much improve the appearance, but they require peat soil. ¶

PELARGONIUMS—*Elizabeth*—You may move your Pelargoniums a distance of 70 miles by roughly pruning in their heads and turning them out of their pots, shaking the mould from their roots, and packing them lightly in damp Moss in a wooden case or basket. When they have arrived at their journey's end, let them be neatly pruned again and repotted.‡

POTATOES—We must continue to refer our readers to our Leading Articles for answers to their inquiries. It is impossible to deal with such innumerable questions singly. All that we can learn is incorporated in those articles; and where the subject of inquiry is unnoticed it will be understood that we have no useful information to give. It will be time enough to discuss the cause of all the mischief when we have done with remedial suggestions, which are still of the most urgent importance. A great deal of nonsense is written upon the subject, against which a little reflection and common sense are a sufficient guard.

PUTTY—*Bolus*—This is made of perfectly dry common whiting, powdered very fine, and mixed up with linseed oil until it is nearly as thick as dough. With regard to glass, you should consult our advertising columns.‡

ROSES—*W C*—Madame Plantier, or Noisette Ayez.

MISC—*A Sub*—If charcoal is soft, we believe it to be very useful to plants, when mixed in the soil or strewed over it; if hard, it is of less value. We will inquire about the Verbena. You had better cover your shelves with boards, and strew the latter with a layer of sand. It does not matter how Tobacco is pressed. Gardeners generally use bricks, or pieces of stone, or any heavy material.——*A Novice*—We doubt whether you have *really* crossed your Lilies. If you have, the seed is valuable, and may be expected to produce something fine. But do you not deceive yourself.——*A Constant R*—Apply at the glue-shops.—*G B M*—If the sheaths of the leaves are entire, the plant is not Tussac; if they are slit it *may* be. It is well described in the "London Journal of Botany," which you must consult for the leading botanical features.——*N S H*—We hardly understand the question. All seaweeds, of perennial growth, are subject to be attacked by Corallines; Laminarias more especially. They are the lichens of the deep, although not plants.——*H M, Herts*—You may let the bulbs of your Hyacinths and Tulips remain in the ground; but if the soil is exhausted (by Annuals), remove as much of the top soil as you can, and replace it with some light rich compost. The bulbs may still be removed without much injury, if carefully done. There must be some mistake about the seeds of Eucharidium grandiflorum. It never can have changed to what you state; something else must have been sown in its stead.¶——*A M F*—You will kill your Yew-tree certainly; perhaps the Ash may escape, but we doubt it. We shall be glad to hear of the Acorns.——*Capparis*—You are right. We cannot answer your other question.‡——*W C*—Scotch Firs may be planted with safety in November. What Amaryllis do you mean?

SEEDLING FLOWERS.

ANTIRRHINUM—*Tweed*—Your specimen named reticulatum is a repetition of an old variety, with the veining rather darker than usual.*

CALCEOLARIAS—*A Sub*—The white seedling with chocolate spots is pretty, but too small for general growth; the yellow seedling with deep brown blotch will make a showy specimen.*

PANSIES—*D*—Your seedling did not arrive in very good condition; it had not sufficient moisture for so long a journey. From the state of the bloom we cannot judge of the general outline, but imagine that it wants roundness; the side petals are disproportionately small, and must either create a deep notch where they join the lip in the outline, or a large gap above the eye.*——*A Sub*—Your specimen promises to be a first-rate flower, fine in substance, form, and colour; the individual petals are finely shaped, and the side ones meet compactly above the eye; where the marginal colour joins it appears to be a little rough on the edges.*

PETUNIAS—*W W*—Your flower is small, and the colour appears to be too weak and uncertain to make it desirable for general cultivation.*

VERBENAS—*Z*—No. 1 is a very good lavender-coloured seedling, but not better than we have. The scarlet variety, No. 2, is very inferior to those we already possess.*——*P C*—Rosea odorata is a very good seedling; it trusses well, the individual flowers are large, smooth, and of a very delicate blush colour.*——*J H*—The best specimens among the seedlings sent are the two light varieties, 17 and 22; they are large and truss well. The other seedlings, although good flowers, do not differ from many others raised by different growers.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

DINGLE'S HAND DIBBLING MACHINE.

WILLIAM E. RENDLE AND CO. earnestly request those who are in want of a really good implement for Dibbling Seed, to see one of these Machines, when they will be enabled to judge for themselves of its superiority. The Proprietors have much pleasure in announcing the List of

AGENTS ALREADY APPOINTED,

any of whom will be glad to exhibit the Machines to those who will do them the favour of calling.

LONDON—Mrs. Wedlake, 118, Fenchurch-street, and Fairkyte's Iron Works, Hornchurch. Essex
LIVERPOOL—Messrs. J. and C. Whalley, Crescent
" Mr. James Cuthbert, 12, Clayton-square
STIRLING—Messsrs. W. Drummond & Sons, Agricult. Museum
DUBLIN—Messrs. W. Drummond & Sons, Agricultural Museum
HADDINGTON, N. B.—W. Dods
BRISTOL—Messrs. Prockter, Cathay
SOUTH DERBY—Mr. Thos. C. Fletcher, Ilkeston, nr. Nottingham
WELLINGTON, SALOP—Mr. Thos. Baddeley, Iron Merchant
WORCESTER—Mr. W. Webb, Worcestershire Iron Company
EXETER—Mr. W. Tuckett, 163, Fore-street
TRURO—Messrs. Mason and Master, Higher Town
TAVISTOCK—Messrs. Edgcumbe and Stannis

It can also be seen at the Royal Polytechnic Institution, Regent-street; and at the Northern Agricultural Museum, Inverness.

☞ OTHER AGENTS REQUIRED.

The Agricultural Gazette.

SATURDAY, OCTOBER 4, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	Oct. 7	Annual Meeting and Cattle Show of the Highland and Agricultural Society, at Dumfries.
WEDNESDAY,	— 8	
THURSDAY,	— 9	
THURSDAY,	— 9	Agricultural Imp. Soc. of Ireland.
THURSDAY,	— 16	

FARMERS' CLUBS.

Oct. 9	Grove Ferry	Oct. 13	Cirencester
	Richmondshire		Yoxford
	Blofield and Walsham		Rochford Hundred
— 10	Stoke Ferry	— 14	Framlingham
	Wrentham		Isle of Thanet
— 11	Cardiff	— 15	Harleston
— 13	Wenlock	— 17	Halesworth
	Darlington	— 18	Swansea
	W. Hereford		

WE continue our remarks on THE MACHINES OF AGRICULTURE. Having already described those which are, properly speaking, implements of *cultivation*, we come now to another class, comprising all that are employed in scattering or planting the seed. And the construction, operation, and efficiency of these, so far at least as their bearing on the Wheat crop is concerned, are now fortunately seasonable topics.

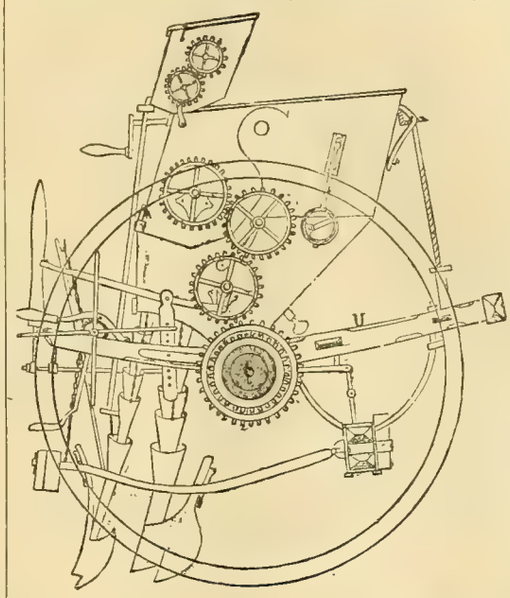
It is well to use *machines* for sowing; there is no farm operation in which it is more desirable to avoid that irregularity which is unavoidably attendant on all *manual* performances. In the ordinary method of sowing broadcast, this irregularity is of two kinds. Seeds are buried at various depths, owing to the unevenness of the surface on which they are placed; and they are scattered at various intervals, the plants are consequently crowded here and scant there. It will easily be seen that both of these irregularities must tend to the production of what is unquestionably a great evil at harvest time—an unequal state of ripeness in the crop.

Sowing machines are of three kinds, and for three purposes—for scattering seed broadcast, for sowing in rows, and for dibbling. The two first will occupy our attention now; they are fundamentally of the same construction, differing only in this, that in the one case the seed is allowed to drop from the box containing it, some 2 or 3 feet to the ground, and thus to become well scattered during its descent, and that, in the other, this seed, similarly delivered, is guided to the ground by tubes placed at proper intervals, and of such weight, or so arranged, as that they deliver the seed at the proper depth below the surface of the soil. In both of these cases, the main features of the machine—the arrangements for delivering the seed from the box at certain rates per acre—may be the same. Four methods of doing this have been devised; and to a description of them we shall devote the remainder of this article.

Perhaps we shall best effect our purpose by describing in succession four sowing-machines, in which these methods are respectively adopted.

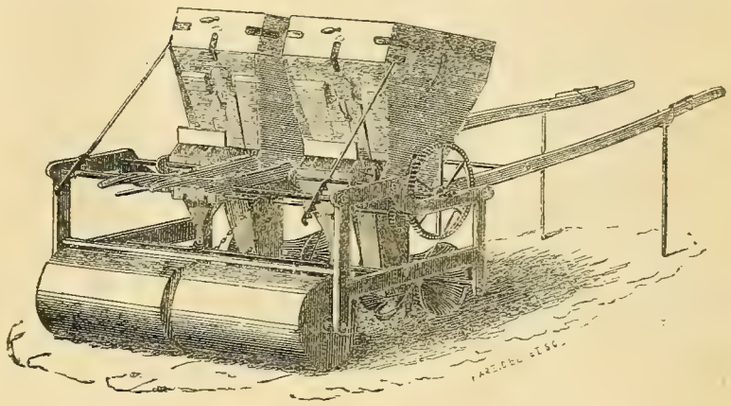
1. *The Suffolk Drill*, as now manufactured by many machine makers, consists essentially of a long narrow box, supported on the axle, of about the same length, which connects a pair of wheels. The bottom of this box, at intervals of about 6 inches, is pierced by the guide tubes for the seed, which terminate inside the box, perhaps 6 inches above the bottom of it. A spindle or shaft revolving in sockets at each end of this box, traverses its length, and on this, close by each of these tubes, is fixed a circular disc, from whose circumference project lateral arms, each terminating in a hemispherical cup. The seed being placed in the box to a depth of perhaps 4 ins., and motion being given to the shaft by a pinion on one of its extremities working into another on the axis of the carriage-wheels, these discs revolve, the cups dip into the seed, and lift successive portions of it, and let it fall into the tubes, by which it is conveyed to the ground. If a greater quantity of seed is to be sown per acre, this shaft bearing these cups is made to revolve faster by the use of a smaller pinion on its extremity; if it be desired to sow a larger or a smaller seed—Beans for example, or Turnip-seed—a shaft bearing discs with larger or smaller cups is substituted for the one in use.

The following is a side view of GARRETT'S Drill, constructed on this principle:—There are three such boxes here connected together, all worked by



pinions from one or more on the axle of the carriage-wheels; the uppermost is for Clover-seed, the second one for corn, and the lowest for manure; so that a very complex operation is here carried on at once. There are various other parts of the machine here exhibited, on which, however, we need not at present dwell; we need only mention that the tubes of which we have been speaking are seen to consist here of a series of cups fitting into one another, attached to one another by chains, so that they may be easily lifted up when turning the machine at the land's end.

2. *The drilling machines generally used in Scotland*, and the broadcast-sowing machines in common use, act on another principle, and one more easily described. The box holding the seed, with the longitudinal shaft to which revolution is given by pinions from the axis of the carriage-wheels, is the same, or nearly so, here as in the Suffolk drill. The shaft, however, is nearer the bottom of the box; and, directly over the holes through which the seed passes, there are placed on it either brushes or grooved rollers, which, when at rest, hinder the passage of seed. When the shaft is at work, the rollers or brushes revolve with it; and the brushes in the one case, or the grooves in the other, constantly carry round with them some of the seeds in the midst of which they are revolving, and drop them through the holes. The quantity of seed sown per acre may here be altered, either by increasing the rapidity with which the shaft moves or by increasing the size of the holes over which its brushes or rollers revolve. The subjoined is the figure of a Turnip drill constructed at Uley, partly on this principle, and partly on that of the Suffolk drill. It consists, if will be seen, of two portions for each row that is



sown. Motion is given to the acting parts in these by means of a chain from the axis of the supporting rollers; the first portion is a box containing the Turnip seed, and delivering it by means similar to those just described; and the second is a larger box containing manure, which is delivered from it by means such as characterise the Suffolk drills.

3. *The common Turnip* drill consists essentially of the rollers which support it, and of the cylindrical tin boxes containing the seed. The latter are strung, as it were, on an axle, to which motion is given by a chain, in a manner similar to that figured above (fig. 2). These tin cylinders accordingly revolve, and the seed drops through holes pierced in their circumference, and is guided by a funnel or tube to the ground. The quantity of seed sown per acre here depends on the number of these holes. It is an improvement upon the common construction to have a reservoir of seed above these cylinders, and connected with them *through* the extremity of the axle on which they revolve, and which is hollowed for the purpose. The seed-boxes are thus always equally full, and greater regularity in the quantity sown is ensured.

4. *Vingoe's seed planter* is a machine which has been exhibited at several of the English Agricultural Society's Annual meetings. We have never yet had an opportunity of seeing it at work, and are therefore unable to give an opinion of its merits. The principle on which its action depends consists in the regularly intermittent coincidence of the holes in two discs, one fixed, and the other moveable, of which the bottom of the seed-box consists. The lower of these discs is fixed, and directly over the holes in *it* brushes are fixed which rub over the upper surface of the *moveable disc* which slides above it. Suppose the box filled with seed; the holes in the upper and moveable disc which may be perhaps $\frac{1}{8}$ of an inch thick, are also filled; this disc slides along the surface of the one below, and the few seeds in each of its holes are ultimately drawn between the brushes above them and the holes in the disc below them, through which they of course fall. The upper disc is made to slide backwards and forwards at regular intervals, and a regular delivery of seed is thus ensured in an exceedingly ingenious manner. This principle has been cleverly adopted in a seed depositor exhibited at Shrewsbury by Mr. BENTALL, of Maldon, in Essex, to which we referred at page 519.

We have already occupied too much room by our imperfect sketch of the various modes of construction adopted by machine-makers in the manufacture of drilling machines. As regards their respective degrees of efficiency, that of the Suffolk drill unquestionably unites accuracy and simplicity in the most perfect degree. We hope to be able, when describing dibbling machines, in another article, to add remarks upon other points connected with the operation of sowing.

CIDER MAKING.

IT may be thought rather presumptuous for me out of all the thousands who read your Paper to advise your "Old Subscriber," when I tell him that all the cider making I have ever seen was not 100 miles from this place, in a small stable belonging to a worthy friend of mine, who would show me his bull, and sure enough there was the bull at one end of the stable and a huge tub at the other, which I found was full of cider in the act of fermentation. I have never asked my friend since for a draught of his cider, but don't doubt that it must be of fine flavour. But, joking apart, if any one wants to know how to make cider, he must either go to a first-rate sweet cider maker in Herefordshire, and learn the practice, or he must read, which I recommend in preference; and if he has the patience to go through the works I shall recommend him, he will not only be competent to make cider, but as I do, Grape and Raisin wine, much to be preferred to the ordinary Sherry or Marsala we meet with in most private houses. Let him then begin with "Cyrus Redding, on Wines," a delightful book, giving a full account of the growth and manufacture of all wines; then "Every Man his own Butler," by the same author. In both these works there is, in addition to the valuable information they

contain, a charming racy humour rarely to be met with in scientific works. He may then attack "Knight on the Apple and Pear." or "Loudon's Encyclopædia of Agriculture," then "M'Culloch on British Wine-making," which will lead him to "Roberts on Wine-making," which is the popular work. If he can meet with it there are some excellent hints in the second part of "Vinetum Britannicum; or a Treatise of Cider," by J. W. (John Worlidge), printed in 1689. He recommends fermenting in small stone jars, say two gallons, to avoid the usual failure from over-stepping the point of fermentation when the liquor should be racked, and which is the principal cause of rough cider. If he does not know the difference between the saccharometer and the hydrometer, and the difference between the brewer's scale and the scale of specific gravity, as marked on the saccharometer, let him read the treatises on the subject in the "Natural Philosophy" of the Society for the Diffusion of Useful Knowledge. He will then send to the philosophical instrument makers in Southwark (I really forget the name) who supply the West India trade, and get two or three long glass saccharometer's with a scale for specific gravity, 5*s.* or 6*s.* each, and will put them in the pressed liquor, and as they sink he will see how the fermentation proceeds, and at all events rack off at 20 specific gravity, and keep racking and fining till the liquor is fine and fit to bottle. Good cider is sometimes racked 30 times, and people sit up of a night to watch it. In the meantime, let him get all the Siberian Crabs, and other yellow pulped fruit, he can lay hold of, to press with his own fruit, which I guess are partly green sorts, and let them be what they may, will be deficient in saccharine matter this wet season. If he intends to have a rich liquor, he must make up the specific gravity to 100, by sugar or honey, before fermentation, and if he has a brewer's saccharometer, he may multiply the scale (for all practical purposes) by 3, to bring it to specific gravity, which is the scale mentioned in the books.—*H., Oxford.*

Another correspondent says :—If the following remarks, with regard to making cider, are of any use to an "Old Subscriber," he is welcome to them. The Apples being ground the pommage is left in open tubs till next morning, and then pressed through hair-cloths. The liquor is removed to the fining-house, and left to ferment from seven to nine days. The froth that rises to the surface to be skimmed off and thrown aside. At the expiration of the above period the fining may be proceeded with, which is done by dropping the liquor through thin calico bags suspended from a wooden frame-work, and dredged with pounded charcoal. Fill the cask to within 2 inches of the bung-hole, put a pound of charcoal in lumps in every hogshead, and bung it close down.

N. B.—It has been found safe and beneficial to pass one end of a tin syphon through the bung into the cask, leaving the other end in a small vessel of cold water. I cannot conclude without expressing the high gratification I have experienced in reading the communications of "Oxygen." — *Thomas Randell, Bradley, Feckenham.*

HOW ARE THE VEGETATIVE POWERS OF GRAIN INJURED BY FROST?

By the Late Rev. James Farquharson, Minister of Alford, Aberdeenshire.

There is one method that has been pointed out by the Highland Society, by which any person may satisfy himself concerning the sufficiency or insufficiency of the grain that he wishes to use for seed—that is, by making trials of small quantities of it in a warm exposure or in flower-pots, a considerable time before the season of sowing, numbering the grains employed in the experiment, and examining how many of them produce healthy plants. This method, if the experiment is properly conducted,* must be deemed infallible for the purpose in view, and may very properly be employed by any person to ascertain the quality of the grain that he has in his own possession.

But it very frequently happens that the farmer needs to purchase his seed-grain from a distant part of the country, and has no opportunity of putting it to the trial here mentioned. It is to enable persons so circumstanced to judge at once by inspection, concerning the soundness or unsoundness of the grain they wish to purchase, that the following short essay is drawn up. I must premise that the following observations apply primarily to Oats; how far they may be extended to Barley and Wheat will be afterwards shown. As it is of importance that in treating a subject of this kind, there should be no room for misunderstanding the terms employed, the following, here used, are therefore explained :—

The *hull* is the rind inclosing the mealy substance of the Oat or shellin : it consists of two parts—one large, and one small; the large nearly inclosing the whole shellin, the small a long narrow slip, secured under the approaching edges of the large part. The *shellin* is the mealy substance of the Oat, stripped of the hull. The *root-end* of the grain and of the shellin, is the end that was attached to the stalk, while the grain was ripening. The *point* of the grain, and of the shellin, is the other end. Upon stripping off the hull, there is discovered in the shellin under the small part of the hull, a hollow or depression running lengthwise, from the root end to the point. As I am not aware that this hollow is generally known by any particular name, I have called it, from its appearance, the *groove* of the shellin.

In addition to this explanation of terms, it is proper here to observe, that the part which forms the young plant, or rather which contains it already formed, constitutes but a very small proportion of the body of the shellin. It is seen in the form of a small oval speck, of a whitish colour at the root end, extending a little way up the side, opposite to the groove. The larger part of the shellin, as distinguished from that which forms the young plant, is here called the mealy part of the shellin. It is well known that this plant is destined by nature to furnish food for the young plant, until it acquires size and vigour to derive nourishment from the soil.

It is in the groove of the shellin that those appearances are discovered, which will enable any person to ascertain, by inspection, whether the grain is injured by frost or not. In the year 1812, I had observed that in Oats that had been exposed in a greenish state to severe frost, the bottom of the groove became black within three or four days afterwards; and subsequent observations and experiments have enabled me to ascertain correctly the nature of the injury suffered, in conjunction with this appearance. With the view of discovering this, I have, since that period, repeatedly examined the appearances of the germination, both in frosted and sound grain.

Upon sowing Oats that had been exposed to frost during the ripening, and in which the blackness in the bottom of the groove was observed in the greater part of the sample, I found that a considerable proportion of grains did not germinate, and that among those which did germinate there was a variety of appearances, the roots in some plants being few, in others wanting; the leaf also being for the most part shrivelled, and narrower than in plants from sound grain. They almost all died off in succession, many of them before they had got the second leaf, although a few survived for some time after. On dissecting grains which had germinated in this sickly way, I found that in a number of cases the young plant was quite detached from the mealy part of the shellin; in others united to it so feebly that it could be separated with the slightest force; and it then became a subject of inquiry to ascertain the nature of the organisation, by which, in healthy grain, the young plant is united to the mealy part, so as to derive the necessary nourishment from it during infancy. I therefore next proceeded to dissect the plants of healthy grain, in various stages of their germination.

On making the dissection, I have observed that the young plant is firmly united to the end of a tough ligament that forms the bottom of the groove. From this ligament it cannot be separated without some considerable force, and it is not organically attached to any other part of the body of the shellin; for although, previous to its germination, it is included under a skin, which, at its edges, is united all around the mealy part, yet this skin bursts and peels off in the process of the germination. It is to be remarked, that the ligament and young plant are at opposite sides, and united over the root end of the mealy part.

Upon examining the mealy part of the shellin, and ligament at the bottom of its groove, more minutely, I observed, that, after the young plant has made some progress in germination, the mealy part assumes the appearance of a skinny bag, filled with a soft farinaceous pulp, the including skinny bag only exhibiting any certain appearances of organization, and that the ligament forms a sort of seam uniting the edges of this bag, and has the appearance of two or three very narrow united stripes running lengthways from end to end of the shellin—an appearance presented by no other part of the skin. The firm union of the end of this part of the ligament with the young plant is not equivocal, for I have repeated the dissection in very many healthy plants, in various stages of their germination, and uniformly with the same result.

The necessary conclusion from these detailed appearances is, that the tough ligament at the bottom of the groove forms, as it were, the root, by which the young plant in its infant stages derives the necessary nourishment from the mealy part of the shellin; and all the appearances of frosted grain, and its germination, confirm this conclusion, and, in reference to it, provide us with a visible and certain mark, by which frosted grain may invariably be distinguished from that which is sound. It is this ligament, the function of which is so indispensable for the healthy growth of the young plant, that is destroyed by frost.* It assumes a black sooty colour, and appears rotten and scaly at its edges, easily peeling off from the mealy substance under it; and there is another circumstance which generally attends it in its damaged state; it is more shrunk into the body of the shellin than in healthy grain, insomuch that the groove nearly cuts the shellin into two parts, which are very easily separated in its direction, the continuity of the tough skin of the shellin being broken in the bottom of the groove, by the rottenness of the ligament; whereas, in sound grain, the ligament being the toughest part of the skin, resists any force employed to tear it in so far as that other parts of the shellin give way before it.

It is necessary to observe, that upon stripping off the hull, this damaged state of the ligament is sometimes not immediately visible, because it is concealed by the shrinking and the depth of the groove; but, in a great majority of cases, it is instantly perceived as a small dark speck in the groove, at the root end; and, upon laying open the groove, the black colour and rottenness will generally be found extending at its bottom, from the root end to the point. There is one limitation of this appearance, and that is in the grains that have been farthest advanced in ripening before they have been injured. In these, the black colour is only seen in the groove, at the root end; but the partial destruction of the ligament indicated by this, is equally fatal to the young plant.

These appearances in frosted grain, are not easily to be mistaken. The rotten scaly black damaged ligament is so different from the tough smooth translucent healthy one, that the eye immediately discovers the distinction between them; while the difficulty of splitting a sound shellin in the line of the groove, compared with the facility with which a frosted shellin may be so split, affords another mark by which they may be distinguished.

In order, then, to take advantage of this decisive mark, in enabling us to distinguish between frosted and sound grain, we have nothing to do but to take 50 or 60 grains promiscuously from the heap, to strip the hulls from these grains, and examine the appearance of the groove of every shellin. If the bottom of the groove has a smooth clear translucent appearance from end to end—if it is not much shrunk into the substance of the shellin—and if the shellin splits with difficulty in its direction—then we may pronounce the grain to be free from injury by frost. If, on the contrary, there is a black speck seen in the groove at the root-end, if the groove cuts deep into the shellin, so that it may easily be split in that direction, and if when the shellin is so split the blackness, accompanied with a rotten scaly appearance, is seen extending from end to end, at the bottom of the groove, then the grain may be pronounced to be entirely unfit for being used as seed.

The nature of the injury that ripening Barley suffers from frost, is similar to that suffered by Oats. The hull of Barley, like that of Oats, consists of two unequal parts; the small part covering the groove of the shellin. In sound grain, when dry, the hull is firmly attached to the shellin; but, in frosted grain, the small part of the hull becomes loose, and feels soft on being pressed; and if, in such grain, this part of the hull is stript away, a blackness and rottenness, resembling that in frosted Oats, will be seen in the bottom of the groove.

I have observed also, that, in frosted Barley, the hull becomes loose all round the root end; but, as this is a circumstance that I have occasionally remarked likewise in Barley that was never exposed to frost, it certainly sometimes arises from other causes—perhaps from wet; and this, unless the grain has germinated, does not render it unfit for seed or malting. The only sure mark of damage from frost is the blackness and rottenness in the bottom of the groove.

I have only seen one sample of Wheat that was exposed to severe frost in a ripening state. I therefore cannot say, from experiment, whether it will answer for seed or not. I had formerly examined the germination of Wheat, and found that the young plant is attached to the mealy part of the grain by a ligament resembling the above described in Oats; and, upon an attentive inspection of the Wheat that was exposed to the frost, I observe, that, in a large proportion of grains there is a rotten scaly appearance in this part—that the groove is much deeper than in Wheat that was saved before the frost—and that the grains are easily split in its direction. From this instance, therefore, I infer that Wheat, in its ripening stage, suffers from the frost an injury of the same nature with that sustained by Oats and Barley. —*Abridged from the Scottish Farmer.*

CROPS IN THE COUNTIES OF WORCESTER, SALOP, RADNOR, AND HEREFORD.

The following observations were made during a ride through part of the counties of Worcester, Salop, Radnor, and Hereford :—

In Worcestershire, the Wheat crop was, in the second week of September, with very few exceptions, cleared from the fields. In the borders of the county, however, which are at a higher elevation, it was not quite all cut or carried. The crop of straw is unusually heavy and expensive to harvest; but there is a general opinion that the yield will be defective, particularly in flour, as one-third of the corns are thin and shrivelled. This

* It is said that the experiment must be deemed infallible for the purpose in view only when it is properly conducted. In the hands of persons not accustomed to make experiments, it may become extremely fallacious, from the circumstance that a large proportion of frosted grains will be found to germinate, although the plants never can come to maturity. It will be afterwards shown that it is not always the germ itself that is destroyed by the frost, but a ligament that unites it to the mealy part of the grain. Many plants, therefore, make their appearance, which afterwards die; and for this reason, the experiment should be allowed to proceed for a considerable length of time. Perhaps it would be well to have two sets of experiments on the same grain, going on at the same time—the plants of the one set to be allowed to stand undisturbed, in order to discover whether any of them will die away; those of the other to be taken up and dissected when the leaf is above the ground, in order to discover whether the young plants are firmly attached to the mealy part of the shellin, or whether they are disengaged from it; as, in the latter case, there is a certainty that they could not have come to maturity. The soil used for the experiment should be taken from the field in which it is intended ultimately to sow the grain: as a feeble plant will sometimes live in a very rich soil, that would perish in a poorer one. I have been led from the circumstance to believe, that more frosted grains will germinate in autumn than in the succeeding spring, after they have been stacked through the winter. It would appear that in length of time, the caries of the ligament extends into the germ itself; so that, after being long kept, grains that would have vegetated if sown sooner, will not produce a plant.

* By this, it is not meant that grain is not otherwise damaged by frost, but only that the destruction of the ligament is one visible and certain injury that it suffers, well accounting for most of the phenomena of the irregular and sickly germination of frosted grain. The unpleasant taste of meal from grain that has been exposed to frost, would appear to indicate that the whole mealy part undergoes a hurtful chemical change; and the case of some frosted grains not vegetating at all, seems to prove that the germ itself is sometimes destroyed. The nature of these injuries, however, has not been as yet investigated, and they are not discernible by the eye.

will be the case more particularly where too much seed was planted, as the straw, being there of course weaker, was laid early and got blighted and mildewed; the thin planted Wheat stooled out wonderfully, and the straw being stiffer, was not laid, and fine bold ears have been the consequence; but even in these there is this year a deficiency in the plumpness of the corns, and the whole will tell badly in the scale. Chicken's meat and bran will therefore be abundant this winter, and I think a very fair average of bread corn will be found too. Clovers are generally luxuriant. Peas a heavy crop, a considerable quantity not carried. Beans a good crop, but still retaining the leaf and looking very green. Vetches, where the game will allow them to be grown, are a good crop. The Barley crops were very heavy, but the corns rather small; it was generally saved in good condition. Fruit of all kinds is plentiful and cheap. There will be sufficient perry and cyder made here to refill all the empty casks. The pastures were never fuller of Grass than they are now, and store stock are much in request and selling rather high. A decided improvement has certainly taken place in the agriculture of this county within the last 20 years, and the quantity of produce has been considerably increased. Draining is now gradually spreading over the county, and its effects are apparent. Pipe or tube drain tiles are daily gaining favour in some districts. There is a vast quantity of land, the greater part of which is heavy marl and clay, that is being cultivated at a loss in this county for want of effectual draining.

In the vallies of Shropshire the greater part of the Barley and Wheat was safely stacked or housed. In the hilly parts, of which there are large tracts, some quantity of both was uncut, and much of it appeared very green. Though a favourable time should continue to harvest this late grain, still an indifferent sample and light corn must be expected; and although the straw crops are generally large, the quantity of bread corn will I suspect barely reach an average. Oats on the hill farms are a good crop, and much of it secured in good condition. The Turnips and Clovers are very promising, but the cold wet weather put a check on the former from which they have not yet quite recovered. The effect of good cultivation never displayed itself more visibly than in the Turnip crop of this year; where the hoe has been freely used and often the crop covers well the spaces with healthy green leaves — their lungs; but where labour has been sparingly used the weeds are contending, and very successfully in some cases, for the occupation of the soil, and the poor Turnips look but sickly in such vagabond company. The pastures adjoining the beautiful rivers and rivulets of Shropshire are full of fine herbage and well-bred cattle, and the sheep of this county not only come to heavy weights, but the mutton is fine flavoured. Corve Dale is a highly cultivated and fruitful valley, and may vie in beauty with most dales in Wales or Scotland. Draining does not seem to be much carried on here, not near so much as in Worcestershire, but the soil and subsoil are more porous. Improved ploughs and implements of husbandry are to be seen in many places, which plainly indicate progression in cultivation. Parties of surveyors and engineers are busily engaged in laying down and levelling lines for railways across the county; and should some good main lines be carried on to the sea-side, with branches north and south in Wales, the benefit to this county and the principality of such a communication with the populous towns of England, for the sale of their agricultural produce, would be incalculable. Surveyors were also engaged on the hills in the neighbourhood of Clun, for the purpose of inclosing many hundreds of acres of fine deep table land, which, although lying high, is capable of growing heavy crops of Oats, Barley, and Turnips, as I was informed by an inhabitant residing on the hills. An instance in point was related to me by a respectable farmer, of a friend of his having purchased some hill land in the same neighbourhood for 5*l.* per acre, which he pared and planted with Oats, and grew 60 bushels per acre the first crop. There are here and in Wales many thousands of acres that with judicious planting, fencing, and proper cultivation, would supply labour and food for vast numbers of our population; why, then, do we send our peasantry to foreign lands?

Entering Radnorshire at Knighton, I was not surprised at finding many fields of corn uncut; in many of the farms lying high up the hills, some quantity had been carried in good condition; but my astonishment was great on arriving at the vale of Radnor to find very little corn of any kind was cut, even in the vale, which is very large and open, and fine Turnip land. The crops of Oats, Barley, and Wheat were heavy in the straw, but the ears were thin and light from causes mentioned before; many of the fields of Wheat would not be ready to cut under a fortnight, and should the weather prove wet or cold they would be of little value. Peas had not podded and ripened generally, and a field was being cut in full blossom for fodder, the haulm of which was 4 yards in length. Guano and bone-dust have been introduced here lately, and have succeeded well for Turnips. Improved cultivation has made little progress here, particularly on the hill-farms; but irrigation is extensively practised in the valleys wherever a small stream from the hills can be made available for the purpose; this is of the greatest importance, producing heavy crops of hay and aftermath in situations where scarcely any pasturage would grow, thus increasing the value of such land tenfold. Much more land might be irrigated with water, containing greater fertilising properties, if the hill farms were effectually drained, and the water collected by mains in the most advantageous situations for floating the land below; this will not only apply to Wales but England also, where irrigation is too much neglected. There is little doubt that, in many situations, the value of the water so obtained, to throw over the lower levels (which should be the permanent pasture), would repay the outlay of effectually draining the uplands, in addition to the increased value which would be effected on the arable lands, whatever the nature of the soil might be.

The corn harvest in Herefordshire was nearly as forward as in Worcestershire, the spring-planted Wheats and Beans being the principal crops uncut; the Hops were rather small and late; it was not expected they would be ready for picking under a fortnight: the crop, although not a full one, was likely to be a remunerating one. Apples and Pears plentiful, but not so fine as usual.

The Hop-grounds, or yards (as they are called here), plainly indicate (above the road-side fences) by the size and quantity of the clusters of Hops hanging from the poles, what kind of cultivation has been given to the soil on which they are growing; and on gaining a view of the surface, it will almost invariably be seen that the fine overarching and embowered Hop-yards are as clean as the best cultivated gardens, and are at this period of the year one of the finest sights a lover of rural objects and scenes could possibly wish for. On the contrary, the ill-cultivated Hop-yard is covered with weeds, or small unproductive Turnips, which are robbing the rootlets and fibres of the Hop of that nourishment which it requires to bring it to maturity. If a clod in a clean Hop-yard be turned over, the soil is literally white with the mass of small fibres which are approaching the surface in every direction in search of food, to supply the stem in perfecting its seed. It is worse than useless to appropriate the best manure of a farm to produce any particular crop, if sufficient labour, with judgment, is not used to prevent the loss of its fructifying properties in growing useless plants and noxious weeds.—*R. Smith, Worcestershire, Sept.* 1845.

ANALYSIS OF FOUR COMMON SEA-WEEDS, WITH REMARKS ON THEIR APPLICABILITY AS MANURE.

[The following paper, which originally appeared in the *Brighton Gazette*, has been forwarded to us by its author. We are forced, by want of room, considerably to abridge it]:—

A plant, when destroyed, either by the ordinary process of decomposition (by putrefaction—a low combustion), or at a high temperature, with sufficient access of atmospheric air (by ignition), discharges carbonic acid gas, water, and ammonia, and leaves a residue in the form of ash, called inorganic matter. The former derived from the atmospheric air, contain the elements which constitute the organs of the plant; but these organs cannot be developed and their functions properly performed, unless there should enter into the constitution of the plant certain inorganic substances, derived from the soil in which it grows, and varying in quantity and quality according to the nature of the plant.

From these observations it becomes desirable, in the first place, to ascertain what inorganic substances are necessary for the existence of the plant. An analysis of its ash furnishes us with this knowledge. Being possessed of this information, it becomes of importance, in the second place, that the plant should be grown in such a soil as will supply it with those solid constituents. For this purpose an examination of the soil will be necessary. Should it be ascertained by inquiry that the soil does not contain all such ingredients, or if only in small proportions, art will supply the deficiency by the process of manuring.

These are then the simple facts, substantiated by many analytical researches of eminent chemists, by which agriculture is now elevated to a science, and by which the practical farmer ought to be guided, with the view of insuring success; and this the more so, since, as Liebig says, there is no profession which can be compared in importance to that of agriculture; nor is there any in which the application of correct principles would be productive of more beneficial effects.

From the foregoing it must be obvious that a fertile soil, possessing all the conditions alluded to for the growth of crop, must in process of time become exhausted; because a succession of the same crop must at last carry off all those mineral substances which necessarily enter into the organisation of the plant. Since, however, a proper application of mineral manure will restore the former fertility, it becomes necessary that we should be acquainted with the constituent parts of manure. These remarks show the usefulness, nay necessity, of correct analyses of the soil, the plant, and the manure. The examination of the ashes of plants has latterly, from its obvious importance, engaged many analytical chemists. The results obtained will answer a two-fold purpose; first, it will inform the inquirer what solid ingredients are required for the growth of a particular plant; and secondly, what mineral manure such a one affords, in case it is to be considered as refuse. With the latter view I have undertaken the analysis of four of the most common sea weeds (fuci) found on our sea-coast, which have been applied as manure with variable success. The constituent ingredients, however, which I have obtained from a minute analysis, will guide the rational inquirer in deciding on the applicability of the same to various agricultural purposes.

Results in 100 parts of Ash, deducting Carbonic Acid Gas, Sand, and Charcoal.

	Laminaria saccharina.	Fucus vesiculosus.	Fucus serratus.	Fucus crispus, (chondria crispa).
Potassa	24.768	17.679	16.017	7.312
Soda	1.839	5.776	6.006	21.576
Lime	11.076	7.482	9.744	2.575
Magnesia	8.133	6.892	7.594	7.674
Chloride of sodium	33.722	35.380	38.724	18.860
Iodide of sodium	4.695	0.130	0.267	trace
Phosphate peroxide of iron	0.753	0.356	0.642	0.366
Phosphoric acid	3.832	2.308	2.253	trace
Sulphuric acid	10.601	23.715	18.352	41.300
Silica	0.581	0.282	0.401	0.337
	100.000	100.000	100.000	100.000
100 parts of the sea-weed, dried at 212° Fahr., gave ashes	9.785	20.560	25.830	25.469

In reviewing the analysis, we find, if we distribute the acids amongst the bases, and unite the surplus of the latter with carbonic acid—thus forming binary combinations—that we possess the chlorides, sulphates, and carbonates with alkaline bases. The two latter combinations are of most important service in the growth of plants. Where the sulphates are required, the fucus vesiculosus, and in particular the fucus crispus, would be most beneficial; the others where the carbonates and chlorides are more indicated. The importance of chloride of sodium (common salt) in combination with sulphate of lime (gypsum) is well known, for sulphate of soda and chloride of calcium are formed; the former of these enters into the organisation of the plant, and as the sulphuric acid of this salt becomes decomposed by the power of vitality, its sulphur will combine with the organic elements that form albumine, fibrine, and caseine. These substances require a certain proportion of sulphur, and are indispensable to the existence of animal life.

The Laminaria saccharina discharges during incineration a quantity of an ammoniacal salt, an operation that would also take place, but by a slower process, during the decay of the plant. It would in many instances be of importance to retain this salt, particularly in the growth of grain. This fucus, as well as the others, might be best employed when half decayed; for this purpose it should be formed into a heap, of which the external surface should be covered, either by sulphate of lime (gypsum), or clay, as circumstances require, but in both cases the ammonia would be fixed. The phosphates are not in abundance in the sea-weed; but mixed with some farm-yard manure, their quantity would be increased, should such an increase be desired. The sea-weed manure would prove most beneficial in the growth of Beet-root, Turnips, and Potatoes, and, in fact, would be useful whenever the alkalies necessarily enter into the organisation of the plant; such, for instance, as are termed potash-plants. — *Edward G. Schweitzer, Director of the Royal German Spa, Brighton, September*, 1845.

Home Correspondence.

Prize List of the English Agricultural Society.—On the 16th ult. I took the liberty of publishing a few observations on this subject through your columns; I called attention to the amount and number of prizes awarded to those noblemen and gentlemen who were the fortunate owners of the over-fed cattle exhibited at the Shrewsbury cattle show. I assure the readers of your Paper that my object has been far from being an unfriendly one to the Society; I believe our Royal Agricultural Societies have done much good, and that they will continue to do so by encouraging the endeavours of those who would connect science with agriculture; but, although I approve of those noblemen and other gentlemen connected with the Society being directed in their practice by eminent men, such as Dr. Playfair, whose lectures I admire, I shall not look in silence on what I consider a waste of the funds of the Society: being convinced that, as noblemen do not require such sums to be distributed amongst them for what they take a pride in producing, they can be turned to a better purpose if placed within the reach of the small farmers, whose energies will be roused into competition, and thus, in the end, the landlords, who now pocket the 30*l.* prizes, will reap the benefit. "A Subscriber to the Society," in his answer to my letter, has admitted that the proceedings of a public body are fairly open to criticism, and I must claim that liberty in noticing his observations, in condemnation of mine, and in this attempt I shall (as a plainly-educated old farmer) do so without evasion. In the first place he says I urge the revision of the list of prizes and a total change of distribution, on the ground that at present an annual sum of 1000*l.*, as at Shrewsbury, disappears, without giving a chance for the working farmer to benefit by it, and without, in fact, effecting anything but a removal from one rich landowner to another; he is perfectly correct in this statement; I have proved the fact from the Society's own reports. He then says, "If this statement were literally correct the proceedings of the Society would amount to a mere farce." Now, I am substantially correct in my statement, taken from the Society's reports, and I agree with him, so far as this goes, in the farce-like character, he has conferred on the Society's management of its funds. I showed in plain figures that 1000*l.* had changed hands without doing a single

iota of good to one second-class farmer; has your correspondent proved me in error? I think not. The Society boasts, I think, of 7000 members; we will say, for argument sake, that there are 1000 tenant-farmers who subscribe each 1*l.*; what must be the feelings of those people to see my Lord Hill and a few others (because of their ability to cram a few bullocks, sheep, and pigs, regardless of expense in a way that no prudent farmer dare to do) carry off the 1000*l.* without one of them having a chance to participate in it; now, in my opinion, the Council of the Society should at all times try to avoid such a course of management as will give farmers cause to suppose that the rich man has a better chance than the cultivating farmer, and as in the distribution of 30*l.* prizes for a bull or a ram, there is no chance for the working farmers to compete with rich landlords. I consider 1000*l.* for the fat cattle prizes a sum fully three times more than enough. I cannot think that the gentlemen who form the Council of the Society will admit your correspondent's description of their rules and regulations to go forth as genuine: I am certain that such statements are not calculated to forward the object of the society. I admit the Society leaves the competition for prizes open to the agricultural community, great and small, but how few of the small farmers can afford, like Lord Hill, to put up half a dozen of bulls, bullocks, or sheep, for over-feeding, on the speculation of some one of the six having a better constitution and more inclined to fat than the others, and more likely to turn out a prize animal. I believe the tallow-chandler is the only one that can wish to see animals so over-fed, and the only man likely to profit by it, unless it be he who gains 30*l.* for the job. Your correspondent then hints at the efficiency of implements with a view to justify the distribution of the prizes; I have thought proper to go a little further into the list, and have shown the absurdity of giving any man 30*l.* for being the owner of an over-fed bull or ram. Until lately our farmers were found fault with, and called stupid fellows, because of their not keeping up in the march of improvement, as the cotton-spinners and manufacturers have done. I admit they have not taken advantage of the uses of steam and machinery, but I deny they have any cause to move all at once in a more rapid course than our cotton spinners and manufacturers—*they* never combined to give premiums to machine-makers to encourage them to follow up their legitimate business; they always found when an improved machine appeared in the market it was enough to create sufficient competition among the trade, and as improved machines caused the old-fashioned machinists to be left idle for business, their ingenuity, from self-defence, has been continually brought into action; and, therefore, I say it is truly absurd to offer prizes to plough-makers and machine-makers to follow up a business that is dependant on the increase in agricultural improvement—I say it is as absurd to give a mechanic 10*l.* premium for making a subsoil pulveriser, which will cost 5*l.* 5*s.*, as it would be to give a harness-maker 5*l.* for making a set of ploughing harness, on an improved principle, for the horse to draw the plough; I maintain it is quite premium enough for the Agricultural Society to mark their approbation of any kind of farming implements to insure the party improving being well paid for his ingenuity; so far from the reverse of such a course being beneficial to the farmers, it appears such prizes cause the makers to think their machines are so superior that the prices for such improved machines far exceed their value, and call forth remarks such as I observe now before me in the *Agricultural Gazette* (see page 584). —*An Old Farmer.*

Lucerne.—I have a beautiful plant of Lucerne sown or rather drilled last spring, but the frost of this week I see has touched the plant. Please ask in your next Paper what is the best thing to put upon young Lucerne to protect it from frost, and what artificial manure is best suited for it?—*R.* [We would advise the application of a thickish top-dressing of half-rotten farm dung.]

Harvest: South Ireland.—The harvest is very backward and very bad this year, and up to this date there have been constant rain and strong winds. The Swedes appear to have a rusty, unwholesome colour, quite different from their appearance a month ago. There is no produce in Wheat this year, like last; farmers who generally cut eight bags (20 stone to the bag) to the acre, have not three or four. Oats promise better, but it is very difficult to save anything in a proper manner. —*Sub., Cloughfodda House, Cork, Sep.* 20.

Biddel's Scarifier.—It appears to me that a man has not done his duty, if having derived great benefit from anything which is not in general use, he does not give publicity to it; I therefore take this opportunity of letting your readers know how admirably Biddel's scarifier works. The other day I got over 6 acres of Wheat stubbles, 3½ inches deep, with the broad shears and six horses, which shows the land is pretty strong, but not a bit less horseflesh would have done it well. It is equal to four ploughs, and scuds beautifully under much of the twitch which at this time of year does not lie very deep. A neighbour of mine, an experienced farmer of the old school, who saw it at work, was so much pleased that he intends getting one, and I am sure it only requires to be known more for it to be more highly valued; and I believe few implements will sooner repay their original cost, although it is expensive.—*Titus Oats, Carlisle.*

Farming Capital.—A very plausible answer to the accusation that the tenant farmers have a lingering apathy in agricultural improvements has often been, "Where is the capital to come from?" Your correspondent "Falcon" has some sound remarks in relation to the employment of capital in farming; my present purpose, however, is rather to deal with the non-employment of what may be termed a locked-up or dead capital, which many are unaware of, and to defend this accusation in regard to a particular class of agriculturists. It is a fact, which speaks praise to the parties themselves in one sense, that in agricultural districts the farmers and those engaged in agriculture compose a principal class of savings-bank depositors; in the French savings-banks, too, by far the greater proportion of the depositors are agricultural and manufacturing workmen. To illustrate this, in the case of our own agricultural depositors, I will give the following particulars from the last annual report of the Devon and Exeter savings-bank, from which it appears that there were, engaged in agriculture—

2,348 small farmers, possessing a capital of	£96,559	4	0
3,388 agricultural labourers and husbandmen	98,187	6	11
4,752 children	52,724	10	6
10,488 agricultural depositors, with a capital of	£247,471	1	5

I could quote other instances of large deposits in savings-banks by like depositors, but this may suffice. Now, I would ask, whether it would not be wiser policy in these 2348 small (or great?) farmers with their capital of 96,559*l.*, derived from the source of their occupation, independent of that of their children, to let it return from whence it came, in effecting improvements [certainly it would; provided always, that its possession were secured to them by lease, for a sufficiently long period, of the lands on which it was invested] which may be considered now as the main-stay of their prosperity, and thereby turning it to a more profitable account, rather than let it sink into a state of lethargy? Might not the honest agricultural labourers and husbandmen also unite or apply their well-earned savings to industry and skill, realising one common good? We here see a capital of 247,471*l.* hoarded and treasured up, and while important changes seem desirable the farmer shuts up his resources, at the same time pleading as an excuse, "But where is the capital to carry them into effect?"—*H.*

To Preserve Eggs.—For the information of "Cautus Futuri," I beg to inclose my authority. Mere baptism won't do, but total immersion. My eggs are good, and they have been in the water, &c., six months. They must be stirred with the hand every week, and put in fresh.—*Cheddar, Somerset.* "Eggs will keep a long time in lime-water, properly prepared. One pint of coarse salt, and one pint of unslaked lime, to a pailful of water. If there be too much lime, it will eat the shells from the eggs, and if there be a single egg cracked it will spoil the whole. They should be covered with lime-water, and kept in a cold place. The yolk becomes slightly red, but I have seen eggs thus kept perfectly sweet and fresh at the end of three years. The cheapest time to lay down eggs is early in the spring."—*Mrs. Child.*

Fences for Salt Marshes.—I have some land which has gradually been formed by silt left by the sea, and at spring tides it is covered by the salt water for a few hours. Grass is gradually spreading over the whole of it. Can you tell me what I can plant as a fence, which will not mind the occasional visits of the salt water?—*H. H.*

Small Allotments of Land.—I do not see any reasonable objection to a company [excepting legal ones, which are, we believe, at present insuperable] being formed for purchasing freehold land, and dividing it into small allotments, to be let out to the agricultural labourers. Mortgagees are glad to get 4 per cent. for their money, when, through the formation of a company of this description, they might insure 5 per cent. on their capital, and render a great benefit to a much neglected class of the community, not to speak of the country at large, by giving a great number of industrious men a stake in the general welfare. I am well aware of the prejudice that exists among both landlords and tenant-farmers against placing the labouring class in a more independent situation; I also know the evils that are anticipated from introducing a class of small landholders in the country. They cite, unfortunately oppressed Ireland as a proof of the distress arising from such a system, without reflecting why it is such misery arises from that which should produce the reverse. The whole sole cause of this is to be found in the system of subletting or underletting in the sister country, which is not permitted in our own. To commence or carry out this company, I should propose that gentlemen of character for liberality, and possessing influence, form a committee for establishing "An Equitable and Benevolent Land Association, for the Encouragement of Agricultural Labourers." Say capital one million, in 20,000 shares, at 50*l.* per share. To purchase the fee simple of freehold land (or copyhold where fines are certain) in such localities as a committee of management might decide upon, and letting it off in small lots for a long term of years, at a rental securing to the shareholders 5 per cent. per annum, subject to covenants not to underlet, not to deteriorate the land, or erect buildings thereon, other than for the tenant and his family, upon one general plan and elevation, to be specified. This portioning to each labourer half an acre would employ 40,000 men, with their families. I cannot see why the system is to be limited to only the proposed capital, but extended to the amount appropriated to emancipating the slaves in our colonies, who are now carrying out the allotment system to the great advantage of themselves, and the manufactures and trade of England. A right honourable gentleman, high in her Majesty's government, has been pleased to honour me with his sentiments on this subject, but is of opinion it could not be accomplished by a company, but would require an Act of Parliament to carry it out. I venture, however, to submit that it might be carried out much better than by having legislative officials to attend its operations, and burthen the funds with consequent cost of government commissioners, &c.—*R. M., Gravesend, Sept.* 16, 1845.

Hop-yards in Herefordshire.—The Hop-yards in Herefordshire and Worcestershire are planted somewhat alike, viz.:—Three or four roots, cut from the crown of the parent stock (about 4 or 5 inches long, with an eye to each root, placed 2 or 3 inches apart), are termed a stock, and are planted 6 inches deep, 4½ feet from middle to middle of each stock, with a space of from 7 to 9 feet from row to row, which are formed into ridges. If the roots are large, three are planted at the above distance in the form of a triangle; and, if small, four are placed in the form of a square. As soon as the young bine appears, three small sticks are placed near to each stock, thus encouraging the young shoots to entwine as soon as possible. Great care is taken in planting the root; it is pressed to the bottom of a 6-inch hole by the planter, and some fine pulverised mould is put on top of the root, which completes Hop-planting. —*T. K.*

Societies.

HIGHLAND SOCIETY.

The Dumfries Show of 1845, we are glad to find, is to hold a high place in the annals of these meetings. From the announcements which have from time to time appeared in our columns, our readers will be aware that all stock and other articles to be exhibited must be intimated some two or three weeks before the show. These intimations having been given, it is now known what will be the extent of the exhibition. The cattle, the leading feature of the "general shows," will be more numerous than on any previous occasion, with one single exception. It is remarkable enough that the number of these is somewhat greater than were exhibited at the last show in Edinburgh, which was one of the finest and most attractive ever held. Until the premiums are decided by the judges, the names of competitors are not divulged; but we hear that in the lists there will be a large number both of the proprietors and tenantry of this county, as well as those of the Stewartry and Wigtownshire. From a distance, particularly from the Lothians, there is a considerable entry. The short-horns from the border counties of England, from Yorkshire, and from their own county, Durham, will appear in very respectable numbers. Of this breed we have heard of an animal all the way from the county of Caithness, which comes to be pitched against its kindred entered from the other side of the Tweed. Of horses there will be a good exhibition. The number of sheep will be very large. Pigs, too, will not be wanting; some of them prime, and from a great distance. Of these several descriptions of stock there will, it is supposed, be somewhere about a thousand head—a large number, considering that they are selected animals, and brought from every quarter of the country. There are, however, many other things besides cattle, horses, sheep, and swine. The exhibition of poultry will, without an exception, be the best the Society has ever had; and, we believe, among the exhibitors will be found some fair names of high distinction. For the butter and cheese premiums there will probably be not fewer than a hundred competitors. The implements and machines will be very numerous, and there will be many which are new and of much interest. Finally, in the departments of roots, seeds, and plants, there will be no want of variety or beauty in the objects exhibited. To many this will be the most interesting feature of the exhibition. Everything, in short, gives promise that the expectations entertained of the show being a successful one will be fully realised.—*Dumfries Herald.*

Farmers' Clubs.

Manchester.—*Thin Sowing.*—At the meeting of this Society on the 16th ult., the following letter on this subject was read:—"Ashley Heath, near Altrincham, 16th Sept., 1845. Dear Sir,—You expressed a wish to have some particulars of my experiment in planting Wheat, which I have great pleasure in communicating. A neighbour of mine has already commenced planting a field of about 6 acres, from seeing the result of my trial, which he has watched through all its stages. My seed was from Lord Ducie's model farm (Shirreff's White). I planted one acre after Potatoes, and half an acre after Swedes; that after Swedes suffered very much from the wireworm.

Planting (by the hand).

1844. Oct. 19. In rows, 9½ inches by 4 inches, two seeds in a hole; or at the rate of 2¼ imperial pecks per statute acre.

Hoeing.

1845. April 10. Hoed the ground well over.
,, 30. Hoed a second time, after sowing Clover and Grass seeds, which were covered in by the hoe.

Produce.

From a rod, 5½ yards by 5½ yards, thrashed 15th September.

19¾ lb. Wheat, being at the rate of 52 40-60 bush. per stat. acre	
2¼ ditto, light.	6 40-60 [per imp. bush. 60lb.
22¼	59 20-60 total bush. per acre.
39 lb. straw.	445 10-14 stones straw p. acre.
	2 tons 15 cwt. 2 qrs. 24 lb.

"A second trial of a rod taken from another part of

the field gave exactly the same result in heavy Wheat, 19¾ lb., but ½ lb. less of light; the straw, however, much heavier, being 49½ lbs. *Remarks.*—The Wheat stood on an average 5½ feet high, and kept upright through a good part of the wet weather; but subsequently was considerably laid, and of course fed badly, being only 60 lbs. per bushel imperial. The produce would have been much greater under more favourable weather. There is a very common error prevails in this neighbourhood, calculated to bring the practice of drilling and dibbling Wheat into disrepute. By far the greatest proportion that I have seen drilled has never been touched with the hoe; and the few who do use the hoe appear to think its only use is to cut off the weeds; whereas hoeing is the very soul of the system. And, unless Clover is intended to follow the Wheat, no farmer can truly say that he has given the system a fair trial, unless he hoes the ground (weeds or no weeds) at the least three or four times; and, to do that effectually, the rows ought never to be less than 9 or 10 inches apart. When Clover is sown, it ought to be hoed twice at least. I am, dear sir, yours very truly,—J. H. Neild."—*Manchester Guardian.*

St. Quivox.—*Annual Inspection of Farms.*—This annual fête, came off on the 27th and 28th Aug. and 1st ult. The starting point being at Craigie House, a large party—amongst whom was Dr. Sheir, Professor of Agricultural Chemistry, Aberdeen, met at the hour appointed. From Craigie the route then lay by Dalmilling and Braehead, East Sanquhar, &c.; we cannot forego the pleasure of noticing a most abundant crop of Potatoes at the latter named place, raised upon a novel and improved principle by Mr. Reid, who is ever ready to carry into operation whatever new idea may strike his active fancy. The plan upon which they were grown was simply having had them planted in whole Potatoes, at intervals of two feet each way, and, being only a small space of ground, about the fourth part of an acre, were wrought by spade and hoe, and earthed all round. The manure was guano, 5 cwt. to the acre; and to prove the weight of the crop, Mr. R. had caused a square fall to be dug and measured that day for the satisfaction of the Club; and notwithstanding their being far from maturity, the quantity produced was at the rate of 75 bolls per Scotch acre, and we have no doubt whatever, but 100 bolls per acre may be the ultimate result when the crop is properly matured. Again, on Monday, the 1st ult., a smaller party, headed by the indefatigable Preses of the Club, met at Mr. Tennant's farm of Greenan, to visit their neighbours south of the Doon; and from thence by way of Springgarden, proceeded to Mr. Ralston's, of Dunduff, to breakfast, where they were met by a number of the Carrick Members of the Club, and others. Mr. R.'s extensive herd of short-horns and half-breds were much admired for weight and symmetry, and called forth the uniform commendation of all present. His extensive range of grain and green crops were then severally explored, and much useful information elicited from the accurate description of the manures which had been applied.—*Abridged from Ayrshire Agriculturist.*

Evesham.—*Leases.*—The anniversary of this Association was held last week. At the dinner, Mr. C. E. Henford proposed "The Health of the Successful Candidate for the premium for the best Cultivated Farm." Mr. F. Woodward, in his reply to the toast, dwelt with some earnestness on the lease question. He had only been enabled to take the prize for the best large cultivated farm on account of having a fixed holding of his farm, which encouraged him to make such improvements and outlay in its cultivation, as under other circumstances he should not feel justified in doing. He agreed with Mr. Cobden on one point, which was, that this country was badly farmed for want of the outlay of capital; that want of capital resulted from insufficiency of tenure. "Since I have had," said Mr. Woodward, "a more fixed tenure of the land which I now occupy, my interest has been much greater in it than before. I have been enabled to employ the surplus labour of the surrounding district; I have laid out my money unsparingly, not fearing a notice to quit; and the consequence is, that I have been enabled to produce nearly double what I did before on the same farm." Moreover, he thought his capital had been well returned. "The health of Mr. Randell, the Secretary of the Association," was given. Mr. Randell replied at some length, touching upon the lease question, as mooted by Mr. F. Woodward. He spoke much of the advantages of thoroughly draining land to improve its produce; but to do this he said the assistance of the landlord was necessary. Either the landlord should give the tenant a fixed tenure of the land, or he should make the first outlay himself, charging the tenant with a proper interest upon his capital expended. He particularly pressed upon the notice of landlords the propriety of granting equitable leases to their tenants, as beneficial both to the farmer and the labourer. The farmer would not then shrink from laying out his money in improvements, draining, &c., while the labourer would thereby have abundance of work at all seasons, and a much larger produce would be realised. In the course of his speech Mr. Randell mentioned that since the establishment of the Evesham Agricultural Association 536*l.* had been paid away in prizes for cattle and implements, 150*l.* in prizes for improved cultivation, and nearly 200*l.* in labourers' and cottagers' premiums. The results of its working showed an improved state of cultivation in the fertile Vale of Evesham, and an improvement in the condition of the agricultural labourer, and an improvement in the quality of stock.

Anglesey.—*Lime Burning.*—At the late annual meeting of this society, Mr. Griffith, of Pencraig, made some observations upon burning of lime. He said the whole of the coals of Anglesey were much superior for burning lime than they were in Ireland, where he had a colliery himself. When he came to Wales he was much surprised when he was told that the small coal would not burn lime. One man refused to burn it for him, and so he said he would get some one else. He had now burned lime for several years, and had taken a great deal of pains to ascertain what it had cost; he held in his hand a paper to that effect, and he would state how the matter stood. The burning cost 13*s.* a hundred quarters; 40 quarters a day at that came to 5*s.* 2*d.* using one-half small coal and the other large (the speaker enumerated two or three other items, carriage 2*s.* 6*d.*, turnpikes, &c.). That was the whole expense in burning daily 40 quarters of lime. He did not doubt most of the company burnt lime more or less, and he thought it was very desirable they should burn their native coal: he strongly advised every farmer to use it; they would find opposition from the lime-burners, but that was not to discourage them. Mr. Williams (a lime-burner) made some remarks in Welsh upon what Mr. Griffiths had just said, the effect of which was the very reverse of that gentleman's opinion. He said he could get no coal in Anglesey that was good for anything, and that it would not burn into the stone. Mr. Griffith made a few more observations upon the subject, in reply, and further said, that the lime kilns were too wide at the top, and not sufficiently deep; they ought to be 15 or 16 feet in depth. Those of that sort would burn a great deal more limestone. The meeting soon after separated at an early hour.—*Chester Courant.*

East Suffolk. — *Leases.* — At the anniversary of this association at Halesworth, the Earl of Stradbroke said—There are many subjects which it may be desirable to comment upon on an occasion like this, and one I should like to make a few remarks upon is the subject of leases—a subject which has occupied much public attention of late, and upon which much has been written and spoken. The objects of leases are threefold; first, to enable and encourage the tenant to invest his capital, and to give him due and proper time to recover remuneration for that investment; secondly, leases are advantageous to the landlord, for they give him hope that his land will be better cultivated; and, thirdly, they are beneficial to the poor, because they insure them better and more constant employment than they could otherwise secure. It is my fixed opinion that the landlord does not perform the duty he owes to himself, the duty he owes to his tenant, or to the poor, unless he includes in the leases of his farms a clause to insure a certain portion of labour being continually employed on the land, the effect of which will be that the farms, if, unhappily, not renewed to the same parties, shall be given up in a good state of cultivation; and in such case the tenant ought to be entitled to adequate remuneration for the improvements he may have made. But I submit the practice would have a better effect still; it would encourage a desire to renew leases, and thus cement the affection and reciprocal feeling which are sure to be the result of friendly intercourse. I am aware there are in this county many energetic and skilful agriculturists who object to the clogging clauses—such as the four-course system. But the difficulty the landlord has to solve is this—how is he to distinguish between a skilful farmer and a land jobber? It is true the one may cultivate a farm without detriment to the land; while the other, resting upon his own judgment, may ruin it in eight years, or injure it so much that a succeeding tenant could not hire it without a great reduction in the rent. There is another subject, upon which I shall only lightly touch. I allude to cottage allotments. My opinion is, they are productive of much good, and I am anxious to see every cottage united to either 1-8th or 1-4th of an acre of land. At the same time I would caution my more enthusiastic friends, and those who have the interest of the poor at heart, that if the time should come when there will be a great many occupiers of from one to two acres of land, they would see the curse of Ireland illustrated—namely, a vastly increasing population living in beggary. The next subject which I shall touch upon is one which I think you ought to receive as deserving your best attention; but whether you agree with me or not, you ought to receive it in the way in which I wish to impart it. It is a well-known fact that the farmers of the present day are superior to those of 70 years ago; but if it is the desire of the farmers of this generation, as indeed it must be, to witness their sons stand in the honourable position that they themselves hold, it will be necessary for them to pay the utmost attention to their education, and to see that they are not kept behind in the rapid course of civilisation. Already there is established at Cirencester, in Gloucestershire, a college partly endowed, in which men of great science and professional skill have been engaged, and where young men can be boarded and educated for 30*l.* a-year, and instructed in every branch of agricultural knowledge; where they will be instructed in the difference and variety of the soil, and the effects of different manures; and where they will be instructed in all the branches of scientific knowledge connected with agricultural pursuits. Should these studies prove successful, they will produce a set of young men capable of taking their position in society, and entering upon the science of agriculture as a means of livelihood, which cannot fail to have the most beneficial effect upon this kingdom.

Reviews.

On the Varieties, Properties, and Classification of Wheat. By J. Le Couteur, Esq. Shearsmith. London. 1836.

This work has been before the public for some years; but, if we except an essay by the same author in the "Royal Agricultural Society's Journal," and the publications of Sir G. S. Mackenzie during the past two years, as it is still the only one which attempts to guide the farmer in the selection and preservation of good seed Wheat, we take the liberty of directing the attention of our readers to it.

The excellence of any variety of Wheat depends of course upon the money value of its produce, and this is dependant on several circumstances; as, for instance, its productiveness—the quality of its produce—its earliness—its suitability to particular soils, &c. To all these subjects Colonel Le Couteur calls attention; and from his chapter on some of them we shall make some extracts.

The faults in the common cultivation given to Wheat are chiefly two-fold:—1st, the practice of applying manure directly to it—to which we may attribute occasional crops of heavy and mildewed straw; and 2ndly, the want of judgment generally displayed in the selection of seed; seed Wheat too often contains more than one variety, and hence the crop ripens at various times, and the sample is irregular. These two faults are commented on in the following passages:—

"The usual mode, with the best farmers, is to purchase seed corn, where it is supposed to be clean and pure, by the last expression meaning Wheat of one sort, or as little mixed as possible. But the ordinary practice, with those who may be said to supply the nation, is to procure seed Wheat where it can be got cheapest, without regard to mixture or purity, provided the sample is good, and appears likely to grow; others do worse, and imagine that poor lean shrivelled Wheat, the refuse of their own stock, or some coming from a distance, as a change, is all that is required to ensure a crop. Other carelessness, previous to, or after culture, need not here be treated of, as that would equally affect the best, as well as the worst seed. One observation it would be well to make now, that the old practice of putting fresh manure to land intended for Wheat, is decidedly dangerous, inasmuch as it tends to produce much Grass or straw, and less grain, which grain is also of a dark and coarse nature. Stable-dung should be applied plentifully to the preparatory crop, and when lime or ashes are not procurable for the Wheat crop, the early and free use of the hoe will supply their loss in a great measure; but none save decomposed stable-dung should be applied to Wheat, *if that manure be necessary.* This is merely stated as a general observation, as there may be soils which, without manure, would be wholly unproductive. The experience of the writer being at present chiefly limited to what are commonly held to be good soils.

"I must here observe, that the cause why so much Wheat appears to have many shrivelled, lean, ill-grown grains in it, arises often from the unequal growth of the many varieties that lurk in the purest crop."

This and other reasons render it necessary that pure sorts should be obtained, and for the maintenance of them when they have been obtained by rearing from single grains, the following directions are given. It will be seen that a plan is proposed similar to that suggested by Professor Henslow, and referred to at page 661.

"The best cultivator of Lucerne I have ever known, whose practice extended over 40 years' experience, assured me, that until he had adopted the method of giving it fresh food yearly, he never made it produce as he had since done. One year, it was dressed with decomposed manure; the next, with ashes; the third, with salt; and the fourth, with lime. I have applied this principle to Wheat; that which is grown on land, manured from the mixen, one year, becomes seed for land prepared with lime, that again becomes seed for land dressed with ashes, then for land dressed with mixed manures, and so on, varying the food as much as possible, hence giving a good variety every chance of finding a new soil, on each occasion. It may be objected that such a system could not be continued on a larger farm, where 500 or 600 acres of Wheat come into rotation; that may be true, to a certain extent; but a little address and judgment, even on such a scale, by judicious subordination, would enable a farmer to surmount the difficulty, as 50 acres kept in rotation on such a farm solely for seed corn, even at 30 bushels the acre, would be the required quantity. So, on a small farm, where only 50 acres of Wheat would be cultivated, 5 acres skilfully managed in the same way might prevent the deterioration, or degenerating of a variety suited to the soil and climate."

We have room for only one more extract referring to a common idea among farmers that a grain partly shrivelled, ricy, and semi-transparent, is a better seed than one full of flour.

"It must be obvious, that lean and shrivelled Wheat is not so likely to nourish the young plant just starting from its embryo state into life, with a mere miserable skin of a parent to live upon, as the fine rich nutriment to be met with in a plump, round, farinaceous grain, full of meal. As well might a farmer expect to have a fine fat skipping calf, from a poor lean cow, fed or rather starved, on Dartmoor Heath."

Miscellaneous.

On Soiling, or House-feeding Cows.—(*By Mr. Smith, of Deanston.*)—In the summer of 1841, a dairy

of 20 cows, consisting of part Ayrshire breed, and part a cross from Ayrshire cows and a short-horned bull, were separated into two lots of 10 each, selected to be as equal as possible, in point of carcass, condition, and milking quality. The one lot was, about the beginning of May, put to pasture in the usual manner, going to the field about seven in the morning, after having been milked, again being brought home to be milked about one o'clock, and again being driven out at two o'clock to the field; and at seven in the evening again being brought home to be milked, and remaining in the house all night, having some Turnips and straw, during the first few weeks, and thereafter cut Grass. Towards Midsummer they were put out all night, and kept in the house from twelve till four, getting cut Grass, Vetches, and a little straw: and from 1st September, being again kept in all night, getting cut Grass, Vetches, and straw. The cows of the other lot were tied up in a wooden house, erected for the purpose, in a field of sown Grass, from which they were to be fed, near a field of Vetches. The byre was constructed to hold five cows at each end, with boards to open in front of each cow, to let the Grass be put into their stalls, and to admit an abundance of fresh air during the day. There was a large tun or cask sunk in the ground outside the house, to receive the urine flowing from the cows; near this tank the dung from the cows was placed in layers on the surface of the ground, and the water was occasionally taken from the tank in buckets, and thrown over the dung to keep it moist, and to promote its decomposition, channels being formed in the ground round the dung-heap to conduct such fluid as might flow from the heap into the tank. The cow-water being so repeatedly passed through the dung-heap whilst it promoted its conversion to well-made dung, became itself enriched, and was in a fit state for being applied to the surface of the ground as a liquid manure. These cows were fed with cut Grass from the field in which the house was placed, and towards the latter part of the season, with a proportion of Vetches cut from an adjoining field. About one-fourth part of the labour of a man was sufficient for cutting and carrying the Grass, and with the aid of a pony and a cart, when the place from which he had to carry the food became distant. He also supplied the cows with straw and water, and carried out the dung, and he dressed the cows once a day with a whalebone-brush. The cows were never removed from their stakes from the time they were put up until the 1st of November, when they were taken back to the dairy, to be tied up for the winter with the other cows, excepting when they had to be taken to receive the bull. It required some care on the part of the keeper to observe when they came into condition for that process. The cows thus treated were milked three times a day, as the others were—they gave their milk more uniformly and more plentifully, and continued throughout in excellent health and improved in condition from 30*s.* to 40*s.* per head over those at pasture. When removed to the dairy they still continued in excellent health and condition during the winter, and had their calves in spring in proper time, and of large and healthy frame. The manure made was of value, considerably above the extra charge for management; and the cows were kept in summer on three quarters of a statute acre each. Those on pasture required only one and a quarter acre of pasture, and nearly a quarter acre for cut Grass and Vetches; so that, upon the whole, about one-half of the extent of ground necessary for the summer keep of cows at pasture was sufficient for those kept in the house.—*Ayrshire Agriculturist.*

One-horse Carts versus Waggon.—I have no light ploughing land, nor have I more than 20 or 30 acres of very heavy land. I will, therefore, relate my actual experience. In the employment of waggons and the old broad-wheeled dung-carts, I required one waggon, one cart, and three horses to every 50 acres of arable land. I also kept a light cart for general purposes. Now that I am employing carts, I find that I get through my work much more easily with two horses and two carts to 50 acres. The following is a fair calculation of the first outlay under the two systems:—

	£	*s.*	*d.*
1 waggon	25	0	0
1 dung-cart	15	0	0
3 horses	60	0	0
Extra harness	2	0	0
Proportionate cost of the light cart to 50 acres	3	0	0
	105	0	0

	£	*s.*	*d.*
Two 4-inch wheel one-horse carts	24	0	0
Two horses	40	0	0
	64	0	0
Balance in favour of carts	41	0	0
	105	0	0

This shows a saving of upwards of 16*s.* an acre, which many young farmers would find extremely useful to expend in stock or implements. There is also some annual saving in the expense of the repairs under the cart system, as well as that of the keep of one horse to every 50 acres. I believe there are those who think this of little importance; that they can keep horses at a very small expense, say from 3*s.* to 5*s.* per week; and that if fewer are kept, they must be fed more highly, and therefore the cost is much the same, forgetting that the more horses are kept the greater number of hands are required to attend them, whose time also is wasted if the animals are not in a state to do a good day's work; nor is the manure nearly so valuable as when the horses are kept in a better state. To estimate the saving of keeping one horse less to 50 acres, I will make my calculations from my own method of keep. I have not for years allowed my horses any hay. In winter I give them 10 lbs. of corn, 10 lbs. of Carrots or Swedes, and as much straw-chaff as they will eat per diem. The corn I value at 6*s.* per week, the roots at 9*d.*, and the straw, with the expense of cutting into chaff 1*s.* 3*d.*, making in the whole 8*s.* per week; which, with 1*s.* for shoeing, &c., amounts to 9*s.* In the summer I give them green Clover or Vetches, without corn, which I value at 5*s.* per week, making 6*s.*, with 1*s.* added for shoeing, &c.; the average, therefore, for the whole year, will be 7*s.* 6*d.* each horse. It therefore follows that if we can save one horse in the cultivation of 50 acres, it will amount to nearly 8*s.* per acre.—*E. Bowly, Royal English Agricultural Society's Journal.*

The Permanence of the Action of Lime.—I know a plot of ground in this neighbourhood, containing 166 acres, which formerly grew little except Heath. A good dressing of lime was applied on the top sward, which has more than doubled its value. This was done about 15 years ago, and totally eradicated the Heath. The lime to this day appears in full action, as its effects annually testify, from the richness and sweetness of the herbage, the texture of which has been thoroughly changed by the application of the lime. The deep green hue and luxuriant appearance of this land in spring and autumn form a striking contrast with those adjoining, which are still unimproved. The soil is a thin moorish loam in a high climate, resting on the greywacke formation.—*J. Watson, English Agricultural Society's Journal.*

Notices to Correspondents.

BOOKS—*Anti-Alarmist*—We know of no tract specifically on house-feeding cows. You will find information on the subject in Blacker's essay on "Small Farms," and in Rham's "Dictionary of the Farm;" and especially in Curwen's "Hints on Agricultural Subjects."

DRAINING—*T D*—You had better let your drains run into a main, parallel with the open ditch of which you speak, and opening into it by only one mouth, of which charge can be more easily taken than of 50 or 100, as you would otherwise have. This mouth might be furnished with a sluice, to hinder the damming up of the water in flood time, which you dread. If flood times be frequent and protracted, this will be advisable.

HOP-PLANTING—*Anon*—See notice on this subject under the head "Home Correspondence."

HOW TO FIND IF A STONE WILL BURN TO LIME—*A Sub*—Place upon it a drop of muriatic acid (spirit of salt), if effervescence ensue, you may fairly conclude that it is owing to the presence, in abundance, of carbonate of lime.

INORGANIC CONSTITUENTS—*R C L*—The substances you allude to are merely the inorganic bases of the compounds existing in the ashes of plants. This, you will perceive, explains the apparent inconsistency to which you allude.

ITALIAN RYEGRASS—*Anon*—One bushel per acre of good seed, *along with the ordinary quantity of Clover seeds*, is sufficient.

SEED FOR ARTIFICIAL PASTURAGE—*Constant Reader*—We extract the following Table from Lawson's "Agriculturists' Manual."

FOR ALTERNATE HUSBANDRY.

	Light and Medium Soils.			Heavy Soils.		
	1 year's hay.	1 year's hay and 1 year's pasture.	1 year's hay and 2 years' pasture.	1 year's hay.	1 year's hay and 1 year's pasture.	1 year's hay and 2 years' pasture.
	lb	lb.	lb.	lb.	lb.	lb.
Lolium perenne.....	18	18	18	18	18	18
Phleum pratense	..	..	..	1	1	1
Trifolium pratense ..	8	6	3	8	6	3
,, perenne....	..	..	3	..	..	3
,, repens	2	4	4	2	4	4
Medicago lupulina ..	..	2	2	..	2	2
	28	30	30	29	31	31

SEED WHEAT—*To Readers*—Will any one kindly give us their experience on old Wheat instead of new as seed? Did any one ever grow a smutty crop from old seed?

SCAB—*An Original Subscriber*—Spirits of tar and turpentine, with infusion of tobacco, is an incompatible mixture, and therefore not to be recommended. The infusion of tobacco had better be used alone. Spirits of tar is dangerous if applied largely and unmixed—it may be diluted with an equal quantity of fish or other oil. We know nothing of "Cuff's Scab Oil," or any empirical medicine. Half an ounce of strong mercurial ointment mixed with three or four times the quantity of lard will be sufficient for one application to a full-sized sheep. It may be repeated in the course of 10 days, but in less quantity. The disease usually developes itself about 12 days after infection.—*W C S.*

TOPS OF MANGOLD WURZEL—*A Subscriber*—These should not be cut off the root as long as they are green. However, it is probable that the roots are already nearly ripe—if so, and if you are in want of food for stock, you may harvest the crop, and apply the leaves in that way.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Sept. 29.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3*s* 10 to 4*s* 0	Best Long-wools	4*s* 4 to 4*s* 8
Best Short Horns	3 6 3 8	Ewes and second quality	3 10 4 4
Second quality Beasts	2 10 3 4	Lambs	— —
Calves	4 0 4 10	Pigs	4 0 5 0
Best Downs & Half-breds	4 8 5 0		

Beasts, 3853; Sheep and Lambs, 25,740; Calves, 138; Pigs, 305

Again the supply of Beef is very large, and trade heavy, prices having a downward tendency.—Sheep are not plentiful, and the trade for the best qualities is quite as good.—Lamb may now be considered out of season.—The best Veal and Pork are making fair prices, but trade is decidedly not so good.

FRIDAY, Oct. 3.

The warm wet weather, and a very bad trade at the dead markets, have caused a very small attendance of buyers to-day, consequently our supply is too large. Some of the best Scots, &c., make 4*s*, and Short-horns 3*s* 8*d*; it is difficult to dispose of the second-rate qualities at from 2*s* 8*d* to 3*s* 4*d*.—The supply of Sheep, although not large, exceeds the demand. Best Downs, of which there are a very few, make nearly 5*s*; but other qualities are considerably lower; best Long-wools, 4*s* 2*d* to 4*s* 4*d*; Ewes and Second-quality, 3*s* 8*d* to 4*s*.—Calves, 3*s* 8*d* to 4*s* 8*d*.—Pork, 3*s* 8*d* to 4*s* 8*d*.

Beasts, 852; Sheep and Lambs, 5800; Calves, 243; Pigs, 300.

41, West Smithfield.

HOPS, FRIDAY, Oct. 3.

The market is well supplied with Hops, which are selling freely. Fine Sussex from 6*l.* 10*s.* to 7*l.*; ditto Weald Kents, 6*l* 15*s.* to 7*l.* 10*s.*; very choice more money. The crop is said to come very short of expectation. Duty £164,000.

PATTENDEN & SMITH, Hop-Factors

COVENT GARDEN, OCT 3.—The Market continues to be well supplied with Vegetables, and particularly with the various kinds of autumnal Fruit; but trade is far from being brisk. Among Pine Apples we observed some handsome specimens of the Queen and Providence; Black Hamburgh Grapes are also very fine and plentiful. Peaches and Nectarines, although scarcer, are still sufficient for the demand, and large quantities of foreign Plums continue to be imported; of English varieties, good samples of Coe's Golden Drop may yet be obtained. Apples and Pears are plentiful. Good English Melons are scarce; a few Spanish ones may be met with. Large importations of Foreign Walnuts have arrived during the week, and, being good in quality, they command a brisk trade and good prices. Filberts are not quite so plentiful as they were last week, but are still sufficient for the demand. Little alteration has taken place in the prices of Vegetables. French Beans are scarcer, and consequently a trifle dearer. Peas are very nearly over for a season; a few, however, may still be met with. Turnips are very plentiful and good, as are also Carrots, and the same may be said of Cauliflowers and Broccoli. Potatoes command quite as high prices as they did last week, and if anything the samples produced are rather freer from disease. Some Brussels Sprouts have just made their appearance. Endive, Lettuces, and Salading of every kind is sufficient for the demand. Cut Flowers chiefly consist of Pelargoniums, Camellias, Tuberoses, Agapanthus, Salvias, Sweet Peas, Gardenias, Stephanotis, Asters, Amaryllises, Heliotropes, Picotees, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 6*s*	Pears, per hf.-sv., 2*s* to 4*s*
Grapes, Hothouse, per lb., 1*s* to 4*s*	— Windsors, 3*s* to 3*s* 6*d*
— Spanish, per lb., 9*d* to 1*s*	Oranges, per dozen, 1*s* 6*d* to 2*s*
— Bk. Portugal, p. lb., 1*s* to 1*s* 6*d*	— per 100, 12*s* to 24*s*
Peaches, Wall, per doz., 1*s* to 4*s*	Lemons, per dozen, 1*s* to 2*s*
Nectarines, per doz., 1*s* to 4*s*	per 100, 7*s* to 16*s*
Melons, 2*s* to 4*s* each	Almonds, per peck, 6*s*
— Dutch, 1*s* to 3*s* each	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Figs, green, per doz., 2*s* to 3*s*	Walnuts, per peck, 6*s* to 7*s*
Plums, per hf.-sv., 2*s* to 3*s*	Filberts, English, p. 100 lbs., 35*s* to 42*s*
Damsons, per hf.-sv., 3*s* to 4*s* 6*d*	Nuts, Barcelona, 24*s*
Apricots, per doz, 1*s* to 3*s*	— Brazil, 16*s*
Apples, Dess., per bush., 4*s* to 7*s*	— Turkey, 16*s*
— Kitchen, 1*s* 6*d* to 4*s*	Barberries, per hf.-sv., 3*s* to 4*s*

VEGETABLES.

Cabbages, per doz., 3*d* to 1*s*	Vegetable Marrows, p. doz. 1*s* to 1*s* 6*d*
Cauliflowers, per doz., 1*s* to 4*s*	Onions, per doz. bunches, 2*s* to 6*s*
Broccoli, per bunch, 6*d* to 1*s*	— pickling, per hf.-sv., 2*s* to 3*s*
Greens, per doz. bunches, 2*s* 6*d* to 3*s*	— Spanish, per doz., 1*s* 6*d* to 5*s*
French Beans, per hf.-sv., 1*s* 6*d* to 3*s*	Shallots, per lb., 4*d* to 8*d*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Endive, per score, 9*d* to 1*s* 8*d*
Artichokes, per doz., 2*s* to 3*s*	Lettuce, per score, Cab., 9*d* to 1*s* 3*d*
Potatoes, per ton, 60*s* to 80*s*	— — Cos, 6*d* to 1*s* 3*d*
— cwt., 1*s* to 5*s*	Radishes, per doz. bunches, 9*d* to 1*s* 3*d*
— bushel, 1*s* 6*d* to 3*s*	Mushrooms, per pottle, 1*s* 6*d* to 2*s* 6*d*
— Kidney, per bushel, 2*s* to 3*s*	Small Salads, per punnet, 2*d* to 3*d*
Turnips, per doz., 1*s* 6*d* to 2*s* 6*d*	Basil, green, per bunch, 4*d* to 9*d*
Red Beet, per doz., 1*s* to 1*s* 6*d*	Fennel, per bunch, 2*d* to 3*d*
Carrots, per doz. bchs., 2*s* to 5*s*	Savory, per bunch, 4*d* to 6*d*
Peas, per bushel sieve, 2*s* 6*d* to 5*s*	Thyme, per bunch, 4*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Watercress, p. 12 sm. bun. 4*d* to 6*d*
Cucumbers, per doz., 2*s* to 3*s*	Parsley, per bunch, 2*d* to 3*d*
— ridge, per doz., 1*s* to 3*s*	— Roots, per bundle, 9*d*
Spinach, per sieve, 9*d* to 1*s* 6*d*	Tarragon, per bunch, 4*d*
Leeks, per doz., 1*s* 6*d* to 2*s* 6*d*	Mint, per bunch, 2*d*
Garlic, per lb., 6*d* to 8*d*	Marjoram, per bunch, 4*d*
Tomatoes, per hf.-sv., 3*s* to 5*s*	Chervil, per punnet, 2*d* to 3*d*
Celery, per bunch, 3*d* to 1*s* 6*d*	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Oct. 2.

Prime Mead. Hay	100*s* to 108*s*	New Hay	—*s* to —*s*	New Clr.	—*s* to —*s*
Infr. New & Rowen	60 80	Clover	90 to 128	Straw	38 42

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Oct. 2.

Prime Mead. Hay	105*s* to 110*s*	Old Clover	125*s* to 132*s*		
Inferior	— —	Inferior do.	— —	Straw	33*s* to 42*s*
New Hay	65 92	New Clover	90 130		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Oct. 3.

Fine Old Hay	120*s* to 126*s*	Old Clover	126*s* to 130*s*		
Inferior Hay	— —	New Clover	100 115	Straw	36*s* to 40*s*
New Hay	76 90	Infr. ,,	60 80		

MARK-LANE, MONDAY, Sept. 29.

The supply of Wheat from the neighbouring counties, although larger than last week, was still moderate, and sold at the prices of this day se'nnight. Free Foreign is unaltered; bonded met a good inquiry, particularly from country people, but being generally held above the rates hitherto paid, the sales effected were not extensive.—New Barley is unaltered in value, old the turn dearer.—Beans command fully last week's prices.—Maple and Blue Peas sell less freely, and the former are 1*s.* cheaper; White Peas must be noted 4*s.* higher than our former quotations.—The supply of Foreign Oats being large, and several cargoes out of condition, the trade was slow and sales difficult to effect, excepting at a decline of 6*d.* per qr.—Mustard seed appeared quite neglected.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk . . White	55	61	Red .	50	58
—— Norfolk, Lincolnshire, and Yorkshire .	57	65	White	60	65
Barley, Malting and distilling 28*s* to 32*s* Chevalier	30	34	Grind.	26	28
Oats, Lincolnshire and Yorkshire . . Polands	24	27	Feed	19	22
—— Northumberland and Scotch . . Feed	25	27	Potato	28	30
,, Irish . . . . Feed	22	24	Potato	25	27
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	29	32			
Beans, Mazagan, old and new 35 to 38	Tick	36	39	Harrow	38	40
—— Pigeon, Heligoland . 39 to 44	Winds	—	—	Longpod	—	—
Peas, White . . . . 51 to 53	Maple	42	45	Grey	40	44

FRIDAY, Oct. 3.

There was little English Wheat fresh up for this morning's market, it sold readily at the extreme prices of Monday, particularly old, which generally realised 1*s.* advance; this also applies to free Foreign; holders of bonded being too high in their demands to meet the buyers' ideas, little business resulted.—Barley, Beans, Maple and Blue Peas, are unaltered in value. White are very unsaleable at a decline of 4*s.* per qr.—The Oat trade is dull, sales can only be proceeded with at a reduction of 6*d.* per qr.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Aug. 23 per Quarter.	57*s* 0*d*	29*s* 9*d*	22*s* 8*d*	33*s* 4*d*	41*s* 6*d*	38*s* 11*d*
— 30 . . .	58 6	30 0	22 4	35 7	42 1	38 4
Sept. 6 . . .	55 10	31 8	23 10	33 5	42 2	36 9
— 13 . . .	54 1	31 0	22 3	33 2	42 10	36 5
— 20 . . .	52 6	30 9	21 7	32 8	42 5	37 0
— 27 . . .	53 2	30 2	23 2	33 1	42 5	38 9
6 weeks' Aggreg. Aver.	54 10	30 7	22 4	33 7	42 3	37 8
Duties on Foreign Grain	18 0	8 0	6 0	9 6	1 0	5 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Sept. 27.

PRICES.	AUG. 23	AUG. 30	SEPT. 6	SEPT. 13	SEPT. 20	SEPT. 27
57*s* 0*d*						
56 6						
55 10						
55 6						
— 3						
54 1						
53 2						
52 6						
50 10						
48 0						
— 12						
47 11						

SEEDS, Oct. 3.

Canary . . per qr	52*s*	to 54*s*	Linseed Cakes, Foreign, p. ton	7*l* 10*s*	to 8*l*
Carraway . . per cwt	44	48	Mustard, White . p. bush.	10*s*	11*s*
Clover, Red, English . . —	—	—	— Superfine ,, .	11	12
— — Foreign . . —	—	—	— Brown ,, .	10	12
— White, English . . —	—	—	Rapeseed, English, per last	26*l*	28*l*
— — Foreign . . —	—	—	Rape Cakes . perton	—	—
Coriander . . .	14	16	Saintfoin . . .	—	—
Hempseed . . per qr.	35	36	Tares, Eng. winter p. bush.	6	8
Linseed . . per qr	54	60	— Foreign . .	4	4*s*6*d*
— Baltic . . —	42	46	Trefoil . . per cwt	18	23
— Cakes, Eng. per 1000	11*l* 10	12*l*	Turnip (too variable for quotation)		

KINGSFORD AND LAY

THIRTEENTH ANNUAL SALE OF DUTCH BULBS.—TO GENTLEMEN, FLORISTS, SEEDSMEN, & OTHERS.

MR. JAMES IZOD will SELL BY AUCTION, at the Auction Mart, Bartholomew-lane, on Tuesday, and nd Wednesday, the 7th and 8th October, at 1 o'clock precisely, irect from Mr. HOGERHURST, Florist, a quantity of very fine ouble and Single Hyacinths, Double and Single Duc Van hol Tulips, named Crocus, very fine Byblomen Tulips, ouble and Single Ranunculus and Anemones, very fine amed Narcissus, Snowdrops, Crown Imperials, Amethyst, nd other choice roots. May be viewed on the morning of ale, and Catalogues had at the Auction Mart, and of Mr. ZOD, at his Offices, the Sheriffs' Sale Rooms, 46, Watling-treet, City.

TO BE DISPOSED OF, the Acting-Partnership of a well-known and Old-Established NURSERY and SEED-BUSINESS in the vicinity of London, and within three miles of he Bank. Parties commanding from 600*l.* to 700*l.* will find this n opportunity rarely to be met with.

For Particulars, apply to Messrs. HURST and M'MULLEN, 6, eadenhall-street, London.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT NESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

TO BE DISPOSED OF, and Entered upon immediately, in a flourishing Market Town, in one of the Western Counties, a most desirable NURSERY, SEED, and FLORIST BUSINESS, established upwards of 70 years, and doing a good rade. The Ground, consisting of seven acres, is well stocked with every choice Variety of Fruit and Forest Trees, Shrubs, &c. There are also two good Dwelling-houses on the Premises, together with a good Seed-shop, Greenhouse, Heath, and Geranium-houses, &c. A good Propagating-pit, heated on Rendle's Tank system; Sheds, Store-house, Stable, &c., with every convenience for carrying on the business. The Stock (which may be reduced), to be taken off at a valuation. Ill-health is the sole cause of the present Proprietor giving up the concern.—All communications, with real signatures, addressed to A.B., care of Messrs. H. Ronalds and Sons, Nurserymen, &c., Brentford, Middlesex, will have immediate attention.

TO NURSERYMEN AND OTHERS.

TO BE DISPOSED OF, with Immediate Possession, the STOCK in TRADE and GOODWILL of a NURSERY BUSINESS, of 20 years' standing, with a very excellent connection, and comprising Seven Acres of well-selected and assorted Plants, in a flourishing and healthy state, and of the requisite order of succession for a large supply. The grounds are well situated in a good neighbourhood, and are in excellent condition. The Stock is young and thriving, and contains every variety of Forest and Ornamental Trees, Shrubs, Evergreens, and Plants, and Fruit-trees of all sorts. The Land may be had for a Term, at a reasonable Rent.

For further particulars, and to treat for the same, applications to be made to Messrs. W. and E. PHILP, Booksellers, Launceston.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26*s.*	0*d.*	Milled Lead in Sheets, *s.* *d.*
Linseed Oil, per gall...	2	3	per cwt..... 21 0
Turpentine.....	3	3	Cut to Size..... 22 0
Warranted Varnishes and Colours.			Pipe all Sizes..... 22 0

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

"Mr. HUNT's new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK, Jun.

Superintendent of the Works, Mr. JOHN JONES.

MR. CLARK begs to state, for the information of his Friends and the Public at large, that he is now enabled, by the *Repeal of the Duty upon Glass*, to offer the important article of HOTHOUSE LIGHTS or SASHES at a reduction in price of nearly *Forty per Cent.*

These Sashes are made either with the best red deal or wrought-iron rims, and copper bars; and being glazed upon the patent shield plan, with British Sheet Glass of superior quality and thickness, they are exempt from all liability of breakage from the action of frost, usually so destructive to the roofs of Hothouses glazed in the ordinary way.

For a sample of his Metallic Hothouses, erected complete, Mr. CLARK begs to refer to the magnificent range in the new Royal Gardens at Frogmore, the whole of which were constructed at his establishment in Birmingham, under the immediate superintendence of Mr. JONES, and are admitted by competent judges to be the most perfect of the kind in the world.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

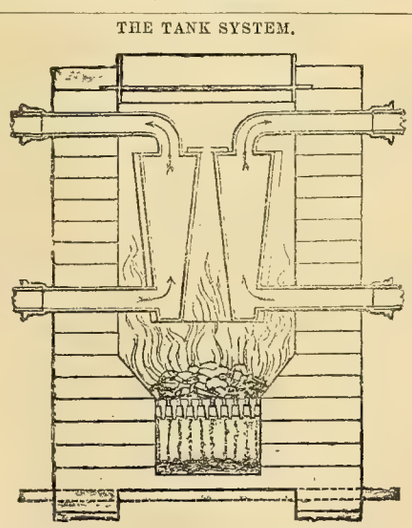
WIRE-WORK, HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places,—30, Fleet-street, London.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

GUANO, of the best quality, in bags.—PERUVIAN 10*l.* 10*s.* to 11*l.* 10*s.* per ton; ICHABOE 7*l.* to 7*l.* 10*s.* per ton; SALDANHA BAY, 5*l.* 10*s.* to 6*l.* per ton; according to quantity; with an Analysis, by Dr. URE.—WM. NORTHCOTT, 13, Rood-lane, Fenchurch-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, October 4.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.

MARK FOTHERGILL, 40, Upper Thames-street, London.

P. S.—Agents wanted for the sale of the Wheat Brine.

NOTICE.

POTTER'S GUANO, patronised by Sir R. Peel; the Duke of Northumberland; the Earls of Essex and Zetland; Lord Braybrooke; Lord Portman; Sir John Lubbock; D. Barclay, Esq., M.P.; P. Pusey, Esq., M.P., &c. &c.

Mr. POTTER has Reduced the price of his GUANO to 9*l.* per Ton, delivered FREE to any Wharf or Railway in London, bags included. Terms, Cash.

If Five Tons are ordered, it will be delivered FREE to any Wharf or Railway Station within 100 Miles of St. Paul's, or to any Principal Port of the United Kingdom.

CAUTION.—It having come to Mr. Potter's knowledge that some unprincipled dealers have fraudulently mixed his Guano with other substances, he begs to signify that he cannot be answerable for Manure not had direct from his Manufactory, or through authorised persons, a list of whom, with Testimonials, will be sent free, per post, on application.—Manufactory, 28, Clapham-road-place, London.

Potter's prepared Gypsum, 22*s.* per ton; if 5 tons, 20*s.*

DINGLE'S HAND DIBBLING MACHINE.

WILLIAM E. RENDLE AND CO. have to apologise to those persons who have not yet received the Machines. They have found the demand far exceed their expectation: but they have now a regular set of men constantly employed in the manufacture of them, so that they will be enabled to supply any quantity at the shortest notice.

Price 35s. each, including Box and Carriage to London, Liverpool, or Bristol.

Office—Union Road, Plymouth, Oct. 4, 1845.

On the 1st of January, 1846 (to be continued Quarterly), will be published PART I. of

THE JOURNAL OF THE HORTICULTURAL SOCIETY OF LONDON, containing 96 pages in 8vo, with one Coloured Plate and other Illustrations, price 5s.

In this work it is intended to publish periodically an account of the Proceedings of the Society, the Journals of the Society's Collectors, Papers on Horticultural Practice, or Subjects connected with Gardening, Reports upon the new Esculents, Fruits, or ornamental Plants, that may be from time to time introduced, an account of all Experiments tried in the Garden, and such other matter bearing upon Horticulture as may appear interesting to the Public. It will be distributed gratuitously to the Fellows of the Society, instead of the 4to Transactions; which will be discontinued after the completion of the current volume.

Fellows, Corresponding Members, and others, are invited to forward communications upon all matters *of either theory or practice*, to the Vice Secretary, at the House of the Society, 21, Regent-street, London.

THE EDINBURGH TALES, Part IX., price Sevenpence, contains:—The Balsam Seller of Thurotzer; by Mrs. GORE—The Golden Pot, from the German of Hoffmann, and the Days of Old; by John Mills.

Part X. will contain—Country Town Life, by Miss Mitford; Marion Wilson, by the late Robert Nicoll; and Violet Hamilton, or the Talented Family, by Mrs. Johnstone.

CHAPMAN & HALL, London; W. TAIT, Edinburgh.

THE GOOSEBERRY GROWERS' REGISTER; or, an Account of the different Gooseberry Shows held in Lancashire and Cheshire, and other parts of the Kingdom, for the year 1845. To which is added a statement, exhibiting at one view the number of Prizes won by each sort of Berries at the different Meetings. May be had by Post, prepaid, for 2s., of T. D. WATKINSON, Seedsman, &c., Manchester.

This Day is Published, in 1 vol. cloth, 7s.

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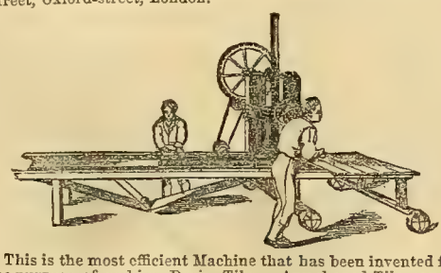
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No. 41.—1845] SATURDAY, OCTOBER 11. [Price 6d.

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Also fine specimen plants of older growth from 10s. 6d. to 2l. 2s. per plant.

Also, the very best FUCHSIAS, by name, 12s. per doz.
Ditto CHRYSANTHEMUMS " 12s. do.
Ditto VERBENAS " 6s. do.
Ditto PETUNIAS " 9s. do.
Ditto PANSIES " 10s. do.
20 sorts of finest Show PINKS, by name, ... 1l.

For particulars, see former Advertisements.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5s. per 100.
"PRINCESS ALICE MAUDE," " 10s. "
First-rate POLYANTHUSES, by name, 18s. per dozen.

Great Yarmouth Nursery, Oct. 11.

CAMELLIAS WITH FLOWER-BUDS.

CHARLES VAN GEERT, Florist, Antwerp, begs to offer to his Correspondents in Great Britain the Catalogue of his selected Collections of nearly 150 sorts of Camellias with flower-buds, in young and healthy plants. The prices are reasonable, and include the freight and landing charges in London. Orders addressed to Mr. Geo. Rahn, Broker, 52, Mark-lane, or to C. Van Geert, will meet prompt attention.

C. Van Geert also supplies Bell and Hand Glasses for Horticultural purposes, at moderate prices.

GLADIOLUS GANDAVENSIS.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, respectfully offers strong bulbs of the above at 5s. each, to be had also of Messrs. Warner & Warner, Cornhill, London.

The usual allowance to the Trade.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, and LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (removed from Walworth,) by Appointment FLORIST to HER MAJESTY the QUEEN, and to HIS MAJESTY the KING of SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

	£	s.	d.
100 TULIPS, in 100 fine sorts, named	7	7	0
100 Ditto in 50 ditto ditto	5	5	0
Superfine Mixtures, per 100, from 7s. 6d. to 21s.			
25 HYACINTHS, in 25 fine sorts, named	1	5	0
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 .. .. 7s. to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named	2	2	0
A New Collection of 50 Superfine sorts	1	5	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto	2	10	0
25 pair of PICOTEES, in 25 ditto ditto	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto	3	10	0
Good kinds, per doz. .. .. from 12s. to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
" " PUNCTATUM .. "	0	7	6
" SPECIOSUM, (true) .. from 21s. to	3	3	0

H. Groom begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.

Foreign Orders executed.

UNRIVALLED NEW PICOTEES.

CHARLES TURNER (from the Slough Nursery), begs to inform admirers of the PICOTEE that he will be prepared to send out, the middle of the present month, those two beautiful light-edged flowers raised by the Rev. A. H. MATTHEWS, Weston-on-Green, Oxon, viz., ENCHANTRESS and NE PLUS ULTRA. ENCHANTRESS has been submitted to Mr. Glenny, who describes it thus in the *Gardeners' Gazette*, August 9th:—"One of the most complete outlines of a circle, one of the best pods, one of the stiffest petals in cultivation. The smooth edge above the average, and nearly half a circle in the outline of a side view; the guard petals lay admirably; and we shall be disappointed if it does not bloom without tying the pod." To this might be added, one of the most delicate and even light-purple lacings ever seen; size full, and white good. Also see *Gardeners' Gazette*, August 16th:—"There 'may' be some as good, but certainly not *one* better." It obtained the first prize at the South London Show, July 23d, 1844; and first prize for the best purple edge, open to all growers and flowers, at Manchester, August 13th, 1845. NE PLUS ULTRA, light red edge, which is equally fine, and the best of its class.

Enchantress, 15s.; Ne plus Ultra, 10s. 6d. per pair; or one pair of each on receipt of a remittance of 1l. 1s.

The Stock being limited, C. T. pledges himself to strict priority as received. Catalogues of Pinks and Heartsease may be had on application at Chalvey, or Messrs. Hurst & M'Mullen's, Leadenhall-street.—Chalvey, near Slough, October 11.

BRIGHT YELLOW BOUVARDIA (Bouvardia flava, Dne.)

LOUIS VAN HOUTTE, Florist, at Ghent (Belgium), begs to offer good bushy plants of his new bright YELLOW BOUVARDIA (Bouvardia flava, Decaisne), a coloured drawing of which will accompany each plant, which will be sent to London free. Price 21s., without discount, unless four plants be taken. Orders also received at Mr. George Rahn's, 52, Mark-lane, London.

N.B. The coloured drawing of the above Bouvardia is also to be seen at the Office of the *Gardeners' Chronicle*.

The following Gentlemen have already subscribed:—

Plants		Plants	
Backhouse & Son, York	1	M'Grayson, Mr., Bury St. Edmunds	1
Chandler & Sons, Vauxhall	1	Mallison, Mr., Claremont	1
Coventry, T., Esq., Swindon	1	Mountjoy & Son, Ealing	4
Glendinning, Mr. R., Chiswick	1	Nant, Mr. T., Guernsey	1
Groom, Mr. H., Clapham-rise	1	Rendle, Mr. W. E., Plymouth	4
Hancock & Son, Durham	1	Rogers, Mr. Geo., Uttoxeter	1
Harrison, Mr. J., Downham	1	Rollisson & Sons, Upper Tooting	2
Henderson & Co., Pine-apple-place	4	Veitch & Sons, Exeter	1
Ivery, Mr. Wm., Peckham	4	Webber, Mr. Jno., Meriott	2
Knight & Perry, Chelsea	6	White & Co., R., Poole	2
Knight, Mr. B. W., St. Leonards-on-Sea	1	Willmot & Chaundy, Lewisham	4
Lawson & Son, Edinburgh	1	Wood & Son, Maresfield	4
Low & Co., Upper Clapton	4	Wooler, H., Esq., Brixton	1
Major, Mr. H., Knosthorpe	1	Young, Mr. C., Epsom	6

TWO of the most SPLENDID NOVELTIES of the SEASON.

H. BENTON & Co. inform the public that they have now ready for delivery the undermentioned plants.

PENTSTEMON GIGANTEA ELEGANS.—This superb variety grows 3½ to 4 ft. high, and has now upwards of 100 trusses of flowers in bloom; its magnificent appearance is very much admired. Colour, brilliant shining scarlet with white throat, which is very large; the foliage is also particularly handsome—5s. each. See Dr. Lindley's very favourable opinion, initials "B. H.," in *Chronicle*, Sept. 13.

PANSY MIDNIGHT—Is the most superb variety ever offered; in shape perfect, large; petals very thick; colour, velvety black. It has the appearance of a circle cut from black velvet—5s. each. See Dr. Lindley's opinion in *Chronicle*, June, last year. "Your Pansy, No. 2, is intensely dark, and quite of a velvety character; it would have been an improvement to it, had the side-petals been a little higher; it is, however, a very fine self."

London Agents, Messrs. Clarke & Co., 86, High-street, Borough; where specimens of the Pentstemon can be seen.—Monument-lane Nursery, Edgbaston, Birmingham.

BECK'S SEEDLING PELARGONIUMS OF 1844.

EDWARD BECK informs the Public that having now sent out the Plants for which he has received remittances, he can supply the following Varieties at the prices annexed, *for prepayment only, without abatement*, delivered free in London :—

Rosy Circle	..	£1	1	0	Isabella	..	.. £1 1 0
Desdemona	..	1	1	0	Marc Antony	..	1 1 0
Sunset	..	1	1	0	Favorita	..	0 10 6
Mustee	..	1	1	0	Margaret	..	0 10 6
Juno	..	1	1	0	Zenobia	..	0 10 6

A few small Plants of "Othello" now ready, at 1*l.* 10*s.*; also a few struck cuttings of "Arabella" at that price in November.

N.B.—No orders can be received without a remittance.

USHER'S NEW CALCEOLARIAS AND CINERARIAS OF 1845.

WILLIAM MAY, F.H S., has the pleasure of informing his Friends and the Public that he will have ready to send out in the ensuing spring, Sixteen sorts of Calceolarias, which he selected from the WHOLE of Mr. USHER'S seedlings of the present year, which for size, shape, and brilliancy of colours, are unequalled (*vide Gardeners' Chronicle* of June 7, C. M.), and of which he possesses the ENTIRE Stock, there being but one seedling plant of each sort, which he was fortunate enough to secure. A List, with their description, will be forwarded to applicants. The Cinerarias are also Seedlings of Mr. USHER'S of this year, of which the Editor of the *Gardeners' Chronicle* says :—"These are the largest Cinerarias that have come under our notice; they have also considerable substance and width of petal. Nos. 4 and 7 are stout flowers, and the best in colour." No. 4 is Usherii, a very dark purple large and compact; No. 7 is Lady Constable, a light bright sky blue, large and compact, good plants of which are now ready to be sent out, the two for 10*s.* 6*d.*, post free.

N.B. In answer to the inquiries of several parties who have already ordered W. M.'s selection of USHER'S Calceolarias of 1845, he begs to inform them that they are not the same sorts as advertised by another party as USHER'S, W. M. having made his selection some days previous to any other person, and he flatters himself that he found all that were good in the stock.

Seeds may now be had of the following, all saved from the best flowers of the present year, viz.:—Calceolaria, Cineraria, Pansy, and Hollyhock, at 2*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.* each, post free, which may also be had of Mr. WATKINSON, Horticultural Agent, Manchester, and Mr. M'INTOSH, Seedsman, Hull, who will also take and execute orders for the plants.

Hope Nursery, Bedale, York, Oct. 11.

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, FLORIST, Ghent, Belgium, begs to offer his new ALSTRŒMERIAS at the following rates, viz.—12 varieties, 21*s.*; 25 varieties, 31*s.* 6*d.*; 50 varieties, 52*s.* 6*d.* Orders received by Mr. GEORGE RAHN, 52, Mark-lane, London; or application may be made (post paid) to Mr. VAN HOUTTE, at Ghent. The plants will be forwarded to London free.

The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle* 12th July last), says of these plants :—"They are of every tint from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, is the following gratifying account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstrœmeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them.

Orders have been already received from the following parties, viz. :—

Backhouse & Son, York.
Ball, Mr. F. C., Taunton.
Bass and Brown, Sudbury.
Beaton, Mr., Shrubland Park.
Belfield, Rev. F., Torquay.
Brown, Mr. J., Rockingham Castle.
Burrell, Lady, Knep Castle.
Bunting, Mr., Colchester.
Burlington, Earl of, Holker Hall.
Chandler & Sons, Vauxhall.
Cocks, Charles L., Esq., London.
Coventry, T., Esq., Swindon.
Dickens, C. T., Esq., Coolhurst.
Egerton, Mrs., Knutsford.
Greg, Thos., Esq., Belfast.
Hall, Samuel, Esq., Town Head.
Hanbury, R., Esq., Spitalfields.
Hankey, the Hon. Mrs., Fetcham Park.
Hunt, C. B., Esq., Gloucester.
Ivery, Mr. Wm., Peckham.
Keats, Mr., Forest Hill.
Knight, Mr. B. H., St. Leonards-on-Sea.
Mackenzie, Sir G., Bt, Leith.
McGrayson, Mr., Bury St. Edmunds. [Bridge.
Ord, W., Esq., M.P., Haydon
Rendle, Mr. W. E., Plymouth.
Rollisson & Sons, Upper Tooting.
Scott, W., Esq., Bury Hill.
Schunck, Souchet, & Co., London.
Selwin, — Esq., Down Hall.
Thickins, W., Esq., Coventry.
Varnham, A., Esq., London.
Warner and Warner, London.
Waterer, Mr., Bagshot.
Western, J. B., Esq., Kelvedon.
Willinck, De Esq., Liverpool.
Wood & Son, Maresfield.
Youell and Co., Great Yarmouth.

HÆMANTHUS MULTIFLORUS.—Very strong bulbs of the above, just imported from Africa, to be had at LOUIS VAN HOUTTE'S Nursery, Ghent, Belgium, at 31*s.* 6*d.* per dozen, or at 3*s.* 6*d.* each bulb. Orders received also for the same, by Mr. GEORGE RAHN, 52, Mark-lane, London.

The usual allowance to the Trade.

HYACINTHS, ANEMONES, IRISES, &c,

Delivered free to any part of London, or any station of the Great Western Railway between London and Bristol inclusive.

IRISES.	£	*s.*	*d.*
75 rare & distinct. var. English Irises (quite hardy)	1	5	0
50 ditto	0	17	6
25 ditto, very select	0	10	6
ANEMONES.			
40 distinct varieties, new large double, by name	0	15	0
12 ditto	0	5	0
Fine mixed single, per 100	0	7	0
HYACINTHS.			
30 superb varieties, by name	0	17	6
The best 12 ditto known	0	12	0
Extra fine mixed ditto, per dozen	0	5	0
Very fine ditto, per 100	1	5	0
RANUNCULUSES.			
50 sorts, by name, excellent	0	15	0
50 sorts, a pair of each	1	5	0
The same in mixture, per 100	0	5	0

N.B.—The best sorts of Early Peas and other garden seeds of home growth are just harvested.

The above described Bulbs may be depended on as of first-rate quality, and may be had at the low prices annexed, delivered free as above from Messrs. SUTTON and SONS, Reading Nursery, Reading, Berks.

LOUIS VAN HOUTTE, FLORIST TO THE KING OF THE BELGIANS, GHENT (Belgium), begs leave to inform the Trade and the Public in General, that the first Part of his GENERAL CATALOGUE (containing 88 pages), is now published, and may be obtained on application to Mr. Geo. RAHN, 52, Mark Lane, London.

PASSINGHAM'S "VICTORIA GREEN-FLESHED MELON."

DELICIOUS NEW MELON.—The PASSINGHAM VICTORIA GREEN-FLESHED MELON cannot be surpassed in flavour, and is a most excellent bearer. Dr. LINDLEY thus speaks of it in the *Gardeners' Chronicle*, "The Passingham Victoria green-fleshed Melon is a very nice variety, with deep green flesh, very sweet; it is well worthy of cultivation;" 2*s.* 6*d.* per packet, of eight seeds. Cuthill's Early Prolific and very handsome Black Spine CUCUMBER can be grown from 1 foot to 20 inches, according to the grower's pleasure; the seeds this year are very fine; 2*s.* per packet to the Trade, supplied by the ounce. The beautiful LISIANTHUS RUSSELLIANUS is still in flower, and many will continue in flower till Christmas; fine young plants for next year, very healthy, at from 1*s.* 6*d.* to 2*s.* 6*d.* each. Cuthill's Prince of Denmark scarlet Clove CARNATION, the very best border-flower, and a nosegay in itself, 12*s.* per dozen. The beautiful French yellow PICOTEE, an excellent border-flower, 12*s.* per dozen.

A Lad wanted as an Apprentice; he must be very active, and not less than 17 years of age.

Direct to JAMES CUTHILL, Florist, Denmark-hill, Camberwell, London.—P.S. All Money Orders on Camberwell Post-office.

NEW SEEDLING CINERARIAS.

WM. IVERY, NURSERYMAN and FLORIST, Peckham, near London, begs to inform his Friends and the Public, that he can supply good Plants of CINERARIA NOBILIS white, tinted with purple, very large flower, and extra fine shape, 7*s.* 6*d.* each, figured in "Florist's Journal," June, 1845.

EMPEROR OF RUSSIA, white ground, tipped with cherry colour, fine, 5*s.* each. Figured in "Paxton's Magazine," August, 1845.

Also the following fine show Varieties :—Ivery's "Beauty of Wonham," 2*s.* 6*d.*; do. Nosegay, 2*s.* 6*d.*; do. "Captivation," 2*s.* 6*d.*; do. "Criterion," 3*s.* 6*d.*; do. "Compacta," 2*s.* 6*d.*; do. "Red Rover," 2*s.* 6*d.*; do. "Fanny Ellsler," 2*s.* 6*d.*; do. "Pickwick," 2*s.* 6*d.*; do. "Beauty of Cyston," 2*s.* 6*d.*; do. "Wee Pet," 2*s.* 6*d.*; do. "Regina Victoria," 1*s.* 6*d.*; do. "Pride of Peckham," 1*s.* 6*d.* Henderson's "Sombre Agréable," 2*s.* 6*d.*; do. "Pilot," 1*s.* 6*d.*; do. "Azurea," 1*s.* 6*d.*; do. "Eclipse," 1*s.* 6*d.*; and other distinct named Varieties, from 9*s.* to 18*s.* per dozen.

N. B.—Strong Plants of Ivery's Fuchsia SIR H. POTTINGER, very distinct, 3*s.* 6*d.* to 5*s.* each.

CHOICE NEW PINKS.

CHARLES TURNER (from the Slough Nursery), respectfully announces, that in addition to his two beautiful Seedlings, MASTERPIECE and BEAUTY, he has purchased the entire stock of Hale's QUEEN OF ENGLAND.

MASTERPIECE was exhibited at the Royal Botanic Society, Regent's-park, when it was awarded a first-class Certificate. See *Gardeners' Gazette*, July 5 :—"Seedling Pinks of high character were shown. Turner's Masterpiece, a very beautiful lilac rose, lacing exceedingly true, and the flower in all respects an acquisition, being a decided beat on Gem."—Also, *Gardeners' Chronicle* of the same date :—"Several good Seedling Pinks were shown. Those selected for rewards were Turner's Masterpiece, a delicate light rose, lacing regular and unbroken, flower large and full." It also obtained the Society's prize for the best Seedling Pink at the Slough open Show, July 7, and first class Certificate at the Metropolitan Society, July 8th. 5*s.* per pair.

QUEEN OF ENGLAND.—This flower obtained the first prize for flowers raised in 1844, three blooms, at the Slough open Show; also, at the same time, second prize for Specimen Bloom, open to all flowers; a first-class Certificate at the Metropolitan Society, July 8; ditto at the Royal Philanthropic Society of Gardeners' Exhibition, Cremorne-house, July 16. Purple lacing, with fine open space of pure white in each petal. 5*s.* per pair.

BEAUTY.—Rich light purple lacing, 3*s.* 6*d.* per pair.

Strong Plants of the above are now sending out. Catalogues of Pinks and Heartsease may be had on application at Chalvey, or Messrs. Hurst and M'Mullen, Leadenhall-street.

Chalvey, near Slough, Oct. 11.

NEW AND CHOICE PLANTS.

W. J. EPPS begs most respectfully to offer the following Select List :—

	s.	*d.*
* Aphelexis purpurea grandiflora	7	6
Campanulacea species (China)	21	0
Dillwynia species nova	7	6
Veronica, New Zealand species	5	0
Veronica salicifolia	2	6
Habrothamnus cyaneus	2	6
Cereus crenatus	5	0
Chrysanthemum, species from Chusan, very distinct	10	6
Pœderia fœtida, from China	10	6
Ribes sanguinea fl. pl.	7	6
Chorizema ericoides	2	6
Whitfieldia lateritia	7	6
Saurauja spectabilis	7	6
Begonia hydracotilifolia	1	6
Echites melaleuca	7	6
Dipladenia crassinoda	5	0
Tropæolum Lobbianum	2	6
Rhexia, species from China	21	0
Cestrum aurantiacum	3	6

* This is the splendid dark variety exhibited by Mr. Barnes, of Bromley, at the last Chiswick Fêtes.

The usual allowance to the Trade where three or more plants are taken.

*** A remittance or reference from unknown correspondents.

Bower Nursery, Maidstone, Oct. 11.

SUPERB SEEDLING PANSY, EDMONDS' "PRINCESS ALICE."

JOSEPH FRYER begs to inform his Friends that he is now able to execute orders for the above, which is considered by competent judges one of the most distinct and best Pansies known, the stock of which is entirely in his own hands. Likewise Buxton's NE PLUS ULTRA and FAME (true), at 5*s.* each; or the three for 14*s.*, from which no allowance can be made, the stock being limited.

J. F. likewise begs to offer most of the finest Varieties of Pansies in cultivation, at 12*s.* per doz.; 20*s.* two doz.; 36*s.* four doz.; hamper, &c., included; or, free by post (Catalogues of which will be forwarded on application, containing two postage stamps). Also many fine Varieties, at 6*s.* per doz, and fine selected Seed at 1*s.* and 2*s.* 6*d.* per packet. Post-office orders to be made payable at Camberwell-green.

Clarendon Nursery, Camberwell, London.

LA REINE.—This splendid PERPETUAL ROSE, which was introduced in autumn, 1843, has proved itself this season to be the finest ever yet raised.

R. B. BIRCHAM, HEDENHAM ROSARY, BUNGAY, SUFFOLK, begs to state that he has upwards of 2000 good plants worked upon stems varying in height from two to four feet; also several hundred strong dwarf plants (own roots) bedded out. R. B. B. will be happy to supply Nurserymen and Florists with the above upon advantageous terms per dozen, or half dozen plants. He has also a large stock of PERSIAN YELLOW ŒILLIET PARFAIT, SOLFATERRE, SOUVENIR DE LA MALMASON, &c. &c. A Descriptive Catalogue, including the most Select Roses in cultivation, will be forwarded upon prepaid application. All orders carefully executed, and forwarded to London by the Norwich Railway, carriage paid.

A remittance or reference is respectfully requested from all unknown correspondents.—Hedenham Rosary, Oct. 11.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

WILLIAM MILLER informs his numerous patrons and the public that he will send out the under-named varieties at the prices annexed, in October. (Printed Circulars with descriptions can be had.)

Augusta	.. ..	.. 21*s.*	Lord Morpeth	..	.. 21*s.*
Alice	.. ..	.. 21	Duke of Orleans	..	.. 21
Gipsy Maid	.. ..	.. 21	Josephus	..	.. 21

The set of six for 5*l.* 10*s.*, or 5*l.* when cash accompanies the order. Trade-price 4*l.* 10*s.*, or 4*l.* cash accompanying the order, which will in either case ensure strict priority of selection.

HOYLE'S SET of Twelve, viz., Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, and Sarah Jane, sent out last season at 10*l.* 10*s.*, may be had for 3*l.* 3*s.*, or cash accompanying the order for 3*l.*

100 CHOICE HYBRIDISED SEEDS, 10*s.*; 50 ditto, 5*s.*; 25 ditto, 3*s.* A general List of GERANIUMS, priced very cheap, from 8*s.* 6*d.* per dozen, is now ready, which should be in the hands of every Geranium grower, as it contains all the principal sorts for exhibiting.

W. M., finding that pots are frequently broken, and the Plants damaged in hampers, has prepared a quantity of strong Fir boxes for the purpose.—Providence Nursery, Ramsgate.

CROSS-LANES NURSERY, BEDALE, YORKSHIRE.

THE BEST NEW CINERARIAS OF THE SEASON.

W. JACKSON & Co., NURSERYMEN, beg to refer the readers of the *Gardeners' Chronicle* to their advertisement of last week, (Oct. 4) for particulars of the above unrivalled CINERARIAS; also Usher's Twelve Splendid New Seedling CALCEOLARIAS, which they are sending out at the following very reasonable prices, basket and package included.

CINERARIAS, first set of five varieties	30*s.*
Ditto, second ditto	20*s.*
The whole Collection, ten distinct varieties	42*s.*
CALCEOLARIAS, first set of six varieties	30*s.*
Ditto, second ditto	20*s.*
The whole Collection, twelve distinct varieties ..	45*s.*

W. J. and Co. will be glad to keep the Plants until Spring for those who may request, and early orders are solicited to prevent disappointment —Oct. 11.

RANUNCULUSES, GLADIOLI, &c.—The following forwarded to any part at the low prices affixed, hamper and package included, on receipt of a Post-office order from unknown correspondents :—

	s.	*d.*
RANUNCULUSES, 50 superb named Seedling varieties	35	0
,, 25 do.	20	0
,, 50 fine older varieties	10	0
,, Fine mixtures, per 100 5*s.* to	10	0
GLADIOLUS, 12 fine hardy summer-flowering varieties, named	15	0
,, floribundus, per dozen	2	6
,, psittacinus, do.	1	9
,, ,, sanguineas, each	2	6
ENGLISH IRIS, 25 fine varieties, named, for	10	0

With an extensive assortment of Dutch and other Bulbs, of which Catalogues will be forwarded prepaid.

GERANIUMS.—The following selection of 12 fine Show varieties (well established) for 36*s.* :—Sunshine, Elegans nova, Psyche, Lady Sale, Gaines's King of Beauties, Druid, Hybla, Princess Alice (Gaines's), Pulchellum, Cyrus Superbe, Tipula, and Wizard.

The following 12 fine for 15*s.* :—Black Dwarf, Garth's Constellation, Duchess of Sutherland, Lyne's Duke of Cornwall, Queen of Sarum, Consort, Camillo, Gem of the West, Ivanhoe, Medora, Sapphire, and Unit.

	s.	*d.*
Myatt's Victoria Rhubarb, fine roots, per dozen	9	0
A fine large Giant for succession (equal in size of growth to the Victoria), per dozen	6	0
Youell's Early Tobolsk	6	0

Orders above 2*l.* delivered free to the Station of the North Eastern, and Eastern Counties Railways, and extra plants put in for long carriage.

BASS AND BROWN'S,

Seed and Horticultural Establishment, Sudbury, Suffolk.

TREE VIOLET.

JOHN WALLACE, SEEDSMAN and FLORIST, Gabriel's Hill, Maidstone, has now ready a large Stock of this much esteemed, double, dark purple, perpetual flowering, hardy and fragrant VIOLET, which he respectfully offers for sale at 6*s.* per dozen. All persons who value a bouquet of sweet flowers, fresh every day, from the beginning of August to the end of May, should grow a few dozens of this beautiful flower. —Apply as above, or to Mr. G. CHARLWOOD, Seedsman and Florist, 14, Tavistock-row, Covent Garden.—Oct. 11.

JESSOP'S NURSERY, CHELTENHAM, Established in 1815, from its extensive connection, offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm-Bailiffs, of established skill and reputation. All communications promptly attended to.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

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See also "Paxton's Magazine" for December, &c.

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Anagallis Mastersiæ, new	5 0	Habrothamnus cyaneus	2 6
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dumentacea	5 0	Jasminum ligustrinum	3 6
Eight other species, at	2 6	spes., China	3 6
Bouvardia lucida	2 6	Lychnis viscaria alba	3 6
Campanula spes., from China	5 0	Mussænda macrophylla	21 0
Caprifolium Brownii	3 6	Phlox of 6 new kinds, each	1 6
		Pœdera fetida	5 0
		Rhexia, from China	10 6
		Spiræa Douglasi	2 6
		from China	2 6
		Stigmaphyllon, of 2 sp.	3 6
		Veronica, from N. Zealand	3 6

Mr. MASTERS has received a large collection of Dutch named HYACINTHS, NARCISSUS, DOUBLE ANEMONES, RANUNCULUS, TULIPS, &c. &c., for which he solicits early commissions.—Exotic Nursery, Canterbury, Oct. 11.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 11, 1845.

At page 667 of our last volume, in directing attention to Mr. HOARE's plan of GROWING VINES in hollow columns, we expressed our doubt of the operation succeeding; but we recommended the experiment to be tried, because we put implicit faith in this gentleman's assertions, and felt assured, from all we had heard of him, that he would not deceive the public by unfounded statements and pretended results. The method of column growing which he proposed appeared to us open to all sorts of objections; but as those objections were speculative, and as we understood Mr. HOARE's results to be positive, we allowed our own judgment to be swayed by his experience—to the extent of recommending the experiment to be tried; because the value of the objections to the practice which appeared to us to exist, could not be decided by theory, but required to be sought in experience alone. That experience has been gained, and we now return to the subject.

At the end of his book on Vine-roots, Mr. HOARE gives a very detailed account of the manner in which Vines may be caused to ripen on the surface of hollow columns, a method which he tells us he has *fully explained* (p. 76), and which is of "such easy practical application, that a vast number of persons who have not hitherto possessed the means of cultivating even a single Vine, may now, at a trifling expense, enjoy the very great luxury of having at every returning season, an ample supply of delicious and fine-flavoured Grapes." These are Mr. HOARE's exact words; and he gives the most detailed directions how to construct such columns; how to fill them with soil; how to plant the Vines, and how to manage them. Moreover, as he writes good plain English, there is no room for misunderstanding his meaning.

We were, however, on reading these assertions and instructions, struck with the fact that Mr. HOARE nowhere used the verb *is* in his account of column-growing. He preferred *may be*. He did not, in any one case, after announcing the *rationale* of his practice, say that a given thing is done; but confines himself to saying that it may, can, or will be done. It was also remarkable that he omitted to say where such columns were to be seen, or had been constructed. We therefore paused at first, in doubt whether this scheme was not a mere speculation, instead of a *bona fide* relation of facts, and in our desire not to be wrong in the matter, we wrote to the author for further information.

In reply we were referred to the following paragraph of the preface to the work—"It may not, therefore, be altogether unnecessary for him to observe, that he has not recommended any point of culture, or particular routine of practice, the merits and advantages of which he has not *himself for years repeatedly and carefully tested*." Who, after this, could doubt? If there is any meaning in words, the plain purport of this paragraph is, that Mr. HOARE had himself practised column-growing "for years repeatedly and carefully." Nothing can be more explicit. Nevertheless, we are now constrained to believe that this could not have been his meaning; for the experiment has wholly failed, it not being found possible to make Vines either grow or even live in Mr. HOARE's columns.

This has already been a matter of complaint on the part of a correspondent (p. 512) who, in July last, had only two Vines remaining alive out of six which he had planted according to Mr. HOARE's directions; and also of others, one of whom (p. 641), in order to be certain of success, purchased his Vines of Mr. HOARE himself. We can also refer to two columns in the Garden of the Horticultural Society, which were constructed, filled, and planted, exactly according to Mr. HOARE's directions, not the slightest deviation whatever having been permitted, and for which excellent Vines were selected; but those Vines have also died.

It is important to remark that in these instances, and in all that we have yet heard of, it is not a question of greater or less success—of more or less vigorous growth—of bearing, ripening, and so on—that has to be considered. The case is one of total failure. That very necessary preliminary of success, the beginning of growth, has not been obtained; the Vines *die*. How is that?

Mr. HOARE, in his letters, at pages 545 and 641, has given his own explanation of what he considers to have been the causes of this total failure. To our minds nothing can be less satisfactory. He assumes that this, that, and the other thing have been done, and proceeds to reason upon such assumptions. But it so happens that none of the causes he enlists on his side had any existence. He says, 1. That the Vines which have been used were not strong enough; but we find that some of the Vines which failed were three-year old plants, such as he recommends, actually sold by himself, for the express purpose of being planted in columns. Those used in the Garden of the Horticultural Society were excellent plants, selected with great care for the purpose of the experiment. But, in truth, the mere age of the plant could not have anything to do with their dying. If a feebleness of growth was the subject of inquiry then, indeed, such an explanation might have had some force; but it is wholly irrelevant to an inquiry into the cause of death.

In the next place, Mr. HOARE assumes that raw bones with pieces of flesh upon them were employed in the compost wherein the dead Vines were planted. Such an allegation is perfectly gratuitous; no such bones were used. But suppose it were otherwise, we should only have followed Mr. HOARE's own very precise directions. "*Any description* of bones will do," he says at p. 34, "provided they are those of animals arrived at maturity, and are therefore of a solid and lasting nature. Such as *have marrow* in them should be broken asunder that the *interior* surface (mark! the interior where the marrow is) may be available to the roots of the Vines."

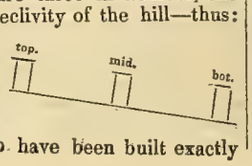
Then we are told that the fluid employed to "saturate" the bones was in excess. We will leave it to the common sense of anybody who has ever seen a bone to judge how far it is possible that this should be the case. One would think that bones were sponges, from the way in which Mr. HOARE speaks of them. They were steeped in the fluid recommended and allowed to drain. If by this operation the fluid was in excess we should wish to know how it is to be employed at all?

Finally, he assumes that the Vines which died had been in reality killed by the winter before they were planted. We will answer for it that such was not the case in the garden of the Horticultural Society, and we do not believe that there is the slightest ground for saying that it had happened in other cases. Were those dead Vines which he sold to our correspondent at p. 641?

Such being the state of this case, Mr. HOARE's directions having been exactly followed, the Vines planted having died, and his own explanation of the failure having been thus demonstrated to be inadmissible, in even one single particular, we feel that we are now called upon to ask, on the part of the public, for some evidence of success. We, therefore, invite Mr. HOARE to produce some instances within the United Kingdom of his Vine-columns having answered the purpose, under the directions given in his book. If he will furnish us with the names of the places where they are to be found, we engage to examine some at least, if not all, such proofs of success, and to report faithfully the result. For the sake of his own reputation he should do so; for, we must tell him plainly, that under the circumstances of this case, the public will be satisfied with nothing less. He has stated in his book that the value of Vine-columns has been practised successfully, and repeatedly and carefully tested by himself. We now ask—where? We were not entitled to make such a demand before; but it has now become indispensable; and the gardening world will not remain satisfied with such idle statements as are to be found in his letter at p. 545.

In the meanwhile we shall take leave to make public the following description of the Vine-columns at Shirley, Mr. HOARE's own nursery, for which we are obliged to a friend who lately inspected them:—

"The Vine columns are three in number, one above the other on the declivity of the hill—thus: and a few yards apart. They are built of red brick, are about 4 ft. 6 in. in height in front, and 4 ft. at back, and 3 ft. in diameter; they appear to have been built exactly as recommended by Mr. HOARE, and filled as he states in his book.



"The Vine in the top column has died down close to the brickwork, but has now a very weak shoot a few inches (6 inches) long, and not thicker than a common Wheat straw. That in the middle column has also died back, but is yet alive and still weaker, if that be possible. The Vine in the bottom column is dead, never having broken at all. The Vines appear to have been very strong when planted in the columns.

"The columns themselves are said to have been built about three years, but how long the Vines have been planted I could not learn. The Vines have been planted on the south side close to the ground; their situation seems rather an exposed one, and they appear to have been exactly like those which I lately saw in the garden of the Horticultural Society."

It will have been observed that in these remarks we have confined ourselves strictly to the question of growing Vines in hollow *columns*, according to the directions given in Mr. HOARE's book. Hereafter, we may, perhaps, offer a few remarks upon the facts connected with the compost recommended by him for Vine-*borders*.

ONE word more concerning the POTATO DISEASE. It is observed by some of our correspondents that the water in which Potatoes are boiled has an offensive odour, and advice is given how to proceed in such cases. We, too, must offer a word of counsel.

All Potatoes which render offensive the water in which they are boiled are beginning to decay. The disease is present, although it may not be visible; and we doubt whether any precautions can prevent their putrifying after a few weeks. Such Potatoes should not be stored, but consumed immediately; and those only put away for the winter in which no such symptoms are discoverable. A few samples can easily be boiled for the purpose of ascertaining the condition of the crop.

The practice of storing Potatoes in "pies" is one which though very convenient, requires great care in such seasons as the present; it is the custom in many parts of the country, and especially with small fields or patches of Potatoes, to collect them as soon as dug up, into a heap in the centre of the field, where a space has previously been partially dug out to receive them; and when the whole is thus collected together, they are covered over with earth pressed smooth with the spade on the sides. We cannot too strongly urge on all who are now taking up Potatoes the importance of keeping them out of the earth for a few days previously to storing them, of drying them as much as possible, and of sorting out all that appear in any way diseased. Considering the infectious nature of the Potato rot, and the rapidity with which it sometimes spreads, the extra time and trouble consumed in doing this will be well bestowed if it enables us to save a portion of the crop. The custom of storing the Potatoes in the same field in which they have grown is decidedly objectionable, being very likely to develop rot in them, in all cases where the rot has manifested itself, even though but to a slight extent; it is far better to store the sound Potatoes in a separate piece of ground. If this cannot be done the risk of danger may be probably diminished by lining the sides and bottom of the place dug to receive them with newly-burnt charcoal to a depth of 3 or 4 inches: it is, however, by far better not to store them in the field where they grew.

GAY BORDER FLOWERS.—No. I.

IN compliance with the request of "A Subscriber," I have much pleasure in forwarding a few observations on border flowers, though I am afraid that in point of novelty I have little to add to what has been previously stated. I can enter fully into "A Subscriber's" disappointed feelings relative to the new flowers of the past season, as certainly many of them have turned out anything but what they were represented to be. Florists, however, like other people, are doomed to disappointment; and we must rest satisfied if among the many things recommended to our notice we find a few worthy of being added to our list of standard favourites. The secret, however, of producing a brilliant display of flowers depends less upon cultivating an extensive collection of plants than in selecting a few of the very best kinds, and in managing those in the best possible manner; and so confident am I of this, that I would undertake to produce a finer effect with but 20 kinds than could be produced by introducing all the different varieties of bedding plants in cultivation. The day is gone by for gardens being celebrated for their collection of plants, merely because they happen to contain hundreds of things, three-fourths of which, in a decorative point of view, are not worth the bit of stick their names are written upon. What we want, and what we must have now, is good plants properly managed, and let the large collections be consigned to those great plant repositories, botanic gardens.

In the arrangement of a flower garden, according to the grouping system, it is first only necessary that the beds should correspond as to colour and position; but it is also indispensable to the production of a harmonious group that the plants should correspond in height, and bear a just proportion to the beds in which they are planted. When I speak of harmony I do not mean such harmony as is produced by bringing every part of a given colour into one group, a system which, in my estimation, is a complete nullity in garden practice; but harmony such as is produced by a garden being so designed and planted that no bed, plant, or colour could be removed and replaced by a bed of a different character without the defect, for such it would be, being at once manifest to the common observer. This is the proper test both for designs of flower-gardens and arrangements, and if they will not stand this test they must to a certainty be defective.

While, however, I am opposed to a bed harmoniously arranged, because it is less effective than when only one colour is used, I am a great advocate for edging beds, especially on Grass, with their complementary colours, as scarlet with white and the reverse. For small gardens, or where the beds are scattered about the lawn without any formal arrangement, this is the best and most effective style of planting that can be adopted. I am no great advocate either for renewing or annually enriching the flower-borders, as I believe if a proper rotation is carried out there is no more necessity for renewal than there would be to annually renew the soil of a market garden. The beds here have not been either renewed or manured for the last four years, and I may risk the charge of egotism in asserting that taken either separately or as a whole finer groups of flowers were never seen than we have had during the present season. [When we saw them the effect was admirable]. We take, however, great care to keep the soil well trenched, ridged, forked, and tumbled about in dry weather during the autumn and spring, and our soil being heavy, sand is added to it as frequently as it can be met with of tractable quality. In this way our plants grow strong and healthy without over luxuriance, and the plants being properly attended to as to stopping, training, and so forth, they form groups of the most superb description. If any of the plants do not grow so strong as could be desired we give them a dressing of Potter's guano, or weak clean manure water; and if any bed appears impaired by over blooming it also receives a dressing with clean soot water. This imparts a rich dark green to the foliage, and is certainly one of the finest manures for the flower-garden that can be used.

There is one important element of success in flower-gardening enjoyed at this place, which I am afraid is generally too little thought of in most gardens, and especially by tardy managers. We never attempt to grow flowers in unsuitable situations. We do not stick beds under large trees, or plants among shrubs, and then fret and stew, and find fault, because they do not grow so well as those fully exposed to the full action of the atmosphere. We banish flowers, except such as are produced by shrubs, from our shrubbery borders, and concentrate our floral strength in groups, in gardens fully exposed to the solar influence, and over which no tree will ever be allowed to throw a shade by its branches, and we endeavour to make these gardens as gay as it is possible to make them, and they are certainly bright gems in a tolerably pretty place. The above remarks will answer the question so frequently asked by visitors here:—"How is it that our flowers, though the same kinds, do not look so well as yours?" The answer is obvious; remove your trees, or remove your flower beds to a more exposed situation.

With these remarks, which I trust may be of use to some, I shall proceed to my descriptive list of

VERBENAS.

Atrosanguinea.—Dark velvety red, with pale eye, a compact grower and profuse bloomer, with a remarkably fine truss of flowers. Height 9 inches.

Resplendens.—Dark bright scarlet, a profuse bloomer, and of free growth. Height 9 inches.

Ignea.—Nearly the same colour as the preceding, but not quite so free in growth, nor so dark. Height 6 inches.

Boule de Feu.—Bright lively scarlet, with a dark eye; a plant of fine compact habit, but requires a rich soil to bloom it properly. Height 9 inches.

Gladiator.—Orange scarlet, with pale eye, rather loose in habit, but a fine variety. Height from 9 inches to 1 foot.

Emma.—Dark maroon purple, a plant of fine habit, a profuse bloomer, perhaps one of the most striking varieties in cultivation. Height 1 foot.

Rubra purpurea.—Dark reddish purple, rather dull, but of good habit, and distinct. Height from 12 to 15 inches.

Stewartii.—Dark velvety purple, a compact and good grower. Height 9 inches.

Louis Philippe.—A trifle darker than Stewartii, and of dwarf trailing habit, with strong foliage. Height 9 inches.

Excelsa.—Deep reddish rose, a fine kind, with a profusion of large trusses, Height 12 to 18 inches.

Parksii.—Ruby-coloured, of robust habit, with large trusses of flowers; habit compact. Height from 12 to 18 inches.

Amethystina.—The best of the blues, of free and compact habit, and a most profuse bloomer. Height from 9 to 12 inches.

Ingramii.—Deep flesh colour, with dark eye, and veins of red; a superb variety, but liable to mildew early in the autumn. Height 1 foot.

Beauty.—Purplish salmon, of excellent habit, and a profuse bloomer. Height 1 foot.

Beauté Supréme.—Lively pinkish salmon colour, perhaps the finest variety in cultivation for cutting, but of loose straggling habit. Height 2 feet.

Giant.—Bluish lilac, with dark eye; a most robust grower, with numerous and large trusses of bloom, a fine variety for a large bed. Height 2 feet.

Tricolor alba.—Creamy white, with dark eye, and occasionally veined with purple; one of the finest varieties for a single bed, the trusses being large and numerously produced. Height from 12 to 18 inches.

Princess Royal.—The best of the whites, being tinged with blue, of good habit when planted in rich soil. Height from 9 to 12 inches.

Teucrioides rosea.—Deep rose colour, an old variety, but yet very desirable. Height 1 foot.

Teucrioides carnea.—Opens pinkish flesh colour, and changes to white; of good habit, and nearly the same as Wood's Princess Royal. Height from 12 to 15 inches.—*W. P. Ayres, Brooklands.*

BLIGHT.

Whilst popular attention is so much directed toward the catastrophe in the Potato crop, it may not be ill-timed to say a few words on blight generally; for a wide conventionality seems to attach to the term, and many of your correspondents, I observe, use it vaguely, and with no very accurate knowledge of its precise meaning, or its logical application. We may observe, moreover, that, in the discussion of the subject, some mean one thing and some another. Some seem to have an idea of a material agency in blight; others seem to understand it in the sense of a mysterious something, quite unknown and undefinable, or a momentary atmospheric exhalation, like a blast of lightning: this last is the most popular opinion. If a tree, or part of a tree, put on a sickly appearance, it is said to be blighted; if a line of stunted Cabbages runs through a plot of that vegetable, or a patch of mouldy plants shows itself there, that line, or the portion so affected, is said to be blighted; if a field of corn, or portions of a field, suddenly lose their healthy aspect, or fail of the average produce when harvested, that field, or those portions of it, get the excuse of a "blight," and no attempt is made to discover what that is, or what efficient cause may have operated to their disadvantage—whether the blight be from the heavens above, or the earth beneath, or from the waters under the earth. "There was a blight in the air, and it could not be helped:" *Stat pro ratione verbum.* Sometimes attempts are made at a more distinct identification of blight with atmospheric agencies. Thus the writer of this notice was shown a patch of Potatoes with blackened haulm, just when "the murrain" was beginning to show itself, as the work of a thunder-storm the preceding day! But the favourite vehicle for blight is a hazy atmosphere; whether it be warm or cold, white or blue mist, or the mist of a neutral tint, like London smoke, and sometimes smelling like it too, at many leagues distance. Then comes the confusion of the relations of cause and effect—the *non causa pro causa.* The frosty nights that accompany the white fogs of spring go for nothing. The cold dark clouds, like flying icebergs, that accompany the blue fogs of a more advanced period, scattering hail and radiating cold to the hapless fields beneath, are taken no account of. The blue mist, like the evil spirit of the same hue, haunts the imagination of the farmer or the gardener, and scatters blights and mildew. But blue mists are not always cold: hot sultry weather, favourable to the development of insect life, is in June the frequent concomitant of blue mist. Still it is the blighty air, and not the chafers, lady-birds, dolphins, green-flies, and other field and garden pests, that do the mischief. Nor the sudden impulse of a dry and heated air hurrying the inflorescence through its several stages, without the fertilising influences of a slower development.

We see, therefore, that though the term "blight" is generally used generically, its specific distinctions are seldom observed, except in the writings of systematic authors, who have sometimes identified its causes and effects, as well as pointed out their preventive or curative remedial means.

You have given us ample proof of the specific nature of the Potato blight, and of its origin in obvious atmospheric causes, and every one must be struck with its analogy to the epidemic diseases of cattle, and the influenza-like maladies of human beings. This analogy holds good in various aspects. Its uniform character, its universality, its sudden invasion in various points at the same time, and its greater or less intensity as modified by local circumstances. It seldom happens that any notable epidemic in animal or vegetable organisms is so clearly traceable to its causes as the Potato murrain. We see, nevertheless, that there is a diversity of opinion as to the share in the operation to be assigned to the several agencies. It cannot be wet alone, for much wetter summers have occurred within these few years without harm to the Potato crop. It cannot be cold only, because the average temperature has certainly not fallen below the rate of districts and counties where the vegetable is always successfully cultivated; nor has there been, as your correspondents observe, any remarkable development of sensible electricity. But of all the incentives to a healthy vegetation, what has been so much wanting for the last two months of July and August as light? not merely bright sunshine, for of that there was hardly any, but even the ordinary quantity of daylight was wanting; so dense and black was the overcast day after day through this long period, a time when the vegetable world is in expectation, and generally in the enjoyment of its fullest share both of light and heat. You justly suppose that the transient warmth of June gave a predisposition to disease, by imparting greater sensitiveness or excitability to the plant. Doubtless another ingredient in the mischief was the absence of the usual ground-warmth that cherishes the vegetation of a more favoured season. There is every reason to believe that the calorific rays penetrate the clouds and impinge on the soil when the general diffusion of sun-light is not correspondingly powerful. Every practical gardener will observe that at the end of even a very dull day in the middle of summer, the temperature of the soil on the surface far exceeds the warmth of the air, and even surprises him by its excess over the temperature of the same soil in the morning. It will be said that in a dull day there is less radiation from the surface than in a clear one, and thence the accumulated warmth. It may be doubted if the difference in the ratio of light and warmth as transmitted through a cloudy atmosphere can be so accounted for, and the subject requires further investigation. Were it not for this aptitude to receive the warmth of the sun in the absence of the strong light of that luminary, it must be supposed that the soil must have been far below the average warmth during the past summer; so far as to be productive of still more extensive mischief than has yet accrued from it. But this article has already extended beyond its proper limits. The intention of the writer was to point out the propriety of greater accuracy in the application of the generic term "blight," than is usually practised, and not to swell the already voluminous discussion about the Potato-murrain: and although the extraordinary absence of sunlight has been spoken of, it is not to be supposed that this has been the sole deficiency. There is abundant evidence of accumulated causes both of the privative and repletive kinds—and Potatoes die as animals do, by cold and starvation; some by decline and slow decay; others, by mortification and sudden death.—* *

Home Correspondence.

Potato Jelly.—Independently of any consideration of what may be the uses to which the extraction of starch from bad Potatoes may be put by the poor under present circumstances, it seems to me not unlikely that your agitation of this question may lead to the general adoption of this substance in all families as a useful and important article of our domestic economy. The readiness with which a good-sized basin-full of thick jelly may be procured from a single moderate-sized Potato, is a fact worth knowing. I have several times repeated the experiment, and find that it does not require more than eight minutes to change a raw Potato into a basin-full of most excellent jelly, which has only to be seasoned with a little sugar, nutmeg, and white wine, to please the most fastidious palate. To obtain this jelly in perfection, let a Potato be washed, peeled, and grated; throw the pulp, thus procured, into a jug of water, and stir it well. Pass the mixture of pulp and water over a sieve, and collect the water which passes through into a basin. Let this stand for a few minutes, and a sufficient quantity of starch will have fallen for the purpose required. Pour off the water, and then keep stirring up the starch at the bottom of the basin, while boiling water is being poured upon it; and it will soon and suddenly pass to the state of a jelly. The only nicety required is to be careful that the water is absolutely boiling, otherwise the change will not take place. Mr. Darwin has recorded an instance of some of his attendants being unable to boil Potatoes above a certain height on the Cordilleras, owing to the diminution of pressure not allowing the water to become sufficiently heated before it boiled. There may, possibly, be some connection between the conditions under which Potatoes can be boiled, and their starch converted to jelly. Upon comparing this jelly with that from the starch called Arrow-root, and obtained direct from Bermuda, I find a difficulty in my own person in discriminating between their flavour, though an invalid, in the habit of eating Arrow-root, at once detected which was which. The difference, however, becomes more sensible when both jellies are made palatable with sugar, &c., for then, both the invalid, myself, and another person, were equally decided in our preference of the jelly from the Potato, to that from the Arrow-root; the latter possessing a rather mawkish flavour, as though it had been prepared with smoky water. I know not whether medical men are able to point out any real difference in the composition of starch obtained from Potatoes, and that from the Arrow-root; or whether past experience has shown them that the one is a more nutritious food for the invalid than the other; but certainly, arguing *à priori*, and with no wish to give them an opportunity of trying the experiment upon myself, I am inclined to think that sending to Jamaica for Arrow-root starch, at 2*s.* 6*d.* to 3*s.* a pound, is a most superfluous extravagance, whilst we can manufacture that from Potatoes at home for about ½*d.* or a 1*d.* Will any of your correspondents favour us with facts bearing on this question? Puddings made exclusively from Potato starch (without Wheat flour) are certainly light, and of most excellent quality: and it does appear to me that sufficient information has been elicited respecting this material, to satisfy us that we may all add it to our store-rooms as a most useful and economical ingredient for several of the purposes to which it may be applied. A medical friend in London has sent me nearly a dozen different names under which John

Bull is humbugged (as he says) into purchasing Potato-starch. This is sold from 1*s.* to 3*s.* per lb., as food fit for princes or suited to invalids! It also enters largely into some compounds recommended to the million as cheap substitutes for the materials more usually employed by them at their breakfasts or suppers; though still not half so cheap as they might themselves prepare those same substitutes, if they happen to possess capital sufficient to command a grater and a sieve. A question arises in my own mind whether Australian and other travellers, who are sometimes compelled to devour Fern-root, &c., complaining of the unpleasantness of the sauce by which their starch is accompanied, might not provide themselves, on such occasions, with somewhat more luxurious food, if they were only to travel with a pocket bread-grater about them; for the sieve may be readily dispensed with. Even poisonous roots and tubers may be resorted to for wholesome starch; as we know to be the case with the Janipha Manihot, from which cassava and tapioca are prepared, though its tuberous root abounds with a milky poisonous juice.—*J. S. Henslow, Hitcham, Sept.* 9.

Storing Potatoes.—In my last communication on storing Potatoes, the infected ones were directed to be cut lengthwise, from stem to eye, as the best means of detecting the progress of the disease, which seems to enter by the stem. But another and stronger reason has since occurred to me for rather cutting them across when the nose end appears sound; for, by thus separating the infected stem end, the nose end may chance to be preserved, though the stem should decay; and this is the more desirable, as the nose is best suited for seed (though sound seed is much more desirable, where it can be obtained). The stem end will also stand a better chance of keeping, by cutting away the brown infected parts; and the addition of 1-10th of salt (or even less) to the dried earth has a powerful effect in drawing out the sap, but whether in preserving the Potato time must decide.—*J. Prideaux.*

Potatoes, how to Correct their Unwholesome Flavour.—A large proportion of the Potatoes now brought to market, though sound or decaying only in spots, have so unpleasant and unwholesome flavour as to be hardly eatable. This flavour is chiefly in the juice, which is first infected, and may be thus got rid of:—Clean and peel the Potatoes, and cut away all brown parts; then cut up the Potato into pieces smaller than a Walnut, lay them on a clean stout cloth, fold the cloth over them, and smash them abroad with a mallet; gather the mash into the centre of the cloth, and wring out the the juice. Then loosen the cloth, and put the part with the Potatoes into a large basin of cold water; leave it four or five minutes to soak thoroughly, and wring out again; then give it another soaking and wringing, and the juice will be pretty thoroughly washed out if the Potatoes are well crushed. The mash thus cleansed is not so fit for boiling as frying, for which it does as well as sound Potatoes. A little starch may be settled from the juice and washings; but they wash out very little, unless the Potatoes are mashed very fine. This starch, well washed, and mixed with one-third flour, makes good bread, pudding, or pastry.—*J. Prideaux.*

Cause of Potato Murrain.—In the early part of the preceding summer we had two, and only two, excessively hot days in Cornwall. The heat was intense, it came on suddenly, and lasted only 48 hours. The day before this accession of intense heat, a friend of mine, who lives in the neighbourhood of Gorran, took particular notice of a thriving crop of Potatoes in that parish. He informed me that the plants, at that time, were in perfect health; they were of recent growth, and the stalks had not sprouted. At the expiration of the two hot days he again visited the spot, and to his great astonishment he found that the plants had all made very long shoots of leafless stalks, and he felt quite convinced that this rapid growth had taken place in the short space of 48 hours. Immediately after this, and coeval with the fall of temperature, the plants became sickly, and in a very short time they were all blighted. I consider the above fact extremely interesting. The gentleman who mentioned it to me is an intelligent, though not a scientific person, and I have no doubt his observations are correct. It affords a glaring instance of the liability of the Potato to be affected by atmospheric changes, and throws considerable light on the pathology of the Potato blight. We can easily suppose that in the above, as well as in other cases, the injury was occasioned by the excitability being exhausted by too rapid growth, and that the plants were consequently unable to adapt their functions to the diminished temperature. This view of the disease corresponds with the theory advocated from the first in the *Gardeners' Chronicle.*—*J. M. Winn, M.D., Truro.*

Potato Murrain.—In August I had a quantity of Early Frame and Ash-leaved Kidney Potatoes dug up apparently quite free from the murrain. They were laid on the floor of a large Vinery to dry; in the course of a week I found that one-third of them was infected more or less, and they still continue to decay, but not so rapidly. The Grapes in the said Vinery were nearly ripe at the time of the Potatoes being placed in the house; on Tuesday (23d) I observed the berries beginning to rot, and on Friday (26th) many of the bunches were completely decayed. Do you imagine that they have caught infection from the Potatoes? Air has been given liberally, both day and night. [Your Vinery must have been very damp.] In June also, when digging up early Potatoes, before there was any appearance of disease, even in the haulm, there was left on the surface, fully exposed to the weather, 16 Potatoes, 12 of which I now find are infected; the most exposed portion of the tuber being the worst. I have found, from experience, that even the smallest quantity of salt is injurious to the preservation of Potatoes. Some of mine came accidentally in contact with it, and the effect was, that they became soft, appearing as if frost-bitten, and were totally unfit for food.—*R. Gadd, Florist, Castle Goring, Worthing, Sussex.*——I do not hear of the murrain having attacked the Potatoes on this coast (Hartlepool, Durham). The disease which is, I believe, a fungus, may, possibly, be destroyed by salt. I always spread a certain quantity of common salt on my manure heaps, and my Potatoes have not suffered.* I think, if Potatoes for keeping were immersed for two or three minutes in boiling salt water, it would have the effect of preserving them from the rot; a shorter time for those intended for seed, perhaps; for the latter, the plan might be a risk; however, a few could be experimented upon. The Potatoes might be put into strong nets and placed in a cauldron for the time required, and then laid out to dry, to be succeeded by another batch; the operation would neither be expensive nor tedious.—*Falcon.*——The water in which Potatoes of this year's growth have been boiled is black, and has a fetid smell; I, therefore, suggest that Potatoes should be boiled in two waters, and it may be as well to observe it with respect to every other vegetable.—*C. W.*

Potato Sets.—A friend in this neighbourhood has brought me a bag of Potatoes, which he grew by way of experiment from the succulent shoots that his gardener had rubbed off his sets when he was about to plant them in the spring. He suggests that in places where the sets may run short next spring, recourse may be had to this method for increasing the stock.—*J. S.H.*

Disease in Peas.—At p. 658 there is a paragraph from "R. B.," headed a "New disease in Peas," describing the sample as "curiously affected with rot, as will be seen upon splitting a Pea open, yet so fair in appearance that a dealer in Mark-lane would have bought them without suspicion." The writer also considers the disease confined to Bean-peas, as he has not heard of any other Peas so affected. To this is appended a learned note upon the disease, by Mr. Berkeley; and thus your readers are to have a fresh cause of alarm—second only to the Potato murrain. Now, I trust I may put a stop to this cry, by informing "R. B." that I have very strong reason for suspecting that his new disease is considerably older than the times of his great-grandfather, and that it is a disease that may be found annually in some Peas. Having some thousands of quarters of Peas constantly passing through my warehouse, I can speak pretty confidently upon this point. I have seen it in the Early Frame Pea and in the Early Green Marrow, and, in fact, in all sorts; and most of your farming readers will recognise the complaint when the Pea is termed "pigeon-eyed." I dare say the disease has increased this year from the wetness of the season, as we have found generally Peas grown near or on marsh land to be most affected in other years. If anybody can find a remedy to prevent it it will confer an obligation on many a farmer and seedsman, but if draining the land thoroughly will not prevent it, I am afraid they must carry their appeal to the Pleiades.—*A. G.*

Do Snakes Eat Grapes?—Your correspondent, who was so dreadfully frightened at a snake, might have guessed that it was mouse-hunting.—*H.*

Growth of Cotton in India.—I am glad that my letter and your remarks on the improvement of Cotton in India have attracted the attention of so able a correspondent as "J. F. R.," who appears to be conversant with a good deal of what has been attempted there. No doubt there are, as he states, great diversities both of soil and climate in so extensive a country as India; and if so, although there may be some which are not adapted to the growth of either the Gossypium Peruvianum or G. Barbadense, there must be both soil and climate suited to them in various localities in that country. My chief reason for suspecting that the injury arises from the new kinds hybridizing with the indigenous Cotton is, that very good Cotton has been grown from both varieties in the first generation; but that when the seed from that is sown again, the quality always deteriorates (at least so say all who have been in India with whom I have conversed on the subject). I have a sample of a beautiful quality of Cotton grown from Pernambuco seed, worth twice as much as the best Surat Cotton I ever saw, but I cannot learn that anything deserving the name of aught but a sample was ever obtained. We hear of no increase in the quantity of this improved variety; it does not, like Cotton in the United States, go on from 10 bags to 10,000 in eight or ten years; on the contrary, as far as I can learn, it dwindles away to nothing. The Tinnivelly Cotton brought forward as an example by your correspondent is no exception. Tinnivelly Cotton is no more like Bourbon Cotton than Bowed is like Sea Island, at least none that I ever saw. Bourbon is a long silky stapled Cotton, whilst Tinnivelly has the shortness and inequality of fibre common to most of the Cotton of India; it is generally much cleaner than the Cotton grown on the western side of the Peninsula, but this arises probably from greater care in picking it. An intelligent friend of mine now in India says that the pod of Cotton is overhung by a brown leaf (bract?), and if the Cotton is gathered early in the morning whilst the dew is on the plant, this leaf is tough and does not break, and the Cotton is gathered clean; but if it is picked when the dew is evaporated, then this leaf is brittle and gets mixed with the Cotton in picking, but he says no persuasion can induce the natives to keep that which is picked in the morning from that which is picked in the heat of the day. He also suggests that the Cotton should be irrigated during its growth, and alleges as a motive for doing this, that in Egypt and Peru no good Cotton can be grown without resorting to it; but the cases are not exactly parallel, inasmuch as no rain falls in either of these countries, whilst the rain is most abundant in India, 80 or 90 inches sometimes falling in three months during the monsoon. Another intelligent gentleman with whom I have conversed on this subject since my former letter was written, and who has resided at Bombay so many years, where he has paid much attention to the growth and improvement of Cotton, says that the gentleman intrusted by the East India Company with the management of one of the experimental Cotton estates assures him he has grown excellent Orleans Cotton, and that the Nyots were so satisfied with the superiority of this Cotton over the indigenous kind, that 1200 begahs (say 350 acres) were planted with it two years ago, but as the disturbances took place in this very neighbourhood, he fears the plantations have perished, as he heard no more of the matter, and had omitted to inquire of the gentleman intrusted with the management. I reserved this communication until I saw the second letter from "J. F. R." which I have now read, as well as an article on the same subject, in the *Manchester Guardian*, in which it is stated that 20,000 acres are now under cultivation, planted with this improved Cotton. I fear this is too good news to be true; my informant is a gentleman who was in correspondence with Mr. Mercer (the superintendent), when in India, and I have again questioned him, and he says that the crop, which would be gathered in March last, would amount to what I have stated (1200 begahs). According to Mr. Mercer's letters to him (written 12 months ago, as he left Bombay for England shortly after), his fear was that none of this Cotton would be gathered, as the disturbances which took place in central India, and which required so long a time to quell, were in this very district. If "J. F. R." has got samples of this improved Cotton of the second or third generation, he would confer a great obligation on me by sending me a small sample of it by post. I heartily thank "J. F. R." for his second communication, which goes far to prove the truth of what I had previously supposed, that the Cotton of India is capable of great improvement by being judiciously crossed with suitable foreign varieties; your correspondent thinks if the old varieties deteriorated the new, when growing in proximity to each other, the new ought for the same reason to improve the old, and no doubt they will, but to a much smaller extent; it is said that a man leaping up into the air attracts the earth (proportionally) as much as the earth attracts him, and it may be so with the old and new cotton; what I mean to say is, that although some of the old sort of Cotton might be hybridized by the new, yet that the improved variety would be in so small a quantity, that a thousand to one the cultivator would never observe it, and such is the aversion or indifference to anything new among the natives of India, that if an improved plant were observed, it is again a thousand to one he would take no pains to preserve it, and if he did, it is still most probable that it would be entirely spoiled the next generation, by being planted amongst the indigenous sorts. I trust your correspondent will continue to favour us with further communications on the subject, which the more it is considered, the more important it seems to be, at least in my opinion.—*Thomas Garnett, Low Moon, Manchester.*

Effect of the Summer of 1844 *on Roses, &c.*—There can be no doubt that the remarkably fine bloom of the Roses, which seems to have been universal, was, as you have remarked (p. 487) a consequence of the dry and warm summer of 1844. Every kind of fruit and forest-tree, with the whole tribe of flowering shrubs, has benefited more or less from the same cause. Take, for example, the Hawthorns and the Rhododendrons, which flowered in quite as great perfection as the Roses. In this part of the country the Cherry, Plum, Pear, and Apple-trees, were one sheet of bloom; and had the weather been favourable at that season, we should, doubtless, have had a great crop of fruit; but the cold rains which prevailed during the time of flowering probably made the pollen inert, for the embryo fruit appeared to fall off for want of having been fertilised. The scarcity of fruit cannot be accounted for in any other way that I can see, for the blossom was strong and healthy, and we had no frost during its period of expansion. It would seem, therefore, that excess of moisture is quite as detrimental as frost to the free setting of out-door fruit. I have frequently observed the female flowers of the Nut are capable of bearing a greater degree of cold than those of any other fruit-tree. Last spring we repeatedly had from 5 to 10 degrees of frost while the Filbert-trees were in blossom, and yet they are now bearing a full crop of fruit.—*J. B. W.*

Icehouses.—Having on former occasions addressed you on the subject of keeping ice, I read with some interest Mr. Fortune's communication on the Chinese mode, and agree with him that it is a question—or rather no question at all—whether ice could not be preserved in this country in a more efficient and much less expensive way, than by the usual mode of sinking an inverted cone deep in the earth and lining it with bricks, with all the accompanying apparatus of drains and air-traps, and intricate straw-stuffed passages, rendering it a very laborious operation to get a pail of ice when required.

* Gloucestershire.

Moreover, the stock is often exhausted before a fresh supply can be obtained. The mode I have for some years adopted, merely as supplementary to our inverted cone, is in some degree analogous to that described by Mr. Fortune, though less efficient by the mere absence of structure; but might be easily rendered complete by adding Mr. Chinaman's mud walls, &c. I have long thought, from observing natural operations, that the first principal point to be observed in retaining a supply of ice, is to put plenty of it together; and the next, to secure it from melting influences as much as possible. Your scientific correspondent, Mr. P. Mackenzie, who lives in full view of the Ochil Hills, can tell you, if he pleases, that in the chasms of these hills, vast masses of snow may some summers be seen facing a burning sun till the arrival of the dog-days. What preserves it? Merely the quantity drifted together. Following this natural hint, which I often saw when a boy, I have a hollow scooped out, which for several seasons has been filled with ice, and raised from 7 ft. to 8 ft. above the natural surface of the ground, in form of a blunt irregular cone. This is merely covered over with a lot of old thatch, or any inferior litter, to the thickness of about a foot, and no other care is taken of it. Now, in regard to its efficiency, I cannot give a better comparative test, than by stating, that we have also a regular ice-house on the old sunk inverted-cone plan—and a good one too of its kind; last year all the supply was taken from the pile, the house was never opened, and at the setting in of the frost last December, when the men went to clear out, preparatory to re-filling, there was about the same quantity (two barrowfuls) of old ice at the bottom of each. I should now consider it a piece of folly and waste of expense to construct such an ice-house as the inverted, sunk, hollow brick cone; besides its inefficiency, so much complained of, there is not only the original expense of structure, but a continued expense of time and labour thrown away, and a very inadequate supply obtained after all. We want a "radical reform" on the ice question.—*Quercus.*

Thornfield Pines.—I beg to inform your kind correspondent that it is A miss-giving in page 643 saying that A fine fruit was cut of that Enville plant in August 1844 that had two fruit on A pair of suckers at Cheadle heath in august (1845) last it was exibited at Manchester and the same miss-giving appeared in the Manchester guardean. I beg to inform you that I had that plant under my care till August 24th—1844 and no fruit has been cut of that Plant since December 1843 I furnished the Gardener at Cheadle heath with some plants two of them where Envilles one of them was cut on december 11th the other on the 21th of december 1843 I frequently saw the plant before it fruited and I saw it with the fruit upon it I have growed pines here nine years with two suckers on some plants and the suckers was A large sise wen the was taken to Cheadle heath I ham astonished at the pretentended Hameltonian school forwarding such well known miss-givings.—*James Smith Gardener to Henry Marsland Esq. M.P. Wood Bank Nr Stockport.* [We hope others will be more successful than ourselves in making out the meaning of this communication, which we print *literatim.*] —— On reading the statement of "R. E." (page 595) respecting the Pines at Thornfield, I was induced to visit that place a few days since; after a careful examination of Mr. Hamilton's system I have come to a decided conclusion that, for simplicity and economy, or, in fact, whatever view is taken of it, as a superior method of cultivating the Pine, it is by far the best method I have ever seen in practice; so confident am I of its great superiority over all other methods that I intend to adopt Mr. H.'s plan without delay; and I have not the smallest doubt that I shall (when once fairly started) be able to double the crop of Pines in the same space they now occupy, and with an immense saving of labour and expense attending their management. To amateurs, as well as to gardeners, Mr. H.'s system will be invaluable. They will run no risk of burning the roots at any time; and, besides, a great saving of time and labour, and expense, in pots and bark for bottom heat; one house will produce as much fruit as two by the old method.—*R. Reid, Noble Thorp.*——*Mr. Hamilton* himself states that, "R. E." had not perceived that many of his plants are not in pots, but turned out as recommended at p. 62 of his book on the Pine. He writes that one Montserrat, from which he intends cutting four fruit in 12 months, is planted out in this way. He says that he only recommends pot culture, for this reason, when the suckers have made three or four months' growth they may be made to show fruit at any time by the simple process of turning the pot or shaking it now and then till the fruit appears. Thus may plants, or rather suckers, be made to show at any season. With regard to moisture, his system requires no more than the old method. He mentions that his neighbour's (A. Orals, Esq.), gardener has little or no command of moisture, and that his suckers surpass the maiden plants.

Wasps.—About the 18th of September the wasps first attacked my Peaches, Nectarines, and Magnum-bonum Plums, the fruit being abundant, and the wasps few in number, but vigorous and persevering. Several were embedded in Plums, and on being dislodged fell to the ground by their own weight. The number of wasps on the walls on the 25th Sept. were only 34, at 5 o'clock in the afternoon; on the 26th, 51, at 3 o'clock; and on Saturday, the 27th, 38, at 4 o'clock; these were taken with the glass trap. There were no more wasps afterwards to injure the fruit, but the flies were found to be mischievously active. There was no lack of fruit to account for the departure of the wasps, for the best Royal George Peach-tree had a dozen and a half very fine fruit remaining on it on the 4th of Oct., which were gathered on the 6th Oct., leaving a few of a later sort on other trees. The wasps' nests taken this season were 112 in number, and in the last lot taken, on the 3d Oct., scarcely any grubs remained, but a great many wasps were taken in the glasses; on 20th Sept., two nests taken, and 523 and 530 wasps caught in the glass-traps. It would be impossible to make a true estimate of the number of these insects. The most accurate way would be to count or guess at the number of cells in their nests. The only estimate I can make of the quantity in question is, by supposing each nest on the average to contain 5 lbs. weight—that would be 560 lbs.; and again, suppose 500 wasps to have been straying or absent from each nest, that would be 56,000. If the wasps had not been in a great measure destroyed, and had made their advances in full force at their usual time, commencing with the ripening of the Pears and Plums, no fruit garden would have been sufficient for them; but I cannot imagine what they lived upon, though in some places very few were seen. I shall conclude these remarks by recommending some means for their destruction another year. 2*d.* or 3*d.* a nest should be given for finding and taking them, and the preparations should consist of an intelligent man and a helper; penny squibs, flint and tinder-box, touch-paper, spade, pickaxe, lantern; three bags, each made out of about a square yard of coarse sheeting; from 6 to 12 large-necked fruit bottles; and glass funnels, which may be cut out of the necks and shoulders of broken wine-bottles. The grubs are considered to be of great value in the poultry yard.—*T. N. P., North Shropshire.*

Melon Growing.—The plan recommended by "R G." p. 624, for applying water to the roots of Melons without saturating the soil, is precisely the same as that recommended by me nearly two years since, in a treatise* on the winter cultivation of the Cucumber. This will appear evident from the following extracts from the treatise alluded to. "A shallow bed of soil is all that would be required; for in the winter season there is nothing gained by encouraging a very luxuriant and gross state of growth: the composition of the soil will be noticed hereafter: beneath it, and resting on the top of the tank, should be placed a layer of coarse open rubble, not less than six inches in thickness; and among this rubble, by means of tubes (*n*) placed at intervals along the bed, I would occasionally pour considerable quantities of water, in order to maintain a due regulation of moisture in and throughout the soil." p. 22. * * * "It is barely possible to suppose any use to which a structure which during the winter season has been devoted to the growth of Cucumbers, could be so legitimately appropriated in the summer, as that of the growth of the finer Melons of Persia, Cashmere, &c." "In the application of moisture to the soil, the structure which is described in a previous chapter will be found to present facilities which peculiarly adapt it to the growth of these plants. In Persia and the neighbourhood, countries where the Melon is so successfully grown, the ground is irrigated by means of numerous channels, which from the limitation of their exposed surface, are not peculiarly adapted to supply atmospheric moisture; but are yet sufficiently numerous to secure the perfect irrigation of the soil within the reach of the roots. The tubes or shafts represented at (*n*) are intended to communicate directly with a layer of coarse open material, extending entirely over the top of the tank, and beneath the soil: by means of these, a supply of water should be poured beneath the soil." pp. 56, 57. The only objection I have ever heard raised against this plan is, that the constant supply of moisture would continually attract the young roots towards the tank, where they would as continually be injured by contact with its heated surface; but this objection is at once met by the fact, that for all purposes of supplying heat to the soil, the tank should never be heated to a degree which would in the slightest degree injure the most delicate spongiole.—*T. Moore.*

* Theory and Practice applied to the Cultivation of the Cucumber in the Winter Season: London, Groombridge.

Societies.

HORTICULTURAL SOCIETY.

Oct. 7.—R. W. Barchard, Esq., in the chair. Capt. E. M. Daniell and W. Deedes, T. Dent, G. W. Newell, W. Paynter, S. Smith, and G. Wood, Esqrs. were elected Fellows. At this meeting several articles well worthy of attention were produced. Messrs. Henderson, of Pine-Apple Place, sent a collection of plants remarkable for the beauty of their foliage; among them was a plant named Ruellia maculata, whose leaves are finely overlaid with silvery markings equal in beauty to that of the foliage of some tropical Orchids. The plant is quite new, and the beauty of its leaves alone will render it worthy of a place in every collection. In the same group were Dioscorea discolor, remarkable for its grey-looking velvety leaves; Tillandsia zebrina, with dull brown gilt leaves; the well-known Crotons pictum and variegatum; Dracæna terminalis, distinguished for its dark red foliage; Arundo Donax, variegata; Aspidistra lurida variegata, Begonia zebrina, and a cut specimen of a white species of Clerodendron, a beautiful stove twiner, and apparently a rapid grower, sent from Sierra Leone, by Mr. Whitfield. A large Silver Medal was awarded for the Ruellia maculata.—From the gardens at Syon, were Ruellia macrophylla, a brilliant scarlet flowered species; a remarkable cut specimen of Elate sylvestris, one of those noble Palm trees, which can only be grown in large conservatories. The plant possesses little beauty in its flowers, but produces panicles bearing multitudes of pretty oblong orange-coloured berries, with a curious flat stem, differing much from the usual structure. From the same collection was also fruit of the Constantinople Nut, Corylus Colurna, which forms a small tree and does not often produce nuts in this country. The kernel is small, in a very hard shell, which is again covered by a thick fleshy very remarkable husk. Along with these was a cut specimen of a Neptunia, from Jamaica, whose long stems floating on the surface of the water send up numerous laterals bearing multitudes of small balls of yellow flowers; the foliage is as irritable as that of the Sensitive Plant; a coarse sort of Rice-paper is prepared from thin slices of the pith of a plant of similar habit. A Banksian Medal was awarded for the two first-mentioned plants.—Mr. Glendinning, of the Chiswick Nursery, sent Statice purpurata, a pretty species, having some resemblance to S. Dickinsonii; and Mr. M'Ewen, gr. to Col. Wyndham, sent Satyrium carneum, a pretty terrestrial Cape Orchid, having a dense spike of pink flowers, which were, however, very much bruised in the carriage, which detracted considerably from its beauty. The plant was in excellent health, and amply proved that, with a little care, such things may be successfully cultivated in this country, where their beautiful flowers and singular forms would amply repay the trouble.—From Mr. Robertson, gr. to Mrs. Lawrence, were Oncidium Harrisonianum, a fine specimen, richly studded with brownish-yellow blossoms; Lælia Lawrenciana; a good Saccolabium papillosum, one of the early importations from China; and a group of cut flowers, composed of Cattleya guttata, Brassia brachiata, and Dendrobium chrysanthum, whose bright orange blossoms contrasted well with those of the other two. A Banksian Medal was awarded for these plants.—Other Orchids were produced by Mr. Redding, gr. to Mrs. Marryatt. In this group were two fine plants of Zygopetalum maxillare, the old Stanhopea grandiflora, a very pretty Odontoglossum grande, and the handsome Cattleya Loddigesii; also a Begonia; the old Guzmannia tricolor, a Pine-like plant, with a dense spike of bright red flowers, seldom met with in collections; and a basket of cut blooms, chiefly of Tacsonia pinnatistipula. A Banksian Medal was awarded for the Zygopetalum and Odontoglossum.—Of florists' flowers Mr. Kendall, of Stoke Newington, sent two seedling Fuchsias, named the Great Britain and Miss Prettyman, and a cut branch of F. gigantea.—Mr. Ivery, of Peckham, also exhibited a seedling Verbena, named Wonder of Scarlets, and Mr. Fairbairn, of Wandsworth-road, sent a seedling Dahlia, named King of Perpetuals, with a seedling Polygala named Dalmaisiana.—From Messrs. Veitch and Son, of Exeter, was a Philibertia, sent by Mr. W. Lobb, from Peru. It is a greenhouse twiner, with pretty saucer-shaped flowers, which are said to be highly fragrant. Along with this was a Cymbidium, collected by Mr. T. Lobb, in Java, which, if not the same as lancifolium, is very nearly related to it. A Certificate was awarded for the Philibertia.—Messrs. Mountjoy and Son, of Ealing, produced Liatris squarrosa, a hardy North American plant, with Centaurea-like flowers, and Tacsonia mollissima, which is one of the best of the recent additions to this tribe; the flowers are smaller than those of the old Tacsonia, but their deficiency in this respect is made up in brilliancy of colour, which is much darker than that of the old T. pinnatistipula.—Mr. Ayres, gr. to J. Cook, Esq., sent blooms of an Ipomœa, from Ceylon, named variegata, but which appeared to be the old I. Nil.—From D. D. Alves, Esq., was a Turk's Head Cactus, which had just been received from Jamaica.—The fruit chiefly consisted of Pine-Apples, of which there was a noble display. A Knightian Medal was awarded to Mr. M'Ewen, gr. to Col. Wyndham, for a famous specimen of the Antigua Queen, weighing 8 lbs. 3 ozs., and measuring 20 inches in circumference and 10 inches in height; the number of pips was 11.—Another Knightian Medal was awarded to Mr. Ingram, who sent from the Royal Gardens, Frogmore, four Queens, weighing respectively 4 lbs. 12 oz., 4 lbs. 13 oz., 5 lbs. 3 oz., and 5 lbs. 4 oz., making in all 20 lbs. The heaviest of these, which was an excellent specimen of Pine-growing, measured 16 ins. in circumference, and 9¼ ins. in length; the number of pips was 13. Two handsome specimens of the Ripley Queen were sent from Wales, by Mr. Mitchell, gr. to Sir B. Hall. The one weighed 5 lbs., and the other 5 lbs. 8 oz., and the latter measured 17 ins. in circumference, and 10 ins. in height; the number of pips was 14. A Banksian Medal was awarded for them; and a similar award was made to Mr. Sellers, gr. to L. V. Watkins, Esq., for a Queen weighing 4 lbs. 11 oz. This, although somewhat inferior to those produced by Mr. Ingram, was nevertheless an excellent specimen of good Pine-growing. The same may be said of four Queens sent by Mr. Mason, gr. to Sir J. Kennaway, Bart., the heaviest of which weighed 4 lbs. A Certificate was awarded for them. Finally, Mr. Henderson, gr. to Sir G. Beaumont, Bart., also sent a Queen, weighing 4 lbs. 4 oz. Although this and all of the above amply showed that a great advance has been making in Pine-growing during these last few years, we may nevertheless reasonably yet expect to see better specimens produced even than these. Certificates were awarded to Mr. Joy, gr. to — Sloane, Esq., and to Mr. Steadman, gr. to J. Berens, Esq., who both produced excellent bunches of black Hamburgh Grapes. A bunch of some kind of Raisin Grape was also sent by Mr. Ward, gr. to W. Stephens, Esq. Mr. Graham, of Bersted Lodge, Sussex, sent a hybrid scarlet

fleshed Melon; and a Certificate was awarded to Mr. Mitchell, gr. to W. Whitmore, Esq., for very large specimens, from a south wall, of the Swan's-egg Pear.—Mr. Cuthill, of Camberwell, sent ripe specimens of his early Black-spined Cucumber; and, finally, Mr. Harding, of Hammersmith, exhibited a watering-pot, the rose of which screwed on the spout, where that of other watering-pots slips on; the object in view being to prevent water from spilling, which always happens with the common tin rose at its junction with the spout. From the Garden of the Society was the same Anemone japonica exhibited at last meeting, but in greater perfection, having this time a large panicle of showy pink blossoms, whose gay appearance will render it a very useful greenhouse plant for autumn flowering, if it should turn out too tender to stand out of doors. Along with it were Franciscea Hopeana, a small Ixora coccinea, in fine bloom; the useful Begonia parvifolia, Miltonia candida, a pretty Brazilian species; Oncidium sanguineum; the rare Cattleya maxima, a species collected in Peru by Mr. Hartweg, and equal in beauty to C. Mossiæ; two Cape Heaths, and two large plants of Sedum Sieboldii, whose flowers, however, from the absence of bright sunlight this season, were pale, compared with what they would have been in such a season as we had last year. The leaves, too, had none of that red tinge which adds considerably to the beauty of the plant.

Reviews.

To the *Rose Lists* of the season we have now to add several. That of Messrs. Paul & Co., of Cheshunt, extends to 26 pages, has a particularly good manner of description, and is indispensable to all Rose amateurs. It is divided into Summer Roses, Climbing Roses, and Autumnal Roses, each of which has a list of its own. That of Messrs. Lane and Co., of Berkhampstead, is another most useful guide to the purchaser, and has also the peculiar feature of giving a list of the best Roses for pot-growing. Mr. Francis, of Hertford, has also published an extensive Catalogue, which includes all the best varieties, and should be consulted by Rose amateurs. If we had to prepare such lists we should leave out at least half the sorts, as not worth growing, and give more space to descriptions of the really fine varieties. It would answer the purpose. Of what possible use is it to keep up a collection so large and miscellaneous, that it becomes necessary to mark the good ones with one star, the better with two stars, and so on. Of course, nobody will buy the lots without a star, and therefore all the expense incurred in raising them is so much money thrown into the fire.

In growing the *Hyacinth* some instructions have been published by Messrs. Drysdale and Co., 33, Queen-street, Glasgow; we do not, however, quite recommend their plan of growing the bulbs in water-glasses, for we think the directions formerly given in this Paper preferable. It is also very doubtful whether the compost which they recommend is advantageous. They say, "use one-fourth of tanner's bark," thoroughly exhausted; but in so many cases bark proves to be an injurious material, that it is never advisable to employ it; and what possible good can it effect? It is a mere rule of thumb practice.

New Plants.

ANIGOZANTHUS PULCHERRIMUS. Beautiful yellow Anigozanthus. (*Greenhouse perennial.*) Haëmodoraceæ. Hexandria Monogynia.—This is one of the most beautiful of this fine genus, from its copious and richly-coloured flowers and flowering branches; the former being bright yellow, the latter clothed with scarlet hairs, curiously branched on a yellow ground. It is a native of the Swan River settlement, where it was detected by Mr. James Drummond. From seeds sent by him it has been raised by Mr. Low, of the Clapton Nursery, to whom the Royal Botanic Garden owes the possession of a fine plant. It has not yet, as far as I am aware, bloomed in this country. Perhaps in the general structure of the blossoms it comes nearest to A. flavidus; but the flowers are much shorter, and the panicle and leaves and clothing are all very different in the two species. It loves a light sandy soil and the protection of a greenhouse, and will prove a highly ornamental plant to our gardens.—*Botanical Magazine.*

AERIDES MACULOSUM. Spotted Air-plant. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—This is more like Sir R. Brookes' Air-plant, than any species in our gardens; but it differs in many important particulars. In the first place, the flowers are distinctly panicled, and not strictly racemose; then they are smaller; moreover, their column is short, and the lip neither crisp, nor toothed, nor saddle-backed, but quite entire, and nearly flat. The little lobes at the base of the lip are also different; in Sir R. Brookes' they stand at right angles with the column; here they are very small, and direct themselves towards the point of the lip. The colour of the flowers of this spotted Air-plant is much less vivid; it has more the tint of the A. affine, has very little white, and both sepals and petals are spotted all over with light purple on a pale rose-coloured ground. The Air-plants divide into two very distinct groups, of which this represents one, and the sweet-scented species (A. odoratum) the other. They are readily distinguished by the form of their lip, which, in the latter, is deeply cut into three or even five lobes of nearly equal length, while in the former group the lip is either not divided at all, or at the most has only a pair of ears or toothings at the base. Those who wish to remember the differences between the many species of this genus, which are much alike, will do well to bear this in mind. It flowered in the Nursery of Messrs. Rollisson, in June, 1844.—*Botanical Register.*

Garden Memoranda.

The Grange, the Seat of Lord Ashburton.—This place is about four miles from Alresford and seven from Winchester, and is situated in one of the finest parks in this country for its diversified scenery, containing about 700 acres. The mansion is a noble building of the Corinthian order, at the western extremity of which is a large conservatory, in character with the adjoining pile, which contains a good collection of plants; although few of recent introduction, there are several well-grown specimens, among which we observed that Lilium lancifolium punctatum and L. l. album made a good display, together with several varieties of Achimenes, fine plants of the useful Niphæa oblonga, and, planted out in the bed, a noble specimen of Candollea tetrandra which we were informed had been constantly in bloom for several years; we also noticed a very large plant of Bignonia radicans major, profusely covered with bloom, and having a very gay appearance; the sweet-scented Mandevilla suaveolens, with chaste white flowers, was also hanging in graceful order, as were also several good varieties of Passiflora. On leaving the conservatory we were conducted into the flower-garden, at the south front of the mansion, which is approached by several terraces, from which the garden below has a very fine effect. In the centre is a noble *jet d'eau*, and the various flower beds around display great judgment in the harmonious distribution of colour. We were much pleased with the neat manner in which the naked stems of the standard Roses are here hidden, by forming a trellis around each plant, the shape of which is conical, with the apex close to the head of the plant; these trellises were neatly covered with several kinds of creepers, such as the various species of Maurandya, Eccremocarpus, Tropæolum, Lophospermum, &c. The lawn was in the neatest order, and as level as a billiard table. There is an interesting avenue here, formed of Standard Portugal Laurels, having very much the appearance of an avenue of Orange-trees. On the lawn we noticed good specimens of Tilia laciniata, Fagus crispa, some fine varieties of Quercus, noble specimens of Pinus taurica, Morinda, and excelsa, with Abies Clanbrasiliana. On advancing we approach the margin of an extensive lake, which is several acres in extent; and although the adjacent scenery owes much to nature, art has improved the view by islands of varied foliage. The noble Cedar of Lebanon seen in various places, also adds greatly to the prospect, and if the Lombardy Poplar had been introduced in a few places the general character would have been still more interesting. The varieties of Salix produced a very pretty effect, more especially S. argentea densely backed with the Irish Yew, which formed a very agreeable contrast. There is a very well arranged Rosary here, in which we observed several esteemed varieties in bloom. In proceeding we were again introduced into a flower-garden forming a parallelogram, having a continuation of the lake on the east side, and being half-a mile from the mansion. In the beds, which were in the highest order, Viscaria oculata produced a good display, and the old, but beautiful Campanula carpatica, with its agreeable blue flowers, was a dense mass of bloom; we cannot but regret that such plants should be almost discarded from the garden, to give place to others inferior in effect, and which are soon destroyed in our uncertain climate. The groups of Lobelia fulgens, Agapanthus, and Calla, had a very fine effect near the lake. In the kitchen garden (which contains upwards of three acres) is a good range of houses, which give good evidence that the Pine, Vine, Peach, and Fig are very successfully cultivated, the Melon also is creditably grown, we noticed a very fine specimen of the Cabul, weighing between 8 and 9 lbs. In the greenhouse were fine plants of Hoitzia mexicana and Pentas carnea, together with good specimens of Erica hiemalis, and other varieties. The Pear Louise Bonne (of Jersey), produced very large fruit on a west wall; this department was in good keeping, and the place as a whole is second to none in the south of England.—*J. H.*

Miscellaneous.

Titoki Tree in New Zealand.—At p. 317, vol. ii. of Jerningham Wakefield's "Adventures in New Zealand," there is the following account:—"The berry of the Titoki tree might also be turned to account; the natives extract a very fine oil from it, and a small quantity, which was sent to England as a sample, has been described as of great value for the finer parts of machinery. The tree abounds in all the forests. The berry is a small black nut, peeping out of a pulpy husk, like a Raspberry in size, shape, and colour." In the volume of lithographic illustrations of this fine work, Plate 13 is devoted to a drawing of this plant in full bearing by Miss King; and whilst referring to the work, it may be well to point out Plate 2, being to Europeans the curious drawing of a forest of the Kauri tree, commonly called Cowdie.—"These trees are renowned for their excellent qualities as spars for ships, and the British navy has been supplied with several cargoes for this purpose. They frequently grow to the height of 90 feet between the ground and the lowest branches. This tree is not found farther south than the Bay of Plenty or Waikato." The drawing shows the forest, with sawyers at work upon some which have been felled, in the frontispiece.

Rata Tree in New Zealand.—At p. 336 of the above work, speaking of a native chief, Mr. Wakefield says, "Our method of assignation had been one peculiar to the natives—we were to start when the Rata should be in bloom. This is a curious but very common plant, which is at first a parasite, winding round large trees of the forest, till it encircles and destroys them, when its numerous coils join together in one hollow trunk, leaving the victim to rot inside. The Rata thus full grown, is certainly the monarch of the New Zealand forest. In the gnarled form and tough contortions of its limbs, it much resembles the Oak, and is therefore highly valued by ship-builders for knees and timbers. The foliage has also the noble appearance at a distance of the English forest-king; but the plant is of the Myrtle kind, and bears a bright crimson blossom in such abundance that, at its time of flowering, the forests look as though some playful giant had dipped every other tree in crimson dye and stuck them up again. This tree is somewhat irregular in its flowering, and earlier in some parts of the country than in others; but this fairy hue is generally thrown over the wooded steeps about the middle of summer, near harvest time."

Bees.

Proboscis of the Bee.—Cotton speaks of bees dying in June by having eaten putty, but I imagine that he was mistaken. I have often used that substance about hives without perceiving any bad effects from it. Indeed I question if bees eat anything except fluids, though they have strong mandibles or jaws; yet they do not gnaw or eat like wasps, but lick or suck by their proboscis. Réaumur says that organ "acts as a tongue, and not as a pump." When a bee wipes or licks a flat surface, the end of its proboscis is not unlike a very fine paint brush; but when the insect inserts that organ into a flower, the fine parts of it appear like a solid trunk. Consequently there must be some sort of sucking to cause the honey to ascend. Otherwise the under part, which is really the proboscis, acts as a tongue, while the upper part or two lancets may be employed at times to open flowers, in order to allow the proboscis a free passage. The following is the opinion of one of our best entomologists respecting it:—"I have always conceived the tongue of the bee to be a flexible tube; it is pubescent, transversely striated, as if formed to lick the honey. The mandibles, I believe are used in gnawing through the nectary of flowers, to obtain the honey. When the flower is not sufficiently large to admit of the bee reaching the base, the lancets are most likely employed to open the base of the flower to allow the tongue a free passage." Hive bees have been blamed as well as the wild bee for puncturing the tubes of flowers to get at their sweets, but I never could discover that that was the case. Those who give bees sugar may doubt what I have said respecting their not eating hard substances, but the warmth melts the food while they consume it. Wildman speaks of bees loading themselves entirely from one flower; but it is very rare that they fall in with honey in that wholesale way. They have to fly from flower to flower before they fill their sacks. Though flowers be scarce these industrious creatures never quarrel whilst in pursuit of them, nor do they about food except what they have treasured up themselves. Bees which die round feeding dishes are only what happen to get death-wounds in the scramble as the food gets scarce. When one is in a flower, its neighbour passes on to the next, and if that had just been previously occupied it will not alight, but hum on to another flower. It is uncertain how long it is before flowers are again replenished with honey; much no doubt depends on the weather and their growth. Bees, however, by their great power of smelling are enabled to find out food at a distance. Some state their flight at one mile only, while others say four, which is perhaps, nearest the truth. Huish found bees "among the Heather" on the Isle of May, whose nearest point to land is five miles and a half distant.—*W.*

Nutt's Hives—to Return Swarms to—Some of your correspondents, I have observed, still complain of Nutt's hives, that they do not prevent swarming, as they profess to do, and that if a swarm is returned, the bees will soon swarm again. This last evil will depend, as far as my experience goes, upon the way of returning a swarm. This year I returned two swarms, one to a Nutt's hive, and another to a common straw hive, and the bees never swarmed again. In both cases I returned the queen with the swarm. Some apiarians take away the queen on such occasions; this I consider to be a mistake, as the bees will not work so well without a queen, and when other young queens are hatched, the bees will swarm again. Mr. Nutt mentions a way of returning swarms which seems to be the best, which is to knock the swarm out on a board placed on a level with the alighting board, and to let the bees find their own way into the hive, which they will do in half an hour or less. Mr. Nutt tells us that the bees worked with surprising vigour after being returned in this way. this I found to be the case. This method is so easy and simple, that, excepting the trouble of taking the swarm, and the chance of losing it by the bees' flying away, swarming may be looked upon rather as an advantage than a calamity. If any of your correspondents have tried the above plan and found it fail, I hope he will give us the advantage of his experience. Of course Nutt's hives must be shaded from the sun in hot weather, or the bees will be obliged to swarm.—*S.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stoves.—When the sun shines out clearly give air, to maintain the plants in a hardened and ripened state, and take care

not to increase the temperature with a moist atmosphere, or you will start the plants into growth, which at this season would be quite ruinous. The plants under such treatment must of necessity be constitutionally injured; the sap cannot at this season, for the want of light, be properly elaborated, and consequently the shoots come weak and spongy, and are liable to damp off. The art of cultivating exotic plants lies more in studying the seasons of excitement and rest than is generally imagined. This rightly understood and acted upon, must necessarily of itself, and reasonably so, materially improve the general aspect of a collection not heretofore cultivated with any due regard to this particular. *Orchidaceous-house.*—It will be well now to lessen the *stimuli* here also, in order to harden off the pseudo-bulbs, and to withdraw the supply of moisture to some extent, so as to promote the hardening off of the roots; for it is in this state only that they can be preserved during winter. Succulent roots are sure to perish, and it is on the preservation of these that their gorgeous flowers can be expected to shoot forth with any degree of vigour; the temperature may therefore fall by night to 65°, with a drier atmosphere. Shading will not now, under any circumstances, be required. *Greenhouse.*—Should any of the plants still be in the open air, let them be got in with all possible speed. The rains of autumn will do nearly as much injury to them as moderate frost.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

As the nights now become cold and frosty, tall Fuchsias, scarlet Pelargoniums, and other specimen plants planted out on lawns, should be taken up, potted, and placed in the greenhouse for the winter. Shrubs over-growing walks should now be cut back, or taken up and re-planted. Continue to layer choice kinds. Cuttings of Laurels and other shrubs may now be prepared and put thickly into nursery beds in the reserve garden. Look over Hyacinth roots, Tulips, Narcissus, &c., and sort them preparatory to planting in the flower garden; for offsets a bed should be prepared in the reserve garden, 4 ft. in depth, of the best sandy loam, and well-rotted cow-dung or leaf-mould; but the bulbs when planted must have a layer of pure soil on the surface to preserve them from canker, as manure is sure to accelerate the disease. Mow and sweep Grass lawns, and keep walks free from fallen leaves. *Pits and Frames.*—Give air freely during this damp weather. Cuttings now rooted must be stored away for winter, in order to make room for plants taken up from the flower-garden. Verbenas, and all early struck cuttings, should have air at night to keep them hardy; but the lights must not be suffered to be off for fear of wet or frost. Watering must now be done in the morning and sparingly.—*B.*

III.—FLORISTS' FLOWERS.

In consequence of the late wet weather little has been done in the way of preparing Tulip beds, the soil of which is better undisturbed when moist. Advantage should be taken, however, of the first fine weather to make the necessary preparations, and offsets, if not already planted, should be put in as soon as the soil is sufficiently dry. *Carnations and Picotees.*—When potted off care must be taken that the foliage is not wet, if they are placed in a cold close frame, as it would endanger the healthiness of the layers by predisposing them to mildew, &c. &c.; nothing is more prejudicial to these very hardy plants than a confined damp situation. *Pinks.*—The beds should have every attention, and, if possible, free them from worms, which often root up plants, and drag them from their proper places. *Ranunculuses.*—When opportunity occurs the beds may be prepared for next planting season, thus giving them time to be thoroughly sweetened, and, by turning several times during the autumn and winter, to get rid of those insects, &c., which are prejudicial to the roots. I have known beds at this season covered with night-soil; early in spring the soil being forked to the depth of 3 or 4 inches, and the roots planted, most luxuriant blooms were the consequence. *Dahlias* whose tops are killed by the frost should be taken up immediately, or they will start again.—*C.*

IV.—PINERIES, VINERIES, &c.

Fruiting Pines, as well as those in dung pits, should have a lower temperature as the light decreases, which it does at this season rather rapidly; above all things, avoid a high night temperature, which can only be productive of unsightly crowns, and of a debilitated habit in the plant. As an average I would advise the heat at present to be 66° by day, and 60° by night, for dung pits; and 70° by day, and 63° by night for those in the fruiting house or pit, allowing, however, in the latter case, an advance to 85° or 90° in the case of bright sunny days occurring. *Vineries.*—If the early forcing Vines are still unpruned, no time should be lost in pruning them; whatever system of pruning may be adopted, endeavour as much as possible to cut to good plump eyes; if, however, the spur system is followed, care must be taken, at the disbudding period, to reserve the lowest eye or bud, in order to be enabled in future prunings to get back to the system again. After pruning, I would advise that the wounds be immediately dressed with whitelead, as in the case of luxuriant young Vines they are very apt to start bleeding again on introduction to heat. The whitelead, however, should be applied when the wounds are quite dry, or it will be apt to scale off. The Peach-houses, also, intended for early forcing, should be pruned, if not already done, as soon as possible; the wounds of these should all be stopped with whitelead, as recommended for the Vines; I am persuaded, by years of observation, that discoloured pith, and, consequently, the commencement of decay, is occasioned chiefly by the ingress of air and water through the wound left in pruning. The wood of the Peach is very porous, and I have always remarked that gross wood suffers much more than that which is moderate and short-jointed. See that all repairs and flue-cleaning, whitewashing, painting, glazing, &c., &c., is performed forthwith, in the early forcing Vineries and Peach-houses, and cover the early Vine border heavily with protecting materials: for this purpose nothing can excel new and dry Wheat straw: however, old thatch, or fern, or even stable litter, may do, only cover thickly enough. There is now some 53° or 60° of bottom heat left in these borders; take care, therefore, to "Lock the door before the steed is taken."—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Continue gathering Apples and Pears, most varieties of which will now be fit; at all events the early occurrence of frost renders it inexpedient to leave them so long as might have been advisable under more favourable circumstances. Nonpareil Apples should be amongst the last gathered; and the same may be said of the Glout Morceau Pears. If Coe's Golden Drop Plums be carefully gathered, wrapped singly in thin paper, after remaining some days in a dry airy room, and then packed in shallow boxes, they will keep a long time; and so will the Blue Imperatrice, and the Ickworth Imperatrice, the latter being the more preferable of the two. It is now a good time to trench and prepare borders for fruit trees. These should be raised not less than a foot above the general level of the adjoining ground; and below this the trenching need not be carried more than 18 inches, especially if the subsoil is bad. It may, however, be remarked, that raising the border, and shallow planting, avail but little if the soil is not kept in good condition as regards moisture during the summer. If it be allowed to get hard and dry, the roots near the surface, where they are most desirable, cannot thrive, whilst others are encouraged to strike downwards into the moist, but otherwise bad subsoil. Trench in advance of the roots of fruit-trees recently planted; and if a mixture of fresh turfy soil can be afforded, it will greatly encourage them. *Kitchen Garden.*—Plant out Cabbages if ground could not have been cleared and prepared earlier. Transplant Lettuces on a warm border. Dress beds of Sweet Herbs. Prepare thatched hurdles for protecting Celery ridges.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppices.—Barked Oaks may be felled as required; prune, as before, wavy branches from coppice plantations, and clean them effectually now, which is of great importance at this season. Prepare large trees for lifting and replanting at a future period, by cutting the larger roots about a yard distant from the bole, and then refilling in the trench. *Nursery.*—Evergreens may now be removed with success, and where seedlings are too thick they may be thinned out into rows.—*F,*

State of the Weather near London, for the week ending Oct. 9, 1845, as observed at the Horticultural Garden, Chiswick.

Oct.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	3	2	29.594	29.510	67	45	56.0	S.	.17
Sat.	4	3	29.568	29.5 3	65	47	56.0	S.W.	
Sun.	5	4	29.959	29.891	60	29	44.5	W.	
Mon.	6	5	29.871	29.404	52	46	49.0	E.	.22
Tues.	7	6	29.491	29.433	65	47	56.0	S.W.	.01
Wed.	8	)	29.450	29.339	61	34	47.5	S.W.	.01
Thurs.	9	8	29.394	29.295	52	33	42.5	S.	.35
Average			29.619	29.485	60.3	40.1	50.2		.76

Oct. 3—Rain; densely clouded and mild; partially overcast
4—Cloudy and fine; overcast
5—Fine, with clouds; clear and frosty at night
6—Foggy; cloudy and cold; rain at night
7—Rain; cloudy and cold; clear
8—Foggy; cloudy and fine
9—Drizzly; dense dark clouds, and heavy showers; clear at night.
Mean temperature of the week 2½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Oct. 18, 1845.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 12	60.1	42.9	51.5	11	1.00 in.	—	2	2	—	5	1	6	3
Mon. 13	60.8	42.4	51.6	9	0.33	—	2	1	—	3	4	7	2
Tues 14	59.5	42.4	50.4	8	0.50	3	2	1	—	4	3	3	2
Wed. 15	58.6	41.9	50 2	6	1.04	1	1	1	1	5	2	3	5
Thur.16	58.3	42 6	50.4	7	0 52	—	1	2	1	3	3	6	3
Fri. 17	58 2	42.5	50.3	4	0.17	1	—	3	—	1	4	6	4
Sat. 18	58.4	42.5	50.4	9	0·42	—	2	1	1	3	4	6	2

The highest temperature during the above period occurred on the 14th, 1834—therm 71°; and the lowest on the 18th, 1843—therm. 24°.

Notices to Correspondents.

Folding of the Gardeners' Chronicle—*F W and others*—Complain to your newsmen whenever they are improperly folded.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

Books—*A Beginner* will find the plan of "School Botany" fully described at p. 259 of the present volume. It will not teach you the name of any plant without the assistance of any other book; but it will teach you how to use other books when you procure them.

Calceolarias—*W B*—So few Calceolarias have been exhibited in the vicinity of London during the past season, that we are unable to give you the information you require.*

Celery—*Forget-me-Not*—You should study the means usually adopted to bring plants early into flower, in order that you may not employ them in growing Celery. Plants from old seed are more apt to run than those from new under similar circumstances. Yours have probably been checked too much after being turned out of the boxes, in which they ought to have been only gently forwarded, scarcely forced, in April.‖

Conservatory Climbers—*A Devonian*—Tacsonia mollissima is the best of the recent additions to this tribe; it is less capricious as to soil, a better grower, and seems more hardy than the old T. pinnatistipula. The flowers are not quite so large or so freely produced as those of pinnatistipula, but they are of a deeper red, and when the plants get older they will doubtless prove as free bloomers as any of the tribe; the coldest part of the house will suit it. It is difficult to say what killed your Stephanotus; certainly not the want of heat; it is considerably more hardy than the Beaumontia, which promises so well with you. Try an old-established plant next May; place a handful or two of rough charcoal under the ball, and a light mixture of peat-sand and leaf-mould all round it; let the surface of the ball stand 2 inches above the level of the border, and fill up the space with charcoal to the distance of a foot or 18 inches from the plant. Passiflora racemosa, P. Loudoniana, and P. Herbertiana, ought to be in every good conservatory. Bignonia venusta, after all, is more hardy than B. Chamberlaynii; it did not cease growing last winter in a temperature not exceeding 40°, for four months, and this summer it has rambled in all directions, but whether flowers will be produced in this temperature is yet questionable. *D. B.*

Glass—*G S H*—Apply to Mr. Elphick, 28, Castle-street East, Oxford-street.——*J S J*—If any glazier attempts to charge 3*s.* a foot for crown glass, he is—we will not say what. Good crown glass, of large size, may be had at 3½*d.* a foot, from London agents of foreign dealers. Even the English tariff does not fix more than 11*d.* per foot for the very best crown glass in 2 feet squares. Three halfpence a foot is a fair price for glazing and finding putty; but of course not for mere job-work, which is always charged high, because of the loss of time attending it.

Heating—*R F K*—Use iron by all means for your pipes; zinc is worthless, and copper is dear. All experience shows that iron is the best metal.

Insects—*C D*—You must not apply sulphuric acid while your plants are in the soil. Use it a month before planting, and a week after the application give the beds a good dressing of lime well dug in.——*A Gardener's* ant is the Formica flava; it may be banished by repeated sprinklings of spirits of turpentine, or a wash of gas tar. If he will send us the red ant we will advise him concerning it. *R.*——*A Dublin Reader*—Stick down some slices of Potato pierced with a skewer, and examine them thrice a week; you will soon rid the Carnations of the wireworms. *R.*——*R M W*—I cannot tell what moth your Stick-caterpillar will change to until it becomes an imago; it is one of the Geometridæ. *R.*——*Northwood*—It is impossible to determine the species that deposited the eggs on the Grass without rearing them. They were no doubt laid by a moth. *R.*——*Veronica*—The galls are produced, I believe, by a minute dipterous fly, called Cecidomyia. These two notices have been reserved for some time in the hope of being able to give more satisfactory answers. *R.*

Morphology—*C P*—Your Medlar has changed its sepals into leaves, according to the laws of morphology. The formation of the central parts is paralysed by the excessive development of those on the outside.

Names of Fruits—*Cognotus*—1, Prune bifère; 2, Kerry Pippin; 3, 4, Hall-door; one, into which a grub had found its way, being much higher coloured; 5, Spice-apple; 6, Yorkshire Greening.‖

Names of Plants—*Garaway*—Eria profusa.——*J B*—Fuchsia arborescens.——*T Davis*—Some Oncidium near altissimum; Salvia pseudococcinea.——*M C, Orford*—Asplenium trichomanes.——*M*—Your plant is really Quercus sessiliflora. Could you oblige us with a few ripe acorns?—*C N*—Chenopodium album, a common English weed. Who can name a blue Lathyrus from a single flower? We possess no such skill.——*S and J Dillistone*—A very large leaf of Ulmus montana vegeta.¶——*G W*—Populus canescens.¶

Pelargoniums—*An Amateur*—Make use of the following Pelargoniums for forcing:—Admiral Napier, Alba multiflora, Washington. These are the earliest; to be followed by Madeline, Beck's Bella, Gauntlet, Selina, Laneii, Grand Duke, Lord Mayor, Commodore, and King Rufus.*

Potatoes—We have to thank many kind correspondents for information, which we will use by degrees, as occasion offers, and we hope they will continue their favours.

Seedlings—*Anon*—Your seedling Digitalis ferruginea is no beauty; but it is a curious variety.——*Garaway*—The Gladiolus is a very handsome variety, looking like a cross between cardinalis and natalensis.

Seeds—*Eileanach*—Some Rose, Holly, and Hawthorn seeds will generally germinate the year they are sown. Probably they all would if they were steeped in boiling water for three minutes and then sown immediately.

Strawberries—*Helena*—As your bed of Keen's Seedling, enriched with liquid manure, produces so abundantly, you may let them remain; but you must not let the plants overrun.‖——*H W*—Supposing your pit intended for forcing Strawberries is 8 ft. wide, the front wall may be 3 ft. in height, and the back wall 6 feet. Better have shelves for the pots, as the latter do not require to be plunged in forcing Strawberries.‖

Trees and Shrubs—*Muirbank*—The following will succeed near the sea-coast: Leycesteria formosa, Spiræa ariæfolia, bella, and cuneifolia; Arbutus procera, and others; Berberis aquifolium and fascicularis; Alnus cordata, Quercus cerris, Fulham, Ilex, coccinea, and sessiliflora; Ulmus vegeta, rubra, nigra, and stricta; Cratægus Douglasii, orientalis, prunifolia, and Aronia; Garrya elliptica, Hippophae rhamnoides, Cytisus alpinus, Pinus pinaster, insignis, and pinea; Abies Deodara, and Canadensis; Aucuba japonica, Ailantus glandulosus, Syringa persica, and the common Lilac. The other question next week.‡

Vines—*Amicus*—Where seven Vines are required to be grown in a house along with other plants, the following will be proper:—Three Black Hamburgh, two Royal Muscadine, one Black, and one White Frontignan.‖

Misc—*J W M*—None but Fellows of the Society can obtain articles from the Garden of the Horticultural Society. What is prepared for distribution is given away. To become a Fellow it is necessary that some one already holding that rank should sign a certificate in favour of the candidate; blank forms of which certificate can be had at 21, Regent-st., London, by addressing a letter to the Secretary.——*Tree*—We do not know anything of the Parsnip tree. Bokhara Clover is of little agricultural value; it is certainly not worth growing while anything else can be cultivated.——*A Carmarthenshire Sub*—We have not the volumes, and it is doubtful whether they are to be procured. You had better insert a short advertisement, which will cost 4*s.*——*M P*—When you raise your flower beds you had better lift your standard Roses and perennials, and re-plant them again when the beds are made up. They may be removed without injury now. Your weak plant of Ipomœa Learii, which has not flowered this year, will break again more vigorously for being cut down. You may prune back the young shoots of your Clematises to a plump bud in spring after the severe frosts are over. Bignonia radicans will stand ordinary winters with a slight protection; but last winter, in some places, almost killed it down to the ground. The terms "turfy mould," "rough turfy material," frequently used in describing soil fit for potting plants in, are used to denote soil rich in decaying vegetable fibre. The term "full of fibre" means full of the roots of Grass, &c. Richness is given by manure, and lightness by sand and leaf-mould, which is an excellent ingredient in soils.‡——*A K B*—You will find directions for forming a fruit-room in Leading Articles at pp. 611 and 643 of our volume for 1841.‡——*Dr U*—The number of visitors who entered the Gardens of the Horticultural Society on the June show-day was 12,355. We cannot say how many carriages were there.‡

SEEDLING FLOWERS.

Dahlias—*R G*—Your orange seedling appears to be deficient in the centre—it wants fulness and regularity; in general form and depth of petal it is very good.*

Fuchsias—*J M H*—Your seedlings have been very finely grown, but there is a want of novelty in the colours; they are free bloomers, and of robust habit. 3 is a delicate flower in colour, but the sepals are too coarse. There are better formed flowers than 6 already in general cultivation. 8, which is your best flower, of great substance and depth of colour, bears a strong resemblance to Mr. Standish's seedlings; this is a fine variety.*——*C F*—A very pretty seedling, rendered very attractive from the brightness of the corolla, but we think it inferior to the Kentish Bride, which it appears to resemble.*——*S B*—Your seedling is a most prolific bloomer, lively and attractive in colour, and for general purposes very ornamental.*——*T D*—The specimen now received has the same fault as your other seedlings—the want of contrast in the colours. Your seedling is a stout flower, but not equal to the flowers in cultivation.*——*D*—Both your seedlings want colour; the sepals of No. 2 have a faded appearance, and they want more decided colour to give them brightness.*——*J P*—The scarlet corolla makes your flower attractive; the sepals are too long, and in the state in which it arrived we could not determine whether they expand or not; much depends upon this circumstance and the habits of the plant.*——*A Sub*—There is nothing uncommon in the appearance of your seedling.*——*A Sub*—Perfectly white tube and sepals, with a deep crimson purple corolla—an attractive flower of moderate size.*——*B J*—Your best seedling is No. 2, being a well proportioned flower, stout, and fine in texture, with sepals that expand well; but it is no improvement upon flowers of the same colour in cultivation. The sepals of No. 1 are too long, and the corolla is very inferior to 2. No. 3 is curious in form, but wants contrast in the colour.*——*A B C*—Your best seedling is No. 2; delicate pink tube, with vermilion corolla; both the other specimens are inferior to this in form, texture, and colour.*——*D P*—Carnation is bright in colour, but it is a coarse flower. The Lancashire Witch is an elegant and attractive variety; the corolla is rather too short for the proportions of the flower.*——*N, Woolwich*—Your seedling is a very pretty flower, but surpassed by others of the same colour at present out.*——*B S*—Both your light seedlings are good flowers, having delicate pink tubes, with rosy-purple corollas; we prefer No. 2 in form, but consider the corolla rather too light in colour.*——*I T*—We consider the best and most novel flower in your collection to be Delicata; the corolla is rich in colour, and contrasts well with the light tube and sepals. Expanse surpassed; is too long in the sepals. Phenomenon and Vulcan are both good flowers, but look like old acquaintances. Red Rover is better than longiflora, which it much resembles. Jessie, Nonpareil, and Lucy Banks are inferior to the other sorts; and B 2, No. 1, is not equal to others we have seen of the same colour.*

Pansies—*R T S*—The Bride of Abydos is attractive in colour, but it is deficient in substance, and the edging, we fear, will be very uncertain.*

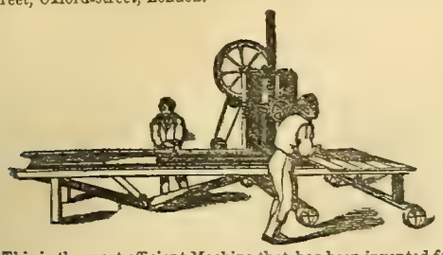
Petunias—*W M*—Your striped or mottled seedling is a very beautiful flower; the colour deeper than any we have seen; if constant, it is a desirable and very ornamental variety.*——*I J*—Your flower is of a good form, bold, and striking, and if combined with the powerful fragrance you describe, a desirable flower.*

, As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

TESTIMONIALS OF APPROVAL.—We are daily receiving *unsolicited* testimonials in favour of DINGLE'S HAND DIBBLING MACHINE. The following is an extract of a letter received by this morning's post from Edward Horner, Esq., of Iver, near Uxbridge, who says:—"I have received your Hand Dibbler, and am *much* pleased with it. I send Post-office order for 3*l.* 10*s.*, and desire you will forward *another* immediately."

All who have used it speak in the most unequivocal terms of approbation.—W. E. RENDLE & Co., Plymouth, Oct. 11.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1½ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

The Agricultural Gazette.

SATURDAY, OCTOBER 11, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Oct. 16 } Agricultural Imp. Soc. of Ireland.
THURSDAY, — 23 }

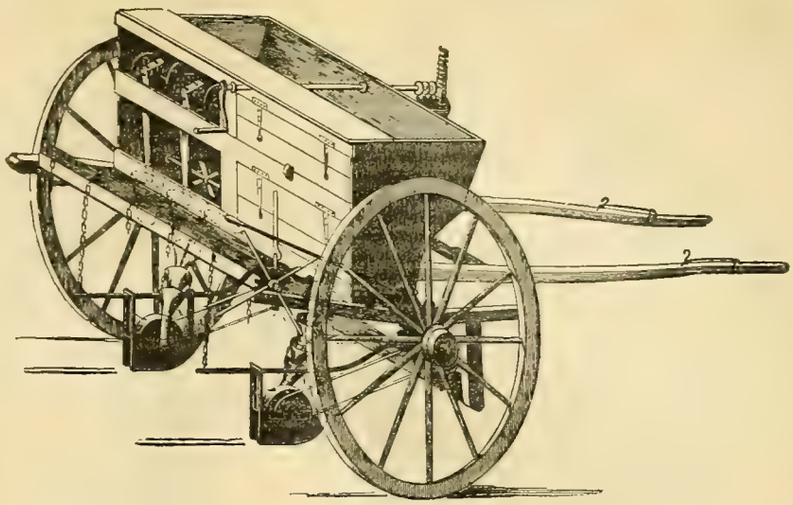
FARMERS' CLUBS.

Oct. 13	Wenlock, Darlington, W. Hereford, Cirencester, Yoxford	Oct. 14	Framlingham, Isle of Thanet
		— 15	Harleston
		— 17	Halesworth
		— 18	Swansea
— 14	Rochford Hundred	— 20	Collumpton

UNQUESTIONABLY the *perfect* distribution of seeds on the surface where they are to grow, is that in which the grains are equidistant in all directions—each being in the centre of its own little square of ground. And could a machine be contrived by which one seed should be placed an inch below the surface on every space of about 3 inches square in the field, it would probably leave nothing of the kind to be desired; of course we allude here only to the sowing of the cereal grains; and we must be considered also as referring to land where seeds of no other kind are deposited. Such land, however, no farmer has the good fortune to occupy, for weeds spring up everywhere. It is, therefore, generally considered advisable to sow *in rows*, crowding the otherwise equidistant plants in one direction, in order to open up wider intervals in the other; we are thus enabled to cultivate and clean the land while it is occupied by the crop. This crowding, however, when all the plants are allowed to attain maturity, is certainly injurious; and any method by which it could be avoided would be useful. Such a method exists in the practice of dibbling wherever it is skilfully performed. A well *dibbled* field presents precisely the appearance of a well *drilled* field, the plants in whose rows have been singled out to intervals of about 6 inches. All the advantages of the wide intervals for cultivation are thus preserved, and none of the injury arising from crowding is experienced. Such a field is, of course, a rare sight. It is necessary to place more than one seed in each hole, in order to insure the growth of one plant; but very often six or eight escape the fingers, and we see four or five plants struggling for the mastery at each spot instead of only one. The employment of machines for this purpose will doubtless render us less liable to injury of this kind. BENTALL'S Seed Depositor, DINGLE'S Hand-Dibble, and others, are offered as substitutes for the fingers and thumbs of careless children, and they will, without doubt, be extensively and advantageously used. But we must describe these instruments in a future article, and confine ourselves at present to the consideration of horse-machines—DROP-DRILLS, as they are called, and DIBBLERS; the former of which deposit the seed and manure on the surface of the land; and the latter, under it, in rows at various intervals, and in portions at regular intervals in those rows.

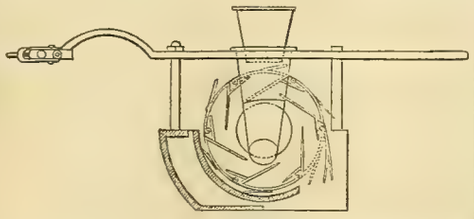
We are acquainted with only two drop drills—the one by GROUNSELL, who is, we believe, a Lincolnshire manufacturer; and the other by HORNSBY, of Spittle-gate, near Grantham. In the former spring valves are placed for the purpose of regulating the delivery of the seed and manure, and by means of studs on the carriage-wheel these are opened at regular intervals and shut again as soon as each stud has passed.

In the latter a similarly intermittent delivery is effected in a different manner.



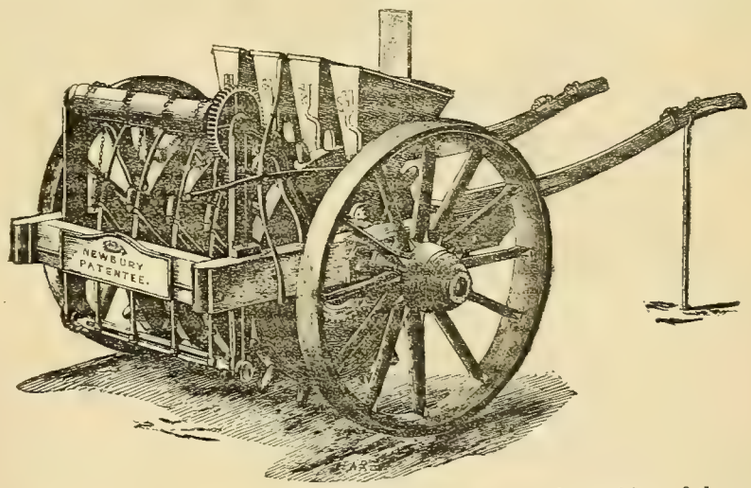
HORNSBY'S DROP-DRILL.

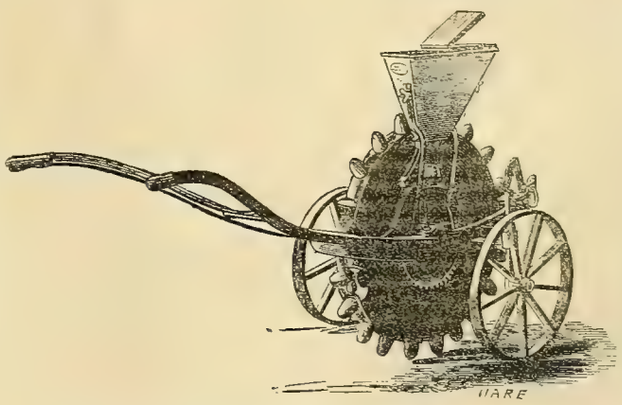
In this machine the delivery of the stream which issues from the seed and manure-boxes is effected in successive portions, and at regular intervals, by means of the peculiar mechanism of its coulter—that part of the delivery-tube next the ground. The construction of this apparatus will be better understood from the following section of it. It consists



of a cylindrical box, divided by means of fixed partitions into a series of compartments, for each of which there is a door opening outwards from the rim of the cylinder. The seed and manure enter at the sides of the box in a constant stream, and while the cylinder revolves, this stream delivers itself into one and another of its compartments as they successively present themselves. Each compartment thus carries off a portion, and as soon as it comes into that position in which alone its door can open, it delivers its contents on the ground. It will at once be seen that this is a very ingenious method of dividing what would otherwise be a continuous row of seed and manure into successive little mixed heaps of both in the course of it.

There are only two dibbling machines with which we are acquainted. The first—a singularly ingenious piece of mechanism—was invented by the late Rev. Mr. RHAM; it was exhibited in an imperfect state at the Liverpool and Bristol shows of the English Agricultural Society; and was left in an unfinished condition at its inventor's death. We must refer our readers for a description of it to page 487 of "The Dictionary of the Farm." The other is the dibbling machine invented and manufactured by Mr. NEWBERRY, at Hook Norton, in Oxfordshire. It may be made to sow any number of rows at once. The following figures exhibit, respectively, a four-rowed and a one-rowed dibble. The construction of the machine may be gathered more satisfactorily from an examination of the latter.





The hopper contains the seed; at the bottom of it is a metallic feed-roller, with four cups on its circumference; these are made of various sizes, according to the quantity or kind of seed to be sown. These cups deliver their contents into the dibbles, each into each, as the latter successively arrive at the position of the one which is hidden by the handle in Fig. 4; there are thus always 12 dibbles charged while the implement is at work. This hinders the machine from missing when the horses stop, as is the case with drilling-machines. The dibbles are formed each of two parts, one of which is fixed, and the other moveable. As soon as each has made its impression in the land, its moveable portion is lifted by a very simple arrangement for the purpose, and the seed which it contains drops. On light land the weight of the implement is considered advantageous; on heavy land the one-rowed machine is perhaps preferable to the other; the horse which draws it may walk in the furrow after the plough, while the seed is being planted in the newly-turned furrow-slice.

Altogether, Mr. NEWBERRY'S is decidedly the most successful of the attempts which have been made to produce a machine for the purpose of dib-

bling seed. Agricultural periodicals, our own, as well as others, have, during the past year, given publication to many a report of its success and efficiency.

Before concluding, however, it will be proper to notice one point connected with this subject which has of late occupied the attention of some of our correspondents: we allude to the question—What quantity of seed should be sown per acre? It is well to press upon the attention of the farmer the enormous number of seed which he at present sows on a given extent of land (from 200 to 800 per square yard!)—the impossibility of their all finding room to grow—the extraordinary number of ears which under favourable circumstances a single grain will produce, &c.; and it is well also that he should keep in mind the many fatal or injurious influences to which his seed and crop are exposed before the latter attains maturity — frost, birds, insects, may destroy the grain before it has sprouted. Wireworms below, and hares, rabbits, &c. above ground will attack the young plants during the earlier stages of their growth, and as they get ripe they often become the victims of mildew and rust, to which thin sown crops are peculiarly liable. And yet, after all, the question is one which experience alone is competent to answer. Each locality should have the matter determined by experiment for itself. The only experiments executed with sufficient minuteness that we are acquainted with on this subject, are those by Mr. Morton, published in the 1st vol. of the "English Agricultural Society's Journal." We extract the following tabular statement of his results."

No.	Name of Wheat.	No. of seeds planted.	Loss of seeds from birds, frost, &c.	Produce of 99 sq. feet. Plants or roots.	Heads of grain.	No. of ears in one square foot.	Average No. of heads per root.	Weight of grain produced from 99 square feet.	No. of bushels per acre, at 64 lbs. per bushel.
								lbs.	
1	Old red Lammas ..	792	387	405	2463	25	6	41	
2	Golden drop	792	291	501	2542	25	5	46¾	
3	Ten-rowed Prolific.	792	391	401	1935	19	3⅔	27	
4	Hunter's	792	273	519	2028	20	4⅓	27	
5	Thick-set Suffolk..	792	120	672	3039	30	4½	72½	
6	Hickley's Prolific..	792	132	657	2886	29	4⅓	69¼	
7	White Taunton....	792	305	487	2695	27	5½	41½	
8	Silver drop.....	792	218	574	2582	26	4½	55	
9	Scotch White.....	792	379	413	2286	24	5⅔	48	
10	Talavera.....	792	434	358	1985	20	5½	36	
11	Smithers' Hereford White	792	319	473	2529	25	5⅓	65¼	
12	A red Wheat.....	792	252	540	3453	35	6⅔	82½	
13	Egyptian cone	792	528	264	711	7	2⅔	23	
14	Red straw Lammas	792	510	282	2096	21	7⅓	27	
15	Blue cone	792	264	528	1626	16	5⅓	41½	
16	Red cone	792	456	336	2446	24	7	68¾	

It will here be seen that, by frost, birds, &c., from 16 to 66 per cent., or on an average about 40 per cent., of the seed that was sown perished. But the garden in which these experiments were conducted was dry and sheltered; frost had not half its influence there that it would have had in the field, and neither wireworms nor game injured the young plants; let us, then, increase this per-centage, and say that, in the field, 30 only out of every 100 seeds will grow. On comparing the 5th, 6th, and 7th columns of figures in the above Table, we find that the greatest produce per acre was obtained when from 4 to 6 plants grew on each square foot, *i. e.*, (taking the average) where 217,800 plants grew per acre. Now, according to our data, to obtain this number of plants per acre, we must sow 726,000 seeds—a quantity which, in the case of ordinary-sized Wheat, will fill rather more than 5 pecks. Here, then, for those who are willing to trust to the experiments of others, is a tolerable case made out for reducing the quantity of seed Wheat to 5 pecks per acre. And this may be done with safety; we have for some years been in the habit of sowing upwards of 100 acres of Wheat annually with rather less than 6 pecks per acre, and we have generally had to complain in spring of *the thickness* of the plant.

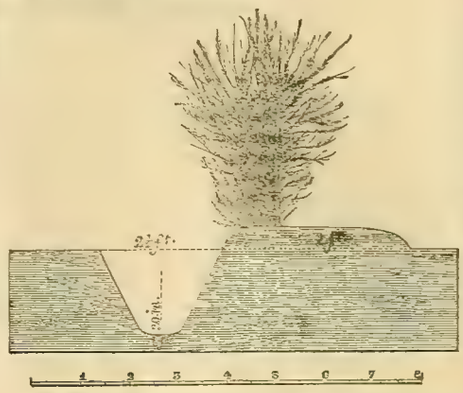
We have thus attempted to describe the more important features in our sowing machines; any further remarks we may have yet to make, will appear in another section of our Paper.

ON FENCES.—No. I.

The Hawthorn is now, and has always been, accounted the best plant of which to form hedges, and it is used for that purpose almost to the entire exclusion of others. With moderate care and good treatment it will grow on all soils, and in almost all situations. It may be difficult to raise a hedge to perfection on situations very much elevated above the level of the sea, and in such places other trees have been occasionally substituted with success, such as the Beech, Larch, Holly, Hornbeam, &c.; but it is seldom, if ever, that we see these trees forming hedges inclosing cultivated lands.

The Hawthorn prefers a moderately dry soil, and flourishes on loamy sandy gravelly districts; but in marshy lands, where the water is stagnant, it soon becomes overrun with Moss, and assumes a sickly appearance. The Birch, Alder, Poplar, and Willow, will flourish in such situations, and may be substituted for the Thorn. They will bear cutting and trimming, and may be kept within reasonable bounds. The Hawthorn is commonly raised from seed. At about two years' growth it should be transplanted from the seed-bed, and allowed to remain at least two years more before being used.

Before planting a quickset hedge the ground should, if possible, receive some cultivation. The common practice of cutting out sods from where the ditch is intended to be, and turning them upside down on the sward where it is intended the bank shall be on which the future fence is to grow, and then planting the quicks amongst the soil in the heart of the upper sod, or upon the sward of the land just under it, is not a good plan, unless the land be of superior quality. On rich land, no doubt, fences will grow however planted, provided they be kept clean afterwards. An instance of the success of such a plan is within 200 yards of the place where I write, and I take the liberty of introducing a section showing the width of land occupied by it.



On naturally dry soil there is no necessity for a ditch for the purpose of taking off surplus water, and experience shows that a ditch is not required merely as a helper to the hedge, or as a secondary fence. On all soils that are not visited with a surplus of stagnant water the quicks should be planted on the level surface, if there is sufficient depth of soil for that purpose; but where the soil is thin, and greater depth required, the mould should be turned over from off the place where it has been usual to put a ditch on to the place where it is intended to plant the hedge. Thus quicks may be planted on the surface or on a double depth of surface soil where needed, without making ditches and banks. In places where ditches are really necessary, the rubble, stones, and clay from the bottom of them should not be made use of to pile up a bank on which to plant a hedge. The nature of the soil is sometimes such as to require ditches to be made and sunk deep into a worthless subsoil; in such cases, if no other means are apparent or practical of getting rid of the untempered clay, stones, &c., they should be buried behind the hedge in the manner pointed out a little further on.

The dimensions of the ditch and fence figured above will be ascertained by a comparison of the figure with the scale. The quicks were planted in March, 1843, in two rows on the bank after the top sod from the ditch had been cut out and turned over on the sward of the field; these rows were planted 9 inches apart, and the separate plants were 6 inches asunder in the rows. They were trimmed and cut back, and when planted they projected about an inch from the surface. The fence is now 4 feet high, and spreads over a space 3 ft. 6 ins. in width at two-thirds of its height from the surface. A dead hedge was made by the side of the ditch in the pasture-field to protect the quicks from stock; this may be dispensed with at the end of the sixth year, as there is every probability of the fence being then strong enough to retain any kind of stock. This is on a dry soil of good quality and it is only on such soils that this plan may be expected to answer.

On soils of an inferior and medium quality the first step towards the establishment of a good fence should be to set out a width of about 6 feet along the course of its intended site. This width should then be dug over, turning up the top soil only. The turf should be chopped up into small pieces with the spade. From the side on which the ditch is to be made, then remove the top soil to the depth of about 6 inches, and place it where the fence is to stand. In the following diagram



the part dug over will be the space marked *a á*, and the upper portion marked *a* will be formed by the removal of the soil just described. The quicks may be planted then or left till the ditch be finished. The turf from the space marked *b*, about 4 feet wide, should then be pared off and rolled back on the sward, and the top soil should also be thrown back. The ditch may then be made to the depth of 2 feet or more, and the rubble, clay, or soil thrown over the bank into the space marked *b*, just prepared for its reception; it should be levelled there, and the soil taken from *b* should be placed over it, and the turf may then be replaced. The quicks, if not previously planted, may then be set in two rows 11 inches apart, with their ends projecting about 1 inch.

This method is rather more expensive than the former, but I believe it to be the better of the two. The rows, when the plants have taken root, will be generally 9 or 10 inches apart, and the plants about 6 inches asunder, arranged so that no two shall be opposite. If good plants were carefully selected, I think that an interval of 6 inches is too little; they might be 10 or 12 inches apart —*John Bravender, F.G.S.*

SPADE LABOUR RECOMMENDED IN PARTICULAR CASES.

I am decidedly of opinion that the spade should be used in breaking up all sorts of waste land and reducing it to proper form on the surface. In the case of moss of any considerable thickness no other method can be used for a good many years after it has been first broken up, but to dig it with spades. The expense of the first digging, and forming its surface, generally costs from 2*l.* 10*s.* to 3*l.* per acre. But for second and after crops it can be delved for about 30*s.* per acre. Waste land that is dry, and composed of earth or clay should also be dug up, and reduced to proper form on the surface, by spade work, as it is generally so uneven on the surface that it requires several ploughings to fill up the hollows and make its surface smooth. And where that is the case the plough throws much of the surface mould into the low places, and leaves nothing but subsoil on the heights. But when the spade is used the small quantity of soil that is on the ground is preserved uppermost, with the lime or other manure that may have been applied. And when the spade is used, the soil is opened to the depth of 8 inches, while by the plough it is not opened more than 5 or 6 inches. Such additional depth of soil is a great advantage to the ground in after cropping. For if the soil were opened deeper than 8 inches at first, the small portion of soil above that had been meliorated by the weather, would be too much swallowed up with the subsoil raised over or among it.

1. By far the greatest proportion of the soil in the arable districts of Scotland, is chiefly composed of clay, more or less mixed with sand, gravel, &c., and much of it is so firm and solid that water does not readily filter deeper than the plough reaches, nor the roots of crops penetrate the hard unbroken subsoil. To remedy that defect in the arable land, it has been found necessary to trench or open up some part of the subsoil, in order to give the roots of the crops greater range of pasture. This is, next to furrow draining, the most important improvement of modern discovery on land. Some ingenious gentlemen have invented subsoil ploughs, and other apparatus, for breaking up the subsoil of such land, and others have begun to trench or open it by spade work; and the point of inquiry necessary to be ascertained, is, which is the cheapest and most effectual method of accomplishing that necessary improvement on the soil, of all land that abounds with clay, and where the subsoil is too firm and too sterile to give due scope to the roots of cereal crops?

2. Land that is to be cropped in the ordinary way, is sometimes delved with spades, instead of being ploughed, and when that is done to the crop, the delved ground is generally from one-fourth to one-third more productive of grain than when the same land is ploughed. Land that has been in crop the preceding year has been generally delved for 3*d.* per fall, or 40*s.* per acre, and pasture land for 3½*d.* per fall; but I have seen that where part of a field was delved, and another portion of the same field that was every way of similar quality, and in equally good condition, had been ploughed, that part of the field that had been delved yielded at the rate of 6½ bolls of Oats for every 4 bolls yielded by that part of the field that was ploughed. And as the spade reached from 8 to 9 inches deep, the soil of that which was delved was deepened from 2 to 3 inches more than it could be by ordinary ploughing. It cannot be expected that all arable land can be delved, but surely those who have but a few acres in crop would find it their interest to employ labourers to delve their land, rather than to pay the ordinary rates for ploughing it. And even farmers who have horses, would find it to their interest to have all their arable land delved once, in order to deepen the soil 2 or 3 inches, if it is not to be trenched or deepened otherwise.

3. When ordinary clay land is to be cropped with Potatoes or Turnips, instead of the usual way of clearing the ridges level in the autumn, or early in winter, allowing it to lie in sleep over winter and spring, and giving it 2 or 3 ploughings and harrowings before the drills are formed, it is submitted if it would not be better to dig the land with spades about 8 or 9 inches deep, in the autum, leave it exposed to the frosts and thaws of winter and spring, and it would need no other preparation for being drilled, except a double-tin of harrowing. The 2 or 3 inches of subsoil raised by the spade beyond the depth of ordinary ploughing, would be so much meliorated by the frost, as to be favourable to a Potato crop, as they delight in new ground; the Potato crop would be considerably increased by the new soil dug up—the crop of Wheat or Oats following the Potatoes, would be improved—and even the Rye-grass and Clover for the third crop would be rich, owing to the soil being cleaned of weeds, while the soil, being deepened to the extent of 3 inches, would be more productive ever after. And all this may be accomplished without the smallest expense. For the delving would

not cost more than the three or four ploughings and harrowings, while ground that has been delved to the depth of 8 or 9 inches would not be so much injured by winter rains, as that where the ridges had been cloven, and the soil lain in sleep for several months. It is no doubt true that 8 or 9 inches is not a proper depth of soil for arable land, which ought to be from 12 to 15 inches deep. But surely 3 inches added to the depth of the soil is a considerable improvement; and it would be easy to deepen it a few inches more, by making a grubber follow the plough the next time the land was in crop, which would only cost about 15*s.* per acre. And it is surely better to deepen the soil by piece-meal than to turn up 10 or 12 inches of sterile subsoil at once where the meliorated soil is only from 4 to 6 inches in thickness.]

4. Even where the ridges are high and crooked, it is better to bring the surface to right shape by spade work than by ploughing. For when done with the plough the whole rich soil on the surface is turned into the furrows, and nothing left on the ridges but barren subsoil. In conclusion, I am convinced that spade labour may be used to great advantage in all the cases I have mentioned; and that by doing so many farmers might keep one horse fewer, which would be a saving of about 30*l.* per annum; while by preparing the Potato and Turnip land by delving, the soil of a whole farm might be deepened and rendered much more productive in eight or twelve years, and that without 1*d.* of additional expense to either laird or tenant; but, on the contrary, to the great profit of both. Delving as a preparation for Potato and Turnip crops, while it would cost no more than the ordinary mode of preparing the ground with three or four ploughings and harrowings, would certainly bring an increased crop of Potatoes, and of every succeeding crop. While by resuming a grubber after the plough the next time the land was ploughed for cropping, which would only cost about 15*s.* per acre, the ground would be more completely trenched or deepened in the soil than when the subsoil plough, with all its costly apparatus, has operated on it to the full extent of its capabilities, and at more than 10 times the expense of the very simple and homely method here recommended. The spade is like the sling from which the stone was thrown that killed Goliah of Gath, compared to the very ingenious, complex, and costly apparatus of a modern subsoil ploughing machine, with all its trappings; but, like the sling, the spade does its work to good purpose. —*W. Aiton, in the Ayrshire Agriculturist; abridged.*

CULTIVATION OF THE HOP.

[In answer to the request of a correspondent for information on this subject, we take the liberty of publishing the following extract from "Rham's Dictionary of the Farm"—a work of great value to the farmer.]

"The Hop is a slender climbing plant, which requires a very rich mellow soil and careful cultivation. It is very tender, and the produce is precarious, sometimes giving a great profit to the grower, and at other times failing altogether. The greatest quantity of Hops is raised in Kent, but the finest quality in the neighbourhood of Farnham in Surrey. The soil of a Hop-garden must be rich to a considerable depth, or made so artificially. The subsoil must be dry and sound; a porous rocky subsoil, covered with 2 or 3 feet of good vegetable mould, is the best for Hops. The exposure should be towards the south, on the slope of a hill, or in a well-sheltered valley. Old rich pastures make the best Hop-gardens. They should be dug two or more spits deep, and the sods buried at the bottom, where they will gradually decay and afford nourishment to the slender roots of the plants, which strike deep. A very large quantity of the richest rotten dung, at least 100 cubic yards per acre, should be well incorporated with the soil by repeated ploughings, till it is entirely decomposed and produces that dark tint which is the sure sign of an abundance of humus. The ground should be prepared by laying it up with the spade in high ridges before winter, to expose it as much as possible to the mellowing influence of the frost. A succession of green crops, such as Rye cut green or fed off with sheep, early Turnips fed off in autumn, or spring Tares, are an excellent preparation, by cleaning the land. It is better to be two or even three years in preparing the ground and getting it perfectly clean, than to plant the Hops in a foul or unprepared soil. The young plants are raised in beds, and may be raised from seed; but it is more usual to plant the young shoots which rise from the bottom of the stems of old plants. They are laid down in the earth till they strike, when they are cut off and planted in the nursery-bed. Care must be taken to have only one sort of Hops in a plantation, that they may all ripen at the same time; but where there are very extensive Hop-grounds it may be advantageous to have an earlier and a later sort in different divisions, so that they may be picked in succession. The varieties most esteemed are the Grape Hop, the White Vine, and the Golden Hop. The ground having been prepared for planting, it is divided by parallel lines, six or more feet apart, and short sticks are inserted into the ground along these lines at 6 feet distance from each other, so as to alternate in the rows, as is frequently done with Cabbage-plants in gardens. At each stick a hole is dug 2 feet square and 2 feet deep, which is filled lightly with the earth dug out, together with a compost prepared with dung, lime, and earth, well mixed by repeated turning. Fresh dung should never be applied to Hops. Three plants are placed in the middle of this hole 6 inches asunder, forming an equilateral triangle. A watering with liquid manure greatly assists their taking root, and they soon begin to show bines. A stick 3 or 4 feet long is then stuck in the middle of the three plants, and the bines are tied to these with twine or the shreds of Russia mats, till they lay hold and twine round them. During their growth the ground is well hoed and forked up around the roots, and some of the fine mould is thrown around the stems. In favourable seasons a few Hops may be picked from these young plants in the autumn, but in general there is nothing the first year. Early in November the ground is carefully dug with the spade, and the earth, being turned towards the plants, is left so all the winter. In the second year, early in spring, the hillocks around the plants are opened, and the roots examined. The last year's shoots are cut off within an inch of the main stem, and all the suckers quite close to it. The suckers form an agreeable vegetable for the table, dressed like Asparagus. The earth is pressed round the roots, and the cut parts covered so as to exclude the air. A pole about 12 feet long is then firmly stuck into the ground near the plants; to this the bines are led and tied as they shoot, till they have taken hold of it. If by any accident the bine leaves the pole, it should be carefully brought back to it, and tied till it takes hold again. A stand ladder should be at hand to do this, when the bine has acquired some height. The ground being well hoed and the earth raised round the plants, the produce this year will average 4 cwts. per acre, if the season is favourable. Some Hop-planters plough up or dig the ground before winter; others prefer doing it in spring, in order not to hasten the shooting, which weakens the plants. The same operations of pruning the shoots, manuring, and placing poles, which were performed the preceding year, are carefully repeated. Particular attention is paid to proportion the length of the poles to the probable strength of the bines; for if the pole is too long, it draws up the bine, and makes it bear less; if it is too short, the bines entangle when they get beyond the poles, and cause confusion in the picking. In September, the flower containing the seed will be of a fine straw colour, turning to a brown; it is then in perfection. When it is over-ripe it acquires a darker tint. No time is now lost, and as many hands are procured as can be set a-picking; great numbers of men and women go out of the towns in the Hopping season, and earn good wages in the Hop plantations. During the picking they sleep in barns and outhouses. In the picking, the poles are taken down, and the stems cut 3 feet from the ground; if they were cut shorter it would weaken the root, by causing it to bleed. The poles are laid sloping over a frame of strong wood 9 feet long and 4 feet wide, supported by legs 3 feet high; this is called a bin. A piece of coarse cloth is fixed to this frame by hooks, so as to form a bag, which does not reach the ground. Three men or women, or four boys or girls, are placed on each side of the bin, and pick the Hops from two poles at a time. Where they are very careful of the quality of the Hops, as at Farnham, they divide them into three sorts: the green, which are not quite ripe; the light yellow-brown which are in perfection; and the very dark, which are past their prime. Some go even further, and make several qualities according to colour and fragrance: for this purpose there are several baskets. The dew should be off entirely before they begin; for otherwise the Hops might become musty, or take too long drying, and lose their fragrance. The Hops when picked are dried on a hair cloth in a kiln. When they appear sufficiently dry at bottom they are turned; it is however thought by some Hop-driers that the turning of the Hops is apt to injure them, and that it is best not to do so; but in order that the upper part may be dried equally with the lower, a wooden cover lined with tin plates is let down over the Hops on the hair cloth, to within a few inches of the surface; this reverberates the heat, and the whole is dried equally. The heat must be carefully regulated in order that it may not alter the colour. When the leaves of the Hops become brittle and rub off easily, they are sufficiently dried. They are then laid in heaps on the floor, where they undergo a very slight heating. As soon as this is observed, they are bagged. This is done through a round hole 25 or 30 inches in diameter, made in the floor of the loft where the Hops are laid. Under this hole is a bag, the mouth of which is drawn through the hole, and kept open by a hoop to which it is made fast. The hoop is somewhat larger than the hole, and the bag remains suspended; a handful of Hops is now put into each corner of the bag, and there tied firmly by a cord. A bushel or two of Hops are put into the bag, and a man gets into it to tread the Hops tight. The bag does not reach the floor below. As the Hops are packed by the feet, more are continually added till the bag is full. It is now taken off the hoop, and filled up with the hands as tight as possible. The corners are stuffed as soon as the mouth is partly sewn up, and tied as the lower corners were; when sewed close and tight, it is stored in a dry place till the Hops are wanted for sale. The crop of the third year will average 8 cwt. per acre. In some very extraordinary seasons, on good land, 15 cwt. have been picked per acre: in Flanders, where they manure with urine and the emptyings of privies, this is not an uncommon produce. Rape-cakes, malt-dust, and woollen rags are used with good success in Hop-grounds: bones have been tried, but with an uncertain result. The Hop is a dioecious plant, *i.e.* some of the individuals are male plants, and others female, which have respectively flowers of a different construction and of different habitudes. The male or staminiferous flowers, which grow on stalks quite distinct from the female flowers, prepare the pollen, or fertilising dust, and afterwards wither away, when this dust has escaped from the anthers, and been committed to the air, to be by it conveyed to the female flowers. The female flowers are in the form of strobuli, or cones, consisting of scales, which have at their base the germ of the future seed, and which have the habit of enlarging, as the scales of the Fir-cones do, more particularly after the fertilisation of the ovule, or future seed, by a quantity of the pollen falling upon it. Though the pollen, from its extreme lightness, can be wafted to a considerable distance, and some seeds in each cone may be so fertilised, yet it would be well to rear a number of the male plants among the others, or along the hedges of the Hop-gardens, to ensure the fertilisation of all the seeds. But as the farmers observe that the flowers of the male (termed, in Kent, seedling, blind, or wild Hop; in Sussex, buck, or cock Hop) wither away, they generally extirpate them at the digging season, as unfruitful cumberers of the ground. That this is an error may be proved in various ways, but an appeal to the result of an opposite practice is the most convincing. A bushel of Hops, collected from plants of the fourth year, raised from seed, weighed 36 pounds, there being male plants near; a second instance, where the plants were raised from cuttings, weighed 35 pounds; while a bushel, grown in a garden where the male plants were always eradicated, weighed only 22 pounds. Besides the greater quantity of Hops thus obtained, the aroma is much greater (the *lupulin*, on which the aroma depends, is considered by Planché to be the unappropriated pollen dust which has alighted on the scale of the females), and the strength of the bitter much greater. After the period when the males have elaborated the pollen, and the strobuli of the females begun to enlarge, the males may be cut down, and the stalks employed to make cordage for Hop-bags against the following harvest. In 1760 the Society of Arts awarded premiums for cloth made from the Hop-bine. (Lance's "Golden Farmer," London, 1831.) The poles are an expensive article; those of the Chestnut are the most durable, and also the dearest. They should be put into a shed during winter: where this cannot be done they are placed on end in the form of a cone, leaning against each other. If the tops of these cones had a cap of thatch, it would greatly protect them from the weather: whether it will be worth while to soak them in a solution of corrosive sublimate, according to Kyan's patent, remains yet to be proved; but if it should preserve them, every extensive Hop-grower should have a tank for the purpose."

Home Correspondence.

Improper Use of Guano.—At the great Jesuit convent La Merced, at St. Diego, Upper California, the Jesuits have known the use of guano as a manure ever since the beginning of the last century. Monsieur La Talle, lately sent there as an inquirer by the Colonial Office, had opportunities of speaking with the Superior on the subject. He relates that after the use of guano for several years (four or five), the soil, naturally fertile and very like that of the best cultivated parts of Norfolk, becomes rapidly exhausted, and unable to yield even a meagre crop; so that, while under the influence of guano, the crop was no less than 120 bushels of Indian Corn per acre (considerably more than double the crop yielded by prime land in Louisiana and the Arkansas), yet after a short period of such exhausting treatment, the nutritious properties of the earth become worn out, and the soil literally (and without any figure of figure of speech) barren. In California the proprietors are possessed of so extensive a territory, that the loss of the land is to them a matter of little moment. Besides this, they have a well-arranged system of irrigation, by means of which they convey water over the land which has ceased to be fertile, and a cooling deposit from the flood takes place; so that, although the soil is far from recovering its original value, yet after a rest of two or three years, and this treatment, it forms available pasture land. It should be further explained that the Jesuits, who wish to surround their dwellings with pleasing verdure, never use guano in the neighbourhood of their residences. M. La Talle thinks that the lesson to be gained from these facts is—not the entire abandonment of guano, but the sparing use of it, and its application chiefly to those soils which, in the language of our farmers, are called the "cold clays," and seem peculiarly in need of so searching and powerful a stimulant; but he recommends its use in conjunction with liquid manure, and thinks it ought always to be sparingly applied. Knowing from practical experience the extent to which this manure is coming into vogue, and that some farmers are thoughtlessly applying it to land of every description and in large quantities, hoping for an early and large return, I have thought it my duty not to conceal these facts from the public.—*W. E. J.*

Propriety of Employing Sufficient Labour on Farms.—I have had the pleasure of reading in your columns the occasional letters of "Falcon;" and though, perhaps, his want of sufficient acquaintance with the details of practical farming may occasionally expose him to an angry lecture (see page 663), yet I am persuaded he has got hold of the main fault in our present agricultural system, viz., the non-investment of sufficient capital per acre in the prosecution of farming—this itself being an effect of other causes, which I do not now wish to allude to. I take the liberty of sending you an extract from the "Farmers' Magazine," of 1840, illustrating the importance of employing a sufficiency of labour on the land:—"The day before our arrival at

New York we spoke three ships, all, like our own, from Liverpool to that port, with cargoes of British manufacture; as we sailed past them, I was complimenting our captain on the evident superiority of his ship or his seamanship, when he interrupted me, 'You are mistaken, sir; this ship is not a very fast sailer, and I doubt not that the captains of those three vessels understand seamanship quite as well as I do; rather congratulate me on my good forture in being employed by a merchant who possesses practical common sense, with judgment to see his interest, and liberality to act up to his judgment; being of opinion that the ships in this trade are, in general, little more than half manned, he allows me a more numerous and superior crew, and I am sure he gains money by it; the three ships we passed were all more or less disabled in their rigging, doubtless from an insufficiency of hands to take in sail during sudden squalls, whilst I have not had a rag split or carried away; with an insufficient crew, especially when harassed by a continuance of rough weather, it is not possible to take proper advantage even of favourable breezes; before he can hoist and trim his light sails, the breeze he should have carried with him has passed away, and it would be manifest imprudence at night, or in a gale of wind, to carry proper sail.' In illustration of his argument he cited numerous cases, each tending to prove the great advantage as respected not only speed and safety, but economy, of a ship being well manned. Every observation of this intelligent captain applied with equal force to agriculture; the farmer and the sailor are alike dependent on the changes of the weather; in thousands of instances I have known crops much injured, and in many cases, as in the sowing of Turnips, Carrots, Mangold Wurzel, &c., entirely lost, by an insufficiency of hands to seize the lucky hour. Providence dispenses blessings with a liberal hand, whilst man, self-willed, ignorant, or presumptuous, and above all parsimonious, neglects to seize the golden opportunity, the proffered bounty; hence the perpetual complaints of unpropitious seasons. Before I adopted spade husbandry, like my neighbours, I was often 'Harry behind;' the genial showers had passed away before the seed was sown; dependent on strolling mowers, the favourable season was lost; bad hay, made at double cost, was the natural consequence; not being able to spare a few hands to destroy Docks and Thistles before their seeds were ripe, or to brush the fences abounding with weeds, my fallows suffered. But since I have employed a number of spadesmen, whose time is always profitably occupied in trenching, levelling, draining, or other spade work, when not still more advantageously called away to those various agricultural operations which, to be done profitably, should be done instantly, whilst the weather is favourable, the principle operates as a 'save-all;' time is never wasted, opportunity is never lost; since adopting it my crops have seldom failed, and seasons have never been unpropitious or unprofitable; the anxiety which farming formerly occasioned I feel no longer."—*M. S.*

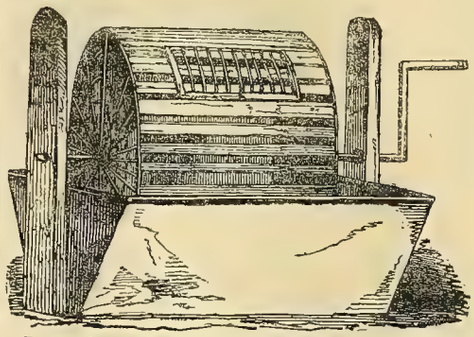
Gold of Pleasure.—I shall be obliged to you to inform me whether you or your correspondents know anything of the Camelina sativa or Gold of Pleasure. It is said to have great fattening properties for sheep and cattle, and I know it to be most productive, from having tried a very small quantity of seed this summer. A farmer near Somerton sowed 3½ lbs. of it, and his son tells me that the produce was 600 cwt. and upwards. It is said to produce an excellent oil. It may be sown on poor land.—*George Rous, Laverton, Beckington.*

Seed Wheat.—From reading a Leading Article in the *Agricultural Gazette* of Saturday last, I am induced to give you my method of treating seed Wheat, and I have never yet grown a smutty ear, although the seed I have used has sometimes contained a considerable quantity of smut balls. Two or three days before sowing I mix in a large tub a quantity of strong liquid manure (the drainings from yard manure taken from a tank), with as much common salt as it will hold in solution. In this mixture I immerse the seed Wheat about 12 hours (the light corn is skimmed off and rejected). It is then taken out, drained through a basket, and spread thinly on a floor; a quantity of newly-slaked lime is immediately sprinkled over it, and the whole turned several times. A fine sieve is used to get rid of the superfluous lime; it is then fit for drilling. I know an extensive cultivator who has for many years used for a steep, soapers' ley, the corn being afterwards dried with lime; and he has assured me that he never grew any smutty corn.—*A. Notman.*

Eggs will keep longer and better in salt than in any other way.—*W. Savage, Swaffham.*

Injuri s done by Game.—It appears to me somewhat extraordinary that the injury inflicted on land by game, is spoken of in Parliament, and in publications generally, as a matter of interest only to landlords and their tenants, and not the slightest consideration seems to be given to the pains and penalties endured by the small proprietor cultivating his or her little allotment. I have a very few acres of land, which I employ for my convenience and amusement. I have given a great price for it, and I have expended a large sum in draining and other improvements. Last winter I had 15 Apple-trees nearly destroyed by hares, and a large quantity of Greens devoured by them. My Rye, too, which I intended for my little cow when she calves, was very much injured by hares; also Brussels Sprouts and young Carrots, &c. &c. Unpleasant as are these depredations, I suffer much more from the dread of fox-hunters. The announcement of a meeting of such persons in the immediate neighbourhood, is a very painful circumstance to me. I have one three-acre Grass-field, which I have been petting in every way in my power, in hopes of having a good crop of Grass; the land is of that nature, though drained, that a horse's foot going rapidly over it would leave a deep indentation; conceive then what I feel when I hear the sound of the horn, and know the next minute may bring fifty country squires galloping down my hill, in the manly pursuit of running a poor animal till it be heart-broken. I believe there is not a cottager in this village who ventures to plant Greens for winter, knowing that what he sows he will not reap; and they are not tenants to the Lord of the Manor, many of them living in their own cottages with small gardens. The assistance which you have rendered to the small allotment tenant is not complete until you have made our great men ashamed of encroaching upon the innocent amusements and lawful enjoyments of their poorer neighbours.—*Fair Play.*

Potato Washer.—The annexed sketch of a machine for washing Potatoes, which is used in Nottinghamshire, may be acceptable to some of your readers. It is easily made by any village workman, and will be found very effectual. It is simply a churn-like cylinder, with open bars placed at such a distance as to prevent any of the Potatoes from falling through, except very small ones, the lower part of which as it revolves, passes through a trough of water.



It may be made to be easily unshipped, like a churn, or fixed more permanently, as in the sketch. Where many Potatoes are used, or where it is requisite to wash them for starch-making, it will be found a very valuable acquisition.—*M. J. B.* [We have long used a washer similar to that here figured—differing from it, indeed, but in one particular; that one, however, of considerable importance. The arms here represented as containing the sockets in which the axle of the cylindrical frame revolves, are in our machine not vertical and straight, but arched, and terminating in extremities over-hanging the ground, considerably beyond the cistern to which they are attached; the cylinder, too, revolves not in sockets pierced *in* these arms, but in Ys at the side of them; and after—by its revolution—the Potatoes in it have been cleaned, chains from the extremities of the arms are hooked into eyes on its axle, and as the rotation proceeds, these, winding up on the axle, lift the cylinder out of the water, and bring it to a position overhanging a box or barrow which has been placed beside the cistern. The trap-door being opened, the Potatoes fall into this barrow and are easily removed].

Importance of Employing Sufficient Capital in Farming.—I must disclaim the slightest intention of condemning the whole host of tenant farmers, as mischievously asserted by Mr. James Smeed. My remarks contained in the *Gazette* of the 13th of September, can only, by possibility, have reference to those who either hold farms too large for their available capital, or neglect to take advantage of a propitious season, which this has certainly been (generally) throughout the country, if we are to believe local accounts. My communication of the 13th was written to support arguments against "large farms with small capitals"; on this point Mr. James Smeed agrees with me—*cui bono* his facetious epistle? I must still adhere to my former statement, viz., that vast quantities of grain, ripe, and fit for the sickle, were standing on the ground in the counties between Gloucester and London, on the 10th of August, and long after; and also that there were very many acres uncut in the counties between Gloucester and Leeds, on the 11th of September, which ought to have been stacked. The apparent neglect of the farmers was the common topic of conversation with strangers passing through the counties I have mentioned; I attributed it to the "large farm and small capital system;" others entertained different opinions; I gave both. Perhaps Mr. James Smeed can account for grain being left so long standing after it was ripe, which was so prevalent this year? He must recollect that Bromston, St. Peters, Thanet, is not all England, and if he was late in getting in his seed, I cannot help it. Should I be alive, and well, I shall probably next year look in upon Mr. James Smeed's farm, and shall, doubtless, find it a pattern of cultivation. If farmers wish to keep foreign grain out of the market, they must regulate the supply according to the demand, and not trust the consumers to the tender mercies of the capitalist and monopolist. I hope I have neither the power nor the wish to injure any man, my object is to prevent them doing themselves harm, if possible. My statement relative to last year's grain was from London, pretty good authority, but I qualified it by saying "if true." I trust no other tenant farmers will take offence where none was meant. If the editor of the *Gardener's Chronicle* deems any of my expressions too severe in my letter of the 13th, I shall be happy to substitute others, provided neither the sense is altered, nor my motive defeated, viz., exposure of the errors of "the large farm system, with small capitals."—P.S. Perhaps Mr. James Smeed may imagine my optic nerves were dazzled, when I perceived fine Charlock growing in abundance amongst the uncut grain, and the fallow covered with Couch-Grass, Coltsfoot, Thistles, and other weeds. What is the cause of all this? want of capital to employ labour, or indifference about the matter?—*Falcon.*

Soap as a Manure.—My attention has been directed by a small farmer to a very prolific patch of ground in his garden, superior to any other part of it, although this particular patch is never manured. He tells me it is entirely to be attributed to the use of soap-suds accidentally, but systematically, applied to this patch. If soap could be beneficially used as a manure, Government would doubtless allow such to be duty free, and suppose a cheap article could be manufactured from fish-oil, or any refuse animal fat. Can you, or any of your readers, enlighten hereupon?—*An Amateur Farmer.*

Societies.

LICHFIELD AND MIDLAND COUNTIES AGRICULTURAL SOCIETY.

Sept. 23.—"Much interest was excited by the digging match. A rood was alloted to each man, and the time allowed was two hours. Most of them, however, completed their work in an hour and a quarter, one occupying an hour and 23 minutes; but one completed his task in an hour and seven minutes. The whole of the digging was exceedingly well done. The judges were Mr. Hanbury, Mr. Wyley, Sen., and Mr. Darling. Charles Arkwright, Esq., was the President."—(*From the Derby Mercury.*) I consider this digging match to be a most interesting circumstance; but there are circumstances omitted in the account which are of the utmost importance to those not present at the match, who wish to cultivate a few acres by the spade, and are in search of information. Much has been admitted into your *Gazette* upon the subject of spade husbandry, and as to the price of doing the work; but I have never been able to ascertain some important facts. One is, the depth of the digging; the other, the width of the slice taken off, and without this knowledge the cost of the labour, and the time employed, is of no use as a guide to those persons who are most likely to wish to benefit their poor neighbours, and at the same time not to injure themselves.—*A Female Subscriber.*

Farmers' Clubs.

Rhins of Galloway.—*On Draining.*—At a special meeting of this Club lately held, which was honoured with the attendance of Lord Stair and his brother, North Dalrymple, Esq., of Fordel, the subject arranged for discussion was draining. Mr. M'Bryde said he would state what he humbly considered the best and only effectual method of accomplishing so very desirable an object as thorough draining; and he would at once unhesitatingly affirm, that no other means at present known could so perfectly do so as the method now so generally and successfully established by our ingenious and enterprising Smith of Deanston. When we began first to drain, our drains were only cut about from 20 to 24 inches deep, and in many instances they were only 18 inches; but, as our experience increased, we very soon began to observe that such a trifling and superficial mode of draining was next to an entire waste of our time and means. In no instance, therefore, according to his experience and that of hundreds of others far better qualified than he was to give an opinion upon the matter; in no instance should our drains, in whatever kind of soils, be less in depth than from 30 to 36 inches. Of course, in some soils, such as many of our Mossy kinds, the drains must be in many cases deeper than even this, so as still to maintain a 30 inch depth after such soils subside. It was quite clear that this system removes the excess of water to a much greater depth, which admits of the frequency of the drains being considerably reduced, thereby meeting or counter-balancing the extra expence incurred by deep cutting, and allows a much deeper range for the other mechanical means of improving the soil, and opens up a far more extensive field for the ramification of the roots of the various plants we cultivate—an important consideration, and one that will, along with the deeper system of draining, soon substantiate itself in the minds of every improving and intelligent agriculturist, and that will always cause such an admirable system to redound infinitely to the credit of its ingenious projector. Before concluding, Mr. M'Bryde begged respectfully to notice a very generally prevailing opinion amongst the improving classes of the agricultural community, and one with which he humbly coincided, that the increasing demands upon our resources, caused by a rapidly improving system of agriculture, was such as entirely to preclude us from expending any of our means in the drainage of the soil; and in explanation he observed, when our lands are drained, the full benefit of its effects cannot be properly established, without our having recourse to subsoiling, a very costly and tedious operation, from the time it takes, and the number of horses that must be employed, to be efficiently executed; and to follow up such an excellent mode of improvement, we are called upon to purchase the necessary implements, such as trench ploughs, and grub harrows, to turn up and pulverise our soils in our preparatory

erations of tillage, as well as other useful implements
the proper culture of the soils during the growth of
r crops, all expensive from their construction, weight,
d the tear and wear to which they are subjected;
d to render our soils capable of growing an increased
nount of produce, we are obliged to purchase largely
extraneous manures, to meet the deficiency of prices,
increased production. Such and other reasons, all of
hich are annual sources of expenditure, completely
reclude us from having anything to spare for the
rainage of our lands. This may be considered a very
iscouraging statement by the proprietor, but such how-
ver is a fact.—Lord Stair expressed his satisfaction at
he selection of the subject of draining as made by the
lub. It was of the first importance in good remune-
ative farming, and it had been well introduced by Mr.
M'Bryde. When he (Lord Stair) had first come to
his country, he had drained some bogs, which had since
ubsided several feet, and though the drains originally
ere deep, yet, by the Moss subsiding greatly, they were
ow too shallow. He would advise, therefore, that, in
raining such lands, the drains should be put in very
eep, so as to allow for the earth thus subsiding. What
e had to impress upon all was the importance of drain-
ng, not in an imperfect way, but efficiently, which would
ltimately pay—most probably in three or four years.
Where lands were undrained, the crops were stinted,
precarious, and late; but when drained efficiently, the
reverse was the case. His Lordship, by way of illus-
ration, referred to two very rough and mossy fields
which he had drained upon his home farm of Culhorn.
Suppose the draining, &c., to cost 10*l.* per acre, it was
paid in two or three crops: first, the Oat crop was good;
next, the Turnip was excellent, feeding a great number
of cattle and sheep; then came the third crop, namely,
Barley, one of the best ever grown in this county. The
field was about 50 acres, and the Barley sold off it
brought upwards of 500*l.*, beside drafts for horses—
straw; and now these 50 acres would keep all the season
50 cattle, and equal to 8 or 10 scores of sheep and
lambs. The ground originally was bad, in a bad state,
and not half as valuable to the tenant as now. His
Lordship said, he alluded to these improvements to
show what could be done by draining and proper ma-
nuring. The land being properly drained, the great
thing was to clean well and muck well; and the farmers
in this neighbourhood had an opportunity of obtaining
very cheap manure out of Stranraer at little more than a
third of the price which he (Lord Stair) paid for manure on
his estate at Oxenford. Mr. Dalrymple, of Fordel, then said:
In examining the drainage of that part of the Rhins
about Stranraer, a large part of which is peat-moss, he
thought a deal of cutting might be saved, if a deep
drain was cut between the wet and the dry land, or
where the Moss comes in contact with the gravel; for
there the water is dammed up, and naturally flows over
the Moss, making a swamp below. This deep drain, in
Mr. D.'s opinion, would carry off so much water, that,
instead of drains being made every 16 feet, double that
distance, or more, might have the effect desired; and
the way to prove that would be to make drains 32 feet
or more asunder, put dry sand, gravel, or other extra-
neous substances, in large quantities, on the Moss, and
in proper time consolidate it with the roller, and after
that, if the land did not seem dry, then the intermediate
drains might be made. He would, however, recom-
mend the gentlemen present to read Elkington's book
on draining springs, &c. To prove the effect of con-
solidation, Mr. D. mentioned, first, the meadow at
Edinburgh, which he had seen cut through, when the
water was brought across it from the Pentland-hills to
supply the town with water. It appeared to have been
a loch, the water of which had some time been let off
at the lower end; for the upper stratum (about 18
inches) was a black loam, then there were some feet of
peat-moss; below that, shell-marl; and lastly, clay.
As there was only one large ditch down the centre of
the meadow, and no lateral drains, the Moss must have
been consolidated by time, the pressure of cattle tread-
ing upon it, &c. Secondly, Mr. D. alluded to a peat-
moss reclaimed at Shotts, in which parish a part of his
estate lies. A flow-moss there was drained (in a man-
ner) by Mr. Weir, who cut drains 36 feet apart, and
dug out 2 feet the first year (had he taken more the
Moss would have collapsed). He then dug it, for
which he paid 2*l.* per acre, and sowed Oats, which were
harrowed in by men. The second year he took 2 feet
more out, and had a crop of Potatoes limed and dunged,
the land being hard enough to bear a horse and cart
moderately loaded. The third year he took out about
2 feet more, and had a crop of Oats sown with Grass-
seeds, and there it remains, tolerable pasture, the
ditches remaining open, and now about 20 inches deep.
It may be observed, said Mr. Dalrymple, that Mr.
Weir put stakes into the Moss level with it before he
commenced his operations, which stakes afterwards ap-
peared standing some feet above the present level, which
shows how much the Moss has subsided from loss of
moisture. Mr. D. did not recommend such drains, but
mentioned the subject to show the effect of consolida-
tion, and how useless turf drains were likely to be.
Mr. D. said that Moss drains should be much deeper
than those on stiff land, on account of their subsiding
so much when the water was excluded; and that the
Moss he had seen about Stranraer was of the best de-
scription, and apparently free from tannin, and would
soon pay for being improved. Mr. D. next spoke about
paring and burning the surface of Mosses in this dis-
trict, which he doubted the judiciousness of. When
there was stiff heath and other bog plants, the plan
might be necessary, but when there was a good coat of
coarse Grass, he thought it was a bad plan to burn
what would naturally turn into manure when ploughed
down; and he had observed that when the wind was
high, that one-half of the ashes blew away. Mr.
Ross, Dinduff, had improved Moss land by draining
and liming, and had seen it done extensively in Colmo-
nell, and, as he thought, well. A friend of his followed
this plan:—During the summer he ploughed down the
Mossy and Benty ground, say with a furrow of 4 inches;
he then limed it, and allowed it to lie and rot. He then
in the spring ploughed the field 4 inches deeper, off
which he got a good crop of Oats. The soil was Mossy
on top and clay below. Thinks thorough drains run
deep into spouty hills best. Mr. M'Caig, Burnultoch,
had drained Moss; thinks thorough drains run deep
into hill best for taking off water; does not approve
of burning; nor does he approve of turf or wedge
drains for Moss land to be cultivated. Mr. Dalrymple
said he might just add, that formerly he drained
his lands with large tiles, but now he uses small
ones, which he thinks answer as well, and are much
cheaper. He had spent upwards of 3000*l.* in drain-
ing, but had found himself repaid in three or four
years, and the soil permanently improved. He re-
commended soles to be used on all occasions, as the
ground falls in naturally and displaces the tile or crushes
it into the soil, filling it up and thus destroying its drain-
age power. As to manure, he believed one-third of all
that was produced in the country was lost for want of
tanks: the liquid manure was the richest, but now
merely run into streams or ponds, and was lost or evapo-
rated. He had constructed for himself large cesspools,
which received all the liquid manure. This was pumped
up and poured into compound middens, composed of
peat-moss, road scrapings, &c. Vitriol was a good thing
to mix among the liquid manure, as it fixed the ammonia.
As to tube or pipe tiles (as to which a question was put),
he (Mr. D.) did not see why they should not answer
well. They should be much cheaper than the common
tile and sole. In Kent they had been long used. Some
of the tenants having remarked that the increased
quantity of artificial manures cost so much outlay of
capital, that they found they could not drain so much
as they were desirous of draining, Mr. M'Mickan said
his guano and bones this year had cost him 200*l.* Lord
Stair said that on one field of 40 acres on his home farm
he had this year put 2,000 cart-loads of manure. There
was no other way of getting land put into a proper state,
and the extensive use of manures and of green crops
would tend to fill the tenant's pocket, and enable him
to drain and otherwise improve his farm. Mr. M'Lachie
observed, in reply to a question by Mr. Dalrymple,
that the employment of lime in connection with guano,
or any manure containing ammoniacal salts was delete-
rious, in consequence of decomposing these salts and
allowing the ammonia to escape into the air. After re-
marking on the importance of attending to the chemical
principles involved in the practice of agriculture, he
stated a method by which the ammonia in stables and
cow-houses might be fixed, as the plans hitherto adopted
have been unsuccessful; this was very desirable for
two reasons, namely, the preserving of the ammonia,
and the injurious effects it produces on the animals.
The mode is this:—A quantity of sulphuric acid diluted
with six times its bulk of water, is poured on some peat-
moss or sawdust, so as to form a thick paste. This is
put into troughs and placed along the walls at conve-
nient distances; in short, they may be ranged anywhere,
so as not to be in the way of the cattle and workmen.
The paste can be removed from the troughs when it is
considered that the sulphuric acid is saturated by the
ammonia, forming sulphate of ammonia. More or less
of the diluted acid can be used as circumstances may
demand. In stables it would suit very well to sprinkle
the floor with the diluted acid, covered with a little saw-
dust (which in this case would be cleaner than the peat-
moss, though he would prefer the peat-moss in the
troughs). Troughs with the acidulated paste might
also be placed along the wall heads in stables and cow-
houses. Gypsum (sulphate of lime), has not succeeded
as was expected it would do, in completely fixing the
ammonia in stables, &c., though partially it must. In
this method, which he would recommend, the sulphuric
acid is free, and therefore more readily unites with the
ammonia, which will in all directions seek out the acid.
—*Abridged from the Galway Advertiser.*

North Suffolk and South Norfolk.—At the eighth autumnal show of the North Suffolk and South Norfolk Agricultural Association, lately held at Eye, one of Sir Edward Kerrison's three silver Cups was presented to Mr. Peck, for the best two cows; and another to Mr. E. S. Gowing, of Eye, for the best cultivated farm of not less than 100 acres. Lord Henniker's two silver Cups for the best five acres of Wheat and five acres of Swedish Turnips, were presented to Mr. E. S. Gowing, who also won the silver Cup, presented by E. C. Kerrison, Esq., to the tenant who employs the most servants for agricultural purposes. The Chairman, in presenting the *four* cups to Mr. Gowing, said he had had the pleasure of going over his farm that morning, and he must say that he had never seen one better cultivated. Without employing such a number of agricultural labourers as Mr. Gowing did, he could neither have had such a farm, nor could he have received such rewards. —Mr E. S. Gowing returned thanks. Before he became a competitor it was said that he was too timid, and was afraid to show his farm; and he had no doubt some other farmers had been timid, but if they had gone in for a prize like himself, they might have got a cup. "But this, this," continued Mr. Gowing, holding up one of his prizes, "this is the Cup I value most. This is the prize Cup for employing agricultural labourers. This Cup is the stepping-stone to all the others, and is the one that produces the greatest happiness to the farmer, and the greatest comfort and content to the labourers. (Hearty cheering). I don't like poor half-labourers, half-paupers. Men employing and employed after that fashion have no respect for each other. No man can feel himself happy unless his labourers are comfortable. It would give you pleasure to see a lot of my boys, hungry after hard work, eating their bread and cheese in the fields. By employing labourers a farm is not only bettered, but there is no comparison in the comfort. If more labourers were employed, we need not fear the fudge about free trade. Some say they cannot do as they would on account of leases. The speech of Lord Stradbroke the other day was interesting on that subject. Whatever changes may take place on that head, I advise gentlemen only to give long leases to good tenants. You have seen this day prizes given to labourers for long servitude. Such cannot be the case without durable occupation, for change in tenants is almost invariably accompanied with change in labourers. For myself, I say, as long as Cups are to be fought for I will try for them, and when you find a better man, I shall be happy to give way." (Much cheering).

Maidstone.—*Thin Sowing.*—At the last meeting a member, opposed to thin sowing, again brought the subject before the meeting. Several instances were mentioned where a diminution in the usual quantity, even though sown later than by Mr. Davis's plan, produced as much as the thick sown. It was also stated that the price of thin sown at Barming, which had been mentioned by the chairman, at the last meeting, as being inferior to the thick sown on each side of it, had turned out, on being cut, to be superior to it in quantity, being at the same time free from blight, whilst the thickly sown was much blighted. The following resolution was adopted unanimously:—"Resolved, That having re-discussed Mr. Davis's system, after hearing that gentleman's explanation, it is still deemed highly desirable for every farmer, who can drill early and cultivate in any way approaching Mr. Davis's system, to try at least a portion of his land with a diminished quantity of seed, and to report the results to the club. The club do not recommend, however, farmers on undrained land to try it to any great extent."—*Maidstone Gazette*

Miscellaneous.

Lime Enriches the Fathers, but Impoverishes the Sons.—The addition of lime to the land has, in nearly all well cultivated countries, extensively prevailed at every period of authentic history. In Europe its use has been universal, and everywhere the same observation has been commonly made, and has become a proverb in almost every language. "Lime," the proverb says, "enriches the fathers, but impoverishes the sons." Laid on in repeated doses, and for a length of time, the luxuriant crops it raises at first gradually fall off, till at length, even with the stimulus, as it is called, of larger doses, the land refuses to be excited. A like result has been observed of late years from the application of gypsum, of nitrate of soda, of common salt, or of saltpetre. Their good effects were apparent for a certain number of years, but they gradually ceased to act, and the land was afterwards believed to be even weaker and less productive than before. How are these results to be explained? Can this apparent exhaustion be prevented? Can it easily be remedied? Is it a necessary consequence of the use of lime, and of the other substances we have mentioned? Is the manure or the farmer to blame for the result? The plant carries away from the soil say 10 substances. The soil is deficient in one of these, and the plant cannot grow. That one is lime or soda. You add it to the land, and your crops spring up luxuriantly. Rejoiced at this result, you add more lime, and your crops still grow well—for it requires the addition of 300 or 400 bushels to an imperial acre to add one per cent. of lime to a soil which is 12 inches in depth. But after many crops the lime at length ceases to benefit the land, the crops are even smaller than they were before lime was first added, and the farmer is at a dead stand. Now what has he been doing all this time? He has been adding one thing only in his lime—he has been carrying off 10 in his crops. Is it any wonder, then, that after a lapse of years, the land should become poor in one or more of the other nine? The iron-smelter throws into his furnace his ore and his coal, but he gets no metal until he puts in lime also. He adds a dose of lime, and he draws off a running of metal. He adds more lime, and he procures perhaps more iron. But he very soon finds that lime does no further good; he has melted out all the iron; he has exhausted his furnace; the stimulus of lime has no effect. He must add ore and coal again, and again he will obtain his periodical flows of metal. So it is with the soil. The farmer who hopes by the continual addition of one thing, to make his land produce continual good crops, hopes and acts against reason. It is his fault that the land has become exhausted, and the cure is in his own hands. Lime, therefore, does not necessarily "impoverish the son." But any treatment will ultimately make the land poorer which does not return to the soil all the things which the crops have carried off, and at least in equal proportion.—*North British Review.*

The expense of Summer Keeping for Farm-horses must be as various as that of winter, as the modes or means adopted are within the reach of the owner—the

extent of forage, number of horses, and the nature of their employment. With his present resources, however, there seems to be no other course of summer management left to the heavy-land farmer than that now generally followed of cutting Clover or Tares for the horses, as early and as long as these can safely be used as green forage; for either plant cut too early would not be profitable nor suitable for hard-working horses. Hence horses are frequently more than seven months on winter food, though, to preserve greater simplicity in the account, their cost of keeping has been taken in entire months. On the farm to which my estimate refers, there are nine horses, including a brood-mare and two colts in winter, and only six horses or three ploughs in summer; their hours of yoke generally being from daylight to dusk in winter at the plough, thrashing-machine, or carts, with one hour at mid-day to feed, and from seven A.M. to seven P.M. in spring and summer, with two hours at mid-day for feeding. The cut Grass is generally taken from one side or corner of a field of young Clover and Rye-grass, (12 lbs. red Clover and 1½ bushels annual Rye-grass seed per acre,) sown the previous season with the Barley, and intended for hay for sale. It is the first work of the three ploughmen in the morning to proceed to the Clover-field about five o'clock, and cut a small cart-load of the Grass, which occupies them about an hour, or a little more if two days' Grass is required. The Grass is taken home, and either remains on the cart in a shady place close to the stable, or, if wet, is spread on the loft above to dry. When the space of ground thus reserved for the horses has been gone over, or the Grass gets too ripe and hard to be used green, the remainder is made into hay, and the horses are kept upon cut Tares for a time, till the second crop becomes ready for cutting, which is continued to the horses in favourable seasons to the end of October. The quantity of cut Grass consumed by each horse necessarily varies with the state of the Grass at the time of cutting. When the Grass is young and succulent, more of it is required, and when older and hard, the horses eat less and waste more, if allowed to do so by being too liberally supplied at a time. Taking these things into account, and seeing that a certain degree of waste is unavoidable, be the care and economy what they may, it has been found, by repeated trials, that from 180 to 200 lbs. of cut Clover will serve each horse twenty-four hours, one day with another, throughout the Grass season. Say 196 lbs., or 1¾ cwts, at 6½*d.* per cwt., for five calendar months, and five days to complete the year, or 155 days, with one feed of Oats to each horse for four mouths or 120 days, the amount will be this—

155 days of cut Grass, at 1 1-3rd cwt. per day, at 6½*d.* per cwt...	£7	6	11
120 feeds of Oats, eight to the bushel, at 2*s.* 2*d.*	1	12	6
Keeping of each horse £1 14*s.* 6*d.* per month, or during 5 1-6th summer months..	£8	19	5

—*Mr. Carmichael, Trans. Highland Agri. Soc.*

Cider Making.—The following, in the leading particulars, is, according to Mr. Knight, the practice of the best cider-makers in Herefordshire, though, in many respects the practice differs materially in different districts. As the fruit falls, it is collected in heaps of about eight or ten inches deep, or is conveyed to an open airy shed or Apple-loft. In collecting the Apples for making the best cider, the green fruit is thrown aside. In these heaps the Apples should remain some weeks, until they become quite mellow. When conveyed to the mill, all the decayed fruit are picked out. The pulp is thoroughly broken down by the action of the mill, not only for the more perfect extraction of the juice afterwards by the press, but also for the free admission of the air to every part of it. With this view the grinding should not be a hurried, but rather a slow operation; for the more the pulp is exposed to the action of the air, the more saccharine it becomes, and the cider will be the less liable to violent fermentation in the cask. The pulp is allowed to remain exposed to the air four-and-twenty hours before it is conveyed to the press, in order to obtain as large an absorption of air as possible. In some instances the pulp is only slightly pressed, again spread to the air for some time, and afterwards returned to the expressed juice and pressed again. With such or similar preparations as the above, the increased richness of the juice, the diminished energy of the ferment, and the low temperature of the season, are all favourable to that moderate degree of fermentation which is requisite for making sweet cider. When the liquor is put into the casks a considerable hullage or space between the bung and the surface of the liquor should be left, to allow a freer access of air, and the casks should be placed in an open and airy place, as in confined places or cellars the cider ferments too rapidly. If, notwithstanding this precaution, the fermentation becomes very active, the liquor should be immediately racked off, and the operation repeated if it again occurs. The too great activity is indicated by a loud hissing noise, which is heard upon applying the ear to the bung-hole. The fermentation sometimes commences in a day or two, and at others not for many days, or even a fortnight or three weeks, according to the strength of the juice and the temperature of the season. When the fermentation has ceased, which may be known by the liquor becoming clear, it should be immediately racked into well-scalded and dried casks; these casks, as before, should not be quite filled, and their bung-holes merely covered. Great attention should be given to prevent any recurrence of active fermentation; upon the least appearance of which racking must instantly be resorted to, until the cider becomes permanently tranquil. The dregs of the fermenting casks should be filtered through a conical flannel-bag, spread at the mouth and suspended by a hoop. In the operation of racking, the finer the stream the more effectual will it be in checking fermentation; and this effect will be increased by pouring the liquor through a vessel perforated with numerous holes, or affixing the rose of a watering-pot to the vent or tap, thus producing a more complete separation and exposure to the air, and consequent precipitation of the ferment. Some cider-makers cause the cider to run down a board into the receiving vessel, so as to expose it as much as possible to the action of the air.* The object of all this particular management of the cellar is, after obtaining a certain degree of fermentation necessary to produce a sufficient quantity of spirit, to subdue the action of the exciter, the ferment, and thereby to induce that slow and tranquil change which gradually converts the remaining sugar into spirit, but which, in a well-closed cask and a cool cellar, it takes years to accomplish. In the following April the cider is again racked, to get rid of the lees, and the casks are then closely bunged down, and the cider is in a fit state to stow away in the proper keeping place, or to send out.† When perfectly fine the cider is fit for bottling; but Mr. Knight recommends keeping it two years before it is bottled. Cider, carefully managed, will retain its sweetness three or four years in the cask, and many years when bottled. The bottles should be laid upon their sides, in order that the corks may swell, and prevent the escape of the gas. In bottle, the gas, which at first is yet slowly formed, soon occasions such a pressure as to put a stop to any further change, which can proceed only so long as the carbonic acid gas—one of the products of that change—is allowed to escape. In tolerably matured cider, the needful pressure for this effect is too feeble to endanger the bursting of the bottles, but is at the same time sufficient to give great briskness to the cider when the cork is drawn.—*F. Falkner in the English Agricultural Society's Journal.*

Cost of Reclaiming 10 *acres of Heath-land.*—

	£.	*s.*	*d.*
Cost of fencing 65 rods of stone fence (7 yards to the rod) where stones can be conveniently obtained, including stone getting, cartage, &c.	26	0	0
Say 60 rods of drain (7 yards to the rod), either stone or tile-drain, cost of materials, cartage, &c.	5	10	0
Paring 10 acres, at 14*s.* per acre	7	0	0
Burning ditto, at 3*s.* per acre	1	10	0
180 imperial bushels of lime per acre, at 3*d.* per bushel	22	10	0
Cartage of ditto 2 miles, at 1*d.* per bushel	7	10	0
Spreading lime and ashes, at 4*s.* per acre	2	0	0
Ploughing 10 acres, at 10*s.* per acre	5	0	0
Grubbing stones after the plough, and clearing off ditto	2	0	0
New gate, posts, hanging, &c. &c. probably	1	0	0
	£80	0	0

—*J. Watson, English Agricultural Society's Journal.*

Notices to Correspondents.

Action of Lime on Heath Land—*G. Flower*—Next week.

How to Dispose of Turnips—*A T*—Unless you are very peculiarly circumstanced you may depend upon it you can make more money by disposing of them in the market than by consuming them with cattle; and you may make a bargain with the person who buys them for the purchase of the manure derived from their consumption. Or what would be better, if your market is distant, you may buy guano or other artificial manure. Swedes will generally fetch from 15*s.* to 20*s.* per ton in the market. You will not make 10*s.* by feeding them. The difference will more than suffice to buy manure with.

Liquid Manure—*C R D*—The extent of land you occupy is not sufficient to guide us in answering your question as to the proper size of a tank. Let us know the number of cattle you keep under shelter, whose urine it is proposed to keep in the tank. With regard to tanks for yards, you should have one that would hold at least as much water as if spread over the extent which it is drained from would cover it 2 inches deep. We shall shortly have remarks on this subject to make in another part of the Paper.

Manure for Wheat.—*W L*—Try Liebig's manure, and follow the directions of Muspratt and Co. as to application; or, if you do not wish to speculate, apply 4 cwt. of guano broadcast over the young plants in April, and harrow in.

⁂ As usual many communications have arrived too late.

Markets.

SMITHFIELD, Monday, Oct. 6.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s	10	to 4s	0	Best Downs & Half-breds	4s	8	to 5s 0
Best Short Horns	3	6	3	10	Best Long-wools	4	4	4 8
Second quality Beasts	3	8	3	8	Ewes and second quality	3	8	4 0
Calves	4	0	4	8	Pigs	3	4	4 8

Beasts, 3878; Sheep, 26,770; Calves, 80; Pigs, 315.

The supply of Beef continues very large; the demand, however, is somewhat increased, but prices do not advance because of the quantity; a few of the choicest qualities make a trifle over our top quotations, but we have a large proportion of middling Beasts in market, which are very unselling.—Sheep are rather more plentiful, the best qualities, however, maintain their price; second-rate and Ewes are a very heavy sale.—Veal trade is about the same.—The late high price of Pork has caused a large importation of Irish Pigs; trade is, consequently, heavy, at a reduction in large Hogs, but small Porkers make from 4s to 4s 8d.

Friday, Oct. 10.

The weather being so wet this morning has caused a depression in the trade, yet the supply being short the best qualities are not lower. Best Scots make nearly 4s 2d, and best Short-horns rather over 3s 10d. We have still a bad trade for middling Beef at Monday's prices.—Sheep are much shorter; there are very few good Sheep in market, for them our top quotations of Monday are obtained; Ewes and second quality, of which the supply principally consists, are a heavy trade at from 3s 6d to 4s.—Veal is rather dearer; a choice Calf makes 5s.—Pork trade is better; nice small Porkers are worth 5s; large Hogs, 3s. 8d to 4s 4d.

Beasts, 764; Sheep, 4150; Calves, 240; Pigs, 337.

41, West Smithfield.

* The coolness of the situation of the cider during its fermentation is of great importance; for at a temperature much above 50° Fahrenheit, the acetous change commences, and proceeds simultaneously with the vinous: but below that degree, neither before the cider is tunned, nor after in the open cask, is any acid produced.—*Author.*

† The racking of cider in the spring should be performed when the air is dry and cool.

COVENT GARDEN, Oct. 11.—There has been little variation in the prices of most articles during the past week; the market has been well supplied; but trade continues dull. Pine-apples are sufficient for the demand; among them are many excellent specimens of good cultivation. Good English Melons are still scarce, and Peaches and Nectarines are not so plentiful as they have been. Plums are also scarcer, and consequently dearer. Of Apples and Pears there is a good supply; fine ripe specimens of the latter are, however, scarce. The best dessert variety at present in the market is the Brown Beurré. Hothouse Grapes remain nearly the same as last week, as do also foreign sorts, for which there is a tolerably brisk trade. English Walnuts are scarce, and foreign ones are not so plentiful as they were last week; prices for the latter are on the rise. Filberts are also higher in price; although the sale for them is not brisk. The prices of vegetables have not altered much since last week. French Beans begin to show the effects of the frosty nights; consequently, they are scarcer and as a matter of course dearer. Broccoli is becoming more plentiful, and the supply of Cabbages, Turnips, and Carrots, is good, and the quality excellent. Spanish Onions are large and fine; home-grown sorts are also good. Potatoes are dearer than they were last week. Brussels Sprouts are becoming rather more plentiful, and Endive, Lettuces, and Salading of every kind are abundant. Of cut flowers there is a fine display, chiefly of Camellias, Garde-nias, Cacti, Sweet Peas, Agapanthus, Chinese Primroses, Lupines, Antirrhinums, Heliotropes, Picotees, and Roses.

FRUITS.

Pine Apple, per lb.,	4*s*	to	6*s*
Grapes, Hothouse, per lb.,	1*s*	to	4*s*
— Spanish, per lb.,	10*d*	to	1*s* 6*d*
— Portugal, p. lb.,	1*s*	to	1*s* 6*d*
Peaches, Wall, per doz.,	1*s*	to	4*s*
Nectarines, per doz.,	1*s*	to	4*s*
Melons, 2*s* to 4*s* each			
— Dutch, 1*s* to 3*s* each			
Figs, green, per doz.,	2*s*	to	3*s*
Plums, per hf.-sv.,	3*s*	to	5*s*
Damsons, per hf.-sv.,	3*s*	to	4*s* 6*d*
Apricots, per doz.,	1*s*	to	3*s*
Apples, Dess., per bush.,	4*s*	to	7*s*
— Kitchen,	1*s* 6*d*	to	4*s*
Pears, per hf.-sv.,	2*s*	to	4*s*
— Windsors,	3*s*	to	3*s* 6*d*
Oranges, per dozen,	2*s*	to	3*s*
— per 100,	12*s*	to	24*s*
Lemons, per dozen,	1*s*	to	2*s*
— per 100,	7*s*	to	16*s*
Almonds, per peck,	6*s*		
Sweet Almonds, per lb.,	2*s*	6*d*	to 2*s*
Walnuts, per bushel,	16*s*	to	32*s*
Filberts, English, p. 100 lbs.,	45*s*	to	60*s*
Nuts, Barcelona,	24*s*		
— Brazil,	16*s*		
— Spanish,	16*s*		
Barberries, per hf.-sv.,	3*s*	to	4*s*

VEGETABLES.

Cabbages, per doz.,	3*d*	to	1*s*
— red, per doz.,	3*s*	to	5*s*
Cauliflowers, per doz.,	1*s*	to	4*s*
Broccoli, per bunch,	6*d*	to	1*s*
Greens, per doz. bunches,	2*s* 6*d*	to	3*s*
French Beans, per hf.-sv.,	2*s*	to	3*s* 6*d*
Sorrel, per hf.-sieve,	6*d*	to	9*d*
Artichokes, per doz.,	3*s*	to	4*s*
Potatoes, per ton,	60*s*	to	100*s*
— cwt.,	4*s*	to	6*s*
— bushel,	2*s*	to	3*s*
— Kidney, per bushel,	2*s*	to	3*s*
Turnips, per doz.,	1*s* 6*d*	to	2*s* 6*d*
Red Beet, per doz.,	1*s*	to	1*s* 6*d*
Carrots, per doz. bchs.,	3*s*	to	5*s*
Horse Radish, per bundle,	1*s* 6*d*	to	6*s*
Cucumbers, per doz.,	2*s*	to	8*s*
Spinach, per sieve,	9*d*	to	1*s* 6*d*
Leeks, per doz.,	1*s* 6*d*	to	2*s* 6*d*
Garlic, per lb.,	6*d*	to	8*d*
Tomatoes, per hf.-sv.,	3*s*	to	5*s*
Celery, per bunch,	9*d*	to	1*s* 6*d*
Vegetable Marrows, p. doz.,	1*s*	to	1*s* 6*d*
Onions, per doz. bunches,	2*s*	to	6*s*
— pickling, per hf.-sv.,	2*s*	to	3*s*
— Spanish, per doz.,	1*s* 6*d*,	to	5*s*
Shallots, per lb.,	4*d*	to	6*d*
Endive, per score,	9*d*	to	1*s* 3*d*
Lettuce, per score, Cab.,	9*d*	to	1*s* 3*d*
— — Cos,	6*d*	to	1*s* 3*d*
Radishes, per doz. bunches,	9*d*	to	1*s* 3*d*
Mushrooms, per pottle,	1*s* 6*d*	to	2*s* 6*d*
Small Salads, per punnet,	2*d*	to	3*d*
Basil, green, per bunch,	4*d*	to	9*d*
Fennel, per bunch,	2*d*	to	3*d*
Savory, per bunch,	4*d*	to	6*d*
Thyme, per bunch,	4*d*		
Watercress, p. 12 sm. bun.	4*d*	to	6*d*
Parsley, per bunch,	2*d*	to	3*d*
— Roots, per bundle,	9*d*		
Tarragon, per bunch,	4*d*		
Mint, per bunch,	2*d*		
Marjoram, per bunch,	4*d*		
Chervil, per punnet,	2*d*	to	3*d*

HOPS, Friday, Oct. 10.

The market continues active at an advance of from 2*s* to 4*s* per cwt. since last week. The weather prevents the picking going on, and as full one-third of the growth still remains on the poles, it is very probable the duty, which is now called £160,000, may yet be reduced full £70,000 by wet and wind.

Fattenden & Smith, Hop-Factors

HAY.—Per Load of 36 Trusses

Smithfield, Oct. 9.

Prime Mead. Hay	105*s*	to 110*s*	New Hay	60*s*	to 85*s*	New Clr.	—*s* to —*s*
Infr. New & Rowen	50	60	Clover	80	to 105	Straw	35 40

John Cooper, Salesman.

Cumberland Market, Oct. 9.

Prime Mead. Hay	100*s*	to 108*s*	Old Clover	115*s*	to 120*s*		
Inferior	65	90	Inferior do.	90	100	Straw	33*s* to 42*s*
New Hay	—	—	New Clover	—	—		

Joshua Baker, Hay Salesman.

MARK-LANE, Monday, Oct. 6.

The supply of English Wheat by land carriage samples at this morning's market was moderate, the condition bad, particularly from Kent; the whole sold readily at a rise of 2*s.* per qr. upon the prices of this day se'nnight; free foreign meets an increased inquiry at 1*s.* to 2*s.* and bonded at 1*s.* advance.—New Barley is 1*s.* dearer, and old more in request.—Beans are unaltered in value.—The demand for Holland having nearly subsided, we reduce our quotations on White Peas 8*s.*, Maple 4*s.*, and Grey and Dun 5*s.* to 6*s.*; Blue sell at 46*s.* to 50*s.* per qr.—Oats are a slow sale at a decline of 6*d.* per qr. from last Monday, but holders are firm at the reduction.—The Electorate of Hesse has prohibited the exportation of Corn and Potatoes, as has also Prussia from its dominions on the Rhine.

British, per Imperial Quarter,	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	57	63	Red	52	60
— Norfolk, Lincolnshire, and Yorkshire	57	65	White	59	65
Barley, Malting and distilling	28*s* to 34*s*		Chevalier	30	35
Oats, Lincolnshire and Yorkshire			Polanda	24	27
— Northumberland and Scotch			Feed	25	27
— Irish			Feed	22	24
Malt, pale, ship				54	60
— Hertford and Essex				60	65
Rye				29	32
Beans, Mazagan, old and new	35	to 38	Tick	36	39
— Pigeon, Heligoland	39	to 44	Winds	—	—
Peas, White	46	to 50	Maple	33	41

Grey	36	38			
Harrow	38	40			
Longpod	—	—			

Friday, Oct. 10.

The arrivals of all kinds of Corn during the week have been moderate; English and free foreign Wheat met an active inquiry at an advance of 1*s.* to 2*s.* per qr.; very little bonded was offered for sale, and purchases difficult to make at 2*s.* per qr. over Monday's rates.—Canadian Flour sells freely at 34*s.* to 35*s.* free, and old American in bond 26*s.* to 27*s.* per barrel—Barley and Beans are unaltered.—The Pea trade is rather firmer.—There are few Oats at market, and prices must be noted 6*d.* to 1*s.* higher.—The accounts received from various parts of Ireland respecting Potatoes are much worse than hitherto, and appear to be becoming serious.

Imperial Averages.

	30 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Aug.	6	55*s* 10*d*	31*s* 8	22*s* 4*d*	35*s* 7*d*	42*s* 1*d*	38*s* 4*d*
Sept.	13	54 1	31 0	22 3	33 9	42 10	36 5
—	20	53 6	30 9	21 7	32 8	42 5	37 0
—	27	53 2	30 2	22 2	33 1	42 5	38 9
Oct.	4	56 0	31 1	23 4	33 8	43 1	41 6
6 weeks' Aggreg. Aver.		54 8	30 9	23 5	33 7	42 6	38 3
Duties on Foreign Grain		18 0	8 0	6 0	9 6	1 0	4 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Oct. 4.

Prics.	Aug. 30	Sept. 6	Sept. 13	Sept. 20	Sept. 27	Oct. 4
57*s* 0*d*						
56 6						
— 0						
55 10						
55 6						
— 3						
54 1						
53 2						
52 6						
50 10						
48 0						
— 12						

SEEDS, Oct. 10.

Canary	per qr	60*s*	to 64*s*	Linseed Cakes, Foreign, p. ton	8l	to 10l
Carraway	per cwt	44	48	Mustard, White - p. bush.	2*s*	10
Clover, Red, English	—	—	—	— Superfine	10	11
— — Foreign	—	—	—	— Brown	10	13
— White, English	—	—	—	Rapeseed, English, per last	26l	28l
— — Foreign	—	—	—	Rape Cakes - per ton	—	—
Coriander	—	14	16	Saintfoin	—	—
Hempseed	per qr	35	36	Tares, Eng. winter p. bush.	6	8
Linseed	per qr	54	60	— Foreign	4	4s6d
— Baltic	—	42	46	Trefoil - per cwt	18	23
— Cakes, Eng. per 1000	12l	13l		Turnip (too variable for quotation).		

Kingsford and Lay.

TO NOBLEMEN, GENTLEMEN, FLORISTS, SEEDSMEN, AND OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed by the assignees of T. and C. Lockhart, of Cheapside and Fulham, florists and seedsmen (bankrupts), to SELL BY AUCTION, on the premises, on Thursday, October 16, and two following days, at Eleven each day, the whole of the genuine STOCK, consisting of a unique collection of 200,000 bulbs, comprising English Iris, late and early Tulips, Gladiolus, Ranunculus, Anemone, Cape bulbs, Crocus, Amaryllis, Jonquils, Narcissus, Lilies, Vegetable and Flower Seeds of the most approved kinds. Also a newly-erected Greenhouse, capital Pit, two and three-light Boxes, Hand-lights, utensils in trade, Standard Roses, Greenhouse, Herbaceous, and other Plants, Box-edging, &c.; together with the fittings-up of the business premises, at 156, Cheapside, consisting of eight nests of capital seed-drawers, Seeds, Bulbs, &c. The Stock at Fulham will be sold on the 16th and 17th, and at 156, Cheapside, on the 18th. May be viewed two days prior to sale. Catalogues, 6d. each, may be had on the premises; and of the principal Seedsmen; of W. Turquand, Esq., official assignee, 13, Old Jewry Chambers; on the premises; and of the Auctioneers, American Nursery, Leytonstone.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful out-buildings, and Nursery Garden, is let at a moderate rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

SHETLAND PONIES.

TO BE SOLD, together or separate, a pair of very handsome SHETLAND PONIES, colour black. They are in very fresh condition, and have been driven together. Apply to Mr. SAMUEL HILL, Sun Inn, Hitchin, Herts.

TO NURSERYMEN AND OTHERS.

TO BE LET OR SOLD.—A VERY DESIRABLE NURSERY, situated in an improving neighbourhood, within 2 miles of Hyde-park, consisting of a Seed-Shop, where might be carried on a good Fruit business; a roomy Show House, with three other houses; three ranges of Pits, heated with hot water; a convenient Shed, forming the back and end for another house; a very convenient and roomy dwelling-house; and about 1 acre of land.—Direct to Messrs. PROTHEROE and MORRIS, Leytonstone.

SMALL GLASS FOR HOTHOUSES AND GARDEN LIGHTS

by			per Gross.					per Gross.
1½	2	at 1d. per foot.		5	2	at 1½d. per foot.		
				4½	2½			
10,000 squares	6	by 4	at 9s.	90,000 squares	8	by 6	at 18s.	
1,000	6½	4½	11	11,000	8½	6½	20	
4,000	7	5	13	80,000	9	7	22	
2,000	7½	5½	15	49,000	10	8	30	

Striking Glasses, Bee Glasses, Fish Globes, and French Shades for covering Ferns and Ornaments

R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt...	26s. 0d.	Milled Lead in Sheets, per cwt.	s. d. 21 0
Linseed Oil, per gall...	2 3	Cut to Size	22 0
Turpentine	3 3	Pipe all Sizes	22 0

Warranted Varnishes and Colours.

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

EDWARD BECK informs the Public that in consequence of the greatly increased demand for his SLATE TUBS, he is enabled to reduce the price of the following sizes about 10 per cent. He regrets the too frequent delay which has occurred in the execution of orders. This he hopes to avoid in future by keeping a supply on hand.

Present Prices for Cash or Post-office order.

4 inches	.. ..	11s. 0d.	20 inches	.. ..	22s. 6d.
5 inches	.. ..	12 6	22 inches	.. ..	25 0
6 inches	.. ..	16 0	24 inches	.. ..	32 0
8 inches	.. ..	19 0			

Slate Works, Isleworth, Middlesex.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

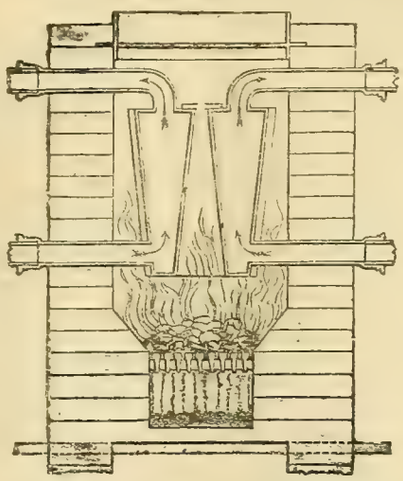
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CAUTION.—Each genuine bottle has the words ROWLAND'S MACASSAR OIL engraved in two lines on the Wrapper; and on the back of the *Wrapper* nearly 1500 times, containing 29,028 letters.

Sold by the Proprietors, A. ROWLAND & SON, 20, Hatton Garden, London, and by Chemists and Perfumers.

*** All other "*MACASSAR OILS*" are Fraudulent Counterfeits!!!

Printed by William Bradbury, of No. 6, York-place, Stoke Newington, and Frederick Mullett Evans, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, October 11, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42.—1845] SATURDAY, OCTOBER 18. [PRICE 6*d.*

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GARDENERS' BENEVOLENT INSTITUTION.—Notice is hereby given that an ELECTION for Pensioners on the funds of this Charity, will take place in January next. All persons desirous of becoming candidates are requested to send in their testimonials, &c., to me, on or before the 31st inst., after which time they will not be received.

By order, E. R. CUTLER, Sec., 97, Farringdon-street.

P.S.—Printed forms may be had on application.

TREE VIOLET.

JOHN WALLACE, SEEDSMAN and FLORIST, Gabriel's Hill, Maidstone, has now ready a large Stock of this much esteemed, double, dark purple, perpetual flowering, hardy and fragrant VIOLET, which he respectfully offers for sale at 6*s.* per dozen. All persons who value a bouquet of sweet flowers, fresh every day, from the beginning of August to the end of May, should grow a few dozens of this beautiful flower. —Apply as above, or to Mr. G. CHARLWOOD, Seedsman and Florist, 14, Tavistock-row, Covent Garden.—Oct. 18.

FIRST-RATE PELARGONIUMS.

W. MILLER begs to call attention to his extensive STOCK (upwards of Seven Thousand), of the above Beautiful Tribe of Plants, offered at a very low price, from 8*s.* 6*d.* per doz. Descriptive and Priced Catalogues can be had. Providence Nursery, Ramsgate.

CARNATIONS, PICOTEES, and PINKS.—Catalogues of Messrs. NORMAN'S Select Show Varieties can be had on prepaid application.—Bull Fields, Woolwich, Oct. 18.

CARNATIONS AND PICOTEES.

JOHN DICKSON, of Acre Lane, Brixton, respectfully announces that his STOCK OF NEW FLOWERS and established favourites was never more healthy than at present, and they are ready to be sent out in collections or single pairs. Catalogues on application by letter or otherwise.

ARRIVAL OF DUTCH FLOWER ROOTS.

WILLIAM E. RENDLE has this season a very large Stock of HYACINTHS and other Flower Roots imported direct from one of the first merchants in Holland. They are offered at very reasonable prices. See the *Chronicle* of Sept. 20 for a general list and prices.

Union-road Nursery, Plymouth, Oct. 18, 1845.

TO THE TRADE.

WM. WOOD AND SON'S WHOLESALE CATALOGUE OF ROSES, Ornamental Trees and Shrubs, Greenhouse and Herbaceous Plants, &c. &c., is just published, and will be sent GRATIS on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CARNATIONS AND PICOTEES.

F. BARRINGER'S FINE RED-EDGED PICOTEE "UNIQUE," is now ready for sending out at 12*s.* per pair (post free). UNIQUE is a first-rate flower, of fine form and substance, marking entirely confined to the edge, and beautiful white ground. Catalogues can be had on pre-paid application.—Bedford, Oct. 18.

RIBES SANGUINEUM FLORE PLENO, or DOUBLE BLOOD RED FLOWERING CURRANT.

(Figured in "Paxton's Magazine of Botany," July 1, 1845.)

THOMAS JACKSON being the largest holder of this new and most beautiful Shrub, begs to offer plants well established in pots at 10*s.* 6*d.* each; for every three ordered one will be added gratis.

Kingston Nursery, Surrey, Oct. 18.

Just Published, and ready for Distribution.

WM. WOOD AND SON have the pleasure of informing their Friends that they have just received from the press their New Supplementary Catalogue of CAMELLIAS, CHRYSANTHEMUMS, FUCHSIAS, GREENHOUSE, and HERBACEOUS PLANTS; also, ORNAMENTAL TREES, EVERGREENS, AMERICAN and FLOWERING SHRUBS, CONIFERÆ, FOREST and FRUIT TREES. Copies of the above will be sent in due course to all parties who have in previous seasons favoured W. W. & S. with their commands, and to all other applicants, GRATIS, on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHRYSANTHEMUMS.

CHANDLER AND SONS, Nurserymen, Vauxhall, London, have to offer good plants of all the best varieties of the CHRYSANTHEMUMS from 9*s.* to 12*s.* per dozen, according to the size of the plants. The plants are well budded, and in a good state for removal.

GREAT YARMOUTH NURSERY, NORFOLK.

YOUELL AND CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality:—

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15*s.* per pair. For particulars, see last week's *Gard. Chron.*

Also "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s.* per pair.

CARNATIONS AND PICOTEES.

				£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers, by name				2	10	0
25	ditto	ditto	ditto	5	0	0
12	ditto	Fine Show Flowers	ditto	1	10	0
25	ditto	ditto	ditto	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12*s.*

HYACINTHS, Double and Single, Blue, Red, White, and Yellow, very fine, 6*s.*, 12*s.*, and 18*s.* per dozen.

Extra fine TULIPS, by name	12*s.*	per dozen.
Ditto ditto Mixed, from named flowers	21*s.*	per 100.
Fine ditto ditto ditto	16*s.*	,,
CAMELLIAS, fine sorts, by name	30*s.*	per dozen.
FUCHSIAS, extra fine, ditto	12*s.*	,,
CHRYSANTHEMUMS ditto ditto	12*s.*	,,
VERBENAS ditto ditto	6*s.*	,,
PETUNIAS ditto ditto	9*s.*	,,
PANSIES ditto ditto	10*s.*	,,
Ditto, very best first-rate Show Flowers	18*s.*	,,

CINERARIAS, extra fine sorts, by name 12*s.* to 18*s.* ,,

Also their New Superb Seedling CINERARIA, "No. 1," named "NORFOLK HERO," 5*s.* per plant; the following description of it will be found in the *Gardeners' Chronicle*, May 31, 1845:—"Y Y—No. 1 is a very fine specimen of a creamy-white, dark disk, very broad petals and flowers, unusually large, measuring 1¼ inches in diameter."

ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

HERBACEOUS PLANTS, fine sorts, 6*s.* to 9*s.* per dozen.

ARAUCARIA IMBRICATA.

2 years old	9*s.*	per dozen.
3 ,,	12*s.*	,,
4 ,,	18*s.*	,,
5 ,,	30*s.*	,,
6 ,,	60*s.*	,,
Cedrus Deodar, 1 year, fine	18*s.*	,,
,, ,, 1 foot	30*s.*	,,
Pinus excelsa, 3 inches	9*s.*	,,
,, ,, 4 to 5 inches	18*s.*	,,
,, ,, 18 inch, fine bushy plant	42*s.*	,,
,, Gerardiana, 2 years	30*s.*	,,
Abies Khutrow, 2 years	9*s.*	,,

RIBES SANGUINEUM FLORE PLENO 10*s.* 6*d.* per plant.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s.* per 100.

"PRINCESS ALICE MAUDE," ,, 10*s.* ,,

YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12*s.* per dozen. Roots placed in a cellar or closet in October and November will be fit for cutting in December.

Great Yarmouth Nursery, Oct. 18.

TO THE PLANTERS OF BRITAIN.

HIGHLAND PINE TREE.

JAMES GRIGOR, Nurseryman, Norwich, begs to inform the Planters of Britain, that he has commenced sending out plants of the HIGHLAND PINE TREE, or Red-wooded Fir of Scotland, so celebrated for its durability, &c., being better than any other for Railway Sleepers. Every plant is packed either by J. G. himself, or under his immediate superintendence.

Plants 1 to 2 inches	5*s.*	per 1000
,, 4 to 6 ,,	10*s.*	,,
,, 6 to 12 ,,	20*s.*	,,
,, 15 ,,	30*s.*	,,
,, 18 ,, very strong	5*s.*	per 100
2 feet, beautifully branched, 4*d.* each.		
Do. do. in pots, 6*d.* each.		

"The wood of this tree remains fresh, embalmed in its own turpentine."—*J. C. Loudon.*

"I very particularly admire the Highland Pine; its growth, and leaf, and bark, are beautiful. I shall be truly proud of my first specimens, of which I beg you will send me 1000 of your finest for trial. I am very much obliged to you for calling my attention to trees of such value."—*Newcastle (Duke of)*, Clumber, Dec. 2, 1844.

N.B.—J. G. has paid the closest attention to the formation of FENCES and the best mode of introducing the ALLOTMENT SYSTEM. On these subjects, or either of them, J. G. may be consulted on very easy terms: for his mode of forming Fences, he has been awarded the Royal Agricultural Society's prize of 20*l.*—Norwich, Oct. 18, 1845.

GAINES'S Unrivalled Lists of PELARGONIUMS, PANSIES, CALCEOLARIAS, FUCHSIAS, AURICULAS, CHRYSANTHEMUMS, CINERARIAS, CARNATIONS, PICOTEES, CORRÆAS, VERBENAS, CAMELLIAS, &c. &c., for 1846, are now ready for distribution, and may be obtained at the Nursery, Surrey-lane, Battersea.

P.S.—The young stock are in fine health, also his six new seedling ACHIMENES are now ready for delivery in dry bulbs, at 30*s.* the collection.

SEEDLING CAMELLIA.

MR. CHARLES FARNES begs to inform Nurserymen, and others, that he has on sale the stock of a splendid Seedling Camellia raised by a person in the country, and which will be disposed of at a reasonable price. A plant of it is now in bloom, and may be seen, and the price and other particulars known by applying at his Seed warehouse, 128, St. John's-street, West Smithfield, London.—Oct. 18.

BECK'S SEEDLING PELARGONIUMS OF 1844.—The following varieties are now ready for selection, well established in 4½-inch pots, and will be delivered free in London, *for prepayment only*, package included:—

Rosy Circle	£1	1	0	Desdemona	£1	1	0
Sunset	1	1	0	Mustee	1	1	0
Juno	1	1	0	Isabella	1	1	0
Marc Antony	1	1	0	Favorita	0	10	6
Margaret	0	10	6	Zenobia	0	10	6

Or the set for 7*l.* 7*s.*

No orders can be received without a remittance. Priority of payment shall ensure priority of selection.

Worton Cottage, Isleworth.

TWENTY-FOUR GOOD VERBENAS FOR 12*s.*, hamper and package included, and plants added to compensate for long carriage. They have been selected from a large variety for their large trusses, good habit, and distinction of colour, and have been exhibited several times this summer as single specimens and in trays, and obtained all the prizes. They are good rooted plants, some in bloom and some are coming into bloom.

EMMA, dark maroon purple.
BEAUTY SUPREME, lively pinkish-salmon.
EXCELSA, deep reddish-rose.
ROSA ALBA, bright rose, mottled with white.
ZEUXIS, dark rose.
MORTLOCK'S, superb crimson, yellow eye.
AZUREA GRANDIFLORA, dark rose, marbled white.
RENOWN, rich dark scarlet.
DEFIANCE, dazzling scarlet.
BLUE QUEEN, marbled lilac with white.
AMETHYSTINA, the best blue known.
LOVELY RAMBLER, lilac, marbled flesh-colour.
BRIDESMAID, light lilac.
TWEEDIANA MAGNIFLORA, pink, yellow eye.
DELICATA, French white, dark eye.
ARRAY, bright scarlet, yellow eye.
FORTUNE-TELLER, bright pink.
TRESOR PARFAIT, lilac, striped deep purple
MINSTREL BOY, deep rose, yellow eye.
HOWARDII, rose, changeable to white.
BOULE DE FUE, bright light scarlet, dark eye.
PRINCESS ROYAL, good white.
THE GIANT, light lilac, ple eye.
THE FAVOURITE, bright dark eye.

All orders with a remittance will be strictly attended to.

CHRISTOPHER JOPLIN, Gardener and Florist, Knaresborough, Yorkshire.

LA REINE.—This splendid PERPETUAL ROSE, which was introduced in autumn, 1843, has proved itself this season to be the finest ever yet raised.

R. B. BIRCHAM, HEDENHAM ROSARY, BUNGAY, SUFFOLK, begs to state that he has upwards of 2000 good plants worked upon stems varying in height from two to four feet; also several hundred strong dwarf plants (own roots) bedded out. R. B. B. will be happy to supply Nurserymen and Florists with the above upon advantageous terms per dozen, or half dozen plants. He has also a large stock of PERSIAN YELLOW ŒILLIET PARFAIT, SOLFATERRE, SOUVENIR DE LA MALMASON, &c. &c. A Descriptive Catalogue, including the most Select Roses in cultivation, will be forwarded upon prepaid application. All orders carefully executed, and forwarded to London by the Norwich Railway, carriage paid.

A remittance or reference is respectfully requested from all unknown correspondents.—Hedenham Rosary, Oct. 18.

"CASSANDRA" AND "KING OF SAXONY."

ROYAL SLOUGH NURSERY, NEAR WINDSOR.

W. C. BROWN begs to state that he has ready the above-named beautiful PANSIES; the first, a clear white ground, good eye, large finely-shaped flower, with light blue lacing; the latter, the finest large dark flower yet produced, being a model for shape; and both ordered by most growers that have seen them. Price 7*s.* 6*d.* each, for cash with order. His general List contains every novelty of the season, of which a few of the best are, Monarch, Pizarro, Black Prince, Conservative, Desirable, Princess Alice, The Baron, Purpurea elegans, Maid of the Mill, Rolla, Arethusa, Bolina, Oliver Moonshine, Cloth of Gold, Queen of Whites, Magrath, Model of Perfection, Goldfinder, Giant, Addison, Prospero, Dido, Tom Pince, Juno, Hero of Bucks, Orlando, Isabella, Purity, Delight, President, Orion, Pereseus, Pitho, Baroness Wenman, Lubentia, Countess of Sefton, Fireball, Marginata, White Serjeant, Madonna, Curion, &c.

W. C. B. can recommend his ROSES, for which the Nursery is famous; also standard and trained Fruit Trees, Evergreens, American and Greenhouse Plants. The Fuchsia List, in the spring, will contain more novelties than that of any other nursery.

CONIFERS.—Most beautiful specimens of the rarer hardy kinds; and although Royalty has been pleased to select from them, there are still specimen Plants not to be met with elsewhere. For the Conservatory, or milder counties, will be found large Damaras, Dacrydiums, Phylloclades, Podocarpus, Taxodiums, &c.

PICOTEES—MATTHEWS'S "ENCHANTRESS," AND "NE PLUS ULTRA."

C. TURNER having executed all orders he has received for the above popular flowers, begs to state that he has a few more strong healthy pairs of each. Enchantress 15*s.*, Ne Plus Ultra 10*s.* 6*d.*, or one pair of each on receipt of a remittance of 1*l.* 1*s.*

C. T. can supply a few more pairs of his beautiful New Pinks. Also now ready, the following choice Pansies:—Collisson's Perseus and Juno; Bragg's Goliah; Hunt's Hamlet; Turner's Pitho, Dido, &c., with all the leading kinds in cultivation.

Chalvey, Slough, Oct. 18.

ORANGE TREES FOR SALE.—Seven large plants of ST. MICHAEL, and other Sweet sorts, well grown, good stems and heads, from the ground full 11 feet high. If purchased and taken away immediately, will be sold a bargain.

For further particulars, inquire of Mr. JOHN SHILLING, Kingston-on-End; or of Mr. M. SHILLING, Northwarnbro' Nursery, Odiham, Hants.

FOR SALE.—A fine Lot of Standard and Dwarf trained PEACH and NECTARINE TREES of the choicest sorts; also many fine trained MORELLA CHERRY TREES, all coming into bearing next season. A very good collection of Carnations and Picotees, all of the named and newest sorts. —Apply to G. MOORE, at Mr. Ralph's, opposite Messrs. Lee's Nursery, Hammersmith.

IALONA CŒLESTIS.

J. AND J. BEST having a large Stock from the Cutting-pot of the above, beg to recommend to those who are desirous of obtaining a stock for bedding out next Spring, this opportunity. Plants can be forwarded (per post), free, 1*s.* per doz. A remittance, or reference, is respectfully requested.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (removed from Walworth,) by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

	£	*s.*	*d.*
100 TULIPS, in 100 fine sorts, named	7	7	0
100 Ditto in 50 ditto	5	5	0
Superfine Mixtures, per 100, from 7*s.* 6*d.* to 21*s.*			
25 HYACINTHS, in 25 fine sorts, named	1	5	0
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 7*s.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named	2	2	0
A New Collection of 50 Superfine sorts	1	5	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto	2	10	0
25 pair of PICOTEES, in 25 ditto ditto	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto	3	10	0
Good kinds, per doz. from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
,, ,, PUNCTATUM ,,	0	7	6
,, ,, SPECIOSUM, (true) from 21*s.* to	3	3	0

H. Groom begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.
Foreign Orders executed.

THE FOLLOWING NEW AND RARE PLANTS may be purchased at the prices annexed, at MASTERS'S EXOTIC NURSERY, CANTERBURY:—

Azalea præstantissima exquisita	5*s* 0*d*	Chrysanthemum, from Chusan	5*s* 0*d*
,, lateritia grandiflora		Cestrum aurantiacum	2 6
,, blanda		Habrothamnus cyaneus	2 6
,, rosea purpurea		Gastrolobium spinosum	2 6
Antirrhinum, 10 new kinds, each	1 6	Jasminum ligustrinum	3 6
Anagallis Mastersiæ, new	5 0	,, spes., China	3 6
Begonia manicata	2 6	Lychnis viscaria alba	3 6
,, dumentacea	5 0	Mussænda macrophylla	21 0
Eight other species, at	2 6	Phlox of 6 new kinds, each	1 6
Bouvardia lucida	2 6	Psedera fetida	5 0
Campanula spes., from China	2 6	Rhexia, from China	10 6
Caprifolium Brownii	3 6	Spiræa Douglasi	2 6
		,, from China	2 6
		Stigmaphyllon, of 2 sp.	3 6
		Veronica, from N. Zealand	3 6

Mr. Masters has received a large collection of Dutch named HYACINTHS, NARCISSUS, DOUBLE ANEMONES, RANUNCULUS, TULIPS, &c. &c., for which he solicits early commissions.—Exotic Nursery, Canterbury, Oct. 18.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 1*s.* per dozen. Dutch Hyacinths for forcing at 4*s.* per dozen: also Narcissus, Tulips, Iris, Jonquils, Anemones, and Ranunculus, from 1*s.* to 12*s.* per dozen. Large Dutch Crocus, 2*s.* 6*d.* per 100; at A. Corbett's Italian and Foreign Warehouse, 18, Pall Mall. Priced Lists per post, &c.

TO NURSERYMEN, &c. &c.

JOHN BETHAM, Custom-house and General forwarding Agent (with thanks for favours conferred), begs to inform the above, that he continues to Receive and Forward consignments of PLANTS and SEEDS, with strict attention, despatch, and moderate charges.
Every information given as to the Arrival and Departure of Vessels to or from Hamburgh, Rotterdam, Antwerp, Ostend, Havre, Calais, or Boulogne; also, the United States, Scotland, &c. &c.—Cox and Hammond's Quays, Lower Thames-street, London, October, 1845.

USHER'S TWELVE SPLENDID CALCEOLARIAS OF 1845.

WM. JACKSON and CO., Nurserymen, beg to state, in answer to numerous correspondents, that the CALCEOLARIAS advertised by them are USHER'S SEEDLINGS OF 1845, and quite distinct from those in the hands of another party: as a proof of which, and for the satisfaction of all who have already ordered them, they quote the following from Mr. Usher's letter:—"Your Collection is quite distinct from his (Mr. May's), and in no way inferior."
Wm. J. & Co. can recommend with the greatest confidence their Selection, and particularly call attention to the very moderate prices at which they are quoted.—See Advertisement, Oct. 4. They were much admired when in bloom by several competent judges, all of whom gave orders. Dried specimens may be seen at the Office.—Cross-lanes Nursery, Bedale, Yorkshire, October 18.

MESSRS. TYSO and SON, Wallingford, Berks, respectfully invite the attention of the Nobility, Gentry, and the Public, to their Extensive Collection of TULIPS, RANUNCULUSES, ANEMONES, CARNATIONS, PINKS, PICOTEES, &c.

TULIPS,

In beds, containing an equal number of Roses, Byblomens, and Bizarres, under name, arranged for planting, as under:—

	£	*s.*	*d.*
1st Assortment.—A bed of 30 rows, or 210 bulbs, including many extra fine new sorts	20	0	0
A bed of 40 rows, or 280 bulbs, ditto	25	0	0
2nd Assortment—A bed of 30 rows, including many very fine sorts	12	0	0
A bed of 40 rows, ditto	15	0	0

RANUNCULUSES.

Messrs. T. and Son having cultivated this beautiful flower with unparalleled success, are enabled to supply strong roots of their Seedlings, and other fine varieties, adapted for competition. They obtained first Prizes this season at Chiswick, June 21st; and at the Surrey Gardens, June 25th.

	£	*s.*	*d.*
Carnations, 25 superb named sorts, one pair of each	£2 and 3	0	0
Picotees, 25 ditto ditto	£2 and 3	0	0
Pinks, 25 ditto ditto	£1 and 1	10	0

Messrs. T. and Son's General Descriptive Priced Catalogue may be had, gratis, on pre-paid application, inclosing two postage labels.

LISIANTHUS RUSSELLIANUS, *var. grandiflora.*—Having a fine healthy stock of this beautiful Greenhouse plant, we have the pleasure of offering strong plants at 2*s.* 6*d.*, smaller ones 1*s.* 6*d.* each, or 1*s.* advance per post, with direction for its culture. Discount to the trade when 12 or more are ordered. — Dicksons and Co., 1, Waterloo-place, Edinburgh.

CAPE BULBS.

J. CARTER, Seedsman and Florist, No. 238, High Holborn, London, begs leave to inform his customers and the public in general, that he has just received a large collection of BULBS from the Cape, which may be had at the annexed prices:—

AMARYLLIDACEÆ.	each—*s.*	*d.*
Amaryllis Josephiniana	20	0
smaller bulbs	10	0
Ammocharis coranica	7	6
falcata	5	0
glauca	7	6
Brunsvigia multiflora	10	0
smaller bulbs	5	0
minor, *quite distinct*	5	0
Buphane ciliaris	5	0
disticha major	5	0
Crinum capense	1	0
aquaticum	1	0
Cyrtanthus obliquus	3	6
puniceus	3	6
spiralis	3	6
Hæmanthus albiflos	3	6
coccineus	2	6
hyalocarpus	3	6
quadrivalvis	3	6
tigrinus	2	6
Nerine species	1	0
Strumaria spiralis	1	6
undulata	1	6
Vallota purpurea	3	6

LILIACEÆ, &c.	each—*s.*	*d.*
Albuca, large species	2	6
Bulbine pugioniformis	2	6
Drimia altissima	3	6
Eriospermum lanceæfolium	2	6
Eucomis nana	2	6
Ornithogalum aureum	0	6
Veltheimia viridifolia	2	6
ORCHIDACEÆ.		
Satyrium cucullatum		
,, erectum		
MUSACEÆ.		
Strelitzia juncea	7	6

Also the following Bulbs from South America:—

Amaryllis, 3 sp., each	2	6
Ismene species	2	6

J. Carter's Autumn Catalogue of genuine DUTCH BULBS, &c., is now ready, and will be sent, prepaid, on application as above.

QUICK OR WHITETHORN.

YOUELL & Co. beg to call the notice of Agriculturists and Railroad planters to their fine and clean Stock of the above at the following prices:—
Fine 1 year, 1 foot in height, and about the thickness of a middling sized straw 4*s.* per 1000.
Fine 1 year transplanted 9*s.* ,,
Extra fine, 2 years transplanted 12*s.* ,,
Samples may be had on application. — Great Yarmouth Nursery, October 18.

T. DAVIES and CO. beg to offer the following Seedlings and other New and Rare Plants:—

SEEDLING CALCEOLARIAS,

The flowers of which were sent to Dr. Lindley for his opinion, who spoke of them as follows.—See *Gardeners' Chronicle*, July 12, 1845.—"J. D.—Of bright yellow grounds, spotted with brown; 1, 2, 10, and 8 are very fine varieties, large and well formed; 13 is too much like 10; 11 too nearly resembles 8; 9 and 14 are good, but more common; 5, primrose-ground, singularly spotted, attractive, but flat and long in shape; 6 and 7 delicate yellow, with brown spots, both good; 4, cream, with deep cherry blotch, well formed and good in colour—this is a very good collection of Seedlings, large and well formed:" at the following prices, or the set for 2*l.* 10*s.*:—

	s.	*d.*
1. Lord Sandon	5	0
2. David	5	0
3. Miss Davies	3	6
4. Masterpiece	3	6
5. Delight	3	6
6. Compacta	3	6
7. Vesta	3	6
8. Horatio	5	0
9. Sparkler	3	6
10. Intrepid	5	0
11. Mutabilis	3	6
12. Sultana	3	6
13. Challenger	5	0
14. Cleopatra	3	6
15. Lovely Ann	3	6

Many of the above are half shrubby, and of dwarf bushy habit; they gained the first prize at both May and June Shows, at the Liverpool Botanic Gardens, and were much admired.

CAMELLIA EMPEROR.

This splendid variety was sent out last autumn, but owing to the limited stock, many of their friends were disappointed; they now beg to inform them that they can supply strong healthy plants, 9 inches to 1 foot high, at 2*l.* 2*s.* It will be remembered that this flower gained a prize at the Horticultural Society's Rooms, and was described in the Report of the Meeting as being a beautiful flower.—See *Gardeners' Chronicle*, March 25, 1843.

CEREUS GRANDIFLORUS RUBRA.

This singular variety was also sent out last autumn; the flowers are 10 inches in diameter, of a bright red colour, with a shade of purple in the centre; it expands about seven o'clock in the evening, and continues in bloom most of the following day. Price 5*s.*

NEW AND RARE PLANTS.

	s.	*d.*
Echites splendens	10	6
Gardenia Sherbourniana	5	0
Stigmaphyllon heterophyllum	2	6
Tropæolum Lobbianum	2	6
Nerium Oleander Tangle	2	6
Fuchsia Queen Victoria (Smith's)	10	6
Lilium lancifolium album 2*s.* 6*d.* to	5	0
,, ,, roseum	5	0
,, ,, speciosum 7*s.* 6*d.* to	30	0
Primula sinensis pleno	5	0
,, ,, alba	3	6
Camellias, in 100 vars., well set with flower-buds 2*s.* 6*d.* to	21	0
Hindsia violacea	10	6
,, longiflora	3	6
Diplodenia crassinoda	5	0
Vessalia floribunda	3	6
Hoitzia coccinea	2	6
Rhododendron chrysoloctum	42	0
,, carnea elegantissima	10	6
Ilex latifolia 7*s.* 6*d.* to	10	6
Berberis tenuifolius 5*s.* to	7	6
Araucaria imbricata, 6 to 9 inches, per 100	90	0
Cloth of Gold Noisette Rose	2	6
Solfaterre do.	2	6

A large collection of Hybrid Perpetual, Bourbon, and other Roses, on their own roots, from 12*s.* to 24*s.* per dozen.
A choice collection of Ericas, Geraniums, Fuchsias, Chrysanthemums, Verbenas, &c., of which Catalogues may be had on application.
Wavertree Nursery, near Liverpool, October 18.

SELLING OFF.—Seventeen Acres of NURSERY STOCK, consisting of FOREST and FRUIT TREES, EVERGREEN and FLOWERING SHRUBS and TREES, &c. For Priced Catalogues, apply to Richard Mitton, Nurseryman, Pontefract.—Oct. 18, 1845.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.
"Mr. Hunt's new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*
"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*
"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*
See also "Paxton's Magazine" for December, &c.
Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nursery men, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

White Lead, per cwt.	26*s.*	0*d.*	
Linseed Oil, per gall.	2	3	
Turpentine	3	3	
Warranted Varnishes and Colours.			

	s.	*d.*
Milled Lead in Sheets, per cwt.	21	0
Cut to Size	22	0
Pipe all Sizes	22	0

BEE, PROPAGATING, AND GRAPE GLASSES.
Complete Lists (priced) of Glass, Colours, Brushes, and all Materials may be had gratis, on application to R. Cogan, 5, Princes-street, Leicester-square, London.
French Ornament Shades for covering Ferns, Clocks, Models, &c.; Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

FOREIGN SHEET GLASS, for Horticultural purposes, cut to any dimension within 30 inches by 24 inches, at 5*d.* per foot superficial, at Frederick Elphick's, 28, Castle-street East, Oxford-street. For Ready Money only.

SMALL GLASS FOR HOTHOUSES AND GARDEN LIGHTS

5 by 1½ / 4 2 }	at 1*d.* per foot.			5 by 2 / 4½ 2½ }	at 1½*d.* per foot.			
	per Gross.				per Gross.			
80,000 squares	6 by 4	at	9*s.*	90,000 squares	8 by 6	at	18*s.*	
60,000	6½	4½	11	11,000	8½	6½	20	
30,000	7	5	13	80,000	9	7	22	
12,000	7½	5½	15	40,000	10	8	30	

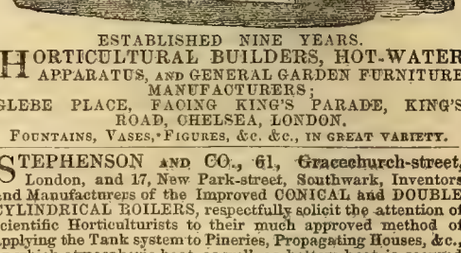
Striking Glasses, Bee Glasses, Fish Globes, and French Shades for covering Ferns and Ornaments
R. Cogan, Glass, Lead, and Colour Works, 48, Leicester Square.

FOREIGN WINDOW GLASS.

THOMAS MILLINGTON continues to import large Quantities of FOREIGN GLASS, of the very best manufacture, which may be had upon the very lowest price.—Direct to Thomas Millington, 87, Bishopsgate-street Without.
Manufacturer of all kinds of Pumps, Colours, Paints, Varnishes, &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.
D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.
D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.
D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.
D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

SMITH AND CO.



ESTABLISHED NINE YEARS.
HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, and GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.
Fountains, Vases, Figures, &c. &c., in great variety.

STEPHENSON and CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.
S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.
Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

CROSS-LANES NURSERY, BEDALE, YORKSHIRE.

THE BEST NEW CINERARIAS OF THE SEASON.

W. JACKSON & Co., Nurserymen, beg to refer the readers of the *Gardeners' Chronicle* to their advertisement of the 4th instant, for particulars of the above unrivalled CINERARIAS; also Usher's Twelve Splendid New Seedling CALCEOLARIAS, which they are sending out at the following very reasonable prices, basket and package included.

CINERARIAS, first set of five varieties .. .. 30*s.*
Ditto, second ditto .. .. 20*s.*
The whole Collection, ten distinct varieties .. .. 42*s.*
CALCEOLARIAS, first set of six varieties .. .. 30*s.*
Ditto, second ditto .. .. 20*s.*
The whole Collection, twelve distinct varieties .. 45*s.*

W. J. and Co. will be glad to keep the Plants until Spring for those who may request, and early orders are solicited to prevent disappointment.—Oct. 18.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 18, 1845.

The cultivation of the Hyacinth has been so fully explained in previous Numbers of this Paper, that we find nothing to add to the advice which has been given, except one thing, and that is—never to use cold water. When the bulbs are first placed in the neighbourhood of the water, let it be lukewarm; whenever fresh water is added, whenever it is changed, let it still be lukewarm.

Those who have not studied the effect of this kind of management will hardly believe how great the difference is between the same sort of Hyacinth drenched from time to time with ice-cold water, fresh from the pump or cistern, and that which is nursed with tepid water. The effect is rendered still more beneficial if four drops of a saturated solution of sulphate of ammonia are added to every pint of water. This is equally the case whether the bulbs are in glasses of water or pots of earth. Under ordinary management the roots are chilled every time that water is applied. The Scythians are said to have thrown their children into their rivers, even although frozen, as soon as they were born; and this practice is applied by 99 people in 100 to their Hyacinths. They may depend upon it, that whatever may have been the case with Scythian children, oriental Hyacinths cannot bear it. Each application of cold water to their roots gives them a check, and each check tends to diminish their capability of flowering well.

It is doubtless true that Hyacinths in the open border flower very well without warm water; but then we are to remember that the roots of the bulbs formed in the ground are hardy, and have never been accustomed to warmth; but in a sitting-room the roots are born in warmth, nursed tenderly, and quite in a different condition from those which are formed out of doors. The rot in Hyacinth bulbs is not unfrequently caused by the neglect of this principle; already in a languishing state, from some original debility, such bulbs require more warmth than usual and receive less. The tender tissue, chilled by the icy fluid that bathes it, dies and putrifies. It assumes the condition of the Potato murrain. Had warmth, the great stimulant of all vitality, been applied, the tissue, tender as it was, would have been excited into action, and soon would have revived under its genial influence.

The best proof of this is the fact that a Hyacinth bulb, in a state of rapid putrefaction, while kept in contact with the cold water of a Hyacinth-glass in a dwelling-house, entirely renewed its vitality when removed to a warm situation. The annexed cut represents a case of this sort:—In this instance the decay had eaten completely through the base of the scales into the very heart of the Hyacinth, which was literally putrid. The foul slimy matter was wiped off, and the bulb was placed, its base upwards, on a layer of warm sand, covering the bottom of an earthen pan. The sand was moistened with water of a temperature of 80°, or thereaboats; a bell-glass was placed over the bulb, with its edges pressed into the sand; and the apparatus was placed on a shelf near a north window, about 4 ft. above an Arnott stove in constant action. From time to time warm water was given by pouring it upon the sand between the edge of the earthen pan and the side of the bell-glass. Decay was immediately arrested; for some time the bulb remained dormant; but by degrees healthy granulations made their appearance, displacing the decayed matter; and in a few weeks a fine crop of young bulbs sprouted forth on the surface of the scales, and on the edges of the healed-up sores.

This result, which was extremely curious, was entirely owing to the stimulus exercised by warmth upon the flagging vitality of the bulb. Had not the warmth been applied the whole of the plant would soon have passed into a state of irremediable decomposition. Nothing could have been more interesting than to watch, day by day, the organic forces of the dying plant exercising their plastic power in the development of tiny scales out of the fleshy tissue of the Hyacinth; to see those scales arrange themselves in the form of miniature bulbs, one sprouting out of the bosom of the other, but still nestling close within it; and at last to behold a new brood of tiny Hyacinths crowding the space which so lately was the seat of corruption and death. It was a verification of the fable of the dragon's teeth.

Another thing that warmth will do is to compel the unwilling Hyacinth to form roots. How often does it happen that the bulb, when placed over water, pushes forth leaves, without roots. If this is allowed to go on the plant becomes top-heavy, and tumbles out of the glass; or if that is prevented still it flowers badly. Whenever this is remarked additional warmth should be applied. A convenient way of proceeding is this. When a Hyacinth bulb shows no sign of putting forth roots, at the same time that its bud begins to swell, fill the glass with milk-warm water to within an inch of the bulb; wrap up the whole in warm flannel, and station the glass thus prepared, in a *warm* closet. This operation will not need repetition, for in general roots will come out in three or four days afterwards. As soon as the roots are a quarter of an inch long, add as much warm water as will just touch the tips of the roots, and again leave the plant, still wrapped in flannel, till the roots are half an inch long. When that is the case danger is over; the flannel may be removed, the bulb exposed to light, and no other care is requisite than that of still guarding against cold water.



We shall return some day to the case of the Hyacinth bulb, above represented, for the sake of drawing attention to the manner in which bulbs or buds are formed by plants, as that instance demonstrates; but we defer doing so till a little additional experiment now in progress shall have been brought to a conclusion.

The substance of the communications on Potatoes which have reached us since our last, and are not printed elsewhere, is as follows:—

A steep of chloride of lime continues to be recommended as a means of preventing the rot spreading beyond the surface; but we find no evidence of its success, and think we can answer for its failure. Potatoes once tainted are incurable by any known process; about that we entertain no doubt. We do not believe that paring away all the infected part, although but skin deep, will be of any real service.

The extraction of flour is evidently the only practicable course, except that of feeding cattle; and we hear that the operation has been adopted in many places with great success. Large quantities of Potato flour have been prepared at Cheltenham, and the process is being adopted even in Middlesex, where the decaying Potatoes have been sold for 6*d.* a sack. From a new issue by the Hadleigh Club of the memorandum we published a few weeks since, we learn that "Mr. J. Rand, the Vice-President of the Club, has employed women to grate about 30 sacks of bad Potatoes (grown on his own farm), at a cost of 2*s.* the sack; and has ascertained that from one sack he obtained 17 lbs. of flour. Mr. A. Smith, Clerk of Layham, has extracted 30 lbs. of flour from about 5 bushels of bad Potatoes, part of the produce of his allotment, and has refused 6*d.* the pound which was offered him for his sample. Mr. W. Baker, carpenter, at Hitcham, has long been in the habit of procuring Arrow Root from the shops at 1*s.* 4*d.* per lb., for an invalid wife, who uses a good deal of it; but he now finds that he can prepare, from his bad Potatoes, an article equal to what he is accustomed to buy. At the Cosford Union House about 40 sacks of Potatoes, grown on the premises, proved too bad for use; these are undergoing the process, and a large quantity of flour has already been procured. Since a bushel of sound Potatoes, in the early part of the season, may be made to produce from 11 to 12 lbs. of this flour, of a most superior quality, quite equal to what is sold very frequently as Arrow Root, &c. from 1*s.* 6*d.* to 2*s.* 6*d.* the lb.; and since the prime cost of a bushel of Potatoes may be estimated, in most seasons (to the growers themselves), at 6*d.* to 1*s.*, it should seem, that whilst the Potato flour may command a marketable value which would remunerate the labour bestowed in its manufacture, it may often be prepared by the growers themselves, for home use, at a prime cost of ½*d.* or 1*d.* per lb."

All the supposed difficulties in extracting the flour are removed, except the want of good machinery, and we suppose that some day the machine makers will have something to propose on that subject. What would answer the purpose best seems to be a flat pierced iron grater, forming the bottom of a trough, and having a rapid horizontal motion. Upon this trough the washed Potatoes should be pressed, and a vessel placed below it would catch the pulp.

It now appears that the drying the flour is a very simple process. Mr. Lloyd, of Whittington, near Oswestry, gives the following instructions on this head:—"Procure a number of strong linen bags washed clean, and quite free from lint. Let them be about 2 feet long, and one foot wide, when empty. Put the wet flour into the bags, and having tied them up at the top, hang them up to the ceiling in a kitchen where there is a fire, until dry. This plan has been practised in my house for several years, when making Potato starch. The Potato flour forms in lumps, which are easily broken. The bags not to be too near the fire."

As to that most important point, the state of the crop, we have been all along acting upon what we knew to be certain intelligence. So far from taking an exaggerated view, we have every day more reason to believe that affairs are worse than we represented them; for we have always believed that the Scotch and Irish crop was pretty safe; although our Northumberland intelligence certainly produced some misgiving even as to that. We knew that the murrain had appeared in Ireland, in a very decided form, and we said so: but we trusted that it might be local, and we had no bad news from Scotland.

We now, however, regret to say that although the crops are reported to be safe in some places, as about Aberdeen, yet that our Scotch news is upon the whole most alarming. We learn from letters from the south of Fife, that the Potatoes there have "much the appearance of bruised Apples," which is exactly our English murrain; that "at Alloa they are mostly rotten;" that one grower of 1400 bolls finds a large part of his crop in a state of decay, and that generally in that part of the country the Potatoes are diseased "wherever they have been looked into;" that the evil has declared itself in patches near Arbroath, and that complaints as to the state of the crop are heard at Hawick, Roxburghshire. The worst of it too is the almost certain over-confidence of Potato-growers, many of whom do not know the disease when they see it, unless it has arrived at an advanced stage: so that their crops are probably worse than they anticipate.

Mr. Arthur, the author of a useful pamphlet on the Potato, formerly noticed in our columns, assures us that throughout the counties of Fife, Perth, Angus, Morayshire, and the vicinity of Dunbar, the disease is more or less apparent in every field, and that it exists even in Aberdeenshire.

In Ireland matters seem to be worse. Although the statements which we found it our duty to make were lately declared to be exaggerations, and the existence of the murrain in Ireland was either denied altogether, or asserted to be trifling and quite local, yet it now appears from the Irish papers that the Potato-murrain is raging in that country, and that the most formidable consequences are anticipated. The *Cork Examiner* is even of opinion that the Irish Potato crop is so diseased that the Government is imperatively called upon to throw open the ports without delay, for the free admission of foreign corn. Leaving this matter to our political contemporaries, we shall confine ourselves to the facts which have been announced since our last.

First, then, Mr. Dillon Croker, in a letter to the *Constitution*, draws the following picture of the crop in the county of Cork:—

"I came here (Lord Kingston's), yesterday, and grieve to say I found all in this part of the country labouring under the delusion that the pesti-

lence had not reached them, and that all their Potatoes were sound; but alas! in a drive of eleven Irish miles, I found every field more or less affected. I stopped on the road wherever I saw the farmer digging Potatoes: I asked if the crop was sound? Invariably was I answered 'they were perfectly so,' but on going into the field I had little trouble in speedily convincing each that such was not the case, having in most instances shown that the plague had made fearful ravages. My letters from London and Liverpool were treated as idle chimeras. Some gentlemen told me it was all fancy, and originated in my own brain, and that I exaggerated, and that my fears were groundless; those very persons have been obliged, from sad experience, to tell me that I was right; that their Potatoes, which were perfectly sound when I wrote are now gone."

The *Limerick Chronicle* says that "in the county of Limerick, the fields show unequivocal symptoms of the rot. At Cahirelly the disease was first observed, and subsequently at Fedamore, where 12 acres were opened, and the spade labourers left off work on finding the plant was not worth raising; the evil was also apparent at Coolyhenan and other parts of the country, *where no suspicion of the kind was entertained.*"

The *Belfast Chronicle* says "that the crop is as defective as report has represented, and it cannot be denied that the rot in that part is *general*." The *Belfast Protestant Journal* writes that "the accounts from the towns round Belfast are discouraging; and there is no doubt that, both in Down and Antrim, the disease has spread to a serious, though not an alarming extent. At Antrim, a few days ago, Lord Massereene sold some Potatoes, in the ground, at the high price of 36*l.* per acre. They looked well; but so extensive has been the ravages of the rot, that the purchasers are greatly disappointed, and would gladly withdraw their agreement. Similar accounts have reached us from other places." The *Drogheda Conservative* informs us that farmers, and poor cottiers who rent Potato-ground in that neighbourhood, are sufferers to a large extent, the disease having destroyed several fields. "We have seen some of them; they present, on being cooked, a dark spongy surface, emitting a sour smell; again, some are perfectly good on one side, the other presenting the appearance of being bruised; these, if allowed to remain a night in the house, become completely black."

If such is the state of affairs in Europe, our transatlantic friends can scarcely boast of better fortune; for the Canadian and New Brunswick papers are full of evidence as to the alarming existence of the Potato murrain, which, in fact, was first heard of in America. From these, it appears that the disease is universal in New Brunswick, in all kinds of land, whatever the manure employed, or the seed planted; in Maine, New Hampshire, Massachusetts, Vermont, New York, and throughout Canada, where, as in England, the crop is represented as being to a great extent unfit for use.

Nevertheless, we think it right to mention that Mr. Paxton is reported to have stated at the dinner of the York Horticultural Society, that, "having had an opportunity of visiting nearly every part of England during the last three or four weeks, he had arrived at the conclusion, that there is no such extent of disease as had been represented. Certainly," he said, "a quantity of Potatoes had rotted, but the disease was principally confined to what were called the early Potatoes. In the late Potatoes, however, which formed the staple article of commerce, he believed there was no great disease." We fear that this statement applies only to the North and West of England. The *Galway Mercury* states that there is no reason to apprehend danger in that quarter. "The crops present a healthy appearance, and the produce is most abundant."

Our columns are so crowded, that we can only announce the Election of Dr. Balfour, by the Town Council of Edinburgh, to the chair of Botany in that University. We shall endeavour next week to give some account of the proceedings on the occasion.

TULIPS OF THE MIDLAND COUNTIES.

In commenting on the flowers of Nottinghamshire, I may observe, that the collections generally were in finer character than usual; and pre-eminent amongst the numerous beds in the neighbourhood was that of J. Thackray, Esq., Forest-side, who this year eclipsed all his former good blooms; in fact his well-arranged bed, filled with the choicest sorts in cultivation, was the admiration of all who saw it.

Here abounded first-rate varieties in good strain, whilst the older varieties, such as Royal Sovereign, Triomphe Royale, Norwich Baguet, Lord Milton, Abercrombie, Magnum Bonum, Lady Middleton, Lady Crewe, Queen Charlotte, &c., were as fine as stars, and as pure as good air, fine soil, and excellent management could get them. It would take greater space than could be afforded to enumerate all the varieties whose beauties were so grandly developed, but on a cursory examination the following struck me as remarkably fine kinds:—First and foremost, a seedling feathered rose, which, when I describe it as perfectly pure and superior to Lady Middleton, some idea may be formed of its excellence; in fact it was superb, and perhaps a first-rate Duchess of Newcastle is most like it of anything I know.

Lawrence's Friend, with heavy and intensely dark feather, was most conspicuous on the bed, and Violet Surpassant, beautiful and delicate in the extreme. Lady Wilmot, that most pleasing of all flamed roses, was much cleaner than usual, and certainly as good as it can be grown, and though stained, its other unique properties will insure it a place in even the most select beds, for years to come. Shakspeare, in a splendid state, was pre-eminently good, and is evidently a fine strain of this noble and attractive bizarre, whilst Bacchus, a flamed byblomen, appeared to rival it in grandeur of beam and clearness of ground-colour. Grand Rose Imperial was finely feathered, and extremely beautiful; and Penelope, a flamed byblomen, was a perfect gem, closely run by an exquisite bloom of Surpass Thalestris, flamed rose. Violet Brun and David were also first-rate flamed byblomens, and Archduke only inferior, from being slightly stained; and last, not least, were several of the Chellaston Seedlings, particularly Lady Flora, in their very best style.

Amongst the other flowers in the neighbourhood, I noticed a feathered byblomen, called La Tendresse, and from what I have since learnt from Mr. Gibbons, it is the name in which he originally let out the Maid of Orleans; however, these alterations may act as stumbling blocks to the fancy; there can be no mistake as to the qualities of the flower, which was in beautiful character, and I strongly suspect that Prince of Wales (Spencer's), Allen's Sarah Ann, La Tendresse, and Maid of Orleans, are synonymous. Of the two latter there is no doubt, and the others may be proved next blooming season.

Louis XVI. was beautiful, as good as ever it has been seen in the northern counties; and amongst other fine flowers in the same class, may be mentioned Britannia, broken in rather better style than the one at Chellaston; one or two of the petals had been injured by the frost, still it was a splendid flower. Czarrienne was very pretty, the feathering good and dark, but rather deficient in the cup, which was triangular. Europenne is a flower of fine properties, with a fine and heavy feather, and good cup. Anastasia was one of the brightest stars of the collections, and was truly first-rate, the cup was pure as possible, petals well rounded, thick and velvety, with a regular and even feather, marking in the style of a fine Louis. Three breeders were the ascertained stock last season, one of which was sent to an amateur in Lancashire in a collection of 12 named breeders, and two were kept in the neighbourhood of Nottingham; singular enough they all broke in separate hands, and all precisely in the same exquisite character.

Another feathered byblomen, which was remarkably attractive, was broken from a breeder raised some years ago by Mr. R. Dixon, of Manchester, called Sancta Sophia, quite pure, and marking in the way of a very good Washington, and will no doubt prove a valuable acquisition to the best six.

In flamed sorts, independent of a great quantity of old ones, was a fine new variety called Venus, the cup being good, and the white ground of a singularly dazzling purity, the purple flame and feather balancing well with it. Una also blooms something in the way of Queen Charlotte, the cup being hardly so long as in that variety. Prince Eli was a showy flower; petals rather thin, and the beaming hardly decided enough, still it is a desirable sort. Salvator Rosa, of which I only saw one, was too full of colour, but in its pure base, fine cup, and thick well-formed petal, I saw much to admire. Victoria Regina is a good marking variety, but of this little need be said, as no description of soil or culture appears to have any effect on its stained cup.

In feathered bizarres as usual Royal Sovereign was abundant and good, though on one or two beds where artificial manures had been tried, they had "*come*" in a sadly impure state. Imperator and Prince Rupert were very good, and a seedling styled Plantagenet (since sold to the Leeds florists) was in excellent condition. It appears to be remarkably steady, with a pure and good coloured cup, and a broad feather, and will certainly dispute the palm with Royal Sovereign.

Duke of Devonshire was in better style than last season, and is unquestionably one of the best flowers of its class. Groom's strain of Surpass Catafalque was pointed out as a finer sort than common, and in fact it was better than others on the same bed, though all were good.

Lucullus I observed blooming on an offset bed, and though weak and small, gave evidence of a superior flower; the cup was short, the inside rather pale but beautifully clear, and the feathering laid on as with the touch of a painter, so evenly as to remind me of the lacing of a Picotee.

Red feathered flowers, though not so much prized as those of a darker shade, were here in good character. I particularly marked a first row flower broken from one of Mr. Dixon's breeders called Autocrat, which was very attractive, and contrasted well with its less lovely companions around. In flamed bizarres, the most conspicuous on the beds were Captain White, Earl St. Vincent, Lord Durham, Strong's Flora, Jubilee, Lord Milton, Earl of Nottingham (new), Pilot, broken from a Chellaston breeder, with fine cup and good flame; Titian, though slighly stained, was very effective, the brilliant scarlet mingled in the flame making it highly prized. Shakspeare, Paul Potter, and Polyphemus were also good, and this class appears to have improved since last year.

Feathered roses appear to be scarce, that is to say, good ones. Here were long-cupped Heroes of the Nile, triangular Count de Virgennes, Triomphe Royales with pointed petals, and unbleached Walworth in plenty, and the really first-rate varieties were few indeed. True, there were splendid specimens of Lady Middleton, Grand Rose Imperial and Arlette, but search might be made in vain (with the exception of Mr. Thackeray's seedling before mentioned) for anything else to beat them.

In flamed roses, the pure cupped varieties are thinly scattered; certainly the best stage flower in this class which came under observation was La Van Dicken, and though an old sort was still at the top of the class; Manteau Ducal was also good; Aspasia is an excellent addition to those which have clean and short cups, and Belvoir Rose (true) very much in the style of Unique, with a clean cup, was most excellent. This flower is extremely difficult to get correct; nine times out of ten Unique is called Belvoir Rose, but the difference is detected at sight. Surpass Thalestris and Madame Catalani were perhaps as fine as anything I saw in this class; Lady Stanley on several beds was very fine, though in most cases there was a preponderance of colour; Camillus is clean and finely marked, but rather too long in the cup for the Nottingham Standard, which, though old (having years ago taken Surpass Catafalque to go by), is not far off the mark; by-the-by, talking of standards, I wish somebody would tell us what was considered a good form, say 50 or 60 years ago; really there is occasionally such a fluster about properties of florists' flowers, of six or seven years' standing, that I imagine our fathers in floriculture must have been groping in the dark.

In conclusion, I would add, that a list of the best flowers of that period would be interesting to many.—*W.*

WINTER FLOWERS.

Those who desire to prolong—nay, to continue the treasures of Flora, with as little intermission as possible through the winter, must now make use of no small activity in retarding autumn flowers, and making provision for those intended for forcing. To this end the following remarks may possibly be of service to amateurs.

I will pass by botanical rarities, and confine my observations to the more popular tribes, which, indeed, are far more adapted to the end in view. Foremost amongst these stands the Primula sinensis; in all establishments where winter flowers are desired, this holds a conspicuous place; and, although by no means difficult to grow, yet to produce it at once with ease, certainty, and at the period when it is really wanted, requires certainly a little management. They are assuredly best from seed annually; two sowings, the one in March, the other in May, will suffice, under high cultivation, to furnish flowering plants from October to the following May, or even later.—Those of the first sowing should have been prevented from flowering until the end of September, by constant stopping; these should now be well established in 5 inch and 7 inch pots, and the only conditions required henceforward to flower them well, are total absence of frost, free watering, sometimes with clear liquid manure, and not too intense a light. The finest I ever saw were produced in a dark, and damp, old fashioned greenhouse, the walls covered with various mosses in the most excellent health.

The second stock of these intended for spring-work should have their final shift in the course of September from 3 inch to 5 and 6 inch pots, according to the objects of the cultivator. They should have every flower picked off until the end of December, and will require of course the same conditions as to temperature, moisture, &c., as the early sowing. These plants, it is pretty well known, are exceedingly partial to leaf-mould. This, therefore, in a decomposed state should form the bulk of the compost; to which may be added a little sound and mellow loam, a little peaty soil, a little wood ash, and charcoal of the size of Peas, and a good sprinkling of a sharp and lively sand.

The next popular tribe I would make a few remarks on, is the Cineraria. This is scarcely second to the Primula for purposes of general decoration; these will do well from seed; however, as seedlings cannot be relied on as to colour and character, it is better to raise them on the sucker system.

The best plan, by far, is to turn out the old plants (after undergoing a thorough cleansing process), into a raised bed, in the month of June. The bed should be composed of one-half leaf-soil, or other vegetable matter, with sharp sand; and if soiled up, pretty close to the collar, abundance of fine young plants will be ready for pots, by the early part of August: they should then be taken up for general potting. They must be shaken entirely apart, and the plants singled out; those strong, put into 3-inch pots; those weak, into thumbs; and the very weakest pricked thickly into store-pots for the latest spring use.

Nothing is necessary but to place them all behind a wall, on the north side, immediately they are potted, and to sprinkle them well. The soil should be equal parts leaf-mould, peat, old cow-dung, charcoal, or wood-ashes, strong loam, and sharp sand; remembering in all these matters to drain the pots completely. These will

vant nearly the same treatment as the Chinese Primroses; only the latter revel in, and enjoy both more light and air than the former. The most forward will require a shift about the first week of September—not later—into their final pots, using the compost in a rougher state. About the same time, those in "stores" should be placed in thumbs, to receive their last shift about the end of January; whilst those potted in thumbs in August will want their final shift about the last week of September. By these means a constant bloom may be insured, from the first week of November until the end of the next May. These plants in the dead of winter like abundance of light and moderate waterings; but with the return of spring they require much water.

The Chrysanthemum holds a most important place amongst the autumn flowers; indeed, they may be said to form the great connecting link between the old year and the new. In endeavouring to simplify the cultivation of these gaudy flowers, I have found the one best plan to be, transplanting the cuttings when struck in the month of July, into beds in the open ground, placing them about eight inches apart. They remain thus until the middle of August (the grossest shoots being stopped occasionally), when they are potted at once into their final shift, and treated carefully as cuttings for a week or so, when they are inured gradually to the sunshine. It is well, however, to pot all the smallest and weakest plants three in a 5 inch pot, without planting out; these may have a final shift in the end of August, and will by these means be of a dwarfer habit than the others, and will be found very useful. Early protection, and constantly clear liquid manure, with abundance of light and air, are all the requisites henceforth, with the exception of sticks; they should have one to every main shoot, disposed in a graceful way. These are particularly fond of clear liquid manure, and should have it abundantly the moment they show the flower bud. They should constantly have all root suckers pulled from them, and the shoots thinned judiciously, until the end of August. As a rule, three principal shoots may be left to a 6 inch pot, four to an 8 inch, and five to a 9 inch pot, and so onwards. These plants should have abundance of light and room in an airy situation, after the month of July, and should be under cover in some light and airy structure by the last week in September. They should have copious syringings every evening, when in doors, with abundance of air, day and night, until the blossoms open, when not only syringing must be discontinued, but all condensation of moisture on the leaf or flower be cautiously avoided. To this end all waterings must be performed in the morning, and a slight fire through the day, with a free circulation of air, to carry away all humidity of atmosphere by the closing time in the evening, after which period the fire must be only such as will just keep away frost, and it is well to allow a little egress of air at the back of the house for the escape of atmospheric moisture all night. A good roof covering, in lieu of a fire, would no doubt be excellent, and tend to prevent condensed steam on the blossoms. As compost, I have found the following everything that can be desired, viz., one half rotten turf of strong and fat loam, and the other half composed of equal parts leaf mould and good rotten manure, to which add a good sprinkling of rough charcoal dust, and another of sharp and lively sand, and a handful or two of fine bone waste. —*R. Errington, Oulton.*

Home Correspondence.

Hoare's Vine Columns.—In reference to your correspondent's account of the two Vines in the hollow columns, the public should be informed that they have not been reduced to their present state by the insufficiency of the materials (apparently broken bricks) to supply the necessary conditions of growth—an inference likely to be made by most persons—but solely to the shoots of the present year having been repeatedly bitten off by cattle. I saw them first in October 1843. How long they had been planted I know not. Their appearance indicated about a twelvemonth. I have seen them frequently since. The following summer they grew as much as the most sanguine could expect. My impression was that with the rigorous pruning to a single eye, recommended by Mr. Hoare, for three or four years, they would produce some very fine wood, an impression which, to a very considerable extent, has been realised. In the middle of June last the shoot of the Vine on the middle column had reached about half way up. The circumference of this shoot which I measured this morning is an inch and one-eighth. The wood is remarkably firm and short-jointed, corresponding to these essential conditions contended for by Mr. Hoare. Disclaiming any advocacy of the system, my object is to supply the omission of your correspondent. Facts are stubborn things. If there be any doubt about them, a visit to Shirley will be the only means of removing it. Impressed with this idea, I beg to decline any correspondence with your readers. —*Investigator, Shirley.* ["Investigator" seems to be imperfectly informed upon this subject. I saw no appearance of cattle having eaten the Vines in these columns; although I perceived that they had done so to those against the terrace-wall in the open field. Supposing his explanation to be true it does not tell us why one at least of the Vines never grew at all. If they were planted in broken bricks, that is contrary to Mr. H's directions.—*Your Informant*].—The observations you have applied to me in your leading article of last week, are of such a nature, and written in such a spirit, as to justify me in refusing to make any reply to them. If I were to attempt the task, it would necessarily be a very lengthened one, and at the same time, perhaps, not very temperate, and would after all be only a war of words, which would be unprofitable to all parties, and utterly beside the question at issue. When you calmly review what you have written, and the manner you have characterised my former communications, you cannot expect me to pursue any other course than this. Let me, however, put you right about the pillars at Shirley. They were put up in June, 1843, for temporary and experimental purposes, and not as permanent erections for fruiting Vines. And as they were not intended to remain longer than two or three years, or until a proper site could be prepared for the erection of a series of pillars of an ornamental character, they were not carried higher than about 4 ft., and were left unfinished, the tops being covered over with loose bricks and slates, and in this state they have always remained. The very inappropriate site on which they stand proves at once that they were only of a temporary character, as they are so completely exposed to the full force of the wind, that no fruit could ever be expected to arrive at maturity on them. The interior of these columns was filled with broken bricks, and nothing else. The Vines planted in them were one year old and no more; and having been laying loosely in a heap of potting mould for two months previously, had of course pushed some young fibres, and in this state they were planted in the pillars, their roots being laid amongst the rough bricks, without anything else to surround them, or to press their fibres in close contact with the surface of the bricks. One of the Vines died under this treatment; but the other two produced during the short period they had to grow in that season, shoots about six and nine inches long respectively. They were cut hard back in the autumn, and last year the shoots more than doubled the length of those of the former year. In the autumn, these were pruned hard as before, and although I have had nothing to do with the management of them during the past summer, I have now before me written testimony to the fact that, in the last week of June, these Vines had produced "strong shoots, nearly three feet long." If they had not been accidentally destroyed shortly afterwards, it is but reasonable to suppose that they would now have been eight or nine feet long. Pretty good work, this, for Vines feeding upon nothing but brickbats. I commend these particulars to your notice, not doubting that you will see the necessity of inserting them at once in the next *Chronicle* in correction of your former statement.—*Clement Hoare, Oct.* 16, 1845.—[We have only to observe upon this communication, that we are not conscious of having said anything more than the occasion called for, and that if Mr. Hoare does not think fit to give the explanation we have suggested, we shall very much regret it on his own account. Why it should be either "very lengthened," or "not very temperate," we are unable to discover. Our enquiry was sufficiently plain, and the shorter the answer the more satisfactory it would be to the public. For a cloud of words in explanation we have, in fact, no room. We observe that Mr. Hoare here confirms the statement of "Investigator," that the Shirley Vines were planted in broken bricks. We have, therefore, nothing more to say on that subject, except that we naturally looked to Mr. Hoare's garden for evidence of his success, and that our informant could not have supposed the only instances of pillar-growing to be found there to have been at variance with the instructions given in Mr. H.'s book. We shall only add that, if we have done this gentleman any injustice, he will find us ready and anxious to make him ample compensation.]

Culture of the Melon.—It may be inferred from an article of a corrective kind, in last week's Paper, that I am guilty of the sin of plagiarism, as I am there informed that the system of supplying water to the roots of Melons, as described by me at p. 624, was previously made known by Mr. T. Moore nearly two years ago. That I am not guilty of robbing Mr. T. Moore of this discovery is quite true, from the fact that I never saw his treatise in my life, and, if my memory serves me correctly, I have never so much as heard of its existence until now; although I knew, most certainly, that this plan of supplying moisture to the roots of Melons and plants, under similar cultivation, has been pursued advantageously for a number of years, and consequently long before Mr. Moore favoured the public with his ideas upon the subject. It is, however, not the less important on that account, and I shall gladly avail myself of any information that can be obtained on a subject of so much interest to gardeners. I may further observe that, if I understand Mr. Moore perfectly (without seeing his plan), it differs from that given by me in the *Gardeners' Chronicle*, inasmuch as he is afraid of the roots suffering from being attracted to the moisture thus supplied towards the tanks, "where they would as continually be injured by contact with its heated surface," &c. Now, in my arrangement the roots never can come in contact at all with the heated tanks, or rather gutters, because a covering of slate, thin stone, or tile is laid over them, at least 2 or 3 inches above their surface, thus causing the heat to spread itself over the under surface of this covering, whatever that covering may be; in fact forming a regular chamber of heated air, which gradually and regularly warms the superincumbent material, and that too most certainly without producing any injurious or scorching effects, let the temperature of the water in the gutters be what it may. Besides, in the arrangement I have shown, there is this other advantage over that of Mr. Moore's—that when water is poured down the feeding tubes, it spreads amongst the stones, and then diffuses itself regularly over the surface of this covering, when it is absorbed in part and evaporated again as the state of the air amongst the stones demands it, producing those effects at once desirable and most beneficial, and not passing immediately off, as would indisputably be the case in the absence of this covering; thus also preventing the roots from being in any way injured by over-heating or coming in contact with the heated surface of the tanks. It will therefore be quite apparent that the two plans are very distinct, the one being an important step in advance of Mr. Moore's, although I am not by any means satisfied of its being the most perfect mode that could be devised, for I am quite persuaded our information on this subject is greatly in arrear; it is, nevertheless, one by which Melons can be grown much more satisfactorily than by dung beds, which are an abomination in a garden, independently of their materially depreciating the flavour of the Melon. My anxiety, therefore, is to show that Melons can be ripened in much greater perfection by means at once simple and within the reach of every one who aspires at a garden establishment, by the use of hot water only, thus reserving the stable manure in an unexhausted state to be more beneficially used elsewhere.—*R. G.*

Destructive Hailstorm.—My nursery was visited on Friday afternoon with a very destructive hailstorm, which broke upwards of six thousand squares of glass in the houses and pits. The glass is small, being principally 6 by 4, 6 by 3, and 5 by 3. I had just completed a house glazed with about 700 feet of Elphick's foreign sheet glass, 17 inches by 6 inches, only one square of which was broken through, and eight starred. —*Charles Woodroffe, Westbourne Nursery, Harrow-road, Paddington, Oct. 13th.*

Quercus sessiliflora.—In compliance with the request in the *Chronicle* of Sept. 27, that descriptions might be sent in of fine trees of Quercus sessiliflora, I repaired shortly afterwards with a party of my pupils to Lisgate common, Littleworth, a portion of the estate of W. Stent, Esq. On the border of a wood on these broad sandy heaths, stands a young and beautiful specimen of this misappreciated tree, so strikingly symmetrical as to attract attention long before the specific characters of the leaves and foliage are distinguishable. The trunk, which is remarkably straight and column-like, is 7 feet 2 inches in girth 3 feet from the ground, diminishing upwards very slightly, and rising 18 feet without sending out a bough, an advantage, however, which the tree owes to the woodman rather than to Nature. The boughs, which are of unusual length, incline elegantly to within five feet of the ground with such precision and symmetry as to form a true sylvan canopy of a concave form, of which the grey trunk is the central supporter. The same tendency to symmetry is observable in the whole outline of the tree, which exhibits a fine arched mass, unbroken by the extrusion of protuberant masses. The tree is exactly 39 feet high, but being young and vigorous, will push to a much higher "stage of treeship;" though whether it will attain the almost unprecedented height of 118 feet stated by Mr. Jukes, I must say I entertain doubts. In conclusion, I consider it to be but due to this interesting tree to affirm, that if the common stalked-cupped Oak is cultivated in parks and pleasure-grounds for its stately bearing and robust magnificence, never should the Sessile-flowered Oak be neglected by the admirer of whatever in arboriculture is susceptible of lightness and elegance.—*F. A. Malleson, Pulborough.* [We have verified the correctness of the name of the species to which this description applies.]

Salvias.—The Salvias generally grown in gardens are not hardy, and only in very favourable situations stand the frosts of winter. I think, however, were a hybrid obtained between one of the garden varieties and the S. Verbenaca, which grows wild in many situations in Britain, a hardy, and at the same time a showy variety might be procured. The experiment might, at all events, be tried.—*G. L., Dundee.*

Pine-growing at Bicton.—At p. 609, a correspondent, speaking of the Bicton Pines, asks, "Why were they not exhibited at the Horticultural exhibition of London, that they could be measured, weighed, and reported by somebody connected with the Society?" and, at the same time, adds that he was aware that Pines equal to mine had been obtained in other establishments. Now this might be the case, but I have not heard of them, and I imagine if there were such to be found in several establishments, some of them would be likely to find their way to be weighed as well as mine. It is well known to the Horticultural world that I never have exhibited a Pine-apple in my life; I know nothing of those said to be exhibited from Bicton in the summer of 1843. I heard that Pines were exhibited, or sent for that purpose, by her ladyship or her butler, but he might have taken them to Covent-garden and rung the changes for aught I know; one thing is certain, they had been changed somewhere, if the report of the show is correct, viz., "that Providence Pines were exhibited from Bicton," for I had none—we do not cultivate them. I got three suckers last summer of the Providence, one of which I have fruited this season, and I have the two others now. I never answer unknown correspondents, or I would have answered the above before. I am perfectly aware that the weight of my Pines has been, and is still, doubted. Mr. Wilmot, of Isleworth, and others, went so far as to state publicly, without seeing

them, or ascertaining facts, that the statements made by me were false; these men have, however, visited Bicton, and are convinced of the truth of my statements. Mr. Wilmot expressed himself so truly astonished, that he has adopted my method, and has, ever since, been in correspondence with me on the matter; he stated to me that the smallest Pine that he could see here, out of 80 or 90 that were in fruit at the time, was considerably larger than the largest fruit that he ever produced. It will give some idea what my Queens have been this season, when I mention that I have had more above 6 lbs. than I have had below 5 lbs. I have an account of the weight of all my fruit, which I can forward you at any time if required, although it is little to what I yet expect to obtain, as a proof of which, some idea may be formed from the following. A few moderate sized suckers were potted in August, 1844, in 7-inch pots, and re-potted in the end of October into 12-inch pots, again in the first week in March, 1845, they were shifted into 15-inch pots, and they started into fruit in June and July so strongly, that many of their stems cracked in every direction, to all appearance half-way through; no one would have imagined that they would ever have swelled off their fruit in anything like perfection, nevertheless, they have produced handsome fruit, weighing from 5 lbs. 4 oz., to 6 lbs. I have one or two now that will weigh above 6 lbs., and some of the same lot, whose stems did not crack, I imagine will weigh from 7 to 8 lbs; they showed strongly enough to produce fruit of 10 lbs. weight, had it not been for the ill-treatment with which they have had to contend, in the way of having the house and pit new roofed, painted, &c., they had to be moved about several times, and had to stand in places not at all congenial to their well doing. Pine-growing is still capable of great improvement; this requires no further proof than that produced at the great exhibitions last summer, when a neighbour of mine, with little bits of Queens, carried off the principal prizes. Even of the books published on the culture of the Pine, very few contain anything simple and valuable; no sure rule is yet established to steer by. It would be useless for me to mention that I have cut many Queens above 6 lbs. weight, and that I have them now considerably heavier, for I should not be believed; but if it were possible for somebody connected with the *Chronicle* to visit Bicton, and take the dimensions and weight of some of my Queens, with other particulars, impartially, then, possibly, a movement would in time be commenced in the right direction. I am aware that many are attempting to carry out my principle of culture, and I have assisted many by private correspondence, but it is difficult to get people to carry it out faithfully; it is too simple for them, and by falling back into their own little whims, they generally upset, partly, and on some occasions entirely overturn the whole method, and then, they imagine that they have been led astray, and could have done better in their old way. I am glad to say, however, that I often receive a more satisfactory account. I observe that a correspondent in Cornwall, has stated that he is growing pretty good Pines on my principle, and that he has a Queen now swelling of 12 or 14 pips in depth, and affected by the stems cracking, as I above stated. I know well the cause of this matter; I have been subject to it at a certain season of the year, three years running, and a remedy for those effects will be found in the tank system; having a sufficiency of pipe for warming the interior atmosphere, on good principles, will work wonders in the cultivation of this fruit. I have no command of heat from flues or hot water in my succession pit, and only a scanty allowance of stable dung from five horses that are here only part of the year, with which to work my Pines, Melons, Cucumber beds, Pits, Mushroom beds, &c. If I had command of tank heat for those purposes, on the principles I have in view, and the refuse of the premises to char, I would with pleasure give up entirely the use of stable dung; I could manage the kitchen garden, and the whole hothouse, and hotbed department, independently of this material; my crops are now, and have been throughout truly beautiful, and most abundant, manured only by the refuse and sweeping of the premises, and refuse vegetation charred. Have Queen Pines ever been exhibited above 19 inches in circumference, and above 12 inches in height, the stalks being five inches in circumference, with the crowns about 2 or three inches in height? I have several such at this time, some ripe, some changing colour, &c.; as to Enville, Providences, and other black varieties, they may be grown to almost any weight.—*James Barnes, Bicton.* [Mr. Barnes has written diameter seven lines higher up, but this is, we presume, a slip of the pen.]

Edgings.—I think that Potentilla verna would form a beautiful and much better edging than Box for flower-gardens. I never saw it, indeed, used for that purpose, but from the situations in which it is found, in a wild state, it appears to be well adapted for edgings. It is very dwarf, bearing to be trampled upon by the feet without being in any way injured, and preserves the green colour of its beautiful leaves throughout the year. It also produces a profusion of elegant flowers in May; and generally continues to flower throughout the following summer months, though not so vigorously. Of course, it will not suit as an edging for a kitchen garden; but as a flower-garden edging, for neatness and beauty, nothing can equal it. Perhaps some of your readers may be induced to try it. It is rarely found in gardens; but it grows well, even with little care.—*G. L., Dundee.*

Productive Peach-trees.—It has been stated by an excellent practical gardener, and writer on horticulture, that, in the cultivation of the Peach-tree, one fruit for every square foot of surface is sufficient; a very judicious observation, in which I fully concur. If healthy and vigorous trees, together with fruit of large size and good flavour, be the object in view, I think no better advice can be given. Nevertheless, we sometimes find these desired requisites combined where trees are allowed to carry a greater proportion of fruit; for instance, in the current year (which has been more than usually unfavourable to the growth and ripening of the most delicious wall-fruit), I have had an immense crop of Peaches, and of moderately large size, which have ripened well, but the flavour was greatly inferior to what it has been in other years. I attribute this deterioration in flavour to the absence of solar heat, in conjunction with long-continued excessively wet weather. On a cold open wall, of 9 feet in height, I have a Peach-tree that extends over a surface of 279 superficial feet, which produced 566, or more than 47 dozen Peaches. The greater number of these, certainly, were small; yet many of them measured 9½ inches in circumference. I also cut away, as thinnings, 1400, or 116 dozen Peaches. Last year, 1844, on the same tree, when I had fewer in number, viz., 35 dozen, or 420 Peaches, the difference in size was very perceptible; some of the largest measuring 10¾ inches in circumference; the flavour also was of the first order. They were also considerably earlier, the first having ripened the 24th August, and the last on the 18th September; whilst, this year, I only got the first on September 13th, and the last on the 8th October; which shows the present year to be nearly three weeks later than the last. But the greatest number of Peaches that ever this tree produced, in one season, was in the year 1842, when I allowed it to carry about 600, or 50 dozen. Many of these were of large size; they all ripened well, and were of excellent flavour; but it must be allowed that 1842 was a very good year for fruit in general, being the hottest and longest summer we have experienced for a great number of years. Notwithstanding this tree's productiveness, it does not appear diminished in health and vigour; it has been planted about nine years. The border, which is planted with Strawberries, is low and flat; it is 10 feet in width, and little trouble has been bestowed on its formation, having never been drained; the soil is naturally cold and clayey, and is about 14 inches in depth. The subsoil is a retentive clay.—*W. Boardman, Fallowfield, near Manchester.*

Weight of large Fruit grown in 1845 :—

Apples.	oz.		oz.
Dutch Codlin	12½	Bergamot	4
Ribstone Pippin	10	Swan's-egg	5
Ferns	8½	Windsor	8
Nonsuch	6½	Jargonelle	6
Royal Pearmain	10½	Easter Beurré	8
Golden Pippin	2½	Monarch	6
Royal Russet	9	*Plums.*	
Pears.		Magnum bonum	2½
Napoleon	6	Egg Plum	4
Winter Nelis	5½	Kirk's Plum	2½
Colman	6	*Medlars*	4

Gooseberries (with the Prizes gained in 1845) :—

Red.	No. of prizes.
London, 36 dwts. 16 grs.; 395.—Grown by Mr. Elliott, Ounsdale.	
Yellow.	
Catherina, 30 dwts. 4 grs.; 182.—Grown by Mr. Hardware, Bilbrooke.	
Green.	
Thumper, 27 dwts. 16 grs.; 230.—Grown by Mr. G. Crawford, Haigh.	
White.	
Freedom, 27 dwts. 8 grs.; 151.—Grown by Mr. J. Rodgers, Ashton-under-Line.	

—*G. I., Woolwich.*

Characteristics of the Robin.—From time to time some remarkable facts connected with the natural history of the redbreast have appeared in your columns, some of them furnished by myself (from actual observation), and others by a variety of your equally observant readers. It would appear, however, that we have not yet arrived at a full knowledge of this bird's desperate character. I say "desperate," although I love the little rogues with all their faults, which are legion. Their virtues and extraordinary powers of song redeem fully all that can be brought against a one-sided view of their character. Still, as true biographers, we must speak of things as they are. The following I have just perused in the "Magazine of Natural History," and from it we arrive at the fact, that *De mortuis nil nisi bonum* is not in the vocabulary of the robin. The grave with him is not respected. His animosity extends beyond it; not satisfied with having for ever lost an imagined foe, he would if it were in his power, kill him a second time! Subjoined is the record in the magazine above-mentioned; I blush for my favourite while I transcribe it:—"One day, hearing a robin warbling in a tree adjoining my house, I was induced to place on the window-sill a beautifully stuffed specimen of the bird, in the hope that it would attract the attention of his living brother; nor was I disappointed. The song became louder and in longer strains, and at last he made a flight of inspection as far as the window. Shortly after he flew up from his tree, and made so violent an attack on the stuffed specimen as to throw it from a height of two stories to the ground, pursuing it even while falling, and continuing its violence when down. I then perched it on an empty box in the yard, the live bird remaining within a few feet of me all the time, and directly I had retired a few paces, the attack was renewed with double vigour, and so obstinately, that I could easily have caught the living combatant. On my withdrawing the stuffed bird from the unequal contest, its opponent resumed its place on the box, strutting about with an expanded tail and erect attitude, as if claiming and pronouncing a victory. Noticing the bird to be still hovering about the place, I replaced my stuffed specimen on the window-sill, securing the stand by a bradawl. Hardly had I done so, before the robin resumed the war by sitting on the head of his unconscious foe, digging and pecking at it with such ferocity and violence, that had I not interfered, the utter destruction of my poor specimen must have ensued. The experiment, of course, was not renewed; but the robin during the rest of the day, kept watch in the immediate neighbourhood, and continued chaunting his notes of defiance even in the shade of the evening." What ferocity! "'Tis true, 'tis pity; pity 'tis 'tis true."—*William Kidd, New-road, Hammersmith.*

Large Rhubarb.—At p. 475 I read an account of some large Victoria Rhubarb sent to you; I therefore beg to send you the following, quoted from the May report of of the Nottingham Floral and Horticultural Society. "The Rhubarb (Myatt's Victoria), sent by 'S. R. P. S.' measured 3 ft. in length, and 7½ ins. in circumference." In the June report occurred the following:—"The Rhubarb (Victoria), forwarded by 'S. R. P. S.,' measured 3 ft. 9 ins. in length, and 8½ ins. in circumference." The above was not weighed, or I should have sent the amount. On taking up some of the roots in winter for forcing, I very well recollect that a strong man could scarcely carry some of them; but of course there was much soil with them, although the land is light.—*S. R. P. S., Nottingham.*

The Weather.—It seems a curious fact that while the south and west of England talk of the frost having cut off the blooms of the Dahlias, and the freshness of their Pelargoniums, we in Norfolk know nothing of either damage being done. Our Heliotropes even look wonderfully well in their beds; though the nights now get chill and long. These are caprices in the seasons worth note.—*W. Mason, Necton.*

Gigantic Tree in Penang, Straits of Malacca, North Latitude 5° 15′.—For splendour of vegetation, the Malayan forests rival those of corresponding latitudes in America. Among thousands of trees in Penang of enormous heighth and girth, there existed some years back one which was an object of curiosity, and visited as such by strangers. I have by accident laid my hands on a memorandum which gives its dimensions, and I extract it verbatim. "The great tree in Penang is of this sort" (jálutung, the Malayan name). "Its girth 6 feet from the ground is 33 feet, and at the heighth of 110 feet, where it throws out its first branches, it measures 27 feet. When the bark is wounded, there exudes from it a copious discharge of a sweet milky juice, which, on exposure to the air, becomes viscous and highly adhesive." The neighbouring forest having been cleared, some years ago, this tree, as almost always happens in similar cases, fell to the ground, and is, I dare say, lying at this moment where it grew. About 28 years ago a drawing of it was made by the artist who accompanied the embassy of Lord Amherst to China. I am not aware that it has been described by any botanist. It will give the English reader some notion of its size when it is stated, that it would contain 155 loads or tons of timber, and equal in produce to 60 British Oaks of the average size of navy timber.—*J. C.* [This was, no doubt, some Fig-tree.]

Country Shows.

Devon and Exeter Botanical and Horticultural Society, Sept. 19.—This Society was established in 1829, and has ever since gradually improved, every year taking a higher stand. The impulse which it has given to horticulture throughout the district has been very great, and has doubtless been a means of creating and maintaining a taste for horticultural productions beyond that of almost every other locality. The extensive and rare collections of the Exeter Nurseries contribute largely to the splendour of the exhibitions here, as may be supposed from the fame they have acquired in the metropolitan shows; and on the present occasion the collections of Messrs. Veitch and Son and Messrs. Lucombe and Co., were very fine. Good gardening is making great progress here. Cultivation forms quite as important a feature as in the London Societies, and the spirit of competition is quite as vigorously alive as at Chiswick. Amongst the plants there may be mentioned, as examples of first-rate cultivation in the collections of the private growers, a very large and fine Erica Irbyana, 3 feet high and 3 feet through, clothed to the ground, and a perfect mass of bloom. This was in the collection of James Clark, Esq. Mr. Griffin, gr. to Mrs. Wells, of Cowley House, had also some fine Heaths, and a splendid specimen of Physianthus auricomus, loaded with its lovely sweet-scented flowers; this appears a very desirable climber, and should be in every good collection. Mr. Blackmore, gr. to I. Cresswell, Esq, had two first-rate specimens of Cyrtoceras reflexum, completely covered with their Hoya-like flowers. — The fruit was very good, as is generally the case here. The Pine-apples from Mr. Bray, gr. to E. Lousada, Esq., and those from Mr. Mason, evinced remarkable cultivation; these two competitors have also been successful at the London exhibitions. But the most remarkable part of the Exhibition was the vegetables; they were indeed magnificent. The collection of Mr. Elms and Mr. Mason, containing each 50 sorts, were very excellent, and when the great variety of sorts is taken into consideration, and the very superior quality of them, they were to us, as an exhibition of this kind, quite unequalled. The climate of Devon is not lost on the gardeners in this neighbourhood, as the present Exhibition fully and satisfactorily proved.—The exhibition of Dahlias was neither so fine nor so numerous as on former occasions, although the prizes were of a very liberal kind. Mr. Whale, of

Elcot, contributed a seedling Dahlia nearly white, which possessed considerable depth of petal, as well as other promising properties; but the specimens had suffered much from carriage, and therefore could not be fairly estimated, having travelled a distance of nearly 200 miles. One concluding remark we would make respecting exhibitions of this kind; that if they were held under marquees in the open air, their effect would not only be better as exhibitions, but in another point of view, they would have a greater influence on the public mind. A vast assemblage of beautiful plants huddled together in a room never can be enjoyed to the same extent as in the open air, as the large room on these occasions in fine weather is literally crammed, and must afford anything but enjoyment to the majority of the visitors.

York Horticultural Society, Oct. 2.—This, the fourth Exhibition, was held in the Minster Gardens, and was numerously attended. The collections of stove and greenhouse plants were greatly admired, and the fruits and vegetables were remarkably fine. The following are the principal prizes which were awarded:—*Stove Plant*: 1, Messrs. Backhouse, for Brugmansia floribunda; 2, Mr. Edward, for Achimenes grandiflora; 3, Messrs. Backhouse, for Gesnera zebrina. AMATEURS AND GENTLEMEN'S GARDENERS: 1, Lord Downe, for Achimenes longiflora. *Orchids*: Messrs. Backhouse, for Dendrobium chrysanthum. *Climbers*: 1, Messrs. Backhouse, for Manettia glabra; 2, Mr. Edward, for Thunbergia alata alba. *Greenhouse Plant*: 1, Mr. Appleby, for Lilium album; 2, Messrs. Backhouse, for Euthales macrophylla. AMATEURS AND GENTLEMEN'S GARDENERS: 1, Lord Downe, for Siphocampylus betulifolius; 2, J. Buckle, Esq., for Veronica speciosa. *Heaths*: 1, J. Buckle, Esq., for Infundibuliformis; 2, Messrs. Backhouse, for Macnabiana; 3, Mr. Edward, for Aitoniana. *Calceolarias*: 1, Lord Downe, for Lady Constable. *Fuchsias*: 1, J. Buckle, Esq., for Venus Victrix; 2, Mr. R. Theakstone, for Smith's Vesta; *Pelargoniums*: 1, Mr. Appleby, for Pluto; 2, Lord Downe, for Comte de Paris; 3, J. Richardson, Esq., for Dennis's Perfection. *Tree Roses in Pots*: 1, Mr. Appleby, for Caroline; 2, C. Harrison, Esq., for Le Brun; 3, Mr. Clarkson, for Proserpine. *Bulbous Plants*: 1, Mr. Edward, for Lilium speciosum; 2, ditto, for Lilium album; 3, Rev. D. R. Currer, for Vallota purpurea. *Annuals*: 1, J. Buckle, Esq., for Clintonia pulchella; 2, Lord Downe, for Rhodanthe Manglesi. *Hardy Plants*: 1, Mr. Appleby, for Delphinium Barlowii; 2, Messrs. Backhouse, for Phlox picta; 3, W. D. T. Duesbery, Esq., for P. pumila. A specimen of Ceradia furcata, was exhibited by Messrs. Backhouse; to whom the President's Prizes were also awarded, for a Dendrobium chrysanthum; and to Mr. Edward, for Lilium speciosum. *Dahlias*: Mr. Backhouse, for Prince Albert, Lord Howden, Standard of Perfection, Mrs. Shelley, Sir J. Richardson, Princess Royal, Albion, Beeswing, Essex Scarlet, Admiral Stopford, Aurantia, Essex Primrose, Lady Sale, Emperor of the Whites, Bermondsey Bee, Beauty of Sussex, Blue Bonnet, Consolation, Indispensable, Perpetual Grand, Vivid, Yellow Defiance, Sir R. Sale, Duke of York, Nonpareil, Backhouse's Ebor, Beauty of Bucks, Essex Bride, Antler, Cleopatra, Lady St. Maur, Marquis of Lansdowne, Alice Hawthorn, Catleugh's Eclipse, and Maria; for 24 varieties, Mr. Backhouse, for Standard of Perfection, Mrs. Shelley, Prince Albert, Albion, Beeswing, Lord Howden, Princess Royal, Essex Primrose, Beauty of Sussex, Backhouse's Ebor, Indispensable, Cleopatra, Alice Hawthorn, Vivid, Pepetual Grand, Marquis of Lansdowne, Maria, Yellow Defiance, Blue Bonnet, Antler, Antagonist, Aurantia, Consolation, and Bermondsey Bee. Several other prizes were awarded, but we have only been furnished with a list of awards without the names of the flowers for which the rewards were made.

Reviews.

The Emigrant's Guide to Australia, by the Rev. D. Mackenzie, is a little duodecimo, which is worth the attention of those who are thinking of migrating to the antipodes. We will not pretend to describe the work, further than this, that the author paints the character of the Sydney settlers with a pencil dipped in ink, and the prospects of intending emigrants in rose and sky-blue. According to his testimony, earth does not contain such a collection of vagabonds, or so tempting a field for emigration. We cannot tell how others may like the picture, but for ourselves we would rather starve in England than thrive at Sidney, if we believe all that the Rev. Mr. Mackenzie tells us. However his book is doubtless a useful book for the emigrant, who has the advantages and disadvantages set before him without the slightest affectation of reserve.

New Plants.

BOLDOA FRAGRANS. Sweet-scented Boldu. *(Greenhouse Shrub).* Monimiaceæ. Dioecia Icosandria.—This is a small tree or bush, with a highly aromatic odour in every part. It has round, grey, slightly downy branches, and roundish ovate evergreen opposite leaves, placed on short stalks, and studded with hard points, which give them a very rough surface. The flowers are dioecious, pale greenish white, in little terminal panicles, each branch of which is rather regularly 3-parted. In this country the male only is known. Of that sex the calyx is a leathery cup divided at the edge into an uncertain number of strap-shaped segments placed in two or three rows. All the inside of the cup is lined with stamens, whose filament bears at its base a pair of ear-shaped glands, terminated by a half transparent rim; the anther is oblong, two-celled, and opens into four equal valves. Hairs surround the base of the filaments; there is no sign of ovary. The fruit, which is only known in a dried state, is a little drupe about as large as a haw, apparently black and extremely fragrant. It contains a single seed suspended from near the apex of the cell. This seed consists principally of fleshy albumen, but at one end there is a small embryo, with a conical, fleshy, superior radicle, and a pair of thin membranous diverging cotyledons, which are placed over the outside of the albumen—a very curious structure. This is quite at variance with what is said in the Latin character of the genus by Endlicher, but is certainly the true nature of the part. In Chili the plant is much valued; its wood forms a charcoal, preferred by smiths to all others, and the aromatic fruit is eaten by the natives. In a note now before us, Mr. Bridges says that the tree is from 15 to 25 feet high; that the wood has the same agreeable smell as the leaves, and that the leaves of the male plant are generally smaller than those of the female. It requires to be potted in sandy loam and peat, in equal proportions. Like most plants under pot-culture, it ought to be repotted at least once in the year; and in consequence of its flowering in autumn and winter, this should be done in spring. In summer, an ample supply of water is necessary, and shading in sunny weather; for although it be a hardy-looking shrub, its leaves are very apt to become scorched by the sun. In winter, nothing more than the common mode of cultivation is required: air at all times, when the weather is favourable, and only applying fire-heat to keep off frost. It is propagated by cuttings of young wood in the usual way.—*Bot. Reg.*

ECHINOCACTUS MULTIFLORUS. Many-flowered Echinocactus. *(Greenhouse perennial).* Cactaceæ. Icosandria Monogynia.—A specimen of this was sent to Kew from the rich collection of Cactuses in the possession of Mr. Palmer, of Stockwell, on the eve of its blossoming. Of its native country we are ignorant, and it does not appear to be described; but on this subject it behoves us to speak with caution, for no plants are so difficult to define by words as the individuals of this now extensive family; figures, alone, can render the distinguishing characters of them intelligible. The species is remarkable for the large tubercles, strong, spreading, recurved, and almost appressed spines, and for the copious pale, almost white, flowers, tinged with greenish brown.—*Botanical Magazine.*

Garden Memoranda.

Tracey, near Honiton, the Seat of H. B. Lott, Esq.—The mansion at Tracey stands upon an eminence, commanding a most extensive view of the rich vale of Honiton. A few years ago this was a barren forbidding hill, but is now, through the interest, nay enthusiasm, which Mr. Lott takes in gardening matters, become clothed with the most extensive and choice collection of plants procurable in the country. Indeed, a vast assemblage of plants, of the most valuable kinds, particularly Conifers, is everywhere profusely scattered over the grounds, which are laid out with much taste and judgment. Mr. Lott possesses all the Conifers which are known in the country, and the success attending his efforts in cultivating them in the open air is without a parallel; of course, due allowance must be made for the climate of Devon; but Tracey is situated in a bleak exposed situation. Shelter, however, will soon be afforded, as acres of thriving evergreens are rapidly rising. Nearly all the Pines introduced from Mexico through the Horticultural Society stood the last severe winter, and generally without any protection. Pinus patula appears as hardy here as the Scotch Fir; so is Hartwegii, Russellianus, Devoniana, Ayacahuite, pseudostrobus, brutia, macrophylla, leiophylla, apulcensis, &c. &c. There are remarkable specimens of P. insignis, ponderosa, and Sabineana. The greenhouse Araucaria Braziliensis stood last winter with only slight protection, and Mr. Lott has this summer planted out A. excelsa, which is a very fine specimen, and he hopes to save it with partial protection. Picea religiosa has this season only been planted out; but there can be little doubt of its resisting any ordinary winter here. From the east side of the terrace is seen a Rosary in the lower grounds beneath, formed chiefly of a series of circles, containing all the choice Roses. The effect of this garden, when viewed from the terrace, is excellent. Connected with the house is a fine conservatory, where Oranges, Camellias, and choice Rhododendrons, are principally cultivated, with some of the choice and singular New Zealand Conifers. There is, also, in another situation, a greenhouse 100 ft. in length, chiefly filled with New Holland plants and Cape Heaths. This house and various others were built under the direction of Mr. Bowden, the gardener, on whom the plan reflects great credit. The greenhouse and stove plants were looking well; so were the Pines, which have recently been put into new hot-water pits, erected expressly for them, which Mr. Bowden has heated with hot water, in the gutter system beneath the plants, which answers admirably, thus refuting the old prejudice, that Pines can only be grown in fermenting tan, or leaves. The getting rid of these nuisances from a garden establishment is unquestionably one of the greatest strides which the art of gardening has made in modern times.—*R. G.*

Miscellaneous.

New Rose "Prémices des Charpennes." — This variety has been raised in the village of Charpennes, near Lyons, and has been offered for sale in London, by its French possessor, M. Armand, of Lyons. It is said to be a Bourbon, and if we can judge from a drawing which has been sent us, must be a very pretty variety. The flowers are represented as bright rose in some cases, pale in others, and always very regularly formed.

Vegetable Wax.—There are in this State very extensive palm-leaf manufactories, in which the sweepings and dust, arising from splitting the leaf, accumulate to a large amount, and are thrown away as useless. I here present two specimens of vegetable wax, extracted from these sweepings, one of which has been melted in hot water. Also the two proximate ingredients, Cerosine and Myricine, into which I have separated it, to prove its identity. The Cerosine is orignally deposited in a white gelatinous mass. This I have melted. That this wax is the glossy covering which is spread by nature over the surface of the leaf and stem, may be seen on inspecting the two specimens of leaf, one previous to, and the other after my operation to deprive it of the wax. The so-called wax of the common Myrica cerifera, as is well known, is a vegetable tallow, containing stearine and the other ingredients of fat. I am of opinion, though without having made any detailed and exact experiments, that from these sweepings may be extracted sufficient wax to pay a good profit; for from what I have tried, I cannot imagine the expense would exceed 40 or 50 per cent. of the value of the wax made. It can easily be made of a pure white colour.—*Teschemacher in Proceedings of the Boston Natural History Society.*

New Japanese Plants.—The *Revue Horticole* mentions the following as being on sale in Holland:—*Broussonetia Kæmpferi*, the true paper tree of Japan; *Funkia grandiflora*, with fragrant white flowers; *Galoa trinervis*, an evergreen tree, resembling Menispermum laurifolium; *Hoya rotundifolia*, with pink flowers and round leaves; *Ligustrum ovalifolium*, an evergreen shrub, with numerous flowers; *Lonicera brachypoda*, a creeping variety; *Spiræa Blumei*, a little free flowering bush; *Clerodendron trichotomum*; *Hibiscus Humabo*, with yellow flowers and sea-green leaves; *Juniperus Japonica*; *Lilium Liukiu*, with fragrant white flowers; *Podocarpus japonicus*, different from P. macrophyllus; *Porophyllum japonicum*; *Rosa Iwara*, a kind of multiflora.

Loranths in Cultivation.—M. Neumann has announced the arrival, in a living state, of a species of those curious parasites called Loranths. It is stated that a M. Andier, a great grower of Cacti, possesses an Indian Fig, on which is growing a Loranth, which *flowers very well!* It had attached its seeds to the surface of the Indian Fig, while growing in the tropics. We knew that these parasites will sometimes infest thick hard leaves, but we never before heard of their attacking Indian Figs. The plant in question is a great curiosity.

Bees.

Statistics of Swarming.—In this account of swarming, the bees, being in the common straw hive, were left to follow their natural inclination. The statement extends over a period of 10 years. 40 old hives produced 64 swarms; three swarms flew away, two of which were lost through inattention; 16 swarms were in May, 38 in June, 9 in July, and 1 in August. Five old hives did not swarm, one swarm swarmed once, and two swarms sent forth each two colonies; three of the old hives swarmed thrice each. The worst honey seasons were 1839, 1841, and 1845, in which years the average of swarms per old hive was the greatest, being respectively $2\frac{3}{5}$, $2\frac{1}{5}$, and 2. In the best honey seasons there was less swarming, the average being 2, 1, $1\frac{4}{5}$, and $1\frac{1}{5}$. The earliest swarm in the 10 years was on May 9th, the latest on August 11th; the earliest hour of swarming, 9 o'clock, A.M.; the latest, half-past 3 o'clock, P.M. The greatest weight of first swarm, 6 lbs.; of second swarm, $4\frac{3}{4}$ lbs. The second swarms were generally accompanied with more than one queen. This was also the case with two first swarms,* which, doubtless, arose from the old queens having died about the commencement of the swarming season. In one of the cases the queen was observed dead in front of the hive. Many thousands of the bees continued to cluster around the hive till the 10th or 11th day, when a swarm of 6 lbs. left, in company with several queens.—*B. T.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Heath-house.—Those who are desirous of retaining specimens of this beautiful tribe for any length of time, must at this season pay more than usual attention to them. To winter them well should be our aim, and to accomplish this satisfactorily, one or two things are especially to be attended to. Many of the late flowering varieties that require shifting would have had this attention paid them; and they are consequently now in a free-growing state; indeed in that condition which of all others renders them the most susceptible of injury; they will be liable to damp off, should hazy wet weather continue for any length of time. They will also require water, from the circumstance of their rapid growth; and to water Heaths, or in fact any plant which has at a late season been liberally shifted, is to endanger its very existence. As a remedy, therefore, against these evils likely to arise, air must on every occasion on the approach of winter be freely admitted to harden the autumnal shoots; well ripened wood will resist to a considerable extent both cold and damp; let a free current therefore sweep freely through the house, unless in damp or frosty days, and dispense with fires until absolutely compelled by the intensity of the weather. *Greenhouse.*—Keep everything clean and in good order, that alone is a recommendation to anybody; at this season few plants are in flower, and therefore filth and confusion will be more perceptible. *Forcing Pit.*—Keep up the supply of Dutch bulbs by weekly additions, and also by contributions from the different kinds of potted plants already prepared for this purpose; dwarf Orange trees will prove a most desirable addition in winter; they can be easily brought on in this department.—*A.*

* It is somewhat singular that both of these swarms became queenless, being the only instances of the kind in the 10 years

II.—FLOWER-GARDEN AND SHRUBBERIES.

The different kinds of bedding plants wanted for next year, such as Salvias, Pelargoniums, Lobelias, Fuchsias, Heliotropes, &c., should be taken up, cut back, and potted, for the purpose of filling the centres of the beds next spring. Verbenas remove badly, therefore young plants are preferable. Where the beds are required for bulbs, the sooner they are cleared off and got ready for planting the better, if the weather continues dry and suitable; but by no means dig them if very wet. Such beds as have the soil exhausted should have it renewed, particularly for Hyacinths, as recommended in last week's Calendar for offsets. Continue planting choice shrubs and trees, mow and sweep lawns, walks, &c. *Pits and Frames.*—Cuttings that have not struck freely should be replaced as quickly as possible with a fresh supply; give them a gentle bottom heat. Calceolaria viscosissima, and other kinds, strike better if put in now, than at any other season. Keep as many cuttings in store pots as possible, for potting off next spring.—*B.*

III.—FLORISTS' FLOWERS.

Polyanthuses are blooming precociously; in order to invigorate the plants, and to insure fine blooms next spring, remove all those which show now. *Auriculas.*—The same treatment should be adopted with regard to these plants, only taking care that when the plant throws up a heart-truss that the flowers only are removed, allowing the stem to remain, the reason for which is that when the stem is cut or plucked low it will often decay, and induce rottenness in the heart of the plant. *Carnations.*—Pot layers off without delay, and, where the variety is scarce and valuable, plant the old stool in the borders; these will often produce fine flowers, and plenty of layers or pipings the succeeding season. *Pinks* may be put in small pots and treated the same as Carnations are, when they are intended to be grown in large pots. *Pansies* may still be planted out while the weather is open. *Tulips.*—Offsets should be planted directly, if not already done; and, if the weather continues fine, the best beds had better be planted as soon as possible.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—As I can add little this week to former directions concerning Pines, I will avail myself of the spare room to say something more about large crowns. After admitting that the state of the atmosphere in which the Pine is grown has much to do with the character of the crown, I must say that I am persuaded that the action of the root has also considerable influence over it. I will suppose a case—for instance, a bad and premature "show" in a plant now strong and healthy; the "show" perhaps is only from 4 to 6 pips in length. Now if a most healthy and vigorous action be induced in the roots of this Pine by subsequent good management, what will become of the sap thrown into the system, if the fruit cannot use or appropriate it? What but produce or enlarge suckers or crowns? This then brings us at once to the principles necessary to produce first-rate fruit:—viz., 1st, the perfect concentration of the powers of a quick and highly cultivated plant; and, 2dly, a steady and uniform action of root, together with the assistance of liquid manures at certain periods, to complete the swelling process. *Vineries.*—I may perhaps repeat that the borders of the earliest Vineries, if the Vines are outside, should be covered well forthwith with porous material. In regard to late Grapes, a few of the most crowded laterals that remain should now be removed to admit the sun's rays, to assist in keeping injurious damps away. *Cucumbers.*—It is but dull work to carry on the frame Cucumbers at this season; however, hot linings and a free circulation of air in the morning, with good night covering, is all that can be done for them.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

When Peach and Nectarine trees begin to drop their leaves, it is advisable to touch them over lightly with a fine-twigged broom, commencing below and moving it towards the extremities of the branches. The leaves that are thus easily displaced have become inert as regards the elaboration of sap; and their removal tends to improve the condition of the young shoots, by exposing their bark to the sun and air, and consequently rendering them better adapted to withstand the effects of frost. Preparation should now be made for making good all vacancies on walls, by entirely clearing out the soil where it has become exhausted by the roots of trees which it formerly supported, and replacing it with fresh soil or compost. In planting, some make a hole only large enough to contain the roots, others allow a width of 3 feet or so, but trees never thrive so well in such limited pits, although filled with good soil, as they do when a considerable portion of the border is uniformly loosened. Therefore let the border be trenched to its full width in front of the vacancy, and right and left as far as can possibly be done, without interfering too much with the roots of the adjoining trees; if indeed a few of these are cut at this time of the year, there will be no harm, but in spring they ought not to be disturbed. *Kitchen Garden.*—Take up Carrots and store them in sand in a dry and dark place; also Parnips, but in some soils these keep very fresh unremoved in the ground, for no ordinary degree of frost will injure them. Continue to earth up Celery as before directed. Plant Lettuces and Cauliflowers in frames, and on sheltered borders. Some Garlic and Shallots may be planted, but in some soils these are better when planted early in spring.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Where the ground has been prepared in dry situations, planting may be commenced now; it is also a good time to mark such timber as is to be felled. Continue to prune and clean young coppice woods; clear open drains and make new ones where necessary. *Nursery.*—Gather tree-seeds of all kinds now ready, such as acorns, Spanish and Horse-chestnuts, &c., which are better sown as soon as gathered, if proper precautions are taken against the attacks of vermin. Holly, Yew, Hawthorn, and similar kinds, must be placed in thin layers in the rot heap until sowing time. Rooted layers of deciduous trees and shrubs may be taken off and transplanted. Dig and ridge up vacant quarters; prepare for planting new deciduous hedge-rows, and clean old ones.—*F.*

State of the Weather near London, for the week ending Oct. 16, 1845, as observed at the Horticultural Garden, Chiswick.

Oct.	Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 10	9	29.731	29.389	58	38	48.0	S.W.	.43
Sat. 11	10	29.851	29.399	58	29	43.5	W.	.09
Sun. 12	11	30.213	30.033	61	39	50.0	S.W.	
Mon. 13	12	30.419	30.382	67	38	52.5	S.W.	
Tues. 14	13	30.435	30.304	76	36	56.0	S.	
Wed. 15	○	30.242	30.033	66	51	58.5	S	.01
Thurs. 16	15	30.196	30.099	62	37	49.5	W.	
Average		30.112	29.941	64.0	38.2	51.1		.53

Oct. 10—Heavy rain; cloudy; thunder at 4 P.M., followed by a heavy shower of large, irregularly triangular hail; clear; hazy at night
11—Constant rain, with thick fog; cloudy and showery; clear; frosty
12—Thick fog; cloudy and fine; clear
13—Fine; very fine and clear, with hot sun; clear at night
14—Slight fog; exceedingly fine throughout; clear
15—Light clouds; very fine; overcast at night
16—Lightly overcast and fine; very fine, with thin white clouds; clear.
Mean temperature of the week 4 deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Oct. 25, 1845.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 19	59.2	38.1	48.6	7	0.14 in.	—	1	2	3	1	3	5	4
Mon. 20	59.4	40.5	49.9	8	0.13	1	2	—	3	4	5	3	1
Tues. 21	59.0	40.4	49.7	6	0.64	1	3	1	3	4	3	4	—
Wed. 22	58.9	44.6	51.7	14	0.50	—	—	3	1	5	6	3	2
Thur. 23	57.8	42.0	49.9	13	0.40	2	1	—	2	4	4	5	1
Fri. 24	56.0	40.9	48.4	8	0.88	1	1	1	—	6	4	4	2
Sat. 25	55.6	39.3	47.4	8	0.72	3	1	8	3	3	2	1	2

The highest temperature during the above period occurred on the 21st, 1836—therm. 73°; and the lowest on the 21st, 1842—therm. 20°.

Notices to Correspondents.

BACK NUMBERS OF THE GARDENERS' CHRONICLE—The volume for 1844 can be had, bound in cloth, price £1 10*s.* The following Numbers in the respective years can also be had. Any subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are required, will have them sent free by post.

1841—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34.
1842—4, 6, 8, 11, 12, 16, 18, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 42, 50, 51, 52, 53.
1843—5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 40, 41, 42, 43, 48.
1844—All but Number 50.

BOOKS—*R M*—You must consult the advertisements.

CACTI—*X L*—These generally bloom but once in the year; they will not succeed well without a little fire-heat in winter, especially in damp weather. If they are in good health, they will be benefited by a little water occasionally; but if not, they will do better without it till spring.§

CARNATIONS—*D, Derby*—The following are first-rate varieties. *Scarlet Bizarres:* Colcut's Brutus, Ely's Colonel Wainman, Fletcher's Duke of Devonshire, Hepworth's Leader, Headley's William Cobbett, Martin's Splendid, Strong's Duke of York, Rainford's Game Boy, Ely's Jolly Dragoon and Lord Pollington. *Crimson Bizarres:* Puxley's Prince Albert, Wakefield's Paul Pry, Gregory's King Alfred, Ely's Lord Milton and Duke of Bedford, Soorn's Bloomsbury, Wakefield's Paul Pry, Holmes' Count Paulini, Mansley's Robert Burns, Willmer's Telemachus. *Scarlet Flakes:* Wilson's William the Fourth, Wigg's Earl of Leicester, Chadwick's Brilliant, Addenbrook's Lydia, Maud's Rowton, Greaseley's Mary Anne, Brown's Bishop of Gloucester, Ely's Bright Venus. *Purple Flakes:* Mansley's Beauty of Woodhouse, Ely's Mango and John Wright, Strong's Esther, Willmer's Islander, Brabbin's Squire Meynell, Hogg's Colonel of the Blues, Millwood's Premier. *Rose Flakes:* Brook's Flora's Garland, Wilson's Harriet, Fletcher's Duchess of Devonshire, Greaseley's Village Maid, Sidemore's Lady Rowley, Lowe's Marchioness of Westminster, Ely's Lady Ely, Pearson's Sir George Crewe.*

CHRYSANTHEMUMS—*X L*—After your plants have flowered, cut them down to about 6 inches above the soil. They require no other protection in winter than a cold pit; give them air every day when the weather is favourable. Liquid manure should not be used so strong as to cake on the surface of the soil; in such cases it does more harm than good.§

FUCHSIAS—*A B*—Discard those which do not please you, and add the following: Loweryii, Iveryana, Smith's Magnet, Cleopatra, British Queen, Norfolk Hero, Barne's Cassandra, and Halley's Sanguinea.*——*F*—Cassandra, Loweryii, Cleopatra, Magnet, Pride of Peckham, and Halley's Sanguinea.*

GRAPES—*A Dublin Subscriber*—Cold and damp have doubtless occasioned the bursting, and consequent decay of your Grapes.‖

GREENHOUSES—*A Subscriber*—We decline answering legal questions, and must refer you to your solicitor. The cost of greenhouses varies excessively according to the plan and mode of finishing; in this too you must consult tradesmen who are near you. All we can say is, that you may buy large squares of foreign glass in the rough, as imported, at 4½*d.* a foot. Greenhouses with opaque sides are very inferior to those with glass sides, partly on account of their darkness, and partly because of the difficulty of ventilating them; they do very well for hothouse plants.

HAWTHORN SEEDS—*X Y Z*—Mix your Thorn, Dog Rose, and other seeds, either with dry sand or garden soil; put them in flower-pots and bury them about 2 feet in the open ground, placing a slate over the top of the pot. Take them out next March, and sow them in the ordinary way.¶

HEAT—*G Wilkinson*—Is there any wisdom in such refinements? What you say is doubtless very true; but quite immaterial in practice. Do you remember the Epigram?—

Nullum esse igne calorem, ut ais, prædocte Sophista,
En credam cum tu credis in igne manum.

HEATING—*W A* asks for information respecting Nettleton's patent stove; any reply must be given with the name and address of the writer. Fellows of the Horticultural Society pay six guineas for an admission fee, and four guineas a year. ——*Dick*—There is no difficulty whatever in heating your two houses with one boiler; all that you need do is to adapt a stop-cock to each arm of the apparatus. Any person who fixes the latter will tell you how to do that. Mind that your boiler is a good one, and well set, or you will find your heating power insufficient when both houses are worked at once. We have seen hot-water apparatus which was a disgrace to the tradesmen who supplied it.

INSECTS—*J B*—It is one of the Oak spangles, caused by a minute Cynips; the history is given in the third vol. of the *Gard. Chron.* p. 52. *R.*——*J F*—The maggots appear to be those of a Weevil, and in all probability are the progeny of Curculio picipes, or C. sulcatus. Ammonia, turpentine, or gas-tar, would kill them, and probably powdered tobacco, snuff, or pepper mixed with the soil would eradicate them. *R.*

IPOMŒA RUBRO-CÆRULEA—*Luzor*—This, although generally treated as a stove-creeper, will nevertheless thrive and bloom profusely out of doors in summer and autumn planted against a south wall. It will bear much more hardship than tropical plants in general; but it is very doubtful whether you can preserve it over winter in a sitting-room, where the atmosphere must necessarily be very dry; the best way is to sow the seeds early in autumn, and keep the plants in an intermediate house during winter; but as you have no suitable place for the purpose you had better sow the seeds early in spring, and start them in a gentle bottom-heat, hardening off the plants by degrees preparatory to planting out, which should take place as soon as all danger of frost is over.‡

IXIAS—*Novice*—Some of these have been grown successfully in the open air in this country planted in loamy soil at the foot of a hothouse wall facing the south. Some are much hardier than others, but we cannot say which. Little, in fact, is known about their cultivation.

MANURES—*B C*—It will not destroy or injure Grass, if mixed with a large quantity of water, and it will improve the quality of the Grass a little. Use a pint to 10 gallons of water. Sulphate of ammonia is much better.

NAMES OF FRUITS—*Perry*—English Caillot Rosat.‖——*J Haycroft*—Jersey Gratioli.‖——*J H B*—1, Wyken Pippin; 4, Scarlet Nonpareil; 5, Golden Pippin; 6, Cockle Pippin; 8, Blenheim Pippin; 10, Court-pendu Plat; 12, Golden Reinette.‖ ——*F H*—Your Grape has all the appearance of the Grizzly Frontignan; but, as you observe, it possesses nothing of its flavour. Not worth growing.‖——*J E M*—1, Hessel, 3, Henry the Fourth; 5, Flemish Beauty, very good; 6, Ambrosia; 2 is perhaps the winter Bon Chrétien from a standard.‖

NAMES OF PLANTS—*B*—Oncidium crispum, a most beautiful variety.——*Broughton*—Catasetum Naso; a fine variety, with the nose smaller than usual.——*B L Z*—Before we examine your Fern, we must beg to inquire whether it is British or not.——*J W*—Oncidium microchilum.——*M G B A*—1, Rhamnus Frangula; 2, indeterminable; 3, Cornus sanguinea; 4, indeterminable, from the specimen sent; 5, Cotoneaster tomentosa; 6, Amelanchier ovalis.¶——*W J*—Apparently Pinguicula lusitanica; but plants cannot be named with certainty from drawings.——*W H*—Eccremocarpus scaber——*G*—Stipa pennata.

NECTARINES—*F Kelly*—Your Nectarine is the Newington, a firm-fleshed clingstone, and, though juicy and sugary under favourable circumstances of soil and climate, it is apt to crack in the manner you describe in some soils. Your best plan will be to plant the Elruge or Violette Hâtive, both melting varieties, which will certainly succeed where you state Peaches ripen so well.‖

PANSIES—*R H C*—Procure the following 12 sorts:—Cook's Paragon and Mulbery superb, King's Exquisite and Sulphurea elegans, Brown's Curion, Thompson's Coronation and Pizarro, Major's Bridegroom, Pearson's Black Prince and Prince Albert, Duchess of Richmond and Arethusa.*

PELARGONIUMS—*Amateur, &c.*—These may be preserved over winter in a box, if packed with alternate layers of dry soil, sand, or peat, and placed in a situation free from the effects of frost or damp; the plants must be cut back freely, and divested of all their leaves before they are packed, and they should not remain longer than the beginning of March in the box before they are again potted. The latter end of November is an excellent time to remove evergreens.¶

PICOTEES—*D, Derby—Red-edged Picotees, heavy:* Sharp's Duke of Wellington, Gidden's Teaser and Sir R. Peel, Barraud's Cornelius, Jessop's Sir W. Middleton, Sharp's Red Rover, Brinklow's Rising Sun and Wildman's Isabella *Red-edged, light:* Sharp's Criterion and Hector, Kirtland's Mrs. Annesley, Wood's Queen Victoria, Burroughes' Mrs. Bevan, Gidden's Lydia, Sharp's La Delicate and Gem. *Purple-edged, heavy:* Sharp's Invincible, Mansley's Nulli secundus, Crask's Queen Victoria, Dickson's Trip to Cambridge, Gidden's Miss Hennel, Kirtland's Princess Augusta of Cambridge, Bond's Countess of Winterton, Ely's Field-marshal. *Purple-edged, light:* Gidden's Vespatian, John's Prince Albert, Wilson's Pluperfect, Burroughes' Lady Douro, Brinklow's Purple Perfection, Lady Chesterfield, Ely's Grace Darling, and Annesley's Sanspareil. *Rose and scarlet-edged, heavy:* Wilson's Miss Fanny Irby, Gidden's Miss Desborough, Kirtland's Mrs. Annesley, Willmer's Princess Royal, Green's Queen Victoria, Syke's Eliza, Willmer's Agnes and Twitchett's Fair Rosamond. *Rose and scarlet-edged, light:* Barnard's Mrs. Barnard, Garratt's Lady Dacre, Gidden's Diana and Beauty of Hemingford, Barraud's Bride and Portia, Burroughes' Sylph and Brooks' Miss Brooks.*

PINES—*M M and Others.*—We shall notice Mr. Hamilton's book, and the Thornfield system, as soon as we can possibly find space. We have nothing to retract, but something to add. The quality of the fruit which we have tasted was excellent. Gardeners would do better by striving to equal Mr. Hamilton than by childishly carping at his peculiar method of cultivation.

POTATOES—*A B*—We have really nothing to add. It is asserted that chloride of lime in powder will stop the mischief when it has only just begun: but we have no proof of the truth of the assertion. The only safe way is to sort the tubers carefully, and in short to follow the instructions already given.——*L G*—With every wish to oblige you we really cannot repeat the same thing week after week. If you will turn to our previous Numbers, you will find every one of your enquiries fully answered in the Leading articles.

VERBENAS—*One in the Fancy*—Your letter is very discreditable to you. We do not print blackguard letters. Yours is sent to the person whom it concerns.

VINE BORDERS—*John Abell*—The depth of your border may be 2½ feet, and the width 12 feet. Concrete makes a good bottom. Of the substances which you mention as having at command for the composition of the border, the bulk of the latter must consist of rich turfy loam, rather friable than otherwise; and with this you may incorporate a layer, 6 inches deep, of lime, rubbish, bones, and rotten dung. You must not confine the roots to this by a wall; if they choose to run into the garden soil they will not be injured thereby.‖

MISC—*D Murray*—Thanks for the Fungi.——*J E*—There is no mildew on your Veronica leaves, but there soon will be if they are not better managed. They are no doubt suffering from wet; and probably the result of bad potting. You may set the Pentlandia growing now in a warm greenhouse, but it would be better to keep back Bravoa till December or January.——*A E*—It signifies little where the seed is gathered; the laterals are *perhaps* the best source of the supply; the age makes no material difference. Crinums should be treated as stove plants; but they demand much more heat when growing than at any other time. Cr. longifolium is, however, nearly hardy, and has been planted successfully among the sedges of the banks of pieces of water. All the Brazilian bulbs are stove plants, and should be treated accordingly. You should consult Dean Herbert's Amaryllidaceæ for details relating to such bulbs.——*Amateur*—The bulbs of Anomatheca and others will keep best in pots during winter if quite dry. The best soil for Araucaria imbricata is a rich sandy loam. It will suit your purpose well and also the place. It is quite hardy, and requires no protection.¶——*E*—Apples and Pears will keep well enough on shelves in a dark cellar, provided it is perfectly dry. The roots of Salvia patens may be preserved over winter in dry sand. The name of an Oak whose leaves turn red in autumn is Quercus coccinea; we do not know what other Oak you mean.‡——*A B*—4*s.* the first four lines, and 6*d.* each line after.

SEEDLING FLOWERS.

CALCEOLARIAS—*M P*—Nos. 1 and 5 are very common varieties. 3 is a good self; and 2, 4, and 6 are pretty varieties, good in colour, and 6 rather novel in marking.*

CINERARIAS—*W B*—Your seedling is a very pretty variety; but we have the same distribution of colour, with greater substance and with broader petals.*——*J B*—There is no novelty in your seedling—the petals are very narrow, and the flower altogether wants substance.*

FUCHSIAS—*W T*—Your seedlings with rosy scarlet tubes and purple corollas bear too strong a resemblance to each other. Nos. 2 and 8 we consider inferior to many in cultivation, and those who possessed No. 6 would be indifferent about 5 and 1, the difference being so slight. No. 4 is the best flower among those sent, being brilliant and beautiful in colour, the corolla large, and the sepals expanding well. No. 7 is a good flower with a distinct corolla. These flowers are fine in texture, and though differing from each other, we consider that difference too slight; 4, 6, and 7 are the best.*——*N R*—Your seedling, a flower of medium size, having perfectly white tube and sepals, with deep rosy carmine corolla, is an extremely pretty variety—a clean, bright, and desirable flower.*——*A Sub, Tunbridge Wells*—The best and most decided variety among your seedlings is No. 1, possessing a white tube with scarlet crimson corolla; this is a very good flower of moderate size. Next to this is No. 3, having a bright scarlet corolla, with a tinge of the same colour infused into the tube and sepals. The rest, 2, 4, 5, 6, are but modifications of this variety, and inferior to it in brightness.*——*A Sub*—No. 1, though good in colour, is very ungraceful in form; 2 is the best in the collection, having a white tube, with sepals slightly tinged with green, and deep red corolla—a flower of moderate size, and apparently a prolific bloomer; 3 and 4 are both large, but without novelty; 5 is a graceful flower, differing in colour, but not equal to No. 2.*

PANSIES—*X Y*—Your seedling is common in appearance, and not first-rate in form, and there appears a disposition in the petals to curl, which prevents it being flat and compact; it will not rank as a show flower.*——*F J B*—The serrated edges of the petals is the great fault in your seedling, as it is equal in colour, form, substance, and flatness, to most of the flowers of its class in cultivation.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting communications is still delayed.

ERRATUM.—In the advertisement of MAUND'S BOTANIC GARDEN, at p. 684, col. *c*, No. 40, for "Parts 158 to 186," read "Parts 151 to 186," as being wanted to complete a set.

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

The Agricultural Gazette.

SATURDAY, OCTOBER 18, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Oct. 23 } Agricultural Imp. Soc. of Ireland.
THURSDAY, — 30 }

FARMERS' CLUBS.

Oct. 20—Collumpton | Oct. 28—Bromsgrove

WE have frequent inquiries from correspondents ON THE MANAGEMENT OF MANURE—a subject of which the theory seems to be pretty fully unfolded; but connected with which in practice there are still considerable difficulties. One of them may thus be presented to our readers:—The manufacture of manure is carried on, for the most part, during the six winter months, in open yards; in our own case, not an uncommon one on farms of two or three hundred acres, these yards occupy a surface of about 18,000 square feet. The fall of rain during this period is about 18 ins. Now, what are we to do with these 27,000 cubic feet of water? If any one can answer this question we shall be very much obliged to him.

No doubt the straw, layer after layer of which is repeatedly added, as each in its turn is trodden down, will absorb some of this water—but 27,000 cubic feet!—why, the straw, excrements, and all that makes up the bulk of our manure, swelled as they are with what water they *do* absorb, hardly occupy more space.

Must we collect this water in tanks, then? There *are* tanks in each of our yards; the latter being basin-shaped, in order that the water may flow towards their centres where the tanks are situated; they are cylindrical, and being 9 ft deep and 10 ft. across, will together hold about 1400 cubic feet. Let one-half of the water which falls be absorbed by the straw—we have still ten times the contents of our two tanks to dispose of, and these must be emptied as soon as full, or the yards will be flooded to the injury of the cattle kept in them. The fact is, and the extent of the yards explains it, that one heavy night's rain may fill the tanks; and the rain continuing next day, or, it may be, for a week, what are we to do with the water? Shall we pump it on manure-heaps prepared for the purpose, on beds of earth outside of the yard?—they have been exposed to the same soaking rain, and are already saturated. Nevertheless, that is what we have been in the habit of doing, and some curious facts will probably soon be published by parties who have been engaged in investigating the subject, exhibiting the power possessed by certain media of abstracting from water filtered through them the matters dissolved in it—facts tending to show that even a thoroughly rotted dung heap will absorb some of the matters which the tank water holds in solution. But then the colour of the water which runs from the heap as we continue pumping shows that *all* is not abstracted; that, in fact, great waste attends even this, which, under the circumstances, is, we think, the best thing the farmer can do. Perhaps these heaps should be under cover: this would certainly be an improvement on our present practice, could a cheap enough roof be erected; but then the contents of our tanks would soon supersaturate even the *sheltered* heaps, and the waste would proceed as before. Ought we then to have larger tanks?—tanks large enough to hold the whole of a winter's rain? As we said, 18 inches of rain fall during the winter, only nine of which are absorbed by the straw, so that if we make such tanks 9 feet deep, their area would need to be one-twelfth that of the yards, or 1500 square feet—a size which is out of the question. And even if we had such tanks, what could we do with their contents in the spring?—500 cubic yards, or nearly 700 tons of a very dilute solution of half rotten straw! It would not be worth the labour of carting any distance.

It must not be supposed that the urine of our well-fed cattle and horses is thus suffered to waste, but is hoarded up in other tanks and carried out with the dung in spring; indeed, not being so absolute, it would be well worth the labour of carrying with water carts, did we choose that mode of application, to a considerable distance.

Add to what we have stated the necessity of keeping the animals in our yards dry, if they are to prosper, and the main difficulty in the economical management of manure will be understood. In the case of fattening sheep, especially if, as they ought to be, they are fed in yards, the necessity of a dry bed is unquestionable. Treading and lying on wet straw will soon render them diseased; and foot-rot, &c., will soon bring their condition down.

The difficulty being understood—the remedy for it is sufficiently simple—but unfortunately it is too expensive to be generally adopted. Let the yards be roofed over, and thus let us throw off all this rain-water which so disconcerts us. And this plan, provided it could be effected economically, is doubtless the only remedy. But cattle fed either in stalls, or in boxes according to the plan suggested by Mr. WARNES, of Trimmingham, certainly cannot tread down the straw of an arable farm into manure fast enough, and it remains to be seen whether they could do so in covered yards. If this be possible, and if such yards could be properly ventilated, then, provided a sufficiently cheap roof could be erected, we believe that this presents the only opportunity of manufacturing manure in an unexceptionable method.

We said at the commencement of this article that this subject was one the theory of which was already pretty fully unfolded; but from the very interesting papers by our unknown correspondent "OXYGEN," which have appeared in two or three of our latest Numbers, it appears that even this is still an unsettled question. It does not need a deep acquaintance with the science of chemistry to perceive the plausibility and self consistence of the views urged in the communications to which we refer, but it certainly requires a knowledge such as will inspire more self confidence in the matter than the writer possesses to determine their *accuracy*. It, however, appears to him that "OXYGEN" has not *proved* what he said regarding the oxygenous fermentation which under favourable circumstances he asserts to proceed in animal and other matters containing nitrogen. Is it not necessary to an intelligent reception of these doctrines, which have been so plausibly suggested, that some statement of fact should be first received naming the products which actual analysis has ascertained to result from the process of fermentation carried on under the circumstances alluded to? And does it not rather militate against the soundness of these doctrines, at any rate in our climate, that nitrates are rarely, if ever, found in the soil of our fields or in the water of our springs?

EFFECT OF AIR AND RAIN ON MANURE.

THE folding of sheep upon land, for the purpose of dressing it, is a practice that has received the sanction of agriculturists as being a most effective method of manuring land at small expense. It affords a good example of the benefit of dung undergoing decomposition by the process of oxidation, instead of losing by the waste occasioned by putrefaction the most valuable parts of its fertilising salts. A certain number of sheep are collected upon a given extent of land; they consume a certain quantity of Turnips or Clover, and the excrementitious parts of the food so consumed are found to be sufficient to manure the land for the next crop. The quantity of solid and liquid manure so produced, would, if collected together, form but a very small heap, and, in the estimation of most farmers, much too small for an efficient dressing for the land over which it is spread. If this small heap were to be kept for five or six months, and turned over occasionally, for the express purpose of hastening the putrefactive process, as is done in the case of farm-yard dung, the small heap would be reduced still more in size, and so little would remain, that the owner of the land would think it useless to spread so small a quantity of dressing over so large a surface as the ordinary folding of sheep covers. The folding of sheep on land, therefore, is a practical acknowledgment of the superiority of the oxidising process over the wasteful process of putrefaction. There is nothing in the food of folded sheep that renders their dung particularly fertilising; they are graminivorous feeders, and live on by no means the most nutritious food; their excrement is much less rich in salts than that of the horse, or the carnivorous feeder; and yet how small a quantity of such manure serves to dress the land, when applied so that the chemical changes can take place in a manner the most effective and the most economical.

It is the peculiar mode in which the dung is applied that renders the comparatively small quantity of manure supplied by the folding of sheep so efficacious. The fluid part of the excrement is at once absorbed by the soil, and the solid parts are left upon the surface of the ground exposed to the oxidising influence of the weather. The process of putrefaction is wholly prevented. No carbonate of ammonia escapes; no offensive gases of sulphuretted hydrogen or hydrosulphuret of ammonia are generated to carry off into the air those valuable ingredients; no volatile compounds of cyanogen are formed to rob the soil of nitrogen; but all is effected with the truest regard to economy by exposure to air and rain. It is top-dressing with fresh manure, which has never sustained the least waste by putrefaction; hydrogen has no part in the process; the change is effected solely by the agency of oxygen, and the whole of the fertilising ingredients are carried into the soil instead of being dissipated into the air. The aid of the chemist is not required to fix the ammonia by means of gypsum or other questionable expedients; Nature, the best economist, provides in a much better way for the wants of plants; rain, dew, and air, bring a plentiful supply of oxygen to the decomposing elements, and carry the whole of the fertilising matters into the soil. It is thus that sheep-folding proves so valuable a means of imparting fertility to the land; it favours the formation of the economical compounds of oxygen, and prevents the generation of the wasteful compounds of hydrogen. Hence it is that comparatively so small a quantity of manure enriches so large an extent of ground.

Fears are sometimes expressed, that the extreme subdivision of the fertilising salts, effected by oxidation, in manure when laid upon the soil should cause them to be carried deep into the earth by rains, and occasion a great waste before the seed is put into the ground, or before the plant is ready to benefit by the application of the manure. If the earth were a sieve through which the fertilising salts could be washed and carried away by a few drenching showers, apprehension of waste from this cause might justly be entertained. But the combination of manure with the soil is not mechanical. The salts of the decomposed manure are no sooner carried by the rain into the soil than a chemical combination ensues, by which the fertilising materials are retained till the spongioles of the plant, by a superior chemical affinity or vital process, separate them from the soil for the purpose of nourishment. Aerated water falling on the manure, first oxidises the elements as they decompose, and then carries them into the soil, with which they become chemically combined; and it is no longer in the power of successive showers of rain to deprive the soil of them. The affinity of the soil for the salts is greater than that of water for them, and rain may fall in torrents without depriving the soil of that which had been conveyed to it. So strong is the affinity of the soil for the saline parts of manure, that water charged with them is soon deprived of its freight, as it percolates through the soil; and by the time that it reaches the drains, it is found to have parted with all the matters which it held in solution, and to escape from the drain as pure as when it fell upon the earth. So perfect is the provision made by Nature for insuring fertility to the earth; plants alone have the power of depriving it of its fertilising salts.

The manure that falls upon high-roads undergoes the same economical process of decomposition, by means of the oxygen conveyed to it in rain; and it then imparts to the surface of the ground a richness that renders road-scrapings an excellent dressing for Grass-land and other green crops. Those who see fertility in nothing but well-rotted dung are at a loss to understand what they cannot but acknowledge—that the refuse of well-frequented roads improves greatly the fertility of Grass-land. The surface of a well-frequented road, near a town, receives as good a dressing from the droppings of animals as the surface of land does from folded sheep. The dung is well-ground down by the traffic along the road, becomes well mixed with the soil, and is wholly preserved from wasteful putrefaction by constant exposure to air and rain. The salts thus formed by the oxidising process enter into chemical combination with the soil; and the scrapings when collected, notwithstanding the rains to which they have been exposed, retain a large share of the salts of the manure. The rains may wash away the soil, but cannot destroy the intimate chemical combination between the particles of the soil and the saline materials of the manure.

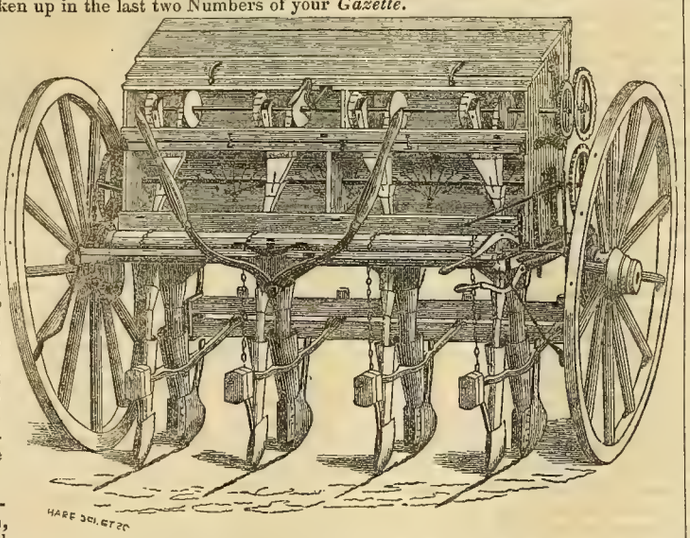
It may be that on their relative capacity for combination with the salts of manure, depends in some measure the natural fertility of all soils. Some have this capacity, or affinity, in a high degree, and abstract from the percolating water, charged with the salts of manure, a large part of its valuable freight, and place it within the reach of plants. Other soils, possessing but a slight chemical affinity for the saline matters held in solution by the water, deprive it of only a small part of what it conveys through the soil, and in such soils the water retaining much of the saline particles, carry it into the depth of the earth beyond the reach of the roots of plants. The comparative capability possessed by different soils for depriving water of its soluble matters would form a useful subject for investigation to the agricultural chemist. There are, perhaps, no soils that do not possess this affinity in a greater or less degree; and were it not so, the fertility of land could not be insured for many weeks; one wet month would carry away the fertilising ingredients of the soil and render it barren. Without such a provision, beautifully adapted as it is to the want of vegetation, virgin soils would not be as they are almost always found to be, rich in food for the use of plants; the incessant rain, to which in some countries the earth is exposed, would render the virgin soil valueless to the cultivator, until replenished by a fresh supply of manure. Virgin soil, on the contrary, is known not to require manure, at least for green and sometimes even for grain crops; it retains the salts which have been carried into it, and parts with them only to the more powerful attraction which the spongioles of plants exert upon them.

Water, in filtering through the earth, is regarded by most persons as undergoing merely a mechanical process; as giving out to the soil only those grosser mat-

ters which it suspends, but retaining the finer saline matters which it holds in solution. Even sea-water may be made to part with its salt in its passage through the earth, showing that it is a chemical affinity exerted by the soil, and not a merely mechanical agency. An opinion was entertained many years ago by an ingenious chemist, that the fresh water springs on the coast were the result of sea-water passing through the soil, and losing the saline character by infiltration. To ascertain the possibility of converting sea water into fresh water by filtering, he made an experiment on a large scale, and found that about 70 feet of earth would deprive a current of sea water of the whole of its saline matter, and make it quite fresh. This powerful attraction of the soil for saline matters may serve to quiet the fears of farmers as to the loss supposed to be occasioned by top-dressing. When once the land is charged with the fertilising ingredients of manure, it will be sure to retain them, until the growing crops require them for their support.—*Oxygen.*

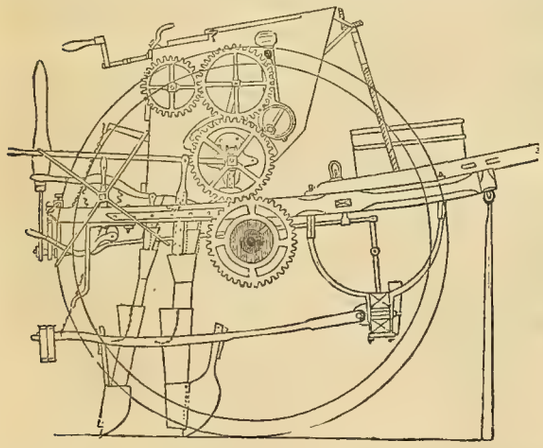
DRILL MACHINES, FOR TURNIP AND OTHER SEEDS, WITH MANURE.

I send you two blocks, representing Messrs. Garrett's Suffolk drill for Turnip-seed, which will further illustrate the subject you have taken up in the last two Numbers of your *Gazette*.



Both views point out that there are two boxes in this machine; one for seed and the other for manure. The latter delivers its contents in the same rows with the seed, but by means of delivering tubes in front of the coulters connected with the seed-box. The seed is thus placed above the manure. There are various ingenious contrivances figured here which I may just mention. There is, for instance, a traversing as well as rotatory movement given to the stirrers in the manure-box, for the purpose of the more effectually loosening the mass, and insuring a constant supply to the cups of the manure-barrel; there is also a lever steerage behind, by means of which the drill-man can the more certainly insure the perfect straightness of the line in which the seed is sown.

My chief object in sending you this communication, however, is to ask your practical readers their opinion of the policy of sowing manure thus in rows along with the seed. My own opinion is, that farmers will find their interest in cultivating the *land*, rather than in manuring the *plant*; and that a crop, where success is dependant on the fertility of the soil, consequent on its management during a series of years, is more certain than one whose success is made to depend on the strength of the manuring which it has received during the current year. Though all manurings were applied broadcast, and well disseminated throughout the active soil, they would be equally useful to the green crop for which they were applied. I have found the roots of the Swedish Turnip 5 feet below the surface on which its bulb was growing, and all around it to a distance of 3 or 4 feet the fibres of the root to a lesser depth had completely permeated the soil, leaving, as it were, no stone unturned from which they might extract a contribution towards their subsistence. There is no fear, in dry soils, of the plant losing the manure laid on the land; and, then, consider the advantage to the succeeding grain crop of having the manure applied uniformly to the soil. Bones *drilled* for Turnips will leave in the succeeding Wheat-crop rows of higher straw, which do not ripen at the same time as the rest—these rows are where the Turnips grew. I am not now objecting to the small quantities in which artificial manures are now applied, but I am contending for it, that whatever the quantity may be, it ought to be applied uniformly over the surface; and I should be glad to hear the opinions of others on this point.—*M. S.*



ARE PLUMP OR LEAN GRAINS BEST FOR SEED?

The review of Mr. Le Couteur's work on Wheat, in a late Number, has induced me to address you some few remarks—the subject of which I have frequently thought of calling your attention to—because I fancy that a subject so very important to the agriculturist should be set at rest for ever, and not agitated on speculation at one time, and roundly asserted as a fact at another. I allude to the comparative value of plump or shrivelled Wheat as seed. Mr. Le Couteur says, "It must be obvious that lean and shrivelled Wheat is not so likely to nourish the young plants just starting from its embryo state into life, with a mere miserable skin of a parent to live on, as the fine rich nutriment to be met with in a plump, round, farinaceous grain full of meal. As well might a farmer expect to have a fine fat skipping calf from a poor lean cow," &c.

Now, what does the celebrated Sir Joseph Banks, Bt., say upon this point, in his "Short Account of the cause of the Disease in Corn called the Blight, the Mildew, and the Rust," published by Sherwood and Co, viz.: "It cannot be improper in this place to remark, that although the seeds of Wheat are rendered, by the exhausting power of fungus, so lean and shrivelled, that scarcely any flour fit for the manufacture of bread can be obtained by grinding them, these very seeds will, except perhaps in the very worst cases (80 grains of the most blighted Wheat that could be obtained, were sown in pots in the hothouse; of these 72 produced healthy plants, a loss of 10 per cent. only), answer the purpose of seed-corn as well as the fairest and plumpest sample that can be obtained, and in some respects better; for, a bushel of much blighted corn will contain one-third at least more grains in number than a bushel of plump corn; three bushels of such corn will go as far in sowing land as four bushels of large grain.

"The use of the flour of corn in furthering the process of vegetation is to nourish the minute plant from the time of its development till its roots are able to attract food from the manured earth; for this purpose one-tenth of the contents of a grain of good Wheat is more than sufficient. The quantity of flour in Wheat has been increased by cultivation and management, calculated to improve its qualities for the benefit of mankind, in the same proportion as the pulp of Apples and Pears has been increased, by the same means, above what is found in the wildings and Crabs in the hedges.

"It is customary to set aside, or to purchase for seed-corn, the boldest and plumpest samples that can be obtained, that is, those that contain the most flour; but this is unnecessary waste of human subsistence; the smallest grains, such as are sifted out before the Wheat is carried to market, and either consumed in the farmer's family, or given to his poultry, will be found by experience to answer the purpose of propagating the sort from whence they spring, as effectually as the largest.

"Every ear of Wheat is composed of a number of cups, placed alternately on each side of the straw; the lower ones contain, according to circumstances, three or four grains, nearly equal in size; but towards the top of the ear, where the quantity of nutriment is diminished by the more ample supply of these cups that are near the root, the third or fourth grain in a cup is frequently defrauded of its proportion, and becomes shrivelled and small. These small grains, which are rejected by the miller because they do not contain flour enough for his purpose, have nevertheless an ample abundance for all purposes of vegetation, and as fully partake of the sap (or blood as we should call it in animals), of the kind which produced them, as the fairest and fullest grain that can be obtained from the bottoms of the lower cups."

I presume not to make any remarks of my own on the above extracts, coming as they do from two authorities of much fame, yet differing as widely as the poles. But I will state the facts of an experiment of my own five years ago, relating to this point. After reading a very interesting article on a series of experiments on various Wheats, in the first volume of the "Journal of the Royal Agricultural Society," and wishing to improve my own culture of that grain, working upon the principle of human imperfection—that Nature is bountiful—and that one advance in improvement should beget further exertions, I determined to adopt the advice contained in a passage of it, viz, "the planting the finest and plumpest seeds selected from the best sample that could be obtained of it." I did so, from a very fine sample of Red-straw Lammas. I had all the inferior seeds riddled out, until there remained none but the finest and plumpest seeds, which I had drilled in at 10 ins.; it was done by a very experienced and clever man, who observed to me on being near him, when bouting the drill and stopping to replenish the seed-box, "Why, sir, it seems almost a pity to put such a beautiful sample in for seed!" It was into a field of three acres of most excellent Wheat-land, in fine order and condition. Nothing could possibly be more perfect in every respect, for everything was done, hoeing, weeding, &c., that good husbandry could devise. Yet, on harvesting the crop in the following year, I found it not one jot better than any from my other Wheat-land; indeed, my bailiff and people pronounced it inferior. There was a great proportion of small Wheat in it.

I cannot see any analogy with animal procreation—for I know at this moment a family of very fine men and women, tall, stout, and well proportioned, whose parents are of diminutive stature, the mother a very miserable looking, lean, and short woman, and her husband not 5 ft. 6 ins. high.

I am preparing to put this question at rest, in my own mind—as far as circumstances will admit—(at the same time recollecting the shrewd remark of Bonaparte when at St. Helena—"that circumstances are stronger than man,") by drilling the same three-acre field this year, after Beans, with Navarre Wheat, four pecks to the acre, at a foot apart, one-half to the plump seeds, and the other half to the tailing or small seeds, well cleaned and steeped. A sample of each shall be carefully preserved, and every attention paid to the cultivation of it. And when harvested I will send you a report, with a sample of it before and after harvest.—*Waterhouse.* [Thank you: that is the only way to determine the point. Growing the seeds in pots in a hothouse is not the way to determine *agri*cultural truth.]

Home Correspondence.

Potato Murrain.—The Potatoes are, for many miles around where I write, killed to the ground by a severe frost, which took place on the 24th Sept, and which, for severity, exceeded all I ever knew at that time of the year. It destroyed all Dahlias, half-hardy mass flowers, Kidney Beans, and even severely injured the Endive and Celery crops here. I must confess that I expected this frost would prove the poor man's friend in regard to the Potato disease; but, no, their decay seems to have been accelerated by it, not, I would conceive, on account of mere depression of temperature, but that all healing supplies of returning sap being at once cut off, the virulent gangrene pursues its work of destruction totally unchecked by any antagonist power. I have examined hundreds from affected fields (and I have not met with one for the last month in which I could not detect this evil), and in all I have discovered the same symptoms, namely, the disease first established by means of the hilum on that end of the Potato, which henceforth assumes a darker colour, at first, for a week or two, merely on the surface; this, by degrees, spreads to the eye end of the Potato, and it is when established there that the chief work of destruction occurs. Shortly after this, the character of bruised flesh appears, and I need scarcely add that when that takes place total destruction follows with great rapidity. I have not a doubt on my mind that this mildew commences with the leaf, like other mildews, and, breaking up the tissue there, which in the Potato is extremely delicate and watery, as compared with other mildew subjects (such as the White-thorn or the Pea), induces the gangrene, which, finding a proper nidus all the way down the stem, descends as rapidly through the stem into the Potato, the cellular tissue of the interior of which affords as ready a facility for the spread of it. I examined a bog or pit a few hours since, in a neighbour's field; I took thence 15 Potatoes, the first I met with. Out of the 15, I found only three sound; and these could not hold out a week. I had some of the same age, and in the same stage as to ripeness; these I mowed down, and took up, the moment I perceived the mildew beginning to descend by the stem; they have now been in a Potato hole for nearly a month, and I have lost, probably, about 1-20th. This I can readily account for; there were one or two patches in these, in which the disease was further advanced than in the rest of the plot. It spreads by inoculation in the pits or bogs, just as Mushroom or any other spawn does. Wherever I find a suspicious patch, there are three or four Potatoes gone together—never one alone. I turned the before-named yesterday, and shook among them a mixture composed of equal parts of quick-lime, charcoal dust, and mere dry sand, the sweeping of a shed; the result of this I will announce in due time. If the disease is not far advanced, I should think the causticity of lime a most likely thing to stay its ravages; whilst charcoal dust, or any burnt refuse, perfectly dry, might be useful in regard to its antiseptic properties.

I would advise all those who care for good seed, to look sharp out; for, I fear, there will be great difficulty in getting sound seed next March. Too much reliance should not be placed on importations; all Europe, or at least a considerable part, may be affected, more than has yet been stated. Persons unused to these fungi are apt to flatter themselves, through the apparent soundness of the Potato in appearance in the earlier stages of the disease; and I can only say that, from what I have seen in the last five weeks, I shall expect to hear of two-thirds of the crop being lost wherever the mildew had established a footing.—*R. Errington, Oulton-park.*——In my former remarks I considered the vitality of diseased Potatoes destroyed, and as regards the power of re-producing tubers, this is probably the case; but I am surprised to find that many are making an effort to vegetate, although the eyes are surrounded with the malady. I have eaten many of the diseased tubers boiled, with the affected parts removed, and do not find that they are different in flavour from sound Potatoes. In storing reds or blues great care is required, for a casual inspection will not detect bad ones; but the disease in white sorts, if dry, is observed directly. Any sort, if sound and kept dry, will remain in good condition. Diseased Potatoes oven-dried, or even baked, become softened; but I imagine if large diseased Potatoes are properly pared, warm air dried, and put into fully dried sand, they will keep sound and good for use for some months. This I intend trying with good sized ones. With me the disease is worse under orchard trees than in the more open parts; but in a 16-acre field in this neighbourhood, in which electroculture has been tried, a large proportion is affected, but not in my opinion so much from the conductors placed there, as from the nature of the soil, which is a strong loam, holding much moisture. The disease now prevailing is distinct from scale or dry-rot; the former arising from worn out soil or bad dressing, and the latter apparently from bad management in storing. This year the upper part of the haulm has been different from the usual appearance, having brown patches on it, and being inclined to wither, while the lower part is as yet not affected; and none of these are showing flower. I still entertain the opinion that electrical agency acting through the medium of the watery stem has been the cause of the disease.—*L. S. Smartt.*——How to preserve the small quantity of Potatoes we now possess is a matter of no small moment. From my own experience I would guard your readers against the use of salt or salt water. In my many shipments of Potatoes to the London market I have occasionally suffered severely by salt water accidentally wetting the cargo. It causes immediate decay; and I would advise that, before the practice recommended by "Falcon" is adopted to any great extent, the opinion of a "Water-side Salesman" be asked. Theories and speculations may possibly prove correct, but "knowledge bought is better than knowledge taught;" and it is a saying at St. Peter's that "An ounce of practice is worth a pound of theory." —*J. S., Bromston.*——Knowing the antiseptic qualities of chloride of lime, it struck me that it might prove efficacious in stopping the disease. I had a good-sized washing-tub half filled with water, to which I added half a pint of the chloride—and this mixture may be be used again and again, and as many Potatoes put in as the water would cover, and left in for 24 hours at least; they were taken out much hardened and whitened, and with an appearance most promising as to the probability of their untainted parts still keeping sound. Time, however, must prove this; I have no doubt that the disease is effectually checked by it. There is an earthy taste imparted by the process to the Potato, but it is no greater than that often found in Kidneys, and it may go off in the course of a little time. Allow me to add, that I sincerely trust that this providential visitation may have the happy effect of counteracting that forgetfulness of the unmerited bounty of the Giver of all good, which I fear is not uncommon, from the uninterrupted and abundant supplies with which divine goodness has so long furnished us; and that with a deeper sense of the utter dependance of man, and with livelier gratitude for the untiring kindness of our gracious Creator, the expressive prayer of our litany may be used: "That he would ever give and preserve to our use the kindly fruits of the earth." Had the evil also befallen our corn crops the calamity would indeed have been fearful; then, as a thank-offering for what has been so mercifully preserved to us, let me express a hope that as much as possible will be done by all who have it in their power to be charitable, to alleviate the extra suffering which, I cannot but fear, the poor will experience during the on coming winter.—*T. M. Ready, Vicar of Mountnessing, Essex.*

Soap as a Manure.—My attention has been drawn to a letter in your last Number, calling the attention of the agricultural world to the use of soap as a manure. I have been much astonished that this question has not been agitated already, as not only was the value of soap-suds known to almost everybody keeping a garden, but its constituent parts are those very materials which the best authorities consider as the most valuable manures, and they are also in a condition to be easily assimilated; that is, soap is mainly formed of animal matter (tallow), in combination with alkali, and it is capable of solution. I can only account for this extraordinary neglect of so valuable a manure from the fact of soap being subject to an excisable duty, but, surely, neither the Ministers, the Legislature, nor the public, would suffer fiscal regulations to interfere with the development of the resources of the soil, if soap can be advantageously used for such a purpose. Is guano to be imported duty free, and a material of home produce (in many cases a superior manure) to be kept out of use by excise laws? I will mention a few of the articles that could be advantageously used for the manufacture of a cheap soap, all of which, I believe, are occasionally used as a manure. How much more valuable they would be, combined with soda—itself a great fertiliser—it would be idle to dwell on. First in importance is fish. Sprats are largely used in the eastern counties: these could be easily converted into soap, and carried to other parts of England. Herrings and pilchards come under this list. Surely, it is as well to convert our fish into a valuable manure as to let them be passed through the stomachs of birds, and then send 10,000 miles to fetch them. Woollen rags are largely used by the Kent hop-growers; they make a soap easily, in which form they would be a far more valuable application than in their rough state. Blood, which is principally thrown away, makes a kind of soap, and would form a most valuable manure. Bones, if previously boiled in caustic soda, give out their fat and gelatine, and form a soap; and the earthy matter is in a state of greater division, and would be easier assimilated by the plants requiring phosphoric acid. These few remarks will, perhaps, help to draw public attention to what I cannot but consider the most important manure that can be applied, and of which we have the greatest and cheapest supplies.—*An Old Chemist.*

On Harvesting Corn before it is Dead Ripe.—I read your remarks on the propriety of cutting Wheat while yet a little green in last year's *Gazette* with much pleasure, as corroborating the theory of Professor Johnson and other writers on the subject. I attended to your suggestions, and though laughed at by my neighbours as an arrant fool, yet I persevered in my plan, secured the crop in excellent order before the weather broke, and on thrashing I was delighted to find that the quality was superior, and the sample much prized by the corn dealers and bakers. And be it remarked, that the produce of those fields which were cut down fully 10 days before they would have been thoroughly ripened in good weather, was decidedly superior in quality to that of such as were reaped four or five days prior to their being thoroughly matured. These remarks have reference to Wheat of the Hopetoun variety, sown after fallow, Vetches, Beans, Potatoes, and Turnips. Your remarks on the advantages which accrue to the farmer who cuts his Wheat in a green state in the event of wet weather supervening previous to the crop being carried, cannot be too strongly impressed on your readers who are sceptical of what has been written on this subject, for I have lately experienced, to my bitter regret, the impropriety of allowing Wheat to become dead ripe before reaping; it was a small patch, and yet I found, on going over my Wheat fields in which most of the sheaves had been prostrated by the recent tempest of wind and rain which has passed over this neighbourhood, that all the ears were perfectly sound, even where they were embedded in the luxuriant Clover, except on the patch where the grain was thoroughly ripe when cut; and yet the sheaves were lying on clean stubble and on a clayey loam thoroughly drained! I consider your remarks on early cutting so valuable, at least as applied to Wheat, that I should feel greatly obliged by your extending your remarks to Barley, Oats, and leguminous plants. Permit me to call your attention to the report published in the last Number of the "Quarterly Journal of Agriculture," and especially to the paragraph respecting the Oat crop in the high districts:—"For our own parts, knowing that green Oats will ripen in the stook, we would much prefer to cut them down in a green state, than allow them to stand to be frosted." I should feel obliged by your solving my doubts respecting the applicability of early cut Wheat for seed. I have acted cautiously in this respect, having allowed two breaks of land, sowed last year with two varieties from an early district, to remain standing until almost dead ripe, except those after-growths which came off from the plants eaten over by hares, and which were very green. I have proved by experiment that light, *i.e.*, damp grain, vegetates more slowly than what is sown in high condition, and the plant produced from the former must, from its weak constitution, be peculiarly liable to the attack of smut-ball. Will the plant produced from grain which has been cut green and has, nevertheless, attained to a condition or weight equal, if not superior, to that which has been thoroughly ripened on the ground, be sound, healthy, and in no way be predisposed to the attack of the insidious parasite? I feel very anxious on this point, because I have both seen and heard a good deal about the quantity of ball found in the new Wheats brought to the markets in the south of Scotland; may not this disease be the result of the wetness of the past season and the gradual extension of the practice of cutting Wheat a "little green?" There are many nostrums for the prevention of this foul disease, several of which I have tried with sound and unsound Wheat, *i.e.*, Wheat already infected with smut; and I have sometimes had diseased crops from sound seed. 1. Steep for 10 minutes in a strong solution of brine, sufficient to float an egg, drying with slaked lime. 2. Steep for 10 minutes in stale urine, drying with slaked lime. 3. Steep for 10 minutes in a solution of bluestone (sulphate of copper), 1 lb. to 4 bushels of Wheat, or 2 lbs. to 4 bushels. Some farmers assure me that it is wrong to steep the grain; that it ought to be dipped and then allowed to drip in cloths, whilst others, again, maintain that the grain ought to be thrown into heaps, 4 bushels in each, on the floor, and the solution of copper poured from a watering pan, stirring the mass all the while till thoroughly wetted. What plan would you recommend me to follow? [The latter is the easier plan, and being sufficiently successful, we adopt it in preference to the other. Do not use an iron watering pot, as the sulphate will eat through it]. Is it possible, by means of pickling or steeping, to grow a sound crop from a sample containing smut? Change of seed from an early climate, though said to be a specific, does not agree with my experience. P.S.—I have a field, some parts of which are very foul from Couch Grass, and I intend fallowing it next summer. It stands greatly in need of thorough deep tillage. Would you advise me to do so at once, or to plough it before winter with a light furrow, say 7 to 9 inches deep, and to clean it with Finlayson's grubber next spring, previous to ploughing it with three horses to the depth of 13 or 14 inches; soil, 9 acres stiff red clay, 10 acres of dark loamy clay, both of great depth, and admirably adapted for Beans, Wheat, and Red Clover, lying over the trap formation?—*Taxus.* [If the field be full of Couch, you had better plough it shallow before winter; it will be the easier cleaned next spring. We have no experience of the relative value of ripe and hardly ripe Wheat as seed. From analogy we should conclude the former to be the better of the two].

Saintfoin, &c.—I am desirous of laying down to Saintfoin a field of 9 acres. It was so for six years and was broken up 12 years ago, since which I have attempted to cultivate Clover in it twice unsuccessfully until the year before last, when it produced a very fine crop blended with Rye-grass. So good was it that I was induced to keep it on to the following year (this year); but the Clover nearly all failed; the Rye, however, holding on, of which I had a tolerably good crop, having a sprinkling of Clover in it. I attribute the good Clover crop to gypsum, which I powdered a previous crop of Swedes with, when 6 or 8 inches above ground, at the rate of 3 cwt. per acre, and 22 tons per acre was the result. Now, considering the previous failure of Clover twice, and the good crop of Clover only after gypsum, and its lasting but one year, I have some apprehensions of Saintfoin not succeeding if I lay the field down to it next spring. Does the failure of Clover render the failure of Saintfoin improbable? The soil consists of sand and limestone brash mixed with strong loam; subsoil, bastard freestone, clay, fuller's earth, &c. It was a coppice wood 40 years ago, and has yielded excellent crops of everything, particularly Wheat and Barley. Why should not Saintfoin be drilled in at 20 inches, so as to be able to weed it occasionally; and if milled seed be used, would it not be better than the rough seed usually sown? which I have always fancied contained numerous seeds of weeds adhering to it. Barley was the last seed crop. May not Wheat be put in now with the Saintfoin, drilled across the other at 1 foot. Oats would be quite as overpowering in point of straw as Wheat, for it never has had Oats in it before. The Swedes above-mentioned had had 10 tons of manure, with some salt mixed in it, per acre, ploughed and harrowed in first. The seed was then drilled at 27 inches with a compost made of coal ashes, highly saturated with fetid manure liquid, and when dry, some wood ashes mixed, 15 bushels per acre.—*Waterhouse.*

Derbyshire Farming.—I beg to inclose the following statement of a mode of cropping land in the hills of Derbyshire, where corn hardly ripens this year, and where cultivation requires the best of forcing, instead of receiving the worst of exhausting. The soil light, on grit stone. 1841: Oats. 1842: bare fallow and Potatoes. 1843: Wheat. 1844: Oats. 1845: Wheat. I inclose a specimen of the Wheat grown. The only observation made by the farmer was, that "it was a bad fallow that would not give three crops;" simply adding, that "everybody took three crops after a fallow." I leave you to draw what conclusions you please from this precious morsel of agricultural statistics. There is room for some speculation here.—*W. E. Nightingale.*

Prize List of the Agricultural Society.—That we are bad judges in our own cause is undeniable, and I would suggest to your correspondent, "An Old Farmer," that it is rather for your readers than himself to determine whether he has satisfactorily established the absurdities which he asserts to have proved against the Royal Agricultural Society in their distribution of prizes. If his letters on this subject carry no more conviction to the minds of your readers than they do to my own, he has laid claim to more than he has proved, and my original positions were not far wrong. I should not have troubled you farther on this subject, did not one or two passages in the "Old Farmer's" last letter appear to me to bear hard against himself; I refer particularly to this passage, "I say it is truly absurd to offer prizes to plough-makers, and machine-makers, to follow up a business that is dependent on agricultural improvement; I say it is as absurd to give a mechanic a 10*l.* premium for making a subsoil pulveriser, which will cost 5*l.* 5*s.*, as it would be to give a harness-maker 5*l.* for making a set of ploughing harness on an improved principle for the horse to draw the plough." In the first place, these prizes are not, in fact, offered to induce these parties to follow up their business, but for the truly desirable purpose of urging them to exert their ingenuity in remedying the defects of implements which are generally felt to be imperfect at the present moment, thus conferring substantial benefits on all agriculturists. A most interesting report has lately appeared in your journal of a series of experiments in the draught of ploughs; the result must convince any reasonable person, not

only that much yet remains to be done, but that the best implement makers are still somewhat at fault as to the principles which will enable them to produce a plough combining light draught with such power as shall ensure, in the most efficient and economical manner, deep ploughing, the very foundation of agricultural improvement. Can there be a more legitimate object for the premiums to be offered by this Society, or one of more vital importance to farmers of any class, combining, as it does, encouragement to produce a really efficient implement, with the best chance of ultimately obtaining simplification and reduction of price. What implement can we find on the premises of a farmer at this moment that will not admit of improvement, and which, if improved, would not be of advantage to him? Few things, perhaps, simple as it may appear, more than harness. If we examine the mode in which horses are harnessed to ploughs, I confess it appears to me not a bad subject for a prize; and if that prize led to a general improvement in the present system, it would, in my opinion, be money well laid out. My attention was, twelve months since, called to this very subject; I adopted ultimately the pattern in use amongst Scotch farmers, and have had no reason to regret having deviated from that generally in use amongst the "Old Farmers" in my neighbourhood. I have the highest respect for the talents of Dr. Playfair, but, at this particular period, agriculture appears to me to stand more in need even of the judicious application of mechanics than chemistry. The English farmer now stands in this critical position; he demands a continuance in his favour of a protecting duty, whilst our population increases in the ratio of 300,000 or 400,000 per annum; it is clear that to make his claim good, he must show a power of increased production; the stock he keeps, and the implements he employs, are the means by which this necessary result is to be attained, and the great object of the Society has been, and still is, to raise in either department the standard of excellence. Again, your correspondent states "that he has shown, by figures, that at Shrewsbury 1000*l.* had changed hands without doing an iota of good to the second class farmer." A farmer, be his holding large or small, may be first-rate in his practice. In competition for prizes, the Royal Agricultural Society knows no "classes;" the "noblemen and gentlemen" your correspondent somewhat invidiously refers to. The large and small farmer are, for the time being, in one class, as regards the award of premiums, and when the Society ceases to act without favour or affection, it will deservedly forfeit the confidence of its 7,000 members. Although these "noblemen and gentlemen" often appear as successful candidates, Messrs. Jonas Webb, Ellmans, and other enterprising and intelligent tenant farmers, who have always led the van in the march of agricultural improvement, are often, and deservedly so, holders of the first prizes. It is now allowed at all hands that animals of the purest breeds are the most profitable; and those farmers who employ the most efficient implements carry out, in the most perfect and economical manner, the different operations of husbandry. These facts surely apply with equal force to all classes. The small farmer, by watching the various improvements, as tested by experience, has an opportunity of working up to a higher standard; but if his own energy and good sense fail to convince him that his very existence depends upon his moving with the times, can it be expected that he will be roused to exertion by the hope of obtaining a 30*l.* prize. There are but few, if any, districts in which local societies do not afford opportunities of competition. There let the "Old Farmer" enter the lists, but, as I stated in my former letter, a national society must keep in view objects of a national character, and as a general rule, on a comprehensive scale. Whether your correspondent has made out his case against the Society, and proved the absurdities of their practice, as he asserts, your readers will be the best judges. The first step towards sound improvement is a correct apprehension of those points in which we are deficient. As regards the science and practice of agriculture, we are all far behind; and whilst so much yet remains to be done, let no feeling of "classes" either prevent our working in concert, or cause us to look with jealousy on those who fairly win the prize. No society can at once be perfect, but I am still of opinion that the alterations suggested by your correspondent as improvements are wrong in principle, and would be a change for the worse. So long as the struggle for the premiums offered by the Royal Agricultural Society is conducted on the genuine principle of fair play, and tends to promote the interests of all those engaged in agriculture, without distinction of persons, let no member of the agricultural community either sow dissensions where union alone is strength, or attempt to disparage those who labour in their behalf.—*A Subscriber, and Member of the Royal Agricultural Society.*

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY.

Meeting at Dumfries.—A public breakfast took place on Tuesday, the 7th Oct., Sir William Jardine in the chair. He introduced Professor Johnston to the meeting, and stated that the subject for discussion was Furrow-draining—what soils, elevations, and the limits to its being most productive.

Prof. Johnston addressed the meeting upon the objects of the Agricultural Chemistry Association, and on the means they were using to disseminate important agricultural information. He then stated that in reference to the subject of draining, Mr. Smith, of Deanston, had undertaken to sum up at the end of the discussion; but to clear the way for the practical information about to be given, he first begged to direct attention to the following points:—First, with respect to the general effects of draining. By draining the soil becomes warmer—the climate more equable—you require less seed, and the seed-time becomes more certain—the working of the land cheaper—mildews less frequent—harvests earlier—the crops larger and more valuable in quality—you can grow Barley and Wheat where you could not before—cattle thrive better, and have better food—the stiffness of clay land disappears, and you are able to prepare land for further improvement; a great and important object. In short, unless you drain your land, all that chemistry can do for you is of little value. Then, how does draining bring these results about? Why, if you put in drains you let the water in the soil escape, and, therefore, the soil becomes warmer; you let the roots of the plants go deeper down, and therefore the soil is deepened; you let down the air; you allow the rain to sink where it falls—the rain falls, and the benefits which follow are, first, the surface of the soil is not washed as it is when allowed to go over the surface, so that it gives to the soil, on every spot it falls, whatever it brings down, for rain brings down a quantity of fertilising matter; and, secondly, if you enable the rain to sink where it falls, it carries down with it and washes away those substances which, in some soils, are hurtful to the plant. Hence the benefits of draining, and the use of the subsoil-plough, which Mr. Smith has so long urged on practical men.

Mr. Elliot, of Hardgrave, said—In the county of Dumfries he calculated that there were 180,000 acres of arable land, of which fully more than one-third required to be drained before they could be profitably cultivated. There were other 60,000 acres in a state of nature, which might be cultivated to advantage, were they sufficiently drained; so that there were 120,000 acres of land in the county of Dumfries requiring drainage. Taking the expense of drainage at from 5*l.* 15*s.* to 6*l.* per acre, a capital of 700,000*l.* would be necessary for this great work. It ought to be recollected as an encouragement, that the improvement of the soil was followed by an improvement of the climate; and that this was the best way to employ the agricultural population. Taking the extent of land he had named to be drained at 18 feet apart, there would be 16 million roods of drains required, the formation of which would employ 1000 men for 10 years; as the cutting of the drains amounted to one-third of the whole expense. Were landlord and tenant to unite cordially in this great work, pauperism would perish, and plenty and contentment would reign over the land. This was no idle vision, no mere stretch of the imagination: without any sacrifice it could be done, and even enriching those who created this employment; like mercy it was twice blessed, blessing him that gives, and him that takes. The question relating to this subject, which was to be brought more particularly before the meeting, was on what soils, and on what elevations, should drainage not be applied? In the first place, it was his decided opinion, that all wet soils under cultivation should be drained, wherever or whatever they might be; or otherwise they should be thrown out of cultivation. They might be laid out in pasture, open drained, and well limed, but without furrow-draining they could not remain under the plough with advantage. In the second place, it was difficult to say where the soil and situation were such as to render draining inexpedient. Land near the sea, and exposed to the full influence of the winds should sooner cease to be cultivated than land more inland, though more elevated, where the shelter was superior; again, land in the vicinity of a mountain was inferior in point of situation to land on a plain. Proximity to markets was another very material point. They would soon have a railway passing through the centre of the county; and land near the line would pay better under cultivation than other land more favourably placed by nature; and he believed that Potatoes would be profitably grown on the highest ground through which that railway would pass. There were thus, it would be seen, very different circumstances in operation; and in his opinion every tenant must judge for himself on this point. There was a wide field before them: there were 10,000 acres of ground in Lochar Moss very little above the level of the sea, which by proper drainage might be converted into a rich and fertile valley, bearing excellent crops, in place of, as at present, engendering fog and vapour, spreading the pestilential influences of rust and mildew over the surrounding fields. There were, also, nooks and corners here and there all over the country requiring drainage; and extensive tracts with a retentive subsoil, which ought either to be drained, or thrown out of cultivation; for, in their present state, he was quite confident that the expense of labour and manure was thrown away upon them; however well manured, they speedily returned to their former barrenness. They should also recollect that, when land was once properly drained, its character was radically changed for the better. He could not refrain from telling them, that the time was come for agriculturists to be up and doing; they could not afford to look idly on; the country would soon be netted with railways, and they must keep up with the spirit of the age. They must recollect that, where two run a race, if one stands still he must fall behind; and if the improvements of the present time were not adopted, that would be their condition. He would, therefore, add his mite of praise to Mr. Smith, of Deanston, who had first taught them what they should do. He (Mr. Elliot) was not one of those who despaired for agriculture; he saw an energy and an enterprise springing up of the most hopeful nature; and in every tile kiln which he observed he fancied there was a day-spring for agriculture. He would fain impress upon both landlords and tenants the duty of pressing forward in the march of improvement; he was sure that the rapidly increasing population afforded an ample guarantee for the return of their money; and that if they cast their bread in this way upon the waters, it would return to them after many days. He deeply felt the importance of the subject, and were it in his power he would not sit down until he had roused the dormant spirit of them all to be up and doing at this great work. To landlords especially he would say, there was no surer way of getting rents well paid than by having their estates well drained: there could not be, indeed, a surer investment for capital, which, while it enriched themselves, had the advantage of employing the labourers, who with their wives and families would be able to eat the bread of plenty and drink the cup of temperance. After having received thanks for his able address, Mr. Elliot read a statement, which, he observed, scarcely gave a fair result, as his land was partly wet and partly dry. As a whole, the principal improvement on his farm had been effected by drainage.

Drains put into the farm of Hardgrave since 1837:—40,000 *roods, of* 18 *feet to the rood.*

PRODUCE OF THE OAT CROP ON THE FARM:—

1st year,	1837	.. ..	4.4 times the seed.
2d	do. 1838	.. ..	5.6 ,,
3d	do. 1839	.. ..	6.5 ,,
4th	do. 1840	.. ..	6.8 ,,
5th	do. 1841	.. ..	8.4 ,,
6th	do. 1842	.. ..	7.6 ,,
7th	do. 1843	.. ..	8.5 ,,
8th	do. 1844	.. ..	8.3 ,,

BARLEY CROP:—

1st year,	..	.. ..	8.2 times the seed—(a small quantity this year sown on a piece of the best land.)
2d	do. ..	.. ..	5.4 after one.
3d	do. ..	.. ..	6.2 ,,
4th	do. ..	.. ..	10.2 ,,
5th	do. ..	.. ..	10.1 ,,
6th	do. ..	.. ..	11.7 ,,
7th	do. ..	.. ..	10.5 ,,
8th	do. ..	.. ..	11.8 ,,

Mr. Elliot said, one part of his farm was a moor, which all those in his neighbourhood knew to be almost worthless; its value, indeed, was not 2*s.* an acre. There were 91 acres of it full of pits, in which Water Lilies grew, and the remainder was covered with Heather, Rushes, and Whins. He had spent 600*l.* on draining it, tiles being dear at the time. The first year 40 acres of it produced 3500 bushels of Oats; the second year the crop was rather better—Potatoes and Turnips growing on the land, the latter of which he thought would weigh 18 tons to the acre. Another moor of 43 acres, which was not worth 2*s.* per acre, he had drained at an expense of 300*l.* This land had yielded about 42 bushels of Oats to the acre. It was elevated about 200 or 250 feet above the sea level.

Mr. Stewart, of Hillside, said he quite agreed with Mr. Elliot as to draining; and that no wet land should be put into a rotation of crops until it had been completely drained. Still, however, he thought there was in this county a limit depending upon the nature of soil and climate, beyond which, he confessed, he did not think it advisable to carry drainage; and this had been forced upon him while paying much attention to the subject, from having the charge of large estates. He considered that there were about 20,000 acres of those 80,000 mentioned by Mr. Elliott, which would not pay the present expense of 6*l.* or 7*l.* per acre. There was much land debarred, from the nature of the soil, from paying for this improvement; and much at a high elevation, with a better soil, which could not be profitably drained. On ordinary farms there were two kinds of soil, which would not pay for draining; very thin poor clays on retentive subsoil; and light moor, with a wet bottom, but not so retentive as the other. For instance, there were some farms in the lower district of the county about 150 acres in extent, rented at from 80*l.* to 100*l.*, having from 40 to 45 acres of dry arable land; in these draining was necessary to such an extent as would bring in sufficient wet land to form a rotation; but he had great doubts of it being found profitable to drain the remainder, if of the poor quality he described. Thus, in land paying a rent of 5*s.* or 6*s.* per acre, in its original state, a fair return of 7 or 8 per cent. on the amount expended in draining would raise the rent to 15*s.*, which was more, he feared, than it could pay. In his own experience, he had, this year land of that nature, which he had drained, affording very poor crops. It was possible that the limitation he had alluded to, might not apply to more than a fourth of the land; but in all elevated farms, even with a depth of soil, he doubted if draining for culture would pay; and thought they would be more profitable in pasture. To these, however, surface-drains, or under-drains of a cheap nature, could be profitably applied. It was far from his intention, however, to discourage draining; and with three-fourths of the land alluded to in this county, it would be a profitable investment. The question, then, came to be, how was it to be done? They were placed in very different circumstances in Dumfriesshire from farmers in the Lothians or Roxburghshire, where they could grow Wheats, and soon obtain a return. Here it was a long process before the expense of draining was paid; and, unless the landlord set to work, it was impossible for the tenant to go on himself. And, he would further say, that looking to the expense, 6*l.* or 7*l.* per acre, a landlord, at the beginning of a nineteen years' lease should pay half the expence at least. He also quite

agreed with Mr. Elliot as to the advantages of draining in diffusing employment; to secure this, drainage should be done gradually and systematically; and he would impress upon the proprietors of all large estates, extending their work over a space of ten or fifteen years, so as to provide regular employment for the labouring classes. He looked forward, through time, to our mechanical skill being able to cheapen the expense of tiles; so that, in place of 25*s.*, a 1000 tiles might be had at 12*s.* or 13*s.*; and this view, he was sure, Mr. Smith's experience would confirm. Then the limit to profitable drainage would be greatly extended, it would not be confined to arable land, but applied to pasture; and when land could be drained at from 30*s.* to 40*s.* per acre, this would certainly be the case.

Mr. Tennant, of Howell, said—During the last ten years, I have cut and filled considerably above 100 miles of thorough draining, at all depths from two to three feet; and I have adopted the greatest depth, in consequence of experience leading to me to think it much preferable. I began with drains two feet deep and twelve feet apart; but have got on to three feet deep and twenty-four apart; and, though I have but recently made the change, yet I am better pleased with it; and I would, in consequence, advise a little more depth than is commonly adopted. I think this is of importance, because after the drains are finished, the soil can be worked to a much greater depth; so that the rain goes down much quicker, and flows more rapidly away, whilst the body of the earth becomes greater, and the plant comes to greater perfection. These are the results of my experience. Professor Johnston, I may say, made some remarks about the merits of Scottish farmers; but I have no doubt that the English would be equally meritorious and celebrated, did they possess the same security of leases as the Scotch. The Professor, I think, did not go to the bottom of the matter in claiming so much for us; for *I believe we are indebted for our character, in no small degree, to the security of tenure which we enjoy.* The work must, no doubt, begin in the mind; but once give the man security that he will reap the advantages of his enterprise and skill, and his mind will be drawn out.

Mr. Gillespie, of Annanbank, having been called upon, said he was a much better worker than a speaker, and would only trouble them with a few observations. He agreed generally with the remarks of the preceding speakers; but there were some points stated on which he held a different opinion. It had been said that land 300 or 400 ft. above the sea level could not be cultivated profitably. Now, he had often observed that, where cottages were built in the high grounds, and a piece of land taken in for the garden, as soon as the land was made dry, and well tilled, a fine mould was quickly formed. And this was not owing to the manure applied, but to the influence of the atmosphere. Again, when land was drained, in a year or two after a fine green colour was observed in the plants growing over the drains. This arose from the same cause. He had had great experience in draining and subsoil ploughing on his farm, which was on a very retentive subsoil. His drains had been from 9 ft. to 18 ft. apart. He had always noticed the green colour following drainage, showing the influence of the atmosphere, which got in below by means of the drain. He might show the advantages of subsoil ploughing, which he had always recommended by precept and example; but this was quite unnecessary where Mr. Smith, of Deanston, was present.

The Chairman said they had now got some valuable information from persons residing in the district; and they would be glad to hear remarks from strangers.

Mr. Dudgeon, of Spylaw, spoke to the following effect:—If the amount of what any individual has done in draining, may give him a claim to speak at this meeting, I possess that claim; for, during the last three years I have drained nearly 600 acres, and laid down above 1,000,000 of tiles and soles. And first of all, I beg to say that I agree with Mr. Tennant with regard to the depth of the drains. I think that it cannot be sufficiently impressed upon landlords and tenants, that the reason why there has been a failure in the drainage in various parts of the country is, that the drains have not been made deep enough. My land was of a very retentive nature, and unsuitable for growing Turnips—a good depth of loam on a retentive subsoil. My drains were generally 3 ft. deep; sometimes more, but never less, and 27 ft. apart; and I find that the land has been well drained in this way with one exception—a piece of thin moor land—but which I hope, by using the subsoil plough, will, in a little time, be as dry as any occasion may call for. I must take this opportunity of impressing upon landlords in particular, that deep draining cannot be gone into to such an extent as the exigencies of the country require, unless the landlords come liberally forward with assistance. The tenants cannot be expected to drain all the land in so efficient a way. I think the landlords hitherto, when they have contributed to the expense of drainage, have done so on a wrong principle. The way has simply been, to give the tenant a sum of money at the beginning of a lease to be expended on draining; but this, I conceive, ought not to be done, without certain regulations being laid down as to the depth of the drains, the nature of their material, and the manner of putting them in. The reason of the disappointments of the landlords, and of their not now coming forward so liberally as might be expected, is to be found in their thus handing over money to their tenants, and leaving them to make their drains as they choose.

Mr. Caird, of Baldoon, stated that, as a tenant-farmer, he had expended 2000*l.* in draining. At first he found the process very expensive, as he began with 3-inch tiles, but afterwards he found that tiles one inch less were equally effective; and by adopting this size he effected a saving of nearly 30*s.* per acre. That tile was introduced into Wigtownshire by Colonel M'Douall, of Logan. He was quite agreed with Mr. Tennant that if an outfall for the water could be had, a greater depth was preferable, and a much greater width would be successfully adopted. But on some shore soils, like his own, owing to back-water from the tides, he thought that they would not be able to get to such a depth. He was recommended two or three years ago to fill in his drains above the tiles, with shells, or some other such material, to allow the water to percolate more freely into the drains. He filled 12 drains accordingly with shells, and the rest with the clay that had been taken out to make the furrows—and Mr. Smith would, he knew, corroborate the fact he was about to state. The field was sown for green crop, and he found that over those 12 drains which had been filled up with shells, reeds grew, and not on any other part of the field, so that with respect to the other drains, the clay proved a better means of taking away the water than the shells.

Mr. Smith, of Deanston, after some preliminary remarks, said that there was one point on which he differed from Mr. Elliot, viz. as respected that portion of his farm which he had thought proper not to drain. He had had a good deal of experience on that subject, and he had seen nothing yet to change the opinion which he adopted at an early time, that there was very little land in this country which would not be benefited by thorough-draining. After many years' experience, the agriculturist would come to find the soil which had been made artificially dry, would be at all times in proper condition, whilst the undrained land, which he previously thought to be dry, would be found, in some degree, to be moist. When any man went to him with the result of one, two, or three years' experience, he looked upon it as nothing. Sometimes there were summers of extreme drought, so much so that the farmer thinks he has nothing to do but lay down drains at any depth he chooses; but an experience of thirty years had taught him that there often happened long-continued periods of wet, and it was only in such circumstances that the real advantages of thorough-draining were seen. He should be able to show them that the tendency to make deep drains was in some degree fallacious. He had always advocated drains of a particular depth, and this he called deep draining, which, however, was but a relative term. The practice in many parts of this country and England, had been to make drains of 16 inches in depth—that was shallow draining, and it was attended with many defects. Then they came to 2½ feet or 3 feet, which was what he had recommended from the beginning. He placed the limit there for two reasons; on the one hand, he found that unless the drains were at least 2½ feet in depth the land was not thorough drained; and, on the other hand, he found that by working them deeper they were more expensive. He therefore laid down the limit between 2½ and three feet. If any one chose to make them deeper, his land would be all the better for it; if you go 25 feet in width, you may make them as deep as you choose; but he should be able to show presently that, if made beyond 3 feet deep in clay lands, it was not always efficacious. It is not for this or that year that you drain the land, but for the wettest that may occur; and therefore when you are draining, at any rate you ought never to sacrifice the certainty of a thorough draining of your soil, for a paltry saving of a couple of pounds or so. He had made drains to the extent of 130 miles; and though he had laid them down upwards of 25 years ago, yet never one of them was choked up. He had opened them in many hundred places, and found them in every instance as perfect as the day they were laid down. He was therefore warranted in concluding that drains properly made would last 25 years at least in good condition. His own experience, derived from investigation in various countries, led him to state that, when drains are choked or filled up, it is generally in the second or third year; and that if they continue clear beyond that time, they will last for a hundred years. He was quite sure that observation would teach the farmer the advantages of draining the driest land he possesses. For, independently of taking away the water, the drain opens up the soil to the freer action of the air, and a current or circulation is induced from the surface to the bottom of the drains. Even on sandy ground you will find that in rainy periods the passing of the water through the sand is too slow, and in continued wet weather it is retained too long in this subsoil. He therefore would put no limit there. Let that land which is obviously wet be drained in the first place, but let the dry land be drained as soon as possible. Whatever shift or rotation one is going on with, the fields ought to be drained. Drain, if possible, when the field is in Grass, for then it is easier—then Oats, then fallow, till the whole is completely drained in one rotation. It is impossible to overdrain the land—you cannot keep the land deep unless you drain it, for the tendency of water lodging in the soil is to consolidate it; and unless you have drains under the level you will find it will in a few years be consolidated. It is therefore of the utmost importance that the water be taken quickly and thoroughly away. With regard to the observations of Mr. Stewart as to the propriety of draining land of poor qualities and high altitude, he (Mr. Smith) was of opinion that they could not at present set limits to draining, and that it would be wrong to attempt it. For, from long study, it was quite evident to him that a vast deal could be done profitably, in the high as well as the low country. For some years there had been introduced what were called sheep drains, or open drains, but he could easily show them that though these were productive of some benefit, they yet did some injury. You know the profitable nature of the sheep droppings—or driblets, as you call them here, and the sheep urine; now, from the sloping nature of mountainous country in general, the whole of this matter is swept into these drains, and is carried away into the first burn, and from thence into the sea. Now, whilst this species of drain does a great deal of good by carrying away much of the surplus water, it still does considerable evil by carrying away all this enriching matter. You might as well have a flood running over the field on which you had put sheep on Turnips for a Barley crop. He agreed with Mr. Stewart that they ought not to expend too much money on certain kinds of high land; but it frequently happened that a much less perfect state of draining would do for pasture land than is required for arable; and on such the drains might safely be put at a much greater distance—say 20 or 25 feet on arable and about double on pasture land. A great deal of land in this county is of a mountainous description, containing tracts of Mossy land. Now, the way to make the most of these, is to drain by covered drains the flat pieces. If they consist of peat Moss, then the draining process is simple and very cheap. He had lately succeeded in rendering bog land in the Island of Lewis dry enough for agricultural purposes, by drains constructed 20 feet apart, and 3 feet deep, at a cost of 1*l.* per acre. If you purpose the ground for pasture, you can make drains 40 feet apart, and covered up, sufficient to carry away the water, for 10*s.* per acre. If properly drained, the practice ought to be, to make all the sheep drains coming down from the higher parts terminate on these flats; then, instead of all the rich droppings brought down from the hills being carried away into the sea, they would pass through these drains as through a filter, and would thus be all left on the intervening flats. Store farmers know the advantage the Grass would derive from the preservation of this rich manure; and he was sure that any one who would take the trouble to treat a small portion of land in this way, would be amply repaid. Clay land, he said, was known to contract with heat; cracks were formed in it, down which the rain filtered into the drains; and then the air entered in, and dried the soil. Now, one of his objections to very deep draining was founded on this principle, that when the distance and depth of the drains are so great as not to allow of the full effect reaching down to the bottom, these cracks are apt to close up, and therefore the drainage is not so perfect. He, therefore, recommended that drains should never be made more than 3 feet deep. He recommended, moreover, that when thorough drained the land should be made quite flat—indeed, the land would never be thorough drained till made flat. There could be no greater evil than direct opening into the drains; he once recommended Heath, or something of the kind, to fill up the drains, but a few years' experience convinced him that that practice was a bad one. The soil above gets soft, and if there is the least hole it runs down through in sludge. The filling of the shells with sludge, and thus making it impossible for the water to get in, accounts for the failure of Mr. Caird. In the heaviest falls of rain the water ought to come out as clean as spring water. Then a furrow is the worst part in which to put a drain—it should be put in the crown of the ridge. With regard to much greater depth and distance of draining, he decidedly protested against more than 25 feet. He would stand upon that, and he was persuaded that when a man departs from that, he departs from thorough draining, and that he never would succeed by it in a series of years. Thirty years ago he was one of the judges appointed by a society to examine the merits of drains from 3 to 4 feet deep, and 36 feet apart. They were at first dry; but after a succession of years it was found that the land was damper betwixt the drains than over them. Those who desired to have their land thoroughly drained, put in one drain betwixt every two, making them thus only 18 feet apart; and from that time to this the land has gone on progressively improving, and from being one of the stiffest and most tenacious clays that any man could see, is now equal to fine garden mould, and is fit to grow the best of Turnips. Mr. Smith then adverted to the improved modes of producing cheap tiles, and said, that though much had been already done in that way he was satisfied more could yet be done. If the tubes are properly laid there can be no better channel for taking off the water than the circle: and in order to put them together properly he had got them made with joints like the specimen he now produced, so that they interlocked with, but did not displace each other. A mode had been adopted in England of making them into the form of a socket, but that did not answer so well. Those he spoke of sold at 12*s.* 6*d.* per 1000. They would be shown to day; and he had made arrangements with a party for taking the contrivance up and getting it worked; it was worked partly by machine and partly by hand. There was another and a more important discovery which he had been working at for years, but which he had lately brought to great perfection; and that was the making of tubes with peat-moss. He found that this article makes a very perfect tube, and gets so hard as not to absorb water. As a proof of this, he stated that a number of years ago he put a peat into

a steam-boiler, and boiled it for six months, and when taking it out it was as hard as when put in. He had no hesitation in saying, that tiles properly formed of this peat will last for any time; they might be made tiles or tubes, and at 4*s.* to 5*s.* per 1000. He was unwilling to sit down without making an observation on another important subject—the cultivation of Moss land. There were various opinions on this subject, but he thought that its success depended chiefly on circumstances. He recommended peat bog charred, but not burnt into ashes—for if reduced to ashes a great deal of valuable vegetable matter would escape to the atmosphere—and afterwards pounded; then to be applied to clay or light soils. This would give a good crop of Potatoes, and it would encourage the growth of Grass and other plants. He had made some experiments with this charcoal in the island of Lewis, and obtained from it a luxuriant crop. Even when guano and bone-dust were augmented by a quantity of it, the produce was much larger than on spots where no such addition was made. In answer to Mr. Dudgeon, of Spylaw, Mr. Smith said the pounded charcoal was applied at about the same proportion as guano.

Farmers' Clubs.

HARLESTON: *Agricultural Machinery: its Effects upon the Labourer.*—At a meeting of the above Club, held by adjournment on the 8th inst., the following was the resolution arrived at on this subject. "That, in the opinion of this meeting, the employment of machinery in agriculture, where there is sufficient capital at the occupier's command, is both beneficial and effective as to the employment and moral condition of the labourer, but where it is employed for the purpose of extinguishing labour, then it is most baneful in every point of view. The great expense of good implements and perfect machinery can only be borne when the tenant is sufficiently secured by the terms of his tenure."—*W. L. B. Freuer, Sec.*

Miscellaneous.

Importance to Farmers of an acquaintance with the theory of their art.—In directing attention to the proper mode of studying agriculture, it is scarcely necessary to urge the importance of chemistry in enabling the farmer to understand the relation subsisting between his soil and his crops. The only question for consideration is in reference to the mode in which he is to acquire the requisite knowledge of this science, in order that he may render it practically beneficial in the management of his farm. The perusal of chemical works is, no doubt, important; but, without seeing and handling the substances described in these treatises it is impossible to form any adequate notion of their nature; even attendance on lectures is not alone sufficient, since the student in that case does not personally scrutinise the operations exhibited by the lecturer, and has no time allowed him to examine with care the reactions produced. Some considerable experience in the chemical education of farmers, as well as of students intended for other professions, has led to the conclusion that the only possible way in which a farmer can acquire a proper knowledge of chemistry, suited for the purposes to which he wishes to apply it, is by working in the laboratory, as well as by attendance on lectures. The farmer is frequently cautioned against the idea of devoting himself with energy to the study of chemistry, with what prudence it is perhaps difficult to discover. He may justly consider himself as a chemical manufacturer; but under circumstances requiring greater foresight than the latter. The chemical manufacturer is capable of exercising, in general, a complete control over his processes, unaffected by mysterious influences; while the farmer requires to study meteorological phenomena, so as to provide against the worst effects of causes over which he has comparatively insignificant power, and is, therefore, in need of every auxiliary which shall enable him to contend with such an unfavourable position. Hence the farmer in reality requires a more extensive scientific knowledge than any manufacturer of one commodity.—*Dr. Thomson in the Quarterly Journal of Agriculture.*

Tallow and Train-Oil as a Salve for Sheep.—In the Highland and Agricultural Society's "Transactions for 1844," pages 271—273, an article appeared, recommending the use of tallow and train-oil, in equal parts, as a salve for sheep; and, in reference to that article, a gentleman in Argyleshire, skilled in the management of sheep, writes as follows, under date the 9th July last:—"The salve I used for my sheep last autumn (viz. one half tallow to an equal proportion of train oil), has, in every respect, answered the description given of it in the Society's 'Transactions;' and one of my tenants whom, with some persuasion, I got to smear 30 of his flock with that mixture, admits that they are in better condition than any of the others—that the wool will weigh as heavy as that done with tar and butter—and that he will get the price of white wool for it. The expense last year was a little greater than tar and butter, as I paid 1*s.* 6*d.* a-pint for oil, and 6*d.* a-pound for tallow; but this year I shall get oil for 1*s.* a-pint, and if a quantity is required, at probably a lower price."—*Quarterly Journal of Agriculture.*

Agriculture of Wigtonshire.—Had I not already greatly exceeded the limits even of a printed letter, I should have told you of the fine stock I saw at Baldoon—of the pertinacity with which Barley refuses to grow on some of the soils in "The Machars," while it grows well on others very near them, and apparently similar—and of the delight which most of the farmers of the district appear to have in seeing their liquid manure descend to the sea, and in supplying its place with guano.—*Professor Johnston in the Quarterly Journal of Agriculture.*

Clipstone Water-meadows, Nottinghamshire.—These meadows comprise an area of upwards of 300 acres of land, extending over a distance of about 7 miles in length. They are watered by the river Maun, as it flows eastward from the town of Mansfield. The value of the land has been raised from the annual sum of 80*l.* to that of 3660*l.*, at a cost (from their commencement in 1816 to their completion in 1837) of 40,000*l.* The profit upon each acre, after defraying all expenses, is computed at nearly 12*l.* a-year, without taking into consideration the great benefit they are to the arable land adjoining them, which, in the words of Mr. Denison, they "enrich to an extent of five times that of their own."—*English Agricultural Society's Journal.*

Notices to Correspondents.

BAD FARMING—*L H*—Under the circumstances you describe, it is certainly not probable that your tenant places much value upon his landlord's opinion on the details of farm management; and, as to the suggestions and theories and explanations of the scientific man, it is very certain that he holds them all in utter contempt. To gain your end, then, your suggestions should be enforced, not by the consideration of their accuracy in theory, nor upon the ground of *mere assertions* by yourself as to what is right in practice, but simply by reference to the details and results of farm management in well-cultivated districts, under a climate as nearly as possible the same as that under which your property is situated. Describe to your tenant the farm-practice in Cumberland, or in some of the Scottish counties; Roxburghshire, for instance, or Forfarshire. We name these, having lately heard from them; and our accounts, of last week's dates, state that much of the Wheat still remains to cut, so that the climate there is probably even severer than with you. Get your tenant, if possible, to try *on one or two fields* the system adopted by farmers there. Let him try the following rotation, for instance, and let the fields be drained first: 1. Turnips, on ridges 30 inches wide, with dung laid in their centres, the plants being singled out at intervals of 1 foot, every alternate row being carried home to the straw-yard, and the rest fed on the land; 2. Barley, with Clover and Rye-grass seeds; 3. Clover, half depastured with sheep and half mown; 4. Pasturage; 5. Half Wheat, half Oats. He may depend upon it, that, in a series of years, he will find this rotation, in his circumstances, if we understand them aright, more profitable to him than his present method of fallowing the land, and then taking successive grain crops off it.

BOOKS—*Subscriber in Notts.*—The "Planter's Guide," by Sir H. Steuart, Bt., "The Forester's Guide," by Robert Monteath, of Stirling. The *completest* book on farming is Stephens's "Book of the Farm."—*Constant Reader*—There is no book specifically of the kind you want. If you want a book on the management of a landed estate, there is none better than Low on "Landed Property;" if you want one to teach the cropping of such an estate, buy Low's "Elements of Practical Agriculture." Your Grass is Alopecurus Agrestis, Black Bent.

CATTLE—*Govyn*—A horse is estimated in 24 hours to void about 3 lbs. of urine, and a cow upwards of 30.

GRASSES—*S W L*—Lolium temulentum. Apply your compost to your Grass-land now, if the field be drained or dry: if it be wet, wait till the earliest day in spring, on which you may venture upon it with carts. A compost of lime and vegetable earth should lie together for at least a fortnight previous to use.—*L N J*—Next week.

HEATH LAND—*G Flower*—You will find an excellent paper on Reclaiming Heath-land in the sixth volume of the "English Agri. Soc. Journal." In answer to your question, we refer you to a statement, extracted from that paper, at page 698, published last week. You must pare and burn and drain as well as lime; according to Mr. Watson, the whole of it, including fencing, will cost about 8*l.* per acre.

MANURE FOR WHEAT—*P K E*—Liebig's manure, applied according to directions from Muspratt and Co., of Liverpool; or 3 cwt. of guano per acre, applied broadcast over the young Wheat in April, and harrowed in.—*Enquirer*—Answered above.

PATCHES OF WEEDS—*J C*—You cannot do better than pare them off; carry them bodily away to some place in the neighbourhood of a liquid manure tank; heap them up there; soak them now and then, and turn them over frequently till rotten; then carry the compost back to the places it was taken from, and sow Grass seed over it.

WHEAT—*Enquirer*—If your straw be now dry, you may keep it, or thrash it, just as you please. There is nothing but a consideration of the market price, or of your present need of straw for litter, to determine the proper answer to your question. If the straw be still damp, thrash it immediately, and kiln-dry the produce.

WIRE-WORM—*Enquirer*—We would sow *Spring* Wheat, and in the mean time plough the land deeply, and afterward cross plough it, laying it up in one-bout ridges, for a winter's frost to act.

YORKSHIRE SOW—*Tyro*—We would recommend a well-bred Suffolk boar in preference to the other you mention.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, Monday, Oct. 13.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3*s* 8 to 4*s* 0	Best Downs & Half-breds	4*s* 8 to 5*s* 0
Best Short Horns	3 4 3 8	Best Long-wools	4 4 4 8
Second quality Beasts	2 8 3 2	Ewes and second quality	4 0 4 4
Calves	4 0 5 0	Pigs	3 8 5 0

Beasts, 3818; Sheep, 23,000; Calves, 109; Pigs, 321.

The supply of Beasts continues heavy, trade is very dull, yet we cannot quote the very best qualities at any less money; Short-horns and second qualities are rather lower.—The prices of the best old Downs have a tendency upwards, but there is not a quotable advance; Long-wools are no dearer. The epidemic is much amongst the Sheep to-day, which considerably depreciates their value.—Good Calves are rather scarce, and the trade for them about the same as of late. Pork trade is hardly so good.

FRIDAY, Oct. 17.

We have to-day a very short supply of fresh Beasts, but also a thin attendance of buyers; the weather being, however, very favourable, trade is quite as good for the best qualities. Best Scots making 3*s* 8*d* to 4*s*, and Short-horns 3*s* 4*d* to 3*s* 8*d*.—There are very few Sheep in market to-day, and the greater proportion of them of inferior quality; the best descriptions are readily sold at Monday's prices, but the second-rate are a heavy sale.—The best Veal keeps its price, but middling Calves are lower.—Pork trade is not so good, especially for large Pigs, but neat Porkers are still worth nearly 5*s*.

Beasts, 693; Sheep, 3790; Calves, 233; Pigs, 341.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Oct. 16.

Prime Mead. Hay	95*s* to 105*s*	New Hay	—*s* to —*s*	New Clr.	—*s* to —*s*
Inf. New & Rowen	60 80	Clover	110 to 130	Straw	36 40

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Oct. 16.

Prime Mead. Hay	92*s* to 105*s*	Old Clover	115*s* to 125*s*		
Inferior	68 84	Inferior do.	90 105	Straw	38*s* to 42*s*
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Oct. 17.

Fine Old Hay	[90*s* to 100*s*	Old Clover	120*s* to 126*s*		
Inferior Hay	— —	New Clover	90 115	Straw	34*s* to 38*s*
New Hay	70 90	Infr. „	70 80		

COVENT GARDEN, Oct. 18.—The market has been well supplied during the past week, but the demand has been comparatively trifling; trade in general is dull. Among Pine-apples some good fruit has been offered at last week's prices, and no variation has taken place in the price of Grapes; that of Peaches and Nectarines also has not altered since last week. Plums are scarce, and consequently dearer. Of Apples there is a tolerably good supply; but good dessert Pears are scarce, the best at present in the market being Marie Louise, Louise Bonne (of Jersey), and Brown Beurré. Filberts are a trifle dearer than they were last week. English Walnuts are scarce and dear; the best foreign ones bring about 28*s.* per bushel. The prices of most kinds of Vegetables remain nearly the same as last week, Broccoli is plentiful and good, and the same may be said of Carrots and Turnips, Cabbages, Brussels Sprouts, and other winter greens. Celery, of good quality, continues to be well supplied, and Tomatoes are good and sufficient for the demand. Potatoes are rising in price, and they are still much affected by the murrain. Endive, Lettuce, and salading of every kind, is quite sufficient for the demand. Cut Flowers chiefly consist of Camellias, Chinese Primroses, Amaryllises, Heaths, Heliotropes, Pelargoniums, Verbenas, Picotees, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 6*s*	Pears, per hf.-sv., 4*s* to 8*s*
Grapes, Hothouse, per lb., 1*s* to 4*s*	Oranges, per dozen, 2*s* to 3*s*
— Spanish, per lb., 10*d* to 1*s* 6*d*	— per 100, 12*s* to 24*s*
— Portugal, p. lb., 1*s* to 1*s* 6*d*	Lemons, per dozen, 1*s* to 2*s*
Peaches, Wall, per doz., 1*s* to 4*s*	— per 100, 7*s* to 16*s*
Nectarines, per doz., 1*s* to 4*s*	Almonds, per peck, 6*s*
Melons, 2*s* to 4*s* each	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
— Spanish, 2*s* to 3*s* each	Walnuts, per bushel, 16*s* to 28*s*
Figs, green, per doz., 2*s* to 3*s*	Filberts, English, p. 100 lbs., 45*s* to 60*s*
Plums, per hf.-sv., 3*s* to 5*s*	Nuts, Barcelona, 24*s*
Damsons, per hf.-sv., 3*s* to 4*s* 6*d*	— Brazil, 18*s*
Apples, Dess., per bush., 4*s* to 7*s*	— Spanish, 16*s*
— Kitchen, 1*s* 6*d* to 4*s*	Barberries, per hf.-sv., 3*s* to 4*s*

VEGETABLES.

Cabbages, per doz., 2*d* to 1*s*	Vegetable Marrows, p. doz. 1*s* to 1*s* 6*d*
— red, per doz., 3*s* to 5*s*	Onions, per doz. bunches, 2*s* to 6*s*
Cauliflowers, per doz., 1*s* to 4*s*	— pickling, per hf.-sv., 2*s* to 3*s*
Broccoli, per bunch, 6*d* to 1*s*	— Spanish, per doz., 1*s* 6*d*, to 5*s*
Greens, per doz. bunches, 2*s* 6*d* to 3*s*	Shallots, per lb., 4*d* to 8*d*
French Beans, per hf.-sv., 2*s* to 3*s* 6*d*	Endive, per score, 9*d* to 1*s* 8*d*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Lettuce, per score, Cab., 9*d* to 1*s* 3*d*
Artichokes, per doz., 2*s* to 4*s*	Cos, 6*d* to 1*s* 3*d*
Potatoes, per ton, 60*s* to 100*s*	Radishes, per doz. bunches, 9*d* to 1*s* 3*d*
— cwt., 4*s* to 6*s*	Mushrooms, per pottle, 1*s* 6*d* to 2*s* 6*d*
— bushel, 2*s* to 3*s*	Small Salads, per punnet, 2*d* to 3*d*
— Kidney, per bushel, 2*s* to 3*s*	Basil, green, per bunch, 4*d* to 9*d*
Turnips, per doz., 1*s* 6*d* to 2*s* 6*d*	Fennel, per bunch, 2*d* to 3*d*
Red Beet, per doz., 1*s* to 1*s* 6*d*	Savory, per bunch, 4*d* to 6*d*
Carrots, per doz. bchs., 2*s* to 5*s*	Thyme, per bunch, 4*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Watercress, p. 12 sm. bun. 4*d* to 6*d*
Cucumbers, per doz., 2*s* to 3*s*	Parsley, per bunch, 2*d* to 3*d*
Spinach, per sieve, 9*d* to 1*s* 6*d*	— Roots, per bundle, 9*d*
Leeks, per doz., 1*s* 6*d* to 2*s* 6*d*	Tarragon, per bunch, 4*d*
Garlic, per lb., 6*d* to 8*d*	Mint, per bunch, 2*d*
Tomatoes, per hf.-sv., 2*s* to 5*s*	Marjoram, per bunch, 4*d*
Celery, per bunch, 9*d* to 1*s* 6*d*	Chervil, per punnet, 2*d* to 3*d*

HOPS, Friday, Oct. 17.

At Weyhill Fair about 1582 pockets of Farnham Hops were pitched for sale, 2100 pockets of County Farnhams, with above 200 pockets of other Hops. Best Farnhams sold from 105*l.* to 110*l.* 10*s.*; County, from 81*l.* 8*s.* to 91*l.* 9*s.* Our merchants have not experienced so good a trade for many years. The market is very active, with an advance in prices for good hops of all descriptions.

PATTENDEN & SMITH, Hop-Factors.

MARK-LANE, Monday, Oct. 13.

The supply of English Wheat by land carriage samples from the near counties was moderate this morning, and met a free sale at fully 2*s.* per qr. over the rates of this day se'nnight, free foreign realised a similar improvement; very little bonded Wheat was offered for sale and held exorbitantly high, in the business done an advance of 3*s.* to 4*s.* was obtained.—Fine Barley is in request, and we raise our quotations 2*s.*; inferior and grinding 1*s.* per qr.—Beans are unaltered, also Maple Peas; Dun are 1*s.* and White 2*s.* per qr. dearer.—Oats are in good demand and sell freely at about 1*s.* and bonded 2*s.* over last Monday's prices.—Flour has advanced 4*s.* per sack.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk . . White	57	66	Red .	55	66
—— Norfolk, Lincolnshire, and Yorkshire .	57	65	White	59	65
Barley, Malting and distilling 30*s* to 34*s*	Chevalier	32	35	Grind.	27	29
Oats, Lincolnshire and Yorkshire . .	Polands	25	28	Feed	20	26
—— Northumberland and Scotch . .	Feed	26	28	Potato	29	31
—— Irish	Feed	23	25	Potato	25	28
Malt, pale, ship		54	60			
—— Hertford and Essex		60	66			
Rye		34	37			
Beans, Mazagan, old and new 38 to 42	Tick	40	43	Harrow	40	44
—— Pigeon, Heligoland . 44 to 48	Winds —	—		Longpod	—	—
Peas, White . . . . 48 to 52	Maple	38	41	Grey	38	40

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	6909 Sks. — Brls.	6763	877	5465	1806	23	467	298
Irish	— „ „	17	510	25	5267	—	—	0
Foreign	— „ 1774 „	3957	—	—	—	—	229	45 6

FRIDAY, Oct. 17.

The quantity of English Wheat on sale since Monday has been moderate, it meets a good inquiry on the terms of that day, as also free foreign; bonded is held very firmly and few owners are inclined to sell, although buyers willingly pay an advance of 1*s.* per qr. on our quotations; f.o.b. purchases of Polish Odessa from the Italian ports have been extensive, and it is now held firmly at 49*s.* to 52*s.* including freight, with little offering. —Barley is sought after at a slight enhancement upon its late value.—Beans and Peas remain as last quoted.—Oats command attention, and 1*s.* per qr. advance is freely paid upon free and bonded.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	5040	1350	320	3510 Sks
Irish . .	—	—	16070	—
Foreign . .	13290	—	12700	—

IMPERIAL AVERAGES.

Sept. 6 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
	55*s* 10*d*	31*s* 8*d*	22*s* 10*d*	32*s* 5*d*	42*s* 2*d*	36*s* 9*d*
— 13 . . .	54 1	31 0	22 3	33 2	42 10	36 5
— 20 . . .	52 6	30 9	21 7	32 8	42 5	37 0
— 27 . . .	53 2	30 2	22 2	33 1	42 5	38 9
Oct. 4 . . .	56 0	31 1	23 4	33 8	43 1	42 6
— 11 . . .	57 9	31 3	23 4	34 2	43 1	44 4
6 weeks' Aggreg. Aver.	54 11	31 0	23 7	33 4	42 8	39 3
Duties on Foreign Grain	18 0	7 0	6 0	9 6	1 0	3 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Oct. 11.

Price.	Sept. 6	Sept. 13	Sept. 20	Sept. 27	Oct. 4	Oct. 11
57*s* 9*d*	..	..	..	..	..	..
— 0	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
— 3	..	..	..	..	..	..
54 1	..	..	..	..	..	..
53 2	..	..	..	..	..	..
52 6	..	..	..	..	..	..
50 10	..	..	..	..	..	..
48 0	..	..	..	..	..	..

SEEDS, Oct. 17.

Canary	per qr	50*s* to 54*s*	Linseed Cakes, Foreign, p. ton	8*l* to 8*l* 10*s*
Carraway	per cwt	46 52	Mustard, White	p. bush. 9*s* 10
Clover, Red, English	— —	—	— Superfine „	10 11
— — Foreign	— —	—	— Brown „	10 13
— White, English	— —	—	Rapeseed, English, per last	26*l* 28*l*
— — Foreign	— —	—	Rape Cakes	per ton — —
Coriander	— —	14 16	Saintfoin	— —
Hempseed	per qr.	35 36	Tares, Eng. winter	p. bush. 6 8
Linseed	per qr	54 60	— Foreign	— 4 4*s*6*d*
— Baltic	— —	42 46	Trefoil	per cwt 18 23
— Cakes, Eng. per 1000		12*l*	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

Sales by Auction.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed by the Proprietor to submit to Public Competition, on the Premises, Blenheim-grove Nursery, Rye-lane, Peckham, on Tuesday, the 28th inst., 1845, about one Acre of Valuable NURSERY STOCK, consisting of fine-trained Peaches, Nectarines, &c., Dwarf and Standard Apple, Pear, Plum, and Cherry Trees, Double-blossomed Cherries, Almond Trees, Gooseberry, Currant, Evergreens, a Quantity of Box-edging, &c., and a Collection of Greenhouse Plants.—May be viewed prior to the Sale, and Catalogues had of the principal Seedsmen; on the Premises; and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, RAILWAY CONTRACTORS, MARKET GARDENERS, AND OTHERS ENGAGED IN PLANTING, &c.

MESSRS. PROTHEROE AND MORRIS have received Instructions to submit to Public Competition, early in November (of which timely notice will be given,) a large portion of the densely-stocked NURSERY of WM. DENNIS & CO., KING'S-ROAD CHELSEA, the ground being required for building immediately after Christmas. The Stock consists of 250,000 Aucuba japonica, Irish Ivies, Irish Yews, and Hollies (green and variegated); 300 varieties of the finest prize Gooseberries; a large quantity of Mulberries in fine bearing condition; standard and dwarf Roses of every variety, in considerable quantities; also Pillar Roses, from 4 to 7 feet high; Deciduous and other Shrubs, Herbaceous Plants, Box-edging, Bulbs in variety, &c.—American Nursery, Leytonstone.

MR. J. KING will sell by Auction, on Monday, Oct. 27, and following day, at 11 each day, on the Premises, Acre Lane, Brixton, by order of Mr. DAWSON, without reserve, NURSERY STOCK AND GREENHOUSE PLANTS, comprising a large Collection of EVERGREENS of sorts, Fruit-trees, and a superior Assortment of GREENHOUSE PLANTS, amongst which will be found Erica Massoni, Aristata, Hartnelli, Gemmifera; Boronia serrulata, Pinnata, and Azalea indica, of sorts.—May be viewed, and Catalogues had on the Premises: of Mr. CLARK, Seedsmen, Bishopsgate-st., and of the Auctioneer, Hackney-road.

AN EXTENSIVE SALE OF SUPERIOR NURSERY STOCK, RICKMANSWORTH, HERTS.

MESSRS. SEDGWICK AND SON have received Instructions from Mr. Stidolph to Sell by Auction, on the Premises, on Monday, October 27, at Eleven,

About Five Thousand fine Laurels, a quantity of Larch and Spruce Firs, Grape Vines, Peaches, Apricots, Green Gage and Orleau Plums, Filberts, Chestnuts, Currants, Gooseberries, Raspberries; trained, Dwarf, and Standard Pears and Apples; Aucubas, Forest trees, Quick, &c.

May be viewed four days prior to the Sale, by applying at the George Inn, where catalogues may be had. Catalogues may also be had at the usual Inns in the neighbourhood; at the Old Bell, Holborn; of Mr. LAKE, bookseller, Uxbridge; and of Messrs. SEDGWICK and SON, land and timber surveyors and estate agents, Rickmansworth, Herts.

TO GENTLEMEN, NURSERYMEN, FLORISTS, & OTHERS.

MR. J. ELLIOTT has received instructions to Sell by Auction, at the Chapel Nursery, Battersea fields, near the Nine Elms Station, on Thursday, the 23d of October, 1845, at 11 for 12 o'clock precisely, without reserve (under a Bill of Sale), A NURSERY STOCK, comprising 5000 Dwarf Roses, consisting of Moss and 60 other sorts, fine for transplanting or potting, 4000 Evergreen Privets and Sweet Briars, 2000 Shrubs, consisting of Lilacs, Ribes Sanguineum, Mezereons, Pyracantha, Laburnums, Small Limes, &c., 2000 small Box Laurels, 10,000 Flowering Roots of Sorts; Seeds, Lights, and Boxes; the Erection of a Dutch Forcing House, &c., in large and small lots. Catalogues may be had of all the respectable seedsmen in town; the Inns in the neighbourhood; place of Sale; and of the Auctioneer, Putney, Surrey.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

Valuable NURSERY STOCK, near the Anchor Inn, at Knaphill, two miles from the Woking Station, on the South-Western Railway, the property of Mr. GEORGE BAKER, removing to a larger business at Bagshot.

TO BE SOLD BY AUCTION, by Mr. WATERER, on Tuesday, Nov. 4, 1845, and two following days, at 10 o'clock for 11 precisely, on the Premises, the valuable Stock of EVERGREENS, fine Panned YEWS, American and other Hardy Plants, comprising VARIEGATED AND GREEN HOLLIES, from 2 ft. to 10 ft. high: and common Irish YEWS, from 1ft. to 10 ft.; Portugal Laurels and Evergreen Oaks, from 2 ft. to 5 ft.; Arbutus, Arbor Vitæ, Aucuba Japonica, Phillyreas, Chinese Arbor Vitæ, Junipers, White Cedars, and CEDARS OF LEBANON, Laurestines, Spruce Firs, Minorca and Striped Box, Filberts, &c. PINUS DEODARA, from 1ft. to 9 ft.; Hemlock Spruce, from 1 ft. to 7 ft. The American Plants comprise STANDARD RHODODENDRONS, Rhododendron ponticum, Ferrugineum, Hirsutum, Catawbiense, Russellianum, and others; Kalmia latifolia, Azaleas, Hardy Heaths, Magnolias, Camellias, and Stools of fine Double-white, striped, Imbricata, Reticulata, Fimbriata, and others. Fine PORTUGAL LAUREL and HORNBEAM HEDGES. The above Stock is well worth the attention of Planters, being in great perfection, and will remove safely. May be viewed three days previous to the Sale, and Catalogues had on the Premises, and will be forwarded by post on application by letter, inclosing six postage-stamps, to Mr. GEORGE BAKER, Bagshot, Surrey; or to Mr. WATERER, Auctioneer, Land and Timber Surveyor, Chertsey, Surrey.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

TO BE DISPOSED OF, a well established and respectable NURSERY and SEED BUSINESS in the vicinity of London. The coming in may be made easy, and will be found well worth attention.—Apply to the Publisher of this Paper.

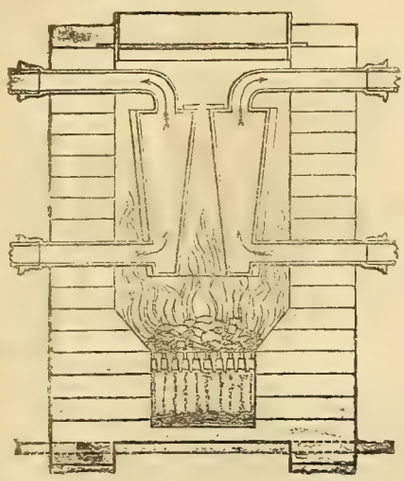
TO BE DISPOSED OF, and Entered upon immediately, in a flourishing Market Town, in one of the Western Counties, a most desirable NURSERY, SEED, and FLORIST BUSINESS, established upwards of 70 years, and doing a good trade. The Ground, consisting of Seven Acres, is well stocked with every choice Variety of Fruit and Forest Trees, Shrubs, &c. There are also two good Dwelling-houses on the Premises, together with a good Seed-shop, Greenhouse, Heath, and Geranium-houses, &c. A good Propagating-pit, heated on Rendle's Tank system; Sheds, Store-house, Stable, &c., with every convenience for carrying on the business. The Stock (which may be reduced) to be taken off at a valuation. Ill health is the sole cause of the present Proprietor giving up the concern. —All communications, with real signatures, addressed to A. B., care of Messrs. H. Ronalds and Sons, Nurserymen, &c., Brentford, Middlesex, will have immediate attention.

GREAT SALE OF FLORISTS' FLOWERS, FRUIT, &c.—Fifty Lots of Auriculas—25 Lots of Seedling Ditto—100 Lots of Carnations, by name—100 Lots of Picotees, by name—50 Lots of Roses, by name—50 Lots Show Gooseberry Trees—Several lots of Coster's New Red Currant Bushes—Queen Victoria Ditto—Wilmot's Superb New Red Ditto—New Red Grape Ditto—New White Ditto—British Queen Strawberries—Elton Pine Ditto—Turner's Late Ditto—Princess Alice Maud Ditto—Falstaff Raspberry—Seedling Polyanthuses, &c., being a genuine Stock of First-rate Subjects, to be submitted for SALE BY AUCTION, without reserve, on Tuesday, October 28, 1845, by GEORGE GLENNY. Particulars, and Catalogues of the Auction, at the Office of the *Gardeners' Gazette*, 2, Tavistock-street, Strand.

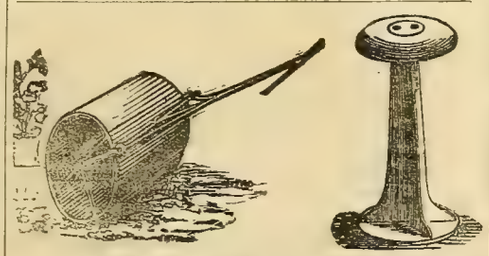
CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.
BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, October 18.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 8*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 28*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.
MARK FOTHERGILL, 40, Upper Thames-street, London.
P. S.—Agents wanted for the sale of the Wheat Brine.

GYPSUM FOR MANURE, prepared by the only method which will ensure its success for Agricultural purposes, by NEWTON & PECK, WILMINGTON WORKS, HULL. A Pamphlet containing instructions for its application and full particulars as to its uses as a fertilizer, with numerous cases of its surprising effects, sent free to any part of the kingdom, on receipt of a post-paid letter containing Three Postage Stamps.

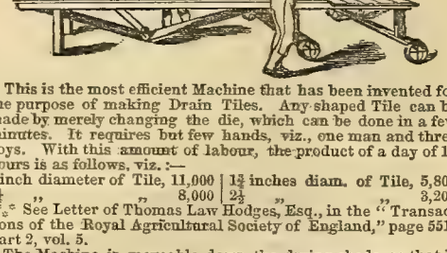
THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.
40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

THE FARMERS OF GREAT BRITAIN are requested to read the pamphlet on "GYPSUM, AS A MANURE;" describing its various important uses for Agricultural purposes, with full and plain directions for its application, and containing an account of numerous cases of its surprising efficacy and cheapness.

The Pamphlet will be sent free to any part of the Kingdom, on receipt of a post-paid application (containing Three Penny Stamps), addressed to NEWTON and PECK, Hull.

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1¼ "	8,000	2½ "	3,200

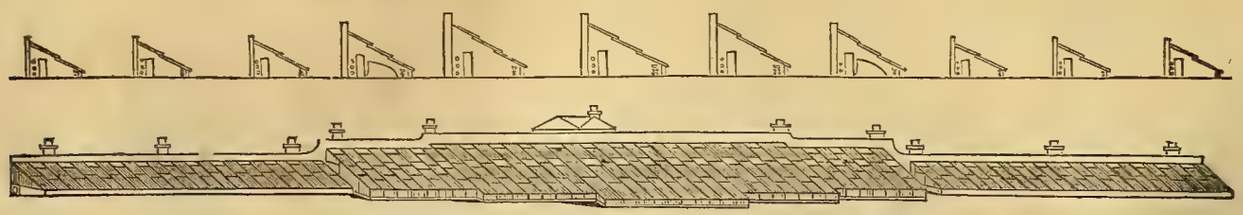
*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

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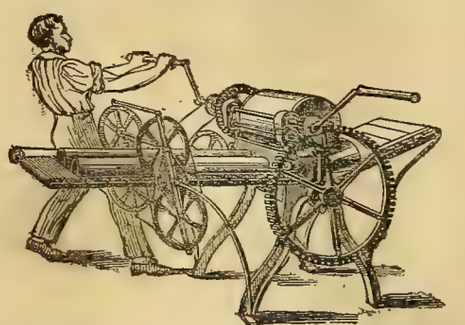
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1845] SATURDAY, OCTOBER 25. [PRICE 6*d.*

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Also "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s.* per pair.

CARNATIONS AND PICOTEES.

			£	*s.*	*d.*
12 pairs extra fine and very superior first-class					
	Show Flowers, by name		2	10	0
25	ditto ditto	ditto .	5	0	0
12	ditto Fine Show Flowers	ditto .	1	10	0
25	ditto ditto	ditto .	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12*s.*

HYACINTHS, Double and Single, Blue, Red, White, and Yellow, very fine, 6*s.*, 12*s.*, and 18*s.* per dozen.

Extra fine TULIPS, by name	12*s.*	per dozen.
Ditto ditto Mixed, from named flowers	21*s.*	per 100.
Fine ditto ditto ditto	16*s.*	,,
FUCHSIAS, extra fine, ditto	12*s.*	per dozen.
CHRYSANTHEMUMS ditto ditto ..	12*s.*	,,
VERBENAS ditto ditto ..	6*s.*	,,
PETUNIAS ditto ditto ..	9*s.*	,,
PANSIES ditto ditto ..	10*s.*	,,
Ditto, very best first-rate Show Flowers	18*s.*	,,
CINERARIAS, extra fine sorts, by name 12*s.* to 18*s.*		,,

Also their New Superb Seedling CINERARIA, "No. 1," named "NORFOLK HERO," 5*s.* per plant; the following description of it will be found in the *Gardeners' Chronicle*, May 31, 1845:—"Y Y—No. 1 is a very fine specimen of a creamy-white, dark disk, very broad petals and flowers, unusually large, measuring 1½ inches in diameter."

ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

HERBACEOUS PLANTS, fine sorts, 6*s.* to 9*s.* per dozen.

ARAUCARIA IMBRICATA.

2 years old	9*s.*	per dozen.
3 ,, ...	12*s.*	,,
4 ,, ...	18*s.*	,,
5 ,, ...	30*s.*	,,
6 ,, ...	60*s.*	,,
Cedrus Deodar, 1 year, fine	18*s.*	,,
,, ,, 1 foot	30*s.*	,,
Pinus excelsa, 3 inches	9*s.*	,,
,, ,, 4 to 5 inches	18*s.*	,,
,, ,, 18 inch, fine bushy plant	42*s.*	,,
,, Gerardiana, 2 years	30*s.*	,,
Abies Khutrow, 2 years	9*s.*	,,

RIBES SANGUINEUM FLORE PLENO 10*s.* 6*d.* per plant.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s.* per 100.

"PRINCESS ALICE MAUDE," ,, 10*s.*

YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12*s.* per dozen. Roots placed in a cellar or closet in October and November will be fit for cutting in December.

Great Yarmouth Nursery, Oct. 25.

THE READING GIANT ASPARAGUS.—Strong Plants, one year old, 1*s.* 6*d.* per hundred, or 12*s.* 6*d.* per thousand, with liberal discount to market gardeners and nurserymen taking them in quantity.

Messrs. SUTTON and SONS have great confidence in recommending the above as the very best variety of ASPARAGUS in cultivation.

MYATT'S VICTORIA RHUBARB, large roots, 15*s.* per doz.

N.B.—The NEW EARLY PEAS, and other garden seeds for early sowing are now ready.

Reading Nursery, Reading, Berks, Oct. 25th.

H. GROOM, CLAPHAM-RISE, near LONDON (Removed from Walworth), by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to call the attention of the Nobility, Gentry, and Amateurs to the present season as the best for selecting and planting TULIPS, HYACINTHS, and the VARIETIES OF LILIUM, and to recommend that no time should be lost, otherwise there will be a risk of their flowering well. He begs to say, he continues to send out TULIPS arranged in BEDS ready for planting, at the prices mentioned in his Catalogue, which may be had on application.

BECK'S SEEDLING PELARGONIUMS OF 1844.—The following varieties are now ready for selection, well established in 4½-inch pots, and will be delivered free in London, *for prepayment only*, package included:—

Rosy Circle ..	£1	1	0	Desdemona ..	£1	1	0
Sunset	1	1	0	Mustee	1	1	0
Juno	1	1	0	Isabella	1	1	0
Marc Antony ..	1	1	0	Favorita	0	10	6
Margaret	0	10	6	Zenobia	0	10	6

Or the set for 7*l.* 7*s.*

No orders can be received without a remittance. Priority of payment shall ensure priority of selection.

Worton Cottage, Isleworth.

SELLING OFF.—Seventeen Acres of NURSERY STOCK, consisting of FOREST and FRUIT TREES, EVERGREEN and FLOWERING SHRUBS and TREES, &c. For Priced Catalogues, apply to RICHARD MITTON, Nurseryman, Pontefract.—Oct. 25, 1845.

TWENTY-FOUR GOOD VERBENAS FOR 12*s.*, hamper and package included, and plants added to compensate for long carriage. They have been selected from a large variety for their large trusses, good habit, and distinction of colour, and have been exhibited several times this summer as single specimens and in trays, and obtained all the prizes. They are good rooted plants, some in bloom and some are coming into bloom.

EMMA, dark maroon purple.
BEAUTY SUPREME, lively pinkish-salmon.
EXCELSA, deep reddish-rose.
ROSA ALBA, bright rose, mottled with white.
ZEUXIS, dark rose.
MORTLOCK'S, superb crimson, yellow eye.
AZUREA GRANDIFLORA, dark rose, marbled white.
RENOWN, rich dark scarlet.
DEFIANCE, dazzling scarlet.
BLUE QUEEN, marbled lilac with white.
AMETHYSTINA, the best blue known.
LOVELY RAMBLER, lilac, marbled flesh-colour.
BRIDESMAID, light lilac.
TWEEDIANA MAGNIFLORA, pink, yellow eye.
DELICATA, French white, dark eye.
ARRAY, bright scarlet, yellow eye.
FORTUNE-TELLER, bright pink.
TRESOR PARFAIT, lilac, striped deep purple
MINSTREL BOY, deep rose, yellow eye.
HOWARDII, rose, changeable to white.
BOULE DE FUE, bright light scarlet, dark eye.
PRINCESS ROYAL, good white,
THE GIANT, light lilac, purple eye.
THE FAVOURITE, bright rose, dark eye.

All orders with a remittance will be strictly attended to.

CHRISTOPHER JOPLIN, Gardener and Florist, Knaresborough, Yorkshire.

TREE VIOLET.

JOHN WALLACE, SEEDSMAN and FLORIST, Gabriel's Hill, Maidstone, has now ready a large Stock of this much esteemed, double, dark purple, perpetual flowering, hardy and fragrant VIOLET, which he respectfully offers for sale at 6*s.* per dozen. All persons who value a bouquet of sweet flowers, fresh every day, from the beginning of August to the end of May, should grow a few dozens of this beautiful flower.—Apply as above, or to Mr. G. CHARLWOOD, Seedsman and Florist, 14, Tavistock-row, Covent Garden.—Oct. 25.

Just Published, and ready for Distribution.

WM. WOOD AND SON have the pleasure of informing their Friends that they have just received from the press their New Supplementary Catalogue of CAMELLIAS, CHRYSANTHEMUMS, FUCHSIAS, GREENHOUSE, and HERBACEOUS PLANTS; also, ORNAMENTAL TREES, EVERGREENS, AMERICAN and FLOWERING SHRUBS, CONIFERÆ, FOREST and FRUIT TREES. Copies of the above will be sent in due course to all parties who have in previous seasons favoured W. W. & S. with their commands, and to all other applicants GRATIS, on application.

Woodlands Nursery Maresfield, near Uckfield, Sussex.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s.* per dozen. Dutch Hyacinths for forcing at 4*s.* per dozen; also Narcissus, Tulips, Iris, Jonquils, Anemones, and Ranunculus, from 1*s.* to 12*s.* per dozen. Large Dutch Crocus, 2*s.* 6*d.* per 100; at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall. Priced Lists per post, &c.

CARNATIONS AND PICOTEES.

F. BARRINGER'S FINE RED-EDGED PICOTEE "UNIQUE," is now ready for sending out at 12*s.* per pair (post free). UNIQUE is a first-rate flower, of fine form and substance, marking entirely confined to the edge, and beautiful white ground. Catalogues can be had on pre-paid application.—Bedford, Oct. 25.

PICOTEES—MATTHEWS'S "ENCHANTRESS," AND "NE PLUS ULTRA."

C. TURNER having executed all orders he has received for the above popular flowers, begs to state that he has a few more strong healthy pairs of each. Enchantress 15*s.*, Ne Plus Ultra 10*s.* 6*d.*, or one pair of each on receipt of a remittance of 1*l.* 1*s.*

C. T. can supply a few more pairs of his beautiful New Pinks. Also now ready, the following choice Pansies:—Collisson's Perseus and Juno; Bragg's Goliah; Hunt's Hamlet; Turner's Pitho, Dido, &c., with all the leading kinds in cultivation.

Chalvey, Slough, Oct. 25.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

"Mr. HUNT'S new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

COOPER'S PATENT APPARATUS FOR PRESERVING OF FRUIT, is on Sale at the Manufactory, No. 7, the upper end of St. John's-street, Clerkenwell, London. Fruits Preserved by this process sold as above. Gooseberries, Green-gages, Cherries, Damsons, Currants, and Raspberries, mixed, in quarts, from 12s. to 18s. per dozen.





Fruit preserved in Syrup for the Dessert or other purposes, and ready for immediate use.

Raspberries and Currants mixed, Morella Cherries, Damsons, and Magnum Bonum Plums, in pints, 1s. 6d. each.

Pine-apple, Mulberries, Peaches, Apricots, and Nectarines, in half-pint samples, from 1s. 3d. to 2s. 6d. each.

Particulars and Testimonials may be had as above, or they will be forwarded by post if requested.

SMALL GLASS FOR HOTHOUSES AND GARDEN LIGHTS

5 by 1½ / 4 2 }	..... at 1d. per foot.			5 by 2 / 4½ 2½ }	.... at 1½d. per foot.		
	per Gross.				per Gross.		
30,000	squares 6	by 4	at 9s.	90,000	squares 8	by 6	at 18s.
60,000	6½	4½	11	11,000	8½	6½	20
30,000	7	5	13	80,000	9	7	22
12,000	7½	5½	15	40,000	10	8	30

Striking Glasses, Bee Glasses, Fish Globes, and French Shades for covering Ferns and Ornaments.

R. COGAN, Glass, Lead, and Colour Works, 48, Leicester Square.

WINDOW-GLASS, LEAD, PIPE, & COLOURS.—Nurserymen, Market Gardeners, and others, supplied with Crown and Sheet Squares for Horticultural and Glazing purposes at the lowest prices.

			s.	d.
White Lead, per cwt...	26s.0d.	Milled Lead in Sheets, per cwt.....	21	0
Linseed Oil, per gall...	2 3	Cut to Size.....	22	0
Turpentine.....	3 3	Pipe all Sizes.....	22	0
Warranted Varnishes and Colours.				

BEE, PROPAGATING, AND GRAPE GLASSES.

Complete Lists (priced) of Glass, Colours, Brushes, and all Materials, may be had gratis, on application to R. COGAN, 5, Princes-street, Leicester-square, London.

French Ornament Shades for covering Ferns, Clocks, Models, &c., Lamp Shades, Gas Glasses, Fish Globes, Confection Shades, &c., of every size and description.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street, East, Oxford-street. For Ready Money only.

SOHO PATENT GLASS COMPANY'S TARIFF.—Nov. 1845.

GLASS FOR WINDOWS, SKY-LIGHTS, AND HORTICULTURAL purposes, per foot, 4½d. Superior do. for Shop Fronts and Drawings, per foot, 9d. (the above is thicker than Crown, and may be had of any size at the same price) Glass Tiles, to supersede Sky-lights, per dozen, 14s. Sky-lights and Framing, for Garden purposes, the glass very stout and of any size, per foot, 10d. Plate Glass, 12 by 9, 1s. 6d.; 14 by 10, 2s. 2d.; 16 by 12, 3s. 3d.; 18 by 14, 4s. 1d. per sheet. Sashes glazed, per foot, 7½d. Sky-lights do., 6d. (glass any size). Sashes and Frames made and glazed, complete, per foot, 1s. 5d. Sashes and Shop Fronts, modernized, the glass nearly equal to Plate, per foot, 1s. 6d. Samples forwarded by post. Gas Consumers, 10s. 6d.; do. Glasses, 2s. 3d.; Lamp do., 3s. 3d.; Shades, 30s. per dozen. Diamonds for cutting glass, each, 10s.—Orders taken for Plate Glass. Samples at the Warehouse. Discount to the Trade.—W. COX, Agent, 18, Crown-street, Soho, London.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

THE following Articles, manufactured in Slate for Horticultural purposes, may be seen in use at Worton Cottage, upon application to the gardener (Sundays excepted.)

Tank Covers	Bottoms for Frames
Cisterns	Boxes for Balconies and Verandahs
Shelves	Orange Tubs, Flower Boxes, &c.
Garden Edging	

EDWARD BECK will be happy to answer any inquiries, either personally or by post

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

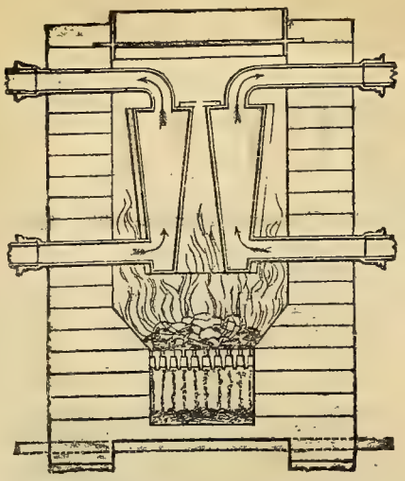
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedesta's in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing,

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130, Fleet-street.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, October 25.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.

MARK FOTHERGILL, 40, Upper Thames-street, London.

P. S.—Agents wanted for the sale of the Wheat Brine.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9l. and 5l. 10s. per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1s. 9d. per quart bottle, which, added to 30 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23s. per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23s. per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8l. per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

GYPSUM FOR MANURE, prepared by the only method which will ensure its success for Agricultural purposes, by NEWTON & PECK, WILMINGTON WORKS, HULL. A Pamphlet containing instructions for its application and full particulars as to its uses as a fertilizer, with numerous cases of its surprising effects, sent free to any part of the kingdom, on receipt of a post-paid letter containing Three Postage Stamps.

LIQUID MANURE.

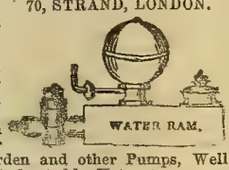
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

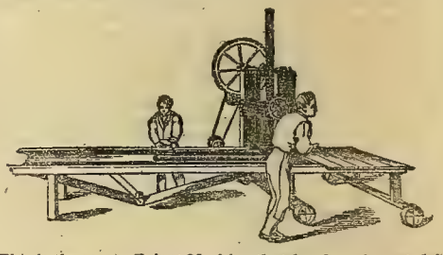
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ ,,	8,000	2½ ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

TESTIMONIALS OF APPROVAL.—We are daily receiving *unsolicited* testimonials in favour of DINGLE'S HAND DIBBLING MACHINE. The following is an extract of a letter received by this morning's post from Edward Horner, Esq., of Iver, near Uxbridge, who says:—"I have received your Hand Dibbler, and am *much* pleased with it. I send Post-office order for 3l. 10s., and desire you will forward *another* immediately."

All who have used it speak in the most unequivocal terms of approbation.—W. E. RENDLE & Co., Plymouth, Oct. 25.

SEED WHEAT.—Mr. ROBERT BEMAN, of Donnington, near Stow-on-the-Wold, Gloucestershire, having been a grower of upwards of 350 acres of Wheat for several years past, has thought it good policy to plant every variety of Wheat (upon a small scale) that he could procure, for the purpose of selecting the best and most productive sorts, consequently he can with confidence recommend the WHITFIELD RED STRAW, WHITE, RED CLUSTER, BROUN'S TEN-ROWED, and CLOVER'S RED, as possessing those desirable qualities. Price 3l. per quarter. If less than a quarter is ordered, 10s. per bushel.—Sacks marked to order, 2s. each.

DUTCH BULBOUS ROOTS,
AT LOW PRICES.

WILLIAM E. RENDLE AND CO., have still on hand a large Stock of DUTCH BULBOUS ROOTS, and as the season is passing, they offer them at the following low prices:—

Fine named Hyacinths	5s.	6d.	per doz.
Fine mixed do	2	0	,,
Fine mixed Early Tulips	1	0	,,
Fine mixed double do	1	0	,,
Fine double Anemones	6	0	per lb.
Fine double Ranunculuses	5	0	per 100.
Fine mixed Ixias	1	0	per doz.
Fine mixed Crocus	1	6	per 100.
Fine mixed Iris Anglica	1	0	per doz.

All other kinds of Roots equally moderate.
Union Road Nursery, Plymouth, Oct. 25.

LA REINE.—This splendid PERPETUAL ROSE, which was introduced in autumn, 1843, has proved itself this season to be the finest ever yet raised.

R. B. BIRCHAM, HEDENHAM ROSARY, BUNGAY, SUFFOLK, begs to state that he has upwards of 2000 good plants worked upon stems varying in height from two to four feet; also several hundred strong dwarf plants (own roots) bedded out. R. B. B. will be happy to supply Nurserymen and Florists with the above upon advantageous terms per dozen, or half dozen plants. He has also a large stock of PERSIAN YELLOW ŒILLIET PARFAIT, SOLFATERRE, SOUVENIR DE LA MALMASON, &c. &c. A Descriptive Catalogue, including the most Select Roses in cultivation, will be forwarded upon pre-paid application. All orders carefully executed, and forwarded to London by the Norwich Railway, carriage paid.

A remittance or reference is respectfully requested from all unknown correspondents.—Hedenham Rosary, Oct. 25.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 25, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS

MONDAY,	Nov. 3	Entomological	8 P.M.
TUESDAY,	— 4	Horticultural	2 P.M.
		Linnean	8 P.M.
FRIDAY,	— 7	Botanical	8 P.M.
SATURDAY,	— 8	Royal Botanic.	4 P.M.

WE have to state that Government has instituted an enquiry into the character and extent of the POTATO DISEASE in IRELAND. Dr. LYON PLAYFAIR and PROFESSOR LINDLEY have proceeded to Ireland to assist in this enquiry, at the desire of SIR ROBERT PEEL. Such an official recognition of that formidable visitation, which we had the melancholy duty of being the first to announce as having manifested itself in Ireland (p. 623, Sept. 13), renders all further details of its progress superfluous. It matters little now whether we were right in laying the loss of the Potato crop at five-sixths. It is, at least, certain, that the injury is of the most extensive description. We believe our estimate to have been too low, but at any rate no question can be entertained of the mischief being such as to excite the serious alarm of the most powerful and sagacious of European governments.

Since our last we have received all the Numbers of the "Proceedings of the Institute" up to Sept. 22, inclusive; a pamphlet on the Potato disease, by Professor MORREN; some Continental papers, and numerous private communications. From the mass of matter we extract what seems to be of most importance, premising that in all practical points we find our own views adopted by those whose opinions are most entitled to attention.

In the first place, as to the fitness of decayed Potatoes for food. Upon that point there is the most positive information. That Potatoes actually putrid are unfit for food is certain. But the number of tubers in that state is at present inconsiderable; the large mass of the crop has the brown gangrene of the surface, which gradually pierces to the centre. A curious and sufficiently practical experiment as to the possibility of eating such Potatoes without danger has been tried by M. BONJEAN, of Chambery, who states in the *Monde*, a French newspaper (for which we are indebted to Mr. PIGG, of Thorpe, near Norwich), that he has been living almost exclusively for three consecutive days upon bad Potatoes, which had been thrown aside as refuse. M. BONJEAN states as follows:—"In order to determine the question with regard to the danger of eating the affected Potatoes, I had none of the injured portions cut away from the tubers, on which I lived almost exclusively for three whole days, during which time I eat 8 lbs. with butter in soup, or simply cooked in water, without experiencing any inconvenience, except slight indigestion, a symptom which would probably not have manifested itself if the spoiled portions had been previously removed. Further, I have drank in the morning fasting, a glass, about 8 oz., of water, in which 5 lbs. of putrid tubers had been boiled; it was yellowish-brown, turbid, and thick, but not viscous, of a slightly disagreeable smell and nauseous taste, leaving a bitterness which remained on the palate for an hour. I found no other symptoms of indigestion from this liquid except a disagreeable heat oppressing the chest, for about two hours. My two clerks and servant, observing that I felt no repugnance in eating these Potatoes, and that no inconvenience resulted, followed my example next day, and were nothing worse. After stating the above facts, I hope the diseased Potatoes will no longer be considered poisonous, nor in any degree dangerous when the decayed portions are removed. Anxious to know whether it was possible to save the sound portions of the tubers for use, I collected 100 lbs. of such as were partially affected, from which I had the unsound portions completely removed. After this operation there remained 73 lbs. of sound pieces, which I find as good to use as the finest of those exposed for sale. Hence, about three-fourths of the Potatoes that are thrown away, may be turned to good account; and I shall be happy if my experiments and observations tend to preserve a considerable portion of aliment, so precious for the poor, and of which they are in danger of being deprived by fatal prejudices.—M. J. BONJEAN, *de Chambery*."

The next point is the mode of storing the crop. The universal opinion is, that the only practicable means of effecting this is by trusting to dryness, which is precisely what we have recommended from the beginning. The manner of securing a sufficient degree of dryness is different: but all agree in dryness being essential, and this must be so when we consider that all the crop is more or less charged with water, which, in favourable seasons, the plants would have lost in the ordinary course of growth. Drying in *dark* chambers well ventilated—by means of a sprinkling of lime—by dry earth interspersed among the tubers, are methods that have their advocates. We hold to the latter, as being upon the whole the best plan; first, because it is easiest, and more especially because the disease is certainly contagious; that we have ascertained by the following direct experiment: several sacks of apparently sound Bread-fruit Potatoes, 10 days since, were placed in a dry stable, and covered with mats, for the sake of seeing whether they could be so kept. On uncovering them, a large proportion were already exhibiting the mouldy appearance which invariably accompanies the disease. We have no doubt that the air is impregnated with the seeds of the fungus; that whenever it falls upon a decaying or injured surface it takes root, provided the vitality of the tuber is low; that the vitality of all Potatoes from diseased districts is low this year; that moreover they are all more or less injured (necessarily) in the operation of digging, and that, consequently, they all offer a favourable situation in which the fungus can propagate itself. Now, if Potatoes are placed in dry rooms, or packed in any other way so as to allow air to circulate among them, the seed of the fungus will reach them.

The last point to which we shall advert is the course to be taken with the seed for next year. It is clear from the following very important communication from Mr. GREY, of Dilston, that autumn planting answers perfectly. We should, therefore, adopt that mode of cultivation at once.

COMPARATIVE PRODUCE OF AUTUMN AND SPRING-PLANTED POTATOES.

Your Number for November last contained the detail of an experiment which I made last year on the growth and produce of Potatoes planted in October and in April, the result of which was that the plot planted in April on the same land, and with the same manure as the other planted in October, gave 86 loads per acre, the seed having been from large Potatoes cut in two, and that planted in October, with the like seed, gave 111 loads, whereas small Potatoes planted whole in October, gave 100 loads.

In October last I prepared my land, and planted my Potatoes in drill rows of 30 inches width, applying fold-yard manure below the sets, but leaving three rows unplanted for each intermediate month between October and April inclusive. The land is a strong loam, except at the upper end, where it touched for a few yards upon clay, in which the Potatoes failed to a great extent in all the plantings. At the low end of the rows, the land is good and perfectly uniform. The manure and treatment of all was alike in every respect, except as to the times of planting. This year I did not apply guano in the spring as detailed in the experiments of last year. None of the Potatoes have been affected by disease, but the earliest planted showed the greatest strength and vigour in the stems, although there were occasional vacancies in the rows. The land was all drilled up in October, at which time the largest part was planted. Three rows more were dunged and planted in like manner in the end of November, and three in the end of December. In January and February the weather was so bad, and the frost so hard, that no planting could be accomplished. Three rows more were planted early in March, and the remainder of the land at the usual time of planting in April.

The Potatoes have been taken up within the last three days, and to test the comparative produce of the several plantings, my man began at the low end of the rows and dug onwards till he had filled a sack which contains 10 stones weight. The contents, however, is immaterial, so long as the same sack was used for all. The average length of the drill rows required to fill the sack—

Of October planting, was	30	yards.
Of November ,,	32	,,
Of December ,,	32	,,
Of March ,,	44	,,
Of April ,,	45	,,

which leaves to the October planting an increase of one-third over that of April, a result not very different from that of last year, in which the quantities were 111 to 86. From this it would seem that it does not much signify at what period in the winter Potatoes are planted, provided the land be free and dry, and the weather suitable for working it; but it is evident that a loss of power is sustained by allowing the seed to remain in pits till the spring, under a slow process of vegetation, when, before being used in the field, considerable shoots have already been put forth, wasting the nourishment which is requisite to sustain the plant in its early growth, and before it begins to derive its support from the soil. A few more such experiments may tend still further to elucidate this important subject.—*John Grey, Dilston House, Oct.* 16.

If small sound Potatoes, or such as are very slightly affected, are now exposed to the light, they will rapidly become green, and their vitality will be so much raised as probably to enable them to resist all decay. If such greened tubers are cut into sets, they should be sprinkled with powdered lime, or otherwise dried by exposure to air for two or three days, and then planted. Of course, in a case of this kind, where everything is new, it would be unsafe to affirm that this process will be effectual. But it holds out so good a prospect of success, that we do not hesitate to recommend its immediate adoption. It has, also, this advantage; that if it should fail, Potato-fields can be again planted in the spring.

It will be well to select for the crop new ground, and if possible high dry situations. But, while we state this, as a matter of prudence, we have no confidence in its necessity. Our own opinion is, that if sound seed is used, no fear need be entertained of the mischief appearing another year.

After giving this subject the most serious attention, we can arrive at no other conclusion than that the disease is to be traced to the peculiar circumstances of the season, that is to say, to atmospheric causes, and to nothing else; that the mischief produced by the mildew fungus is quite a secondary circumstance, although probably a serious aggravation of the original mischief; and that nothing is to be feared from it hereafter, unless the same atmospheric conditions should occur.

ONE of the most important things now to be thought of is the utilisation, as our neighbours call it, of the decaying portion of the POTATO CROP. To save that is hopeless, and we believe that the great mass of the community can do nothing wiser than to grate their Potatoes down, and save the flour. The last difficulty about that process is the most convenient machine for the purpose.

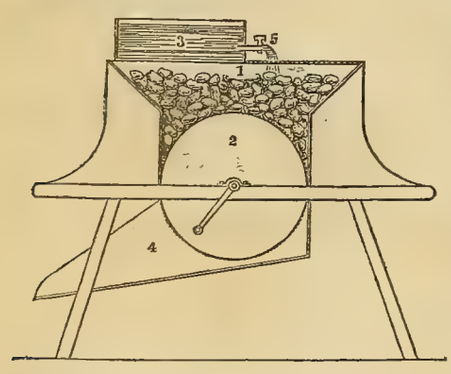
Since the machine-makers seem incapable of devising any cheap apparatus, others have turned their attention to that point, and we have now to produce a plan with which one of our correspondents, signing himself "R. J.," has favoured us, and which is nearly the same as a machine we had previously made, after several trials, in order to ascertain the form best adapted to the object in view. It consists essentially of a round wooden roller covered with tin plate, punched full of holes like a common grater, placed in a box or hopper, and made to turn round by means of a handle. Our correspondent in his letter says:—

"With this simple machine I can grate a peck of Potatoes in five minutes, whereas with the hand-grater it would require an hour or more. I have a quantity of partly-decayed Potatoes, and I have 3 or 4 pecks ground every night, and have a quantity of the finest flour any one need desire."

A machine of this kind is easily and quickly made, and costs comparatively little. A very good one may be made in two days, and need not cost more than 8*s.* or 10*s.*, of sufficient size to grate about half a ton of Potatoes per day. We shall, therefore, now give our readers a few practical hints as to the mode of making these machines.

The first thing wanted is a wooden roller or drum, about 8 inches wide and 1 foot across; this may be made out of one solid piece of wood; but it is less likely to split or warp if made by joining together four or five round disks of two-inch plank, placing the pieces alternately with the grain of the wood at right angles. The disks must be carefully and accurately cut; each must have a hole about one inch square cut in the centre, and when the several disks are joined together, care must be taken that the holes all fit together well, so that when an iron-bar is passed through them for an axis, the drum may run true and smooth. A piece of iron about an inch square, and rather more than a

foot long, is then tightly fitted through the hole in the drum, the ends of the bar having been previously hammered round, and a handle or winch fitted on at the one end. The grater is made out of three sheets of thick tin-plate, which are cut to the requisite size, punched full of holes, and then fastened to the drum with tin-tacks. The tin-plates, when cut to the right size, are placed on a deal board as free as possible from knots; the places for the holes are then marked by scratching lines across the plates both lengthways and breadthways, with a sharp nail, at a distance of a quarter of an inch or three-eighths of an inch apart. Wherever the lines cross, a hole is to be punched. The lines are so to be drawn, that the rows of holes shall not be parallel with the sides of the plate; then in scratching the first line, let it be a quarter of an inch from the edge of the plate at one end, and an inch and a quarter from the same edge at the other end; and let the same rule be followed in drawing the cross lines; if this be done, when the plates are fixed on the drum, the rows of holes will go spirally round the drum, and each hole or burr will make a distinct cut from the one just before it. The holes may be punched with a nail or any sharp piece of iron; an old bradawl filed to a three-sided point does exceedingly well; the shape and size of the burr of course depends on the shape and size of the punch, and the force with which it is hammered through the tin plate. When all the holes are made, the plate is easily separated from the board on which it has been punched, and is then fastened on to the drum. A box is next to be made, in shape like the box of a grindstone, large enough to hold the drum, but without any bottom; holes are cut in the sides for the round ends of the axis of the drum to pass through them, care being taken in fitting it in, to see that it turns smooth and true. Another plate of tin having only two rows of holes punched in it is then fastened to a board as wide as the drum, and fixed in the box so that its row of burrs nearly touch the side of the drum, in fact the nearer the better, so long as the burrs on the drum and those on the plate do not catch when the former is turned round. For practical purposes the machine is then complete, it will work more smoothly if a heavy iron wheel is fastened on to the end of the axis, but this is not necessary, it will also work better for the stream of water described by "R. J.," but this also may be done without; when the drum gets clogged with fibrous pulp, a little water poured over the drum causes it to cut better; and when several Potatoes choke up the cutting part so that the drum goes round without grating them, it may at once be set right by turning the drum backwards a quarter of a turn, after which the operation of grating goes on well again, as before.



No. 1 represents a hopper, across which, under the cock, 5, is a small tin trough with holes along the bottom, which must be kept constantly full, so as to let a stream of water play across the roller, otherwise I find it chokes up and will not work; 2, a wooden roller, 10 inches diameter, with a punched tin-plate nailed all round like a grater, the finer the better; 3, a box for water; 4, a shoot to convey the pulp into a tub, after which it is strained and repeatedly washed.

We have been thus minute, in order that any one may be enabled to make such a machine, and in reply to the numerous questions which meet us from all quarters, as to the best mode of grating Potatoes. The grater now described, does its work well and completely, which is more than we can say for some of the more expensive contrivances sold by agricultural machine-makers.

NEW PELARGONIUMS.

In reply to numerous inquiries relative to the New Pelargoniums which are to be sent out in the present season, or in the spring of 1846, I subjoin a few notes upon those flowers, specimens of which have appeared at the great metropolitan exhibitions during the past season. It will be seen that the remarks do not apply to the seedlings of the present year, but to flowers whose good qualities have been proved by their having been exhibited as specimens during a second season.

Rosy Circle (Beck's)—Fresh rosy colour, dark, well defined spot, good round stiff flower, profuse bloomer, and constant.

Mustee (Beck's)—Handsome large flower, ground-colour delicate warm pink, with a steady purple maroon blotch, good habit, and free bloomer.

Duchess of Leinster (Gaines's)—Clear bright flower, orange-pink under-petals, with a dash of scarlet in the top ones, free bloomer, and very smooth.

Arabella (Beck's)—A beautiful flower, with white centre, ground-colour warm rosy pink, deep blotch on the top petals, softening into crimson, free bloomer, good habit, and constant.

Orion (Foster's)—Splendid upper petals, with dark maroon blotch, and a narrow well-defined edge, of rosy scarlet; lower petals crimson scarlet, long and narrow in proportion to the upper ones, which are broad and of fine shape; though deficient in form, the extraordinary colour of this flower will cause it to maintain a situation in every fine collection, till some fortunate grower produces the same colours, combined with a more perfect form.

Juno (Beck's).—A glowing flower, with upper petals of a carmine colour, and distinct edge; the lower petals are rosy scarlet, and in good proportion with the upper ones; sportive, and occasionally throws a blind shoot. It was shown very fine during the season.

Desdemona (Beck's).—A striking flower, from the great contrast between the upper petals, which are a rich maroon, surrounded by a narrow rim of pink, and the lower ones, which are a pinkish white, terminating in a white centre; good habit, free bloomer, and constant. This flower has an inclination to twist.

Pearl (Catleugh's).—A white flower, of good shape, free from any pink tinge. The upper petals have a small, well-defined crimson spot; whites being scarce, this is a very desirable flower.

Isabella (Beck's).—Delicate warm pink under-petals, uniform in colour, short and well-rounded; top-petals, deep bright maroon, softening evenly to the edge, which is of a warm pink, similar to the under-petals. Free bloomer and good in habit.

Othello (Beck's).—A flower of novel character; the upper petals of a deep even purple colour, surrounded by a perfect margin of a rosy tint; under-petals of an even rosy purple colour. Close habit, and not an abundant bloomer.

Sunset (Beck's).—Rather small, but bright and attractive; top-petals of a peculiar bright maroon, bordered with pink; bottom-petals, uniform light salmon colour. Free bloomer, good in habit, but sportive.

Gulnare (M'Cormack's).—A flower with light rosy under petals, white centre, and dark top petals with a narrow rim of pink.

Bellona (Beck's).—A flower of much richness of colour and good substance, rosy purple lower petals, the upper ones of a deeper colour, with a border of rosy crimson, curiously stout habit, and free bloomer.

Marc Antony (Beck's). — To deep-coloured top petals, bordered by a narrow rim of light rose, are united bottom ones of light rosy pink; in the centre of each is a purplish spot; good habit and free bloomer.

Titus (Hoyle's).—A well-formed flower, rosy under petals, with light centre, dark rich velvety upper petals, with a distinct margin of bright rosy carmine; good in habit and a free bloomer.

Zenobia (Beck's).—A very attractive flower, but defective in its general form, the lower petals being too pointed. Its novelty consists in its massive mulberry spot on the upper petals, margined with rose; centre white, lower petals delicate pink, profuse bloomer, and good habit.

Margaret (Beck's).—A small smooth good-shaped maroon-coloured flower; profuse bloomer. The lower petals flat, pink; the margin on the upper ones is of a bright tint.

Hector (Cock's).—A good sized, lively, bright, rosy-coloured flower, with a pure white centre; a constant and free bloomer; sits well, but is rather thin.

Favorita (Beck's).—This flower is inferior to Foster's Favourite, but sufficiently like it to be mistaken for it. Its good quality consists in its constancy; and, from its habit of growth and bloom, it is desirable for either the private stage or exhibition table.

Sultana (Foster's).—Body colour orange, with a dark spot on the upper petals, which have a strong mixture of scarlet; very smooth and constant; and a profuse bloomer.

Queen Philippa (Garth's).—A large rosy flower, of considerable substance, and fine habit.—*

THE AMATEUR GARDENER.

"Nor would he scorn to stoop from high pursuits
Of heavenly truth, and practise what she taught.
Vain is the tree of knowledge without fruits.
Sometimes in hand the spade or plough he caught,
Forth calling all with which boon earth is fraught."
Castle of Indolence.

Most men have felt a momentary blush of shame when asked to defend pursuits which administer more to taste and refinement than to pecuniary profit. In this mercantile country, one is often tempted to repudiate occupations which give health to the body or improvement to the mind, because the sordid deride them. In this respect the world has not improved since Greece was pre-eminent in civilisation, for I presume her sons loved nature and cultivated art for their own sakes, without being required to demonstrate their bearing on the acquisition of money. Englishmen should guard against this lower use of the *cui bono* argument, and concede that a man may be honourably and profitably employed without having the slightest reference to the increase of his substance. In the sweet season of infancy, when the laws of nature refuse to succumb to conventional notions, who will deny the immeasurable importance of pursuits which have not the remotest relation to pelf?

I have watched with great interest for some years the movements of a Horticultural Society in a flourishing country-town, and have often been surprised at the difficulties with which it has had to contend, from the prevalence of this habit of estimating everything by its pecuniary return. A scheme for a gas-house, a railroad, or a town-hall is eagerly embraced, because each will yield, perhaps, an interest for the money invested; but a horticultural society is placed in a different category. It is true its shows are attractive; that fellow-townsmen find their harmony promoted by its meetings; that a taste for the innocent and the beautiful is fostered by its influence; that the labouring classes are taken from low and injurious pleasures by its exertions—all this is conceded; but there is no money return, except to the successful candidates for prizes, and therefore it cannot be warmly espoused. A few kindred spirits by dint of influence and careful canvassing get up a subscription list sufficient to keep the society in existence, but a conviction is always forced upon its promoters, that a love of gardening has yet to be formed, and that nature's beauties, although praised, are thought worthy very little time, attention, or money.

Now the situation of this Horticultural Society will illustrate my meaning when I say that the amateur gardener feels a momentary blush when called upon to defend his pursuits. The possessor of acres of pleasure-ground would never have this feeling, for no one would laugh at him for his expensive tastes, associated as they are with high life and with wealth. But the owner of a garden a few yards square, to which he devotes his mornings and evenings, often becomes sport to the thoughtless for his attachment to his humble Flora. In his heart he knows that he is right, for he feels ennobled by his blameless occupation; but he is often at a loss to defend himself against the bluster of ignorance, and the heartlessness of mere money-makers. When a friend says, "Your Cabbages must cost you a shilling a-piece, if your labour is taken into account; and your Roses, judged by the same rule, are each worth half-a-crown," and evidently thinks he has employed an irrefragable argument the modest cultivator scarcely knows how to retaliate. The fact is, it is difficult to balance taste against the want of it, or mental pleasures against such as are more sordid; and if I can assist the amateur in defending himself and confuting his antagonist, I shall probably be of service to him. It is well for the judgment to go hand in hand with the heart, and to be able to show a good reason for the love of gardening and flowers.

Perhaps my advice and reasoning may be better received if, in a slight autobiographical sketch, I can establish a claim to experience and knowledge of the subject of which I write. I am then, like thousands of the readers of the *Gardeners' Chronicle*, an Amateur Gardener. My practice in this art dates back as far as a quarter of a century, when in the suburbs of London I had a little plot in the garden of my father, made little hotbeds of his stable manure, and gloried in the production of a pungent Radish or an abortive Cucumber. Ignorant country people may sneer at the mistakes of cockneys as to rural pursuits; but who can disparage with justice their love of gardening and flowers? The Mignonette in a broken pan, or a Hyacinth in a blacking-bottle, which may be seen in London's darkest streets, and the Ward's cases in the drawing-rooms of its wealthier citizens, furnish sufficient proof of the floral tastes of the largest city in the world; and I can testify that, in my boyish days, a love of gardening filled the hearts of multitudes of urchins within the sound of Bow-bells. Since that time, my occupations have been those of the wits, not of the hands. At one period, an engrossing affection for literary pursuits threatened my health, and rendered a return to the recreations of childhood necessary as the means of securing a right mental and bodily state, *mens sana, in corpore sano.* I took to gardening with a heartiness and love which made its labours pleasant, and its successes delightful. Many persons will tell you they love flowers, who love only to look at them, but would rather see them die than give them a repotting, or even a careful watering. Your humble servant did not pursue the craft in this way. He endured the labour, that he might enjoy the triumph of success. The preparation of a Ranunculus bed in the winter season; the turning over the soil again and again, that the whole might be mellowed by the frost; the back-aching work of planting in February; the pressing down the soil around every individual plant as it appeared above ground; all this I have done, and been amply rewarded by the exercise itself, but especially when, in the month of June, my bed has developed the matchless charms of these delicate *elèves* of Lightbody and Tyso.

In these pursuits health has been secured, and peace of mind promoted. A hard ride has been said to be the Englishman's remedy for melancholy, nor is it to be undervalued; but having tried both, I give the preference to gardening. You are the world's citizen when under the blue vault, or even the hazy mantle of heaven; the hands labour, and the mind wanders among sweet sights and sounds. You may have trouble, but, with a love of Nature, there will be "the smile and the tear in your eye." I will not promise you sunshine; but I will guarantee that, in the culture of the ground, your spirit shall be at least, like the rainbow, glad though sorrow-

ing. Having caught the inspiration of the winter frost and the summer breeze, and wooed Nature in all her retreats, let me tell you my experiences from the digging the soil to the securing the crop—from the potting a choice plant to the bloom. Some years ago I should have been glad of such a guide as I am anxious to become to the aspirant for floral joys and honours. From the compost-heap to the preparation of a flower for exhibition, through all the various steps of the process, I hope to lead you on, and to make you feel, in the spirit of this week's motto, that in such pursuits you are far from descending in the scale of existence, but may rather become a wiser and a better man.—*H. B.*

ENTOMOLOGY.

The Garden Snail (*Helix hortensis*).—Snails are one of the pests which annually visit our gardens, and it requires the utmost vigilance to guard against their incursions and arrest their ravages. They are very similar to slugs in form and habits; but differ essentially in being furnished with a shell, into which the animal retires on being alarmed, as well as during the winter months, and in continued droughts, the orifice being covered with slime, which perfectly excludes the air, it enables the animal to lie dormant and to retain its vitality for almost incredibly long periods, viz., 14 or 15 years; other shells, as perriwinkles, are supplied with an operculum or lid, which fits into the orifice for the same purpose. As genial spring calls into active life the vegetable kingdom, so are these animals also influenced by the temperature, and sally forth from their hiding-places in damp and mild weather, even in the day-time, when the sky is overcast; in dry summers a shower will entice them from their retreats, and one sees them issuing from evergreen hedges, the stems of wall-trees, heaps of loose stones, and brick-bats, muck-heaps, wooden fences, tufts of herbs, and plants which afford them shelter, as Irises, the thick-leaved Saxifrage, &c. At first they will travel long distances to feed upon the young shoots and leaves of Peaches and Nectarines, and to nibble the fruit; but after a hearty meal, they rest behind the branches and shreds, under the leaves, the copings and chinks of old walls, or amongst the plants that may be growing at the base, taking especial care to retreat before the light of day discovers them. They may sometimes be traced by their slimy tortuous paths; but the eye often passes over their dingy shells, unless it be exclusively directed to the discovery of them.

Snails are said to be hermaphrodites, and consequently they are all capable of laying eggs, to what amount I cannot state; but I have found at least 80 in one heap; they are globular, whitish, shining, and not larger than swan-shot (fig. 1); if kept in a damp place they readily hatch, when they at once become little, thin, transparent, and nearly colourless shells (fig. 2). In a short time they increase to twice the size, even when they have had nothing to feed upon; they are then of a dark ochreous colour, with three imperfect rings, composed of brownish dots and streaks, and a transverse line, of the same colour next the pale lip or margin, and these spots seem to vary as the animal withdraws or extends itself, owing to the dark tints shining through the semi-transparent shell (fig. 3.) As the snail grows it has the faculty of enlarging the shell from its own secretions, and when full grown it is as large as a small plum; it is convoluted, obliquely striated, of an ochreous colour, variegated with pitchy spots, giving it a marbled appearance, and forming two or three transverse bands; the lip is ochreous, the margin slightly reflexed, the underside is smooth and white, with a pinkish tint (fig. 4). The animal is at this time two or three inches long when fully extended: it is scored or wrinkled like the lengthened meshes of a net, whitish, with the back and head of an inky or slate colour; the four horns are contractile, the superior pair being the longest, slightly tapering, with a globular knob at the extremity, containing a black dot, which is probably the eye; and if one of these horns be touched it is instantly withdrawn: the lower ones are much smaller, and below them is the mouth.

There are various ways of reducing the numbers of this pest; the simplest is by searching amongst the leaves of wall-fruit in April, when the snails first leave their winter quarters to satisfy their long abstinence, and they continue feeding until August or September. To protect seedling plants a thick dusting of lime and soot round the stem will keep the snails away in dry weather; but in spite of all my efforts they ate off a great many African and French Marigolds last spring, and the Lupinus mutabilis was such a delicacy, that troop after troop marched from a Laurel-fence in June to feed upon them, retiring at daybreak, until the whole fell a sacrifice; the last plant being at the time a foot high. In August the eggs may be found at the roots of pot-herbs, in the cavities of muck-heaps, at the rotten foot of paling, &c.; these should be diligently sought for and destroyed; for, of a cluster that I discovered, of which I kept only half, every egg hatched, and 43 out of the 44 were alive many weeks after, although they were shut up in a close pot with only dry earth. On finding they were hatched I examined them, and saw that the animals had all retired some way into their shells; but on pouring a little water into the pot and covering it up, they soon felt the effects of the humid atmosphere, which roused them from their torpor, and they were crawling about in half an hour; this shows that drought is not congenial to their habits, and consequently gardens suffer most from their inroads in wet seasons. About August and September the eggs hatch, and the young snails distribute themselves over their favourite plants, which afford them good shelter, and they become about the size of Peas in two or three weeks; this is another seasonable time for pursuing them again, as this young fry hybernates, and comes forth a voracious and consuming host in spring.

Salt and urine are destructive to snails; but it is difficult to apply either to them with much advantage. Lime, soot, and wood-ashes are excellent checks; but the first loses its efficacy as soon as it becomes wet, and even the dews of the evening will frequently exhaust its caustic properties. I have not found Cabbage-leaves an invariable decoy for the old snails, although I have seen five or six upon one leaf in some evenings after dark; young ones, however, are very fond of them, especially when wet and withering, and at this time there are large numbers upon the Cabbage-tribe.—*Ruricola.*



Home Correspondence.

Pine-apples at Thornfield.—In reading the several remarks in the *Chronicle* this season on the subject of Pine growing, I perceive that those who cultivate this fruit by the common system, have still to contend with a host of uncertainties. The old school has never been short of teachers; we have ever been learning, but have never been able, as Mr. Barnes has lately stated, to discover any definite or certain rule whereby to steer with any degree of certainty. Now I fully coincide with this opinion. Nothing can be more opposed to good sense than the common method of treating the Pine-apple. Notwithstanding the expence entailed on the proprietor, the labours, sweats, and anxious care on the part of the gardener in producing fine plants, after all neither healthy roots nor healthy leaves can effectually plead the preservation of the parent plant after the fruit is cut. Although a plant has been two or three years in storing up accretive matter, wisely designed to supply Nature's future wants, nevertheless we have been instructed to destroy the parent plant, and only preserve its infant progeny, merely because it has ripened a single fruit. Now, in opposition to this doctrine I may state, that I have plants which have ripened their sixth and seventh annual crop, of frequently two fruit each. Some of the plants have produced fruit this season, probably larger than any on record; an Enville which has been measured by more than twenty gardeners, was 21 inches in circumference, and 15 inches in length, and, in addition to this, two fine suckers were progressing whilst the fruit was swelling, from which I anticipate cutting a brace of fruit next season; probably the three fruit may weigh 20 lbs., which I consider is nothing extraordinary, as a brace of Enviles has already been produced in twelve months, and was exhibited on the plant at the Manchester Horticultural Show in August last, weighing ten pounds. With regard to other varieties, I may state that I have a Montserrat (Black Jamaica of the South) from which I am sure of cutting four fruit between December, 1845, and next December, 1846, the united weight of which cannot fail to be less than 12 or 15 lbs. I do not, however, consider this to be an extraordinary result, as a brace of Montserrats has already been ripened on one plant, and weighed 10 lbs. avoirdupoise. Allow me now to inquire, what is a Queen of 5 or 6 lbs., or a Providence of more than twice that weight, when circumstances connected with their production are fairly considered. Quick return for sale or property is the order of the day. Pine-growers are aware that two years are too little to grow a stout bushy plant in, and also to perfect a 5 lb. fruit in that time. The 5 lb. Queens lately produced at Bicton, have surprised Mr. Forsyth, and well they may, being, as he says, 2 lbs. above the average size; nevertheless, such records would have looked better in print 40 or 50 years ago. Mr. Griffin cut 20 Queen Pines in 1805, whose united weight was 118 lbs. 3 oz. I am astonished after so much has been said of late years respecting my simple, certain, and comparatively inexpensive system of fruiting the Pine, some few individuals are yet satisfied with results that were surpassed 40 years ago. Mr. Barnes has, however, in previous years surpassed this, and has, as we know, produced a Queen Pine 6 lbs. 4 oz., which is equal to a Providence above twice that weight. I therefore give him credit as being the best Pine-grower by the old system. I may observe, however, that I have produced larger fruit by my present method, having cut the Montserrat 7 lb. 4 oz. avoirdupoise; this is recorded in my treatise on the Pine-apple. The Montserrat has been frequently weighed here in the presence of respectable gardeners, and found to be between 6 and 7 lbs. avoirdupoise, the plants being literally crowded to excess with fruit. Perhaps some of your readers will remember, that several years ago I predicted that ere long I should hear that an annual crop of 200 lbs. weight should be produced out of an area of 25 feet by 8 feet; this has been accomplished, and will be again this year, and I trust the veracity of the above statements will be fully investigated to the satisfaction of all who are interested in Pine-growing. Where others have fairly carried out my system, equal, if not superior results, have also been accomplished. The best maiden plants have been completely eclipsed by fruit produced on old stools, and in the same house, and by precisely the same treatment. Many of those who wished to impugn my system in the beginning, have had ocular proof in this locality (not at Thornfield, but elsewhere) that it is by this system alone that Pine-growing is to be materially improved. Whoever dreamed, ten years ago, that the Pine was capable of producing an annual crop of one or two fruit of superior size for any length of time? and now who can deny it, when the fact stares us in the face? Before concluding these remarks, I will predict that, ere long, I shall hear that the Queen has produced an annual crop of 10 lbs.; and why not? Some of the varieties of Queen are nearly, if not altogether as large as the Montserrat. Mr. Forsyth has stated that 3 lbs. is the full average weight of a well-grown Queen, which takes two years to mature both plant and fruit; consequently, only 1 lb. 8 oz. is the annual produce. I trust, however, that my prediction, that 10 lbs. of fruit in one year from the Queen, will soon be obtained; then, and not till then, shall I say that Pine-growing has reached perfection. — *Joseph Hamilton, Thornfield, near Stockport.*

Balsam Seeds.—It is not generally known that the case in which the seed of the Balsam is enclosed, yields an Orange dye of a beautiful colour. As the Balsam seeds freely, this could be produced extensively at a cheap rate, so as to become an object of commerce.—*J. R.*

Quercus sessiliflora.—I beg to add the following remarks to my communication (p. 705) on this Oak. On returning for a second walk to Lisgate Common, Fittleworth,* I made a further advance into the wood containing the tree described, and had much pleasure in finding that this species of Oak so abounded, that I might have counted them by scores and hundreds, none, however, equalling the tree I had at first seen, and which has been described. What gratified me still more, was to find the characteristics that I have stated as distinguishing my first acquaintance, so decidedly marked in every other specimen of sufficient size to display them, that I could pronounce without hesitation to which species each tree belonged before I had advanced near enough to distinguish the leaves or the fruit. The same Ash-like elegance prevailed in all. Quercus sessiliflora has been accounted a rare tree in Sussex. Mr. Cooper, the author and compiler of the Botanical Memoir of Sussex, in Horsfield's History, mentions, "one tree at Newick, one at Uckfield, and plenty in Goodwood Park." It is, therefore, perhaps a matter of no small importance, that such a profusion of this valuable timber should exist here; and the proprietor would be consulting his own interest as producer, and that of the shipbuilder as purchaser, in directing his attention to the fact, if he is not already aware of it. I say, if he is not aware of it, because, according to my experience, few besides botanists make a distinction between the sessile and the stalked-cupped species. I have spoken on the subject to carpenters, and have lately enquired of an extensive timber agent, without eliciting satisfactory answers, as they seem to know of no distinctions but vague, unessential variations, particularly a kind kept dwarfed close to the ground for firewood and faggots, and which produces leaves of remarkable size and depth of colour. I imagine that the superiority of the timber of the tree in question arises from its comparative freedom from medullary rays in its texture, these being the weak lines where a split is sure to show itself first. In a collection of polished woods in my possession, the specimen of the Cork Oak, Q. Suber, has several splits through the medullary rays, which are remarkably broad in this species; the Q. pedunculata betrays the effects of age in the same manner, and for the same cause; Q. sessiliflora is as yet free from this disfigurement, and probably will remain so, in common with nearly all the other woods destitute of medullary rays, such as the Chestnut, Yew, &c. Again, in point of weight, sessiliflora has an advantage as 7 to 5 over pedunculata.—*F. A. Malleson, Pulborough, Petworth.*

Melon Growing.—Allow me to state that I do not, as "R. G." seems to suppose, entertain any fear of injury to the roots by the plan I proposed for the construction of the beds, when properly managed. This is only an objection which has been raised by others; but, for the reason given at p. 690, it is clearly without any force. I also beg to differ from "R. G.," in his estimate of the plan he describes, for two reasons. First, because the formation of the air-chamber he speaks of would incur extra expense—a point to be avoided wherever practicable; and, secondly, because I conceive, it is not at all necessary; for there would be a great risk of applying very much too large an amount of bottom-heat to the plants, if the upper surface of the tank became hot enough to injure the roots. Instead of an air-chamber, to prevent injury from the application of too much artificial bottom-heat, I would suggest that it would be more economical to give diligent and careful attention to the source of that heat, so as to apply only so much as would be beneficial for the purpose. "R. G." cannot, surely, have been a regular reader of the *Chronicle*, or he would have been aware of the existence of the treatise in question.—*T. Moore.*

* An error occurred in my last paragraph, "leaves and *foliage*" being printed for "leaves and *fruit*." Also, "Littleworth" should have been "Fittleworth."

Echinocacti and Mammillaria. — I cannot omit noticing, for the information of your readers, an ingenious method of propagating such interesting plants: —Mr. Turner, curator of the Botanic Garden, Bury St. Edmund's, received from South America a rare specimen of Echinocactus, which was decayed at its base, and would not emit fresh roots; he, therefore, seared it at the top, and cut off the diseased part, which after being healed in a dry stove produced several small plants on the summit; a second species, which was deemed incurable, was cut transversely and placed on a shelf in the succulent-house, and being fixed on a pot of soil soon made a strong plant. He has also increased, to a considerable extent, some of the species of Mammillaria by cutting off the protuberances on Mammillaria, which after being dried on sand produced perfect plants under a bell-glass with bottom-heat.—*N. S. Hodson.*

Vine Culture.—Much has been written on this subject, yet so many complaints of badly-coloured Grapes, and queries regarding them, have appeared this year, that I am justified in saying the subject is not yet well understood; in fact, except in a few places (where the gardener seems to understand the nature of plants in general), we seldom see Grapes perfect in every respect—shrivelled Frontignans, or brown Hamburghs, always point out that something is wrong. I well know that there are circumstances connected with the culture of Vines over which a gardener has no control; yet I maintain that if gardeners studied more deeply the nature of plants, and tied themselves less down to routine-rules, we would hear less of shrivelling, bad colour, &c. In regard to borders, enough has been written on them to enable every reading gardener to know what a Vine-border ought to be; so, premising that without a proper border we can never expect good Grapes, I will proceed to point out a few of the errors of the system of Grape-growing practised by at least nine-tenths of cultivators. First, then, there is far too little attention paid to keeping up a proper degree of moisture in the air of Vineries, it being almost always too dry; and, secondly, fresh air is admitted injudiciously. A hygrometer is just as necessary in a Vinery as a thermometer, and I believe the time will soon come when we shall as seldom see a house without the one as the other; and wherever one is used, it will be found that it is not a sprinkling of water on the flues or pipes, once or twice a day, that will keep a sufficiency of moisture in the air—no, it will be found that water should be almost constantly on the pipes; and that the borders, footpaths, &c., should be sprinkled frequently besides. But much judgment is required in managing this; all I can say is, let the hygrometer be your guide. The admission of fresh air is intimately connected with the preceding; yet almost invariably do we see air admitted without the slightest regard to its effects on the internal atmosphere, farther than keeping down the heat. Let us imagine, for a moment, what has been the treatment of many Vineries, in this respect, during this last trying summer. In the long-continued dull, cold weather, the houses were kept nearly closed; consequently more moisture was retained than usual, and the shoots and leaves were tender, and very susceptible of injury from sudden change; but as soon as we had a strong, clear sunshine, the houses were opened, and air let in unsparingly to keep down the heat. The consequence was, that the Vines were checked; and if this happened just when the Grapes are colouring, as it did in many cases this year, they do no more good, but assume a dull brown colour, viz., the dingy hue so well known and so much dreaded by gardeners; and when this happens, nothing will recover them—the too frequent practice of keeping on strong fires with the view of remedying the evil, only aggravates it. I do not assert that this alone is the cause of bad colouring; whatever checks the Vines, be it excess of moisture and cold at the roots, or a too hasty withdrawal of moisture from them, as is very frequently the case, the consequence is the same. In pointing out the evil, I have no doubt led the mind of every thinking gardener to the remedy; but I may just state, shortly, how a proper atmosphere is to be maintained:—From the time the Vines are started, the strictest attention ought to be paid to admitting air, and to its effects on the hygrometer; in cloudy, wet weather, short fires are to be put on in the morning, so as to raise the heat nearly 10° above the night temperature, and a little air admitted both at front and back of the house, taking care to keep plenty of water on the pipes; for a strong fire-heat, accompanied with a brisk circulation, would be very injurious if not counteracted by moisture. In bright weather equal attention is necessary; for, if a great deal of air is admitted to keep down the heat, it is impossible to keep the atmosphere sufficiently moist, consequently the Vines suffer. Air ought to be admitted not so much to keep down the heat as to keep a current of fresh air in the houses, and small openings at front and back are quite sufficient for that purpose. Vines will seldom be hurt by sun-heat, if surrounded by a properly moistened atmosphere; but to maintain this in dry, hot weather, the utmost vigilance is necessary. As, then, there is but little heat in the pipes, they ought to be kept deluged with water; indeed, the return-pipes should always be laid in gutters, so that they can be kept covered with water when required. Now, although I say strict attention must be paid to the admission of air, I do not mean that the ventilators are to be opened and shut always as a cloud passes over the sun, thereby causing what I may term a transition atmosphere; for, although the thermometer may be kept pretty steady, it is impossible to keep the hygrometer so too. A little air ought to be admitted as soon as the sun raises the heat a few degrees, and in an hour or two a little more, or as much as you think will cause a sufficient circulation, without putting it out of your power to keep up a sufficiency of moisture. It may be thought that I recommend too much moisture, but I do not say what degree of moisture is necessary, or rather best; that, I believe, is not altogether decided. One gardener may keep his Vines much drier than another, and yet have as good Grapes; all that I insist on is, that, whatever degree of moisture is kept up, it must be as steadily maintained as possible.—*A Practical Observer.* [We call this writer a sound, sensible, as well as practical observer.] In addition to the above, "J. H." gives the following:—"In order to have good Grapes good attendance at the time of colouring is absolutely necessary, taking care not to admit cold winds, for it is that which shanks Grapes. If there is absence of sunlight at the time of colouring, fires ought to be applied to the house, raising the temperature to 72° at night and maintaining a dry atmosphere. If you have flowers in the Vinery take them out. Should your Grapes begin to colour in March or April—the most precarious months in the year—when the sun begins to shine and there is every prospect of a fine day, put out the fire immediately, and as the sun raises the temperature in the house to 76°, give about half an inch of air to every sash at top, but none in front upon any account; and when the heat rises to 78° give as much air again, and so on until the thermometer stands at 85°. Be sure not to allow the heat to decline without taking the air away by degrees as it was given; ultimately, when closing the sashes, the house is at 76°. At the last movement of the sashes half an inch of air only should be shut off, for if you have a foot or six inches of air on each light when the heat is at 85°, and you suffer the temperature to become colder without reducing the air a little then the berry shanks. In March and April, a day's sunshine is very acceptable, and the gardeners throw open their houses and allow them to be open until the heat is only 70° or 76°; they then close the house and the heat rises again, and does more harm than the sun has done good; depend upon it there is nothing but a little care wanted at the time of colouring in order to produce good fruit. Of this, from long experience, I can speak with confidence.

Vine Borders.—In taking up some Vines which were planted in an old Vinery, I observed that some of them had rooted into the front wall, and that those which had done so were the only ones that bore fruit. This induced me to try the effect of lime-rubbish in the compost of which I formed a new Vine-border, and I am so much satisfied with its good effect, that I strongly recommend its use in all composts for Vine-borders. I replanted the old Vines above mentioned, and although under very disadvantageous circumstances, they would have produced a good crop of Grapes had they been allowed; but of course all "shows" were taken off. Peach-trees planted under similar circumstances ripened some nice fruit.—*J. J. Geoghegan, Tipperary.* [The value of lime-rubbish in Vine-borders is well known.]

Tagetes tenuifolia.—This is one of the best orange-coloured annuals for flower-beds with which I am acquainted. The plants were moved out of pots about the end of June; they were then 6 ins. in height, and in bloom; they soon covered the ground, and have been full of bloom ever since. To its other qualifications, this plant possesses the good property of not looking littery, for as soon as the flowers begin to fade, the shoots branch out again with a new crop of flower, and hide the decaying blooms. It is now a dense mass, about a foot in height, and though the majority of other flowers are fading from the effects of cold, this continues as fresh and blooming as ever. The leaves have a very agreeable balsamic scent.—*Anna.*

Fairy Rings.—In a late Number you suggested the probability of a fairy ring originating from a single fungus, and that the probable cause of the formation of the ring was the seeds of the fungus falling in a circle. In endeavouring to satisfy myself as to the truth of these suggestions, I arrived at rather curious conclusions; but which agree beautifully with observed facts. The seeds of a fungus falling in a circle will produce a a circle of fungi, their seeds falling also in circles. Now, the seeds which fall from the inner-sides of the fungi of this circle will occupy a great deal less space than those falling from the outer edges of them; consequently, the centre will become crowded with fungi, and, as the circle enlarges, instead of becoming a ring, it would continue a circular mass of fungi. The seeds falling in circles then is not the sole cause of the formation of the rings. In the Links of Montrose, there are a great many circular masses of fungi, from a few inches to 1½ foot in diameter, which I have examined, and upon all of them I have found the Grass, Clover, and other plants, especially in the centre, in a sickly or dying condition. The Grass touching the decaying fungi was black, as if charred. There are also a great number of fairy rings upon all of which the Grass has the same sickly or dying appearance; and upon those parts where the fungi have grown most numerous and luxuriant, every plant has died and left the ground quite bare. From these facts, I think it is evident that the decayed fungi cause this disease and death. Now, if decayed fungi can destroy these plants, may they not also destroy the seeds of the fungi upon which they fall? Apply this principle to the small circular masses. The great number of fungi decaying in the centre will destroy the seeds of the fungi upon which they fall, while those seeds falling from the fungi on the outer margin of the circle will fall where no fungi have decayed; they will be uninjured, and thus a ring will be formed. It will continue to enlarge by the decayed fungi destroying the seeds on the inner margin of the ring, while those upon the outer margin, falling upon fresh ground, will form the new ring next year. The proof of this is, that when two rings meet, the sides of the rings coming in contact are both destroyed, as the outer margins approach each other, the points are soon destroyed, and the two rings become one irregular ring. I noticed one place yesterday where four of them had met, leaving a four-cornered figure, composed of parts of the four rings, the rest being destroyed; and as all these parts are approaching each other they will disappear altogether. Now, I think that this theory will account for your Fifeshire correspondent's woodland ring going round the trees.—*An Inquirer, Montrose.*

Retention of Moisture by Leaves.—The remarks of Mr. Mackenzie on this subject are very interesting, and he has recorded some facts which are worthy attention. The appearance of water on some leaves, and not on others, is, undoubtedly, connected with their peculiar structure; but what that structure may be it would be difficult even to guess at from the facts brought forward by Mr. Mackenzie; but he should certainly go on with his observations, and connect them with the state of the atmosphere, the soil the plants grow in, &c., and matter will thus be afforded for arriving at a correct explanation. In the volume of Reports on the progress of Botany and Zoology, published by the Ray Society, there is an abstract of a paper by Graf on this subject. He made his observations on the Impatiens noli tangere. He found the drops in this plant appear on the cotyledons, the leaves, and the flowers, but largest on the first. The water of which they were composed was perfectly scentless and tasteless, and usually appeared 10 or 20 minutes after rain, or watering the flowers. Sometimes the drops were suspended for the whole day without any change, and at other times they disappeared in half an hour; he made experiments on this subject. Finding these drops over the aperture of the veins, by means of a needle he attached a drop of water to a vein where there was no aperture, and this drop remained for a long time after all the others had disappeared. He also took off a drop that had naturally made its appearance on the leaf, and attached it to another part of the leaf; this also remained unchanged after the other drops had disappeared. Herr Graf supposes that these drops arise from the sap rising so rapidly and in so great quantity, that it cannot be immediately distributed, and consequently issues at all apertures. As soon, however, as the distribution of it has taken place in the cellular tissue, the part temporarily secreted in the shape of drops is imbibed, and applied to the nourishment of the plant. He instituted similar experiments on the leaves of the Cauliflower, and with the same results. Although the drops were largest on the Cauliflower, they disappeared most rapidly.—*L. E.*

Societies.

MICROSCOPICAL SOCIETY.

Oct. 15.—J. S. Bowerbank, Esq., F.R.S., &c., in the chair. A paper, by H. Deane, Esq., being a continuation of a former communication read at the last meeting of the Society, "On Fossil Xanthidia found in Chalk," was read. After a brief summary of the former paper, in which he stated that various species of the genus Xanthidium had been found by him in the Folkestone chalk; Mr. Deane went on to state that this discovery, by affording the means of isolating and mounting these bodies in various ways for examination, suggested to him the possibility of ascertaining their true nature. Their minuteness and other obvious circumstances prevented their chemical examination, and, consequently, they could only be operated upon mechanically. Their shape is that of a flattened sphere, the major part of them closely resembling some of the gemmules of sponges, most of them having a circular opening. The arms of all appear to be closed at the ends, and not tubular, as has been supposed from the examination of some of the flint specimens under pressure in water between two pieces of glass. They were torn asunder in the same manner as a horny or cartilaginous substance would be, and the arms in contact with the glass were bent; some, after maceration in water for several weeks, became quite flaccid, thus entirely disproving their silicious nature. On the contrary, there is every reason to suppose them to have been of a horny or cartilaginous nature. Some other bodies resembling the husks of Peas were also observed, which appear to be identical with the Pixidiculæ in flints, but these, although agreeing in colour, he does not consider to have any relation to the Xanthidia, but from their close resemblance to sponge gemmules, to be some animal or animals in a progressive state of development. Another paper by the same gentleman, "On a Mode of Isolating the Silicious Shells of Infusorial Animals found in the Ichaboe guano," was also read. After premising that the guano from Ichaboe was soon found to contain silicious shells of microscopic animals allied to those brought from Richmond, in Virginia, and from Bermuda, he stated that the extreme difficulty of finding them in the ordinary mode, induced him to try whether by decomposing the guano by means of nitric acid more satisfactory results might not be obtained. The experiment was successful, and the following is the method he employed:— Take any quantity

of pure Ichaboe guano, and wash it by repeated ablutions of distilled water, until the water is no longer coloured, observing after each addition of water that it must be well stirred two or three times, and allowed to settle for some hours. When sufficiently washed a small quantity of hydrochloric acid is to be added to the water last used. This dissolves some portion of the guano with effervescence, and causes a more perfect subsidence of that portion which it does not act upon After this, allow sufficient time for the deposit to become well settled down; then the clear liquor being poured off as closely as possible, without loss of the sediment, a quantity of strong nitric acid, in the proportion of two fluid ounces to every ounce by weight of the guano employed, is to be added; a strong effervescence takes place, which is to be assisted by its being placed in a warm situation, at a temperature of about 200°, for 6 hours, during which the greater part of the guano will be dissolved. After allowing it to stand in a cool place for 24 hours, pour off the acid liquor and wash the sediment with plenty of distilled water. The fine portion of this sediment will contain all the siliceous shells of the guano perfectly freed from extraneous matter.

New Plants.

Tacsonia mollissima. Downy-leaved Tacsonia. *(Greenhouse Climber).* Passifloreæ. Monadelphia Pentandria.—This is a worthy companion to the scarcely less beautiful T. pinnatistipula, and, like it, only requires a cool greenhouse; for although indigenous in the tropics of New Grenada, yet growing at a height of from 9000 to 10 000 feet above the level of the sea, it is evident that a temperate climate suits it best. It probably occupies an extensive geographical range at the elevations just mentioned. Humboldt found it about Santa Fè de Bogota, and Mr. W. Lobb in woods near Quito. It is from seeds sent home by the latter to Messrs. Veitch, at Exeter, that the plants were raised, and from whom we have received the following particulars:—"We have cultivated it in the stove, but there the flowers invariably dropped off before they had expanded. In a cool greenhouse it blooms freely, and from what Mr Lobb has said respecting it, and from our own experience, I am inclined to think it might survive our winters here (Devonshire) on a sheltered wall. As a conservatory climber it is eminently beautiful, and is best cultivated in a mixture of loam and peat, with decayed leaves and a little sharp sand. It bids fair to strike readily in the usual manner." It flowered in August; but the plant will probably bear a succession of its lovely blossoms till the cold weather sets in. The species is nearly allied to T. tripartita, of Jussieu; but the leaves are cordate, and the segments much broader. —*Botanical Magazine.*

Calliandra Tweediei. Mr. Tweedie's Calliandra. *(Stove Shrub).* Leguminosæ. Monadelphia Polyandria.—This is an elegant shrub, belonging to a genus of Mimoseæ, distinguished by the great length and frequently rich red colour of the stamens, whence the appropriate name Calliandra, Benth. Sixty species are enumerated by Mr. Bentham in the "London Journal of Botany," all inhabitants of the American Continent. "They have," Mr. Bentham observes, "the corolla of Albizzia, the stamens of an Inga, and a pod different from that of any other genus, the valves of the pod rolling back elastically in a very remarkable manner. The present species is a native of Rio Grande and Rio Jaqury, in South Brazil, where it was detected by the indefatigable botanist whose name it bears; found also by Mr. Sellow. From seeds sent to Lord Derby, at Knowsley, plants were raised by Mr. Jennings, which flowered in March, 1845. It has likewise been grown at Kew, where the plants flowered a little later in the season. It requires the heat of a stove, and to be kept moist.—*Botanical Magazine.*

Garden Memoranda.

Killerton House, near Exeter, the Seat of Sir Thos. D. Acland, Bart., M.P.—Killerton has long been known and celebrated as one of the most interesting and delightful residences in Devon's favoured clime. The elevated situation of the mansion commands magnificent views, and is surrounded with some of the noblest trees in Britain, which add grandeur and interest to the place. The Ilexes and Cedars of Lebanon have attained a great size, so have the Exmouth Magnolias, which flourish most luxuriantly in this climate and soil—one of the most important features in a gardening point of view in the shrubbery, near the house, well known as Killerton-hill. This was laid out under Sir Thomas's own eye, and is unquestionably one of the finest things of the kind in the kingdom. The planting has been boldly, yet consistently carried out, and it is doubtful whether any one thing can be added or varied which would improve it. From the growth which the plants have made, we should suppose that they had been planted 25 or 30 years. Occasionally, however, some new plants have been added. Some of the Rhododendrons have attained an enormous size, as much as 38 paces round; and one recently transplanted, having outgrown its situation, quite these dimensions. A vast variety of trees and shrubs covers the surface of this hill, which includes several acres of ground. A very beautiful chapel has recently been erected on the east verge of the park, but the arrangement of the ground around this is not quite so happy as the hill. For example, a square portion of ground is inclosed by a box hedge surrounding the building, and this space not having been made perfectly level, as it should have been, the hedge presents an awkward appearance, and produces an uneasy feeling in the mind by its traversing up and down the hill. The whole area within this hedge ought to have been brought, unquestionably, perfectly level, to have given base and dignity to the building inclosed, and the planting should have been carried out with subjects suitable to ecclesiastical architecture. As you approach the chapel from the kitchen garden side, a vast number of rare Conifers are planted, and doing remarkably well. They will, at no distant day, become a very important feature in this part of the pleasure-grounds. The kitchen garden is one of the best in Devonshire. The soil in the locality is excellent, being the red loam so highly prized by the agriculturists. Both trees and vegetables, however, prove its quality to be good, as everything under the care of Mr. Craggs, the gardener, was in capital keeping, as has always been the case. A new range of hothouses is in course of erection, by Mr. Clark, the hothouse builder, of Exeter, who has introduced all the modern improvements in construction, as well as in ventilating and heating. There was a most important matter pointed out to us by Mr. Craggs. Where Vines are planted outside the house, instead of cutting the sill or bottom rail of the front sashes, to admit the Vines a false sill is introduced on the top of the main sill, and fastened to the uprights by means of a bolt at each side. This answers the purpose admirably, and without weakening any part of the building. Mr. Craggs has adopted a plan of preparing soil that has been recently got in for immediate use in potting, which deserves to be made known. A fire of wood is kindled under an iron grating, and on this is laid the grassy furzy turfs. Vegetable life is at once destroyed, and all insects are at the same time annihilated. The fire is kept just smouldering, and when the turfs are taken off they are fit for immediate use when cool. This deserves the attention of plant cultivators. We had almost forgotten to mention a very large specimen of Cunninghamia lanceolata in the shrubbery, measuring 15 feet in height and 18 inches in circumference in the stem.—*R. G.*

Miscellaneous.

Saurauja spectabilis.—M. Neumann reports that this has flowered in July last, in the Garden of Plants, at Paris, and that he is disappointed in its appearance. It bears an enormous panicle of white flowers, each with a great quantity of stamens in the centre, and the whole looks like a crowd of male flowers of some Begonia.

On the Colours of Leaves and Petals, by William E. C. Nourse, M.R.C.S.—The colours of leaves and petals depend on several conditions; some mechanical or structural, and some chemical. The latter have been made the subject of many investigations. The former, though requiring little more than common observation, have been passed over, or but slightly noticed. It is to a clearer knowledge of these that the present paper, so far as it goes, is intended to contribute. The structural or mechanical circumstances which influence the colours are, 1st, the situation of the coloured cells; 2d, their size, form, and number; 3d, their mixture with each other; and, 4th, their degree of visibility. 1. The situation of the coloured cells is different in leaves and petals, though their general structure is anatomically similar. If a leaf be torn, the green colour appears to be in the central substance; while in a petal the centre is nearly white, and the colour peels off with the cuticle. This difference merits a degree of attention which has not hitherto been paid to it. The structural parts of a leaf or petal are, the substance, consisting of cellular tissue and venous ramifications; the cuticle, or epidermis; and a layer of cells immediately beneath the cuticle, to which we may give the provisional name of rete. This latter structure is seldom mechanically distinct, but is either continuous with the substance, as in leaves, or adherent to the cuticle, as in petals; though it can sometimes be shown in a separate form in petals of a large size. Its characters, however, effectually distinguish it from the other structures. It is the densest parenchyma of the organ, consisting of an immense number of nearly circular cells without any interstices But the circumstance which makes it most conspicuous is, that it is the seat of colouring matters which are scarcely found in the other structures. The rete thus appears entitled to be considered as a distinct tissue, and may be found to perform important functions, especially in the petals, in which its development is most distinct. The colours of the rete possess an almost endless variety, and, in fact, it is in this structure that the most highly coloured cells are always found. Of petals, it contains the entire colouring; the yellow, red, blue, brown, black, and all the intermediate tints are wholly produced in its cells, and can be completely removed by simply stripping it off with the cuticle. This can be easily done with any common flower. In leaves the rete is the seat of all the modifications of the green colour which those organs present, excepting variegation, cuticular changes, and what may be called venous colours, like Red Cabbage, &c. All dark shades of green are the effect of an immense crowding together of green cells in the rete, as may be readily seen in the Yew, the Bay, the Holly, &c.; and all those lesser variations and shades, such as brownish and reddish, and a number of others, which add so much to the beauty of each leaf and to the picturesque effect of the whole, are due (with the above exceptions) to the different colours of the cells in the rete. Of this kind are the shadings in the leaf of the common Wild Ivy; the reddish tips and edges of Rose and Pæony leaves, the purple of the Cornel and Cineraria, and many similar appearances. The colours of the substance, on the contrary, are marked by their want of intensity and by their extreme simplicity. Few coloured cells are found in this structure. In petals it is either white or lightish, or some faint shade of the general colour of the flower. It requires some care to show this in small specimens; but in large ones, such as Garden Poppies or Pæonies, the cuticle and rete can be easily peeled off on both sides, and the colourless substance shown in a distinct form, having the exact shape of the petal. The substance in leaves is always green, except in the light parts of variegated leaves, or in leaves of unusual thickness, like the Aloe. With these exceptions, there is but little difference in the shade of green between the substance of one leaf and that of another, taking them, of course, in a state of health and maturity. Thus, in the Holly and Ivy, the substance is very little darker than it is in the Beech or Laurel. In a great number of leaves the difference of shade is not perceptible; and even in the Holm-Oak, remarkable for its gloomy foliage, the green of the substance is not by any means so dark as might be imagined. It will thus be seen that the coloured cells both in leaves and petals are chiefly placed in the rete. A few are occasionally found in the substance of petals, and a certain number in that of leaves; but not in general sufficient to determine the outward colour. 2. The size, form, and number of the coloured cells always vary with the intensity of the general colour of the structure. When the colour is very deep, the cells are small, roundish, and densely packed together in immense numbers. This is their appearance in the rete. If the colour is lighter, the cells are larger, more elongated, and less closely packed together, as they are seen in the substance of leaves, and of those petals which are somewhat coloured throughout; and where there is little or no colour, as in the substance of the greater number of petals, the cells are generally large and oblong, often muriform, and with distinct intercellular passages. In white flowers, the cells which contain opake white matter are always rounder and more thickly packed together than the empty cells. 3. Tints may be produced by the mere mechanical mixture of the coloured cells. In these cases no union of the colours takes place, but they remain distinct in their separate cells, side by side. When the cells are mixed with regularity, a uniform tint results; but when the colours are more or less massed together, variegation or marking is the consequence. Coloured cells sometimes lie over one another, causing a new tint by one layer being seen through the other. The leaf of the Pelargonium zonale is well-known for its peculiar dark stain. This is entirely in the rete, for the substance of the leaf is pure green. The rete, however, viewed carefully in various sections beneath the microscope, appears to consist, not of dark cells, but of distinct red and green ones, very minute, densely packed together and intermingled; and it is by this juxtaposition of the red and green, and by the green cells of the substance being partially visible through it, that the effect of a dark tint seems to be caused. The leaf of the variegated Elder presents an appearance of similar origin. Some parts of the leaf are of a decided green, and some almost white; but there are also patches of a sort of imperfect green, paler, and somewhat glaucous. The substance in these parts is not less green than in the darkest parts of the leaf, as may be seen by looking at the under surface; but the rete, instead of containing dark-green cells, consists of a thin layer of white ones; and these, with the cuticle, to which they are adherent, by lying over the green substance, produce the glaucous appearance. 4. The cuticle in this instance contributes to the effect. This structure has not yet been mentioned, because coloured cells are never found in it; and it merely modifies the appearances of colours by regulating the visibility of the coloured cells. This is so obvious, that it only needs to be referred to, as well as the effects of the cuticular appendages. In most petals the cuticle is extremely delicate; often consisting of the finest web, impossible to be detached, and only to be seen occasionally at the carefully torn edges of a flower. It is somewhat thicker in large petals, and can then be raised and torn off in shreds. Of course, in these instances, it is perfectly transparent, and permits the colours to be seen through it in the most distinct manner. Such are the structural circumstances relating to the colours of leaves and petals. Simple as they are, and easily observed, they required to be stated, to receive their proper share of attention. The chief points about them are, the anatomical differences between leaves and petals in the situation of the colours; and the location of the colours of the petals in the rete, a fact hitherto unnoticed, and one which may hereafter throw light on some interesting points of vegetable physiology. Reference was made to another kind of colours, also found in the leaves and petals. These, with their peculiarities, which may prove not devoid of practical interest, together with some other matters connected with the subject or suggested by it, remain to be brought forward at some future time.—*The Annals and Mag. of Nat. Hist.*

Bees.

Answers.—*S.*—Speaking of replacing swarms, you mention that "some apiarians take away the queen on such occasions; this I consider to be an error, as the bees will not work so well without a queen; and when other young queens are hatched they will swarm again." Why would the bees be rendered more idle by the queenless swarm being replaced? the stock would be

exactly in the same position as before, except that the bees would be more numerous. But if the queen was replaced with the bees, that would only tend to hasten them off again. The following is what Dr. Dunbar says on this curious subject, which accords with Huber, Bevan, and all our best apiarians. The Doctor says, "when the first laid of these eggs in the royal cells is hatched, and the larva or worm then produced is about to be transformed into a nymph, and before the cells so inhabited are finally closed, a period, occupying altogether about eight days, the old queen leaves the hive with the first swarm. The family left behind is then without a head, and it is not till the 5th, 6th, or 7th day, according to circumstances, that the senior of the young queens leaves her cell." As the past season proved bad for swarming, try the next, and perhaps you will find that your bees will swarm again, though you adopt the plan you speak of, which is very simple. But what has that to do with the "bees working with surprising vigour?" You observe that Nutt's hives must be shaded from the sun in hot weather, or the bees will be obliged to swarm. Though this, in some measure, may be correct, I doubt if Mr. Nutt will agree with you, for he holds ventilation to be a preventive against swarming, and his "inverted hives" a fence against the weather, while he places or fronts his collateral hives to the hot sun.—*W.*——*Anon.*—Your bees may survive the winter by supplying them with about 3 lbs. more food, and again observing their wants in spring. But if their numbers are few compared with the size of the hive and quantity of comb, you had better add them to another family, for although you might winter them, for the want of early brood, they would only be a weak stock.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouse.—The weather lately has been more favourable for ripening the succulent shoots of free-growing plants; when opportunity offers, therefore, do all you can to ripen the young wood, for it is in this way only you can expect to get well through the winter. Place all flowering plants in conspicuous situations. Epiphyllum truncatum makes a fine appearance in winter; some of them may be forwarded by additional heat, and others again retarded by being kept in a low temperature, so as to prolong their flowering season. It is astonishing how much gaiety can be produced by a little forethought in this way. The temperature of the stove may now decline by night to 65°. *Greenhouse.*—On all favourable occasions admit air freely, it will not produce those withering effects upon the foliage that such an exposure would do in spring. The plants having been recently fully exposed, to shut them up close now would induce growth and produce ruin. *Geranium House.*—In order that these may be kept in a comparatively dormant state for some time to come, little water and plenty of air must be given; should they get into a free-growing state now, the damps and fogs of the next six weeks may produce spots on the leaves, and to cure this you will have at an unnatural season to apply fires; the strength of the plants will thereby be greatly exhausted, and consequently they will not flower either so finely nor so profusely.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

During this fine weather all out-door work should be forwarded as much as possible; bulbs of every description intended for beds and borders should be planted before the soil becomes saturated with moisture. Where new work is to be done, it should also be carried on with as much expedition as possible while the weather is fine. Turf out of order should now be fresh laid, taking care to level the surface where such is necessary. Planting should likewise be proceeded with before cold and frosty weather sets in. Collect Fern for covering all kinds of half-hardy trees and shrubs against severe weather, but defer the operation of covering as long as is consistent with the security of the plants. Look carefully after all kinds of seeds; collect them as they ripen, and keep them in a dry airy place until there is more leisure time for cleaning them. Clip and weed Box edgings, and sweep gravel walks occasionally to prevent leaves from staining the gravel. *Pits and Frames.*—If the weather continues dry, more watering will be required, and air must be given freely to such plants as are well established in their pots; cuttings not yet rooted should be shaded, and kept quite close during the middle of the day, but uncovered early enough in the afternoon to allow a little sun heat to collect for the night.—*B.*

III.—FLORISTS' FLOWERS.

Tulips.—As the weather is now favourable, by all means lose no time in getting the bulbs into the ground; from three to four inches deep will be quite sufficient to plant them, and if the directions previously given in the *Chronicle* have been attended to, the bed *ought* to be in good order; never use a dibble, as it compresses the soil too much about the bulb; when the bed is boarded round, (and in fact all ought to be) it is best to place the bulbs on the bed, and fill up over them to the depth of four inches. To young amateurs we may just add, that decayed turf, the top spit from a loamy meadow, well rotted down, with the fibrous particles retained, is the very best soil in which Tulips can be grown. *Carnations.*—If the layers are not potted off, and in their winter quarters, most assuredly they ought to be. Do not let the layers get too much wet after they have struck root again; keep them moderately moist, and give them plenty of air. *Auriculas* require little else than occasionally looking over, removing decayed leaves, &c., &c. After a shower, take notice whether any plants have been exposed to drip in the frames, if so, take the necessary precautions to prevent a recurrence, as nothing is so fatal. *Polyanthuses* are not so liable to injury as the Auricula in the above respect, but they require a little *constant* attention. The great secret of one florist excelling another is, nine times out of ten, in the regular and sedulous attention bestowed on the plants in all stages of their growth, and which at an exhibition gives a wonderful advantage to the party who has been mindful of small matters.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Wherever a re-arrangement of the Pine stock becomes necessary every autumn, preparation should be made, the moment the trees cast their leaves, to lay in a stock as early as possible; which, blended with a little manure fresh from the stables, will form a very useful adjunct in the dung pits, where the tank system is not already established. If the young stock in pits are getting dry, they should now have their last watering until next February, at least in dung pits. Indeed all the stock should be henceforward watered with a sparing hand, a very little at a time. Syringe through the stems of the fruiters twice a week, taking care not to syringe over the crowns, which will tend to enlarge them. *Vineries.*—Keep the scissors employed in your late Vineries, let there be no lodgment of decaying berries. If there are Pines under, keep the day temperature at 60°, with plenty of air, and the night heat at 57° with a slight egress for atmospheric moisture, at the back. If pot plants are in the house, let all watering be done early in the morning. Late Vineries, without Pines or plants of any kind, should have a temperature by day of 55° or 60°, and a night temperature of about 50° at present, lighting a fire every morning, and suffering it to go out by two o'clock in the afternoon. Continue to make fresh lengths of Mushroom beds in the house, as opportunities occur; keep a moist atmosphere, with a slight circulation of air, and a maximum temperature of 60°. Continue to top-dress with half-rotten manure Cucumbers in boxes or pots; to those rooting freely keep abundance of atmospheric moisture, with a circulation of air, and stop at every second joint, setting the fruit as they blossom.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The soil is now in good working condition, and its dry state is very favourable for the formation and renovation of borders for fruit trees. Such operations can be much better effected when the roads and materials are dry than otherwise. Make fresh plantations of Gooseberries, Currants, and Raspberries where required, and propagate the former by cuttings. The planting of Cherries and Plums may be immediately commenced, their leaves having fallen early in consequence of the frequent occurrence of frosty nights. As soon as Fig trees are clear of foliage, they may be finally covered for the winter. As many branches as can be bundled together, should be neatly covered with straw, and secured to the wall. The fruit-room will yet require a free circulation of air. *Kitchen Garden.*—Cauliflower and Broccoli, that are nearly fit for use, may be taken up and placed out of the reach of frost. Tie up Cardoons with hay or straw bands; or, after fastening the stalks together with matting, thatch with clean drawn straw, almost to the extremities of the leaves, and then earth them up. Clear off the leaves, now decayed, from Rhubarb and Seakale; fork over the soil and cover the latter with leaves where it is intended to be forced early. Asparagus beds should also be cleared and dressed for the winter. Plant some of the different varieties of early Potatoes, using in the first place those that are diseased, provided they have any of the eyes safe, which will easily be known as they are vegetating rapidly; if the unsound Potatoes are not completely lifeless, they push with astonishing vigour, derived from the decomposition of the tubers, none of which, however bad, should therefore be previously pared away.—*E.*

State of the Weather near London, for the week ending Oct. 23, 1845, as observed at the Horticultural Garden, Chiswick.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 17	16	30.126	30.031	58	48	53.0	S.W.	
Sat. 18	17	30.218	30.111	60	48	54.0	W.	
Sun. 19	18	30.253	30.123	61	51	56.0	W.	
Mon. 20	19	30.148	30.019	61	38	49.5	W.	
Tues. 21	20	30.341	30.254	57	34	45.5	W.	
Wed. 22	21	30.477	30.405	57	44	50.5	W.	
Thurs. 23	☾	30.510	30.477	55	27	41.0	W.	
Average		30.296	30.203	58.4	41.4	49.9		.00

Oct. 17—Overcast throughout
18—Overcast; brisk west wind and fine
19—Light clouds and fine; densely overcast
20—Densely overcast; clear and fine; very clear
21—Clear; fine throughout; clear at night
22—Overcast; fine; densely overcast
23—Fine, with few dusky white clouds; slight fog; frosty.
Mean temperature of the week ½ deg. below the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Nov. 1, 1845.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 26	54.6	38.9	46.7	8	0.52 in.	4	2	1	1	2	4	3	2
Mon. 27	54.6	39.6	47.1	15	0.80	1	5	2	—	2	2	5	2
Tues 28	53.0	35.6	44.8	9	1.06	—	5	2	—	3	4	2	3
Wed. 29	53.5	35.3	44.4	8	0.42	2	3	3	—	4	5	1	1
Thur. 30	54.0	39.4	46.7	9	0.60	2	3	1	3	1	7	1	1
Frl. 31	53.2	38.9	46.1	11	0.88	—	1	2	2	—	7	4	3
Nov. 1	54.0	39.6	46.8	11	0.38	2	1	2	—	2	3	7	2

The highest temperature during the above period occurred on the 29th and 30th, 1833—therm. 67°; and the lowest on the 28th and 30th, 1836, and 29th, 1842—therm. 23°.

Notices to Correspondents.

If any of our CORRESPONDENTS should find themselves unanswered this week, their patience is requested, in consequence of the unavoidable absence of the Editor in Ireland. *See Leading Article.*

BACK NUMBERS OF THE GARDENERS' CHRONICLE—The Volume for 1844 can be had, bound in cloth, price 1*l.* 10*s.* The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are required, will have them sent free by post.

1841—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34.

1842—4, 6, 8, 11, 12, 16, 18, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 42, 50, 51, 52, 53.

1843—5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 40, 41, 42, 43, 48.

1844—All but No. 50.

BOOKS—*Scotchman*—Loudon's edition of "Repton's Landscape Gardening."——*Mr. Coventry*—"The Suburban Horticulturist" and M'Intosh's "Flower Garden."——*B L*—Roberts's book on the Vine, and Hamilton on the "Culture of the Pine Apple," will possibly suit you.‡

CINERARIAS—*W B*—You will find the following excellent varieties:—Regina Victoria, Criterion, Captivation, Beauty of Wortham, Red Rover, Fanny Ellsler, Black Knight, Emperor, Triumph, Henderson's No. 7, Compact Blue, Perfection, Compacta, and Washington.*——*R W*—You may sow your Cineraria seeds in spring, in shallow pans, filled with light sandy soil; then place them in a slight bottom-heat, and water them sparingly until they begin to grow.‡

GRAPES—*Constant Sub*—Damping and decay of the bunches is a very general complaint in this unfavourable season, especially where fire-heat has been resumed.‖——*A M*—Rust on Grapes is believed to be occasioned by sudden changes of temperature and moisture.‖

GREENHOUSE PLANTS—*J W*—No tender plants will live in a glass house without artificial heat, unless the winter is mild, or they are half hardy, as is the case with such shrubs as Acacia armata and alata, Aloysia citriodora, Azalea sinensis, Camellias, Orange trees, Coronilla glauca, Corræa speciosa, Daphne odorata, Fabiana imbricata, Hydrangeas, Fuchsias, and the hardier sorts of Cape Heaths. ‡

INSECTS—*J H*—The animals attacking your Pansies are the true and false wireworms, the larvæ of Elater lineatus, and the Polydesmus complanatus, whose histories you will find in the *Gardeners' Chronicle*, vol. 5, p. 344, and vol. 1, p. 196; and also in the fifth vol. of the "Royal Agricultural Journal." *R.*——*Subscriber*—The root-galls are produced by Cynips aptera. See the *Gardeners' Chronicle*, vol. 1, p. 732. *R.*——*Winton*—Your Chrysanthemums are infested with an aphis, which was abundant upon them early in the year. You should destroy them by fumigating with Tobacco. *R.*

IPOMŒA HORSFALLIÆ—*Amateur*—Cut your plant well back, and wash it with soap-suds and sulphur. It would be advisable to let it remain dormant until spring; then by syringing it morning and evening, when it begins to grow, the red spider may be kept in check.‡

MANURE—*Ullswater*—Peat moss and the sods of a field might be used beneficially as manure if charred; and they will be all the better for being well saturated with liquid from the manure tank. You will find a method for manufacturing such material given at p. 362 of our last year's volume.‡

MIGNONETTE—*D*—All you have to do, in order to grow Mignonette in winter, is to keep the pots in pits, from which severe frost is excluded, and which you can ventilate freely at all times when the weather is mild. Your plants draw because they have too much heat, and too little air and light.‡

NAMES OF FRUITS—*S L*—Red Astrachan.‖——*J A*—1, Court of Wick; 4, Stagg's Nonpareil; 5, Beauty of Kent; 7, 8, Downton; 10, Golden Pippin; 11, Kirke's Lord Nelson; 13, Scarlet Crofton; 14, Manks Codlin; 16, Alexander; 20, London Pippin; 21, White Spanish Reinette; 22, Lamb Abbey Pearmain; 23, Norfolk Paradise; 24, Braddick's Nonpareil.‖——*P C S*—1, Summer Franc Réal; 3, Beurré de Capiaumont; 4, Belmont; 5, 6, 7, 10, 12, are correct according to the names sent; 8, Ne Plus Meuris; 9, 10, Winter Nelis; 11, Swan's Egg; 14, Messire Jean. Apples.—1, Northern Greening, or, John Apple; 4, Margil; 5, Yellow Ingestrie; 6, Golden Pippin; 8, Nonsuch; 9, Hughes' Golden Pippin; 13, King of the Pippins; 14, Boston Russet.‖

NAMES OF PLANTS—*R B*—Oncidium ensatum.——*G W*—The Oncidium is of unfrequent occurrence, and we cannot recognise it by its withered flowers.——*B L Z*—Aspidium spinulosum, of which there are numerous varieties. The one you have sent is by no means rare.§——*G*—Euonymus latifolius.——*Novice*—Your "Picotee" is the common Wheat-ear Carnation.——*Anna*—Tagetes tenuifolia.——*J Moore*—Stanhopea graveolens, Gongora maculata.

PARSNIP WINE—*L S*—To 3 lbs of Parsnips, cut into slices, add 1 gallon of water; boil them till they are quite soft, then squeeze the liquor well out of them, and run it through a coarse cloth; put to every gallon of liquor 3 lbs. of good soft sugar, and boil the whole three-quarters of an hour; when it is nearly cold, put to it a little yeast on a toast; let it stand 10 days in a tub, and keep stirring it; put it into a cask, and as it works over keep filling it up. Bottle it in 4 months.

PEACHES—*F L S*—Three good varieties of Peaches in succession are the Royal George, Noblesse, and Bellegarde.‖

PEACH TREES—*J Riley*—If your Peach trees are not too old, and have not been greatly injured by insects at any time, they will improve; replanting in a fresh-made border of good rich turfy loam, and a moderate quantity of manure, will benefit them.‖

PEARS—*Sub*—It is doubtful what good Pear will succeed in the north of England so high as 500 feet above the level of the sea. Try Hacon's Incomparable.——*An Old Sub* may plant the variety just mentioned against a north wall.‖

PEAR-TREES—*Hortensis*—It would appear as if your Windsor Pears had been allowed to remain too long on the tree. It will, however, tend to improve the tree and its fruit, if you judiciously shorten the branches to a considerable extent this autumn.‖

PELARGONIUMS—*A S H* will find a short description of Mr. Beck's flowers among the new Pelargoniums in another part of the Paper, where *J N I, F C, X X,* &c. will also find an account of the new Pelargoniums, specimens of which have been exhibited at the metropolitan shows.*

PINES—*D, Derby*—Procure the following 24 varieties:—Norman's Henry Creed and Defiance, Creed's President, Weeden's Queen Victoria, Hodges's Gem, Church's Rowena, Cousin's Little Wonder, Legg's Prince Albert, Garrat's Alpha and Queen of Roses, Henbrey's Diamond, Countess of Plymouth, Omega, White's Warden, Hardstone's Prince Albert, Jelf's Mary Anne, Wallis's Unique, Church's Wonder, Brown's Eclipse, Hodges's Melona, Collis's Majestic, Dry's Earl of Uxbridge, and Kirtland's Gay Lad.*

PLUMS—*X Y Z*—The fruit you sent of Cant's Late Green-gage proved excellent.‖

ROSES—The Tree-Rose is now ready, neatly done up in cloth, price 4*s.* 6*d.*

SHRUBS—*C B*—In your circular bed, 21 feet 6 inches in diameter, you may plant the following in the common soil, viz.:—Ribes sanguineum and aureum, Berberis aquifolium, Spiræa ariæfolia, Philadelphus Gordonianus, Garrya elliptica, Pyrus spectabilis, Double French Cherry, Laurestinus, and the common Arbutus; and in peat soil near the outside, Rhododendrons, Azaleas, Kalmias, Menziesias, and Gaultheria Shallon.¶——*Muirbank*—The following are hardy and sweet-scented:—Calycanthus floridus, Magnolia glauca, Philadelphus coronarius, Rhododendron fragrans, Syringa persica, and any of the hardy Azaleas.¶

VINES—*Old Sub*—Six Vines for a greenhouse may consist of two Black Hamburgh, one Black Prince, two Royal Muscadine, one White Frontignan.‖

WALKS—*E W A*—If your walks are to be made of gravel only you may proceed thus:—Cut out a trench of the desired width to the depth of 6—or, better, 9 inches. Fill it to the depth of two-thirds with very coarse screened gravel; over that put a good coat of firm material, and over the whole a layer of very fine binding gravel, taking especial care that the walk is made convex. Roll it firm with a heavy roller, and, with good materials, you may thus make a walk that will never remain wet.‡

MISC—*Typo*—We have forwarded your letter to the printers.——*J R*—Sea-gulls may be kept in a garden for the purpose of destroying snails, slugs, &c., if there is a pond for them to swim in.——*G B*—The Breda Apricot will not succeed on a Cherry stock.——*H B M*—Your Potatoes should remain in small heaps till the outsides of the tubers are dry, before they are finally removed.‡——*Sub*—In 1844 the July exhibition at Chiswick was held on the 13th, and in 1845 on the 12th of that month.‡——*A B*—The best and ultimately the cheapest fence for keeping rabbits out of a flower-garden is a wire one. It should be about 3½ feet in height. We cannot recommend dealers or give prices, which is the business of advertisers. The roots of Gentiana acaulis may be removed and divided in spring.‡——*J C*—The watering of your Camellias (which are growing in a low temperature) rather freely three times a week, is the cause of their leaves turning yellow, and of the flower buds dropping off. See that the pots are properly drained, water sparingly while the plants are in a dormant state, increase the temperature a little, and they will possibly recover.‡——*Sub*—Ferns are excellent material with which to protect plants in winter. They are preferable to Moss. Since you can get them, cover up your Fuchsia globosa with them, taking care at the same time to put a good layer over the roots—the most material part to protect, and it will probably survive the winter without injury.‡——*An Edinburgh Subscriber* can have the Number.

SEEDLING FLOWERS.

FUCHSIAS—*J M, Kent*—Your seedling—a large light flower, having delicate pink tube, with a large crimson-purple corolla—is a very good and showy variety.——*H M*—Your seedlings possess no novelty; in size, form, and colour, they are not to be distinguished from many in cultivation.——*T D*—The Wizard is a large rich-coloured variety, but possessing no novelty in colour, and too much like many already sent out; nor is there sufficient novelty in *Caroline* to warrant its being sent out as a desirable variety; there are many too much like it.*——*T P, Midhurst*—The tints of the corolla and tube are both too weak; we have seen several specimens similar in colour, and consider them too poor for general cultivation.*——*J W T*—Your Fuchsia is an evident approach to a double flower; the corolla being composed of two sets of petals, one set being longer than the other; it is novel, but we do not think the flower improved; it rather detracts from its elegant appearance.*

PANSIES—*N S N*—A neat and pretty flower; deficient in substance; the indentation at the bottom of the lip is too apparent, and the side petals should meet above the centre of the flower.*——*A Subscriber*—A round flower of good substance; but with a rather common looking centre; the eye wants strength, and this part of the flower is injured by the lines running into the border, which gives the centre an appearance of a want of clearness.*

SEED-WHEAT.—Mr. MORTON cannot deliver his Seed-Wheats—THE RED-STRAW WHITE and HOPE-TOUN WHITE after October 31st, under 9s. a bushel. The state of the market justifies him in thus raising their price.
Whitfield, Wotton-under-edge, Gloucestershire.

EDINBURGH VETERINARY COLLEGE.—The Committee of the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND appointed to superintend the Veterinary College, hereby intimate, that PROFESSOR DICK will commence the Course of Lectures on VETERINARY SURGERY AND MEDICINE, for the Twenty-fourth Session, on MONDAY, the 10th of NOVEMBER next. The Course will comprehend, as usual, instruction in the Anatomy, Physiology, and Pathology of the Horse, Neat Cattle, the Sheep, the Pig, and the Dog, including also Stable Management and the Forge; and in order to the arrangement of the several departments of study at hours convenient for the Students, the Professor will have the assistance of Messrs. BARLOW and WORTHINGTON, Veterinary Surgeons, who, under his superintendence, will take charge of the Anatomical Demonstrations, Materia Medica, and Pharmacy. The necessary instructions in Chemistry, in connection with the Course, will be given by Dr. WILSON.
By order of the Committee, STODART MACDONALD,
Highland and Agricultural Society's Hall, Interim Sec.
Edinburgh, October 25, 1845.

The Agricultural Gazette.

SATURDAY, OCTOBER 25, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Oct. 30.—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, Nov. 5.—Agricultural Society of England.
THURSDAY, — 6.—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUB.—Oct. 28.—Bromsgrove

WANT OF EMPLOYMENT necessarily raises poor's-rates at the same time that it lowers wages. This fact binds together the three classes—landowner, farmer, and labourer—in spite of themselves, *i. e.*, even though each may be regarding *self*-interest alone. Thus, let the yearly value of land be considered permanent; that portion of it nevertheless which reaches the proprietor will of necessity vary inversely with the amount claimed by law for the support of the pauper. The landowner is therefore immediately affected by the labourer's distress. This is true in the long run; but as the tenant generally occupies his farm at a certain fixed rent, a rise in poor's-rates must fall on him first, and the interests of the farmer are thus even yet more closely bound up in the welfare of those whom he employs. The mutual interest of these parties, however, does not exist only in law; the proper cultivation of the soil is a subject which *necessarily* interests *everybody*, and, of course, none more than the partners, as we may term them, in that firm by whom it is undertaken.

It is to the interest of the labourer—one of these partners—that we wish now to direct attention. At the present season it becomes important that all possible methods of profitable agricultural employment be put in immediate operation; this is of especial importance this year considering the high price which food is likely to bear. Now, there is not a more profitable mode of employment to all parties concerned than breaking up Grass lands. Were permission granted to bring some of their *dry* pasture fields into cultivation, farmers would gladly pay an increased rent for them; they would *require* to employ more labour on them, and they would derive more profit from them. And this is one of those operations which involve a *constant* demand for more labour, which is precisely what is wanted; and it is one which on light and dry soils may be more effectively performed now by the spade, than at any other time, or in any other way. We are persuaded that landowners could not act with more immediate, and, to a certain extent, lasting effect, towards the alleviation of that distress which *will* prevail if extra employment be not provided; nor could they act more for their own interests, or those of their tenantry, than by directing or permitting a considerable extent of land, now in natural Grass, to be broken up by the spade during the ensuing winter. The fields selected for the purpose had better be of a light soil, and they ought to be either drained or naturally dry; and the only condition of the permission should be, that the tenant should adopt an alternate system of husbandry, and consume all green crops on the farm. This, if carried out with energy, is a system which not only ensures the landowner, and all other parties in the business, against loss, but confers benefit upon all.

Is it not for the benefit of all that the land be cultivated thoroughly?—were it farmed with more energy and economy it would yield permanently higher rents to its owner, greater profits to its occupier, more employment for the labourer, and *more food for the nation.*

ON the 28th of December last, two parcels of Hopetoun Wheat, of nearly 3 bushels each, were placed in tubs containing about 6 gallons of water apiece. The water in the one tub contained in solution some of Mr. CAMPBELL'S "STEEP FOR WHEAT"—three quarters of the quantity that was sent as sufficient for 4 bushels. The water in the other tub contained in solution 2½ lbs. of the following mixture, recommended by Professor JOHNSTON as a STEEP FOR CORN AND BEANS.

Phosphate of Soda Sulphate of Magnesia Nitrate of Potash Common Salt Sal-ammoniac, or Sulphate of Ammonia	1 lb. of each in 10 gallons of water to steep 300 lbs. of seed. To be dried with gypsum or quicklime.

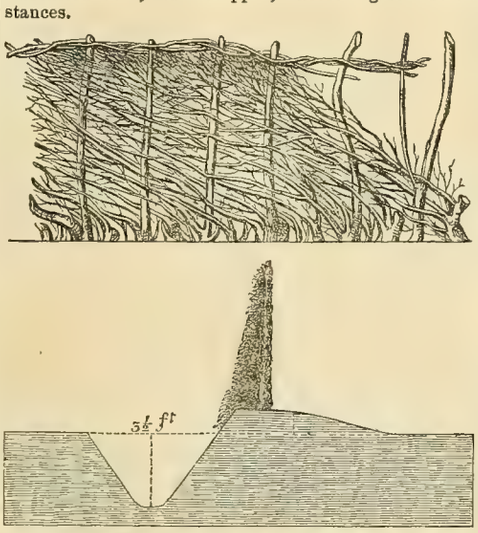
These parcels of Wheat were taken out of the water on the 30th of December, after having remained in it 40 hours, and they were dried by a little gypsum powder being mixed with them. They were sown the same day at the rate of about 6 pecks per acre, in rows 9 inches asunder, on a field of good sandy loam, off which an even and pretty fair crop of Swedish Turnips had just been carted. Between the plots on which they were sown, a ridge of equal width was drilled with seed prepared in the ordinary manner with blue vitriol (sulphate of copper). The crop was harvested last month, and the produce per acre was ascertained upon portions of about half an acre in each plot. The following are the results of the experiment, naming the plots in the order in which they occurred on the field:—

No.	Treatment of the Seed.	Produce per acre.
1	Steeped in Mr. Campbell's mixture. .	29 bushels.
2	Not steeped	31½ ,,
3	Steeped in Prof. Johnston's mixture	37½ ,,

Besides this, there were about 3½ bushels per acre, over the piece, of light Wheat; in this, exhibiting a great difference between the produce of this year and that of last season, which on the same farm did not yield much more than 1 bushel of light to 50 sacks of head Wheat. These figures exhibit what was very evident long before harvest—a gradual improvement in the crop towards one side of the field. Taken in connection with the appearance of the crop on the ground, we do not consider them as at all favourable to the idea that steeping seed Wheat in mineral solutions has any influence upon the future crop.

FENCES.—No. II.

THE HAWTHORN, like most other hard-wooded plants, is in its natural condition destined to become a tree, and the planting it in close contact with others of its kind, to form a fence, does not induce it to lay aside this natural propensity; and were it not prevented, it would accordingly shed its lower limbs, become wide and spreading in its branches, and lose a great part of that usefulness for which it has long been esteemed. To prevent this tendency in the plant to assume its natural habit, it is necessary, according to the quality of the soil in which it is planted, after some 10, 12, or 15 years' growth to cut it down either wholly or in part; and, at the same time, the ditch, which on most soils accompanies the fence, is cleared out. This operation is termed "hedging and ditching." The cutting is performed in three different ways; a hedge is "laid," "breasted over," or "cropped," according to circumstances.



Breasting over, which is seldom practised, consists in cutting off all the stems about 3 feet from the ground, and trimming up the inside (the side next the field to which the fence belongs), but leaving the bottom twigs on the ditch-side untouched, with the view of making them form a gentle slope to the bottom of the ditch. A hedge should never be breasted over twice in sucession; it may, with propriety, be alternately breasted over and *laid*.

Laying hedges forms part of the winter-labour on farms of any extent. A judicious farmer generally allots about one-twelfth of his hedges to be laid every year. The operation consists in first clearing away the briars, small branches, rough Grass, &c., from the bank on which the hedge grows, and in cutting off the branches and stems that over-hang on the other side, leaving straight stems in the middle standing upright. Some of the straightest of these stems are selected for live stakes, and their heads are taken off at the height of 3½ or 4 feet. Live stakes are chosen, if possible, at equal distances of 2 feet; but it does not often happen that stems fit for this purpose occur with sufficient regularity to render the use of dead stakes unnecessary. Whenever live stakes cannot be had, stakes are cut from the Thorns in the hedge, and driven into the bank between the live stakes, so as to make them about 2 feet apart. The roughest of the Thorns are then cut out, leaving just as many, as when laid and pleached in among the stakes, will form a kind of rough wicker-work. The ditch must then be attended to. The first step is to examine the bank, and prepare a ledge near its top on which to deposit the sods cut from the bottom of the ditch, and when any holes occur, these should be made square, so as to be filled up accurately with sods cut purposely to fill them. Rectangular sods are then cut from the bottom of the ditch, and placed close to one another on this ledge; the sides of the ditch and bank are then pared down, and the loose soil removed from the ditch and placed on the bank behind the sods, and among the Thorns. This being completed and finished off neatly, the Thorns left standing in the fence are laid hold of and bent down in succession, all in one direction, and slit at or near the surface with the bill; a pressure being exerted with the left hand at the same time that the stroke is made with the right, the stem is cut partly through, and has no power to regain its former position. The stems are, at the same time, woven backwards and forwards amongst the stakes, and finally left in a slanting direction, the terminal twigs being left on the ditch-side to be afterwards trimmed down. A few yards of the hedge being thus laid, some of the straightest of the stems which have been cut off as useless, are selected and trimmed for the purpose of being plaited, or wattled in among the stakes, at about an inch from their tops. These Thorns are called "hethers;" and clean, straight Ash, Hazel, and Blackthorn will answer the purpose. Two hethers are taken, and after pushing their ends a little among the Thorns, to obtain a holding, they are twisted backwards and forwards in opposite directions, crossing them two or three times between the stakes, and changing sides at each; others follow them, overlapping those which preceded them, and thus the fence is completed as the work proceeds. The refuse should be carefully gathered up and removed. The live stakes, in consequence of being surrounded by the fence, are apt to send out a large quantity of shoots at top, and not on the stem below, which thus becomes naked. To prevent this, they are generally *crippled*, *i. e.*, cut half through close to the ground; when this is done, hedges seldom get thin at the bottom. We have said that the fence should be roughed towards the ditch, but it is occasionally roughed towards the field to which it belongs, especially when that is about to be stocked very hard with large cattle, and when the field on the other side is arable, or to be mown.

The annexed diagrams exhibit what I have attempted to describe.

In laying a hedge on arable land, the fence need not be above 2 or 3 feet high. For laying a hedge on pasture land, the winter should be chosen immediately preceding the season during which the Grass is to be mown; the young wood will then get a clear summer's growth without being cropped by sheep or stock.

The management of the hedge after being once laid should be altered. The third method to which I alluded should now be adopted. The fence should be *cropped* after the shoots have made two or three years' growth. This consists in merely trimming off the ends of the young shoots; at first, cutting away the top, and leaving the bottom about 2 feet wide, so as to cause the hedge to taper gently upwards on both sides. In after trimmings, the shoots are taken off close to the old wood, so that the fence is not suffered to enlarge. The operation is performed annually about Michaelmas, with an instrument resembling a sickle, and termed a bean-hook; the cost is trifling; about 3*d.* per chain.—*John Bravender, F.G.S.*

EFFECT OF RAIN AND AIR ON MANURE.

FROM what has been stated in my former communications on this subject, it would appear that the importance of water holding oxygen in solution in the economy of vegetation has been overlooked; and your readers will pardon me for endeavouring to explain its action, as it is not merely a matter of theory or speculation, in which the practical agriculturist has no concern, but it applies itself closely to the preparation of manure and the mode of applying it to land. Rain has been regarded merely as conveying moisture to the roots of plants; its important action in the oxidation of decaying animal and vegetable matter, and carrying it in solution into the ground, and there leaving it to enter into chemical combination with the soil, has never attracted the attention of our agriculturists. And I cannot help thinking that a knowledge of the action of the free oxygen contained in water will be found to correct certain established errors, and will hereafter work a great change in some of the common operations of agriculture.

The objects (according to the commonly received opinion) of stirring the soil with the spade or plough are two-fold—the deeper parts of the earth are brought to the surface and submitted to the action of the atmosphere, and the masses of the soil are pulverised and broken down, in order to afford a more free passage to the delicate roots of plants in quest of food. I believe

that in these two effects of digging and ploughing are summed up the views entertained of the action of these two operations of husbandry.

The practice of exposing the soil to the influence of the atmosphere is doubtless with a view of enabling the oxygen of the air to enter the soil and effect those chemical changes that are known to be necessary to the salts of the earth, to the humus, and to the plant itself. Without a supply of oxygen the science of agriculture teaches us that vegetation cannot receive its due nourishment; and as oxygen has hitherto been supposed to be furnished by the air alone, the custom of turning up the ground for exposure to air has been in accordance with science, in order to give it, as has hitherto been supposed, the only chance it has of obtaining a supply of oxygen. It does not appear very clearly how oxygen can enter the soil from the surface; the air may exert some influence on the crust of the soil that is exposed to its influence, but it can go no deeper; it cannot descend; and if it be by accident mixed with the soil in its gaseous form its presence is found to be rather injurious than beneficial. The finer parts of the roots of plants do not perform the office of absorption well if they come in contact with air; and in transplanting plants it is the practice to press them well down into the soil, that the air may by excluded, and that the roots may be brought into close contact with the moist earth. The air has been erroneously supposed to exert that influence on the soil, which is really attributable to rain; the supply of oxygen is carried into the soil by every shower that descends upon its surface; it is for this purpose, among others, that water is enabled to hold so much oxygenous air in solution; and we know by experience that if plants are supplied with water that is not aerated, that is, not containing oxygen, they will not thrive, or sometimes will die. The practice of turning up the earth for the purpose of submitting it to atmospheric influence is no more based in reason than the practice of fallowing land with the view of giving it rest, and allowing it to benefit by the "skyey influences." It is no defence of a practice that it has been followed from time immemorial, and has received the sanction of the experience of centuries. The fallowing of land is as old as the time of Virgil, and yet it is now discovered to have been a part of culture both unnecessary and wasteful. May I venture to assert that the same will be said of the present practice of ploughing in a few years, as the science of agriculture comes to be better understood?

But it may be said that, though the soil may not receive that benefit from exposure to air which it has hitherto been thought to do, yet that the spade and plough are absolutely required to separate the masses of earth, and prepare it by pulverization for the roots of the plant. That a certain looseness of texture of the soil is necessary both for the conveyance of manure, for the supply of vegetation, and for the growth of the roots, is unquestionable; but it admits of some doubt whether the plough, much esteemed as it is, does perform the office of loosening the soil as efficiently as it is generally supposed to do.

A plough is an iron wedge, drawn or driven with great force through the earth. The force required to drive this mechanical power varies according to the soil. In stiff clay four horses are required to draw it; that is, a power equal to several tons is required to drive the wedge through the ground. [No, no; see p. 333.] The effect of a wedge drawn with such force through the earth would seem to be, rather, by its extreme pressure, to condense and compress the soil, than to loosen and separate it. If the furrow is examined, marks of strong compression are seen on the surface of the ground on which the share has acted. The furrow itself is rendered hard, and shows by an increased firmness of texture the great pressure which it has undergone, and in some stiff clays the bottom of the furrow is reduced to a state known to drainers as a "pan" through which water will not easily drain. So far as the furrow is concerned, the benefit of loosening the texture of the soil which the plough is thought to confer, is not very evident. The sides of the furrow show equally signs of violent pressure. It is, however, the slice which the share turns up that is more immediately the object of ploughing; and, therefore, it is this part of the action of the plough in which the loosening process should be especially discernible. If the slice of earth which the share turns on one side in its passage were lifted or raised up by a force acting from below, separation of the masses of earth would ensue; but the plough does not act in that manner; the principle of the wedge is in action in forming the slice; and the effects of great lateral compression are discernible on its sides. The earth so turned up has its tenacity rather increased than diminished; it is made more adhesive, and instead of falling to pieces, it forms large masses or clods which have again to be broken up before the harrow can level the surface to allow the seed to be sown. Any unprejudiced person, who observes for himself the action of the plough and its effect upon the soil, will perceive, that so far from the soil being rendered more porous and more loose in texture, it is really rendered more compact and more impervious to rain and to the delicate roots of plants. The plough, as an instrument for loosening the soil, must be admitted to be very defective; it is a relic of the barbarous ages; and is greatly inferior to the spade or the fork in breaking up ground for tillage.

Does not Nature busy herself in disintegrating the soil, while we suppose her to be at rest? Observation will teach us that the process of disintegration is not mechanical, but chemical; it is the effect of continued changes taking place in the earth under the action of new chemical combinations, by which the grosser parts of the soil are subdivided. These chemical changes do not take place in uncultivated land, into the interior of which water laden with oxygen and the salts of manure have no access. It is only land which is under culture that admits of such chemical changes; the continued percolation of water carrying into the soil new saline and other ingredients of fertilization cause an unceasing change in the elementary combinations of the particles of the soil, which are thus separated and made to present an extensively increased surface to the action of plants.

The apology for the general use of the plough, and for the pains and labour bestowed upon it to render it as perfect as possible is, the hitherto mistaken view entertained of the source of oxygen, and, also, the supposed necessity of burying the manure in the soil. If the air were the source from whence alone the supply of oxygen could be obtained for the soil, doubtless the pains taken to expose the furrow-slice to the atmosphere would be most praiseworthy, notwithstanding the clods which the pressure of the plough occasions to form, and the consequent necessity for the employment of the clod-crusher: however expensive and laborious ploughing and clod-crushing might be, they would be necessary, and must be performed. But when science tells us that the bounty of Nature, in supplying the earth with moisture, also enables the water to carry with it a supply of oxygen, the labour of turning up the soil to the action of the oxygen of the atmosphere appears to be a fruitless toil. The ploughing in the manure, in order to prevent any waste by exposure to the air, is another instance of fruitless labour, founded upon an erroneous theory; the oxidation of the decomposing elements of the manure, by exposure to air and rain, is the most economical application of it; and top-dressing may safely enable the farmer to dispense with ploughing, so far as mixing the manure with the soil is concerned.

The burying the manure in the soil by the action of the plough is followed by an evil that is not likely to occur in top-dressing. The larvæ of insects abound in the manure-heap, and are carried upon the land, either to be exposed to the frosts of winter, and thus destroyed, or to be carefully buried in the soil till the warmth of spring calls them into existence. That pest of the farmer—the Turnip-fly, probably owes its existence to the practice of burying the manure under the soil; by which the pupa is effectually preserved during the winter months from the destructive action of the cold, finding in the manure a most effective protection till the return of spring. When the winter is over and the warmth of the sun begins to be felt by the earth, vegetation becomes active and insect life is reanimated. The pupa of the beetle (Haltica nemosum) and the seed of the Turnip begin about the same time to feel the genial warmth of the season, and both appear above-ground together; the fly escapes from the manure just as the Turnip has put forth its cotyledon leaves, and soon preys on the young plant to its destruction. The exposure of the manure to the frosts of winter, as in top-dressing, destroys the grub, and saves the Turnip from the attack of the fly.

Although ploughing for the purpose of exposing the soil to the air, and covering the manure from exposure to air and rain, is an operation, as it appears to me, both unnecessary and mischievous, yet stirring the soil for the admission of oxygenated water (rain), and the salts of manure, cannot be dispensed with. As an instrument employed for this purpose, the plough is singularly defective, both from the compression which it exerts on the furrow and the slices of earth, and also from the little depth (seldom more than 5 or 6 inches) to which it penetrates the ground. It becomes, then, a question what plan of culture combines the greatest economy and efficiency, and enables the manure and the soil to receive the full benefit of the free oxygen of rain.—*Oxygen.*

FLAX CULTURE IN SOUTH BEVELAND.

I should have noticed the observations on this subject which appeared in your Paper of the 27th ult., ere this, if I had not been otherwise engaged. I am glad of the opportunity your correspondent "T. C. M." gives me, of comparing the expenses of agricultural labour in Holland with that in Ireland. He gives an extract from a paper read before a Farmers' Club in Beveland, which, in my opinion, is far from being sufficiently explicit.

Flax Seed.—It appears that 7*s.* per bush. is the price that is charged for seed, therefore it will be but fair to allow that price for the seed produced; and as he allows 3*l.* 19*s.* 2*d*, they must produce in Beveland only 11½ bushels to the acre; now, I have more than once proved by several experiments through your columns that 29, 30, and 32 bushels of seed have been produced off one acre last year, in Norfolk, and I consider I need not say more to prove that we can beat the Dutch in producing Flax-seed.

Rippling.—The charge for this is more than is paid in Ireland.

Scutching.—There is nothing in this statement which appears to me so extraordinary as the amount placed opposite this process, 2*l.* 10*s.* for the scutching of 32 stones of Flax; I am aware that Flax can be got scutched by the hand in Ireland for 10*d.* per stone, and I never charged more on my own mill than 1*s.* per stone for rolling and scutching, which was done in a superior manner to hand scutching.

Payment to Overseer.—This item is too absurd to be further noticed by English farmers, or myself, as it appears to me a farce to talk of an overseer to teach people to grow what (according to the account) has been grown these 30 years in their view. [The report quoted by "T. C. M." names as requisite an overseer to teach them not how to grow Flax but how to handle it after growth—a part of the process which was new to them.]

Interest on Capital.—The capital or outlay appears to be 4*l.*, and as the Flax can be in four months from the date of sowing turned into cash, I should say 10*s.* 8*d.* rather more interest than our English farmers would charge for 4*l.* being expended on their land, for four months.

Flax produced.—I must confess when I look at that part of your correspondent's letter where he says "he never saw better crops of Wheat, Barley, or Beans, on such an extent of land, than he saw on the Beveland-farm," I am at a loss to account for the deficient, or, I should say, half crop of Flax produced on such productive Barley-land. It appeared that the produce of 3 bushels of seed sown (which, I must suppose, covered 1 acre) has been 75 6-pound stones, or 32 Irish 14-pound stones; and as that is little better than a half crop (which I have more than once proved by reference to gentlemen in this country, as well as in Ireland, who have had from 50 to 70 stones per acre), I shall not trouble you with more particulars to convince British farmers that, from your correspondent's description of the Holland management, we can produce more Flax, as well as seed, off an acre than they can.

Price of Flax produced.—Now, of all the parts of the statement of your correspondent, none surprises me more than this, as I am more at home for the last 15 years (since I quitted farming) with this part of the subject than any of the other. I have seldom, if ever, seen Dutch Flax below 50*l.* per ton; in most cases the prices run from 60*l.* to 80*l.*, and often 100*l.*, per ton; although your correspondent fixes his price at 5*s.* 8*d.* per stone, or 45*l* per ton. The *Times'* "Commissioner," in his letter from Ballinasloe, has given some interesting information on the subject of Flax cultivation; and it may not be out of place, when the prices of the lowest qualities of Flax are noticed in your Paper, to notice his remarks. He says, "Flax from the estate of Sir R. O'Donnell gained the second prize at the Ballinasloe Agricultural Show, and presented a curious contrast to another grown near it, by the untaught peasants, who looked at the fine Flax, valued worth 120*l.* per ton, in despair; when their mismanaged production was valued at 28*l.* per ton; but they appeared to be anxious to manage their Flax crop properly;" and he adds, "skill and knowledge here, therefore, showed a difference of about 90*l.* per ton in the value of the produce of a Flax field." Now, there is an excuse for those peasants having, on the first trial, mismanaged a crop that is as foreign to the county Mayo, as it is in Surrey, but that the farmers of Beveland, who can grow such magnificent crops of Wheat, Barley, and Beans, can be so ignorant in Flax management after 30 years' experience in its cultivation, appears to me strange indeed. However, as your correspondent makes it appear, that the expenses of growing and preparing 1 acre of Flax for market in Holland amounts to 7*l.* 4*s.* 3*d.*, I give the following particulars as to the expense incurred in growing 1 acre in Ireland. Mr. J. Acheson, Tanderagee, sent me the following:—

	£	*s.*	*d.*
Flax seed required for 1 acre—2 bushels 2 pecks at (Beveland prices) 7*s.*	0	17	6
6 people will weed 1 acre at 8*d.* per day	0	4	0
12 ,, pull and water the produce at 8*d.* each	0	8	0
1 horse will draw it to the water, 3*s.* 4*d.* per day	0	3	4
7 people will take it out and spread it on the Grass, 8*d.*	0	4	8
7 ,, lift, tie, and make it ready for the mill, 8*d.*	0	4	8
6 men will ripple it at 1*s.* per day	0	6	0
6 men will save and thrash the seed, 1*s.* per day	0	6	0
1 horse will draw it to the mill	0	3	4
Expenses incurred scutching 32 stone of Flax at 1*s.*	1	12	0
	£4	9	6

As the weeding, pulling, spreading, and lifting, is done by girls in Ireland, they are never paid more than 8*d.* per day, and very often 6*d.* Now, after what we have heard of cheap living and labour on the Continent, and the economy and cleverness of the Dutch, does it not surprise the reader to learn that the expense of growing 1 acre of Flax in Holland will be 7*l.* 4*s.* 3*d.*, when, in the most prosperous manufacturing district in the north of Ireland, the same labour can be got done for 4*l.* 9*s.* 6*d.* I do not mean to say that Mr. Acheson never pays more than 4*l.* 9*s.* 6*d.* an acre for his Flax, for he pays, I know, much more, because he never has a half crop. A thick good crop will take more hands to pull, lift, water, and spread it, than a half or thin crop, and, as a consequence, more money than 1*l.* 12*s.* for scutching; however, in order that British farmers may perfectly understand the exact expenses in Ireland in growing Flax, I shall explain it by supposing I have an acre of land that has been well drained and in clean condition, and had been well manured last year for Potatoes or Turnips, with good rich farm-yard manure, and a crop of Barley had been produced off it this season. I would have it deeply ploughed before November, and about the middle of March ploughed again; therefore it would cost me as follows:—

	£	*s.*	*d.*
2 days' ploughing	0	15	0
1 ,, harrowing, sowing, and rolling	0	7	6
Rent of 1 acre	1	5	0
Poor-rates and taxes	0	7	0
Sundry expenses already made out	4	9	6
Scutching additional 21 stones of Flax	1	1	0
	£8	5	0

Having shown the exact expenses of 1 acre of Flax in Ireland when managed with economy, by those who

know the proper system of cultivation, I consider it but fair towards Flax growing to say that there are hundreds in Ireland like the Rev. G. Ash, of Bellaghy, who had—

	£	s.	d.
53¼ stones of Flax on 1 acre, which, at 8s. 6d. per stone, would amount to	22	12	1
And on a crop similar to this there has been many instances of more than 25 bushels of seed grown on 1 acre in Norfolk and Ireland, at 7s.	8	15	0
	£31	7	1

As this is a proof that the Beveland farmers might profit by Irish instructions, I hope your correspondent "T. C. M." will not forget to inform them of the fact, and I also hope he will be more particular in the future letter he promises to furnish you with.—*J. H. Dickson.*

Home Correspondence.

Cause of the Potato-Murrain.—It appears to me that the disease primarily attacks the stem, and I think the view I take of the subject holds good in some cases, if not in all. I maintain that it is a disease of the fluids—the descending sap becomes poisoned by the generation of unwholesome gases in the stem; from the excessive moisture prevalent through this season, the proper exhalation of the plant has not been carried on; thus, we find that the stem undergoes decomposition instead of gradual decay, and this deteriorates the descending sap, which passing to the root, poisons, as it were, the tubers. My own Potatoes, which were planted on new ground, on a very steep slope, are not in the least affected. Where they were grown on higher ground, the tops died early, and the tubers are as healthy as possible. Before the last rain I dug about a rood—both from the lower and higher ground and all were equally sound. A few rows remained, which I was prevented by the rain from digging up; these I have since gathered, and they have shown symptoms of disease; the tops were fine, but after the rain, they were all matted together. During their growth I never saw tops have a more luxuriant appearance, clear and fresh, with nothing like specks on the leaves or stems. Another thing which causes me to consider the sap as poisoned, is the great rapidity with which the tubers decay. They appear healthy from all outward appearance; still, in many cases, if they are kept several days before they are stored away, the specks are manifest; first, of a dingy hue, then darker coloured, and afterwards becoming soft and rotten. If this really is the case, I do not see of what good any of the methods as yet proposed can be, in preventing the tubers becoming useless, not only for human consumption, but even animals; for pigs seem to have fallen victims in some quarters. Had the leaves or stems of my Potatoes shown any signs of specks, I would have pulled the stems out of the ground, leaving in the tubers awhile before I dug them up; this would have prevented any bad effect from a deteriorated sap. A proof might be obtained by comparing the analysis of an unsound Potato with that of a sound one. I think we should find at any rate the ultimate elements to be in different proportions to what is usual. If my time allows I may investigate this.—*A. B., M.R.C.S.*——The progress of the disease has become so rapid and so universal, that it is now a question of fearful interest whether it will even be possible to preserve a supply of seed for next year. The disease appears to be similar in nature to the smut and other diseases that affect Wheat. Is it not, therefore, probable that the same remedies that are found effective to preserve Wheat may be advantageously employed in the case of Potatoes? Experience has shown that certain steeps (blue vitriol, for instance) effectually prevent the ravages of smut. I would, therefore, suggest that the experiment should be made, whether soaking Potatoes intended for seed in solution of blue vitriol might not, probably, destroy the vegetative power of the fungus on the Potato, without affecting the vegetative power of the Potato itself. Of course, the poisonous nature of blue vitriol makes this suggestion inapplicable to Potatoes intended for any other use except for seed. I cannot help being strongly of opinion that the disease is not of such recent origin as is commonly supposed. Any one who will examine the columns of the *Chronicle* many months before the harvest of 1845 was begun, will find numerous complaints of partial failures of the potato, and suggestions as to the cause. I think it is now scarcely possible to doubt that the same cause was seen in operation, which has since produced such terrible effects. I know two instances in 1844 in which early the whole crop was worthless; and, though I have had no particular description of the appearance of the potato, I do not doubt the disease was the same as has since become so prevalent.—*P. P.*——Having finished lifting my Potatoes on the 10th ult., I pitted them in good order (they were the red Kidney, allowed to be a good keeper); to-day I examined them, and out of about 20 rows, I found perhaps 5 cwt. that were in a partial state of preservation; the rest were totally unfit for anything, being in a complete state of putrefaction. These Potatoes were sound and dry when put into the pits.

I would suggest it as advisable that others should examine their pits, in order to save part of their crop, should the disease have made its appearance; the shortness of the time from the pitting, till the full development of the disease, is to be remarked.—*John Richardson, Hart-hill, near Liverpool.*——Those who inspected their field crops in this district, a fortnight or three weeks ago would have fully coincided in Mr. Paxton's statement, that "no such extent of disease existed as had been represented." My former communication to you stated that, in this neighbourhood, no traces of the disease were discoverable; now, however, I am sorry to say, the scourge has manifested itself in great rigour. Three cart loads have just been brought to me from the fields, and I cannot find a sound Potato among them. Like Mr. Paxton, I was somewhat sceptical as to the extent of the disease, until just before the York Horticultural dinner took place, when my attention was excited by the following circumstance: I had taken up my remaining portion of garden Potatoes, thinking, as the weather was cold, they would be better out of the ground; they were then, to all outward appearance, perfectly sound and good; but on examining them a few days afterwards, I found that they were turning black, and rapidly decaying. This, of course, alarmed me; and on receiving a supply from the field, the result was as above stated. It is worthy of remark that, whereas Mr. Paxton considers the disease to be "principally confined to what are called the early Potatoes," in this neighbourhood the early crops were as good, if not better, than usual. When attention was first drawn to the existence of the disease, I thought it advisable (as a precautionary measure) to take up a considerable quantity of the early kinds for seed, although they were scarcely ready; and after being properly dried and "greened," they were carefully stored, and are still perfectly sound and good. I find that the Pink-eyed varieties are much more susceptible of infection than the white and rough-skinned kinds.—*J. L. Snow, Swinton-park, Bedale.*——Throughout the greater part of Scotland, the fact of total and complete destruction of the Potato crop, late as well as early, does not admit even of the melancholy satisfaction of a doubt. I myself am a grower of Potatoes to the extent of 1500 or 2000 bolls annually, and I find that the proportion unaffected with disease is not more than 20 or 30 per cent., while I much fear that these will soon be included in the same fate. The primary object at present (as you justly observe) should be the best means of saving as much as possible from the general wreck; and the only chance of doing so, seems to be to extract and preserve the starch. Farina mills, as Potato starch manufactories are termed, have been at work in Scotland for some years, in districts where, owing to the expence of carriage, the Potato could be had at a low price. I believe the machinery of these is simple and capable of doing a great amount of work. The next subject for consideration ought to be, how is the necessary supply of sets in a sound state to be had for next year? This subject is beset with many difficulties. Will the native country of the Potato yield any? With a view to being prepared for the worst, I am collecting a large quantity of Potato-apples. Many people are not aware than even in the first year quite as large a crop may be raised from seed as in the ordinary way, the only objection being a little additional trouble, and the very varied nature of the produce, both in colour and quality. I may here mention a method which I have tried with success for multiplying Potato plants. In 1844 there were numerous blanks in the fields in this quarter. About the middle of June I selected one or two patches where the sets had perished in a field of American Earlies. I stripped off the lateral branches from some of the neighbouring Potato plants, and laid these branches, at 10 inches apart, into a drill, which I formed with a hoe; I then covered them with earth, leaving only the tips of the topmost leaves projecting. In the course of 10 days I had the satisfaction to see them beginning to grow, and about the end of September, when I raised them, there were on an average four large Potatoes to each. The next subject of solicitude is naturally how are we to avoid this plague in future; and of course the most rational way of proceeding is to endeavour to find out the cause. Prof. Henslow has very justly been endeavouring to instil a taste for accurate observation among agriculturists, in preference to that anxiety to start a theory, which seems to possess many of your contributors. One fancies the cause of disease to be a beetle, another a fungus, a third electricity, a fourth wet clay land, who is immediately contradicted by a fifth who finds it worst on dry light land. To look for any sound train of reasoning in support of the numerous fancies is useless. But to begin with collecting facts; I will contribute one. In ploughing part of a field for Wheat, from which the Potatoes had been raised early in August, I find the gatherings perfectly sound and untainted; this agrees with another case. Early in August I raised a few plants of a fine seedling to show the produce to a friend, and being anxious to keep them for seed, I buried them in the rows where they grew; these are sound, all the rest of the bed are tainted. I trust that some of your readers qualified for such investigations, will collect facts and build a reasonable structure with them.—*M. Girdwood, Featherhall, Mid Lothian.*——My Potatoes appeared perfectly sound when dug, but after a week, the pit in which they were placed was opened, and many of the tubers were found to be affected. These were carefully picked out, and thrown aside. The healthy Potatoes, during the late fine weather, were fully exposed to the sun and air, and placed in small quantities in pits in the garden, with clean dry straw over them, and opened in fine weather to allow evaporation to take place. In the Potatoes so treated, the disease appears to have made very little progress. In the pit to which they are ultimately intended to be removed, a coal fire has been kept burning, but, of course, the effect of this remains to be seen. The round blue Potato is much worse than the others. The Salmon Kidney and the Buxton Kidney are comparatively uninjured. One Potato, a Buxton Kidney, which was decidedly infected, was thrown out, and remained exposed to all changes of the atmosphere for at least ten days; no further decay in this Potato took place. Does not this go far to prove that the best remedy is exposure of the tubers to the air, where practicable. In every case in this neighbourhood (the south of Staffordshire) where the Potatoes have remained in any quantity together, the rot has, in proportion, increased.—*H. B. Mason, Brewood.*——As soon as I detected the disease amongst my Potatoes, I had the haulm cut away close to the ground, and I think the disease did not increase afterwards, though the Potatoes remained in the ground for 22 days before they were dug, when the Kidneys were found but slightly affected; but some red seedlings from the old China Orange, on the same plot, were injured in a much greater degree; perhaps about 10 per cent. were affected. —*Lusor.*

Soap as Manure.—I have read with interest the letter in your last Number, signed "An old Chemist." It is true, as he says, that almost every man who has a garden knows the value of soap-suds as a manure—their value, therefore, needs no discussion—it is not a theoretical but a proved point. The questions with me are, 1st, whether the cost of soap will not prohibit its use; and 2d, if this difficulty could be removed by the remission of the duty—in what form it would be best to apply it as a manure; not in its commercial form certainly. To dissolve it in water would, probably, be the most perfect application, but this would be a very bulky operation. I find, by cutting soap in thin slices, and very gradually drying it in a very moderately-heated oven, it loses about one-fourth of its weight, and becomes sufficiently dry to be reduced to such a powder as would readily drill with the seed, and this, I think, would be the better way of applying it, if by experience it should be found not to injure the seed. I think it is highly probable that soap so applied in the drill-furrow would destroy the wireworm or slug, or at any rate, prevent their attacking the root of the plant, and if so, the importance of the application, in this point of view, is very great indeed. I would, therefore, strongly recommend you and all your readers, who have Wheat to sow this autumn, to try soap on a small scale. I intend to try ¼ or ½ an acre divided into three equal parts. Suppose it is ¼ of an acre, and I use hereupon ¼ cwt. of soap in the powder, it would require about 40 lbs. as you buy it from the shop. I shall use either white or mottled soap, as I understand they are more pure and contain more animal matter than yellow soap. I would divide my land equally, and the soap in the following proportions:—

To the first plot, say 4⅔ lbs. } being ⅓ of an acre
" second " 9¼ lbs. } in three equal
" third " 13¾ lbs. } parts.

and these will be, as near may be, in the proportion of ½ cwt., 1 cwt., and 1½ cwt. per acre. If a series of experiments should prove the value of this article, for the destruction of the wireworm and slug, in addition to its well known fertilising powers, an effort must be made for the removal of the excise duty, which would place it at once within the reach of us all at a moderate cost.—*G.* [It is true soap is animal matter in a soluble form, and no doubt it is a good manure, as is evidenced in numberless cases by the use of soap-suds. How far it can be rendered at a price and in a form to become practicably useful is an interesting inquiry, and we invite discussion upon it. We shall make some experiments upon it ourselves.]

Thin Sowing.—Having in June last sent you an account of my having dibbled an acre of land with Wheat (a single seed in each hole), in the autumn of last year; and having received many letters from agriculturists on the subject, who had read the account, I am now anxious to lay the produce of that acre before the public, through the same source of communication. Half the acre was dibbled with Spalding's Red Prolific Wheat, and the other half with a very fine white Wheat; the seed dibbled on the entire acre measured 1 peck and 1 pint. The produce is as follows:—The half acre dibbled with Spalding's Prolific produced 8 sacks, 3 bushels—a very fine sample, with 1 ton, 10 cwt. of straw. The half acre dibbled with the white Wheat produced 5 sacks, 2 bushels—a very fine sample indeed, with 1 ton 2 cwt. of straw. The Wheat stood 5 feet 6 inches in height, was even all over, and was never in the least laid by either wind or rain. I consider the above to be a most extraordinary produce, and well worthy the attention of agriculturists. [We think so too, indeed!] The land it was grown upon was dunged for Potatoes in the spring. The soil is light and sandy.—*Samuel Hay, Clyffe Hall, Market Lavington, Devizes, Oct. 7.*

Farmers' Clubs.—It is with great pleasure that I perceive, by the reports in your *Gazette*, that farmers' clubs are becoming general; but I, at the same time, regret that they are not much more so. The late lamented Earl Spencer, at a general meeting of the members of the Royal Agricultural Society of England, especially recommended their formation, on the ground of its coming home, as it were, to the practical farmer, who would not take the trouble of going to an agricultural society's dinner; or, if he did, was unwilling, if not unable to make a long speech. But, in their clubs, they meet with their neighbours, and talk over in their own plain way all the new improvements which they have either themselves adopted, or seen elsewhere. As a young farmer, therefore, and wishing for the general advancement of agricultural science, I think you would be conferring a great benefit upon society by giving, in the earliest space which you can spare in your *Gazette*, a few hints for the establishment and

rules for the regulation of farmers' clubs.—*J. W.*

[We are now engaged in the endeavour to get acquainted with the farmers' clubs in each county, and shall be obliged to "J. W.," or any of our correspondents, for the names of societies of all kinds having any agricultural object in view—specifying the county in which it is situated, and the names and addresses of their secretaries. We shall soon take up the subject here alluded to, at some length.]

Societies.

HIGHLAND SOCIETY'S MEETING AT DUMFRIES.

The Second Public Breakfast.—The subjects announced for discussion were—

1. Advantages of keeping young store stock in equal condition throughout the year—mode of doing so—expense and profit compared with the present ordinary practice in Dumfriesshire and Galloway.
2. Comparative value of grains, Turnips, and oil-cake, in feeding cattle—quantities, qualities used singly and in combination.

A party of nearly 300 sat down to breakfast. His Grace the Duke of Buccleuch was in the chair. When breakfast was over the Noble Chairman rose and, after some preliminary remarks, introduced Professor Johnston.

Professor Johnston said—My Lords and Gentlemen, before we commence the proper business of the morning, it is my duty to draw your attention to one or two points in reference to our former meeting, when, in addition to the subject of draining, we considered best modes of improving Grass land, in the higher parts of this and the neighbouring counties. I have received several communications from members of this Association upon the subject, some of whom live at a distance, and could not attend our present meetings. I have had a letter from Mr. Rigby Wason, an improver in the boggy part of Ayrshire, who has had great experience in draining; and he requests me to state as his opinion that wherever it will pay to crop land, it will also pay to thorough drain it. I have also a letter from Mr. Fleming, of Barrow Hill, than whom there is not a more skilful agriculturist in Scotland. Mr. Fleming says that he has bought a property lately in a high country, that he has improved it, that he has manured it with bones, guano, and salt, and greatly increased its produce. So that guano has been tried on high Grass lands; and I believe Mr. Charles Stuart can tell us the result of experiments made by himself. I believe that it not only produced a beneficial effect, but also paid for the application. I have also had a letter from another gentleman at New Lanark, who alludes to his two year's experience in steeping seeds, and I may add the result corresponds with other experiments made in Germany. He states that steeping Barley in diluted sulphuric acid has had the effect of increasing his crop in a great degree. Another gentleman, Mr. Cannell, of Cragie, details several experiments which he thought I should have an opportunity of laying before you. They are experiments upon Potatoes, which I have given to the committee appointed to take up the question at a previous meeting in this town. Another subject mentioned to me by his Grace the Duke of Montrose is the breeding of the Alpaca, which it was thought might be suitable for our hills, but I am informed by him that they will not thrive in our climate. The subject to be considered to-day has been selected by the Committee, who are practically acquainted with the agriculture of Dumfriesshire and Galloway, and they have been selected as useful and suitable ones for the district. Now there are several ways in which the feeding of animals may be considered. Not long since many parts of Galloway were almost shut out from the world; that was before that great discovery which is revolutionising the world had come into operation; but now since steam has been applied, and steam-boats especially, these districts are able to send their produce to Liverpool and elsewhere, and the farmers now attend to the feeding of cattle. In considering how stock can be reared economically, how we can raise the largest quantity of food at the least possible cost, our first step should be to gather together the opinions of practical men, and squeeze from them the general results by which our own practice must be guided. This is a good method as far as it goes. Another method is to go to a chemist and say, Here is an animal which I want to have fattened, here is the food which I want to fodder him with—how much of this food should I give him, or should it be mixed, and in what proportions to answer best the desired end? The chemist then tests it with his laboratory, and this is what may be called the theoretical part of it—although this kind of theory is built up at every step by practice, labour, and exertion, often more extensive than the exertions of practical men. The chemist will refer you to such tables as you see no these walls (the walls were hung with analyses of the various kinds of food for stock), and he will tell you which kind of food is best, and how it should be mixed to produce advantage. There is a third way of considering the question—that is, uniting the results of the practical man with those of the theorist—to unite practice with science—to compare the two together, to see how they agree together; and to suggest any measures by which difficulties may be removed, and that degree of certainty which science and practice can give may be obtained. Gentlemen, that is the right way on every point connected with agriculture which the Agricultural Chemistry Association mean to adopt. I think it will be of much benefit to the country to unite the opinions of theoretical and practical men—the one suggesting, the other performing.

Mr. Charles Stewart, Hillside, then said—it has occurred to me for some years, that the most obvious and greatest defect in the farming of Dumfriesshire and Galloway, is the not keeping in proper condition our young stock in the spring time in particular. I allude to the great staple of the country, one and two-year-old Galloways. Within the last few years summer pasturage has been much improved—the land is better laid down—the system of herding is abandoned, and the cattle are generally kept well inclosed; but the common wintering of these cattle is poor indeed, and I must say, that in this respect, within the last 20 years I have observed with the majority of the farmers very little improvement. Our two-year-olds come out with very little improvement beyond what they did 20 years ago. Three-fourths of our farmers give their cattle very few Turnips during one part of the year; the Galloway stirks and two-year-olds do not get many Turnips after the 1st of January, they depend entirely upon their fodder, and in many instances upon straw. The consequence is, that after New-year's-day they fall off in condition, and there is no improvement in their size; and at the end of April, if our stocks were brought to market, they would not go for so much as they would have done in January—and thus four months are worse than lost; no advantage is gained. When shown in Dumfries market in May and June, I am afraid they cut but a miserable figure indeed, and are shown in a condition wholly unworthy of Dumfriesshire and Galloway, which in other respects, have made greater advances within the last ten years than any other part of Scotland. I refer to the stall-feeding of cattle, and the feeding of sheep, more especially one-year-old sheep, for the Liverpool market. The advance in the latter department of stock-farming made within the last two years has been extraordinary; we stand now the first in Scotland amongst those who bring up sheep for that market, and they have become one of the great staples of the south. I do not see why we should not make an equal advance in our system of stock-farming, by amending the defect complained of in the keeping of young stock during winter and spring. Within the last three or four years, however, the attention of a few farmers throughout the country has been directed to this particular point, and with great success. They have seen the necessity of their young stock being kept up in condition through the winter, particularly from New-year's-day to the time of Grass—of keeping them up to a pitch or condition corresponding with the Grass afterwards to be given them; and so much profit has been found to follow from giving them Turnips or oil-cake during the spring months, and of putting them out to Grass in fresh growing condition, that I believe there is not one who has tried it who will ever think of returning to the old method. It is on the experience and opinion of 12 or 14 of these farmers—as well as my own—for I have made the experiment almost every year, though on a limited scale—that I take the liberty now of stating what are the results as to profit and loss of the better mode of feeding. Take the case of the great stock of the country—Galloways. A Galloway stirk, then, rising one-year old, should have 25 lbs. of Turnips daily for 150 days, from 1st December till 1st May; during these 150 days he will thus consume 1½ tons. Next year, when rising two years old, he should have 37½ lbs. during the same period; during these 150 days he will thus consume 2¾ tons. So that, putting the two years together, he will have consumed 4 tons. Now, I do not think that I overrate the matter when I state that a Galloway beast so kept will exceed in value one which has not got Turnips by at least one-fouth. Or rather, I believe I am borne out by experience when I say, that his value will rise from 8*l.* up to between 10*l.* 5*s.* and 10*l.* 10*s.* These 4 tons of Turnips, then, in ordinary cases, will be found to advance a two-year-old stirk in value about 2*l.* 5*s.* or 2*l.* 10*s.*, besides producing a superior supply of dung to be returned to the land. Now, what is the value of 4 tons of Turnips? That can be estimated only in two ways—by ascertaining their worth for feeding fat cattle and sheep respectively. As to their value in feeding sheep, we all know that a wether consumes 24 or 25 lbs. of Turnips daily, or about 1¾ cwt. weekly: and therefore, a person who lets his Turnips at 4*d.* a-week for sheep, does not get above 4*s.* or 5*s.* a ton for them. As to fat cattle, we know that a Galloway or short-horn consumes about 160 lbs. a day. Keeping him, then, on Turnips for about 25 weeks, I think I may say with a good deal of precision that the payment does not exceed 5*l.*—say nearer 4*l.*—that is, exclusive of any return for oil-cake; thus we come to the result, that the value of Turnips for fat cattle is just above 8*s.* or 8*s.* 6*d.* per ton. Now, there is not any person in Dumfriesshire who has tried the experiment of giving Turnips to his young cattle the whole year through, who has not got for them at all events 10*s.* or 12*s.* per ton. With regard to the eating off of Turnips by sheep, I think that till within the last year or two, when our attention was called to guano, and other such like fertilisers, there was much too little manure given to the country. In my opinion, one-third more manure might even yet be judiciously applied, and made to raise 5 tons of Turnips additional per acre; and these might be consumed by young cattle to the great advantage of the farmer. I don't say that sheep should be given up; on the contrary, sheep-feeding is too profitable; but I want to show that certainly every exertion should be made to produce a greater quantity of Turnips, in order that the young cattle may be better kept. Nor do I say that there are not a great many farms on which the fattening of cattle will always be profitable; but this I say, that those who breed and rear young stock, should at all events, if possible, have sufficient Turnips to give them throughout the winter. But suppose there is a shortcoming of Turnips in spring, then, in order that the beasts may not fall off, they ought, up till the moment of going to Grass, to receive a proportion of oil-cake; and it appears to me, that the deficiency of Turnips may thus be made up with certain profit. I think I keep within bounds in taking the average price of oil-cake to be under 10*l.* a ton; then, at this rate, 2½ lbs. daily to a two-year-old Galloway, from 1st February to 1st May—about 13 weeks—would amount to about 1*l.* But supposing oil-cake to be too dear, there is another substitute—Potatoes and Oats. Then if Potatoes are under 1*s.* 6*d.* a cwt., 10 lbs. per day, or about 8 cwt. on the whole, will in general cost about 10*s.*; and if Oats are under 2*s.* 6*d.* per bushel, 1½ lbs. per day, given with Potatoes, will come to about the same sum; both being about 1*l.* At these prices no common farmer ought to scruple at giving these articles to his young beasts, in order to make up the deficiency between the shortcoming of Turnips, and the time of going to Grass. In my own experience I have found that a Scotch acre yielding 25 tons of good Turnips, will suffice for 10 two-year-old cattle, and advance them with greater certainty than with fodder only. To get the advantage of this or any other superior mode of feeding, the young cattle should be little or never out from the 1st January to 1st May; and their sheds should be well sheltered—a length of 4 feet of a 13 or 14 feet wide shed should be given to every beast, and at the same time well-aired and roomy. As to the statistics of the question, the number of Galloway stock has rather increased than diminished within the last 10 years. I think that 10,000 stirks are reared in Dumfriesshire, and that, taking Galloway into account, fully 20,000 two and three-year-olds are annually sent to England, chiefly to Norfolk and the south-eastern counties, besides 3000 or 4000 fed annually for Liverpool. With respect to the number of farms on which these cattle are reared, I am sure that about 800 or 900 farms—or two-thirds of all the farms in the county, are interested materially in Galloway stock. In the illustrations presented to you, I may say I have made use of the medium style of feeding; but for examples of the result of the higher style, I have only to refer you to its extraordinary success as exhibited in the cattle from Drumlanrig yesterday. It requires only experiments to be made in order to prove the superior advantages of these modes of feeding, and to bring them before the mass of farmers to secure their adoption of them. I see no difficulty in bringing this about, if only four or five proprietors or spirited farmers were to take three lots of cattle in equal condition, and feed them for twenty weeks, one lot on nothing but fodder, the second on 2½ lbs of oil-cake daily, and the third on 35 lbs. of Turnips; and in the October following submit them at Dumfries and local shows for public competition. Every farmer would then see the difference, and conviction of the superiority of the modes recommended would seize the mind of every one, and be disseminated over the whole country. Mr. Stewart, in the course of his statement, alluding to the mixture of the smaller with the larger arable and sheep farms in Dumfriesshire, observed that he trusted the variation of size would long continue—that the smaller farmers rising was the best mode of recruiting the occupation of the larger; and he conceived it much more fitted to this county at least than if the whole were occupied as the extensive sheep farms of Ross and Sutherland, or the large arable farms of East-Lothian. (Mr. Stewart concluded his eminently practical and admirable address amidst the heartiest applause.)

Mr. Peter Johnstone, Alton, near Moffat, rose and said, that he farmed too near the hills to be extensively engaged in fattening cattle, but as he had followed the trade for 30 years, and invariably upon the same plan, he would venture to make a few observations. For some years past he had fed his cattle with Turnips, grain, and oil-cake; allowing each 2 lbs. of oil-cake per day, for four months, commencing not sooner than the 1st of January, as it was after that period that the greatest improvement took place. He had sold his cattle, two-year-olds, at 12*l.* a-head, and if he had not fed them in this way, he felt certain he would not have got more than 10*l.* for them; which they would all acknowledge was a great price for two-year-olds. Another great advantage of using oil-cake was in the increased value of manure which it caused; he had had the manure from cattle fed with oil-cake laid aside, and its superiority was quite evident on the furrows. He was certain that the superior value of the manure paid one-fourth of the price of oil-cake. Giving it for four months, would pay from 30*s.* to 2*l.* a-head on the cattle; and it was his opinion, that all who used oil-cake would find it pay this much. From his experience he knew that cattle either improved or fell back about Whitsunday, and it was of the utmost importance to keep them up before that time.

Mr. Aitchinson, of Dromore, was next called upon. He said—The result of his practice was different to that stated by the two preceding speakers. He had last year made very careful experiments with a lot of 20 cattle, which at different periods he had measured and weighed. He found there was very little difference between those cattle which got 4 lbs. of oil-cake daily and those which got none, though those which had got the oil-cake sold better than the others. The difference in price would not pay the expense of the cake. A few years ago he had some cattle to which he gave nothing but straw and oil-cake; he gave them a great deal each

day, but it did not fatten them; he then gave them Turnips, and they throve very rapidly after, but they did not pay him. He did not think that Potatoes could be profitably grown for 1s. 6d. a cwt.—the manure and expense would be equal to the value of the crop; and the growing of Turnips he believed to be most profitable for the farmers, and most suitable for feeding their cattle. He said he was not able to state what price he had got for these cattle. He had fed them on stored Turnips. On seven Scotch acres he had 40 tons of White Turnips per acre, without top or root; and on 13 do., 32 tons of Swedish Turnips per acre, which they would all admit were great returns. These Turnips were weighed every day as they were given to the cattle, and he found the lot consumed 200 lbs. a day. Those which got oil-cake ate fully as great a quantity as those getting none.

Mr. Gillespie, of Annanbank, said that experience in this district must be judged with reference to the Liverpool market, where only prime cattle could be sold with profit. On the highlands of Dumfriesshire it would never pay to feed young cattle on Turnips alone, though it might on the good low land. He agreed entirely with Mr. Stewart's observations.

Mr. Smith, of Deanston, addressed the meeting at some length. He agreed with Mr. Charles Stewart in his remarks upon the feeding of cattle, and considered it important that the attention of farmers should be directed to such investigations. He then adverted to the necessity of having more efficient sheds for animals, and suggested that the cattle, horses, and implements of a farm should all be kept under one roof, but in separate apartments, and, from long experience, he stated he was convinced that not more than one animal should be kept in each apartment. Manure, too, he also contended, should be kept under cover; and stated that we would have large deposits of guano upon our own coasts, but that our climate was such that the rain washed it away. Mr. Smith dwelt at some length upon the importance and due application of liquid manures. It was, he contended, too costly to cart into the fields, and he therefore suggested that a tank for it should be formed in every farm-yard, and that some neighbouring meadow should be irrigated with it, which would then produce an early and abundant crop of Grass. The apparatus he proposed had been adopted by a friend of his in Lancashire: who, at a cost of 9d. per acre, had increased the fertility of his land and the quantity of his produce 1l. per acre. He recommended that the liquid manure should be spread over the land by a jet-pipe similar to that of a fire-engine, and cautioned the farmers present to dilute it strongly with water before applying it to the land, as in its condensed form, from its strength, it would rot the roots of plants.

Our readers are aware of the appointment of a Committee for promoting instruction in Agricultural Chemistry in our public schools. David Milne, Esq., is secretary to the Committee. An examination of pupils from various schools took place in the New Assembly Rooms here, last Thursday, under the auspices of this Committee, for the purpose of showing how the important branch of education referred to has been, and may be still farther carried on, in the usual way of our parish teaching.—The Marquis of Queensbury was called to the chair; and Mr. Milne opened the business of the day by reading the Report of the Committee on their operations. We quote from it the following extract:—"The following is a list of the counties in which it was ascertained by the Committee that schools existed in which agricultural instruction was regularly given last summer: Aberdeen, 4; Argyle, 3; Ayr, 15; Berwick, 5; Caithness, 1; Dumbarton, 1; Dumfries, 6; Fife, 3; Forfar, 3; Haddington, 1; Inverness, 1; Kincardine, 1; Kirkcudbright, 1; Lanark, 2; Linlithgow, 1; Mid-Lothian, 5; Moray, 1; Peebles, 1; Perth, 10; Renfrew, 3; Roxburgh, 1; Selkirk, 1; Stirling, 1; Wigtown, 3. Total, 74. The Committee would simply point to this result as a proof that they have not been remiss in fulfilling the duty intrusted to them, and they believe also that from the good seed sown by them, there will be a still more abundant harvest in the next twelve-months. In confirmation of this statement, the Committee would refer to the course of lectures which the parochial schoolmasters lately applied for and obtained from Professor Johnston, for the express purpose of enabling them the better to teach agricultural chemistry, and perform the experiments useful in the illustration of it. These lectures were attended by above 300 schoolmasters, and who manifested the greatest desire to improve their acquaintance with this new branch of instruction." There were then brought forward 23 boys, of ages between 10 and 15 years, and three young men, between 19 and 24, engaged in farm-practice, but attending Barr school, Galston, twice a week, for the purpose of acquiring an elementary knowledge of agricultural chemistry. The boys were first examined in English grammar, geography, arithmetic, &c., by Mr. Davidson, rector of the Edinburgh Normal Institution; and were then submitted to a lengthened and minute examination of their knowledge of the elements of chemistry, in its application to agriculture, by Professor Johnston, Professor Pillans, and Mr. Haxton, editor of the *Farmers' Gazette*, Dublin; and of practical agriculture by Mr. Girdwood, of Featherhall, Corstorphine, and Mr. Alexander, of Ballochmyle. When the examination was over, Mr. Davidson, who had been called upon to test the boys, to see if they were below the average of the usual acquirements, in consequence of their having devoted some time to agricultural chemistry, was called upon to state his opinion. He said he was sure it would be the opinion of all present that this examination, though not sufficient to bring out the full acquirements of the boys, had yet served the object intended, that of showing that they were of a decidedly fair average with any of the other parochial schools. At first sight, it was natural to entertain the suspicion that when novelties were introduced the primary branches would be neglected; but those who were practically conversant with such matters knew that the boys who excelled in the usual branches of education would, in the great majority of instances, be the best proficients in such a department of knowledge as this. More especially would this remark apply to the teachers; for he was convinced it would be found that such as had displayed energy and success, in carrying forward their pupils to this useful and inviting field of science, would be the last to overlook the main points of education.

Professor Pillans and the other examinators also expressed themselves greatly pleased with the exhibition of the boys, and confident that the introduction of agricultural chemistry would form a new era in the economy of our parish schools. Among others, Mr. Beamish, of Cork, expressed his delight with the examination, stating that he considered it the most interesting part of the entire proceedings of the week, and that at next meeting of the Agricultural Society of his own district in Ireland, he would make a report of the occasion, and cause a printed copy of his report and remarks to be sent to the Provost of this town.

At the conclusion, suitable prizes, consisting of works on Agricultural Chemistry, were awarded to two or more boys belonging to each school, who had most distinguished themselves. Their names are as follow:—From Barr School, Galston, taught by Mr. Kilgour—James White, William Roxburgh; the three young men attending this school, and who had voluntarily come forward for examination, viz., James Patterson, John Boyd, and James Hunter, were also rewarded for their proficiency. From Bathgate Academy, taught by Mr. Gibson—Alexander Simpson, Henry Shanks, James Macewan, and George Todd. From Biggar Parish School, taught by Mr. John Gray—Alexander Proudfoot, William Craig. From Buittle High School, taught by Mr. John Tait—George M'Ghie, Joseph Armstrong. From Inchinnan Parish School, taught by Mr. J. Galloway—James Young. From Newabbey Parish School, taught by Mr. Thomas Porteous—Edward Calvert, R. M'Dougal. From Selkirk Grammar School, taught by Mr. W. Dunbar Steel—Thomas Nichol, William Robertson. From Lochmaben Parish School, taught by Mr. Douglas—James Ferries. With the view of rewarding the boys according to merit, it was decided, before the distribution of prizes took place, that the schoolmasters themselves should name those of their own boys who were most entitled to first and second prizes. This was contrary to the recommendation of Professor Johnstone, which was, that the boys ought to be rewarded according to their places in the whole class, gained during the examination, by him, upon this and the previous day. It so happened that William Robertson, from Selkirk, whom the Professor considered entitled to the first prize of all, was awarded the second prize by the system adopted; the Professor accordingly took the liberty of publicly presenting to him a handsome copy of his "Lectures on Agricultural Chemistry," as a token of his own estimation of his merits.—*Dumfries Herald.*

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

The annual meeting of this Society took place during the early part of this month, and has passed over very successfully. Among the prizes awarded we may mention the Agricultural Challenge Cup, value 100 sovs., given by Peter Purcell, Esq., Hon. Sec. to the Society, for the best beast in the yard, awarded for the second time to George A. Grey, Millfield Hall, Wooler, for his short-horned bull; an animal which also received the prize of 30l. and a gold medal, as the best short-horned bull calved after 1st Jan., 1840. We have only room for extracts from some of the speeches made at the meeting.

The Earl of Devon in proposing "the Resident Landowners of Ireland" said, the true meaning of an improving landlord in those countries in which the science of agriculture was in a most forward state, was not a landlord who would take his rents and spend them abroad, or sometimes even at home—it was the man who laid out his money to improve both himself and his dependants. No doubt, steps to improvement would have to be taken by degrees. First, the landlord should make himself acquainted with the district in which he was about to work, to inform himself of the peculiar character and means of the people, and to accustom himself to give instruction and advice in a manner that would make it be received kindly, even although in some cases he might meet with ingratitude and disappointment. A landlord should also apply himself to his tenants' wants, and when he was making his model farm he should not have it of a class beyond what their means could reach to. If the landlords of Ireland acted upon these principles—if they remained at home and cultivated the country as it might be, they would not only make their tenants comfortable and happy but enrich themselves.—Mr. Blacker, in responding to the toast "Success to Green Cropping," said, I have always been convinced that the great deficiency in Irish farming was the deficiency which very generally prevails in the supply of winter food for the stock; and this deficiency, I conceive, can only be supplied by more extensive Turnip culture. I believe all present will agree with me in this respect, as far as agricultural districts are concerned; but it is equally true, in my mind, as regards grazing districts. However, on my way here, a gentleman, who farmed a very large extent of Grass land, assures me that he could bring his young stock to as early maturity and upon cheaper terms, by winter feeding or hay and rough pasture, than by any Turnip feeding whatever. At the great Banquet on the Thursday, the Marquis of Clanricarde thus characterised the Society and its object. He said, they had unquestionably experienced great pleasure and satisfaction at beholding the rise, progress, and gradual development of agriculture in Ireland within the last few years, and he was certain they would acknowledge that the Royal Agricultural Improvement Society of Ireland, by adding the weight of its authority, influence, and power, had been mainly instrumental in effecting and increasing the development of that science which was one of the most useful that could be encouraged and cultivated in this country. He was fully impressed with the paramount importance of such meetings as they held on that day. The operations of the Royal Agricultural Improvement Society of Ireland was not confined to any particular locality. Already has most creditable exhibitions of stock, and agricultural produce, and implements, been held under the auspices of the Society in the northern, southern, and eastern provinces of Ireland. Connaught was then the scene of the Society's most useful and most laudable labours to ameliorate the condition of the farmer, the cottier, and the labourer, and he hoped and trusted that the beneficial effects certain to arise from their meeting this year, would be permanent and lasting. The Royal Agricultural Society of Ireland was a great, noble, and philanthropic institution, which deserved their warmest commendation and admiration, and he entertained every hope that it would receive their hearty and continued support. Let it not be supposed by those who attended their show of cattle, and exhibition of cattle, that the Society adopted such a course for the purpose of an idle display of emulation that could gratify personal vanity. Its object was to improve the agriculture of the country, to achieve permanent good for the people, and to ameliorate as he had before stated, the condition of the farmer, the cottier, and the peasant, without distinction of class or sect, and what object, he wished to know, could be more useful or honourable.

Farmers' Clubs.

Stewponey.—*Annual Report.*—At the late anniversary meeting the following report was read:—"Your Society is now divided into six branches. 1st. The Agricultural Society, which, since its commencement in 1841, has given the following premiums:—For Turnips and stock, 282l.; implements, 125l.; labourers, 156l. 10s.; making a total of 563l. 10s., and including premiums given this year amounting to 140l. It has purchased about 120 volumes of standard works on agriculture for the use of its members, and has appointed an intelligent scientific chemist, Mr. Gyde, of Painswick, who delivered a very interesting lecture at your general meeting in December last, on the 'Origin, Composition, and Improvement of Soils,' which we availed ourselves of his permission to print and circulate: arrangements have been made with him to give us another lecture in December this year, on the 'Application of Physiology to the rearing and feeding of Cattle.' The services of this gentleman have been employed by the Society, since his appointment last year, as follows:—In analysing 38 different soils, including marls and shales; and 10 manures, including guano, bones, &c.; total, 48. Of the manures, two were adulterated, and one sold under a false certificate. 2d. The Farmers' Club met monthly last year, and produced 12 essays on several interesting subjects. The Club has this year confined its labours to six meetings. 3d. The Friendly Becher Club. 346 members of this Society have insured for themselves a weekly allowance in sickness, a weekly payment after the ages of 60, 65, or 70, and a certain sum payable to their families on death; and the laudable efforts of these individuals have been encouraged by the contributions of 147 honorary members. The members have 376l. 8s. 10d. invested in the Bank of England, besides a small sum in the Savings' Bank. 4th. The Endowment Society. In this branch the sum of 333l. 13s. is insured, payable to different members at stated periods of 14 and 21 years, with compound interest at 3½ per cent. 5th. The Allotment Society, established Michaelmas, 1844, for the purpose of letting allotments of land of a quarter of an acre each to labourers, at a farming price, conveniently situated for their dwellings, and for the moral and beneficial employment of their leisure hours. The operations of the Society have been as follows:—Land underlet to tenants up to Michaelmas, 44a. 3r.; ready to let at Michaelmas, 33a. 1r. 34p.; promised at Lady-day, 1846, 36a. 2r.; total, 114a. 2r. 34p. Of the 149 tenants who have been cultivating these gardens the last two quarters, not one penny is in arrear. The 6th is a Friendly Loan Society, just commenced, and limited at present to the Stourbridge district, for the purpose of lending to persons of honest, industrious, and frugal habits, small sums of not less than 1l., nor more than 15l. at any one time, they paying interest and giving security for the same."

Miscellaneous.

How to Keep Farm-horses.—To begin by selecting an individual farm of about 120 imperial acres of arable

clay-land, wholly under crop or regular culture, where nine horses, old and young, including a brood-mare, colts, &c., are kept throughout the winter, and where the preparation of the mash is always in the charge of one person (a boy) who has fixed quantities of each article strictly pointed out to him, by which he proceeds to put into a cast-iron boiler of 70 or 80 gallons imperial measure, as follows :—

22 lbs. of Bean-chaff, valued at 8*d.* per cwt. ..	£0	0	1½
130 lbs. of yellow Turnips valued at 6*d.* per cwt.	0	0	7
7 feeds of small corn and Beans, say at 1*s.* 8*d.* per bushel, or eight feeds	0	1	5½
1½ lbs. of salt, or about 2½ oz. to each horse, to which may be added fuel, say in all	0	0	1
Divided among 9 horses, is just 3*d.* per mash	£0	2	3

If hay sells at 3*s.* per cwt., bean-straw cannot fairly be estimated above 2*s.* 1*d.* per cwt. ; and finding upon trial that each horse will consume about 22 lbs. of Bean-straw per day, when fed on the above mash at night, together with one feed of Oats in the morning and another at mid-day, the sum of all these items will be—

22 lbs. of Bean-straw, at 2*s.* 1*d.* per cwt. ..	£0	0	5
2 feeds of inferior Oats per day, at 2*s.* 2*d.* per bushel, ...	0	0	6½
1 mash as above	0	0	3
Daily cost of keeping each horse ..	£0	1	2½

Now, as this course of keeping continues from the 1st of November to the end of May, or seven months, the gross amount of the preceding account will stand thus :—

210 days on Bean-straw, at 22 lbs., or 41¼ cwt. at 2*s.* 1*d.*	4	5	11½
210 days' Oats, 2 feeds per day, at 2*s.* 2*d.* per bushel	5	13	9
210 days' mashes, 1 per day, at 3*d.* each	2	12	6
About 1*l.* 16*s.* per month per horse ..	£12	12	2½

The next estimate proceeds upon the assumption that the horses are kept the whole of this period on hay and corn, to the total exclusion of mashes. The account will—taking the same scale of prices for Oats, and 11*d.* per cwt. additional on hay, as the difference of its greater market value, if sold from the rick as Bean-straw would be from the barn-door—then be—

210 days' Hay at 22 lbs. per day, at 3*s.* per cwt.....	£6	3	9
210 days' Oats, 3 feeds per day, at 2*s.* 2*d.* per bushel	8	10	7½
About 2*l.* 2*s.* per month per horse.....	£14	14	4½

But the practical discrepancy must be still greater, nasmuch as the weight of Bean-straw is, in ordinary seasons for Beans, perhaps twice the weight of an acre of sown Grass hay on the same farm ; and if the marketable beans produced on an acre be computed at 20 bushels, at 3*s.* 6*d.* per bushel, this will give 3*l.* 10*s.* per acre for Beans, which is far more than the aftermath of Clover would bring. There is also the additional advantage of Beans being a much less exhausting crop than Clover, which is often twice cut without any extra manuring. Thus showing the propriety of growing more Beans and less Clover-hay, or cutting Grass, whenever the land is at all fit for Beans ; and doubtless there are many farms where Beans would succeed if drilled or ploughed down, on clean deep soils, although not really clay-bottomed land. Drills are preferable, however, to broadcast, as the Beans can then be hoed up, and a greater body of earth given to the roots, as well as being easily cleared of weeds. But whatever the system of sowing may be, the land ought to be rolled some time before the Beans appear above ground; for Bean-land can seldom be too much compressed at this period, if properly prepared at first. The stewing of Barley or Oat chaff, with a little corn and Turnips, is also generally used in the keeping of farm dairy cows in winter, along with Oat-straw, reserving the hay till the calf is dropped, when this mash is given up, and nourishing dry food is given to the cows ; resuming the mash again, with the addition of Bean-meal, together with hay, till the Grass or green-food season returns. But especial care is taken not to mix any Bean-chaff in the cow-mash, because of its laxative nature, and of its causing the cow to pick calf. Subsequently, however, it may be sparingly mixed with the other chaff quite safely. This peculiarity of Bean-chaff and straw is rather favourable than otherwise to the habits of the horse, which seems to require aperient food, especially in winter. Bean-chaff is also highly relished by wintering stock in the straw-yard ; and the good effects of occasional fodderings of this chaff, mixed with that of corn-chaff, is very perceptible in the relaxed state of their bowels ; and many farmers, having a quantity of the several varieties of chaff left over at the close of the thrashing season, place the whole in an out-house, or in the centre of an Oat or Barley straw stack, duly salted, and secured for next winter, to be then served out to the straw-yard cattle, proving more acceptable to them than any other fodder. The stewing is most decidedly preferable to the steaming system of preparing horse food, obviously because the former preserves all the juices of every ingredient employed, whilst the latter allows those juices to escape from beneath; and which, in reference to Potatoes, is proper enough, but with other roots or vegetable productions is absolute loss. Besides, the universality of Turnip and Carrot culture, particularly Turnips, which can now be produced on almost any soil and in every locality, renders the Potato no longer an object of attention as horse food in any form ; for it is not only inferior to these mashes in point of palatableness to the horse, but is also dangerous if given raw, often causing gripes, colic, and sudden death, as might easily be proved by facts of actual occurrence, were it here necessary. Potatoes may therefore be with great propriety excluded, and are already prohibited by many farmers from the dietary of the horse. Nor ought raw Turnips or Carrots to be given unwashed, or in larger quantities than 10 to 14 lbs. at a time, or at other times than when horses are cool, and have some dry food on their stomachs ; that is, in the morning before going to work. In this form Turnips and Carrots serve partly for water as well as food, just in the same way that the evening mash prevents horses from drinking so much cold water next morning as they would otherwise do if wholly restricted to dry food. This of itself is no trifling consideration, especially in the spring season, when the poor horse is so hard pushed from day to day, under a drying sun and wind, and when large or hasty supplies of cold water so frequently prove fatal to him.—*Mr. Carmichael, Trans. Highland Agri. Soc.*

Can a Drain, Four Feet Deep, begin to run sooner, and continue to run later, than a shallower one of 30 Inches Deep?—Yes. Take for illustration a cask 4½ feet high, standing upright, with its head out. Bore a hole in its side, 30 inches deep from the top. Bore also a similar hole, 4 feet deep. Pour the water into the cask by pails-full. Which hole will run first? The bottom one. Which hole will run last? The bottom one.—*Maidstone Gazette.*

Notices to Correspondents.

BEER—*Horsham*—Could you obtain for your readers some information for domestic brewing, and the prevention of beer getting hard and sour, although made with soft water?—and combine it with practical information from some trustworthy correspondent as to the extent to which raw sugar or sugar-candy may be substituted for a certain portion of malt with benefit to the beer both as to flavour and keeping.

BENTALL'S SEED-DROPPER—*H Fitzgerald*—We cannot make animadversion on the conduct of manufacturers, whether it be in their refusal to execute the orders they had received and booked, or in raising the price of their articles.

CIDER-MAKING—*E Neil*—Read a paper in the last Number of the "English Agricultural Society's Journal."

GOLD OF PLEASURE—*F* asks for information as to when it is to be sown—how it is to be most advantageously used, as a green crop, or by pressing the seeds for the oil and oil-cake? Has any machine been invented for the pressing out of oil from such crops adapted for private use?

FENCES—*T F R*—Will any one be kind enough to give us their experience on the best method of saving and growing the Haws.

GRASSES—*E Neil*—For a light sandy mould, try Alopecurus pratensis, 1½ lb. ; Avena flavescens, ½ lb. ; Dactylis glomerata, 5 lbs. ; Festuca duriuscula, 2 lbs. ; F. pratensis, 2 lbs. ; F. rubra, 2 lbs. ; Lolium perenne, 7 lbs. ; L. italicum, 4 lbs. ; Poa pratensis, 1 lb. ; Medicago lupulina, 1 lb. ; Trifolium pratense perenne, 4 lbs. ; T. repens, 5 lbs. ; and one bushel of Rye per acre.

HOW TO PRESERVE EGGS—*Christian*—*You may depend upon it* that not the slightest sneer was intended. It surely needed a morbidly-sensitive mind to have conceived such an idea. "Cheddar" was doubtless writing in good humour with himself and all the rest of the world, and used the very first words that suggested themselves. The authority was Mrs. Child. Look at the passage again.

KOHL RABI—*E S*—Harvest them just as you would Swedes ; cutting off the roots and leaves, and preserving the bulb ; you may cart the leaves home for your cows, pigs, &c.

MANGOLD WURZEL—*H Fitzgerald*—We have known them between 20 lbs. and 30 lbs. weight ; and the Yellow Globe will sometimes be nearly 3 ft. in circumference.

SEED-GROWING—*T K N*—Rham's "Dictionary of the Farm" contains a good deal of information of the kind you want.

TANK PUMP—*R B V E*—The difficulty is that any sediment or rubbish of any kind in the water, if it gets a place in the valve, stops the working of the pump. Perhaps the best kind of implement would be an air-tight leather bag connected by a pipe with the water, and kept distended by a strong spiral spring. The pump handle must act so as alternately to compress this and let it stretch itself. Here also, however, there must be a valve in the pipe alluded to, opening upwards ; and there must be a pipe from the bag leading to the water-cart. It will act as a force pump.

TURNIP-CUTTER, &c—*H*—Try Philipps' cutter, of Bristol. We have no opinion of Grant's self-clearing harrows, Howard's harrows (of Bedford), are very good ones.

WHEAT CULTURE—*A Sub*—If you have stirred your land well in removing the Potato crop, you need not plough it before sowing.

WINE-LEES—*E S*—Are these of any use for agricultural purposes?

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Oct. 20.—Per stone of 8 lbs.

Best Scots, Herefords, &c. 4*s*	0 to 4*s* 4	Best Downs & Half-breds	4*s* 8 to 5*s* 0
Best Short Horns	3 8 4 0	Best Long-wools	4 6 4 10
Second quality Beasts	3 0 3 4	Ewes and second quality	4 0 4 4
Calves	4 0 4 8	Pigs	3 8 5 0

Beasts, 3465; Sheep, 24,390; Calves, 115; Pigs, 312.

The supply of Beasts is considerably smaller, and trade improved ; many of the best Scots made 4*s* 4*d* in the morning, but very good were sold at 4*s* 2*d* later in the day. The best Short horns currently made 4*s*.—We have also fewer Sheep, trade continues about the same ; a few of the choicest things, perhaps, made a little more money.—Veal and Pork continue steady.

FRIDAY, Oct. 24.

The supply of Beef is moderate ; the weather being good the best things maintain their price, although it is by no means a brisk trade.—Good Sheep are scarce, but Monday's quotations serve for business done to-day.—Veal is rather dearer; a choice Calf makes very nearly 5*s*.—Pork trade is brisk, but prices no better.

Beasts, 940; Sheep, 4520; Calves, 212; Pigs, 338.

4*l*. West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Oct. 20.

The York Red Potatoes, which were supposed to have escaped the disease, turn out, now that they have got to market, considerably injured, so much so that several lots will pay little more than the current expenses ; a few samples of the York Reds are, comparatively, free from damage, but the best are not exempted from the malady ; the top price is 11*l*s ; those samples that are seriously effected are selling from 20*s* to 30*s* per ton. From the appearance of the Scotch Reds they are in the best preservation, and are the least effected by the disease of any of the Red kind, and should the weather continue fine for hitting, they will probably make one of the best samples for this year's consumption ; they are selling at present from 90*s* to 100*s* per ton. First-rate samples of Whites are selling at 100*s* per ton. The Regents, grown in the neighbourhood of London, have stood the best. No Regents have arrived here at present, either from Yorkshire or Lincolnshire.

HOPS, FRIDAY, Oct. 24.

The Hop market is firm, and fine-coloured samples are already very scarce Duty called 160,000*l*., but many think it very much over-rated.

PATTENDEN & SMITH, Hop-Factors.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Oct. 23.

Prime Mead. Hay	95*s* to 105*s*	New Hay	— to —
Infr. New & Rowen	60 80	Clover	110 to 130
New Clr.	—*s* to —*s*		
Straw	36 40		

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Oct. 23.

Prime Mead. Hay	98*s* to 105*s*	Old Clover	120*s* to 130*s*
Inferior	70 92	Inferior do.	108 115
New Hay	— —	New Clover	— —
Straw	33*s* to 42*s*		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Oct. 24.

Fine Old Hay	95*s* to 100*s*	Old Clover	120*s* to 126*s*
Inferior Hay	— —	New Clover	100 115
New Hay	75 90	Infr. „	70 80
Straw	34*s* to 38*s*		

COVENT GARDEN, Oct. 25,—In consequence of the steady state of the weather, the market continues to be well supplied with vegetables, which are, for the most part, of excellent quality. Fruit is also good and sufficient for the demand. The prices of Pine-apples have not altered since our last report, and Grapes, of which there is an abundance, also remain nearly the same ; Portugals are good and plentiful. Peaches and Nectarines, although scarce, may still be obtained at last week's prices. Plums are somewhat dearer ; Damsons, of which there are some fine samples, are selling at from 5*s.* to 6*s.* per half-sieve. Apples are also on the rise. The price of Pears is nearly the same as last week, and to the varieties then mentioned may be added Gansel's Bergamot, a few of which have just made their appearance. Filberts, although scarce, are still equal to the demand ; Barcelona and other Nuts remain nearly the same as in our last account. Vegetables generally have not altered in price since last week. Broccoli is good and plentiful, and the same may be said of Cauliflowers, Cabbages, Brussels Sprouts, and other winter Greens. Celery is excellent in quality, and continues to be well supplied. Tomatoes are also sufficient for the demand. In regard to Potatoes, the greater portion of them are diseased ; on good samples there is a rise of from 10*s.* to 30*s.* a ton on last week's prices. Carrots and Turnips are good and plentiful, and Endive, Lettuces, and Salading of every kind are sufficient for the demand. Cut Flowers chiefly consist of Camellias, Chinese Primroses, Heliotropes, Pelargoniums, Heaths, Verbenas, Picotees, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 6*s*	Pears, per hf.-sv., 4*s* to 8*s*
Grapes, Hothouse, per lb., 1*s* to 4*s*	Oranges, per dozen, 2*s* to 3*s*
— Spanish, per lb., 9*s* to 1*s*	— per 100, 12*s* to 24*s*
— For ngal, p. lb., 1*s* to 1*s* 6*d*	Lemons, per dozen, 1*s* to 2*s*
Peaches, Wall, per doz., 1*s* to 4*s*	— per 100, 7*s* to 16*s*
Nectarines, per doz., 1*s* to 4*s*	Almonds, per peck, 6*s*
Melons, 2*s* to 4*s* each	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
— Spanish, 2*s* to 3*s* each	Walnuts, per bushel, 16*s* to 32*s*
Figs, green, per doz., 2*s* to 3*s*	Filberts, English, p. 100 lbs., 50*s* to 60*s*
Plums, per hf.-sv., 4*s* to 6*s*	Nuts, Barcelona, 24*s*
Damsons, per hf.-sv., 5*s* to 6*s*	— Brazil, 16*s*
Apples, Des-, per bush., 4*s* to 7*s*	— Spanish, 16*s*
— Kitchen, 2*s* 6*d* to 5*s* 6*d*	Barberries, per hf.-sv., 3*s* to 4*s*

VEGETABLES.

Cabbages, per doz., 3*d* to 1*s*	Vegetable Marrows, p. doz. 1*s* to 1*s* 6*d*
— red, per doz., 3*s* to 5*s*	Onions, per doz. bunches, 2*s* to 6*s*
Cauliflowers, per doz., 1*s* to 4*s*	— pickling, per hf.-sv., 2*s* to 3*s*
Broccoli, per bunch, 6*d* to 1*s*	— Spanish, per doz., 1*s* 6*d* to 4*s*
Greens, per doz. bunches, 2*s* 6*d* to 3*s*	Shallots, per lb., 4*d* to 8*d*
French Beans, per hf.-sv., 2*s* to 4*s*	Endive, per score, 9*d* to 1*s* 3*d*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Lettuce, per score, Cab., 9*d* to 1*s* 3*d*
Artichokes, per doz., 2*s* to 4*s*	— Cos, 6*d* to 1*s* 3*d*
Potatoes, per ton, 70*s* to 130*s*	Radishes, per doz. bunches, 9*d* to 1*s* 3*d*
— cwt., 3*s* 6*d* to 7*s*	Mushrooms, per pottle, 1*s* 6*d* to 2*s* 6*d*
— bushel, 2*s* to 4*s*	Small Salads, per punnet, 2*d* to 3*d*
— Kidney, per bushel, 3*s* to 4*s*	Basil, green, per bunch, 4*d* to 9*d*
Turnips, per doz., 1*s* 6*d* to 2*s* 6*d*	Fennel, per bunch, 2*d* to 3*d*
Red Beet, per doz., 1*s* to 1*s* 6*d*	Savory, per bunch, 4*d* to 6*d*
Carrots, per doz. bchs., 2*s* to 3*s*	Thyme, per bunch, 4*d*
Horse Radish, per bundle, 1*s* 6*d* to 6*s*	Watercress, p. 12 sm. bun. 4*d* to 6*d*
Cucumbers, per doz., 2*s* to 3*s*	Parsley, per bunch, 2*d* to 3*d*
Spinach, per sieve, 9*d* to 1*s* 6*d*	— Roots, per bundle, 9*d*
Leeks, per doz., 1*s* 6*d* to 2*s* 6*d*	Tarragon, per bunch, 4*d*
Garlic, per lb., 6*d* to 8*d*	Mint, per bunch, 2*d*
Tomatoes, per hf.-sv., 2*s* to 5*s*	Marjoram, per bunch, 4*d*
Celery, per bunch, 9*d* to 1*s* 6*d*	Chervil, per punnet, 2*d* to 3*d*

WOOL.—BRITISH, FRIDAY, Oct. 24.

Our Wool market has continued much in same state for some considerable time past. Prices have varied but very little, and that has been rather in favour of the buyer of late. JAMES PERRIN, Wool Broker.

MARK-LANE, MONDAY, Oct. 20.

The supply of Wheat from Essex, Kent, and Suffolk, by land carriage samples this morning, was moderate, the condition generally very indifferent, nevertheless a tolerable clearance was effected at fully the rates of this day se'nnight ; we observe no alteration in free foreign ; bonded was sparingly offered and held for high prices, 53*s.* per qr. f.o.b., including freight and insurance, was realised for Polish Odessa, but business was limited.—Barley and Beans are 1*s.* dearer, White Peas 4*s.*, Maple and Dun 1*s.* to 2*s.* per qr., Blue sell at 48*s.* to 58*s.*—Oats both free and bonded, meet a brisk demand, at an advance of 2*s.* per qr.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk . . White	57	65	Red .	55	6
—— Norfolk, Lincolnshire, and Yorkshire .	57	65	White	59	6
Barley, Malting and distilling 33*s* to 36*s* Chevalier	35	39	Grind.	28	3
Oats, Lincolnshire and Yorkshire . . Polands	28	33	Feed	26	3
— Northumberland and Scotch . . Feed	29	31	Potato	33	3
— Irish . . . . . Feed	25	27	Potato	28	3
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	34	37			
Beans, Mazagan, old and new 38 to 42	Tick	40	43	Harrow	40	4
— Pigeon, Heligoland . 44 to 48	Winds	—	—	Longpod	—	—
Peas, White . . 52 to 56	Maple	40	43	Grey	38	4

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Pea
English	7387 Sks.	— Brls.	1048	5838	1685	—	580	26
Irish .	— „	— „	—	37	161 3	—	—	—
Foreign .	— „	2338 „	19342	300	—	—	2450	11

FRIDAY, Oct. 24.

The little English Wheat fresh up and that left over from last day, has been cleared at prices not then obtainable, and the trade must be considered quite equal to Monday ; transactions in bonded Wheat are not extensive, but there is a good demand for floating cargoes from the Mediterranean, in which business is limited from the very great scarcity of offers.—Barley, Beans, and Peas, fully maintain our quotations.—An extensive business has been done in Oats, and considerable excitement has prevailed in the trade, arising from the bad accounts received from Ireland respecting Potatoes and advance in Oat prices there, free must be noted 2*s.* and bonded 2*s.* to 3*s.* per qr. dearer than on Monday.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	4690	1660	840	2310 Sk
Irish . .	—	—	7440	—
Foreign . .	16680	—	4180	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas
Sept. 13 per Quarter.	54*s* 1*d*	31*s* 0*d*	22*s* 3*d*	33*s* 2*d*	42*s* 0*d*	36*s* 5
— 20 . . .	53 6	30 9	21 7	33 3	42 5	37 0
— 27 . . .	53 3	30 2	22 2	33 1	42 5	38 8
Oct. 4 . . .	56 0	31 3	23 4	34 8	43 1	42 6
— 11 . . .	57 9	31 3	23 4	34 2	43 1	44 4
— 18 . . .	58 2	32 0	23 5	34 5	44 5	43 0
6 weeks' Aggreg. Aver.	55 3	31 0	22 8	33 6	43 1	40 4
Duties on Foreign Grain	17 0	7 0	6 0	9 6	1 0	2 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Oct. 18.

PRICE.	SEPT. 13	SEPT. 20	SEPT. 27	OCT. 4	OCT. 11	OCT. 18
58*s* 2*d*	..	..	..	..	..	..
57 9	..	..	..	..	..	..
— 0	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 0	..	..	..	..	..	..
— 8	..	..	..	..	..	..
54 1	..	..	..	..	..	..
53 2	..	..	..	..	..	..
52 6	..	..	..	..	..	..
50 10	..	..	..	..	..	..

SEEDS, Oct. 24.

Canary	per qr	54*s* to 55*s*	Linseed Cakes, Foreign, p. ton	8l to 8l	
Carraway	per cwt	48 52	Mustard, White - p. bush.	9*s*	10
Clover, Red, English	— —	—	— Superfine „	10	11
— Foreign	— —	—	— Brown „	10	11
— White, English	— —	—	Rapeseed, English, per last	26*l*	2
— Foreign	— —	—	Rape Cakes - per ton	—	—
Coriander	- -	14 16	Saintfoin - - - -	—	—
Hempseed	per qr	35 36	Tares, Eng. winter p. bush.	6	8
Linseed	per qr	54 60	— Foreign - -	4	4s6
— Baltic	- -	42 46	Trefoil - - per cwt	18	23
— Cakes, Eng. per 1000		12l	Turnip (two variable for quotation).		

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Friday, Oct. 31, 1845, at 12 o'clock, a First-class Collection of DUTCH BULBS, comprising very fine Double and Single Hyacinths, Tulips, Narcissus, Jonquils, Crocus, Snowdrops, Ranunculus, Anemone, Iris, Lilies, &c. Also, a splendid assortment of Standard and Dwarf ROSES, consisting of all the leading varieties, and other hardy Plants. May be viewed the Morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, Leytonstone.

TO NOBLEMEN, GENTLEMEN, RAILWAY CONTRACTORS, MARKET GARDENERS, AND OTHERS ENGAGED IN PLANTING, &c.

MESSRS. PROTHEROE AND MORRIS have received Instructions to submit to Public Competition, early in November (of which timely notice will be given) a large portion of the densely-stocked NURSERY of WM. DENNIS & CO., KING'S-ROAD CHELSEA, the ground being required for building immediately after Christmas. The Stock consists of 250,000 Aucuba japonica, Irish Ivies, Irish Yews, and Hollies (green and variegated); 300 varieties of the finest prize Gooseberries; a large quantity of Mulberries in fine bearing condition; standard and dwarf Roses of every variety, in considerable quantities; also Pillar Roses, from 4 to 7 feet high; Deciduous and other Shrubs, Herbaceous Plants, Box-edging, Bulbs in variety, &c.—American Nursery, Leytonstone.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed by the Proprietor to submit to Public Competition, on the Premises, Blenheim-grove Nursery, Rye-lane, Peckham, on Tuesday, the 28th inst., 1845, about one Acre of Valuable NURSERY STOCK, consisting of fine-trained Peaches, Nectarines, &c., Dwarf and Standard Apple, Pear, Plum, and Cherry Trees, Double-blossomed Cherries, Almond Trees, Gooseberry, Currant, Evergreens, a Quantity of Box-edging, &c., and a Collection of Greenhouse Plants.—May be viewed prior to the Sale, and Catalogues had of the principal Seedsmen; on the Premises; and of the Auctioneers, American Nursery, Leytonstone.

MR. J. KING will sell by Auction, on Monday, Oct. 27, and following day, at 11 each day, on the Premises, Acre Lane, Brixton, by order of Mr. DAWSON, without reserve, NURSERY STOCK AND GREENHOUSE PLANTS, comprising a large Collection of EVERGREENS of sorts, Fruit-trees, and a superior Assortment of GREENHOUSE PLANTS, amongst which will be found Erica Massoni, Aristata, Hartnelli, Gemmifera; Boronia serrulata, Pinnata, and Azalea indica, of sorts.—May be viewed, and Catalogues had on the Premises; of Mr. CLARK, Seedsman, Bishopsgate-st; and of the Auctioneer, Hackney-road.

FOUR GREENHOUSES, CAMELLIAS, &c.

MR. J. KING will Sell by AUCTION, on Monday, November 3, and following day, at 11 o'clock each day, on the premises, TULSE-HILL, BRIXTON, by order of Mr. JOLLY, whose Lease expires at Christmas—a large collection of Camellias, Greenhouse Plants, Fruit Trees of sorts, and Evergreens; four Greenhouses, Boxes and Lights, Tools, &c.—May be viewed, and Catalogues had, on the premises; of Mr. CLARK, Seedsman, Bishopsgate-street; and of the Auctioneer, Hackney-road.

NURSERY STOCK, KING'S-ROAD, CHELSEA.

MR KIRKE will Sell by AUCTION, on the premises (late American Nursery), KING'S-ROAD, CHELSEA, on Thursday, November 6, at 10 for 11 o'clock, by order of the Proprietor, the ground being required for building,—Stock comprising several thousand Aucuba, Japonicas, Laurels, Laurestinas, Hollies, Box, Lilacs, Roses, Poplars, fine standard Mulberries, Yews, a quantity of large ornamental Flowering Shrubs and Evergreens, Yuccas, Orange and Lemon Trees, Cacti, Greenhouses, &c. &c. May be viewed one day prior, and morning of Sale. Catalogues had on the premises, and at the Offices of the Auctioneer, 19, Brompton-row, Brompton.

MEXICAN ORCHIDACEÆ.

MESSRS. J. C. AND S. STEVENS will Sell by AUCTION, at their Great Room, 38, KING-STREET, COVENT-GARDEN, on Thursday next, October 30, at 12 for 1 o'clock, a small parcel of ORCHIDACEÆ which have just arrived by the Mail Packet from Vera Cruz; they are in the finest possible state, and deserve the attention of Growers of this interesting tribe.—May be viewed the day prior, and Catalogues had.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

Valuable NURSERY STOCK, near the Anchor Inn, at Knaphill, two miles from the Woking Station, on the South-Western Railway, the property of Mr. GEORGE BAKER, removing to a larger business at Bagshot.

TO BE SOLD BY AUCTION, by Mr. WATERER, on Tuesday, Nov. 4, 1845, and two following days, at 10 o'clock for 11 precisely, on the Premises, the valuable Stock of EVERGREENS, fine Fanned YEWS, American and other Hardy Plants, comprising VARIEGATED AND GREEN HOLLIES, from 2 ft. to 10 ft. high; and common Irish YEWS, from 1ft. to 10 ft.; Portugal Laurels and Evergreen Oaks, from 2 ft. to 5 ft.; Arbutus, Arbor Vitæ, Aucuba Japonica, Phillyreas, Chinese Arbor Vitæ, Junipers, White Cedars, and CEDARS OF LEBANON, Laurestines, Spruce Firs, Minorca and Striped Box, Filberts, &c. PINUS DEODARA, from 1 ft. to 9 ft.; Hemlock Spruce, from 1 ft. to 7 ft. The American Plants comprise STANDARD RHODODENDRONS, Rhododendron ponticum, Ferrugineum, Hirsutum, Catawbiense, Russellianum, and others; Kalmia latifolia, Azaleas, Hardy Heaths, Magnolias, Camellias, and Stools of fine Double-white, striped, Imbricata, Reticulata, Fimbriata, and others. Fine PORTUGAL LAUREL and HORNBEAM HEDGES. The above Stock is well worth the attention of Planters, being in great perfection, and will remove safely. May be viewed three days previous to the Sale, and Catalogues had on the Premises, and will be forwarded by post on application by letter, inclosing six postage-stamps, to Mr. GEORGE BAKER, Bagshot, Surrey; or to Mr. WATERER, Auctioneer, Land and Timber Surveyor, Chertsey, Surrey.

MONMOUTHSHIRE.

TO BE SOLD, and entered upon at Christmas next, HENLLIS VALE ESTATE, in the parish of Henllis, four miles from Newport. It consists of a substantial House, Three Cottages, Stable, Four Barns, Shed, Cow-house, Waggon-house, Cider-mill, and Granary, together with 128 acres of Orchard, Meadow, Arable, and Pasture Land. This Estate is near to Lime and Coals, lies early for Corn, and has many streams of Water around and through it. The proprietor would have no objection to divide it into Lots, to suit purchasers, and, if required, would lend a great portion of the purchase-money at low interest, to remain on the premises.—Apply, either personally or by letter, to me,

JOHN HODGES WINSLOE,
October 25, 1845. Henllis Vale, near Newport.

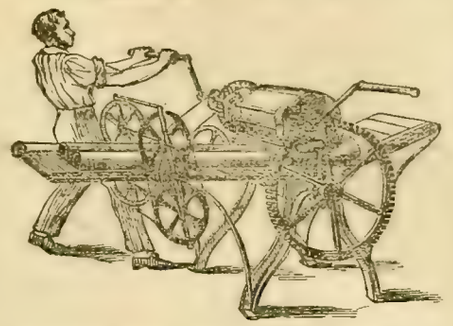
TO BE DISPOSED OF, a well established and respectable NURSERY and SEED BUSINESS in the vicinity of London. The coming in may be made easy, and will be found well worth attention.—Apply to the Publisher of this Paper.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l*. No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l*. The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s*. to 3*s*., or 3*s*. 6*d*. per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

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Wilton House, gardens at, noticed - - - - 738 *c*
Winter flowers - - - 736 *b*

BECK'S SEEDLING PELARGONIUMS OF 1844.

Rosy Circle ..	£1	5	0	Sunset	£1	5	0
Desdemona ..	1	5	0	Marc Antony ..	1	5	0
Isabella	1	5	0	Favorita	0	12	6
Juno	1	5	0	Zenobia	0	12	6
Mustee	1	5	0	Margaret	0	12	6

Or the set for 9*l.* 9*s.*

No orders can be received without a remittance.
Worton Cottage, Isleworth.

PICOTEE CHALLENGE.

C. TURNER will show from 6 to 12 blooms of MATTHEW'S ENCHANTRESS, against the same number of any other LIGHT PURPLE-EDGED PICOTEE extant, for 5*l.* The time and place of showing to be subsequently arranged. The variety and number of blooms to be named now.—Chalvey, Slough, Nov. 1.

BELGIAN PEARS.

LOUIS VAN HOUTTE, Florist to the King of the Belgians, Ghent, Belgium, begs to offer collections of the fine PEARS raised by Messrs. Bouvier, Van Mons, and Esperen. His Price-current is to be had at Mr. Geo. Rarn's, 52, Mark-lane. The trees will be delivered the 1st of December next, and sent free to London, *if Sixpence added to the price of each.* The stock is very limited, and the commands forwarded strictly following their arrival.

ROSES, &c.—Hybrid and Perpetual (on their own roots), 1 or 2 of a sort, 6*s.* per dozen.
Standard Roses, of the most approved sorts, 18*s.* per dozen.
Climbing Roses, do. 9*s.* ,,
Tea-scented Roses, 1 of a sort..... 9*s.* ,,
25 Hardy American Plants ..... 10*s.*
12 Do. Climbers, 1 of a sort 9*s.*
Red and White CURRANTS, and GOOSEBERRIES, of the most approved sorts, 6*s.* per dozen.
Messrs. J. & H. BROWN will forward the above to any part of the United Kingdom on the receipt of a Post-office order.
N.B. Some large handsome Limes, Scarlet Chestnut, Purple Beech, and Deciduous Cypress; also large Aucubas, Evergreen Oaks, Hollies, Rhododendrons, Phillyreas, and Arbutus to dispose of. May be seen at their Nursery, Albion-road, Stoke Newington, London.

H. GROOM, Clapham-rise, near London (Removed from Walworth), by Appointment Florist to Her Majesty the Queen, and to His Majesty the King of Saxony, begs to call the attention of the Nobility, Gentry, and Amateurs to the present season as the best for selecting and planting TULIPS, HYACINTHS, and the VARIETIES OF LILIUM, and to recommend that no time should be lost, otherwise there will be a risk of their flowering well. He begs to say, he continues to send out TULIPS arranged in BEDS ready for planting, at the prices mentioned in his Catalogue, which may be had on application.

SPLENDID NEW CALCEOLARIAS READY FOR SALE.—Those marked * obtained Prizes at the Chiswick and Regent's-park Exhibitions.

	s.	*d.*		*s.*	*d.*
* Exemplar, Kinghorn's	15	0	* Alpha, Gaines's	10	6
Symmetry ,,	15	0	* Climax ,, ...	10	6
Lucy ,,	10	6	* Louis Philippe	15	0
Duchess of Beaufort	10	6	* Harlequin ,, ...	10	6
Fulgens ,,	10	6	* Compacta ,, ...	10	6
Miss Houlston ,,	10	6	* Madonna ,, ...	10	6

With many other varieties.

A Priced List of Pelargoniums, Pansies, Cinerarias, Calceolarias, Chrysanthemums, Fuchsias, Auriculas, Carnations, Picotees, Corræas, Verbenas, Azaleas, Camellias, &c. &c., may be obtained of N. Gaines, at the Nursery, Surrey-lane, Battersea, Surrey.

VICTORIA NURSERY, CORK.—SEED POTATOES.

J. AND H. HAYCROFT beg leave to inform their numerous friends, that, notwithstanding the great failure in the Potato crop, they hope to be enabled to supply plenty of the best sorts for next spring's planting on moderate terms. A Priced List shall be sent in February to all who intend favouring them with their orders.
N.B. Steam Vessels weekly to London, Liverpool, Bristol, Plymouth, and Glasgow; and Sailing Vessels weekly to nearly every port in South Wales.
FOREST TREES, and every description of Nursery Stock, at moderate prices.—Cork, Nov. 1.

E. BECK informs the Public, that a few small plants of ARABELLA and OTHELLO may now be had at 30*s.* each, *for prepayment only.*—Worton Cottage, Isleworth.

GERANIUMS AT VERY LOW PRICES.

WILLIAM E. RENDLE & CO. have a very large Stock of GERANIUMS, fine strong established plants, which are now offered at extremely low prices.
A collection of *twenty* from the following list (customer's selection) will be sent to the Exeter Station of the Great Western Railway, carriage and package free, for 40*s.*
Hector, Beauty of Walthamstow, Hebe, Othello, Regulator, Unique, Fascination, Claude, Lady Villiers, Guide, Hybler, Pulchellum, General Pollock, Flora, Conflagration, Symmetry, Rosalia, Jersey Maid, Thunderer, Hermione, Cordelia, Oberon, Sarah Jane, Sir Robert Peel, Princeps, Diomede, Prince of Waterloo, Evelyne, Witch, Gipsy, Coronet, Creole, Count d'Orsay, Lyne's Duke of Cornwall, Modesty, Sunrise, Lord Ebrington, Hamlet, Constellation, Cynthier, Lavinia, Aurora, Fanny, Penelope, Attila, Cornish Gem, and Rising Sun.
Twelve of the above for 30*s.*
Twenty very good Geraniums for £1.
Plymouth, Nov. 1.

USHER'S NEW SEEDLING CALCEOLARIAS.

WILLIAM JACKSON & CO., Nurserymen, think it necessary to state that Mr. Usher's letter to them does not contain the words "not equal," as stated by another party. The words are as previously advertised:—"Your collection is quite distinct from his, and in no way inferior." With this announcement they close the controversy. The letter on the subject can be seen by persons interested at their office; and they beg to refer the readers of the *Chronicle* to their advertisement of the 4th October.
Cross-lanes Nursery, Bedale, York, Nov. 1.

SPANISH CHESTNUT PLANTS.—Wanted a quantity of the above at from 3 feet high. Any person having them to dispose of will please address a line, stating lowest price, size and quantity, with carriage paid to London, to Thomas Cripps, Tunbridge Wells Nursery.

NE PLUS ULTRA PEAS, grown by Wm. Brownlees, Nurseryman, Hemel Hempstead, Herts, and sold by him at 5*s.* per quart, the stock on hand being very small. The above Pea is a tall Marrow, of a very superior quality, and most abundant bearer. It is about the same size as the British Queen Pea, but comes into bearing 14 days sooner, and is fit for use four or five weeks later. It should be sown thinly, and requires tall sticks.
A remittance is requested from unknown correspondents.
It may also be had of Messrs. W. & J. Noble, Seedsmen, 152, Fleet-street, London, by whom it can be well recommended.

FINE SEEDLING PANSIES.

MR. JAMES NEILSON, Auctioneer and Florist, Falkirk, begs to intimate that he has bought the whole stock of Mr. Ferguson's two rare Seedling Pansies; viz., CLOTH OF GOLD and ROLLA, which he will now send out at 10*s.* per pair, one of each. The following is the description of the flowers:—
CLOTH OF GOLD.—A deep orange crome yellow self, with large dark eye; beautiful form, famous substance, and smooth edges; and it may safely be said, without fear of contradiction, that it is the finest Pansy of its class in cultivation at the present day.
ROLLA.—This is decidedly the best Pansy that has yet been raised in Scotland, and we are not sure but England might be added also. It has a bright orange ground colour, with a fair eye, and is laced with the richest deep dark velvety purple that ever any flower could be graced with; its form is perfectly round, and the edges as smooth as polished glass, with petals as thick as a fine Camellia; and though it had been sold at double its price, it would not have been more than its value.
A Catalogue of other select varieties of Pansies may also be had on a pre-paid application.—Falkirk, Nov. 1, 1845.

CATLEUGH'S LIST OF GERANIUMS, AZALEAS, CAMELLIAS, PICOTEES, CARNATIONS, FUCHSIAS, AURICULAS, DAHLIAS, and CHRYSANTHEMUMS are now ready for distribution; also those first-rate Seedling Geraniums, raised by E. Foster, Esq., the Rev. R. Garth, J. Dreury, Esq., Mr. Cock, and W. Catleugh. Superb Seedling CARNATIONS raised by J. Z. Puxley, Esq.
Hans-street, Sloane-street, Chelsea.

FRUIT-TREES, FOREST-TREES, EVERGREEN SHRUBS, &c., NURSERIES, CHESHUNT, HERTS.

A. PAUL AND SON have a large Stock of the above in famous condition, to which they respectfully invite the attention of Gentlemen planting. Among others they would mention in particular:—

Laurels, 18 ins., per 100, 8*s.*
do., 3 ft., per 100, 30*s.*
do., 6 ft., per 100, 5*l.*
Oak, 3 ft. to 4 ft., per 1000, 60*s.*
do., 2 ft. to 3ft., per 1000, 20*s.*
Elms, 6 ft. to 8 ft., per 100, 40*s.*
Elm, grafted, 4 ft. to 5 ft., per 100, 30*s.*
Do., Wych, 4 ft., per 100, 5*s.*
Larch, 4 ft., per 1000, 40*s.*
do., 3 ft., per 1000, 30*s.*
do., 2 ft. to 3 ft., per 1000, 20*s.*
Quick, per 1000, from 4*s.* to 15*s.*

Every other kind equally cheap.
A large Collection of ROSES, FRUIT-TREES, and HERBACEOUS PLANTS, Catalogues of which may be had on application, inclosing stamps for postage.

Just Published, and ready for Distribution.

WM. WOOD AND SON have the pleasure of informing their Friends that they have just received from the press their New Supplementary Catalogue of CAMELLIAS, CHRYSANTHEMUMS, FUCHSIAS, GREENHOUSE, and HERBACEOUS PLANTS; also, ORNAMENTAL TREES, EVERGREENS, AMERICAN and FLOWERING SHRUBS, CONIFERÆ, FOREST and FRUIT TREES. Copies of the above will be sent in due course to all parties who have in previous seasons favoured W. W. & S. with their commands, and to all other applicants, gratis, on application.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PLANTING SEASON.

ROGERS AND SON, Nurserymen and Contracting Planters, Southampton, in submitting the following List of Nursery Stock, beg to add, the whole are healthy, strong, and well rooted, growing on Heath land, in exposed bleak aspects, and well adapted for extensive Forest or Waste-land planting; from the extent of their grounds, and the fine growth of the past season, they are enabled to render at the low prices quoted, from which a deduction will be made if ordered in quantities of 100,000, delivered in London by Railway, or coastwise by Steam Vessels:—

SEEDLING FOREST TREES, &c.

Ash	1 year	1*s.*	6*d.*	2 yrs.	3*s.*	6*d.*	3 yrs.	5*s.*	0*d.*
Beech	,,	2	6	,,	4	6			
Birch	,,	2	6	,,	4	6			
Spanish Chestnut	,,	10	0	,,	15	0			
Fir, Scotch ..	,,	1	0						
,, Pinaster	,,	3	6	,,	4	6			
,, Stone Pine	,,	4	0	per 100.					

Per 1000.

,, Sea Pine (Pinus maritima), excellent for exposure to the sea, one year 7*s.* 6*d.*, two years 10*s.* per 1000 (and in small pots, to plant out in very exposed situations, or thickening plantations quickly, 50*s.* per 100).
Oak, English.—The true "Durmast" of the New Forest (Quercus [sessiliflora), the most valuable species, producing timber of the largest dimensions, one year 7*s.* 6*d.*, two years 10*s.* per 1000.
Sweet Bay, two years 12*s.* 6*d.* per 100.
Arbutus one year (from pots) 40*s.* per 1000.

TRANSPLANTED FOREST TREES, &c.

Alder	1 year	15*s.*	0*d.*	2 yrs.	25*s.*	0*d.*	3 yrs.	37*s.*	0*d.*
Ash	,,	7	6	,,	12	6	,,	25	0
Beech	,,	12	6	,,	25	0	,,	40	0
Birch	,,	10	0	,,	20	0	,,	40	0
Chestnut, Spanish	,,	20	0	,,	30	0	,,	40	0
Elm, Wych or Scotch	,,	12	6	,,	25	0	,,	40	0
Fir, Scotch....	,,	7	6	,,	15	0	,,	25	0
,, Larch	,,	7	6	,,	15	0	,,	25	0
,, Spruce....	,,	12	6	,,	25	0	,,	40	0
,, Pinaster .	,,	10	0	,,	15	0	,,	25	0
,, Sea Pine ..	,,	20	0	,,	30	0	,,	40	0
Hazel	,,	15	0	,,	30	0	,,	40	0
Poplar, Black .	,,	20	0	,,	40	0	,,	80	0
Oak, Eng. (Durmast)	,,	20	0	,,	30	0	,,	40	0
Sycamore	,,	15	0	,,	30	0	,,	40	0

Per 1000.

Willow (Come-well) a new and valuable American species for Coppice or Hop Poles, of rapid growth, one year 40*s.*, two year 60*s.*, three years 80*s.* per 1000.
Laurel ..... 1 year 20*s.*, 2 years 40*s.*, 3 years 80*s.* per 1000
Evergreen Privet. ,, 20*s.*, ,, 40*s.*, ,, 80*s.* ,,
The above Transplanted are from ¼ a foot to 3 feet high. Plants of a larger size from 3 feet to 7 feet, for ornament or for immediate effect, are from 25*s.* to 75*s.* per 100.

Rhododendrons.—Excellent for cover, and not subject to the depredations of game, 1 to 2 inches 30*s.*, 3 to 4 inches 60*s.*, 5 to 6 inches 80*s.* per 1000.
,, 1 foot 25*s.* per 100, 1½ to 2 feet 30*s.* to 40*s.* per 100.
,, Ponticum roseum, 1 to 1½ feet 40*s.* to 60*s.* per 100.
,, Splendid hybrid, 1 foot 50*s.* per 100.
,, Scarlet hybrid, 2*s.* 6*d.* to 5*s.* each.
,, Arboreum album, 1 to 2 feet 5*s.* each.
These Rhododendrons are all strong, well-rooted, handsome plants.
Kalmia latifolia, ½ foot 50*s.*, 1 foot 75*s.* per 100.
Rose stocks, from cuttings of the "Bourbon," fit for immediate grafting and potting into small pots, 8*s.* per 100.
Camellia stocks, from small pots, 50*s.* per 100.
Clematis azurea, 75*s.* per 100.
Perpetual Tree Violet, strong plants, 50*s.* per 100.
Hardy Ornamental TREES, SHRUBS, AMERICAN, HERBACEOUS, and GREENHOUSE PLANTS in extensive collection. Also a most superb collection of ROSES, including all the new sorts to the present time. Printed Catalogues and prices of which may be had on application at their Nurseries, Red Lodge, North Stoneham; or Floricultural Gardens, Southampton.
Waste Lands Planted by Contract, engaging to replace failures, from 3*l.* to 20*l.* per acre. Flower-gardens and Pleasure-grounds designed and executed. Gardeners and Planters of ability and experience recommended.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, Clapham Rise, near London, (removed from Walworth,) by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

	£	*s.*	*d.*
100 TULIPS, in 100 fine sorts, named	7	7	0
100 Ditto in 50 ditto ditto	5	5	0
Superfine Mixtures, per 100, from 7*s.* 6*d.* to 21*s.*			
25 HYACINTHS, in 25 fine sorts, named	1	5	0
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 .. .. 7*s.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named ..	2	2	0
A New Collection of 50 Superfine sorts	1	5	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named ..	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto ..	2	10	0
25 pair of PICOTEES, in 25 ditto ditto ..	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto ..	3	10	0
Good kinds, per doz. .. .. from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
,, ,, PUNCTATUM .. ,,	0	7	6
,, SPECIOSUM, (true) .. from 21*s.* to	3	3	0

H. Groom begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.
Foreign Orders executed.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s.* per dozen. Dutch Hyacinths for forcing at 4*s.* per dozen; also Narcissus, Tulips, Iris, Jonquils, Anemones, and Ranunculus, from 1*s.* to 12*s.* per dozen. Large Dutch Crocus, 2*s.* 6*d.* per 100; at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall. Priced Lists per post, &c.

T. DAVIES AND CO. beg to offer the following Seedlings and other New and Rare Plants:—

SEEDLING CALCEOLARIAS,

The flowers of which were sent to Dr. Lindley for his opinion, who spoke of them as follows.—See *Gardeners' Chronicle*, July 12, 1845.—"J. D.—Of bright yellow grounds, spotted with brown; 1, 2, 10, and 8 are very fine varieties, large and well formed; 13 is too much like 10; 11 too nearly resembles 8; 9 and 14 are good, but more common; 5, primrose-ground, singularly spotted, attractive, but flat and long in shape; 6 and 7 delicate yellow, with brown spots, both good; 4, cream, with deep cherry blotch, well formed and good in colour—this is a very good collection of Seedlings, large and well formed:" at the following prices, or the set for 2*l.* 10*s.*:—

	s.	*d.*		*s.*	*d.*
1. Lord Sandon	5	0	9. Sparkler	3	6
2. David	5	0	10. Intrepid	5	0
3. Miss Davies	3	6	11. Mutabilis	3	6
4. Masterpiece	3	6	12. Sultana	3	6
5. Delight	3	6	13. Challenger	5	0
6. Compacta	3	6	14. Cleopatra	3	6
7. Vesta	3	6	15. Lovely Ann	3	6
8. Horatio	5	0			

Many of the above are half shrubby, and of dwarf bushy habit; they gained the first prize at both May and June Shows, at the Liverpool Botanic Gardens, and were much admired.

CAMELLIA EMPEROR.

This splendid variety was sent out last autumn, but owing to the limited stock, many of their friends were disappointed; they now beg to inform them that they can supply strong healthy plants, 9 inches to 1 foot high, at 2*l.* 2*s.* It will be remembered that this flower gained a prize at the Horticultural Society's Rooms, and was described in the Report of the Meeting as being a beautiful flower.—See *Gardeners' Chronicle*, March 25, 1843.

CEREUS GRANDIFLORUS RUBRA.

This singular variety was also sent out last autumn: the flowers are 10 inches in diameter, of a bright red colour, with a shade of purple in the centre; it expands about seven o'clock in the evening, and continues in bloom most of the following day. Price 5*s.*

NEW AND RARE PLANTS.

	s.	*d.*		*s.*	*d.*
Echites splendens	10	6	Hindsia violacea	10	6
Gardenia Sherbourniana	5	0	,, longiflora	3	6
Stigmaphyllon heterophyllum	2	6	Dipladenia crassinoda	5	0
Tropæolum Lobbianum.	2	6	Vessalia floribunda	3	6
Nerium Oleander Tangle	2	6	Hoitzia coccinea	2	6
Fuchsia Queen Victoria (Smith's)	10	6	Rhododendron chrysoloctum	42	0
Lilium lancifolium album			,, carnea elegantissima	10	6
2*s.* 6*d.* to	5	0	Ilex latifolia .. 7*s.* 6*d* to	10	6
,, ,, roseum	5	0	Berberis tenuifolius 5*s.* to	7	6
,, ,, speciosum 7*s.* 6*d.* to	30	0	Araucaria imbricata, 6 to 9 inches, per 100	90	0
Primula sinensis pleno.	5	0	Cloth of Gold Noisette Rose	2	6
,, ,, ,, alba	3	6	Solfaterre do.	2	6
Camellias, in 100 vars., well set with flower-buds. 2*s.* 6*d.* to	21	0			

A large collection of Hybrid Perpetual, Bourbon, and other Roses, on their own roots, from 12*s.* to 24*s.* per dozen.

A choice collection of Ericas, Geraniums, Fuchsias, Chrysanthemums, Verbenas, &c., of which Catalogues may be had on application.

Wavertree Nursery, near Liverpool, Nov. 1.

RIBES SANGUINEUM FLORE PLENO, or DOUBLE BLOOD RED FLOWERING CURRANT.

(Figured in "Paxton's Magazine of Botany," July 1, 1845.)

THOMAS JACKSON being the largest holder of this new and most beautiful Shrub, begs to offer plants well established in pots at 10*s.* 6*d.* each; for every three ordered one will be added gratis.

Kingston Nursery, Surrey, Nov. 1.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOWLS.—WANTED some POLAND and DORKING FOWLS, pure breeds.—Letters, stating age and price, to be addressed to E., *Gardeners' Chronicle* Office.

TO NURSERYMEN.

WANTED TO PURCHASE 50,000 or 100,000 LARCH, 1 year Seedlings, 2 years Transplanted.—Send, pre-paid, Price and Quantity, to Mr. PIERCE, 1, Undercliff, St. Leonard's-on-Sea.

TO NURSERYMEN, &c.

JOHN BETHAM, CUSTOM-HOUSE AND GENERAL FORWARDING AGENT (with thanks for favours conferred), begs to inform the above, that he continues to Receive and Forward consignments of PLANTS and SEEDS, with strict attention, despatch, and moderate charges.

Every information given as to the Arrival and Departure of Vessels to or from Hamburgh, Rotterdam, Antwerp, Ostend, Havre, Calais, or Boulogne; also, the United States, Scotland, &c. &c.—Cox and Hammond's Quays, Lower Thames-street, London, Nov. 1.

SELLING OFF.—Seventeen Acres of NURSERY STOCK, consisting of FOREST and FRUIT TREES, EVERGREEN and FLOWERING SHRUBS and TREES, &c. For Priced Catalogues, apply to RICHARD MITTON, Nurseryman, Pontefract.—Nov. 1, 1845.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

"Mr. HUNT's new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at HUNT's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 20, Queen's-row, Pimlico.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at T. EDMICE's, 28, Castle-street, East, Oxford-street. For Ready Money only.

TREE VIOLET.

JOHN WALLACE, SEEDSMAN and FLORIST, Gabriel's Hill, Maidstone, has now ready a large Stock of this much esteemed, double, dark purple, perpetual flowering, hardy and fragrant VIOLET, which he respectfully offers for sale at 6*s.* per dozen. All persons who value a bouquet of sweet flowers, fresh every day, from the beginning of August to the end of May, should grow a few dozens of this beautiful flower.—Apply as above, or to Mr. G. CHARLWOOD, Seedsman and Florist, 14, Tavistock-row, Covent Garden.—Oct. 25.

SMALL GLASS FOR HOTHOUSES AND GARDEN LIGHTS

5 by 1½ / 4 / 2 ..... at 1*d.* per foot. | 5 by 2 / 4½ / 2½ .... at 1½*d.* per foot.

	per Gross.				per Gross.		
80,000 squares	6	by 4	at 9*s.*	90,000 squares	8	by 6	at 18*s.*
60,000	6½	4½	11	11,000	8½	6½	20
30,000	7	5	13	80,000	9	7	22
12,000	7½	5½	15	40,000	10	8	30

Striking Glasses, Bee Glasses, Fish Globes, and French Shades for covering Ferns and Ornaments.

R. COGAN, Glass, Lead, and Colour Works, 48, Leicester Square.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

R. RICHARDSON'S STEAM-MADE GARDEN NETS; FISHING, SHEEP, RABBIT, AND SHOOTING NETS.

Maker also of Tents, Marquees, Rick Cloths, Waggon Tarpaulings, Horse Clothing, Horse Blankets, Tilting Cloths, Labourers and Farm-servants' cheap Capes, Driving Aprons, Mats and Matting, Ropes, Lines, Twines, India-Rubber Coats, Capes, Leggings, &c.—21, Tonbridge Place, New Road, London.

TRANSPARENT GARDEN FRAME COVERS, 2*s.* EACH, the same size as the largest garden mats, which this year have advanced greatly in price. These frame covers are waterproof, more durable than mats, keep in more heat, and admit light. It may be had in large pieces, any required size, at 6*d.* per square yard, for covering Greenhouses, &c. Being dressed by machinery is the reason of the low price. It is made from stout calico sheeting. ROBERT RICHARDSON, Net and Tent Maker, 21, Tonbridge-place, New-road, London.

N.B.—Stout Canvas, for Roofing Sheds, Outbuildings, &c., 1*s.* 6*d.* per square yard, as thick as floor passage-cloth.

CLARK'S METALLIC  HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.

Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass, enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

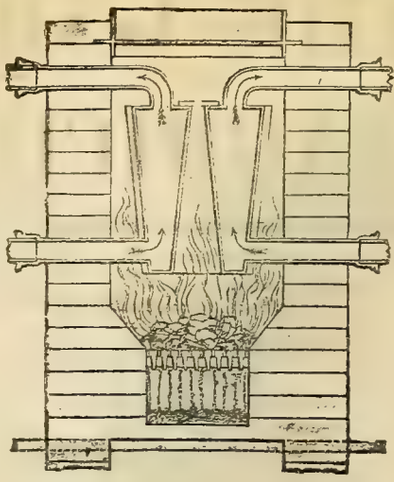
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

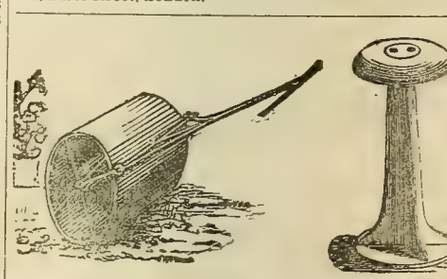
S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

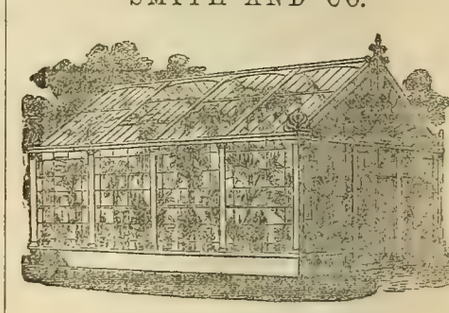
HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;

GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

TO CULTIVATORS OF THE PEAR AND OTHER FRUITS.—A DESCRIPTIVE CATALOGUE of PEARS and other Fruits, by T. RIVERS (formerly signing himself T. RIVERS, jun., author of the "Rose Amateur's Guide"), is now ready for delivery. Applications, enclosing six penny stamps, will be promptly attended to. T. R. flatters himself that this Catalogue will be found interesting to the fruit amateur, as it contains descriptions of many new varieties worthy attention; engravings are inserted of a pyramidal tree, grafted on the Quince, and of a dwarf Cherry-tree grafted on the Cerasus Mahaleb.—Sawbridgeworth, Herts, Nov. 1.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 1, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY,	Nov. 3	Entomological	8 P.M.
TUESDAY,	— 4	Horticultural	2 P.M.
		Linnean	8 P.M.
FRIDAY,	— 7	Botanical	8 P.M.
SATURDAY,	— 8	Royal Botanic.	4 P.M.

THE Commissioners in Ireland, directed to inquire into the disease which has attacked the Potato crop in the United Kingdom, consist of Professors KANE, PLAYFAIR, and LINDLEY. Their first report, directed merely towards the prevention of improper methods of storing the crop, has been published by the Irish Government, and distributed by means of the constabulary through the whole country. We reprint it, and shall continue to give our readers the succeeding reports as soon as they have been made public. As they will contain all that is considered worth recording respecting this fatal disease, it will be needless henceforward to occupy much space with other comments.

As we said before, the issuing of this Commission is a sufficient proof of the prevalence of the Potato Murrain to a most formidable extent, and of the accuracy of the view we have always taken of its importance.

We by no means blame those who, disbelieving the extent of the mischief that has been done to this crop, charged us with exciting undue alarm. They had not our means of gaining information. We hope, however, that on a future occasion, when we shall again have to anticipate the ordinary intelligence of newspapers, if such an occasion should unhappily arise, those who disbelieved us in the present instance will give us credit for not making assertions without due authority.

In Ireland the official inquiry is essentially aided by the important evidence collected by various diligent inquirers, especially by the *Royal Irish Agricultural Improvement Society*, a most zealous and useful association, and the officers of the *Royal Dublin Society*. In England the Rev. M. J. BERKELEY and Mr. EDWARD SOLLY are occupied with a minute investigation of the subject for the *Horticultural Society*, in the mycological and chemical points of view; and in Scotland, the *Agricultural Chemistry Association* have put forth a circular inviting the public to subscribe five hundred pounds (!) for the expense of an Entomologico-Botanico-Chemico-Practical examination of the matter.

The following is the Report above alluded to.

Board Room, Royal Dublin Society, 24th Oct., 1845.

MY LORD—We, the undersigned Commissioners appointed by her Majesty's Government to report to your Excellency on the state of disease in the Potato crop, and on the means of its prevention, have the honour to inform your Excellency that we are pursuing our inquiries with unremitting attention.

We are fully sensible of the important and difficult nature of the inquiry, and therefore are unwilling to offer, at the present moment, any final recommendations, as we are still receiving evidence, and awaiting the results of various experiments now in progress. But at the same time we ought to state to your Excellency that we have reason to hope that the progress of the disease may be retarded by the application of simple means, which we trust may appear worthy of adoption, until we are enabled to offer further recommendations.

In the present communication we avoid entering into any account of the origin or nature of the disease; but we would particularly direct attention to the ascertained facts, that moisture hastens its progress, and that it is capable of being communicated to healthy Potatoes when they are in contact with such as are already tainted. A knowledge of these facts determined, as they have been by experiment, and agreeing with the scientific information obtained as to the causes and nature of the disease, lead us to propose the adoption of the following plan for diminishing the evils arising from the destructive malady:—

In the event of a continuance of dry weather, and in soils tolerably dry, we recommend that the Potatoes should be allowed, for the present, to remain in the land; but if wet weather intervene, or if the soil be naturally wet, we consider that they should be removed from the ground without delay.

When the Potatoes are dug out of the ground, we are decidedly of opinion that they should not be pitted in the usual way, as the circumstances under which Potatoes are placed in ordinary pits are precisely those which tend to hasten their decay.

We recommend that Potatoes when dug should be spread over the field, and not collected into heaps, and if the weather continue dry and free from frost that they should be allowed to lie upon the field for a period of time not exceeding three days.

The Potatoes, after being thus dried and improved in their power of resisting disease by the means proposed, should then be sorted, by carefully separating those which show any tendency to decay. Those Potatoes which appear to be sound should then be placed about 2 inches apart in a layer, and over each layer of Potatoes should be placed a layer of turf ashes, or dry turf mould, or dry sand, or burned clay, to the depth of a few inches. Thus will be formed a bed of Potatoes, each Potato being completely separated from the other by a dry absorptive material; upon this bed, another layer of Potatoes should be spread in like manner, and be also covered with the dry materials employed; as many as four layers may thus be placed one above the other, and when the heap is completed, it should be covered with dry clay, straw, heath, or any other material adapted to protect it from rain.

In the event of the weather becoming wet these recommendations are not applicable. In that case we would advise the Potatoes to be packed in small heaps, with either straw or heath interposed, and well covered; in such a situation they would become as well dried as seems practicable under the circumstances. Where outbuildings exist, it would be advisable that this mode of temporary packing should be carried on in those places. If there be no outhouses the heaps may be left in the open field. We, however, particularly recommend that Potatoes should not be removed into inhabited rooms.

With regard to the treatment of Potatoes already attacked with the disease, we have to state that in this early stage of our investigation we do not feel justified in proposing to your Excellency any mode of positive treatment—this subject we reserve for a future report; but we may remark that exposure to light and dryness in all cases retards the progress of alterations, such as the disease in question, and we therefore suggest that all such Potatoes should, as far as possible, be so treated.

We do not mean to represent that these recommendations if carried into effect will prevent the occurrence of disease in Potatoes, but we feel assured that the decay will extend less rapidly and less extensively under these circumstances than if the Potatoes when taken from the ground be at once pitted in the usual manner. Neither do we offer these suggestions to your Excellency as a final means of securing the crop, but merely as a method of retarding the progress of an enemy whose history and habits are yet but imperfectly known, whilst we endeavour to ascertain the means of more completely counteracting its injurious effects, if any such can be discovered.

All which we submit to your Excellency's consideration, and remain, your Excellency's obedient and faithful servants,

ROBERT KANE,
JOHN LINDLEY,
LYON PLAYFAIR.

To his Excellency, Baron Heytesbury, &c.

A SHORT time since a collection of plants, not in flower, but remarkable for their variegated foliage, was exhibited to the Horticultural Society of London. The idea was a happy one. There has rarely been a group of plants, in Regent-street, which excited more attention, and yet the majority of them consisted of species by no means uncommon. It is because variegated plants are seldom found in greenhouses that we are desirous of saying a few words on the subject.

When plants are cultivated in glass-houses for ornament, it is because of the gay colours of their flowers, or the singular forms of their leaves. In proportion to the brilliancy of the one, or the symmetry or singularity of the other, are they valued. If, therefore, the vivid tints of a flower are presented by leaves, the plants in which such a peculiarity occurs are as interesting as if the floral organs were actually present. They have, indeed, an advantage in this respect, that the foliage is constantly before us, while the flowers have only a temporary duration. And, in fact, if a greenhouse were filled with plants whose leaves are variegated, or, as botanists say, coloured, it would always seem to be filled with flowers, though none should ever be produced.

But although flowers, properly so called, should never be present on a plant, yet, in one sense, plants with gay colours in their foliage may be said to be always in a flowering condition; because, in reality, the flower itself is nothing but a collection of coloured and concentrated leaves. It is true, that many plants, with variegated leaves, want altogether the fragrance of the flower; but, on the other hand, many flowers are, as we all know, destitute of fragrance, and some variegated foliage is extremely sweet.

It is not, however, our intention to disparage the fair race of flowers, and to say that leaves are handsomer than they. All that we wish is to draw attention to the fact, that, in the variegation of leaves, there is a very great source of permanent beauty, which is now almost lost to the cultivator, from not being looked after. A prejudice exists against them; the idea of variegated leaves being frequently associated with sickliness. But this is a mere prejudice. It is not necessary that a variegated leaf should be painted with white, or pale yellow, exclusively; nor is variegation, by any means, a symptom of unhealthiness. It is frequently accompanied by the most perfect vigour; and some species become unhealthy as soon as they lose the gaudy colours of their foliage.

Variegation is no more a disease of the leaf than of the flower; it is a peculiarity. It may be compared to the many-coloured appearances presented by the hair or skins of quadrupeds, or the feathers of birds. Its cause is unknown, and there appears to be little hope of its ever being discovered. All, indeed, that we can affirm about it is this—that it is unconnected with bad health, and is of the same nature as the colouring of flowers; which it resembles, moreover, in this important particular, that it may appear in feeble light, or even in the absence of it, and that it is well manifested where the light of the sun has no direct action—a very important consideration for those who have imperfectly lighted greenhouses. In such instances, variegated plants might be made the means of perennial decoration.

We must not, however, be misunderstood. We would by no means have it supposed that light is not as advantageous to variegated plants as to others. All that we would represent is that the former can bear the absence of abundant light more readily than others, especially those which have pale green veins or stains upon a dark ground. The respiration of variegated or "coloured" leaves takes place in the same manner as that of others; but is more feeble. Professor MOHL, one of the greatest of modern anatomists, has remarked that even leaves as red as the Begonia or the Purple Beech are in some measure green, although we do not perceive it. He has found that in all such cases the peculiar colour is owing to the presence of a fluid which bathes the cells, and in which lurk innumerable green globules, by means of which the usual respiratory action of the foliage is effected, and that action is in all such cases promoted by light.

We would, therefore, invite the attention of cultivators to the whole variegated race; and we anticipate much pleasure and no disappointment to them in the inquiry. They are certainly among the most beautiful of all things. Indeed we do not remember to have seen a plant so faultless in harmony of colour and beauty of decoration as a little bush grown by the Messrs. HENDERSON under the name of Ruellia maculata. Its leaves were of the richest deep green, overlaid with broad symmetrical patches of a very pale but well defined clear sea-green. They looked, perhaps, as if they had been partially coated with half transparent silver leaf. Along with them was a Yam (Dioscorea), a climber, but capable of being easily trellised into small dimensions; its leaves had a most singular play of colour; they could be compared to nothing better than deep green velvet stamped into a pattern by some heavy pressure. Then let us look to the "Kings of the Wood," those charming terrestrial orchids of the tropics, whose green leaves are intersected in all directions by delicate streams of gold or silver; for considering their metallic appearance such a comparison is no exaggeration. To these (the *Anaectochilus setaceus* of Ceylon, and *Microchilus pictus*, of Trinidad) we have nothing entirely comparable. But we need not fix our attention merely upon rarities. What can be handsomer than the old-fashioned, neglected Amaranths, those "Tricolors" which once decorated every greenhouse, but are now discarded from fashionable collections. They have no rivals in their season. In China, they form the delight of that garden-loving nation; yet we despise them. But let any one who has a greenhouse obtain a little seed, cultivate them like Balsams, and watch the development of their vivid reds, and yellows, and greens; it will be found that we have not one autumn flower to compare for beauty with their variegated leaves. And yet men prefer the lumpish, inelegant Dahlia. A few specimens, now in the Iron Conservatory of the Horticultural Society, are worth a glance from those who have now forgotten these ancient friends, or who never knew them.

For all classes of gardeners such plants may be found. The stove, the greenhouse, and the cottage-garden are alike capable of producing them; and we heartily commend them to the favourable consideration of those who would have their gardens *always* gay.

WE have for some time past recommended those who have decaying POTATOES to grate them down, and separate the starch from the fibre and other matters which the tubers contain. We regret to find that our object in making this suggestion has been misunderstood, and that many of our readers have been led to suppose, that by so doing they

would save the whole of their Potato-crops, inasmuch as the starch was the only valuable part of the Potato, and might be used as an article of food in place of the tubers themselves. We recommended the separation of the starch, because it remains unaffected after all the other constituents of the Potatoes have begun to decay, and because as it seemed hopeless to save the Potatoes entire, it was better to save a part of them than to lose the whole crop altogether. We have stated that those who saved the starch would save about one-third of the useful part of the crop, but we never meant to assert that they would be in the same situation as if they had saved the entire crop off one-third of their land. A man may live upon Potatoes very well; they contain the elements essential to the constitution of food, but he cannot live upon the starch alone, and therefore it must not for a moment be supposed that the starch though excellent as a part of food can be used as a substitute for Potatoes; or, indeed, any sort of complete food. We have all along considered that the starch or Potato-flour would form excellent food when mixed with Wheat-flour or Oatmeal, or employed together with other food in puddings, broth, and porridge; and for this reason only, have we recommended those whose Potatoes were affected with the rot, to separate the starch immediately in place of letting the whole crop rot away and go to waste.

It has been stated by many that excellent food may be prepared from Potato-starch, by merely pouring boiling water on to it, and this is perfectly true; when starch, whether obtained from Potatoes or from any other vegetable, is moistened, and then stirred up with boiling water, it dissolves and forms a thick, transparent jelly, which is wholesome, and indeed very palatable if flavoured with a little sugar and lemon, &c.; but this jelly, though very good whether flavoured or not, as a part of our food, could not be employed as the great staple of diet; in fact, it could not alone be used to support life. The value of starch as an article of food has been repeatedly pointed out, in order to draw the attention of all practical men to the importance of neglecting no available source of food, at a period when so much will inevitably be lost by the ravages of the Potato rot. For this reason the manufacture of Potato starch, the modes of obtaining, preserving, and employing it, has been minutely and fully described, in the hope of turning their attention to the subject before it was too late for them to save any of it. We have pointed out the necessity of examining the Potato crop carefully, the precautions which must be taken in storing or endeavouring to preserve them, and the uses to which the damaged ones may be put, viz., if not too far gone, as a source of starch, and when boiled as food for cattle. As regards the manufacture of starch, we have pointed out cheap and efficient processes for obtaining it, and described the several operations of washing the Potatoes, grating them by hand or machinery, washing the pulp, collecting and drying the starch, and storing it up for use. The last consideration which arises on this part of the subject is the mode in which it may be used, and as regards this we can only say, that in conjunction with other substances it forms a valuable article of food, but that taken alone it does not constitute nutritious food, and is not capable alone of supporting life.

THE AMATEUR GARDENER.

There is no pursuit to which man is more evidently led by the hand of his Creator, than the cultivation of the ground. Our necessities render the spade and the plough of the first importance to every community, and a high or a low state of husbandry will always be the distinctive mark of a flourishing or a declining people. In an occupation whose principal capital is industry, and whose object is the supply of our natural wants, the greater number of human beings must always be engaged. With the variations of fashion, and the mutations of ages, other pursuits, once sedulously followed, may become obsolete; but imagination cannot conceive a state of things in which the benignant stores of mother earth will not be sought after.

The cultivation of the ground, in all its departments, manifests the high honour which is attached to human wisdom and skill by the great Law-giver of the universe. Nature, wild and untended, will produce luxuriantly the indigenous fruits of the soil, but demands forethought and labour from her dependents, before she yields to them her most valuable riches. By observation, man has improved upon the past, and better methods of cultivation are constantly discovered. Now, in this process of induction, or the Baconian method, as it is called in philosophy, the amateur gardener has employed efforts which have often been crowned with eminent success. Those who till hundreds of acres as the means of subsistence have seldom the courage to perform experiments on a large scale; but the owner of a small garden can do so with pleasure unmingled with the fear of loss. Agriculture has thus been indebted to the lovers of gardening for many discoveries, by which the wealth of nations has been increased; and every amateur, however limited be his domain, may hope to add to the mass of knowledge. If, by the application of manure in some novel manner, or by experiments in hybridising or crossing, a vegetable may be made more productive, the application of this principle may result in a grand national benefit. I have a great respect for working gardeners of all grades, for this reason, that they are the silent and modest precursors of those great changes by which the vegetable property of a country acquires an enhanced value. Whether, therefore, you are delighting in an exclusive garden adjoining a country residence, or looking proudly on the beauties of a small suburban retreat, I thus remind you of a very important argument to be employed in the defence of your pursuits.

But I turn with pleasure from the objects contemplated by the spade and the plough to flowers, those luxuries of Nature, given to reward man for his obedience to the law; "In the sweat of thy brow thou shalt eat bread." These emblems of purity and innocence are like the bright eyes which animated the knights of the tournament, calling forth their exertions, and rewarding their conquests. The matchless charms of flowers force the attention of the most tasteless of mortals, and win the hearts of the susceptible and refined. A child once said that the stars were little holes pricked in the firmament to let heaven's glory through; a truthful idea though linked to a physical error. Apply the same mode of reasoning to flowers, and what can they be but emanations of the beauty and happiness which reside in the mind of an infinite being? Their utility is less manifest than their subserviency to the wants of our intellectual nature, since they appeal almost exclusively to what is refined and sentimental and poetic in our constitution. Seed is produced without the accompaniment of a splendid corolla, with its wondrous sanctuary of stamens and pistils, as in the case of all kinds of corn, so that utility is rather associated with that which is plain and unattractive. But the most glorious structures of the floral world belong to plants which, in reference to man's bodily wants, may be called useless. Trade would go on, and fortunes be made, if the world did not possess a Carnation, a Tulip, or a Rose; and yet they are here, winning our attention, and riveting the emotions of our hearts. Why are they here? Doubtless to recall us from pursuits carried on in reference to our lower nature, and to lead us to that which is gentle and good. The amateur gardener is thus evidently a respectful observer of the will of heaven, when he receives these gifts with thankfulness, and bestows on them a portion of his intellectual worship. To think lightly of Floriculture is almost to disparage the wisdom of our maker, who calls the attention of the child and the man by enamelling the earth with the rich colours and lovely forms of these universal favourites. This is a second and convincing argument which you may use in refuting detractors, and justifying yourself. You may not succeed with the former, for some men are destitute of the power of appreciating such reasonings as I have endeavoured to unfold. But be contented if you are able to satisfy yourself that in loving your garden you are acting right. Hear what has been written of wild flowers, and be sure that such sentiments are still more appropriate to those who have had something to do in the production of the beauty they admire.

"Oh! chide not at the simple theme that wakes the minstrel's lay,
Earth were less bright without the flowers that blossom by the way:
He at whose word the universe her ancient might did yield,
Hath taught proud man a lesson from the Lilies of the field.
I thank thee, God! for every boon thy hand in mercy showers,
And oh, not least among thy gifts, the beautiful wild flowers!"
—*H. B.*

WINTER FLOWERS.

The next class of plants about which I wish to make a few remarks is the bulbous tribe. The fundamental principles of success in forcing these, are, first, to obtain good bulbs; secondly, to obtain them very early; and thirdly, to secure a trifling, yet steady amount of bottom-heat, in advance of the atmospheric temperature.

In regard to the first point, cultivators are frequently deceived when selecting them by mere size. Firmness in the bulb, and regularity in the coats, with a something of symmetry in the form, are the main points to be attended to in making a selection of Hyacinths; more especially firmness in the bulb, to which may be added, sound coats, and a full and rising centre or eye. Secondly, if they are to be forced very early, they should be potted by the first or second week in September, at the latest. The compost should be two parts mellow loam, and the third part composed of leaf-soil, rotten horse-dung and cow-dung, to which should be added a good sprinkling of charcoal-dust and lively sand. If the loam is tenacious, increase the latter considerably. Keep the bulbs high, viz., one-half the bulb above the level of the rim of the pot, and cover them up with a mound of soil, pressed firmly, in order to prevent the possibility of much moisture entering. These, then, if attended to as follows, will flower by Christmas: a bottom-heat must be secured to them, permanently, of about from 60° to 65°. This, in the absence of more scientific, and, consequently, certain plans, may be kept up by rough Grass mowings, dung and leaves, tan, or, in fact, any fermenting body; only, care must be taken that the temperature above laid down be considered about the maximum. On such a body the pots may be placed, and, of course, without watering; they will, in fact, want no additional moisture while here. The pots should be covered over with about from 4 to 6 inches of old tan, or ashes; the former I prefer; even soil will do; and my practice is to lean two sloping boards over the whole, so as totally to exclude the rain. They may remain here until the pots are filled with roots, which will be, if the above directions are adhered to, about the middle of November, when they may be removed to warm rooms, if no other provision can be made, and placed in saucers of water. However, the best plan is to place them over head in an old tan-pit, where there is a maximum bottom-heat of 75°, and an atmospheric temperature of from 65° to 70°, and of a humid character. The earliest forcers should be carefully selected; some kinds will not bear forcing at all; those in the following list I have repeatedly found to succeed well, to which, no doubt, considerable additions may be made. The general stock, intended for a later display, should be plunged out of doors, without bottom-heat, merely covered over in raised beds, with 6 inches of old tan, ashes, or soil. These should, however, be all taken up and examined before Christmas, and those which are found to have advanced considerably in the bud, with of course a pot-full of roots, may be taken to the stock in the forcing department; the others may be plunged again as before. As a general rule, liable to some exceptions, the single and semi-double sorts force the earliest; whilst those large and superior kinds very full of petals, take much more time to feed and unfold their buds.

Respecting the treatment of bulbs in glasses, so much has been said on this subject in the *Chronicle* for the last three years, that I can only add one remark, viz., that I have no doubt the principle of bottom-heat, for those to blossom early, is equally applicable here as in pots. I will now give the list, above alluded to, which contains the sorts I have found most eligible for early work.

Whites.
Sultan Achmet
Cœur noir
Candidus violaceus
Sphæni mundi
Anna Maria
Triumph Blandina
Belle blanche
Alamode
La vestale
Pyrene
Passe virgo
Vancœur
Premier noble

Reds.
Waterloo
Regina rubrorum
La beauté suprême
Hirsitice
Eclatante
Dido
Penelope
Flos sanguineus
Hugo de Groot
Madame Zoutman
Duchesse de Parma
Acteur
Comte de la Coste
Groot Voorst
Lavater
Marie Louise
Rouge Pourpre et Noir
Sir Walter Scott
Homerus

Blues.
Flore perfecto
Prins Henderik van Prussen
Pasquin
Globe terrestre
Grand Sultan
Marechal de France
Duke of Wellington
Comte de St. Priest
Duc de Luxembourg
La rénommé
Orondates
Nimrod
Pronk jewel
La grande Vidette

I need say little about the Narcissus, the Tulip, the Double Jonquil, and other of the imported bulbs; the same principles will apply in a considerable degree to all of them. The Double Roman Narcissus, and the Van Thol Tulips, are invaluable for early forcing.

VIOLETS.

It is pretty well known that the Neapolitan and the single Russian are the best by far for winter work. To these may now, I suppose, be added the Tree-violet, which, if it answers the glowing descriptions given by those who have grown it, will probably reduce the amount in cultivation of the former kinds. I have, however, only lately obtained it; but it seems to me to be an invaluable thing. The principal points in Violet cultivation, for winter flowering, are, first to obtain runners as early as possible; secondly, to cultivate highly, and keep all subordinate runners cut away; thirdly, to remove them to their winter quarters very early; fourthly, to secure them a moderate, but certain bottom-heat, for about a month after planting in their winter quarters; and fifthly, to give them all the air possible through the winter, and yet to perfectly exclude rain and frost.

First, early runners should be obtained by the middle of May, by strewing fine old vegetable matter, by means of a riddle, through the old plants, about an inch thick; this should be kept continually moist, and the object will soon be attained. The runners must now be planted out on elevated beds, in an open place, the beds slightly dressed with old peat, or leaf-soil. They will want watering for a week or two at first, and perhaps a slight shading; after which, all that is necessary, is to keep them free from weeds, and to constantly trim all runners away. By the first week in September they will be ready to remove to their winter quarters. An old Pine-pit, with an exhausted bottom-heat, is the very thing for them; however, should there be none, a slight hotbed must be made; one that will command a bottom-heat of 70° or 75° for a month; after which, the sooner it declines the better. All they require after this is merely to cover well up at nights with mats, from the middle of October, and to leave, when there is no danger of frost, a little back air; also to give all the air possible, in the day time, if the weather permit. They should be sprinkled thickly over, with a good coat of sharp sand, in the autumn, to prevent the depredations of slugs, and if the rot takes place in the winter, strew over them a mixture of sharp sand, quick-lime, and fine charcoal-dust, at intervals. The soil for them in the frame or pit, should be composed of one-third strong or stiff loam, and the other two-thirds an equal mixture of peat, leaf-soil, and rotten manure; to which add some lively sand and charcoal-dust.—*R. Errington, Oulton Park.*

Home Correspondence.

Vine Borders.—To say that Mr. Hoare has failed in obtaining many converts to his system of forming Vine-borders, is nothing more than might be expected, and is of small public advantage compared with the benefit likely to ensue from a fair and free discussion of the subject. The mere fact of Mr. Hoare's theory not standing the test of practical inquiry is not of so much importance as the lesson it reads to all theorists, especially in an art requiring careful and deliberate investigation, and that too during a series of years before they can be read as authorities in matters of practical gardening. That Mr. Hoare has not succeeded in establishing the doctrine that soil is of no use, but a positive injury, in any compost where Grape-vines are cultivated, is admitted by everybody; but if Mr. Hoare has miscarried in maintaining his position on this head, he has at least shown that Grapes can be grown with a great deal less earth and manure than has been usually imagined; and that much, if not all, of what is called shanking is caused by planting in deep, rich, and (as a natural and unavoidable consequence) wet borders. We are, indeed, much indebted to Mr. Hoare for provoking this inquiry; and although we may handle his book, as we handle our knife, rather freely, we have but one object in view, viz., that of obtaining a clear exposition of a very important and perplexing subject in gardening. During the present season I have been attentively watching the result of several borders, formed in different ways, and by different parties; and, amongst the number, one by the direction of Mr. Hoare himself; but, then, this was before he went the whole length he now does—when, indeed, his reputation stood very high for having written a book containing excellent instructions as to how industrious amateurs should manage the Vine which clothes their cottage. The last summer has proved very clearly, if any proof were wanting, that all our Vine-borders are too wet; that the richly manured soil, constituting so large a portion of the compost, holds the moisture to such a degree, that the roots perish, the wet cannot get away, the sun and air does not reach it; because it is surrounded on all sides by material as damp as itself. I will venture to say, that, when any failure has occurred, and when the border has been examined, the roots have in no instance been suffering from drought. If borders in this state were trenched out, and laid in a heap on the surface of the ground, and exposed fully to a summer's sun, this compost would not even then acquire a degree of friability and healthiness fit for any fruit-bearing plant, but especially the Vine; yet we persist in forming these large excavations in spite of the evidence of our own senses. Mr. Hoare has endeavoured to prove the necessity of dry borders, and in this he is clearly right; but we should like our borders to be completely exposed to the solar influences. The sun should have full play upon the soil; very little should stand between the roots and the sun; certainly, neither a brick-paving nor 2 feet of fat, greasy, wet earth. In olden times, the making of a Vine-border was a serious matter, because of the expense incurred in the huge excavation, which, in ordinary cases, was 4 feet in depth; now this expense is obviously unnecessary. The removing of so large a body of earth could have been well and beneficially dispensed with, and the new border might have been formed with very great advantage on the surface. I am fully satisfied upon this point, having watched with some interest experiments during the present season, completely confirming this view. The border, under these circumstances, would be more in the position of a heap of compost exposed to the atmosphere to sweeten; in this state the roots would have free and easy intercourse amidst a mass of dry and healthy matter. Let the drainage, therefore, be placed on the surface of the existing ground, using plenty of it, and when the compost is placed upon this, let it slope to the south rather abruptly, and when finished it will present a precipitate bank exposed to the full influence of the sun; the drenching rains cannot settle upon this, especially as it is completely removed above the surrounding soil. The importance of placing Vine-borders which are exposed to the atmosphere in this position cannot surely be questioned; our intelligent and most successful gardeners are adopting the plan, and there cannot be a doubt of their success. The Vine, and, in fact, all other fruits which are subjected to hard forcing, require rich soil, but the secret is to keep that soil dry, and, at the same time, to secure all those well-known advantages which the natural elements confer on vegetation. —*One who has handled the knife.*

Wintering half-hardy Plants.—I beg to give you an account of the success I have had for the last five winters in keeping Pelargoniums of choice kinds, Crassulas, Petunias, and tender Fuchsias, in a cold pit without any artificial heat. Last winter was very trying on account of its duration, as the frost set in early in December; but out of a collection of between 300 and 400 plants, I scarcely lost 10. As soon as frost sets in I give my pits the additional protection of two mats, which, if the frost is not very severe, I have removed in the day time, to give the plants light. I give the plants as much air as possible when there is no frost, and make them very hardy all through the autumn, giving but little water, and taking care that as little moisture as possible rests upon their leaves. The scarlet Pelargoniums I have found to answer very well by hanging up in a cellar, and starting them in a hot-bed in March. I tried with great success the plan recommended by "W. C.," of Forfarshire, in your Paper of Nov. 30th, 1844, and out of 100 cuttings of Fuchsias I had 84 beautiful little plants, notwithstanding the unusual severity of the winter.—*C. M.*

Proliferous Cabbage.—I beg to call attention to this singular specimen of morphology, taken from a healthy plant of Chou de Milandoré; many other leaves on the same plant have similar excrescences. I have a few put in as cuttings, in order to ascertain whether they will form perfect leaves and stems, or whether they will continue to elongate merely, still retaining the same indefinite form as heretofore.—*G. M. Elliott, Ripley Castle.* [This is one of those cases in which the strong ribs of the Cabbage-leaf produce leaf-like extensions at an acute angle with the plane of the leaf. In some instances they assume the appearance of pitchers. We shall be curious to know whether or not they will grow.]

Pruning Forest-trees.—In writing on this subject we must keep in view the object sought, whether ornament or use. The former, being a matter of taste, had better be left to the discretion of the owners. The latter is a fair subject for discussion, and in the following the object sought for is use, or how to make the land under trees produce the greatest quantity of valuable timber. Many opinions have been given upon the best systems of pruning, and some individuals have doubted whether we should prune at all; and there may be seen many examples of trees growing in woods attaining the greatest size and value without ever having been touched by the hand of man. But I do not believe that 1 out of 100 single or hedge-row trees could ever be of much value as timber, if left to the unassisted hand of Nature. The reason is obvious. A tree standing alone assumes the form of a pyramid, more or less perfect, according to the habit of the species, the lower and first-formed branches being older and larger than those above, and the stem of little value (as in Fig. 1). The trees in a wood, by overshadowing the branches of each other, cause them

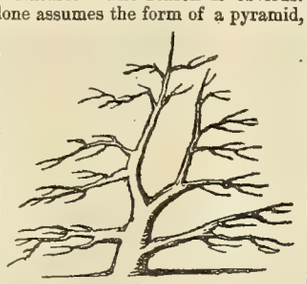


Fig. 1.



Fig. 2.

to die and rot off; and if no large branches have happened to grow on them, so as to form forks by continuing on them, or large knots, and, probably, holes by rotting off them, they may, by healing over the small wounds, form valuable timber. I now recur to the question discussed in former Numbers, viz.: Whether the stems of trees grow so as to cause any particular branch to be higher from the ground every year. From my own experience, and from the opinions which have been advanced on the subject, I am satisfied, and therefore assume, that the stems do not grow in the manner described. It is, therefore, evident that as trees cannot grow without branches, there must be in all timber the knots of the branches with which the tree was furnished when young; and if a large branch be permitted to grow on a young tree at any particular height, say 12 feet from the ground, there will be either a large branch or a large knot at 12 feet from the ground at the time the tree is cut down—no matter at what age. If, then, a straight clean bole, 30 feet in length, be the object, no branch formed below that height should be regarded as anything but a temporary means of growth, and ought to be treated accordingly—that is, it should never be allowed to attain an unreasonable size; so that when it it is to be removed it may leave as small a wound and as small a knot as possible. As to the question of how these small branches should be removed, whether by the hand of man or by the hand of Nature, causing them to rot off when overshadowed, I am inclined to think that the hand of man will perform the operation in the less injurious manner, particularly if care be taken to cut off the branch with a clean cut, and to paint over the wound. The trees having grown to the height of 30 feet (if that be the desired length of clean timber, see Fig. 2), should then be allowed to form heads as Nature directs, which, soon meeting, will prevent side-branches from forming again on stems, which soon becoming quite clean outside, and as free from knots in the heart as possible, will become grosser every year, until they are quite fit for the axe.—*I. T.*

Sagacity of the Cat.—A few weeks since, while visiting Aldborough, I observed early in the morning a cat carrying as I supposed a box from the workshop of a boatwright, but on closer inspection it appeared to be a large trap, with numerous holes and spring wires for catching mice; two had been captured and were lifeless, and puss adopted the easier method (like the canine species) of conveying them to a place of security by using the cross-handle for that purpose.—*N. S. H., Bury St. Edmunds.*

Quercus sessiliflora.—As Mr. Malleson's paragraph on this Oak may possibly mislead some who have no other authority within their reach than the *Chronicle*, I beg to offer the following extracts. In the Library of Entertaining Knowledge, vol. ii, part I, published in 1829, it is thus written at the 6th page:—"There are two distinct species of Oak in England, Quercus Robur, and Quercus sessiliflora, the former of which affords a close-grained, firm, solid timber, rarely subject to rot. The other (sessiliflora) is loose and sappy, very liable to rot, and not half so durable."—"This species is supposed to have been introduced some two or three ages ago from the Continent. In the German forests this timber is known to be very worthless." The article proceeds to say, "Q. sessiliflora may thus be discriminated from the true English Oak: the acorn stalks of the Robur, (or pedunculata) are long, and its leaves short, whereas the acorn stalks of sessiliflora are short, and the leaves long. The acorns of the Robur grow singly, or seldom two on the same foot-stalk, those of the sessiliflora grow in clusters of two or three, close to the stem of the branch." The following is from an article on English Oaks in "Loudon's Arboretum," at p. 1787; the whole article may be consulted with advantage, but a few hints will, I hope, be sufficient for the present purpose. It is stated here that "Bosc and other French authorities say that the wood of Q. sessiliflora is good for nothing for ship-building, because it soon rots under water." Again, "Atkinson says that the wood of pedunculata is stiffer than that of sessiliflora, requiring more weight to bend it, and therefore better calculated for beams, as it will bear the greater weight in buildings without bending." Again "Nichols appears to refer to Q. pedunculata when he speaks of the true English Oak, such as are standing about Rinefield Lodge, in the New Forest." Finer trees or better timber for ship-building, he believes, is not to be found in the kingdom. So much for the value of the timber of Q. sessiliflora.—*An Old Forester, Northampton.* [In printing this letter we must not be understood as agreeing with the writer, or those whom he quotes, in their opinion of Q. sessiliflora. Does he know anything about the matter *of his own knowledge*?]

Planting Fruit-trees.—In planting fruit-trees, which should be done about this season of the year, careful preparation of the soil, and good drainage, are of the greatest importance; on the latter especially, much of the future success depends. It is admitted by all modern gardeners, that fruit-trees like a good loamy soil on a dry bottom, which some prefer making one way, and some another; but the principle to be aimed at is to make cold clayey subsoils equal to those that are warm and gravelly, and as it is impossible to do this, we must have recourse to the best artificial means in our power, to prevent the roots from going down into the cold clay, and this must be done in such a way that the superincumbent soil will be equally porous, and equally retentive. Presuming that the ground to be planted is selected, and that the soil in its present state is not exactly what the nature of the tree requires, then you must have recourse to artificial means, and in the first place I would advise all the soil to be thrown out to the depth of 2 ft. or 2 ft. 6 ins., and rich loamy soil substituted for it. You should also have at hand a sufficient quantity of broken brick-bats, old mortar, and unsifted coal-ashes, to form a level drainage of at least 6 ins. in thickness. This should be spread over the length and breadth of the space allotted for each tree, and these materials should be well saturated with brine, either before they are put in or after; but it is better to be done several days previous, as they should be frequently turned over, that every particle may imbibe some portion of the brine. A bottom thus formed about 2 ft. under the surface will give a good and effectual drainage; a thin layer of Heath, Furze, or turf, may be laid over it, to prevent the soil from running into the interstices. The utility of this kind of drainage is, that it affords a dry bottom, and prevents the roots from going down into the cold subsoils; the very instant the points of the young fibres touch the briny material they perish, and the result is that a double portion of fibres is caused to run in a horizontal direction.—*W. P.*

Preserving Ice.—Some time ago the snow on the Ochil hills occupied my attention; how it lay longer in one place than it did in another, at the same altitude, and on the same exposure, I could not at first very well understand, but my inquisitiveness to discover the cause made me perform several trips to various places of the hills, and when I was satisfied I thought little more about it; but, if the few remarks I made be of any use to "Quercus" in promoting his plan of preserving ice in a simple manner, he shall have them. When the south front of the Ochils is covered with snow, it has a very fine appearance, but when a thaw sets in, the snow on the western parts of the south side is much sooner dissolved than the snow on the eastern parts. A person living a few miles from the hills may not be able to explain the phenomenon at first, but when he gets among them and knows as much of natural philosophy as enables him to understand something about the angle of incidence, and the distribution of the sun's rays, the difficulty vanishes quicker than the melting snow on a steep rock. The western parts of the south front are more steep and rocky than those that are on the east; this is soon known from the nature of the plants and animals that grow and feed there; the wild Thyme fringes the rocks, and the goat stands on three legs upon the edge of a precipice, unable to find a resting-place for the fourth;

this may sometimes be seen by those who climb the Ochils from Blainlogie. Those, again, who want to reach to the top of Bencleuch, the highest point of the range, and begin the ascent from Alva village, will observe the hills to be more rounded, and covered, in most places, with vegetation, producing food for sheep and cattle. Now, the nearer the surface of the hills approaches to the perpendicular, the rays of the sun will be more concentrated, and consequently the heat will be greater; this circumstance will account for the more rapid departure of the snow in places that are steep, and lingering longer in places that are more flat. Bencleuch, if I recollect rightly, is 2500 feet above the level of the Forth, and it is near the summit of this hill where the snow remains longest on the south side of the Ochils; when it is cleared off in other places, it remains there for a long time in strips or wreaths, and is known throughout this part of the country by the name of Lady Alva's Web. The snow on that part of the hill is what "Quercus" probably refers to, when he says, "In the chasms of these hills vast masses of snow may some summers be seen facing a burning sun, till the arrival of the dog-days." In Wilson's "Tales of the Borders," we read of a frugal farmer's wife who managed to preserve a quantity of snow through the summer in such a manner as to present her landlord with an enormous snow-ball at the time it was required; the snow on Bencleuch would require some such looking after, in order to make it remain to the time mentioned by "Quercus." It is generally cleared off by the beginning or middle of May; now, we are informed by the Almanacks, that the canicular days begin on the third of July, and terminate on the 11th of August; but if they begin with the heliacal rising of the star Sirius, it will put them still later in the season; it is also commonly reported that the snow is drifted into hollow places of the hills, and that that is the cause of its remaining so long. Now, where the snow remains longest on the south side of the Ochils, there are no hollows that I could find, and I have been more than once at the place. There is, however, a flat piece of ground near the top of the highest point, and on it the snow may be drifted, for in such a place there is commonly never any want of wind. When we bear in mind that the rays of the sun have less power upon a flat surface than they have upon a raised one, and where the snow is deepest, there we may expect it to remain longest, taking also into consideration the altitude of the place; these circumstances I think may explain why the snow lies longer in one place than it does in another. Now, in order to preserve ice, I should think "Quercus" cannot be wrong in putting plenty of it together; and to secure it from melting influences as much as possible, it should have a north aspect, with as flat a surface as circumstances will permit.—*Peter Mackenzie.*

Insects, &c., attacking Truffles.—Under this head may be classed various species of insects and animals—some whose office it is to carry out the scheme of reproduction, others to prey on them for luxury; and, no doubt, to many the Truffle affords a general subsistence at certain seasons of the year; as I am well aware there are scarcely any, either carnivorous or granivorous animals, but what are really fond of it. But as the object in view is artificial cultivation, I would first speak of those insects which seem to perform the most useful work. 1st, the Beetle (Leiodes Cinnamomea), figured and described in Curtis's "British Entomology." This insect, like others of its tribe, is frequently crushed to atoms as useless. Ten years ago I fancied they destroyed every Truffle I had attempted to grow or transplant (for then was my first attempt at cultivation), and it was more than five years before I could reconcile myself to the thought that they were really doing any good; but how different is the result of experience to our dreams of imagination! When Truffles are nearly ripe, or about three parts grown, this insect begins to work holes in them (as in the specimen sent); this hastens their decay, or, in other words, makes way for another species of insect, to complete the destruction of all the interior part of the Truffle, leaving nothing but the rind, or outside skin, which is a very stubborn horny substance when dry, covered with small globular bodies, which, when separated from each other, appear like small rough iron shot, and this, I suppose, has been considered the seeds of Truffles. When the system of cultivation is thoroughly understood, the services of these insects may be dispensed with. This calls to mind a question which was put to me some little time ago, namely, "If Truffles are a subterraneous fungus, and not a parasite, how do you account for their removal to different localities?" I answer, by means of this little insect carrying them from place to place in the same manner that the larger kinds of beetles carry and transplant the spawn of the common Mushroom. Those who are about to cultivate Truffles will do well to mark the economy of the Leiodes Cinnamomea.—*W. Prestoe, Shirley, Southampton.*

Melon-growing.—I had no intention of again reverting to this subject, but it is necessary that I should mention that the plan of supplying bottom heat to Melons and other plants requiring similar treatment, recommended by Mr. T. Moore, has in all instances within my knowledge failed. It has failed in at least a dozen private establishments with which I am personally acquainted. It has failed on my own premises, and, finally, it has failed in two of the principal public gardens in this country; and has, in all these instances, been superseded by the plan I have recommended in a former number, all the trials of which so far are most satisfactory, therefore the objection raised against Mr. M.'s plan has clearly very great force in actual practice. Mr. Moore's differing from me is of little consequence, as long as the public benefit by the better plan. In the arrangement I have ventured to recommend, there can be no risk of injuring the roots, because the heat is imparted to a body of air, and is not, as in Mr. Moore's plan, given out immediately to the roots, whereby they are placed in everlasting jeopardy. The economy, also, of his plan will be rightly estimated by the constant watching he urges, and even then, as has before occurred, the crop may be very rapidly swept off. I do not pretend to say that the mode of supplying bottom-heat recommended by me is the best that can be devised, although I know of no instance wherein it has failed, whereas I know of no case in which the plan so warmly advocated by Mr. Moore has succeeded.—*R. G.*

Country Show.

Chichester Horticultural Society.—This Society held its autumn meeting in the grounds of J. B. Freeland, Esq. The exhibition was altogether a creditable one. The prizes were awarded as follows:—*Orchids*: Mr. Webster, gr. to Mrs. Huskisson, for Oncidium papilio, O. flexuosum, Stanhopea oculata, S. eburnea, a variety of Zygopetalum Mackayi, and an unnamed Oncidium from Guatemala. *Stove and Greenhouse plants*: 1, Mr. Shepherd, gr. to the Rev. V. Harcourt, for Eranthemum pulchellum, Corræa rosea, Lantana Sellowii, Russellia juncea, Selago Gillii, Melastoma mexicana, Abutilon striatum, Corræa speciosa, Strelitzia Reginæ, Hamelia grandiflora, Justicia longiflora, and Gnidia imberbis; 2, Mr. White, gr. to Mrs. Dorrien, for Malvaviscus mollis, a Babingtonia, Diplacus puniceus, Siphocampylus bicolor, Columnea splendens, Erythrina Cristagalli, Ardisia crenulata, Zygopetalum Mackayi, Crinum africanum, Sollya heterophylla, and Brugmansia parvifolia. *Stove and Greenhouse plants*: 1, Mr. Cover, gardener to Miss Woods, for Clerodendron speciosum, Vinca rosea, Gesnera zebrina, Mahernia pinnata, and a Begonia; 2, Mr. Webster, for Gloxinia Cartonii, Achimenes pedunculata, Gesnera tuberosa, Ruellia elegans, and Clerodendron speciosum. *Stove and Greenhouse Climbers*, 4 distinct kinds in pots: Mr. Webster, for Rhodochiton volubile, Thunbergia alata, Lophospermum Hendersonii, and Philibertia grandiflora. *Fuchsias*: 1, Mr. Coates, gr. to E. Humphrey, Esq., for Eppsii, Curtisii, Toddiana, Exoniensis, Defiance, and Fulgens multiflora; 2, Mr. Evans, gr. to J. B. Freeland, Esq., for Coccinea, Stanwelliana, Venus Victrix, Magniflora, Adonis, and Eppsii. *Roses in pots*: Mr. Evans, for Buren, Maréchal Villiers, Madame Tussaud, Bourbon Queen, Acidalie, and Comte de Paris. *Cut Roses*: Mr. Evans, for Grandiflora, La Biche, Archduchess, Pluto, Archduke Charles, Madame Desprez, Bourbon Queen, Prince Albert, Odorata, Armosa, Romeo, and Gloire de Rosamène. *Cut Roses*, in single flowers: 1, Mr. Webster; 2, Mr. Evans, for Sir Walter Scott, Grandiflora, Acidalie, General Dubourg, Archduke Charles, Ochroleuca, Odorata, La Biche, Sanguinea, Armosa, Beauté Supréme, and Buren. The first prize for a *Specimen Plant* was awarded to Mr. Webster, for a fine Peristeria elata; 2d, to Mr. Graham, gr. to Mr. Smith, Birsted Lodge, for a large well-grown Conway's Giant Scarlet Pelargonium. *Verbenas in pots*: 1, to Mr. Evans, for Sancho Panza, Howardii, Prince Albert, Princess Royal (Youell's), Miranda, and Excelsa; 2, to Mr. J. Gates. *Dahlias*, 24 flowers—Nurserymen: 1, Mr. Pullen, Midhurst, for Vivid, Princess Royal, President of the West, Phenomenon, Vanguard, Eximia, Beauty of the Plain, Egyptian Prince, Favourite, Prince of Wales, Conservative, Springfield Rival, Essex Triumph, Antagonist, Barnard's Rival, Bree's Rosa, Cupped Crimson, Bridesmaid, Admirable, Hylas, Maria, Bedford Surprise, and two others; 2, Mr. Newman, Chichester, for Mrs. Shirley, Plough Boy, Beauty of Bucks, Bang-up, Standard of Perfection, Coronation, Rival Yellow, Essex Triumph, Dreadnought, Victory of Sussex, Admiral Stopford, Grand Tournament, Favourite, Blanche Shelley, Beauty of the Plain, Bridesmaid, Phœnix, Sir John Richardson, Traile's Columbus, Colonel Baker, Royal Sovereign, Sir R. Sale, and Grand Purple. Amateurs and Gentlemen's Gardeners' Class, 12 varieties: 1, Mr. Sparry, gr. to Sir H. Featherstonhaugh, Bart.; 2, Mr. Holmes, gr. to the Bishop of Chichester, for Northern Beauty, Argo, Royal Lilac, Egyptian King, Crimson Perfection, Hope, Lady Cooper, Novelty, Conqueror of Europe, Duchess of Richmond, and Marquis of Lothian. Mr. Sparry was awarded a prize for a *Seedling Dahlia*, named Lady Antrobus; and Mr. Silverlock for one named Representative; and also for a *Seedling Pelargonium* (Miss Denbigh); and Mr. Newman, for a *Seedling Verbena* and *Phlox*. The Fruit was in profusion, and very good; the First Prize for Pines was awarded to Mr. M'Ewen, for a Providence; 2, Mr. Coates, for a well-grown and heavy Queen. Black Hamburgh Grapes: 1, Mr. Martin, gr. to M. Snooke, Esq.; 2, Mr. M'Ewen. White Grapes: 1, Mr. Coates, for White Muscadine; 2, Mr. Webster, for Grove-end Sweetwater. Scarlet-flesh Melon: 1, Mr. Holmes; 2, Mr. Gale, gr. to the Rev. Lutman Johnson. Green-flesh Melon: 1st, Mr. Toogood, gr. to Mrs. Pilkington; 2, Mr. Lambert, gr. to J. Baring, Esq. Peaches (best dish): 1, Mr. M'Ewen, for Chancellor; 2, Mr. Shepherd, for Noblesse. Nectarines (best dish): 1, Mr. Gale, for Roman; 2, White Nectarine, to Mr. Stewart, gr. to the Countess of Newburgh. Figs (best dish): 1, Mr. M'Ewen, for Marseilles; 2, Mr. Drover, gr. to Col. Rotton. Goliah Plums: Mr. Gale. Morello Cherries: Mr. Gale: do. Mr. Lambert. Jargonelle Pears: John Cottrell, Esq. White Currants: Mr. Drover; Red Currants, ditto. Best Collection of Six Sorts of Dessert Apples: Mr. Lambert; 2, Mr. Holmes, for Devonshire Quarenden, Ribstone Pippin, Brandy Apple, Blenheim Orange, Scarlet Nonpareil, and Strawberry Pippin. Best Six Sorts of Kitchen Apples: 1, Mr. Lambert; 2, Mr. Holmes, for Hawthornden, Codlin, Red Musk, Blenheim Orange, Northern Greening, and Cat's-head. The Vegetables occupied a large space, and were very good. The First Prize was taken by Mr. Sparry, for a fine-grown collection; 2, Mr. Lambert; 3, Mr. Holmes; 4, Mr. Gale. Beside the above premiums, several other articles were recommended by the judges.

New Plants.

Exostemma longiflorum. Long-flowered Exostemma. *(Stove Shrub.)* Rubiaceæ. Pentandria Monogynia.—This plant was received at Kew, from Mr. Makoy, of Liege, under the name here adopted; and though some discrepancies exist between our specimen and the figure of Lambert, yet they are too trifling to lead me to suppose the species otherwise than the same. In Mr. Lambert's representation, the leaves are narrower, the flowers rather smaller, and the segments of the calyx and corolla are too short; probably occasioned by being drawn from an imperfect specimen in the Herbarium of Aublet. Lambert gives Guiana as the native country of the species; while De Candolle, on the authority of Richard, says it is indigenous to St. Domingo. Be that as it may, it constitutes a very pretty shrub, flowering freely and copiously, and the blossoms are fragrant, and remarkable, not only for their great length, but for their change of colour, at first pure white, gradually becoming red. The plant blossoms with us in June, and continues for some weeks in beauty.—*Botanical Magazine.*

Berberis actinacantha. Ray-spined Berberry. *(Hardy Evergreen Shrub).* Berberidaceæ. Gynandria Monandria.—An evergreen bush, apparently common in the neighbourhood of Valparaiso, whence it has been brought by all collectors of Chilian plants. It is not, however, a plant of the coast, but inhabits the first range of the Cordilleras. It derives its name from the broad ray-like divisions of the spines, which are sometimes very remarkable. But in this respect it varies according to the circumstances under which it grows. In some specimens gathered in Chili by Mathews, the palmate spines are very large, in others from the same botanist, they are very small; in some, brought from the baths of Collina by Macrae, they are much the same as those on the specimen which we examined. The leaves, too, vary in form from roundish-ovate to ovate, and even subcordate. They always have a hard, dry, curled appearance, as if the species were accustomed to a rigorous climate. It flowered in April, 1845, in the Garden of the Horticultural Society, where its deep yellow sweet-scented flowers rendered it rather a conspicuous object of the smaller sort. It grows 3 or 4 feet high and flowers freely in May and June. It succeeds well either in the American border, or on rockwork if planted in a rich sandy loam. It may be increased by seeds, or by layers, and sometimes by suckers or grafting, and is quite hardy, having withstood last winter without any injury, except the loss of its leaves, which in very mild seasons remain on during the winter. It is the same plant as that called Mahonia (!) Knightii in some of the nurseries round London.—*Bot. Register.*

Franciscea acuminata. Acuminated Franciscea. *(Stove Shrub.)* Scrophularineæ. Didynamia Angiospermia.—A handsome Brazilian shrub, presented by Mr. Low, of Clapton, to the Royal Botanic Garden of Kew, where it flowers in the stove during the months of June and July. It was received under the name of F. Pohliana, probably a mere garden name, which ought not to be retained; for it is assuredly the F. acuminata of Pohl. It is a very desirable hothouse plant, wanting indeed the delicious scent of F. Hopeana, and the handsome foliage of F. hydrangeæformis, but nearly equal to the latter, and superior to the former in the flowers. Cuttings of it will strike under a bell-glass in sand, if placed on a tank pit.—*Botanical Magazine.*

Garden Memoranda.

Wilton House, the Residence of the Rt. Hon. Sidney Herbert, M.P.—Wilton has long been known for its extensive and fine gardens and its magnificent trees. The latter are in some instances without a parallel in this country. The mansion, a princely pile, stands rather in a low situation, bounded by two rivers, the Nadder and the Wily, which unite in the grounds. These streams, which are of considerable pretensions, produce, as water always does, admirable effect in the landscape. One of the principal views from the house is down a perfectly level walk, 18 feet in width, and 350 yards in length. This walk is entirely within the dress ground, and flanked on both sides with noble Cedars of Lebanon, of wonderful size. A raised stone seat, which is supported by ornamental vases, terminates this walk; the spire of Salisbury Cathedral rises in the distance; The lawn under the scythe is of great extent. Mr. Brown, the gardener, informed us that 14 men are employed every morning during the season mowing; but then it is kept as close and as smooth as a Turkey carpet, without any visible appearance of the mowers' track. The walks are also kept in excellent order, free from hack turf edges, which we sometimes see, and

which I need hardly say, have a very unsightly appearance. On this lawn are some immense specimens of ornamental trees, as well as many of recent introduction, particularly Conifers, which Mr. Herbert especially regards. We measured one Cedar of Lebanon, which was of the following enormous dimensions :—viz., 20 feet 6 inches in circumference in the stem about 4 feet from the ground, and the diameter of the branches 120 feet. The height of the tree is quite 100 feet. This is certainly a splendid tree. Close beside this is an Ilex Oak, measuring 16 feet in circumference in the stem, and 90 feet across the branches. Ailanthus glandulosus has attained the height of 70 feet. There are a great variety of other trees of enormous sizes, such as Purple Beech, Limes, Elms, &c. On the west side of the mansion is a very perfect and appropriate geometrical flower-garden, by Sir R. Westmacote. This garden is planted in some cases with groups of one kind of showy flowering plants, and again contrasted with mixed groups, producing altogether a very pleasing effect; the beds are double edged, first with wood, which is made to imitate stone, and not liable to get broken with the roller, and then, as a step higher in the scale of geometrical gardening, with an edging of box or a verge of Grass. The whole was in the best of keeping. Architectural and sculptural objects are profusely and judiciously introduced. The effect altogether was excellent—the high keeping—the arranging and grouping of the plants, together with a plan conceived in the happiest style, are every way worthy of such an establishment. Looking from the house across this garden, the eye is carried down another straight broad walk 230 yards in length, and as smooth as a Mahogany table. This walk terminates with Holbein's Porch, an interesting architectural finish to such a magnificent picture. In the interior of this porch is a statue of Shakspeare by P. Scheemakers, with this inscription on a scroll—

"Life 's but a walking shadow—a poor player,
That struts and frets his hour upon the stage,
And then is heard no more."

On the sides of this walk approaching Holbein's Porch, are fine specimens of Deodars, Cupressus torulosa, Araucaria imbricata, Pinus Pichta, P. insignis, P. leiophylla, P. excelsa, Abies Clanbrasiliana, and some fine Cedars of Goa, and Juniperus thurifera, 10 feet in height. On the right, on leaving the geometrical flower-garden, stands an Orangery 90 feet in length and 24 feet in width. This house is filled with a number of very fine Orange trees, which thrive most luxuriantly. Behind this is a reserve garden, with greenhouse, &c., for growing and wintering plants for summer display. We were particularly struck with the effect produced by a Palladian bridge across the river Nodder, uniting the dress ground with the deer park on the opposite shore. This bridge is decidedly one of the best of the kind we ever saw. It is indeed rarely that bridges placed especially so near the house, and consequently so close upon the eye, are designed with any regard to the principles which affect so seriously a combination of landscape so important as this. The kitchen-garden, which stands some distance from the pleasure-grounds, although at the same time connected by walks, is very spacious, and affords ample room for supplying a family of great extent. There is a large range of houses, including pits and frames, and other necessary garden structures. Pines and Grapes are extensively cultivated, so are Peaches under glass. The plan of heating by hot-water gutters, instead of fermenting materials, has been proved most satisfactorily here, and has Mr. Brown's warm support. We observed in the kitchen-garden immense numbers of all the rarest kinds of Conifers nursing, or previous to their being planted in their permanent situations. To this particular group of trees and shrubs Mr. Herbert devotes considerable attention. The gardener's house stands at one end of the kitchen-garden, and commands a view of the whole of it.—*R. G.*

Miscellaneous.

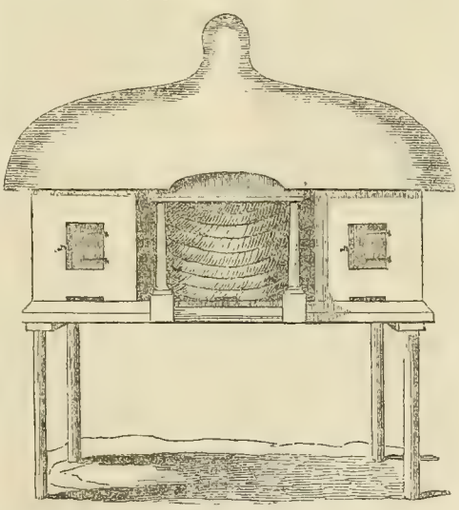
Gesnera Gerardiana.—M. Neumann describes this as having much resemblance to G. zebrina in its flowers, which are half red and half yellow, dotted with the same, but it differs in not having zebra leaves, and being much easier to grow. It is described as being very handsome, having a panicle of from 15 to 20 flowers, all opening at nearly the same time. It is one of the finest of the genus, and much like an Achimenes.

New Perfume.—The French, in despair at getting genuine Attar of Roses, which is always excessively adulterated, have taken to searching for a substitute, and seem to have found one in Pelargonium capitatum. We learn that a M. Demarson has tried the experiment of cultivating this plant in the open air in a loamy soil. He planted 100 rods with 5000 cuttings; they grew fast, and in October he gathered the crop, which amounted to from 4 to 8 lbs. of leaves and stems each plant. When distilled, the produce of essential oil was much larger than could be obtained from Roses, and the water was found excellent for perfumery. The quality of the articles prepared from this essence was considered by the best judges to be far superior to that of Roses in their present state of adulteration. In short, the experiment was so successful and profitable, that it is about to be repeated on a large scale.

Bees.

Artificial Swarms.—In a former Number I gave a description, which was illustrated by the following woodcut, of a beehive I had made in the expectation that it would aid me in making artificial swarms, and save the trouble of watching the anticipated departure of colonies during the swarming season. Perseverance has enabled me to succeed during the summer of the present year beyond my most sanguine expectations, and for the benefit of your readers I shall give my experience in bee management, since I commenced keeping these interesting insects at Woolwich.

In May, 1842, I purchased a swarm which had been secured in a straw hive, and placed it in my garden. I had then two side boxes made of wood, eight inches square inside, and ten inches deep, and joined one of them to the straw hive by a communication one inch deep, and two inches broad. The first year was occupied by the bees in filling the straw hive with combs and honey, which they very nearly accomplished, and during the succeeding winter I found the side box a valuable appendage for securing the health of my bees, as, whenever a dead bee appeared on the bottom of the hive, it was removed, even in very unfavourable weather, into the side box, and on the first fine day carried away; and I have observed the bees moving about in the side box for exercise, when it would have been certain destruction had they ventured out in the cold and wet weather prevailing at the time. In the early part of 1843 the straw hive was quite full of combs, and the bees, instead of clustering outside, occupied the side box, and appeared, from the space they filled, about 10,000 to 15,000 in number at the very least, and I then thought I had a favourable opportunity of making an artificial swarm. I accordingly moved the side box one night, when I perceived a great number of drones in it, and calculated that the queen bee would be amongst them. Attaching it to an empty straw hive, I substituted another side box to the parent hive similar, in every respect, to the one I had removed with the colony. At daylight on the following morning all the bees in the removed side box returned to their original hive, and in the afternoon occupied the empty side box, as if no change had taken place, leaving three beautiful combs, well stored with honey in the side box they had abdicated. On the following evening I changed the boxes again, with a similar result. On the third night I removed the side box again with the combs, and a still larger cluster of bees, but they returned to the parent hive on the following morning as usual, and in the afternoon, instead of going into the side box, they formed a dense mass outside the straw hive, not over or under the entrance, but over the part where the side box was attached, expressing as plainly as possible that they were resolved I should not move them again. For three successive nights the bees occupied the same position, not one entering the side box during the whole of that period, but on the afternoon of the fourth day, they returned to it, and again commenced work as if no change had taken place, and I was compelled to let them have their own way. In two days afterwards a fine swarm went off during my absence from home, and I lost them altogether. I tried the same plan on two other occasions, thinking I might be more fortunate, but the results were the same, and I may say I lost three swarms that year by annoying the bees with my experiments.



In the year 1841, I again tried the same plan, but without success, as I lost two swarms that year, and did not succeed in obtaining one to increase my stock. I felt naturally at a loss how to act during the present year, and at first resolved on letting the bees take their own course, which ended in my losing a fine swarm, as they were seen leaving my garden and settling near another hive, the owner of which maintained they had swarmed from his, and consequently I was obliged to submit to my loss. From the subsequent appearance of the hive, and the side-box being again densely crowded, about eight days after the departure of the first swarm of the present year, I anticipated another would leave in a day or two, and it then occurred to me to move the parent straw hive, leaving the side-box with the combs and bees in it, and substitute an empty straw hive in place of the original. I accordingly did so at 10 o'clock at night, moving the parent straw hive about four feet from its original position, and rendering both hives and side-boxes as similar to each other in every respect as possible. When daylight appeared on the following morning the bees came out of the parent hive as quick as they could follow each other, and, entering at the mouth of the substituted empty straw hive, densely filled the side box, and clustered on the interior of the empty hive, and all the bees that proceeded to the fields returned to their original position to deposit their stores, not one returning to the removed parent hive. The queen and a great number of drones accompanied them, and in the afternoon the parent hive appeared quite deserted. I consoled myself, on observing the movement that had taken place, with the reflection that if all the bees had left the parent hive, the others were well provided for in the side box, and I would be able to obtain the honey from the stock hive without killing any of the bees. On the following morning after I tried this experiment, which was on the 14th July, I was greatly pleased to observe several bees come out of the parent hive and return to it loaded, which satisfied me there were still nurses in it attending to the young brood, and in the after part of the day numbers of young bees appeared at the entrance, and in every instance returned to the same hive from the fields, without in the least mixing with the occupants of the artificial swarm, that were occupied with their usual labours, as if no change had taken place in any part of their residence.

On the third day after the experiment, observing an unusual bustle at the mouth of the original hive which I had removed, I examined the cluster, and had the satisfaction of having an excellent view of the young queen, about 2 inches above the entrance, enjoying and cleaning herself, and receiving great attention from her subjects. After remaining about a quarter of an hour on the front of the hive she flew away, followed by several drones, that appeared to have remained with the nurses when the others left the hive. I did not see the queen again for nearly half an hour, when she returned and examined minutely the position of the hive and surrounding objects for some time, when she entered it, and all was again quietness, as I could scarcely have credited that the hive could have been so strong after the great number that had left on making the artificial swarm. On the fifth day, after I made the experiment, I went to the front of the parent hive, at 7 o'clock A.M., and observed the bees bring out a live young queen, which had evidently been stung, and in a few minutes after two other young queens. These I took into the house, and placed them under an inverted tumbler, and on looking in front of the same hive in the afternoon, I found five other young queens in various stages of growth, but all killed, as the bees were no doubt satisfied by that time their young queen was all they could wish, and they would not require any of the others for subsequent swarms during the present year. On the 1st of August and succeeding days the artificial swarm killed all their drones, but the bees in the parent hive permitted their drones to remain until the 20th of the same month before they commenced killing them, and on six different occasions I witnessed the young queen go out for an airing, or pleasure, followed by the drones. When I first witnessed her, she appeared of perfect symmetry, and not the least afraid when I approached her very closely; but latterly she became stouter, and very shy, so much so that on observing me approaching, when she was on the front of the hive, she would run into the entrance and remain inside.

Both hives are now in the best and healthiest condition, and, for weeks, there is not a single dead bee to be seen in, or in front of either hive; and they appear to be well stored with honey, although the season has been the reverse of favourable. I have, therefore, reason to congratulate myself on the success of my experiment; and from all I have observed, I am of opinion that a similar plan of operations will be successful in every instance, and prevent much of the anxiety that has hitherto existed from a fear of losing swarms of these useful and interesting insects. It is worthy of remark that, within three days after the experiment was made the bees of both hives were seen cleaning their young at their respective entrances, affording evidence that they were in a prosperous condition; and the parent hive is now as populous to all appearance as if no artificial swarm had been made. The advantage of the experiment is evident; as, on the plan adopted, the artificial swarm has ample resources in the event of bad weather occurring immediately after the swarm is made, which is not the case with natural swarms secured in empty hives. My side-boxes are lined with India matting, and I have no fear of preserving my bees during the winter in them.—*John Grant, Woolwich.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—Continue to follow the directions given in former Calendars, and let the temperature gradually decline. It is not the object now to promote growth, but to take care of that which we have obtained. Plants are not now to be cultivated on the "rule of thumb" plan. The season of light and heat is taken advantage of by the diligent gardener, who does not work against nature; he knows better than to avail himself of the cool pit in opposition to sunlight to infuse vigour and luxuriance in the various objects under his care. It is at this peculiar season that we would especially direct the attention of amateurs to these observations. *Forcing Fit.*—Keep the temperature of this structure by night at 60°, and increase it by day, if necessary, by fire heat 15° above the night temperature. This will assist nature in flowering the few plants and bulbs which bloom in anything like perfection during dark November. All autumnal forcing, whether of fruits or plants, is in direct opposition to nature; and swimming against the current requires great exertion, especially as two curr nts are now set in—cold and darkness. *Greenhouse.*—Water with care, and let the directions formerly given guide you in other respects.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Standard Roses that have made luxuriant growth during the summer, should now be cut moderately back, to lighten the head, as a preventive against wind; also stake and tie such as require it. As the different kinds of bedding plants become destroyed by frost, they should be removed, and the beds trenched quite to the bottom; by attending to this now, much time and labour will be saved next spring, and the beds will be in a much better condition for planting. Hardy annuals that have been sown for blooming early next spring, if too thick, should now be thinned and transplanted into vacant beds. New work, laying of turf, and planting, should be forwarded now as much as possible before the weather changes to wet. Dahlia stems that are blackened by frost should now be cut off near the ground, but the roots need not be taken up for a short time, if the weather continues favourable. *Pits and Frames.*—Neapolitan Violets should have as much air as possible, and the runners should be removed as they appear. Brompton and Ten-week Stocks, intended for next year, should be kept dry, and air should be admitted to prevent damp. See that every thing is now stored for winter, and give air freely when the weather is fine. Stop Verbenas as they advance, in order to render them bushy, and water them occasionally.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—Seedlings which have been pricked out in pans must be carefully attended to, in regard to weeding, occasional watering, &c. Offsets or small plants which are planted round the sides of pots, will sometimes have the roots exposed by the shrinking of the soil, these cavities must be filled up. *Carnations and Picotees.*—During this dry weather, layers which have been removed from the parent stools must be kept tolerably moist; gradually accustoming those which have been in close frames to the open air, will be requisite, and those which may have been received from a distance should be potted in leaf soil and loam, without any manure, and kept closed in a frame for a few days. The admirers of these beautiful flowers appear to be on the increase, and from the number of beautiful seedlings coming forward, a very rapid improvement will no doubt be experienced in the quality of the sorts grown, as well as in the demand. *Pinks* ought all now to be either well established in pots or beds. Whoever does not grow Jones's Huntsman, a purple laced variety, most certainly ought to do so. It is a sort that will no doubt originate some fine seedlings. *Tulips.*—Lose no time in planting these; offsets particularly are taking damage by being out of the ground.—*C.*

IV.—PINERIES, VINERIES, &c.

Pineries.—Lose no opportunity in getting together a body of leaves for pits, &c., as early as possible; these should be blended with stable manure, in the proportion of four cart-loads of new leaves to one of stable dung. This should lay and ferment for a fortnight or more before it is used; it forms a most important article to the gardener for the next four or five months, not only for the Pine-pits, to tread in beneath the tan, but also for making hotbeds, for forcing Seakale, Asparagus, &c. Be very moderate in your artificial heat in the Pine structures now, especially in dark weather; if the day, however, prove sunny, let your thermometer rise to 85° in the fruiting-house, instead of admitting much cold air, as is the practice with some: a little circulation of air as a purifier must, however, be admitted. The heat in my succession dung pits has only averaged from 52° to 55° for the last fortnight, and the plants have had no water for three weeks. *Vineries.*—Fires by day, with abundance of air and perfect dryness in the interior of the late Vinery is now the maxim. If no plants or Pines are in the house, it may be closed with a thermometer at 50° in the evening, which may sink to 40° in the night without damage. See that your Mushroom soil is of due moisture on the surface; if the least husky, give a slight sprinkling before the Mushrooms come through; the atmospheric moisture should accomplish this afterwards.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Proceed with the preparation of borders, and the transplantation of fruit-trees. Watering of newly-planted trees is not so essential at this season as in spring; yet it ought not to be omitted, for by washing down fine particles of soil about the fibres, the latter are kept in better position, and, on the whole, in closer contact with that from which they have to draw nourishment, than could be effected by treading. When the roots are covered, the soil about them may be flooded, and the remainder filled in after the water has completely subsided. Remove leaves from the bottom of walls, for although they would form good manure for the trees, yet they harbour insects injurious to them, and are therefore better employed elsewhere. Where other operations are forward, pruning may be commenced. *Kitchen Garden.*—A few Early Frame Peas may be sown in a sheltered border; but too much dependence should not be placed on them, for they are liable to the attacks of many enemies, such as mice and slugs, which must be guarded against as much as possible; and plants should be reared under protection to make up vacancies. Earth up Celery, and plant Endive and Lettuces in frames; thin and weed Spinach; hoe and loosen the ground between the rows of Cabbages and other crops; take up Jerusalem Artichokes; also some Salsify and Scorzonera, packing the roots in clean sand for a supply in case of severe frost. Keep Potatoes dry; they will not bear putting together in large quantities this season; the straw scattered over them to prevent the access of light should be dry, and lime in fine powder should be occasionally diffused through the air of the apartment in which they are stored.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—The weather is extremely favourable for planting in dry situations, therefore do not defer until spring, but commence now. Cut and repair deciduous hedges, and make new ones. Attend to drains and drainage. *Nursery.*—Continue the gathering of seeds, and finish their sowing as early as possible; transplant layers; lift very carefully the forest-trees for transplanting, and shorten the tap-root where necessary; dig, ridge, or trench all vacant quarters.—*F.*

State of the Weather near London, for the week ending Oct. 30, 1845, as observed at the Horticultural Garden, Chiswick.

Oct.		Moon's Age.	Barometer.		Thermometer.			Wind.	Rain.
			Max.	Min.	Max.	Min.	Mean.		
Frid.	24	23	30.402	30.114	59	29	44.0	S.	
Sat.	25	24	30.318	30.173	57	29	43.0	N.	
Sun.	26	25	30.321	30.230	50	25	42.5	S.W.	
Mon.	27	26	30.113	30.070	54	40	47.0	W.	
Tues.	28	27	30.069	30.036	60	111	54.0	S.W.	
Wed.	29	28	29.970	29.959	59	36	47.5	S.	
Thurs.	30	●	29.966	29 884	63	43	53.0	S.W.	
Average			30.105	30.055	57.4	37.1	47.2		.00

Oct. 24—Thick fog; very fine; clear and frosty
25—Foggy; partially overcast; clear and frosty
26—Foggy; slightly overcast; hazy at night
27—Overcast and fine; clear at night
28—Overcast; very fine; densely overcast
29—Very fine; clear and exceedingly fine throughout
30—Hazy; exceedingly fine, with few white clouds; overcast; hazy.
Mean temperature of the week 4 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Nov. 8, 1845.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.						
						N.	N.E.	E.	S.	S.W.	W.	N.W.
Sun. 2	53.4	39 8	46.6	8	0.49 in.	—	2	2	1	7	2	—
Mon. 3	53.0	39.6	46.3	10	0.82	—	2	5	3	6	—	—
Tues. 4	51.7	37.3	44.5	10	0.44	—	2	2	5	8	—	2
Wed. 5	52.1	38 8	45.4	9	0.23	3	2	—	2	6	1	2
Thur. 6	53.0	38 1	45.5	10	0.76	1	2	1	—	4	9	1
Fri. 7	51.7	36.6	44.2	12	1.02	—	1	2	2	5	6	3
Sat. 8	49.6	35.5	42.6	9	0.38	1	2	—	2	1	7	3

The highest temperature during the above period occurred on the 3d and 6th, 1834—therm. 63°; and the lowest on the 8th, 1837—therm. 23°.

Notices to Correspondents.

Apples—*L*—The following are 12 good sorts for kitchen use. Dumelow's Seedling, Alfriston, Bedfordshire Foundling, Dutch and Keswick Codlins, Hawthornden, Royal Russet, Wormsley Pippin, Waltham Abbey Seedling, Yorkshire Greening, Brabant Bellefleur, and Mère de Ménage. ‡

Books—*B & Son*—There is no book exclusively on the treatment of Conifers, but much information respecting them is to be found in Loudon's "Arboretum Britannicum;" for the more recent information, the pages of the *Chronicle* may be consulted with advantage.¶——*Tyro*—The "Vegetable Kingdom" will, we hope, be ready by Christmas. Its Index is extremely long, and is now at press.——*F P B M*—Dix's "Land Surveying" is an excellent book for a beginner.‡

Fern Seeds—*Amateur*—Sow these in spring in shallow pots or pans, half filled with broken crocks and small lumps of peat, then a layer of somewhat finer peat and small sand; and, lastly, an inch of finely-sifted peat and sand in equal proportions. Water the pans previously to sowing through a very fine rose, dust the seed over the surface, pressing it gently into the soil, and cover the pot with a hand-glass. Let the pots be placed in a mild bottom heat until the seeds germinate.‡

Flower-garden Arrangements—*A M A*—Your flower-garden is so badly designed, that in its present form it would be impossible to plant it so as to produce what is indispensable in every well-arranged group. The great fault is the want of unity in the beds; Maltese crosses, stars, circles, kidney, and other fancy-formed beds constitute an incongruous group. All such forms are objectionable except when systematically arranged, and even then they are not so effective as ovals, circles, and similar simple forms. We will take an early opportunity of publishing a better plan of such a garden. *W. P. A.*

Gooseberries—*M*—The following may be planted to form a succession of good-flavoured varieties:—Early Green Hairy, Rob Roy, Keen's Seedling Warrington, Early White, Red Champagne, Woodward's Whitesmith, Melling's Crown Bob, Taylor's Bright Venus, Rumbullion, Yellow Champagne, Red Warrington, Cook's White Eagle.‖

Habrothamnus fasciculatus—*A U G*—This is a greenhouse shrub, with broad ovate oblong leaves, and heads of crimson flowers, about the size of those of Burchellia capensis, or larger. It grows freely in sandy loam and peat. Being a robust grower and a somewhat shy bloomer, when the plants have attained a tolerably large size, they should be kept pretty dry, and rather stinted in pot-room, which may possibly have the effect of making them flower more freely.‡

Hardy Climbers—*Z*—The following will possibly answer your purpose: Clematis montana, white; C. azurea, blue; C. Hendersoni, purple; Caprifolium sempervirens, scarlet; C. gratum, yellow; C. flexuosum, purple and yellow; Chimonanthus grandiflorus, yellow; Glycine sinensis, blue; Bignonia radicans major, scarlet; Jasminum officinale, white; J. revolutum, yellow; and Passiflora cærulea, blue.¶

Heating—*A Lady*—Glass structures exclusively used as plant-houses are not subject to the window-tax: the best mode of heating your house would be by a small hot-water apparatus; a flue or even an Arnott stove might answer, but ultimately not so economically, or so effectually. Every other sash in the roof being made to move will be ample ventilation at top, but it will be necessary to make provision for the admission of air by the front or upright sashes also. *R. G.*——*C D*—A second-sized Stephenson's boiler will answer your purpose. Earthenware pipes have hitherto failed. We would recommend a flow and return gutter of iron 6 inches deep and 8 inches wide for bottom-heat; and if the pit is required for winter use a flow and return pipe 3 inches in diameter will be necessary for top heat. There is nothing gained by stinting the pipe or gutter in heating, but there is much economy in being liberal in the use of them. *R. G.*——*E Sheen*—A small Stephenson's boiler, with two pipes in front, will effect all you require, and the pit ought to answer your purpose without making it span-roofed, provided it faces the south. *R. G.*——*J S*—An Arnott's stove is not the most wholesome mode of heating a sleeping apartment. In other rooms it may be advantageously employed in some cases, under good management. Anthracite for fuel.‖

Hyacinths—*G B*—Use a saturated solution of sulphate of ammonia.

Insects—*Entomologist Junior*—No. 1 is Noctua brassicæ; 2, younger state of the same—when full fed they will enter the earth to become pupæ; 3, the Looper was dead and shrivelled; 4, Pemphredon lugubris; and 5, pupæ of a Crabro, vide Curtis's Brit. Ent., plates and fol. 632 and 680 for their histories. 6, a Snake-millipede, called Julus pulchellus; 7, Geophilus longicornis? 8, Hylesinus picipeureis; 9, this little shell is Clausilia bidens? 10, your Wasp is very interesting; cannot you send Mr. Curtis any of the neuters, or the female? as those you gave him are all males, and they are not sufficient to determine the species; 11, the Ant is an imported species called Myrmica domestica. *R.*

Jussieu—*W H J*—Your offer is obliging, but we cannot entertain it, from the want of space for such matters, which are not suited to a newspaper.

Lilium lancifolium album, &c.—*M W K*—After these have done flowering, they may be treated as follows:—As soon as the foliage has begun to turn brown, water should be given very sparingly; and when the stems are quite withered, it should be withheld altogether for a short time—say for three weeks. They are now in the best state for repotting, which should be done carefully by turning them out of the pots and removing the mould with the stem-fibres entirely away down to the bulb, taking care, however, to preserve any young bulbs which may have formed on the stem, as each of those will produce a plant. The remainder of the ball should not be much dis turbed; the crocks may, however, be taken away to be replaced in the pot into which the bulbs are to be put, and also any fibres attached to the bulbs in a decaying state; but those which are alive and fresh must not be removed or injured, as they are of considerable importance to the bulbs. The bulbs should only be parted where there is a natural division, which is known by the number of stems they have produced, each stem indicating a separated crown; but unless they have become too large, or you are desirous of increasing your stock, we should not advise you to divide them into too small portions, which can never produce fine specimens. After potting, they may be watered; but it must be given sparingly until the plants have attained some size, as much injury is done by over watering bulbs during their season of rest and early growth.‡

Names of Fruits—*Lusor*—1, Swan's Egg; 2, Jersey Gratioli; 4, Summer Bergamot; 5, Spanish Bon Chrétien; 6, Old Colmar; 7, Ambrosia; 8, Napoleon. The Plum, La Délicieuse, is the same as Cooper's Large Red.‖——*W H*—1, Easter Beurré; 2, Doyenné Blanc; 1, Gloria Mundi; 2, Newtown Spitzemberg; 3, Hawthornden; 6, Dumelow's Seedling; 8, Ribstone Pippin; 12, Turk's Cap; 13, Alexander; 17, Worthless.‖——*P W J*—1, Pearson's Plate: 2, Norfolk Paradise; Pear, St. Germain.‖——*W J G*—1, 2, 3, 4, Minchall Crab; 13, Doyenné Blanc.‖——*An Old Subscriber*—1, 5, Downton; 4, 9, 11, 14, Hawthornden; 8, Ribstone Pippin; 12, Margil; 13, Scarlet Nonpareil; 15, Kerry Pippin.‖——*L M*—1, Flemish Beauty; 3, Gansel's Bergamot; 4, D'Austrassie; 6, Passe Colmar; 8, Easter Beurré; 9, Beurré Rance; 10, Glout Morceau; 11, Ne Plus Meuris; 14, Crassane; 1, Downton; 2, London Pippin; 5, Hall Door; 6, Blenheim Pippin.‖——*J S C*—1, Beauty of Kent; 2, Kirke's Lord Nelson; 3, Northern Greening; 4, Bezi de la Motte; 5, Chaumontel.‖——*H W B*—1, 7, Flat Nonpareil; 2, Blenheim Pippin; 3, Devonshire Buckland; 4, Court of Wick; 8, Stagg's Nonpareil; 12, Cornish Aromatic; 14, Passe Colmar.‖

Names of Plants—*J L J B*—Your plant is not Boldoa fragrans. We do not recollect the leaf.——*W J Epps*—Cerinthe major.§——*A B*—Ageratum mexicanum, Gypsophila elegans, Gnidia pinifolia, Mesembryanthemum hispidum, M. aureum, and a Salvia of some kind, but without a flower the species cannot be determined.§——*A C*—1, indeterminable; 2, Rodriguezia planifolia; 3, Menispermum smilacinum; 4, indeterminable; 5, Tropæolum brachyceras.§——*H H*—Brassica Napus, and, apparently, Barbarea vulgaris.§——*Micklewell*—Brunsvigia Josephinæ.§

Oziers—*P S*—For common purposes procure Salix Forbyana, and S. viminalis; both of which are rapid, strong-growing kinds; but if for wicker work, S. vitellina, and S. rubra, are better. All these will succeed in the situation you mention.‡

Peas—*M*—The Early Frame is the variety preferred for sowing before winter.‖

Pinery—*Protea*—It is impossible for us to answer your question. We must refer you to the nearest builder. All that we can say is, that the glass should not cost more than 4½*d.* a foot.

Potatoes—*Tyso & Son*—Your sample of a new Kidney Potato was beautiful and excellent, and if it will keep it will be invaluable as seed.——*P S*—If you mix your diseased Potatoes with sound ones, the diseased tubers will affect those that are sound. In storing them, the pits should be long and narrow, and the Potatoes should be in a perfectly dry state before they are pitted; they will not bear being put together in large quantities this season.‡——*Kalcen*—Your Potatoes are affected by the prevailing disease.‖——*P*—If you plant your 'sets 8 inches below the surface, they will be safe from frost, even if it should prove as severe as it was last winter.‖

Quercus sessiliflora—*Halesleigh* inquires if any of our Somersetshire readers will be so kind as to inform him whether this tree, and also Ulmus campestris, are to be met with in that county, indigenous, or apparently so? He adds, that after more than 20 years' search, he has never been able to find a single specimen of either; Somersetshire species being invariably, so far as he has observed, Q. pedunculata and U. suberosa.

Roses.—*Carolottor*—For standards you may procure the following, viz.:—Crested, Celina, and Crimson Moss, Brennus, Riego, Beauté parfait, Wellington, Madame Campan, Queen of Denmark, Persian Yellow, Reine de Provins, Village Maid, Globe White Hip, and Madame Desprez; and for dwarfs, Moss de Meaux, Rose du Roi, William's Double Yellow Sweet Briar, White China, Indica sanguinea, New Globe Hip, Blush Moss, Mrs. Wood, and Comte de Paris.‡——*M Powell*—If the soil is a rich loam, from 15 to 18 in. in depth on the chalk and gravel will be sufficient. Night-soil in a fresh state would be injurious to Rose-trees, but when old and decomposed, would be very beneficial, dug slightly into the ground round the bushes. If you mix the night-soil with leaves, ashes, or common garden-soil in a dry state, it becomes sooner fit for use.¶

Vines in Pots—*Amateur*—To cut fruit from Vines in pots in April, the plants should be introduced into heat in the second or third week in November. The temperature, moderate at first, may be increased from 60° to 80°, and even to 85°, but this should be the maximum, and the plants should be so arranged that the shoots as they advance can be trained immediately under the glass, and be exposed as much as possible to light. As the shoots advance, train them carefully, and stop the laterals as they appear. Manure water may be applied in the growing season; but when the plants have matured their crop, and the wood has begun to ripen, water of every kind should be gradually withheld.‡

Vines—*A Young Disciple*—A Vine, 10 years old, has been moved with tolerably good success; but, ultimately, a young plant reared from an eye will be found preferable. A Vine may be not improperly introduced into a greenhouse, if judicious training be practised. ‡

Misc—*F C—Sub, Hastings*—We would oblige you, but it would be unfair to recommend nurserymen.‡——*Constant Reader, &c*—An article containing remarks on the management of Hyacinths appears in another column.‡——*Omicron*—If you have convenience, you had better plant your Cloth of Gold, and other tender climbing Roses, inside your greenhouse; but if that cannot be done, they might be planted outside, and the branches led into the house in the same way as is often done with Vines, only care must be taken that the roots and portion of the stem outside are protected in winter.‡——*J P*—Four volumes have been published; the last, for 1844, may be had, price 30*s.*——*A B*—You may place your joists within an inch of your iron gutters with safety. If the tanks are well closed in, there is no necessity for extra covering them beneath the joists. Slates or tiles make good covers. The depth of sand for plunging your pots in should not exceed 3 inches; if too deep the heat will not arise through it, and damp on the surface will be the result.§.——*R W*—You will find a method of preserving Scarlet Pelargoniums over winter, given at p. 708. Erythrinas and Bouvardias may be placed under a greenhouse stage, or in any place free from frost and damp, till spring, when the roots of the latter may be divided and repotted. They will require no water until that time, and then it should be given sparingly at first.‡——*Protea*—Old Seakale roots may do to be taken up and planted again for forcing, but the produce will not be fine.‡——*J S*—Bicton, near Sidmouth; 5*s.*——*Junius*—You had better apply by letter to the Secretary, 21, Regent-street.‡——*X Y Z*—Grapes and Pine-apples have been produced in high degrees of excellence by artificial means in this country, but yet not equal in all respects to those grown in their native countries under good cultivation—a rare condition, however, "where Nature does much."‖——*Anon*—It is not a good plan to wipe Apples.‖——*Quercus*—Two men and a boy may keep a garden of 2 acres in tolerably good order; but it would be to your advantage to allow a few extra labourers to prepare for spring cropping, otherwise everything will not be accomplished in due season. You may obtain a steady man for 40*l.* a year, with board. In order to comply with your request respecting pits, &c., additional particulars would be necessary.‖——*G Barkley*—Guano would be of little use in forcing Rhubarb. The leaves are chiefly produced, in the first instance, from the substance previously stored up in the fleshy roots.‖——*M*—Pot your Alströmeria roots now in the light peaty soil in which you intend to grow them, and keep them almost dry till spring.§—— *C Baines*—A cider-mill has been suggested at p. 655, as a means of extracting Potato-flour.‡——*H J B*—Some of the Peas you sent are quite sound throughout; others apparently so, but decaying inside on the surfaces of the lobes, probably owing to some imperfection in consequence of being in blossom when the heavy fall of cold rain occurred in July.‖——*T H H*—Your Pelargoniums should have been cut down about the end of July; it is too late now to cut them down, if you wish to have them in flower in June next. You may, however, prune their heads in a little, which will tend to make them bushy.‡

SEEDLING FLOWERS.

Dahlias—*B*—It is too late in the season to judge of seedling Dahlias. No. 2 is the best; but we consider them all worth another trial.*

Fuchsias—*W J E*—Your seedling is a handsome variety, light tube slightly striped with pink; sepals expanding freely, disclosing a fine rosy crimson corolla. The flower is fine in texture, and will rank with the best of the light varieties.*—*W W*—Your seedling is a flower of good colour, but it is rather coarse, and the sepals are disproportionately long compared to the size of the corolla, which does not differ in colour sufficiently from the tube and sepals.*——*B*—No. 4 is a good variety, but it is not sufficiently novel to send out. The dark seedling is too common in colour.*

THE FARMERS OF GREAT BRITAIN are requested to read the pamphlet on "GYPSUM, AS A MANURE;" describing its various important uses for Agricultural purposes, with full and plain directions for its application, and containing an account of numerous cases of its surprising efficacy and cheapness.

The Pamphlet will be sent free to any part of the Kingdom, on receipt of a post-paid application (containing Three Penny Stamps), addressed to NEWTON and PECK, Hull.

The Agricultural Gazette.

SATURDAY, NOVEMBER 1, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Nov. 5—Agricultural Society of England.
THURSDAY, — 6—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 12—Agricultural Society of England.
THURSDAY, — 13—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Nov. 9—Northampton Book Club | Nov. 14—Wrentham
— 13—Grove Ferry

POTATO CROP.—We have been favoured with the following queries, circulated by the ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND, and we hasten to lay them before our English readers, in the hope that they may be able to furnish us with answers to some of them. We also call especial attention to the Leader on the Horticultural side.

1. Has the disease in the Potato crop shown itself to any, and what extent, in your immediate district?
2. In what different localities, and to what extent or number of acres have your inquiries been directed?
3. What are its characteristic marks, both in its incipient and advanced state?
4. What description of land appears to have been most affected, and what was the previous state of culture of the land thus affected?
5. What kind of Potato is most affected, and was there any, and what variety in the distinctive features of the disease in the different kinds?
6. Does any, and what difference appear in the disease from the periods at which the crops were planted respectively?
7. Is there any marked difference observable, which can be distinctly traced to the use of any, and what particular kind of manure or cultivation?
8. Does the period at which the manure was actually applied to the ground, appear to have produced any, and what effect?
9. Can you estimate the proportion of injury done to the crop, up to the time of your inquiry?
10. What effect has been produced by leaving the crop in the land, and also by the removal of it?
11. Have any, and what means, been actually resorted to for saving the crops after removal from the ground by storing, drying, converting into meal, starch, &c., and if so, describe the process?
12. Detail any further facts that may have come under your own personal information, respecting the disease in question?

IT is not with the market *price*, but with the gross and the free *amounts* of farm produce that we have to do in these pages. The former, because upon it depends the welfare of all the three classes of the agricultural community; and the latter, because, when compared with the former, it is at once the test and the reward of the farmer's skill. When, therefore, we name, as the subject of remark, a pamphlet, by Mr. HEWITT DAVIS, on "THE FARMERS' RESOURCES for meeting Réduced Prices of their Produce,"* it need not be supposed that we are about to follow the author in his exhibition of Sir R. PEEL's tariff and free trade tendencies as the cause of the low prices of 1843 and 1844. We shall merely examine the practical portions of his work—those which refer to the economy of the farm.

The resources of the farmer are not yet nearly worked out. His expenses may yet be diminished, and his acreable produce increased. His working cattle may be made more active, his implements more efficient, and his cultivation deeper. His management of manure may be rendered more economical; greater hardiness and more aptitude to fatten may be conferred upon his live stock. The plants he grows may be improved in all their valuable properties; they may be rendered more prolific, earlier, hardier, and more nutritious. His general management may be improved; a more perfect acquaintance with the habits and capabilities of the animals he feeds and of the plants he cultivates; and, above all, an acquaintance with the theory of his art, will tend to this.

Add to all this the modes in which he may increase the produce of the land, by the assistance of his landowner: perfect drainage, good roads and buildings, and permission to break up Grass-lands, and to grub up unnecessary hedgerows, would be of wonderful assistance in an attempt at the profitable production of cheap food.

Especial reference is made by Mr. DAVIS to the waste, under the present neglect of town sewerage, which, in a higher state of farming, will doubtless be forced upon us as one of the most important of the farmer's resources. The following are some of his remarks upon the subject:

"It is impossible to foresee the extent to which the fertility of this country may hereafter be brought, by a better appreciation of those home manures, which we (at present far behind the practice of the Chinese, or our continental neighbours) allow to be wasted; or what is even worse, to escape into the rivers to their pollution and the contamination of the surrounding air; and perhaps no fact connected with the improvement of agriculture is more startling than that, at the present day, when the value of artificial manures is so much appreciated, that the dung of wild fowl has been fetched 5,000 miles, and readily sold at 14*l.* and 15*l.* per ton, the drainage of all our large towns should at the same time have been entirely neglected. By a careful calculation of the flow into the Thames, from the principal sewers of London, it has been shown that more than a million of tons of the most powerful solid manure, are thus worse than wasted annually; whilst by a simple contrivance, partly copied from the process on the Continent, I showed some years back, in my efforts as managing director of the Thames Improvement Company, that the whole of this, at a trifling charge, might be intercepted, and without annoyance; and to the great improvement of the river and of the atmosphere, rendered profitably available for agricultural purposes, to the great increase of our supply of corn, and to the diminution of the expense of growing it. 'By carefully conducted experiments and very accurate gauging,' observes Cuthbert Johnson, in his valuable work on the 'Fertilisers,' p. 223, 'it has been ascertained that the principal London sewers convey daily into the Thames 115,608 tons of mixed drainage; consisting on an average composition, of one part of solid, or mechanically suspended matters, and 25 parts absolutely fluid. But if we only allow one part in 30 of this immense mass to be composed of solid substances, then we have the large quantity of more than 3800 tons of solid manure daily wasted in the river, from London alone! What might not the farmers of England effect if this mass of fertilizing matter was preserved at a reasonable rate for their use? Fifteen tons of this solid manure—nay, 10 tons, would render in some degree fertile an acre of the poorest cultivated, or even common or heath land. But allow, for the sake of accuracy, that 20 tons were required, even then 3800 tons ÷ 20 give a daily allowance of manure sufficient for 190 acres of land; and if we give 300 days on which this manure was collected, that would afford an annual supply for 57,000 acres. Can I put this in a stronger light? Is it not lamentable that the fertilising matter for such a breadth of land, should be annually lost to the country? And in this calculation I allow nothing for the absolutely fluid portion of the drainage—I am now speaking of its mechanically diffused matters: added to which, the farmer will readily allow that, when once these 57,000 acres are fertilised, and rendered productive, that some time elapses before even the most naturally barren soils require again replenishing with any other manure than that which their own crops supply, by the assistance of the live stock of the farm; so that, in fact, in each and every year 57,000 acres of land might be recovered from the waste and brought into cultivation by the solid manure of the London drainage alone.'"

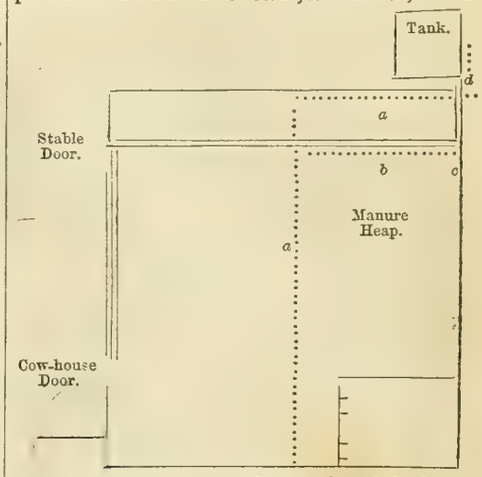
We are happy to see that a company has lately been formed, under high patronage, for the purpose of taking some steps towards the hindrance of this enormous waste in future. We have no doubt that very soon; whenever, indeed, this country shall have been sufficiently intersected by railways, the saving and application of town sewerage will be the great engineering operation of the day.

* J. Ridgway, London.

MANAGEMENT OF MANURE.

The writer of a late leading article in the *Agricultural Gazette* asks for information as to how he is to dispose of the surplus rain-water that falls on his farm yards. In the hope that he may find the following useful to him, I beg to acquaint him with the method for obtaining the same object which I have lately adopted in my farm yard. The liquid manure from my cow-house and stable is conveyed by covered drains, into a tank immediately outside the yard; these drains are formed of inverted draining tiles laid in clay and covered with flags. The solid manure is heaped up on a limited portion of the yard, and the rain that falls on this part mixed with the liquid that runs from the heap, is conducted by an open paved channel through an iron grating into one of the covered drains, and thence into the tank. All the rest of the water that falls on the yard is conveyed by another similar open channel to irrigate an adjoining meadow; and where it passes over the top of the covered drain, a hole is made through the flag, with a stopper for the hole, so that as much rain water may be admitted into the tank for diluting the liquid it contains, as from time to time may be thought requisite.

Now, could the writer alluded to not adopt a similar plan? He says that his straw absorbs one-half of the rain that falls in his yards. If this be the case, by confining his manure heap to one-half of each of his yards, and draining off from his tanks the rain that falls on the other half, he would have no surplus water to trouble him. If it be necessary for the benefit of his sheep, and for the more speedy conversion of his straw into manure, to spread straw over the whole of his yards, he ought not to allow it to remain long on the half on which the manure heap is not placed, before throwing and spreading it on such heap. The waste which would then be occasioned by the rain washing through the straw on this half of the yard would be inconsiderable, and nothing in comparison with that of the rain over the whole yard finding its way into the tank; it would be none if this part of the rain, after passing over the yard, could be made to irrigate an adjoining field. My yard is flat, with a gentle inclination towards the tank; but as the writer's is in the form of a basin, it would of course be necessary for him to cut a drain for the purpose of carrying away the surplus water. I think this plan is better than that of a roof over the yard, as the manure heap is preserved in a moist state by the rain, and any soluble matter that may be washed out of the heap will not be lost, but will be retained in the tank; and any little rain that may enter the tank, and that which will be absorbed by the heap will be of service in rendering the ammonia in both less volatile. And if there be any truth in "Oxygen's" theory, this practice will accord with it.—*A. T., Whitehaven, Oct.* 21.



The dotted lines (*a*) represent the open channels for the surplus rain. The double lines the flags over the covered drains. Rain water may be admitted into the tank at *d*. The dotted line (*b*) the open channel, conveying the overflow from the manure heap into the covered drain at *c*.

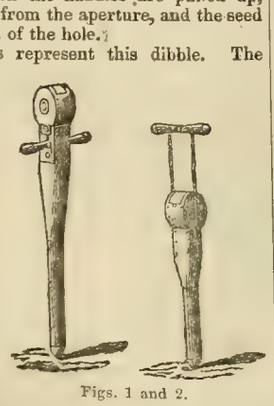
——Another correspondent writes thus:—When speaking on the management of manure you mention the difficulty of getting rid of the 27,000 cubic feet of rain-water which falls upon the site of the fold-yard during the six winter months. On reading the article, it occurred to my mind that the obstacle was not quite insurmountable, and that it might be got rid of by some such plan as the following very simple one: Suppose that, instead of the tanks in the centre of the yard, they were placed a few feet clear of it, so that a drain might be laid from the outfall in the centre of the yard to the side of the tank, and this we will call the liquid-manure drain. Another drain should be constructed, branching from the liquid-manure drain, which is intended as a waste drain to carry off the surplus water from the whole site of the fold-yard. In the liquid-manure drain, and near to where it enters the tank, there should be a well-constructed slide valve; there should also be a similar one in the waste drain, about a foot from its junction, with the manure drain. Betwixt the side of the tank and the valve in the last-mentioned drain, a small well must be constructed, whose top should be on a level with the bottom of the drain, it may be about 18 inches deep and as much square; the walls of this well should be continued so high above the floor of the yard that the manure may not fall into it; its use will be explained further on. Upon that side of the tank next the well and valve, there must be placed a block of stone sufficiently heavy to support a small iron pillar, and upon this pillar a beam must be fixed working in a centre; to that end of it which overhangs the tank, there must be a collar through which a rod can slide up and down in a perpendicular position—to the bottom end of this rod a wooden float is attached. The opposite end of the beam is to be so fixed to the valve placed in the liquid-manure drain as to admit of its working freely up and down. Betwixt this valve and the one in the waste drain, there must be a second pillar and beam; one end of this beam being linked to that end of the other which is attached to the manure valve, and the opposite end to the valve in the waste drain, will connect the two valves and complete the apparatus for regulating the admission of the liquid manure into the tank, and the discharge of the surplus water into the waste drain. This completes the plan, and I will now describe the working of it: We will suppose that, at the time when the cattle are first brought into the fold-yard for the winter months, the weather is dry and continues so for a few weeks; now, during that time, the float must be suspended (by screwing the rod to the collar by means of a thumb screw) above the liquid in the tank; this posi-

tion of the float will open the manure valve and shut the waste one. But say a change takes place in the weather and it comes on to rain; when this occurs, let the float remain suspended until it has washed out as much or the liquid manure from amongst the partially decomposed matter lying in the yard, as may be thought worth collecting; this may be readily ascertained by dipping the well, described in a former part of this communication; the more or less deep tinge of the liquor will determine this point. When the washing of the contents of the yard has been effected, then let the float rest upon the liquid in the tank; this operation will shut the manure valve and open the waste one. So soon as it has been ascertained, by experiment, that a given quantity of water is required to wash out the liquid manure as described above, and that this quantity is equal to, say 9 inches of depth in the tank, then suspend the float by sliding the rod upwards through the collar until it is that much above the liquid, in which position it must be kept, by occasionally inspecting it, during the continuance of dry weather. If rain comes on whilst thus suspended, the apparatus will become self-acting as soon as the liquid rises so high as to submerge the float. It will be seen that very little attention is required in the management of this apparatus, which I hope I have described so as to be understood. The mechanical arrangements are very simple, easily constructed, at a moderate expense, and not liable to be put out of order. —*Henry Liddell, Beverley-road, Hull.* [Thanks for the drawing, just received.]

HAND DIBBLES AND SEED DEPOSITORS.

A CONSIDERABLE extent of our Wheats, especially in some of the eastern counties, are dibbled. A man walks backwards with two iron dibbles of convenient length, and makes two holes abreast in each furrow slice, these couples being, perhaps, 8 inches apart; children follow and place seeds in the holes. The operation costs from 7*s* to 9*s*. an acre. The quantity of seeds sown is from 6 to 8 pecks, so that no such great saving is effected. This is owing to the inability of the children, in cold weather, added to their carelessness at all times, to drop the two or three grains only, as they are directed; more than this number are carelessly or unavoidably dropped into each hole. It is, therefore, advisable to substitute an instrument for the children's fingers, and by means of it they will be able to act according to their master's directions. Bentall's seed-dropper is such an instrument: by means of it, at each motion of the piston, 2, 3, or 4 grains drop into the hole over which it is held; 3 grains in general are thus dropped, and if the holes be 6 inches apart every way, they will amount in number to about 500,000 per acre, or rather less than a bushel. I need not describe this instrument after the reference already made to it (see page 519.) It is simply a substitute for the fingers of the children, and is a notable instance of the value of effieient machinery to agriculture: for it will not put a single hand out of employ, in fact, it will probably render dibbling more popular than heretofore, and so will increase employment, and it saves the farmer one half his seed, a saving which will probably be spent by him on the farm. There have been several attempts made to unite the dibbling and the depositing of the seed in one instrument, and very great skill and ingenuity have been exhibited in these attempts, but I cannot say that I consider them as yet altogether successful. The first of these was by Mr. Smith, of Droitwich. His instrument—whose workmanship (in all that we have seen) does the manufacturer great credit—consists of a copper tube, on the top of which is a box of the same metal, to hold the seed, having in the bottom dies to measure the quantities, which slide backward and forward, to fill and discharge. The bottom of the tube is shod with iron, through which a piston protrudes in a point: this piston is connected by a rod to a handle, on each side the implement, moving up and down in slots, and connected by a crank to the slide containing the dies. When the hole is made in the earth for the seed, the handles are thrust downward, which give motion to the dies, and discharges the seed into the tube; when the handles are pulled up, the piston is withdrawn from the aperture, and the seed dropped into the bottom of the hole.

The annexed figures represent this dibble. The shorter one differs from the other merely in shape; the weight of the seed-box is brought near to the ground, and the handles are connected over the seed-box, which allows it to be used either with one or both hands.



Figs. 1 and 2.

DINGLE'S HAND DIBBLE is the other instrument to which I have alluded. The following is a representation of it. It consists of two parts, as, indeed, is represented in fig. 4; the terminal tube consisting of two halves, which slide the one over the other—the one is connected with the tin-box held by the man, which contains the seed, and from the other projects, near the lower end, a spur, on which (after the workman has made the hole) he places his foot, and, lifting the box, opens the tube at the bottom (see fig. 4), out of which any seeds which it contains fall into the hole just made. The mode in which, while every hole is being made, two or three seeds are thrown into the tube to be ready to fall out as soon as permitted, is the following:—A portion of the seed is lying in a conical vessel at the bottom of the tin-box, at the bottom of this vessel is a hole through which slides up and down a jointed spindle, having on the end of it a cup to hold a few seeds. When (the foot being on the spur) the dibble is opened, this spindle, being attached to the same half with the spur, is pulled downwards through the hole, and its cup thus gets below the seed; the consequence is, that when, on making the next hole, this half of the dibble is pushed up again, this cup is pushed upwards, and throws its contents out of the conical vessel before alluded to into an adjoining one, which communicates with the dibble tube, and into which the seeds fall, ready to drop into the hole as soon as allowed.

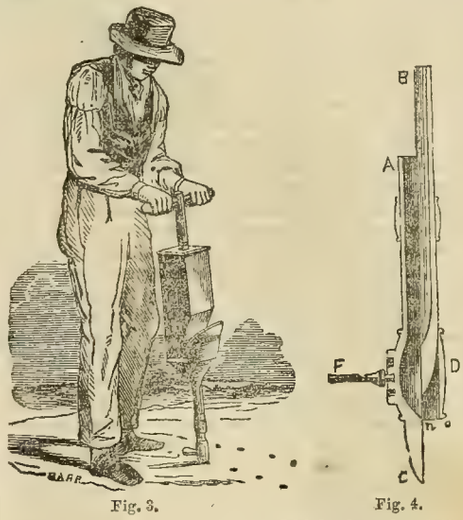


Fig. 3. Fig. 4.

As I said before, I do not think that hand-dibbling machines are yet quite successful; and I prefer doing the thing still at two operations—making the hole, and depositing the seed.—*M. S.*

Home Correspondence.

Potato Murrain in Ireland.—Since I wrote to you about six weeks ago relative to the disease in the Potato crop, I am sorry to say the opinion then expressed has been verified to a dreadful extent; all the Potatoes are more or less damaged, particularly all the red kinds. I dug and pitted Potatoes about a month ago, putting them in layers, with dry earth from an old fence between each layer, and on examining them yesterday, I found they were all destroyed. As a means of preserving the crop, I would advise the Potatoes to be dug in dry weather, and carefully picked previously to storing. In pitting them, they should be laid on the ground (I mean on the ground in contradistinction to the common plan of sinking a pit 2 feet in depth), and lime, which can be bought here for 10*d*. a barrel, sprinkled among them. They should then be well covered up with earth, and in the operation of covering, a drain 18 or 20 inches in depth will be formed all round the pit, which will of course add to keeping it dry. This is at least a simple method, and I have every reason to suppose will be found as effectual as kiln drying, dipping in boiling water, or similar plans, which are equally out of the reach of the poor man.—*J. R. W., Cloughfodda House, Cork, Oct.* 24.——The disease has been prevalent in the county of Dublin, Wicklow, and Wexford, though not so bad in the latter as in the two former. The white kinds have suffered most; for instance, the cheap and prolific Lumper, and the White Apple. The Cups have not suffered so much, and those planted in drills have been less affected than those on the ridge system. My white sorts are all more or less diseased. I had the bad parts of such as were only partly injured, cut out, and had some dressed, and they turned out to be as sweet and mealy as if they had been altogether sound. Everybody hereabouts is cutting away the bad parts, and using what is good as quickly as they can, and they boil good and sweet. Potatoes are cheap at present, because the market is glutted. Everybody that can, sells his stock, which he is afraid to retain; but by-and-bye Potatoes will be scarce, and it is then that the blow will come heavy on the poor.—*Subscriber, Killiney.*

Potato Disease.—In this place, where the disease appeared so early, and where, indeed, it has been so severe, it does not appear to depend on free moisture to the extent which, as I gather from the leaders of the *Chronicle*, is your opinion of the matter. In the districts of the porous green sand formation, which have generally yielded our best crops, they have this year suffered the most, while in the cold wet districts of the London clay, and clay beds of plastic clay and upper fresh-water formations, the crops have been much less attacked. In one instance, in a clay soil, and where the air had not been admitted by hoeing up, the Potatoes were almost unattacked. From all I can collect in this district, exclusion of air appears to have been the greatest preservation either by depth of planting or even by agency of free moisture on the surface. Though there has been so little duration, at any time during the summer, of weather free from rain, yet the actual quantity of water which has fallen has been much less than usual. Our springs have been very low, and during the harvest period, when fortunately there was a short continuance of dry weather, the effects of drought were most speedily visible. Whatever the cause of the disease in the Potato plants, there is reason to believe it has not yet ceased, for a few days since in a sheltered spot, where probably some peelings may have been thrown, I saw some luxuriant plants; the leaves, however, were just attacked by the very characteristic spots.—*J. Ben. Salter, Ryde.*

Potato Machinery.—In the third volume of the "Repertory of Arts," &c., p. 62, there is the description of a mill for grating Potatoes, which seems to be simple, efficacious, and not necessarily costly. Possibly the horizontal motion of the hand in turning the winch might be more fatiguing than were it turned as in the barrel churn; but were the axis horizontal, a watertight bearing through the tub would be requisite, which would add to the expense of the mill, otherwise a cylindrical grater, moving in a half cylindrical one might perhaps be preferable. Potato flour is manufactured largely in France, but I do not know what kind of apparatus is used for breaking up the Potatoes. A good engraving of the mill, described in the Repertory, accompanies the paper in question.—*M. S. B., Hampstead.*

Planting diseased Potatoes.—On the 20th of this month, I observed while the men were digging up Potatoes, that those which were half rotten had young shoots from 1 to 1½ inches in length. I carefully set aside a bushel of these and planted them immediately; and I have not the least doubt they will produce a crop. In this county (Dorsetshire) one half of the Potatoes are useless, except for boiling with salt for pigs, which plan we are adopting daily. On the same day I planted 2 bushels of perfectly sound Potatoes on the same piece of ground with the diseased ones, to see which will produce the best crop. I also intend to repeat the same experiment about the middle of September. In the meantime I would observe that farmers would do well if they pitted their Potatoes in very small pits, first putting a layer of perfectly dry sand or charcoal and then a layer of Potatoes alternately. We are adopting the above plan with a view to prevent the disease from doing any injury in the pit, which I have no doubt will answer the desired purpose.—*J. M'Intosh.*

Potatoes and Salt.—In reply to your Thanet correspondent, I beg to say that I recommended the Potatoes tainted with the murrain to be immersed for two or three minutes in boiling salt water, and then to be dried thoroughly before storing. Surely this differs from soaking them carelessly in the hold of a vessel, probably for hours.—*Falcon.*

Mr. Smith, of Deanston.—I have read in your last Number, with much interest, the speech of Mr. Smith, of Deanston, at an agricultural meeting at Dumfries, on the subject of draining, cost of tiles, pipes, &c., but what has more particularly attracted my notice is, that he has for years been manufacturing pipes and tiles from peat moss. If he would favour the public, through your Journal, with his method of preparing the peat, drying the tiles, &c., and give any other information which would facilitate the manufacture of so valuable an article in the Principality, where peat abounds, and good clay is rarely to be met with, he would confer a lasting obligation on the country at large.—*A Constant Reader, Portmadoc, Caernarvonshire.* [Peat tiles are not burnt—merely dried.]

When to Lime Land.—"H. A. S." would be much obliged to the editor or correspondents of the *Agricultural Gazette* if they would inform him what is their experience in liming Clover leas? Whether the "pros" or "cons" turn the scales? He is farming on the four-course, clay land, and applies about 12 quarters of Magnesian lime per acre every course on the Clover stubbles, which seems to answer so far, but still he has doubts whether this is the best time in the course to apply lime. The course is, Turnips, Barley, Seeds, Wheat.—*Edinburgh.* [We consider that lime ought to be applied on corn stubbles in autumn.]

Soap as a Manure.—I am glad to observe that my letter on this subject three weeks ago has called out others, and more particularly your own remarks at the foot of "G.'s" letter in your last Number, and that you mean to try it yourself. As to the price *at* which, and the form *in* which, it can be rendered, you may safely leave this for the present. Let the agriculturist satisfy himself of the value of the article, and the Government will remove the duty, which being done the manufacturer will, no doubt, put it in a form to suit our purpose. —*An Amateur Farmer.*

Seed Wheat.—In your *Gazette* of the 4th inst., we have a most important inquiry, viz.: "Will any one kindly give us their experience in old Wheat instead of new, as seed? Did any one ever grow a smutty crop from old seed?" Which inquiry has been noticed by two correspondents giving their mode of steeping their seed; but this I do not consider as satisfactory to your inquirer. I have been a Wheat grower for 35 years, with various success; I have steeped my seed in strong brine, blue-stone water, &c.; the result has been various; I have sown old and new seed with and without steeping, and most frequently the crops from old seed, even without steeping, have been the freest from smut. Is the received opinion correct—that smut is the seed of fungus? Will the seed of fungus vegetate if more than one year old? If these questions can be answered with certainty, it will be most desirable for the information of Wheat growers.—*H. C.*

The Leading Features to be Secured in Farm Buildings.—The following notions on this important subject are offered to the practical men who peruse the *Agricultural Gazette*, for their criticism and correction. Farm buildings are, 1st, the places where the whole produce of the farm, whether stock or grain, is prepared for market; 2d, where the manure is prepared for the land; and 3d, where the working animals and implements employed on the farm are housed. To prepare the produce of the farm for market in the easiest and most economical manner, and of the finest quality, is our first consideration. The principles on which this must be done are the same which a successful manufacturer observes in converting any raw material into the numberless articles which daily life requires. In converting raw grain and lean beasts into marketable commodities it is of primary importance that every part of the farm buildings should be so arranged that all the processes shall proceed with the greatest convenience and without loss of time or labour or deterioration of the quality of the article. The first requisite seems to be that the whole of the farm buildings should open into one central space, to which there are but two chief entrances, so that the whole may be closed at once, and all be in sight at the same time whenever the master goes into his farm-yard. First, let us attend to the preparation of grain for market. This is effected at Earl Ducie's Whitfield farm, in Gloucestershire, in the simplest way I have yet seen or heard of. The corn is so stacked when carried from the field, that it may be most readily conveyed into the thrashing machine. For this purpose it should be formed into small round ricks, standing on staddles, of such a size that the machine will thrash out one in half a day or one in a whole day. These small ricks are placed in a single row on each side of a light railway, which should be elevated on a roadway built of earth and masonry to a height of about 10 feet, sufficient to deliver its loads to the thrashing story of the building in which the machine works. The truck running on this railway should have a frame upon it to carry the corn, which, on coming to a stop, should discharge the load by turning over and throwing the corn on the floor ready for the machine. A lad who loads the corn on it from the stack would run it into the thrashing building and bring it back again to the stack. The grain, as thrashed out, falls from the thrashing floor into the winnowing machine beneath. The clean grain may be discharged from a spout into a bin or at once into sacks which would be hoisted up by machinery, as in a mill, to the granary, when a shoot of wood outside of a door in the wall deliver the sacks when required into carts beneath for market. The straw requires to be constantly removed from the thrashing machine, and in doing so at the rate required many grains of corn are commonly mixed with it and lost. To obviate this it is well to have one efficient shaker attached to the thrashing machine. We come next to the preparation of the live stock for market, towards which the straw removed from the thrashing machine, as just described, has to be applied as food and bedding; and this connection shews that as one end of the thrashing house must adjoin the stack yard, so the opposite end must deliver the straw near the fatting stalls. Adjoining the fatting stalls then, I should propose a straw barn opening at one end into the thrashing house, and communicating at its other extremity, or at one side with the chaff cutting machine, and having means of throwing out some of the straw for the purpose of being stacked or carted away for the stables, thatching, or other purposes. We come now to one of the principal features of the buildings, and one in regard to which rather different views are held in different parts of the country, viz., the fatting yards, stalls, or sheds. It is, however, generally acknowledged, that warmth and shelter, with dry bedding and good air and water, will produce better results with a smaller expenditure in food than any amount of feeding without these primary requisites for the well being of all animals. It is also important to consider how a considerable number (say 40 or 50 beasts) can be most easily and readily supplied with the great weight of food and water required by them, in all weathers, and by the fewest hands. These are the problems to be solved, and those are the most perfect buildings which are so arranged that this most important department of management may be best conducted. Nowhere, so far as I have seen, have these advantages been secured in a manner superior to that attained at Lord Torrington's farm, at West Peckham, in Kent, an account of which he has printed. I need not describe this part of his plan more particularly than by saying, that one cattle shed of large dimensions (90 feet by 54) contains under the same roof from 40 to 50 fatting beasts and milch cows. The one large roof affords space for free ventilation which could not be secured by several smaller roofs, and the temperature can be kept winter and summer to the point most suitable to health and comfort. The whole apparatus for preparing the food for the cattle, viz., the chaff and Turnip cutters, Linseed and cake crushers, steaming-room, &c., open out of this shed, so that one herdsman without going from under cover can prepare all the food and supply the beasts with the least possible trouble. A window looking out of the sitting-room of the farm-house made in the wall of the feeding shed, gives the master a view of all the beasts at one time, and the herdsman is never sure that his master's eye may not be upon him. This commodious shed also, being only divided by the low brick mangers, is convenient and available for many other purposes when not required entirely for cattle. Lambing ewes may be placed in it, sheep are shorn there, and may be brought into it to fat off; straw for thatching may be stowed in it. It is impossible to discuss the best arrangement for fatting cattle, without also taking into consideration the other manufacture for which farm buildings must be adopted, viz., that of manure. For the successful preparation of this indispensable material without waste, all are agreed that it should be protected from the weather, and that all the animal excrements, liquid and solid, should be preserved in it. For this purpose, again, a covered area seems much better adapted than open yards in which the sun, wind, and rain, rob the farmer of many a pound in the course of the year. On the contrary, where the liquid manure is conveyed to a proper receptacle by underground drains, and the solid parts are constantly carried to a proper spot which is covered over, no loss of valuable matter is sustained. The system of running the liquid manure into underground tanks has been much recommended, but when collected in these it requires much labour to pump it out again, and mix it with some porous material such as dry earth, ashes, dung, &c.; besides the outlay in forming the tanks, and the wear and tear of pumps constantly liable to corrode and become choked. Hence it appears to me, that the best arrangement would be to secure such a fall from the cattle sheds, stables, piggery, &c., that the liquid manure should deliver itself above the top of the heap of dung, compost, weeds, &c., which should be placed ready to absorb the liquid manure in a receptacle hollowed out and prepared for the purpose, and roofed over. There could be more than one such manure heap if required. The stalls and yard for young stock, as well as the stables for cart horses, should be near the straw barn and feeding shed, in order that their bedding and food from the chaff and Turnip-cutters may be readily conveyed to them. The straw for the stable use might be placed in a loft over the stables, but if so, ventilators, like those of a malt-house, must be carried from the ceiling of the stable up through the roof of the loft above. A harness-room may be partitioned off from the stable at one end. The rest of the buildings required are sheds for carts and implements, a workshop, a shed for artificial manures, such as guano, bones, vitriol, &c. A weighing machine near one of the entrances to the yard. Byres, or loose stalls, for bulls, cows to calve in, mares to foal, sick cattle, &c., and a piggery.—*T. S., Cirencester.* [We have considerably abridged this communication. The views of its author are very similar to those already urged in this Paper.]

On Stall-feeding Cows.—Observing an article in your Paper of last week, from the pen of Mr. Smith on this subject, and as it is one on which inquiry is frequently made by your correspondents, I state the result of my trial of the system which I found to be quite the reverse of that obtained in Mr. Smith's trial as regards the produce and quality of the cows. During a part of two successive springs, I fed two cows of the Suffolk breed (which had been house fed during the winter) in their stalls in an airy house, with Grass mown from a good meadow, and the cows were daily allowed the run of a yard attached to the cow-house, in which they had free access to water for about six hours a day. The cows were perfectly healthy, and kept themselves in good condition under this treatment; but their milk was poor and the cream very thin, and the butter of a pale colour. During the remainder of each spring these cows were turned out into the same meadow, from whence the Grass was mown for them for six hours a day, and kept up in the yard at night. Each spring these cows were so turned out they immediately yielded double the quantity of milk they had done whilst fed with mown Grass in their stalls, and also double the quantity of butter which was of a fine rich colour, and the cream was of a much superior quality and consistence. The same cows were also fed upon Tares in their stalls, cut just before coming into bloom; but I found the milk and cream to be so poor, that I was obliged to give up that system of feeding. I was very sorry to arrive at the conclusion that stall-feeding, at any rate in the spring and summer time, although a most excellent system for increasing the manure-heap and filling the liquid manure tank with a valuable fertiliser for my Grass-lands, was a far less profitable plan than allowing the cows the range of the pasture; for my pastures were all surrounded by new fences, and I was very desirous of keeping my cows out of them, if I could have done so without loss.—*T. E. Wallace, Diss.*

Machine to dry Corn.—I think if you were to try to direct a little attention to bring out a machine to dry corn, you would benefit your country, and probably your suggestions would be the means of inducing many an ingenious attempt; of course, nothing is equal to a favourable atmosphere, but as there are thousands of acres out, a drying machine might save and bring into use a great deal, which may be otherwise of no value. We have immense bellows at work in foundries; could not one subject, for a minute, a single sheaf of corn to a blast, that would drive off every particle of moisture, and render it capable of being put into small ekes or stacks. Suppose every township had one among its farmers, to go with three or four horses. I think one might be constructed similar to a winnowing-machine, by bringing the blast of very large iron-fans to a focus, and subjecting the corn, after being untied and put in a proper position, as in a narrow rack, and let fall from the top, where a man might stand for the purpose before the point of a large cylinder or funnel that might conduct, and in the meantime compress the air to such a degree, that its escape through the damp or wet corn, would effect such a dryness as to render it stackable.—*Durham.*

Sowing Machines.—On seeing your remarks, in your last Paper, on machines for sowing Wheat, I am led to make a few observations thereon, and if of any use, you can insert them in your paper. I am an advocate for the drill, provided it is carried out well with horse hoeing, &c., otherwise I think broadcast far preferable. If the land is in any way foul, we find the weeds grow much faster between the drills than in the broadcast. I have now making, at Mr. Tasker's, at Andover, a machine simple and cheap for sowing broadcast. It is similar to a Grass seed machine, only the hoe is not so long, and larger, and fitted with cups instead of brushes. Mine is made for a five turn ridge, the man walking in the furrow, and sowing half ridge on each side. I consider this well adapted for the purpose, particularly for small farms; it is also a nice thing for sowing under furrow. I agree with you that it is impossible for the most experienced man to sow regularly by hand. Last spring I sowed my Barley with a Grass seed machine, and it came up beautifully regular. The large hole open, sowed 4 lbs. to the acre, going twice over. The only piece of Potatoes not affected with blight in this part are two acres set four feet from row to row, and two feet from set to set, and on rather wet ground, not drained.—*J. Delap Wilson, the Farm, Downton, Lymington, Hants.*

Is it Indifference, or Want of Capital?—From the remarks made by "Falcon," in the *Gazette* of Sept. 13 and Oct. 11, I think I am not wrong in concluding that he is not a practical farmer; and, as he errs when he accuses the agriculturist of "apathy and indifference in gathering in their abundant crops," I will endeavour to show him his mistake. Had he examined minutely the large quantities of grain between Gloucester and London, he would, notwithstanding their golden hue, have found many ears only partly ripe, and many wholly unripe, which, although appearing to coach or railway passengers fit for the sickle, were in reality far from that state. But, allowing that they were fit for cutting, "Falcon" must have formed a very wrong opinion of the agriculturist's common sense—especially of him who is needy, or, in other words, occupies a large farm with insufficient capital, if he supposes he would allow his crops, almost his sole dependence, to be injured by remaining uncut; for, cut they must be, sooner or later, and they only require paying for once. "Falcon's" motive for exposing the errors of the large farm system with small capitals, however kind, is altogether useless, for he exposes what has never been hid. The agriculturist has too long been perfectly aware of the disadvantage of small capital, and "Falcon," and many more, must consider it more sin than misfortune to be poor, that they so ill-naturedly blame the farmer for having little money; and though they may fill whole columns of newspapers with the subject, their efforts must be useless; as no man, by reason of their interference, will give up a farm from which he gets his living, or refuse the offer of one because it contains a few more acres than he has capital abundant for.—*E. L. W., Cambridgeshire.* [We do not think "Falcon's" efforts useless. If it be so, that the farmer will not refuse a farm larger than he has capital for, may it not be useful to show him that he is thus doing himself an injury?]

Garrett's Drill.—I purchased last year one of Garrett's drills and patent horse-hoe, harrow, &c. (to follow the drill), which cost me less than 50*l*. I have used the drill for Wheat, &c. I drill my Wheat (averaging 9 inches apart) 8 rows at a time, leaving a wider space in the centre, so that I may at one glance see the track which the drill took when the grain comes up; I have then no difficulty in using the horse-hoe, as there is a guide to lead the horse, and I am enabled to follow the track which the drill took with ease. I have drilled at the rate of 4 to 6 pecks per acre, and have obtained as much per acre as when I used to sow 12 pecks broadcast, which I consider as great a saving as your correspondent's dibble. I can use the drill, without any extra spindle and cups, for sowing Turnips, by mixing from 2 lbs. to 3 lbs. of Turnip-seed with 2 pecks of charcoal-dust and 2 pecks of dry superphosphate of lime, and drill at the rate of 4 pecks per acre of the mixture; the seed having been previously steeped, soon comes up in dry weather. I have used the horse-hoe for hoeing between the rows of Turnips, and it answers well; and the hoes may be so set (that is, to width and depth), that when your crop of Turnips are ready for getting up, as many rows may be cut off within the ground as you had drilled, leaving only the tap roots in, which are of little value. The hoes may all be taken off, and harrow-tines fixed in their place; if one tine be not sufficient, two may be added to each lever. Each lever acts independently, and two weights are attached to each; by using it without any weight, a very light harrow is formed for Grass and other light seeds, and it is so constructed that you can regulate to any depth the same as the hoes are; by attaching one weight, a heavier harrow is formed, and, by putting the two on, still more so. I find it very useful for harrowing Wheat, the contrary way to what it was hoed; and, as it is lifted up by lever, it is much easier cleaned than the common harrow. I have no hesitation in saying that, by drilling Wheat and the free use of this horse-hoe, &c. (so that nothing is allowed to grow but the grain drilled), as great a produce may be obtained from a small quantity of seed as by any other method. The horse-hoe may be used in wetter weather than the hand-hoe, as weeds are frequently cut off by the latter, and replanted by the foot

pressing on them; the former leaving the land much lighter, and the weeds more likely to die. By a little contrivance, rake-teeth may be attached to each lever, thus making an excellent horse-rake.—*Francis Marston, Afcott, near Shrewsbury.*

Tramps.—Whereas our highways and byways are oftentimes infested by a wandering population of tramps and vagrants, who divert the stream of charity from our local industrious poor to support a swarm of professed beggars, or (at the best) tend to lower unfairly the price of honest labour by an immigration of strangers; now you, whosoever have chiefly at heart the interest of your own neighbourhoods, the safety of your own dwellings, and the comforts of your own families (in freeing them from the menaces or importunities to which they are so frequently exposed), are hereby called upon unitedly to put down this nuisance, by systematically refusing all relief to tramps, beggars, and other vagrant persons; who being thus discouraged will cease to wander from their own places of legal settlement: and you are further called upon reasonably to expend the alms, which you have hitherto thrown away upon such unworthy characters, in assisting the sick and afflicted of your own neighbourhoods respectively. So far as you approve of the above, and are able, you are requested to further its intention of hindering mere vagrancy, and promoting a truer charity throughout the length and breadth of the land, by copying, reprinting, or otherwise circulating and making it known among your friends and neighbours.—*From Sussex.*

On the Ripening of Grain.—The ripening of the Wheat plant apparently commences at the root. It hardens and dries up to the first knot first, and then up to the second knot, and so on; and the leaves rising from these knots die away in succession in the same order. Now, when the leaves are dead and the lower part of the stalk hardened and dry, there seems no source of nourishment from which the plant can draw, or to which it has access; and the process of growth seems confined to the assimilation or digestion, as it were, of the nourishment still contained in the juicy knots and upper part of the straw. All this takes place before the ear of corn is nearly ripe. Now, I have heard it opined that when the plant has once reached this state, it has within it all the nourishment which it ever contains; that the whole plant, straw, and grain is in this condition as valuable as food for stock, as the whole plant, straw and grain, is at any subsequent stage of ripening. That, in fact, ripening after this period consists in increasing the value of the forming grain as food, by diminishing to an equal amount the value of the straw as food. Now, if this be accurate, it would be most useful that it should be known; for, in many districts, where harvesting is late, the crop might be got in safely earlier, by cutting it after it has reached this first stage in the process of ripening, than in the usual method; and it would be equally valuable as food for cattle: I allude to the Oat and Barley crop. Will any one give his opinion on this subject?—*M. S.*

Steam Engines.—Seeing a paragraph in your Paper, in which "A Subscriber, of West Kent," asks for information on the best means of working a steam-engine, I can inform him we have worked a 3½ horse power portable steam-engine for the last two years, made by W. Cambridge, Market Lavington, near Devizes; and can state that it will thrash upwards of 200 bushels of Wheat per day, and can be worked from 6 o'clock in the morning to 6 at night, with 4 hhd. of coal; and that one can be seen at work, at any time, within 3 or 4 miles of Market Lavington, near Devizes.—*Henry Hitchcocke, Chitteer-All-Saints.*

Manure Making.—A novice desires to make some remarks anent your correspondent "Waterhouse," who purposes constructing a tank for weeds, &c. The same idea has run in his head for years, want of means alone having prevented its construction; but it should be managed very differently from that proposed by your correspondent.—The fertility of the Nile water has been the theme of every traveller, but none, so far as I know, have plausibly accounted for its nature. The impression, I know not how engendered, that the infusoriæ it contains are its fertilising principle, made me desirous to construct a tank for the production of these minute organisms in watery vegetable extract. A chemist in Aberdeen is said to have discovered a mode of combining azote in any proportion. This, so far as I understand the theory of agriculture, would be a very important discovery. But were a tank containing the refuse of vegetable and animal matter about a farm, amongst water, exposed to the sun—would not such a decoction soon teem with life? would it not contain more azote than the substances put into it would account for? Has the subject been examined by any chemist? I think animal life would, in the formation of its parts, first absorb the azote of the atmosphere in the water, and the water continuing to absorb air, a continuous source of azote might thus be attained, fixed, and suitable to be sent to the fields in the shape of animal matter. Your correspondent's additions of lime, tar, &c., would prevent the end I suppose to take place. Anxious to know (before going to the expense of a tank) whether any chemist has investigated this subject, and determined the constitution of vegetable and animal extract, the day made, and its difference after 8 or 10 days' exposure to summer-heat, has caused me to pen this, in the hope of attaining such knowledge.—*G. Milne, Alton.* P.S. Little reaches the *Agricultural Gazette* from the far north; but credit may be given to the following,—"That speculation is busy upon Potatoes in and about Aberdeen; to the writer's knowledge, one has laid out 200*l.*, another 400*l.*, and yesterday a friend told me that he had been waited upon by a party wishing to buy his (previously sold at 14*s.* per boll), and to the question—had he bought many? stated 2000 bolls. Others he has heard of sending north and south to buy up. More were planted, but the crop is said to be deficient; the earlier, a failure, has caused the others in the vicinity of town to be dug to supply the place. So many as 2000 bolls even, from this quarter, if sent away, will be odd, when Aberdeen more generally requires to import. The market price last week was 20*s.* to 23*s.* 4*d.* per boll.

Societies.

FLAX IMPROVEMENT SOCIETY.

A MEETING of the Flax Improvement Society was held at Ballinasloe, during the visit of the Irish Agricultural Society. The secretary read the report of the proceedings of the Society for last year. After the report had been read, Charles Beamish, Esq., county Cork, proceeded to state some objections to the cultivation of Flax, as being deteriorating to the soil. He said:—"According to Mr. Stephen, in his 'Book of the Farm,' p. 1036, Flax must be kept clear of weeds during the summer; and as to sowing Grass seeds, even the low growing white Clover, amongst Flax, it should make no difference to the Flax plant whether it is choked by a valuable or a worthless plant, since both would equally be weeds in reference to it. Sowing Flax on clean land will save much of the cost of weeding (that is, after a green crop), as Turnips and Potatoes, the cleansing of which will have rendered the soil comparatively clean for Flax. If Flax be thus cultivated, in lieu of a Corn crop, its culture may be practised without much deterioration to the land; but if it be determined to regard Flax as a green crop, and cause a Corn crop to follow it, the land will in time assuredly feel the scourging effects of such a system, and oblige its cultivators to abandon it altogether. It should never be lost sight of in considering this question, that to raise Flax must bring it into competition with white crops, and not green crops; because to raise it as a green crop would be to deteriorate its quality, by bringing it into immediate contact with manure; and if it be raised without manure as a fallow crop, it must deteriorate the soil materially; no species of crop being more scourging to the soil than Flax, not even a crop of Turnip seed. In the harvesting a Flax crop, we are placed in this dilemma, that either the quality of the Flax, or the seed, must be sacrificed. The seed separately will not pay the expense of culture. Seed is produced from 6 to 12 bushels per acre; taking the highest at 12 bushels, that is, 1½ quarter, and taking it also for granted, that it will all be fit for sowing, and worth 3*l.* per quarter (the highest price given in 1844), the gross return would only be 4*l.* 10*s.* per acre. The Flax crop varies in weight; of rough dried fibre (according to season and soil) from 3 to 10 cwt. per acre; and taking the high produce, 5 cwt. per acre of dressed Flax, at the highest price in 1844 of 6*l.* per ton, the yield will be 31*l.*, from which have to be deducted the expenses of beetling, scutching, and heckling, and waste and loss of straw for manure, when the profit will not exceed 8*l.* per acre; but though such a profit would certainly repay the expenses of cultivation, yet it presents the most favourable view that can be taken, even with the sacrifice of the seed. In Ireland, the case, I believe, will be the same, though much of the soil of that country, being mossy, is more favourable to the growth of Flax than that of England or Scotland; yet, even there, it will be found impracticable to raise good Flax and good seed from the same piece of ground at the same time; and if the seed is not good the oil-cake will be bad."

Opinions on the present Flax Agitation in Ireland, page 1018.—Mr. Henderson, the successful competitor for Irish Flax, exhibited, at Belfast, in 1843, gives his rotation of cropping as follows:—1. Potatoes or Turnips, dunged and limed. 2. Winter Wheat. 3. Flax. 4. Clover and Rye-grass cut for hay, being top-dressed with soot. 5. Pasture. 6. Pasture. 7. Oats. 8. Flax. Flax coming after a corn crop, as above, is injurious to the condition of the soil; and sowing down Clover with Flax, after a white crop, is as bad husbandry as can be; and were it practised on land which had grown Clover for a long time, Clover would soon cease to grow. In Ireland, where the culture of Clover is but of recent introduction, it may grow well for some time under any treatment; but the Irish farmer should beware of the nature of this plant, and rule his practice by our experience, which would warn him against putting so useful a plant to the trial here recommended. Flax will, no doubt, grow of finer quality, after a white crop, on land in good condition, or on soil naturally fertile; as on such soils it would be coarse, and apt to branch, if grown after a manuring; and if the main object of the Irish farmer is to desire to grow Flax of the finest quality, it would be better to acquaint him at once of the deteriorating effect of Flax thus cultivated, upon the condition of the soil, than to encourage him to make the other crops he raises subservient to Flax, and to inculcate in him a wrong opinion. There seems another wrong opinion abroad in Ireland, in regard to Flax, that that really valuable plant is neglected in its culture; and that, were it not for the neglect of the Irish farmer, he would be much wealthier than he is. He should be distinctly assured that, in making money in cultivating Flax, he must do it either at the sacrifice of corn or deterioration of soil; for both corn and soil he cannot continue to have, in perfection, along with fine Flax. Albert D. Thaer, who conducted a large experimental agricultural academical establishment under the Prussian Government, in the neighbourhood of Berlin, from 1804 to 1828, says, in his "Principles of Agriculture," page 537, "Flax must not be grown again, till after a considerable interval, on land which has once borne it. It is thought that a space of at least nine years ought to intervene between two crops of this plant, even in countries where the soil appears best adapted for its cultivation, and where that cultivation is most successfully carried on, as, for example, in Belgium." After Mr. Beamish had ended his speech, which appeared to excite universal dissatisfaction among the experienced Flax-growers of the north, Mr. Macartney stepped forward on the court-table, and said that, whatever conclusions Mr. Stephens might have arrived at in any theoretical investigation, it was a fact which they (the Flax-growers of the north of Ireland) had proved by more than 30 years' experience, that Flax was not a deteriorating crop when properly cultivated and handled.—The Secretary having called upon G. T. Reilly, Esq., to get upon the table, he rose and said, "My lord, the secretary has requested me to get upon the court-table, but I feel that I am in my proper position in the advocate's seat; for I am an earnest advocate for extending the cultivation of the Flax crop." After having aptly criticised Mr. Beamish's remarks as being an indictment against the Flax crop, for having done serious injury to some land in the county of Cork, he hoped the gentlemen present would be willing to listen to every exculpatory evidence in its behalf. He (Mr. Reilly) replied to a question put to him by Mr. Macartney, that he would caution gentlemen-farmers from engaging to any great extent in the cultivation of Flax, unless for the humane consideration of giving employment to the labourer.—Mr. Walker, an extensive county Down farmer, and who annually cultivates from 40 to 60 acres of Flax, came forward, at the request of the noble chairman, to state the result of his practice. He (Mr. Walker) said that, after many years experience of Flax cultivation, he found there was a profit on an average crop, of from 15*l.* to 20*l.* [average?] annually, per acre, after payment of all expenses. The rotation he would recommend from practice was, a five-course shift; the Flax to be sown in every alternate rotation; some other crop to be taken during the intermediate one; and on no account should Flax be sown at shorter intervals than seven years. He found that Flax did not deteriorate the soil for producing any other description of crop: although, when sown too closely in succession, the Flax crop itself was not so good as when sown according to the rotation he had stated. In answer to a question put by Sir Percy Nugent, he (Mr. Walker) said that a small portion of the Flax, next the root, was injured by the Clover; but he also found that the Clover was materially benefited by being grown with a Flax crop. It was a crop which gave more employment to the labourer than any other, and at a time of the year when labourers' services were little required, as a large farmer could have his Flax pulled and otherwise treated, before the harvest operations commenced; it was thus a very convenient crop for an extensive farmer.—Sir Percy Nugent then observed, that the opinion in Westmeath was, that the fibre of the Flax was injured by allowing the seed to become ripe for use. Mr. Walker stated, in reply, that the general custom was to allow the Flax to stand too long. He conceived that it should be pulled before becoming "dead ripe," otherwise, the quality of the fibre would be deteriorated. In reply to a question regarding the time that Flax should be allowed to lie on the ground, Mr. Walker stated that it depended greatly on the state of the weather, but from eight to ten days were generally required. The ground best suited for spreading it on was a newly-mown meadow, and that, if thinly spread, it did not require to be turned.—Mr. Hazlett, agriculturist to the Flax Improvement Society, was next called upon by the Secretary to detail some of the modes practised in the growing and handling of Flax. Mr. Hazlett stated that the soil best suited for growing Flax was a strong loam on a clay subsoil. He stated that the difference in favour of the Flax when pulled green, and when allowed to become ripe, was 4*l.* per acre. The produce of an acre if pulled green would realize 20*l.*, whereas, when allowed to become ripe, it was worth only 16*l.*; but the green bolls were only worth 3*l.* per acre, while the ripe ones amounted to 4 barrels, which, at 2*l.* each, would be worth 8*l.* per acre, thus leaving a balance of 1*l.* in favour of the ripened Flax.—Mr. M'Arthur, Randalstown, stated that the depth to which the root of the Flax plant descended in search of food being from 2 to 3½ feet, he considered that Flax was not an exhausting crop to the surface soil, as two-thirds or three-fourths of its inorganic food was drawn from the subsoil—the surface being thus comparatively at rest.—*Dublin Farmers' Gazette.*

LIVERPOOL AGRICULTURAL SOCIETY.

REPORT OF THE INSPECTORS OF FARMS AND CROPS.—"Having laid before the committee and other members a particular account of the farms and crops, as well as an account of the draining and other improvements inspected by us during the past year, it now becomes our duty to make a few general remarks. In the first place we would notice the best cultivated farms. Richard Willis, Esq., of Halsnead, to whom has been awarded the medal, is the owner and occupier of a farm and park of 500 acres. The soil is chiefly a brown sandy loam, which is cultivated as follows—viz., 220 acres pasture, 146 mown, 47 Wheat after Potatoes and Tur-

nips, 25 Oats, 6 Vetches for stall feeding, 41 Potatoes, and 15 Turnips. The farm is in a very high state of cultivation, and the crops abundant. The green crops were perfectly free from weeds, and were looking better, at the time of our inspection in August, than any we have seen this year. The whole reflects great credit upon Mr. Grey, the manager. We must not omit to notice the beautiful Whitethorn hedges upon this estate, which are kept in the greatest order. Mr. Henry Clayton, of Speke, who has obtained the Society's prize of 10*l.*, occupies a farm of 163 acres, under Richard Watt, Esq. The soil is chiefly a light, sandy loam. About 11¾ acres of this farm are in pasture, 34½ mown, 18¼ Wheat, 6 Oats, 18¼ Barley, 4 Rye and Vetches for stall-feeding last spring (afterwards planted with Potatoes and Turnips), 13½ Potatoes, 2½ Turnips, and 3¾ orchards, gardens, and occupation roads. The crops on this farm were all good and clean; the hedges, gates, and homestead were in the best possible order, and the general state of management of a superior kind. The tenant has made great improvements upon the farm by draining, by filling up of unnecessary pits, and by soughing of deep ditches. The present stock consists of 8 horses, 16 milch cows, 1 bull, 4 heifers, 11 pigs (but usually feeds 20 annually), and 3 rearing calves. The manure made from these is estimated at 250 tons; in addition to which, 600 tons of night-soil, and about 200 tons of horse and cow-dung, are purchased by the tenant, annually, from Liverpool.—Mr. G. Halsall, of Halewood, to whom has been awarded the prize of 5*l.*, occupies a farm of 106 acres under the Earl of Derby. The soil is all a stiff clayey loam, on clay. The farm is not at present under a regular rotation of cropping, as the improvements which are going on prevent it. These improvements consist of draining on the parallel system, with tiles and slate soles, the drains being 5 yards apart; eradication of old hedges, by which a number of fields are thrown together, and new fields afterwards formed of more convenient shapes and sizes; new Whitethorn hedges planted, waste from the road-sides inclosed, and useless ponds and pits filled up, and made into good land. The tenant is assisted in these improvements by his landlord, and we need scarcely say the work is all well done. The length of fences and ditches which have been done away with since the improvements first commenced, is 3474 yards, and the land gained by these and the filling up of pits, &c., is upwards of 4½ acres. This is only one of many instances of his lordship's farms which are thus being remodelled and improved. We think it a worthy pattern, and if followed by others, as it has already been to some extent on the estates of the Earl of Sefton and Mr. Blackburn, a mighty change will be effected in the appearance of a district which has hitherto partaken far too much of the character of a wooded wilderness. Draining and subsoil ploughing continue on the increase. The beneficial effects of the latter have been very perceptible in the crops of the successful competitor, Mr. Robert Birch, of Netherton, a tenant to the Earl of Sefton. His lordship, in order to promote the improvement, has provided three subsoil ploughs for the use of his tenants. Marling of land is still extensively practised, and with great advantage, especially on poor or exhausted sandy soils. It is now more frequently applied upon land in a state of fallow than formerly; but some of the old Cheshire farmers object to this practice, and contend that it ought to be applied on Grass, half a year or a year before breaking up. The marl of the successful competitor, Mr. Wilson, of Norton, was chiefly applied to arable land, in last winter and spring, and was well fallen and harrowed, before being ploughed under. There can be no doubt that the marling, in this instance, will have a very beneficial effect. It is gratifying to remark, that for the new prize offered for the eradication of hedges there have been four claimants. The committee awarded the prize to Mr. John Birch, of Orrell (tenant to the Earl of Sefton), and recommended that an extra prize of the same amount should be given to Mr. Rose, of Halegate (tenant to Mr. Blackburne), as he had, during the last year, eradicated 1670 yards of old hedges (half filled with stunted Oaks and other timber), upon a farm of 232 acres; and, in order to make the improvement more complete, he had filled up 21 pits. Fifteen fields were, by this improvement, made into six. The ditches were all drained with stone and tile, and filled up, and the land gained by hedges and ditches (which averaged six yards in width), and by filled-up pits, would not be less than three acres. We will now give our opinion as correctly as we can from the means we have had of judging of the state of the crops in the district. Hay Grass has been unusually abundant, but the second crop of Clover has been very light. As to the Wheat, we believe it will be under what is usually considered an average crop. The straw has certainly been abundant, but the yield is perhaps worse than we ever knew it. This is attributed by us to the very wet and windy weather which prevailed just at the time it was in blossom. Barley and Oats have generally been good, and although they were much laid we anticipate a full average yield. The growth of Beans appears much on the increase, which may be accounted for by their being substituted by many farmers for Potatoes, on account of the failure of late years in the latter crop. The crop is unusually good, but, owing to the lateness of the harvest, has not yet been gathered. We would recommend that they should always be sown in drills, as it appears almost impossible to keep the land clean when sown broadcast. Potatoes showed well for a good crop; but it is doubtful at present what will be the result, as the rot is again prevailing. The application of guano has been very general this year, and has been successfully applied for nearly all descriptions of crops. Whilst on this subject, we would call the attention of the members to another light manure, invented by Professor Liebig, and prepared by Messrs. Muspratt and Co., of this town, which, if it realises the expectations of the inventor, will be a valuable acquisition to our other stock of fertilisers.

"WILLIAM LONGTON,
"*October* 1, 1845. HENRY WHITE."

Reviews.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. No. 10. (New Series.) October, 1845. Blackwood and Sons.

THE present is a very interesting Number. We have taken the liberty of extracting some of its most instructive paragraphs, which shall appear at intervals in another section of the Paper. At present we have to beg the attention of readers to a letter by Professor Johnstone, on the Agriculture of Wigtonshire, in which some topics of considerable importance are discussed. A considerable portion of it is taken up by a description of the soil of the district, and its relation to the climate, on which, of course, its agricultural character depends, and on this subject we extract the following passages:—

"The real meaning and value of this word climate is much elucidated by a knowledge of the geology of the district. From St. Abb's Head to the Mull of Galloway, there stretches a broad zone of slate rocks, over nearly the whole of which similar obstacles to agricultural improvement exist, and a similar stationary or slowly advancing husbandry. But if in the midst of this broad tract of country a patch of limestone, or trap, or of old red sandstone appears, all at once the difficulties of climate appear to vanish, and heaven and earth seem to conspire in rewarding the diligent cultivator of the soil. It is the nature of the rock, therefore, on which the soils rest, and by the decay of which they have generally been formed, that has created, as it were, the climate of the spot—has caused the production of its bogs—has subjected its crops to mildew—and has made its harvests scanty and uncertain. The physical conformation of a country, its latitude and its height above the sea, are beyond the reach of human influences, and so far as climate is dependant upon these circumstances it is unalterable. But such is not the case with climate in so far as it is dependant upon the nature of the soils, and of the rocks on which they rest. These are to a certain extent subject to the dominion of man, and it is in endeavouring to overcome the difficulties which they present, that human energy and perseverance are likely to struggle with success. But where these difficulties exist man is long in settling. The easier ways to comfort are chosen first, the more favoured spots are cultivated, where a smaller outlay of labour and capital command a quicker and more sure return. Pioneers penetrate, and more daring men here and there settle themselves in cold and unfriendly places, and their posterity subdue it to the plough; but it is long before capital and skill, and men armed with the resources of higher knowledge, find their way among them, and show that the natural difficulties which the region presents may be removed by human exertion perseveringly and systematically applied. Such is the case with the slate country of this part of Scotland."

The rocks and subsoils of Wigtonshire, appear to contain but little lime, the soils accordingly are also deficient in this important mineral ingredient, and the following history of its artificial application illustrates in a very striking manner the influence which increased facilities of internal and external communication have upon the progress of improvement.

"For want of native lime, much of the improvable land must have long lain in a state of comparative unproductiveness. The introduction of sea-borne lime at a cheap rate from Cumberland, from the Isle of Man, and from Ireland, first superseded the use of the sea shells and of the bog marl in many localities where they had previously been employed. Its next effect was to improve and bring into arable culture many tracts of lands which had hitherto lain in a state of nature, but which the possession of lime enabled the holders readily to reclaim. After lime had thus been introduced into the district, and its usefulness ascertained, the money value of good roads began to be experienced. The farmer could afford to cart his lime a certain number of miles inland where roads existed—where there were no roads there were no means of cheap conveyance, and therefore his land, though within a few miles of the harbour, lay unimproved. In this state of things some enterprising landlords began to make roads for their tenantry upon their own estates, and what may still be seen in many parts of Scotland was then generally observable in the counties of Wigton and Kirkcudbright. Where the new road ceased, improvement stopped, and where facilities for easy transport were altogether wanting, moors and stony heaths, and marsh or bog prevailed. The whole of this peninsula is within a comparatively short distance of the coast, so that if proper means be taken, its agriculture need never languish for want of what the sea can bring to it."

"Another circumstance of a very interesting kind, in connexion with the agriculture of this district, is the influence which steam navigation has exercised in gradually altering the long-established system of rural husbandry. The breeding and rearing of young stock was, and still is, the principal means by which the majority of *slate*-soil farmers pay their rents. The young animals used to be merely kept alive during the winter months. At two or three years old, they are sold to the drovers, who dispose of them in districts where richer pastures afford a more fattening food. It was during the universal prevalence of this system that that the late Sir William Maxwell attempted in vain to introduce the Turnip husbandry. The premium he offered called forth no competitors for several years, and was at last given to a cottager who had cultivated a few Turnips in the corner of his garden. Where Turnips could not be profitably used, no premiums could force the cultivation of them. The only animal on which the art of fattening was tried thirty years ago was the Martinmas cow, intended for the winter salting-tub. But steam navigation has effected what premiums failed to do. It has made the use of Turnips profitable; and has, in consequence, caused the growth of them to spread amazingly. Liverpool is now an accessible market for fat cattle; and hence, instead of selling off all their stock in the lean state, many farmers now raise Turnips, and fatten them off upon their own land. I need not tell you to how many other improvements in the breed of cattle and in the cultivation of the soil this growing of roots to be consumed on the farm is the necessary parent and precursor.* It has already produced marked effects both upon the appearance of the farms and upon the comfort of the farmers."

Another subject to which Professor Johnstone alludes in this letter is, the manufacture of Potato starch, which is carried on to a considerable extent on the Bay of Wigton, and this is the more interesting at present under the circumstances in which we are this year placed in reference to the Potato crop. With a few extracts on this subject we shall conclude.

"You know that in the neighbourhood of large towns the raising of Potatoes is a very profitable branch of farming, and that this arises in part from the circumstance that the great weight of this crop excludes the distant producer of it from entering into successful competition with the suburban farmers. Hence, where good Potato lands occur, and good crops are, or can be, easily raised, at a distance from markets, the tenant is prevented, by the cost of transport, from availing himself, in the greatest degree, of the peculiar qualities of his soil. It is therefore of consequence in such localities to discover a mode of manufacturing the Potato into some other commodity of easier transport, and, if possible, of as ready a sale. In the north of Europe, it is a very common thing to attach a distillery to a large farm, for the purpose of working up the Potato crop, by converting it into brandy. In our country the farmer cannot adopt this method, but he can convert his Potatoes into farina or Potato flour. Into this manufacture great improvements have recently been introduced, and the farina is converted into British tapioca, into syrup, and other articles, which find a more or less ready market. The waste fibre of the Potato, which formerly was considered fit only for manure, is now converted into a wholesome nourishment for cattle, and even the washings of the starch, where skill and economy preside over the process, are collected and employed as a manure. You recollect the fact mentioned to us by your brother-in-law, Mr. Binning Home, that these washings, when allowed to run into the Potato drills, had given, near Stirling, a larger crop of Potatoes than was yielded by other parts of the same field, to which guano and farm-yard manure had been applied."

"In Germany, a method has lately been introduced of making flour from Potatoes, which has not, I believe, been tried in this country, but which is recommended as giving a better, a more palatable, and a more abundant article of nourishment than the common process of preparing Potato starch. This method consists in washing the Potatoes, cutting them into slices, as we do Turnips, steeping these slices for twenty-four hours in water containing one per cent. of sulphuric acid (oil of vitriol), drawing off the acid water, washing them several times with pure water, drying them in a stove, and then grinding them in a common corn-mill. The flour thus obtained is pure white, and the refuse siftings or bran seldom exceed five per cent. of the weight of the dried Potatoes. The sulphuric acid in this process extracts the colouring matter of the Potato, with certain other substances which would give the flour an unpleasant taste. This flour will not make good bread if used alone—it requires to be mixed with from one-half to one-third of Wheaten flour."

But the following is the most interesting piece of information that we have met with on this subject. It refers to the most economical method of using the Potato crop as food for cattle:—

"As I have said so much on the subject of Potatoes, I may as well describe to you a method which has lately been recommended in Denmark and Norway, for making the Potato more available and more profitable in feeding cattle than it has ever hitherto been. You are probably aware that Potato-starch can be readily converted into Grape-sugar, and that the syrup obtained from it is largely employed for the manufacture of brandy in the north of Europe, and even of the best brandy which comes from France. In the more northern of the French wine-growing provinces it is also mixed with the less sweet varieties of Grape-juice, so as to give an additional strength and richness to the wine. One of the methods by which the Potato-starch is converted into Grape-sugar is to mix it with one-tenth of its weight of ground malt diffused in water,

* You will find this illustrated in an interesting manner in the number of the North British Review published in August of this year.

and to keep the mixture for some hours at a moderate temperature. The starch dissolves, and the liquid becomes sweet from its conversion into Grape-sugar. This is the method which M. Böggild, of Copenhagen, proposes to apply to the whole Potato, in order to bring it into a soluble state, to make it more easy of digestion, and thus to increase its feeding properties. He washes his Potatoes well, steams them thoroughly, and then, without allowing them to cool, he cuts them in a cylinder furnished internally with revolving knives, or crushes them in a mill, and mixes them with a small quantity of water and 3 lbs. of ground malt to every 100 lbs. of the raw Potatoes. This mixture is kept in motion, and at a temperature of 140° to 160° F., for from one to five hours, when the thick gruel has acquired a sweet taste and is ready for use. Given in this state, the results of experimental trials are said to be—

"1. That it is a richer and better food for milk cows than twice the quantity of Potatoes in a raw state.

"2. That it is excellent for fattening cattle and sheep, and for winter food: that it goes much farther than Potatoes when merely steamed; and that it may be economically mixed up with chopped hay and straw.

"I have before me a pamphlet, published at Christiania by the Royal Society for Promoting the Improvement of Norway, in which this method is strongly recommended; also a letter from Copenhagen, dated 29th April, 1845, in which my correspondent writes as follows:—'This invention has been more and more appreciated and applied in my native country (Norway) and in Denmark, and the great advantages with which stall-feeding may be introduced, at considerably less expense than formerly, render it suited to general promulgation.'—'The method has more and more gained adherents, and further comparative experiments, made by scientific and experienced persons, have proved its superiority. Thus one of these experiments establishes that an increase of 1½ lbs of flesh is obtained from 25 lbs. of Potatoes—that the feeding of horses with this mash is found to be applicable and cheap, and they all confirm that Potatoes used in this manner as food amply afford double the nutritive powers compared to the food formerly used.' I cannot here state my reasons for believing that there is really something worthy of attention in the alleged superior feeding qualities of the Potato given in this state; but I can strongly recommend you to make experiments upon this subject. If the Potato can in this way be converted into a larger quantity of beef, mutton, or pork, than hitherto, another outlet will be provided for the Potato crop, which may, perhaps, prove more profitable even than the manufacture of it into flour."

Miscellaneous.

Potato and Turnip Epidemic.—To add to the terrible disaster which seems to threaten a winter of severe suffering and famine amongst the poorer classes in this country, a similar disease has broken out in the Turnip crop. A gentleman from the neighbourhood of Dundalk, called at our office the other day, with a box of Swedish Turnips, giving unmistakable evidence, from the odour they exhaled, that they were in an active stage of decomposition. The disease in the Turnip, unlike that of the Potato, has made its appearance in the core. The whole of the internal structure of the bulb seems to be discoloured and disorganised, while the tops and outer part are perfectly healthy. Nothing can be discovered from an external examination, and it is only when cut up that the mischief can be perceived. The gentleman above alluded to, came up specially to Dublin in order to get information regarding this dreadful scourge, which, at present, threatens to sweep our green crops completely away. He says that within a circle of five miles around Dundalk every Turnip field is in a state of disease; and further states it as his opinion, founded upon a careful examination of the Turnips growing in these fields, that two-thirds of them are gone. They have been grown on different kinds of manure, farm-yard, guano, bones, and guano and ashes; all are diseased without exception; those grown on farm-yard and manure most so.—*Dublin Farmers' Gazette.* [We have a 10-acre field of Swedish Turnips affected just thus: other fields, however, appear uninjured.]

Guano in the St. Lawrence.—Feeling, as I do, the most sincere gratification in everything which may conduce to the benefit of the agricultural interest in England, as well as in my own country, I have great pleasure in communicating a piece of information, which I received not long since from a gentleman from New York, of the highest respectability. An enterprising young man, in passing up the Gulf of St. Lawrence, discovered an island greatly frequented by sea-fowl, and upon it a large deposit of their excrements. He made provision to return, and then visited the neighbouring shore on the main-land, which was very much frequented by countless multitudes of the sea-fowl, but very difficult of approach, on account of the rocky character of the coast and the breakers in the neighbourhood. Upon getting access to it, however, he discovered an immense amount, and what he terms an inexhaustible supply, of guano. He brought home a considerable cargo for the small vessel in which he sailed; but, from distrust of its character, or the common tricks of trade, the price offered for it in New York was so low that he refused to dispose of it. Some of it, however, was purchased by a friend of the gentleman who gave me the information, and this friend is well known to me as a man of high character; and he applied it side by side on the same plot of ground with the Peruvian and Ichaboe guano. The gentleman who gave me this information, and whose name and address I shall be happy to give you, assures me that he saw the crops growing to which this guano from the St. Lawrence was applied, and the beneficial effect of this guano was decidedly superior to that either of the Peruvian or Ichaboe. He gave me this information some months since, and then went to Paris. Sensible of the great importance of authenticity in such a case as this, I waited his return, and having seen him again, he confirms his former statement in the most explicit manner. Having none, and never intending to have any personal interest in any trading or mercantile speculation whatever, I have no hesitation in giving this information to the public, which, if well founded, must be of immense moment to British agriculture. I can only say that the gentleman who gave me this intelligence, from his long-established character and connexions, is, in my opinion, incapable of making any intentional misstatement; and the gentleman to whom he refers as having made the experiment, the progress of which he witnessed, stands equally high. I know very well the general impression of the efficacy of guano, as found in tropical climates, is attributable to the absence of rain in those countries. Professor Liebig, in his recent address to the agriculturists of Great Britain, says that "It is known that the collection and preservation of the excrements on the African islands and the coasts of Peru and Chili depend upon the scarcity of rain in those countries. The best sorts of guano contain in fact, more than one-half of their weight of soluble salts, which if exposed to the rain are in exactly the same condition as, under similar conditions, a heap of salt." This may be so, and undoubtedly much of this manure must be washed away by the rain; for the tropical regions are not without their rainy season, when the rain comes down in torrents of which we in temperate latitudes have little conception. But in the cold climate of Lower Canada, and in the northern seas frequented by these sea-fowl, these deposits must for several months in the year be locked up by an inexorable frost and banks of snow and ice, which may equally serve the purpose of a secure protection against waste. At any rate, in this case, the fact is all that is of importance; and that being determined, we can then at our leisure adapt the theory to the occasion. —*Henry Colman, 56, Charing-cross, London, Sept. 24, 1845; in the Mark Lane Express.*

Notices to Correspondents.

BEST CROP AFTER GRASS—*L S S*—If the fertility of your farm is to be *self*-supported, your first crop should be consumed upon the land. It should be half corn, Oats for instance, and half-green crop, as Swedish Turnips. If, however, you are going to try and keep up its fertility artificially, you may as well have half of it to Potatoes, and half to Beans.

DRAINING TILES—*A Sub*—Inch-bore draining pipes may be had for 12s. a thousand. We do not know the name of any factory of them in Kent.

FLEMISH AGRICULTURE—*A Sub*—A Report on the Agriculture of Eastern and Western Flanders, by Rev. Thos. Radcliff, London, 1819. The Rev. Mr. Rham has written on the subject in the "Journal of the English Agricultural Society."

GOLD OF PLEASURE—*J W* should sow it, 20 lbs. per acre, some time in May on any light sandy soil.

KOHL RABI—*C M F*—It is food either for man or beast.

MANURE TANKS—*M B*—You must make them in every respect water-tight, if, as you say, your land is loose and full of springs. This is to be done by paving the clay bottom, filling the joints with Roman cement; and the walls must also be carefully built of the same cement used throughout, and they may be puddled behind also. The whole of the work, paving and all, should be done with bricks.

POTATOES—*Rev. F. Hewson*—We are planting ours *now*, about 6 inches deep in a loose light soil, covered slightly with earth, then with a little strawy dung, and lastly with the rest of the earth. —*M B*—It is not a good plan to wash Potatoes before storing them away, unless they are dried again. Use a knife or the thumb-nail on any doubtful ones, and you will soon see if they are sound or not.

SAMPLE OF CORN—*J W*—You have sent us a sample of naked Barley, which is grown to a considerable extent on the Continent, and of late years to some extent in this country. We have no experience of it, and do not know if for malting purposes it is superior to the common varieties.

TO CROP TWO ACRES OF LAND—*Constant Reader*—See "A Garden Farm," p. 46, 1844.

WHEAT—*Subscriber in Gloucestershire*—If your seed will not grow in a flower pot (and you may try it), then it is dead, and no "treatment" will be of any avail.

WHEAT CULTURE—*R A A*—You might mix 3 cwt of guano with 10 or 12 bushels of the ashes and sow them broadcast in wet weather, early in spring, over the young Wheat plant, and then harrow it in with light harrows. This is better than drilling it with the seed.

*** As usual many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Oct. 27.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0	to 4s	2	Best Downs & Half-breds	4s	8 to 5s 0
Best Short Horns	3	8	4	0	Best Long-wools	4	6 4 10
Second quality Beasts	2	10	3	4	Ewes and second quality	4	0 4 4
Calves	4	0	5	0	Pigs	3	8 5 0

Beasts, 3954; Sheep, 24,950; Calves, 86; Pigs, 317.

Beef is again plentiful, but the average condition is not good, consequently the best qualities maintain their price. Trade is in rather a depressed state, and second rate Beasts with difficulty realise our quotations. Sheep are scarce, and some of the best old Downs have made over 5s per 8 lbs. There is a tendency to improvement in all descriptions of Mutton.—Veal and Pork continue steady.

FRIDAY, Oct. 31.

Trade having been very heavy in the dead markets this week, and the weather mild, we have very few buyers to-day. Prices are fully 2d per 8lbs. lower. Best Scots, &c., 3s 10d to 4s; Short-horns, 3s 6d to 3s 8d; Second quality, 2s 8d to 3s 2d.—Sheep trade is considerably worse. Best Downs, &c., make about 4s 10d; Long-wools, 4s 4d to 4s 6d; Ewes, &c., 3s 8d to 4s 2d.—Veal is lower; a very good Calf makes 4s 8d.—Pork, 3s 8d to 4s 8d.

Beasts, 860; Sheep, 4450; Calves, 208, Pigs, 314.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Oct. 27.

There have been some arrivals from Yorkshire since our last report. Some samples that were shipped off highlands and in fine weather were in good condition, and were very little effected with the disease, but there are several lots which were shipped in the late rains that are considerably damaged, and some are a total loss; but the injury is attributed as much to the wetness of the weather as to the prevalence of the disease. There has been several arrivals from Scotland, and in some samples the disease was too apparent, but it is the general opinion that after the Potatoes have been placed in the pyes or clumps for a short time, to allow the heat to evaporate, and those that are damaged picked out, we shall then have a much better sample. York Reds are selling from 70s to 100s per ton; Regents, 100s per ton; Scotch Reds, 40s to 80s per ton; but there are some samples both of York and Scotch that are unsaleable.

COVENT GARDEN, Nov. 1.—The Market has been well supplied during the week with both Fruit and Vegetables; but trade is not brisk. Some handsome specimens of Queen Pine Apples have been offered, and Grapes of excellent quality are abundant and cheap. Portugals are also good and plentiful. Peaches and Nectarines are scarce, especially the former, and Plums are nearly over for a season. Damsons, of which there are yet some fine samples, are selling at from 5s. to 6s. per half-sieve. Apples are rather dearer than they were last week. The price of Pears is nearly the same. Gansel's Bergamot are becoming more plentiful. Filberts, although scarce, are still equal to the demand; Barcelona and other Nuts remain nearly the same as in our last account. Vegetables generally have not altered much in price since last week. Broccoli is good and plentiful, and the same may be said of Cauliflowers, Cabbages, Brussels Sprouts, and other winter Greens. Celery is excellent in quality, and continues to be well supplied. Tomatoes are also sufficient for the demand. The greater portion of Potatoes are still diseased; they have not altered in price since last week. Carrots and Turnips are good and plentiful, and Endive, Lettuces, and Salading of every kind are sufficient for the demand. Cut Flowers chiefly consist of Camellias, Chinese Primroses, Heliotropes, Pelargoniums, Heaths, Verbenas, Picotees, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Oranges, per dozen, 2s to 3s
Grapes, Hothouse, per lb., 1s to 4s	— per 100, 12s to 21s
— Spanish, per lb., 9d to 1s	Lemons, per dozen, 1s to 2s
— Portugal, p. lb., 9d to 1s 6d	— per 100, 7s to 16s
Peaches, Wall, per doz., 1s to 4s	Almonds, per peck, 6s
Nectarines, per doz., 1s to 4s	Sweet Almonds, per lb., 2s 6d to 3s
Melons, 2s to 4s each	Walnuts, per bushel, 16s to 28s
— Spanish, 2s to 3s each	Filberts, English, p. 100 lbs., 50s to 60s
Plums, per hf.-sv., 4s to 6s	Nuts, Barcelona, 24s
Damsons, per hf.-sv., 5s to 6s	— Brazil, 16s
Apples, Dess., per bush., 4s to 7s	— Spanish, 16s
— Kitchen, 2s 6d to 5s 6d	Barberries, per hf.-sv., 3s to 4s
Pears, per hf.-sv., 4s to 8s	

VEGETABLES.

Cabbages, per doz., 3d to 1s	Cardoons, each, 9d
— red, per doz., 2s to 5s	Onions, per bushel, 2s to 3s
Brussels Sprouts, p. hf.-sv., 1s to 2s	— pickling, per hf.-sv., 2s to 3s
Savoys, per doz., 6d to 1s	— Spanish, per doz., 1s 6d to 5s
Cauliflowers, per doz., 1s to 4s	Shallots, per lb., 4d to 8d
Broccoli, per bunch, 6d to 1s	Endive, per score, 6d to 1s
Greens, per doz. bunches, 2s to 3s	Lettuce, per score, Cab., 9d to 1s
Sorrel, per hf.-sieve, 6d to 9d	— — Cos, 6d to 1s
Artichokes, per doz., 2s to 4s	Radishes, per doz. bunches, 1s to 1s 6d
Potatoes, per ton, 70s to 130s	Mushrooms, per pottle, 1s 6d to 2s 3d
— cwt., 3s 6d to 7s	Small Salads, per punnet, 3d to 6d
— bushel, 2s to 4s	Basil, green, per bunch, 4d to 9d
— Kidney, per bushel, 3s to 4s	Fennel, per bunch, 2d to 3d
Turnips, per doz., 1s 6d to 2s 6d	Savory, per bunch, 4d to 6d
Red Beet, per doz., 6d to 1s 6d	Thyme, per bunch, 4d
Carrots, per doz. bchs., 2s to 5s	Watercress, p. 12 sm. bun. 4d to 6d
Horse Radish, per bundle, 1s 6d to 5s	Parsley, per bunch, 2d to 3d
Cucumbers, per doz., 2s to 8s	— Roots, per bundle, 9d
Spinach, per sieve, 9d to 1s	Tarragon, per bunch, 4d
Leeks, per doz., 1s 6d to 2s	Mint, per bunch, 3d
Garlic, per lb., 6d to 8d	Marjoram, per bunch, 4d
Tomatoes, per hf.-sv., 2s to 4s 6d	Chervil, per punnet, 2d to 3d
Celery, per bunch, 6d to 1s 6d	

MARK-LANE, MONDAY, Oct. 27.

The supply of Wheat at this morning's market, from Kent, Essex, and Suffolk, was moderate, but the Flour trade being dull, millers evinced a great disinclination to purchase, except ing at a decline of 1s. per qr., in consequence of which a great part of which remained unsold towards the close; free foreign is unaltered in value: bonded is held firmly at late prices, but little business was done in it; Polish Odessa afloat continued to be sought after, and is difficult to obtain, there being few sellers.—Fine malting Barley must be quoted 1s. dearer, and grinding meets a ready sale at a similar advance.—Beans and White Peas fully maintain the rates of this day se'nnight Maple and Dun are 1s. dearer.—The market is very bare o Oats; free meet a brisk sale at 2s. and bonded at 2s. to 3s above the rates of last Monday.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	57	65	Red .	55	6
—— Norfolk, Lincolnshire, and Yorkshire .	57	65	White	59	6
Barley, Malting and distilling 33s to 37s	Chevalier	36	40	Grind.	29	3
Oats, Lincolnshire and Yorkshire . .	Polands	30	33	Feed	28	2
—— Northumberland and Scotch . .	Feed	31	33	Potato	34	2
—— Irish	Feed	27	29	Potato	30	2
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		34	37			
Beans, Mazagan, old and new 38 to 42	Tick	40	44	Harrow	40	4
—— Pigeon, Heligoland . 44 to 48	Winds	—	—	Longpod	—	—
Peas, White . . . . 52 to 56	Maple	41	44	Grey	39	4

FRIDAY, Oct. 31.

The reports of the press respecting an order in council fo the free admission of Corn, have, in a great measure, destroye for the moment confidence in the trade, and rendered Englis as well as free foreign Wheat very unsaleable, excepting at decline of several shillings per qr.; bonded is inquired afte but generally held for a considerable advance, sales have i some instances been effected at 2s. to 4s. over the prices offere on Monday; we did not hear of any transactions in floatin cargoes for arrival.—Barley commands the extreme rates Monday.—Beans and Peas are unaltered.—The market is ba of Oats, which must be written nominally the same as la quoted.

HOPS, FRIDAY, Oct. 31.

The market continues about the same as last week. Duty £260,000; mo against than in favour.

PATTENDEN & SMITH. Hop-Factors.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Oct. 30.

Prime Mead. Hay	100s to 115s	New Hay	—s to —s	New Clr.	—s to —
Infr. New & Rowen	65 95	Clover	70 to 125	Straw	34 3

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Oct. 30.

Prime Mead. Hay	98 to 105	Old Clover	118 to 130		
Inferior	70 92	Inferior do.	105 112	Straw	36s to
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Pe
Sept. 20 per Quarter.	52s 6d	30s 9d	21s 7d	32s 8d	42s 5d	37s
— 27	53 8	30 2	22 9	33 1	42 5	38
Oct. 4	56 0	31 1	23 4	33 8	43 1	42
— 11	57 9	31 8	23 4	34 2	43 1	44
— 18	58 2	32 0	23 5	34 5	44 5	43
— 25	59 5	33 0	24 11	34 5	45 5	44
6 weeks' Aggreg. Aver.	56 2	31 4	23 1	33 9	43 6	41
Duties on Foreign Grain	16 0	7 0	5 0	9 6	1 0	1

Diagram showing the fluctuations in the price of Corn on the average of six weeks ending Saturday, Oct. 25.

Price.	Sept. 20	Sept. 27	Oct. 4	Oct. 11	Oct. 18	Oct.
59s 5d		..	..	..	..	
58 2	..	..	..	..	..	
57 9	..	..	..	..	..	..
— 0	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
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SEEDS, Oct. 31.

Canary	per qr	56s	to 60s	Linseed Cakes, Foreign, p. ton	8	to
Carraway	per cwt	48	52	Mustard, White	p. bush.	9s
Clover, Red, English	—	—	—	— Superfine	,,	10
— Foreign	—	—	—	— Brown	,,	10
— White, English	—	—	—	Rapeseed, English, per last		28
— — Foreign	—	—	—	Rape Cakes	per ton	—
Coriander	—	14	16	Saintfoin	—	—
Hempseed	per qr.	35	36	Tares, Eng. winter	p. bush.	6
Linseed	per qr	54	60	— Foreign	—	4
— Baltic	—	42	46	Trefoil	per cwt	18
— Cakes, Eng. per 1000		12	13	Turnip (too variable for quotation		

KINGSFORD AND L

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, RAILWAY CONTRACTORS, MARKET GARDENERS, AND OTHERS ENGAGED IN PLANTING, &c.

MESSRS. PROTHEROE AND MORRIS have received Instructions to submit to Public Competition, on Monday, November 10, and following days—Sale to commence at 11 o'clock, on account of the number of Lots—a large portion of the densely-stocked NURSERY of WM. DENNIS & CO., KING'S-ROAD CHELSEA, the ground being required for building immediately after Christmas. The Stock consists of 250,000 Aucuba japonica, Irish Ivies, Irish Yews, and Hollies (green and variegated); 300 varieties of the finest prize Gooseberries; a large quantity of Mulberries in fine bearing condition; standard and dwarf Roses of every variety, in considerable quantities; also Pillar Roses, from 4 to 7 feet high; Deciduous and other Shrubs, Herbaceous Plants, Box-edging, Bulbs in variety, &c.—American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew Lane, on Friday, Nov. 7, 1845, at 12 o'Clock, a first-class Collection of DUTCH BULBS, comprising very fine double and single Hyacinths, Tulips, Narcissus, Crocus, Jonquils, Anemone, Ranunculus, Iris, Lilies, &c. Also a bed of choice named TULIPS, consisting of 40 rows, and all the approved varieties; with a splendid assortment of STANDARD and DWARF ROSES, and other hardy Plants.—May be viewed the Morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, Leytonstone.

THREE HUNDRED CAMELLIA JAPONICA.

MR. GLENNY is instructed to Sell by Auction, without reserve, the third week in November, the entire CONTENTS OF A CAMELLIA HOUSE, comprising Three Hundred Plants, Seventy or Eighty varieties, from 2 to 5 feet, well set for bloom, and adapted for the Trade and for Cut Flowers. Catalogues will be published forthwith, and further particulars may be had of Mr. GLENNY, at the *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

FOUR BEDS OF TULIPS FOR BEGINNERS.

MR. GLENNY has received from the North of England a consignment of four Beds of TULIPS of thirty rows each, with the positive instructions to sell them to the highest bidder, without reserve, and he will accordingly (unless previously sold by private contract), offer them the third week in November, in four lots. Lists may be seen at the *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

NEW ROSES.

MR. GLENNY has the honour to announce that, in the third week of November, he will submit for Sale by Auction the Stock of from Twenty to Thirty New ROSES, raised by Mr. Willison, of Flower-gate, Mr. Burgess, of Colchester, and others, being varieties submitted and approved as *superior to any other Roses in cultivation*. Catalogues in due time at all the respectable seed-shops, and particulars of Mr. GLENNY, at the *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

FOUR GREENHOUSES, CAMELLIAS, &c.

MR. J. KING will Sell by AUCTION, on Monday, November 3, and following day, at 11 o'clock each day, on the premises, TULSE-HILL, BRIXTON, by order of Mr. JOLLY, whose Lease expires at Christmas—a large collection of Camellias, Greenhouse Plants, Fruit Trees of sorts, and Evergreens; four Greenhouses, Boxes and Lights, Tools, &c.—May be viewed, and Catalogues had, on the premises; of Mr. CLARK, Seedsman, Bishopsgate-street; and of the Auctioneer, Hackney-road.

NURSERY STOCK, KING'S-ROAD, CHELSEA.

MR. KIRKE will Sell by AUCTION, on the premises (late American Nursery), KING'S-ROAD, CHELSEA, on Thursday, November 6, at 10 for 11 o'clock, by order of the Proprietor, the ground being required for building,—Stock comprising several thousand Aucuba, Japonicas, Laurels, Laurestinas, Hollies, Box, Lilacs, Roses, Poplars, fine standard Mulberries, Yews, a quantity of large ornamental Flowering Shrubs and Evergreens, Yuccas, Orange and Lemon Trees, Cacti, Greenhouses, &c. &c. May be viewed one day prior, and morning of Sale. Catalogues had on the premises, and at the Offices of the Auctioneer, 19, Brompton-row, Brompton.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

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TO BE SOLD, and entered upon at Christmas next, HENLLIS VALE ESTATE, in the parish of Henllis, four miles from Newport. It consists of a substantial House, Three Cottages, Stable, Four Barns, Shed, Cow-house, Waggon-house, Cider-mill, and Granary, together with 128 acres of Orchard, Meadow, Arable, and Pasture Land. This Estate is near to Lime and Coals, lies early for Corn, and has many streams of Water around and through it. The proprietor would have no objection to divide it into Lots, to suit purchasers, and, if required, would lend a great portion of the purchase-money at low interest, to remain on the premises.—Apply, either personally or by letter, to me,

JOHN HODGES WINSLOE,
Nov. 1, 1845. Henllis Vale, near Newport.

GUANO (GENUINE PERUVIAN & BOLIVIAN,) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, Nov. 1.

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40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

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The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

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THE GRASS MANURES,

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A, for present application, 1¼ cwt. per acre.
B, for spring application, 3½ cwt. per acre.
Each 10*l.* per Ton net, Cash.

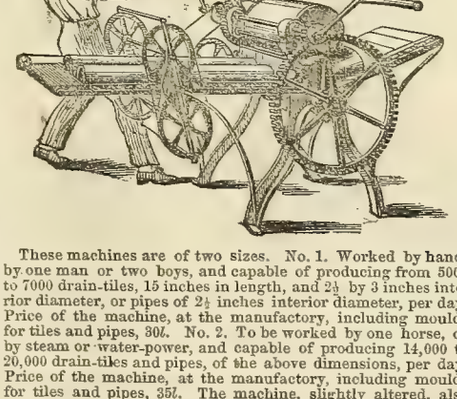
Manures applicable to the SUGAR CANE and to the TOBACCO PLANT, are also ready for delivery, at 12*l.* per Ton for the former, and 10*l.* per Ton for the latter. 5 cwt. of each to be applied to an acre. The above prices are for delivery at the Works, or in Liverpool.

Any further information required may be obtained by applying to the *Sole* Manufacturers,

MUSPRATT & Co., Liverpool.
No Agents appointed.

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AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

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Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

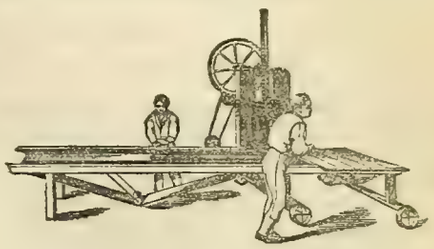
A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE,

Alperton Tile-works, Acton, Middlesex.

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Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

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1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ ,, ,,	8,000	2½ ,, ,,	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

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,, eight rows	40
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THE CORN TRADE.—The critical state the country is involved in through a deficient Harvest, and the failure of the Potato Crop, and the consequently serious effects upon our commercial and monetary affairs, are beginning to excite great apprehension. Under such circumstances, correct information as to the probable produce of the harvest at home and abroad, and as to the stock of grain on hand on the continent and in the western world is of the highest importance. No trouble or expense is spared to furnish such information, which is brought down to the latest moment of going to press, in the MARK-LANE EXPRESS AND AGRICULTURAL JOURNAL, which has been for many years the authority in the Corn Trade in England and in foreign countries. Published every Monday evening in time for post, and may be had by order of all Booksellers and Newsmen. Office, 24, Norfolk-street, Strand, London.

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FOR NOTHING.—A Pamphlet on Nervous or Mind Complaints, with Cases and Testimonials.—The nervous are invited to send to the Rev. Dr. WILLIS MOSELEY, 9, Bloomsbury-street, Bedford-square, for a small pamphlet, just published, on his new and most successful TREATMENT of NERVOUS or MIND COMPLAINTS, by which he now cures these diseases as certainly as water quenches thirst, and the pamphlet will be returned free if one stamp is sent.

GEOLOGY.—Mr. THOMAS JOYCE, F.G.S., will deliver a LECTURE, *introductory* to his Courses, on WEDNESDAY, November 5th, at a quarter past 12 P.M.

First Course.—On Elementary and Practical Geology, about Twelve Lectures during the month of November.

Second Course.—General Physical and Theoretic Geology, during the months of February, March, and April.

Fees: First Course, 1*l.*; Second, 2*l.* 10*s.*; for both Courses, 3*l.* Lectures on Mondays, Wednesdays, and Fridays, at a quarter past 12. The Course is open to gentlemen who do not attend any other class in the College.

A. DE MORGAN, Dean of Faculty of Arts and Laws.
CHARLES C. ATKINSON, Secretary to the Council.
University College, London, Nov. 1.

THE EIDER DOWN QUILT is the warmest, the lightest, and the most elegant covering. It is suitable for either the bed, the couch, or the carriage, and from its extreme warmth is peculiarly adapted for invalids; also Goose Down Quilts, very comfortable, at half the price of Eider Down. List of prices of the above, and also every description of bedding, sent free by post on application to HEAL and SON, Bedding Manufacturers, 196, opposite the Chapel, Tottenham Court-road.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 45.—1845] SATURDAY, NOVEMBER 8. [Price 6*d.*

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UNDER THE ESPECIAL PATRONAGE OF H. R. H., THE DUKE OF CAMBRIDGE.

ROYAL PHILANTHROPIC SOCIETY OF GARDENERS.—At a General Meeting held at the Commercial Tavern, King's Road, on the 5th inst., it was unanimously agreed that the future Meetings be held at Mr. Cockerton's, Royal Hospital, Chelsea College, till such time as a Lecture Room, or some other suitable place (*not connected with a Tavern*), can be obtained. Walter Kemp, Hon. Sec.
Central Office, Royal Hospital, Chelsea, Nov. 8.

FUCHSIA—"CONSTELLATION."

W. MILLER has a few good plants of this beautiful Fuchsia at 10*s.* each. It can be sent by post or otherwise; the Plants are very strong and suitable for stock.
Providence Nursery, Ramsgate.

W. MILLER cannot receive any more orders for his SEEDLING GERANIUM—"SUNBEAM," all the plants on hand being bespoke.—Providence Nursery, Ramsgate.

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Address, pre-paid, to A. B., 12, Wood's Cottages, Coal Harbour-lane, Brixton.

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CHANDLER and SONS, Nurserymen, Vauxhall, beg to state that their Collection of this beautiful Autumnal Flower is now in bloom, and will continue in perfection during the present month.—Admittance *gratis*.

HARDY HERBACEOUS PLANTS AND SPLENDID DOUBLE HOLLYHOCKS.

WILLIAM MAY, F.H.S., in offering his best thanks to his numerous friends, begs to announce that he has again a large stock of HARDY HERBACEOUS PLANTS in all the most distinct and showy varieties, correctly named, 100 sorts for 42*s.*, 50 sorts 25*s.* His stock of the now popular DOUBLE HOLLYHOCKS for the season is also very extensive, of all the various shades of colour, 100 for 42*s.*, 50 for 25*s.*; superb named Hollyhocks for Exhibition, 12 fine sorts for 20*s.*, 20 do. for 30*s.*, package included. W. M. also possesses a large and well assorted stock of the under-named, of which priced Catalogues may be had:—viz., Forest Trees, Fruit Trees, Evergreen and Deciduous Shrubs, Roses, Stove and Greenhouse Plants, Hardy Herbaceous Plants, Calceolarias, Fuchsias, Cinerarias, Pansies, Garden and Flower Seeds, Dutch Bulbs, &c. &c.
Hope Nursery, Bedale, Yorkshire, Nov. 8.

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Isabella	1	5	0	Favorita	0	12	6
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E. BECK informs the Public, that a few small plants of ARABELLA and OTHELLO may now be had at 30*s.* each, *for prepayment only*.—Worton Cottage, Isleworth.

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,, ,, 1 foot	30*s.*	,,
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,, Gerardiana, 2 years	30*s.*	,,
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GIRLING'S DANE CROFT EARLY PEA.

S. GIRLING has the pleasure of offering this desirable variety as the earliest and best PEA, for early culture, in cultivation; sown in February it will produce Peas fit for table the middle of May; its appearance is similar to the Frame or Warwick, but in size larger, and distinct from every other Pea in its foliage. An abundant bearer, with fine full pod; on good ground averaging not less than seven Peas in a pod; flavour fine; sown on the 22d April this year, Peas were fit for table in nine weeks from the time of planting, and, planted by the side of Prince Albert, considered the quickest coming Pea, it beat it by a week at least. It has been seen growing by Mr. Osborn, of Fulham; Mr. Fairbairn, of Clapham, Mr. Ewing, of Norwich, and many gentlemen and gardeners in the neighbourhood, who can testify to its superiority as a new and choice variety; height, about 4 feet on good ground. S. G. recommends thin planting, and not to plant earlier than the middle of February; it will then come in as early as any other Pea, avoiding the uncertainty of obtaining a crop from November planted Peas, which are generally injured by frost, so as to yield little increase. To Market Gardeners this Pea is invaluable, or to gentlemen who are fond of early productions. It will be sent out in quart bags at 5*s.* each, with the name and address. Messrs. Hurst and Co., Leadenhall-street, and Messrs. Noble and Co., Fleet-street, are appointed London Agents. Any other Seedsman, sending for a quantity, will have a reduction if a peck be taken; and as the Stock is not large, early orders will have the preference, and an order, accompanied by a Post-office order, will meet with punctual attention. Ready to be sent out the 20th November. Address, S. Girling, Dane Croft Nursery, Stowmarket, Suffolk.
S. Girling's Rose, Pansy, and Dry Dahlia Root Catalogues can now be had on pre-paid application.

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Twenty real good distinct sorts for 1*l.*; Twenty all New and very superior Show Flowers for 2*l.* Purchasers sending the names of the sorts they already possess, W. Miller will send suitable distinct varieties.
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WESTMACOTT & CO., Seedsmen, Florists, &c., respectfully inform their friends and the Public that they have, in addition to the above establishment, taken the premises lately occupied by Messrs. T. and C. Lockhart, 156, Cheapside, and beg to call attention to their CATALOGUE OF BULBS (which will be forwarded on receiving a pre-paid application), as being true to character, having been purchased either from the splendid collection of the above gentlemen, or imported from the first foreign houses.—Nov. 8.

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Prince of Wales, for table, per bushel	3*s.*	6*d.*
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Terms, cash; or a reference from unknown correspondents.
This Variety will be found described in "Lawson's Agricultural Manual" as one of the best second early Potatoes, both for yield and flavour.
A large Stock of true White Globe and Purple-topped Swedish Turnip Seed of own raising.

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TO CULTIVATORS of the PEAR and other FRUITS.—A DESCRIPTIVE CATALOGUE of PEARS and other Fruits, by T. Rivers (formerly signing himself T. Rivers, jun., author of the "Rose Amateur's Guide"), is now ready for delivery. Applications, enclosing six penny stamps, will be promptly attended to. T. R. flatters himself that this Catalogue will be found interesting to the fruit amateur, as it contains descriptions of many new varieties worthy attention; engravings are inserted of a pyramidal tree, grafted on the Quince, and of a dwarf Cherry-tree grafted on the Cerasus Mahaleb.—Sawbridgeworth, Herts, Nov. 8.

GERANIUMS AT VERY LOW PRICES.

WILLIAM E. RENDLE & CO. have a very large Stock of GERANIUMS, fine strong established plants, which are now offered at extremely low prices.
A collection of *twenty* from the following list (customer's selection) will be sent to the Exeter Station of the Great Western Railway, carriage and package free, for 40*s.*
Hector, Beauty of Walthamstow, Hebe, Othello, Regulator, Unique, Fascination, Claude, Lady Villiers, Guide, Hybler, Pulchellum, General Pollock, Flora, Conflagration, Symmetry, Rosalia, Jersey Maid, Thunderer, Hermione, Cordelia, Oberon, Sarah Jane, Sir Robert Peel, Princeps, Diomede, Prince of Waterloo, Evelyne, Witch, Gipsy, Coronet, Creole, Count d'Orsay, Lyne's Duke of Cornwall, Modesty, Sunrise, Lord Ebrington, Hamlet, Constellation, Cynthia, Lavinia, Aurora, Fanny, Penelope, Attila, Cornish Gem, and Rising Sun.
Twelve of the above for 30*s.*
Twenty very good Geraniums for £1.
Plymouth, Nov. 8.

H. GROOM, Clapham-rise, near London (Removed from Walworth), by Appointment Florist to Her Majesty the Queen, and to His Majesty the King of Saxony, begs to call the attention of the Nobility, Gentry, and Amateurs to the present season as the best for selecting and planting TULIPS, HYACINTHS, and the VARIETIES OF LILIUM, and to recommend that no time should be lost, otherwise there will be a risk of their flowering well. He begs to say, he continues to send out TULIPS arranged in BEDS ready for planting, at the prices mentioned in his Catalogue, which may be had on application.

VICTORIA NURSERY, CORK.—SEED POTATOES.

J. AND H. HAYCROFT beg leave to inform their numerous friends, that, notwithstanding the great failure in the Potato crop, they hope to be enabled to supply plenty of the best sorts for next spring's planting on moderate terms. A Priced List shall be sent in February to all who intend favouring them with their orders.

N.B. Steam Vessels weekly to London, Liverpool, Bristol, Plymouth, and Glasgow; and Sailing Vessels weekly to nearly every port in South Wales.

FOREST TREES, and every description of Nursery Stock, at moderate prices.—Cork, Nov. 8.

RIBES SANGUINEUM FLORE PLENO, or DOUBLE BLOOD RED FLOWERING CURRANT.

(Figured in "Paxton's Magazine of Botany," July 1, 1845.)

THOMAS JACKSON being the largest holder of this new and most beautiful Shrub, begs to offer plants well established in pots at 10*s.* 6*d.* each; for every three ordered one will be added gratis.

Kingston Nursery, Surrey, Nov. 8.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

		£	*s.*	*d.*
100	TULIPS, in 100 fine sorts, named	7	7	0
100	Ditto in 50 ditto ditto	5	5	0
	Superfine Mixtures, per 100, from 7*s.* 6*d.* to 21*s.*			
25	HYACINTHS, in 25 fine sorts, named	1	5	0
100	RANUNCULUSES in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures, per 100 7*s.* to	1	1	0
100	ANEMONES, in 100 Superfine sorts, named	2	2	0
	A New Collection of 50 Superfine sorts	1	5	0
	Superfine Mixtures, per 100	0	10	6
25	AURICULAS, in 25 Superfine sorts, named	3	3	0
25	pair of CARNATIONS, in 25 ditto ditto	2	10	0
25	pair of PICOTEES, in 25 ditto ditto	2	10	0
25	GERANIUMS, in 25 Superfine sorts ditto	3	10	0
	Good kinds, per doz. from 12*s.* to	0	18	0
	LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
	" " PUNCTATUM "	0	7	6
	" SPECIOSUM, (true) from 21*s.* to	3	3	0

H. GROOM begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.

Foreign Orders executed.

PROCKTER'S "BOHEMIAN GIRL" DAHLIA.

J. T. NEVILLE begs respectfully to announce to Nurserymen, Florists, &c., that he has the pleasure of offering Dry Roots of the above splendid NEW DAHLIA at 5*l.* each. Colour, delicate white, broadly and boldly margined with deep purple, the flowers maintaining their beautiful and brilliant colours (in which it surpasses all others of its class) unaltered in its marking from the commencement to the close of the season, grown under every disadvantage, and only one mile from London-bridge. The habit is surpassingly grand; as a show variety, fit for a first-rate stand; and, as a garden flower, matchless. Received a First Class Certificate at the Slough Show, open to all England (see *Gardeners' Gazette*, p. 680), and from the commencement of the season.

J. T. N. begs to remind the growers generally, that Mr. Prockter having sent out two of the best Dahlias in cultivation, viz. "Nonpareil" and "Bermondsey Bee," trusts that his name will be sufficient guarantee for the quality of the present superb variety.—Peckham, Nov. 8.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s.* per dozen. Dutch Hyacinths for forcing at 4*s.* per dozen; also Narcissus, Tulips, Iris, Jonquils, Anemones, and Ranunculus, from 1*s.* to 12*s.* per dozen. Large Dutch Crocus, 2*s.* 6*d.* per 100; at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall. Priced Lists per post, &c.

WANTED, SEEDS OF EVERGREEN SHRUBS AND TREES.—Persons being able to supply the above will please to send a list of Sorts and Prices to W. JACKSON and Co., Cross-lanes Nursery, Bedale, Yorkshire.—Nov. 8.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

"Mr. HUNT'S new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

TRANSPARENT GARDEN FRAME COVERS, 2*s.* EACH, the same size as the largest garden mats, which this year have advanced greatly in price. These frame covers are waterproof, more durable than mats, keep in more heat, and admit light. It may be had in large pieces, any required size, at 6*d.* per square yard, for covering Greenhouses, &c. Being dressed by machinery is the reason of the low price. It is made from stout calico sheeting. ROBERT RICHARDSON, Net and Tent Maker, 21, Tonbridge-place, New-road, London.

N.B.—Stout Canvas, for Roofing Sheds, Outbuildings, &c., 1*s.* 6*d.* per square yard, as thick as floor passage-cloth.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street, East, Oxford-street. For Ready Money only.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

TREE VIOLET

JOHN WALLACE, SEEDSMAN and FLORIST, Gabriel's Hill, Maidstone, has now ready a large Stock of this much esteemed, double, dark purple, perpetual flowering, hardy and fragrant VIOLET, which he respectfully offers for sale at 6*s.* per dozen. All persons who value a bouquet of sweet flowers, fresh every day, from the beginning of August to the end of May, should grow a few dozens of this beautiful flower. —Apply as above, or to Mr. G. CHARLWOOD, Seedsman and Florist, 14, Tavistock-row, Covent Garden.—Oct. 25.

SMALL GLASS FOR HOTHOUSES AND GARDEN LIGHTS

5 in. by 1½ } ....at 1*d.* per foot.
4 " 2 }

	per Gross.		
80,000 squares	6 by 4	at	9*s.*
60,000	6½ 4½		11
50,000	7 5		13
12,000	7½ 5½		15

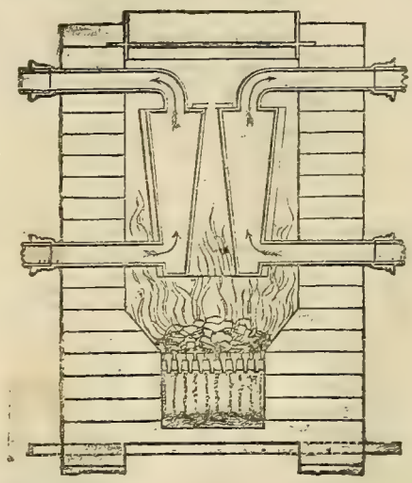
5 in. by 2 } ..at 1½*d.* per foot.
4½ " 2½ }

	per Gross.		
90,000 squares	8 by 6	at	18*s.*
11,000	8½ 6½		20
80,000	9 7		22
40,000	10 8		30

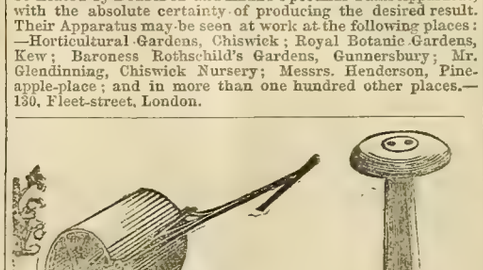
Striking Glasses, Bee Glasses, Fish Globes, and French Shades for covering Ferns and Ornaments.

R. COGAN, Glass, Lead, and Colour Works, 48, Leicester Square.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

GYPSUM FOR MANURE, prepared by the only method which will ensure its success for Agricultural purposes, by NEWTON & PECK, WILMINGTON WORKS, HULL. A Pamphlet containing instructions for its application and full particulars as to its uses as a fertilizer, with numerous cases of its surprising effects, sent free to any part of the kingdom, on receipt of a post-paid letter containing Three Postage Stamps.

GUANO (GENUINE PERUVIAN & BOLIVIAN,) ON SALE, BY THE ONLY LEGAL IMPORTERS,

ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, Nov. 8.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.

MARK FOTHERGILL, 40, Upper Thames-street, London.

P. S.—Agents wanted for the sale of the Wheat Brine.

LIEBIG'S PATENT MANURES, manufactured under his especial superintendence, at the Works, Newton, near Liverpool. Now ready, in Stamped Packages, containing about 2 cwt. each,

THE WHEAT MANURE,

To be sown Broad-cast and Ploughed, or Harrowed in with the Seed, 5 cwt. per acre. Price 10*l.* per Ton net, Cash.

THE GRASS MANURES,

To be sown Broad-cast, in two applications:—

A, for present application, 1½ cwt. per acre.
B, for spring application, 3½ cwt. per acre.
Each 10*l.* per Ton net, Cash.

Manures applicable to the SUGAR CANE and to the TOBACCO PLANT, are also ready for delivery, at 12*l.* per Ton for the former, and 10*l.* per Ton for the latter. 5 cwt. of each to be applied to an acre. The above prices are for delivery at the Works, or in Liverpool.

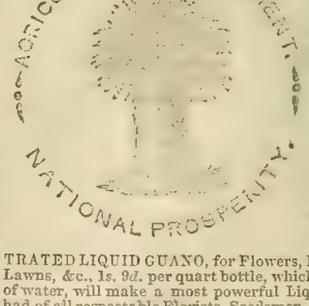
Any further information required may be obtained by applying to the *Sole* Manufacturers,

MUSPRATT & Co., Liverpool.

No Agents appointed.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

THE TRUE "FASTOLFF" RASPBERRY.

YOUELL & CO. take the present opportunity of announcing they continue to supply the above in its genuine state as originally sent out by them, and such as they have had the honour of supplying HER MOST GRACIOUS MAJESTY THE QUEEN, HIS GRACE THE DUKE OF RUTLAND, HIS GRACE THE DUKE OF MARLBOROUGH, THE EARL OF HARRINGTON, THE EARL OF LIVERPOOL, THE LORD BISHOP OF LONDON, LORD VISCOUNT LORTON, LORD SONDES, &c. &c.; as well as by the HORTICULTURAL SOCIETY OF LONDON.

Great Yarmouth Nursery, Nov. 8.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 8, 1845.

MEETING FOR THE FOLLOWING WEEK.

TUESDAY, Nov. 18—Linnean . . . . . 8 P.M.

THE following, which is the second report of the Commissioners appointed to inquire into the POTATO DISEASE, draws attention to the value of the means which have been proposed for guarding the Potato from decay, arising from whatever cause, and to the proper method of applying the diseased tubers for use as food:—

"TO HIS EXCELLENCY BARON HEYTESBURY, LORD LIEUTENANT OF IRELAND, &c. &c.

"*Board Room, Royal Dublin Society, 29th Oct.*, 1845.

"MY LORD,—Having submitted to your Excellency, in a former report, some preliminary instructions intended to prevent improper treatment of the Potato crop still remaining unaffected, we now have the honour to lay before your Excellency our views regarding some processes of treatment for the Potato, which appear to us to be of practical value and importance.

"We are deeply sensible of the incompleteness of form which this mode of presenting our results to your Excellency necessarily assumes; but the exigencies of the case are such, that we consider it our highest duty to bring at once under the notice of her Majesty's Government such principles or modes of practice as, upon due consideration, we feel authorised to recommend.

"We have been engaged in the investigation of various plans for preserving diseased Potatoes, as proposed by other persons, or suggested by ourselves, and we have been collecting precise information as to the experience of others in their endeavours to arrest the progress of the disease. From all the results that we have obtained, we feel justified in submitting to your Excellency the following observations:—

"Plans of treatment have been proposed by persons possessing more or less of chemical knowledge, in which, by some, acids are to be employed; in others, alkaline liquors; and in a third class, gases, such as chlorine. These processes we dismiss from further consideration, as even did they, in the laboratory, answer the intended purpose, they are totally inapplicable to the circumstances of the produce of an entire country, and to a population such as that for whose welfare your Excellency is so deeply anxious. Other methods, apparently more practical, consist in the treatment of the Potatoes with chloride of lime (bleaching powder) and salt, either separate or in mixture. The result of our own experiments, and the evidence we have received concerning trials made by persons in whom we have full confidence, authorise us at once to recommend the rejection of those materials. We have found the decomposition of the Potato to be decidedly accelerated by their application. With respect to lime, the results of our own experiments are not yet decisive; nor is the experience of others as yet satisfactory. We therefore reserve this point for further consideration.

"Whilst the disease is not yet very far advanced in the Potato, it is certain, that after being boiled or steamed, it may be employed as food for immediate use, both for man and other animals, without prejudice to health.

"When the disease is more advanced, so as to have invaded a large part of the Potato, and when the tubers have acquired a disagreeable smell, their influence on the system is more questionable. We have put in operation a series of experiments, in order to determine this point, and will, in due time, report the result to your Excellency. As, however, the Potato, when once affected, quickly runs into total decomposition, if left to itself, it is evident that its consumption merely for the purpose of food, cannot be sufficiently rapid; and it, therefore, becomes necessary to consider to what other uses it may be applied.

"The extraction of starch from Potatoes, and its use as food, having strongly attracted public attention, and conflicting, and, in many cases, inaccurate opinions having been entertained on this subject, we consider it of paramount importance at once to direct your Excellency's attention to the actual state of knowledge regarding this material. It is recognised that the Potato, in relation either to its weight or bulk, is one of the most inferior articles of food. In its ordinary state of sound constitution, every hundred pounds by weight of Potatoes contain, on an average 74 lbs. of water; of skin and fibrous matter, 8 lbs.; and of starch, 16 lbs.; whilst of gluten, the most nutritious of vegetable matters, and which predominates in corn, there is not more than 2 lbs. in the above quantity. It is quite certain that starch, or materials corresponding to it, exist to a certain amount in every variety of useful food; but it is equally certain that in food starch is not the material which serves for the support of the animal frame; and an animal fed merely on starch dies of starvation, nearly, if not quite so soon, as if totally deprived of food. Hence, starch extracted from the Potato cannot be viewed as a substitute for the Potato itself; and we consider it of great importance, that whilst the attention of the people is directed to the real value of starch, and the uses to which it may be advantageously applied, they should not be allowed to rest their hopes of nourishment during the succeeding season upon any store of it alone.

"With this preliminary caution, we have to state to your Excellency that probably the best use to which diseased Potatoes may be applied is the extraction of starch. In a commercial point of view, the starch represents a considerable proportion of the value of the Potato, although it is not at present in as large a quantity in the unsound tubers as in those which are free from disease. The extraction is simple, and consists in processes which we need not here describe, as they are given in the current publications of the day, and indeed are already practised in most parts of the country.

"Your Excellency is aware that we are directing our attention to the manner in which starch can be advantageously employed. It can be worked off, and with utility, as food, when mixed with proportions of Oatmeal, Bean meal, or Peas meal, and such intermixture forms an excellent and economical article of food. It is also to be remarked, that the pulp remaining after the extraction of the starch from the diseased Potatoes, contains a considerable quantity of nutritive material; and as the decomposing substance is, to a very great extent, washed out during the preparation, the pulp may, when dried, be applied with confidence to the nourishment of animals. Further, if the dried starch, extracted from the Potato, be mixed up with the dry residual pulp, a material will be produced really representing the Potato, equivalent to it as food, and, if kept dry, capable of being preserved for a considerable length of time; it, of course, must be prepared for use by cooking or baking in the ordinary way.

"The manufacture of the pulp and starch, on an extensive scale, in accordance with these suggestions, we venture to consider worthy of your Excellency's attention. It is an operation not suited to the circumstances of isolated cotters, and just now might not be a proper object for mere commercial speculation. But arrangements might possibly be made for carrying out this recommendation through the agency of the poor law unions, and other government establishments, in which mechanical power and intelligent superintendence could be speedily and economically applied. We feel, however, that even these facilities for the conversion of the tubers may not be sufficient to keep pace with the progressive injury which, it is to be feared, the Potato crop is sustaining. We, therefore, recommend a mode by which we believe the process of decomposition may be retarded. In our preliminary report we mentioned to your Excellency the important influence exercised upon the disease by moisture and dryness. Our subsequent investigations have confirmed this opinion, and we believe where means exist for a more complete drying of the tubers, such a method will prove the most efficacious plan for preserving the Potato from further decay. This more perfect drying cannot, however, be effected in this climate by mere exposure to air, it requires artificial heat, applied in some form of kiln; and without entering into mechanical details, we may name some simple contrivances which seem well adapted to the purpose.

"The corn kilns extensively distributed through the country may at once be applied to the drying of the Potatoes, which will, however, demand a temperature, rendered gradually higher than that required for corn. But as in many cases those kilns are at present fully occupied, we would represent that every lime kiln may be adapted to the purpose, without interfering with its ordinary operations, by erecting over it, at a suitable height above its mouth, a framework of hurdles upon which the Potatoes may be spread in a thin layer, fresh Potatoes being added as the others become dry and are removed. In localities where the previous means do not exist, or may not be on a sufficiently extensive scale, Potatoes may be spread on a framework of hurdles, supported on a few props of stone, two or three feet high; one or more turf fires burning slowly under the hurdles, would effect the same object. There need be no fear of the Potatoes becoming slightly browned, as they are not injured thereby for future use; and the turf smoke would act favourably on the Potatoes rather than otherwise.

"In all these modes of drying, the Potatoes should be cut into two, or if very large, into three pieces, so as to allow the water to escape.

"Potatoes dried in any of the modes above described are certainly capable of being preserved when kept in a dry place, and stored, with the precautions described in our first report, until suitable opportunities arise for converting them into starch or meal, according to the degree in which they were affected by the disease.

"It is gratifying to us to find that our own opinion as to the advantage of thoroughly drying the Potato in the manner we have recommended, and by processes such as those above described, are confirmed by the experience of highly intelligent persons, who have simultaneously directed their attention to the subject.

"We shall not hesitate to bring under the notice of your Excellency our further conclusions, and we have the honour to be, your Excellency's obedient and faithful servants,

"ROBERT KANE,
"JOHN LINDLEY,
"LYON PLAYFAIR."

From this it will be seen that we were right in refusing assent to the recommendations that have been offered by various persons of nostrums for saving the decaying crop. Even chloride of lime, positive as were the assertions of its efficacy, is condemned, and, as we now know, with perfect justice.

The first report (see p. 735) has been made the subject of criticism by gentlemen who seem to have been disappointed at not finding effectual remedies proposed in a report whose whole objects were, as it declared, entirely temporary. The *gist* of the Commissioners' recommendations was to secure dryness, and absence of contact, by all possible means; and any intelligent man would see that the particular methods proposed were merely in reference to those all-important precautions, and might, keeping them in view, be departed from according to circumstances.

Dr. HALPIN, of Cavan, has strongly urged upon the Irish Potato-growers the construction of pits, in which it is supposed by him that effectual ventilation is secured by laying the Potatoes on rough sticks, or other materials, and introducing into the heaps cone-shaped funnels of wicker-work; the whole, except the mouths of the funnels and a hole at each end, being covered down with clay or earth. We add the reply of the Commissioners to this proposition:—

"TO BARON HEYTESBURY, LORD LIEUTENANT OF IRELAND, &c.

"*Board Room of the Royal Dublin Society, Oct.* 30.

"MY LORD,—We have the honour to acknowledge the receipt of your Excellency's communication of this date, enclosing a copy of a letter published in the *Dublin Evening Mail*, of the 29th, in which Dr. Halpin, of Cavan, has proposed a plan for preserving the Potato crop, which he considers more worthy of public confidence than that which we had the honour to submit to your Excellency.

"It will be observed that the author of the letter under consideration does not state that he himself has tried the method which he proposes, or derived a knowledge of its advantages from the experience of others; he merely thinks that it would prove efficacious.

"We can, however, state to your Excellency, that a plan founded on the same principle, and at least as well adapted for practice, has previously been proposed in England, and experimentally tested by one of us. The result convinces us of its total inefficiency, and the cause of failure becomes manifest on considering the manner in which the disease is propagated, and the circumstances under which Potatoes are placed in ventilating pits. In such places, Potatoes being in contact are precisely in the condition best suited for the extension of disease, and against the danger of which we so strongly warned the public in our first report. Further, without giving any positive opinion whether the fungi found in decaying Potatoes be the cause or effect of the disease, it is quite certain that their presence aids very materially its rapid advance, and that their transmission from one tuber to another is one of the most ordinary means of infecting those Potatoes which are at all predisposed to decay. Hence, the isolation of each tuber is indispensable to its preservation, and hence our urgent recommendation to interpose some dry solid substance between each Potato.

"If, as Dr. Halpin supposes, gentle currents of air did occur amongst the Potatoes collected in heaps, in ventilating pits, then in that case the germs or seed of parasitical fungi, together with the emanations from any one decaying point, would be rapidly distributed over the entire mass of Potatoes. We have to state, as our decided opinion, that in such a pit no current of air, sufficient to dry the Potatoes in the manner anticipated by Dr. Halpin, could exist; or, if it were produced, could only arise from inequalities of temperature, caused by the decomposition of the Potatoes themselves.

"We observe that Dr. Halpin has, in some points, mistaken the object of our report, more especially in supposing that the methods of storing which we have recommended are intended to be permanent. As yet we have given no opinion on this matter, which involves such important considerations that we must delay our suggestions on the point until some further information has been obtained.

"In the execution of the responsible duty entrusted to us by Her Majesty's Government, we have refrained from bringing forward any theoretical or speculative opinions, however plausible. Our former recommendations were founded on the results of experience, and we continue to recommend them with confidence.—We have the honour to be your Excellency's obedient and faithful servants,

"ROBERT KANE,
"JOHN LINDLEY,
"LYON PLAYFAIR."

The Government is actively occupied in distributing, by means of placards, &c., the following instructions, drawn up by the Irish Commissioners, which we think it advisable to reprint for the benefit of sufferers in this country.

"ADVICE CONCERNING THE POTATO CROP.

"*To the Farmers and to the Peasantry of Ireland.*

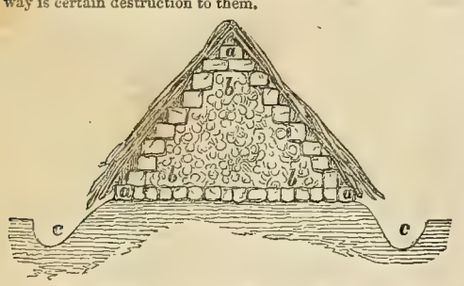
"The dreadful disease that has attacked your Potatoes is one the effects of which you can only stop by strict attention to the advice of those interested in your welfare. Many plans have been proposed, and, after examining them all, we recommend the following as the best. All competent persons are of opinion, that the first things to bear in mind are the following directions:—Dig your Potatoes in dry weather, if you can, and if you cannot, get them dry somehow as fast as you can.—Keep them DRY and cool.—Keep the bad Potatoes separate from the good.—Do not pit your Potatoes as you have been accustomed to do in former years.—Recollect that if they get

damp, nothing can make them keep; and do not consider them dry unless the mould which sticks to them is like dust.—Do not take them into your houses unless you want them for immediate use.

"Digging and Drying.—As you dig the Potatoes, leave them in the sun all day; and, if you can, throw them upon straw, turning them over two or three times. At night you may gather them together and cover them with straw, so as to keep off frost. Next day take off the straw, spread them out, and give them the sun again. Do this for three days running, if the weather permit. If you put straw enough upon them at night they will not suffer. If the weather be unfavourable, and you have a dry loft, or out-house large enough to hold them, you may spread them thinly on the floor, allowing a free circulation of air so as to dry them there. They must be got dry.

"Sorting the Potatoes.—As soon as they are dry, you must sort them. Pick them one by one, and put in one heap the very bad ones, in another those which are not so bad, and in a third those that are sound. Treat the bad Potatoes as shall afterwards be directed, and store the sound ones according to the directions given in the next paragraph. You will know the very bad Potatoes by their unpleasant smell, and the second set by their skin looking brown, or dull, and not bright, as it generally does; a very little practice will teach you how to distinguish them easily from each other.

"Storing.—When the Potatoes are quite dry, and well sorted, proceed to store them thus:—Mark out on the ground a space six feet wide, and as long as you please. Dig a shallow trench two feet wide all round, and throw the mould upon the space; then level it, and cover it with a floor of turf-sods, set on their edges. On this sift or spread, very thinly, the dry mixtures, or any of the dry materials described below, and which you may call the *packing stuff*. Also, get some dry slaked lime, and dust all the Potatoes with it as well as you can. Then put one row of turf-sods, laid flat, on the top of the floor, all round the sides, so as to form a broad edge, and within this, spread the dry Potatoes, mixed well with the packing stuff, so as not to touch one another. When you have covered the floor in this manner, up to the top of the sods, lay another row of sods all round the first, so that half of each sod may rest on the bed of Potatoes, and the other half on the first layer of sods; this will make another edge one sod deep, which must be filled up with dry Potatoes, and dry packing stuff, as before. Then lay another edge of sods in the same way fill it again, and so go on till the heap is made. When the building of this pit is finished, it may be covered with sods at the top, and will be ready for thatching. If rightly made, it will look like the roof of a cottage cut into steps, as shown in this sketch, in which *a a* are sods, and *c c* the ditch all round the heap; Potatoes and packing stuff are the inside and blank space in the middle. If you do not understand this, ask your landlord or your clergyman to explain its meaning, and we are sure that they will give you every assistance; also recollect that the recommendation applies only to sound Potatoes, after being well dried. You will lose nothing by applying these materials in storing, for the turf can be burnt as you use up the Potatoes, and the mixture of lime with dry sand, dry clay or ashes, which you are afterwards directed to employ, will form a good manure after having saved the Potatoes. The only difference is, that you must get what you want now instead of waiting till another time. After you have completed the heap, thatch it so as to throw off the water into the ditch, and keep out the frost. In districts where there may not be spare turf sufficient to form the pits in the above way, make them as follows:—Mark out the spot, and make the trench as before. Lay on the ground a floor of stones, about as large as Apples, and over them as much heath, brushwood, or twigs, as will just cover the stones. On this floor form the heaps of Potatoes, and packing stuff, just as described, for the turf-pit. Cover the sides of the Potatoes with more of the packing stuff, and thatch in the usual way. We must again impress upon you that to pit Potatoes in your usual way is certain destruction to them.



"Packing Stuff.—This, which is of the greatest consequence, may be prepared in either of the following ways,—some of you may prefer the one, some the other: *First Way.*—Mix a barrel of freshly burned unslaked lime with two barrels of sand or earth, as dry as you possibly can get it. The lumps of lime should be broken into pieces as large as marbles, and the mixture should be left 24 hours; at the end of that time, turn the heap well over, mixing together the lime and sand (or other dry materials) till no lumps of lime can be found. *Second Way.*—Mix well equal quantities of earth and broken turf, or dry sawdust, put a few sods of lighted turf on the ground, place the mixture on them by degrees till a large heap is made, in a few hours the fire will have spread through the heap, which is then to be covered with earth so as to put out the fire. In fact, this is to be managed just as if you were burning land. This burned mixture forms a very good kind of packing stuff, perhaps as good as the mixture of lime with dry materials.

"What to do with bad Potatoes.—When Potatoes are only slightly diseased, that is, when the disease shows itself only under the skin in small dark spots, or at most, spreading into the substance of the Potato for about a quarter of an inch deep, with a yellow, or light brown, or blackish colour, and without any smell, they may be eaten by the family without danger. They should be peeled and the diseased parts pared off before they are boiled; the parts cut off should be kept for making starch. Potatoes thus treated are wholesome and palatable, but should be used for food as quickly as possible, as it is not quite certain that they will keep long with the greatest care. It is a pity to destroy Potatoes for starch if they will otherwise keep. Cut out the diseased parts, if it can easily be done, and dust over the cut parts with lime and the Potato also. Get them dry as soon as you possibly can, and if you have outhouses or sheds you should keep the Potatoes in them also, using the packing materials. In such cases you should allow the air to circulate freely in the sheds, and should frequently examine your Potatoes, which should not be laid in layers above two or three feet in height. If you turn them frequently during the first two or three weeks and keep them very dry, in this way they will probably keep. Although sheds or outhouses are to be preferred, if you have them not, and cannot construct them out of cheap materials, you should store the diseased Potatoes by themselves just as we have recommended you to store the sound ones. If, with all your care, the diseased Potatoes still get worse, dry them thoroughly in kilns, or on hurdles placed over lime-kilns, or on screens or hurdles placed over low turf fires, after having cut the Potatoes into two or three slices. It is only very bad Potatoes that you should break up into starch.

"How to save the Value of very bad Potatoes.—Although nobody knows how to make bad Potatoes into good ones, or to prevent many of them from becoming worse, yet it is possible to extract from bad Potatoes, or from bad parts of them, a great deal which is good. For this purpose proceed as follows:—Provide yourselves with the following things, a rasp or grater, which may be made of a sheet of tin or even of sheet iron bent round, and punched full of holes, with a nail—a common coarse linen cloth, or hair sieve, hand sieve, or common cloth strainer—and a pail, or tub or two to hold water. To make the bad Potatoes useful, wash them clean, and then rasp them into one of the tubs of water; the finer they are rasped the more food will you procure from them. Having rasped a good many, take the cloth and place it on another tub, then put the pulp on the cloth, and pour water on it, allowing the water to run through. You have now two things to attend to—the pulp and the starch. First—Attend to the pulp; squeeze out as much water as you can from what remains on the cloth. You should wash it, however, till no smell remains. After you have squeezed it pretty dry, complete the drying on a griddle, over a slack fire, and when it is dry put it aside for use. Next look to the milky water; it will then become clear, and the milkiness, which is starch, will have settled to the bottom. Pour off the water gently till the starch is tolerably well drained; then add more water, stir the whole well up, and let it settle again. As soon as it is again clear, pour off the water, and when you have got rid of as much as you can, put the wet lumps of starch on a shelf or other place to dry. In a few days it will be fit to pack up. Good wholesome bread may be made by mixing the starch with the dried pulp, Peasmeal, Beanmeal, Oatmeal or flour. You must bear in mind that starch is not food by itself. There will of course be a good deal of trouble in doing all that we have recommended, and perhaps you will not succeed very well at first; but we are confident that all true Irishmen will exert themselves, and never let it be said that in Ireland the inhabitants wanted courage to meet difficulties against which other nations are successfully struggling.

"Robert Kane,
"John Lindley,
"Lyon Playfair.
"*Board Room,*
Royal Dublin Society, 3rd November, 1845."

We are glad to find that our remarks on the subject of Potato-graters have attracted much attention, and led to the construction of a number of these machines. We are therefore induced to make a few additional observations on the best form of grater, to assist those who are about to make them, and explain one or two points which appear to have been imperfectly understood by some of our readers.

The machine which we have found the best in all respects, consists essentially of two parts—a round grater made to revolve by means of a handle, and a flat sheet of tin-plate, having two or three rows of holes punched in it, fixed in the box or hopper in which the round grater revolves, and sloping from above downwards towards the round grater; so that on looking down into the machine, the drum and flat plate slope equally towards each other, forming between them a wedge-shaped cavity or hopper, in which the Potatoes are put; the side of the drum nearly touching the sloping plate at that part, where the two or three rows of holes are punched. When the handle of the drum is turned and Potatoes are put into this wedge-shaped cavity, their own weight and the revolution of the drum tends to draw them between the drum and the flat plate, and consequently causes them to press against the surface of the revolving drum. The use of the two or three rows of burrs on the flat sloping plate is, to catch the thin pieces of Potato, and prevent them from being too quickly drawn down, so as to choke up the narrow space between the drum and the flat plate.

In punching the plates, it must be remembered that the object is to make a grater which shall grate finely and thoroughly, and not one which shall merely work rapidly. If the burrs are too large they do not grate, but, in fact, tear the Potato up into little shreds; with such a machine a large quantity of Potatoes may be grated in a short time, but there is little economy in this, for what is saved in time is more than lost in the diminished per centage of starch which is obtained. A considerable quantity of Potatoes may be grated with a hand grater, though not more than about one tenth part of what may be grated by means of one of the machines. A better grater than the ordinary bread grater may be made out of a stout tin plate punched full of holes, the rows of holes not being parallel with the sides of the plate, and then nailed on to a flat piece of board; such a grater may be made in an hour for sixpence. A machine, as we before stated, will do from ten to fifteen times as much work, and cost about ten shillings, but if any quantity of Potatoes are to be grated, the machine in the end is by far the most economical.

In grating damaged Potatoes whether by hand or with a machine, any that are very much decayed, or are in a putrid state, should be separated from the rest, for though it is quite true that they will yield a quantity of starch, they will, at the same time, materially deteriorate the quality of the rest of the starch, and render it less fit for keeping, than that obtained from half decayed but not putrid Potatoes. In all cases, the pulp should not be left to stand longer than necessary before it is washed in the sieve, and the milky looking water which passes through the sieve should not be left longer than is sufficient to allow the starch to fall to the bottom; a quarter of an hour will generally be quite time enough, the greater part of the starch will then have fallen, and what remains suspended in the water is slimy, and of very inferior quality, so that if mixed with the best starch it is apt to give it a disagreeable taste, and, besides, renders it more likely to become mouldy.

WINTER FLOWERS.

Cyclamens.—Perhaps no family of plants is better adapted for the drawing-room or conservatory than this; and it is astonishing, when we consider its merits, that it should be so seldom met with. There are several species of this lovely family, but they are not all equally adapted to the present purpose; the persicum takes the lead, combining beauty with scent, after which, the C. coum, C. repandum, and C. vernum, will perhaps be found the most useful.

I have found the following mode of cultivation to succeed well with the C. persicum; they are best raised from seed, which should be sown as soon as it is gathered. It may be obtained in the month of May, and should be sown in thoroughly drained pans, in a compost of two parts sandy heath soil, and one part of fresh fibrous loam; to which may be added a smart proportion of silver sand, and some wood ashes or charcoal. Placed on a greenhouse shelf they will readily vegetate, and they should remain in their seed-pans the first season, to ripen their bulbs. Through the following winter they should be kept at rest, tolerably dry, and with the returning spring—say in the end of January—should be planted singly in three-inch pots, using the above compost, with the addition of a good sprinkling of fine pounded crocks. They may now be kept under careful and high cultivation in these pots until the end of June, when, if they are well established, I have found it by far the best plan to turn them out of their pots into the open ground.

An unshaded bed in the kitchen garden, raised a foot above the ground level, and dressed well with sandy peat and vegetable soil, is the best for them. They will here make abundance of roots, although but little advance in the tops; and by the end of September will be showing their first blossom-buds. They must then be potted with their balls entire, using the same compost as recommended for pot culture, and should be placed in a shady part of the greenhouse for three weeks, and from thence removed to a light front shelf in the warmest part of the house. Here they will soon advance towards blooming, and may receive the same treatment as before detailed. Of course but little blossom can be expected the second year from seed, but succeeding years will amply repay the tediousness of this plant in its earlier stages. With some it is a maxim to treat this plant as a "rest bulb," immediately after flowering; this, however, will never produce this gem in the perfection it will attain by the turning-out system. These plants after being in the drawing-room for a fortnight will become discoloured in the leaf; they should therefore not remain in too long, and when returned to the greenhouse shelf should be watered rather sparingly, and, in fact, should be coaxed a little, to enable them to recover their vigour. Thus treated they will increase in strength and number of blossoms for many years; no deviation from the above treatment being thenceforth necessary. They may be increased by dividing the root; but this, however, seldom answers well, the pieces being always liable to canker.

The above treatment will be found adapted to most of the other kinds. The C. europæum, however, is perfectly hardy, and one of the finest autumn flowers we possess. It revels in a fine black and friable soil, and enjoys much the shelter afforded by a hedge or fence, with a sloping bank beneath it.

The different kinds of Azalea are particularly adapted for winter or early spring forcing; these, however, form two distinct sections, the treatment of which respectively varies considerably. The following management succeeds best with the Indian kinds:—The fundamental principle of forcing (or rather preparation for forcing) these plants is early and well ripened wood. To effect this they should be, as it were, forced into growth early in the spring previous; this must of course be accomplished in-doors, and they must have abundance of water with a warm and somewhat moist atmosphere, until they have completed their growth, which should be by the middle of August at latest, after which period they may in general be gradually inured to the air, and may be set out of doors for one month in an airy and sunny situation. They should not be too freely watered whilst here, and should be removed to a comfortable greenhouse before any frosts come on. These plants should not be over potted, as they force best when rather pot bound. Towards the end of October those which have plump buds may be removed to a warm and light part of the stove, or, in fact to any structure commanding a temperature of from 60° to 70° by day, and from 50° to 55° by night, with a reasonable amount of atmospheric moisture. A little bottom-heat is very desirable for these during forcing, and it should be about from 70° to 75°.—*R. Errington.*

THE AMATEUR GARDENER.

The lovers of gardening may be classed into two kinds with reference to the degree of attention they pay to actual cultivation. Some persons admire but do not work; others both work and admire. The former may incur great expense in the gratification of their tastes, and find real enjoyment in seeing the results of the labours of those they employ; but the latter are the genuine amateurs, who undertake at least the nicer manipulations themselves, and whose reward is always commensurate with the degree of care and attention bestowed. The enthusiasm of such devotees to Flora

may sometimes border on folly, as when a passion is formed for one particular flower to the neglect of all others; but, in general, they are a race of sensible beings, who drive dull care away, and promote health and happiness by their pursuits. A very large garden is less advantageous for the production of such a character than a small one, since the attention is more divided, and the labour of others is more needed, in proportion as the grounds are extensive. This is the reason there are so many amateur gardeners in the vicinity of crowded cities. A man of respectable income in such localities must be contented with a small garden, but in proportion to its diminutiveness will be the art employed to make it attractive.

Those who are acquainted with the neighbourhood of London well know the vast difference which exists between the back regions of houses inhabited by those who love gardens, and such as belong to people not troubled with tastes for natural beauties. Suppose two little villas similarly situated, with about ten poles of ground attached to each. The inmates may be precisely alike as to property, and yet the one plot will exhibit a wild and ragged appearance, rendering the name of garden a misnomer when applied to it; while the other will display the most consummate art in its arrangements, and contain within its narrow boundaries an amount of beauty almost incredible. The contrast between the fronts of these houses will be almost as great, for the lover of gardening will be sure to exhibit his treasures to those who pass by; and the Hyacinths and Van Thol Tulips in winter, and the pots of various greenhouse plants in summer, attest the zeal of the parties who dwell within. A higher degree of respectability is the least advantage conferred on the cottage of the amateur gardener. The tone of every member of the family is improved, and a degree of real refinement is secured. If the home of a labouring man is associated with conceptions of greater morality and integrity, when it is known that he is a gardener in his leisure hours, by the same rule the dwellings of the middle classes are presumed to be more happy when the master and the father occupies his spare time in the cultivation of flowers.

But why have I alluded only to the master? Have the mistress and her daughters no share in the labours and pleasures of the suburban garden? Shame would be to entertain a notion so remote from the truth. The retiring habits of ladies make them turn to flowers with an almost instinctive love, and dispose them to fill up their spare moments in tending and training these ornaments of their homes. I have generally found the female taste more pure in this respect than that of the other sex. The gentleman amateur is more attracted by novelty, and is prone to be very expensive in his desire to secure the last new and fashionable Dahlia or Pelargonium; but the lady will find pleasure in attending to old favourites, and probably will like them better for being old. In the Horticultural Society to which I have already referred, the only exhibitors of wild flowers were ladies, and it will generally be found that the gentler sex is more easily pleased, and less easily discouraged by the results of garden operations.

I think it a sign of a good state of things in the advancing population of our country, that these amateurs on a small scale are much more numerous than they ever were. Five-and-twenty years ago how few seedshops were there in London, and what sombre, melancholy places they were! They displayed dried herbs and dormant roots and bulbs in abundance; but the passers-by were not attracted by blooming Hyacinths or rows of gorgeous Carnations and Dahlias. Now, every extensive street has the repository of a seedsman and florist, and the purchase of a few plants or bulbs is a common affair with a class which a few years back looked upon them as forbidden goods. I confess to a large share of good feeling for all these minor cultivators, and wish them all success in their operations this present winter. Twenty, or even five, shillings spent in the purchase of Crocuses, Tulips, and Hyacinths for window culture, will bring an admirable return in the form of pleased faces and gladdened hearts when in bloom. Although I have much yet to say on general matters, I shall postpone some of my observations, and the next week give a few directions on this subject—the cultivation of bulbs in the windows of our dwellings. The season is not too far advanced for securing a pretty show in the early spring before flowers can be made to bloom in the open ground.—*H. B.*

Erratum.—In last Paper, p. 736, column *b*, line 12 from the top, for "exclusive" read "extensive."

Home Correspondence.

Protection of Tender Roses.—Among the many plans recommended for the protection of the more tender kinds of Roses, I think that first suggested in the Amateur's Garden," and afterwards in the "Calendar," the most simple and effective that can be adopted. It consists in pegging the shoots close to the ground, after the bloom is destroyed in the autumn, and afterwards covering them with spruce branches, Fern, or any dry litter that may be at hand. This is laid on very thinly, merely sufficient to hide the branches, and yet, although we had the thermometer at zero last winter, I did not lose a single plant, not even among the Fairy Roses, which many of the Rose growers experience great difficulty in preserving in well-protected pits and frames. My Roses are planted in an exposed situation, on a rather retentive soil, so they have no local advantages. They have been in excellent bloom from the middle of May up to the end of October; and really I do not know a more interesting appendage to a garden than a few beds of these perpetual blooming favourites. No doubt a part of my success in preserving the Roses uninjured last winter with such slight protection, was owing to the very superior manner in which the wood was ripened, by the hot dry summer; but this year the wood is not only much stronger, but is, owing to the dull wet season, by no means capable of enduring severe cold. On this account it will be advisable to give the plants slight protection without delay, while extra covering should be at hand, in case of the weather becoming very severe. Fern, where it can be procured, is the neatest covering that can be used, but straw, or stable litter, or the refuse of the flower beds, will do if no better material can be obtained. For tender standard Roses it will be necessary to twist a loose hay-band loosely round the stem, some Fern may then be placed among the branches, and some strong oiled paper or oiled calico tied over the whole to keep the Fern dry. This protection, however, is only necessary for the most tender kinds, though a little Fern tied among the branches will be security to many varieties; and, as it takes but little trouble, may as well be applied. The protecting material I remove gradually from the beds in April and May, as I find the young shoots, after being protected, are very liable to injury by spring frosts.—therefore, entire removal at one time is not advisable.—*An Old Practitioner.*

A Word of Counsel offered from Experience.—When you see plants offered at very low prices, ask the dealer what sized pots they are in, and if well established. Nothing is so really dear as wretched little starved things barely rooted, that will take a twelvemonth to decide whether they can exist or not. Twelve named Pelargoniums for 20*s.*, package included, and carriage paid to London, once tempted the writer; for, said I, they cannot be dear if only one half of them live and bloom. I could not have made a greater mistake. None died, thanks to continual nursing. They lived to bloom miserably, and then to be thrown away. The flowers they produced scarcely showed the character of the varieties to which they belonged. This effectually cured me of being enticed by the terms "good and cheap," for the simple reason that I found them "bad and dear." My present plan is to purchase good sized plants only, and particularly of new varieties, for I find if I pay double the price for them, I have the advantage of obtaining fine plants in addition to the incomparably finer head of flower. The amateur should never rest satisfied until he can find as much enjoyment in the healthy vigorous appearance of his favourites during the resting and growing months of the year as he finds when they are richly in bloom. In fact the latter is a consequence of the former.—*Veritas.*

Fences for Flower Gardens.—A wire fence 3½ feet in height has been recommended as a protection against rabbits. Now, I have succeeded in keeping these vermin out of my garden by a much lower fence, and the expense is of course lessoned by diminishing the quantity of iron used. The height of my fence is 2 feet 3 inches, and it consists of long loops of iron wire fixed to two strong wires which run lengthwise throughout the fence, and it is supported at intervals of 3 feet by strong iron uprights. The top part is slightly bent outwards, which serves as a balk to any animal that may feel an inclination to jump at it, and is, in my opinion, equal to a fence 3 feet in height. The loops are 6 inches in width, and by placing the leg of the second loop in the centre of the first, and so going on, the intervals between the wires, when complete, are 2 inches. The appearance of the fence is much lighter and prettier than the generality of more expensive iron fences, and the expense of erection was only 3*d.* per foot in length, including uprights, fixing, and two coats of paint.—*Q. L.*

Grass Edgings.—Although I have frequently called attention to the superior neatness of shallow, smooth, and uniform turf edgings, to walks in pleasure grounds and flower gardens, I am sorry to say the importance of such alterations is not so fully appreciated by the gardening public as it ought to be. I know not how others may feel on this matter, but to me it is a positive annoyance to see a rough uneven edging; and my employer has frequently remarked, when speaking of gardens which he had been visiting, that "the raw deep edgings of the walks made him feel quite uncomfortable;" and I am sure they must have a similar effect on everybody, who, in the language of landscape gardeners, has a cultivated eye. Burke, in his essay "On the Sublime and Beautiful," lays down smoothness as one of the principal elements of beauty, for, says he, "take any beautiful object and give it a broken and ragged surface, and, however well formed it may be in other respects, it pleases no longer; whereas, let it want ever so many of the other constituents, if it wants not this (smoothness) it becomes more pleasing than almost all the others without it." Now, as this is a fact which gardeners have daily, nay, almost hourly, evidence of, it is strange that it should have been so rarely applied to the edgings of garden walks—and for this reason I beg earnestly to recommend it to the attention of amateurs, especially being convinced that they cannot introduce a greater improvement into garden scenery than that of making the verges of their walks perfectly level, smooth, and uniform, and on no account more than 1 inch higher than the level of the gravel. Two years back the whole of the verges of the walks in this place were levelled, and they have not been touched with the edging-iron since; so that the Grass has sloped beautifully to the gravel, imparting a highly-finished appearance to the walks, which have been admired by everybody who has seen them. Now, however, though very good, they are what I consider out of order, but will be thoroughly renovated before the spring; and I would say to others "go and do likewise."—*W. P. Ayres, Brooklands.*

Substitute for Potatoes.—Those who have hitherto made the Potato a chief part of their diet, may be expected this unfortunate season to be less scrupulous than usual in having recourse to an unaccustomed article of food. I therefore venture to mention that the blood of oxen and sheep is habitually eaten in France, and is as wholesome and agreeable a meat as that of the pig. Sir Samuel Bentham attempted, during the great dearth of 1794-5, to introduce in London the use of the blood thrown away here; he engaged persons to make black-puddings of it most carefully. The making of these, however, being a costly preparation of the blood, I would suggest in lieu the mode of preparing it in the south of France. At the slaughter-house the blood is received in appropriate pails; salt is stirred into it whilst warm, to keep it fluid. As soon as it is collected, it is taken to the place where it is farther prepared. Seasoning of pepper and sweet-herbs is stirred in, as also a sufficient quantity of fat in small lumps. The mixture is then put into pans like our milk-pans, which are then put upon a vessel of water, kept boiling until the mixture is perfectly coagulated. The cakes of sanguette, as this preparation is called, are then turned out of the pans, and sold retail at the pork-shops and butchers, &c., cut out in slices, at about a third the price by weight of the best pieces of butchers' meat. The purchasers fry these slices to complete the cookery of them. The sanguettes would be much improved by adding some groats, well boiled, as for black-puddings.—*M. S. B., Hampstead.*

Manure Water.—Mr. Errington a few weeks ago offered some very judicious remarks on the preparation and use of liquid manure in plant cultivation, and gave it as his opinion that free porous soil, and weak clean liquid manure, regularly applied, were the essential elements of good cultivation. Now, as this recommendation runs counter to the practice of a tolerably successful cultivator who has used liquid manure at certain times for the rarest plants, for a number of years past, and with the best results, it would be interesting to know to what kind of plants, for how long, and with what success, Mr. E. has used manure water, as he recommends. For Camellias, Oranges, and such like gross feeding plants, I know it may be used to almost any extent; but I doubt whether such plants as Ericas, especially the hard-wooded kinds, Gompholobiums, Dillwynias, Burtonias, Dracophyllums, and the like, would not soon show their dislike of such constant kindness, though I have had abundant proof that the whole of them, and indeed almost every other plant, delight in weak clean manure water, if applied in the growing season, and when the pots were tolerably full of roots. To apply, however, liquid manure to plants newly potted in soil known to contain the necessary elements for vegetable growth appears to me to be contrary to nature. Now, manure water, let it be ever so weak, requires to be administered with a judicious hand, and the practised eye of an observant cultivator, or it is calculated to do quite as much harm as good. To heavily potted delicate rooted plants it must always be administered with great caution, and more especially until the pots are tolerably well stocked with roots. In my opinion, the time when liquid manure does the most good, is at that critical period, when, after a prolonged and heavy bloom, the plant, from exhaustion, is in that delicate state in which it requires very generous treatment to prevent it from dying outright, and this is the time that a little weak manure will stimulate it to renewed exertion.—*Judex.*

The Black Morocco Grape.—The berries of this valuable Grape are often very unequal in size, which it is needless to say renders the bunches unsightly; I may also remark, that in some places the Vine is found to produce weak wood. In order to obviate these defects I beg to offer the following advice:—Let it be grafted on a strong stock of the Black Hamburgh, about a month before the eyes are expected to swell. Cleft or whip grafting will answer if the operation be performed with exactness, but where it is practicable I would certainly prefer grafting by approach. Care must be taken that the rising of the sap does not wash off the clay. Under a brisk heat the berries will set well, and grow to a large size; the bunches, too, will be large, and when ripe will have a very fine appearance. I tried the experiment 20 years ago, and can confirm what I have written. —*Jos. Melony.*

Landscape Gardening.—Many landscape-gardeners would require to study more closely the works of creation than they generally do; their ignorance of some of the external parts of our world makes them commit sad blunders in some departments of landscape gardening; they ought to be well acquainted with the dozen of rock formations that exist, and be able to turn their knowledge to some good account when imitating the works of Nature. If a poor fellow be sent to the hulks for violating an unreasonable human law, surely the uninstructed pretender that seeks to invert any of Nature's plans, and pass them for what they are not, should be sentenced to seven years' solitary confinement among the wildest of the coal-formations. Are there not some who pretend to imitate the wild, romantic masses of rocks and trees in the creation of Salvator Rosa, who know as little about the arrangement of the stratified and unstratified rocks of our country as about the fossil megatherium? What would be thought of the

architect or builder that was required to produce a fine specimen of the composite order, and promised to give an example from the baths of Diocletian, or the arch of Titus? yet, when it is examined, it wants the volute of the Ionic order, and has the triglyth of the Doric order, and a single modillion; but greater blunders than these are to be found in the structures of those who profess to imitate the works of Nature. When they erect rock-work and waterfalls, such men should be sent to the Highland hills and glens to finish their education; they would perhaps derive both pleasure and profit from it, and be the means of beautifying the gardens and pleasure-grounds of their employers by imitating what is beautiful in Nature, and banishing the childish conceits that are often introduced into what is called landscape gardening, by persons who make a pretence of being landscape-gardeners. They may perhaps get some people to admire their production, who know as little about the thing as themselves; but, compared with what landscape gardening professes to accomplish, their labours will be found wofully deficient. I think it is the late Mr. Loudon that says, "Landscape gardening is the art of laying out grounds so as to produce the effect of natural landscape, and where models are taken from selected and beautiful Nature, success must follow;" these simple statements appear never to have been known to some, or, if known, never to have been acted upon. How few appear to have studied the music of Nature, or know how to modify the voice of waters, so as to make the heart beat in unison with the objects by which it is surrounded? They would do well to study the thundering chorus of the cataract to the gurgling solo of the mountain rill.—*Peter Mackenzie.*

The Banksian Rose a Good Stock.—It is, perhaps, not generally known that this Rose forms an excellent stock for other varieties. In the summer of 1844, I budded several Hybrid Perpetuals, Bourbons, and Chinas, upon the gross-growing shoots of one year's growth, which were headed back in winter to the inserted bud. The buds have all grown, some as much as three feet in length, and have produced a succession of flowers since the commencement of the season. Several buds of the Yellow China were inserted in the same way 4 years ago, and they have grown more luxuriantly, and flowered better than I have ever seen them upon any other stock. I find it is also a good plan to bud the Banksian upon the old China, where a small bush is wanted; it does not grow much, but flowers very abundantly.—*J. Webster, Eartham.*

Keeping Fruit.—Numerous inquiries having, from time to time, been made relative to the best methods of preserving Apples and Pears during winter, I will mention one or two particulars necessary in the storing of these, and the kind of house best adapted for securing a prolonged supply. The house, in the first place, should be ventilated in the ceiling, as from the moment of storing until the Apple is absolutely decayed an organic transposition of its parts is constantly going on, therefore it is important to allow the confined air of the room which becomes highly impregnated with the effluvia to pass off. Any animal or vegetable substance in a sound state is more liable to become diseased when placed in an atmosphere impregnated with effluvia; but, again, on the other hand, it is well known that Apples and Pears shrivel and lose their flavour when exposed, particularly in spring, to a free admission of external air. This may be attributed not so much to the mere admission of air as to the increased temperature which the air in spring has attained. The increased heat of the atmosphere then dries up the juices of the Apple and destroys its flavour; in fact, fruit so exposed becomes tasteless and tough; now it appears to me quite necessary to admit air or rather to allow the impure air to pass off quietly at the ceiling without creating a complete current in the house, and to exclude the admission of external air at the doors and windows as much as possible, to keep down the temperature of the room, for on this a great deal depends. Could the same kind of temperature be maintained in spring as during winter, there can be no doubt that fruit would keep much better and be better flavoured. When Pears are just arriving at perfection, they may be greatly improved in flavour by being placed in a warm room for a few days before they are eaten. The increased temperature promotes more rapidly and perfectly the transposition of the juices into the saccharine state.—*Duro.*

Societies.

HORTICULTURAL SOCIETY.

Nov. 4.—R. W. Barchard, Esq., in the chair. E. R. Tunno, J. S. Barry, and G. Wood, Esqrs., were elected fellows. Although the subjects of exhibition were not numerous, several things well worthy of attention were produced. Of gay plants, one of the most remarkable was a magnificent specimen of Cattleya labiata, with four flower-stems, on each of which were four large purple blossoms; these were all in perfection, and rendered it an object well worthy of the Knightian Medal which was awarded it. This was exhibited by Mr. Moore, gr. to R. Hanbury, Esq. From Mr. Robertson, gr. to Mrs. Lawrence, was a fine specimen of the violet-flowered variety of Epiphyllum truncatum; this was an exceedingly handsome plant, of a pyramidal form, which was effected by grafting it on Cereus speciosissimus, inserting the longest scions at the bottom, the shortest ones at the top, and filling up the intermediate space in the form of a regular pyramid. It was upwards of 3 feet in height, and the branches were all in bloom from top to bottom, which made it an object of great interest. Along with it were E. truncatum, blooming well on a block, the old but rather scarce Euphorbia punicea, a stove plant whose chief beauty lies in the bright red bracts surrounding the flowers, the sweet smelling Maxillaria picta, Oncidium ornithorhynchum, a variety of Catasetum tridentatum, together with the larger flowered Epidendrum ciliare, Erica Solandra, a useful autumn blooming species, and the rare Barkeria Lindleyana: a Banksian Medal was awarded for these. A similar award was also made to Mr. Glendinning, for Physianthus auricomis, a new sweet scented stove twiner, with flowers something like those of Stephanotus floribundus.—Messrs. Henderson, of Pine-apple-place, sent a Cœlogyne, with lilac petals and a beautifully-fringed lip; it was stated to have been received last year from the E. Indies.—From Mrs. W. Phillipps, of Streatham, were two plants of Rhodanthe Manglesii; and certificates were awarded to Messrs. Paul, of Cheshunt, for a beautiful collection of cut Roses, and to Messrs. Chandler and Son, of Vauxhall, for two very fine boxes of Chrysanthemum blooms; Messrs. Chandler also sent a Gesnera named Merkii. Of Fruit, Mr. Toy, gardener to Colonel Challoner, sent a Pine-apple named a Black Jamaica, weighing 4 lbs. 12 ounces; and a certificate was awarded to Mr. Povey, gardener to the Rev. J. Thornycroft, for three specimens of Black Jamaicas, the heaviest of which weighed 4 lbs. 12 oz.—A Knightian Medal was awarded for very fine bunches of Muscat of Alexandria Grapes, which were sent by Mr. Smith, gr. to the Honourable J. Norton, of Anningsley, Chertsey.—Well coloured bunches of Black Hamburgh Grapes, produced without the aid of fire-heat, were present from Mr. Toy; and Mr. Errington, gr. to Sir P. G. Egerton, Bart., sent very finely coloured bunches of West's St. Peter's Grape.—From Alderman Wilson were specimens of the Emperor Alexander Apple.—Two Melons were exhibited by J. Williams, Esq., of Pitmaston; one, stated to be green-fleshed, weighed 2 lbs. 11 oz., the other, a Cabul, weighed 2 lbs. 5 oz.—Samples of garden labels, said to be made of a composition of Cornish clay and felspar, were shown by Mr. Goode, of South Audley-street, Grosvenor-square.—From the Garden of the Society was a fine specimen of the pretty stove-twiner Manettia bicolor, closely covering a cylindrical trellis about 4 feet in height, and profusely covered with flower down to the pot; also a good Aphelandra cristata; Mussænda frondosa, with small yellow flowers and large white bracts; the new yellow-flowered Statice Fortuni, which will probably prove to be quite hardy; and a blue-flowered Labiate plant, sent by Mr. Fortune; together with the useful winter-flowering greenhouse shrub Babingtonia camphorosmæ; Calceolaria integrifolia, two Heaths, Oncidium Suttonii, the beautiful Cattleya Perrinii, and cut flowers of Lupinus Bogotensis.—The Fruit consisted of Pears; among which were fine specimens of Duchesse d'Angoulême, from a wall; Marie Louise; Gansel's Bergamot; Seckel and Moorfowl Egg, the latter from a standard; from which was also the Styrian, a beautifully-coloured variety, and a good bearer, but not so rich as some; the Belmont, one of the late Mr. Knight's hardy seedlings; and Urbaniste, a Belgian variety, the fruit of which is usually excellent from a standard, but insipid from a wall-tree.

LINNÆAN SOCIETY.

Nov. 4.—The Bishop of Norwich in the chair. A long list of donations to the library and museum were read, amongst the latter were a collection of fruits from Jamaica and the Honduras, containing those of Solanum mammosum, Martynia proboscidea, and other rare fruits, by Joseph Janson, Esq.; a part of a fruit of the Phytelephas macrocarpa, gathered on the River Magdalena, by Dr. Hooker; a collection of specimens of Cactaceæ, from the Cordilleras, by H. Cuming, Esq.; 850 species of dried plants, presented by the Ferdinandian Society of Innspruck; 50 species of dried plants from New Zealand, by Mr. Hugh Low; a collection of British Grasses, by Dr. Parnell.—A paper was read by the assistant secretary from the late William Griffith, Esq., on the structure of the Ambrosinia ciliata of Roxburgh. From the structure of this plant the author was induced to give it the name of Melioblastis, but had since found that Schott had given it the name Cryptocarine, and placed in this genus the Caladium ovatum, and the Ambrosinia ciliata and spiralis. A minute account of the structure of the A. ciliata of Roxburgh was given. For some of his observations, the author was indebted to Dr. Wallich, who had already commenced the investigation of the structure of this plant. The anomalous points in the structure to which the author more particularly drew attention, were the large development of cellular integument around the seed, which he regarded as the remains of the sac of the amnios, the direction of the radicle, which corresponded to the apex of the nucleus, the large development of the plumule, and the presence of stomates on the plumule.—There was a full attendance of members. The meeting was conducted in the usual way, the assistant-secretary read the paper as a matter of form, and no discussion of its valuable contents followed.

Reviews.

Self-Instruction for Young Gardeners, Foresters, Bailiffs, Land Stewards, and Farmers; in Arithmetic and Book-keeping, Geometry, Mensuration and Practical Trigonometry, Mechanics, Hydrostatics, and Hydraulics, Land Surveying, Levelling, Planning, and Mapping, Architectural Drawing and Isometrical Projection and Perspective. With Examples, showing their Application to Horticultural and Agricultural Purposes. By the late J. C. Loudon, F.L.S., H.S., &c. With a Memoir by the Author. Longman, Brown, Green, and Longmans.

Among the labourers in the cause of social improvement, one of the most remarkable men was the late Mr. Loudon; a person who succeeded in accomplishing more, under severe personal disadvantages, than others could effect with all the aid of robust health and an advantageous position in the world. Our opinion as to the general importance of his works has already been repeatedly expressed, and time in no degree alters the view that we have taken. He had his faults, like other men; his writings cannot be regarded as of a high order, they are sometimes disfigured by an enthusiasm which runs into extravagance; and they often bear marks of their author not being equal to the subjects which he undertook to deal with. But, notwithstanding these blemishes, they will always be consulted for their utility, and esteemed for their honest purpose. If Mr. Loudon had no original discoveries to rest upon, he had, what was in its way of no small value, unwearied energy, considerable tact, and a thorough knowledge of the wants of the peculiar class for which he wrote. This arose from his having himself been one of that class; from his remarking the difficulties he had himself experienced in his early career, and from his applying all the force of his character to removing them out of the way of others.

Such being the case, a work which shall teach a young gardener how to gain, with the least trouble, correct information upon subjects that he must necessarily be acquainted with, acquires a very high value in the class for which it is intended: for the great evil of many elementary books is that they are too superficial, or too profound, or too full of errors to answer the purpose of self-instruction. The nature of the subjects treated of in this volume will not admit of extracts, and we shall, therefore, only say of it that we have no book in the language so well adapted to the wants of gardeners, foresters, and farming bailiffs. It is clear, simple, correct, and not overloaded with superfluous matter, except, in the part which treats of annuities.

As this is the last opportunity we are likely to have of bringing the deceased author before the public, we avail ourselves of the excellent memoir by his widow, prefixed to the present work, of extracting a few personal anecdotes illustrating his peculiar character.

"While yet quite a child, he was sent to live with an uncle in Edinburgh, that he might attend the classes at the public schools. Here he overcame his dislike to Latin, and made extraordinary progress in drawing and arithmetic. He also attended classes of botany and chemistry, making copious notes, illustrated with very clever pen-and-ink sketches. Still he could not make up his mind to learn French, till one day, when he was about 14, his uncle, showing a fine French engraving to a friend, asked his nephew to translate the title. This he could not do; and the deep shame and mortification which he felt, and which he never afterwards forgot, made him determine to acquire the language. Pride, however, and a love of independence, which was ever one of his strongest feelings, prevented him from applying to his father to defray the expense; and he actually paid his master himself, by the sale of a translation which he afterwards made for the editor of a periodical then publishing in Edinburgh. He subsequently studied Italian, and paid his master in the same manner. He also kept a Journal from the time he was 13, and continued it for nearly 30 years; writing it for many years in French, in order to familiarise himself with the language."

"The Continent, after having been long closed to English visitors, was thrown open in 1813 by the general rising against Napoleon Bonaparte, and it presented an ample field to an inquiring mind like that of Mr. Loudon. Accordingly, after having made the necessary preparations, he sailed from Harwich on the 16th of March. He first landed at Gottenburg, and was delighted with Sweden, its roads, its people, and its system of education; but he was too impatient to visit the theatre of war to stay long in Sweden, and he proceeded by way of Memel to Konigsberg, where he arrived on the 14th of April. In this country he found everywhere traces of war: skeletons of horses lay bleaching in the fields, the roads were broken up, and the country houses in ruins. At Elbing he found the streets filled with the goods and cattle of the country people, who had poured into the town for protection from the French army, which was then passing within two miles of it; and near Marienburg he passed through a bivouac of 2000 Russian troops, who, in their dress and general appearance looked more like convicts than soldiers."

"He remained at Berlin from the 14th of May to the 1st of June, and then proceeded to Frankfort on the Oder. Here, at the table d'hôte, he dined with several Prussian officers, who, supposing him to be a Frenchman, sat for some time in perfect silence: but, on hearing him speak German, one said to the other, 'He must be English;' and, when he told them that he came from London, they all rose, one springing over the table in his haste, and crowded round him, shaking hands, kissing him, and overwhelming him with compliments as he was the first Englishman they had ever seen."

"Afterwards he travelled towards Russia, but was stopped at the little town of Tykocyn, and detained there three months, from some informality in his passport. When this difficulty was overcome, he proceeded to Grodno to Wilna, through a country covered with the remains of the French army, horses and men lying dead by the road-side, and bands of wild-looking Cossacks

scouring the country. On entering Kosnow three Cossacks attacked his carriage, and endeavoured to carry off the horses, but they were beaten back by the whips of the driver and servants. At Mitton he was obliged to sleep in his britzska, as every house was full of the wounded; and he was awakened in the night by the cows and other animals, of which the inn yard was full, eating the hay which had been put over his feet to keep them warm. He reached Riga on the 30th of September, and found the town completely surrounded by a barricade of waggons, which had been taken from the French. Between this town and St. Petersburg, while making a drawing of a picturesque old fort, he was taken up as a spy; and, on his examination before the prefect, he was much amused at hearing the comments made on his note-book, which was full of unconnected memoranda, and which puzzled the magistrates and their officers excessively when they heard it translated into Russ.

"Mr. Loudon reached St. Petersburg on the 30th of October, just before the breaking up of the bridge, and he remained there three or four months; after which he proceeded to Moscow, where he arrived on the 4th of March, 1814, after having encountered various difficulties on the road. Once, in particular, the horses in his carriage being unable to drag it through a snow-drift, the postilions very coolly unharnessed them and trotted off, telling him that they would bring fresh horses in the morning, and that he would be in no danger from the wolves, if he would keep the windows of his carriage close, and the leather curtains down. There was no remedy but to submit; and few men were better fitted by nature for bearing the horrors of such a night than Mr. Loudon, from his natural calmness and patient endurance of difficulties. He often, however, spoke of the situation he was in, particularly when he heard the howling of the wolves, and once when a herd of them rushed across the road close to his carriage. He had also some doubts whether the postilions would be able to recollect where they had left the carriage, as the wind had been very high during the night, and had blown the snow through the crevices in the curtains. The morning, however, brought the postilions with fresh horses, and the remainder of the journey was passed without any difficulty."

"During the time that he was suffering so severely from the pain in his arm, he found no ease but from taking laudanum; and he became at last so habituated to the use of this noxious potion, that he took a wine-glassful every eight hours. After the amputation of his arm, however, he wished to leave off taking out, as he was aware of its injurious effects upon his general health: and he contrived to cure himself by putting a wine-glassful of water into his quart bottle of laudanum every time he took out a wine-glassful of the potion, so that the mixture became gradually weaker every day, till at last it was little more than water; and he found he had cured himself of this dangerous habit without experiencing any inconvenience."

"As soon as Mr. Loudon found that his disease was likely to prove fatal, he determined, if possible, to finish the works he had in hand, and he laboured almost night and day to do so. He first, with the assistance of his draughtsman, finished a plan for Baron Rothschild; then one for Mr. Ricardo, another for Mr. Pinder, and, finally, a plan for the cemetery at Bath. He had also engaged to make some additional alterations in the grounds of Mr. Fuller at Streatham, and he went there on the 11th of October, but he was unable to go into the garden; and this was the last time he ever attempted to visit any place professionally. He continued, however, to walk in the open air in his own garden, and in the grounds of Mr. Hopgood, nurseryman, at Cravenhill, for two or three days longer, though his strength was fast decreasing; and after the 16th of October he did not leave the house, but confined himself to his bedroom and a drawing-room on the same floor. Nothing could be more awful than to watch him during the few weeks that yet remained of his life. His body was rapidly wasting away; but his mind remained in all its vigour, and he scarcely allowed himself any rest in his eagerness to complete the works that he had in hand."

"I feel that I cannot continue these melancholy details: it is sufficient to say, that, though his body became weaker every moment, his mind retained all its vigour to the last, and that he died standing on his feet. Fortunately, I perceived a change taking place in his countenance, and I had just time to clasp my arms round him, to save him from falling, when his head sank upon my shoulder, and he was no more."

Anecdotes of this kind explain the cause of Mr. Loudon's success in life, and should teach those who are just entering upon their career that in this country there is a road for the advancement of all men, if they have but the energy to overcome its early difficulties.

New Plants.

POTENTILLA BICOLOR. Two-coloured Potentil. (*Herbaceous perennial.*) Rosaceæ. Icosandria Polygynia.—We fail to discover this pretty Nepal plant among the many specimens which our herbarium contains from Dr. Wallich and other friends, nor do we perceive that it has been previously described. The actual state of the genus Potentilla is such as to leave us far from satisfied upon this point. In general appearance it looks like a hybrid between P. atrosanguinea or nepalensis and insignis, but it has certainly a wild origin, as will be presently explained. In some respects it approaches Potentilla insignis itself; but its hairs are long and soft, not short and close, and its leaflets are in fives not in threes. It may also be compared to P. villosa, which is found in Nepal, if Dr. Lehmann is right in referring P. leucochroa to that species, but it is five-leaved, and long-haired, with none of the hoariness of the latter. The appearance of the petals is most delicate and beautiful. Their ground colour is clear yellow, over which, at the base, is drawn a series of long hexagonal red meshes, which form towards the circumference of the flower other meshes of a finer and closer fabric, till at last they melt as it were into each other, and form a clear red border to each petal. This pretty species is a perennial, with much the same kind of trailing habit as the old P. nepalensis, but it is rather more robust. It requires the same kind of treatment, grows freely in any good rich garden soil, and flowers from July to September. It is easily increased by cuttings of the young shoots, taken off either in May or September, when 2 or 3 inches long, placed in sand under a bell-glass and kept close. It was raised in the Garden of the Horticultural Society from seeds received from the Honourable Court of Directors of the East India Company, through Dr. Royle, and is said to have been collected either in Cashmere or Thibet.—*Botanical Register.*

HEBECLADUS BIFLORUS. Twin-flowered Hebecladus. (*Greenhouse Shrub.*) Solanaceæ. Pentandria Monogynia.—A very pretty solanaceous plant, with graceful drooping two-coloured blossoms; a native of the Andes of Peru, about Tarma, Canta, Cullnay, &c., according to Ruiz and Pavon, and collected in the same countries by Mr. Matthews, but only recently introduced in a living state by Mr. Veitch, of Exeter, through Mr. W. Lobb. It flowered in Mr. Veitch's nursery in August, 1845. It only requires a good greenhouse, and may easily be increased by cuttings, and probably by seeds. The genus includes a very natural group of Solanaceæ, mostly natives of Peru, and New Grenada, and all from South America.—*Botanical Magazine.*

Garden Memoranda.

Bowood, the Seat of the Marquis of Lansdowne.—This is one of the princely residences of Wiltshire, and is in all respects worthy of so noble a proprietor. The mansion is placed where it should be, commanding a fine inland view, magnificently wooded; indeed the country adjacent appears covered with lofty trees, more especially when viewed from the house. An artificial lake, formed many years ago, occupies an extremely happy situation. It is of great extent, and has more the appearance of an estuary or arm of the sea, flowing into the valley, than an effort of the landscape gardener. Lofty and luxuriant timber clothes the banks, which occasionally make a bold and natural variation of outline, and again lose themselves amongst the massive timber, producing an effect from the flower garden very grand and natural. It is very rarely that water can be introduced with such a natural effect; and still more rarely do we find the lakes and artificial attempts at forming them in this country free from some fatal objection. On the one side of the mansion is a terrace garden, and which ought to extend along the other front where basement support is wanted to the building. These gardens and an extensive lawn are managed superbly, and it will give some idea of the extent of the place when we mention that 60 acres are devoted to flower garden and pleasure ground, on which the scythe and the rake keep a continual polish. This extensive surface of lawn is interspersed with a variety of fine trees. Pinus Cembra has attained a height of 70 feet, and is beautifully clothed with foliage. The Hemlock-spruce is equally high, and 70 or 80 feet across the branches, which hang gracefully upon the smooth green turf. Hundreds of Cedars of Lebanon are everywhere profusely grouped, and these were planted in 1775. This affords a good opportunity for judging of the comparative ages of this classical tree; the date being authentically recorded. There is no place within our recollection where such a large number of Cedars of this age exist. There is also a very fine Abies Douglasii, with others of this interesting group, clearly proving that Bowood is remarkably well calculated for the growth of Conifers. The kitchen garden, also remarkable for its extent as well as for the high cultivation carried on in the various departments, is situated near the house. The structures for the growth of Pines, Grapes, Peaches, &c., are very extensive. A hailstorm which visited this locality in autumn last completely demolished the whole of the glass on these extensive hothouses. Pines, Grapes, and plants, have, therefore, been at the mercy of the weather, unless protected by canvas and other temporary coverings; the glazing of the whole is, however, now nearly completed, and this has been done entirely with sheet-glass, which has a very fine appearance. Mr. Spencer, well known in the gardening world as one of the most successful exhibitors of fruits for years past at the exhibitions of the London Horticultural Society, bids fair to maintain his reputation in this respect. The Pines are now looking remarkably well, independent of the calamity above alluded to. Some planted out upon the plan which has created so much sensation, on account of the large fruit produced at Gunnersbury by Mr. Mills, are looking fine, but certainly not much surpassing (if anything can surpass) those in pots, which are as large and healthy as any plants we have ever seen. The soil employed here is of a rich turfy vegetable nature, in which the plants appear to thrive amazingly. Some folks would call this peat soil; it is, however, very different from what is designated peat in the vicinity of London, being of a fat and rich nature, and not as with us poor and sandy. Mr. Hamilton's system of Pine-growing has had a trial here, but much cannot be said of the result, even in the hands of so skilful a gardener as Mr. Spencer, whom, after a very fair trial, it would take a great deal to persuade to adopt this mode of Pine-growing to the exclusion of the one which seems to flourish so prosperously and satisfactorily with him already. Mr. Spencer was in the act of making a new Vine-border, and it may not be uninteresting to state his mode of proceeding. The subsoil, although on the declivity of a hill, was so exceedingly wet, that at a foot or so under the surface it is quite a puddle. Mr. Spencer was, therefore, taking all the soil out of the border, at the same time carefully preserving the roots of the Vines; pillars built of stones of a rough and flat nature were placed at convenient distances, to support large flags which were laid across them, and on this again was placed other rubble, and then the prepared compost; completely keeping the latter above the surface of the ground. This plan is perfectly efficacious, as the magnificent crops of Muscats, and other Grapes, which are annually produced here, abundantly proved. The stove-plants were clean, and in fine health; so were the Heaths and other greenhouse-plants, many of them making fine specimens, and clothed with foliage down over the rim of the pots.—*R. G.*

Miscellaneous.

Caution to Nurserymen and Gardeners.—It is rarely our duty to record instances of swindling practised by persons in the garb of gardeners, but a very gross case, and one to which forgery is added, has just come under our notice, and which we publish for the protection of our friends. The case is this:—A young man, of respectable appearance, called on the Messrs. Paul, at the Cheshunt Nurseries, on Thursday, the 30th ult., with a forged letter of recommendation from Mr. Low, of the Clapton Nursery. He said that he was in want of employment, and stated that he had been some time in the Earl of Aberdeen's garden at Haddo House, and that he had come to London that week under an engagement with the Duke of Northumberland's gardener at Syon, who, however, could not find room for him for a few weeks. The Messrs. Paul agreed to find him employment for that time, and he departed for London to get his boxes, engaging to return on the morrow. He did so; but with the intelligence that his boxes, which were lying at the Carron Wharf, came to more than he expected, and asked Mr. Paul to lend him two sovereigns, which, however, having some suspicion, he refused to do. As, however, one of their carts was going into London, Mr. Paul gave his man the money, with a charge not to part with it unless he obtained the boxes, and the man and the swindler drove off in company. When they arrived at the wharf he obtained from the man 5*s.* under some plausible pretence, and leisurely walked off. The next day it was discovered that he had forged a letter in Mr. Paul's name, and obtained from a neighbour 3*l.* 5*s.*; and by another letter 13*s.* 6*d.* The police are on the alert, and in full expectation of capturing him. He had a full knowledge of some of the principal nursery establishments and gentlemen's gardens, even describing correctly the personal appearance of some of the chief men, and no doubt he is going about the country practising upon the unwary. He was respectably attired, with black crape round his hat, pale, and of middle stature. He gave his name John Wilkinson, and talks with a broad Scotch accent.

The late Mr. Brown, of Perth.—This gentleman was for years an eminent nurseryman in the neighbourhood of Perth; and well known in the horticultural and agricultural world, from the many acquisitions to the garden and the field which he has been the means of introducing. The admirers of double Scotch Roses may be reminded that these Roses were first raised and brought into notice by him; and the new scarlet-flowering Thorn, which proves so ornamental in our pleasure-grounds, was also the result of his persevering industry. The agriculturist is not a little indebted to him as the first person who introduced the Swedish Turnip into this country, where it is now so advantageously cultivated. Mr. Brown was also distinguished for his botanical knowledge, nothing delighting him more than to roam the Scottish Alps in search of vegetable treasures. In this department his name is well known to botanists as the original discoverer of the Menziesia cærulea and other rare natives of the Highlands. He paid attention also to other branches of Natural History, particularly mineralogy. He was the discoverer of Heliotrope *in situ* in the Hill of Kinnoul, and he conducted Dr. M'Culloch to the spot, although the Doctor, in his writings, mentions this locality without acknowledging Mr. Brown. After retiring from business, Mr. Brown evinced the same activity and zeal for his favourite pursuits as he did in his younger days, his leisure time having been much occupied in perusing such American works as touched on the botany of that vast country; and as he had long been a most zealous and successful cultivator of those plants peculiarly designated as American, he, in order to reach the acme of his ambition, although in his 65th year, set sail for America, to indulge himself for a season with a sight of his favourites in their native forests and prairies. In this American journey he was accompanied by Mr. J. M'Nab, now curator of the Garden of the Horticultural Society of Edinburgh. Some of the interesting observations then made were communicated to successive meetings of the Botanical Society of Edinburgh, and are reported in their Proceedings. After returning to Edinburgh, and

remaining for some years, Mr. Brown again crossed the Atlantic and located himself in the neighbourhood of Philadelphia, where he died on the 20th of September last, after a week's illness, at the advanced age of 78; his remains were interred in the cemetery of that city.

Bees.

ANSWERS.—*W.—Anon.*—In answer to my letter on the advantage of returning swarms with the queen, you ask, "Why would the bees be rendered more idle by the queenless swarm being replaced?" The question in my mind is not whether they will be more idle, but will they be less so when replaced without a queen, than they were before they swarmed? A correspondent, it may be remembered, complained that his bees did not work after being returned without their queen, and that they soon swarmed again; whereas, when the old queen is returned, I have little doubt, from Mr. Nutt's experiment and my own, that she proceeds to destroy the young brood-queens in the hive, and swarming being then given up, the bees employ themselves in collecting honey. In one of my own cases mentioned, the bees readily took to the side-boxes, which they had refused to do previously. This may account for their working with surprising vigour from an instinctive desire to fill their new combs. With respect to shading Nutt's hives from the sun, I believe this to be indispensable. Mr. Nutt's own plan is excellent. He places his collateral boxes in bee-houses; each house contains three sets of boxes, and is about 12 feet long, allowing 4 feet for each set of boxes, 2½ feet wide, and 3½ feet high, making with the legs, which are 3½ feet, a total height of 7 feet. The roof is high pitched. There is also a slanting-board in front, to keep off rain and sun. At the back of each hive there is a moveable shutter; in front there are three alighting boards. These bee-houses take up little room, and afford full protection against high winds, rain, cold, and heat. The aspect of Mr. Nutt's hives is south-east or thereabouts.—*S.*——*B.*—Your bees would relish a plate of honey, or well-sugared beer or water, replenished several times, far more than "a Peas-meal bannock." If the hive is too full of combs to admit the plate on the floor, you may place it on an eke. Offering bees such a cake is similar to the plan of feeding them with lumps of dough; but be it remembered, though bees readily gnaw or crumble such substances, it is only in order to extract the little saccharine matter they contain.—*W.*——*J. G.*—I recommended that the entrances of hives should be narrowed at the approach of winter, on the authority of Mr. Savage, who clearly showed in a late Number the utility of it. If you think, however, that the operation would make the bees in mild weather come out for air and perish from exposure, you had better confine them in the usual way till spring; you need not fear that their hive will be a 'pest-house.'—*W.*

CALENDAR OF OPERATIONS
For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—In order that this department may look as little like winter as possible, some previous attention to that class of plants which bloom naturally at this season, will have been necessary—Gesnera zebrina, Achimenes picta, and the numerous Begonias, constitute a portion of these. Before we introduce plants forced out of their natural season, we should avail ourselves of those which bloom in the regular course of nature, without extra artificial inducement or stimulus. It is astonishing what a brilliant display this tribe alone can produce. Physianthus auricomis, a new twiner, which puts forth its sweet-scented white flowers in winter, will constitute a great acquisition to that class; it blooms most profusely. The temperature may now decline by night to 60°. *Greenhouse and Conservatory.*—Look regularly over the plants, and remove all decayed and decaying leaves, and keep everything sweet and clean. Chrysanthemums will now greatly assist in decorating this department. Watering must be performed with care, particularly with large specimens; they should have no more moisture supplied from the watering-pot than what is sufficient to keep them from flagging; no artificial heat need be applied until danger from frost is actually apprehended, but take care that the heating apparatus is in such order that it can be instantly used, as the necessity for it may be daily expected. *Forcing Pit.*—Keep up the supply of all kinds of bulbs, and the usual shrubs and other plants required for winter decoration.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Roses and half-hardy climbers against walls should now be pruned and nailed previous to covering up; but while the weather continues mild, the longer they are exposed the better. Herbaceous plants should be carefully looked over before cutting off their tops, in order to ascertain whether they require better arrangement. They should be planted according to their height, which will also determine the distances at which they should be placed apart. Hoe and rake borders to prevent Groundsell, Chickweed, and other fast growing weeds from seeding, before an opportunity offers for digging the borders. The planting of bulbs of all kinds, if not already done, should now be finished before a change of weather takes place. Collect seeds as they ripen, and keep walks as free from fallen leaves as possible. *Pits and Frames.*—During this delightful weather, wash the lights, which will have the effect of admitting more light through the dull weather in winter. Give air freely by taking off the lights through the middle of the day, from such plants as are well rooted; others must be kept moderately close, and shaded; watering should be carefully done every fine morning.—*B.*

III.—FLORISTS' FLOWERS.

Auriculas.—Carefully attend to seedlings pricked out in pans, weeding and watering them occasionally. *Carnations and Picotees.*—Layers which have been removed from the parent stools must be kept tolerably moist, and gradually accustom those which have been in close frames to the open air; those received from a distance should be potted in leaf soil and loam, without any manure, and kept in a closed frame for a few days. *Pinks* ought all now to be well established in pots or beds. *Tulips.*—Lose no time in planting these; offsets particularly are taking damage by being out of the ground.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—Little can be added to former directions at present concerning Pines; persist in giving all the air the internal temperature will permit to stock in dung pits. Keep up an atmosphere somewhat moist in the fruiting-house; however, whilst fruit is ripening, the atmosphere should be permitted to become somewhat dry for a couple of days previous to cutting it. Take care, also, that the heat bears a strict relation to solar light; buds may be developed, but fruit can never be sufficiently matured without attention to this principle.—Complete all preparations for early forcing of Vines, Peaches, &c., forthwith; such as whitewashing or painting walls, dressing the trees with wash, and other routine matters. Vines in pots intended for forcing should now be laid on their sides, so that rain cannot enter; their pruning should of course be finished, and the wounds dressed with some whitelead, for fear of bleeding. This is a good time to introduce a lot of Seakale into the Mushroom-house. I will, next week, say how this is best managed.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

It is now a good time to take up and root-prune such trees as are growing too luxuriantly to wood without producing fruit. In proceeding, the tree should first be properly taken up; and this is neither well nor easily accomplished by commencing to dig at too little distance from the stem. Let a wide and deep trench be opened so that a man can work with freedom standing on a level with the lower roots; he will then find less difficulty in undermining the tree. As the small branches and fibres of the root are cleared, they should be tied in bundles to the larger, to prevent their being bruised, and to be out of the way of the workman. When the tree is turned up, large perpendicular roots should be first cut off, then some of the others, cutting in a slanting direction on the under side, and finally all bruised portions should be cut clean. Replant as soon as possible in well trenched ground. Trees that are not thriving may be similarly taken up; but all sound roots should be preserved, except such as have penetrated into a bad subsoil, and in replanting better soil should be introduced. *Kitchen Garden.*—Trench and manure ground where any is vacant. Collect leaves for covering Seakale, Artichokes, &c. Remove all decayed leaves from the Cabbage tribes. Take up the roots of Oxalis Deppei and store, where the frost will not reach, in clean dry sand. Plant early Potatoes in trenched ground, using plenty of long stable-yard dung; and if plenty of this material can be had, or litter of any sort, to spread over the surface after planting, the sets need not be placed more than six inches below the surface.—*E.*

State of the Weather near London, for the week ending Nov. 6, 1845, as observed at the Horticultural Garden, Chiswick.

Oct.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	31	0	30.159	30.113	55	34	44.5	N.E.	
Nov.									
Sat.	1	1	30.177	30.132	55	32	43.5	E.	
Sun.	2	2	30.273	30.186	56	28	42.0	E.	
Mon.	3	3	30.317	30.283	54	20	37.0	E.	
Tues.	4	4	30.268	29.965	42	22	32.0	N.E.	
Wed.	5	5	29.835	29.722	53	42	50.0	S.	
Thurs.	6	☽	29.634	29.313	62	47	54.5	S.E.	.05
Average			30.094	29.960	54.5	31.8	43.2		.05

Oct. 31—Overcast throughout
Nov. 1—Slight haze; very fine; partially overcast
2—Slight fog; overcast and fine
3—Frosty; fine; clear, with sharp frost at night
4—Frosty; exceedingly dense fog; clear and frosty at night
5—Frosty and foggy; partially clouded and very fine; overcast
6—Mild; very fine; rain at night.
Mean temperature of the week 2½ deg. below the average

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Nov. 15, 1845.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 9	50.6	34.7	42.7	9	0.34 in.	1	1	2	1	3	6	3	2
Mon. 10	50.7	37.2	43.9	9	0.23	1	2	1	3	4	6	1	2
Tues. 11	50.8	36.6	43.7	10	0.76	1	2	2	1	4	7	2	1
Wed. 12	51.7	35.6	44.2	8	0.40	1	1	3	1	3	4	5	1
Thur. 13	51.4	37.0	44.2	14	0.66	1	5	2	1	5	2	2	1
Fri. 14	49.1	36.5	44.8	11	0.67	3	1	2	4	2	2	3	2
Sat. 15	49.0	36.3	42.9	10	0.32	1	4	2	1	4	5	1	1

The highest temperature during the above period occurred on the 12th, 1841—therm 63°; and the lowest on the 11th, 1828, and 12th, 1843—therm. 21°.

Notices to Correspondents.

CEREUS TRUNCATUS—*A Z*—To cultivate this in perfection, it should be grown in a temperature not lower than 55° during winter, and should be as much exposed to light as possible. We doubt whether you will be able to flower it in a sitting room.‡

CLIMBERS—*A M F*—You cannot have finer climbers than Clematis azurea grandiflora, Dolichos lignosus, Hardenbergia macrophylla and monophylla, Mandevilla suaveolens, Bignonia Pandorea, and Bugainvillea spectabilis; but you will probably not be able to flower the latter.‡

GARDENERS—*A Subscriber*—A master who hires a servant having a good character, and afterwards capriciously discharges him, refusing to give him a good character again, the servant having done nothing to deserve such treatment, commits an act quite as atrocious as that of the ignorant Irish peasant who blows his master's brains out. Whether or not such a servant could obtain legal redress from such a master is a question to be answered by a solicitor.

GLASS—*S N*—We have sent your letter to Mr. Elphick. We have done our best for you, and you and others must now fight your own battles. Do not be imposed upon by anybody.

GLASS PANTILES—*William Con*—Our opinion of them has already been expressed at p. 415.

HEATING—*Anon*—The gas arising from the burning of any kind of fuel must prove injurious to plants, although moisture may be supplied by means of evaporating pans. If you employ a Joyce's stove to heat your small greenhouse, you must take care that the gas is carried off by means of a pipe or flue. The tendency of gases to diffuse themselves amongst each other is so great, that carbonic acid, the product of combustion, though heavier than common air, will not lodge on the pavement, without ascending amongst the foliage of the plants in the house. It has been found higher than the tops of the highest mountains.‖——*O E*—The boilers you mention work satisfactorily at the garden of the Horticultural Society; but a 16-inch one has not been tried with such hard working as would be necessary in the case you state. If you take into account the saving of fuel which will result, you will find a 22-inch size will be the best and cheapest.‖

HYACINTHS—*T H*—Your former letter never reached us. Of double blue procure Prince Van Saxen Weimar, and Bouquet purpre; and of double white, Prince of Waterloo, and Ne Plus Ultra.°

INSECTS—*Entomologicus, Junior*, will find a letter for him at the *Gardeners' Chronicle* Office from Mr. Curtis. The small wasp sent is not a Crabro, but an Odynerus, and is unconnected with the pupæ found in the tree. *R.*

MANURES—*P S*—No doubt Strawberries will be benefited by the application of a liquid manure composed of soap-suds, urine, and soot, the two latter in moderate quantities. You had better apply it just when the fruit is setting: and the same liquid applied to Gooseberry and Currant-trees will also benefit them; but it will not render more solid manure altogether unnecessary, although with such aid a much less quantity of the latter will be sufficient to keep the ground in "good heart."‡

NAMES OF PLANTS—*S T P*—Aster argophyllus. §——*M E K*—Aster grandiflorus, and Callichroa platyglossa. §——*J H*—Aster Tripolium. §——*Micklewell*—Serissa fœtida, an old plant. §——*A Lady*—1, Clethra alnifolia; 2, Photinia serrulata; 3, Myrica Gale.¶——*J H*—A Chenopodium, very like Ch. album.

PELARGONIUMS—*T H*—Matilda, Luna, Duke of Cornwall, Sultana, Beck's Zanzummim, and Sir R. Peel; if you want new varieties, we would refer you to the descriptive list given at p. 720 of the present volume.°

PINE-APPLES—*A Subscriber*—Under certain circumstances, the planting out system is to be recommended.‖

PLANTATIONS—*C E F*—On table-land 900 feet above the level of the sea, at the base of a range of mountains, shelter as well as drainage should be kept in view; for even in favourable soil at the height of 1200 feet the Scotch Fir and Larch will not thrive except where heat is accumulated in the bosom of mountains. When a patch of trees thus favourably situated has been reared, others have been observed growing up in its shelter, in places originally too exposed. You must endeavour to cut off the communication of springs, as they proceed from the mountains, by cutting a deep ditch across their channels; extend it also along the most exposed sides. On the banks formed by throwing out the soil, plant good sized plants of Birch, Poplar, Larch, and Scotch Fir. These generally thrive well when planted in such a situation, and soon afford shelter. As many embankments should be made as can be afforded, for their formation is doubly advantageous, inasmuch as both drainage and shelter is ensured. It is almost needless to remark, that in cutting the ditches the best soil should be made to occupy the part of the embankments in which the roots of the trees require to be placed. When the pits are made for the plants throughout the ground, more than their own surfaces should be put in the bottoms, in order that when finished their tops may be a few inches above the level of the adjoining ground.

POTATOES—*Sir W James*—The machine figured at p. 720, and the second Leader of to-day, will furnish you with the information you seek.——*E J*—Lime will not injure Potatoes for sets, if it be not applied very hot and in too large quantity. If you find the small tubers more sound than the large, you should certainly give the preference to the former for sets.‖——*C P, W R M*—Early as well as late Potatoes may be planted before winter, placing the manure under the sets, which should be buried eight inches deep.‖——*Omega*—The Solanum tuberosum is a species, introduced to England by Sir Walter Raleigh, either in 1586 or very soon after. A native Potato was again introduced by the Horticultural Society, which proved a wild variety, inferior to those now cultivated, but still not specifically different. Varieties have a tendency to degenerate under unfavourable circumstances. Of this a plant with diseased or variegated foliage is an instance. Under favourable circumstances, and propagating from the greenest or least affected portions, the original degree of vigour may be partially regained, but perhaps never completely so.‖——*A Subscriber*—Partially affected tubers planted now will do for sets, provided they contain vegetating eyes.‖

ROELLA CILIATA—*Sub*—This is a Cape plant and requires a greenhouse in this country. It should be potted in light rich soil, such as a mixture of peat, leaf mould, sand, and loam. Keep it rather dry when it is not growing, but give it plenty of water at other times.‡

SEEDS—*Constant Reader*—You may sow your seeds which you have received from the Cape of Good Hope in spring, in shallow pans filled with light sandy soil, mixed with a little peat, and place them in a gentle bottom-heat.‡

TIMBER—*C E F*—We think you might use Baltic Oak safely, but we cannot recommend American.

TRANSMUTATION OF CORN—*J A*—We wait with much curiosity the result of the experiments instituted last year. In the meanwhile, you will find some information on the subject by consulting our volume for 1844, especially at p. 555.‡

TURF-PITS—*A H*—The peat used for building walls of pits may be cut from a common bog, in the same manner as those used for burning; but, of course, larger. In building, the walls should be made to slope outwards a little, and should be well filled in behind with earth; the inside may then be cut neatly with a sharp instrument, and an excellent wall will thus be formed. After the walls have been built, all that is necessary is, to drive down some strong wooden posts along the back and front, on which the sill and rafters rest, as well as on the turf-wall. If at any time the turf sinks, these support the sill and rafters, and, by pushing in a little turf below the former, the vacancies will be filled up. Such pits will last for many years, and when covered with good sashes, are dry and warm.‡

VINES—*G R*—In grafting these, shorten the branch or shoot at the winter pruning to the most eligible place for inserting the graft. The graft should be kept in sufficiently moist soil till the time of performing the operation, and for a week previous in the same temperature as that in which the Vines to be operated upon are growing. When such portions of the latter as are shortened for receiving the grafts have made a bit of shoot, graft as you would other fruit trees, taking care, however, to preserve the shoot at the top in claying, and until the buds on the scion have pushed, then shorten it back. Inarching may be performed any time after the Vines have started so far as not to bleed.‡

MISC—*M R*—In preparing a bed for Rhododendrons and other American plants, if your peat is inert and unproductive, it will be greatly benefited by adding one-half maiden loam, and about ⅓ of well decomposed cow-dung.‡——*Amateur*—You will probably have some of your Hawthorn berries up the first year after sowing if you mix them with sand now and sow them in spring.‡——*J C Z*—Your Asparagus bed, which is still in a green state, must not be cut over until the stems have begun to wither. It will be too early to begin now to force Seakale that was planted from portions of roots in spring.‡——*B F*—If you must prune your Deodar it may either be done now or when it has begun to grow in spring. We would prefer the latter season.‡——*Z*—If the young wood of your Vines is badly ripened, cut back to one eye above the two-year old wood.‡——*P S* will find the information he asks for at p. 429 of this year.‡——*Rhodon*—Of the Rhododendrons you mention, nobile is richest in colour, but it does not flower freely, nor are the flowers so large as those of R. arboreum. It is not hardy near London. The Cloth of Gold Rose is a very fine light yellow Rose, and of a large size.¶——*N H B M*—You may preserve your Pelargoniums and other plants through the winter by placing them in your dry warm cellar, provided the heat is not above 40°. The working of new beer beside them will not hurt them.‡——*Smike*—You will find your question answered in the report of the June exhibition at Chiswick, and in last week's Number, p. 738.‡——*P F*—If you are desirous to have your Cactus, which flowered profusely last season, and which is again full of buds, in beauty next summer, you must winter it as quietly as possible. It should not be in the least excited, or it will burst into flower, and, of course, will not be in perfection at the season you want it.‡——Full price will be given for copies of September 13 (No. 37).

SEEDLING FLOWERS.

ANTIRRHINUM—*W M*—Your seedling named Miss Prettyman is a novel and pretty variety, the front of the flower being strongly veined with cherry colour.°

PANSIES—*Y*—No. 1 is a fine variety—form, colour, and substance first-rate; the centre is small but distinct. No. 2 is a large bold specimen, but not equal to No. 1 in form; the top petals are too high. This flower will probably come better, as the specimen sent is rather cramped in its growth.°——*F*—Your seedling is not equal to the flowers of the present day; it is deficient both in substance and form.°

ERRATUM—An error has crept into the report of the Chichester Horticultural Society, p. 738. The name of the seedling Dahlia shown by Mr. Spary was not "Lady Antrobus," but "Lady Featherstone."

BEAUTIFUL SMALL ESTATE IN FIFESHIRE FOR SALE, BY PRIVATE BARGAIN.

THE LANDS AND ESTATE OF BROOMBRAE, belonging to the DUNDEE UNION BANK, lying in the immediate vicinity of Auchtermuchty, and consisting of 211 acres, Imperial measure, inclusive of about 40 acres in thriving plantations, great part of which is Hard Wood. There is a good and substantial DWELLING HOUSE, with a suitable STEADING and OFFICES on the Farm, which is remarkably well inclosed with Stone Dikes. The soil is of good quality, and well adapted for raising all kinds of grain and green crops. The climate and exposure are excellent, the neighbourhood is good, and richly diversified with plantations, of which, and the surrounding country, the property commands pleasant views. The property, which has been recently let to a respectable and industrious tenant, at a fair rent, is distant from Cupar Fife, the County Town, about 9 miles, and from the Shipping Port of Newburgh about 4 miles, and the roads to these places, where there are good markets, are excellent.

For further particulars, apply to DAVID MILN, Esq., Banker, Dundee; or to H. W. WALKER, Esq., Banker, Auchtermuchty; or to JOHN BELL and WILLIAM DON, Writers in Dundee, who are in possession of the Title Deeds.—Dundee, Nov. 8.

The Agricultural Gazette.

SATURDAY, NOVEMBER 8, 1845.

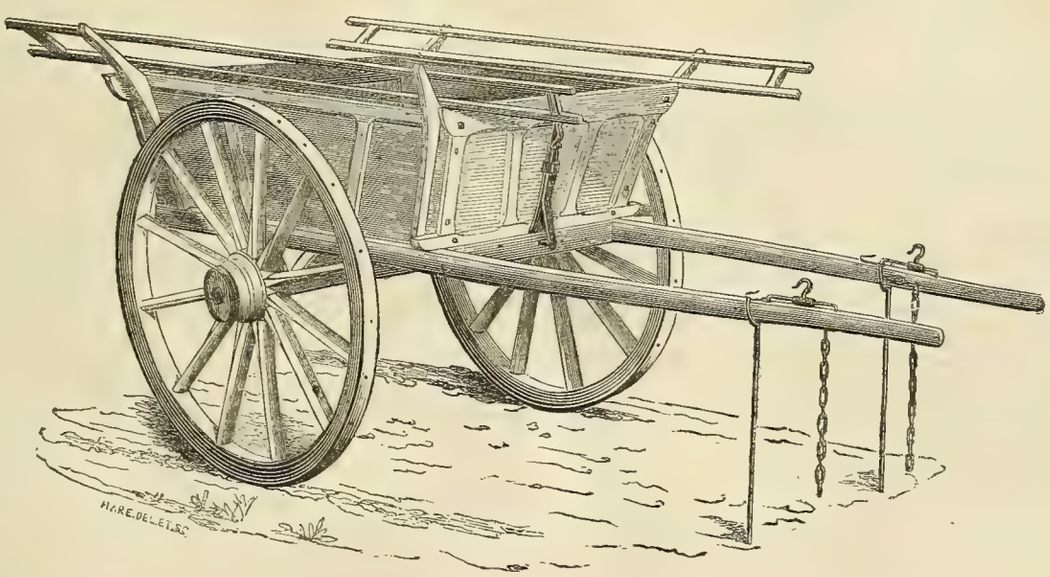
MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Nov. 12—Agricultural Society of England.
THURSDAY, — 13—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 19—Agricultural Society of England.
THURSDAY, — 20—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Nov. 10	Wenlock	Nov. 11	Isle of Thanet
	Darlington	— 12	Harleston
	W. Hereford		Grove Ferry
	Cirencester	— 13	Richmondshire
	Yoxford		Blofield and Walsham
	W. Firle		Wrentham
— 11	Northampt. Book Club	— 14	Debenham
	Rochford Hundred		Halesworth
	Framlingham		

THE implements employed in tilling the land, and in sowing the seed, having now been described, MACHINES OF CARRIAGE come next to be considered. But upon this subject we have little to add to the remarks made in last year's volume (see page 509). We there stated why, in our opinion, the use of the cart is more economical than that of the waggon. It certainly is so in the case of most farm operations; and we believe it to be so, where alone there can be any difference on the subject, even in the case of harvest work. The subjoined is an engraving of the Scotch cart; one of the best forms of the machine. It holds nearly a cubic yard level within it—a load which, of stones, weighs about a ton; it will hold about 1¼ cubic yards, *heaped measure;* a load which, of ordinary farm-manure, also weighs nearly a ton. And if, at harvest time, it should be considered less efficient than the waggon, even with its wings on (as represented in the figure), then it is a very easy thing to remove the body, and substitute for it, upon the same wheels, a light framework, extending considerably farther both before and behind, as well as on either side. On such a framework, which can be made at a cost of 3*l.* 3*s.*, a load either of hay or straw can easily be built quite up to the power of one horse to draw it, and that, of course, leaves nothing to be desired.



There were exhibited at Shrewsbury, during the meeting of the English Agricultural Society there this year, several contrivances connected with the mechanism of the cart, which are worthy of notice. Mr. CROSSKILL, of Beverley, exhibited an exceedingly ingenious self-acting movement, by which, in the act of tilting up the cart the back-board was lifted out of its place. During the past week we have carted home to our buildings, and harvested them, to be consumed by cattle and sheep in stalls and sheds, probably 600 tons of Mangold Wurzels, and Swedish Turnips. Our carts bring on an average 15 cwt. of roots at a time; we must, therefore, have carted home at least 800 loads during the past week. Now, not to speak of the injury which the carts have received from rough usage in the act of removing their back-boards before the load could be tilted, just consider the loss of time attending the operation; we cannot put it at less than three minutes for each load, which, on the whole 800 loads, is equal to a loss of 40 hours, or of four days of a horse and cart in the week—a loss of very considerable importance at any time, but especially so now, considering how much the land may be injured by all this carting if we do not get it completed before the present fine weather shall change. We have had no experience of the practical working of this invention of Mr. CROSSKILL's, but the above remarks exhibit the importance of some such contrivance.

Mr. CLYBURN, of Uley, also exhibited several novelties; a cart constructed so as to answer either for ordinary use or to hold a tank and act as a liquid manure cart; a contrivance for balancing the cart always upon its axle, so that there may be no excessive pressure on the horse's back when descending a hill. This was effected by an apparatus for lifting the body in front and keeping it fixed at any required height, &c.

A cart will generally cost about one-half as much as a waggon, and we venture to assert that before either of them are worn out the former will have done more work than the latter per horse-power employed in drawing it.

EFFECT OF RAIN AND AIR ON MANURE.

THE mistake that has hitherto prevailed as to the source from which the soil derives the supply of oxygen, has led to the unnecessary labour and expense of ploughing the ground in order to expose the soil to atmospheric influence; while a false view of the action of the weather upon the food of plants has induced the farmer to adopt the laborious proceeding of digging or ploughing the manure into the soil. It is evident from what we now know of chemical agency, that sound practice consists in exposing the manure to the oxidising influence of rain, and in stirring the soil sufficiently to admit the rain freely among its particles, but avoiding the unnecessary toil of turning up the soil to the air. What the cultivator of the soil wants, therefore, is an instrument that will loosen the soil with the least amount of labour and expense. The spade will do this; but it is in some degree open to the same objection as the plough, namely, that it condenses the soil in the operation of trenching. The fork is the instrument that appears to be peculiarly adapted for the purpose; and if made of sufficient length and used properly, it will be found to save labour and expense, to work the land most efficiently, and to increase its fertility.

The advantages of spade-labour have been clearly and forcibly shown by Mr. W. AITON, in a very useful communication, given in page 694 of the *Agricultural Gazette*. The superior manner in which it tills the land, the comparative saving of expense, and the increased crops which it produces—as compared with the plough—so strongly recommend it to the notice of farmers, that it is a matter of surprise that the spade is not more generally adopted. What is there said of the spade applies with equal or perhaps more force to the fork as an implement of field culture.

The fork which best answers the purpose is longer than the common garden fork; it measures 13 inches in depth, and is proportionately stronger and somewhat heavier; but is easily wielded by an active labourer. I obtained one, through a friend, from Essex, where it is used after the plough to deepen the furrow. It should be used not as the spade to turn over the soil, but merely as a lever to raise and stir it. Trenching with the spade is a laborious business; the earth is sliced and compressed, then raised in a mass and turned over, and broken down and levelled. It does not go deeper than 8 inches into the soil; this, though a great improvement upon the plough, is inferior to the fork. This latter instrument, of the length given above, performs the work of the common plough and the subsoil plough; it gives a depth of 13 inches for the roots of the plants, adding considerably to the fertility by bringing so much more soil into useful tillage. The fork should be used as a lever by which the earth is raised from below, but not turned over for the purpose of exposing it to the atmosphere, a proceeding wholly unnecessary and adding greatly to the labour; the small clods that appear on the surface and give it an irregular appearance, need not be further broken down, but may be left for the harrow before sowing, or may be merely subjected to the disintegrating action of the manure and the rain. The formation of clods on heavy land will be less with the fork than when the spade is employed, and infinitely less than when the plough is used. The clods left by the fork will easily yield to the harrow, and will be effectually broken by a winter's exposure to frost and to rain charged with free oxygen and with the salts of the top dressing. Land under good cultivation is not prone to aggregate in masses; the chemical changes produced by a good supply of manure, as I have before observed, tend to separate the particles of the soil and to pulverise it. This may be seen in good Grass land even on heavy clay soils. If the turf is turned up (not with a spade) the earth below it is found looser and altogether free from clods; the roots of the Grasses, the manure, and the oxygen of rain, caused a continual change in the chemical constituents of the soil, by which agglutination of its particles is prevented. Indeed, it is well known that meadows require the use of the roller to consolidate the turf, which, unless trodden by stock or well manured, is apt to become too loose in texture.

The time for forking the soil is that which admits of the manure being laid upon the ground with the greatest advantage; and that will be the latter part of the autumn; for, by exposing the manure during the winter to the oxidising influence of the rain and snow, its salts are carried into the earth in that state of subdivision which is most favourable to the luxuriant growth of plants. Many crops admit of the seed being got into the ground before winter; the cereal grains, Beans, and some others, are usually sown in autumn; Potatoes are now found to answer well if set in November. Turnips are generally sown late in the spring, to prevent the flower-stalk forming and weakening the bulb. But in all cases it is better to lay the manure upon the ground in autumn, both for autumn and for spring sowing. It makes no difference in the soil whether the seed is sown first and the top-dressing laid upon the surface, or whether the ground is prepared by a winter's top-dressing and the seed sown in spring. It is not necessary again to stir the soil in spring, if the fork has been well used in the autumn, and the manure laid upon the surface; all that is necessary is, to prepare the surface for the seed by the rake or harrow, to form a good tilth to receive the seed; and this can be done without the labour of again forking the ground in spring. Land ploughed in the autumn requires usually the same operation to be repeated in the spring before the seed is sown; but the fork, by lightening the soil (aided by top-dressing), renders it unnecessary to stir it again in the spring. I have tried this on a small scale, and find crops thrive well in ground forked in the autumn, and top-dressed for the winter, without anything more being done in spring beyond levelling its surface for the convenience of sowing.

The practice of digging or ploughing the ground before sowing is so universal, that the neglect of this part of tillage will meet with objections founded on long usage, and the general consent of agriculturists as to the necessity of well stirring the earth before putting in the seed. A little consideration, however, will show that stirring the soil in autumn places the land in the same condition in the spring whether the seed is sown in autumn or in the following April. It may be said that land forked in autumn will be too firm in spring for the germination of seed and the free growth of the roots; but the same objection, if it be at all valid, applies equally to autumn sowing; for, by the time that the spring comes, the soil will have acquired the same degree of firmness of texture which the manured fallow would have acquired. The difference is more in appearance than reality, more in the sound than in the sense. If the ground is left quite in a rough state after forking, and the manure laid upon it in November, the surface will be found to be fit for the harrow in the spring, and readily reduced to a proper tilth. If the seed is to be sown broadcast, the surface should not be disturbed by the harrow before sowing; the seed should be scattered over the rough surface of the soil, which may be made level either with the harrow or rake.

Some crops when ripe require to be dug or forked up, as for example Potatoes; and it would be a saving of labour if the work of turning up the soil could be performed at the time the crop is gathered. A little additional labour would be sufficient to prepare the ground for top dressing for the next crop. Several crops, the stubble of which is left upon the land, might be raised with the fork, and the stubble saved and brought into the yard to be added to the manure-heap. The practice of leaving stubble upon land is founded more upon custom than reason. Reaping Wheat is attended with more toil than raising it by the roots from the ground. Wheat sends its fine fibrous roots deep into the earth, but they have so slight a hold upon the soil, that a large root is easily raised by one hand, the fork not being required. The object of leaving the stubble is not very obvious; even if it were with difficulty uprooted, the trouble would be well repaid by the additional dry litter which the roots and straw would afford. The little manure which it gives to the land on which it is left at harvest-time, consists in a small quantity of silicate of potash, and a still smaller quantity of other salts. If it were brought into the farm-yard, besides providing an additional supply of dry litter for stock, it would absorb a large quantity of liquid manure, which, under the present wasteful system, is allowed to become putrid in tanks, and to lose some of its most valuable materials. The great desideratum in yards is dry litter for the purpose of saving the liquid manure, which in one way or another is allowed to run to waste. Dry litter should be collected from all possible sources; the tubular and cellular structure of straw peculiarly adapt it as a means of collecting and absorbing the fertilising salts of urine; and now that the value of liquid manure is generally known, the waste occasioned by the want of some material to absorb it, and by the practice of leaving the stubble on the ground, cannot be too much deprecated. The value of the stubble, when loaded with the rich salts of urine, would be increased threefold. Wheat stubble from an acre of land brought into the yard, and saturated with human urine for three or four weeks, would suffice to manure the same extent of ground for a crop of Turnips. Forking or pulling the crops at harvest, instead of cutting them with the scythe or reaping-hook, would add greatly to the quantity of dry litter, would save much liquid manure that is now lost, and would be the means of restoring the stubble to the land in the form of a highly fertilising manure. Wheat and Bean stubble are most valuable for this purpose; but even Oat and Barley stubble would be better removed by hand with the grain at harvest, than left to encumber the land without fertilising it.

That which answers well upon a small scale, it is well known is often found to fail when put to the test on a large scale of field-culture. The above remarks are the natural consequence of the view entertained by the writer as to the source from which the soil, the plant, and the manure, respectively derive their supply of oxygen. The plan has been tried only on small patches of land, and is therefore offered with diffidence to the agriculturist. It is, however, true, that a more intimate acquaintance with the laws of nature is continually showing us that much of our labour and many of our schemes are nothing more than a useless, or in some cases, a mischievous interference with her operations. The turning up the soil to the atmosphere, and the ploughing the manure into the soil, are the laborious inventions of man occasioned by the imperfect view entertained of the action of rain. And it may hereafter appear that rain which carries into the soil such an abundant supply of oxygen, is at the same time the means of conveying to the roots of plants that indispensable aliment, nitrogen.—*Oxygen.*

FENCES.—No. III.

In my last article I spoke of that mode of management which is technically termed cropping. The following figure exhibits a fence which has been cropped more than 40 years. It is situated on the forest-marble clay, which requires a wider ditch than drier soils. It forms an excellent fence aaingst stock of all descriptions.

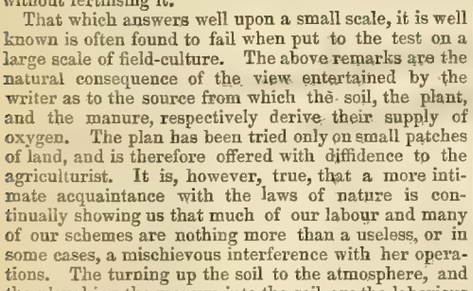


Fig. 1.

With regard to the general management of the fence, we may assume that, at the end of 12 years, it will require laying in the manner already described: after that, in case of adopting the system of cropping, let the ditch and bank be attended to whenever they need it, and let the cropping proceed annually till about the 16th year after the hedge has been laid. Then examine the stems of the Thorns, and if it be found that they are shedding their bottom branches and are likely to become thin, suspend the cropping for four or five years, and then lay the hedge in the customary manner, and after three or four years' growth of the shoots the cropping may be resumed.

The following diagram (fig. 2) represents the section of a hedge which was last laid in 1810 or 1811, and has been regularly cropped every autumn since. I have known it to be an efficient fence for the last 20 years. The soil is the forest-marble clay.

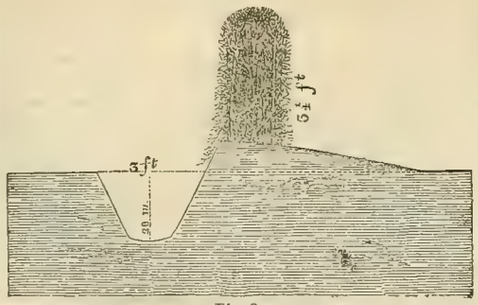


Fig. 2.

Many will state that cropped hedges are only fit for gentlemen's gardens and pleasure-grounds. It is, however, a certainty that many farmers have adopted this mode of management. Generally, however, farm-hedges are so much neglected that they have become thin at bottom, and are frequently found composed of old stumps standing here and there in the hedge with the intervals between them filled up with dead hedging. The old thorns are seldom, if ever, regularly cut in a workmanlike manner, but are often headed down for the purpose of filling up the gaps between. When these gaps, though numerous, are not large, the fence may be "laid" in the manner we have already described with the assistance of dead stakes, and when the operation is complete it will present somewhat the following appearance.



When, however, the gaps are greater, an attempt is generally made to fill them up with dead wood or sometimes in a most unsightly manner by patches of stone walls. The best method to adopt in such cases is to get rid of such anomalous fences, and by degrees entirely to replant the vacant spaces. I believe that it is to the want of cultivating the soil where they are planted that the general failure of such attempts is to be attributed. The turf where the plants are to grow should be pared off and the ground dug and limed, and the operation of planting should proceed just as when making an entirely new fence. — *John Bravender, F. G. S.*

Home Correspondence.

Employment of Capital in Farming.—On subjects of importance relative to the weal of our fellow creatures, it is absolutely necessary to disabuse the public mind, when it is likely to receive a wrong impression, and from misrepresentation, to attribute motives to a writer contrary to the tenour of his statements of facts, however unpalatable they may be to those whom "the cap fits." It is surely not inconsistent with the character of a true friend to the agricultural interest to point out errors in a false system, and advocate the adoption of better principles founded on justice both to landlord and tenant. Country gentlemen bitterly complain of the impossibility of improving their estates in consequence of farmers not paying their rents, many of them being so much in arrear, that there is little prospect of their ever being able to liquidate their debts. It is surely worth inquiring into this ruinous question in a kindly spirit, and if a somewhat theoretical proposition is advanced, as a remedy for the evil, it would be better to meet it with fair argument, rather than attempt to smother everything, by driving a correspondent out of the field with harsh words, which never yet have been able to stifle truth. Capital has enabled the manufacturers to call to their assistance, machinery, labour, and fuel, and thus have they laid the foundation, not only of their own fortunes, but raised their country to a position envied by the whole world. The money invested in land speculations would not return so high a per centage as that taken to the mercantile market, but it would be without risk, and permanent in its operation; the soil must always be valuable, and must rather increase than decrease with proper management. It cannot be denied that the system of farming which allows fallows to be a substitute for cash in hand, rests on a false foundation. The third of a farm being out of cultivation, annually, reduces the property one-third the value, nay far more, for the moral evil of such a plan encourages idleness and waste. Can landlords be surprised at their debtor and creditor accounts being unsatisfactory when they resign a great proportion of their substance to preserve a part, rather than compel the whole to administer to their comforts and those of their neighbours. The root of the mischief is deeply seated throughout the land, viz., an attempt to farm without gold to strengthen the sinews of man and beast. Half-fed cattle picking up a scanty meal on undrained land, ill-paid labourers with wan countenances, and nerveless arms, manure running to waste, weeds overtopping the crops, hedges unrepaired, and grain standing uncut, ripe, and falling out of the ear, are certainly not symptoms of a well regulated farm, and yet they are too common to escape the observation of the uninitiated in the mysteries of "the large farm system, with little or no capital." The destitution of the husbandmen in this country is melancholy; in the midst of abundance, they are positively starving; shadows of men meet the eyes at every step, ready and willing to contribute to the wealth of those who ought, and whose interest it is, to employ them; the very means of adding a third more food to the present supply is at the farmers' door, beseeching him to use it as a certain remedy against poverty, in vain. The invariable answer to the most heart-rending supplications for work is, we have no money to pay your wages; not—we cannot profitably convert the power you possess into money, by changing a barren soil into a fruitful garden. This is not an overdrawn picture, to excite the consideration of the tender-hearted, and produce a sensation—it is painted from life, without a particle of colouring, which is not necessary to convey a correct idea of the rural scene. The agricultural population toiling for 1*s.* or 1*s.* 6*d.* per diem, and even this, at uncertain intervals, is a state of things that cannot exist much longer. The remedy is in the hands of landlords and tenants; if they refuse to exercise the opportunities of ameliorating the condition of the poor man, and adding it to their own stores, the legislature will of necessity be obliged to open the ports for the admission of foreign corn to relieve the sufferings of our fellow creatures. The landed interest have the power, if they have the good sense to put it in force, of rendering this country independent of continental Wheat, but it must be by strict attention to the management of their estates, dividing them into farms classified according to the circumstances of their tenants, and letting to each (on lease) a number of acres in proportion to his available capital. Farmers will then be able to keep their produce, and have the pleasure of hauling it to market in their own carts, instead of selling it to the capitalist as soon as reaped, to satisfy the demands of the steward. The possession of property, however small, if honestly come by, creates laudable pride in a man's breast, makes him respect himself, and causes him to be respected by others. It is worse than folly to take a short-sighted view of this question, and argue that, because one's corn is green in September, another's must be the same, as their farms adjoin. The former having neglected to hire a sufficient number of hands, and take advantage of the fine weather, either through idleness, or holding his land too cheap, suffers at harvest time, and endeavours to lay the blame on the season, &c. Whereas the latter, with ready money in his pocket, "makes hay whilst the sun shines," and is richly rewarded for his industry. As the premiums offered by Agricultural Societies are so intimately connected with, and so interesting to the working farmers, it may not be amiss to touch upon this point once more. It would be most advisable to discontinue the practice of rewarding individuals, either high or low, for expensively and disgustingly feeding up animals, which may easily be accomplished by men totally ignorant of the economy of farming; a long purse is no criterion of knowledge, but if properly administered, it is essentially useful in purchasing experience, and demonstrating the best method of producing eatable meat at the lowest price, as well as the cheapest bread. Is there no society ambitious to have the credit of being the first to introduce a class of prizes to encourage real merit? Agricultural Societies have now been long established, and an investigation into the results of the present system of the distribution of prizes would prove whether they have answered the wished-for end, and whether they have benefited the working farmer as much as they ought to have done, considering the time they have been in operation. The answer might not be quite satisfactory to the general subscribers. P.S. Some time ago I raised my voice, through the *Gardeners' Chronicle*, in favour of 3 feet drains; I was said to know nothing about the matter. How is the case now? I have ventured to predict men would find out their mistake in trusting too much to guano, nitrate of soda, &c., instead of resting their hopes on the muck heap. Farmers are, I see, beginning to think of this also, and they may depend upon it they will ere long be converts to the system of farming land according to capital. My letters, such as they are, are the offspring of my own brain, unassisted by hints from agricultural periodicals, as I never read anything but the *Gazette*. Sel is not a pleasing subject, so I will conclude by urging farmers to save every description of manure, night soil, soap-suds, weeds, road scrapings, &c., well rotted and mixed together, in preference (for dressing the land) to what I shall term foreign compounds, by way of distinction.—*Falcon.*

Gold of Pleasure (Camelina sativa, or Myagrum sativum.)—Observing a query on the above plant in your last Number, I remember having seen a notice of it in Professor Thoër's interesting work, "Principles of Agriculture," vol. ii., p. 528; Shaw and Johnson's translation. On referring to it the following is the article:—"Cultivated Gold of Pleasure (Myagrum sativum).—This plant grows wild, and is sometimes very troublesome amongst Flax: it grows to the height of 1 or 2 feet. The stem is angular, hairy, and branching

the leaves are lanceolate, and embrace the stem at their basis; the flowers are yellow, and grow in clusters at the top of the stem. The plant delights in sandy soils, provided they are rich; and it is on such soils that it is cultivated: but it exhausts them to a great degree. It is sown in April, and gathered about the end of July, or the beginning of August. It is less subject than other oil plants to the ravages of insects, and seldom fails entirely. Its produce scarcely exceeds 5 bushels per acre. A bushel ought to yield from 20 to 24 lbs. of an oil, which has a slightly bitter taste, and thickens with cold." In "British Husbandry," published by the Society for the Diffusion of Useful Knowledge, vol. iii., p. 51, article —"Flemish Husbandry," the following notice is made on this plant:—"Myagrum sativum.—The Cameline, which is occasionally cultivated for its oily seeds—a plant frequently found in the fields, and eradicated as a weed. It has the peculiar advantage of ripening its seeds in the short space of three months from the time of sowing. It is, on this account, sown in spring, when the Colza, Rape, or any other crop has perished in winter, which sometimes happens, when there are frequent alternations of frost and thaw during that season. The ground being ploughed and harrowed, a small quantity of seed, less than 2 lbs. per acre, is sown mixed with fine sand in ashes to distribute it more equally. The bush harrow sufficiently covers it; and as it will grow on very poor land, no more manure is required than was left by the last crop. If it is sown in May, the seed will be ripe in September, and is then treated exactly as the Colza or the Navette. The produce in rich soils is less than that of either of these last, but it may be sown when Colza would give no adequate return; in good land it is confessedly only a substitute. With the stems of the Cameline useful brooms are made, and in some places the plant is cultivated for that purpose: it forms a part of the industry of the small farmers, who have but a few acres of land which they cultivate with the spade, as in the neighbourhood of Alost and the Waes district. It is well worthy of trial in soils and situations where the usual plants cultivated for their oily seeds will not thrive." Professor Low, in his work "Elements of Practical Agriculture," has an article on it, p. 344, of similar import to the above. Neither of these authorities mention it as a fodder plant. It, therefore, may be considered as unfit for it.—*Waterhouse, Oct.* 15.

Extraordinary Disease in Poultry.—On the 15th ult., I had a remarkably fine lot of Dorking fowls, which were put into the hen-house on the evening of that day in perfect health; on the following morning, on the woman opening the door, they all rushed with one accord to the water, and drank eagerly; this being thought extraordinary they were watched narrowly, when many of them appeared to be drooping and ill; during that day nine died, and eleven more on the following day, and a smaller number during the five following days, till I lost in all 40. I have carefully looked into all the books on the subject, but find no disease so sweeping and sudden as this; I also sent three of the hens to an eminent lecturer on chemistry, who could find no poison in any of them. The insides on being examined were of a dark colour, especially the liver and heart; the fowls in question had been fed on Potatoes and Barley (boiled) and Maize corn, as were all my other poultry, which was not at all affected. P.S. I may add that the whole of the fowls which died were this year's birds, and the disease does not appear to be infectious, as none took it who were not seized at first. —*Capon.*

Management of Manure.—I read your Leading Article in the Paper for Oct. 18, on my way into Yorkshire yesterday. My own neighbourhood does not abound in the large corn farms which here surround me, and I am glad that I happened to read that article at a time when I was in the midst of what I consider one of the greatest evils of the best farmed parts of England. "The management of manure" is in fact the management of the farm. Attend to that department, and the others must follow well. The very idea of a farm-yard of 18,000 square feet seems to me a certain proof that there can be no management of manure, unless that area is used merely as an exercising ground for the stock some two hours in the day when fine. I presume your farmyard to be like those which here surround me—a receptacle for the straw of the farm to be, as it is emphatically called, trodden down, and to have in it some half dozen horses, a score of two of young cattle, and some few pigs. I always admire these yards as pretty objects, and often indulge myself with gazing on them over the gate; but looking at them with the eye of a farmer, they are most painful objects to contemplate. However large a farm may be, there never can be any excuse for treading down straw. It is the life-blood of the farm when really made into manure; but is sadly wasted generally by being given back to the land more like old thatch moistened with rain, than that generous, life-giving, invigorating compound it ought to be made. To the farmer who has a large straw-yard, it is not the management of manure, but the management of straw. Every farm, to be kept in a progressive state of improvement, should have as much room in stables, sheds, cow-houses, &c., as will allow every animal about the yard, except sheep and pigs, to be kept separately, either tied or in boxes; and every farm ought to have as many animals as will consume all the straw as food, reserving some of course as litter and bedding. The greater part of this straw should be chopped and steamed. This, with a proper proportion of Turnips, Carrots, Mangold, Potatoes, oil-cake, and steamed Barley, with a little uncut straw or hay at night (which, however, ought to be unnecessary if a man feeds them late and early enough), will keep all the stock in the highest condition at a much less expense than the usual slovenly habit of feeding, and will really turn the straw into manure. It will not require very large buildings as deposits for this manure till applied to the land. In a large tillage-farm there will require several of them at different points. They must be under cover, and must be so contrived that the urine from the tanks and the houses, can be pumped over the heaps. By this mode of "Management of Manure" all the straw of a farm is a really valuable fertilising compound—costing less than half to cart it on the land than the saturated strawy stuff usually called manure; and what is also of very great consequence, it is quite ready for every kind of crop in the spring following the winter in which it is made. In a farm of some 200 or 300 acres, principally in tillage close to me, the farmer treads down all his straw in three yards, with young cattle, horses, and a few pigs during the winter, and then putting it in a heap, leaves it 12 months to become what he calls "short muck." During this time how much of its most precious part is gone! The more I look into farming, the more I see how very much most of this most useful class of men have to learn, and also what I even more regret, how sadly they want capital to carry out what they do know and would wish to follow. Why should not landlords help them in this? Let the proprietor of an estate keep an efficient steward who does not think it his duty to consist in collecting rents only, but in showing the tenants how to make their rent and a profit besides. When he sees a tenant who is industrious and understanding, but who cannot get on as he would wish for want of money, let him recommend his employer to lend him capital, he seeing that it is properly employed either in buying some three times as much stock as he now has (for most farms would maintain that and much more over what they now have); or, by the purchase of oil-cake and bone-dust—not, however, for Grass land, which is generally waste land—but to enable him to double and treble his crops of Turnips and green food. Let him advance money for guano, to be returned in two years. I am supposing that the landlord has already drained his land, for which every tenant will thankfully pay five per cent., or even seven, if his soil is not very good. It is painful to look at even the best farming districts, and compare what quantity of cattle, and sheep, and pigs, they would and ought to sustain—what multitudes of people they ought to feed and maintain with what they really do. And the great cause of this evil appears to me to be what you have tacitly approved of in your article on the management of manure—great yards to consume, or rather waste straw. I fear this is much too long for insertion in your paper, nor is it at all worth it; but I could not help pointing out to you what I consider a great error in "your management of manure," and trying to lead you to recommend, as the best, indeed, the only true management of it,—the eating all the straw, not actually necessary for bedding, with as much Turnips, &c., as will keep the stock in health, and thus really making manure in so small a bulk, and so gradually accumulating that it can be readily kept under cover.—*F.* [Many thanks for your advice; but then you do not yet know all the circumstances of the case. We have on this farm now, and grown upon it, at least 1700 tons of roots, independently of 20 acres of Potatoes, and 4000 cubic yards of straw, measured after a month's settling in the ricks. Now, notwithstanding our enormous quantity of roots, we venture to assert that it is impossible to convert this straw into manure otherwise than by "treading it down," *i. e.*, it cannot be done in stalls, excepting by an unreasonable expenditure by the landlord in buildings, and by the tenant in store cattle; 18,000 feet is no such great extent; six courts 10 yards wide and 30 long present that surface.]

Beer-shops an Evil.—I have as yet seen no answer to your query in the 20th Number of 1845. I am extremely anxious that the subject should be discussed in your Paper. As you put the question, it is merely as a matter of profit and loss between farmer and labourer. Now, in the first place, it is a well known fact that men can work at all trades, under every circumstance, in every climate, without stimulating drinks; and then, farmers would lose nothing by stopping the drinking. Take from a man the unnatural stimulant of intoxicating drinks, and he will seek natural stimulants in wholesome food. I know men who spend so much money at the public-house, that they have none to buy meat with, nor good clothing, and, I ask, what does trade derive from them? Make that man sober, and he will become thoughtful, and will spend his money in good food, good meat, and bread, and then the farmer receives a quick return, and his men are more steady, generally more industrious, and less prone to sickness than drinkers are, and his stacks are safer in his farm-yard. Barley, in its natural state, is a most excellent grain; it is malting that spoils the barley: it is very good for making puddings of when properly prepared; good, too, for bread, as well as for feeding of animals; thousands of men would keep pigs and poultry if they were sober. And then, look at the evils of the present system. Drunkenness makes paupers; and who has to pay for their maintenance? Drunkenness excites incendiarism, and who suffers from that? It encourages robbery and vice of all kinds, and who has to keep and accommodate these gentlemen, and pay the expense of prisons, rural police, &c.? What the farmer lost by one way, he would gain by another in comfort, security, and wealth; sobriety, and its attendant blessings, would settle upon our land, if the farmers would help those who are now trying to make a sober out of an hitherto drunken nation.—*W. P., Wentworth.*

Soap as Manure.—As you invite discussion on this subject, I would refer to an observation of your correspondent "G.," that to dissolve soap in water would probably be the most perfect application of it. Does he mean hard or soft water? This is, I think, an important question, as it is a fact which is only known to those who have to make a frequent use of soap that there is great difficulty in using it with hard water. Hard water is that which, by contact with various mineral bodies in and on the earth, acquires such a quality as to decompose soap instead of dissolving it, and the reason is that such water usually contains some compound of lime—hence the employment of soft water as more economical and more effective. Hard soap, which is the most important kind, produced by the action of soda upon fatty substances, would, in my opinion, be better experimentally used. Yellow or resin soap contains a quantity of resin equal to about one-third or one-fourth of the tallow. Soft soaps are made with animal or vegetable oils mixed with tallow. Potash is one of the ingredients employed in making soft soap: the alkali employed for the corresponding purpose in making hard soap is soda.—*H.*

Kohl Rabi.—In your Notices to Correspondents last week, you recommend storing the Kohl Rabi as you would Swedes: it is not necessary to do so, as they are perfectly hardy, and letting them stand abroad and take the frost all winter, improves the quality of the root; the only protection they require, is to keep them from the hares and rabbits, as they never freeze in the severest weather. These vermin, if numerous, would soon destroy the crop, if not protected.—*A Subscriber.*

Digging Match.—Having seen your account of a digging match in the Number for the 11th of this month would you be kind enough to favour me with the number of square yards that was in the plots of ground allotted to each man, and the depth it was dug, and if it was strong or light soil.—*A Subscriber.* [Perhaps our correspondent, at p. 696, will kindly give us this information.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

THE COUNCIL resumed their sittings at the house of the Society in Hanover Square, on Wednesday last, the 5th of November; present, the Right Hon. LORD PORTMAN, President, in the chair; T. Alcock, Esq.; Col. Austen, M.P.; T. R. Barker, Esq.; S. Bennett, Esq.; H. Blanshard, Esq.; J. Browne, Esq.; W. R. Browne, Esq.; F. Burke, Esq.; Col. Challoner; F. C. Cherry, Esq.; J. W. Childers, Esq., M.P.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; W. Fisher Hobbs, Esq.; J. Kinder, Esq.; Col. Le Couteur; P. Pusey, Esq., M.P.; J. A. Ransome, Esq.; Prof. Sewell; J. V. Shelley, Esq.; G. Turner, Esq.; and T. Turner, Esq.

The Right Hon. Earl Spencer, of Harleston Park, Northampton, was elected a Governor; and the following gentlemen Members of the Society:—

Armytage, Colonel, Broomhill Bank, Tonbridge Wells
Finch, Col. The Hon. John, Berkhampstead, Herts.
Grey, Sir George, Bart., Hallowden, Northumberland
Hall, Benjamin Edward, Greville House, Paddington Green
Thickens, Rev. William, Kersley House, Coventry
Powell, William, Tickford Abbey, Newport-Pagnel

The names of 24 candidates for election at the next meeting were then read.

FINANCES.—Mr. RAYMOND BARKER, Chairman of the Finance Committee, presented to the Council the report of the state of the accounts of the Society at the end of the previous month; from which it appeared, that the funded property amounted to 8200*l.* stock, and the current cash-balance in the hands of the bankers to 742*l.* This report, and that of the House Committee presented by Mr. Brown, Chairman, were respectively adopted by the Council.

PATENT — INFRINGEMENT. — Mr. PUSEY, M.P., laid before the Council the report of the committee appointed in August last to take into consideration the protest of Mr. Etheredge in reference to infringements alleged by him to have been made on his own patent-rights by several of the exhibitors of Tile-Machines at the Shrewsbury meeting. On the adoption of this report, the Council appointed the following committee to examine and report on the precautionary measures to be adopted in future in reference to such disputed points amongst the exhibitors whose implements may be selected by the judges for trial; namely, Mr. Pusey, M.P.; Mr. Shelley, Mr. Ransome, Mr. H. Gibbs, and Colonel Le Couteur; assisted by the legal advisers of the Society.

TRIAL OF IMPLEMENTS.—Mr. B. T. B. GIBBS, director of the show at the Shrewsbury meeting, presented to the Council the following Report of the results of the subsequent trial of ploughs, drills, and tile-machines, made at Pusey, in Berkshire, under the direction of the stewards and judges of that meeting, namely:—

"We, being the judges appointed to decide upon the merits of the implements exhibited at the Royal Agricultural Society's Show at Shrewsbury, the deferred trial of which implements has taken place at Mr. Pusey's, M.P., on the 23rd and 24th days of October, 1845, do adjudge as follows, viz.:—

1. That the prize of 10 sovereigns for the plough best adapted for heavy land be withheld, in consequence of want of sufficient merit.

(N.B. The plough which gained the prize at Southampton having been tried with those selected this year, was also found deficient on the heavy clay land upon which these trials were made.)

2. That the prize of 10 sovereigns for the plough best adapted to light land be adjudged to Stand No. 51, Article No. 1. [Mr. John Howard's "Patent Iron Plough, with two wheels, invented and manufactured by Howard and Co., Bedford."]
(N.B. The plough which gained the prize at Southampton having been tried with those selected this year, the one to which the prize is now awarded was found to be superior.)
3. That the prize of 15 sovereigns for the best drill for general purposes, &c., be adjudged to Stand No. 46, Article No. 6. [Mr. Richard Hornsby's "Ten-coulter Drill, for corn and general purposes; invented, improved, and manufactured by himself, at Spittlegate, near Grantham."]
(N.B. The drill which gained the prize at Southampton having been tried with the above, was found deficient.)
4. That the prize of 10 sovereigns for the best Turnip drill on the flat, &c., be adjudged to Stand No. 46, Article No. 4. [Mr. Richard Hornsby's "Six-row Turnip Drill for flat work; invented, improved, and manufactured by himself, at Spittlegate, near Grantham."]
5. That the prize of 10 sovereigns for the best Turnip drill on the ridge, &c., be adjudged to Stand No. 46, Article No. 2. [Mr. Richard Hornsby's "Two-row Ridge Drill; invented, improved, and manufactured by himself, at Spittlegate, near Grantham."]
6. That the prize of 20 sovereigns for the best machine for making draining-tiles, &c., be adjudged to Stand No. 70, Article No. 1. [Mr. Thomas Scragg's "Machine for making Draining Tiles and Pipes for agricultural purposes; invented by Mr. Scragg, and manufactured by Mr. James Hewett, of Calveley, near Tarporley, Cheshire."]

In conclusion, the judges beg to state, that they are confirmed in the opinion they expressed in their award at Shrewsbury, viz., that their decision could have been formed as satisfactorily on the spot, without any deferred trial.

(*Signed*) THOMAS P. OUTHWAITE,
CHARLES BURNESS,
WILLIAM HESELTINE,
ALBERT EDMONDS,
JOSIAH PARKES,
WILLIAM BENNETT,
WILLIAM SHAW, JUN.

This Report having been read and adopted, it was moved by Mr. H. GIBBS, and carried unanimously, "That the thanks of the Council be given to Mr. Pusey, M.P., for the great facilities he had so kindly afforded to the directors, stewards, and judges, for carrying out the deferred trial of implements."

JUDGES.—On the motion of Mr. SHELLEY, the following Committee was appointed to consider the payment of expences and accommodation of the judges at the Annual Country Meetings of the Society, namely, Mr. Barker, Mr. Shelley, Mr. Bennett, Col. Challoner, Mr. Hobbs, and Mr. H. Gibbs.

EARL SPENCER.—On the motion of Mr. PUSEY, M.P., seconded by Mr. SHELLEY, the following resolutions were carried unanimously, namely:

"That this Council, deeply sensible of the great loss sustained by the Royal Agricultural Society of England, in the lamented death of John Charles Earl Spencer, feels it to be a duty to record its deep sense of his unvarying perseverance in promoting the establishment and advancement of the Society; its sincere estimation of his humility, combined with manliness, of his uniform candour and urbanity; and its cordial sympathy with his family on the visitation with which it has pleased Almighty God to afflict them.

"As a proof of our gratitude and respect towards our late colleague, we elect Frederick Earl Spencer to fill the vacancy in the number of the Trustees of the Royal Agricultural Society of England, caused by the event which we all so deeply deplore."

Mr. JOHN GREY, of Dilston, Northumberland, was then duly elected a General Member of the Council, in the place of Earl Spencer, transferred to the list of Trustees.

POTATO DISEASE.—The PRESIDENT having laid before the Council a correspondence on the Potato disease, and having called attention to the proceedings in Scotland and Ireland on the same subject, it was resolved by the Council—

1. That all papers now delivered, and all further information on that subject, should be referred to the Journal Committee; with a request that all information which can tend to assist in the preservation of seed for the next year's crop may be, from time to time, by them made known to the public.

2. That it is important to ascertain the commencement, cause, and progress of the disease; and the effect of the various plans that may be tried for the adaptation of the Potato for food, for the preservation of seed, and especially to know the progress of the growth of the seed that may be planted for the next year's crop; and, therefore, that it is expedient to give the sum of 100*l.* (placed at the disposal of the Royal Agricultural Society of England by His Grace the Duke of Northumberland) in three prizes for Essays on the subject, namely—

50*l.* for the best Essay on the Remedy for the Potato Disease, and on its Treatment in the various stages of its Planting, Growth, and Preservation.
20*l.* for the second-best Essay on the same subject.
30*l.* for the best History of the Disease, at the present time, affecting the Potato; involving a condensed detail of Facts developed by Experiments.

3. That the Journal Committee be requested to frame the conditions of Prize Essays, to be read at the General Meeting of the Society, to be held next year at Newcastle-upon-Tyne.

4. That the Members of the Royal Agricultural Society of England be requested to send to the Journal Committee from time to time a statement of such facts relative to the disease in Potatoes as may come under their observation.

Mr. E. TATTERSALL, accompanied by Mr. H. REECE, submitted to the members present various specimens of Potatoes, more or less diseased, on which the effects of chlorine gas had been tried; for which attention, the Council returned to those gentlemen their best thanks.

NOTICES OF MOTION.—1. Mr. RAYMOND BARKER gave notice that at the Monthly Council in December, he should move:—

(1). "That the power of compounding as Life-Governors be reduced to the sum of 30*l.*, every governor having previously paid the sum of 5*l.* for his year of admission."

(2). "That henceforward the Prize-sheet for the Country Meeting be finally settled at the Monthly Council in December in each year, and forthwith printed and distributed as heretofore."

2. Mr. HUMPHREY GIBBS gave notice that he should move at the Monthly Council in December:—

(1). "That the Auctioneer or his Clerk shall be in attendance in an office in the Show-yard, from 10 o'clock A.M., until 4 o'clock P.M., on the Thursday of the Show week, for the purpose of receiving instructions from such exhibitors as may have properly entered Stock or Implements for sale at the auction."

(2). "That the Auctioneer shall receive all the forfeit-money for the withdrawal of stock or implements from the auction, and give the exhibitors the necessary countersigned order for the removal of such stock or implements from the yard."

(3). "That the Auctioneer shall take charge of and sell the catalogues of the sale; and that he shall deliver over to the director for the Society's use, the money arising from the forfeits and the sale of catalogues."

(4) "That the Consulting-Engineer shall not act as one of the Judges of implements; but only act as mechanical referee, in case the Judges may deem it necessary to call in his aid."

(5) "That the Consulting-Engineer shall be in attendance in the yard, and during the trials, to examine the implements; and that he shall draw up specifications as far as practicable, of all implements to which a prize is given or award made; so as to enable the Judges to compare them with those exhibited on any future occasions."

PRESENTS.—Among the numerous presents made to the Society during the recess, were the large original painting of "Sheep-shearing," by Singleton, R.A., from M. F. Tupper, Esq., on the part of the family of Martin Tupper, Esq., F.R.S.; and an engraved Portrait (framed in carved Oak) of Thomas Chapman, Esq., of Warwickshire.

Colonel LE COUTEUR favoured the Council with specimens of the result obtained in applying a solution of one-part of guano and 18 of water to Grasses of inferior quality; and Mr. Thomas Alcock, with fine specimens of Peas, Turnips, and Hopetoun Oats, grown on his estate at Kingwood, in Surrey.

SMITHFIELD CLUB.—Mr. B. T. B. GIBBS took that opportunity (as the date for entry would expire on the 15th inst.) of laying copies of the official prize sheet of the Club before such of the members as intended to become exhibitors at the ensuing Show. Numerous communications on various subjects were received by the Council, and referred to the Journal Committee. The Council ordered a further reprint of 3000 copies of Mr. Main's tract on "Cottage Gardening," published in the Journal. The Council then adjourned to Wednesday, the 3d of December.

HIGHLAND AGRICULTURAL SOCIETY.

At one of the public meetings held at Dumfries, during the visit of this Society, the following remarks were made by Mr. R. NEILSON, of Halewood:—He fully concurred in the sentiments expressed by Mr. Grey, of Dilston, as to the vast improvement in agricultural enterprize which had developed itself throughout the three kingdoms, as being due to societies like these, and eminently due to the Highland Society of Scotland, the father of them all. In all societies in this manufacturing country it was found that their prosperity was promoted by a system of co-operation; and agriculture was an art to which that system might be most profitably applied. He alluded to that partnership between landlord and tenant, in which the capital of the one and the practical skill and enterprise of the other might advance the productiveness and capabilities of the soil, and go far to render this kingdom independent of other countries for the production of its grain. That partnership embraced two parties—the capitalist, who might be called the sleeping partner, and the practical man who might be called the active partner; and he conceived that to both these parties a scale of duties was equally applicable. The duty of the landlord combined all the permanent improvements of the farm, and these included draining, suitable buildings, and good roads. As to the expense, the opinion was gaining ground in England, that it was decidedly and solely the work of the landlord. It was the opinion in England, he repeated, that draining was the work of the landlord; but it was equally true that the landlord ought to be paid for it. He was sure that there were none present who would refuse to pay a fair per centage by an increased rent, as an equivalent to the landlord for the outlay of his capital. The next point to which he would allude, was the duty incumbent on the landlord to erect suitable buildings, the importance of which would be felt by every practical farmer. They could not exhibit such stock as they had seen to-day if their cattle were exposed to the inclemency of the season. He would merely state that the outlay of 100*l.* might save the farmer the wages of a man; and would any tenant refuse to pay 5*l.* when he might thereby save 30*l.*? The next point was good roads, for every farmer must be aware that a great amount of horse power was wasted by dragging carts, &c., over bad and uneven roads, and that thereby much unnecessary expense of tear and wear was incurred. So much for the sleeping partner; now for the working one. Almost every family had its own motto; and he would recommend to the meeting a motto, viz., "Plough deep, muck heavy, and weed clean." With regard to the first he need only refer to any man who had the opportunity of inspecting the proceedings in his garden, where it would be found that the deeper they had penetrated the land the more abundant was the crop, and the more the certainty of its getting a good hold of the crop. In regard to the second point, he would advise them to make their manure first, and then save it. They would permit him to say, however, that from what he had seen of Scotland, he could not congratulate the agriculturists on the preparation of their manure. An animal receiving a sufficient allowance of food, would give 1 cwt. of manure in 24 hours; the smaller portion of that was wet, but it contained the most essential particles of the manure; yet this the Scotch farmers did not generally preserve, although they might know that a certain given quantity of this liquid manure was three times more valuable than the heavy or dry manure. He would, therefore, recommend them to adopt an improved system for the preservation of this most valuable production of their farm-yards, by the sinking of tanks or such other means as were at their disposal. In this way, by a good and mutual understanding and co-operation between landlord and tenant, ample employment would be given to the labourer, the necessity for emigration superseded, and this country, great as its population is, be at all times independent of foreign countries for the staff of life.

Farmers' Clubs.

LONDON, *Oct.* 6.—*The Potato Crop.*—Mr. R. Baker, of Writtle, commenced by stating that the organisation of vegetable root crops was such that when vegetation ceased, or was obstructed, decomposition partially commenced, and if roots were collected in masses, fermentation would ensue, and destroy them altogether. With regard to storing Potatoes, he advised that they should be excluded from light as much as possible when stored in houses; that houses with sides of unburnt earth, either in mass or moulded, and afterwards put together, were better than those of any other description; being non-conductors of heat, and preserving an even temperature. The mode he recommended was to mix clay (chalk clay), by treading with horses, and adding straw or hay. This was then conveyed to a mould, made similar to a brick-mould, being 18 inches long, 12 inches wide, and 6, 8, or 9 inches deep. The mould he used was 6 inches in depth. The mould, being placed upon a level grass-field, should be filled with the mixed clay and rammed in, the sides being previously wetted; it might then be lifted up, and the clay lump left exposed to the drying of the sun and air, whilst others would be made in succession; in a few days they should be raised on the edge, and kept turned over until dry, which would occupy a few weeks, according to circumstances. Houses could be made with these lumps at little expense, that would entirely protect Potatoes or any other root crops from frost. His method was to excavate the foundations, and fill with common concrete (if in a dry situation) two or more feet. Upon this stone or inferior brick should be worked, to the height of 18 inches, as a foundation. Then the lumps should be covered up in the same manner as brick-work, uniting them with broken clay, or any coarse mortar made with 4 or 5 bushels of sand to one of lime. The lumps cost 5*s.* to 6*s.* per hundred, according to the thickness, each containing the quantity of from 12 to 18 bricks. A house 40 feet long, and 14 feet wide, might be carried up for 6*l.*, and if thatched fully answered the purpose, and answered better than even brickwork, through which the frost would sometimes penetrate. And by covering the external surface of the walls with coal-tar occasionally, the clay would become hardened to a degree as to render it insusceptible of the effects of wet or frost, and in point of durability equal to stone or composition walls. Potatoes preserved in clumps should have, at spaces of every 5 feet, four stakes placed, extending at bottom, and nearly meeting at the top. By twisting hay or straw bands round them, they admitted air freely, and prevented Potatoes or other roots getting into fermentation; or small faggots might be substituted with equal success. The clumps should not exceed 6 or 8 feet in width, and be carried up about 5 feet high, and not covered with earth until the fermentation had ceased. He then alluded to the disease that had attacked the Potato. It had been found upon minute examination that the Potatoes are attacked by fungi, which extended itself to such an extent as to destroy the Potatoes wholly or in part; now parasites exist only where vegetables are diseased, or vegetable life is extinct, and sudden transitions in temperature produce disease more easily than other causes; and it must be recollected that the transitions from cold to heat, and from excessively moist to a dry temperature, have been greater this season than in any preceding one. May, and the early part of June, was cold and ungenial; then succeeded excessive heat and dryness, followed by a succession of wet, cold, and even frost, unprecedented throughout July and the early part of August. About the 19th excessive rain was followed suddenly by dry and hot weather; at this time the disease became first apparent, and has gone on extending ever since. These sudden changes, doubtless, affected the Potato during the progress of its growth; the vegetable juices became

vitiated, and thus disease was communicated to the bulbs through the blade of the Potato. The plant thus diseased became liable to the attack of parasites, and those bulbs, more or less diseased, were affected in a greater or less degree. But he concluded the disease was not contagious, and that those Potatoes that were already stored would continue so, and that the disease would not occur in the ensuing year from any infection. He recommended, however, to place the Potatoes in open places, where they could be turned over occasionally, and the diseased Potatoes picked out from time to time. Mr. Baker then adverted to the general character of the Potato—that the plants were not so hardy as formerly. This he attributed to the growing them for many years in succession upon the same land. It was analogous to breeding of cattle from year to year from the same blood, upon the same farm, whereby a certain degeneracy would take place: and so with the Potato; a certain deterioration also took place, and it was therefore necessary to go back to original stocks of Potatoes produced from seed, or imported from distant countries. —Mr. Knight, of Edmonton, followed Mr. Baker, and said he was carefully picking over his Potatoes, and selecting all unsound ones, and preserving his sound ones by sprinkling them with unslaked lime. He fully agreed with Mr. Baker in the necessity of a change of seed. The substance of the resolutions as to the preservation of Turnip and other root crops was—that Swede Turnips should be secured at latest by the middle of December, and that in pulling them great care should be taken not to injure them externally, by pulling with a hook or any pointed or cutting implement. The earth should be only partially removed from those intended to be preserved longest, and none of the fibres or roots removed; the blades should be stripped, not cut off, and the Turnips might be carted when dry to some suitable spot, and thrown in heaps (not thickly), and slightly covered over with straw, &c., or might be placed between hurdles in rows, 8 feet wide, which rows should be filled to the height of the hurdles, and then parallel rows placed of more hurdles, so as to admit the air freely to circulate, and then covered with some slight covering of straw or stubble thatched; as the frost might increase, the sides of the rows might be protected by placing wet straw or earth for that purpose; but if placed in houses, they would be inclined to enter quickly into fermentation, and rendered useless. White Turnips might be kept in this way with advantage, and it would be important to the farmer to have some stored in the event of severe weather taking place, as they would by these means sustain less injury than from the sudden changes of weather to which they might be otherwise exposed. Mangold Wurzel required protection from the effects of frost, but being less susceptible of fermentation less precaution was necessary. Care should, however, be taken at the time of pulling the roots, to strip or wring off the tops, and not to pull more at one time than could be carted in the same day, as the slightest frost occurring after being pulled would injure the lower portion of the roots, and cause them to rot—if put in clumps with the sides covered with earth, the clumps, or rows, should not exceed 8 to 10 feet in width, and at spaces of every 5 feet a small faggot, or stakes surrounded by straw bands, as recommended for the storing Potatoes, should be adopted. Carrots would be best preserved in the same way as Swede Turnips, having the rows only 6 feet in width. The object to be attained would be produced by a free admission of air between the roots, as described in the "Essay upon the Farming of Essex," published by the Royal Agricultural Society, and described in the Supplement as practised by Mr. King Viall, of that county.

Paisley: *Potato Disease.*—At a public meeting lately held here on this subject, Mr. Fleming, of Barrochan, said, that he had but lately seen the disease—only two or three days ago—but it had made very rapid progress about the district he came from. He had lifted some Potatoes in September, and put them carefully into a box, and he found that they were quite good, while he had raised some only yesterday out of the same plot from which he had taken the others in September, and he found not a fresh one among them. The sound ones were lifted in September, and the unsound only yesterday, so that there was every reason to believe that the Potatoes might be saved if lifted immediately, and dried in some way or other, for everything depended upon their being kept dry. He was afraid if they were left in the pits they would all go wrong.—Mr. John Young, Fulwood, produced two parcels of Potatoes, the one diseased and the other sound, being specimens of Potatoes from which he had extracted the farina, three parcels of which he likewise produced. The first parcel was four Potatoes which had been pitted ten days ago, and were diseased, 2 lbs. of which produced 5½ ounces of farina; the second parcel was from Potatoes which had been dug out of the field that morning at 10 o'clock, 2 lbs. of which yielded 5½ ounces; and the third was from diseased Potatoes, which had been thrown out by him a fortnight before, and had been lying in the fields since, and were, on being cut up before the meeting, one mass of rottenness; the result was from 2 lbs. of Potatoes 4 ounces of farina. Mr. Young stated, however, that the farina had been so hurriedly prepared that it might not have been quite dry when he weighed it, and also that about two weeks ago, when he pitted his Potatoes, and on opening the pit a day or two afterwards, he could not discern anything wrong with the Potatoes at all, except where there were pits last year, and there every fourth, fifth, or sixth Potato was quite rotten. He kept these by themselves, and turned them out upon the field, and gave free access of air, and the consequence now was, that these were better than those which had been pitted. He therefore concluded from this result, that it would be better not to pit the Potatoes.—Mr. Cunningham, of Craigends called the attention of the meeting to the application of lime in a pulverised state, as being an effectual means of preserving the crop. He had seen a letter from the Duke of Buckingham's factor, stating that he had made an experiment by making two drills and placing Potatoes in each; the right drill he covered with earth, and the left he sprinkled over with lime slightly slaked. Those which had got the lime, on being examined a month afterwards, he found nothing wrong with at all, and the others, which had not got the lime, were diseased.—Mr. Penfold said the absorption of the moisture from the Potato by the lime was the cause of their preservation. He thought that landlords and gentlemen and farmers should at once order new seed Potatoes—as by their present mode of cultivation they had exhausted their plant and made it weak. He wanted them to go back to the original plant for seed, which might easily be procured. He had himself sold to the amount of 1500 tons of them in the course of twelve months—these were Potatoes which could not be well eaten; it was necessary to have them to renew the plant. They must have for seed what were called in England waxy Potatoes.—Mr. J. Young stated, that he had been informed by Mr. Polson, starch manufacturer, that 14 tons of Potatoes produced 1 ton of flour. He thought that farmers should not allow their Potatoes to lie in the ground, for in another month he was afraid they would be lost altogether. He would have them taken up immediately and covered up with straw, and consumed as soon as possible.—Archibald Gardner, Esq., of Nethercommon, said that he had been engaged for the last three or four days in separating the sound Potatoes from the unsound ones. He found that by examining the eyes he could detect the disease. He had procured a large quantity of meal seeds, and was laying the Potatoes in layers, and scattering the seeds over them; and he thought that by preserving them in this way they might be saved. He was also of opinion that by cutting off the diseased part they might be kept for two or three months, and he believed the sound part to be perfectly wholesome. The healthy eye shows clear and bright, and the diseased eye was very dim and dark.—The Chairman thought that the opinion expressed seemed to be that the Potatoes should be raised, and that the pits should be small, and that great care should be taken that they be kept very dry and well separated. He then asked if any gentleman present had had starch mills going, or had been making experiments on the subject.—Mr. Young said that Mr. Fleming, of Fulwood, and he were getting a mill prepared, which would be able to grind 120 bolls per day. —Mr. Penfold stated that it was not the farina, but the fibre of the Potato that was diseased.—Mr. Stirrat said, that the expense of the engineering department of a mill for making the Potatoes into flour, which would produce about 100 bolls per day, would be from 60*l.* to 70*l.*—Mr. Young did not think that 60*l.* would more than half do to erect a mill, as considerable expense would be incurred in cloths, tubs, &c.—Mr. Warnock was of opinion that a much cheaper and simpler machine might be got than was proposed. He would take in hand to produce a machine which would keep one man at work for 10*s.*—After a lengthened discussion, Mr. Alexander moved the following resolution, which was unanimously adopted, viz.—"That this meeting, having heard at great length very interesting information and suggestions regarding the important subject of consideration, unanimously recommend—1st, as to the farther preservation of the diseased or threatened crops, that these be immediately taken up, stored in small pits, and thereafter the utmost care taken to preserve them as dry as possible; and 2d, as regards the crops supposed to be beyond the reach of future preservation, that associations or committees of the farmers and others more immediately interested, be formed in the several districts of the county, for securing, by the erection of grinding mills, &c., the best means of turning such Potatoes to account for food or other purposes; and lastly, a central committee be appointed, with which the district committees, when formed, may communicate, in regard to their operations, and in the view of directing and diffusing farther information on the interesting and important subject of inquiry."—*Abridged from the Renfrewshire Advertiser.*

East Surrey.—*Mr. Hewitt Davis's System.*—At the Annual Ploughing Match and Dinner of this Society, which took place on Thursday last, G. R. Smith, Esq., of Selsden, after expatiating in eloquent terms upon the benefits which had arisen from associations of this description, stated that he belonged to a society at Hertford, founded upon similar principles to this, and although it had not been so long established, yet he thought there were two important points upon which it had gone far ahead of this; first, by establishing a school for the education of young farmers, and, secondly, by the unanimity which existed among all classes for the advancement of agricultural science—which fact was proved by the inhabitants subscribing for and giving a very handsome prize yearly to the man who possessed the best cultivated farm. "There is an other important point," he said, "for the consideration of persons present, viz., the best method of cultivating the land which they may hold; and I feel it my duty thus publicly to express my most grateful acknowledgments to Mr. Hewitt Davis, who has had the management of my estate, for the high state of cultivation into which he has brought it, and the excellent crops which have been produced by his system of farming. There may be some difference of opinion as to the quantity of seed which should be sown, but I am quite satisfied that the whole of Mr. Davis's system is a great improvement in agriculture."—*Maidstone Gazette.*

Reviews.

The Farmers' Almanac and Calendar for 1846. By Cuthbert W. Johnson, Esq., F.R.S., and William Shaw, Esq.

The present number maintains the high character for usefulness, which, during its past annual appearance, this work has acquired. Besides the usual information in farmers' almanacs, it contains a very well-written calendar of operations—a useful essay on the condition of the agricultural labourer and our means of improving it—and a most instructive advertising sheet.

History of the Horse. By W. C. L. Martin. Charles Knight and Co., Ludgate-street.

One of Mr. Knight's weekly volumes, and a most interesting one, admirably illustrated with numerous wood engravings. We give an extract from that portion of it of greatest technical value to the agricultural reader.

"We may now turn to the slow draught horse, of which the finer breeds in our country are decidedly unequalled by any in the world. It is true that between these noble animals, the giants of their race and the half-starved ill-formed drudge of the costermonger's cart, there are many gradations, and these lower and neglected animals serve to show us what the old cart-horse was, till by care and various crossings it became elevated into the Cleveland bay, the Suffolk punch, and the huge Lincolnshire black, or mottled grey. The Suffolk punch is now seldom to be seen pure, being much crossed with other breeds, to which it has imparted compactness of form and power. We suspect that it greatly contributed to the establishment of our best old roadsters. With respect to the Cleveland bay, it is confined in its greatest purity principally to Durham and Yorkshire; it is one of the sources of our best hunters, crossed repeatedly by the blood-horse, and a breed between it and a blood-horse of sufficient bone and stature constitutes the splendid coach-horse, with arched neck, and noble bearing. It is, moreover, one of the sources of our best hackneys and gig-horses. The Lincolnshire black exceeds all other breeds in stature and massiveness, and is a magnificent animal. Its perfection is to be attributed to the Flanders horse, and it is of this admirable mixed breed that the teams in the distillers' and brewers' waggons in London are chiefly composed. No one can behold them without being struck with their appearance. Their strength is prodigious, and many stand seventeen hands in height, or even more. There is an enormous grey breed, exhibiting the same power and stature; it is evidently the result of a cross between the ancient grey stock and the huge Flemish. The largest and heaviest horses we ever saw on the Continent were mottled greys. A breed between the heavy Lincolnshire horse and the old Suffolk punch is esteemed for superior activity. Massive and huge as are the noble dray-horses which the wealthy brewers and distillers of London pride themselves in displaying, it is astonishing to observe how obedient and gentle they are. The voice of the driver is sufficient to control or direct them, and they often display remarkable intelligence. The ordinary cart-horses of our country, and those employed in the labours of the farm, are smaller, lighter, and more active than the huge dray-horses above described, and vary as to their degree of excellence, and the amount of work they are capable of undergoing. A good cart-horse will work eight or ten hours daily for six days in the week—the pace will vary from two miles and a half to three and a half per hour, according to the weight, which, besides the cart (seven or eight hundred weight), should never exceed twenty-four hundred weight. All beyond this in weight, or in the time of working, is oppressive and cruel. In ploughing, the severity of the work is dependent on the pace, the nature of the soil, and the breadth of the furrow-slice. In general the pace is not more than at the rate of a mile and a half or two miles an hour—the furrow varying from eight inches to eleven. The distance travelled is usually from twelve to sixteen miles daily during the season, nor will this labour be too much either for the horse or man.

"'The agricultural horse,' says an able writer, 'is seldom overworked, and on large farms is generally well fed; perhaps, in many cases, too much above his work. This, however, is an error on the right side. A very slight inspection of the animal will always enable the owner to determine whether he is too well or not sufficiently fed. The size of the horse, and the nature of the work, and the season of the year, will make considerable difference in the quantity and the quality of the food. The following accounts will sufficiently elucidate the general custom:—'Mr. Harper, of Bank Hall, Lancashire, ploughs seven acres per week, the year through, on strong land with a team of three horses, and allows to each weekly two bushels of oats, with hay, during the winter six months, and during the remainder of the year one bushel of oats per week, with green food. Mr. Ellman, of Glynde, in Sussex, allows two bushels of oats, with pease-haulm or straw, with but very little hay, during thirty winter weeks. He gives one bushel

of oats with green food during the summer.'* There is very little difference in the management of these two gentlemen, and that probably arising from circumstances peculiar to their respective farms. The grand principles of feeding with reference to agricultural horses are, to keep the animal rather above his work, to give him good and wholesome food, and, by the use of the nose-bag, or other means, never to let him be worked more than four or five hours without being baited.' "

We consider the degree to which the writer would confine the labour exacted of the horse as very light. Horses, if well bred and well fed, can easily draw a load of 30 cwt. on a good road. It is a curious illustration of the accuracy of Watt in putting a horse power equal to the labour of lifting 30,000 lbs. weight one foot high per minute, that in the course of our experiments during last spring, we found the average draught of the plough to be about 28 stones, or nearly 200 lbs. per horse. This force was exerted for 10 hours in the day, during which the horses pulled the plough about 16 miles through the land. Now, any one may calculate the matter for himself, and he will find that 200 lbs. raised 16 miles in 10 hours is as nearly as possible equal to 30,000 lbs. raised 1 foot per minute.

Miscellaneous.

Importance of British Agriculture. — Though the national importance of husbandry will be at once admitted by every one, it may be well at the outset of our undertaking not to content ourselves with a general notion of that importance, but to look for a moment at some of the items which constitute its annual value. The Wheat produced in England and Wales is estimated by Mr. Mac Culloch, one year with another, at 12,350,000 quarters. This single head of produce, therefore, at an average price of 50*s.*, will amount to nearly 31,000,000*l.*, yearly. The Oats and Beans have been reckoned at 13,500,000 quarters, and will give another head of 17,500,000*l.* per annum. The Grass-lands, again, are supposed to yield, year by year, produce worth very nearly 60,000,000*l.* (59,500,000*l.*) The practical inference to be drawn from these large numbers is obviously this—that, if by any improved process it be possible to add even in a small proportion to the average acreable produce either of arable or pasture land, this increase, small as it may seem, may be in fact a very large addition to our national wealth. The average produce of Wheat, for instance, is stated at 26 bushels per acre; if, by a better selection of seed, we could raise this amount to 27 bushels only (a supposition by no means unlikely), we should by this apparently small improvement have added to the nation's annual income 475,000 quarters of Wheat, worth, at 50*s.*, about 1,200,000*l.* yearly, which would be equal to a capital of 24,000,000*l.* gained for ever to the country by this trifling increase in the growth of one article alone, and that in England and Wales only. But it is not merely with regard to the total of any branch of produce that numbers afford a striking result. The value of one crop of a single article of produce on an individual farm may be large, and the loss of that crop very serious; and since, in the improvement of agriculture, we have to look, unfortunately, at least as much to the prevention of loss as to the increase of profit, it may be worth while on this head to take an instance from a vegetable of seemingly inferior value, the Turnip. It is well known that in the south of England, during two or three dry summers preceding the last, many farmers have lost nearly the whole of their Turnip crops; and that by the drought and the ravages of their accustomed foe, the Turnip-fly only, independently altogether of their new enemy, the black caterpillar: after repeated sowings a crop came up, but so late in the year, that, for want of warmth, little or no root was formed, and the crop could not be valued at more than 1*l.* an acre. In the north, on the other hand, where farm-yard manure is liberally given to this crop, and carefully applied in the ridges on which the seed is drilled in immediate contact with it, where bone-dust is also purchased for the same purpose, on such highly-cultivated ground there would be far less risk of failure arising from the ordinary causes mentioned above. There is many a light-land farm in the south of England, of 500 acres, on which 100 acres have not produced Turnips worth more than 200*l.* or 300*l.*, while the more spirited culture actually practised in Yorkshire might have yielded 20 tons of Swedes, or 30 tons of Turnips, from each acre. It is difficult to reduce the advantages of this superior yield to a money value. At the price for which the former roots have sold in one neighbourhood we are acquainted with, a high price it is admitted, but still one that has been paid for many years, they would have been worth 2000*l.*; so that the difference in the result of the two practices would be 1500*l.*; or, if an acre of the land be worth 1*l.* yearly, a difference of produce from one-fifth only of the farm amounting to three times the rent of the whole. Without insisting, however, upon this case, which is an extreme one, the following quotation from a recent statistical work will be sufficient for all practical farmers: "The produce of Turnips, when cultivated in the broadcast manner, varies from 5 to 15 tons an acre; the latter being reckoned a very good crop. In Northumberland and Berwickshire, a good crop of white Globe Turnips, drilled, weighs from 25 to 30 tons; the yellow, and the Ruta Baga, or Swedish, a few tons less." We may consider, in another point of view, the national effect which might result from a general improvement of agriculture: that is, the additional employment that would arise from any general effort made on the part of the landowner or the tenant to improve permanently, as by drainage, for instance, the texture itself of the soil; we do not mean of waste ground, but of that which is already, and has been perhaps for centuries, in course of cultivation. If 1*l.*, only, were thus laid out on each acre (a very moderate supposition), we shall find that, since there are 48,000,000 of cultivated acres in Great Britain and Ireland, a demand for country labour amounting to 48,000,000*l.* would thus be created—a demand exceeding that which the railroad bills professed to create in the session before last, and far more advantageous in its effect on the labourers, inasmuch as the demand would be a gradual one, not severing them from their homes and their families. The assumed outlay, however, of 1*l.* only, for the permanent improvement of each acre, is probably far too low; 3*l.*, 4*l.*, or even 5*l.*, would be scarcely too much. There is much wet land on which 8*l.*, or perhaps 10*l.*, might be laid out to advantage; but at 4*l.* only, the new progressive demand for the villager's only commodity — the work of his hands — would be about 200,000,000*l.* So large an outlay as this last must indeed, in part, be necessarily deferred for a long course of years; but in whatever degree it may arise, it has, on the other hand, the further advantage arising from the nature of the work to be done, that the demand would necessarily take place in the winter months, when labour is most difficult to be obtained, not in the summer, when the crops are in progress, and the labourer finds already sufficient employment.—*P. Pusey, Esq., M.P., in the Jour. of the English Agri. Soc.*

Over-liming Land.—If I had not previously known the value of science to agriculture, I could not, after reading the valuable paper by Professor Johnston, from the Agricultural Chemical Association, "On the Over-liming of Land," have withheld my assent to its utility. As my views, however, on one or two points relating to this subject differ considerably from those of the learned Professor, I venture to lay them before the public for affirmation or rejection. I am perfectly satisfied that an application of lime would assist, more or less, in producing the effect complained of, but still I am by no means sure that the lime was really to blame. Taking the soils of Ballindalloch into consideration—it is necessary to know, before we can come to a just conclusion, the general state of cultivation before the lime was applied, and the tillage, manure, and cropping since. This information it may be difficult, most probably impossible, to obtain; but I think it will be easy to draw inferences from what we do know that may not be deemed unreasonable. It is probable that, before the application, the land was deficient in lime, that too much in a caustic state was applied, and, as the professor surmises, the occupier was tempted, by large returns, to an improper cropping. But I think that, under the same management, the soil would have been in nearly the same mechanical state if lime had never been applied at all. The farmer generally considers that the only benefit to be obtained from a bare fallow is the extirpation of weeds; but well informed persons are aware that this is very far short of the truth. Now, light land, being easily cleaned, gets very little ploughing, and the consequence is, that it is left for sowing in the lightest possible state. If ploughed at all, it cannot be ploughed too often; the reasons why I will presently give. But the continued application of fold-yard manure has a very great effect in loosening land, and the quantity of vegetable matter in the soils of Ballindalloch seems to indicate its extensive use. But, however this may be, it appears that the evil effects did not immediately follow the application of lime, as "several good crops were taken;" this, therefore, must mean several years, by which time we may conclude it would be much diminished in quantity, as, from such a soil, it would rapidly disappear. I can scarcely ascribe any evil action to the frost, unless it was actually saturated with water at the time; for it is certain that strong clays are most affected by it, as may be easily seen by walking over them in dry weather in the spring, where the foot will often sink several inches if the frost has been severe; and also that a sandy soil is just what we prefer to cover our Potato heaps in winter, as the frost cannot penetrate it. In addition to Professor Johnston's recommendations to fold sheep, rolling, mild lime in small quantities, I beg to prescribe as follows:—1. When it is ploughed, to plough as much as possible and harrow it well. This, which seems contrary to the general opinion, I arrive at by observing that, if a vessel is filled with dry sand or gunpowder, any agitation tends to make it occupy less space, and that if a hole is dug in dry light land, the soil taken out is not sufficient to fill it up again [?], and yet the spade is considered a better pulverizer than the plough. It is therefore too little and not too much working that it gets. I beg to suggest that experiments should be tried to determine the value of various ploughings, &c. The results would, no doubt, be valuable, and trials should be made both with and without manure. The evil has always been in considering the bare fallows perfected when clean—at least such is the practice in my part of the country; and in reading agricultural writings, the authors should always be considered as speaking of their own district when they do not specify otherwise. 2. To sow the cereal crops without ploughing at all, when it can be done, merely scarifying and harrowing. This must be left to the judgment of the farmer, and will mainly depend on his land being clean. 3. To avoid the use of fold-yard manure as much as possible, using only such as is very well fermented, and, when convenient, to mix it with soil or clay, no matter how bad it may be, and if in situations remote from the sea, about 1 bushel of salt to every 10 loads, and never exceed 10 or 12 tons of manure per acre at one application. 4. To use in preference night soil, bones, and artificial manures, or a combination of them with moderate quantities of fold-yard manure (though this seems to answer generally). 5. Clay of any quality, if obtainable near, might be thrown on in lumps in autumn. The frost would cause it to fall, and leave it in a good state to harrow in in the spring. It seems clear, from all that has been said and done about lime, that it should be very cautiously used on light land, and that even on strong land great damage may be done though it might not be perceived. Last summer I applied 120 bushels per acre to 24 acres, but I am convinced it was not economical to do so. The land was strong clay, and not drained. I intend in future to drain first, and make more moderate applications and oftener. I am convinced that the great value of some limestones depends on the phosphoric acid they contain, though I certainly do not, like Liebig estimate the value of Turnips by the quantity of this substance they contain.—*H. Chaytor, Esq., in the Quarterly Journal of Agriculture.*

* Agricultural Survey of Sussex, pp. 378, 9-1.

Notices to Correspondents.

COW FEEDING—*R W*—Warne's jelly is good for this purpose; you should begin with 3 or 4 lbs. daily, and keep increasing as long as the animal benefits, up to 10 or 12 lbs. daily. You do not state the size of your paddock, but unless it is large it is needless to tether.

DAIRY—*A Subscriber* says his dairy is attached to his house on the north side, but in summer the heat has such an effect on the slate with which it is covered, that the milk quickly turns sour. Can any one suggest a covering which being placed on the slate during the very hot weather will repel the heat? How would it answer roughly to cover the roof with straw every morning during hot days?

DRILLING—*A Small Farmer* will find it his interest, we suspect, to *hire* a Drill or Dibbling Machine, rather than purchase it. We cannot recommend machine-makers.

GARDEN FARM—*Clericus*—It is advisable to dig before winter. You may apply 3 cwt per acre of good guano and dig it lightly in before planting Potatoes. A good dunging now will suffice for the Vetches. Four acres of land may perhaps be cultivated as profitably upon Dunnery's system, described by Mr. Morton, in the "English Agricultural Society's Journal," as on any other; *i. e.* ½ Wheat, ¼ Turnips, ¼ Potatoes. The Turnip to be half drawn and fed in yards, in order to convert the straw into manure, and the rest fed on the ground by sheep; the Potatoes to be sold and the unsaleable portion consumed by pigs. The Potato crop should have a top-dressing in spring of soot, 30 bushels per acre, or guano 2 cwt.—*Constant Reader*—The reference at p. 746 should have been to p. 46, 1845, not 1844.

HOUSE MANURE—*Inquirer*—The best way to dispose of it is to convey it by drain to some place where it may be at once mixed with large quantities of vegetable earth, &c., and made a compost of. You will find it very inconvenient to cart it away, and apply it directly to the land: but if you have determined on that plan, you had better dig a tank (say 12 feet by 8 feet and 6 feet deep), into which the manure may run, the solid parts settling, and the liquid parts being pumped into carts and carried off. The tank should be walled and paved.

IMPLEMENTS—*A Beginner in Farming*—The expanding horse-hoe to which you allude is made by Mr. D. Harkes, Mere, near Knutsford, Cheshire; and the guillotine *Chaff*-cutter, by Messrs. Ward and Colbourne, of Stratford-on-Avon.

POPLARS—*W T*—The best time to pollard them is immediately after the fall of the leaf.

STALL FEEDING—*A Sub*—The best essay on the subject that we have seen is in the current number of the "English Agricultural Society's Journal."

TROPICAL AGRICULTURE—*A Sub*—What crops will be best to cultivate, in a tropical climate, as green food for cattle? Will any one answer this?—If you can manage to keep the cattle altogether under shelter in a well-ventilated court, and occasionally wet the litter, but never to saturation, you may do without tanks. Management in this particular is so dependant on climate that we cannot advise with confidence. Sulphate of iron is the best fixer of ammonia you can use. Marl would not be of much use for that purpose. If you had a large cistern on the roof of your cattle court to be filled by your heavy tropical rains, you must put some of the green vitriol into it, and so wet the litter occasionally with a dilute solution of it. You cannot tread down much litter except it be occasionally wetted.

WASTE IN GRINDING—*W P*—The real *waste* is chiefly owing to the drying which goes on during the process, and probably does not amount to 1½ per cent. on the weight of Wheat, Oats, or Barley ground. On an average, 60 lbs. of Wheat yield 48 lbs. of flour; 48 lbs. of Barley yield 37½ lbs. of meal; 40 lbs. of Oats yield 30 lbs. of meal. See "Flour," Johnson's "Encyclopedia."

*** As usual many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Nov. 3.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3	10	to	4	0		
Best Short Horns	3	6		3	8		
Second quality Beasts	2	10		3	4		
Calves	4	0		4	8		
Best Downs & Half-breds	4s	8	to	5s	0		
Best Long-wools	4	4		4	6		
Ewes and second quality	4	0		4	4		
Pigs	3	8		5	0		

Beasts, 4223; Sheep, 26,630; Calves, 104; Pigs, 331.

We have to-day a larger supply of Beasts than has been known for a long time, and of good average quality. The general trade was hardly so good, but the best qualities still find ready purchasers at about 4*s.* Considering the quantity in market but few remained unsold.—Sheep are more plentiful, and trade very dull; the best Downs being scarce still make 5*s*, but other qualities are lower.—Veal trade is very heavy.—Pork trade not quite so brisk.

FRIDAY, Nov. 7.

The trade for Beef continues dull, but prices are no lower; indeed, in some of the best things there is a tendency to advance. Best Scots, &c., readily make 4*s*., and Short-horns rather over 3*s* 8*d*.—The supply of Sheep is not large; the best qualities make rather more money. Best Downs, of which there are very few, fully 5*s*; best Long-wools about 4*s* 8*d*; and Ewes 4*s* 4*d*.—Veal trade is rather better; a choice Calf makes 5*s*.—Pork trade is steady.

Beasts, 821; Sheep, 3360; Calves, 182; Pigs, 318.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 3.

It is impossible to give anything like a description of the Waterside Potato Market in the small space allowed to this report. The appearance of the tiers of ships at the various wharfs last week was distressing—there was to be seen hundreds of tons of well-grown Potatoes, of fine colour and excellent quality, daily increasing in decomposition, occasioned by the prevalence of the disease. Hundreds of tons have been thrown or given away; other cargoes have been sold from 3*s* to 12*s* per ton, which is much less than the current expenses. There were several cargoes of lately-shipped York and Scotch that had made quick passages, arrived at the close of the week, and they also were much diseased. There are three cargoes of French Potatoes in the market, they are unusually small and partly diseased; they, like many other samples, appear unsaleable. The Regents are disheartened in consequence of there being so many of the Potatoes which rot after they get them home: although some samples appear tolerably sound when purchased, they have frequently to throw one-third away before they can offer them to the public. The market is much depressed, and the prices of nearly all samples are nominal. York Reds 10*s* per ton, Regents ditto, Scotch 8*s* per ton.

OVENT GARDEN, Nov. 8.—The supply of Fruit and Vegeles throughout the week has been good; but trade has been newhat dull. The prices of Pines remain unaltered; hotse Grapes are a trifle dearer; Portugals are good and plenl. Peaches and Nectarines are scarce, and Plums are nearly r for a season. Good specimens of dessert Pears are also newhat scarce; and Apples of good quality, although sufficnt for the demand, are not plentiful. Walnuts are well supd, and other Nuts are also pretty abundant; Spanish Nuts ve been cheap; they are now, however, rather on the rise. Vegeles are, for the most part, sufficient for the demand. The pply of Broccoli is rather on the increase; Cauliflowers are rcer, and consequently a little dearer. Cabbages, Savoys, d Brussels Sprouts, are abundant and good; and Celery of cellent quality may be obtained at last week's prices. Potaes are a little dearer than they were last week; Mushrooms main nearly the same. Endive, and other Salading, is sufficnt for the demand. Cut Flowers consist chiefly of Camellias, largoniums, Chinese Primroses, Heliotropes, Heaths, Epases, Chrysanthemums, Azaleas, Neapolitan Violets, and oses.

FRUITS.

ple Apple, per lb., 4s to 6s	Oranges, per dozen, 2s to 3s
apoo, Hothouse, per lb., 2s to 4s	— per 100, 12s to 24s
— Spanish, per lb., 9d to 1s	Lemons, per dozen, 1s to 2s
— Por tugal, p. lb., 9d to 1s 6d	— per 100, 7s to 16s
aches, Wall, per doz., 1s to 4s	Almonds, per peck, 0s
ectarines, per doz., 1s to 4s	Sweet Almonds, per lb., 2s 6d to 3s
elons, 2s to 4s each	Walnuts, per bushel, 16s to 28s
— Spanish, 2s to 3s each	Filberts, English, p. 100lbs., 50s to 60s
ums, per ht.-sv., 4s to 6s	Nuts, Barcelona, 24s
mmons, per ht.-sv., 5s to 6s	— Brazil, 16s
pples, Dess., per bush., 4s to 7s	— Spanish, 16s
— Kitchen, 2s 6d to 5s 6d	Barberries, per ht.-sv., 2s to 4s
ears, per ht.-sv., 6s to 12s	Chesnuts, 16s to 24s

VEGETABLES.

bbages, per doz., 3d to 1s	Celery, per bunch, 6d to 1s 6d
— red, per doz., 2s to 5s	Cardoons, each, 9d
russels Sprouts, p. ht.sv., 1s to 2s	Onions, per bushel, 2s to 3s
avoys, per doz., 6d to 1s	— pickling, per ht.-sv., 2s to 3s
auliflowers, per doz., 2s to 5s	— Spanish, per doz., 1s 6d to 3s
roccoli, per bundle, 6d to 1s	Shallots, per lb., 6d to 8d
reens, per doz. bunches, 2s to 3s	Endive, per score, 6d to 1s
orrel, per ht.-sieve, 6d to 9d	Lettuce, per score, Cab., 9d to 1s
rtichokes, per doz., 2s to 4s	— Cos, 6d to 1s
otatoes, per ton, 70s to 130s	Radishes, per doz. bunches, 1s to 1s 6d
— cwt., 3s 6d to 7s	Mushrooms, per pottle, 1s 6d to 2s 6d
— bushel, 2s to 4s	Small Salads, per punnet, 2d to 3d
— Kidney, per bushel, 3s to 4s	Fennel, per bunch, 2d to 3d
urnips, per doz., 1s 6d to 2s 6d	Savory, per bunch, 4d to 6d
ed Beet, per doz., 6d to 1s 6d	Thyme, per bunch, 4d
arrots, per doz. bchs., 2s to 5s	Watercress, p. 12 sm. bun. 4d to 6d
orse Radish, per bundle, 1s 6d to 5s	Parsley, per bunch, 2d to 3d
ucumbers, per doz., 2s to 3s	— Roots, per bundle, 9d
pinach, per stove, 9d to 1s	Tarragon, per bunch, 4d
eeks, per doz., 1s 6d to 2s	Mint, per bunch, 2d
arlic, per lb., 6d to 8d	Marjoram, per bunch, 4d
omatoes, per ht.-sv., 2s to 4s 6d	Chervil, per punnet, 2d to 3d

HOPS, FRIDAY, Nov. 7.

We have a good demand for all Hops with colour, and the feeling is decidedly against the duty at £160,000.

PATTENDEN & SMITH, Hop-Factors.

WOOL.—BRITISH, FRIDAY, Nov. 7.

We have not noticed any material alteration in the market since our last report. Things are quiet: the demand has not improved, nor have prices receded.

JAMES PERRIN, Wool Broker.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Nov. 6.

Prime Mead. Hay	95s to 105s	New Hay	75s to 96s	New Clr.	—s to —s
Inf.r. New & Rowen	65 70	Clover	80 to 120	Straw	32 35

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Nov. 6.

Prime Mead. Hay	98s to 105s	Old Clover	120s to 126s		
Inferior	70 90	Inferior do.	105 114	Straw	36s to 40s
New Hay	— —	New Clover	— —		

JOSHUA BARER, Hay Salesman.

MARK-LANE, MONDAY, Nov. 3.

The supply of Wheat this morning from Essex, Kent, and Suffolk, was moderate, but the trade remaining in the same state of uncertainty as to an interference with the Corn-laws, very little business was transacted; in the few sales effected a decline of 1s. to 2s. per qr. was submitted to. Bonded was held at Friday's prices, but there was less doing in it.—Malting Barley is 1s. lower, Grinding supports its late value.—Beans and Peas meet a ready sale at our quotations.—The Oat trade is dull and the turn cheaper.—Flour sells slowly; Canadian barrels at 36s to 38s., American in bond 31s. to 33s.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	57	65	Red	55 66
—— Norfolk, Lincolnshire, and Yorkshire		57	65	White	59 65
Barley, Malting and distilling 33s to 36s	Chevalier	35	39	Grind.	29 33
Oats, Lincolnshire and Yorkshire	Polands	29	31	Feed	29 31
—— Northumberland and Scotch	Feed	30	32	Potato	33 36
—— Irish	Feed	26	28	Potato	29 32
Malt, pale, ship		54	60		
—— Hertford and Essex		60	65		
Rye		34	37		
Beans, Mazagan, old and new	37 to 42	Tick	38	50	Harrow 39 52
—— Pigeon, Heligoland	42 to 54	Winds	40	50	Longpod 36 40
Peas, White	51 to 56	Maple	41	44	Grey 39 42

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	3718 Sks. — Brls.	6100	3352	2436	1010	65	732	913
Irish	— „ — „	—	—	29	7821	—	—	—
Foreign	— „ 2469 „	17469	—	—	5181	—	—	175

FRIDAY, Nov. 7.

There have been a few fresh samples of English Wheat offering at market since Monday, and those left over from that day have been sold a trifle under the prices then obtained; free foreign is unaltered, bonded is rather more inquired after, but very little business doing in it.—Malting Barley barely maintains our quotations, Grinding and Distilling continue in demand.—We observe no alteration in the value of Beans or Peas.—Oats, both free and bonded, are 6d. to 1s. lower.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	7190	6080	4600	7700 Sks
Irish	—	—	10090	—
Foreign	850	—	2600	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Sept. 27 per Quarter.	57s 2d	30s 2d	22s 2d	33s 1d	42s 5d	38s 9d
Oct. 4	56 0	31 1	23 4	34 8	43 1	43 6
— 11	57 9	31 3	23 4	34 2	43 1	44 4
— 18	58 2	32 0	23 5	34 5	44 5	43 0
— 25	59 5	33 0	24 11	34 5	45 5	44 1
Nov. 1	60 1	34 3	26 2	33 2	45 3	43 10
6 weeks' Aggreg. Aver.	57 5	31 11	23 0	33 10	43 11	42 9
Duties on Foreign Grain	15 0	7 0	5 0	9 6	1 0	1 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 1.

Price.	Sept. 27	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1
60s 1d	..	..	..	..		
59 5	..	..	..			
58 2	..	..			..	..
57 9	..	..		..	..	..
— 0	..	..	..	..	..	..
56 8	..	..	..	..	..	..
— 0	..		..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
— 3	..	..	..	..	..	..
54 1	..	..	..	..	..	..
53 2	..	..	..	..	..	..

SEEDS, Nov. 7.

Canary - - per qr	56s to 60s	Linseed Cakes, Foreign, p. ton	9l to 10l
Carraway - - per cwt	48 52	Mustard, White - p. bush.	—s —
Clover, Red, English -	— —	— Superfine „ -	— —
— — Foreign -	— —	— Brown „ -	— —
— White, English -	— —	Rapeseed, English, per last	26l 28l
— — Foreign -	— —	Rape Cakes - per cwt	— —
Coriander - - -	10 16	Saintfoin - - -	— —
Hempseed - - per qr.	35 36	Tares, Eng. winter p. bush.	6 7
Linseed - - per qr	54 60	— Foreign - -	4 4s6d
— Baltic - -	42 46	Trefoil - - per cwt	18 28
— Cakes, Eng. per 1000, 12l	13l	Turnip (two variable designation).	

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, RAILWAY CONTRACTORS, MARKET GARDENERS, AND OTHERS ENGAGED IN PLANTING, &c.

MESSRS. PROTHEROE AND MORRIS have received Instructions to submit to Public Competition, on Monday, November 10, and following days—Sale to commence at 11 o'clock, on account of the number of Lots—a large portion of the densely-stocked NURSERY of WM. DENNIS & CO., KING'S-ROAD CHELSEA, the ground being required for building immediately after Christmas. The Stock consists of 250,000 Aucuba japonica, Irish Ivies, Irish Yews, and Hollies (green and variegated); 300 varieties of the finest prize Gooseberries; a large quantity of Mulberries in fine bearing condition; standard and dwarf Roses of every variety, in considerable quantities; also Pillar Roses, from 4 to 7 feet high; Deciduous and other Shrubs, Herbaceous Plants, Box-edging, Bulbs in variety, &c. May be viewed prior to the Sale. Catalogues may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & Others.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietor, in consequence of the land being required for other purposes, to submit to public competition, on the Premises, Hanover Park Nursery, Rye-lane, Peckham, on Monday, Nov. 17, 1845, at 11 o'clock, the whole of the valuable NURSERY STOCK, consisting of Fruit and Forest Trees, Evergreens and Shrubs, Herbaceous Plants, &c. May be viewed prior to sale, and Catalogues had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

FOUR HOT-HOUSES, EIGHTY FEET LONG, FITTED WITH HOT WATER APPARATUS, NEARLY NEW. BELGRAVE-ROAD, PIMLICO.

TO THE NOBILITY, GENTRY, NURSERYMEN, FLORISTS, AND OTHERS.

MR. KIRKE has been favoured with instructions to Sell by Auction (unless previously disposed of by private contract), on the Premises, Belgrave-road, Pimlico, on Monday, November 17, at 12 for 1, by order of the Proprietor, the ground being required for immediate building, the VALUABLE COLLECTION of Prize Geraniums, Hothouse Plants, &c., Fruit-bearing Peaches, Nectarines, Apricots, Plums, Cherries, Pear and Apple Trees; Four Hothouses fitted with Hot Water Apparatus, Frames, Hand Glasses, &c., &c. May be viewed on the Saturday preceding the day of Sale. Catalogues had on the Premises, and at the Offices of the Auctioneer, 19, Brompton-row, Brompton, Middlesex.

EXTENSIVE SALE OF NURSERY STOCK.

MR. HOOKER intends disposing (by Auction in Lots, about the beginning of next month), of the entire STOCK OF PLANTS upon his Nursery Grounds, which extend over upwards of twenty acres. The Stock consists of the usual variety of Nursery Plants, some of which are of large size.—Further particulars will be given in a future Advertisement.

The ROSE TREES, of which there are many thousands, will be taken up and sold in dozens, each dozen containing twelve different kinds named. Persons wishing to purchase Rose Trees previous to the Sale, can have them upon the following terms:—

Standard and Half Standard Roses, 15s. per dozen. Dwarf Roses on their own Roots, 4s. per dozen. Purchasers cannot make their own selection of kinds after this date.

Post Town Cranbrook; Railway Station, Paddock Wood, Dover Line.—Brenchley, Kent, Nov. 8.

SALE OF NEARLY THREE HUNDRED CAMELLIA JAPONICA, 2 ft. high and upwards, comprising eighty-five Varieties, by Mr. GLENNY, at the Auction Mart, early the week after next. Catalogues in a few days, at the *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

SALE OF MORE THAN TWENTY NEW ROSES, raised by Mr. WILLISON of Flowergate, and BURGESS of Colchester, early the week after next, by Mr. GLENNY, at the Auction Mart; these being the picked ones of some thousands: Catalogues at the *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

SALE OF FOUR BEDS OF TULIPS, of 30 rows each, consigned from the North of England, at the Auction Mart, early the week after next, or by Private Contract before then. Particulars to be had at the *Gardeners' Gazette* Office, 2, Tavistock-street, Covent Garden.

TO BE LET, A DESIRABLE NURSERY BUSINESS, near London, on reasonable terms, with immediate occupation.—Apply to Messrs. H. Low and Co., Nursery, Upper Clapton, Middlesex.

TO BE LET.—On Lease, in the immediate Vicinity of London, an Old Established NURSERY, with a good Country Trade. The Stock is rather light, and the situation a most eligible one.—Apply at the Office of this Paper.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

MONMOUTHSHIRE.

TO BE SOLD, and entered upon at Christmas next, HENLLIS VALE ESTATE, in the parish of Henllis, four miles from Newport. It consists of a substantial House, Three Cottages, Stable, Four Barns, Shed, Cow-house, Waggon-house, Cider-mill, and Granary, together with 128 acres of Orchard, Meadow, Arable, and Pasture Land. This Estate is near to Lime and Coals, lies early for Corn, and has many streams of Water around and through it. The proprietor would have no objection to divide it into Lots, to suit purchasers, and, if required, would lend a great portion of the purchase-money at low interest, to remain on the premises.—Apply, either personally or by letter, to me,

JOHN HODGES WINSLOE,
Nov. 8, 1845. Henllis Vale, near Newport.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London

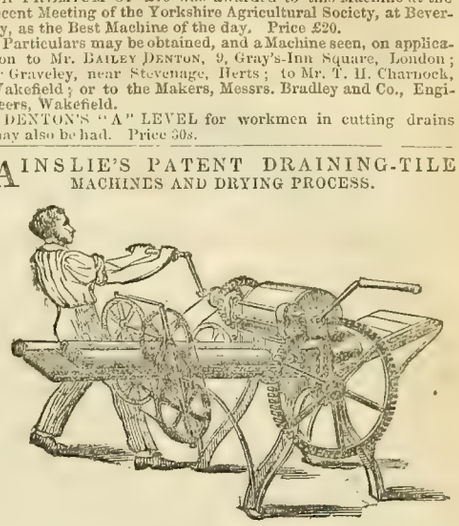
DENTON AND CHARNOCK'S PATENT DRAIN-TILE AND PIPE MACHINE.

A PREMIUM OF £10 was awarded to this Machine at the recent Meeting of the Yorkshire Agricultural Society, at Beverley, as the Best Machine of the day. Price £20.

Particulars may be obtained, and a Machine seen, on application to Mr. BAILEY DENTON, 9, Gray's-Inn Square, London; or Graveley, near Stevenage, Herts; to Mr. T. H. Charnock, Wakefield; or to the Makers, Messrs. Bradley and Co., Engineers, Wakefield.

DENTON'S "A" LEVEL for workmen in cutting drains may also be had. Price 30s.

AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30l. No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35l. The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2s. to 3s., or 3s. 6d. per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber, JOHN AINSLIE.

Alperton Tile-works, Acton, Middlesex.

IMPROVED DIBBLING MACHINE.

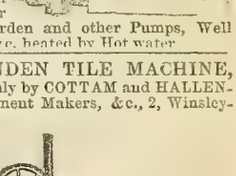
JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest sizes.

Price of Machine, with six rows	£35
„ eight rows	40
„ ten rows	45

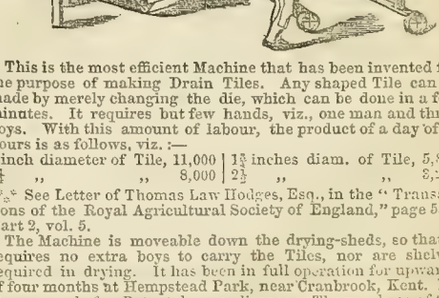
Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of the country.

RAMS FOR RAISING WATER WITHOUT LABOUR, where a fall can be obtained. FOUNTAIN BASINS IN IRON, &c. 70, STRAND, LONDON.

F. ROE having purchased all the Patterns of Basins, Jets, &c., formerly belonging to W. Rowley, Fountain Maker to the Royal Family, is enabled to offer the above articles in iron, which will stand the Frost and last for ages. A Ram and Fountain Jets fixed on the premises for inspection. Every kind of Garden and other Pumps, Well Engines, Baths, &c. Houses, &c. heated by Hot water.



HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ „	8,000	2½ „	3,200

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A Large Collection of Hardy Herbaceous Plants, named, from 9*s* to 12*s* per doz.—Exotic Nursery, Canterbury, Nov. 15.

MESSRS. TYSO AND SON, Wallingford, Berks, offer assortments of Florists' Flowers, under name, as follows:

	£	*s*.	*d*.
TULIPS, 50 Extra Fine named sorts.....	4	0	0
RANUNCULUSES, 100 Superb varieties	2	10	0
ANEMONES, 50 Fine Double varieties	1	5	0
CARNATIONS, 25 very fine sorts	2	0	0
PICOTEES, 25 ditto	2	0	0
PINKS, 25 ditto	1	0	0

Ranunculus Seed, 5*s*. and 10*s*. per paper.

Priced Catalogues for 1845-6, forwarded on receipt of two postage labels.

CROSS LANES NURSERY, BEDALE, YORKSHIRE.

WM. JACKSON & Co., NURSERYMEN, beg to call the attention of the Nobility, Gentry, and the Public generally, to their extensive Nursery establishment, where every article in the trade can be had of the finest quality and at the lowest remunerating prices. They take this opportunity to offer the following from their general stock, which they can recommend with the greatest confidence; all goods delivered free on the railway:—

100 Hollyhocks, proved vars., transplanted, 3 yrs. old. 40*s*.
100 Select Herbaceous Plants, in 50 named sorts, 2 each 25*s*.
100 Newest and Best do. in 100 do. 1 each 40*s*.
18 Distinct and Splendid Pæonias, including the Double Albifloras, and all the finest single varieties . 21*s*.
100 Nemophila discoidalis ..... 2*s*. 6*d*.
100 Dwarf Roses, in 25 named sorts..... 20*s*.
100 Do. 50 do. fine varieties, 2 each 30*s*.
100 Do. 100 do. very fine prize varieties 50*s*.
100 Do. 100 do. extra do. 75*s*.
25 Standard Roses, in 25 splendid prize varieties..... 40*s*.
12 Splendid and very best varieties of Ghent Azaleas, 2½ feet high, large bushy plants, on their own roots ..... 30*s* to 36*s*.
12 Very best Camellias, in 12 distinct sorts, 1 to 1½ feet, strong, healthy, bushy plants ..... 30*s*. to 36*s*.

Hindsia longiflora alba, 21*s*. Diplodenia crassinoda, 5*s*. each. Tropæolum Lobbii, 2*s*. 6*d*., new. Veronica speciosa, 2 feet, fine, 3*s*. 6*d*. to 5*s*. Chinese Primulas, double white, 3*s*. 6*d*.; double white fringed, 5*s*. Rhododendron Smithii aureum, 15*s*., splendid new yellow; R. Jacksonii, 10*s*. 6*d*. to 63*s*. With many other beautiful new sorts, a descriptive catalogue of which may be had.

A reference or remittance from unknown correspondents is respectfully solicited.—Nov. 15.

TO THE PLANTERS OF BRITAIN.
HIGHLAND PINE TREE.

JAMES GRIGOR, NURSERYMAN, Norwich, begs to inform the Planters of Britain, that he has commenced sending out plants of the HIGHLAND PINE TREE, or Redwooded Fir of Scotland, so celebrated for its noble appearance in landscapes, and for the durability, &c. of its wood, being better than any other for Railway Sleepers. Every plant is packed either by J. G. himself, or under his immediate superintendence.

Plants 1 to 2 inches ..... 5*s*. per 1000
,, 4 to 6 inches ..... 10*s*. ,,
,, 6 to 12 inches ..... 20*s*. ,,
,, 15 inches ..... 30*s*. ,,
,, 18 inches, very strong ..... 5*s*. per 100.
,, 2 feet, beautifully branched ..... 4*d*. each.
,, Ditto, in pots ..... 6*d*. each.

"The wood of this tree remains fresh, embalmed in its own turpentine."—*J. C. Loudon.*

"I very particularly admire the Highland Pine; its growth and leaf, and bark, are beautiful. I shall be truly proud of my first specimens, of which I beg you will send me 1000 of your finest for trial. I am very much obliged to you for calling my attention to trees of such value."—*Newcastle (Duke of)*, Clumber, Dec. 2, 1844.

N.B.—J. G. has paid the closest attention to the formation of FENCES and the best mode of introducing the ALLOTMENT SYSTEM. On these subjects, or either of them, J. G. may be consulted on very easy terms: for his mode of forming Fences, he has been awarded the Royal Agricultural Society's Prize of 20*l*.—Norwich, Nov. 15, 1845.

WM. HENDERSON and G. BROWN have the honour to announce that they have effected arrangements to occupy a most eligible Piece of Land, situate at Oxton Hill, immediately adjoining the rapidly increasing and populous Township of Birkenhead, where they purpose establishing,—as they hope under the Sanction and Patronage of the Public,—A NURSERY AND SEED BUSINESS.

In soliciting orders and support, H. and B. take the liberty of stating that they have both been upwards of 25 years immediately and unremittingly connected with Horticulture, and Floricultural pursuits, and they pledge themselves that nothing shall be wanting on their part, if prompt attention and punctuality can obtain and secure the approbation of those who may kindly patronise their exertions.

WM. HENDERSON having had a lengthened and extensive practice and experience as Landscape Gardener, and Garden Architect, during nearly nine years of which he had the honour of conducting these departments for Mr. Skirving, in connection with his well known and very extensive Establishment at Walton,—W. H. purposes, therefore, devoting especial attention to this branch of the Profession, and will be glad to furnish plans for laying out Gardens and Pleasure Grounds, also Designs and Estimates for all sorts of Horticultural Erections.

W. H. being also conversant with Road-making, Draining, and Fencing, flatters himself he is competent to be consulted on Rural Improvements, personal superintendence in all cases, on reasonable terms.

N.B. H. and B. also beg to intimate to Gentlemen who do not require the services of a constant Gardener, that they purpose retaining practical and efficient men on whose character they can depend, and will be glad to receive commands for the renovating or keeping in proper order Gardens and Pleasure grounds.—Oxton Hill, Birkenhead, November, 1845.

SCARLET PELARGONIUMS.

PHILIP CONWAY has devoted his time and attention to the culture of the above favourite Plant for the last ten years. His Exhibition of them at the Horticultural Society's Grand Show at Chiswick, on June the 15th, 1839, was fully admitted to have been one of the most extraordinary productions of the day, and was, he believes, the first of that class that ever received a prize at these celebrated exhibitions. Since that day the Scarlet Pelargonium has rapidly advanced in the estimation of the Public, in proof of which the Hon. Sec. of London, and the Royal Botanical Society of the Regent's Park, are now offering prizes for their improved culture. In consequence, P. C. has taken great pains in collecting all the best and approved Varieties, and he feels assured his Collection cannot be surpassed either for pot-culture or bedding out.

P. C. *warrants* all his Plants to be *particularly healthy and well established in their Pots*, and *extra large* Plants extra in price as under:—

	s.	*d*.
No.*1.—Shrubland Superb: the best of all the large Varieties	5	0
No.*2.—General TomThumb: this Variety has proved to be as represented last season; makes an invaluable Plant for a vase or rustic stand 1*s*. 6*d*., 2*s*. 6*d*.,	3	6
No. 3.—Victoria: a new, beautiful, and distinct Dwarf Variety, for bedding .. 2*s*. 6*d*.	3	6
No.*4.—Mrs. Mayler: the best of all the large sorts for bedding, very distinct colour, brilliant, immense truss	2	6
No. 5.—Prize Fighter, improved: a splendid Variety for bedding .. .. .. 1*s*. 6*d*., 2*s*. 6*d*.	3	6
No. 6.—Cyrus's Queen: excellent free bloomer ..	1	6
No. 7.—Goliah: of moderate growth, immense and brilliant truss	2	6
No.*8.—Prince Albert: free bloomer, excellent for forcing	2	6
No. 9.—Nimrod: splendid scarlet, one of the best..	1	6
No. 10.—Frogmore, improved: dwarf, for bedding ..	1	6
No. 11.—Thompson's King: splendid sort	1	6
No.*12.—Globe, or Compactum: excellent variety ..	1	6
No. 13.—Ingram's Dwarf: fine for bedding ..	1	6
No. 14.—Cooperii, ditto	1	6
No. 15.—Brighton Hero: excellent for forcing ..	1	0
No. 16.—Pink Nosegay: makes a fine bed	1	6
No.*17.—Shrubland	1	6

Twelve of either of the above for 11*s*., basket included.

Those marked thus * P. C. obtained the prize with at the Horticultural Society's Meeting in July last.

Old Brompton, Nov. 15.

HARDY HERBACEOUS PLANTS AND SPLENDID DOUBLE HOLLYHOCKS.

WILLIAM MAY, F.H.S., in offering his best thanks to his numerous friends, begs to announce that he has again a large stock of HARDY HERBACEOUS PLANTS in all the most distinct and showy varieties, correctly named, 100 sorts for 42*s*., 50 sorts 25*s*. His stock of the now popular DOUBLE HOLLYHOCKS for the season is also very extensive, of all the various shades of colour, 100 for 42*s*., 50 for 25*s*.; superb named Hollyhocks for Exhibition, 12 fine sorts for 20*s*., 20 do. for 30*s*., package included. W. M. also possesses a large and well assorted stock of the under-named, of which priced Catalogues may be had:—viz., Forest Trees, Fruit Trees, Evergreen and Deciduous Shrubs, Roses, Stove and Greenhouse Plants. Hardy Herbaceous Plants, Calceolarias, Fuchsias, Cinerarias, Pansies, Garden and Flower Seeds, Dutch Bulbs, &c. &c.

Hope Nursery, Bedale, Yorkshire, Nov. 15.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON are now executing orders for collections of ROSES, and beg leave to inform their friends that the stock was never finer or more extensive than it is this season.

W. W. & S. will supply superb varieties at the following prices, the selection being left to themselves; the plants are healthy, vigorous, and well established.

	Per Doz.	Per 100.
Superior selected Standards £1 4 0	£10 0 0	
Superb do. do., extra fine 1 10 0		
Fine Dwarfs 0 12 0		
Superb do. extra fine 0 18 0		
Fine Dwarfs on own roots in 50 varieties	2 10 0	
Do. climbing .. .. .. 9*s*. to 0 12 0		
Good Dwarfs on own roots without names	1 10 0	

Extra superior standard Roses, on stout stocks selected for the purpose, from 4 to 6 feet, with very large heads, which are peculiarly adapted for planting in conspicuous situations, at 36*s*. per dozen.

With each order will be presented a proportionate number of plants towards defraying the expence of carriage, &c.

A remittance or reference will be expected from unknown correspondents.

A descriptive catalogue of WOOD and SON's collection of Roses, together with their new supplementary list of Greenhouse and Herbaceous Plants, &c., may be had gratis on application.

PROCKTER'S "BOHEMIAN GIRL" DAHLIA.

J. T. NEVILLE begs respectfully to announce to Nurserymen, Florists, &c., that he has the pleasure of offering Dry Roots of the above splendid NEW DAHLIA at 5*l*. each. Colour, delicate white, broadly and boldly margined with deep purple, the flowers maintaining their beautiful and brilliant colours (in which it surpasses all others of its class) unaltered in its marking from the commencement to the close of the season, grown under every disadvantage, and only one mile from London-bridge. The habit is surpassingly grand; as a show variety, fit for a first-rate stand; and, as a garden flower, matchless. Received a First Class Certificate at the Slough Show, open to all England (see *Gardeners' Gazette*, p. 680), and from the commencement of the season.

J. T. N. begs to remind the growers generally, that Mr. Prockter having sent out two of the best Dahlias in cultivation, viz. "Nonpareil" and "Bermondsey Bee," trusts that his name will be sufficient guarantee for the quality of the present superb variety.—Peckham, Nov. 15.

RIBES SANGUINEUM FLORE PLENO, or DOUBLE BLOOD RED FLOWERING CURRANT.

(Figured in "Paxton's Magazine of Botany," July 1, 1845.)

THOMAS JACKSON being the largest holder of this new and most beautiful Shrub, begs to offer plants well established in pots at 10*s.* 6*d.* each; for every three ordered one will be added gratis.

Kingston Nursery, Surrey, Nov. 15.

TULIPS, HYACINTHS, RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth,) by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

	£	*s.*	*d.*
100 TULIPS, in 100 fine sorts, named	7	7	0
100 Ditto in 50 ditto ditto	5	5	0
Superfine Mixtures, per 100, from 7*s.* 6*d.* to 21*s.*			
25 HYACINTHS, in 25 fine sorts, named	1	5	0
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 .. .. 7*s.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named ..	2	2	0
A New Collection of 50 Superfine sorts	1	5	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named ..	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto ..	2	10	0
25 pair of PICOTEES, in 25 ditto ditto ..	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto ..	3	10	0
Good kinds, per doz. .. .. from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
,, ,, PUNCTATUM .. ,,	0	7	6
,, ,, SPECIOSUM, (true) .. from 21*s.* to	3	3	0

H. GROOM begs to say his Catalogue of Bulbs, &c. is ready, and will be forwarded by post on application.

Foreign Orders executed.

VICTORIA NURSERY, CORK.—SEED POTATOES.

J. AND H. HAYCROFT beg leave to inform their numerous friends, that, notwithstanding the great failure in the Potato crop, they hope to be enabled to supply plenty of the best sorts for next spring's planting on moderate terms. A Priced List shall be sent in February to all who intend favouring them with their orders.

N.B. Steam Vessels weekly to London, Liverpool, Bristol, Plymouth, and Glasgow; and Sailing Vessels weekly to nearly every port in South Wales.

FOREST TREES, and every description of Nursery Stock, at moderate prices.—Cork, Nov. 15.

STUART'S GROVE NURSERY, FULHAM ROAD, CHELSEA.

WESTMACOTT & CO., SEEDSMEN, FLORISTS &c., respectfully inform their friends and the Public that they have, in addition to the above establishment, taken the premises lately occupied by Messrs. T. and C. Lockhart, 156, Cheapside, and beg to call attention to their CATALOGUE OF BULBS (which will be forwarded on receiving a pre-paid application), as being true to character, having been purchased either from the splendid collection of the above gentlemen, or imported from the first foreign houses.—Nov. 15.

THE VERY NEWEST AND BEST GERANIUMS AT UNUSUALLY LOW PRICES (Purchaser's selection).

Class I.—One Dozen 3l., Two Dozen 5l. (Cash).

Hoyle's Titus, Sarah Jane, Pompey, Unique, Claude, Duchess of Inverness, Champion, Amelia, Majestica, General Pollock, Rosalia, Flora, and Revenge. Lyne's Imogene, White Perfection, and King of Saxony. Foster's Sultana, Cid, Robustum, Nabob, Dr. Lindley, Duke of Devonshire, and Constellation. Gaines's Alice Hawthorn, Trafalgar, Ackbar, and Duchess of Leinster. Stewart's Prince de Joinville and Stewartii. Silverlock's Emperor Nicholas and Chance. Robson's Lady Ramsden and Meeanee. Holmes' Beauty of Sudbury. Hoyle's Louis Phillippe, Oddity, and Constellation. Roger's Lady Vernon and Lord Vernon. Gaines's King of the French, Dobre's Vesuvius. Miller's Elegans, Coquette, Constellation, Pet, Phœnix, Brunhilda, Victoriane.

Class II.—One Dozen 2l., Two Dozen 3l. (Cash).

Gaines's Sir W. Massey Stanley, Mogul, Conspicua, King of the French, Ackbar, King of the Belgians, King of Saxony, and Duchess of Sutherland. Miller's Mogul. Catleugh's Mulberry, Eclipse, and Duchess of Sutherland. Foster's Hybla, Coronation, Superb, Shield of Achilles, Nabob, Oddity, and Conflagration. Cock's Maid of Honour. Lyne's Princeps, Redworth, Coronet, King of Saxony, and Lady Tamworth. Sorrell's Pride of Essex. Cock's Hector. Beck's Cleopatra, Meteor, and British Queen. Pamplin's Fire King. Gaines's Elegans Nova and Sir R. Sale. Hoyle's Rosalia and General Pollock. Miller's Claud Darnaud, Hercules, Shackbolt, Shakespeare.

Class III.—One Dozen 1l., Twenty 1l. 10s.

Beck's Martha, Leonora, and Lucy. Gaines's Lady Sale and Queen Phillippa. Garth's Constellation and Black Dwarf. Miller's Tom Jones and Prince of Wales. Catleugh's Rosetta Superb. Foster's Pulchellum, Gipsy, and Favourite. Beck's Geraldine, Black Prince, Hebe, Evening Star, and Stella. Chandler's Celestial. Pamplin's Beauty of Walthamstow, Count d' Orsay, Enchantress, Camilla, and Oberon. Appleby's Mercury. Stewart's Mrs. Lawrence, Queen of Bourbons, and Beauty of Salt Hill. Thurtell's Pluto. Veitch's Fair Maid of Devon. Lyne's Duke of Cornwall, Sunrise, Duke of Clarence, and Circassian, &c. &c.

Twenty real good distinct sorts for 1l.; Twenty all New and very superior Show Flowers for 2l. Purchasers sending the names of the sorts they already possess, W. MILLER will send suitable distinct varieties.

*** No charge for package, and plants put to compensate for carriage. All orders must be accompanied by cash or reference.—WILLIAM MILLER, Providence Nursery, Ramsgate.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

"Mr. HUNT's new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

FOR SALE.—A fine Lot of Standard and Dwarf trained PEACH and NECTARINE TREES of the choicest sorts: also may fine trained MORELLA CHERRY TREES, all coming into bearing next season. A very good Collection of Carnations and Picotees, all of the named and newest sorts.—Apply to G. MOORE, at Mr. Ralph's, opposite Messrs. Lee's Nursery, Hammersmith.

PLANTING SEASON.

ROGERS AND SON, NURSERYMEN AND CONTRACTING PLANTERS, Southampton, in submitting the following List of Nursery Stock, beg to add, the whole are healthy, strong, and well rooted, growing on Heath land, in exposed bleak aspects, and well adapted for extensive Forest or Waste-land planting; from the extent of their grounds, and the fine growth of the past season, they are enabled to render at the low prices quoted, from which a deduction will be made if ordered in quantities of 100,000, delivered in London by Railway, or coastwise by Steam Vessels:—

SEEDLING FOREST TREES, &c.

Ash	1 year	1*s.* 6*d.*	2 yrs.	3*s.* 6*d.*	3 yrs.	5*s.* 0*d.*
Beech	,,	2 6	,,	4 6		
Birch	,,	2 6	,,	4 6		
Spanish Chestnut	,,	10 0	,,	15 0		
Fir, Scotch ..	,,	1 0				
,, Pinaster	,,	3 6	,,	4 6		

Per 1000.

,, Stone Pine ,, 4 0 per 100.

,, Sea Pine (Pinus maritima), excellent for exposure to the sea, one year 7*s.* 6*d.*, two years 10*s.* per 1000 (and in small pots, to plant out in very exposed situations, or thickening plantations quickly, 50*s.* per 100).

OAK, ENGLISH.—The true "Durmast" of the New Forest (Quercus sessiliflora), the most valuable species, producing timber of the largest dimensions, one year 7*s.* 6*d.*, two year 10*s.* per 1000.

Sweet Bay, two years 12*s.* 6*d.* per 100.

Arbutus one year (from pots) 40*s.* per 1000.

TRANSPLANTED FOREST TREES, &c.

Alder	1 year	15*s.* 0*d.*	2 yrs.	25*s.* 0*d.*	3 yrs.	35*s.* 0*d.*
Ash	,,	7 6	,,	12 6	,,	25 0
Beech	,,	12 6	,,	25 0	,,	40 0
Birch	,,	10 0	,,	20 0	,,	40 0
Chestnut, Spanish	,,	20 0	,,	30 0	,,	40 0
Elm, Wych or Scotch	,,	12 6	,,	25 0	,,	40 0
Fir, Scotch	,,	7 6	,,	15 0	,,	25 0
,, Larch	,,	7 6	,,	15 0	,,	25 0
,, Spruce	,,	12 6	,,	25 0	,,	40 0
,, Pinaster .	,,	10 0	,,	15 0	,,	25 0
,, Sea Pine ..	,,	20 0	,,	30 0	,,	40 0
Hazel	,,	15 0	,,	30 0	,,	40 0
Poplar, Black .	,,	20 0	,,	40 0	,,	80 0
Oak, Eng. (Durmast)	,,	20 0	,,	30 0	,,	40 0
Sycamore	,,	15 0	,,	30 0	,,	40 0

Per 1000.

Willow (Come-well) a new and valuable American species for Coppice or Hop Poles, of rapid growth, one year 40*s.*, two year 60*s.*, three years 80*s.* per 1000.

Laurel ..... 1 year 20*s.*, 2 years 40*s.*, 3 years 80*s.* per 1000

Evergreen Privet. ,, 20*s.*, ,, 40*s.*, ,, 80*s.* ,,

The above Transplanted are from ½ a foot to 3 feet high. Plants of a larger size from 3 feet to 7 feet, for ornament or for immediate effect, are from 25*s.* to 75*s.* per 100.

RHODODENDRONS.—Excellent for cover, and not subject to the depredations of game, 1 to 2 inches 30*s.*, 3 to 4 inches 60*s.*, 5 to 6 inches 80*s.* per 1000.

,, 1 foot 25*s.* per 100, 17 to 2 feet 30*s.* to 40*s.* per 100.

,, Ponticum roseum, 1 to 1½ feet 40*s.* to 60*s.* per 100.

,, Splendid hybrid, 1 foot 50*s.* per 100.

,, Scarlet hybrid, 2*s.* 6*d.* to 5*s.* each.

,, Arboreum album, 1 to 2 feet 5*s.* each.

These Rhododendrons are all strong, well-rooted, handsome plants.

KALMIA LATIFOLIA, ½ foot 50*s.*, 1 foot 75*s.* per 100.

ROSE STOCKS, from cuttings of the "Bourbon," fit for immediate grafting and potting into small pots, 8*s.* per 100.

CAMELLIA STOCKS, from small pots, 50*s.* per 100.

CLEMATIS AZUREA, 75*s.* per 100.

PERPETUAL TREE VIOLET, strong plants, 50*s.* per 100.

Hardy Ornamental TREES, SHRUBS, AMERICAN, HERBACEOUS, and GREENHOUSE PLANTS in extensive collection. Also a most superb collection of ROSES, including all the new sorts to the present time. Printed Catalogues and prices of which may be had on application at their Nurseries, Red Lodge, North Stoneham; or Floricultural Gardens, Southampton.

Waste Lands Planted by Contract, engaging to replace failures, from 3*l.* to 20*l.* per acre. Flower-gardens and Pleasure-grounds designed and executed. Gardeners and Planters of ability and experience recommended.

GIRLING'S DANE CROFT EARLY PEA.

S. GIRLING has the pleasure of offering this desirable variety as the earliest and best PEA, for early culture, in cultivation; sown in February it will produce Peas fit for table the middle of May; its appearance is similar to the Frame or Warwick, but in size larger, and distinct from every other Pea in its foliage. An abundant bearer, with fine full pod; on good ground averaging not less than seven Peas in a pod; flavour fine; sown on the 22d April this year, Peas were fit for table in nine weeks from the time of planting, and, planted by the side of Prince Albert, considered the quickest coming Pea, it beat it by a week at least. It has been seen growing by Mr. Osborn, of Fulham; Mr. Fairbairn, of Clapham, Mr. Ewing, of Norwich, and many gentlemen and gardeners in the neighbourhood, who can testify to its superiority as a new and choice variety; height, about 4 feet on good ground. S. G. recommends thin planting, and not to plant earlier than the middle of February; it will then come in as early as any other Pea, avoiding the uncertainty of obtaining a crop from November planted Peas, which are generally injured by frost, so as to yield little increase. To Market Gardeners this Pea is invaluable, or to gentlemen who are fond of early productions. It will be sent out in quart bags at 5*s.* each, with the name and address. Messrs. HURST and Co., Leadenhall-street, and Messrs. NOBLE and Co., Fleet-street, are appointed London Agents. Any other Seedsman, sending for a quantity, will have a reduction if a peck be taken; and as the Stock is not large, early orders will have the preference, and an order, accompanied by a Post-office order, will meet with punctual attention. Ready to be sent out the 20th November. Address, S. GIRLING, Dane Croft Nursery, Stowmarket, Suffolk.

S. GIRLING'S Rose, Pansy, and Dry Dahlia Root Catalogues can now be had on pre-paid application.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELDRICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

IMPORTANT TO PLANTERS, CONTRACTORS, AND OTHERS.

ARTHUR MACKIE begs to call the attention of Planters and Contractors to the List of FOREST AND ORNAMENTAL TREES subjoined, and to inform them that the Norfolk Railway, now open, affords great facilities for the speedy and cheap transit of Nursery Goods.

SEEDLING FOREST TREES.

	Per 1000.		Per 1000.	
Ash, 3 years	4*s.*		3*s.*	
Beech, 2 years	5*s.*		3*s.*	
Blackthorn, 2 years	7*s.*		6*s.*	
Sycamore, 2 years	5*s.*	In small	3*s.*	If 100,000 are
Silver Fir, 2 years	8*s.*	quantities.	7*s.*	taken.
Oak, 3 years	4*s.*		3*s.*	
— Turkey, 2 years ..	10*s.*		8*s.*	
Chestnut, Horse, 2 years	4*s.*		3*s.*	

TRANSPLANTED FOREST TREES.

Ash, bedded	7*s.* 6*d.*		5*s.*
— 2 to 4 ft.	20*s.* 0*d.*		16*s.*
— 4 to 5 ft.	25*s.* 0*d.*		20*s.*
Beech, 1 year transplanted	14*s.* 0*d.*		12*s.*
— 2 year ditto	17*s.* 6*d.*		16*s.*
Larch Fir, 1 yr. transplanted	10*s.* 0*d.*	In small	9*s.*
— 2 years ditto....	12*s.* 0*d.*	quantities.	11*s.*
— 3 to 4 ft. very fine	25*s.* 0*d.*		18*s.*
Silver Fir, 9 to 12 in.	25*s.* 0*d.*		20*s.*
Hazel, 1 year transplanted	20*s.* 0*d.*		18*s.*
Chestnut, Spanish, 1 to 2 feet	30*s.* 0*d.*		25*s.*

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Oak, Turkey, 5 to 6 ft., 3 times transplanted	35*s.* 0*d.*	15*l.*
— — 6 to 8 ft.	45*s.* 0*d.*	20*l.*
— — 8 to 10 ft.	60*s.* 0*d.*	25*l.*
Chestnut, Horse, 6 to 8 ft.	18*s.* 0*d.*	8*l.*
— — 8 to 10 ft.	25*s.* 0*d.*	10*l.*
Tree, Box, 1 to 2 ft.	10*s.* 0*d.*	4*l.*
Laurels, 1 to 2 ft.	14*s.* 0*d.*	5*l.*
— 2 to 3 ft.	17*s.* 6*d.*	8*l.*
Stunted Thorns	5*l.*	35*l.*
Gleditschia triacanthos, 3 to 4 ft.	20*s.* 0*d.*	7*l.*
Tilia alba pendula	5*l.*	
Red Cedars, 1 to 1½ ft.	25*s.* 0*d.*	8*l.*
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H. GROOM, CLAPHAM-RISE, near LONDON (Removed from Walworth), by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to call the attention of the Nobility, Gentry, and Amateurs to the present season as the best for selecting and planting TULIPS, HYACINTHS, and the VARIETIES OF LILIUM, and to recommend that no time be lost, otherwise there will be a risk of their flowering well. He begs to say, his Catalogue of Bulbs may be had on application.

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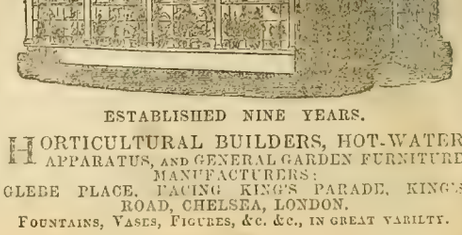
RYE STRAW.—Wanted about 30 LOADS, to be delivered in March, 1846, two miles west of Piccadilly; or by water carriage from the Thames in the Kensington Canal, to be paid for on delivery.—Address to Mr. RUBERGALL, Earle's Court Lodge, Old Brompton, with the lowest price.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 15, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS

TUESDAY, Nov. 18—Linnean . . . . . 8 P.M.
SATURDAY, — 22—Royal Botanic. . . . . 4 P.M.
Botanical (Anniversary) . . 8 P.M.

WE are much indebted to Sir HARRY VERNEY and other friends who have furnished us with replies to the questions proposed at p. 741. As soon as a sufficient number of such returns shall have been received, we shall proceed to abstract them and publish the result. May we venture to say to those who propose to give us the information sought for, that early communications will be much esteemed.

We also have to acknowledge the arrival of a large number of letters, pamphlets, &c., touching upon various points in the present important inquiry, which letters shall be taken into consideration at an early opportunity.

WE have much pleasure in announcing the appointment of Dr. WALKER ARNOTT to the Regius Professorship of Botany in the University of Glasgow, *vice* Dr. BALFOUR transferred to Edinburgh. No one can doubt that this is an excellent selection by Sir JAMES GRAHAM.

WE publish to-day the two last Reports that the Irish Commissioners propose to make for the present. They touch upon the CAUSES of the POTATO MURRAIN and the question of SEED for a future year. The labours of these gentlemen being over until they shall have prepared their final report, in which the subject will be treated as a purely scientific question, we may now offer a few observations of our own.

In Ireland, where the destruction of the Potato assumes an importance which cannot be given to it in England, a very large quantity of information has been collected by the Royal Agricultural Society, and by Government, all which has been placed at the disposal of the Commissioners. The Irish newspapers have also been filled with letters suggesting all manner of plans for stopping the disease, or converting the decaying Potatoes to useful purposes, among which, along with a good deal of trash, have been some of real value from highly intelligent persons. We may be permitted to congratulate our readers on the very general concurrence of the Commissioners in the opinions we have from the beginning advocated; the additional experience obtained by a most careful examination of the case as it has occurred in Ireland has only strengthened those opinions in all the main circumstances, and the Royal Irish Agricultural Improvement Society having unanimously passed a vote of confidence in the remedial measures which had been recommended by the Commissioners, that part of the question may be considered disposed of for the present.

It was not, perhaps, to be expected that the views of the Commissioners should meet with universal approbation. Well-intentioned persons imperfectly acquainted with the subject, little people eager to make themselves conspicuous, partisans who see nothing except through distorting political spectacles, naturally arrayed themselves in opposition to the Government Commissioners. Some of these critics charged them with not knowing that Potatoes should be guarded from frost, others with having recommended measures as permanent which were expressly stated to be temporary; some thought their directions too complex, others too simple; one learned gentleman was astonished that in giving cotters directions for starch-making no notice was taken of the loss of citric acid and salts; and, finally, Mr. O'CONNELL called them Saxons. But the great body of intelligent Irish gentlemen swept away these cobwebs; they saw clearly that the official reports were founded upon a full consideration of the question, and all the knowledge of facts which is to be acquired at present; that they were as practicable as anything can be in Ireland, and leaving newspaper critics to settle their disputes among themselves they at once adopted the views of the Commissioners and directed measures to be taken for carrying them out all over the country. The new reports, which have been made public since our last, are the following :—

"Board Room, Royal Dublin Society, Nov. 7, 1845.

"MY LORD,—Having laid before your Excellency our views as to the best means of storing the Potato, and converting to useful purposes such as are too much diseased to offer a probability of being preserved, we now have the honour to bring under your consideration the question of seed for a future year. If, in our former reports, we have found it difficult to determine what course, under the peculiar circumstances of Ireland, it might be most advisable to pursue, we are still more embarrassed, on the present occasion, in consequence of the conflicting testimony that has been presented to us, and the absence of all decisive evidence as to the cause of the Potato disease. The want of experience, derived from previous visitations of the same nature, also renders it impossible to affirm in what manner the Potato may be affected in the course of the next few months.

"We have, however, endeavoured to ascertain all that is positively known upon those subjects; by the examination of a great variety of published documents, both foreign and domestic; by personal observation, and by inquiries addressed to persons of practical experience or scientific reputation.

"It is a very general opinion, and one entertained by men whose extensive knowledge entitles it to respect, that parasitical fungi, similar in their nature to those which produce mildew and dry rot, are the real cause of the malady. It is stated that one of these plants belonging to the genus 'Botrytis,' and similar to that which some years since produced great mischief among the silk-worms of France and Italy, has attacked the Potato crop. It is described as entering the Potato plant by the breathing pores of its leaves, and then passing down through the interior of the stem into the tubers, in which its mycelium or spawn fixes itself, traversing the cellular mass, separating the cells themselves, causing alteration in their chemical condition, and thus producing decay. In other cases where the spawn is not apparently distinguishable in the diseased portions of Potatoes, even by the most practised observers, it is suggested that the juices of the plant may be vitiated by the parasite which destroyed the leaves, and that particles of it, too obscure to be distinguished by the eye, may be circulating with the juices and producing disease by irritation. The presence of the parasite is not to be detected by the naked eye, unless it makes its appearance on the outside of the Potato in the form of mouldy tufts; but its spawn may be detected in the diseased portions by the microscope, whether any external indications of its presence can be perceived or not; hence it is inferred that it is produced exclusively from within. It is, however, within our knowledge, that when apparently sound Potatoes are pitted in places where the mouldiness of a diseased Potato is able to appear, that mouldiness rapidly establishes itself on the sound Potatoes at every point where their surface has been wounded or bruised; and that under such circumstances the disease is immediately extended through the entire mass.

"That the spawn of fungi is present in large quantity in diseased Potatoes is undoubted; the evidence of the best microscopical observers would be with us conclusive on that point, even if we had not verified the fact by personal examination. We also regard it as well ascertained, that these parasites spread rapidly in warm and damp situations, producing infinite mischief under such circumstances, and that their advance is only to be successfully resisted by dryness. But it does not appear to us, that their being the original cause of the disease has been well established. If it were so, it is difficult to conceive why fields of Potatoes placed very near each other should be differently affected; or why certain varieties of this plant should be much more injured than others—the Irish Apple Potato for example, which appears to have suffered more extensively than any other. We are also unable to reconcile with the theory of the Potato disease being caused by parasitical fungi, the remarkable fact that in its present form it is certainly of modern origin. That it may have always existed is possible, though of this we have no proof; but at least there can be no doubt that it has only manifested itself to any considerable degree within the last few years. We cannot suppose the Botrytis which observers find to be the kind of fungus that attacks the Potato, to be a recent creation. We must assume it to have been co-existent with the Potato itself; and therefore we must conclude that some recent causes have come into operation favourable to its increase to the present alarming degree.

"Without pretending to decide what that cause really was, we may state, that it seems to be connected with the cold, cloudy, ungenial weather which has characterised the present year over the north of Europe; conditions highly unsuited to the constitution of a plant which, like the Potato, is a native of a warm, dry, sunny country, and insufficient for the ripening of the tubers. Without adverting to solitary cases, which require to be examined with more care than we have the means of giving to them, we may state, that amidst the mass of conflicting evidence which we have obtained, the following facts appear to be established :—

"1st.—That Potatoes planted early in the season are more healthy than those planted later.

"2nd.—That the crop has suffered less in dry, elevated, sandy districts, where the influence of the season was mitigated by the slowness of growth, or compensated for by the natural warmth of the soil.

"3rd.—That the late varieties of Potatoes are more diseased than early ones.

"4th.—That the present disease seems to be confined to the northern parts of Europe and North America, and to be unknown in the countries to the southward.

"If we are right in the conclusion at which we have thus arrived, there will not be cause for serious alarm as to the crop of another year, unless an equally unfavourable season should be experienced, or the supply of healthy seed should be insufficient, or that the parasite should be found to have so entirely taken possession of this year's plants as to overcome the natural power of living bodies to repel the attacks of such enemies to healthy vegetation.

"To Providence we must turn in the hope that a second season like this may not be visited upon us Should the Almighty, in his infinite mercy, avert such a misfortune, we entertain confident hopes that the two other sources of danger may be guarded against by human foresight and diligence.

"In providing seed for a future year, we may look with confidence to such Potatoes of home-growth as shall have resisted all tendency to decay during winter; and we trust that a considerable quantity of them will be found remaining, where the precautions for storing, which we have recommended, shall have been observed. We do not anticipate any danger in the use of them, if they are planted early, especially if, before being planted, they are exposed to light till they become green. Another source of supply may, doubtless, be found in the southern parts of Europe, where, we have reason to believe, the disease has not shown itself; and we would strongly advise the public to lose no time in securing what may be procurable from that quarter.

"It is stated by M. Séringe, secretary to the commission appointed in the department of the Rhone, in a report just published by him on the Potato disease, that it is unknown at Genoa, and in the warmer countries; our own advices describe the crops about Marseilles as being perfectly healthy, and therefore, we may conclude, that mercantile enterprise will make up by importations a large part of the deficiency to be apprehended.

"It has also been ascertained by actual experiment that Potatoes, although diseased, will grow and produce apparently healthy plants. The Reverend Mr. Berkeley, a gentleman eminent above all other naturalists of the United Kingdom, in his knowledge of the habits of fungi, and whom we have consulted on this occasion, states, that although there would certainly be some risk of raising a diseased progeny from a diseased stock, yet the growth of fungi so evidently depends on atmospheric conditions, that it does not follow that because germs are present they should be developed.

"We cannot, however, recommend the use of diseased tubers for seed, except by way of experiment, or in cases of absolute necessity, and it will always be prudent to dust them with powdered lime before they are used. It would indeed be proper to do so even when sets, however sound in appearance, are employed; for this process will destroy the minute seeds of parasitical fungi which may be sticking to the sets, and assist in repelling those which are lying in the ground—of course those Potatoes being selected which, on careful inspection, show no sign of disease, and hence afford the fairest prospect of a sound and healthy growth.

"Where home-grown sets are to be employed for another crop, we would suggest with very great confidence the adoption of the system of autumn planting; a method of cultivation which has been proved advantageous in regard to the crop, which is attended with no unusual expense, and which seems particularly adapted to the circumstances of the present case. It has been shown by Mr. Grey, of Dilston, that in Northumberland his Potato crop has been considerably increased in quantity by this practice, and that he has no disease in it this year. In 1844, his autumn planted crop produced 100 and 111 loads, when the same quantity of spring-planted land yielded but 80 loads under the same circumstances. And in the present season, this gentleman states, that his autumn-planted is one-third better than his spring-planted crop. There can, therefore, be no doubt that the autumn-planting may be safely practised. On this occasion it has these peculiar advantages, that it offers an additional chance of security against renewed attacks from parasitical fungi. On this point, the evidence of Mr. Berkeley is positive. 'Autumn-planting,' he states, 'seems to me to offer the best chance of obtaining healthy sets. What are now planted will produce their tubers before the atmospheric conditions requisite for the growth of the parasite in the leaves can be realised, and without such growth, the particles, if present, will be too few to cause much evil. I think, under existing circumstances, the commissioners cannot do a greater service than by encouraging and enforcing as much as possible autumn-planting.' Concurring, as we entirely do, in this recommendation, we trust that the planters of Potatoes who have it in their power to adopt it will do so at once.

"All that we conceive it necessary to state, with reference to this practice, is, that it should be performed at any time before the end of January; that the sets should be thoroughly dried by exposure to light and air, that they should also be well dusted with lime; and that they should be planted in drills 6 inches deep, with farmyard manure below the sets. We also recommend that where the Potatoes are not large, they should be

planted whole, and even large Potatoes should be cut into not more than two pieces.

"We have ascertained that autumn planting has already been practised throughout Fingal for the early supply of the Dublin market; and that although the practice has been nearly discontinued, that has not happened for any reason that affects the present question. Neither can we learn that the early period at which the leaves appear above the ground in spring, is attended with any greater risk than what attends precarious crops like the Potato in any season. The effect to be anticipated from autumn planting consists not merely in a probable increase of quantity in next year's supply, but in the saving of Potatoes which may perish before spring, if the slow growth which goes on during winter is arrested, and in the early ripening of next year's crop, in the event of a second unfavourable season supervening. We may add, that experience has shown the small refuse Potatoes of the year to be suited to autumn planting, if sound, and prepared in the manner we have recommended.

"It has been supposed by many persons that the Potato has arrived at a state of general debility, and that the crop will continue liable to disease like the present, until new varieties shall have been raised from seed. We do not find any satisfactory evidence to support this opinion. It is, doubtless, true that great constitutional differences exist among the varieties of the Potato, and that some are much more delicate than others; but we do not find that the oldest varieties are the most tender, or the newest the most hardy. On the contrary, it is within our own knowledge that in the present season very healthy varieties, recently raised, have suffered much more than kinds that have been long in cultivation.

"While, however, we withhold our assent to the proposition that newly-raised varieties of the Potato are exempt in any peculiar degree from the attacks of disease, we fully admit the fact that some varieties are much more subject to it than others, and we therefore recommend the cultivation of the tender kinds to be discontinued, and that those alone be used for future cropping which the experience of the present year shows to be best suited to unfavourable seasons; and on this point we may further remark, that all concurrent testimony points out the Irish 'Cup' variety as that which has suffered least from the attacks of the disease.

"We are also of opinion that it will be imprudent to plant Potatoes for the next crop, in land which has been just cleared of them. The latter is in all probability filled with the seeds of fungi, countless myriads of which must have been scattered over the tainted fields; and, although they probably have been borne by the winds to every portion of the country, yet it may be conceived that the soil will be more impregnated where diseased Potatoes have just been growing, than in fields in which decaying matter was not actually present.

"Under these circumstances, we are decidedly of opinion, that prior to putting any kind of crop, for the coming year, into land that has been this season under Potatoes, it will be prudent, if not absolutely necessary, that the ground should be turned up and exposed to the action of the atmosphere with care, and that it should be thoroughly manured with lime. We have already recommended that the Potatoes, whether whole or cuttings used for seed, should be dusted over with lime previous to planting; and we further urge that in the case of corn or seed crops of every kind, the seeds should be steeped in lime water, or in the solution of blue-stone and salt, well known to farmers. Evidence has already been laid before us of injurious effects where such precautions as we have described have been neglected.

"We forbear from adverting to the possibility of replenishing the diminished supply of Potatoes by sowing the seeds formed by the flower. This is an operation which can only be carried on successfully in a garden—is unsuited to the means of the small cultivator—cannot in any way affect the question of immediate supply, and may be safely left to the intelligence of the gardeners scattered throughout the country.

"Hitherto we have laid before your Excellency, for the purposes of publication, several reports in a merely popular form, suited to the present emergency. We are confident that the recommendations contained in them, if carried into effect, will tend to mitigate the evils arising from the attacks of the disease in the Potato crop. We now propose to proceed forthwith to apply ourselves to the investigation of the important scientific questions involved in the subject, and to report in due time the results of our inquiries, in order that, from past experience, we may derive knowledge for future guidance. These investigations will occupy us for a considerable time, and while we do not contemplate the necessity of publishing further popular directions, we shall hold ourselves in readiness to give our immediate attention to any question which your Excellency may submit for our consideration, or to report from time to time for your Excellency's private information.

"We have the honour to be, my Lord, your faithful and obedient servants,

"Robert Kane,
"John Lindley,
"Lyon Playfair."

"*Royal Dublin Society, Nov. 8, 1845.*

"My Lord,—We take occasion to mention to your Excellency some facts regarding the action of peat or turf upon diseased Potatoes, which we are anxious to make known without delay, although at the present moment we do not wish to put forward a formal report, or official recommendation.

"We had early fixed our attention on the preservative action of turf, and in our first report gave some directions for its use, since which time we have received accounts of its decisive utility in many cases. We had also obtained very distinct evidence that in wet bog land the disease was in reality milder and less extensive than in drier and more fertile soils. Upon these grounds we proceeded to institute experiments on the action of bog-water on diseased Potatoes; and we find that certainly, when immersed therein, the disease appears to be arrested, and the substance of the Potato does not appear in any way to suffer.

"Our trials having been made in Dublin, and but on a small scale, and also the pressure of circumstances forcing us to make known every plan likely to prove useful without loss of time, we do not wish to have this notice considered as decisively stating that steeping in bog-water will stop the progress of the disease; but we consider it highly important that the plan should be tried by persons residing in bog districts, where circumstances render a possible failure in a certain quantity an object of no importance. We have accordingly applied to several gentlemen to institute trials on a large scale, and shall, when we learn the results, at once proceed to lay them before your Excellency.

"We remain your Excellency's obedient and faithful servants,

"Robert Kane.
"John Lindley.
"Lyon Playfair."

On the first of these reports the public has still to pronounce judgment. It is at variance with opinions held in estimation by many careful enquirers, and it is probable that the correctness of the Commissioners' views will be called in question.

The disputable matter may be divided into two parts. In the first place the Commissioners reject the theory of parasitical Fungi being the cause of the evil, which they refer to atmospheric influences. As this is what has been always maintained by ourselves, it is needless to insist further upon that point until more proof shall have been brought forward in support of the Fungal theory.

The other point is the wearing out of races. It has been repeatedly asserted that the reason why the Potato is now suddenly attacked by a malady which at one time threatened its extinction, is that it has degenerated. This has been more particularly insisted on in a frothy pamphlet noticed in another column; and on all sides we hear of recommendations that new varieties of the Potato should be immediately raised from seed.

In this, as in all other matters, it is easy to make assertions; but before we give assent to them we must ask for some proof of their truth. Do the gentlemen who clamour for new varieties know which are the old varieties now cultivated, and which the new? Have they any proof that the old varieties have suffered in any peculiar degree, or that the new varieties have escaped? Can they point out any one instance among Potatoes in which facts support their views? We think not. At least they have not done so; and we therefore entirely agree with the Commissioners in rejecting this hypothesis. That the new varieties do not escape we have the most positive proof. Dr. Maclean, a gentleman skilful in all horticultural affairs, raised but the other day a seedling Potato of great vigour and excellence; its production is so recent, that few persons yet possess it at all. With this variety a portion of an old meadow newly trenched over, near London, was planted in the autumn of 1844 and spring of 1845; no manure being used. The crop was so much attacked by the disease, that not a single Potato was found worth preserving, and the difference between autumn and spring planting, which Dr. Maclean's new Potato was selected for the purpose of determining, could not be ascertained.

In reality there is no proof in any part of the Vegetable Kingdom that the races of plants wear out. Such an opinion was entertained, indeed, by the late Mr. Knight, and his views have been adopted by some physiologists. Yet there is not only no proof of their correctness, but the strongest presumption to the contrary. It is superfluous to say that the Golden Pippin Apple is the instance on which this theory mainly turns. It is said that it has worn out, and can no longer be cultivated. But the Golden Pippin still appears abundantly in Covent Garden Market; trees as healthy as ever are to be found in this country; we ourselves have seen it in Ireland, where there is no symptom of its decrepitude, and in Madeira it is in robust health. The wearing-out theory, therefore, falls to the ground.

We observe that the Commissioners recommend all land which has borne diseased Potatoes to be well limed before being re-cropped. They give no reason for the recommendation, but probably regard it as a prudent precaution against two possible dangers. It is improbable, but not impossible, that the myriads of seeds of Fungi lurking in the soil may attack a new crop: that kind of danger will be arrested by the use of lime, which absolutely destroys such parasites. It is not improbable that decaying Potatoes left in the ground may destroy such young roots as come in contact with them before the putrid matter has become decomposed; lime again hastens its decomposition, and therefore becomes a valuable agent in such a contingency. It may be that these fears are groundless, and that danger is not to be anticipated; but no prudent man, acquainted with the nature of plants, would venture to assert what will or will not follow in the train of such a pestilence as that which has attacked the Potato. Professor Henslow, indeed, has furnished us with an instance of the deleterious effects of decaying vegetable matter upon young plants, which is particularly instructive at the present crisis.

"I have grown the curious Valisneria spiralis for the last three years in a large glass jar, which stands on my study table. I frequently put some cut flower, which I may wish to examine, into the water in the jar for convenience. On two or three occasions, these specimens have been accidentally left in the jar a few days, till the lower portions of their stems have become putrid, and the water in the jar tainted. When this has happened, the leaves of the Valisneria become flaccid and decay, and a quantity of Conferva which forms upon the sides of the jar, also detaches itself and withers. Once I very nearly lost the Valisneria by leaving some Cruciferous plants in the water for a few days, these producing a worse effect than most others. It may be worthy of inquiry among agriculturists whether manuring with green crops is universally to be admitted, or whether, under certain circumstances, which might bring about some particular state of putrescence, the crop might not be more injured than benefited. I find one or two of the farmers in this village, who (for the first time) have been ploughing in green crops of Mustard, declare that their Wheat crops have been injured by it; but the testimony is not uniform; one other, at least, has found his crops benefited. The subject is worthy the attention of agriculturists."

THE AMATEUR GARDENER.

Bulbs in Windows.—At no period have flowers so strong a hold on the affections as in the season of winter. The Snowdrop with its pure white bells, and the Crocus with its corolla of gold and purple, and the Primrose with its striking contrast of green and yellow, become favourites then, while the prouder aspirants of summer are fast locked in frosty bands. An indigenous flower of the woods rises into importance from the circumstance of its defying the influences which have banished the tender exotics from the parterre, and perhaps the heart never so thoroughly enjoys a flower as when it smiles upon us from the general sterility and bleakness of winter.

By cultivating flowers in-doors, we improve upon this kind provision of nature for pleasing us at the most dreary season of the year; we thus become independent of rain and snow, and hard frosts, and can secure fragrance and beauty in the very heart of the winter. To do this with exogens or ordinary greenhouse plants is very difficult, unless a greenhouse is at our command; but the endogens, or bulbs, are more pliable, and find in the window of a dwelling-house a region suited to their development. According to my promise last week, I shall endeavour to detail the plans which I have myself found successful for several years, in furnishing a constant supply of beautiful flowers from January to April. I shall confine myself to Hyacinths, Tulips, and Crocuses, as they are bulbs which present few difficulties, are easily procured, and furnish a pleasing variety of colours and fragrance.

Supposing you have only one window capable of holding in one row, on a shelf or table, one dozen small pots, it will be necessary that you have three dozen at least to secure a variety. Much has been written on the proper size of the pots for Hyacinths, &c., and I have tried various sizes. The result of my experience is that very small pots will bloom Hyacinths and Tulips in perfection. To secure the fullest development, no doubt large pots are best, especially when the increase of the parent plant is desired. But as it is necessary to economise space in this pursuit, it is gratifying to know that pots called sixties, about 5 inches deep, and 4 wide at the top, are quite large enough. Procure three dozen such pots of the best make, and as thin in their fabric as you can get them. Some pots are clumsy from their undue thickness, and of a dirty brown colour, while others are almost as thin as a tea-cup, and of a pleasant light hue. The soil should be fine and porous, such as will not cake together when watered; as a general instruction, I may say, that the mould of an old kitchen garden, mixed with about one-sixth part of white sand, will do admirably well.

Having your pots, and mould, and a quantity of broken crockery, unfortunately too plentiful in every house, in readiness in some shed or outbuilding, proceed forthwith to commit your bulbs to the care of mother earth. I would recommend one dozen Hyacinths, double and single, and of various colours; one dozen early Tulips, and one hundred mixed Crocuses. Procure these of a respectable seedsman, and you may rely on his honour to serve you well. Directions as to

shape, weight, &c., though important, will often fail in practice; but the opinion of a man who has been all his life in the trade, and whose interest it is to sell a good article may safely be taken. The bulbs being ready, put a crock over the hole of the pot, and about one inch deep of small pieces at the top of that for drainage; then fill the pot, and plant the bulb. The Hyacinths should stand about one-third out of the soil when planted; the Tulips should be just covered; and the Crocuses may be buried about an inch. One Tulip in a pot will be sufficient; but as many Crocuses may be put in as will cover the surface without the corms touching each other. Let the soil in every case be pressed gently down, and the work is done. If you have named sorts, let the names be written neatly with a lead pencil on labels made of deal wood, painted white. The trouble is a little increased by this plan, but the pleasure will be greater, if you are able in the after stages of growth to appropriate to each of your flowers the name by which it is generally known.

No water need be applied at first, if the soil is moist; but the whole collection should be placed in a dark cellar, in the dampest part of it. The bulbs will soon push forth roots, and the soil should be kept moderately moist. The more free-growing bulbs will root so rapidly that you will see the points protruding through the hole in the bottom of the pot, and you may then move them to the light with the greatest advantage. But others produce roots very shyly, and you must be guided by the upward movement of vegetation; and when there are indications of leaves on the surface, it will be proper to bring them to the window. The Crocuses must be forced very gently, until the flowers are quite ready to expand, or they will send up long spindley leaves, with very imperfect flowers. Let them have all the light and sun you can possibly give them in the window, for which purpose they should be placed close to the glass; for it is absurd to expect a flower to come to perfection when it is placed behind curtains or blinds. Each pot should be placed in a saucer; not the ugly thing of the same material as the pot, but a neat tea-saucer, any number of which may be obtained cheap at the china-shops. Water must be increased in quantity as the plants grow. I shall have much to say on the application of water generally, but I must not omit now to state that, as the flowers advance, it must be copiously supplied; but let it be given often, and a little at a time. If the water remains in the saucer long after the operation, it is a sign that too much has been given; but if it is quickly absorbed by the roots, you may be sure you are right. In sunny days in the early spring, when the bulbs are in flower, evaporation will be very rapid. The smallness of the pots I have recommended to be used renders attention to this department more necessary, since the bulbs have but few resources around them on which to depend in a time of drought.

Some of the bulbs will be long before they exhibit signs of growth, and they may remain in the cellar longer, and in this way a succession will be secured. You may expect two or three failures out of the 36 pots, but you will be amply repaid notwithstanding. Remove the advancing flowers out of the way of frost; put them out in the garden when there comes a mild, warm rain. This is all your winter garden will require. Your affections will soon be engaged on behalf of your nurslings, and, having tried the experiment one winter, I am sure you will be anxious to repeat it the next.

CEREUS GRANDIFLORUS.

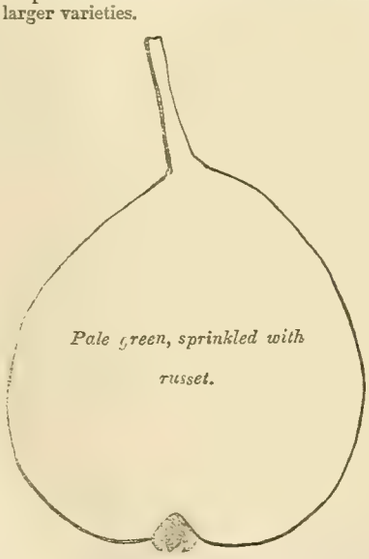
(The Night-Blowing Cereus).

In the pilgrimage of life, how often have I been delighted to visit the collection of the intelligent cultivator of plants, to be warmed by his enthusiasm to impart mutual instruction, and to share the pure pleasure arising from the contemplation of the floral beauties of Nature. When we take a view of the floral display of the vegetable kingdom, how can the human mind be otherwise than interested? The grotesque forms of some excite our wonder; the gorgeous display of others our admiration; the graceful and elegant bespeak our esteem; and the fragile and lowly command our care. As the poet observes, there are "sermons in stones." With what gratitude should we receive the instruction of these lovely monitors, to appreciate the "good in everything!" When the grand and beautiful flowers of Cereus grandiflorus are expanded, they attract the admiration of everybody; it never opens its blossoms whilst under the direct influence of the sun's rays, and they close never to open again as soon as the beams of the morning sun glance upon the house in which it is grown. I prefer growing this Cereus in a pot, to which is affixed a cylindrical trellis, from 3 to 4 feet in height. The plant can then be moved to the places in the house best adapted for its growth, or when at rest during winter, for the maturation of its sap, and when in flower it may with facility be removed to the sitting-room. When in a growing state it delights in a warm, moist atmosphere, where it will lengthen its stems, or produce new branches from 1 to 2 feet in length in one season. These should be tied to the trellis as regular as the contorted habit and brittleness of the stems will permit. As the stems advance in growth, numerous roots will be protruded from their under side, which will eventually reach the soil in the pot, and they will materially assist the future growth of the plant and the development of flowers. As it is no easy matter to remove a plant of this description from one pot to another, when once established on the trellis, care should be taken at first to select a pot of sufficient size.

The soil should be a rich friable loam, mixed with one-third well-rotted and thoroughly dried stable-dung, broken into small lumps, to which should be added lumps of old mortar, to secure a good and sufficient drainage until the pot becomes well filled with roots. When the plant has finished its growth for the season, water should be gradually withheld; but it is by no means necessary to keep it so dry as to cause its succulent stems to shrivel. It should be placed during winter near the back wall of the house, and, that it may have the full influence of the sun, the top of the trellis should be about 18 inches from the glass. As spring advances, the old and well-matured stems acquire a purple tinge, the colour being more intense about those parts where the flower-buds develop themselves. About the middle of May, small fissures will be observed on the upper part of the stems, from which protrude what at first appear to be small balls of coarse white hair, but in which is inclosed the rudiment of the flower; the enlargement of these balls goes on very slowly, the hairs gradually becoming more lengthened, until they assume a conical shape. At this period the plant should receive a generous treatment; a more liberal supply of water may be given, with an occasional stimulant of the drainage of the dung-hill. The foot-stalk of the flower will now grow rapidly until it attains the length of from 7 to 9 inches, when it will appear as if covered with scales bristled over with hairs. From the middle to the latter end of June the first flowers generally expand, but much depends upon the previous brilliancy of the weather. The flower usually begins to open about 5 P. M., but in dull weather it may be as late as 8 or 9 o'clock. It is an object of interest to the curious to watch the progress of the expansion of the flower. The calyx or outer segments may be seen to move with a start or spring, now one then another, until they are free of each other; they afterwards expand imperceptibly, each segment standing apart and their points slightly recurved, forming a circle from 8 to 10 inches in diameter. In the meantime the petals slowly expand and are disposed in the shape of a bell at the top, but they gradually lessen downwards like a funnel, at the bottom of which is inserted the numerous stamens. These are beautifully arranged around the corolla, but the greater part lay on the under petals and surrounding the pistil. The time from the commencement to the full expansion of the blossom is from an hour and a half to two hours; the appearance of the flower is peculiar and grand, the numerous narrow segments of the calyx, which are yellow inside, appear like rays surrounding the corolla, which is itself a pure and delicate white changing to green towards the bottom of the tube. The numerous yellowish anthers are finally arranged, and it possesses a perfume which fills the whole house. Upon a plant trained to a trellis, as above stated, I have had 18 flowers expanded at once, completely excluding from view both the trellis and plant itself: it was an object at once grand and imposing. The plant, after the flowering season is over, should have a short period of rest to recover its exhausted energies, and should be afterwards stimulated with a moist and high temperature, to promote its growth, and to fill its sap-vessels with nutritious sap, to be elaborated in due time to produce its splendid flowers.—*Tassel.*

ASTON TOWN PEAR.

This hardy variety derives its name from Aston, in Cheshire, where it was raised. The fruit is scarcely middle sized; flesh yellowish white, melting, rich, and sugary, with a good deal of the Crassane flavour; usually in perfection in the end of October and beginning of November. The tree is a good bearer, well adapted for being grown as a standard, the fruit not being so apt to be blown down as is the case with many of the larger varieties.



It has a peculiar mode of growth; the branches have a tendency to curve and twist, and in order to keep them well regulated, pruning must be especially attended to before they get entangled. The shoots are vigorous, dark olive, sprinkled with small pale specks; the leaves ovate, and shortly acuminate; the petioles about an inch in length on the young shoots, with stipules sometimes nearly as long. Flowers rather small; petals roundish obovate. It has probably been raised from the Crassane, as it partakes more of its nature than that of any other variety formerly in cultivation in this country; and although it cannot be said to be fully equal, in some respects, to the Crassane, yet it far exceeds it in the very desirable property of hardiness. For standards for northern counties, and for exposed situations, it is particularly recommended.—*R. T.*

Home Correspondence.

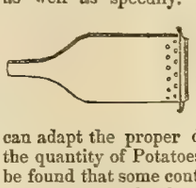
The Potato Crop.—I have sent you three Potatoes which are evidently nearly decayed by the prevailing disease, to show that it has in no way injured their vitality; they are self-sown, at least were left in the ground when the crop was taken up last August and September, when I perceived them affected but not ripe. I let them lay on the ground exposed for a few days and then pitted them quite dry, in the usual way, picking out all that appeared affected, examining them occasionally. Last week I thought it advisable to throw all out of the pit, and have now laid them out in heaps in a dry loft, well covered with straw; out of about 80 bushels about 2 bushels are bad, no doubt; but if they had remained in the pit most of them would have been lost. Those decaying I found mostly breaking from the eye and some producing, as would appear, a young Potato, as you will see by one sent you. Those I had planted at the same time, and on examining them this morning, I find that they remain the same as when put into the ground, with no appearance of the disease spreading. I have this week been planting about ¾ of an acre. I in general dig the ground, and plant in each row as I go on; after planting the sets I cover them with coal-ashes; this answers two purposes, it keeps them dry, and also prevents slugs and wire-worm from injuring them. I have potted some similar to the sample sent you, and have placed them in a cool house. It will then be seen before the planting season whether a diseased Potato will affect the succeeding crops, a thing well worth ascertaining. I should say instead of destroying the most injured tubers, if a seed-bed is thrown out, and the Potatoes planted so as not to touch each other, all those that had grown would be fit next spring to be planted out in the usual way. This would be an experiment worth trying, for no doubt seed Potatoes next season will be expensive to buy, if it be possible to get them at all.—*T. Malleson, Claremont.*

I have just thoroughly examined seven lots of Potatoes of different varieties, which were stored away for seed on the 12th September last, in charred earth, old tan and sawdust charred together, and I am happy to say that the result is most satisfactory—not one tuber is to be found the least affected by the disease; and the putrid spots are so entirely dried up that when rubbed they crumble or fall out; the other portion of the tuber is quite sound and good in quality. A neighbour of mine purchased a load of dry turf ashes, among which he stored about 25 cwt. of Potatoes about a month ago, almost every Potato at the time of storing being more or less affected with the disease; this day he turned them over and brought me a sample, which is sound and dry, and the disease is entirely stayed, not one decayed tuber is to be found amongst them; when cooked they are mealy, and well tasted. Of a lot that I spread thinly on a dry floor for seed, I have been obliged to throw away above two-thirds, and the remaining portion is good for nothing; those were apparently sound when they were stored, and had been exposed for some time on a dry pavement to harden. The fungus which attacks the affected tubers runs over them very quickly indeed, like wildfire. Charred refuse or well burnt dry earth or turf, or peat ashes, will at once stop the progress of the disease. I have long been satisfied that any of these will prevent the progress of fungi; they even prevent Mushroom spawn from spreading. I this season planted a piece of ground which had never been manured nor cropped previously to my knowledge, with different kinds of Potatoes, with a view to prove, if possible, which was the best and most valuable manure among several kinds which I applied by weight, &c., and the result is very interesting; while the tubers produced from one particular compost were fine in quality, and not in the least diseased, others, of the same variety, but manured with different material, were affected to a serious extent, though they were all growing on one piece of ground: a quantity of those tubers free from disease were stored in the usual way, viz., covered with straw and earth. I opened the pit and looked over them, and they are still perfectly sound. The Potato crop in this locality is very bad indeed. Wishing to buy a quantity of good Potatoes, I have this day walked over I think about 200 acres, and cannot find a good Potato, although people were busily employed in taking them up, such as they were, and sorting them in the best manner they could in almost every field I entered. The best piece I saw was about 2 acres at the top of a high steep hill on a beautiful sandy red loam, the subsoil was coarse sand—remarkably dry; those averaged one decayed tuber to eight, and five out of six tainted with disease, that is, discoloured; those are very good to eat now, but if they are put together in any bulk and fermentation takes place, they will all rot. The tubers should this season be stored away in the thinnest manner possible, and in the driest situation; and, if possible, they should be covered with charred or well roasted earth, or some other very dry material, and if a quantity could be placed amongst them for only a week before they were sorted over, it would greatly assist in staying the disease. I next entered a field of 16 acres, 13 of which were Potatoes; the surface of the soil was entirely covered

with rotten tubers, and not one in twenty of the crop was apparently sound, and the workmen informed me that they did not collect 20 lbs. a day that were not diseased. I then went into a 13 acre field, all cropped with Potatoes, which were decidedly worse affected by disease than those in any other field I entered. Scarcely a sound Potato was to be found. I observed in every field that the crop had been remarkably regular and strong; the tubers were above the average number, and only about one third the average size, and those apparently sound were the smallest. The Reds are everywhere the worst affected, and those planted late, and on ill-drained soils, are in the worst condition. Everybody who can find a sound Potato is carefully saving them for seed; but here, again, comes an important question, will they grow after being so seriously retarded in their growth at such an unusual season? Who can tell what the effects will be on the tubers so suddenly retarded in their greatest luxuriance; this is yet to be seen, although I am already in possession of important facts respecting the matter. I would recommend, if we have a kindly autumn and winter, to at once prepare and plant all the sound tubers, placing them not less than six inches in depth, for it is my opinion that if the tubers now in a sound state be at once planted, they will produce a crop next year. I have just opened a small ridge of Potatoes that were picked and stored in the usual way on the 12th of Sept., and they are all more or less tainted with disease, and on the sound side of many of them the eyes have pushed young tubers from the size of a Pea to that of a Walnut, but not one tuber in a hundred has sent out a shoot. I also observe the same effect in other fields, many are pushing out small tubers, and some weak shoots—indeed there is occasionally to be seen shoots and foliage above ground. This may reasonably be expected when we consider the length of time they have been killed down and allowed to remain in the soil, especially while we have such mild weather. I long ago mentioned the cause of curl, dry rot, and producing of tubers without stalks or foliage, and this season will prove whether or not my former observations were correct; those are matters I have watched with great interest through many years; a great deal of valuable information and facts will be gleaned by this sad disaster, and the cause and effects of many other matters will get much light thrown on them. The weather is truly beautiful with us, both for taking up and planting. I am now busily engaged in the latter operation; the soil is in fine condition, and I am fully satisfied by what has come under my own observation that there will be no certainty of the tubers germinating next spring, stored in any other way for next season's production. —*James Barnes, Bicton.*——Now that the Potato crop is in the greater portion of Europe approaching a complete failure, the great question amongst us ought to be how to preserve seed or to have it at our command at planting season. The numerous methods of propagation adopted to multiply rare and valuable plants may now actually be called into requisition, and the sooner we turn our attention to this matter and set about it the better, because the delay perils the prospects of retaining the tuber even in sufficient quantities to be an article of food at all in the coming season. It is therefore to this important part of a very important subject that I would earnestly direct attention. No class of men are so likely as gardeners to devise means to alleviate at least the calamities which must of necessity follow such a serious visitation. From being accustomed to increase all kinds of plants rapidly, suggestions from them are likely to prove valuable on this head in these trying times. Could not frames and pits be set at once to work, and enormous quantities of sets produced by spring? Surely this is worth attention. —*R. G.*

Effects of Chlorine on Potatoes.—I am sorry again to intrude myself upon the public, but I am so confident that the use of chlorine is an effectual remedy in arresting the disease called the Potato murrain, and that so doing will save thousands from want, that this must be my excuse. Seven weeks back, when chlorine was first suggested by Mr. Reece as a remedy for this disease, about two bushels of Potatoes, in different stages of decay, were operated on; they have since been kept in a dry, airy place; they are all now just as they were then. The decay has not progressed, they are full of vitality, the eyes are shooting, they are wholesome and pleasant for food, I eat them every day; the water they are boiled in is clear and scentless, even of those Potatoes that were in a state of rottenness. The remedy is cheap, and the application of it completely within every man's reach. When a labourer rises in the morning, let him strew his Potatoes on hurdles or sticks, or even on his sheets and blankets, stretched from chair to chair, and from bed to table, a few feet from the ground, let him then take a basin, or any other utensil, and put into it 3 half-pounds of common salt, which cost 1*d.*, half-a-pound of black manganese, 2*d.*, and one pound of oil of vitriol, 1*d.*, shut his room up for the day, let it be as close as possible, it ought to be so for 24 hours. When he returns at night (having left it open an hour or two), it will be sweeter and purer than when he left it in the morning, the chlorine acting as a purifier of everything with which it comes in contact; being a gas, it penetrates every pore of the Potato, and leaves them quite dry and scentless, and when cut in two, the sound part is juicy, and appears as healthy as if we had never had a Potato murrain. This remedy, if it does no more, stays the disease where it is, so that you can keep your bad Potatoes until they are consumed. The oil of vitriol must be used with care, as it will burn either clothes or the flesh.—*Edmund Tattersall, Grosvenor-place.* [We insert this communication at the request of our correspondent. But we warn all who may be inclined to try the effects of chlorine, that we do not hold ourselves responsible for the consequences. A coroner's inquest would be an unfortunate, but not improbable termination of such experiments.]

Potato Graters.—The machine for separating the farina from Potatoes, described in your columns, is not perfect, as the Potatoes will not grate regularly; it requires an extra roller of a different diameter, to perform properly; and it is also necessary to have a fly-wheel.—*C. Christie, Jun.*——I have constructed a machine upon the principle laid down in the *Chronicle*, at p. 720. In the Number for 8th November, you are led to make a few additional observations by way of explanation on one or two points which seem to have been imperfectly understood. In your explanation of the machine, you say a little further on: "When the handle of the drum is turned, and Potatoes are put into this wedge-shaped cavity, their own weight, and the revolution of the drum, tends to draw them between the drum and the flat plate, and, consequently, causes them to press against the surface of the revolving drum." It is true the Potatoes will be grated to a certain extent, but you will find, as I have done (having altered the tin grater on the drum now for the third time), that a considerable pressure is required besides the weight of the Potatoes themselves, in order to grate them effectually as well as speedily. I have adjusted to my Potato machine a board for this purpose,



of this shape, which is attached to the side of the hopper by a small iron axle, the narrow part being held in the hand of a person who grinds, to which he can adapt the proper degree of pressure according to the quantity of Potatoes in the hopper. I think it will be found that some contrivance of this sort is absolutely necessary to make the machine do its work properly.—*H. C. Wise, Woodcote, near Warwick.*

Beneficial Effects of Greening Potatoes.—I have been examining a quantity of Potatoes which were greened a month or six weeks back, and am glad to find them all perfectly sound. Those which then showed incipient disease have not got in the least degree worse, as the disease was confined to the superficial cells. A specimen which has been shut up in a tin box with a highly diseased Potato has remained *in statu quo.* It is not too late yet to green Potatoes, provided care be taken to protect them at night from frost.—*M. J. Berkeley, King's Cliffe.*

French Articles of Food, not used in England.—*Maize Flour* is prepared as follows in some parts of France, where it constitutes the almost entire food of the peasantry. In a skillet or saucepan half full of boiling water, dissolve a little salt; whilst the water is boiling fast, sprinkle in Maize flour with one hand, whilst the other is constantly stirring the mixture with a spoon or stick; continue to add flour till the whole becomes a thick paste, then turn it out on a cloth to dry. When cold, it may be cut up in slices like bread; it is generally so eaten, but sometimes whilst still hot. For the tables of the gentry, the paste prepared as above is cut into slices, fried or broiled, and served with powdered sugar.—*Haricot Beans* are the cheapest kind of food for the poor in many parts of France. They are prepared in the following manner:—Put the Haricots into cold water, boil them gently till the skins begin to crack, then pour away the water, which is always nauseous; have ready boiling water to supply its place, simmer the Haricots gently till tender. They must not be allowed to get cold whilst cooking, or they could never be boiled tender.—*Chick Peas.* Soak these 12 or 14 hours in salt and water, then simmer them till tender in the same water. Like Haricots, it is essential that they should never get cool till perfectly cooked.—*Buck Wheat* is generally eaten in Russia, where it is served daily, from the Emperor to the poorest peasant. In preparing it, put the Wheat, freed from the husk, into a jar that will bear the heat of the oven. Add water sufficient to rather more than cover it, put it into a slow oven (adding a little salt) where it should remain three or four hours. The water should be in sufficient quantity to render the grain soft, yet to leave it entire, as rice for curry. The affluent stir butter into the jar when it comes to table.—The late Mr. Colquhoun, during the dearth of 1795, suggested the preparation of herrings, pilchards, and sprats in a mode which enabled them to be sold in the London market at a very low price. They were slightly salted, and loosely packed in barrels, so as to be brought for food from those parts of the coast where, from their superabundance, they would otherwise have been used as manure.—*M. S. B., Hampstead.*

Sanguettes.—With reference to a communication from a Correspondent, signing himself "M. S. B.," I believe that the more minutely blood has been examined the more fully it appears to be not only an improper, but a dangerous food. It is allowed to contain very little nourishment. It is exceedingly subject to putrescence, as daily experience proves. Scarcely is it extravasated and exposed to the air, but it assumes obvious symptoms of putridity. Hence wolves, foxes, &c., more sagacious than human blood-eaters, suck it from the veins of the animals; expose it a short time to the influence of the air, and the most voracious brute will refuse to taste it. Blood is also the seat and organ of almost every animal disease; inflammation and putridity are the seeds of disease, and these have not only their origin in the blood, but are often concealed and secretly working in it, long ere the disease shows its visible symptoms in the system; had we just views, we would not only forbear to eat blood, but offer thanks to Providence for prohibiting a morsel so dangerous to the health of man. None of the milder animals eat it, none but the most ferocious, savage, and artful brutes, as wolves, foxes, dogs, live on this aliment. Humanity is characteristic of man; how improper, then, would it be, were it permitted in man to act as a brother to animals the most ferocious of the brutal world! I pursue the subject no further, though much more might be said in deprecation of the recommendation of "M. S. B.," which I trust none will follow.—*Quercus.*

Fences for Flower Gardens.—A correspondent (p. 753) gives a description of a fence he has erected, to prevent the intrusion of rabbits into his flower garden, which, if really effectual, commands attention from its cheapness and appearance. Being much annoyed with rabbits here, and in anticipation of enclosing about two acres of land for the purpose of supplying the increased demand for kitchen garden produce—to which these animals are equally attached—I should be obliged to "Q. L." for a sketch of his fence, reduced to a scale; a glance at this will convey a better idea of its appearance and construction, than an hour's description. I fear two things—first, that 2 feet 3 inches in height is not sufficient; and second, that an interval of 2 inches between the wires is too wide. There is a considerable length of fence here for the protection of flowers, &c., but we find any fence less than 3 feet in height, and the wires more than 1 inch apart, quite ineffectual, of whatever design it may be. Are the iron uprights first fixed in wood and then let into the ground, or are they only pointed and driven into the soil?—*W. G. A., High Cliff.*

Melon-growing.—Lest the statement of "R. G.," at p. 738, that he has known several instances of the failure of the plan I proposed for applying bottom-heat in Melon-growing, should give rise to any misconception, it is proper to state that part of the plan I proposed consists in so regulating the amount of heat applied, that it can never be present in excess; and, therefore, the plan cannot fail, if this part of it is carried out. Doubtless, without attention to the amount of heat applied, such a plan would fail. This degree of attention "R. G." seems to think tedious, and altogether incompatible with economy; but if it is considered that the mere turning of a stop-cock, three or four times a day at the most, is all that would be required, I think such a view can hardly be maintained; for, in attention to matters of this kind, a large portion of a gardener's duties consist. If the heating apparatus will not admit of the regulation referred to, the plan I proposed is not complete, and therefore a failure under such circumstances would be no evidence against it. That such a plan may be carried out, there can be no doubt; the only question seems to be, whether it is preferable to expend the degree of labour (attention) required, or the cost of a more expensive structure.—*T. Moore.*

Erica ciliaris.—It is worthy of notice that this beautiful Heath, which commonly grows about 6 inches or a foot in height, will sometimes attain the unusual height of 6 or 7 feet, and support itself on the branches of any bushes, or young trees, that may happen to be near it. I saw an instance of this the other day in passing through a plantation here, where this species abounds. The soil is a yellow, friable loam.—*W. B. Booth, Carclew.*

Saurauja spectabilis.—At page 723 mention is made of this plant having flowered in July last, in the Garden of Plants at Paris, and of M. Neumann being disappointed with its appearance. It is now in flower here, and on its first opening I confess my expectations of it were not realised; but subsequently, when its large, dense panicles of delicate white blossoms were fully expanded, I became of a different opinion, and now consider it both deserving of its name, and a most desirable plant where it can be indulged with plenty of pot-room, and sufficient space to show it to advantage. It is of a robust habit, with large, broad, rigid leaves. The branches are spreading, and bear at their extremity the masses of flowers which have been likened by M. Neumann to those of some Begonia. They are remarkably fragrant, which I consider to be a great recommendation. —*W. B. Booth, Carclew.*

Hares and Rabbits.—I should be obliged if your correspondent, who gave an account of his little flags dipped in sulphur, for the purpose of keeping off hares, would inform me whether he thinks that pieces of dipped rag, tied to hurdles at the proper intervals, would serve equally well with the flags. If the hares are really deterred by the smell alone, and not by the appearance of the little flags, the plan would of course answer. Would hares cross a band painted on Grass, along a fence, with gas-tar?—*C. R. D.*

Societies.

MICROSCOPICAL SOCIETY.

Nov. 11.—Professor Bell in the chair. Mr. James Thomas Ware was elected a member. A paper was read by Mr. Varley on the structure of Chara vulgaris. He commenced by describing the globules and nucules of these plants, the latter of which contained the reproductive germ. The nucule in Chara vulgaris consists of nine tubes twisted to form a capsule. These tubes are covered over with an incrustation of carbonate of lime, which may be easily dissolved away in a dilute acid, leaving the tubes visible. The author had observed a circulation in these tubes similar to that found in the

branches of the fully developed plants. The author proceeded to describe the process of germination, and more particularly of the origin of the external layer or bark which covers the stem of the Chara. This bark is composed of two sets of tubes, one proceeding upwards, the other downwards, from the nodes or articulation of the stem, meeting half way in the internode, where they were attached to each other in the form of a suture. Sometimes the bark-tubes grow faster than the stem and become twisted; at other times the stem grows faster than the bark-tubes and bursts them, and becomes bent. During the process of the ripening of the nucules there is no communication with the red body—the globule. This last then bursts into eight pieces, and contains in its inside little filamentous bodies which move about very rapidly in water after they have escaped, like the spermatozoa of some Mosses. The movement in the cells of Chara the author had found to circulate only half way through the cell, when a ligature was applied to a single cell above and below. The remainder of the paper was postponed to the next meeting of the Society.

Reviews.

The Potato Disease, &c. By a Naturalist. A Pamphlet of 15 pages. Baillière.

This is a letter to Sir Robert Peel, full of sound and fury signifying nothing. The writer is in a great fuss, and seems to think the salvation of the country dependent upon himself; he evidently believes himself to be somebody, and takes especial care to let his readers know it. He tells us that he scorns political parties, loves the light, indeed has no fear of it (yet he writes anonymously!) and would not be very tolerant of the person who should insult him with the nickname of any political party. He sneers at the Irish Commissioners, because they advise the peasantry to keep their Potatoes dry, to bury them in turf-ashes, or dry mould, and to pack them in heaps; "minute" directions which he thinks are only "adapted to the preservation of rare objects of Natural History." As this writer calls himself a naturalist, we should be curious to see his museum where rare objects are thus secured. He scolds the Cabinet; rails at Dr. Buckland; declares his horror of Somerset-house; and deals a backhanded blow at all Boards of Guardians.

We have, of course, endeavoured to ascertain what the writer means amidst all this hubbub, and, as far as we can discover, his panacea consists in the raising new varieties of Potato from seed. Upon this point the Naturalist indeed comes out; he is strong upon varieties, species, and individuals; lectures Sir Robert upon the sleeping ovum, and assures him without any fear of contradiction, that the contact of male and female is a law "of universal and irremissible cogency." Truly, the mantle of the great Taliacotius has fallen to a worthy disciple; our "Naturalist" has drawn it from its hiding-place, and wears it grandly.

But we must not waste more space upon such a silly production. We will only ask the learned author one question. If, as he says, we must all set about "raising all kinds of Potatoes immediately from seed," will he inform us what Sir Robert Peel has to do with the matter? or where any body else is to get the seeds from? We all know the remarkable talents of the Right Honourable Gentleman, who, we doubt not, has been edified by the "Naturalist's" letter; but we certainly do not see how he is to accomplish raising Potatoes from seed at such a rate as to fill the mouths of the poor people who have lost their present crops.

Garden Memoranda.

Gomersal House, near Leeds, the seat of W. Rhodes, Esq.—The collection of plants here is, in most respects, equal to that in the most celebrated establishments near London. The plant structures are built from designs solely furnished by the skilful proprietor, and are admirably adapted for the ultimate objects of cultivation. The stove is a lean-to structure, 30 feet in length, by 21 in width; bottom-heat is secured to the plants occupying the centre bed by means of pipes, for the circulation of hot water, below the surface, at respective distances, and rising progressively from the front backwards. Over each coil of pipe is a floor of flags, or slates, several feet in width, which forms a common level, with a due elevation of the front curb. The centre bed is thus formed into three or four divisions, rising progressively; each coil of pipe being similarly covered with slate, the front edge of which is elevated so as to admit of a top layer of sand, or prepared sphagnum, 6 or 8 inches in thickness, upon which the plants are placed. The application of water upon the sand, &c., secures, by the partial communication of the latter with the pipes beneath, a humid atmosphere, which is very essential to the growth of tropical plants, as the following remarks will prove. Amongst the plants was a most beautiful Clerodendron splendens, trained in a pyramidal form, about 5 feet in height, in an 8-inch pot, and ornamented from top to bottom with from 20 to 30 clusters of scarlet blossoms. This was a truly splendid object, affording ample evidence of the adaptation of this plant for pot-culture. Along with it were Begonia insignis, nearly 10 feet in height, and covered with gracefully pendent racemes of light rosy flowers; Croton variegatum, 10 feet in circumference, and nearly 5 feet in height, uniformly grown, and perhaps one of the finest specimens in the country; the blue-flowered Clitoria Ternatea, expanding from 30 to 40 blossoms. The uniform temperature of the house appeared to have fully redeemed this fine old favourite from the charge of being a spare bloomer; the propensity to the attacks of red spider seemed also to have been removed by the moist temperature. Euphorbia jacquiniflora, 9 feet in height, and 12 feet round, promised to brighten the gloom of winter by a rich profusion of blossoms. And in the collection were also Nematanthus longiflorus, 8 feet in height; the scarlet flowered Geissomeria longiflora, one of the latest plants for winter bloom, 5 feet in height; Tabernæmontana coronaria, nearly 5 feet in height; and Begonia manicata, 10 feet in circumference. Along with this wonderful specimen were the crimson flowered Hibiscus sinensis Parkerii, the finest variety of its section, whose blossoms remain expanded for double the time observed in others; H. liliiflorus, remarkable for it luxuriant growth; Calathea zebrina, with elegantly marked leaves, 15 feet in circumference; Jasminum Sambac, 10 feet in circumference, and Dichorizandra thyrsiflora, with green lily-like stems surmounted with dark-blue flowers. The gaudy Begonia sanguinea, the finest of the genus, was 10 feet in circumference; Burchellia capensis, was 9 feet in height, and 15 feet in circumference; Gesnera oblongata, one of the most valuable plants for winter decoration, was 5 feet in height, and 10 in circumference, unfolding multitudes of bright orange blossoms. A promising collection of Heaths is being formed by Mr. Rhodes, for the protection of which, against excessive sunlight and heavy rains, the following plan was adopted:—A temporary span roof was raised over them, with a due elevation from the ground level, to admit air to circulate freely among them; another essential precaution was also observed in relation to the Heath plants, and others of similar habit. This consisted in placing them upon perforated brick tiles in preference to the damp ground, during their exposure in the latter months of summer and autumn. The partial elevation of plants in pots (whose circulation of sap ceases with their annual growth), from a permanently moist surface during their exposure to the vicissitudes of autumn weather, is, in most cases, a simple but sure preservative from the great and primary evil to which plants are subject generally, and which, in eight cases out of ten, lays at the bottom of every other evil, namely, an impeded circulation of moisture within the soil, arising either from deficient drainage, injudicious watering, or finally, from excess of atmospheric moisture. The removal of one evil often leads to the possession of many benefits. For instance, the elevation of plants not only places them beyond the injury arising from excessive damp, but also admits an increased intensity of light. These important inferences lead to the reconsideration of others previously adverted to—on the adaptation of artificial structures for the growth of plants. The plant-structures at Gomersal-house are remarkable for their due elevation of front-lights, &c., thereby securing a free admission of air and sun-light, and afford valuable evidence in confirmation of a remark given in a former Number, that the elevation of front platforms and central stages in greenhouses, should never be lower than the level or mean access of side-light. This rule is necessary in proportion to the importance of a dry low temperature, and *vice versa*.—*W. W.*

Miscellaneous.

Potato Failure.—The principal remedy I propose for the Potato failure is the use of unripe sets. As, however, there are two ways of procuring unripe sets—one by planting late, the other by taking them up early—it may be well to point out some reasons for preferring the former plan. Potatoes that are taken up early have so great a tendency to vegetate during winter, that it is scarcely possible to prevent their being weakened by premature growth before the time of planting arrives. By planting late we avoid this evil. They should be taken up while the tops are still green. It is easy to see when a Potato plant is done growing, and then without any loss of time, and before a single yellow leaf appears, the plants should be lifted. If it should be practicable to expose them to the sun for a few days before they are put up for the winter, they will keep better and grow more vigorously. I am quite at a loss to explain this fact, but I have been told by several gardeners that they have followed the practice for years with uniform success, and it has occurred to myself more than once to observe a particular luxuriant chance plant, and on taking it up to find that it had sprung from a green Potato which had been thrown aside when the crop was harvested.—*Canadian Agricultural Journal.*

Cause of Potato Failure.—The cause of this disease appears to depend partly upon too great an amount of moisture, partly on too copious a supply of manure to the soil: both induce too rapid a growth of the tubers, which renders the formation of a strong and durable cellular membrane impossible. Moreover, all the Potatoes which have experienced the cell-rot contain a much larger amount of aqueous constituents than the sound ones. It may be expected that the disease of the tubers which are laid up for winter store will extend itself and finally destroy them, if care be not taken to preserve them in a dry place, whereby a portion of the excess of moisture may be removed. The author has found that the disease remains stationary when they are dried; at least at the end of several weeks it had not attacked the neighbouring parts.—*Professor Kützing in the Magazine of Natural History.*

Bees.

Artificial Swarms.—Mr. Grant's statement at p. 739, respecting artificial swarms, is very interesting; but the plan cannot be adopted with hives managed in the common way—not in general with collateral hives, for bees frequently swarm from the latter before they take possession of the side boxes. And look at the hazard of nearly, or perhaps wholly, depopulating a stock of bees: if the weather proves cold the backward brood must perish from the sudden change of temperature in the hive—the warmth and attendance from the few "nurse bees" mentioned, would be of little service. As there is no distinction in working bees, they being servants of all work, perhaps those that appeared first at work in the deserted stock were young bees that had not been abroad before it was removed; their numbers would increase from the forward brood. Mr. G. seems to think that disturbing bees makes swarms fly away, at least he mentions that he "lost three swarms in 1843, by annoying the bees with experiments;" but he also mentions that the next year "he resolved on letting them take their own course, which ended in losing a fine swarm." This only shows that bees will have their own way of increasing fresh colonies; and of course add to the anxiety of bee-keepers at swarming time, especially when they are surrounded by places attractive for bees to lodge in.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—I can at present add little to the repeated directions given under this head. It would be well, however, to remind the amateur especially that he must be exceedingly cautious not to overheat the house, as this would cause the plants to start into growth, a circumstance which would be very injurious at this season; many stove plants are apparently always in a growing state, but rest them now if possible. Those required for winter flowering may be placed in the forcing-pit until they develop their flowers, when they should be removed to their original quarters, where they will be maintained longer in flower in their colder and drier abode. Be very particular in watering all plants under glass, as the day of trial with them is now at hand; and if kept in a comparatively hardened state through the winter, nearly inactive, they will withstand the injuries always resulting from winter forcing, unavoidable in very severe weather. *Conservatory*—This department will now occupy considerable attention, as all your floral strength must be brought to bear in this important structure, it being the chief resort of the family during unpropitious weather. See that a constant and liberal supply of all winter-flowering plants is always ready to succeed each other, and that they are placed to the greatest advantage in the house; much depends on the arranging of them. This, in fact, deserves the careful study and attention of all gardeners.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

The different kinds of soils and manures should now be removed to sheds for winter and spring potting, and a fresh supply collected and ridged in the compost-yard for next summer's use, keeping each kind separate. As the leaves are nearly all fallen from the trees, &c., they should be swept and cleared off the lawns and walks, and used immediately, or taken to some convenient place for winter's supply, or to rot for manure. Any choice shrubs planted this autumn in exposed situations, should be carefully staked and tied before they are injured by wind; and if a quantity of Fern or leaves is placed over their roots, it will protect them during winter. Keep lawns and walks constantly rolled during showery weather. Planting should not be deferred till spring; it should be forwarded now as much as possible, while the weather continues fine. *Pits and Frames.*—Cuttings put in late must now be sorted, and all that are rooted should at once be removed to another pit or frame, where they can have more air to harden them before the cold sets in; those not rooted should be replunged and kept close until they become rooted. Admit air as directed in former Calendars. Scarlet Pelargoniums taken up from borders and cut back, will keep well over winter if they are laid in by the heels in sand or soil beneath a greenhouse stage; in spring they might at once be replanted into the borders without potting, if the operation is performed in gloomy weather. Ferraria roots keep better also in this way than in any other, but traps must be kept set for mice, which are very fond of these roots.—*B.*

III.—FLORISTS' FLOWERS.

Tulips.—A more propitious planting season than the present could hardly be experienced, and those who have taken advantage of the late fine weather, have done well, as all Tulip roots now out of ground are suffering. It will be advisable to keep very heavy rains from the beds, by means of mats stretched on hoops for this purpose, and which will be equally useful in severe frosty weather. *Ranunculuses.*—The roots should occasionally be looked over to ascertain that the stock is free from damp; if not previously done, they should be cleared from dirt and fibres, &c. &c. Few plants are more susceptible of damp at this time of the year, and on no roots does it exercise a more pernicious influence. *Auriculas and Polyanthuses* in pots, require the same attention as previously enjoined, giving all air possible; an occasional shower, if unattended with cold wind, would be rather beneficial than otherwise, but not too much of it, and let the foliage be dry before shutting up. *Carnations*, after having been potted, and subjected to the close frame for a few days till they have emitted fresh fibres, may be gradually inured to the air, and rendered as hardy as possible by constant exposure, whenever the weather is favourable. When they are well established, do not shut them up in close frames upon any account.—*C.*

IV.—PINERIES, VINERIES, &c.

Take all possible means to harden the constitution of your Pines in dung pits before the approach of severe weather. Look well to your linings, and take care to have from 5° to 10° of heat "in hand" in case of any sudden emergency; the superfluous heat in mild weather may be easily got rid of by night air. *Vineries.*—See that the borders of your early houses are securely covered against frost; to those who are about making new borders, I would direct especial attention to an article in last week's *Chronicle*, by R. G., on the mode pursued at Bowood. *Seakale in the Mushroom House.*—I last week promised to say how I force this: In the first place, I may premise, that no plan of forcing can succeed, unless good cultivation is pursued in the growing season. Space will not, of course, permit me to say anything on that head here. However, supposing such to be secured, my plan is to fill a hollow pit of 3 ft. in depth, at one side of the Mushroom house, with fermented dung and leaves; on this I place the crowns of Seakale, as thickly as they can stand by each other, and cover them in well with old tan up to the head or crown. I make the bottom heat too strong intentionally, so that I may afford to water the old tan heavily, which causes it to subside a little below the level of the crowns, which is necessary, in order to see where to cut the crop. I do not water at all when I put the crowns in, which are set on the fermenting matter the moment it is put into the pit; I wait until the heat is getting above 80 degrees, and then

I seize the opportunity of applying the water. When this is accomplished, I cover the whole with straw mats, and shut the shutters of the Mushroom house to ensure complete darkness. No plan can succeed better. I have Seakale constantly from the middle or end of November, until it comes in the open ground; and to preserve a succession, I plant two long rows every year, and force two. Of course it is introduced successively into the Mushroom house. I find about four feet square, introduced every three weeks, enough for a very keen demand.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Continue removing and planting all kinds of fruit-trees, as previously directed. Take care that the fibres are laid in a natural position, and that they are not reversed by throwing the soil directly against them, instead of scattering it so as to fall down amongst them, on moving the spade in a direction from the stem towards the extremities of the roots. Standard trees should be secured from shaking by the winds as soon as planted, and if all kinds can be mulched to protect the roots from frost so much the better. As soon as Gooseberries, Currants, and Raspberries, are pruned, the ground should be manured, and dug or forked over; the latter process is to be preferred with regard to the Raspberries. In young plantations of Gooseberries the ground should be trenched between the rows in advance of the roots. Unnail and prune Peach and Nectarine trees, fastening the principal branches so as they may not be overstrained or broken; but the shoots of last summer will be better matured by remaining exposed away from the wall whilst the weather is not severe. *Kitchen Garden.*—Collect all decaying leaves wherever they appear, and carry them to the manure-heap. Stir the surface between the rows of Cabbages and other winter crops where it is practicable. Plant early Potatoes in warm borders; any of those diseased that are vegetating, should either be planted where they can be protected from frost if they should appear above ground before winter; or they may be placed nearly close to each other, within a frame, covered with soil to the depth of six inches, and transplanted in spring.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Persevere in forwarding the planting of deciduous trees during favourable weather. Fell timber and thin coppice woods. Make and repair deciduous hedges. Commence the improvement of park scenery by planting groups of trees, taking care that the foliage of each group harmonize and form agreeable contrasts. *Nursery.*—Continue to gather tree seeds and cones, examine those already gathered, and take care that all are thoroughly dry before they are stored by for winter. Attend as before to the careful lifting of trees for planting. Deciduous seedlings may now be removed to rows. Dig between the rows of plants intended to be removed in another season. Dig, trench, &c. as before.—*F.*

State of the Weather near London, for the week ending Nov. 13, 1845, as observed at the Horticultural Garden, Chiswick.

Nov.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	7	7	29.916	29.433	57	49	53.0	S.	.03
Sat.	8	8	29.451	29.335	60	40	50.0	S.	.01
Sun.	9	9	29.516	29.478	58	38	48.0	N.	.03
Mon.	10	10	29.387	29.340	54	35	44.5	S.	.04
Tues.	11	11	29.295	29.185	49	42	45.5	E.	.13
Wed.	12	12	29.652	29.460	52	26	39.0	S.W.	.01
Thurs.	13	13	29.945	29.725	50	32	41.0	N.	
Average			29.588	29.427	54.3	37.4	45.8		.28

Nov. 7—Clear and fine; cloudy; rain
8—Cloudy; overcast; densely clouded at night
9—Fine; very fine; slight rain
10—Very fine; heavy clouds and showers; partially clouded and fine at night
11—Hazy; rain; drizzly throughout
12—Faintly overcast; very fine; clear at night; slight frost
13—Hazy; very fine throughout.
Mean temperature of the week 2 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Nov. 22, 1845.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 16	48.7	34.4	41.6	7	0.41 in.	3	3	1	1	3	5	2	1
Mon. 17	49.5	35.7	42.6	8	0.40	2	4	1	1	5	4	1	1
Tues. 18	48.1	33.9	41.0	12	0.41	—	4	1	1	2	5	3	3
Wed. 19	48.1	35.8	41.9	11	0.87	1	3	2	2	2	6	2	1
Thur. 20	48.4	35.8	42.2	5	0.18	—	5	1	—	4	1	6	2
Fri. 21	49.6	40.4	45.0	12	0.35	3	3	3	2	1	2	4	1
Sat. 22	49.2	36.6	42.9	13	0.62	2	2	4	1	2	5	2	1

The highest temperature during the above period occurred on the 21st, 1833, and 17th, 1844—therm 59°; and the lowest on the 16th, 1841—therm. 15°.

Notices to Correspondents.

Back Numbers of the Gardeners' Chronicle—The Volume for 1844 can be had, bound in cloth, price 1*l.* 10*s.* The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are required, will have them sent free by post.

1841—1, 6, 8, 11, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 35, 40, 46, 47, 48, 49.

1842—4, 6, 8, 11, 12, 16, 18, 23, 24, 25, 27, 29, 30, 31, 32, 33, 34, 35, 42, 50, 51, 52, 53.

1843—10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 40, 41, 42, 43, 48.

1844—All but No. 50.

Books—*Sg*—Lowes' "Flora Maderensis," if you can get it. But it is technical. There is no other work.——*S H N*—Roberts on "The Vine."

Borders—*An Old Friend*—In soils wet and heavy the reverse of yours, brick-dust and lime rubbish would prove very beneficial. You may, however, use it with advantage in light soil if you afford plenty of water in dry weather.‖

Camellias—*Enquirer*—Several reasons may be assigned for these dropping their flower-buds, but most frequently this arises from too many being allowed to remain on the plants. It is nothing uncommon to see three or four buds in a cluster, which, if allowed to remain, will in all probability drop off; and should one or two continue, the blooms may not be much more than half the usual size; only one bud should be left, the others should be picked off, when about the size of Peas. This not only secures a perfect flower, but strengthens the plant for another year. Do not water Camellias except when the soil is dry, nor over head in cloudy weather, as this endangers the buds damping off. After flowering the plants should be repotted in a compost of three parts peat, the other sandy loam. When a little established, air should be given every fine day, and a sprinkling of water every morning before the sun is powerful enough to scorch their leaves.§

Chrysanthemums—*A Subscriber*—Procure the following sorts: Victory and Defiance, white; Celestial, blush; Aristides, orange and buff; Yellow David; Adventurer and Conductor, lilac; Louis Philippe and General Laborde, brownish purple; Campestroni, Annie Jane, brownish red; and Bertram rosy purple.*

Climbers—*Querist*—Hardenbergia monophylla will suit your purpose. Plant it inside the house.§

Fruit-walls—*Philedius*—As you intend to cover your wall for Peaches and Nectarines with glass, you cannot do better than place the glass as near the face of the wall as you can, leaving room for a man inside to dress the trees, say 3 feet. Were you to place it so as to form a plane to which the sun's rays would be perpendicular in September, the lower part of the trees would be too far from the light.‖

Fuchsias—*A B*—Venus victrix is a tender variety, which, to grow a good specimen, requires to be kept in a stove during the early part of the season.§

Gardeners—*J P*—The lowest wages that ought to be given for such a gardener as you describe are 42*l.* a year, with board, or with a cottage and board wages.

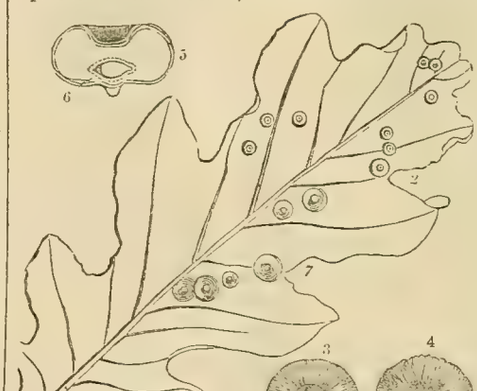
Grapes—*Mrs Nightingale*—For a late Vinery, Black and White Frontignans, White Muscat of Alexandria, Black Lombardy, or Oldaker's St. Peters. They may be planted now. Plants two years old; but whether younger or older, prefer those that have been raised from single eyes.‡

Greenhouses—*Adolphus*—Use wood. Buy the foreign glass where it is advertised. Large squares; *i. e.* 9 by 24, or some such size, look best and are best.

Heating—*X Y Z*—We are not sure that we understand your plan. Flues cannot be used for giving bottom-heat. If you are under the necessity of employing one you must arrest its drying quality by means of plenty of moisture in the air, or your Melons will be destroyed by red spider. We do not see what the pipe is to do; with a flue you will have plenty of heat; it will be vapour that you will want, and a pipe cannot give that. The surface of the boiler would probably be sufficient in so small as a place.——*J S H*—We have made inquiry about Polmaise heating, and will report in due time.——*Mede* asks if anybody has tried one of Deane's suspension stoves in a sitting-room, and will communicate whether it will heat a room 11 ft. by 11 ft. thoroughly, and without any smell of coke being perceptible? They will confer a very great favour upon one who has a very small income and a head so susceptible that it cannot bear the least effluvia.——*Zeta*—Pull down your flues and put up iron tank-pipes in their place. Flues should never be used if they can be avoided.——*Anon*—For a compartment 9 ft. by 6, instead of either of the modes you mention the expense will be better laid out in fitting up a very small boiler and pipe.‖——*C D*—The gutters must be placed under the bed, and the pipes must be carried in a convenient place on the same or a lower level, to heat the atmosphere of the house. *R G.*——*Querist*—Stoves in greenhouses are objectionable. The cheapest way in the end is to heat your house by means of hot water in iron pipes.

Hibiscus Manihot—*A B*—This is a stove plant, which will grow freely in almost any sort of soil. During summer an ample supply of water should be given, and a slight shade in sunny weather. In autumn it should be cut down to about a foot above the soil; this will induce it to form a bush, otherwise it will soon become unsightly.§

Insects—*D Judd*—Your Achimenes appear to have suffered either from the Thrips or Aphides; for the former it is best to sprinkle flower of sulphur on the flues, and the latter may be expelled by fumigating with Tobacco. We did not receive the Melon leaves, if you found no answer given to your inquiries. *R.*——*C M*—The black spots are not the pupæ of the Cecidomyiæ, but abortive seed-vessels. *R.*——*M W K*—It is a beetle named Anobium, which is destroying your woodwork. You must remove every inch of the worm-eaten portions, and substitute sound Oak, Norway Fir, or Kyanised timber. Paint the inside of the rafters, and every part with good oil colour, and the exposed parts may be painted with gas-tar; without these precautions the whole will crumble to pieces. *R.*——*H G*—The leaf you have sent is covered with Oak spangles, which are represented by the accompanying woodcut. Their history has been given at p. 52 of our volume for 1843.‡



Kennedya rubicunda—*A B*—This is a greenhouse twiner, which may be potted in rough sandy peat, but being a plant of free growth it will succeed better where it can be put out in a conservatory border.§

Labels—We have received from Messrs. Minton and Co. some earthenware labels having the names of plants burnt in upon them. We cannot, however, imagine that they will supersede the use of wooden labels, for many reasons, and especially on account of their brittleness. A large quantity of earthenware labels, prepared in a similar manner, was brought into the market some years ago, but they were eventually thrown away as useless.

Names of Fruits—*R A A*—1, Beurré Diel; 3, Gansel's Bergamot; 4, Bezi de la Motte; 5, White Doyenné; 6, Crassane; 7, Brown Beurré; 8, Napoleon; 9, Forelle; 10, Chaumontel; 11, Colmar; 12, Winter Nelis; 13, Beurré Bosc; 14, Marie Louise; 16, Beurré de Capiaumont. 1, Kirke's Lord Nelson; 2, Alexander; 3, 4, 20, 22, Ribston Pippin; 7, Hawthornden; 8, Kerry Pippin; 9, King of the Pippins; 11, Golden Reinette; 13, Cornish Gilliflower; 14, Norfolk Beaufin; 15, Golden Pippin; 16, Hughes's Golden Pippin; 19, Golden Russet; 21, Court-pendu Plat; 25, Northern Greening; 26, Reinette du Canada. Thanks for the * * * ‖——*Constant R*—1, Gansel's Bergamot; 2, 3, Old Colmar; 4, Easter Beurré; 6, Brown Beurré; 8, White Doyenné; 9, Autumn Bergamot; 10, Catillac. 1, Kentish Fill-basket; 3, Lemon Pippin; 6, Margil; 8, Nonpareil; 9, London Pippin; 10, Wyker Pippin‖. *W C*—Brown Beurré: 2, Christie's Pippin; 3, Margil.‖——*G M*—Your Pear is not superior to the Gansel's Bergamot, obtained from a standard. If you examine the tree and find small heart-shaped leaves near the spurs, such as are not to be found on any other tree, you may rest assured the fruit in question is the Gansel's Bergamot ‖——*F Darby*—Bedfordshire Foundling.‖——*S R*—1, Aston Town; 2, Napoleon; 3, Duchesse d'Angoulême; 4, Syke-house Russet; 6, Beauty of Kent; 7, Braddick's Nonpareil; 9, Stagg's Nonpareil; 10, Powell's Russet; 11, Beachamwell; 12, King of the Pippins; 14, Winter Queening. ‖——*A J W*—1, Marie Louise; 2, Wheeler's Russet; 3, Royal Russet; 4, Blenheim Pippin; 5, Hughes's Golden Pippin; 7, Gansel's Bergamot; 10, Bezi Vaet; 11, Bishop's Thumb; 12, Winter Nelis.‖——*J Christie*—1, St. Germain; 2, Verte Longue; 3, D'Angec.‖——*B D, Greys*—The Alexander ‖——*A B H*—Brunswick Fig.‖——*Shrewsbury*—Those at present ascertained are—No. 3, Minchall Crabb; 6, Beauty of Kent; 8, a Redstreak; 12, London Pippin; 13, Norfolk Beaufin; 17, appears to be the Wormsley Pippin; 18, Reinette du Canada; 20, Lemon Pippin; 21, Yorkshire Greening; 23 (worthless); 24, Yellow Ingestrie. The Peach you have under the name of Late Admirable must be false, the leaves being serrated and glandless.‖——*Dublin*—1, Wormsley Pippin; 2, 5, Yorkshire Greening; 3, Beauty of Kent; 4, King of the Pippins; 6 (worthless); 7, Hughes's Golden Pippin.‖——*A H*—Your Pear is not the true Knight's Monarch.‖——*R S Yates*—1, Resembles Sucré Vert; 2, White Doyenné ‖——*W Scott*—1, Hughes's Golden Pippin; 2, Hawthornden; 3, 7, Stagg's Nonpareil, or Hicks's Fancy; 4, Blenheim Pippin; 8, King of the Pippins; 9, 10, Golden Reinette.‖

Names of Plants—*W C*—1, Bruised to pieces; 2, Hippeastrum calyptratum.——*A Subscriber*—A Solanum of some kind.——*A W*—Your Australian plant is a Hibiscus of some kind; but the specimen is not sufficient to enable us to determine the species.——*Anna*—As far as we remember your Tagetes was the tenuifolia of Humboldt; but we always throw such things away, and have no distinct recollection of your plant. Nothing can be yet settled about the price of "The Vegetable Kingdom."——*A B D*—Oncidium ciliatum.——*Constant Reader*—Bifrenaria aurantiaca.——*Tin-tube*—512 G, Oncidium sanguineum; 6134 B, Epidendrum diffusum; two others without flowers indeterminable.——*Micklewell*—Apparently some Brunsvigia.——*Brailsford*—Erica hiemalis.

Plantations—*A Constant Reader*—Nothing has been published by Dr. Thackeray that we know of, except various instructive letters in our own columns. Make Vine-borders whenever it is most convenient to do so, choosing dry weather for the operation.

Potatoes—*Xy*—You are right. The quantity of Potato-apples has been very small this year, as was to have been expected from the season.——*An Irish Subscriber*—It is impossible to raise Potatoes from seed (that is the seed of their berries), so as to furnish any crop in the first year. Those who say so cannot have tried the experiment. We do not mean to say that in a garden, with extraordinary and daily care, hotbeds, skill, and manure, such a result cannot be obtained; but as a general operation, to be practised on a large scale, the idea is absurd. Besides, where is the Potato-seed now to be had?——*J P, Rural Chemistry, and others*—As to using diseased Potatoes for seed, we refer you to the Report of the Irish Commissioners, printed in another column.—*J R C*—We do not think the Peruvian plan of freezing Potatoes and then drying them, at all applicable to this country. In so extremely dry a climate as Peru, the operation may be performed; but here the Potatoes would either rot, or the cost of drying them artificially would exceed their value.——If one of our *Earliest Subscribers* will turn to the Report of the Irish Commissioners, published in to-day's Paper, he will see their views as to the expediency of planting diseased Potatoes. As to Vines you cannot do better than follow Mr. Roberts's advice, for he is an excellent gardener, and his Grapes are, or were, magnificent; we see no objection to the place of your pots; only take care they do not become too dry. We will answer your question about Brazilian seeds with pleasure, if you send up the list.——*Cambrensis*—Half-boiling Potatoes, in a diseased state, tends to advance, and not check the progress of the mischief. This has been ascertained by the Royal Agricultural Society of Ireland.——Many correspondents have favoured us with printed plans for managing Potatoes and making starch; but as they are all repetitions of directions long since published in these columns, it is not desirable to print them. The method circulated by Mr. G. Moses is needlessly troublesome. It is a mere waste of time to wash the pulp five or six times; twice is often enough.

Pine-Apples—*M G*—You shall be answered in the notice of Mr. Hamilton's new edition, concerning which we shall have a word to say presently.

Raphanus—*Mag*—Thanks for your recollection of our request.

Rothwell—We fear that we do not understand the wishes of your friends, for since your last kind hint we have taken means to supply the want, and we had hoped effectually. As it is, we must abandon the attempt, for it is clear we do not know what is desired. Are not the Amateur Gardener, the papers on Forcing Flowers, Winter Flowers, Hyacinths, Tulips, &c. what you asked for?

Salt—*E*—The salt ignorantly strewed on your Vine-border having already destroyed your youngest Vines, your old plants must be in danger. Sulphuric acid will decompose common salt, and form sulphate of soda; but this may prove injurious. Your best plan will be to remove all the soil you can; add a little fresh mould merely to cover the roots, and then water repeatedly, in order to wash down or sufficiently dilute any salt that may remain. Make up with fresh soil.‖

Seeds—*Mrs. Roderick H*—The following have been raised:—2, Species unknown, handsome flower; 3, A species of Indigo, very beautiful, pink and blue flowered; an Acacia like heterophylla; 1, Melaleuca sp.; a Leguminous plant; a Myoporum; Brachycome cuneata; and Lotus albida. Some others were very hard, and may yet germinate.

Strawberries.—The produce from Strawberry plants commenced to be forced now must be very uncertain, except as regards the Alpines. The beginning of next month is early enough to commence.‖

Tropæolum Jarratti—*A B*—This is a greenhouse plant, which requires a trellis to support its stems. The soil should consist of two-thirds sandy peat, the other light fibrous loam. An ample supply of water should be given during the growing season.§

Variegated Plants—*A B*—Try the following:—Pittosporum Tobira variegatum, Variegated Orange, Nerium oleander variegatum, Coronilla glauca variegata, Clethra arborea variegata, Variegated Italian Myrtle, Daphne odorata variegata, Sempervivum arboreum variegatum, Euonymus Japonicus variegatus; also some of the variegated Aloes and Pelargoniums.¶

Misc.—*Arbor*—The granulations on the Ash are well known; they are of the nature of galls, and are ascribed to insects.——*** —The Auricula is found wild in a variety of situations, but always at a considerable elevation above the sea. Among rocks seems to be its favourite habitat; but it also occurs in elevated plains.——*E T W*—None of the salts will permanently keep weeds from growing in gravel walks. If you wish to try sulphate of iron, or sulphate of copper, which is better, dissolve them in water at the rate of 1 lb. to 1 gallon. You must procure them of the wholesale chemists, drysalters, or manure dealers.——*A Young Gardener*—You may make a dry floor with concrete—a mixture of hot lime, gravel, or coarse sand, and water. When nearly dry wash it over with Roman cement.‖——*A S Y*—Asphalte walks are excellent things in gardens.——*Lancaster*—If the wood of Vines is sufficiently ripened it will take no harm from exposure in winter.‖——*An Old Subscriber*—Shift your Orange trees early in spring, and then treat them as you propose.‖——*Hill-side*—You can have the Nos. Send your address, with postage stamps. Any bookseller will get your volume bound.

SEEDLING FLOWERS.

Cinerarias—*D M E*—Your seedlings are good in colour, but the petals are too narrow and flimsy.*

Fuchsia—*C B Y*—Your seedling is a showy flower, of a good size; if the bloom sent was a fresh one, you overrate the colours, as the tube and sepals are not so pure as some we have seen. The corolla is good, and altogether it is a showy and desirable flower.*

Pansies—*J H*—Your seedling (yellow self) is a very good exhibition flower; the eye is remarkably dark and fine, the side and bottom petals are also good in form and colour. The defect in the flower consists in the top petals not being equal to the others; they appear to want substance, and are rather paler in colour.*——*G F*—Unless your flower, named Eliza, comes larger, it will be useless for showing; it is below the average size.*

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.
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The Agricultural Gazette.

SATURDAY, NOVEMBER 15, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, Nov. 19—Agricultural Society of England.
THURSDAY, — 20—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 26—Agricultural Society of England.
THURSDAY, — 27—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.
Nov. 17—Collumpton | Nov. 25—Bromsgrove

WHY does the investment of additional capital in the cultivation of the land proceed so slowly?

Is there not room for it? Has our farming already attained such excellence that any farther outlay upon it, any farther employment of labour, would prove unproductive? Is this the case in Ireland? Look at the picture which the *Times* "Commissioner" gives us of farming there. Is it so in England? What is the lesson taught us by the millions of its uncultivated cultivable acres—by the large proportion of its pasture-lands which are almost as nearly in a state of nature—by the half cultivation which most of its arable acres receive? And, what is the case in Scotland, where the farmer is generally supposed to have more carefully availed himself of his resources? Why, Mr. PUSEY, a competent authority, says, of large districts there, that he cannot place their cultivation on a level with that of Berkshire or North Devon. There is *abundance* of room for the profitable employment of more capital in our farming—no one can deny this.*

Why, then, did not those who till lately have been unable to find investment for their unengaged capital, come forward to the assistance of the farmer?

Is the market for his produce overstocked? On the contrary, how are we to account for the constant semi-starvation of multitudes of our fellow-countrymen, or for the frequently-recurring periods of *general* scarcity like that which now threatens us, except by the fact that our rapidly-increasing population is hard-pressing upon the too-*slowly* retiring barrier of a limited production. In its present state of cultivation there is no want of mouths to consume the maximum produce of the land. There are millions in the country who ought to be better fed than they are, and the number is receiving an annual increase of hundreds of thousands. The market for agricultural produce is *not* overstocked—no one can affirm this. Why, then, we repeat, does not some of the unemployed capital of the country find an investment in the cultivation of the land?

The reason is simply this; and we cannot see how any one can avoid it. No capitalist, whether he be a mere fund-holder or a farmer, will lend or invest money except upon adequate security—the former requires from the landed proprietor security in the rental of the estate, for the improvement of which his assistance is needed, and this the landowner, it may be, cannot give him, for the estate is entailed—the latter requires a hold for a sufficient term of years not upon the *profits* only (for *he* is not a mere sleeping partner) but upon the *gross produce* of the business—he requires, in fact, a lease of the lands he is to occupy, and this the landlord declines to offer him. But what a mistaken policy this unquestionably is! What party would remain unbenefited by the adoption of a system which would encourage the investment of capital in the land? Certainly not the proprietor of the very land on which the investment would take place—*he* would be among the first to acknowledge the increased value of his property. Obviously not the occupier of the land, who has invested his capital—profits of farming are greater in proportion to the capital employed, up, at any rate, to a much higher acreable outlay than that which at present is the average obtains. Manifestly not the labourers to be employed in the higher cultivation which would follow; and, unquestionably, not the nation to be fed on the abundance which would result.

We are happy to perceive from the speeches which during the past few weeks have been delivered at the anniversary meetings of our agricultural societies, that all this is now generally acknowledged. There is only one point which we have seen broached, on which we would make a remark. It has been argued that a full acknowledgment and valuation of what are termed "tenants' rights" is all that can be claimed. Now, we apprehend the proper question for discussion is not what can be *claimed*, but what arrangement it is most for the advantage of the parties concerned to adopt. And independently of the difficulty connected with the accurate valuation of "tenants' rights," we think it can be shown that a lease of the land for a term of years, is not only far more likely to induce its higher cultivation, which is what the landowner should aim at, but it is also a far more simple and, to the proprietor, a less vexatious arrangement than that which binds him down, on the dismissal or the departure of a tenant, to the payment of fractions of the various sums which may have been invested—fractions dependant for their amount on the nature and the period of the investment. This is well illustrated in a valuable paper on this subject by "A Looker on," which we published some weeks ago. He says:—"It seems evidently impracticable to admit farmers to lay out what money they please in lime, dung, bones, rape-dust, marl, oilcake, &c., and, on quitting of their own accord, to claim repayment from the landlord for the cost and carriage of any had as far back as four, five, or seven years; and on draining for 14 years; for, if so, what landlord could calculate or meet his expences? What are termed running or unsettled accounts are always held in abhorrence by men of prudence in whatever profession; therefore, if a tenant is possessed of sufficient capital, and is willing to lay it out, a lease with proper covenants is, for both parties, a far preferable mode of arrangement;" and, which is the most important aspect of the question, it will, we are sure, prove a far more efficient inducement to high cultivation. Tenancy, depending for its period upon the will of the landowner, however it may be cloaked over by arrangements for the security of "tenants' rights," can never be so acceptable to an intelligent man of capital—and *he* is the tenant to be desired—as when it is simply secured to him for a period of years by a legal instrument. The farmer wants a *home*, as well as mere security for his money.

Nevertheless, a system for securing the tenants' rights is a very useful, and, indeed, a necessary *adjunct* to the lease. The object of the lease should be to secure the property of the landowner, as well as that of the tenant; and this, as it is drawing to a close, it is unable to do. No written stipulations will prove a security against a tenant who is disposed or determined to impoverish the land, and therefore it is desirable to adopt some arrangement which shall make it the tenant's interest to farm highly *throughout* the period of his lease. As the matter at present stands, land is often entered upon "out of condition;" a period of five years elapses during which the tenant is repairing it; for the next ten he reaps the fruits of good farming, and then, from a regard to his own interests, he proceeds to diminish his expenses, and ultimately he leaves the farm as he found it. During one-half only of the lease is the land farmed as it ought to be, and the result to all parties concerned is as if only one-half of the district were properly cultivated. How much better it would be if the tenant, entering upon the farm in good condition, should find it to be his interest to cultivate it highly *throughout* his tenancy! And it can be made his interest to do so, either by an arrangement with him, entered upon before the expiry of his lease, for a re-occupancy of the farm, or, which is the least likely to fail, by offering such a security for the "tenant's rights" as shall make it as much his interest highly to manure, and thoroughly to cultivate, his last year's green crops, as it was his interest to farm well those of any preceding year. This will be effected by an arrangement for paying him such a portion of the expense of that crop as may reasonably be supposed to remain unexhausted for the benefit of the in-coming tenant's first grain crop, and by paying him the full value of all straw and manure he may leave behind him.

We shall take an early opportunity of returning to this subject; let us just say, in conclusion, that "the agricultural interest" can only then be said to have done its utmost for the welfare of the nation—and, of course, the interests of the two are identical—when the land shall have been thoroughly farmed by intelligent men of capital. Landowners will be benefited by having such tenants upon almost any terms, excepting, of course, such as would involve a sacrifice of the annual value of their property; but they may rest assured that such tenants will never offer themselves, except where they can have free scope for the exercise of their intelligence, and perfect security for their property.

* a detailed statement on this head, see Art. iv. in the "British Review," No. V. Hamilton, Adams, and Co.

THE PHILOSOPHY OF STALL FEEDING.

A FARM, upon which the alternate system of husbandry is established, and where the production of grain and green crops is associated with the fattening of live stock, may be regarded as a manufactory, where the raw materials of bread stuffs are prepared for those whose business embraces the conversion of such commodities into articles of human sustenance, plants being the machines by which the raw materials are elaborated. Further, the live stock on such a farm may likewise be regarded as machines to convert the raw materials of green crops into flesh and dairy produce, and to act in combination with the natural agents of decay in the preparation of the food of plants. But, although the plants and animals on such a farm may be regarded in some measure as a species of mechanism employed by the farmer for the purposes just referred to, they cannot be regarded as machines in the same light in which we regard the loom and steam engine. For while the latter are completely dependant for their power and their utility on human caprice and human ingenuity, plants and animals, while owning a certain subserviency to the power of man, yet manifest properties and dispositions which can never be wholly controlled by human power, and which appear to me to render it imperative on man to adopt a system of management in conformity with them if he would reap the sum of those varied advantages, which, under judicious treatment, they are fitted to confer. In our cultivation of plants we are in general more careful to act in conformity with their natural habits than we are, in our treatment of live stock, to subject them to a regimen in unison with their natural instincts and dispositions. For I conceive that in placing Turnips and Barley on soils of lighter constitution, and devoting the stiffer soils to the production of Wheat and the Bean, we simply place such plants in situations in which experience has shown us they are fitted to succeed, and so far comply with their natural habits; and success, in consequence, attends the practice. But while we are thus careful to adapt our plants to soils to which they are naturally suited, I am not aware that we are equally careful to subject our live stock to a species of management equally in consonance with their nature and habits. With respect to animals, indeed, this is a matter of greater difficulty, because they exhibit a constitution widely different from that of plants; and, besides, manifest certain mental qualities which plants do not. But although the present methods of treating fattening animals more particularly are certainly not in conformity with their whole nature, it will suffice for purposes of illustration, and enable us to attain to clearer views on this subject, if I take a brief review of the more prominent instincts of our domestic animals, and thence endeavour to deduce a system of management which will more closely conform to their natural qualities; for such a system, it seems reasonable to conclude, will best secure the object the farmer has in view in his husbandry of the domestic animals.

The first thing which strikes an observer who studies the habits of ruminating animals, is their social disposition. The gregarious instinct which Nature has implanted in their mental constitution is seen everywhere operating alike in the herds of civilised communities and in the countless, uncared-for flocks, which roam the boundless prairies of "the far west." This sociality of ruminating animals is generally strongly manifested, and the gratification of the faculty appears indispensible to the happiness and mental quietude of the animal, and its gratification, in so far as an artificial system of management will admit of it, and in so far as it can be done consistently with other objects, becomes a matter deserving of the serious attention of the farmer. But in speculating upon a system of management which will be in conformity with their whole nature, their *combative* disposition likewise calls for consideration. It is well known that herbivorous animals, although not endowed with a propensity leading them to kill that they may eat, are yet embued with a disposition leading them to attack, and when attacked to resist aggression; and this faculty is frequently so prominent in the character of particular animals as to impel them to a perverse interference with their fellows, and hence it becomes requisite for the farmer to adopt such a system of management as will in some measure check its injurious exercise. In addition to these instinctive characteristics of our domestic animals, their positive requirement of air and exercise to maintain their health, must likewise be considered in framing a system of management to accord with them—a system which while essentially artificial, ought for obvious reasons to approximate as closely to a natural one as circumstances will allow.

Those mental and physiological features in the character of our domestic animals, above enumerated, appear to me to be those which more particularly claim the farmer's attention in framing a system of management for his fatting live stock; and whoever considers the usual regimen to which fatting animals are subjected in the various districts of the country, will at once perceive that these various characteristics are but partially complied with, and hence, as it appears to me, it is but partially successful in securing the object aimed at by the farmer, namely, the production of the greatest amount of animal products from a given amount of vegetable food. But before I proceed to point out a system of management which will better accord with the animal constitution, bodily and mental, than those generally followed, I shall briefly inquire in how far

present systems accord with it, and in how far they are fitted to secure the object at which the farmer aims.

The methods of feeding the larger ruminating animals in general use at present, are either in open yards provided with shelter shades, or in close houses, in which the animals are bound to upright posts, and there closely confined from the time they are put to feed until they are fit for the shambles. The former of these systems is that which universally obtains in the northern parts of this country; while the latter system is generally pursued in the southern districts of the island. Now, if I am correct in laying it down as a principle of the highest practical importance in the fatting management of the larger ruminating animals; that their instinctive tendencies and healthful requirements ought to be attended to in that system of treatment to which they are subjected while undergoing final preparation for the shambles, it will appear, that the system of feeding first referred to, namely, that of open yards provided with shelter shades, is that which will the more closely embrace this principle, while the other system of feeding in close houses almost totally excludes it. For when the animals are confined in courts in numbers together, their social or gregarious instinct receives gratification; and possessing unrestricted access to unvitiated air, and the enjoyment of moderate exercise, their organic system is maintained in health, and the feet and limbs of the animals, being kept by moderate exercise in good condition, they are enabled with comparative impunity to undergo the fatigue of subsequent travel—a matter of very great importance in a practical point of view. Under the other system of feeding, namely, in close houses, the social disposition may receive gratification, but being cut off from the essential requisites of animal health, free air, and exercise, this system is not so well calculated to secure the general welfare of the animals.

From this brief and cursory review of these two systems of stall feeding, I am disposed to accord the preference to that of open courts, as more fully embracing the principle in fatting management, which I hold to be of essential importance, namely, the gratification of the instinctive tendencies of the animal and compliance with the various requirements as to health, and by consequence the greater success of the animals; and a modification of the system of stall feeding in open courts, as at present practised, I regard as the best fitted to secure these objects. I have said a modification of the system of open court feeding as at present practised, because it unfortunately happens that this system, as pursued at present even in those districts of the country acknowledged to have attained the highest existing degree of agricultural advancement, is far from being perfect, and can only be regarded as partially securing the objects at which it aims. The chief cause of this defect arises from having the courts too large, and from confining too many animals in courts of this description. I have already in speaking of the instinctive tendencies of ruminating animals, referred to their combative disposition, and when a considerable number of these are confined together in a limited area, this faculty is frequently injuriously exercised, a few of the larger and stronger animals usually obtaining the mastery, and by exercising a tyrannical sway over their weaker fellows, prevent a uniform fatting progress being made by the whole. And further, the system of open court feeding as at present practised, is objectionable from the size and general arrangement of the yards affording but little warmth and shelter from inclement weather; thus militating against another generally recognised principle in feeding, which teaches us to regard warmth as of essential importance to a feeding animal. Now, I conceive that if the system of feeding in open courts provided with shelter shades, could be so modified, as to preclude the injurious exercise of the combative tendency of the animals, and at the same time to secure to them a proper degree of warmth and shelter, it would —all circumstances considered—form the best system of stall-feeding with which we are yet acquainted. Now, such a modification of the open court system as will embrace these objects, may be simply attained by diminishing the size of the yards to an extent sufficient to accommodate comfortably two, or at most, three animals, and by so arranging the yards as to expose them freely to the influence of the sun, and by making the boundary walls of dimensions such as would fit them to afford sufficient shelter, the essential requisites of a proper system of stall-feeding, according to principles before explained, would thus be complied with; for, in yards so constructed, the gregarious tendency of the animals would be gratified, while having access to free and unvitiated air, and the enjoyment of moderate exercise, they would be placed in circumstances favourable to the maintenance of animal health, and the proper condition of their feet and limbs, and by attention on the farmer's part, to separate the weak from the strong, and to assort them, in some degree, according to their strength, the combative disposition would be held in check, and thus an arrangement of the animals would be effected, calculated to secure their health and regular fatting progress, and the green crops of the farmer would be made to yield their maximum amount of animal products.

Having thus arrived at the conclusion that the system of stall-feeding in open courts, of moderate dimensions, provided with shelter shades, is the best with which we are yet acquainted, I shall proceed to point out a few particulars to be kept in view in the construction of such courts, for the guidance of those who may think well of the system as above recommended and described.

The size of the courts and shelter shades is the first thing requiring consideration, and this should not exceed what will comfortably accommodate two, or at most three animals, and a space having a superficies of 120 square yards, one third of which, or 40 square yards, may be covered as a shelter shade, will suffice for this purpose; and as the warmth and comfort of the animals is of much importance, such courts should invariably open to the south. When a number of courts are grouped together, which may be done both for convenience in feeding and economy of space, the boundary walls separating the courts should always be of such a height as not only to afford sufficient shelter, but to cut off the animals in adjoining yards from all communication with each other, and from all disturbing causes whatever of an external nature; for it is to be observed that although the gratification of the social habit is to be attended to, to conduce to the happiness and quietude of the animal, the ulterior objects of feeding are not to be sacrificed to it, but while the objects of the gregarious instinct are provided for by the confinement of a plurality of animals in the same court, the further gratification of the faculty to the neglect of regular feeding and repose, is to be guarded against as an evil of the first magnitude. To economise time and labour in feeding, an open space should be left in the wall at one end, or near the centre of the feeding trough, so that the food of the animals may be introduced from without, without the necessity of entering the court, and which space may be closed in the intervals of feeding by a hinged board. The position of the feeding-trough should be by the side wall of the court, so that the food of the animals, supposing it to consist of succulent roots, may be kept fresh by exposure to the atmosphere. When the animals are fed on Turnips, these may either be sliced by a machine, and afterwards placed in the feeding trough, or they may be put in the first instance in the feeding trough, and there sliced by an instrument shaped somewhat like a spade. When cake or bruised grain is allowed in addition to Turnips, this should be given at regular times, and in order to secure their economical consumption in wet weather, should be given in a trough placed for this especial purpose under cover of the shelter shade. Yards of this kind should be kept comfortably dry, not only to secure comfort to the animals, but also to ensure good quality in the dung, which is always best made in dry yards. Whenever the litter becomes soiled by the animals, fresh straw is simply spread upon the surface, the manure being allowed to accumulate until its quantity is inconveniently large, when it is carried to the fields, and afterwards prepared for application to the soil.

By attention to the above simple series of particulars, it is conceived that the system of open court feeding will be rendered as perfect as an artificial system can well become, and secure to the farmer a greater degree of success in an important department of his business than he can be said to reap under present systems. And, in conclusion, I may be permitted to observe, that the inherent energies of the British farmer only require to be directed into the profitable paths of a sound scientific practice, to enable us to maintain our proud pre-eminence as the first agricultural nation of the earth.—*George Kirk, Land-steward to Thomas Alcock, Esq., of Kingswood, Surrey.*

ON DRAINING AND DRAIN TILES.

It is curious to notice the changes that are constantly taking place in the advice and practice of our most eminent men who have written or lectured on what is now the fashion to call thorough-draining, but which has been known many years ago in some localities in Worcestershire by the name of furrow-draining.

We first began under this system to put in the drains just out of the reach of the plough, the poaching of horses, or the sinking of wheels, that the water might reach them the quicker, and have a better fall; since that time we have been gradually descending into the earth, and if we continue to go on "deeper and deeper still," we shall soon, like the railway schemes, come to an amalgamation with our neighbour Mr. Elkington. Indeed, I have lately, in the public prints, seen advice given to *bore* in the bottom of our drains; from this we may be led to expect, that in a short time it will become all "one concern."

Again, we were advised to put over our drains, which were to be large and capacious, whether made of tile, stone, or other material, so many inches of broken stones, thorns, straw, or stubble, to allow the water an easy passage to the drain; the raw subsoil, especially if it were clay, was to be carefully excluded in filling up, and none but the active soil used to cover the drain.

Following this advice, many thousand pounds have been uselessly thrown away, and the drainage in numberless instances is very imperfect. One gentleman, whose writings and opinions on agricultural subjects has done good service to the cause, has honourably and candidly told us that he expended some hundreds of pounds more on a small estate in draining than was necessary, but then he was trying a mode perfectly original, by putting the broken stones underneath, and the drain tile on the top.

Our latest advice is to put in (four feet deep), in any soil, the smallest tile we can get, with an aperture of one inch in diameter, or rather less than a copper half-penny, the subsoil is then to be put in, and if clay, so much the better, and the firmer it is rammed in and made solid, the more perfect will be the drainage. Here, then, we have extremes the very reverse of each other, and each in their turn have had their advocates, who would have felt displeased to have their judgments doubted; that this is the case at the present day in regard to nearly all the operations of agriculture, most of the publications on the subject will show, and none more so than the Journals of the Royal Agricultural Society.

It may, then, become a question with the young farmer or commercial gentleman who is anxious to embark his capital in scientific farming, and anticipate reaping golden harvests by adopting the best principles, which of these systems really is the best, and most likely to insure a safe return for the amount of capital employed. On this question experience tells us,—do not implicitly believe or follow extremes on either side, but judge for yourself by trying their systems on a small scale, and remember, side by side, on the different kinds of soil in your occupation, and do not despise the practice of the neighbourhood until you have *proved* it erroneous. It is too much the fashion for experimenters and writers on agriculture to give their opinions as though one system would suit all soils and situations; a greater mistake cannot be made; what would suit in one would be worthless in another, and *vice versa*; this applies not only to draining, but also to implements, and everything connected with the cultivation of the soil.

As regards putting in tiles 4 feet deep for surface drainage, if it does answer well in some instances, it is no proof that it would succeed in all. In some situations it would be impossible to get proper outfalls for that depth, and in others the expence would be very considerable. Now, we should commence our drainage with good outfalls, that the water from the mains may have a fall or drop of two or three inches into them, and go off briskly; if dead levels are brought up to the mouths of the mains, the water moves off sluggishly, and then unless constant care is taken to keep the watercourses scoured out, it will soon grow up with grass and weeds, and the drains will be stopped up and forgotten.

The evils of deep draining with dead levels I know to my cost. An estate which I am now occupying was drained more than 20 years since (before it came into my occupation) on Elkington's principle, at an immense expense; the drains were put in from 4 to 8 or 10 feet deep; in one or two instances springs were tapped by them, but in many others no water flowed, except what was brought into them by deep boring; for it was, perhaps, thought necessary for the satisfaction of the employer that some water should flow out of the mains, or the work would have been stopped. But the question arises, would that water which was bored for have reached or injured the surface? I think not; for the estate has required to be surface-drained, none of the former drains having taken off the surface water, and many are stopped up, and unknown, except to the person who executed the work. Had those drains been put in 3 feet deep, a good fall would have been obtained, and they would have drained the surface in addition to a spring or two.

If 3 feet of dry and porous soil and subsoil can be obtained by draining, that depth (and in some soils less may possibly do), we may be perfectly satisfied, is sufficient for any of our crops; therefore there appears no necessity for going deeper, except for the purpose of draining the pocket. I have some objections to make to the indiscriminate use of inch-pipe tiles, although I am quite ready to admit they have aperture sufficient to carry off the rain water from a certain amount of surface, which has been most satisfactorily proved by Mr. Parkes, consulting engineer to the Royal Agricultural Society, in his very able and scientific essay "On the Quantity of Rain Water, and its Discharge by Drains"—Society's Journal, vol. v. page 146; but having admitted this, the proper use of them, I shall now speak of the abuse of them. I know that many persons are now ordering inch-pipe tiles, only for draining the land, and consider any other sizes unnecessary, without taking note of the nature of the soil, the length of the drains, or the carelessness and ignorance of the workmen who may have to lay them. I have been using some quantity of tube or pipe-tiles for the last nine years (see an article "On Draining" in *Bell's Weekly Messenger*, May 23, 1836, signed R. S.); the sizes I have used varying from 2 to 2½ inches in the bore, and with these I have found it necessary to be extremely cautious and particular with the workmen to get perfect drains laid; what caution, then, will it require to lay the drains with 1-inch pipes; the least sinking, displacement, or carelessness, may cause the end of one tile to vary half an inch from the end of the next tile; this is but a trifle, but it is sufficient to stop the whole of the drains above; and supposing the drains 4 feet deep how difficult will it be to find the stoppage. A number of failures will be likely to arise from the cause above stated; but it may be answered, that it can be prevented by inserting each end of the tiles into a large one of an inch or more in length, thus forming a ring or union round the joinings: granted; but in this case the tiles will only have bearings at each end, of the rings, and if the soil or filling in bear very heavy on these thin, weak pipes, they are very liable to break through the middle, and thus get stopped.

Again, it was not the intention of the inventor of these small pipe-tiles (Mr. John Read, Regent Circus, Piccadilly) that these tiles were to be used alone. The object was to produce a cheaper tile, by being able to burn these pipes within the 2 or 2½-inch tubes; therefore requiring very little additional fuel, and also reducing the cost of carriage, as a larger number could be conveyed by the same means; but, at the same time

he intended to use the smallest pipes at the upper end of the fall, and to add other sizes (telescope fashion) as the drain increased in length, and required a larger aperture for the accumulated stream to flow off quickly. Using these small tiles under the superintendence of practical and scientific persons, such as Mr. Parkes or Mr. Read, will be found very different from putting them into the hands of persons of little experience in draining, and the failures must, as a consequence, be many.

From what has been stated, I infer that pipe-tiles of a larger interior diameter, say 2 or 2¼ inches, are more safe for general use, and not so liable to form imperfect drains as smaller ones, and should springs be met with, they become absolutely necessary.

I have another reason to urge in favour of larger tiles which has not yet, that I am aware of, been tested by scientific drainers, so as to determine if it has any value or not. This is, to admit a freer circulation of atmospheric air through the drains, and may be called subsoil ventilation. To produce the best effects from this system, I would recommend it to be done as follows:—Put 2 or 2¾-inch tubes in the parallel, or the frequent drains; then put at the top of the field, or fall, a cross-drain of the same size, communicating with each of the other drains; continue each end of this cross-drain to the ditch, bank, or hedge, out of the way of cultivation, leaving a hole or shaft open to be filled with pebble-stones, or some rubbish that would leave free admission for the air to circulate through; or iron grates might be fixed over the openings. This, then, would form an air-drain, which would convey a supply to all the other drains.

Now, it is well known that a tube of any length will allow its contents to flow much faster if the upper end is open, than if it is partially closed; and there are soils, under certain circumstances, that run so closely together on the surface as to prevent for a time the admission of air; therefore, the water in the subsoil and drains must be held in suspension until the surface becomes cracked by atmospheric changes, or is broken by agricultural operations.

Mr. Parkes, in his essay before quoted, truly observes that, "One of the most beneficial effects of drainage may be also safely presumed to arise from its facilitating the access and change of air to the very bottom of the bed; as, in proportion to the escape of water, so will be the entrance of air which will, *pari passu*, occupy the place vacated by the water."

If, then, the air is an agent so beneficial in pulverising and rendering the earth accessible to, and fit for the reception of other fertilising agents, why should we not admit it into the bottom of the bed, and make the drains answer a two-fold purpose, so that the drying and shrinking of the subsoil (whereby cracks and fissures are caused) may be accelerated, for, in many instances, it has been found that no beneficial change has taken place in land newly-drained for the first 12 months, but afterwards the good effect began to show itself: nor is it surprising; for, in some seasons, when neither heat nor cold, the natural agents of pulverisation, prevailed in the extreme, this miniature conduit, 3 or 4 feet deep in the earth, firmly covered up from the reach of atmospheric influences, could not be expected to cause a very rapid change in that large mass of earth.

After all I have said in favour of larger drain-tiles and subsoil ventilation, I shall again repeat my advice —"Try the system, side by side with the other, on a small scale." This can be done at a very trifling expense where draining is being executed. For instance, select 10 or 12 furrows, where the outlets can empty into a ditch; that the mouths of the drains may be open, place in the two first drains, 1 yard in depth, pipes of 2 or 2¼-inch bore, then put in the next two drains 1-inch pipes, the same depth, and so on alternately. The larger drains should be carried at the upper end 1 or 2 feet longer than the others, that the cross or air-drain may communicate with the larger ones only; the cross-drain to be made as before directed. The emptying of all those drains are then to be carefully marked in heavy rains and stormy weather as to the beginning, duration, and quantity discharged from each; at the end of the first year a trench, 2 feet wide, should be cut across (at right angles) the middle of the drainage down to the tiles; in cutting this opening it must be observed what alteration has taken place in the subsoil between the larger or smaller drains. If the combined results are in favour of the 1-inch pipes, do not hesitate to adopt them, with care, as the cheapest. If, in favour of the larger ones, with ventilation, use no others, as cheapness is not always economy.—*Richard Smith, Worcestershire.*

ON DIBBLING GRAIN.

From several papers in the *Agricultural Gazette* it appears that in dibbling corn by the holders of allotments, they are in the habit of dropping several grains in a hole, and that they cannot be prevailed on to trust to one or two. As this practice is considered not only wasteful, but also injurious, and as truth is to be found only by numerous experiments, and established by many witnesses, I have during the past summer sowed from one seed to eight in a place, seven times over, and I now give the results, and that they may be the more relied on, I would state that every part of the experiments were performed with my own hands, and that I can have no object in misleading. I would also press the subject more earnestly on the attention, as I am assured every humane and every poor man must desire, in the threatened famine in Ireland and the high price it will cause in provisions in England, to save as much as possible all needless consumption of articles of food.

I drew a drill at 21 inches distance from other drills, with a garden-hoe, about 1½ inch deep, and sowed in it at 4 inches apart seven grains singly. Again, at the same distances two grains dropped close together seven times; then three grains in the same manner, and so on to eight seeds dropped close together. This was in effect the same thing as dibbling holes for them, and insured a more regular depth than could be done by making holes.

No. of Seed.	No. of Places.	No. of Strong Heads.	Weight of Head Grain.	No. of Weak Heads.	Total No. of Good Heads.	Weight of good Grain.	Weight of light Grain.	Total weight of Grain.	Weight of Straw.
			ozs.			lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs. ozs.
	1	29	1⅝	7					
	2	5	¼	4					
	3	12		17					
1	4	6		0					
	5	..	..	..					
	6	9	¼	3					
	7	12		11	73	0 4⅜	0 0⅝	0 5	1 4½
	1	..	..	..					
	2	30	½	5					
	3	11	⅛	3					
2	4	19	1¼	13					
	5	11	¼	2					
	6	..	..	..					
	7	17	1	3	88	0 5½	0 0½	0 6	1 1
	1	5	¼	2					
	2	21	1¼	0					
	3	..	..	5					
3	4	5	¼	2					
	5	13		4					
	6	4		4					
	7	7		4	55	0 3⅛	0 0⅛	0 3⅞	1 1
	1	6	¼	4					
	2	23	1¼	9					
	3	5		4					
4	4	9		7					
	5	7		3					
	6	..	..	..					
	7	26	1⅜	20	76	0 4⅛	0 1	0 5⅛	1 2
	1	23	1¼	2					
	2	..	..	1					
	3	20	1¼	2					
5	4	15	¼	9					
	5	..	..	..					
	6	17	¼	12					
	7	10	⅛	18	85	0 4⅛	0 0⅝	0 5	1 8
	1	5	¼	..					
	2	3		..					
	3	11		13					
6	4	14		16					
	5	5	¼	1					
	6	9	¼	6					
	7	7	⅛	4	54	0 2½	0 0⅝	0 3⅛	1 5½
	1	25	1¼	10					
	2	15	¼	11					
	3	24	1¼	10					
7	4	5	¼	6					
	5	31	1¼	7					
	6	15	¼	7					
	7	19	⅜	5	134	0 6⅜	0 1	0 7⅜	1 12
	1	12	¼	7					
	2	12	¼	6					
	3	13	¼	7					
8	4	20	1¼	17					
	5	13	¼	7					
	6	20	1⅛	7					
	7	21	1	5	111	0 5⅞	0 1	0 6⅞	1 12½
	Total . .				676	2 4	0 5⅝	2 9⅞	10 14

This table plainly indicates, by the very slight difference there is in the products of from one to five seeds in a place, that no advantage is derived by dropping more than one or two seeds in a hole (and had the seed been sound and not sown so deep, it might have been still more apparent; for I find that, with very light covering there is rarely a failure in sound seed. I have not met with one in the few experiments I have tried to ascertain the best depths for sowing). It also indicates that the dropping of more than one grain does not insure a greater certainty of each hole producing plants—for where one seed in a hole perishes, the causes of its destruction operate to destroy all the seeds in the hole, or at least to render them little productive—for from one seed in a place to five, there are nearly an equal number of failures; and although there were no total failures in six and seven, yet there were several very unproductive places. The extraordinary small produce of six seeds in a place, and the large ones of seven and eight in a place depend, I feel assured, on peculiar circumstances, which I shall state presently; but that this large produce did not arise from the larger number of seeds dropped in them must be very evident, from there being no progressive increase in the other numbers of the experiment.

On the right side of this drill, at a distance of 21 ins., was a drill of Barley, the first of several sown with the intention of ascertaining the quantity of seed that might be most economically used in drills at wide distances, that is, about 24 inches: on the left side (as far as 1, 2, and 3 seeds in a place extended) Barley was sown at 21 inches from it, and by the side of 4 and 5 seeds in a place, Oats, at the same distance, but over against 6, 7, and 8 seeds in a place, there was a piece of ground sown with Broccoli seed, in rows, well manured on the surface, and kept hoed. The Oats that were sown by the side of 4 and 5 seeds in a place, inclined over the ground by the side of the 6 seeds in a place, and to this I attribute the small produce of 6 seeds in a place, as I also attribute the larger products of 7 and 8 seeds in a place to the free space alongside of them where the Broccoli seed was sown, upon the hypothesis I have elsewhere advanced, that plants derive their nourishment principally by the leaves, and by such an hypothesis I can alone account for the extraordinary variations in the produce of 6, 7, and 8 seeds in a place. But this same supposition is borne out still more strongly by the experiments before alluded to, of the rows sown with the intention of ascertaining the best quantity of seed; for in these drills there were two that, from an accidental circumstance, were, instead of being only 21 inches asunder, 40 inches apart, and the produce of each of these doubled the amount of a drill with the same quantity of seed at 21 inches apart from its neighbouring drills, as will be seen in the table beneath; the roots, too, at the ends of the rows, were also more productive than others in the central parts of the drills. Now, I dug a hole about 2 feet deep between two of the drills and found the roots descending towards the subsoil, which some of them entered, in a tolerably compact column of about 6 inches diameter; few of them spread out laterally. It can hardly, then, be supposed that the wide space between the rows, &c, increased the products by the room afforded to the roots, of seeking nourishment from the soil.

Table II. is very favourable to small quantities of seed, and a considerable distance between the rows, which, with a famine threatening a very large portion of the empire, is deserving of much attention. I would draw attention to the very small quantity of seed which would suffice for an acre. In drill No. 1. (that of the first detailed table of the number of grains to be dropped in holes), the single seeds dropped at 4 inches apart gave a produce equal to the average of 1, 2, 3, 4, and 5 seeds dropped in a place with drills at 21 inches asunder; this would only amount to 10 lbs. of seed for an acre of ground.—*J. M. Goodiff, Granard, Nov. 3.*

No.	Weight of Seed.	Gross weight of produce.	Weight of good Grain.	Weight of light Grain.	Straw and Chaff.	Weight of Seed to a Statute Acre.	Ascertained weight of good Grain per Imperial Quart.	Computed weight of Imperial Bushel.	Computed rate, by weight, of produce of Statute Acre.	Computed rate, by measure, of produce of Statute Acre.
	lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs.	lbs. ozs.	lbs. ozs.	Cwts. qrs. lbs.	Qrs. bushs. gals.
1	0 0½	2 9⅝	2 4	0 5⅝	10 14½	42	1 10½	53 0	25 1 20	6 6 5
2	0 2	1 13⅝	1 12	0 1⅝	13 2½	160	1 8⅝	49 8	19 3 3	5 4 6
3	0 1	3 6½	3 5	0 1½	15 9½	53	1 10	52 0	24 3 24	6 5 6
4	0 1	3 9½	3 8	0 1½	15 6½	53	1 10	52 0	26 1 14	7 0 6
5	0 2	1 6	1 5⅜	0 2⅝	9 10	160	1 8½	49 0	13 3 20	3 7 7
6	0 2	1 6	1 4	0 2	10 2	160	1 8½	49 0	14 0 14	4 0 2
7	0 1½	1 9½	1 8	0 1½	12 6½	120	1 8⅜	49 0	16 3 23	4 6 6
8	0 1	1 10½	1 9	0 1½	12 5⅜	80	1 9	50 0	17 2 18	4 7 4
9	0 0½	2 5¼	2 5	0 1¼	15 3⅜	40	1 9¼	50 8	25 1 20	7 0 5

Home Correspondence.

Potatoes.—I am following your advice to imitate Mr. Grey, of Dilston, in autumn-planting Potatoes. All lookers on think me demented; I have given strict orders to the women who sort out the seed not to pass any at all tainted; but upon going to the field this evening, I found there is "no faith to be placed in these women;" for, upon trying seven sets, I found no less than six tainted! This will, probably, ensure miscarriage in my crop as far as faulty Potatoes have been planted, and I shall have the commiserators, who are now shaking their heads, triumphantly exclaiming in spring, "I told you how it would be." I have planted an acre, but shall now stop as I find there is no getting women to "obey." I have inquired much as to the extent of the disease in this neighbourhood. It may vary somewhat, perhaps, in degree in different lands, but I believe not a single field has escaped. In some cases amongst cottagers, in dry soils, I have seen the best samples, such indeed as they have stoutly maintained to be "as sound as bells." I have had much difficulty in convincing them that even they are not exempt from the plague, and when I have done so they seem to wish the murrain had taken their "candid friend" instead.—*A Constant Reader.*

Results obtained from different Modes of Planting Potatoes—A friend has sent me the following account. The Potatoes were grown at Thorner, about 8 miles N.E. of Leeds.—"Lot 1: 50 yds.—Potatoes dibbled into level ground. Produce 5¾ lbs. Lot 2: 50 yds.—Planted in ridges 18 ins. above the level. Nothing but the shells of a few tubers could be found. Lot 3: 50 yards.—Planted upon the level ground with earth thrown upon them. Three parts were rotten, and the fourth part turned bad in a few days. All the above were Haigh's Kidney planted on the first day of April upon a plot of ground which had been manured and lightly dug in winter. Lot 4: 50 yards.—Prince Regent's. The manure dug in when planted and the Potatoes dibbled. Produce 84 lbs., and two days after taking taking up they were not worth 6*d*. Lot 5: 60 yards.—Haigh's Kidney. Planted in the middle of May; dibbled and

manured at the time of planting. Produce 408 lbs., part rotten. Lot 6 : 60 yards.—Planted at the latter end of May. Produce 456 lbs. of very large and sound Potatoes. Lot 7 : Prince Regent's. Lot 8 : Cups. Lot 9 : Ash Tops. Lot 10 : Scotch Reds. These four lots were manured and dibbled on the 29th of May. The crops are very good, and there is not one unsound Potato among them. Lot 11 : Pink Eyes.—Dibbled without manure upon a Cabbage bed on the 31st of May. This was the best crop I have seen this year. One root produced 9½ lbs., and one of the Potatoes weighed 20 ounces. Lot 12 : Haigh's Kidney.—Grown in a very dry situation. This was the worst excepting Lot 2. Since taking up I have had to bury one-third of all the kinds excepting the Ash-tops, which are not at all affected. All the Potatoes except two lots were my own plants, which have grown upon the same ground for years, and the smell of guano has not passed upon any of them."—*W. Lucas, Haigh's-buildings, Leeds.* —— It appears that some varieties are less subject to disease than others ; and if, on investigation, such should prove to be the case, it would be advisable to cultivate the sorts least affected. A friend who has just returned from a residence on the Rhine near Coblentz, informed me that he grew seven sorts, all of which were much affected by the disease except one, the Pink Kidney, and this was quite free from its attacks. He was lately in Hampshire, where several farmers asserted that the Pink Kidney was free from the disease. The circumstance is worthy of attention, in the selection of varieties for next year's crop.—*Lusor.*——The haulm cut down early, saved crops at Greys ; but the Beet seems to be highly affected.—*B. D., Greys.*

Storing Potatoes. — About a fortnight ago I put some Potatoes, which appeared perfectly dry, into a shed, with layers of short straw alternately ; to-day my man is opening them ; he can scarcely bear his hand in them, they are so hot, and full three parts out of four are perfectly rotten. I find that they keep best in a dry place, without any material mixed with them to impede the circulation of air. In wet, stiff land they are worst infected, but they are also badly diseased, even on the driest soils. I had one flat, 4 yards wide, that run down the side of a ditch full 5 feet deep, and these I have seen going ever since July ; the soil is sandy upon a gravelly bottom. The soundest are upon mossy or peaty land. In a field, containing 7 acres, adjoining Whixall-moss, all the Potatoes are perfectly sound, and free from any blemish whatever. I beg to refer such of your readers as may be interested in the manufacture of Potato-starch, to an excellent article in Dr. Ure's Supplement to his "Dictionary of Arts, Manufactures, and Mines," giving a lucid account (with engravings) of the French method of manufacturing it, whereby they obtain from 15 to 22 per cent., and are enabled to supply this country with it at from 8*s.* to 10*s.* per cwt. —*John Thomas, Wem, Salop, Nov.* 1.——Although I have not tried the following plan, still I think it is one which may tend to stop the disease :—Construct a shed 60 feet in length and 12 in breadth, leaving the sides open; in fact, merely a roof supported by uprights. Let 1 ft. 6 ins. be taken off the breadth in each side, which will leave 9 feet for the Potatoes. First of all put a layer of hard wood branches on the ground, then a layer of Potatoes about 1 foot in thickness, and so on, and as the pile advances in height let the Potatoes be supported by branches at the sides ; this could easily be done by driving a few piles. The 1 ft. 6 ins. at each side of the heap I would fill with straw, to be removed in fine weather. By these means the Potatoes would be continually kept in a dry cool state. From what I have seen all late varieties have suffered most ; those on light soils are less affected than those on heavy. The earliest planted sets are least of all affected with the disease, from which one might conclude that the more we contrive to hasten the maturity of the Potato the better. Perhaps it might be as well as turning the diseased Potatoes into starch, to cut the affected parts off, and make the other into sets, and plant them in February or beginning of March.—*Charles Ewing, Bodorgan, Anglesea.* ——Having adopted a method of treating the "diseased" Potatoes (as they are, perhaps, improperly termed), which seems to me suited to the case, and which promises success, I venture to communicate it to you, the collection of facts from different quarters being of importance. I premise that my own opinion, which, however, I state with some diffidence, is that the proximate cause of the malady is the superabundance of juice or moisture in the tuber, in consequence of the excessive wet of the season causing an accumulation of watery sap, and the concurrent frigidity of the weather, which, preventing the due development of the stem and leaves, and causing their premature decay, did not afford an abundance of healthy foliage for exhaling that superfluous moisture. My Potatoes were grown on very flat clay land, which, though recently thorough-drained, had not yet been subsoiled so as to permit the free descent of the rain-water to the drains ; and the weather was very wet at the time of lifting, which was unduly accelerated by the prevailing panic from the supposed destructive progress of the "disease." In these circumstances, I had the Potatoes carted to a lea field, intended to be broken up next year, for the convenience of a clean surface to spread them on, and obtaining sod for temporary covering. There they were laid in long narrow heaps, the different kinds separately, and covered with straw slightly "drawn" and put on thatch-wise, the weather still continuing damp. This covering resisted both rain and moderate frost. On examination a day or two afterwards, the windward side of the heaps appeared well dried, but the other side sweating and beginning to mould ; the interior still more so : they were then uncovered on a dry day, spread out on the Grass on either side, and put up again at night as before. On a second examination they were found still tending in a small degree to sweat ; the same process of spreading out was repeated, after which the tendency to sweat disappeared, and the progress of the "disease" to all appearance arrested. The same was the case with some of the worst of the affected Potatoes, which were spread on a barn-floor, and turned till dry. We have been unable to find, on repeated examination, that the "disease" in the roots so treated has made any farther progress. The next part of the process was to separate from the mass a stock of sound Potatoes for seed and domestic use. A number of careful hands (women) were employed minutely to examine them, and separate those which appeared perfectly sound. The process is tedious, but in present circumstances indispensable ; to give you an idea of the extent to which the crop is affected, and the cost of the process, I may state that out of about 35 bolls of the Potatoes as lifted, we have already separated 15 bolls of sound roots. This was done (according to the number of hands employed) in 27 days, of a woman at 8*d.* per day, or 18*s.* in all. The remaining 20 bolls of rejected Potatoes, many of which are very slightly affected, will be used for the cattle, cooked with salt. The time and cost in my case is increased from the quantity of earth adhering to the tubers, which had to be removed by rubbing with bits of cloth, before they could be properly examined ; and if grown on dry land, it would have been done in half the time. The process of picking is continuing to be carried on ; and in storing the sound Potatoes, I mean by way of precaution to make an insulation at every 2 or 3 yards in the heaps by a stratum of 2 inches of earth, so that if rot should occur in any of these divisions, it will spread no further. These facts, I think, show that the Potato malady, under proper treatment, is not of so desperate a nature as is generally apprehended, and I do not doubt that a considerable part of the rejected tubers would be found, on a re-examination, perfectly safe for human food. Certainly, however, a very large quantity has gone to destruction by being stored in the usual way without being dried, and are reluctantly taken by the starch mills at 2*s.* a boll, which is not worth the cost of carriage. Among the variety of opinions that have been given as to the constitutional deterioration of this valuable root, which seems to have rendered it more easily affected by atmospherical observations, my idea is, that it has been gradually brought into what the medicos call a plethoric state, by too much forcing with manure in high-conditioned land. In former times, the Potatoes were taken from the field and stored in cellars, and other places, in vast mounds, reaching from the floor to the ceiling, without injury. And the winter work was to cut the seed Potatoes months before-hand, which, at the time of planting, were dry and shrivelled like corks. If this opinion be just, the remedy would be to plough in the manure (in very moderate quantity) into the ground before winter ; and even to attempt to raise without manure, in free dry soil, a small compact hardy tuber, as a means of renovating its constitutional vigour. I mean to try both these plans myself. In conclusion, I may mention the practice of Mr. M'Horide, a farmer in this quarter, who says he has followed it for many years, and has never yet had the smallest failure in his crop. He spreads the manure on the surface of his stubble land, and ploughs the land, planting the Potatoes in every third furrow, and drawing in with the hoe a little of the manure above the sets. I think that the Potato suffers in the culture by the fibres being injured by over-much working in the drills while in a growing state. I might also have stated the observation of another small farmer : that in long practice, and being often scarce of manure, he had always the soundest Potatoes when he had least manure.—*J. Stewart Hepburn, Colquhalzie by Crieff, N.B.*

Cure for Potatoes.—I have tried all kinds of plans with the unsound Potatoes, and I find that scraping the rotten part of them clean out, and then sprinkling them (or rather rolling them) in powdered lime, is a certain cure ; they may be buried with safety in the ground, just as if they had been sound. Now, all this trouble, for such it must be allowed to be, will be well repaid ; say it costs 8*d.* a bushel, what is that compared to a dead loss, which in all probability there will be, unless something is done. I believe that, with proper care, if bad Potatoes are put in a warm shed they may stand, but not with any such certainty as when the above plan is adopted ; and, after all, the additional trouble is only in appearance, not in fact, for the rottenness must be sooner or later cut out.—*J. R. C.*

Substitute for Potatoes (see p. 753).—I have obtained what may be considered an average of the quantity of blood yielded by sheep and oxen. It appears from the following account that in London alone there is now thrown away what would afford, the year round, a pound of wholesome food a day for no fewer than 41,000 persons. The article in question is used for food in Scotland. The advantages which the use of this would have over any other which is imported are, that no money would have to be sent out of the country to obtain it, no existing laws or duties would be disturbed by it ; it would be consumed on the spot where it was produced, and the sums expended in its collection and preparation would be a new source of profit to our own people. The following is the mode in which the blood of sheep and oxen is prepared for food in Scotland :—The blood, whilst still hot, must be constantly stirred, mixing into it black pepper, salt, and chopped onion or leek, also a little fat if obtainable, then put it over a fire and stir it till sufficiently cooked, mixing in at the same time coarse oatmeal. The oatmeal should be dry, that it may not run into lumps. This mixture is eaten hot, with bread of some kind ; should there be any remaining after meals, it may be heated again. The following is the number of beasts and sheep at Smithfield Market on Oct. 27th and 31st, being one of the low averages :—

Beasts, 4814.—Sheep, 28,700.

Beasts yield each of blood.....	30 lbs.
Sheep	5 ,,
Total blood per week 287,920	,,
Which makes of food per day 41,131	,,

The blood of pigs is not included, being supposed to be used in black puddings. That of calves is not included, being supposed to be full compensation for that used in sugar refineries. Neither is any account taken of animals slaughtered in the country for the London market, such as the great quantity brought from Scotland.—*M. S. B.*

Effect of the Potato Disease on Different Varieties.—The question that naturally presents itself in reference to the Potato disease is, how it may be avoided in future years. It is evident enough in this neighbourhood that those varieties that have been a considerable time in cultivation, and have for successive years been planted from rich and cultivated land, have suffered the most. Attention should therefore be directed to those varieties which have proved hardy enough to withstand the disease, as the most desirable for future planting. It would be a great point gained if several of your correspondents in each county would ascertain those kinds which have escaped, whether they have been grown long in the vicinity, and whether seedlings, or imported from other districts, with a slight notice, if it could be procured, of their habits ; this might form the basis of a general report on the Potato, which, by being made public, would enable the public to benefit by it, so far as it would show those kinds that had escaped, and consequently merited planting for future crops. The following is the state of the crops of Mr. Heale, nurseryman, of Calne, who is one of the largest growers in the county. Champions, an early, round, white variety, of middle size, a great bearer, and very mealy ; nearly all good. Victoria Kidney, a good keeper and great bearer, perhaps the best Kidney in cultivation ; nearly all good. Pale Kidney, sometimes called Red Kidney, very white and mealy, and a great bearer ; not one in a hundred bad. White Seedling (Poor Man's Profit), fine variety, and good bearer ; nearly all good. Prolific, or Jersey Blues, good bearer, very white and mealy; stood the best of any. Prince of Wales, very good, a fine white Potato, good bearer, and keeps well. Glory of England, all good, great bearer, with very white pink eye ; poor land, stony brash, or gravel, suits it best. American Reds ; nearly all gone. New Peach ; nearly all gone ; and the same may be said of Warminster Reds, Old Peach Potato, and Prince's Beauty. The latter is one of the best late Potatoes in cultivation. The above is the state of Mr. Heale's crops at the present time.—*John Spencer, Bowood.*

Potato Washer.—Seeing in a late Number of the *Chronicle* an article on the Potato Washer, I am induced to send you a sketch of one used by us, it being in my opinion an improvement on the one figured.—*Wm. Johnston, Ballykilbeg House.* [This appears to differ but little from the one used by us, and described in a note appended to the paragraph to which Mr. Johnston refers. It differs, however, in this respect that the washer when lifted out and slid or rolled along the projecting arms to the part where it is opened, instead of merely overhanging a wheelbarrow, is placed over a sort of hopper which guides its contents more accurately into whatever is placed for their reception.]

Manure Making.—The remarks on my queries relating to a tank for collecting and rendering weeds useful, through their rapid decay by means of water, &c., during which process to preserve the ammonia constantly evolving by the application of chemical fixers of it, thereby rendering this manure as powerful as possible, have elicited some remarks from Mr. G. Milne, in your Number of the 1st inst., and I would beg leave to say in reply, that the *liquid* application of manure has been clearly shown to be the most practicable and effectual, inasmuch as it instantly arrives at the roots of the crops in a state fit for their absorption, and is the true way of manuring land, as adopted in Holland, Belgium, and elsewhere, where the land is flat, but it does not answer on hilly lands, as much from the difficulty of applying it, as from its natural tendency to flow downwards, and collecting in great quantity partially. The fertility of the Nile water is attributable to the quantity of alluvial soil it brings down with it, leaving a considerable deposit by the same process as that adopted in parts of England and Tuscany, by what is termed warping, which can always be effected over flats on the borders of streams which overflow at times. No manure need be more powerful than this ; in fact, it speaks for itself, without the adjunct of infusoriæ, if that really be a component part. As to tar or lime, objected to by Mr. M., I beg leave to refer him to my paper in your *Gazette* of 20th Sept. last. I merely speak of *gas* lime alone, from supposing it sufficiently neutralised to produce no ill effect upon the ammonia forming by the process of decay, but, on the contrary, to add to it by means of its existing in the gas lime, and the formation of gypsum by it. Much of the infor-

mation required by Mr. M. will be found in Liebig's Chemistry of Agriculture.—*Waterhouse, Nov.* 4, 1845.

Farm Buildings.—I have read in your *Gazette* the "Leading Features to be secured in Farm Buildings," which are put forth for correction and criticism. "T. S., of Cirencester," the author of the observations, refers to the farm buildings lately erected by Lord Torrington at West Peckham, near Maidstone, in Kent, and thinks the feeding-shed a "ne plus ultra" of agricultural wisdom. It contains 40 to 50 fatting beasts and milch cows. This is far too great a number to be confined together; the animals are constantly breathing a contaminated air, and the advantage of breathing in a large volume of pure air is great to all living bodies. In cold countries, the housing of cattle may be necessary, but in all temperate climates, such as we enjoy, they are better fed in yards and sheds, two feeding beasts being put together. Store cattle may be put four and six together. I would even recommend that only one beast be in a yard and shed, and that the farm buildings be arranged accordingly. But Lord Torrington and "T. S." deserve unlimited praise in deigning to adopt or even mention a "thrashing machine," and in not making two or three huge timber barns the very essence of a farm building; what a prodigious stride they have made in agricultural knowledge. Lord Torrington has made the greatest stride, for he is located in Kent, the very hotbed of prejudice; for what else can continue the use of timber barns in this enlightened age. But his lordship leaped from timber barns only as far as horse power, he failed to reach the agency of steam, and he might have gone beyond steam, and tried the effect of the magnet in turning machinery. But he probably may make a greater stride next time. I cannot refrain from complimenting "T. S." on the great advance he has made in divesting himself so far of his southern prejudices.—*J. D., Hoddesden, Herts, Nov.* 7, 1845.

Salting Pork.—Having seen a good deal of discussion about doing this without saltpetre, I beg to state that for years it has been our custom to salt all pork and meat with only salt and sugar. The method was as follows:—The pigs were shut up in a sty and fatted till they became as fat as bacon hogs, or fatter, as the fat on the sides used to be 6 or 7 inches in thickness; they were killed and cleaned, and cut up immediately, the sides brought in, divested of nearly all the lean, and slightly rubbed with salt and sugar: a thick layer of salt was laid upon the bottom of the brine-tub, and upon that sugar, the pork being cut to the size of the tub, was laid rind downwards, some sugar sprinkled over it, then a layer of salt, and then more sugar, till the pork was hid; another layer of pork, rind downwards, succeeded, then the salt and sugar, till the tub was filled, care being taken to cover the top layer very thickly with salt, &c., to exclude the air, and to put the lid on tight; if in a week or two the brine did not begin to rise, some warm water was sprinkled over it. In about three months the pork might be begun if wanted, and when boiled was firm and as red as a cherry. At the end of two years our pork has been even better than when first begun, and far preferable to bacon, also far finer flavoured, and richer than when saltpetre was used. The pork was warm when put into the tub. A bushel of salt was used for each hog.—*D. M.*

Farmers' Clubs.—Your intention to take up the subject of the establishment of Farmers' Clubs will, I am sure, be hailed and aided by the endeavours of every intelligent promoter of agriculture. The remarks in your Paper, at p. 601, on the non-establishment of Farmers' Clubs in Berkshire, I made only from a thorough conviction of their utility; and the following account from Knight's "Journey Book of Berkshire," of the state of agriculture in this county [At what date ?], will fully bear me out in my assertion as to their necessity, and at the same time may prove interesting to your readers:—"The general state of agriculture in Berkshire is neither of the most improved kind, nor yet to be greatly found fault with. The number of rich proprietors who hold land to some extent in their own hands is considerable. They employ intelligent bailiffs, and improved modes of cultivation are readily tried by them. The most perfect machines and implements may be found on their farms, and everything new finds some person ready to give it a trial; but there are many obstacles to their general adoption. Old methods keep a certain hold of practical men. There are in Berkshire a great many small proprietors or yeomen, who cultivate their own farms, consisting of 40, 50, or 80 acres. They live frugally, and the times do not much affect them; but they have no inclination to try new schemes, the old methods satisfy them, and if they can live and pay their way they are contented. The number of occupiers employing labourers is 1711, and there are 458 occupiers who usually perform the work of their farms, with the assistance of their own families." The cause of this apathy in effecting improvements is obvious. Farmers are not brought in contact one with another; they do not derive the benefit of each other's experience; and men are generally prone to doubt everything that is not presented to their own observation.—*H.*

Sainfoin.—In the autumn of 1843 I drilled Wheat on a poor, exhausted clay soil (subsoil, calcareous rubble) which had been completely run out by a former tenant. I manured with burnt soil, at the rate of about 30 cubic yards per acre; and having sowed Clover and Rye-grass, Grass seed, &c., on land of the same quality (which came to a very poor crop), I was determined on trying Sainfoin. In the following March (having been informed by a Suffolk driller that it would not answer if drilled in the autumn), I drilled across 2 bushels of Sainfoin per acre, 9 inches apart; I this year mowed it, and made it into hay—(a fair crop); it is now looking well, and I have no doubt there will be an excellent crop next year. I this year drilled it with Barley; one field I drilled across, and for another I mixed together 2 bushels of Barley and 2 bushels of Sainfoin, and drilled with this mixed seed at the rate of 4 bush. per acre. It is my intention to hoe it freely with Garrett's patent horse-hoe in the spring; and should it appear not to have a sufficient number of plants, I shall drill about a bushel more seed per acre between the present rows. If Sainfoin is drilled too wide apart, the plants will be strong and coarse. Your correspondent "Waterhouse" has no occasion to fear sowing Sainfoin, if kept free from weeds the first year after sowing; his soil is suitable for the growth of it.—*F. Marston, Affcot, Shrewsbury.*

Affinity of the Soil for the Saline Particles of Manure.—Your correspondent "Oxygen," in your Paper of the 18th inst., says, "So strong is the affinity of the soil for the saline parts of manure, that water charged with them is soon deprived of its freight," &c. I doubt very much his theory. A few years ago I manured a field of about 4 acres, at the rate of about 15 cart-loads per acre, I think in the month of November; I then ploughed it. In about a fortnight after, a quantity of rain fell; the field was partially drained, and the main drain emptied itself into one which supplied a pond, and when the drains began to run, I perceived the water in the pond to be the colour as if a portion of the water from the dung-heap had run into it. I could account for the colour in no other way than that the rain carried with it a portion of the manure from the field. "Oxygen" says, "it will escape from the drain as pure as when it fell upon the earth." I would ask him, if the water has the power of carrying with it the colouring matter from the manure, must it not take with it those very soluble salts which manure is said to contain, as soda, potash, ammonia, &c., which salts have the power of increasing or deepening the colour of vegetable infusions? I doubt very much all he says respecting folding sheep, for I have seen the land so trod in wet weather, that the water could not penetrate the surface, and when rain fell, carrying with it a portion of the manure off never to return.—*F. Marston.* [We shall be glad to see your remarks on the management of manure.]

Hedge-row Timber.—At the recent meeting of the North Derbyshire Agricultural Society, the injury resulting from the too prevalent system of hedge-row timber formed a topic which elicited remarks from one or two speakers. Amid the many improvements which agriculture now lays claim to, this evil seems especially overlooked, or if not, the remedy certainly is not acted upon. Why is this? It originated, we can only conceive, perhaps centuries back, to supply an urgent demand for timber at a period of war, from whence was derived, it cannot be denied, a profitable source to the landowner. Times, however, have changed, and the farmer is, at the present, unable to sustain the injury it inflicts on him. It may still be alleged as a source of gain to the landlord, but it is undeniably a positive loss to the tenant farmer. The members of the Northamptonshire Agricultural Book Club lately resolved, "That it is the opinion of this Club that tenants' rights should include every improvement that has been made upon the land by the tenant, and from which he has not derived full remuneration." We do not see, if farmers cut and fell hedge-row timber, why such an act should not constitute a tenant's right, in accordance with this resolution.—*H.*

Gold of Pleasure.—Noticing in your last week's *Chronicle* an enquiry regarding "The Gold of Pleasure" (Camelina sativa), I beg to hand you the following extract from Lawson's "Agricultural Manual:"—"The Gold of Pleasure produces a finer oil for burning than the Rape or Mustard, having a brighter flame, less smoke, and scarcely any smell. It succeeds better than any of the other cruciferous oil plants on light, shallow, dry soils, and arrives so soon at maturity that in the south of Europe it produces two crops in a season. In several of the more northerly districts of the Continent, as the north of France, Germany, and Holland, although it will not produce two crops in the season, it is found very useful for sowing in June or beginning of July when other crops have failed; and when sown in the early part of the season, it may be removed to be succeeded by Turnips, Grass-seeds, &c. Besides the use of its seeds for oil, the stem yields a coarse fibre for making sacks, sail-cloth, &c., and being small, hard, and durable, are used for thatching temporary erections, and also for making coarse packing paper. A superior variety has lately been introduced into France, under the name of Le Cameline majeur, and which differs from the common in being of stronger growth, producing more seed-pods, which contain a greater number of larger and more oily seeds. The field-culture of Camelina sativa has not hitherto been attempted in Britain, but there is no doubt of its succeeding perfectly well in the climate were such reckoned expedient. One circumstance deserving of attention is, that it is never found to be at all injured by insects, particularly the Cabbage-plant louse."—*Mendoza Veres, Edinburgh, October* 28.

Haws.—Is it so generally known as it should be that Haws are good food for pigs? In some parts of the country they are called "Hog Haws." They will eat them raw, and I know by experiment that they eat them boiled, cracking the stones most merrily. In the absence of Acorns and the failure of the Potato crop, a useful substitute might be found in this fruit, to mix up with and lengthen out the hog-fatting of poor people. Haws seem to contain some amylaceous matter and mucilage, and a little sugar; and as the pigs crack the stones, I doubt not the kernel contains a nutritive oil.—**

Farmers' Clubs.

Bromsgrove: *Potato Disease.*—At the annual meeting held on the 28th of October, this subject naturally formed a prominent topic of conversation. Mr. Maund considered that the vitality of the Potato had received a check from some unknown cause, that decay resulted, and that the fungus and animalculæ discovered by the microscope were results of the decay—the effects and not the causes. He recommended a trial of autumn planting, and suggested 10 inches as a suitable depth.

North Lonsdale.—*Annual Meeting, Oct.* 22.—The following report of the judges appointed to inspect the farms and crops competing for premiums was read at this meeting:—"There were 19 competitors for Turnips—13 for the general crop and 6 for guano. In our inspection of the Turnip crop generally, we have found them, as far as regards cleanliness, in an admirable state; and in consequence of the crops being so equal, we have had great difficulty in awarding the premiums. We have, however, made our decision, after due deliberation, and after having weighed every circumstance according to the rules. Turnips sown with guano are in general very good; and we think this manure is a great boon to the country at large, since it appears it is (contrary to the opinion of many) likely to prove itself to be a permanent manure. We have witnessed in many places a second and a third crop of excellent quality, growing on the land after having been manured with guano alone; and where farm-yard manure had been used in fair quantities alongside Turnips sown with guano, the Turnips were superior with 3 cwt. of guano per acre, and, contrary to our expectation, the following crops were quite equal, and in some instances superior, to those on the land adjoining, which had been manured with farm-yard manure. There were two competitors for consuming Turnips on the ground by sheep, but on account of the crop not having yet been consumed, it is our opinion that the committee ought to be satisfied on this point, before the premium is given. We also submit that this premium ought to be given for Turnips that have been consumed on the ground the previous year, as it is impossible to know, either in the present or any other case, whether it is advantageous or disadvantageous to the land, as there can be nothing to look at but the Turnips themselves. There were eight competitors for consuming Rape by sheep on the ground, all of whom are deserving of praise. For the best general stock there were six competitors, and in awarding the premium we had great difficulty in deciding according to the rule, since it was necessary for us to take into consideration the quality and extent of the farm, and we think it our duty to state that Mr. R. W. Ashburner's cattle are very superior to any we have seen. After having taken the whole of the stock, however, into due consideration, we have felt ourselves bound to award the premium as before stated. For the best managed farm there were six competitors, all of whom are worthy of great praise; but we had some difficulty in awarding this premium, on account of having both ploughing and growing farms to class together, as the rule specifies they are to be in a regular course of green and white crop, which is totally out of the question in the high part of Furness. There were three competitors for Potatoes, all of whom have most excellent crops. We were sorry to find that the Potato crop throughout the district should be so generally diseased. We were not at one single place where they were not more or less affected, and we greatly fear that the consequences will be most serious to all classes of the community. For draining there were only two competitors. Both are very deserving, and it is unnecessary for us to say one word here of the advantages of draining wet land. Samuel Rigg, William Slater, Myles Carter." Mr. Rigg, of Abbey Holme, near Wigton, Cumberland, when afterwards acknowledging the toast of "The Judges," entered into some useful details about the growth of Turnips. He said that he had found by experiment that the ridges should be as near a yard apart as possible. He had tried many experiments to ascertain which was the best distance; on one occasion he had tried a yard, on another 2 feet, and on a third 18 inches, and the conclusion he came too was that a yard or 35 inches was the best possible distance. He did not recommend the farmers to try experiments rashly, but if they refused to try his plan on a whole crop, they might do so in a few stetches, and he was sure they would be convinced. He thought that as a farmer was liable for all dilapidations that might have taken place, so he should be allowed to get pay for all the improvements which he effected, and he should have a longer holding of his land. He should have a 7, 9, or 14 years lease. If a farmer had such a lease, he *spent* upon his land, and he would say to himself, nobody shall take from me the result of my labours. With this feeling he went on improving, and the benefit was not only for himself, but for his landlord, and last but not least for his country. He was aware that there were many whom it would not affect, because there were many landlords who never thought of changing their tenants. He was himself the third generation who had occupied his farm; but he was strongly of opinion that a lease, not exceeding 14

years at the utmost, was the fairest, and gave most scope and encouragement to the industrious tenant. With the leave of the chairman, he would propose a toast, Liberal Landlords and Industrious Tenants. Without industry, land could not be cultivated as it ought, and if the landlord was not liberal, that industry would not be brought into play. (Drunk with riotous applause.)—Mr. Townley said that he endeavoured, wherever he went, to pick up information, and with that object he read the reports of the meetings of the different agricultural Societies that were held. He saw from the newspapers that at a meeting in Dorsetshire, Mr. Kain had been complimented on the state of his land, and that gentleman in speaking in reply to a toast proposing his health, said he fed it before it was hungry, he rested it before it was weary, and weeded it before it was foul. He never heard in so small a compass a better definition of good farming.—Mr. Carter, of St. Bees, said that when he was there, two years ago, he had suggested his opinion in favour of the utility of feeding sheep off the Turnips. Two years ago he had 30 acres, last year he had 50 acres, and the present year he had 60 acres of Turnips, and in all instances partially eaten off, and with great benefit. His fences were made of net, and he had been the means of inducing others to have similar fences, and the utility of the plan had been confirmed by the judgment of the inspectors of crops. On large farms he strongly recommended the system. It might not answer on small farms, or wet farms, and on very rich land, but on light loamy soil, like his, it answered well. This year he should have the whole 60 acres in Wheat.

WEALD OF SUSSEX.—At the annual meeting lately held, Mr. Wood, on whose farm it was held, said he wished to draw the attention of farmers to the Tankard Turnips he had shown that day; they were calculated to be most profitable to the farmer, for they would last until after Christmas, and as the Swedes had got the mildew, they would be found by those who grew them to be very serviceable. He had a letter from a friend in Norfolk whose plan of growing Turnips was not to plough the ground in the spring, but scarify it two or three inches deep; they ploughed deep in the autumn, and let the ground lie. He farmed his Turnips in that way, and his crop was excellent and never cost him so little. He did not see a pair horse plough in the field that day, but another year he would send one; there was economy in the system, and they should adopt it, for when machinery was used, a pair horse team was sufficient to do the work; he wished to see the ridges done away with, and to see the land ploughed plain. The Royal Agricultural Society wished to see a turnwrest plough doing the work of a round plough, and on another occasion he should send one, and would do his best to make the system general.

Miscellaneous.

A Table, showing the number of Bushels of Barley and Oats per acre, which are equal in value to a crop of Wheat, of from 16 to 40 bushels per acre, each kind of grain being calculated at the average prices of England and Wales for the last 18 years, ending 1838.

Wheat at 7s.				Barley at 4s.				Oats at 8s.			
Bush.	£	s.	d.	Bush.	£	s.	d.	Bush.	£	s.	d.
16	5	12	0	28	5	12	0	37	5	11	0
17	5	19	0	30	6	0	0	40	6	0	0
18	6	6	0	32	6	8	0	42	6	6	0
19	6	13	0	33	6	12	0	44	6	12	0
20	7	0	0	35	7	0	0	47	7	1	0
21	7	7	0	37	7	8	0	49	7	7	0
22	7	14	0	38	7	12	0	51	7	13	0
23	8	1	0	40	8	0	0	54	8	2	0
24	8	8	0	42	8	8	0	56	8	8	0
25	8	15	0	44	8	16	0	58	8	14	0
26	9	2	0	46	9	4	0	61	9	3	0
27	9	9	0	47	9	8	0	63	9	9	0
28	9	16	0	49	9	16	0	65	9	15	0
29	10	3	0	51	10	4	0	68	10	4	0
30	10	10	0	53	10	12	0	70	10	10	0
31	10	17	0	54	10	16	0	72	10	16	0
32	11	4	0	56	11	4	0	75	11	5	0
33	11	11	0	58	11	12	0	77	11	11	0
34	11	18	0	59	11	16	0	79	11	17	0
35	12	5	0	61	12	4	0	82	12	6	0
36	12	12	0	63	12	12	0	84	12	12	0
37	12	19	0	65	13	0	0	86	12	18	0
38	13	6	0	67	13	8	0	89	13	7	0
39	13	13	0	68	13	12	0	91	13	13	0
40	14	0	0	70	14	0	0	94	14	2	0

Plants made up of organic and inorganic Matter.—The distinction between these two classes of materials constituting crops will be best understood by referring to one or two instances, in which certain plants are cultivated for the purpose of obtaining only such parts of them as are supplied by the atmosphere, the materials of the soil being only necessary to the growth of the plant, and the creation, so to speak, of the marketable article. Thus starch, woody fibre, and sugar, are substances for the production of which many plants are exclusively cultivated. These substances are formed by plants from the air and water, and contain no element derived from the soil. In many places, the Potato is grown solely for its starch, the Beetroot for its sugar, Flax and Hemp always for their woody fibre. If, after the separation of these commercial articles, the total amount of the refuse, the washings, and pulp of the Potato, the leaves, pulp, &c., of the Flax or Hemp, be returned to the soil as manure, these crops, which in respect to the whole plant are highly exhausting, may be continually raised upon the same land without impairing its fertility.—*Proposal for establishing a College of Chemistry.*

The Chemist can confer Fertility upon a barren Soil.—The soil, as is well known, owes its origin to the disintegration and decomposition of rocks and minerals, and of the vegetables which have previously grown upon it. Its constitution, therefore, differs in various localities, according to the nature of the geological formations whence it has originated. To a certain extent, and for certain purposes, the geologist can explain the nature and properties of the soil in any given place, but geology itself greatly needs the assistance of the chemist, to show the constitution of rocks, soils, and minerals, in order to perfect that science. A knowledge of the chemical constitution of the soil must be the basis of any successful attempt to increase the fertility of land by adding to it ingredients which it may be supposed to need. The aim of the enlightened landowner not being merely to maintain the fertility of his estates, but to augment it by raising the production of the poorer lands to the standard of the best, the greatest known crops should be the goal to which every attempt of the kind should at least tend. Admitting the land called poor to have received every amelioration possible from mechanical contrivances, draining, &c., it would now require to be supplied with a store of the ingredients constituting the earthy materials of plants, in due proportions, and in such a state as to admit of their becoming gradually available as food to successive crops, no necessary substance being omitted, on the one hand, and, on the other, their solubility in water not being so ready as to admit their being washed away by the first rains. In order to fulfil these important indications, the aid of chemistry is indispensable.—*Proposal for establishing a College of Chemistry.*

Notices to Correspondents.

CAPE OF GOOD HOPE—*G B M*—Next week.

FEEDING CATTLE—*Const. Reader*—See Mr. G. Dobito's paper on the subject in the "English Agricultural Society's Journal."

GUANO—*Agricola*—See many past notices on this subject. Spread it broadcast, if over the growing crop, whatever it may be, in wet weather. If before the seed is sown you may do it in any weather, and harrow it in immediately.

HARVESTING ROOTS—*Enquirer*—Pulling, topping, and filling into carts, Swedes, Mangold Wurzel, and Carrots, will cost from 6s. to 8s., from 8s. to 10s., and from 12s. to 20s. per acre respectively. If you cart off the leaves also, filling them will cost from 2s. to 3s. extra per acre. The exact sum in all these cases depends upon the stiffness of the soil and the bulk of the crop. Wheat will diminish in bulk and weight in drying. If your sample be not dry it will shrink after thrashing, at whatever period it may be thrashed. Hot lime is *said* to be useful, and sprinkled over diseased Potatoes; if so, it doubtless acts by keeping them dry. What is the expense of a felt roof, including cost of timber, &c.? Will any kindly answer this?

MANGOLD WURZEL—*G R*—It is more easily kept than most other roots, *if harvested before frost;* but, though you may safely heap them up in your barn, if they are now healthy, yet the better way is to heap them in rows between parallel lines of hurdles, about 9 feet apart—the intervals being filled with roots heaped up and thatched.

THE USE OF OLD SEED—*A Constant Reader* asks if he should use old or new seed of Carrots, Parsnips, and Turnips. The following is the advice of a first-rate authority upon this subject:—"1st. The Carrot seed saved in 1844 was harvested very badly, and was, from the peculiar season, comparatively of inferior quality to that harvested in 1843, which was well harvested, and remarkably plump, fine seed; therefore, at the last sowing time (this spring), the then one-year-old seed (viz., the 1843) was preferable to the new seed (viz., the 1844). The seed saved in 1844, having been saved under unfavourable circumstances, and the new seed also, in many parts also, under unfavourable circumstances, we should, this next spring, decidedly prefer the new seed. We should also prefer the new Parsnip. You will observe there is much difference in different parts of the country; where our Carrots and Parsnips have been saved, there has been much less wet than in many places. With regard to Swedes, the seed is of an oily nature, and therefore bears keeping without the slightest injury; on the contrary, we always prefer Turnip seed to be one year old, as it is less likely to run to top; it bulbs better, and forms handsomer and cleaner roots. The same is the case with Cucumbers, and some kinds of flower seeds, (Cucumbers should be even more than one year old). One-year-old flower seeds do not grow so rank, and throw out flower, instead of wasting their strength in leaf and stalk. The contrary is the case with Rape or Cole seed. Rape should be new seed, as you want top; the rule, therefore, appears to be, Turnip seed one year old, Rape new, and Carrot according to the seed-saving season. It is, therefore, impossible to lay down a fixed rule for this, as it must depend on the season, and also on the locality in which the seed is saved."

WEEDS—*J D W, Lymington*—Your "Old Man's Beard" is probably an Equisetum, or "Horse-tail." Most varieties of this plant affect moist situations; and drainage, united with the ordinary methods of extirpation adopted by all persevering farmers, will be ultimately successful in destroying it.

*** As usual many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Nov. 10.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 0	Best Downs & Half-breds	4s 8 to 5s 0
Best Short Horns	3 8 3 10	Best Long-wools	4 4 4 8
Second quality Beasts	2 10 3 4	Ewes and second quality	4 0 4 4
Calves	4 0 5 0	Pigs	4 0 5 0

Beasts, 2582; Sheep, 27,020; Calves, 97; Pigs, 310.

We have fewer Beasts to-day, but the supply is still considerable. Trade is heavy; there is, however, no difficulty in making 4s of the best qualities; the second-rate move off very slowly, and some remain unsold.—Good Sheep are scarce, and rather dearer.—The trade for Veal and Pork is very steady.

FRIDAY, Nov. 14.

The supply of Beasts is rather short, and the weather being colder, there is a larger demand. The best Scots, &c., make a little over 4s, and short-horns 3s 10d; the second-rate are also more readily disposed of, at from 3s to 3s 6d.—Mutton is very short, the demand is also limited; there are scarcely any good Sheep in market, and Monday's prices are fully supported.—Calves are dearer; a choice one makes rather more than 5s.—Pork is also the turn dearer.—In everything there is a tendency to advance.

Beasts, 695; Sheep, 2330; Calves, 159. Pigs, 315.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 10.

There has been but few arrivals during the past week, and they have been principally diseased. There are four or five cargoes of Scotch Reds that were shipped in very dry weather, and had exceedingly quick passages, have arrived in tolerable condition, but it is generally believed that the best preserved cargoes would not stand 20 or 25 days' passage. The last arrivals of Yorks were much diseased. The York Regents are in a better state of preservation. There is still a number of vessels lying at the wharfs loaded with Potatoes that are a total loss to the shippers, and worse, as the freights must be paid. Several cargoes have been given away. Some Salesmen have been obliged to pay money to get the ships cleared, besides giving away the Potatoes; other cargoes have been sold at nominal prices. Some of the best of the bad samples of Yorks and Scotch were sold from 10s to 20s per ton. The better samples of York Reds were sold from 6 s to 100s per ton, but the latter price was barely maintained. York Regents 50s to 100s per ton; best samples of Scotch, 7 s per ton. The French Potatoes we mentioned in our last are all stored, or they are being stored, to wait for better markets.

COVENT GARDEN, Nov. 15.—The supplies during the week have been good, and the prices of most articles remain the same. Trade is tolerably brisk. Of Fruit Pine-apples are plentiful, and among them are many specimens of good cultivation. The supply of hothouse Grapes is sufficient for the demand—indeed, large for the time of the year, and the quality is excellent, the bunches of Black Hamburghs averaging upwards of 1 lb. each. Foreign Grapes are also plentiful. The only Plums now in the market are Damsons, which, although scarcer, are still equal to the demand. To the Pears previously mentioned may be added the Guernsey Chaumontel, good samples of which may now be obtained. Apples are sufficient for the demand. Spanish Melons—the only ones in the market—bring about 4s. 6d. each. Chestnuts, and other Nuts, are pretty plentiful. Among Vegetables, little variation has taken place. Cauliflowers are getting scarce, but Broccoli begins to be pretty liberally supplied. Cabbages, Savoys, and other winter greens, are plentiful, and good in quality; fine samples of Celery are also offered. The prices of Potatoes are the same as they were last week, and the samples are better in quality and pretty free from disease. A small quantity of Asparagus has been in the market during the week, and Seakale is beginning to make its appearance. Good-looking samples of Foreign Capsicums may also be obtained; and Lettuces, Endive, and Salading of almost every kind are plentiful. The price of Mushrooms has not altered since last week. Cut Flowers chiefly consist of Chrysanthemums, Heaths, Camellias, Heliotropes, Cyclamens, Chinese Primulas, Auriculas, Gardenias, Neapolitan Violets, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Lemons, per dozen, 1s to 2s
Grapes, Hothouse, per lb., 2s to 4s	— per 100, 7s to 16s
— Spanish, per lb., 9s to 1s	Almonds, per peck, 6s
— Portugal, p. lb., 8d to 1s 6d	Sweet Almonds, per lb., 2s 6d to 3s
Melons, Spanish, each, 4s to 6s	Walnuts, per bushel, 16s to 28s
Damsons, per hf.-sv., 5s to 6s	Filberts, English, p. 100 lbs., 50s to 60s
Apples, Dess., per bush., 4s to 7s	Nuts, Barcelona, 24s
— Kitchen, 2s 6d to 5s 6d	— Brazil, 16s
Pears, per hf.-sv., 6s to 12s	— Spanish, 16s
Oranges, per dozen, 2s to 3s	Barberries, per hf.-sv., 3s to 4s
— per 100, 12s to 24s	Chesnuts, 16s to 18s

VEGETABLES.

Cabbages, per doz., 3d to 1s	Celery, per bunch, 6d to 1s 6d
— red, per doz., 2s to 5s	Cardoons, each, 6d to 9d
Brussels Sprouts, p. hf.sv., 1s to 2s	Onions, per bushel, 2s to 3s
Savoys, per doz., 6d to 1s	— pickling, per hf.-sv., 2s to 3s
Cauliflowers, per doz., 2s to 6s	— Spanish, per doz., 1s 6d to 5s
Broccoli, per bundle, 6d to 1s	Shallots, per lb., 6d to 8d
Greens, per doz. bunches, 2s to 3s	Endive, per score, 6d to 1s
Sorrel, per hf.-sieve, 6d to 9d	Lettuce, per score, Cab., 6d to 1s
Artichokes, per doz., 2s to 4s	— Cos, 6d to 1s
Potatoes, per ton, 70s to 130s	Radishes, per doz. bunches, 1s to 1s 6d
— cwt., 3s 6d to 7s	Mushrooms, per pottle, 1s 6d to 2s 6d
— bushel, 2s to 4s	Small Salads, per punnet, 2d to 3d
— Kidney, per bushel, 3s to 4s	Fennel, per bunch, 2d to 3d
Turnips, per doz., 1s 6d to 2s 6d	Savory, per bunch, 4d to 6d
Red Beet, per doz., 1s to 1s 6d	Thyme, per bunch, 4d
Carrots, per doz. bchs., 2s to 5s	Watercress, p. 12 sm. bun. 4d to 6d
Horse Radish, per bundle, 1s 6d to 5s	Parsley, per bunch, 2d to 3d
Seakale, per punnet, 2s to 3s	— Roots, per bundle, 9d
Cucumbers, each, 6d to 1s	Tarragon, per bunch, 4d
Spinach, per sieve, 9d to 1s	Mint, per bunch, 2d
Leeks, per doz., 1s 6d to 2s	Marjoram, per bunch, 4d
Garlic, per lb., 6d to 8d	Chervil, per punnet, 2d to 3d
Tomatoes, per hf.-sv., 2s to 4s 6d	

HOPS, FRIDAY, Nov. 14.

There is more doing in Hops, at better prices, and the duty is expected to fall under £160,000, and to be known in a day or two.

PATTENDEN & SMITH, Hop-Factors.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Nov. 13.

Prime Mead. Hay	80s to 95s	New Hay	—s to —s	New Clr.	—s to —s
Infr. New & Rowen	60 75	Clover	80 to 120	Straw	30 26

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Nov. 13.

Prime Mead. Hay	90s to 95s	Old Clover	115s to 120s		
Interior	70 84	Interior do.	100 108	Straw	34s to 36s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Nov. 14.

Fine Old Hay	90s to 100s	Old Clover	100s to 120s		
Inferior Hay	— —	Infr. „	70 84	Straw	23s to 34
New Hay	75 88	New Clover	— —		

MARK-LANE, MONDAY, Nov. 10.

The supply of English Wheat by land carriage samples this morning was moderate, but sold slowly at a decline of 1s. per qr. upon the prices of this day se'nnight; free foreign is unaltered in value, the inquiry for bonded limited, but in the business done late prices were fully supported.—Malting Barley must be written fully 1s. per qr. cheaper, grinding is in demand and supports our quotations.—Beans and White Peas are each 2s. cheaper, fine Maple are without alteration, but secondary qualities and Grey are difficult of sale at 1s. per qr. decline.—The Oat trade is dull, at a reduction of 1s. per qr. upon the prices of last Monday.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk White	57	65	Red	55	66
—— Norfolk, Lincolnshire, and Yorkshire	57	65	White	59	65
Barley, Malting and distilling 32s to 35s	Chevalier	34	38	Grind.	28	31
Oats, Lincolnshire and Yorkshire	Polands	28	32	Feed	28	30
—— Northumberland and Scotch	Feed	29	31	Potato	32	35
—— Irish	Feed	25	27	Potato	28	31
Malt, pale, ship	54	60				
—— Hertford and Essex	60	65				
Rye	34	37				
Beans, Mazagan, old and new 35 to 46	Tick	36	48	Harrow	37	50
—— Pigeon, Heligoland 40 to 52	Winds	40	48	Longpod	34	38
Peas, White	50 to 54	Maple	41	44	Grey	39	42

FRIDAY, Nov. 14.

There was little English Wheat fresh up for this morning's market, and prices much the same as on Monday; old is wanted, and bonded more inquired after, but held too high in price to meet the purchasers' ideas.—Barley is a dull sale, and the turn cheaper.—Beans sell slowly, and new are 2s. per qr. cheaper.—Peas are unaltered in value, with the exception of white, which are difficult to quit.—There is little doing in Oats, and sales can only be effected at 1s. per qr. below our quotations of Monday.

IMPERIAL AVERAGES.

	4 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct.		60s 0d	31s 1d	23s 4d	33s 8d	42s 1d	42s 6d
—	11	57 9	31 3	24 2	34 2	43 1	44 4
—	18	58 2	32 0	23 5	34 5	44 5	43 6
—	25	59 5	33 0	24 11	34 5	45 5	44 1
Nov.	1	60 1	34 3	26 2	33 2	45 3	41 10
—	8	59 7	35 1	25 2	35 7	45 1	44 9
6 weeks' Aggreg. Aver.		58 6	32 9	24 5	34 3	44 5	43 9
Duties on Foreign Grain		14 0	6 0	4 0	8 8	1 0	1 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 8.

Price.	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1	Nov. 8
60s 1d	..	..	..	..	..	..
59 7	..	..	..	..	..	..
— 5	..	..	..	..	..	..
58 2	..				..	..
57 9	..			..	..	..
— 6	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10		..	..	..	..	..
55 6	..	..	..	..	..	..
— 3	..	..	..	..	..	..
54 1	..	..	..	..	..	..

SEEDS, Nov. 14.

Canary per qr	56s to 60s	Linseed Cakes, Foreign, p. ton	9l to 10l
Carraway per cwt	48 52	Mustard, White	p. bush. — s —
Clover, Red, English	— —	— Superfine	— —
— Foreign	— —	— Brown	— —
— White, English	— —	Rapeseed, English, per last	26l 28l
— Foreign	— —	Rape Cakes per ton	— —
Coriander	10 16	Saintfoin	— —
Hempseed per qr.	35 36	Tares, Eng. winter p. bush.	6 7
Linseed	54 60	— Foreign	4 4s6
— Baltic	42 48	Trefoil per cwt	18 23
— Cakes, Eng. per 1000	12l 13l	Turnip (too variable for quotation)	

KINGSFORD AND LAY.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & Others.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietor, in consequence of the land being required for other purposes, to submit to public competition, on the Premises, Hanover Park Nursery, Rye-lane, Peckham, on Monday, Nov. 17, 1845, at 11 o'clock, the whole of the valuable NURSERY STOCK, consisting of Fruit and Forest Trees, Evergreens and Shrubs, Herbaceous Plants, &c. May be viewed prior to sale, and Catalogues had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Thursday, Nov. 20, 1845, at 12 o'clock, a First-class Collection of DUTCH BULBS, comprising very fine Double and Single Hyacinths, Tulips, Narcissus, Jonquils, Crocus Ranunculus, Anemone, Iris, Lilies, &c. Also, a splendid assortment of Standard and Dwarf ROSES, consisting of all the leading varieties, and other hardy Plants. May be viewed the Morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, GARDENERS, PLANTERS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will submit to Public Competition on the Premises (corner of Dalston-lane, Hackney), on Monday, Nov. 24, 1845, and following days, at 11 o'clock (by order of the Proprietors, in consequence of the land being required for other purposes), the whole of the valuable NURSERY STOCK, consisting of several thousands of large and handsome Hollies, Arbutus, Aucuba, Arbor Vitæ, Box, Red Cedars, Yews, and other Evergreens, in fine condition, and warranted to remove with safety. Fine Ornamental Trees and Shrubs of every description, trained and untrained Fruit-trees, Araucaria Cunninghamii and Excelsa, 10 ft. to 12 ft. high, and very handsome. May be viewed prior to the Sale. Catalogues 1s. each, returnable to Purchasers, may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NURSERYMEN, SEEDSMEN, BUILDERS, & OTHERS.

TO BE DISPOSED OF, most desirable NURSERY GROUNDS, situate within half an hour's ride from either of the Bridges, containing about Three Acres of Land in a very high state of cultivation, and in the midst of a populous and wealthy neighbourhood. There are a Cottage, Greenhouse, Pit, and Seed-shop on the Premises. The above are held under a Lease, of which 30 years are unexpired. The valuation of the Stock, &c., will not exceed £150. For further particulars, apply, by letter, to C. D., 6, Buckingham-road, Kingsland, near the Beauvoir Arms.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

TO BE LET, A DESIRABLE NURSERY BUSINESS, near London, on reasonable terms, with immediate occupation.—Apply to Messrs. H. Low and Co., Nursery, Upper Clapton, Middlesex.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

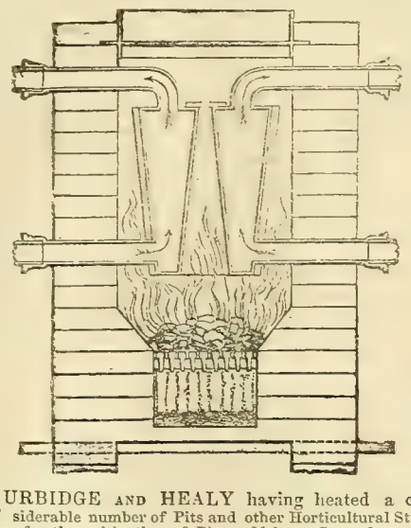
HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.
BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SREWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

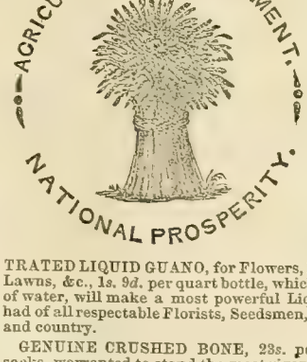
GUANO (GENUINE PERUVIAN & BOLIVIAN,)
ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, Nov. 15.

THE FARMERS OF GREAT BRITAIN are requested to read the pamphlet on "GYPSUM, AS A MANURE;" describing its various important uses for Agricultural purposes, with full and plain directions for its application, and containing an account of numerous cases of its surprising efficacy and cheapness.

The Pamphlet will be sent free to any part of the Kingdom, on receipt of a post-paid application (containing Three Penny Stamps), addressed to NEWTON and PECK, Hull.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

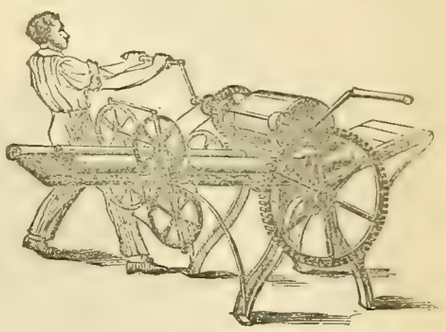
FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

DR. LIEBIG'S WHEAT MANURE.—The undersigned is ready to take orders for the above Manure in any quantity. Has also on Sale, GUANO (warranted to analysis), SUPERPHOSPHATE of LIME, BONE-DUST, SULPHURIC ACID, WHEAT BRINE, SULPHATES of IRON and COPPER; and every other Manure of known value.
MARK FOTHERGILL, 40, Upper Thames-street, London.
P. S.—Agents wanted for the sale of the Wheat Brine.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25*s.* per ton in the stream, or 27*s.* 6*d.* per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2¼ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l.* No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l.* The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s.* to 3*s.*, or 3*s.* 6*d.* per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

PATENT DRYING PROCESS.

Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

A machine may be seen at work at Alperton; also at Messrs. Howe's Factory, 119, Great Guildford-street, Southwark; the Polytechnic Institution, Regent-street; at Mr. Slight's, Curator of the Highland Society, Leith-walk, Edinburgh; and Mr. Lawrence Hill, jun., Civil Engineer, Buchanan-street, Glasgow. Application for further information and licenses to be made to the subscriber,
JOHN AINSLIE.
Alperton Tile-works, Acton, Middlesex.

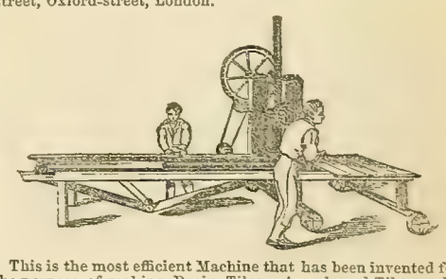
IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest sizes.

Price of Machine, with six rows	.....	£35
,,	eight rows	40
,,	ten rows	45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of the country.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ ,,	,, 8,000	2½ ,,	,, 3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 113, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

THE ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

CENTRAL COMMITTEE, October 6, 1845.

PRESIDENT.—THE MOST NOBLE THE MARQUIS OF NORTHAMPTON.

VICE-PRESIDENTS.

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Sir Philip de Malpas Grey Egerton, Bart. M.P. F.R.S.
Sir Charles Lemon, Bart. M.P. F.R.S.
The Very Rev. S. Wilberforce, D.D. Dean of Westminster.

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S. Birch, Esq. F.S.A. Assistant Keeper of the Antiquities, British Museum.
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W. Bromet, Esq. M.D. F.S.A. Corresponding Member of the Société Français pour la Conservation des Monuments Historiques.
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B. Ferrey, Esq. Fellow of the Institute of British Architects.
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T. Duffus Hardy, Esq. one of the Assistant Keepers of the Records.
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E. Hawkins, Esq. F.R.S. F.S.A. Keeper of the Antiquities, British Museum.
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C. Newton, Esq. M.A. Department of Antiquities, British Museum.
A. Poynter, Esq. Hon. Secretary of the Royal Institute of British Architects.
Evelyn Philip Shirley, Esq. M.P.
T. Stapleton, Esq. F.S.A.
W. J. Thoms, Esq. F.S.A.
Patrick Fraser Tytler, Esq. F.S.A.E.
W. S. W. Vaux, Esq. M.A. Department of Antiquities, British Museum.
Albert Way, Esq. M.A. Director of the Society of Antiquaries.—*Hon. Secretary.*
Sir Richard Westmacott, R.A. F.R.S. Professor of Sculpture, Royal Academy.

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Sir John P. Boileau, Bart. F.R.S. M.R.I. Ketteringham.
Rev. William Buckland, D.D. F.R.S. Canon of Christ Church.
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Rev. J. L. Richards, D.D. Rector of Exeter College, Oxford, Domestic Chaplain to the Prince Albert.
The Rev. J. H. Todd, D.D. V.P.R.I.A. Secretary of the Irish Archæological Society.
Rev. William Webb, D.D. F.L.S. Master of Clare Hall, Cambridge.
Rev. William Whewell, D.D. V.P.R.S. F.S.A. Master of Trinity College.
Rev. Robert Willis, M.A. F.R.S. Jacksonian Professor, Cambridge, President of the Cambridge Antiquarian Society.
Rev. Thomas Worsley, M.A. Master of Downing College, Cambridge.

Editor of the Publications of the ARCHÆOLOGICAL INSTITUTE and Resident Secretary, T. Hudson Turner, Esq. Hon. Member Ant. Soc. of Newcastle.

THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland is formed in order to examine, preserve, and illustrate all Ancient Monuments of the History, Manners, Customs, and Arts of our Forefathers.

The means by which the Central Committee propose to effect this object are—

1. By holding communication with correspondents throughout the Kingdom, and with provincial Antiquarian or Architectural Societies; as well as by direct intercourse with the Comité des Arts et Monuments of the Ministry of Public Instruction in France, and with other Associations on the Continent instituted for the advancement of Antiquarian Science.

2. By holding frequent and regular meetings for the consideration and discussion of communications received from correspondents and other persons.

3. By procuring careful observation and preservation of Antiquities discovered in the progress of Public Works, such as railways, foundations of buildings, &c.

4. By encouraging individuals, or public bodies, in making researches and excavations, and affording them suggestions and co-operation.

5. By opposing and preventing, as far as may be practicable, any injuries with which Ancient National Monuments of every description may from time to time be threatened.

6. By using every endeavour to spread abroad a correct taste for Archæology, and a just appreciation of Monuments of Ancient Art.

7. By collecting accurate drawings, plans, and descriptions of Ancient National Monuments, and by means of correspondents preserving authentic memorials of antiquities which may from time to time be brought to light.

8. By establishing a Journal devoted exclusively to the objects of the Institute, as a means of spreading antiquarian information, and maintaining a constant communication with all persons interested in such pursuits.

9. By every occasion which may present itself to call the attention of the Government to the conservation of our National Monuments, and to the other objects of the Institute.

RULES AND REGULATIONS OF THE ARCHÆOLOGICAL INSTITUTE.

I. THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland shall consist of Life Members, contributing a donation of not less than 10*l.*, of Annual Members contributing not less than 1*l.* each year, and of Corresponding Members who, taking an interest in the objects of the Institute, and being disposed to give furtherance to them without any pecuniary contribution, may desire to attach themselves to the Institute. The Corresponding Members shall not be entitled to vote, nor have any other privileges.

II. The Government of the Institute shall be vested in a Central Committee, consisting of a President, four Vice-Presidents, three Honorary Secretaries, a Treasurer, and twenty-four ordinary Members.

III. The President's tenure of office shall be for one year.

IV. The Honorary Secretaries and Treasurer shall be elected by the Committee, who shall also have the power of electing a Secretary, at such a salary as they may consider proper.

V. The Election of the President, Vice-Presidents, and Members of the Central Committee shall be made by the ballot of the Life and Annual Members at the Annual Meeting. The Committee shall select one Vice-President and six members of their body, who are to go out annually, and shall nominate one Vice-President, and six other Members to fill up the vacancies. The names of those who go out, and of those who are proposed to supply their places, shall be hung up in the Local Committee Room during the whole time of the Annual Meeting, and a printed copy of such lists furnished to each Member of the Institute, with his ticket for the Annual Meeting. No Member of the Committee, except the Honorary Secretaries and Treasurer, shall remain on the Committee more than four years, or be eligible to serve again until after the lapse of one year. Any Member of the Institute is at liberty to substitute on the list other name or names for those proposed by the Committee.

VI. The Committee shall be empowered to fill up *pro tem.* by election all occasional vacancies that may be caused by the death or resignation of the President, or any of the Vice-Presidents or ordinary Members of the Committee.

VII. These vacancies shall be supplied on the recommendation of at least three Members of the Committee, made in writing at one of the ordinary Meetings; the proposed Member to be ballotted for at the succeeding ordinary Meeting.

VIII. The Annual Meeting shall be holden in one of the cities or principal towns in the kingdom, at which the elections, the appointment of the place of meeting for the ensuing year, &c., shall take place. Notice of this Meeting shall be given by one of the Honorary Secretaries, by order of the Committee.

IX. The Committee shall have the power of nominating a certain number of Local Vice-Presidents.

X. No other General Meeting of the Institute shall be holden without the consent of at least three-fourths of the Committee, expressed in writing; for such Special Meeting, a notice of at least three weeks shall be given by advertisements in the public papers. At this Special Meeting, the President, or, in his absence, one of the Vice-Presidents, shall take the chair, and, in their absence, the Committee shall appoint a Chairman.

XI. Neither at the General Annual Meeting, nor at any Special General Meeting, shall any alteration of, or addition to, any of the Rules or Regulations of the Institute be submitted to the Meeting, unless upon a proposal in the form of a resolution in writing, signed by two Life or Annual Members: which shall have been sent to the Committee one month previous to the Meeting, and suspended in their committee-room.

The Summons for the Special General Meeting shall specify the Resolution or Resolutions to be submitted to the Meeting, and the discussion shall be confined to that object only: in case such proposed Resolution or Resolutions shall be carried, another Special General Meeting shall be summoned by the Committee after the lapse of not less than a fortnight, or more than a Month, for the sole purpose of ratifying or rejecting such Resolution. If, however, the first-mentioned Special Meeting take place at a time not more than two Months before the Annual Meeting, then such Resolution or Resolutions shall be ratified or rejected at that Annual Meeting.

XII. The Chairman of the Annual, or any other General Meeting, shall have an Independent as well as a Casting Vote.

XIII. A certain number of persons, not usually resident in London, shall be associated with the Central Committee as Honorary Members of that Body, and shall be entitled to a Vote at their Meetings. Such Honorary Members shall be proposed on the recommendation of at least three Members of the Committee, and the Election shall take place at the succeeding Ordinary Meeting.

XIV. The Committee shall appoint a certain number of persons, not resident in London, as their Local Secretaries.

XV. The Election of Local Secretaries and Corresponding Members shall be made by the Committee on the proposal of one of the Members thereof, either on his own personal knowledge or on the recommendation of two subscribing Members of the Institute.

XVI. In these and all other Elections made by the Committee, it shall be allowable for any Member thereof to demand a Ballot.

XVII. Subscriptions and Donations may be paid to the Treasurer, to any Member of the Committee, or to the Account of the Archæological Institute with the Bankers of the Institute, and no Subscriber shall be entitled to Vote at the Annual Meeting who has not paid his Subscription. The Year shall be considered as closing with the termination of the Annual Meeting; from which time the Subscription for the ensuing year shall become due.

XVIII. The Cash Book, and an account of all Receipts and of the Balance in the Bankers' hands, shall be laid on the table at each Meeting of the Central Committee. All Bills having been duly examined, and approved in writing, shall be paid by Cheque upon the Bankers, signed by the Treasurer.

XIX. The Accounts of the Institute shall be submitted Annually to two Auditors, who shall be elected for that purpose by the Members of the Institute at the General Meeting, and who shall attest by their Signatures the accuracy of the said Accounts. The Accounts having been thus approved, shall be submitted to an Annual Meeting of the Committee, to be holden on the First Wednesday in May, and shall be printed and published in the Journal of the Institute as part of the proceedings of the Committee.

XX. A Report of the Proceedings of the whole year shall be submitted to the Annual Meeting.

XXI. The Central Committee shall be empowered to make such Bye-Laws as may, from time to time, appear to them expedient.

The Central Committee request the Local Secretaries to attend, whenever it may suit their convenience, the Ordinary Meetings, which take place once in every fortnight at the apartments of the Institute, 12, Haymarket, for the discussion of Archæological communications and the exhibition of objects of interest.

ORDINARY MEETINGS OF THE CENTRAL COMMITTEE:—

12, Haymarket. *The Chair will be taken at Four o'clock.* Mondays, November 24; December 8.

Subscriptions may be paid to the Bankers, Messrs. Cockburns, 4, Whitehall. All communications should be addressed to T. HUDSON TURNER, Esq. 12, Haymarket.

CHEAP AND DURABLE ROOFING,
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47.—1845] SATURDAY, NOVEMBER 22. [Price 6*d*.

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TO THE SUBSCRIBERS TO THE GARDENERS' BENEVOLENT INSTITUTION.

The favour of your Vote and Interest is earnestly solicited on behalf of

CHRISTOPHER BIRMINGHAM, AGED 75 YEARS.

He was regularly brought up to the profession of Gardening, and has been employed as a Head Gardener for upwards of 50 years by several Gentlemen, who have forwarded to your Committee the highest testimonials as to his character and abilities, and their entire approbation of his conduct as a servant. For the last four years he has been totally incapacitated, by Chronic Rheumatism, from following his business or any other employment, and his medical man pronounces his case to be quite hopeless. He has brought up, without any assistance, a large family of children.

The case is most strongly recommended by the following Members of the Institution, who will gladly receive proxies :—

Messrs. Veitch & Son, Nurserymen, Exeter.
Mr. A. Pontey, Nurseryman, Plymouth.
Mr. Young, Nurseryman, Taunton.
Messrs. Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Barnes, Bicton.
Mr. Mason, Escott, near Honiton.
Mr. Kemp, Rockbeare, near Exeter.
Mr. Bray, Sidmouth.
Mr. Charmes, Exeter.

Exeter, Oct. 30.

EXHIBITION OF CHRYSANTHEMUMS.

CHANDLER & SONS, Nurserymen, Vauxhall, beg to state that their Collection of this beautiful Autumnal Flower is now in bloom, and will continue in perfection during the present month. Admittance Gratis.

S. GIRLING begs to refer the readers of the *Gardeners' Chronicle* to his Advertisement of "DANECROFT EARLY PEA," of Nov. 15.

Danecroft Nursery, Stowmarket, Suffolk.

WM. JACKSON and CO., Nurserymen, beg to call the attention of the readers of this Paper to the valuable articles advertised by them in the *Gardeners' Chronicle* of the 15th inst. To parties requiring, this opportunity seldom occurs of procuring the very best sorts in strong healthy well-grown plants on such reasonable terms.

Cross-lanes Nursery, Bedale, Yorks., Nov. 22.

STUART'S GROVE NURSERY, FULHAM ROAD, CHELSEA.

C. M. & R. WESTMACOTT, Seedsmen, Florists, &c., respectfully inform their friends and the Public that they have, in addition to the above establishment, taken the premises lately occupied by Messrs. T. and C. Lockhart, 156, Cheapside, and beg to call attention to their CATALOGUE OF BULBS (which will be forwarded on receiving a pre-paid application), as being true to character, having been purchased either from the splendid collection of the above gentlemen, or imported from the first foreign houses.—Nov. 22.

TO NURSERYMEN, FLORISTS, and the TRADE in General.

WM. WOOD and SON'S WHOLESALE CATALOGUE of ROSES, GREENHOUSE PLANTS, &c. may still be had, GRATIS, on application, and will be found to contain many of the leading varieties at very moderate prices.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THE FOLLOWING CHOICE PLANTS May be obtained at the prices annexed, at

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Cupressus thurifera, 2*s* 6*d*
Cupressus torulosa, 5*s*
Juniperus Bedfordiana, 5*s*
,, recurva, 3*s* 6*d*
Pinus excelsa, 2*s* 6*d*
,, patula, 1½ foot, 5*s* to 7*s* 6*d*
,, resinosa, 10*s* 6*d*

With many other rare species of Conifera.

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Pinks, fine sort, by name, 6*s* per doz.
Antirrhinums, new, by name, 18*s* per doz.

A Large Collection of Hardy Herbaceous Plants, named, from 9*s* to 12*s* per doz.—Exotic Nursery, Canterbury, Nov. 22.

BRACONDALE HORTICULTURAL ESTABLISHMENT.

JOHN BELL begs to inform his friends and the public he can supply fine strong canes of the TRUE FILBY SEEDLING OR FASTOLFF RASPBERRY. The trade supplied on liberal terms when large quantities are taken.

J. B. has a fine Stock of Dwarf and Standard Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples, both Trained and Maiden Plants of all the leading sorts in cultivation. Also a very extensive collection of ROSES, fine strong plants, at the following prices, the selection being left to J. B.

Full Standards, best varieties, one of a sort, per 100,			£10	0	0
Ditto	Ditto	Ditto ..... ,,	50,	5	0 0
Half ditto	Ditto	Ditto ..... ,,	100,	7	10 0
Ditto	Ditto	Ditto ..... ,,	50,	3	15 0
Standards, fine show varieties, ... ,,			doz.	1	0 0
Half ditto	Ditto ..... ,,		,,	0	15 0
Dwarf	Ditto ..... ,,		,,	9*s*. to 12*s*.	

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WM. WOOD and SON beg leave to apologise for the disappointment occasioned to those friends who kindly ordered canes of the FASTOLFF RASPBERRY late last spring after the stock had been exhausted.

W. W. & S. have the pleasure of informing those parties and others, that they now have a large supply of the above warranted true to name, and are prepared to execute orders for the same on the following terms :

100 strong canes for		25*s*.	0*d*.
50 ditto	ditto	12	6
25 ditto	ditto	6	6

UNRIVALLED VERBENAS for 1846.—

Samye.....	7*s* 6*d*	Sunbeam	5*s* 0*d*
Comet.....	7 6	Sappho	3 6
Coquette.....	5 0	Alba purpurea	3 6
Turban	3 6	Giantess	3 6

The Set for 1*l*. 11*s*. 6*d*.

Gardeners' Chronicle, Aug. 30.—"J. Z. : Your seedlings are large and good flowers. 'Comet,' French white, with lilac centre. 'Samye,' pink, with a blotch of light purple in the centre, is a large, handsome, and distinct flower."

Gardeners' Chronicle, Sept. 6.—"W. M. : 'Coquette,' when fully blown, has the newly-opened flowers on the crown of a beautifully rosy-pink ; while those below are nearly white. When bloomed in the style of the present specimen it forms a very handsome object. The same observation applies to the Comet, which is large, having a tinge of lilac on the face of the flower, which is ornamented with crimson, purple centre. We have lately seen one somewhat similar to this, but not quite so large and distinct."

Land Steward's Journal, Sept. 6.—"Mr. Miller : Your seedlings are very good ones, and possess the character of distinctness ; the blooms and tresses are large, and the colours pleasing. We prefer 'Coquette,' a delicate pink, with deep pink eyes ; and 'Samye' rather deeper pink, with a tinge of purple in the dark colour about the eyes ; the others, Turban, deep pink, with rose eyes, and Sunbeam, rose colour, are less novel, though equally good in other respects."

Gardeners' Gazette, Oct. 4.—"Mr. Miller : All are pretty, because of the dark eyes ; but 'Comet' is by far the best in all qualities. 'Samye' is the next best, and 'Coquette' third."

Floricultural Cabinet, Oct.—"W. M. : 'Samye' rose, with crimson eyes, is very handsome."

Floricultural Cabinet, Nov.—"W. M. : The Verbenas are very handsome, and distinct from any we have seen."

The entire new character of these Verbenas, the mass of first-rate opinions given of them by all the leading Floricultural works, and the numerous orders taken for them when in flower, render any further remarks altogether unnecessary. The leading sorts will be figured in the "Cabinet." Messrs. Hurst and M'Mullen, London Agents. The names of those Nurserymen who will be enabled to supply plants, will be advertised, and the usual allowance when three sets are taken.

William Miller, Providence Nursery, Ramsgate.

*** This Advertisement will not be repeated till spring.

WAITE'S "QUEEN OF DWARF" PEAS.—This is a Variety that cannot be too extensively introduced to the notice of the Horticultural World, it being distinct from any that has been introduced to the Public. Its habit is quite distinct from all others ; being not more than 1 ft. in height, and covered with Pods. The Pea is twice the size of any other Dwarf Pea in cultivation, and excelling by three-fold in produce ; has been grown at the Royal Gardens at Frogmore, and approved of there as a new variety, and also at Her Majesty's table for its superior flavour. Price, 5*s*. per quart.

4, Eyre-street Hill, Hatton Garden, London.—Nov. 22.

SEED TRADE.

J. G. WAITE begs to inform the Trade, that his priced CATALOGUES will not be ready untill the end of the month, owing to the unfavourable season for Harvesting Seeds.—4, Eyre-street Hill, Hatton Garden, Nov. 22.

NE PLUS ULTRA PEAS, grown by Wm. Brownlees, Nurseryman, Hemel Hempstead, Herts, and sold by him at 5*s*. per quart, the stock on hand being very small. The above Pea is a tall Marrow, of a very superior quality, and most abundant bearer. It is about the same size as the British Queen Pea, but comes into bearing 14 days sooner, and is fit for use four or five weeks later. It should be sown thinly, and requires tall sticks.

A remittance is requested from unknown correspondents.

It may also be had of Messrs. W. & J. Noble, Seedsmen, 152, Fleet-street, London, by whom it can be well recommended.

GODFREY STIDOLPH, Nurseryman, opposite the Swan Inn, Bromley, Kent, begs to acquaint Gentlemen and Planters, that he has for sale 3000 LAURELS, from 3 to 5 feet and upwards ; 300 Fine BOX, 3 to 5½ feet ; 250 ARBORVITÆ, 3 to 7 feet ; 600 GREEN HOLLIES, 3 to 5 feet ; 300 SCOTCH FIRS, 3 to 8 feet ; 500 SPRUCE FIRS, 4 to 6 feet ; 120 PHILLYREA, 2 to 5 feet ; 500 ELMS, 7 to 9 feet ; 500 BIRCH, 9 to 14 feet ; 260 LIMES, 10 to 12 feet ; and a quantity of Ash, Larch, Sycamore, Beech, Spanish Chestnuts, Horse Chestnuts, Oaks, Cob Nuts, Filberts, Walnuts, Yews, Portugal Laurels, Mulberries, Irish Ivy, &c.

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YOUELL and CO. have a few more pairs of the above fine heavy-edged PICOTEE to dispose of at 15*s*. per pair. For particulars, see *Gard. Chron.*, Oct. 18.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s*. per pair.

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12 pairs extra fine and very superior first-class Show Flowers, by name				2	10	0
25	ditto	ditto	ditto .	5	0	0
12	ditto	Fine Show Flowers	ditto .	1	10	0
25	ditto	ditto	ditto .	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12*s*.

HYACINTHS, Double and Single, Blue, Red, White, and Yellow, very fine, 6*s*., 12*s*., and 18*s*. per dozen.

Extra fine TULIPS, by name .. .. 12*s*. per dozen.
Ditto ditto Mixed, from named flowers 21*s*. per 100.
Fine ditto ditto ditto 16*s*. ,,
FUCHSIAS, extra fine, including "Serratifolia," 21*s*. p. doz.
CHRYSANTHEMUMS ditto .. 12*s*. per dozen.
VERBENAS ditto .. 6*s*. ,,
PETUNIAS ditto .. 9*s*. ,,
PANSIES ditto .. 10*s*. ,,
Ditto, very best first-rate Show Flowers 18*s*. ,,
CINERARIAS, extra fine sorts, by name 12*s*. to 18*s*. ,,

RIBES SANGUINEUM FLORE PLENO 10*s*. 6*d*. per plant.
MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s*. per 100.
"PRINCESS ALICE MAUDE," ,, 10*s*. ,,
YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12*s*. per dozen. Roots placed in a cellar or closet in November will be fit for cutting in December.—Great Yarmouth Nursery, Nov. 22.

MITCHELL'S FIRST-RATE DAHLIAS FOR 1846.

JAMES MITCHELL begs respectfully to announce his intention of sending out the first week in May the following Superb and Distinct DAHLIAS, which he can with confidence recommend.

MERRY MONARCH—beautiful shaded rose, quite new in colour, obtained a first-class Certificate at the Grand Show at Slough ; is a most noble and constant show flower, 4 ft., 10*s*. 6*d*.
ERECTUM—fine crimson, obtained the first prize at Tonbridge Wells, and is a constant show flower, 4 feet, 10*s*. 6*d*.
LADY CHARLEVILLE—Seedling of 1844, partially let out last season. J. M. exhibited three blooms at the Grand Show, Slough, but not for competition. It was pronounced the best flower of the season by the first Metropolitan amateur growers—colour, rosy pink, 4 feet, 7*s*. 6*d*.
MARIE LOUISE—Maroon, tipped with white, fine fancy variety, 3 feet, 7*s*. 6*d*.
DAWN OF DAY and GOLIAH—These two varieties, J.M. purchased of J. V. Shelley, Esq., Maresfield, Park. Dawn of Day, beautiful pink, pronounced a first-class show flower by the Metropolitan Judges, 3 feet, 10*s*. 6*d*. Goliah, dark rose, a constant show flower, 5 feet, 10*s*. 6*d*.
HERO OF SUSSEX (Fowler's)—Light crimson, fine shape, 5 feet, 10*s*. 6*d*.

Piltdown Nursery, Maresfield, Uckfield, Sussex.

USHER'S SUPERB CALCEOLARIAS.—We, the undersigned, having seen Mr. Usher's letter to Messrs. W. Jackson and Co., respecting their selection of his Seedling Calceolarias, do hereby certify that Mr. Usher writes to them as follows :—"As to you having the second selection, the other party has the advantage of you in the first choice, and can advertise as such ; but your Collection is quite distinct from his and no way inferior, if I had held them a little longer I could have made double the price you gave for them. I hope this will satisfy you on the subject."

(Signed) { Thomas Crake, Scruton Hall. George Marley, Arncliffe Hall.

Cross-lanes Nursery, Nov. 22.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

Augusta	£1 1*s*.	Lord Morpeth ..	£1
Alice	1 1	Duke of Orleans ..	1 1
Gipsey Maid	1 1	Josephus	1 1

The Set of Six, 5*l*. 10*s*. Cash, 5*l*.

The following 12 sorts, as sent out last season at 10*l*. 10*s*., the set may be had for 3*l*. 3*s*., or cash. 3*l*. :—Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, Sarah Jane.

Package free, and in either case a choice Plant will be put to defray the carriage.

William Miller, Providence Nursery, Ramsgate.

CHOICE FLOWER ROOTS ON SALE BY

CLARKE & CO., Seedsmen and Florists, 86, High Street, Borough, London. Fine Named Double and Single Hyacinths for glasses, 6*s*. per dozen ; fine mixed ditto for pots, 3*s*. per dozen. Polyanthus Narcissus, 2*s*. per dozen. Early Van Thol Tulips for blooming in pots, 6*s*. per 100. Fine late mixed Tulips, from named flowers, for blooming in beds, 10*s*. per 100. Crocuses in eight beautiful varieties, 2*s*. per 100. Double Snowdrops, 2*s*. per 100. Fine Mixed RANUNCULUS, 4*s*. per 100. LILIUM LONGIFLORUM, New and Splendid, 5*s*. per dozen.

C. & CO. beg to state that their Catalogue of Bulbs, comprising every article as cheap as any other house in the trade, will be forwarded on application.

All orders for Roots will be sent, carriage paid, within 100 miles of London.

FAIRBEARD'S "EARLY SURPRISE" BLUE MARROW PEA.

GEORGE CHARLWOOD in submitting the above PEA to the Horticultural public feels confident that he is recommending to their notice an article that will at once prove a great acquisition to the private garden, and likewise of great importance to the market gardener; with this view he begs to submit the following description and Testimonial which he trusts will be a sufficient guarantee as to its character:—It grows from three to four feet high, is equal in flavour to the Knight's Marrow, and as early as the Double-blossomed Frame; an abundant bearer, with pods equal in size to the Marrow Peas generally, and is not subject to mildew. A second crop from the seed of the same year has been gathered in each of the two last seasons.

We, the undersigned, consider Fairbeard's "Early Surprise" PEA the best in cultivation, a great cropper and as early as the Double-blossomed Frame:—J. Creed, gardener to the Right Hon. S. R. Lushington; E. George, gardener to N. J. Knatchbull, Esq.; J. Mouelaus, gardener to the Right Hon. Lord Harris; W. Clifton, gardener to the Right Hon. Lord Sondes, Lees Court; William Hughes, gardener to Mrs. Simpson; J. Fox, gardener to the Right Hon. T. P. Leigh; J. Harris, gardener to Sir John Tylden.

Price 3*s.* 6*d.* per quart, with a liberal allowance to the Trade. 14, Tavistock-row, Covent-garden, London.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON are now executing orders for collections of ROSES, and beg leave to inform their friends that the stock was never finer or more extensive than it is this season.

W. W. & S. will supply superb varieties at the following prices, the selection being left to themselves; the plants are healthy, vigorous, and well established.

	Per Doz.	Per 100.
Superior selected Standards	£1 4 0	£10 0 0
Superb do. do., extra fine	1 10 0	
Fine Dwarfs	0 12 0	
Superb do. extra fine	0 18 0	
Fine Dwarfs on own roots in 50 varieties		2 10 0
Do. climbing	9*s.* to 0 12 0	
Good Dwarfs on own roots without names		1 10 0

Extra superior standard Roses, on stout stocks selected for the purpose, from 4 to 6 feet, with very large heads, which are peculiarly adapted for planting in conspicuous situations, at 36*s.* per dozen, or 3*s.* 6*d.* each.

With each order will be presented a proportionate number of plants towards defraying the expence of carriage, &c.

A remittance or reference will be expected from unknown correspondents.

A descriptive catalogue of WOOD and SON'S collection of Roses, together with their new supplementary list of Greenhouse and Herbaceous Plants, &c., may be had gratis on application.

PROCKTER'S "BOHEMIAN GIRL" DAHLIA.

J. T. NEVILLE begs respectfully to announce to Nurserymen, Florists, &c., that he has the pleasure of offering Dry Roots of the above splendid NEW DAHLIA at 5*l.* each. Colour, delicate white, broadly and boldly margined with deep purple, the flowers maintaining their beautiful and brilliant colours (in which it surpasses all others of its class) unaltered in its marking from the commencement to the close of the season, grown under every disadvantage, and only one mile from London-bridge. The habit is surpassingly grand; as a show variety, fit for a first-rate stand; and, as a garden flower, matchless. Received a First Class Certificate at the Slough Show, open to all England (see *Gardeners' Gazette*, p. 680), and from the commencement of the season.

J. T. N. begs to remind the growers generally, that Mr. Prockter having sent out two of the best Dahlias in cultivation, viz. "Nonpareil" and "Bermondsey Bee," trusts that his name will be sufficient guarantee for the quality of the present superb variety.—Peckham, Nov. 22.

POTATOES FOR SEED.—To be sold, any quantity of Sound POTATOES, of that noted sort "The True Shaws." Part of the bulk to be seen at Mr. MILTON'S, 10, Great Marylebone-street, Wimpole-street.—Price, 8*s.* per cwt.

FOR SALE.—Six pairs of the Genuine HARE RABBITS, at the following prices, viz:—One to two months old, 10*s.*; three to four months, 15*s.*; and older, 20*s.* per pair. See *Gardeners' Chronicle* of 12th July.

This very large and beautiful Breed has the precise character of the Hare, both in size, colour, and flavour.

Apply to Mr. JOHN BRETT, Market-place, Great Yarmouth.

HUNT'S IMPROVED REGISTERED HYACINTH-POT AND SUPPORT—from 1*s.* 6*d.* each.

"Mr. HUNT'S new Hyacinth-pots are made in Ornamental China, and have a neat contrivance for fixing the wires required to steady the flowering-spike and leaves of the Hyacinth, and present the advantage of keeping the roots of the bulb in the dark; they are far better looking than Hyacinth-glasses in common use."—*Gardeners' Chronicle.*

"They are infinitely more sightly than the old glass, stronger, more convenient, and far more healthful to the plant. We strongly recommend it as a decided improvement."—*Art Union.*

"Their appearance is far better, and they are superior in all other respects."—*Gardeners' Gazette.*

See also "Paxton's Magazine" for December, &c.

Kept by most Seedsmen and Florists; wholesale and retail, at Hunt's Patent Garden Pot Depôt, by appointment to the Royal Gardens, 29, Queen's-row, Pimlico.

HORTICULTURAL IMPROVEMENTS.

J. READ begs to inform Ladies, Amateur and Practical Gardeners, that he has just taken out a NEW PATENT for improvements in his Horticultural Machines and Domestic Fire Engines, particularly in the Valvular Action, which are now so perfect that he will warrant to keep the valves in repair during the term of the Patent. The above Engines may be worked with half the labour required for any other Engines for the same purpose, which the Patentee, from 31 years' experience in the science of Horticulture, can safely warrant.

May be seen and proved at 35, REGENT-CIRCUS, Piccadilly; and at the Smithfield Cattle Show.

N.B.—None are genuine except stamped "Read's Patent."

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

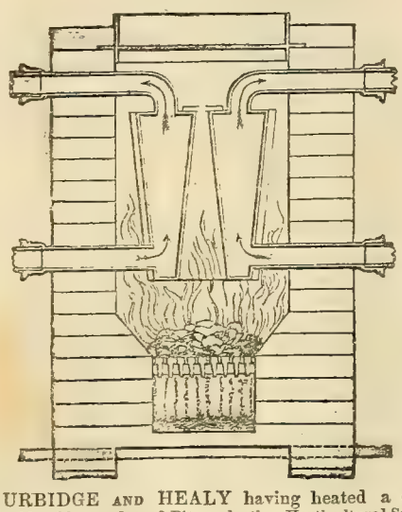
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

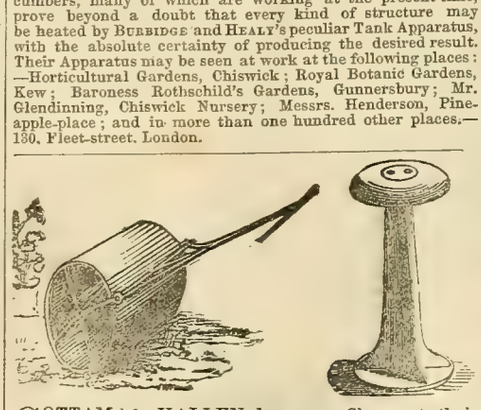
D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.



COTTAM & HALLEN have on Show, at their Repository, No. 2, WINSLEY STREET, OXFORD STREET, LONDON, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety; and a large assortment of Horticultural and Agricultural Implements.

ORNAMENTAL WIRE Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

HAND GLASS FRAMES, Cast and Wrought Iron Flower Stakes, Garden Arches, &c. &c.

STRONG IRON HURDLES, and best Wire for Strained Wire Fencing.

HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water apparatus, in any part of the Kingdom.

SHOW ROOMS at the MANUFACTORY, 2, WINSLEY STREET, OXFORD STREET, opposite the Pantheon, where every information may be obtained.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM'S Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15*s.* to 20*l.*—19, Wigmore-street, Cavendish-square.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

ENGLAND INDEPENDENT OF ICHABOE.

BRAIN'S GUANO.—This being the third year of its introduction to the Agricultural world, it has been proved on almost every description of crop and soil, by practical men, to be superior to the imported, as it can always be depended on, being of uniform strength and composition, founded on the analysis of the best Peruvian, without its impurities.



The price 9*l.* and 5*l.* 10*s.* per ton, including sacks and delivery to any railway or wharf in Town; Testimonials & every particular sent post-free on application.

Also BRAIN'S HIGHLY-CONCENTRATED LIQUID GUANO, for Flowers, Plants, Shrubs, Grass Lawns, &c., 1*s.* 9*d.* per quart bottle, which, added to 80 gallons of water, will make a most powerful Liquid Manure. To be had of all respectable Florists, Seedsmen, and Chemists in town and country.

GENUINE CRUSHED BONE, 23*s.* per quarter, including sacks, warranted to stand the most rigorous analysis.

GYPSUM (Sulphate of Lime) 23*s.* per ton, in quantities not less than three tons, warranted pure.

FINE BONE-POWDER, 8*l.* per ton, is the best to dissolve quick in Sulphuric Acid for making Superphosphate of Lime.

Steam Works, Thomas-st., Stamford-st., Blackfriars-road.

GUANO (GENUINE PERUVIAN & BOLIVIAN,) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents, COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL. 47, Lime-street, Nov. 22.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

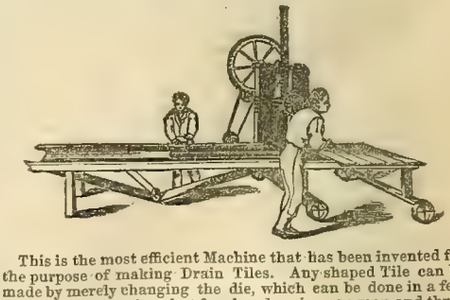
THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

GYPSUM FOR MANURE, prepared by the only method which will ensure its success for Agricultural purposes, by NEWTON & PECK, WILMINGTON WORKS, HULL. A Pamphlet containing instructions for its application and full particulars as to its uses as a fertilizer, with numerous cases of its surprising effects, sent free to any part of the kingdom, on receipt of a post-paid letter containing Three Postage Stamps.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25*s.* per ton in the stream, or 27*s.* 6*d.* per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

HATCHER'S BENNENDEN TILE MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1¾ inches diam. of Tile,	5,800
1¼ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, vol. 5.

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or license. The purchase of the Machine includes free use of it.

THE TRUE "FASTOLFF" RASPBERRY.

YOUELL & CO. take the present opportunity of announcing that they continue to supply the above in its genuine state as originally sent out by them, and such as they have had the honour of supplying HER MOST GRACIOUS MAJESTY THE QUEEN, HIS GRACE THE DUKE OF RUTLAND, HIS GRACE THE DUKE OF MARLBOROUGH, THE EARL OF HARRINGTON, THE EARL OF LIVERPOOL, THE LORD BISHOP OF LONDON, LORD VISCOUNT LORTON, LORD SONDES, &c. &c.; as well as the HORTICULTURAL SOCIETY OF LONDON.

Price of Fine Canes of the above, 24*s.* per 100; 13*s.* per 50; and 7*s.* per 25.

Great Yarmouth Nursery, Nov. 22.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 22, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

FRIDAY,	Nov. 29—Botanical (Anniversary)	. .	8 P.M.
MONDAY,	Dec. 1—Entomological	. .	8 P.M.
TUESDAY,	— 2 { Horticultural	. .	2 P.M.
	{ Linnean	. .	8 P.M.

AMIDST the crowd of flowers of all sorts which the eagerness for novelty has called into existence, PELARGONIUMS are among those which have been most improved and worst classified. Endless lists of names are to be found in every nursery, but a good arrangement and selection of them, by which a buyer may be guided with certainty, is nowhere to be found.

No wonder that our correspondents should cry out at the inconvenience to which they are exposed, and call upon us to help them. It is certainly provoking to buy half-a-dozen plants, warranted to be of first-class excellence, and then to find them all possessing the same colours and general character.

For the future all such misfortunes will be avoided by consulting the following list, which is exclusively composed of varieties remarkable for their excellence, and well suited for either private growth or public competition:—

White.
Una
Susanna
Lyne's White Perfection
Sarah
Camilla
Emma

Pink or Light Rose.
Matilda
Sylph
Nestor
Leonora
Rosetta
Catleugh's Juliet

Rose.
Beck's Zanzummim
Rosetta superba
Hoyle's Pompey
Queen Philippa
Nymph
Symmetry

Rose, with white centre.
Luna
The Cid
Garth's Constellation
Unit
Foster's Nabob
Arminta

Dark top petals, with light bottom ones.
Oberon
Pulchellum
Queen of the Fairies
Lyne's Imogene
Beck's Hebe
Cyrus superb.

Orange and high-coloured Flowers.
Lord Chancellor
Sultana
Duke of Cornwall
Conflagration
Hybla
Erectum

Crimson.
Pluto
Sapphire
Hodge's Commodore
Gaines's King
Grand Duke
Madeline

Purple.
Sir R. Peel
Beck's Purple
Rob Roy
Creole
Repeal
Emperor Nicholas.—*

AMONG the projects for curing POTATOES, one of the most notable is that of exposing them to the action of CHLORINE. It is alleged that this gas renders the tainted Potatoes sweet and fit for food, and cottagers are strongly urged to employ it daily for the purification of their decaying crop.

Last week Mr. TATTERSALL advised all farmers to set about providing themselves with chlorine, manganese, and oil of vitriol, in order to operate upon their Potatoes; but we took the opportunity of warning them against the danger of the experiment (p. 770). A correspondent signing himself "Rusticus Clericus," now begs us to state distinctly "whether we seriously meant to say that death might probably ensue from *eating* such Potatoes!" It certainly did not occur to us that any one would so interpret our hint; we assumed that well-informed persons were aware that chlorine is a very irritating dangerous gas, to inhale which might possibly prove fatal; and our caution was against the use of the gas, not the eating the Potatoes after being chlorined. If people should be so unwise as to engage in the operation we certainly anticipate serious accidents.

We think the operation unsuited to the means of cottagers, and unfit for them to undertake. If any trials are to be made, they should be carried on in chambers fitted up for the purpose, by people instructed in the use of such materials as are required for the extrication of chlorine. Such experiments may suit the Marquess of Westminster, but will they suit Hob Frogley? Only imagine the ignorant peasant buying the ingredients for a batch of chlorine operations; separating his oil of vitriol into pounds; pouring it over his salt and manganese, watching the extrication of gas, catching the fumes, half suffocating himself, his wife, or his children, getting out of the way of the noxious vapours, shutting up his room, previously made airtight! returning after the expiration of 12 hours, opening the door, and waiting outside for a couple of hours more till the atmosphere of the room is breathable, before he can get at his Potatoes. Imagine moreover his anger at finding them just as he left them. Does any one seriously imagine that a peasant will do such things?

But suppose it done; what, let us ask, is accomplished? We confess our inability to discover the advantage of the operation. The chlorine is said to dry the Potatoes. That is absurd: but if so, the air will do the same. When chlorined, the Potatoes will keep for several weeks, in a "dry, airy place," and the disease does not progress. But the same effect is obtained in all dry, airy places, whether chlorine is used or not. The remedy, if it does no more, "stays the disease where it was, so that you may keep your Potatoes till they are consumed." Exactly the same result is obtained by dryness without chlorine. In short, as we before stated, we see no advantage in the operation, even if it were one suited to the use of poor people, except to the vendors of manganese and oil of vitriol.

We are not speaking unadvisedly. We have tried the process of chlorining, and we cannot discover a good point about it.

There is, moreover, one small circumstance which is not explained by the advocates of chlorine; and that is, how the Potatoes are to be kept till they can be chlorined. If they are *not* stored so as to be perfectly dry, they will decay before chlorine can be administered. If they *are* kept perfectly dry, chlorine is needless. It is hardly proposed that a man's whole stock should be operated on at once; and if it was, it can only be preserved in dryness.

While, however, we regard the use of chlorine as a mistake, so far as the preparation of Potatoes for food is concerned, it may be a question whether or not they will be beneficially influenced by it, if used as sets. To that point we may perhaps advert on another occasion.

IT will be in the recollection of the Fellows of the Royal Society, and of those distinguished persons present at the evening parties of the MARQUESS OF NORTHAMPTON during the last season, that great admiration was excited by Mr. GOADBY's beautiful anatomical preparations of the lower classes of animals, preserved in fluids discovered by him after years of laborious and expensive experiments, and displayed in glass cases, also of his own invention and manufacture, admitting of the full examination of the animal, either by the eye or microscope. These preparations on more than one occasion attracted the especial attention of His Royal Highness PRINCE ALBERT, whose knowledge of Natural History enabled him to appreciate their value. They were also seen and much admired by SIR ROBERT PEEL, and it is with the utmost satisfaction we are enabled to state, that with the discriminating patronage of science and its cultivators which distinguishes him, he has recently presented Mr. GOADBY with 150*l.* from the "Royal Bounty Fund" as a reward for his labours in this department of Natural History.

IN speculating upon the amount of food which may be required to replace the POTATOES lost or wasted in Ireland, we have endeavoured to determine what quantity of land is under cultivation with the Potato in that country. But no returns appear to exist which throw light upon the subject. We have, therefore, been obliged to endeavour to arrive at the fact by the following mode of calculating:—

It is stated that 4,500,000 persons in Ireland are fed upon Potatoes alone. The usual allowance of Potatoes to a labouring man is 14 lbs. per diem, and therefore, we may assume that making deductions for women and children, 10 lbs. per diem are consumed by each of these persons; therefore, 45,000,000 lbs. of Potatoes per diem must be eaten in Ireland by this part of the population alone.

We do not, however, imagine that an exclusive Potato diet extends over the whole year. We can only regard it as the exclusive food of the peasantry for eight months in the year.

The average quantity of Potatoes obtained from an acre of land in England may be estimated at eight tons, or allowing one ton for seed at seven tons net. This being the case, we arrive at the conclusion that the Potato crop of Ireland for the mere consumption of those who feed upon it exclusively, amounts to the immense quantity of 10,800,000,000 lbs., and requires for its production 688,647 English acres of land. But to this we must add the Potato diet of 3,500,000 persons who only feed upon Potatoes in part. If we take their consumption at 1 lb. per head per diem for the whole year, and also assume that during the four months previously excepted 1 lb. per head per diem is also required for the rest of the population already taken at 4,500,000, we shall find the whole consumption of Potatoes in Ireland to amount to 12,617,500,000 lbs. per annum for producing which 804,687 English acres must be under Potato cultivation.

In ordinary tillage 1 ton of Potatoes is required per acre for seed. Therefore merely to plant as much land as seems necessary to feed the Irish population would consume above 800,000 tons, and require 100,000 acres of land in addition.

But as Ireland is an exporting country, sending her Potatoes elsewhere in large quantities it may not be too much to assume that the number of statute acres under cropping with this plant is a million, or about 1-14th of the whole cultivated land. We should be much obliged for information on this point from such of our Irish readers as are in possession of good evidence concerning it.

Although this large amount of Potatoes is required for seed, if the customary manner of planting be continued, yet it may be very considerably reduced if great care is taken in preparing the sets, and cutting them into single eyes, which, although not to be recommended under ordinary circumstances, may be had recourse to advantageously in a season of great scarcity. The weight, per acre, really required for such planting is given by Mr. THOMPSON in another column.

Since many are interesting themselves in raising Potatoes from seed (properly so called), we shall address ourselves to that point in a week or two. At this season nothing can be done except procuring the Potato-apples, washing out their seed, and preserving it in a dry place.

As to the field-culture of early Potatoes, concerning which a correspondent at Fermoy asks for advice, that will be the subject of a special communication next week. In the meanwhile, we would advise all who think of adopting that method of cultivation, to expose their Potatoes fully to light, so as to get them as green as possible before they are planted.

THE AMATEUR GARDENER.

BULBS IN WINDOWS.—The secret of success in cultivating plants either in-doors or in the garden, is found in a genuine attachment to them; it is this alone which will make the labour pleasant, and secure a watchfulness necessary to success. People seem to think that flowers should bloom of themselves, and that when they have purchased them, they have done all that is requisite. In the spring of the year there are found in most parts of the country, travelling florists; or rather itinerant vendors of flowering plants. Really valuable and beautiful greenhouse plants are thus exposed for sale, and are soon bought up. Placed in the windows of the purchasers, they look gay for a time, but a change soon comes over them; they become sickly, wither, and die, and the purchasers either charge the seller with imposition, or more wisely conclude they have not understood the treatment of flowers. In either case the temporary *penchant* is relinquished, and the travelling greenhouses tempt in vain another year.

Now, a little consideration would have prevented this disappointment, saved the character of the seller from suspicion, and defended flowers from the prejudice thus excited against them. It should be remembered by everyone who puts his hand to a trowel or a spade, that a plant is a highly organized structure, and requires for its health the most skilful treatment. A lapdog cannot be made tolerable without careful washing and combing; an infant demands daily attention to its numerous wants; and, *mutatis mutandis*, a plant requires equally sedulous care, for precisely the same reason; they are all highly organised, and have delicately constructed machinery, which neglect will soon throw out of order. Now, the raisers of plants in pots just spoken of knew all this, and by acting on their knowledge had succeeded in preserving in a state of health those productions which attracted the eye of purchasers. They had guarded them from frost in winter, had potted them in soil adapted to their habits, and had placed them in an atmosphere favourable to their development; and, when in the beauty of their bloom, had sent them, carefully shaded from the cold and wind, in covered carts through the country. When placed in the hands of their new masters, if all these circumstances had been considered, an attempt would have been made to adapt their new residence to these habits. Persons exercising this consideration preserved their plants; others, forgetting their organisation and natural wants allowed them to perish.

I will not guarantee the life, much less the efficient blooming of the bulbs spoken of last week, if these observations are not carefully attended to. The amateur will always think of his pots in the evening, and provide for them a proper *habitat* for the night. As most houses have window shutters inside, the plants will of necessity be moved; but if this should not be the case, the weather must be watched. If the night is

rainy or cloudy, there need be no apprehension of frost, for even if it should freeze before morning, there will not be time enough for an injurious radiation of heat from the room where the pots are placed. But if it has been frosty in the day, never allow the advancing bulbs to remain close to the window, but put them on a table in the middle of the room before you retire to rest. I have found Hyacinths much advanced by always placing them at night on the mantel-piece of a room which has had a fire during the day. Their growth has thus been carried on without intermission, which is worthy of consideration where an early bloom is desired. During severe frosts, the whole collection may be shut up in a dark room for a few days, without injury. I lay much stress on attention to temperature, because I have lost many bulbs altogether from their freezing in the pots, and have had the bloom injured from the same cause, evenwhen the roots have escaped.

As the leaves of plants are the laboratories where the processes of assimilation and respiration are carried on, attention is demanded to their healthfulness. They should be kept free from dust. Careful amateurs will, therefore, remove their pots from the sitting-room in the evening, to save them from an infliction of fine powder raised by the broom of the housemaid in the morning, which dust will fill up the pores and injure the plant. Unavoidable dust may be removed by a syringe, or the fine rose of a watering-pot, but a shower of rain is a refreshing season indeed for these winter ornaments, and ought never to be neglected. Put the whole collection out of doors, and let them remain there all day, if the rain is not too heavy. You will be well repaid for your labour, for the plants will be completely renovated. The leaves will acquire a deeper green, and become more firm and erect than before, and you will feel, in looking upon them, emotions like those of a mother, when her tribe of little ones present themselves to be kissed, with faces shining from the ablutions of the nursery. I think I have now established my point, and proved that no success can be expected in gardening, unless the gardener has a genuine attachment to his flowers; for, unless compelled by duty, no one will take the requisite trouble in cultivating them, if the powerful influence of affection is wanting.

ENTOMOLOGY.

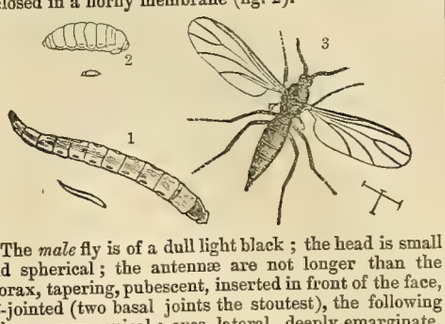
Molobrus fucatus, *Meigen* (?) Sciara pruinosa, *Bouché* (?)—Amongst the swarms of insects that inhabit this earth, is a little fly that emerges in myriads from every flower-bed and garden-pot, provided the soil be sufficiently damp; and no doubt it is, in its larva state, an important agent in accelerating the decomposition of the roots and vegetable substances left in the earth after the crops are cleared off.

As regards the office of insects to effect more speedily the destruction of organised matter, especially of dead animals and dying plants, every one must be convinced; but, with respect to vegetable substances, it is extremely difficult to decide between cause and effect. We can easily satisfy ourselves when animal life is extinct; we see a dead rabbit, rook, or mole lying in the field; on turning it over, it is found to have been visited by flies, and probably taken possession of by beetles. In a very short space of time it is reduced to a skeleton, with the skin riddled in every direction; it then becomes a fit nidus for other species, as Dermestes, Necrobia, Nitidula, &c., which revel amongst the fur, and feast upon the bones. But it is not so easy to determine the exact period when vegetables are first assailed; a grain of corn, a Pea, or Bean, is committed to the ground; it does not show life at the time it might be expected, but as this varies according to the temperature of the season, we wait, and eventually the plant makes its appearance, either healthy or diseased, or it altogether fails; in this case we examine the soil, and find the seeds probably sprung, but dead, and infested by various and numerous insects and annulose animals, but it is not possible to say whether they were the cause or consequence ef the disaster. So an Ash or an Elm may die, and be found full of insects, but no one can often tell whether the insidious insects had first attacked it in a sound or unhealthy state. Such are a few of the difficulties which the economic naturalist has to encounter in the investigation of these important subjects, for important they undoubtedly are as well as interesting;* and it is a great misfortune that agriculturists, as well as horticulturists, cannot be universally induced to think so.

From this digression we will turn to the little fly before us, which, with multitudes of others, was bred from a decaying Potato. It is by no means intended to insist that this, or any of them, was the cause of the Potato-murrain; at the same time I am not at all certain that the disease was not produced by an insect, and this is the opinion of some close observers. I shall therefore, in all probability, shortly return to this subject; and, in the meanwhile, I shall esteem it a favour if those who entertain a similar opinion will transmit any *facts* bearing upon the question.

The genus Molobrus, or Sciara (as Meigen has called it), comprises nearly 30 British species;† they are all small, and, more or less, of a swarthy aspect; many of them are abundant in the spring and summer months on umbellate and other flowers, on Grasses, and upon our windows. The larva of one species (named by Hoffmannsegg, M. vitripennis) was discovered by Bouché eating a passage in a decayed Oak, in the autumn and winter; another (M. nitidicollis of Meigen) lives in society, as they all do I believe, in decayed stumps of trees, especially of Plums, between the bark below the surface of the earth; and a third (named by Bouché, M. pruinosa), and which may be identical with ours, inhabits rotten vegetables in the spring and autumn.

The larva of M. fucatus (?) is a slender worm, which is able to progress in moisture, waving about and pushing out its head with great activity; it is whitish and opake, but when placed in water it appears perfectly transparent, exhibiting the viscera, and the food (which is digesting and passing off), of an ochreous colour; it is composed of 13 segments; the head is shining black and horny, the tail is slightly pointed in the centre and seven or eight spiracles are visible on each side, commencing at the fourth segment from the head, and there are probably two thoracic spiracles which I did not see (fig. 1). The pupa is small, cylindrical, elliptical, of a dull ochreous tint, composed of seven distinct rings, and three less distinct at the tail, besides the head and thorax; the eyes, antennæ, legs, and wings are inclosed in a horny membrane (fig. 2).



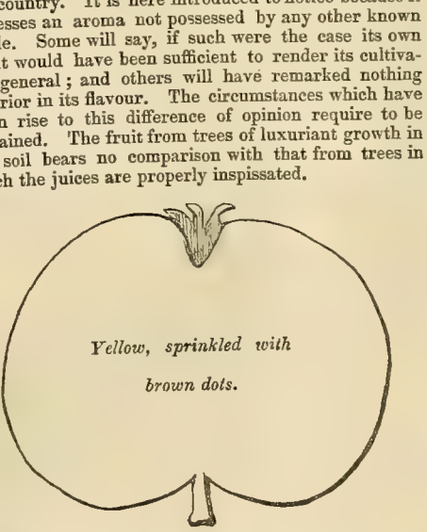
The *male* fly is of a dull light black; the head is small and spherical; the antennæ are not longer than the thorax, tapering, pubescent, inserted in front of the face, 16-jointed (two basal joints the stoutest), the following oblong, apex conical; eyes lateral, deeply emarginate, and coarsely granulated; ocelli three, unequal; thorax subquadrate, narrowed behind, scooped out at the base with two indistinct lines of short ochreous hairs down the back; scutel lunate; post-scutel ovate, with a grey tint; abdomen slender, brownish-black, 7-jointed, the margins of the segments pale, the apex obtuse and producing two incurved biarticulate lobes; wings incumbent, parallel, longer than the body, transparent, iridescent, slightly smoky but clear at the base, the nervures pitchy, excepting the central one, which is scarcely visible, but forked and dark at the margin; the costal nervure does not reach the upper branch of the fork; balancers pale, dirty yellow or ochreous; legs long and slender, of a dirty yellow or pale olive tint. *Female* similar but smaller, and the thorax is not narrowed behind; the abdomen is conical, and attenuated at the apex, and furnished with two little parallel appendages; the balancers are often fuscous when dry (fig. 3, the cross lines and smaller figures showing the natural sizes).

I bred the same species in May, from a pot containing a Turnip.—*Ruricola.*

THE OSLIN APPLE.

Synonyms.—White Oslin, Oslin Pippin, Original Pippin, Arbroath Pippin, Orgelin, Orjeline.

This is an old variety, well known in many parts of the country. It is here introduced to notice because it possesses an aroma not possessed by any other known Apple. Some will say, if such were the case its own merit would have been sufficient to render its cultivation general; and others will have remarked nothing superior in its flavour. The circumstances which have given rise to this difference of opinion require to be explained. The fruit from trees of luxuriant growth in rich soil bears no comparison with that from trees in which the juices are properly inspissated.



According to some traditions, it was originally brought to Scotland from France, by the Monks of the Abbey of Arbroath; but others think it has most probably sprung from seed at the latter places, especially as it has not been found amongst the vast number of foreign varieties which have of late been fruited in this country.

The fruit is oblate, without angles; skin thick, unctious to the touch, sometimes apt to crack; flesh yellowish, firm, with a very rich sugary flavour, and a peculiarly brisk aroma, most abundant in and near the skin, and therefore the latter should be but thinly pared off. In perfection in August and September. The shoots are stiff, erect, short-jointed, dull greyish purple, with pale brown specks. Leaves concave, roundish, or rather broader across than from the base to the apex, somewhat cordate at the base, abruptly acuminate; flowers early; petals roundish, concave. The tree is a good bearer; but is disposed to canker when old. It should not be planted in too rich soil, nor in a crowded situation. If the soil cannot be readily altered about trees producing fruit of inferior description, grafts may be put on a bearing tree of some other variety, for the quality is sometimes improved in consequence of the check occasioned by the operation. Root pruning, and ringing, judiciously performed, are likewise means by which the above attributed degree of excellence may be approximated, or possibly fully equalled.—*R. T.*

POTATOES.

Table of the Number of Sets of Potatoes, and total weight of the same, required for Planting an acre at the following distances; each set containing only a single eye and weighing ½ oz.; the distance between the sets in the rows being 9 inches.

	No. of Sets per acre.	Weight of Sets per acre.	
		cwt.	lbs.
Rows 18 in. apart.	38,720	10	90
19	36,682	10	26
20	34,848	9	81
21	33,188	9	29
22	31,680	8	94
23	30,302	8	50
24	29,040	8	11
25	27,874	7	87
26	26,806	7	53
27	25,813	7	22
28	24,891	6	105
29	24,033	6	79
30	23,232	6	54

On poor soil, 18 inches between the rows may be considered a proper distance, as may be likewise the case with early weak-stemmed varieties on any soil. And according to the vigour of the stems, richness and depth of the soil, the distance may be increased to 30 inches, which is wide enough for the strongest grower even on rich soil.

It is to be remarked that in some varieties the eyes are not abundant. With regard to such, the above number of sets will not be obtained from the corresponding weights; but in general it will be practicable provided sound-eyed tubers can be employed. It is *minimum* weight for an acre; but will probably have to be considered enough.—*Robert Thompson.*

THE POTATO DISEASE.

From various accounts it appears that the seed of Potato-berries are scarce this season, and such might naturally have been expected from prevailing circumstances. It is possible, too, where the plan of storing the tubers until the usual planting season is adopted that a great number will not germinate. Where the supply of seed is found insufficient for the demand of the planter, it might be increased by placing the tubers on a slight hot-bed to start them; the sprouts, or shoots must be taken off when two or three inches in length and transplanted on other beds; cuttings could then be taken off these, and struck in the same way as Dahlias; but it cannot be expected that an abundant crop can thus be secured—still, a good stock may be obtained this way. If the disease should show itself in the tubers under protection, dredging them with fresh slaked lime or sulphur, would have a tendency to stop it. A great breadth of land could be thus cropped from a small portion of seed-tubers; every gardener knows well how this could be effected, and I am sure he would willingly show his neighbour how it may be done.

I have tried several curious experiments, with a view to find out the cause and effects of various matters which I find all in the course of years useful to myself. It has been my custom for years to sprout the whole of my early Potatoes before planting them, and to remove all the shoots but one; I have also planted in a small way, selected shoots, without tubers. On thinning-out a lot sprouted as above, in December, 1837, I potted enough of the best shoots for planting a three-light frame; a kindly hot-bed of six lights was made in January, 1838, three of which were planted with plants from shoots only, and the other three lights with whole tubers, having one shoot. All grew well; those without tubers being always the dwarfest. At taking up time, which was in March following, a pretty sample of sizeable clean tubers was the product, though not equal to the produce of the plants with tubers, perhaps about one-fourth.

Depend upon it the recommendation of the Government Commissioners to shake lime about the tubers previous to planting is most essential to prevent further spreading of the fungus, let the latter originate in whatever form it may, and should be immediately put into practice. Supposing every tuber intended for next season's production to be individually dredged with lime, an active woman or boy would dredge a large number in a day; the expence would be but trifling either for material or labour; for lime can be easily procured in any quarter. For dredging, a box with handle something similar to a gardener's sulphur-box is all that is required.

Whatever may be the origin of the fungus, depend upon it, perseverance must be resorted to, in order to get rid of it; if tubers are planted with a particle of it on them, and the season proves again congenial for its spread, it will again destroy the crop. As a proof of this, I planted a few infected Potatoes, without putting into practice the precaution I have done with my other Potatoes, and the consequence is that the obnoxious pest made its appearance in its usual blotchings, while a quantity of others which I had stored in perfectly dry charred articles, are growing away healthily; a quantity with foliage and stalks above a foot in height,

* We need only refer to the nine Reports published in the "Journal of the Royal Agricultural Society," as well as to the numerous Essays and Notices in this *Chronicle*, to prove the truth of the assertion.

† "Curtis's Guide," Genus 1175.

from spot or blemish, looks, at present, as well as could be wished. I fully believe that lime, well charred, burnt, or roasted materials, or sulphur vivum, will kill the fungus, if applied in a right way, and the following are my reasons:—Three years ago this autumn, I had a mushroom bed made here (Bicton garden) which was duly spawned, and which went on well. Mushrooms in abundance in due time were produced; a young man then foreman of that department, on discovering a slug or two, stripped the bed, and dredged it, unknown to me, with slaked lime, and the result was that the whole was killed, not another mushroom was gathered from the bed. Everybody accustomed to wander in summer in plantations and old woods, must have discovered a very disagreeable odour arising from a Fungus which is generally found in these situations. It occurs plentifully in a plantation near my dwelling: I dredged all of it I could find with slaked lime, which at once completely destroyed it, and sweetened the locality.—*James Barnes, Bicton Gardens, Sidmouth, Devon.*

Home Correspondence.

Potatoes.—I have read, with much interest, the Commissioners' reports and directions as to the Potato disease, and am persuaded that their plan of storing them with dry earth and lime, or burnt earth, is the only practicable plan likely to be effective, and that if happily these directions had been dispersed as soon as the first appearance of the disease in Ireland was announced, more than half the crop might have been saved that for want of earlier instructions will be lost. I am strongly inclined, too, to think that if the Potatoes from the north for the London Market be packed with the Commissioners "packing stuff" in casks and old hogsheads, they will bear the transit which in bulk will destroy them. Yesterday I dined with a friend, when we had excellent Potatoes sent him from Yorkshire by sea in casks, which had effectually preserved them from any serious injury, though they were beginning to be slightly affected; whereas I see by the Hull paper that whole cargoes shipped in bulk from the Ouse for the London market, quite free apparently from all taint, were so completely rotten (as proved by the intolerable stench from the hold) even before being out of the Humber, that the master of the vessels returned, and the whole of their cargoes were thrown overboard. I think it is highly probable that these Potatoes in casks with your "packing staff," would have come in as good a state as those of my friend.—*W. Spence*, 18, *Lower Seymour-street.*

Potato planting now.—"R. G." asks (p. 770), "Could not pits and frames be set at once to work for propagating the Potato?" This might be done, but it would not answer the purpose of the farmer or the labourer, who cannot be expected to have such conveniences. I would recommend them to save or raise a sufficient quantity from their diseased Potatoes, which may be done at little expense or trouble; and this is within the power of everybody to do. The market-gardeners near London produce fine young Potatoes in January, February, and March, before any can be forced in pits or frames; and by this method plenty of seed might be obtained, and, in all probability, free from disease, although produced from diseased tubers. Everybody who has examined his stored Potatoes will have discovered how quickly they throw out tubers instead of shoots, and every tuber so produced will reproduce a crop next year. Therefore, all that is required is some half rotten leaves, which may be procured from any wood or coppice, rejecting those that have fallen this autumn, as they will ferment and destroy the Potato; old tan or sawdust will also answer the same purpose. This obtained, mark out the place in which you intend to make your store heap, cover it over with these half-rotten leaves, put a layer of diseased Potatoes that have at least one or two eyes good, then leaves and Potatoes again, until all are stored; cover them up with soil to keep out the frost. In March open your store; if any have produced shoots remove them carefully, and plant immediately. Prepare the tubers by laying them on a floor fully exposed to sun and air, and in April plant them. The only difference between this and the plan pursued by the market-gardeners is, that they save the Potatoes that should have been planted last spring and pinch off all the shoots as fast as they are produced, calculating that they will obtain about the same weight of new Potatoes that they had of old ones.—*T. Spencer, Leckhampton Court, near Cheltenham.*

Advantage of Autumn Planting Diseased Potatoes—I earnestly intreat all Potato-growers to plant their sets at once, as the grand thing is to get them to germinate, in which case should the Potato rot afterwards, the shoot will survive; and by all means plant them whole. Planting now is the only safeguard for the crop, and will besides save much trouble and loss. In planting divide the ground into compartments of any length, and 6 ft. in width, dig a trench all round a foot or 18 ins. in depth, according to the nature of the soil, and throw the soil on the top of the section, having previously placed the Potatoes on the level dug ground, cover them over to the depth of a foot or 18 ins., which will be sufficient protection against frost early in the spring. When all danger is over remove a portion, say 6 ins., which can be drawn into the trench again, and the land will then assume an even surface, as if planted in the original way.—*J. R., Woolwich.*

Potato Disease.—The mere fact of dryness and coldness being recommended for the preservation of the Potato would render it more than probable that heat and moisture had in the first instance caused the disease. That such conditions were in existence in the soil cannot be doubted, and as there can be no question about moving sap being only living sap, it really would seem that the stem of the Potato was dead to all intents and purposes, so far at least as the tuber's connection with it was concerned. The hygrometrical condition of the tuber, with the heat and moisture that was shut up about it in the soil, appears to have made it what it unfortunately is.—*John Caie.*

Cause of Potato Murrain.—That this disease is occasioned by a fungus in the leaf I have no doubt, and such I believe is the public opinion in general. I am equally well assured that the gangrene or mortification is a mere consequence of the fungus. This is partly well illustrated by the old fairy rings, caused, I presume, by the exhaustion of a certain fungus, which every year extends the circle of its depredations, leaving the centre like a battle-field—an arena of destruction and carnage. If, then, a certain predisposition in the Potato-plant, occasioned by an advanced state of the elements themselves, were alone necessary to give unbounded scope to this fungus, how, I would ask, has it happened, that this strange condition of atmosphere has never occurred before, since the introduction of the Potato from South America—now, I believe, nearly 200 years? Or, shall it be said that the disease is indeed new to Europe? On looking over the weather registries for the month of August, I find that the S. W., W., and N. W. winds prevailed the whole of the month; and even extended into Sept., and this is, I should conceive, an extraordinary direction with regard to their continuity. Now, supposing the fungus in question to be of American origin, and new to Europe in general, is it too much to suppose that by the continuous action of the Atlantic gales the sporules of the fungus may have been precipitated by showers condensed from American mists? Whatever the cause be, it is to me tolerably plain, that from the breadth and uniformity of its character, as well as the simultaneousness of its operations, it must be attributed to a cause as general as either wind, or rain, or electricity itself. Everybody has seen, according to the old phrase, "Motes dancing in the sunbeams." Now, as to the sporules of various fungi, why may it not be possible for them to possess so little specific gravity as to be lighter than their own volume of air—to ascend thereby, in common with mists—to be incorporated with the clouds—to traverse thousands of miles in a few days, and to descend as propagandists wherever the winds choose to carry them, or condensation may take place? As to predisposition—what does it amount to in the Geranium bush, over which the Cuscuta sinensis (?) ranges, until either strangulation or exhaustion terminates its career? This parasite will, moreover, take as great liberties with the common Laurel. The Mistletoe, again (another parasite) will attack the Oak, the White-thorn, and the Crab, as well as many other trees. In conclusion, I beg to say that I would not attempt to repudiate the idea of predisposition altogether, but merely direct the attention of the public to facts probably equally important.—*R. Errington, Oulton.*—The tubers from which the plants have been raised this year were ripened last year in a season of almost unparalleled drought, and it appears to me that, to a certain extent, those tubers must have been assimilated (if I may use the expression) with a state of soil and atmosphere belonging almost to a tropical climate. This year the plants raised from them have had to contend with a season exactly the reverse. We know that under particular circumstances seed will entirely alter the nature of the plant, as regards its hardihood and time of ripening, according to the circumstances in which it is grown. Winter Wheat by being sown a few years in succession in the spring becomes a spring Wheat. Barley, on the contrary, by being sown before the winter, is enabled to stand weather the most severe; the same with Beans. May not the same result have taken place with the Potato tubers of last year's ripening. Would they not in all probability have succeeded in a hot summer, better, perhaps, than those planted last summer? whereas, having had to bear all the vicissitudes of a wet summer, they have constitutionally failed.—*A Sub.*

Effect of Potato Murrain on different Varieties.—Last April I planted two seedlings of my own raising, which promised to be an acquisition, and another seedling raised by a friend near London. These seedlings were the first to be attacked by the disease, and have been by far the worst affected of my Potatoes, while the old varieties are yet little diseased. On the 25th of July I planted some of Chapman's Kidneys, and on examining them yesterday I find them to be an excellent crop of nice-looking Potatoes, but every one of them is affected with the disease.—*R. D., Westmoreland.*

Pine Growing.—I observe that Mr. Barnes does me the honour to notice my endeavour to follow out his advice, and I am happy to say that I continue to be satisfied with the results. He mentions, however, that he knows the cause, and that the tank system, well managed, would prevent the cracking of the stem, of which I had an instance. Now it happens that my plants are grown on a tank, with the additional advantage of a 4-inch pipe, therefore I fear we must look for some other cure for the evil. The fruit (a Ripley Queen) to which I referred was cut lately; it was well shaped, and the lower pips well swelled off; it had no crown whatever, and the stem was so cracked that we were obliged to suspend the fruit by slings to prevent its entire destruction; with all these disadvantages, its weight exceeded 4 pounds. A plant of the same sort, and size, with a sound stem, is now ripening its fruit, which measures 11½ inches in height, without the crown, which is only 2 inches. I have not continued to follow Mr. Barnes's directions as to "stopping" the crown, as I find that with plenty of air, and regular temperature, we have no cause to complain of overgrown crowns. I will only add that I also adopt Mr. Hamilton's plan for raising plants on the old stock, and have already one Queen started from a plant, the fruit of which was cut in April or May last.—*T. P., Cornwall.*

Garden Libraries.—I have the pleasure to inform you that the study recently erected by Messrs. Knight and Perry in their Nursery, King's-road, Chelsea, for the improvement and instruction of those in their employ, was opened on the 27th ult. It is a fine room, built and fitted up in a style in which every regard has been paid to comfort and convenience. It is furnished with an extensive library of the best standard works of the day upon every subject connected with the profession; also with maps, chemical, philosophical and mathematical instruments, drawing, and other apparatus; a collection of specimens in Natural History; designs for Landscape and Flower Garden, Horticultural erections, &c.; indeed everything which can be conceived to be in the remotest degree likely to add to the knowledge of those for whom they are designed. No expense has been spared to render it as complete as possible, and a model, in its way, to those whom it is earnestly hoped will be induced to follow the liberal example offered by the above gentlemen. I may also add that it is intended to be opened every evening (Sundays excepted), and that a Professor has been engaged to give a course of lectures upon such subjects as are likely to be useful to the inquiring mind of the scientific gardener. On the occasion of opening, Messrs. Knight and Perry addressed those assembled in kind and feeling terms, contrasting the deficient means of gardeners for acquiring information with the superior degree of intelligence the high position of their profession demands, stating their conviction that the want of means rather than opportunity had hitherto prevented gardeners attaining that superior degree of scientific knowledge the progression of the times requires, offering prizes as a reward for proficiency, and a stimulus to industry and perseverance, and earnestly exhorting them to heartily and energetically embrace the accumulated advantages, both immediate and prospective, now offered them; thus raising themselves and their profession in respectability in the estimation of their employers, and as a natural consequence of increased usefulness, an augmentation of their pecuniary emoluments.—*W. Maude.*

Manure Water.—"Judex" inquires for what plants for how long, and with what success, I have used the manure-water, which I recommended at p. 657? I beg to mention that in the present state of affairs I did not intend to recommend its indiscriminate use; and perhaps I ought to have written more guardedly. However, I have a presentiment (whether correct or not, remains to be seen) that few of the vegetable kingdom will dislike it, if administered in the way I described, that is, weak (a matter of degree of course), and perfectly clarified. To administer this stimulant in the "rest season" to any plant, would, of course, be about as wise as to place a dish of honey before a bee-hive during intense frost. As to plants newly potted, and in rich soil, it would, of course, be for some time superfluous. However, if it can be shown that mere quality can be imparted at pleasure to any compost, why, then, the chief question about pot plants resolves itself into one of mere mechanical texture. In such an event, a peck of soil in a given pot would permanently retain its original volume, instead of subsiding through the decomposition of organic matters into half the compass.—*R. Errington.*

Cereus Grandiflorus (Night-blowing Cereus).—"Tassel" says, that this never opens its blossoms whilst under the direct influence of the sun's rays, and that they close never to open again before the beams of the morning sun glance upon the house in which the plant is grown. Now, I beg to assure "Tassel" that I have preserved flowers of this Cereus in all their beauty, for several days, by a simple contrivance; indeed, no later than June last, a lady desired me to preserve, if possible, a few fine flowers (removed from the plants late in the evening), and was gratified on the afternoon of the third day, to be enabled to take two of them, perfect and unchanged, in her carriage a few miles distant, as a present to a friend; the others remained in my care for some time afterwards unfaded. I shall be glad to learn if anybody else has succeeded in keeping this fair flower for any length of time unfaded.—*Bluebell, Godalming, Surrey.* [What is your plan?]

Ornithology.—I should be glad if any of your readers interested in this can throw light upon the following singular circumstance. At the commencement of the winter of 1843-44, a bird of a kind not met with in the neighbourhood, resembling but larger than the water-wagtail, made its appearance every day on the ledge of a balcony outside a large French casement window, at Harewood, in Herefordshire, and intermittingly during the whole of the day, kept flying against the panes of the window, striking its breast against the glass with its whole force. The casements were left alternately open to see if its object was to fly in; this it never did; but immediately commenced operations upon that which was left shut. When both were open it betook itself to another window that had no balcony; but immediately returned to the old and more convenient scene of practice on their being shut again. This continued during the whole winter, from October till March, and baffled all

attempt at explanation of the cause, or the object of the bird. Last winter it did not make its appearance, and the subject was forgotten; but about three weeks ago our little visitor appeared again at the old spot, and has been working away most furiously at its former trade ever since. The panes of glass are very large, and if they were not also very strong, would be liable to break, with the violence and pertinacity of the bangs they receive from this little suspected *felo de se*. The window is at the end of a long gallery, running the whole length of the house, which resounds with the blows every hour of the day. There is a corresponding window at the other end of the gallery; but the thorough light does not seem to be the attraction, because the bird betakes itself on disturbance to a side-window of the house, passing by without notice a glazed blank window intermediate between the two. The *modus operandi* is this: it seats itself on the balcony, looks about it, and wags its tail up and down a bit, then dashes at the window with might and main, rebounding back to the balcony; and this is ditto repeated from morning till night. The thing is so curious, and everybody who has witnessed it so perplexed as to the bird's object, that I am induced to submit the case to the tribunal which your pages afford.—*C. Wren Hoskyns, Harewood.*

Mildness of the Season.—In the Archery Ground at St. Leonard's-on-Sea there are at present upwards of 100 different kinds of flowers in luxuriant blossom in the open air—a singular mixture of spring, summer, and autumn, viz.: Primroses, Double lilac do., Violets, Polyanthuses, Scarlet Cowslips, Double Daisies, Auriculas, Blue Periwinkle, White do., Yellow Alyssum, Double Wallflower, Single do., Anchusa, Sweet Peas, Mignonette, Honeysuckle, Heartsease, Lupinus Cruikshanki, Do. Hartwegii, Larkspur, Indian Pink, Geum coccineum, Buff do., Tropæolum majus, Anemones, Convolvulus minor, Marigolds, four varieties of German Stocks, six of Petunias and six of Verbenas, Acanthus spinosus, Lophospermum scandens, Scarlet and other Pelargoniums, Celsia, Viscaria oculata, Clarkia carnea and grandiflora, Virginian Stock, Escholtzia, several varieties of Scabious, Gaillarda bicolor, Malope grandiflora, Bartonia aurea, different varieties of Antirrhinums, Campanula, Rose Campion, Golden Rod, Mesembryanthemum orange and purple, White Phlox, Lobelia cardinalis, Œnothera rosea, Salvia, Calceolaria dark, Yellow do., Salvia angustifolia, Cinerarias, Clematis, Erica vulgaris, Lythrum, Pentstemon coccineum, Pink Malva, Pink Cistus, Dahlias, Aster Amellus, Cape Aster, Cotoneaster microphylla, Betonica, Balm of Gilead, Stenactis speciosa, Hollyhocks, Heliotropes, Arbutus, Hydrangea, Leycesteria formosa, Hypericum, Escallonia rubra, Laurustinus, Potentilla Hopwoodiana, Chrysanthemums in varieties, Tussilago fragrans, Senecio purpureus, Pink Sedum, several varieties of Fuchsia, and 18 varieties of Rose.—*C. M., St. Leonard's-on-Sea, Nov.* 16.

Tulips between 50 *and* 100 *years ago.*—If the following extract, relative to the properties of a Tulip 50 years ago, taken from the "Florists' Directory," by James Maddock, Florist at Walworth, near London, published in 1792, be acceptable to "W." (see p. 704), it is at his service:—"The stem should be strong, elastic, and erect, and about 30 inches above the surface of the bed. The flower should be large and composed of six petals; these should proceed a little horizontally at first and then turn upwards, forming almost a perfect cup, with a round bottom rather widest at top. The three exterior petals should be rather larger than the three interior ones, and broader at the base; all the petals should have perfectly entire edges, free from notch or serrature; the top of each should be broad and well rounded; the ground colour of the flower at the bottom of the cup should be clear white or yellow; and the various rich-coloured stripes, which are the principal ornament of a fine Tulip, should be regular, bold, and distinct on the margin, and terminate in fine broken points, elegantly feathered or pencilled. The centre of each leaf, or petal, should contain one or more bold blotches or stripes intermixed with small portions of the original or breeder colour, abruptly broken into many irregular obtuse points. Some florists are of opinion that the central stripes or blotches do not contribute to the beauty and elegance of the Tulip unless confined to a narrow stripe exactly down the centre, and that they should be perfectly free from any remains of the original or breeder colour. It is certain that such appear very beautiful and delicate, especially when they have a regular narrow feathering at the edge; but the greatest connoisseurs in this flower unanimously agree that it denotes superior merit when the Tulip abounds with rich colouring distributed in a regular manner throughout the flower, except in the bottom of the cup, which, it cannot be disputed, should be clear bright white or yellow, free from stain or tinge, in order to constitute a perfect flower."—*Lusor.*

——The following is copied from the rules of the York Ancient Florist Society, which has been in existence (from the records now in the possession of the secretary) for nearly a century and a half. The work from which this extract is taken was republished in the year 1768. "A Tulip when perfect forms an elegant cup, standing upon a well-proportioned round stem; the cup is composed of six leaves or petals; the bottom of the cup should run flat and level from the stem, and then turn perfectly round upwards; the diameter of the base must be nearly equal unto that of the top, the sides and base being at right angles, the height of the sides being at least two-thirds of the diameter, but must not be equal unto it; the petals must be nearly alike (the three outer being the largest) in size and colour, laying compact and close, and dividing the top of the cup into six regular circular segments; the ground, whether white or yellow, must be clear and pure, inside as well as outside, the bottom especially; the colouring must be equally distributed all over the flower, whether it be confined unto the feathering upon the edges, or extend unto blotches upon the middle of the petals, all must be bloomed alike, and cleared from all impure and mother colour; the leaves must not be starry, jagged, torn, nor cracked." Such, then, appears to have been the properties of a good Tulip 100 years ago.—*Potooooooo's.*

——To "Lusor" and the correspondent with many circles in his name, I am grateful for the prompt manner in which they have responded to my request. It is some satisfaction to know that florists in 1768 knew what the properties of a good Tulip ought to be, and that standards either set up or laid down by this that or the other person at this time vary in no particular points from those entertained at that period. I am sure the above will be read with interest by all florists, especially those who are admirers of the Tulip. —*W.*

Garden Fences.—The following woodcut represents the rabbit-fence to which "W. G. A." alludes in your last Number. It will be observed that the fence is not exactly as you described it in making an extract from my previous communication, inasmuch as the leg of one loop is not put in the centre of another, but the legs of two loops trisect and divide into three equal portions the distance between the legs of one loop. I have used this fence for three years, and have never had an intruder except in one instance, when a rabbit burrowed under the fence. They very frequently now are seen close outside the fence, but they do not attempt to jump over it. I attribute great virtue to the turn outwards of the upper part,

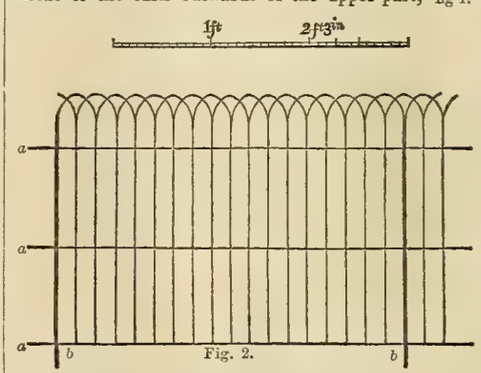


Fig. 2.

fig 1.

Description.—Fig. 1, side view, giving the appearance of the turn at the top of the fence. Fig. 2, *a a a* wire; *b b* uprights. The intervals between the wire are somewhat less than 2 inches, and I cannot imagine that any rabbit or hare would attempt to force themselves through that space. The uprights are about the size of my little finger. All the wire is of the same size.

which acts as a complete balk. I don't know how it may act against hares, as I have no great abundance of them to intrude. The uprights are merely driven into the earth about 4 or 6 inches. The cost was 8*d.* per foot, including two coats of paint and fixing, with the uprights and labour.—*Q. L.*——I beg to mention that I have seen a wire fence, similar to the one proposed at p. 753, for the purpose of keeping off rabbits. At first it appeared to answer very well, but after a time the rabbits learnt to jump completely over it, although the fence considerably inclined outwards at the top. There is an error, I might say, invariably committed by the manufacturers of such wire fences as are termed "rabbit-proof;" namely, they set the wires too far apart, forgetting that rabbits, when very young, will squeeze through a very small space, and such rabbits will do as much mischief as full grown ones. To be perfectly secure, the wires ought never to be more than 1 inch apart: I speak from long experience. —*A Subscriber.*

The Scotch Thistle.—In a recent Number I observed that mention was made of a Scotch Thistle 8 feet in height, with about 700 heads of flowers on it; it may be interesting to know that in the garden of W. Robertson, Esq., situated on the west coast of Inverness-shire, there is at present a specimen measuring 10 feet in height and 11 feet in diameter, each way, having 840 flower heads on it.—*D. Cameron.*

Sanguettes.—"It is easy to make assertions; but before we assent to them, we must ask for some proof of their truth." Thus says the editor of the *Gardeners' Chronicle*, in his observations in regard to Potatoes. The remark is no less applicable to the article on sanguettes, signed "Quercus." He asserts, that "examination of blood has shown it to be an improper and dangerous food"; it would surely have been but fair, when condemning it on this ground, to have stated on what authority this assertion is founded. "It is allowed to contain very little nourishment." By whom? and by what experiments can this be proved? His next objection, "it is exceedingly subject to putrescence," may be admitted, as compared to animal fibre, but certainly not to the degree asserted, for though the blood coagulates shortly after extravasation, if means be not taken to prevent it, yet by the simple mode recommended by "M. S. B." it may be kept for days without putrescence. "It is the seat and organ of almost every animal disease." That this was a notion in former days, and is still entertained by the ignorant, cannot be denied; but in what medical work of repute is any proof of this assertion to be found? What medical practitioner of the present day upholds this doctrine? The violence of expression about wolves, foxes, and ferocious brutes, was probably used in a moment of excited feeling; for "M. S. B." did not propose that man should suck the blood of living animals, nor that he should eat it raw, any more than he does the flesh of sheep and oxen, &c. Without entering into a lengthened argument, to prove the fallacies of "Quercus's" objections, I would merely beg to quote two or three authorities, which will show, that however well intentioned they may be, they cannot be supported by facts, since it has been the practice in Great Britain to eat blood of various kinds, without any bad effects having been observed. In the last Number of "Chambers' Edinburgh Journal" (to go no further) there are extracts from Mr. G. Markham's work, written in 1645, where, amongst other articles of good cheer, are mentioned "the haggas, of whose goodness it is in vain to boast, which is made of oatmeal mixed with blood"; and, further on, of "puddings," "whether they be black, as those which are made of the blood of beasts, swine, sheep, geese, red or fallow deer, or the like." And in the first cookery book that presents itself, "Domestic Cookery," (Longman and Co.) there are no less than five different modes of cooking blood, besides that of poultry. Any pork-shop in London will afford abundant proof of the consumption of black puddings, which are made of the blood of pigs. The only innovation, therefore, proposed by "M. S. B." appears to be in suggesting the cooking the blood of oxen and sheep in London, on a larger scale than heretofore; and that, by easier, more economical, and less unpleasant modes of preparing it, than the ordinary one of making black puddings. In Scotland, it is well known, and easily ascertained, that a species of sanguettes is a common article of food. In answer to "Quercus's" assertion, that blood contains "very little nourishment," he will see by an article in the *Athenæum*, of the 15th inst., where blood is mentioned as one of the articles of food used in this country, that its nutritive property is proved by chemical analysis to be next to that of pork, and greater than that of any kind of fish, or any vegetable substance, excepting the farinaceous seeds and roots. The danger therefore would seem to be that sanguettes alone might rather be over nutritive; for a certain bulk in diet is, as stated in the same *Athenæum*, "necessary to good digestion, in a healthy subject." But the groats recommended by "M. S. B.," in making the sanguettes, will no doubt answer the purpose of bulk as well as nutrition. I merely add that, in parts of the south of France, all the blood of sheep, &c., not used in the fining of wine, is made into sanguettes, or black puddings, and that those who make it a chief part of their daily food, are remarkably strong and healthy. —*Veritas.*

Societies.

LINNEAN SOCIETY.

Nov. 18.—The Lord Bishop of Norwich, president, in the chair. Specimens of preparations of a Fucus, used by the Japanese, were presented to the museum, and exhibited. Dr. Lankester exhibited specimens of a Fucus, sold in London, under the name of "Australian Moss." It is procured from the rocks on the sea-shore at Swan River, and is recommended as a substitute for Carrageen Moss, Iceland Moss, Ceylon Moss, and other forms of Fuci containing Lichenin. In some points of its structure it resembled the Fucus striatus, of Turner, to which it was referred by Sir W. J. Hooker. From specimens in the Linnean herbarium, Dr. Lankester thought it more nearly related to the Fucus spinosus of Linnæus. A paper was read by Mr. Newport, on the natural history, structure, and development of the British species of Meloe. Although from being such common insects, the adult animals had been often described, yet little was at present known of the habits of the larvæ and their metamorphoses. The most remarkable points in the economy of these animals to which the author wished to draw attention were, first, that the larvæ of these insects are parasitic, and second that they are vegetable feeders. The species of Meloe which he had made his observations upon were M. proscarabæus, M. cicatricosus, and M. violaceus. The full-grown insects of the two first species are seen at the end of March, the latter in May. They are generally found on the common Buttercup or Dandelion, sometimes on the Wood-Anemone. The females deposit their eggs in the earth. The period between the deposition and hatching of the eggs varies from three to five weeks. When the larvæ are hatched they are exceedingly active, one-twelfth of an inch in length, and are supplied with six true legs. These larvæ are well known to entomologists, but some have doubted their being the offspring of Meloe. The author had suspected their parasitic habits, as they had been described as existing more particularly on the bodies of hymenoptera. On placing some of the larvæ in a bottle with species of coleoptera and hymenoptera they immediately seated themselves upon the latter. The author referred also to several instances in which he and other entomologists had found species of hymenoptera with larvæ having the characters of those of Meloe upon their bodies. The object of the larvæ in placing themselves in this position is not food but conveyance. The author found that the larvæ were conveyed to the nests of the hymenop-

tera, and that in this position they were fed with honey, pollen, &c., till they underwent their metamorphosis. He then described the nature of the metamorphosis of the larvæ as he had observed them in M. violaceus in the nests of a species of anthophora. During the paper the author pointed out the influence of light on the hatching and development of the larvæ of the Meloe, and expressed his conviction that it was as active an agent in the production of the functions of animal as of vegetable organisation, and now that the identity of light and electricity by Mr. Faraday had been demonstrated, he could not but believe but that we were on the verge of great discoveries in the causes and nature of vital processes. —The Bishop of Norwich, in returning the thanks of the meeting to Mr. Newport, expressed his great regret that the laws of the Linnean Society did not allow discussion. There were many points in the paper just read that he should have liked himself to have remarked upon, on which to have elicited the observations of others. The Bishop was warmly applauded in his remarks, and we feel assured that he expressed the feelings of the great majority of the fellows of the Linnean Society.

Reviews.

Comptes Rendus Hebdomadaires, &c. Nos. 13 to 16. Paris. 1845.

Observations on the present Decay among the Potatoes, &c. By L. H. Spooner. Ridgway. 1845. 8vo.

The Potato Disease; its Origin, &c. By G. Phillips, of the Excise. Highley. 1845. 8vo.

The Potato Blight; its Causes and Remedies. By James Buckman, F.G.S. 1845. 8vo. Rowe and Norman, Cheltenham.

An Official Circular by the Poor Law Commissioners. No. 53.

These pamphlets are very different from the foolish letter of "A Naturalist" noticed last week. All who are interested in the discussions which the Potato disease has excited, will read them attentively. We can only give an idea of their contents.

In the *Comptes rendus*, M. Payen states the result of his chemical investigations. He finds what he calls the dry matter, that is to say all except the water, diminished in quantity to the extent of 12 per cent. The diseased part is twice as heavy as the healthy, which he attributes to the presence of a parasite. The loss of starch amounts to 20 per cent. There is present an azotised matter, having the same composition as fungi. All the chemical phenomena point to the action of such parasites, and not to spontaneous fermentation. Messrs. Girardin and Bidard, on the other hand, deny the presence of parasites. They find no other indication of their presence than what occurs in all cases of fermentation. They regard the disease as the result of simple fermentation, induced by the unfavourable season. They recommend perfectly rotten Potatoes to be crushed in tubs, to be thoroughly washed, by which means the foul odour is removed, and then, after draining, to be pressed into cakes, which may be dried in ovens after the bread is withdrawn, and given to cattle like Rape-cake. M. Durand attributes the disease to atmospheric causes, favoured by local circumstances. He knew it in former years when Potatoes were grown in damp places. He denies the statement that the stems were always affected before the tubers, and he states that dryness and darkness are certain safeguards for the crop. In the Hotel-Dieu at Caen, 300 hectolitres have been thus preserved for a month without change, and yet they had not been very carefully sorted. M. Gerard adverts to the admitted fact that the disease attacked the Potatoes between the 10th and 15th of August. He is opposed to the idea that either animal or vegetable parasitism is connected with it as a cause, and he ascribes the disease to the presence of a brown matter "which seems to glue the starch grains together, and to prevent their separation." He attributes its presence to unfavourable atmospheric causes, which caused the nutritive fluids to stagnate, and thus produced an alteration which ended in decay.

Mr. Spooner's pamphlet is chiefly addressed to the question of converting Potatoes into starch. He ascribes the disease to frost, which however did "not act directly on the tuber; but indirectly through the leaves."

Mr. Phillips has instituted a careful investigation of all the facts connected with the disease, and has collected some useful information. He is unable to find fungi, and ascribes the evil to too much moisture, the effect of long-continued rains, which "stimulated the plant beyond its ability, and then overpowered it. The plant formed more pendulums *(sic)* and tubers than it could support, which being left to themselves, putrefied, &c." Near the end of this pamphlet is a statement, that if the Potato fields had been divided by trenches into compartments, the author has *no doubt* that the present disease would have been warded off. Mr. Phillips does not seem to be aware that what are called lazybeds in Ireland are made exactly upon his plan, and, unfortunately, they are very far from having proved any security against the disease. The fact, moreover, is, that the best drained land has been as much or more attacked than the worst.

Mr. Buckman regards fungi analogous to that which produces smut in Barley as concerned in the evil. He finds their seeds (spores) sticking abundantly to the sides of the cells, and calls the species Uredo tuberosum. He does not, however, regard the Uredo as the *fons et origo mali*; he looks upon it as a mere effect, attributable to the peculiar state of the late season. As remedies, he advocates a solution of chloride of lime, or chlorine gas; but he does not seem to have any personal experience of their advantage. He also mentions the following plan adopted by Mr. Sclater, a large Potato grower of Exeter, as effectually *stopping the further ravages* of the disease. Soak the tubers for an hour in a weak solution of chloride of lime. Then dry well, and soak for another hour in a solution of 3 lbs. of common soda in 75 quarts of water. Finally, dry them well, and store them in a dry place. We are persuaded that these plans which have been so much advocated, all resolve themselves into one and one only process, which is, maintaining dryness,—a method which we have never ceased to insist upon from the very commencement of this unhappy discussion. See p. 575, August 23, and every succeeding week.

The Official Circular of the Poor Law Commissioners, contains an important extract from an official paper published in the United States on the Potato disease in 1843. It appears from this document that the evil was ascribed to *heavy rains* and *early snows*. It appears to have assumed the malignant form, of which so little is known in England, and the Potatoes, in that state, are asserted to have poisoned hogs.

New Plants.

Ixora odorata. Fragrant Ixora. (*Stove Shrub.*) Rubiaceæ. Tetrandria Monogynia.—This is a splendid and highly odoriferous shrub. The leaves vie in size and almost in firmness of texture with those of the Indian Caoutchouc-tree (Ficus elastica), while the numerous flowers, of the most delicious odour, form a spreading panicle, a foot or more in diameter, with deep red purple branches, each blossom from 4 to 5 inches in length; the tube red below, white above; the white buds tipped with rose-colour, the spreading segments of the limb white, soon twisted, and then changing to buff. The plant is in the possession of Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, who received it from the Continent under the incorrect name of Ixora Brunonis, and without any indication of its locality. Fortunately, I have a fine native specimen from Madagascar, showing that to be its native country. Few persons who visited the last floral exhibition at the Chiswick Gardens, will fail to remember the extreme beauty and fragrance of this truly desirable plant.—*Botanical Magazine.*

Cattleya granulosa; *var.* Russelliana. The Duke of Bedford's Rough-lipped Cattleya. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—Some fatality seems to have attended this beautiful plant in our gardens. It was sent to Sir W. Hooker from Woburn, as a Brazilian Orchid; but we can find no evidence to show that it is a native of even the southern hemisphere. At Syon it is said to have been received from Dr. Wallich, in 1839, which is probably another mistake. There can be no doubt, at least, about its being in reality a very fine variety of the Guatemala C. granulosa, and its introduction may with good reason be referred to one of Mr. Skinner's numerous importations. It is not surprising that it should have been referred to C. guttata; for the old specific character of the latter fits it very well. But if the figure of that species in the "Horticultural Transactions," vol. ii. t. 8. second series, be consulted, the difference between the two will be manifest. The large membranous wavy petals, great erect flowers, and long lip, spread out at the point into a broad transverse plate, are different from the same parts in the smaller resupinate flowers of Cattleya guttata. We suspect this plant to be more common in collections than is generally supposed, and that, in fact, it stands in many places as a representative of C. guttata. It flowered at Syon in May 1844.—*Botanical Registar.*

Garden Memoranda.

Chandler's Nursery, Vauxhall.—The Chrysanthemums at this establishment are now in full bloom; and those who wish to increase their collections, or see these handsome flowers in perfection, should take an opportunity, during their continuance in flower, of inspecting them. The progress towards perfection in the Chrysanthemum is slow, yet every season one or two varieties are added, which either, in quality or colour, bring it nearer to perfection. Among the new sorts there appear to be no new varieties to interfere with the old favourites in the class of white flowers; Surprise, Vesta, and Lucidum, still take precedence, followed by Victory and Defiance. Those having a blush tinge have received a good addition in a flower named Madame Hardy, a full flower, having broad petals; Celestial, Queen, and Princess Marie, are three well-known favourites in this class. Letitia Buonaparte is also a showy variety; and a new specimen named Emily Lebois, a pinky lilac, promises well. The gay and very pretty little flower, De Criqui, deserves notice; and Queen Victoria, lilac, proves a decided acquisition to its class. Louis-Philippe, Malvina, and Campestroni, are three fine specimens in the purple class; Sappho, a reddish brown, and Isolice, a rosy brown, are two flowers distinct in colour, full, and very pretty; Annie Jane is also distinct and good. Napoleon, a purplish brown, is too quilled. Queen of the Yellows, Annie Saltier, a bright sulphur, and Adventure, maintain a prominent situation among the yellows. Marshal Soult and David are also both good specimens in the same class. Queen of the Gipsies, orange and brown, proves to be a good and distinct variety, and a new flower named Orlando, a large incurved buff, promises to make a good addition to this class. Striatum, having a white ground with very narrow stripes, was not sufficiently expanded to enable us to judge of the general appearance of the flower. Those we have noticed are among the newest and most prominent of the Chrysanthemums shown at this establishment; a large house is devoted to the exhibition of their gay flowers, and a fine effect is produced by the manner in which they are displayed, one row rising above another, forming a gaudy bank. The Camellias are in a healthy condition, and promise a fine show in due season.

Miscellaneous.

Professor Liebig's Opinions on the Potato Disease.—"*Giessen*, Nov. 5, 1845.—The researches I have undertaken upon the sound and diseased Potatoes of the present year have disclosed to me the remarkable fact, that they contain in the sap a considerable quantity of vegetable casein (cheese), precipitable by acids. This constituent I did not observe in my previous researches. It would thus appear that from the influence of the weather, or generally speaking, from atmospheric causes, a part of the vegetable albumen which prevails in the Potato has become converted into vegetable casein. The great instability of this last substance is well known, hence the facility with which the Potato containing it undergoes putrefaction. Any injury to health from the use of these Potatoes is out of the question, and nowhere in Germany has such an effect been observed. In the diseased Potato no Solanin can be discovered. It may be of some use to call attention to the fact that diseased Potatoes may easily, and at little expense, be preserved for a length of time, and afterwards employed in various ways, by cutting them into slices, of about a quarter of an inch thick, and immersing them in water, containing from 2 to 3 per cent. of sulphuric acid. After 24 or 36 hours, the acid liquor may be drawn off, and all remains of it washed away by steeping in successive portions of fresh water. Treated in this manner the Potatoes are easily dried. The pieces are white and of little weight, and can be ground to flour and baked into bread along with the flour of wheat. I think it probable that the diseased Potatoes after being sliced and kept for some time in contact with weak sulphuric acid, so as to be penetrated by the acid, may be preserved in that state in pits. But farther experiments are necessary to determine this. It is certain, however, that dilute sulphuric acid stops the progress of putrefaction."—*Scottish Guardian.*

Bees.

Answers.—*Anon.*—You give no reason for saying, at p. 756, if the old queen is returned to the stock with the swarm "she would destroy the young brood queens," and thus prevent swarming again. Supposing your plan was adopted and the weather good, what influence could that have on the old queen to make her destroy the young ones still in the larva state? Had she not been aware of their existence, she would not have led forth the swarm, however crowded the hive might be. The bees may become idle and show all the usual signs of swarming, nay, temporarily quit, to induce the wary queen to leave till her successors are in a forward state. Connected with this subject, Dr. Dunbar observes, "Were I asked how it happens that the calling of the queen bee is not heard before the first swarm, I should be at a loss to give a satisfactory reason. But of the secret means nature employs to induce the old queen to leave her abode, without having recourse to the same violence towards her successors as these last offer to theirs, even Huber acknowledges we must confess our ignorance. We must perceive, however, how wisely it is provided that she is not so fiercely disposed, otherwise her race would ultimately be extinguished." It is worthy of remark, however, that if the old queen is prevented from leaving the hive by stormy weather till her successors begin to "call" in their cells, her jealousy is aroused against them, and she offers the same violence to them as her successors do to theirs. Dr. Dunbar mentions this, and he was also well aware that the piping sound proceeded from the young queens after the old one had gone. This clearly explains why the calling of the queen is not heard before the departure of the first swarm. As regards your statement, viz., "Will bees be less idle when replaced without a queen than they were before they swarmed?"—need I repeat that the stock would be exactly in the same position, except that the bees would be more numerous than if the swarm had been allowed to take its natural course; the bees being more or less idle according to the weather and room in the hive, till the young queens are bred, and likely to lead off a stronger swarm again. I beg to add this question—How do you account for the swarming of your bees, when you state that shade prevents it?—*W.*——*J. H. M.*—The pure combs will be of much use for a fresh swarm next season. In order to keep them so, put the hive upside down in a dry place beyond the reach of dust and mice.—*W.*——*Alpha.*—Your bees are dying for want of food; the very small supply they had was too late to be of much service. They ought to have been fed liberally about the 1st of October; but as they are now weak feed them in the middle of the day from a common plate placed under the hive, having litter amongst the food for the bees to rest on. As famished bees have a tendency to quit their empty abode, and when offered food sometimes eat until they injure themselves, keep your hive warm and the entrance closed, except an air-hole, otherwise the bees may perish abroad while in a state of stupor. Your elder-scoop or spoon does not hold

enough; some of the bees may gorge themselves in it, while their hungry neighbours can hardly get a sip at the food.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

As this is rather a leisure time in this department many things might be put in a forward state against the arrival of a more pressing season, and, among other things, the naming of plants commands our attention. A collection of plants badly named loses half its interest; when they are neatly labelled, and the names accurately written and spelt, it is a clear proof that some attention is paid to them. The proprietors of plant establishments are not expected to be able to identify all the plants in their collections, but they expect, and rightly, that their gardeners will readily afford the opportunity of doing so. *Greenhouse.*—The directions formerly given will, for the present, suffice, only be careful to keep out frost, and, if possible, without the use of fire-heat. *Geranium House.*—The plants intended for early blooming should now be stopped, and plenty of room afforded them; let them be tied out, and as soon as they begin to break let them be repotted and their growth slightly encouraged, always keeping them near the glass.—*J.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Annuals and herbaceous plants killed down with frost should now have their stems cut off and taken to the rubbish heap; the most choice kinds should be labelled, to prevent them from being destroyed in digging the borders. Take up the roots of Lobelia ignea, splendens, propinqua, fulgens, &c. and store them in a frame, or in boxes filled with earth; they may be placed in any spare Vinery or Peach-house until they require parting in spring; the great object to be kept in view is to prevent them from damping off in winter. Continue to sweep lawns and walks until they are free from leaves, in order to make the garden look well during winter. Seeds not yet collected should now be gathered in a dry day. *Pits and Frames.*—In fine weather when the lights are off, look carefully over all free growing plants, and pinch out the tops of the shoots to keep them dwarf and bushy; also remove dead and damp leaves. Give air freely night and day while the weather is mild, keeping the plants moderately dry.—*B.*

III.—FLORISTS' FLOWERS.

Carnations and Picotees.—Those who have procrastinated are still getting in sorts that, to winter well, they ought to have had six weeks ago; we lay particular stress on this head, as robust well established plants are several points in favour of the possessor during the exhibitions in the coming year. Give the layers, which are potted and placed in frames, all the air possible, sheltering them from the severity of rough winds and heavy rains. If any of the lower leaves assume a yellow or spotted appearance, this diseased foliage must be removed. *Auriculas* should also be carefully managed as directed during the few last weeks in the *Chronicle;* being now in a state of comparative rest, they must not be subjected to much heavy rain, though cold at this season (if in a healthy state) is not detrimental. *Polyanthuses*, when potted and kept in frames, are often seriously injured by mice eating the heart-leaves; when this is the case the sooner the intruders are destroyed the better. *Ranunculuses.*—Some florists at this season give their beds a top-dressing of night-soil, allowing it to be washed into the beds by the autumnal rains, merely forking the soil a few inches deep previous to planting. *Pansies* will be benefited by being sheltered from cutting winds; small pieces of Fir boughs, inserted in and at intervals round the bed, is the best protection.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—It is well known that Pines, when ripe, may be retarded by removing them to a cool dry room; and that, for several weeks in winter, when ripe fruit is not very plentiful. Those, however, who intend to pursue the Hamiltonian system, must not carry this plan to a very great extreme, as regards lowness of temperature. The place in which they are retarded should not be allowed to sink below 45°, and the atmosphere should be perfectly dry; this, with darkness, will keep them back considerably, without any manifest injury to the plant. *Vineries.*—Those who intend to force early Grapes, must now begin to think of closing their houses. The Vines, will, of course, be all pruned, their wounds stopped, trained, and cleansing of all kinds carried fully out. If the Vines luckily have their roots inside, the borders (which under good management will now be tolerably dry) should be soaked with manure water. When very dry, which is far from being a fault, it is better to use warm and clear water for the first watering, and to follow in a couple of days with good manure water; these may be of the temperature of 75° or 80°, and they will impart a slight amount of bottom heat: for in this, as in most other forcing matters, I hold it of much importance to have the root somewhat in advance of the top. If the roots are outside, they should be protected with half a yard of porous material; if in a state of fermentation so much the better; and to complete the whole, a tar-sheet suspended on bearers over the whole to keep out wet, would be of great service. See that plenty of atmospheric moisture is provided in your Mushroom house. Keep you Sea-kale quite dark, and lower the bottom heat when too keen, by free waterings of cool water.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Forward the operations of planting and pruning as previously directed. Trench and ridge up ground, leaving the surface as rough as possible, in order that a greater surface may be exposed to the action of the weather. A piece of ground well trenched and the surface laid up in ridges, will be fit for cropping in the event of a wet spring much sooner than if the surface were now made smooth and level. Fruit-tree borders should be ridged so as the water may be carried off; and special care should be taken that water do not lodge about the stems of the trees, near which on this account the furrows between the ridges should be more shallow than at the farther side of the border. Where fruit is so situated as to be affected by the daily changes of temperature, air must be freely admitted; but presuming that the most choice kinds are placed in boxes or close drawers, and consequently little affected by vicissitudes of temperature, they need only be exposed when occasional inspection renders it unavoidable. *Kitchen Garden.*—Examine Onions, and again select those that are firmest for late keeping. Any infected Potatoes that are now pushing should be planted, either in the ground, where they may remain to produce a crop, or otherwise thickly in beds, from whence the plants can be removed, or in which propagation can be carried on.—*E.*

State of the Weather near London, for the week ending Nov. 20, 1845, as observed at the Horticultural Garden, Chiswick.

Nov.		Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid.	14	O	30 028	29.970	45	30	37.5	S W.	—
Sat.	15	15	29.908	29.710	52	41	47.0	S E.	.06
Sun.	16	16	29.821	29.623	52	39	48.0	S.	.11
Mon.	17	17	29.354	29.294	55	39	47.0	W.	.17
Tues.	18	18	29.409	29.155	57	44	50.0	S.W.	.03
Wed.	19	19	29.123	29.077	58	46	52.0	S.W.	.09
Thurs.	20	20	29.428	29.143	64	35	44.5	S.W.	.33
Average			29 560	29 373	53.5	39.0	46 3		.79

Nov. 14—Foggy throughout
15—Foggy; fine, with clouds and very clear intervals.
16—Densely clouded; rain; partially clouded and fine
17—Fine; partially overcast; rain at night
18—Heavy clouds; very clear at night
19—Boisterous, with rain; showery; clear and windy
20—Rain; partially overcast; very heavy showers in afternoon; clear.
Mean temperature of the week 4½ deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Nov. 29, 1845.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 23	47.8	35.7	41.8	6	0.13 in.	—	4	3	1	2	4	3	2
Mon. 24	47.7	33.2	40.4	6	0.41	2	4	2	1	2	3	3	2
Tues 25	45.3	33.0	39.2	8	0.24	2	3	3	2	1	3	2	2
Wed. 26	46.9	32 4	39.7	8	0.25	—	1	6	1	2	6	1	2
Thur. 27	47 2	35.6	41.4	10	0.88	—	2	3	1	4	6	2	1
Fri. 28	48 9	38·9	43.8	11	1.21	1	1	2	2	5	3	4	1
Sat. 29	49.2	37.3	43.3	10	0.56	1	1	3	3	2	6	2	1

The highest temperature during the above period occurred on the 28th, 1828—therm 69°; and the lowest on the 25th, 1826, and 26th, 1839—therm. 21°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each Copy. An Index has been added to this present Edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

GREENHOUSES—*Philanthes*—You may buy your glass for 4½*d.* a foot in the rough, as imported; and 1½*d.* a foot for glazing is a proper price to pay for that. As to heating, advertise for tenders; and set the nearest carpenter to work to make the wood-work. We cannot recommend parties; nor can we say what the two last items will cost; because everything depends upon local circumstances. There are persons who advertise to put up wood-work at so much a foot superficial. Why not apply to them?

HOLLIES—*A Subscriber*—Don't cut your Hollies down, unless they are naked and scrubby. They will soon take a good start. If you do cut them down, let it be in April. They will shoot up no doubt; but you will be a loser of time.

INSECTS—*Ruth*—It is the caterpillar of the Yellow Underwing Moth, Triphæna pronuba, described and figured in the "Royal Agricultural Journal," vol. 4, p. 103. *R.*——*Murphy*—The caterpillar you sent is a troublesome visitor, but I never knew it to attack Potatoes. It is the offspring of one of the Ghost Moths, and will shortly form an essay in this Paper. *R.*——*C W*—The beetles infesting your Carrots are the Nitidula discoidea. *R.*

LENTILS—*W J T*—These are occasionally cultivated as Vetches, and for cutting into chaff, when dry. The seed may be had of the dealers in agricultural produce.

NAMES OF FRUIT—*R S A*—2, Minchall Crab.‖——*Anon*—1, Old Pomeroy; 2, Nonsuch; 3, Cluster Golden Pippin: 4, London Pippin; 6, Blenheim Pippin; 7, Ribston Pippin; 8, Hollandbury; 9, Hawthornden; 10, Russet Nonpareil; 12, Cockle Pippin; 13, Hughes's Golden Pippin; 14, Wyken Pippin; 16, Alexander; 17, Minchall Crab; 18, Trumpington; 19, Oslin.‖——*J M C C*—1, St. Germain; 1, Autumn Pearmain; 2, Winter Pearmain; 5, King of the Pippins; 6, Norfolk Beaufin.‖——*Northern Sub*—No 6 is London Pippin; the others are not known at present. They have probably not the usual appearance of the respective varieties, owing to season and climate.‖——*J E M*—1, Napoleon; 2, Gansel's Bergamot; 3, Figue de Naples; 4, Easter Beurré; 5, Beurré de Capiaumont; 6, Winter Nelis; 7, Beurré Diel; 8, Double de Guerre; 9, Buchanan's Spring Beurré.‖——*W E H*—1, Marie Louise; 2, Brown Beurré; 3, Easter Beurré; 4, Syke House Russet; 6, Reinette du Canada; 7, Cornish Gilliflower; 8, Court of Wick; 9, Scarlet Nonpareil; 10, Easter Pippin.‖

NAMES OF PLANTS—*An Old Subscriber*—Madder; Rubia tinctorum.——*R Everitt*—Acacia lophantha.——*F E*—2, 3, Varieties of Gongora maculata; 1, Gong. atropurpurea; Catasetum spinosum. Epidendrums can rarely be named from solitary flowers; perhaps E. nutans.——*Micklewell*—Maytenus chilensis.——*Ornithophilus*—Berberis aquifolium.

PINES—*A Kentish Amateur*—Your letter, and several more, must wait till we can resume the subject of Pine-growing.

POTATOES—*J, Oldham*—Your Potatoes of last year's growth, forming tubers in their interior, are very curious, but not uncommon. This always happens if, by rubbing off the sprouts, the Potatoes are unable to grow in the usual way. The shoots then direct themselves inwards, forcing aside the celiular mass of their parent, and living upon it. The young tubers are full of starch, are ripe, and would probably make sets, if well greened.——*D H H*—Your Potatoes show, what has been generally observed this year, that the diseased tubers have a strong tendency to grow; a circumstance probably owing to their unripe condition. A friend of ours, on the 22d Oct., measured young plants sprouting from diseased tubers, 6 inches high, and *apparently* quite healthy. The great question is, whether these plants will *remain* healthy. We should be inclined to *try* diseased Potatoes, as sets, after having steeped them in lime-water for half an hour, and thoroughly dried them in the sun. But they should certainly be well greened first.——*T G*—We *have* read the attacks in the *Times* on the Irish Commissioners, but we have *not* succeeded in discovering what they are about. The three principal points of animadversion seem to be that the Commissioners have been industrious; that their recommendations contain nothing new; and that their reports are not entertaining. Can any man of sense expect such stuff to be seriously noticed. The oddest thing about these articles is that they praise a ventilating pit which is so constructed that no ventilation is possible.——*Economist*—Any Turnip-slicer will cut Potatoes. But why cut them? They should never be given to animals in a raw state. They ought always to be boiled, steamed, or roasted first.——*Ignoramus*—There is no danger of autumn-planted Potatoes coming up too soon, if 6 in. deep. See Mr. Grey's mode of cultivation, reprinted below. If you really fear spring frosts, bury the sets a foot deep, and harrow down the ridges in the spring.——*A Constant Reader*—No official report as to the extent of the Potato disease has been published. It is not very difficult to form an opinion from the newspaper reports.——*Southampton*—You cannot do better than plant at once. Get your Potatoes quite green by exposing them to sunlight before planting; and follow the method recommended by Mr. Grey, of Dilston, as reprinted to-day.——*A Subscriber*—You may use either early or late Potatoes for autumn planting. The latter are perhaps the most fit for the purpose. Follow the directions of Mr. Grey.——We have to solicit the patience of a few correspondents till next week, when we hope to be able to print all that is now in our hands of such a nature as requires early publicity.—*Quæso*—Observe that the Commissioners do not speak positively as to the advantage of keeping Potatoes immersed in bog-water. We have however so good an opinion of the process, that if we had near us a large hole filled with bog-water, we should risk our Potatoes by shooting some cartloads into it, and then covering the hole over with thatch.——*A Constant Reader*—Yes.

ROSES—*Rose Devigne*—A list of Roses for the purpose you describe, should be made when the flowers are in bloom; it is impossible to form a list without doing so. We recommend you to try the following sorts: probably some of them will suit you, although they may not possess all the qualities you desire. Manteau de Jeanne d'Arc, Mrs. Bosanquet, Comte d'Eu, Bernard, Bourbon Queen, Duchess of Sutherland, Cornice de Seine et Marne, Armosa, Augustine Lelieur, Augustine Marget, Comte de Paris, and Grand Capitaine.

TRANSPLANTING—*E C*—If your Hollies have bad roots, it will be prudent to cut back the principal branches nce; if well rooted, let them alone.

WATER RATS—*Inquirer*—Make phosphorus balls as directed at *p.* 489, 1844. Put one in each hole, and the rats will disappear. When they again appear, repeat the dose. *Probatum est.*

MISC—*W & P*—We do not know.‡——*W C*—Lee's Cratægus differs from C. tanacetifolia in having leaves three or four times the size of those of the latter, and in the leaves being of a much brighter green. The fruit, too, is different: that of C. Leeana is red, and not half the size of that of C. tanacetifolia, which is yellow. Luculia gratissima will succeed trained against the wall of a conservatory if the situation is rather moist and free from currents of air. It will grow 6 or 8 feet in height.¶——*C F F*—Your letter never reached us.——*Old Sub*—Your Verbenas, Heliotropes, Petunias, &c. will survive the winter in a frame placed within about a foot of the glass, provided they are guarded against frost by means of double mats or other protecting material. In regard to the destruction of green fly, if you fill your frame with Tobacco smoke in the evening when you cover up, and allow it to remain in that state till next morning, you will find that the pest will be destroyed. It would not be advisable to syringe the plants afterwards at this season, unless you have some means of drying up the damp. A select list of Verbenas has been published at p. 687, and more information on the subject is in type, and will appear soon.‡——*B B B*—Ask the village schoolmaster. We are not house painters.——*Mr. Maund* would be very thankful to any friend who would send him an ear of a sort of any Wheat, with the name by which it is known, addressed to him at Bromsgrove, Warwickshire.——One shilling will be given for No. 39, being the Number for Sept. 30, 1843, of *Gardeners' Chronicle.*

SEEDLING FLOWERS.

CINERARIAS—*D M E*—Your seedlings are varied, and good in colour, but they do not equal the best sorts in cultivation. No. 3 is the best in form and substance.*——*G A*—Your seedling, a deep bright blue, is a fine variety; large, of good form and substance, fine in colour, with stout broad petals.*——*H A S*—There is nothing uncommon in your seedling; the colour is good and lively, but in size and form it does not surpass those commonly cultivated.*

PANSIES—*R F*—The form of your seedling is very perfect; it is, however, deficient in substance, and too common in colour.*

AUTUMN PLANTING OF POTATOES.

(Reprinted from our vol. for 1844, *p.* 801.)

THE following detail of an experiment which I have now proved, showing the comparative produce of autumn and spring-planted Potatoes, both of which were very full crops on the ground, may throw some light on the subject, and at all events show that the fear of the plants being destroyed by frosts in the winter, on tolerably dry land—and no one should plant Potatoes on any other—is visionary. Immediately after the harvest in 1843, I had a piece of Oat stubble turned up with three horses in a plough, as deep as the soil would admit of. The land was a damp loam, on a retentive subsoil, but had been thorough drained the previous year; it was then ploughed across, and made up into drill-rows of the width of 30 inches. About the 20th October, when the Potatoes of that year were taken up, it was planted partly with small Potatoes whole, and partly with large ones cut in two, having had a moderate quantity of dung, but slightly fermented, applied to it; the drill-rows were then ploughed up pretty deep, so as to give the plants a good cover. In the latter end of April 1844, a harrow was run along the rows, to break the crust and admit the air, as well as to give an opportunity of picking off any Couch or roots that might be turned up. Very soon after this operation, the shoots of the young crop appeared in great vigour, to the surprise of some of my good neighbours, who thought that I was adopting a very heterodox practice. The land underwent the usual course of hand-hoeing and scuffling, until the time came when the tops being sufficiently large, it was necessary that the rows should be earthed up. Before doing so I had 1 cwt. per acre of guano sown broadcast over them, which the plough immediately following, turned up against the plants. I did this on the ground that the tubers, which are thrown out laterally from the stem, require more support to bring them to perfection, than they can derive from the manure which is placed in the hollow centre of the drills. The crop went on with a promising appearance throughout, but did not exhibit any unusual bulk of tops. On each side of this plot, a piece of ground was worked and planted with Potatoes in the end of April, in rows of the same width, and receiving in every respect the same treatment, except that the dung having lain longer in a heap, and become more compressed, must have been applied in rather a larger proportion. The plants in this case consisted entirely of large Potatoes cut in two; and the same application of guano was given to them as to the others. In these plots no failure occurred; the ground was well covered, and the tops were more luxuriant than in the autumn-planted piece, so that it seemed very doubtful which of the two would in the end be the most productive. The tops of the autumn-planted ones fell, indicating ripeness, a fortnight before the others, and were taken up in the beginning of October. The adjoining rows of each plot were carefully taken up with the grape, or three-pronged fork, and put into sacks, so that no mixture could take place, and afterwards a row in the middle of each plot, so as to come to a correct average; the sacks were then weighed, and the result was as follows:—

The autumn planting with small Potatoes whole, gave at the rate of	100 loads p. acre of 20 stones each.		
Ditto with large Potatoes cut in two	111	do.	do.
Spring planting with ditto	86	do.	do.

The kind of Potato on which this experiment was tried, is that known in these parts by the name of Hen's-nest. The quality is good in all the plots, but the autumn-planted, if anything, rather more mealy. I am repeating the experiment this year, and have planted, a fortnight ago, some whole Potatoes, and some cut in two; but in the former, I have this time kept out the very small ones, and planted only those of a medium size, whole; for it seemed to me last year that some of them had been planted of too small a size, which caused them to put out too many shoots, and with inadequate vigour. Another experiment may perhaps vary the comparative produce, and tend to establish the point of preference between autumn and spring-planting. As no failure took place in any of these plots, we have no right to presume, from this experiment, that autumn-planting will prove an antidote to that growing calamity; but as far as my observation goes, I am strongly inclined to think that it affords a security against it, and that the principal causes of failure are to be traced to injury sustained by the seed, from being improperly kept through the winter, and its vegetative power being frequently exhausted by shoots that have been made before planting in the spring, as well as by the planting being deferred till the ground, under the process of working, has been too much deprived of its moisture. Against these causes of failure the autumn-planting is a security; and if the result of future experiments should bear out that which I have now detailed, the advantage of planting in autumn will, I think, be fully established. It has been stated as an objection to autumn-planting, that time is not allowed for cleaning the land sufficiently, so as to make it fit for sowing to Grass with the ensuing corn crop; but I should call it bad farming to have land so foul, after one crop of corn, as to present that difficulty. Besides which, as autumn-planted Potatoes are generally ready to be taken up in the beginning of Oct., a considerable time is available for preparing the land, either for receiving winter Wheat, or spring corn. Independent of which, it is possible so to arrange it as to have the Potato crop succeeded in the following year by one of Swedish or other Turnips; and thus affording the fullest opportunity of sowing the land to Grass in the best possible condition.—*John Grey, Dilston-house Oct.* 31 1844.

POTATO DISEASE.—COTTAM and HALLEN have now ready at their Agricultural and Horticultural Implement Repository, 2, Winsley-street, Oxford-street, London, POTATO PULPING MACHINES for extracting the Starch and all other parts of the Potato which remain uninjured by the disease. These Machines are highly approved of by all who have seen and used them, as being the most effectual that can be made for the purpose.

The Agricultural Gazette.

SATURDAY, NOVEMBER 22, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Nov. 27—Agricul ural Imp Soc. of Ireland.
WEDNESDAY, Dec. 3—Agricultural Society of England.
THURSDAY, — 4—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.
Nov. 25—Bromsgrove | Nov. 25—St. Peter's

WE beg the attention of our readers to an admirably argued paper, in another column, "ON LEASES, CORN RENTS, &c." We have no difficulty in agreeing with our correspondent in most of his statements and conclusions; we can refer to but two or three of them now, but he will perceive that we have taken the liberty of numbering his paragraphs, in order to facilitate after reference. The first four paragraphs appear to be perfectly correct; *i. e.*, supposing the unexhausted improvements, named in the first part of the third, to amount to the entire difference in the *intrinsic* value of the estate at the end and commencement of the lease.

Paragraphs 14, 15, 16, and 17 appear to us calculated to leave an erroneous impression on the mind of the reader, unaccompanied, as they are, by any intimation that, in the partnership between the landowner and tenant, the former is a *sleeping* partner, and one who does not even risk his capital in the business, as is the case with other sleeping partners; for he is sure of his land back again, while the tenant is the *active* partner, and exposes all his capital to the most uncertain of all risks—that of an English climate.

Our correspondent's remarks on corn-rents in the ten paragraphs following 22, are very instructive. In reference to the remaining sections of this paper, we would merely remark that no one denies the liability of tenants to be at the expence of all *repairs* of roads, &c.; and with regard to drainage, while, of course, an arrangement *can* be entered into between the parties, by which either landowner or tenant undertaking the expence, shall be fully reimbursed for his outlay; yet it appears to us that it will in general be better for the landowner to drain, as tenants' capital is daily being more and more pre-occupied and engaged by the expences of that higher system of farming which is gaining ground. While, however, we admire the ability which our correspondent has brought to bear on this subject, and offer him many thanks for sending us a paper so well calculated to excite a useful discussion upon it, we must, nevertheless, submit to him the following question:—"Is it good policy, as regards the different parties through whose agency that higher cultivation of the land, which is so much to be desired, can alone obtain, when they are endeavouring to arrange the tenure of land on a proper basis, to set them a stickling with such particularity for their respective rights, and urging their claims with all the jealousy which statements such as those in paragraphs 8, 9, 10, 11, and 12 are calculated to excite?" For ourselves, we shall rather endeavour, by repeatedly urging the profitableness and usefulness to all parties of a higher cultivation of the land, to bring into operation that which, we are persuaded, must be the main cause of it—simple security of tenure for a term of years; even though, in the general attainment of this, temporary damage should accrue to either landlord or tenant from some faulty clause in the agreement between them.

WE are glad to give prominence to the following extract from a late Number of the *Scottish Guardian*:—*

"The first duty at the present moment is to save and increase the available amount of human food. Supposing a landed gentleman or a farmer has it now in his power to save food to the value of 100*l.*, and fails to do so—he will in vain, afterwards, give the 100*l.* (should he be charitably inclined), or even double, or 10 times that sum, to purchase food for the hungry. His money, thus given, may enable one man to take food out of the mouth of another still more necessitous than himself; but the money will feed nobody, and will never bring back to us the food which has been lost. And this observation we are anxious to point against the most criminal and most incredible amount of the waste of human food which is now recklessly going on, over the length and breadth of the three kingdoms, in not saving the farinaceous part of the diseased Potatoes, by the simple process which has been described, and which it is in the power of every one to put in practice."

This is perfectly true. Distress can only be remedied by increasing the quantity of accessible food, for it is a simple consequence of scarcity. Divide the quantity of food which, during any given period, has been consumed, by the number of mouths which it has fed, and the quotient will represent the degree of comfort which, during that period, has been experienced. Divide the *estimated* quantity of food in the country by the number of lives to be sustained, and the quotient, taken relatively to the period of another harvest, must be the measure of the *anticipated* distress. This quotient, supposing the population to be constant, always depends simply upon the produce of the past harvest, to which, of course, we must add whatever food may be brought from other countries; its maximum is representative of plenty—its minimum is attended by starvation. When it is small (*i. e.*, when distress is imminent), it can only be increased (*i. e.*, distress can only be diminished) by additions to the stock of food in the country, or *by saving that of which we are liable to the loss;* which is precisely the lesson of the above extract. When, in both of the methods just indicated, we shall all have done our utmost for the common good, then we shall remain entirely detached from all possibility of human help; as entirely so, in fact, as are the crew of a vessel upon an unfrequented sea.

And here we may enlarge upon this comparison for the sake of the instruction which it affords. What is the conduct exhibited to us, in such a case, where provisions have run short? This:—the quantity of food which remains for daily consumption is ascertained by comparing the extent of the existing stores with the estimated number of days which must elapse before relief can arrive, and the calculated amount is, each day, divided in equal portions among the party. Observe here two things:—1st, how obviously it is the interest of the starving crew to adopt this policy from the moment in which they entertained their very first anticipation of distress; how happy for them if they shall have estimated with accuracy the period during which their existing resources must maintain them: and, 2dly, how manifestly and necessarily a grant, to one or two only out of the party, of the right to lift more than the share of food which falls to each will be attended by a diminution from that time forward of the daily share individually attainable by the others.

Now, supposing, according to the opinion (which is, we fear, too well founded), that this country is about to suffer from a scarcity of food, these remarks apply perfectly to our own case. Of course, we do not recommend the literal or arbitrary adoption of any such policy as that just described, and it would be impracticable if we did; but the course of events, to a certain extent, does admit of guidance by the adoption of a policy which *is* practicable, and it is impossible to avoid the conclusion, that it will have been well for us if, on a review of the coming season, we shall be found to have shaped our conduct in accordance with that of this forlorn crew. We cannot, indeed, lay hands upon the storehouse of the nation and dole out its contents in equal daily portions; but we can do our best to impart to those who have its keys—to those who supply our markets—a knowledge of our resources; and this would be almost as effectual. Each ought to do his best to accumulate and diffuse amongst farmers and holders of food correct statistics of the past harvest, for this would tend to an equable distribution of its produce over the period during which it is to last us. It would, we believe, be a national benefit were an *intelligently* high price of food at once to obtain—a price, we mean, arising from such a market supply, compared with the collective will and ability of the nation to purchase, as a perfect knowledge of our own resources, compared with our necessities, would tend to produce—such a supply, in fact, as our resources will enable us uniformly to maintain throughout the year. If a sufficiency does not exist, the sooner all are put upon a short allowance the better. We should exercise the foresight of civilised men, and not, like the savage, feast now to starve afterwards. This is illustrated by our remark on the first act of the helpless crew: the publication of accurate information as to our means of subsistence would tend to our imitation of them there.

But how shall the parallel proceed? it may be possible so to inform salesmen of food, as that it shall appear to them to be their interest to send a uniform daily supply into the market, but how shall this allowance be equally divided among the people? Clearly, only by conferring upon them an equal ability to purchase it. Now, though this, doubtless, is impracticable, yet an approximation to it is possible. A hundred pounds whether bestowed in charity or in wages will, as the editor of the *Scottish Guardian* truly observes, only enable "one man to take food out of the mouth of another," but this surely, is not an undesirable event when the one is starving, and the other has abundance. Look at the present condition of Ireland; if the reported state of its Potato crop be the fact, there is not in that country at the present moment food enough to support its inhabitants till they shall have gathered in another harvest. And, thus, some of the people *must* starve if more be not imported. Alas! with what coolness do we find ourselves speaking of the most horrible fate which man can experience.

Food, then, *must* be imported into Ireland; and how is it to be done? Not by an arbitrary seizure of grain and a forced shipment of it to Irish ports—but, as was indicated the other day by the petition of the Irish Agricultural Improvement Society, by giving the people employment. Only let Government and Irish landowners and railway companies employ the people in all the many profitable ways that offer themselves—their wages will rise—money will be brought into the country to pay them, and the wants of the people, combined now with an ability to pay for the food they require, will raise prices of grain, so that holders of it in those parts where, being more abundant, it is cheaper, will be induced to export it. It is thus that employment given, and wages paid, in quarters where distress is to be expected first, will tend to equalise and distribute, however clearly it may be unable to increase, the national supply of food. And, at the same time, we may remark that, while it is obvious that no distribution of money could have any influence on the quantity of the stores of food already in the country, yet universally abundant employment, accompanied as it would necessarily be by high wages, might raise prices so as to render it profitable to import from other countries, and we may say this without any fear of treading on forbidden ground, for a tendency to this result would, necessarily, under these circumstances obtain, whatever may be the restrictions on, an importation of foreign grain.

The following, then, appears to be the right policy to be adopted, indeed, we may say, the duty to be performed:—

1. That farmers and others should exert themselves in saving, as far as possible, the nutritive parts of their Potato crops, and thus simply *add to the food of the nation.* The conduct, properly understood, of those gentlemen who, in their respective districts, have established farina mills, and exerted themselves in prosecuting that manufacture, is patriotic and philanthropic in the highest degree.

2. That all, to the extent of their ability, should contribute towards the acquisition and diffusion of a correct idea among all classes of the extent of our resources. This, as we have said, would exert a most beneficial influence on the markets.

3. That all parties, landowners, farmers, railway companies, and, if it be necessary, government, should offer employment to the labourer, especially in those quarters where this class are the most entirely dependent on their daily wages for their daily food. It is needless here to point out the numberless opportunities for *profitable* employment which display themselves on a review of the present state of farming in this country.

ON LEASES, CORN RENTS, &c.
AND ON DRAINING AND REPAIRS OF ROADS BEING DONE BY LANDLORDS.

1. *Leases.*—Before a person can reasonably expect a lease, he must show cause why it should be granted, and this cause must be beneficial to the lessor to be a reasonable cause.

2. If the person applying for the lease were to exchange circumstances with the person applied to, would he grant a lease (and so for a considerable period put the control and disposal of his estate in a great degree out of his power), without a beneficial consideration, that is, a consideration beyond that ordinarily expected and reserved on an annual letting?

3. Such consideration may be given either by an increased rent payable from the commencement of the lease beyond the value of the land at the time of letting, estimated on the mean value of it for the term demised, on the supposition that certain improvements will be effected by the tenant, the landlord at the expiration of the term (having received the full mean value in the interim), allowing for improvements effected solely by the tenant such sum as any remaining unexhausted are worth on a fair computation; or it may be given, as is more ordinarily the case, by the tenant taking the land at its present worth in its unimproved state, and deriving exclusively the whole benefit of improvements during the term, the benefit remaining unexhausted at the expiration of the term being given up to the landlord as the fair consideration for granting it.

4. In building leases this is exemplified where the present value of the land is charged as a ground rent, and at the end of the lease the house remains for the landlord without the improvement arising from the building having then to be bought by the lessor.

5. It is absurd to suppose that any one would grant a lease without deriving thenceforth, or in prospect at the expiration of the lease, some advantage to himself beyond what he would derive from an annual letting of

* A Glasgow Paper.

land, and whoever instils into the farmers' minds that they are to expect leases at the present value of the land, and at the expiration of them to be paid for all unexhausted improvements, is no true friend of theirs, but the reverse, raising hopes and expectations which common sense may tell them will never be realised.

6. The length of the term should depend on the improvements covenanted to be effected by the tenant.

7. Landlords having only a life interest in their estates may still grant leases for a term of years, provided they should so long live, and in case of their dying before the end of the term, the tenant may be protected by covenants on the landlord's part to reimburse him for such loss as may happen in consequence.

8. Bad landlords are far more uncommon than bad tenants.

9. Landlords' characters, with respect to the treatment of their tenants, are thoroughly discussed and known to and by all the farmers in their neighbourhood.

10. Tenants' characters are not so known to the neighbouring landlords.

11. Landlords intrust to their tenants that which they cannot deprive them of, nor cheat them about in any way, *i. e.* their land.

12. Tenants have it in their power to cheat their landlords of their rents, and to leave the land worse than they found it.

13. The present laws are notoriously in favour of the tenant in estimating damages, and with a penniless tenant it is better to submit to the first loss, as the old proverb has it, instead of incurring further loss by seeking legal redress; so that every way the tenant may be said to have the advantage over the landlord on these points.

14. Land is ordinarily said to be worth 30 years' purchase; this, when it lets for 30*s.* per acre, is 45*l.*, the value of the landlord's capital.

15. This land is farmed by a tenant whose capital is, say 10*l.* per acre at the utmost.

16. It is an old saying that land ought to produce three rents, one for expenses, one for the landlord, and one for the tenant.

17. On this principle the landlord, as stated above, would get 3*l.* 6*s.* 8*d.* per cent. interest, from which the 6*s.* 8*d.* must be deducted for repairs, leaving clear 3*l.* per cent.; the tenant meanwhile clearing 15*l.* per cent, which 30*s.* would be on 10*l.* as above; that is, he would get five times as much as the landlord in proportion to their respective capital.

18. Anything laid out by the tenant in permanent improvements he ought to be able to regain from increased produce arising therefrom, together with a fair rate of interest for the capital required to effect these improvements; but having had a term granted sufficient to enable him to regain principal and interest he has no right to expect that the landlord should pay him his capital a second time.

19. Ten per cent. is probably a fair rate of interest on money so laid out by tenants, and a sufficient inducement to lead to the investment of their extra capital in improvements.

20. For want of proper accounts, it seems difficult at present to say how long it would take for such improvements to repay principal and interest with any degree of accuracy.

21. It is thought by many persons that land which really needs draining will repay principal and interest as above in three years' crops. Whether this be true or not, it is evident that as draining becomes better understood, and tiles or pipes cheaper, and at the same time equally effectual as the old expensive method, if not more so, a shorter period than the one hitherto required, whatever that may truly be, will suffice.

22. *Corn Rents.*—This is a more difficult question, particularly on mixed farms, *i. e.*, half Grass, half arable, or nearly so.

23. When farmers, if ever they do, will take the trouble to book their expenses and profits like mercantile men, data will be furnished on which to calculate with some degree of accuracy the relative bearings of prices, crops, seasons, and the expenses of different modes of culture and feeding stock, &c. on their profits.

24. At present, for want of keeping proper accounts, farmers in general do not know, as mercantile men do, the cheapest mode of raising their productions.

25. A landlord ought not to suffer for the ignorance of his tenant.

26. A day's difference in sowing, reaping, mowing, or carting home grain or hay, may, and often does, make a great difference to the value of the crop, but as these are all at the discretion of the tenant alone, if he err in judgment, want of diligence, or foresight, it is unfair to expect an abatement of rent. For example in 1844, in many places Barley was a short crop, while on the other side of the hedge it was as good as ever known; the one tenant having sown early, the other late; and the same with Turnips. Those who had good crops realised, in consequence, beyond an ordinary profit, whilst those who had bad ones suffered a loss or diminution of the ordinary profit.

27. When a manufacturer rents his manufactory he pays a fixed rent for it, and takes his chance for his speculations being profitable or otherwise, with which his landlord has nothing to do, nor as to the market price of his manufactures, be they higher or lower than when the premises were let; all which risks are properly taken by the tenant.

28. If a manufacturer thinks he can make more by altering and improving the buildings, he asks and obtains a term of years at the present value of the buildings; but at the end of the term he sets up no claim to be paid for unexhausted improvements, which would be absurd, having had ample time to repay himself principal and interest, unless his fancied improvements did not answer, and in this case common sense says he has no one to blame but himself, and he would never dream of seeking from his landlord a reimbursement of money wasted in idle speculations.

29. The fluctuation in the price of grain, &c. may arise from various causes. High prices may arise either from scarcity, or from the people being fully employed in general at good wages, and so more able to buy bread, meat, &c.; or one production may rise in value from the failure of some other, as at present, the price of grain being materially enhanced by the failure of the Potato crop. In either of the latter cases it is evident that the grower of Wheat, for instance, must gain beyond an average profit; but in the former case it is probable that he may not realise an average profit, so that the price of grain alone can never be a just criterion of rent. Still it may, and on an average of years must be, in a great degree the basis of rent. As I remarked in a former communication, which appeared in your *Gazette* a short time ago, the Scotch meet this difficulty by making one half of the rent to depend on the value of the land, calculated on average prices of, say, seven years up to the time of letting, and the other half to vary according to the average price of grain in the past year, computing as nearly as may be to the time of paying the rent, and fixing a maximum and minimum with reference to the fixed reserved rent, or rather to the price of grain on which the fixed rent was based.

30. A considerable portion of the produce of every farm is consumed by the tenant, his family, his labourers, his stock, &c., and so far as this portion is concerned, including the value of the dwelling-house as a residence, it makes no monetary difference to him whether, in the market, its value be much or little. This, added to the foregoing reasons, seems to put the equity of reserving the rent in part fixed beyond a doubt, the fluctuation of the remainder being probably as near an approach to an equitable adjustment as the present scanty information on agricultural statistics will admit of.

31. Farmers in estimating their profits are apt to overlook the fact that a dwelling-house, bread, meat, beer, poultry, milk, butter, cheese, bacon, &c., are furnished to them by the farm, which otherwise they would have had to buy or pay rent for: these items ought to go to the credit of the farm as regards all the family, except labourers and the dairy maid, and when the latter is not altogether employed in the dairy, her keep and wages should be divided between the household and farming expences, in proportion to which occupied most of her time.

32. It may seem frivolous to enter into these minutiæ, but it is the want of this particularity in apportioning expences, that causes farmers not to know where their expences lie, nor whence their profits arise, and I am glad to see that the Royal Agricultural Society of England has turned its attention to this point, and offered a prize for the best method of keeping farming accounts.

33. *On Draining, and Repairs of Roads.*—It has, of late, been frequently argued, that landlords ought to do these, instead of the tenants. With regard to the latter they may be said to do it in the most essential point of view already, *i. e.*, pay for it, because, in calculating the worth of a farm to let or to take, this is considered, and the rent fixed lower in consequence, in every instance, it being well known that, before taking a farm, every one inquires what rates, tithes, and taxes are to be paid by him, and gives less rent than he otherwise would, in consideration of having to pay these, so that, in fact, these are all now borne by the landlord, and it must be evident to any impartial and unprejudiced observer, that it is better for both parties that this custom should remain, because a tenant being always on the spot, and having carts, horses, &c., can effect repairs of roads at far less cost than a landlord, particularly when the latter is non-resident, or does not keep carts, horses, &c., or both, which is frequently unavoidably the case; besides which, when the tenant does the repairs, he is naturally more careful to avoid cutting up roads in wet seasons, &c.; and with regard to the former, it is well enough, by way of guarding against want of skill, capital, or spirit in the tenant, for the landlord to reserve the power of draining, and charging a remunerating interest, by which I mean one that will be equal to the ordinary interest of money, and such addition as will refund the principal by the time the benefit is exhausted, and the operation required to be done over again: for example, suppose draining to last thirty years, and then to want renewing, I should say seven per cent. would be a fair charge for interest on the capital expended in it by the landlord, as he would be a loser by taking less, and this would probably leave a considerable benefit to the tenant, which, however, he would have no claim to, and which, therefore, would be equal to an abatement of rent, as, in strict justice, the landlord could not be expected to lay out his money for the tenant's benefit solely, without any beneficial consideration, and it is evident that none would arise to the former, unless he got something more than the ordinary rate of interest in addition to a return of his principal as above, and I may here remark that I have before stated ten per cent. in addition to the return of his capital to be a fair inducement for a tenant to drain, whereas the above is only about four per cent to the landlord, the remainder being for repayment of the principal; but as disputes or questions may arise respecting the times when the landlord may choose to enter on the work, or the cost of its execution, both of which may generally be done better, cheaper and more to his own convenience, by the tenant, if he possess the skill and capital he ought to possess, I am inclined to think that this also is better left to the tenant, and a proper term granted him in the land to enable him to reimburse himself, as suggested in the foregoing remarks.

As you have inserted several articles on tenants' rights, wherein the writers have quite overlooked landlords' rights, I trust you will insert the above, in which I have endeavoured to hold the balance more evenly between the parties.—"*A Looker-on.*"

REMARKS ON THE POTATO.

By Sir G. S. Mackenzie, Bart.

I formerly suggested that an insect had caused the disease of the Potato. There appears to be some reason for believing that it has been injured by various causes, and that there is more than one disease at work. While examining a number of diseased tubers, in one (and one only) I found two small maggots luxuriating in the rotten matter. On mentioning this circumstance, I found that some other persons had observed the same thing. In many Potatoes I noticed round holes, and cavities connected with them, in which larvæ had, no doubt, fed. But there was no appearance of disease, the wounds having dried up. In many cases the substance of the Potato had been converted into matter of a corky consistence; in the greatest number the substance was a mass of wet rottenness.

My intention in the present communication is to make known to the readers of the *Gardeners' Chronicle* some things connected with the Potato which may be found interesting. A considerable time ago, at the period when the Potato crop failed in consequence of the destruction of the sets, my thoughts were turned to the possibility of finding means to preserve Potatoes. It occurred that, if the vitality of the tuber were destroyed, it would dry up, and keep for any length of time. Accordingly I scooped out the eyes of some tubers, set them aside, and found that, without the assistance of heat, they slowly dried, and became hard masses, exceedingly unlike Potatoes. The colour had become yellowish brown. On being boiled for an hour they swelled, and became of the consistence of cork, and when torn, greatly resembled it. There was no difficulty, however, in chewing it. A change, however, had been effected. The taste acquired was peculiar, as well as the smell; and though not positively bad, by no means agreeable. The water in which the dried tuber was boiled was coloured, and held something in solution, not yielded by the Potato in its natural state. Here, then, is something worthy of the chemist's attention. With the view to future examination, I have set aside some large Potatoes, having destroyed the eyes; and I hope that others will do the same thing. I think that the vegetable anatomist will be enabled by these means to discover something as yet unobserved, in the structure of the tubers.

Being inclined to think that farmers have yet something to learn concerning raising Potatoes from seed, a detail of my experience in regard to this may be acceptable. A long while ago, at the commencement of my farming operations, I made it my business to seek for a Potato to please my palate. To find one was no difficult affair; but it soon appeared that change of soil affected the Potato in a remarkable manner; so that many fine ones, when grown on my farm, became bad elsewhere. This set me to raising new varieties from seed. Before proceedings were commenced, what were conceived to be the properties of a good Potato were written down. These were—1, Moderate size; 2, Regular shape, the eyes not deeply sunk; 3, not bursting when boiled; 4, dry or mealy when cooked; 5, an agreeable taste; 6, early in its habit of growth; 7, not luxuriant in the stems; 8, productive. In those days organic chemistry had made no progress, so that the comparative nutritious properties could not be ascertained. I succeeded in obtaining some varieties, with nearly all the qualities desired. I have still in cultivation a Kidney, which, with the exception of being rather large, and not productive, possesses all the others. I observed that, for the most part, the seedlings which produced flowers the same season when the seed was sown did not yield tubers. I was, therefore, in the habit of throwing them away as soon as I observed flowers, till I saw one with double flowers, the rarity of which, and their prettiness, made me very desirous to preserve the variety, if possible. Accordingly, I allowed the plant to grow until it withered away, and on taking it up found a few tubers, like small Peas, which I despaired of preserving, as I had observed such very small tubers always decayed. All but one did perish, and that one, when committed to the earth, had but one eye left; but it grew, and yielded tubers of a good size; and thus the double-flowered Potato has been preserved. This variety has a remarkable peculiarity; it has two sets of blossoms; the first double and unproductive, the second single, and producing seeds. This shows the possibility of preserving very small tubers; and no seedling should be discarded, unless for bad shape, till after trial of the third crop, nor should even a very promising one be trusted to till it has been tried a third time. For example, I found at the root of a very small seedling plant, a tuber of fine shape, not much bigger than a Filbert. This produced in the second year above a hundred tubers, most of them of good size. On boiling one of them, in did not burst, was white and dry, and I thought I had found a treasure. In the third year there were but three or four tubers at every plant. The same happened under varied circum-

stances the fourth year; and thus an admirable Potato turned out unprofitable. Dependence cannot be placed on apparent productiveness, until after the third year.

The number of varieties that are derived from seed is quite surprising; and the great number of bad ones in proportion to the good, equally so. Of the shapes, sizes, colours, and qualities, there is no end. Some, when boiled, have melted entirely away, while the skin of others is not broken. The driest Potatoes may be known generally by the roughness of the skin, the watery or waxy ones being commonly smooth. When in search of a dry and well-tasted Potato, I have been in the habit of throwing away the very smooth ones; but as tastes differ in regard to this root as well to other things, cultivators must suit their own.

Seedlings may be found in quantities among the stubble of corn grown after a crop of Potatoes, and are easily distinguished from plants rising from tubers left in the field. They may often be found scattered over a garden, probably by the agency of mice or birds. In the small garden attached to this place, I have recently taken up about 30 seedlings varying from each other, though only one sort was grown in the garden previously.

I must not conclude without stating instances of the quality of a Potato, and its shape, having been changed by a change of soil. A Kidney raised from seed possessed every desirable quality for the table. Removed to a heavier soil at a distance of 36 miles, it became absolutely bad and unfit for the table. Grown in the garden of Colonel Le Couteur in Jersey, the same Potato, originally long and flat, became compactly round; and at the same place, a large Potato, very productive, and which, from its not vegetating early, I had cultivated for cattle in spring, when Turnips became scarce and Grass had not become abundant, and which had no merit for the table, was pronounced at a comparative trial of Potatoes at Colonel Le Couteur's house, an excellent table variety. These facts indicate the propriety of every cultivator raising seedlings till he finds one suitable to his soil; if he fails, as I did, in finding one already in cultivation to answer his purpose.

As the idea of the Orchard Apple having originated from the Crab has been given up, as the Crab does not sport, and the origin is involved in obscurity, it is probable that the Potato we use is not derived from the wild one of South America. In the same way certain wild Strawberries do not sport, and hence cannot be the origin of the garden varieties. I have never heard of a new variety of Strawberry being obtained from seeds of the Alpine or wood Strawberries; nor a new Potato from the seeds of a wild one; nor a new Apple from a Crab seed. Nevertheless such things may have been seen.

DISCUSSION ON FLAX CULTURE AT BALLINASLOE.

Observing at p. 744 that objections were made against Flax culture at the Ballinasloe meeting by Mr. Beamish, of Cork, I am obliged again to trespass on your columns, with the hope of convincing that gentleman of his error in taking as his guide the productions of theorists in preference to the opinions of practical men, and as I shall notice his quotations from Mr. Stephen's "Book of the Farm," I shall first request those who may not have read Mr. Beamish's observations, to turn to p. 744 and examine them, and the reply of Messrs. Macartney, Walker, and Hazlett, gentlemen farmers from the north of Ireland, whose remarks, from 30 years' practical experience in Flax culture, will no doubt have their effect with British farmers. I hope to satisfy those that believe Mr. Stephen's observations on the nature of the Flax plant, that he has unfortunately, if not imprudently, touched on a subject that I am prepared to prove he is totally ignorant of.

I have not read the "Book of the Farm," but I must suppose, as Mr. Beamish condemns Flax culture, that he brings forward Mr. Stephen's strongest argument against it. And this is, that "if a corn crop follows Flax, the effects of such a system will oblige its cultivators to abandon it altogether." In answer to this, I will just call attention to a few observations made by a gentleman at the Markethill Agricultural Meeting in Ireland last spring, as a proof that Clover and Grass, and then Oats of the best quality, have been grown after Flax by practical men:—

Mr. Herd being called on, after a few remarks on draining, said "I shall merely call your attention to one field which I furrow-drained and subsoil-ploughed about five years ago. It is well known by several gentlemen here present that worse land could scarcely be found; I am sure that a farmer who had 50 acres of the same kind (without paying any rent for it) could not make a comfortable living off it. The first year I put it in Turnips, and in part of that field I had 39 tons of Swede Turnips to the English acre. I have since had an excellent crop of Flax and Oats, and two crops of Clover and Grass off the same field, and last season it grew a crop of Oats which averaged in length from 6 feet to 6 feet 3 inches."

In addition to Mr. Herd's observations, I am enabled to say, from my own experience, as well as from the practice I know to have been common among Flax-growing farmers, that the statement or advice Mr. Stephen assumes himself competent to give on Flax culture, cannot be founded on practical experience. I have sown Flax in April, and before it came up I have sown Clover and Grass seed, and caused a man to cover it in with a sort of harrow, and after that I caused the field to be well rolled, and I found by this practice I could calculate with certainty on having an excellent crop of Clover, with less seed than if I had sown it with any other crop. I always thought the pulling of the Flax moulded the young Clover plants, from the luxuriant appearance the field would have in one month after the Flax was carted off, and, like Mr. Herd, I had myself (and often observed others have) most abundant crops of Oats after Flax; therefore I deny the correctness of Mr. Stephen's assertions.

Mr. Beamish asserts (from Mr. Stephen's work) that to raise Flax without manure (that is to grow Flax after Barley or Wheat in ground that had been previously manured) will deteriorate the soil materially, no species of crop being more scourging to the soil than Flax, not even a crop of Turnip seed. Now I will not stop here to show what additional profit a good crop of Flax will produce over all other crops to replenish the soil with those ingredients of which it will (like all other crops) have robbed it, but I will produce other evidence to prove that in this assertion Mr. Stephen has also fallen into error.

In the "Irish Farmers' Journal" of the 26th March last, the editor in his remarks on Dr. Kane's work says, "In the case of the Flax-plant, to which our author has paid more than ordinary attention, it is seen that the really valuable part, the fibre, is produced from ingredients supplied by the atmosphere, and however much it may be regarded as an exhauster of the soil on which it is produced, yet it cannot be said to be an exhauster of the farm, the materials originally derived from the soil being again returned to it after the plant has undergone the manufacturing process." Hence this fibre, which constitutes the entire money value of the Flax-crop, is produced during the life of the plant, by the elements of the atmosphere, and the materials taken from the manure, and from the soil, are in reality employed by the plant in organising substances which do not make any return to the farmers, but which are, on the contrary, under certain circumstances, considered to be positively a disadvantage. It is, therefore, of importance that it should be understood, that by a proper system the growth of Flax and similar fibre crops should be destitute of all exhausting influences; that the materials drawn from the soil by such a crop should be found in the waste produced of its manufacture, and should be available by being returned to the soil, to restore it to its original condition of fertility. The Doctor, in this, means that the water in which the Flax is steeped in should be carefully preserved and applied to the soil, as it has been proved beyond doubt to contain much fertilising matter.

If the opinion of such a man as Professor Kane, corroborated by experience, will not remove prejudices created by theoretical delusion, I am at a loss to know what will have the desired effect. If Mr. Stephen be right (and that I altogether deny) in saying that Flax is more exhausting than Barley or a Wheat-crop, the question is what will be the additional profit that the farmer can have by Flax-culture compared with Oats (as it will grow after Wheat or Barley), to enable him to restore his land. Is there any other crop than Flax that will leave the farmer 15*l.* or 20*l.* per acre clear profit? I say there is not, and I need not bring another proof after the remarks of Mr. Walker and Mr. Hazlett to corroborate my statements. Mr. Stephen asserts that from 6 to 12 bushels of seed per acre is the most that can be had, and he values it at 3*l.*, or 5*s.* per bushel; although bad Riga seed sold last year in Belfast at 10*s.* per bushel; whilst Mr. Hazlett values the seed of one acre at 8*l.*, a sum sufficient to pay the whole expense of cultivating one acre of Flax, and we have plenty of proof that from 29 to 32 bushels of seed per acre was produced last year in Norfolk.

Again, Mr. Stephen asserts the Flax-crop varies in weight from 3 to 10 cwt. per acre, according to the soil and season, and taking the highest produce 5 cwt. of dressed Flax at the highest price in 1844, 6*l.* per ton, the yield would be 31*l.*, from which deduct expences of beetling, scutching, and hackling, waste of, loss of straw for manure, and the profit will be 8*l.*

Now, I confess this calculation is to me a complete puzzle, and as I cannot make out what he means, either by addition, subtraction, or multiplication, I begin to think that he and I should go to school by this, before we attempt to write more on this subject; 6*l.* per ton for Flax in 1844! !—was there ever such a thing heard of?—Why, there is Flax in Ireland this moment selling at 120*l.* Then the yield 31*l.*! and the profit 8*l.*! As I can make no more out of this puzzle, I should be glad to see the items of which the sum of 23*l.* for expenses is made up.

There is nothing in his observations that so completely proves Mr. Stephen's ignorance of the nature of Flax, and the expences incurred in its cultivation, more than his bringing forward as part of the farmer's expenses the hackling, as in no instance has the spinner ever bought hackled Flax from a farmer. Flax is always sold in the rough state after being scutched. He also asserts that in harvesting the Flax-crop we are placed in a dilemma, that either the quality of the Flax, or the produce of the seed, must be sacrificed. There can be nothing more preposterous than this assertion; no man that ever grew Flax could fall into such an error as to represent that either must be sacrificed. If the Flax be allowed to get full ripe, the seed will be better no doubt for sowing, and the Flax will be brittle, and not so oily or so good; therefore, those who want to rear their own seed for sowing, had better keep a few perches to get full ripe for that purpose, the Flax will not be so fine, and may be 1*s.* 6*d.* to 2*s.* 6*d.* per stone less value than if pulled a little in the green side; but to talk of a sacrifice of either it is absurd. So far from the seed being worse for feeding by being saved a little in the green side, when there is not so much oil in it, but more of the vegetable sap or juice, Mr. Stephen might just as well say, that upland hay saved a little in the green side when the vegetable juice is in the stem will be bad, as to say the oil-cake from such seed must be bad.

I deny that it will be so, because of its being saved before it absorbs all the oil from the fibre, and the experiments made in Norfolk by gentlemen who have tried feeding on home-saved seed and foreign cake must be sufficient to condemn the assertions of theoretical writers.—*J. H. Dickson*, 6, *De Beauvoir-square, London.*

P.S. I have (by this morning's post) received the *Leeds Intelligencer*, from which I copy the following extract, "In 1830 there was not a Flax spinning-mill in operation in Ireland. At present there are in Ulster 51 in full work—some of them amongst the largest in the United Kingdom. They employ about 18,000 persons; there is a million and a quarter of money sunk in the buildings and machinery, and they require a floating capital of 600,000*l.*" This statement is not altogether correct. Messrs. T. and A. Mulholland, of Belfast, had their large cotton factory (which was burned down in 1828) rebuilt, and in it they were spinning Flax in 1829; there were two small Flax spinning-mills convenient to Armagh and Newry previous to this; and Messrs. J. Grimshaw and Son turned their print-works, in 1830, to the spinning of Flax; and Messrs. Boomer and Campbell, and several other printers and cotton-spinners followed the example; because of the increased demand for the article of Flax and tow-yarns, which continued to sell freely at double the price that it is just now.—*J. H. D.*

Home Correspondence.

Disease in Turnips.—The Swedish Turnips are suffering to a great degree in this neighbourhood from a disease analogous to that of Potatoes. The outer leaves, especially, are destroyed by a variety of Botrytis parasitica, closely allied to Botrytis infestans, which has been so prevalent on Potatoes. The decay commences in little linear patches, following the course of the annular or scalariform vessels, round which a dark brown substance is deposited, as in the diseased cells of Potatoes. The whole of the lower portion of the Turnip soon decays, leaving a small part only fit for food. At present it is not universal, but many acres have been destroyed by it. I do not find the same mould upon the decayed portion as on the leaves, but it is covered by a minute species of Fusisporium.—*M. J. Berkeley, King's Cliffe, Nov.* 16.

Potatoes.—At p. 771, under the head "Potato Failure," there is a paragraph copied verbatim from a paper I wrote last spring on this subject, and which appeared in the "Journal of the Royal Agricultural Society of England," vol. vi., p. 161. The paragraph in question is attributed to the "Canadian Agricultural Journal." I should not have noticed this had I not thought it possible that some of your readers might also have read my paper, and be led to suppose that it was a plagiarism of mine, instead of want of acknowledgment on the part of the Canadian periodical. Whilst upon this subject, allow me to remark that one of the recommendations contained in the report made by Professors Lindley, Playfair, and Kane (dated Nov. 7) has been received with considerable distrust by the Potato growers to whom I have mentioned it. I allude to the question of autumn-planting. The ground of objection is the probability of injury by spring frosts. I, however, quite agree in the recommendation of the Commissioners, and had, in fact, prepared some land for immediate planting, before their report appeared. One of the strongest arguments that can be adduced in its favour is that the few Potatoes that escape notice when the crop is taken up always make vigorous plants the next spring, and even though hoed down once or twice, when appearing amongst corn, have strength enough to push again, to the great annoyance of the tidy farmer. It is, therefore, very clear that winter frosts do not destroy the sets, nor spring frosts the young shoots.—*H. S. Thompson, Kirby Hall, York.*

On the Application of Capital in Farming.—"Men should write with diffidence about what they do not fully understand."

It is doubtless the object of an agricultural periodical to expose the evils of every false system of letting and using land, and to suggest improvements. In assisting an editor in this laudable effort, writers should advance theories with becoming modesty, and state facts carefully and faithfully; while each should be read and examined with candour. Many of the remarks of "Oxygen" in the *Agricultural Gazette* are novel, but interesting in the highest degree, and deserving to be carefully considered. The readers of this Paper will, from the amount of scientific knowledge he displays, and the amiable spirit he evinces, be constrained to appreciate his sentiments, and make some practical use of his remarks. The epistles of "Falcon" are widely different; they appear dictated by opposite feelings, and written with a pen dipped in gall. His theories—that capital is required in farming—that a farmer requires more or less according to the extent of his business, and that some require more than they possess—are neither novel nor offensive. There are farmers to be found,

as well as manufacturers and mechanics, who launch into business too large for their means. It must be left to work its own remedy. A landlord finding he is so unfortunate as to have such a tenant will get rid of him as soon as he can, or reduce the size of his farm, and the poor fellow must fall back till he finds his level. There are, moreover, good and substantial reasons why tenant farmers who possess abundant capital should not employ it upon land beyond a certain reasonable amount. If I hire a horse for a given time, I feed him well and work him well. And if a man farm land for profit he must exercise judgment and economy in the application of capital. It is here as with reference to fattening cattle, he is wisest who produces "the greatest quantity of eatable meat at the least cost." But it does not follow that because a man's mind opens all at once to the discovery that farmers are to be found who know the inconvenience of being poor, that he is to be justified in condemning everything in agricultural practice—first making out that everything is wrong—then, to adduce it all as proof of his favourite (and as he foolishly imagines, newly-discovered) hypothesis. The multifarious evils mentioned by "Falcon" in proof of his great idea, and the picture of agricultural misery which he paints, are (to a great extent), "the offspring of his own brain." Nearly all his statements are overstrained, and he writes about some things which he does not understand. He invidiously remarks in his communication of the 8th inst., that some dislike to what he had previously said had been expressed by some whom "the cap fits." This, I beg leave for myself, in the most unqualified manner, to contradict. Happily for me I am so situated as neither to see, feel, or know, but little of the evils on which he expatiates. It was from convictions already mentioned, and because I thought his strictures calculated to bring practical farming into contempt, that I contradicted them. His observations in his last letter, I am pleased to say, are not applicable to the Isle of Thanet. He may reply "this is not all England." True, then let him learn to make exceptions in his sweeping statements. Our labourers are fully employed—not at prices which he mentions, nor are they (thanks to Providence!) the pitiful creatures he depicts, "with wan countenances and nerveless arms—the mere shadows of men." I know not of a farmer's labourer who receives less than 12*s.* per week; while many (according to their several abilities), receive more. In turning to my labour account of last week, I find I paid eleven men for their own work simply, 7*l.* 11*s.* 8½*d.*, in sums varying from 12*s.* to 19*s.* each man, women receive from 6*s.* to 9*s.*, and boys from 3*s.* to 6*s.* per week. I have resided in different counties of England, and like "Falcon" have occasionally travelled. But though I have often travelled for the special purpose of observing (with an eye bred to it) lands, yards, corn, and cattle, farmers' servants and labourers, yet I never saw, (in districts under cultivation) anything that would justify his remarks on the neglect of the farmer, the barrenness of the country, or the awful misery of the agricultural labourer. I have observed that in Essex, and elsewhere, they fallow their land every fourth year, and probably they grow more corn than if they cropped the whole annually. Where persons can make cattle pay for fattening (this is a critical matter) they may, by growing an abundance of green crops, and making more manure, be able to crop every year. Also, where manure can be purchased sufficiently cheap it can be done; but, situations and circumstances must be considered before particular practices are condemned. I never yet happened to have an acre of arable land under my management that was not planted or sown, at least once a year; but, I am conscious this plan would not answer in all situations, and under all circumstances. Still, it so happens, that "the 'fallow' cap does not fit" me. Allow me to press this upon "Falcon," that a man who tells us his letters are "the offspring of his own brain, unassisted by hints from practical writers (except in one periodical)" should put forth his theories on certain principles which he himself understands, and not be trying to support them by remarking on practices of which he knows neither the reasons nor the results, otherwise he will ever be raising needless alarms, as he did last harvest about the Wheat dropping from the ear. Probably no practical farmer saw a handful per acre dropped anywhere. It appears "Falcon" was not aware that last harvest was not a season when corn was disposed to drop from the ear. There is a proverb amongst us, which, to him, is doubtless perfectly unintelligible, "The more we lose in the field the more we have in the barn." It is when crops are abundant, when hot weather and harvest come in August, that the most careful and persevering cannot help losing a portion. That's the time for farmers to "sleep upon their thumbs," and to "strike a bustle." If "Falcon" would confine himself to subjects which he understands, establish his theories on acknowledged principles, and suggest improvements with becoming diffidence, I should feel pleasure in reading his letters. But to quarrel about some things which have no existence but "in his own brain," to exaggerate such such facts as he happens to hit upon, and to write dogmatically upon doubtful hypothesis, is as little likely to be useful as the plan he recommends of wetting Potatoes with salt water to keep them dry and sound.—*J. S., Bromston.*

Capital and Farming.—All nations are supposed to have peculiarities: the truism may be carried further without fear of contradiction, and it may be said, men following different professions and occupations have also their prejudices; perhaps in no class of men is this more apparent than amongst agriculturists, where it is openly stated to be lost labour even to attempt to point out their errors, however evident they may be to the most common observer. Such an acknowledgment calls for increased exertion on the part of those who really have an interest in agriculture, and look beyond the present time to what must naturally follow the continuance of an abuse which throws out of cultivation many hundreds of acres, and leaves many hundreds more in imperfect tilth. Assertion, however bold, unsurported by argument, can never have any weight in these enlightened days; to say that injury is done to a man, because he is told that he is ruining himself and his neighbour, is much the same as bringing an action against a man for manslaughter because he prevented a fellow creature from drowning himself. Where is a farmer to obtain capital? By entering into partnership with a friend, and by their united resources doing that which neither could accomplish single-handed. It is so in trade; clothiers, grocers, butchers, millers, &c., are in companies, dividing the labour and profits. Is there more difficulty in farmers adopting the system? Certainly not. It is most extraordinary that a person cannot understand my being in several counties during the autumn, without immediately fancying I must have been on a railroad the whole time; when I called attention to the want of exertion in saving the ripe crops, I had examined many fields, and inspected the heads of grain. There could be no mistake as to the fact, however opinion may differ as to the cause. It was not done at the rate of 60 miles per hour. I have set down naught in malice, and, however roughly I may be handled, I shall bear it patiently, "*mens conscia recti.*"—*Falcon.*

Stall Feeding Milch Cows.—As the practice of soiling milch cattle has been frequently recommended by agricultural writers, I have long had a wish to test its value as a profitable practice, but until this year never had an opportunity of doing so under favourable circumstances; my hopes were in favour of the system, and, consequently, I was much disappointed in finding that there would be a very considerable loss in following it. The pasture in which a dairy of twenty cows were grazed, had become bare at the end of July, at the same time a few acres of excellent young Grass was growing adjoining the milking-yards, and as the wet weather which then set in prevented its conversion into hay, a resolution was formed to test the merits of soiling, as no doubt existed as to the advantage derivable from the plan as far as the manure-heap is considered. The Grass was mown, and brought to them as they eat it; they had access to water three times a day, and were on the whole treated as ordinary stall-fed cattle; the consequence was, that the first day they did not feed freely, and the produce of milk was considerably diminished; the next day the cows fed very freely, still the produce continued to get less, and at the end of eight days the produce of the dairy had fallen to about one half the usual quantity in milk, and two-thirds the produce in butter; the cows were then returned to the pasture, the system being considered decidedly inapplicable to milch cattle in the summer season, and, in twelve hours, the produce in milk nearly equalled the previous quantity.—*J. B. Brandon.*

The Potato Disease.—It seems to be a law both of animal and vegetable life to require increasing care in their progress from a wild to a more perfect state, and perhaps the Potato beyond most others demands care. If the disease which has this year made such havoc be a more aggravated form of that which has occasioned for many years serious loss by rotting immediately after being p'anted, one fact has lately come under my notice, which may perhaps tend to throw some light upon its cause. In a field of Potatoes, in which stood a row of trees overshadowing for several yards the ground adjoining, it happened that not one unsound Potato could be found under their shade. Now, the true explanation, I think, of this fact is, that the branches had acted as a screen in protecting the stalks from dew and rain, and their decomposition being thus hindered, no proper pabulum was offered for those invisible seeds of fungi which are said to abound so innumerably towards the close of autumn, and which seem to be carried by the cortical vessels to the tubers. The established fact of Potatoes grown in upland districts being best suited for planting may perhaps tend to strengthen this hypothesis, decomposition there not taking place so soon or rapidly. I mean to test this theory by planting those which were protected by the trees, and in consequence sound, along with others not so protected, which may be preserved until spring; and the result I hope to be able to communicate to you in due time.—*J. B., jun.*

Answer to "Subscriber" on Tropical Agriculture.—[See *Gazette*, Nov. 8.]—Supposing that the information you require is for the West Indies, the best green crop, next to that of the Cane top, that you can cultivate for your cattle will be Lucerne, drilled in about 12 inches apart in March, or beginning of April. Cane tops will feed your cattle well for six months in the year, provided you are stocked in proportion to the size of your estate. The young sprouts from the Canes, after being cut, will furnish you with a quantity of fodder, and if given to the cattle under cover, will give more back to the land than ever they take away. Mangold Wurzel and the Sweet Potato, as roots, are fine food. The Guinea corn is also a fine food, being planted in February, cut down in April or May for fodder, and then allowed to go to seed, and reaped in December. I have tried several of the English Grasses and Clovers' also Tares, but did not find them to answer as well as the Lucerne. I don't think tanks are necessary, as you have abundance of litter always at hand.—*J. D. W., Downton, Hants.* [Will "Subscriber" be kind enough to furnish us with his address?]

Potatoes: Langholm, N.B.—The Potatoes here, as elsewhere, are affected with the prevailing epidemic—the different sorts in different degrees. Highland Earlies are nearly an entire failure; Orange Earlies nearly the same; Irish Cups, as yet, appear to have suffered comparatively little; and Prince Regents have one-third diseased, though many roots, now apparently sound, will, it is feared, eventually turn out to be affected. Some seedlings of last year, I find, are very much affected. To make the most of a bad crop, I have been making starch for home consumption. How will it answer to mix amongst the milk for the calves in spring?—*A Constant Reader of the "Gazette."* [It will not be a full substitute for Linseed, but will improve the milk, and therefore serve to eke it out, no doubt. As regards your other questions, we have fed pigs on steamed, cut Swedes, and they filled themselves with them to admiration; but they were not so nutritious as Potatoes. Tapioca is made, we believe, by a rapid drying and scorching of starch from Arrow-root; it makes a semi-jelly, which being stirred and broken up, dries crisp. If we had a 10*l.* note to spend upon manure, we would certainly purchase oil-cake, and feed cattle, old or young, rather than buy guano.]

Digging.—"A Subscriber" (p. 759) inquires what quantity of land was dug by each competitor in the "match" (p. 696), and well he may. It is stated that a "rood" was allotted to each man, which was dug in about an hour and a quarter. It would take a good workman three days to dig a "rood" properly; and if the quantity was a square rod of 30¼ yards, the time was more than was necessary. It is a great pity, and a sad drawback upon the diffusion of useful information, that there is not some known standard of measures adopted amongst farmers, which might be readily understood by everybody. There seems a perverse determination to keep to old and obsolete measures, in consequence of which many communications in your valuable Paper are as a "sealed book" to a large proportion of your readers. Since there are legal standards of both weights and measures of all kinds, how desirable it is, in every point of view, that your correspondents would adopt these, and these only, in their communications to you. To return to "A Subscriber's" inquiry: it may, perhaps, interest him to know what a day's work of digging should be. Many years ago I employed a gang of men to dig a field of 6 acres. The work was done in a workmanlike manner to the depth of about 11 inches, nearly the length of the spade. To effect this, the digger stood nearly over his work, and thrust the spade almost perpendicularly down, and by a peculiar turn of the wrist (to be acquired only by practice), he completely inverted the spit, so that when the work was finished the whole was turned over to the depth of 11 inches, more perfectly than any plough could perform the operation. Of work done in this manner, each man could dig about 12 perches (30¼ yards each) in a day, and some rather more. I may add that the effect on the succeeding crops was highly satisfactory. It is a curious drawback on agriculture, as a profession, that whilst the manufacturer of every description avails himself of the improvements in machinery and generating power to diminish his expenses, the agriculturist, on the other hand, if he wishes to have his work done in the most perfect manner, must, for want of more perfect machinery, be compelled to have recourse to human labour.—*Lusor.*

Farmers' Clubs.

North Cornwall.—At the monthly meeting of this Club, held at Stratton, G. Gurney, Esq., presiding, Mr. Rowe read a paper on the "Importance of Statistics to Agriculture." He began by observing, that the subject might be thought by some as of too little practical value to merit attention; and that this opinion had very generally prevailed might be inferred, or Great Britain would not be the only country in Europe, with the exception of the Netherlands, devoid of correct statistical information relating to the science of agriculture, founded upon official inquiry. If a consciousness of having excelled incited to exertion, would it not be well, as far as practicable, by a compendious system of statistics, to settle the question, "How far does agriculture progress?" To each member of the Club it should occur that the object of their associating together was "the advancement of the art and science of agriculture!" but without correct data, without statistics, were they not in a great manner at a loss to say how far they were aiding in such advancement, or whether, in fact, any "advancement" was with them being made? In 1832, a department of the Board of Trade was created, for the especial purpose of collecting and arranging statistical information, with a view to its presentation to Parliament, and much valuable material had, from time to time, been thus brought together; but the attention of that Board had been mainly occupied in matters relating to our commerce, manufactures, and intercourse with foreign countries. Again, those engaged in almost every other art and manufacture had been strikingly alive to the most trifling minutiæ bearing upon the process, result, and expense of each department in their several pursuits, whilst the agriculturists as a body had proved themselves indifferent in such matters, and the consequence was that it was

scarcely possible to obtain from two individuals a like opinion, either as to the expense of preparation for a single crop—the average quantity of any given crop in a series of years, or the value of such crop when produced. Indeed, this vagueness seemed to run throughout the whole operations and results connected with agriculture, and hence the difficulties which their society had met in arranging a scale of labour. In proof that British agriculturists had been as inattentive as he had stated, and more so than the other European states, Mr. Rowe adduced the example of France, where the quantity of land sown with each description of grain, the produce, and the quantity of live stock for the whole kingdom, were annually ascertained, and accurately known. In Belgium, similar information had been periodically collected. In the United States, also, at the decennial census, much interesting and valuable information was obtained as to the live stock, the produce of various crops, and the quantity of dairy, orchard, and garden produce, &c. In England, in 1793, a Board of Agriculture was established, assisted annually by a grant from Parliament, and was continued until 1816; but the attention of that board, he apprehended, was directed to modes of agricultural improvement, rather than simply collecting and arranging information. Our neighbours north of the Tweed possessed statistical accounts of each parish in the kingdom, collected by the ministers of the respective parishes, and lately published with the authority of their names. These accounts generally include the extent and boundaries of the several parishes, the topographical appearances, the rivers, the geology, with short historical notices, the population, the number of acres, the number cultivated as arable or otherwise, the system of cropping, general holdings, and annual value of agricultural produce, distinguishing that of grain, green crops, &c. Within the last few years, he believed, a series of questions had been issued by Government, and addressed to the several parishes in England, but whether returns had been generally made was doubtful, as the result had not been published, and hence, the average produce of the kingdom, stated to be, in years of fair crops, 26 bushels per acre, must be regarded as a matter of conjecture rather than of evidence. This question was now, however, forcing itself on before the attention of Government, and had been brought before Parliament for several years past. By a well arranged plan, as in other countries, the quantity of grain annually produced might be ascertained, and the important and practical question settled, as to how far the produce of the country kept pace with the increase of population? a question which must be looked fairly in the face, as one becoming every day of greater moment; for it should be borne in mind, that our population did not simply augment in an uniform ratio, the increase in the 20 years from 1821 to 1841 being 2,733,699—more than the increase of 180 years preceding 1750 (which was but 2,230,000), and greater than the increase in 500 years succeeding the Conquest. Objections might be urged to the adoption of a plan of statistics; one,—"that it would be a prying into the private affairs of individuals," was certainly entitled to much consideration; but after having been inured to the ordeal of the income tax, we might well suffer the investigation that might be necessary for such a purpose, a restoration to vigour being oft-times secured only by an unpalatable draught, or painful operation. The lecturer then urged the great importance which would have been given to this part of the county had such a plan existed; its capabilities and fertility would have been definitely shown, and would have given it a claim to consideration and accommodation in any scheme of local improvement professing to be directed to the welfare of the county generally; a remark forcibly applicable at the present moment, when other parts of the county were urging their relative importance, in reference to the intended railway communication. After quoting from several ancient authors on the agriculture of the county, Mr. Rowe referred to a statistical detail of the number of acres and the quantity of produce in the several parishes of the hundred, compiled by the late Sir John Call, in 1795, from which it appeared that the Wheat crop bore at that period but a small proportion to the spring crops, for while the quantity of Barley and Oats reaped in the eleven parishes forming the hundred, together with the parish of Poundstock amounted to 4503 acres (being 1378 of Barley, and 3125 of Oats), the number of acres of Wheat only amounted to 2191, being less than one-half; they might therefore conclude, that as green crops were not at that time cultivated to any considerable extent, the system of taking the crops in succession was, so late even as then, in full operation.

Reviews.

Agricultural Chemical Almanack for 1846. *A Sheet.* Groombridge and Sons.

Full of errors! Who told its author that a "Barley soil not fit for Wheat" consists of 68 per cent. of clay, 30 of sand, and 2 of finely-divided organic matter or humus? or that the following formula fairly represents the contitution of a "Fertile Wheat soil"—carbonate of lime, 360; alumina, 25; silica, 20; oxide of iron, 8; organic matter, 19? Who told him that hydrogen "forms one-eighth of water?" or that uranium is "obtained from *pitch?*" Of what use is it to the plain farmer to be told that 20 out of every 1000 parts of the dung of his horses consist of "Picromel and salts?" And who, excepting those to whom they are not new, can learn anything from the contents of a Table professing to give the "Gaseous Composition of Substances," the columns of which are headed, C. O. H. N., instead of Carbon, Oxygen, Hydrogen, and Nitrogen? —carbon, by the way, we presume, being one of the gases alluded to! It is the publication of such productions as this, if, indeed, they have any influence at all, that brings agricultural chemistry into discredit.

Miscellaneous.

Potato Murrain.—We extract from the *Edinburgh Weekly Register* the following account of the Potato disease in Scotland:—"*Carse of Gowrie:* On wet soils ¾ths infected. On drier soils, about one-half escaped. On moorland lately reclaimed, and on which Potatoes had never been grown before, the taint has not appeared, the tubers being quite fresh and sound.—*Wigtonshire:* Disease first appeared about the middle of September. It is now universal.—*Kincardineshire:* In the eastern district scarcely a symptom appears. Rotten Potatoes there may be a few, but they are different from what are affected by the murrain.—*Aberdeen:* This county is still, with few exceptions, exempt.—*Peebleshire:* The crop is an average one. Not less than one-half infected with the disease, which is still upon the increase.—*Bathgate:* More than one-third, and, in some cases, more than half destroyed. Many of the farmers are ploughing them down, with the intention of letting them lie in the ground all winter, in hopes of preserving them.—*Roxburghshire:* Farmers are experimenting upon preserving them during winter, by only taking up every alternate drill, and covering up those left with earth enough to protect them from frost. The crop is above an average. The 'old black Potato,' is universally most affected. Next in badness are the 'Blues' and 'Buffs.' Disease prevails most in light turfy soil, upon a moorland bottom, and a thin adhesive clay, upon an impervious stratum of till.—*Strathtay:* Potatoes quite free from disease. The whole crop, which is above an average, and of excellent quality, has been pitted in the usual way; and though in the course of last week they were generally examined, still no bad symptoms were discovered.—*Perth:* Extensive fields pitted as early as the middle of last month, apparently sound, on being re-examined, presented symptoms of disease; but such as were secured in a tolerably dry state, seem to have resisted any further progress of the malady.—*Strathearn:* The crop exceedingly abundant, but affected by the disease; which seems to be most virulent where the crop is best.—*Banffshire:* The crops not affected. Prices from 3*l.* to 3*l.* 10*s.* per ton.—*Stirlingshire:* In the kerses the disease has wasted one-half, and what is left is not fit for use. In the dry fields they are not so bad. What are saved are of good quality.—*Lanarkshire:* Almost every one that has had Potatoes pitted ten days or a fortnight, finds a great part in a state of decay; it is believed that nearly the half is lost.—*Fife:* The disease is increasing; and great quantities, which seemed quite free from disease when lifted, have become quite mouldy and rotten.—*East Lothian:* We fear that not beyond one-third of this crop will be available for human food.—*Stirling:* Farmers, who pitted their crops 14 or 20 days ago, find on examination, that they are far from keeping. One farmer's, to the extent of 400 or 500 bolls, are lost; others lose one-half, and the best one-third.—*Fort-William:* Very little yet housed; the disease has appeared; but hitherto its ravages have been limited."

Keeping of Farm-horses.—In the heavy-land districts, where Beans, Red Clover, and Turnips, enter into the rotation of the crops, the mode of keeping horses is very simple, and satisfactory in every respect. It is this:—From the month of June, or whenever the Clover, intermixed with Rye-grass, is sufficiently advanced in growth to admit of being cut, which is generally determined by the blooming of the Rye-grass and formation of blossom-buds on the Clover, the horses gladly return to this succulent food from the dry straw or best hay, and will soon become plump and sleek on it without a single feed of Oats, except on occasions of an extra day's work, throughout the summer, the first cutting serving till August, when they are supplied with cut Tares for a week or two, and thereafter kept upon the second crop or aftermath of Clover till near the end of October or so, and are then placed on their former fodder of Bean-straw, which is continued till next return of cutting Grass. In the winter months, however, each horse has a daily mess or mash of boiled or stewed (not steamed) Bean-chaff, mixed with light Corn and small Beans, separated by the winnowing-machine or sieve from the best grain, to which a few Turnips and a portion of salt are added, with just enough of water to secure the boiler from injury, whilst the whole is being reduced to a pulpy state, and the pulp is then put into one or more troughs, to remain till the evening, when the mash is divided among the horses, at a temperature of about blood-heat, immediately on their return from the yoke. Nothing can be more grateful to poor jaded horses, coming in cold with rain, though warm with perspiration, than this repast, and the avidity with which they partake of it, after being rubbed down, is the best proof of its congeniality to their tastes. In fact, they are quite impatient until its arrival, far more so than in the case of an expected feed of Oats, and will hardly taste the straw, however hungry, before they have finished their mash, when they become quiet, and pick at the racks, or soon lie down, if much fatigued; thus showing that even the commonest offals of the barn-floor, may, when combined with one or two other equally simple ingredients, be formed into substantial and really nutritious food for the hardest-working farm-horses, with the additional allowance of one feed of inferior Oats and Beans in the morning, and another at mid-day, when constantly employed. In this manner are all the farm-horses of the principal clay-land districts of Scotland maintained in the very best possible condition, without a particle of any other forage, from season to season, care being taken to arrange the supplies so as to leave one or two old Bean-stacks remaining to commence the winter season with, because of the flatulent nature of new Bean-straw before it has been some time in the stack, or otherwise deprived of its superfluous moisture. The same plan is adopted in several other corn-land districts, where few or no Beans are cultivated, by substituting Pea-chaff for that of Beans, or in the absence of both, putting Oat-chaff, chopped straw, or hay, or the like, into the boiler, along with the small Barley or Oats, Turnips, and salt, and even buying Beans for the express purpose of being thus used for the horses, long experience having shown that no other form of feeding, nor any other mode of supplying the horse with Beans, can equal that of boiling them, when the object is chiefly to keep his bowels right and his body lusty. Boiled Beans, interchanged with dry corn, are therefore invariably preferred by horse-dealers when at hand, as the readiest method of making up a horse, as it is termed, for the market, in at once giving him more flesh and a finer coat. Beans and Peas are, from their wholesome, as well as on account of their nutritious properties, thus largely used alone or mixed, bruised or whole, with Oats for horses at all the public works, and also by carriers, carters, and cow-feeders, who find Bean-meal very fattening, besides being productive of more and better milk than any other grain similarly used; and a mixture of dry Beans and Oats in any form is, therefore, generally considered much better for horses than Oats alone, which, long continued, with other hard food, always heat the system, and thus the animals become rough or staring in their coats, however well groomed. Indeed, the difference between the two modes of keeping is so perceptible, especially in heavy draught horses, that their very appearance will, in almost any circumstances, determine the question of their manner of feeding.—*Mr. Carmichael, Trans. Highland Ag. Soc.*

Formation of Dungheaps, and Economical Management of Liquid Manures.—It is matter of considerable importance to the farmer, at some periods of the year, that he should have the means of preparing his fresh into well fermented manure. In all cases, I most strenuously advocate that moisture of every description should be kept from a manure-heap, with the exception of the drainings of the offices, which ought to be conveyed to the heap or pit by tunnels (there are tiles manufactured for the purpose), and no water should be permitted to enter, unless it be thrown on for some special purpose by the proprietor. By restricting the admission of the air, we have a direct command over the fermentation of the manure-heap, and this can only be accomplished by placing the manure in pits. If they have a rough covering, so much the better. The usual shape of a manure-heap is that of a cube or parallelopipedon, each being a figure of six sides, five of which are exposed to the influence of the atmosphere, the bottom only not being surrounded by it. By the use of pits we shall completely reverse this order, one side, the top, only being exposed to the atmosphere, and that also the side, from the altered circumstances of the heap, by which the atmosphere will have the greatest difficulty in penetrating. In fact, from the absence of draught, fresh volumes of the atmosphere will only penetrate by means of pressure. In other words, to fill up the vacuum caused by the formation of carbonic acid and water, instead of, as according to the ordinary practice, freely permeating the whole mass, and, by this means, causing the disengagement of additional caloric, which, re-acting on the mass, a more rapid fermentation ensues, and fire-fanging is the frequent consequence. The mode in which manure-heaps are usually formed is that exactly the best adapted to dissipate its most fertilising contents, the soluble, but non-volatile contents being carried away through the effects of rain, whilst a tolerably free draught of air exists throughout the mass, as the atmosphere undoubtedly penetrates it through the sides, in consequence of the slight superior pressure there, and also through the circumstance that the carbonic acid, water, &c., invariably escaping through the top, causes an ascending current unfavourable to the admission of the atmosphere at the top, but decidedly favourable to a current passing in through the sides, thus causing a draught constantly going forward from the sides through the top, or precisely that mode most favourable for the dissipation of its valuable volatile contents; whereas, if we place the manure in pits, all access of air is prevented, except such as will be required by the formation of the vacuum previously described. I never carried the plan I now propose into execution, having followed the usual course, but I have observed in this town (Liverpool), where, on account of the high price of land, the greatest economy of superficial space is required in forming the manure-heaps of the large horse and cattle proprietors, the general practice is to form a square pit about ten or eleven feet deep, to deposit the manure in, of exactly that form which will contain the largest superficies with the smallest circumference. No form could be desired better for the purpose of containing the greatest bulk in the smallest compass, and at the same time presenting so small a surface for escape of the caloric evolved during fermentation, yet an instance of fire-fanging is never known in these pits. It sometimes, however, happens that, from the absence of a demand for manure,

or other causes, these pits become filled above the top,* sometimes to the height of eight or ten feet. On such occasions I have ascertained that it is sometimes requisite to obtain an immediate removal of the upper portion or turn it over at considerable trouble, in order to prevent firing. It is worthy of particular observation also, that where the manure is heaped up above the level of the pits, and consequently one or more sides are exposed to the influence of the atmosphere, in such cases the manure so accumulated never has the same appearance as old fermented manure. This cannot be owing to the shorter period that has elapsed from the formation of the superior portion exposed to the atmosphere, as I have been careful to observe and mark the time requisite to produce the certain appearance of well-fermented manure placed in pits, and such as are raised above them, and more subject to the influence of the atmosphere. The best formed manure, in the shortest period, that I ever witnessed, was that of the pit belonging to an extensive cart proprietor. In the stable I now allude to there were usually about thirty horses, the pit was formed in the yard, and covered over by thick planks, part of which were covered with earth and paved, only a few boards remaining loose for the convenience of removing the manure, with a trap for the purpose of putting the manure into the pit. The yard was roofed in, so that no extraneous moisture could be admitted. So circumstanced, I ascertained that, in summer, the whole of this mass, except the accumulation of the last few days, was converted into a well-fermented workable state in the course of ten days to a fortnight; in winter it took about three weeks to accomplish the same. It might be supposed, from the above description, that serious annoyance would be felt at the escape of ammonia, and that a most extraordinary heat would be generated; but such was not the case. I have been present when a pit so circumstanced was being removed, but the heat was not near so intense as that which is frequently observed in ordinary farm-yard dung-heaps; but, unlike the latter, it was not entirely confined to the centre, whilst the sides were comparatively cool, but it pervaded the whole mass in an equal degree; no perceptible smell of ammonia was perceived, but a very copious amount of aqueous vapour was evolved in the course of its removal, so much so, that you could not at times see the workmen in the pit who were in the act of removing the manure. These facts are strongly confirmatory of the correctness of my opinion that the mismanagement of the fermentation of our manure-heaps arises from the unlimited access of the atmosphere, and strikingly illustrate the advantages to be derived by casting the exuvia, &c., of farm offices into pits, instead of throwing it into heaps in the ordinary manner. Another advantage to be derived by using pits is, that, in winter, the caloric arising from the fermentation of the heap would not be dissipated so speedily as it is under the present system, when surrounded by a cold, perhaps frosty, atmosphere. It is so well known that manure-heaps formed in winter do not ferment equally, or scarcely at all, that it has given rise to the axiom that one load of manure formed in summer is worth two formed in winter. I need not enter into any details as to the mode of forming such pits. Every sensible farmer, if convinced of the correctness of the theory, will easily select the fittest place, and invent the best mode, under his own peculiar circumstances, for constructing them. As a general rule, they ought to be impervious; if the soil will permit it, so much the better, if not, they ought to be made so. A rough covering would be an improvement for the reasons previously stated. Pits formed in the manner described would convert the average mixture of horse and cattle manure into excellent fermented manure in the course of three weeks or a month in summer, and in winter in the course of six or eight weeks—advantages which must be most palpable to every scientific farmer; and this will be accomplished without any loss worth mentioning of its volatile fertilising contents.—*Mr. Rowlandson, in the Quarterly Journal of Agriculture.*

Belgian Husbandry.—The farms in Flanders are small, the average size being not more than 50 imperial acres. Some are held on lease, others are not. The terms vary from three to 15 years, some multiple of three as far as 15 being the duration of a lease. In some the tenants have it in their power to quit at the end of every third year, while the landlord cannot put him away till his lease is out. It is impossible to say what the average rent of the farms is; but so far as I could ascertain, it may be stated at 30*s.* the imperial acre, for the best soils, exclusive of burdens, which are generally one-fifth of the rent. The number of servants who live on the farm throughout the year may be stated at six to the 50acres, and these are paid as follows:—The men who perform the work of ploughmen and labourers receive 10*s.* a month, with their meat, which the farmers value at 6*d.* or 7*d.* a day, thus making the full wages of a man equal to 25*s.* a month, or 15*l.* a-year. Their food consists of boiled milk and bread for breakfast, soup or butter-milk and bread and butter for dinner, with Potatoes and pork five times a week, and bread and milk for supper. The soup used is composed, according to Mr. Radcliff, of butter-milk, boiled and thickened with flour or Rye bread, Potatoes, salt pork, salt fish, various vegetables, and eggs. They work from daylight till it is nearly dark at this season of the year, which, after deducting the hours of rest, will be about 10 hours a day. In summer it is longer. The women, who are hired to live on the farm, receive about 4*s.* 6*d.* of wages less in the year than the men. It may be observed that almost all the farmers take the same food as their servants. The day labourers, who are only employed at certain seasons, such as for weeding the crops and engaging in the operations peculiar to Flax culture, receive 7*d.* and 8*d.* a day, with their meat; and boys and girls have 5*d.* with their meat. An ordinary working man will live very comfortably in a town in the south of Belgium paying 15*l.* for victuals, and 2*l.* for the rent of one room for the whole year. The farm-buildings are generally built in the form of a square, and consist of dwelling-house, byre, barn, stable, servants' sleeping-room, and cart-shed. The middle of the area included in the square is several feet below the level of the houses, and is well adapted for saving manure. The greatest cleanness prevails in every department of the steading. The strength of horses kept on a farm is at the rate of a pair of horses to the 50 acres. And the number of animals supported altogether on the farm far exceeds anything we are accustomed to in this country. This, indeed, is one of the secrets of their farming; and we have no hesitation in saying that, in this particular, they excel the farming of any country with which we are acquainted. The keep of a horse is estimated at 20*d.* a day. It is generally fed during the winter on Oats, straw, Beans, and hay; and in summer on cut Grass. The horses are small, but compact and handsome, with beautiful action, and high spirited. As no attention has been paid to the improving of their breed of cows, they are not distinguished for any excellences. They answer the purpose of the dairy, for which they are principally kept; they are generally black and white in the colour. After being for some years in the dairy, they are fattened or sold lean to the butcher, who is generally feeder as well as butcher. The most of the beef used in Belgium is that of these old cows. They have a practice by which they ensure the regular feeding of the calves, which they consider essential to quick fattening. Immediately after they have got their usual quantity of milk, baskets are put on their mouths, to prevent their eating anything in the intervals between the feeding times. Few sheep are kept, and these are of the worst description. The fields are small, and are divided merely by ditches. There is no such thing as a hedge or dyke inclosing a field. These, from the peculiar management of the stock on their farms, are quite unnecessary. But where Thorns are used as fences, as around nurseries and gardens, the settings are put very closely together; and after they have sprouted up a certain length, sticks are run along horizontally, and the young shoots are tied to these, so that in a short time, from the intertwining of the shoots, now grown into branches, the fence becomes quite impenetrable. Under drainage is never practised. Much of the soil does not require it; but to facilitate the drying of the fields, and to draw off the surface-water from the plants, a spading of earth is taken out from every furrow and scattered over the ridge, so that, in a heavy shower, the rain-water finds a ready course to the ditches which skirt the fields.—*P. McL., in the Quarterly Journal of Agriculture.*

* They are generally walled, the walls raised about three feet above the level of the yard, and usually placed in some corner, or other place the least incommodious. In some places, however, the whole yard is excavated and boarded over; it was in one of the latter places that I saw the best fermented manure I ever witnessed.

Notices to Correspondents.

BUSH HARROW—*Pastor*—Smith's web-harrow, Messrs. Cottam and Hallen, Winsley-street, Oxford-street, London. It is an admirable means of covering Grass-seeds on arable land; but we imagine it will not form an efficient substitute for the bush-harrow on pastures.

DAIRY MANAGEMENT—To "*W. P.*" Will you be kind enough to name the passage in the *Agricultural Gazette* to which you allude. We have received your note and its inclosed specimen, but do not know to what it refers.

FOLDING SHEEP—*Agricola*—You will need to fence off the Wheat; the sheep will injure it by trampling. Swedish Turnips will fetch from 15*s.* to 20*s.* per ton. We do not know the present market price.

STALL FEEDING—*T P*—See p. 665, col. *b*. Sheep may have ½ lb. of oilcake daily at the beginning, generally increasing up to 1 lb. You may give your beasts from 2 to 4 lbs. at beginning, according to their size, and increase the quantity in the course of weeks, so as that during their last three months they may eat from 5 to 8 lbs. daily.

TURNIP-SEED, &c.—*N*—We do not speak from experience; but we should conceive that it might be kept safe in a sort of barrel churn, made of circular ends, and a fine wire gauze cylinder. Keep this in a dry airy place, and give it a few turns occasionally.

ERRATUM—In line 41 from the bottom of col. *a*, p. 773, for the words "the number is," read "our numbers are." The former words convey, we perceive, a meaning which was not intended, and which is certainly inaccurate.

Markets.

SMITHFIELD, MONDAY, Nov. 17.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0	to 4s	4	Best Downs & Half-breds	4s	10 to 5s 2
Best Short Horns	3	8	4	0	Best Long-wools	4	6 4 8
Second quality Beasts	3	0	3	6	Ewes and second quality	4	0 4 4
Calves	4	0	5	0	Pigs	3	8 5 0

Beasts, 3930; Sheep, 23,490; Calves, 71; Pigs, 311.

We have but a moderate supply of Beef to-day, and trade is better—4s 4d is readily obtained for the best Scots, and 4s for the most selling Short-horns.—Good Mutton continues scarce, and prices are a little advanced. Some good old Downs, of which there are very few, made 5s 4d per 8lbs.—Veal trade continues steady.—Pork trade is hardly so brisk.

FRIDAY, Nov. 21.

We have a fair supply of Beasts, and trade is not quite so brisk; the best Beef, however, is making about the same price as on Monday. Best Scots nearly 4s 4d, and Short-horns 4s; second quality are not so readily sold.—The demand for Mutton is not large, neither is the supply. Monday's prices are with difficulty realised.—Good Veal is rather dearer; a choice Calf makes about 5s 2d.—Pigs are rather lower.

Beasts, 993; Sheep, 3680; Calves, 185; Pigs, 321.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 17.

During the past week there were several arrivals, both from Yorkshire and Scotland, that were sold at nominal prices or given away, the consignee being compelled to have barges and pay the expenses of discharging his vessel. The saleable samples were cleared off at the following prices:—York Reds from 40s to 90s per ton; Scotch do., 20s to 80s per ton. Several lots were conveyed from Yorkshire by railway and by steamboats, and they were sold, York Reds, from 45s to 80s per ton. There were several arrivals at the close of the week both from Yorkshire and Scotland, and according to appearances, one-half of the fleet are unsaleable

COVENT GARDEN, NOVEMBER 22.—The supplies of both Fruit and Vegetables have been pretty well kept up during the week, and trade is tolerably brisk. Pine-apples are not quite so plentiful as they were last week, but are, nevertheless, still sufficient for the demand. Hothouse Grapes are both good and abundant; foreign sorts are also plentiful. Among dessert Apples we observed excellent samples of Newtown Pippin; and among Pears fine specimens of Guernsey Chaumontelle—a few of the Glout Morceau are just making their appearance. Melons are hardly to be procured, and Cucumbers are also scarce. Oranges are beginning to make their appearance in considerable quantity, and Nuts of all sorts are pretty abundant. The principal novelty among Vegetables has been in the shape of French Beans, a small quantity of which has been offered during the week. Other things remain nearly the same. Cauliflowers are scarcer, but their place is filled by Broccoli, which is every week becoming more plentiful. Turnips and Carrots are good and sufficient for the demand, and Brussels Sprouts, Leeks, Savoys, and other winter Greens, are abundant. The prices of Potatoes are, if anything, on the rise; the samples produced are rather better in quality. Cut Flowers chiefly consist of Camellias, Chrysanthemums, Luculia gratissima, Pentas carnea, Bignonia venusta, Auriculas, Heliotropes, Orchids, Violets, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 6*s*	Lemons, per dozen, 1*s* to 3*s*
Grapes, Hothouse, per lb., 2*s* to 4*s*	— per 100, 7*s* to 16*s*
— Spanish, per lb., 9*d* to 1*s*	Almonds, per peck, 6*s*
— Portugal, p. lb., 9*d* to 1*s* 6*d*	Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Melons, Spanish, each, 4*s* to 6*s*	Walnuts, per bushel, 16*s* to 28*s*
Damsons, per hf.-sv., 2*s* to 6*s*	Filberts, English, p. 100 lbs., 60*s* to 65*s*
Apples, Dess., per bush., 4*s* to 8*s*	Nuts, Cob, per 100 lbs., 65*s*.
— Kitchen, 2*s* 6*d* to 5*s* 6*d*	— Barcelona, 24*s*
Pears, per hf.-sv., 6*s* to 12*s*	— Brazil, 16*s*
Oranges, per dozen, 1*s* to 2*s*	— Spanish, 14*s*
— per 100, 4*s* to 16*s*	Chesnuts, per peck, 4*s* to 8*s*

VEGETABLES.

Cabbages, per doz., 3*d* to 1*s*	Celery, per bunch, 6*d* to 1*s* 6*d*
— red, per doz., 2*s* to 5*s*	Cardoons, each, 6*d* to 9*d*
Brussels Sprouts, p. hf.-sv., 1*s* to 2*s*	Onions, per bushel, 2*s* to 3*s*
Savoys, per doz., 6*d* to 1*s*	— pickling, per hf.-sv., 2*s* to 3*s*
Cauliflowers, per doz., 2*s* to 6*s*	— Spanish, per doz., 1*s* 6*d* to 5*s*
Broccoli, per bundle, 6*d* to 1*s*	Shallots, per lb., 6*d* to 8*d*
Greens, per doz. bunches, 2*s* to 3*s*	Endive, per score, 6*d* to 1*s*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Lettuce, per score, Cab., 6*d* to 1*s*
Artichokes, per doz., 2*s* to 4*s*	— — Cos, 6*d* to 1*s*
Potatoes, per ton, 70*s* to 130*s*	Radishes, per doz. bunches, 1*s* to 1*s* 6*d*
— cwt., 3*s* 6*d* to 7*s*	Mushrooms, per pottle, 1*s* 6*d* to 2*s* 6*d*
— bushel, 2*s* to 4*s*	Small Salads, per punnet, 2*d* to 3*d*
— Kidney, per bushel, 3*s* to 4*s*	Fennel, per bunch, 2*d* to 3*d*
Turnips, per doz., 1*s* 6*d* to 2*s* 6*d*	Savory, per bunch, 4*d* to 6*d*
Red Beet, per doz., 6*d* to 1*s* 6*d*	Thyme, per bunch, 4*d*
Carrots, per doz. bchs., 2*s* to 5*s*	Watercress, p. 12 sm. bun. 4*d* to 6*d*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*	Parsley, per bunch, 2*d* to 3*d*
Seakale, per punnet, 2*s* to 3*s*	— Roots, per bundle, 9*d*
Cucumbers, each, 6*d* to 1*s*	Tarragon, per bunch, 4*d*
Spinach, per sieve, 9*d* to 1*s*	Mint, per bunch, 2*d*
Leeks, per doz., 1*s* 6*d* to 2*s*	Marjoram, per bunch, 4*d*
Garlic, per lb., 6*d* to 8*d*	Chervil, per punnet, 2*d* to 3*d*
Tomatoes, per hf.-sv., 2*s* to 4*s* 6*d*	

HOPS, FRIDAY, Nov. 21.

The Hop duty was declared on the 17th inst., at 158,008*l.* 17*s.* 2½*d.*, which, being under what was expected, has caused more doing in Hops at several shillings advance in prices. There is a great scarcity of fine-coloured Hops, and the stock of old Hops is very small indeed. The following is the amount of duty in each district.

	£	*s.*	*d.*
Rochester	51,466	0	11
Canterbury	26,164	18	4
Sussex	54,305	5	11½
Worcester	9,091	1	9
Farnham	5,426	12	11
Kingdom	1,554	17	4
	£158,008	17	2½

PATTENDEN & SMITH, Hop-Factors.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Nov. 20.

Prime Mead. Hay	80*s* to 90*s*	New Hay	—*s* to —*s*	NewClr.	—*s* to —*s*	
Infr. New & Rowen	65 70	Clover	100 to 115	Straw	26 32	

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Nov. 20.

Prime Mead. Hay	90*s* to 95*s*	Old Clover	115*s* to 120*s*			
Inferior	70 84	Inferior do.	98 108	Straw	34*s* to 38*s*	
New Hay	— —	New Clover	— —			

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Nov. 21.

Fine Old Hay	90*s* to 100*s*	Old Clover	120*s* to 126*s*			
Inferior Hay	— —	New Clover	110 115	Straw	26*s* to 32	
New Hay	75 90	Infr. ,,	70 80			

A large supply, and trade very dull.

MARK-LANE, MONDAY, Nov. 17.

The supply of Wheat this morning from Essex, Kent, and Suffolk, was small, and was held firmly for last week's prices; old is in request and the turn dearer, the same may be said of free Foreign; in Bonded there was little doing.—Fine Malting Barley has declined 1*s.*, and inferior qualities 1*s.* to 2*s.* per qr. —Beans are 2*s.* per qr. lower than on this day se'nnight.—Peas of all kinds maintain the rates of last week.—The Oat trade is dull, and 1*s.* to 2*s.* cheaper than on Monday last.

BRITISH, PER IMPERIAL QUARTER,	*S.*	*S.*		*S.*	*S.*
Wheat, Essex, Kent, and Suffolk . . White	57	65	Red .	55	66
—— Norfolk, Lincolnshire, and Yorkshire .	57	65	White	59	65
Barley, Malting and distilling 31*s* to 34*s*	Chevalier	33	37	Grind.	27	30
Oats, Lincolnshire and Yorkshire . .	Polands	27	30	Feed	27	29
—— Northumberland and Scotch . .	Feed	27	29	Potato	30	33
—— Irish	Feed	24	26	Potato	26	29
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		34	37			
Beans, Mazagan, old and new 33 to 46	Tick	34	48	Harrow	36	50
—— Pigeon, Heligoland . 40 to 52	Winds	40	48	Longpod	32	35
Peas, White . . . . 50 to 54	Maple	41	44	Grey	39	42

FRIDAY, Nov. 21.

The arrivals of Foreign Wheat and Irish Oats during the week have been large; this morning there was little English Wheat at market, the same found a steady sale at Monday's quotations; old and free Foreign, as well as fine qualities of Bonded, are rather more inquired after.—Barley and Peas remain unaltered; New Beans are the turn cheaper.—The Oat trade is firmer, and some extensive purchases have been made at a decline of 1*s.* per qr. upon our last quotation.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct. 11 per Quarter.	57*s* 9*d*	31*s* 3*d*	23*s* 4*d*	34*s* 2*d*	43*s* 1*d*	44*s* 4*d*
— 18 . . .	58 2	32 0	24 5	34 5	44 5	43 0
— 25 . . .	59 5	33 0	24 11	34 5	45 5	44 1
Nov. 1 . . .	60 1	34 3	26 2	33 2	45 3	43 10
— 8 . . .	59 7	35 1	25 2	35 7	45 1	44 9
— 15 . . .	58 6	35 0	26 3	33 2	44 5	45 7
6 weeks' Aggreg. Aver.	58 11	33 5	24 10	35 0	44 8	44 3
Duties on Foreign Grain	14 0	5 0	4 0	7 6	1 0	1 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 8.

PRICE.	Oct. 11	Oct. 18	Oct. 25	Nov. 1	Nov. 8	Nov. 15
60*s* 1*d*	..	..	..	..	..	..
59 7	..	..	..	..	..	..
— 5	..	..	..	..	..	..
58 6	..	..	..	..	..	..
— 2	..	..	..	..	..	..
57 9	..	..	..	..	..	..
— 6	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
— 3	..	..	..	..	..	..

SEEDS, Nov. 21.

Canary . . per qr	55*s* to 60*s*	Linseed Cakes, Foreign, p. ton	9*l*	to 10*l*
Carraway . . per cwt	48 52	Mustard, White - p. bush.	—*s*	—
Clover, Red, English	— —	— Superfine ,,	—	—
— — Foreign	— —	— Brown ,,	—	—
— White, English	— —	Rapeseed, English, per last	26*l*	28*l*
— — Foreign	— —	Rape Cakes - perton	—	—
Coriander . . .	10 16	Saintfoin . . .	—	—
Hempseed . per qr	35 36	Tares, Eng. winter p. bush.	6	7
Linseed . . per qr	54 60	— Foreign -	—	4*s*6*d*
— Baltic . .	42 46	Trefoil . . per cwt	18	23
— Cakes, Eng. per 1000	12*l* 13*l*	Turnip (too variable for quotation).		

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, GARDENERS, PLANTERS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will submit to Public Competition on the Premises (corner of Dalston-lane, Hackney), on Monday, Nov. 24, 1845, and following days, at 11 o'clock (by order of the Proprietors, in consequence of the land being required for other purposes), the whole of the valuable NURSERY STOCK, consisting of several thousands of large and handsome Hollies, Arbutus, Aucuba, Arbor Vitæ, Box, Red Cedars, Yews, and other Evergreens, in fine condition, and warranted to remove with safety. Fine Ornamental Trees and Shrubs of every description, trained and untrained Fruit-trees, Araucaria Cunninghamii and Excelsa, 10 ft. to 12 ft. high, and very handsome. May be viewed prior to the Sale. Catalogues 1s. each, returnable to Purchasers, may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

A CONSIGNMENT OF EIGHT HUNDRED CAMELLIAS FOR ABSOLUTE SALE.

MESSRS. PROTHEROE and MORRIS most respectfully announce they are instructed by Mons. Louis Van Houtte (Nurseryman & Florist to the King of the Belgians), to submit to public competition by Auction, at the Mart, Bartholomew Lane, London, on Friday, Nov. 28, 1845, at 12 o'clock, EIGHT HUNDRED CAMELLIAS, comprising all the esteemed Varieties, most of which are well furnished with bloom buds. The Plants will be on view at the Mart, on Thursday, and morning of Sale, where Catalogues may be had; also of the Auctioneers, American Nursery, Leytonstone.

P.S.—An importation of four thousand BELL GLASSES for propagating is immediately expected, and due notice will be given on their arrival.

EXTENSIVE SALE OF NURSERY STOCK.

MR. HOOKER intends disposing (by Auction in Lots, about the beginning of next month), of the entire STOCK OF PLANTS upon his Nursery Grounds, which extend over upwards of twenty acres. The Stock consists of the usual variety of Nursery Plants, some of which are of large size.—Further particulars will be given in a future Advertisement.

The ROSE TREES, of which there are many thousands, will be taken up and sold in dozens, each dozen containing twelve different kinds named. Persons wishing to purchase Rose Trees previous to the Sale, can have them upon the following terms:—

Standard and Half Standard Roses, 15s. per dozen. Dwarf Roses on their own Roots, 4s. per dozen. Purchasers cannot make their own selection of kinds after this date.

Post Town Cranbrook; Railway Station, Paddock Wood, Dover Line.—Brenchley, Kent, Nov. 22

STANDARD, HALF STANDARD, AND DWARF ROSES PEACHES, NECTARINES, &c.

MR. J. KING will sell by auction, on Wednesday, 26th November, at 11 o'clock precisely, on the Premises, Effra-road Nursery, opposite Brixton Church, without Reserve, comprising A SUPERIOR COLLECTION of Standard, Half Standard, and Dwarf Roses, Trained Peaches, Nectarines, Cherries, Plums, Standard Cherries, Currants of sorts, China and other Roses, Herbaceous Plants in pots, and a variety of Shrubs; also a Patent Vesta Stove. May be viewed, and Catalogues had on the Premises; of Messrs. Flanagan and Son, Seedsmen, Mansion-house-street; and of the Auctioneer, Hackney-road.

ORCHIDACEÆ.

MESSRS. J. C. and S. STEVENS beg to announce they will sell by Auction, at their Great Sale Room, 38, King-st, Covent Garden, on Wednesday, Nov. 26, at 12 o'clock, an Importation of ORCHIDACEOUS PLANTS, some of the species new, from various districts in North and Central America; they have just arrived per mail-packet "Avon," and are in fine health. May be viewed the day before, and morning of sale, and Catalogues had.

TO AMATEURS OF ROSES.

MR. GLENNY has the honour to announce that he is instructed by Mr. Willison, of Whitley, and Mr. Burgess, of Colchester, to submit for Sale by Auction, on Tuesday and Wednesday next (the 25th and 26th inst.), upwards of 700 Plants of SEEDLING ROSES, comprising about 22 Varieties of first-rate excellence, and some of them as extraordinary as distinct species. The Roses will be on view, from 10 o'clock on Tuesday morning, at the Auction Mart, City, and the Sale will commence at 12 for 1.—Catalogues may be had, on Saturday evening at the principal Seed-shops, and at the Gardeners' Gazette Office, 2, Tavistock-street, Govent Garden.

ABOUT 300 EXCELLENT TULIPS. Mr. GLENNY is instructed to sell by Auction, in various lots, to suit persons making up their Stock, and also small dealers, without reserve, on Tuesday next, at the Auction Mart, a quantity of fine Tulips, together with Tulip Irons and a Tulip Chest, with numerous excellent Drawers; the whole well worthy the attention of Dealers or Amateurs.—Catalogues to be had at the principal Seed Shops, and at the Gardeners' Gazette office, 2, Tavistock-street, Covent-garden.

PINE-APPLE PLANTS FOR SALE.—Mr. GLENNY has instruction to sell by Auction, at the Mart, on Tuesday next, at Half-past 12, about 100 plants of Queens, Bloods, and others, including several Seedlings, raised by the late Mr. Buck, and approved at the Horticultural Society. They are sold under circumstances which preclude the possibility of any reserve. They will be on view at the Mart on Monday, at 10 in the Morning, until the hour of sale.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. Hart & Hart, Solicitors, Dorking, Surrey.

THE LANDS AND ESTATE OF BROOMBRAE, belonging to the Dundee Union Bank, lying in the immediate vicinity of Auchtermuchty, and consisting of 211 acres, Imperial measure, inclusive of about 40 acres in thriving plantations, great part of which is Hard Wood. There is a good and substantial DWELLING HOUSE, with a suitable STEADING and OFFICES on the Farm, which is remarkably well inclosed with Stone Dikes. The soil is of good quality, and well adapted for raising all kinds of grain and green crops. The climate and exposure are excellent, the neighbourhood is good, and richly diversified with plantations, of which, and the surrounding country, the property commands pleasant views. The property, which has been recently let to a respectable and industrious tenant, at a fair rent, is distant from Cupar Fife, the County Town, about 9 miles, and from the Shipping Port of Newburgh about 4 miles, and the roads to these places, where there are good markets, are excellent.

For further particulars, apply to David Milne, Esq., Banker, Dundee; or to H. W. Walker, Esq., Banker, Auchtermuchty; or to John Bell and William Don, Writers in Dundee, who are in possession of the Title Deeds.—Dundee, Nov. 22.

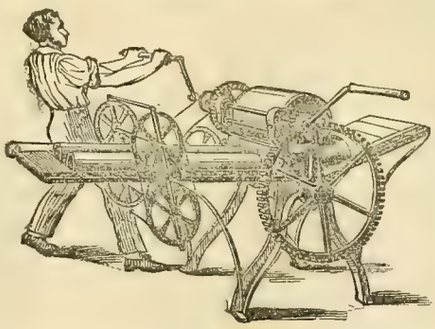
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AINSLIE'S PATENT DRAINING-TILE MACHINES AND DRYING PROCESS.



These machines are of two sizes. No. 1. Worked by hand, by one man or two boys, and capable of producing from 5000 to 7000 drain-tiles, 15 inches in length, and 2½ by 3 inches interior diameter, or pipes of 2½ inches interior diameter, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 30*l*. No. 2. To be worked by one horse, or by steam or water-power, and capable of producing 14,000 to 20,000 drain-tiles and pipes, of the above dimensions, per day. Price of the machine, at the manufactory, including moulds for tiles and pipes, 35*l*. The machine, slightly altered, also makes bricks equally well.

By these machines, draining-tiles and pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented. The cost of making tiles of 2½ by 3 inches, of 15 inches in length, including royalty, varies from 2*s*. to 3*s*., or 3*s*. 6*d*. per 1000, according to circumstances. All stones in the clay are crushed to pieces without retarding the movement, and these are the only machines hitherto offered to the public, for which, with most clays, no previous preparation of the clay is required, an expense generally greater than the cost of making.

The Patentees are now ready to grant licenses for the exclusive use of the machines, in localities to be agreed upon.

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Licenses will also be granted for Ainslie's Drying Process, by which the above articles can be effectually dried during cold seasons of the year in a few hours.

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A PREMIUM OF £10 was awarded to this Machine at the recent Meeting of the Yorkshire Agricultural Society, at Beverley, as the Best Machine of the day. Price £20.

Particulars may be obtained, and a Machine seen, on application to Mr. Bailey Denton, 9, Gray's-Inn Square, London; or Graveley, near Stevenage, Herts; to Mr. T. H. Charnock, Wakefield; or to the Makers, Messrs. Bradley and Co., Engineers, Wakefield.

DENTON'S "A" LEVEL for workmen in cutting drains may also be had. Price 30s.

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Applications for further particulars may be made to Mr. John Weatherstone, Cassington, near Oxford; or to Messrs. Gill and Ward, High-street, Oxford.—Agents wanted in all parts of the country.

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*** Subscriptions may be paid to the account of W. Spence, Esq., at Sir C. Price, Bart., Marryat, and Price's, Bankers, King William-street, or by Post-office Order payable to Mr. Spence, 18, Lower Seymour-street, Portman-square.

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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 48.—1845] SATURDAY, NOVEMBER 29. [Price 6*d.*

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(Signed) { Thomas Crake, Scruton Hall, George Marley, Arncliffe Hall.

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,, Stone Pine	,,	4 0	per 100.				

,, Sea Pine (Pinus maritima), excellent for exposure to the sea, one year 7*s.* 6*d.*, two years 10*s.* per 1000 (and in small pots, to plant out in very exposed situations, or thickening plantations quickly, 50*s.* per 100).

Oak, English.—The true "Durmast" of the New Forest (Quercus sessiliflora), the most valuable species, producing timber of the largest dimensions, one year 7*s.* 6*d.*, two years 10*s.* per 1000; Common, 3 yrs, 2*s.* 6*d.* per 1000.

Sweet Bay, two years 12*s.* 6*d.* per 100.

Arbutus one year (from pots) 40*s.* per 1000.

TRANSPLANTED FOREST TREES, &c.

Alder	1 year	15*s.* 0*d.*	2 yrs.	25*s.* 0*d.*	3 yrs.	35*s.* 0*d.*	Per 1000.
Ash	,,	7 6	,,	12 6	,,	25 0	
Beech	,,	12 6	,,	25 0	,,	40 0	
Birch	,,	10 0	,,	20 0	,,	40 0	
Chestnut, Spanish	,,	20 0	,,	30 0	,,	40 0	
Elm, Wych or Scotch	,,	12 6	,,	25 0	,,	40 0	
Fir, Scotch	,,	7 6	,,	15 0	,,	25 0	
,, Larch	,,	7 6	,,	15 0	,,	25 0	
,, Spruce	,,	12 6	,,	25 0	,,	40 0	
,, Pinaster .	,,	10 0	,,	15 0	,,	25 0	
,, Sea Pine ..	,,	20 0	,,	30 0	,,	40 0	
Hazel	,,	15 0	,,	30 0	,,	40 0	
Poplar, Black .	,,	20 0	,,	40 0	,,	80 0	
Oak, Eng. (Durmast)	,,	20 0	,,	30 0	,,	40 0	
Sycamore	,,	15 0	,,	30 0	,,	40 0	

Willow (Come-well) a new and valuable American species for Coppice or Hop Poles, of rapid growth, one year 40*s.*, two year 60*s.*, three years 80*s.* per 1000.

Laurel ..... 1 year 20*s.*, 2 years 40*s.*, 3 years 80*s.* per 1000

Evergreen Privet. ,, 20*s.*, ,, 40*s.*, ,, 80*s.* ,,

Elder, common black, excellent for sea embankments, 8*s.* per 100, 2 to 3 feet.

The above Transplanted are from ½ a foot to 3 feet high. Plants of a larger size from 3 feet to 7 feet, for ornament or for immediate effect, are from 25*s.* to 75*s.* per 100.

Rhododendrons.—Excellent for cover, and not subject to the depredations of game, 1 to 2 inches 30*s.*, 3 to 4 inches 60*s.*, 5 to 6 inches 80*s.* per 1000.

,, 1 foot 25*s.* per 100, 1½ to 2 feet 30*s.* to 40*s.* per 100.

,, Ponticum roseum, 1 to 1½ feet 40*s.* to 60*s.* per 100.

,, Splendid hybrid, 1 foot 50*s.* per 100.

,, Scarlet hybrid, 2*s.* 6*d.* to 5*s.* each.

,, Arboreum album, 1 to 2 feet 5*s.* each.

These Rhododendrons are all strong, well-rooted, handsome plants, and perfectly hardy.

Kalmia latifolia, ½ foot 50*s.*, 1 foot 75*s.* per 100.

Rose stocks, from cuttings of the "Bourbon," fit for immediate grafting and potting into small pots, 8*s.* per 100.

Camellia stocks, from small pots, 50*s.* per 100.

Clematis azurea, 75*s.* per 100.

Perpetual Tree Violet, strong plants, 50*s.* per 100.

Hardy Ornamental TREES, SHRUBS, AMERICAN, HERBACEOUS, and GREENHOUSE PLANTS in extensive collection. Also a most superb collection of ROSES, including all the new sorts to the present time. Printed Catalogues and prices of which may be had on application at their Nurseries, Red Lodge, North Stoneham; or Floricultural Gardens, Southampton.

If ordered in less quantities than the above quotations, the charge will be at retail prices.

Waste Lands Planted by Contract, engaging to replace failures, from 3*l.* to 20*l.* per acre. Flower-gardens and Pleasure-grounds designed and executed. Gardeners and Planters of ability and experience recommended.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD and SON are now executing orders for collections of ROSES, and beg leave to inform their friends that the stock was never finer or more extensive than it is this season.

W. W. & S. will supply superb varieties at the following prices, the selection being left to themselves; the plants are healthy, vigorous, and well established.

	Per Doz.	Per 100.
Superior selected Standards	£1 4 0	£10 0 0
Superb do. do., extra fine	1 10 0	
Fine Dwarfs	0 12 0	
Superb do. extra fine	0 18 0	
Fine Dwarfs on own roots in 50 varieties		2 10 0
Do. climbing	9*s.* to 0 12 0	
Good Dwarfs on own roots without names ..	..	1 10 0

Extra superior standard Roses, on stout stocks selected for the purpose, from 4 to 6 feet, with very large heads, which are peculiarly adapted for planting in conspicuous situations, at 36*s.* per dozen, or 3*s.* 6*d.* each.

With each order will be presented a proportionate number of plants towards defraying the expence of carriage, &c.

A remittance or reference will be expected from unknown correspondents.

A descriptive catalogue of Wood and Son's collection of Roses, together with their new supplementary list of Greenhouse and Herbaceous Plants, &c., may be had gratis on application.

CHARLES FARNES, SEEDSMAN, 128, St. John's-street, London, respectfully informs his Friends and the Public generally, that he will be enabled to supply orders for the following new and choice VEGETABLE SEEDS :—

ROYAL GREEN MARROW PEA.—This most excellent Variety may be sown as a second early Pea, and will be fit for use about the same time as the Early Warwick ; it will be found on trial that no Pea can surpass its flavour or rich colour when boiled. Price 2*s.* 6*d.* per quart.

QUEEN OF DWARF PEA.—It is superior to all the dwarf Peas known, and only requires more general cultivation to test its merits, when it will supersede every other variety of the same habit. Price 3*s.* per quart.

DANCER'S MONASTERY PEA.—This fine large Pea will will be found superior to all the old sorts for a middle crop. It is an excellent bearer, and of good flavour, and merits a place in all gardens. Price 2*s.* 6*d.* per quart.

A general CATALOGUE of all the new Vegetables, &c., will be forwarded on application.—Nov. 29.

GRANTCHESTER NURSERY, NEAR CAMBRIDGE.

S. WIDNALL begs to inform his Friends and the Public, that he has raised one of the most splendid CINERARIAS which has ever been seen, both for its beauty and habit. The plant does not exceed 16 inches in height, yet forms a large head of bloom of magnificent flowers. The ground colour is a pure glossy white, beautifully edged with bright rose, and the petals form a perfect circle, well defined, and an early bloomer. Strong flowering plants are now ready to be sent out at 7*s.* 6*d.* each.

S. W. has a few strong Plants of his Pelargonium "Widnall's Magnificent," which was so much admired last season. It is a fine large well-formed flower and a good trusser ; it is a colour very desirable—dark purple, with a well-defined black spot ; dwarf stiff habit, and has been pronounced by first-rate judges not only an excellent show flower, but an acquisition as a free bloomer among the early flowering Pelargoniums. Strong Plants 10*s.* 6*d.* each.

Also, now ready, strong and well-established Plants of those two splendid Fuchsias "Smith's Queen Victoria" and Veitch's "Fuchsia Serratifolia," at 7*s.* 6*d.* each.

If two or more are taken of any of the above named Plants, and a post-office order sent with the application, they will be forwarded package and carriage free, to London ; or to any equal distance.

S. W. calls attention to his extensive Stock of PANSIES, which may be had at the following very low prices (in collections left to S. W.'s selection, with a good assortment of colours), either in or out of small pots, with names.

12 distinct Varieties..	3*s.* 0*d.*	12 very fine Varieties	4*s.* 0*d.*		
24 do. do.....	6 0	24 do. do.....	8 0		

50 very fine Varieties, 20*s.*

And most of the leading kinds from 1*s.* to 2*s.* each.

DRY GROUND AND POT ROOTS of all the best show Varieties of DAHLIAS in cultivation, at very low prices.

A fine Stock of choice GERANIUMS or PELARGONIUMS at very reduced prices. Calceolarias, Cinerarias, Chrysanthemums, Fuchsias, Petunias, Verbenas, Stove and Greenhouse Plants, and Hardy Herbaceous Plants, &c. &c., in great variety at the lowest possible prices.

A few packets of choice PANSY SEED may be had (postage free), on receipt of a post-office order for 2*s.* 6*d.*, or 30 postage stamps.

THE VERY NEWEST AND BEST GERANIUMS AT UNUSUALLY LOW PRICES (Purchaser's selection).

Class I.—One Dozen 3l., Two Dozen 5l. (Cash).

Hoyle's Titus, Sarah Jane, Pompey, Unique, Claude, Duchess of Inverness, Champion, Amelia, Majestica, General Pollock, Rosalia, Flora, and Revenge. Lyne's Imogene, White Perfection, and King of Saxony. Foster's Sultana, Cid, Robustum, Nabob, Dr. Lindley, Duke of Devonshire, and Constellation. Gaines's Alice Hawthorn, Trafalgar, Ackbar, and Duchess of Leinster. Stewart's Prince de Joinville and Stewartii. Silverlock's Emperor Nicholas and Chance. Robson's Lady Ramsden and Meanee. Holmes' Beauty of Sudbury. Hoyle's Louis Philippe, Oddity, and Constellation. Roger's Lady Vernon and Lord Vernon. Gaines's King of the French, Dobre's Vesuvius. Miller's Elegans, Coquette, Constellation, Pet, Phœnix, Brunhilda, Victoriane.

Class II.—One Dozen 2l., Two Dozen 3l. (Cash).

Gaines's Sir W. Massey Stanley, Mogul, Conspicua, King of the French, Ackbar, King of the Belgians, King of Saxony, and Duchess of Sutherland. Miller's Mogul. Catleugh's Mulberry, Eclipse, and Duchess of Sutherland. Foster's Hybla, Coronation, Superb, Shield of Achilles, Nabob, Oddity, and Conflagration. Cock's Maid of Honour. Lyne's Princeps, Redworth, Coronet, King of Saxony, and Lady Tamworth. Sorrell's Pride of Essex. Cock's Hector. Beck's Cleopatra, Meteor, and British Queen. Pamplin's Fire King. Gaines's Elegans Nova and Sir R. Sale. Hoyle's Rosalia and General Pollock. Miller's Claud Darnaud, Hercules, Shackbolt, Shakspeare.

Class III.—One Dozen 1l., Twenty 1l. 10s.

Beck's Martha, Leonora, and Lucy. Gaines's Lady Sale and Queen Phillippa. Garth's Constellation and Black Dwarf. Miller's Tom Jones and Prince of Wales. Catleugh's Rosetta Superb. Foster's Pulchellum, Gipsy, and Favourite. Beck's Geraldine, Black Prince, Hebe, Evening Star, and Stella. Chandler's Celestial. Pamplin's Beauty of Walthamstow, Count d' Orsay, Enchantress, Camilla, and Oberon. Appleby's Mercury. Stewart's Mrs. Lawrence, Queen of Bourbons, and Beauty of Salt Hill. Thurtell's Pluto. Veitch's Fair Maid of Devon. Lyne's Duke of Cornwall, Sunrise, Duke of Clarence, and Circassian, &c. &c.

Twenty real good distinct sorts for 1*l.* ; Twenty all New and very superior Show Flowers for 2*l.* Purchasers sending the names of the sorts they already possess, W. MILLER will send suitable distinct varieties.

*** No charge for package, and plants put to compensate for carriage. All orders must be accompanied by cash or reference.—WILLIAM MILLER, Providence Nursery, Ramsgate.

BRACONDALE HORTICULTURAL ESTABLISHMENT.

JOHN BELL begs to inform his friends and the public he can supply fine strong canes of the TRUE FILBY SEEDLING OR FASTOLFF RASPBERRY. The trade supplied on liberal terms when large quantities are taken.

J. B. has a fine Stock of Dwarf and Standard Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples, both Trained and Maiden Plants of all the leading sorts in cultivation. Also a very extensive collection of ROSES, fine strong plants, at the following prices, the selection being left to J. B.

Full Standards, best varieties, one of a sort, per 100,			£10	0	0
Ditto	Ditto	Ditto ..... ,,	50,	5	0	0
Half ditto	Ditto	Ditto ..... ,,	100,	7	10	0
Ditto	Ditto	Ditto ..... ,,	50,	3	15	0
Standards, fine show varieties, ... ,,			doz.	1	0	0
Half ditto	Ditto ..... ,,		,,	0	15	0
Dwarf	Ditto ..... ,,		,,	9*s.* to 12*s.*		

*** Evergreens, Flowering Shrubs, &c. in great variety.

BLACK HAMBRO' AND ROYAL MUSCADINE VINES, from Single Eyes, fit for forcing in good sized pots. Any person having the above for sale will please to direct to ALEXANDER DANCER, Nurseryman, Fulham.

WANTED TO PURCHASE, a Quantity of WILLOW TIMBER and WILLOW POLLARDS, sound and fit for Cricket Bats. Parties having a quantity to dispose of, by applying to Messrs. DUKE and Son, at their Cricket Ball, Bat, and Stump Manufactory, Penshurst, Kent, may hear of a purchaser.

FORRES NURSERIES, N. B.—The Subscribers beg to intimate that they have for sale an extensive stock of all sorts of FOREST and ORNAMENTAL TREES, &c. As great care has been bestowed in raising the different kinds from the most approved varieties of their species, the plants are healthy, and of fine quality. The Subscribers have received the numerous premiums awarded by the Highland and Agricultural Society of Scotland, for the cultivation of the true RED-WOODED NATIVE SCOTCH PINE, and their present stock of this valuable tree, and of LARCHES, amounts to many millions of plants of every size and age, suitable for being transplanted. Their FOREIGN PINES, for the raising of which the Highland and Agricultural Society's premium was also awarded, are grown from seed, and comprehend many kinds of great beauty, strong of their age, giving promise to become valuable as timber trees, in the climate of Britain. The Flower department includes strong plants of a superb variety of AQUILEGIA GLANDULOSA, which flowers in May, and can be sent free, by post, at 1*s.* 6*d.* per pair, or at 6*s.* per dozen, or for stamps of that value. This plant is a hardy perennial, and one of the most gay in cultivation, producing numerous two-coloured blossoms, blue and white, of the size and shape of the common Passion-flower. Lists of Prices will be forwarded free, on application, and the Trade supplied at the wholesale rate. Goods are carefully packed ; and in forwarding plants, &c., every information required will be readily afforded regarding their mode of treatment ; and, to those who may desire it, advice will be furnished respecting the formation or management of plantations, by Mr. J. G., Author of the Highland and Agricultural Society's first Prize Essays "On Raising Forest Plants ;" "On Forest Planting, and on Trees adapted to various Soils and Situations ;" "On Raising and Managing Hedges ;" "On Forest Pruning ;" "On the Native Pine Forests of Scotland," and on various other subjects connected with Arboriculture. JOHN GRIGOR & Co.,

Nurseries, Forres, N. B.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S, 315, Oxford-street, London, at the Reduced Prices ; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN SHEET GLASS.

C. JARVIS having just imported a large quantity of the above article, in quality and substance hitherto unequalled, can offer it to purchasers at a lower price than any other house in the trade, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street.

TRANSPARENT FRAME AND GREENHOUSE COVERS, made from strong sheeting calico dressed by machinery, with a transparent waterproof preparation, only 6*d.* per square yard ; quite as cheap and twice as durable as the garden mats, and more adapted for horticultural purposes, in consequence of admitting light. It will give protection to plants equal to two mats.—ROBERT RICHARDSON, Maker of Garden Nets, Fishing Nets, Sheep Nets, Rabbit Nets, &c., 21, Tonbridge-place, New-road, London.

N.B.—Capes for Gamekeepers and Watchers : also 2000 second-hand Policemen's Capes on Sale, at 2*s.* and 2*s.* 6*d.* each, redressed.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority ; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

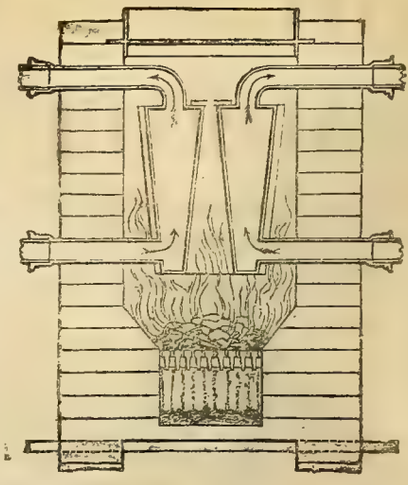
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery ; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



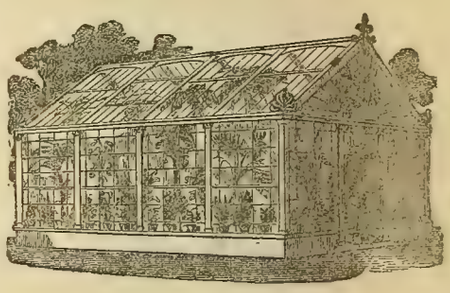
BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places :—Horticultural Gardens, Chiswick ; Royal Botanic Gardens, Kew ; Baroness Rothschild's Gardens, Gunnersbury ; Mr. Glendinning, Chiswick Nursery ; Messrs. Henderson, Pine-apple-place ; and in more than one hundred other places.—130, Fleet-street, London.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Lodiges', Hackney ; Messrs. Chandler's, Vauxhall ; Messrs. Rollisson's, Tooting ; Mr. Pontey's, Plymouth ; Mr. Henderson's Pine-apple-place ; and in the Horticultural Society's Gardens.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS ;

GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM'S Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15*s.* to 20*l.*—19, Wigmore-street, Cavendish-square.

GUANO (GENUINE PERUVIAN & BOLIVIAN,) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON ; WM. J. MYERS AND CO., LIVERPOOL ;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON ;

GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, Nov. 29.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence ; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

BECK'S SEEDLING PELARGONIUMS, 1844.—E. BECK informs the public that his sale of the above will terminate on January 1st, 1846. The small portion remaining are well established in 4½-inch pots. N.B.—E. B. proposes to send out another selection after the Exhibitions of 1846.
Worton Cottage, Isleworth.

BOUVARDIA FLAVA.—Nice young plants can now be forwarded for 5s., including box and postage, on application to WILLIAM E. RENDLE & Co., Plymouth.
*** Liberal allowance to the Trade.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 29, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Dec. 1	Entomological	8 P.M.
TUESDAY,	— 2	Horticultural	2 P.M.
		Linnean	8 P.M.
FRIDAY,	— 5	Botanical	8 P.M.

IN the present conjuncture, one of the most important things to effect is to diminish the length of time that must elapse before a NEW CROP OF POTATOES can be raised. While the present is occupying men's minds to the exclusion of almost everything else, the future may possibly be forgotten; and that would be a worse evil than anything yet experienced. We must therefore endeavour now to direct attention towards procuring the earliest possible new supply. A lapse of eight months, from the present time to the end of July, when the digging of the new crop generally commences, is a period which cannot be contemplated without alarm. Distress often occurs even in the short interval between the old and new crops, although the former may have been of average quantity. Gardeners, however, know that by proper means a large quantity of new Potatoes may be obtained in June; that a vast number of small patches, together furnishing a large amount of food, may be so cultivated as to afford considerable relief even in May; and that from the same ground even a second crop may be obtained under favourable circumstances; and we exhort the gardeners through this country to give the subject their immediate and most serious attention.

To effect this we must look to the early varieties, such, more especially, as the Cornish Kidney, or Chapman's, as it is called about London; and we must also keep in mind the following important facts:—

1st. The eyes at the top of the Potato are the youngest and vegetate first; from them the crop will be about a fortnight earlier than that obtained from the lower part of the tuber.

2d. When the Potato is not cut, and the top eyes are allowed to proceed in their growth, the others push slowly, if at all.

3d. If the top sprout be removed, the other eyes will begin growing with greater vigour.

4th. It is, therefore, obvious that the top sprouts may be removed when they begin to show roots, and planted out for the earliest crop; whilst the rest of the tuber may be allowed to push the other eyes for a succession.

5th. In case of a scarcity of sets, the stems may be layered; they will root, and form a second crop of tubers; but this must be done early in the season, or before the first set of tubers is fully ripe, although large enough to be fit for use.

Men who are skilful propagators of plants (as many gardeners are, and all ought to be) will readily imagine what important advantages may be taken of these properties of the Potato. We have long since been told that a Mr. DENSON, in 1833, propagated from three tubers plants enough to crop half a rod of ground, and obtained from them an amount of produce equal to 16 tons per acre, in the same season. What may not be expected now, with the invaluable aid of cheap glass!

In the mild climates of Cornwall, Devonshire, and many parts of Ireland, Potatoes may be immediately sprouted in a warm place, as in a cottage near the fire, or on hurdles in cow-houses, &c.; and when the sprouts are 2 inches long, they may be cut off, together with a portion of the tuber, and planted out in a sheltered spot, covering the sprouts with 2 inches of light soil. A slight covering will be sufficient to protect them from such frosts as occur in those parts in ordinary winters. They will produce a crop fit for use in the beginning of May.

In cold situations, and where proper protection cannot be afforded, it may be advisable to defer sprouting the sets till the end of January. They may then be pushed 4 inches by the middle of March, and planted out as soon as the weather will permit.

In planting for the earliest crop advantage should be taken of the most sheltered situations, such as the south side of walls, hedges, or fences. Where no such shelter can be obtained, ridges three feet apart should be formed running east and west, and a furrow should then be made along the base on the south side for the dung, over which the sets should be placed, so that their tops on pushing, may appear half way up the side of the ridge. In such a position the roots derive warmth from the rays of the sun striking perpendicularly against the slope; and the top of the ridge affords shelter from northerly winds. If in addition Furze, Broom, straw, bunches of Beech, Spruce, &c., are stuck in the top of the ridge so as to project over the young plants, slight frosts will not injure them. If the soil about the plants can be covered with litter in cold nights, radiation of heat will be prevented; the litter should be removed during the day, and the surface frequently stirred. By these means an early crop may be taken off the ground in May, after which there is still time for a second crop.

A material difficulty to be anticipated in spring will be the scarcity of sets. While the Potato is urgently wanted for food, it can hardly be expected that due provision will be made for its preservation. Under such circumstances, we would *suggest* the propriety of adopting the following plan. Let every Potato, before it is boiled, be deprived of its eyes by a scoop, or some instrument which will cut them out with a piece of the Potato adhering to it. Let such pieces be rolled in wood ashes, or be slightly dusted with lime, and laid on a shelf for a day or two, in order to become dry. When thus prepared, they may be packed in a barrel or box in layers of peat pressed close down, and kept in as cold a place as can be found, so that the box is not frozen.

In this manner a large quantity of sets will imperceptibly accumulate during winter, and be ready for planting in the spring. They will not be so good as larger sets, but they will, with good management, be a substitute of value. We must, however, repeat that we do not recommend this plan as anything that has been tried, or as more than an alternative; we only throw it out as a suggestion, which seems worth acting upon. A few weeks' experience will show whether the little sets thus prepared will keep; it will be easy to ascertain that by examination. And if it should turn out that they do not keep, the experiment may be discontinued, without any harm having been done.

We do not see that much further information relating to the Potato crop is at present required; and therefore we shall henceforward return to other things; at least for some time, transferring autumn planting and other topics to the Agricultural department. Indeed we feel that nothing less than the vast importance of the subject, in every point of view, could have justified us in affording it so much room as it has already occupied in the *Gardeners' Chronicle.*

SOME of our Correspondents who are pleased to compliment us on the part we have taken in the GLASS question, and who find that we have produced "a most beneficial effect" on the trade, strongly urge us to renew the subject, because they find that dealers are still dealers. With every wish to oblige them, we really cannot re-open this controversy. Our object from the beginning has been to compel the sellers of glass to give the public every farthing of the duties remitted by Parliament, and to prevent their putting them into their own pockets. In the attempt to carry out this object, we have been compelled to depart from our customary rule of not recommending tradesmen, and we have from time to time put forward the names of various parties, from whom cheap glass could be procured. In doing this, we have had nothing in view except the public good, and we now say, that if the persons who have been named by us do not execute their orders satisfactorily, quit them for some one else. The great foreign dealers, TESTA and Co., of Antwerp, and KÖHN and Co., of Hamburgh, will readily execute English orders, either directly, or through their agents.

We should be entangled in an interminable squabble about glass bills, if we were to go into any particular examination of this question, which can only be dealt with by individuals. If gentlemen will but stand by one another, as we have stood by them, the exorbitant demands of English glass dealers will continue to be frustrated, as they already have been. Everything depends on that.

Further than this we can only repeat what we have frequently stated on former occasions, that excellent German sheet glass of very large size may be delivered in London at 4½*d.* per foot, of sixteen ounces on an average; and Belgian glass of the quality of the best English "crown," of similar sizes, at 3½*d.* a foot, provided purchasers take the boxes in the rough, as they are received, and cut their squares for themselves. Such glass has been used, of both qualities, in a greenhouse lately constructed in the Garden of the Horticultural Society at Turnham Green, where every one can see it who procures admission from a Fellow of the Society. This price will be reduced by three-farthings a pound in October, 1846.

In conclusion, if gentlemen find a difficulty in procuring glass on these terms, let them advertise in our columns for tenders. The cost of doing so is so inconsiderable that it cannot be a difficulty; or let them imitate our friend "K."; let them go to the tradesmen who supply them with glass, offer them the prices we have named, and if the offer is not taken, withhold their orders.

So many persons urge us to state our opinion as to the EXTENT of the POTATO DISEASE that we beg at once to say that we have no other information, which we are at liberty to make public, than what is incessantly given in our columns. That it is impossible to come to any positive conclusion, from this evidence, we freely admit, but no other can be had, except by Governments having power to order official returns.

We believe that all the facts which have been given by us are to be relied on. At all events we have taken the utmost care to exclude statements of doubtful authenticity; and we believe there is nowhere so large a body of evidence, accessible to the public, as is to be found in our columns.

We must, however, beg our readers to distinguish carefully between statements of facts and speculations concerning them. A Leading Article in last week's Paper will enable us to explain our meaning. In that article is to be found a speculation as to the amount of land under Potatoes in Ireland. In order to arrive at a conclusion it was necessary to assume that the food of the Irish peasantry amounts to so much per diem, and that the number of persons to be fed was some fixed quantity. We took the number as it is often given in conversation: for no certain evidence is to be had upon the subject. That part of the consideration was speculative; and if the numbers assumed should be incorrect, the conclusion is so far vitiated. But other parts of the statement are facts, as, for example, the average amount of seed required for an acre of land, the average quantity of Potatoes obtained from an acre, and so on. In this instance those who read such matters attentively, will not fail to make the distinction, now pointed out; and if they have any reason to believe or know that the numbers of persons to be fed are too high or too low, they will dismiss that part of the argument, and found for themselves a new calculation upon the other data which have been really well ascertained.

A CORRESPONDENT has sent us a copy of a newspaper called *The Irish Farmers' Journal*, dated Nov. 19, in which is the following passage relating to the REPORTS of the IRISH COMMISSIONERS on the POTATO DISEASE:—"but, as we from the first declared the Reports of the Commissioners to be sheer nonsense, we are determined now not to allow them to be bolstered up by misrepresentation. The soundness of the 'remedial measures,' it would appear from the foregoing, Dr. LINDLEY considers to be set at rest, more especially as the Royal Agricultural Improvement Society of Ireland unanimously passed a vote of confidence in them. We are really almost tempted to characterise this statement by the terms which it deserves—in a word, *it is contrary to the fact.*"

The only answer that we think it necessary to make to this extraordinary assertion is the following copy of the resolution in question, which was published in the Dublin papers about Nov. 9.

"*Thursday, November* 6, 1845.

"*Meeting of the Council.*—The Earl of Clancarty in the chair. The Council having taken into consideration the 3d Report of the Commissioners, on the state of the Potato crop, and fully approving of the recommendations therein contained, it was resolved that the Secretary be instructed to write to the different local Farming Societies, in connection with the central one, directing their attention to that Report, and requesting that if they approve of the advice therein given, they should circulate copies of the Report throughout their respective districts, and for that purpose that a communication should be made to Sir Thomas Fremantle for 10,000 copies thereof, and that the same be distributed accordingly."

GAY BORDER FLOWERS.—No. II.

IN addition to the VERBENAS before recommended, the following may be of use to those who require a considerable quantity, and one or two of them, seedlings of this season, are flowers of first-rate excellence:—

Burleighana.—Bright lively pink, changing to pale pink as it gets old, with white eye; a large trusser, but liable to overbloom itself if not planted in pretty rich soil; rather delicate in habit, and liable to mildew, but makes a fine dwarf bed. Height 9 inches.

Lovely Rambler.—Pale purple, with large white eye; a very distinct variety, a good grower, and compact in habit. Height 1 foot.

Hydeana.—Pale bluish lilac, very distinct, and the best of its colour; rather loose in habit, but a free bloomer, and makes a first-rate bed. Height 1 foot.

Wonder of Scarlets.—Bright lively scarlet, with a truss quite equal to Atrosanguinea; a seedling raised

in this neighbourhood, but now the property of Mr. Ivery, of Peckham. Dwarf compact habit, and a first-rate variety. Height 9 inches.

I have also seen from Mr. Girling, of Stowmarket, seedlings under the names of Blanda, Lavendula, and Odorata bicolor, which, if of good habit, will be acquisitions. To the preceding I might add a great number of names, and probably some good varieties; but as I have not seen them growing in the open ground, and could not therefore speak positively as to their habit of growth, I think it better not to recommend them.

In compliance with the request of your correspondent Caplain, I may here mention that Verbenas are propagated freely at any season, provided young cuttings are chosen, and are assisted by a mild close heat until roots are formed. They also strike freely if put in under a hand-glass in a warm shady border in the early part of August. After they are rooted, they may either be potted off or kept through the winter in the cutting-pots. Those propagated in the autumn flower the best in the early part of the summer; but where room is scarce, spring-struck ones will do very well. Through the winter, take care to give the young plants plenty of air, and to keep them as hardy as possible.

Next, in a decorative point of view, to Verbenas, come Petunias, and though we have a great number of varieties, it is a difficult matter to select a dozen that are really good and distinct when cultivated in the open air. Amongst Mr. Girling's varieties, I expected to have found some excellent kinds for bedding out, but with three exceptions, though beautiful in the greenhouse, they are useless for the flower-garden. In the management of Petunias, those plants are best for bedding out which are propagated in the spring, and therefore it is not necessary, except in large establishments, to keep more than two or three plants through the winter. Place these in heat in February, and they will produce thousands of cuttings by May. In bedding Petunias, though every care should be taken to render the soil porous and healthy, it is a bad plan to enrich it so as to induce the plant to bloom profusely, they should grow but moderately strong; and to keep the plants dwarf, compact, and covered with bloom, they should be regularly stopped every week after they are once established; that is, the leading point before the flowers should be pinched out. This makes them grow dwarf and compact, and by throwing the flowers above the foliage makes the beds a regular sheet of bloom. The following will, I think, be found the best:—

PETUNIAS.

Prince Albert.—Clear rosy purple, very bright, of large size and good form, and not liable to burn. Height, 18 inches.

Purple Perfection.—Dark velvety purple, of fine form, and not so liable to burn as many of the dark varieties. Height, 18 inches.

Ovid.—Dark violet purple, changing in the autumn to blue. It is a plant of strong habit, with a large and finely formed flower. Height, 18 inches to 2 feet.

King (Ivery's).—A flower of nearly the same colour as the preceding, but a few shades brighter, and not so liable to injury by bright sunlight. A most profuse bloomer. Height 18 inches.

Kentish Beauty.—Pink ground, mottled with flesh-colour, of fine form, medium size, and a most profuse bloomer. Height 12 to 18 inches.

Striata Delicatissima (Girling's).—A flower of the same character as the preceding, only mottled and streaked with bright red, medium sized and very distinct. Height 12 to 15 inches.

Beauté Parfait.—Mottled reddish flesh-colour, veined with dark purple; a flower of good substance and medium size. Height 18 inches.

Formosissima.—Velvety pale, flesh-coloured ground, with dark purple throat, and much veined with the same colour; a most profuse blooming variety, and one of the best for the flower garden. Height 18 inches to 2 feet.

Princess Royal (Ivery's).—Delicate pinkish form, coloured with very distinct bright purple throat; a very pretty variety. Height, 12 to 18 inches.

Reliance.—Pale pink, with dark throat, and much veined with dark purple; of fine habit and substance, and perhaps the best formed flower out. Height, 12 to 15 inches.

Magna-charta.—Pale pink, mottled, margined, and veined with bright lively purple; a distinct and beautiful variety, but rather flimsy. Height, 12 to 18 inches.

Pet (Ivery's).—A pretty little gem, of the same character as the preceding, but much more delicate; requires careful management through the winter, and a rather rich soil when planted out. Height, 9 to 15 inches.

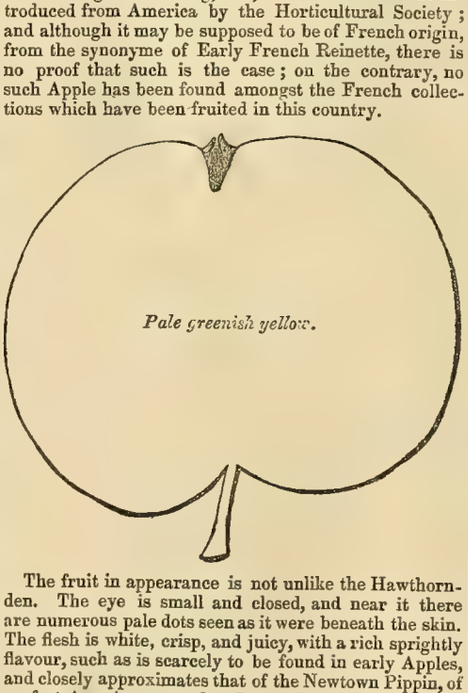
Queen of May.—White, mottled with bluish purple; a distinct and beautiful variety when it comes in good character, but very uncertain. Height, 18 inches.

Of Scarlet Pelargoniums.—Those who have seen *General Tom Thumb* in good trim, and can command a sufficient quantity of him, will not think of cultivating any other dwarf variety. At this place, the General has this season been an object of admiration to all who saw him, and certainly not without a very just claim to their good opinion. The *Frogmore* may please some, but it is too leafless for my taste; and the same may be said of *Cooper's Scarlet*, though very dwarf, and a most profuse bloomer. The *Huntsman*, I think, ranks next to General Tom Thumb. It is very bright, of free growth, and blooms very liberally. Of the taller-growing kinds, *Compactum* will continue remarkable for the duration of the flower trusses and the liberality with which they are produced; though the decaying of the centre, and the want of brilliancy in the colour, is much against it. Of the varieties, such as the *Shrublands*, *Smith's Emperor*, *Superb*, *Giant*, *Prince Albert*, and many more that might be mentioned, they can only be used for large beds or for mixing in miscellaneous groups. A large-sized bed of these varieties has a very fine effect if planted with plants six feet high in the middle, and gradually decreasing to about one foot in height at the sides. A bed, especially if large, thus arranged on Grass, has a very fine effect; and single plants six to ten feet high, trained into a pyramidal shape, and plunged on the Grass, also make fine objects. To get plants to this height it is necessary to keep them for several years, which is often inconvenient where room is scarce; but fortunately any place that is frost-proof and tolerably dry will preserve a scarlet Pelargonium through the winter, so that there need not be any difficulty on this score. These varieties, if it is wished to have them in their best character, should always have the point of the shoot pinched out directly the flower truss is perceptible. This concentrates the resources of the plant, and the result is very large trusses of flowers. Those who think of preparing large plants for lawn specimens, must begin by taking some of their largest plants up and potting them into small pots, at least as small as their roots can be got into without crowding; shorten the side branches into five or six joints, but leave the leader entire. If it is convenient to give them a little bottom heat after they are first potted, it will be much to their advantage, but if not they will grow without it. These plants may be grown on briskly in the spring, and will make pretty bushes a yard high by turning-out time. All this class of Pelargoniums strike freely in the open ground in August and September, and they require merely to be protected from frosts in the winter, and to be kept tolerably dry.—*W. P. Ayres, Brooklands.*

EARLY HARVEST APPLE.

Synonymes.—Yellow Harvest, Large Yellow Harvest, Prince's Harvest, Prince's Yellow Harvest, Prince's Early Harvest, Large White Juneating, July Pippin, July Early Pippin, Tart Bough, Pomme d'Eté of Canada, Early French Reinette.

There are many varieties of American Apples which are found unsuitable to this climate, and of these the celebrated Newtown Pippin is a well-known instance. The excellent early variety here represented is, however, an exception; for it is found to succeed perfectly, both as regards bearing, size, and flavour. It was introduced from America by the Horticultural Society; and although it may be supposed to be of French origin, from the synonyme of Early French Reinette, there is no proof that such is the case; on the contrary, no such Apple has been found amongst the French collections which have been fruited in this country.



The fruit in appearance is not unlike the Hawthornden. The eye is small and closed, and near it there are numerous pale dots seen as it were beneath the skin. The flesh is white, crisp, and juicy, with a rich sprightly flavour, such as is scarcely to be found in early Apples, and closely approximates that of the Newtown Pippin, of perfect American growth. It usually ripens in the last week of July, or first of August. Some fruits on the same tree ripen earlier than others, as is the case with various early varieties of Apples and Pears; and to obtain them in perfection they must be gathered according to the indications of that particular tinge of colour which they acquire when fit, a correct knowledge of which will easily be acquired by a few trials. In common with the generality of early fruits, they soon lose their flavour after being gathered. The tree is a good bearer, and exhibits no signs of canker; it forms a round head as a standard; but not being of strong growth, it is well adapted for dwarf training. The shoots are rather slender, of a chestnut colour, with grey pubescence. Leaves small, ovate, rather sharply serrated. Flowers middle-sized; petals broad, somewhat cordate at the base.

As it generally bears well, one or two trees will afford a supply for the dessert for two or three weeks, or whilst it remains in perfection; but the fruit may also be employed for kitchen use throughout July, and for this purpose more may be planted.—*R. T.*

GENERAL TREATMENT OF GREENHOUSE PLANTS.

The practice of removing greenhouse plants into a higher temperature during the period of their growth, so well explained by Mr. Wood in his various communications, cannot be too earnestly recommended. When it is considered, that in all the countries where they naturally grow, the summers are intensely hot, with clear sunny days, and heavy dews at night, how much quicker the growth of the plants and ripening of the young wood must be than can possibly happen in our dull cloudy climate, even with the aid of glass, the universal custom of turning greenhouse plants out of doors indiscriminately in the month of May, is doubtless one of the very worst modes of treatment that can possibly be adopted, especially when, as is often the case, they are placed in some shady situation; at this period many are just beginning to grow, others have made some progress, but few or none are within many weeks of terminating their growth and ripening their young shoots, and it is very uncertain whether any of them under such circumstances, even in the most favourable seasons, will accomplish their growth, consequently when the time arrives for housing, it will be found that three-fourths of them are still in a growing state, and now, when the short cold, cloudy days have set in, they will continue to grow for weeks, and even months after being brought into the greenhouse.

This mode of treatment can only end in disappointment; at the time they ought to be loaded with flowers there may certainly be a few solitary blossoms, but anything like a full crop is entirely out of the question. It is remarkable that Camellias appear to be the only family of plants that are rightly treated in this respect; it does not seem to occur to many gardeners that all other hard-wooded greenhouse plants require exactly the same treatment as Camellias; but instead of so doing, at the very time the latter are carefully shut up in a higher temperature, to encourage the growth and ripening of the young shoots, as the means of insuring a fine display of flowers, all, or nearly all, the others are turned out of doors to take their chance of a hot or a cold summer, as the case may be.

When greenhouse plants are housed for the winter, then is the time to judge whether they have been rightly treated. If such is the case they will mostly have finished their growth; the young shoots will have changed from a green to a red or brown colour, and of a hard firm texture, and the flower-buds of many swelling out prominently, ready to start into flower with the slightest excitement, rendering the forcing them into flower at any time when required an easy and simple matter. Not only Camellias, but Acacias, Boronias, Azaleas, Epacris, Corræas, and in fact almost every kind of greenhouse hard-wooded plant, should be at rest, and ready to start into flower when the proper period arrives. On reading the reports of the London Horticultural Exhibitions we are often surprised at the large dimensions of many of the plants therein mentioned, especially when we read that many of them are only two or three years old! There cannot be a doubt that this is accomplished by placing them in a strong genial heat, at certain periods, and will serve to show what can be effected in a short time under proper management.

Although the treatment recommended above is applicable to all hard-wooded plants, there are some beautiful things that will not thrive at all unless they are annually placed in a higher temperature to make their growth, and for want of such treatment are rarely seen in good health. Crowea saligna is a striking instance of this neglect, as it is generally seen starving in greenhouses all the year round; instead of which it should be removed to the plant or Pine-stove in January, and allowed to remain till May or June, when it will grow like a Willow, making shoots from 8 to 16 inches in length; and when removed to the greenhouse it will continue to flower all through the summer, a perfect gem, with flowers twice the size we generally see it produce under the ordinary treatment it receives.

As early as the month of January attention should be directed to such plants as have done flowering and are beginning to grow; these should be removed to a higher temperature without delay, and if necessary, it is the best time to shift them into larger pots, and when the young shoots have grown 2 or 3 inches in length and taken off with a heel, they will strike root better than at any other time. By attending to the gradual removal of the plants all through the spring months, and when having completed their growth, gradually to harden them for a week or two, and when ready to be placed out of doors for the summer, they may then, with perfect safety, be placed in a shady situation, and remain out as long in the autumn as they may be safe from severe frost. In large establishments a house entirely devoted to this purpose would be very useful; where this is not the case Vineries, Pine stoves, pits, &c., may all be made available, and without much inconvenience, for this purpose, and even a brick pit without artificial heat, if kept pretty close, would be very useful in forwarding the growth of plants. I have been induced to dwell at some length on the above subject, from a firm conviction that it is not so generally or extensively put in practice as it deserves to be.—*Robt. Reid, Noble Thorp.*

WINTER FLOWERS.

Forcing of Roses.—The introduction of so many beautiful hybrid Roses within the last few years has lessened, in a very considerable degree, the numbers of Moss and Provins Roses, which used to be the prime consideration in a course of winter forcing. As, however, the latter will always meet with admirers, I beg to offer a few words respecting them.

Like most other plants for forcing, a due preparation

is half the battle; indeed, it is of immense importance in the case of these beautiful and sweet flowers. To have good bushes, every pot should contain two plants, and these should have been established at least twelve months in their pots, prior to forcing; if two years, so much the better; the wood becomes shorter jointed, better ripened, and has less tendency to run to suckers.

The best soil for them is composed of two parts strong unctuous and turfy loam, and a third part composed of rich manure and leaf-mould, to which may be added a smart proportion of small charcoal, crushed bone (boiled), and a little sharp sand. If part of the turf can be roasted on Mr. Rivers's plan, they will be found to enjoy it much.

They should, preparatory to forcing, be plunged in an open bed, perfectly unshaded; and the rest of the attention necessary through the summer previous is free watering, and moving or turning the pots round once about the end of June, to prevent them from rooting through the bottoms, which would only lead to the production of suckers or robbers; and these when produced should be stopped when from 4 to 6 inches in length. The pots, however, may have another turn round in the end of August; this will have a tendency to cause them to ripen their wood early; on this depends, in a great degree, the success of early forcing.

The wood, if the above directions have been followed out, will be perfectly ripe, and ready for pruning by the end of October, which is quite soon enough to commence forcing this class. They should now be all pruned to about three or four eyes on each shoot, and the wounds immediately dressed with white-lead, to prevent the possibility of bleeding through the excitement produced by advanced temperature.

To ensure success, however, I would not advise any attempt to force them before the middle of December; all previous attempts, unless the plants are in very excellent condition, and have been slightly forced the year previous, are very likely to end in abortion.

It is somewhat difficult to advise those possessing moderate sized establishments as to where their forcing should be either commenced or carried out. This is in by far too many cases a mere matter of expediency. I will, however, lay down what I consider indispensable conditions, merely premising that the time is at hand in which (through the cheapness of glass) two distinct Rose houses will be required in every large establishment. Perhaps such as the following. The one a span-roofed house running north and south, low-roofed like a nurseryman's propagating house, with a permanent bottom-heat by means of the tank system of from 70° to 80°, for the earlier stages of both the old Provins section, as well as the hybrid Perpetuals, Bourbons, &c., and provided with a plunging medium. The other a southern "lean-to," with an elevated stage, no plunging medium, no bottom-heat, yet a perfect command of atmospheric temperature, with abundance of ventilation when necessary; and to complete the whole, a thin canvas screen, which will be found useful in the months of March and April. But to return to my purpose: The indispensable conditions thus requisite to success with properly prepared plants, are first, a highly moderated and moist atmophere; secondly, a moderate but certain bottom-heat, about 10° in advance of the atmospheric average; and, thirdly, thorough cleanliness, free ventilation, and careful watering. At the commencement of forcing, 50° will be amply sufficient until they begin to swell, when it may be advanced a little, especially on bright sunny days, when the thermometer may rise to 75° or even 80° if the plants are in leaf. They should be syringed twice a day, and should have a slight fumigation once a week or fortnight, in preference to a severe one more seldom.

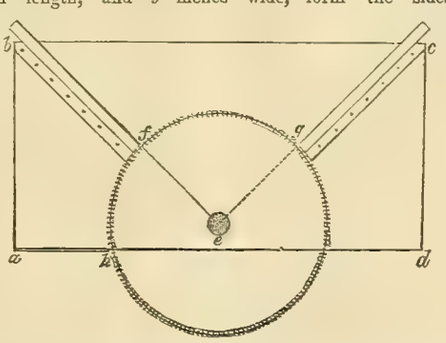
The beds must be carefully searched, once or twice a week, for the "worm i' th' bud," or maggot as we gardeners call it — is sure to make its appearance. The thrips is one of the worst enemies of these lovely flowers, and hard to encounter; however, smart syringings from the beginning, with a sweet and free atmosphere, and healthy action of root, are the best preventives.

It is of great importance when they are coming out in bloom to remove them immediately to a cool, airy, and light greenhouse or conservatory, where they will acquire both increased colour and scent. Their season of flowering will also be prolonged, and while here, they should have a slight screen of canvas or thin muslin suspended over them in bright sunshine: this will prolong their duration.

Lily of the Valley.—The forcing of this is very simple indeed—so much so, that the owner of every suburban villa may have them from December to June, if he will give them half the attention which he bestows on his Pansies. Like Seakale and Asparagus forcing, no rule will suffice, unless well-organised and plump buds be insured previously, by high cultivation. Those who desire to follow up the production of this delightful little favourite with all classes, through our long winters, must provide for it by planting, as well as forcing, a few every year, if possible. They delight, as is well known, in a moist soil; and the back border of a south wall in a garden is the very place for a nursery of them. The soil should be at once tenacious and rich; and in planting them with a view to forcing, they should, after a due preparation of the soil in February, be taken up, separated into individual buds, and planted thickly in circles; each circle ultimately to form a pot. My pots are about a foot in diameter, and in planting I manage to introduce from 12 to 18 single eyes, or buds, within the given circle. When planted, nothing is necessary but to top-dress them immediately with rotten manure, 2 inches in thickness, and to keep them free from weeds through the season. They should remain through the second summer thus treated, and in the ensuing autumn they will be fit to force. In the early part of October those intended for forcing must be potted; and no more ceremony is necessary than to pot them on the ground where they grow, using the common soil. They must be cut out in solid lumps, and fine soil well worked in around the ball. My plan is to wash it in with frequent sprinklings of water, and I place a large handful of the new leaves from the adjoining trees in the bottom of the pot for drainage. They must now be placed together, in some sheltered spot, and covered over with 6 inches of old tan, sawdust, or common soil; and, of course, introduced to their forcing department in succession. Those who can command a room with a temperature of 60°, and a dark cellar or outhouse, with a bottom-heat in one corner of 75° max., of a steady and permanent character, are in possession of all the apparatus necessary to carry out the plan. The pots, when introduced to the bottom-heat, should be covered over with 3 inches of the material before recommended —old tan I prefer. As soon as the buds are peeping above this level, they must be removed to a warm, yet somewhat airy room, or other structure; and, for a week or so, kept from the sun's rays; after this they may be taken to a light window, or greenhouse shelf, and be frequently syringed, and the pots kept in a dish of water. In sitting-rooms the atmosphere will certainly be rather too dry, on their transition from the bottom-heat, and this will prove the most difficult time for them to encounter. However, I must confess I have somewhat strained a point in endeavouring to bring them within the reach of the amateur. The plants, after being forced, may be turned out into similar beds to those they were taken from, taking care that the leaf is uninjured; and after a second summer's "run," they will force again.—*R. Errington, Oulton.*

POTATO GRATER.

A GRATER of the following description may be very easily and economically constructed. It consists of a cylinder of tinned iron, punched like a common grater. It is formed of three sheets, each 17 inches in length, and 12 inches in breadth; consequently, the cylinder is 17 inches in length, and, allowing for the inlayings of the joinings, about 35 inches in circumference. This is fitted with wooden ends of inch board, and fastened with tinned tacks. The axis is formed of a round rod of iron, $\frac{3}{4}$ of an inch in diameter. This, passing through the centre, is secured from turning without carrying round the cylinder, by two plates of stout hoop-iron, screwed across the wood at each end, and so as to rest in notches on the axis. Two boards—one of which is represented by *a, b, c, d,*—1 inch thick, 18 inches in length, and 9 inches wide, form the sides



through which the axis passes, near the lower edge, as at *e*. Two boards, 17½ inches by 7, are placed and secured between the sides, sloping in the direction *b e, c e*. These sloping ends, with the upright sides, form a trough, or feeder, in the bottom of which one-fourth of the cylinder is exposed, as represented in the section between *f* and *g*. The sloping ends serve to keep the sides equidistant, and the latter are farther secured in their position by a thin board attached to the lower edges of both sides, as at *a, h*. A crank is fixed on the end of the axis, or one end of the latter may be left long enough, and twice bent, so as to form one.

The machine is then ready to be placed on the edges of a tub, to which it is fixed by tacks through the thin cross board connecting the sides. Water poured in till it reaches the cylinder keeps the tub steady, and washes the pulp from the cylinder as it revolves. The water and pulp is prevented from being thrown out by the covering afforded by the cross board, which should be wide enough to extend over the segment between the cylinder and the edge of the tub. By referring to the section, it will be observed that, if the sloping ends were extended to the centre they would form a right angle; and that the portion of circle included is a quadrant. This is found to be a good position. If brought down so as to include half the circle, or nearly so, very bad consequences result in the working; the Potatoes form a series of wedges, which prevent the grater from turning round unless great force be applied, when bruising instead of grating takes place, a mode of action for which these simple machines are not adapted. When the grater is kept revolving in the water, very little pulp collects inside; but in order that it may be occasionally cleared, it is advisable to cut out a hole in one of the ends sufficient to admit the hand. The feeder should be kept as full as may be required for keeping the Potatoes next the grater tolerably steady. The cost of the materials is about 6*s.* 6*d.* I am not aware that there is any plan so cheap as this.—*N.*

Home Correspondence.

Potato Disease in Central America.—At the Academy of Sciences of Paris, Nov. 17, 1845, Monsieur Boussingault communicated an extract from a letter from M. Joachim Acosta, of Bogota, relative to the Potato disease. It appears from this letter that the malady is very common on the table land of Bogota, that it is destructive in wet seasons, or even every year in damp spots. This does not prevent the tubers being used, when the affected part has been removed. It is known that Potatoes are indigenous to this plain. M. Acosta does not doubt that the malady has always been known there, since it excites no alarm in the Indians, who live principally on Potatoes. M. Boussingault properly remarks that in these countries, where cultivation continues without intermission during the year, and where the tubers are consumed without the necessity of storing them, there is no fear, as with us, of a bad harvest, because it may be replaced immediately by a good one. With us, where the culture is annual, and must be preserved through winter, it is natural that we should be more concerned in a malady which may destroy the resources of a whole year.—*M. J. B.*

Potato Disease in Canada.—I have just received a letter from the banks of the Richelieu river in Canada, east, in which it is stated that the Potato crop is nearly a complete failure except where the Irish Cup has been planted; these appear, says my correspondent, to suit the climate better than any others.—*Jean Baptiste.*

Potatoes in the Scilly Islands.—Having heard that Potatoes in these islands had entirely escaped the murrain, I laid in my year's stock from the produce of St. Mary's, and am happy to find that among upwards of 100 bushels there is not a single infected Potato. I have learnt on good authority that everyone who has been supplied from these islands is equally fortunate. It is not a little singular, if true, that the Island of Achill is in like manner exempt. Might not the due consideration of these facts lead to some valuable information as to the origin of the disease elsewhere. My Potatoes appear to have grown in a loose sandy soil. The crops on the mainland appear to have suffered extensively, though in the vicinity of the sea.—*C. A. Johns, Helston.*

Potatoes in Prussia.—As it is sometimes difficult to obtain accurate information of the state of matters abroad, the following extract from a letter of a well-known German Professor in Prussian Saxony, received this morning, may be acceptable. "As regards the Potato epidemic, it is only partial in this neighbourhood, and confined to the early kinds in heavy clay-lands. The crop has been productive, and we have no fear of famine on this score. The rest of the harvest has yielded abundance of straw, but little grain; the price, therefore, is risen, and the Government has been urged to prevent exportation. My winter store of Potatoes is good, and free from disease."—*M. J. B., King's Cliffe.*

Potato Disease in Bavaria.—This is fortunately not very common in our part of the Continent. I do not think we have yet lost more than the 10th or 12th of the crop. It is everywhere observed more in wet heavy land than in such as is dry and sandy or chalky. It is distinguished from the disease that attacked us in 1842 by the rapidity with which the infected Potatoes run into a state of putrefaction, by the absence of any evident fungus-spawn or mycelium, and by the obliteration of the membrane of the cells before any diseased action is visible in the starch grains. I am perfectly satisfied that it is the extraordinary season, combined with the negligence of our cultivators, and their bad treatment of the plant, that have caused us to be visited with this calamity. I cannot believe that any parasitical fungus has produced any such mischief. This year the parasite, Æcidium columnare, has done great mischief to the Spruce Fir trees on our Alps. The trees have been much weakened by the loss of the leaves of 1844 and 1845, which were loaded with the parasite: but leaves of a greater age have not been touched. The young leaves had assumed a dull yellow colour before they were attacked, and this disease, which was the precursor of the fungus, was no doubt caused by the long duration of an extraordinary lodgement of snow during the past winter, and by sudden changes of temperature (as much as from 30° to 5° R. in three days) during the summer. "Je n'aime pas à voir des revenants dans la nature." — *Zuccarini, Munich, Nov.* 10.

Potatoes in Scotland.—Our Potatoes, I am sorry to say, are in a sad state. It was said that they had escaped in Sutherland and Caithness, but I hear that the disease has shown itself even there. Every where else it is more or less prevalent; in some places to a great extent. In Dumfriesshire, where I have some property, and farm myself on a small scale, one of my farmers telis me that in his neighbourhood they do not expect to have enough left for seed. We have various theories here, as in other places; but I will mention one or two facts. In the property belonging to Lord Dunfermline, in this neighbourhood, there was a field with a wall on the east side; the two ridges next the wall, which protected them from the east wind, showed no symptoms of disease, whilst the rest of the field was infected. Another fact that has been observed is, that Potatoes growing under trees are more healthy than those near them growing in the open air. The inference

from these facts is obvious, but I give you another of a different kind. A farmer at Biggar, a high part of Lanarkshire, sent my brother some Potatoes, and wrote to him that his Potatoes and those of some of his neighbours had been affected by a severe frost we had (I think about the beginning of October); those touched by the frost are sound, whilst those which escaped it are diseased. I have heard of two cases where the seed came direct from Chili, and where the Potatoes have escaped, whilst others growing within a few yards were affected by the disease. These cases are, of course, cited by the supporters of the doctrine that vegetables wear out by old age, like Knight's Golden Pippin. I have also been told of a Potato called the "Fortyfold," which is said to have escaped entirely, and that though placed among some of the most diseased roots, it resisted the contagion. I am convinced that here, at least, we do not yet know the full extent of the mischief, for I am every day hearing of cases where Potatoes were stored apparently sound, but, on being examined afterwards, were found to be diseased.—*M.*

Storing Potatoes.—If people would adhere to your statement with regard to drying and pitting them with a little lime, good Potatoes may be had. My Potatoes being very bad with the disease, I laid them in a room on a deal floor, well drying them and picking out the worst, turning them daily until they were quite dry. I then pitted them, shaking over them a little slaked lime out of a coarse bag, and now I have as good Potatoes as any person can wish for. Others that I have not treated thus are spoiling, which is a proof of the efficacy of your advice. Although some people read the *Chronicle* as if it were a fable, I can only say that if attention was paid to what is there stated, there would be fewer complaints about bad Potatoes. There is no need of manganese and oil of vitriol; well drying is the main thing. Spread the Potatoes in an airy room, and then pit them in a dry situation, dusting each layer with well-slaked lime; then thatch them, and it will be found that the disease will be stopped, and the Potatoes effectually preserved. —*J. C., Wykeham Lodge, Horsham.*

Wooden Rollers.—I do not know anything more annoying to a gardener, who is desirous of seeing his short Grass in good order, than that of having a lawn studded with worm-casts, and, at the same time, weather so wet as to render it impossible to sweep them off without making the remedy worse than the nuisance. To remedy this, and, at the same time, to economise labour by doing two jobs at the same time (viz., cleaning the Grass and rolling the lawn), we have been in the habit of using for some time past wooden rollers, which, if applied at the time the worm-casts are in a plastic state (that is, neither too wet, nor yet too dry), will pick them up as clean as could be desired, and, at the same time, leave the Grass smooth and even. These rollers are made of various sizes, from 18 inches to 4 feet in width, and generally about 9 inches in diameter. I had some made in an octagonal form, imagining that the increased weight of the fall would cause the worm-casts to adhere more closely; but the shaking caused the dirt to fall off if it was a little dry, and if the worm-casts were numerous; the roller soon lost its octagonal form, so I was obliged to return to the common form. A strong boy, with a 4-feet roller, will clear as much ground of worm-casts as four men with brooms; and even if the ground requires sweeping, to clear it of leaves or branches, I find the work facilitated by letting the roller precede the sweepers. On dewy mornings, in the summer time, the rollers are quite as useful as in winter and spring; indeed, comparatively speaking, more so, as they enable us to get the grounds cleared up before the family is about, a thing so much to be desired in all well-regulated establishments. I may, however, remark that, in order to enable the rollers to perform their work properly, it is necessary that the Grass should be kept pretty short, as short as it can be kept by mowing every week, or, where this is impracticable, it should be cut well into the ground in the autumn. Here we occasionally mow the same piece of ground six different ways, on successive mornings, and I find that taking the season throughout, we save time by so doing; on the principle, I suppose, that a job "well done, is twice done." Let me, therefore, recommend these rollers to all who have not tried them, as I am sure they will give satisfaction.—*W. P. Ayres.*

Mildness of the Season.—I often think that the articles which appear under this head might quite as appropriately be classed under the head of nonsense; as in nine cases in every ten there is little novelty in the blooming of a majority of the plants, while where tender plants really do survive, their doing so may be attributed more to local peculiarities than to any actual mildness of the season. For all really decorative purposes the flower-garden plants here were destroyed on the 24th September, and the plants in several of the gardens have been cleared away, and the ground trenched up for the last six weeks; yet, on a bank which has not been cleared, and is a little sheltered, I find I could make up a list of several score of varieties now in bloom, though we have had the thermometer as low as 19°—if a few miserable florets on a truss surrounded by dead foliage can be considered bloom.—*W. P. A.*

Glass.—A great smash in my frame-lights two years ago induced me to try glazed calico; this scarcely lasted through the season, and was then rotten. The reduction in the prices of glass induced me to replace the shattered panes. The advertisements from Elphick and Cogan induced me to send for samples from each of the sort of glass they would supply at the given prices and measurements. The samples arrived, and the price was the same for each—the thicknesses were equal—but Elphick's was by far superior in regard to colour, being white as plate glass. Shall I confess my weakness, and acknowledge that (considering colour of no importance for such a purpose) I had national feeling enough to prefer the native to the foreigner. I did so, and ordered 14 dozen to be sent to me. I enclose the sample, and a fair specimen of the order executed. I know I ought to have returned the whole, but the sudden frost demanded immediate protection, and I paid for my folly in trusting to the said Cogan.—*A., Walton.* [The sample is in our hands, and is twice as good as the article supplied.]

Fairy Rings.—Many opinions have been advanced relative to the formation of these. In a late Number "An Enquirer" has laid down a theory of their formation—more philosophical, perhaps, than his predecessors; yet, I think, inadmissible: for I imagine that if we are to admit that the decomposing fungi destroy the sporules they so lately nourished in order to perpetuate their species, the case is without a parallel in vegetable history. I have paid some attention to this subject, and have arrived at a somewhat different conclusion. Remarking the continually increasing diameter of the circles, I was led to suppose that the annular disposition of the fungi was due to the simple circumstance of the prior plants having absorbed, during their growth, the nutritious particles of the soil necessary for the support of their species, which induced me to institute the following experiments:—1. At A, in the interior of an annular group B, was inserted, in the vacancy made by a portion of earth removed, a similar portion from the ring B; the succeeding season no plants appeared. 2. At A, in another ring, a quantity of earth was taken out and replaced by fresh soil, from a different part of the field, and a piece of earth from B, with the plants growing on it, inserted in its centre; this produced a ring the succeeding season. 3. Prepared as the second, and a ring planted therein, equally remote from the centre and circumference (of the new soil), this, the next year, produced two rings—one external, the other internal—while the rings planted were nearly bare. From these experiments I draw the following inferences, viz.: first, that the rings are originally formed by a single plant; and second, that they extend gradually outwards in quest of nutriment—the food internally being already appropriated. This will explain why one ring does not cross another, and the consequent irregularity of outline assumed when circles become contiguous; it will also be easily seen how readily any obstacle may be passed and circumscribed. I am also of opinion that the fungi are not commonly reproduced by sporules (or seeds) but by extensions of their roots or spawn, for being necessarily light they would be dispersed by the wind, and produce scattered instead of compact circles.—*W. W., Horticultural Society's Gardens.*——This season has been very favourable to the growth of some fungi; not, indeed, of the common Mushroom, which made its appearance very prematurely, and was scarcely to be found on our downs in its natural season; but the rings of Agaricus coccineus and peronatus were numerous; and fastibilis abounded so much, that it seems as if it were designed by Providence to be the means of renovating the pastures on which it grows. Its large fairy rings are made distinctly visible at a great distance by the great luxuriance of the Grass; their circles must grow larger year after year, because whether they are propagated by sporules or by the tough white fibrous roots which form their spawn, the germ of the plant can find no pabulum for its development in the soil which it has already exhausted, and therefore must always be confined to the outside of the circumference. The exterior circle is generally bare for some time before their appearance, when the fungi abound so much as Agaricus fastibilis did last September. Probably because during the preparation for their growth they appropriate to themselves all the nourishment contained in the soil; but their decomposition restores to it more than it took away; for they seem to abstract nitrogen from the atmosphere, two azotised substances having been discovered in them by analysis which give out ammonia by distillation. Hence, soon after they have perished (which they do very suddenly), the bare rings are covered again with Grass, which wears the peculiarly blue colour usually imparted to it by azotised manures. I know not whether it has ever been ascertained how much time elapses before this source of fertility is exhausted. I should imagine, however, it must be several years; for the luxuriance of the Grass increases by degress from the inner rim of the rings, till it reaches its maximum close to the bare part. If two rings happen to meet, that luxuriance is augmented at the point of junction in an extraordinary degree; but they never intersect each other, unless one of them is interrupted or greatly weakened by other causes, and the soil has resumed its natural condition; for, of course these Agarics, like other plants, meet sometimes in their travels with soil more or less favourable to their growth, and therefore their rings are often not true circles; but swell out here and there, and describe all sorts of curves.—*L. Vernon Harcourt.*



Ornithology.—The little bird mentioned at p. 785, as constantly flying at the window, is probably attracted by its own reflection in the glass, which image it continues incessantly to attack. Is not this the only probable reason? It would not have occurred to me but from having seen Pea-fowl stand a whole day at a window as if admiring themselves, and occasionally pushing against and pecking the glass.—*E. E. W., Worksop.*

Fraudulent Seedsmen.—Perhaps the following letter may furnish some useful hints to the garden-loving community; perhaps, also, it may tend to pave the way to a better ordering of things in connection with floriculture than at present obtains. I am one of a little knot of devotees of Flora, and their deputed penman. We have, for the four last seasons, formed a purse for the purpose of purchasing from reported first-rate hands, and from apparently respectable advertising parties, almost all the sorts of flower-seeds said to be selected from the very choicest varieties of their kinds in cultivation; and what I am now about to state is a fact which can be corroborated by the evidence of very many besides the parties more immediately concerned, viz. that in no one single instance have any of us reared, from any packet of seeds purchased of the aforesaid parties, even a solitary flower possessing any value or merit whatever. The seeds, I admit, have for the most part been true to their kinds, but of the most common and ordinary characters, and such, indeed, as none of us care to cultivate. £17 8*s.* 6*d.* has been the sum already expended, for the which we have not had a plant worthy of preservation. Pelargonium, Pansy, and Petunia, Phlox, Fuchsia, and Verbena, and numberless other novelties I need not name, have again and again been purchased and reared with the greatest care, and disappointment has in every instance ensued, so that, had we taken no other means of securing ourselves, we should have possessed but a sorry show for exhibition. Fortunately, however, we purchased plants of different kinds, chiefly recommended by yourself in the *Chronicle*, and from these, by hybridization, we have been enabled to attract attention by some novelty and beauty annually. Our correspondence with many friends nearer London, affords no better account of success than we have experienced. It was imagined that the remoteness of our *locale* from the grand centre of all things, would explain in some measure our not being so well served; but we find all are doomed to share alike; and since the evil seems so general, and as, in our instance, four fall seasons, with all the attendant cares, anxieties, troubles, and expence have been frittered away in disappointment and vexation, surely something of a very decisive character should be devised to mark the outraged feelings of the floral public, and the distrust engendered by disreputable dealings, made manifest; at the same time, also, some remedial measures might be proposed for the purpose of securing us from the repetition of such results as I have now detailed. That power which you have proved yourself to possess on the glass question might be brought into play at the present period with effect, to protect a very large and, I need hardly add, a very respectable party of individuals, who, living quietly in the country, with competent means, now indulge themselves in, and devote themselves to, the delightful occupation of flower culture, and who derive the highest gratification from friendly competition with their neighbours, but who have been, and are, as yet, entirely at the mercy of a set of men so utterly regardless of a good name (to judge them by their dealings), that unless some one of such influence as you possess, will come forward and be our champion, in this our day of need, we must utterly despair of ever being dealt with either honestly or honourably. These, it must be allowed, are hard sayings, but "*qui sapit, ille facit.*" The honest few need not heed them. You are quite right in your general advice to us, not to deal a second time with any who have served us badly, and we have, without your bidding, as a matter of course, followed this maxim; but since we have been served alike in almost every, I might say in every instance, where and to whom, I must ask, are we to apply next? Such proceedings, you have said, will ultimately bring their own reward to the parties practising them. It is all very well to preach of patience and of time, but many of us are growing old. Time is precious, and the last four years cannot be recalled. But, putting ourselves for a moment out of the question, when it is taken into consideration the very large sums of money now annually expended in gardening pursuits generally, and more particularly in the floral departments, I think it becomes a question —which you, I am sure, ought to be far better able to resolve than ourselves — whether you are not the party towards whom we ought to look, to press this matter home, and directly, and crush the crying evil—not now in its infancy, recollect; since, for want of check, it has grown to the stalwart man, and stalks throughout the country committing crimes, comparable only to house-breaking and highway robbery; the pick-pocket has far purer hands. The cause is assuredly a good one. The public over which you preside—your own peculiar public, I may say—call for redress, and redress can come from you, with a high hand, if you will it. Greater honour and respect you cannot gain, but it will add yet further to the deep obligation we all owe you.—*J. F. Malcolm, Heath-hill Cottage.*

Pelargoniums: Time of taking Cuttings, and Mode of Treatment of Young Plants.—[Extract of a letter from Mr. Beck to a purchaser.]—You must not look to any particular time for taking cuttings, but obtain them as soon as you can after the turn of the year. For instance, after your plants are shifted and making growth, training will be required, and you may find a shoot which can be removed with advantage, or at least without injury; take that, strike it, and grow it on; it will

make you a far better specimen the following year than a cutting taken after the blooming season, say in the end of July or beginning of August. With respect to the plants you have purchased of me, treat them as I have directed in the article which appeared in the *Gardeners' Chronicle*, No. 37, Sept. 13, commencing at the lines "About the middle of this month." The specimens exhibited by my gardener last season in letter A, in 8-inch pots, were many of them less rather than larger than the plants I am now sending out, which, from their being well-established, will grow very rapidly under the treatment as described in the Number alluded to. Again I urge, leave the road of routine, experimentalise for yourself, and never feel satisfied with what this one says or that one does, until it accords with the result of your own experience.—*E. B.*

Rabbit Fences.—In the woodcut you have executed for "W. A. G." of my rabbit-fence, you have made the mistake which I mentioned as having occurred in your description. If you refer to the drawing I sent, you will observe that the wire is looped in as I have now shown in Fig. 1, not as you have represented it in Fig. 2.—*Q.*

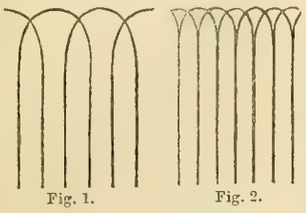


Fig. 1. Fig. 2.

Foreign Correspondence.

Ceylon, Sept. 23, 1844.—After crossing the line we got pretty close on the coast of Brazil, and I had many longings to get on shore. I dote on Brazil with all the affection of a first love, and I fear I shall never look upon her like again. Ceylon blooms as fresh and fair; but fortune has dealt out her dower with a less liberal and a much less magnificent hand. I looked out for the flying Dutchman, but could not catch a glimpse of him. He must have been on the other tack when we passed the Cape. We, however, saw abundance of albatrosses, and caught not a few with line and hook. They are birds with an enormous power and length of wing, one we measured being 11 feet from tip to tip. They swim about most gracefully in the air, seeming scarcely to move their wings. Their flight is not unlike that of a swallow. We also rid the ocean of a few sharks, a few dolphins, bonitas, and a fine large porpoise. As the ship had to call at the Mauritius to land some cargo, that gave me an opportunity of seeing something of the island, as we remained for the long period of three weeks. Unfortunately it rained heavily during the greater part of that time, and thereby I was prevented from getting so far inland as I could have wished. One of my excursions was to the tombs of Paul and Virginia, near the little village of Pamplemouses. Of course I tried to feel very romantic, but the botany of the place had greater attractions for me than the tombs. The Botanic Garden is in the neighbourhood. It contains some fine Nutmeg trees, and a number of splendid Palms; many fine old trees were pointed out to me as having been planted by Commerson, Aublet, and other French botanists, who formerly had the superintendence of the garden. It contains also a few curious plants from Madagascar, introduced by Prof. Boyer. He is Prof. of Botany in the Royal College and has charge of the Museum of Natural History. He is likewise Vice-President of the Society of Natural History. I did not exactly reach the top of the Peter Botte mountain; but I was up a good way. I did, however, gain the summit of La Pouce, which is only some 200 feet lower. On the ascent to it I made a glorious collection of Ferns and a few Orchids—terrestrial ones. The view was magnificent as one overlooks nearly the whole island. A great plain in the centre of the island surrounded by a broken chain of hills, has evidently formed at one time a vast crater filled with liquid lava; it is 8 miles broad. The town and harbour of Port Louis are both very fine; but the town, indeed I may say the whole island is quite French, notwithstanding the long time it has been in the hands of the English. The two nations there bear no good will towards each other. At Colombo, the capital of Ceylon, I saw for the first time the Cinnamon, Pitcher Plant, and the lovely Nelumbium speciosum growing wild, as also the Barringtonia speciosa. The country around is very flat, and the town not at all a fine one, the houses being much scattered and not handsome in appearance. The distance between Colombo and Kandy is 72 miles, and there is an excellent carriage-road all the way. Two coaches run daily between the two places, and they generally accomplish the journey in from 9 to 10 hours. One of the mountain passes, about 10 miles from Kandy, is very fine. Peradenia, the site of the Botanic Garden, is about 4 miles from Kandy, on the Colombo road, and is, perhaps, the most beautiful spot in the island. The garden, and a large sugar estate on the opposite side of the road, belonged to the King of Kandy, and formed the pleasure-grounds belonging to his country palace. The capitals belonging to some of the pillars of the palace now form flower-stands at the entrance to the verandah of my house. "To what base uses, &c." The Botanic Garden is most delightfully situated, and of great extent—about 120 acres. It is surrounded on three sides by a large river, and on the other is bounded by the Colombo road. It is over this river that the celebrated satin-wood bridge was put, and it is but a few gun-shots from my door. The entrance to the garden is grand beyond anything I have ever seen of the kind. On each side as you enter there is a circle of Scitamineæ and Marantaceæ, with a large Urania in the centre. In the front, a little farther on, there is a large Palm circle, the tall ones being in the centre, and those of lower growth forming the outside series.—*G.*

Societies.

BOTANICAL SOCIETY OF EDINBURGH.

Nov. 13.—This was the first meeting for the session. The President in the chair. The Chairman made a few remarks on the present state and prospects of the Society. During the past, as well as former sessions, many valuable papers had been read to them, and much interesting botanical information, especially on some of the more obscure classes of vegetables, had been brought before the public through the medium of their Reports and Transactions. In one respect only the Society had occasionally been deficient; he meant in the attendance of members at its meetings. This was owing, in great part, to the circumstance that almost all the members were professionally occupied, and, therefore, unable to give to a purely scientific Society that attendance which they were able to bestow on professional societies and meetings. During last session, they had also felt a great blank in the absence from their meetings of their former distinguished president, Dr. Graham, whose long and painful illness had, for many months previous to his death, precluded his taking any part in their proceedings. The Chairman felt it to be unnecessary in such a meeting to eulogise the character of Professor Graham. They all not only knew him to be a zealous cultivator and successful teacher of botany, but they had individually found in him a kind, upright, and sincere friend. His affable manner, conjoined with his highly honourable deportment, had procured for him the respect and esteem of all who had the pleasure of knowing him. It was a gratification to find in Dr. Graham's successor the gentleman to whose zeal and activity the Botanical Society of Edinburgh owed its origin. He congratulated Dr. Balfour on his return to his native city, and expressed the hope and expectation that in his new position he would materially support and advance the interests of the Society. S. Hailstone, Esq., F.L.S., &c., was elected a non-resident fellow. The following communications were read:—1. Contributions to the Physiology of Fecundation in Plants. By G. Dickie, M.D., Lecturer on Botany in the University and King's College of Aberdeen. 2. Remarks on some forms of Rubus. By T. Bell Salter, M.D., F.L.S., Ryde, Isle of Wight. These papers will be published in the "Annals of Natural History," and in the Society's "Transactions."—Mr. James M'Nab exhibited a specimen of silk Cotton (Bombax Ceiba), and mentioned that this substance was under trial in this city, with the view of its being employed in the manufacture of hats. Specimens of Borkhausia setosa, gathered near North Queensferry, by A. Dewar, Esq., were placed on the table.—The following donations were announced as having been received since last meeting, viz.:—Examination of the Views adopted by Liebig on the "Nutrition of Plants," by Dr. W. Seller, from the author; Koch's "Synopsis Floræ Germanicæ et Helveticæ," 2d edition, part third, also from the author; from W. C. Trevelyan, Esq., plants chiefly collected in Greece and Britain; from Dr. Fraser, Algoa Bay, a collection from the Cape of Good Hope; from A. Dewar, Esq., Dunfermline, a collection made by the late Mr. Currer on the Gold Coast, Malta, and Lisbon.

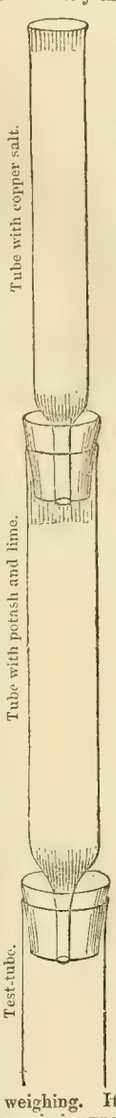
New Plants.

SCÆVOLA ATTENUATA. Attenuated-leaved Scævola. (*Half-hardy Shrub.*) Goodenoviaceæ. Pentandria Monogynia.—A shrubby plant, a native of South-west Australia, first detected and described by Mr. Brown, possessing little beauty in its mode of growth or foliage; but in June and July bearing rather copious spikes of bright, but light, blue flowers, which then give it a very pretty appearance. Our plant was reared from seeds sent by Mr. Drummond from Swan River, and probably gathered to the southward of that colony, towards King George's Sound. It is cultivated in good loam, and treated as a greenhouse plant, fully exposed to the open air and rain in the summer, and housed in a cool greenhouse during winter. It may be increased by cuttings.—*Botanical Magazine.*

SMEATHMANNIA LÆVIGATA. Smooth-stalked Smeathmannia. (*Stove Shrub.*) Passifloraceæ. Polyandria Pentagynia.—A rare and remarkable genus, consisting of upright (not climbing) shrubs, with white, scentless flowers, nearly allied to Passiflora; first made known by Mr. Brown, who described three species, S. pubescens (Sol.), distinguished by its downy branches and its broad leaves, which are very obtuse at the base, and scarcely acute at the summit; our present species, and S. media, which our learned friend remarks may perhaps be a variety of the present. Our specimens, both cultivated and native, do not entirely agree with the character of S. lævigata, for the branchlets as well as the flower-buds are evidently silky, and the urceolus of the flower is both fringed at the margin and beset with hairs on the inside. The name was given by Dr. Solander in compliment to Mr. Smeathman, an African naturalist and traveller, who detected the three species defined by Mr. Brown. This shrub constitutes a very desirable stove plant, with glossy, evergreen, almost distichous leaves, and white flowers, growing downwards, and best seen on the under side of the branches. It was introduced by the Earl of Derby through Mr. Whitfield. It requires the constant heat of the stove, and flowers freely, especially in July.—*Botanical Magazine.*

Miscellaneous.

A simple Method for determining the free and combined Ammonia and Water in Guano and other Manures.—The want of a simple, accurate, and at the same time expeditious method for determining the amount of ammonia in guano, has, I think, been felt by most chemists who have been engaged in the analysis of that manure for commercial purposes, where time necessarily becomes a matter of importance; and as the following method, which I have introduced into the laboratory of Dr. G. Wilson, Edinburgh, where several analyses of guano are daily in progress under my direction, seems to me to possess these advantages, I beg leave to place it before the notice of chemists who may be similarly circumstanced. The quantity of free ammonia in the guano is first determined, along with that of the water, by the following process:—A common test-tube, (about 5 inches long and ½ wide), is taken, and in it a determinate quantity of the guano under examination is placed; from 25 to 50 grs. will be found most convenient. To the test tube is then joined, by means of a cork, a tube of the same diameter, but only about 4 inches long, having one of its ends contracted and drawn out, so as to pass through the cork and leave a small communicating aperture for the escape of gas from the test-tube. A few fragments of asbestos are then placed in the contracted end of the tube, to prevent the aperture being choked up during the progress; and the tube is then filled with fragments of caustic potash, either alone or mixed with fragments of lime, which I prefer. To the top of this tube is then joined another tube of precisely similar construction, but being only about 3 inches long, and which, the asbestos being placed as before, is filled with coarsely-pounded sulphate, nitrate, or chloride of copper, previously well dried. A few fragments of asbestos are now placed on the top of each of these tubes, so as to prevent any of their contents falling out. The tubes are then weighed separately. The three tubes are then connected, and the test-tube which contains the guano is placed in a water-bath until all moisture has been expelled. The tubes are now disconnected, and again weighed, when the quantity of ammonia contained in the guano in a free state is directly determined by the increase of weight which it is found that the tube containing the copper salt has suffered, whilst the quantity of water is shown by the increase of weight in the tube containing the potash and lime. The quantity of combined ammonia has now to be ascertained, which is done by adding to the guano contained in the test-tube about an equal bulk of caustic lime in fine powder, and mixing well by agitation; then connecting the apparatus as before, and exposing the test-tube to a low red heat, all the ammonia is expelled and combines with the copper salt contained in the upper tube, and, as before, it is determined by direct weighing. It is very easy to judge when all the ammonia is expelled and when the operation should be concluded, as the ammonia, in combining with the copper salt, gives it, as it proceeds up the tube, a magnificent blue colour, which, when it does not extend any higher up the tube, indicates the conclusion of the operation. In the case of any other manure, where the ammonia has to be found, the operation is precisely similar to the example of guano which I have here taken. I have no doubt that with some modifications the condensation of ammonia by a salt of copper would be found of use in organic analysis for the determination of the nitrogen; and in one or two cases where I have tried it, the results closely approximated to those obtained by calculation.—*D. Forbes, Esq., in the Chemical Gazette.*



Bees.

Effect of Exposing Beehives to Hot Sunshine.—It has been mentioned that honey-combs melt when the hives are exposed to a hot sun; but as that happens but seldom, it may be worth while to relate how the catastrophe operates on the bees. Last season a friend of mine had a strong colony, in a straw hive, exposed to the sun. In July he was anxious for the bees to work in a glass on the top of the hive; the entrance being small the heat in the hive increased, so that the combs collapsed. The drenched bees turned outside the hive; while the hum of those that could not enter, caused the the affair to be observed. Being at a distance I did not see the catastrophe until the next day. Under the hive were dishes collecting the honey dropping from it, in which many of the poor bees were drenched in their treasure; while outside the hive was literally covered with bees escaping from the wreck. After a little manœuvring, I removed the hive, and part of the combs fell on the floor, crushing many of the bees. Having cleared the floor, and also the broken combs from the hive, after the honey had drained a little, the hive was placed in its former station, fenced from the sun by a cloth. The bees soon took possession again, excepting

those that happened to fall on the ground, which were in a sad plight, smeared with honey and dust. In order to relieve them I put the whole into a pail of water, then spread them on a cloth to clean themselves in the sun, which they did, excepting those that were disabled. It is unnecessary to say that if the hive had been shaded the calamity would not have happened; but before honey-combs collapse, a hive must be hot indeed. It is surprising what an amount of heat bees can stand inside their hive, even until they are drenched by the vapour from their own perspiration. In hot countries that moisture may be of use to bees; for in summer, with us, they are fond of sipping or licking it; but damp in winter causes their combs to turn mouldy, and often proves destructive to colonies.—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stoves.—Keep the temperature rather low than otherwise, that no new growth may be promoted. Much more injury is likely to result from a high temperature at this season than is generally supposed; 60° of fire heat is ample for all stove plants. Continue to look sharply after mealy-bug, scale, and other insects. This is the season more especially when stove plants can be got thoroughly clean. *Heath-house.*—Be very cautious in applying fires here; nothing so soon injures this tribe of plants as the application of artificial heat. They can bear a good deal of cold and some frost without sustaining any injury, but they cannot stand the drying influences of fire heat; very little water will now be required, especially for the large specimens, which must be very particularly examined as to dryness, previous to any application of water. Give abundance of air on all mild days to keep the plants from growing. *Forcing Pit.*—Keep the heat at 65° at night with moisture, and never neglect to fill up every corner of this useful structure, for on it the greater portion of floral display for some months depends. Get in all kinds of Dutch Bulbs, American and other flowering Shrubs, Lilies of the Valley, Heliotropes, Pinks, Roses, and, in fact, all kinds of plants which are usually forced for decorating the conservatory and drawing-room. Keep down the green fly by occasional fumigations of tobacco.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Rustic baskets and vases, planted last summer, should now have the soil taken out of them, in order to keep them from being injured by frost, and to prepare them for receiving fresh soil next spring. Fuchsias, and other half-hardy plants that have been killed down, will now require to have their roots mulched to keep the frost from injuring them. New work, if any, should be carried on during this fine weather; planting should also be gone on with. Where shrubberies are too thick, take up some of the best specimens and transplant them, and cut down inferior sorts. Continue to sweep, roll, and clean lawns, walks, &c.; and dig vacant beds, if not already done. *Pits and Frames.*—As the nights are now cold, the lights should be closed at nights, and the frames well covered with mats, and litter if required, avoiding fire-heat until it is absolutely necessary. Look carefully over plants requiring water every fine day, but avoid watering at this season in dull weather.—*B.*

III.—FLORISTS' FLOWERS.

The florist's labours, comparatively speaking, are drawing to a close for the present. His Tulips are safely planted, his Carnations and Picotees framed, and in their winter quarters; Ranunculuses are out of harm's way; Dahlias are out of the ground, labelled, and stowed away till the period arrives to start them afresh; and the chief demand on his time and attention is to give air to his plants—both to Carnations and Auriculas whenever possible. Frost is not so detrimental to either of the above hardy plants as dampness; this must be avoided as much as possible; they will want but little water, but when this is applied let it be done effectually, and in the morning. Tulips also will want covering with mats or other protection during excessive frost, though six out of every ten growers neglect this precaution, till the plants are fairly out of the ground.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—Those who have renewed their bottom-heat, preparatory to the approach of winter, must beware of extremes. In such renewals, the only safe plan is to plunge only one-third of the pot, and to add tan when necessary through the winter; at the last tanning, which may be about the end of December, the pots may generally be tanned completely over-head; and if the bottom-heat is moderate, the plants enjoy it much, and this will carry them through the rest of the winter. If the bottom-heat is about 12° in advance of the atmospheric temperature it will be sufficient. *Forcing Vinery.*—Be moderate in your advances towards "breaking" the buds; syringe morning and night, and take care that a permanent supply of atmospheric moisture is always present. If it can be so managed, a body of fermenting material is a useful adjunct in the body of the house, and this, if rightly managed, forms an excellent medium in which to plunge Roses, Figs, or Vines, in pots, intended for early forcing; or in fact anything which requires the bottom-heat to be greater than the atmospheric. *Peach-houses.*—Those who intend to force early will now be shutting up a house; the same general principles as detailed for the Vines are applicable here. If the wood has not been dressed, be sure not to start without doing so; strong soap-suds, strong Tobacco-water, and sulphur, thick as common paint, or nearly so, should be brushed into every crevice; and all the wounds left by the pruner should be carefully covered with thick paint.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Whilst the weather continues mild the operation of pruning and nailing may be continued. It is rarely the case that Peach trees are in any degree injured by being pruned before winter; such can only happen when the wood is immature, and the frost very severe. On the other hand pruning in spring when the sap is flowing has invariably a weakening effect on these trees. In heading back trees recently planted, or in shortening vigorous shoots, it is advisable not to cut too close to a bud from which it is important that a principal branch or leader should proceed; it is better to cut nearly a bud higher, and in spring a fresh cut can be made closer to the bud below. Now that the leaves have fallen inspect Apple-trees, lest any of the American blight (Aphis lanigera), has escaped former dressings; and if so, prune the trees and apply naptha to such places as are infested. *Kitchen Garden*—Take up Endive with good balls of earth, and plant in frames. Celery that is finally earthed up should be protected by straw or dry turf laid close to the tops; or, still better, thatched hurdles might be prepared and placed so as to slope over the tops of the plants. Prepare ground for new plantations of Asparagus, where such are required to be made; trench well and apply manure unsparingly, for it is found better to enrich the ground well at first than to trust to subsequent top-dressings.—*E.*

State of the Weather near London, for the week ending Nov. 27, 1845, as observed at the Horticultural Garden, Chiswick.

Nov.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	21	21	29.485	29.383	54	32	43.0	S.W.	.39
Sat.	22	☾	29.680	29.555	46	28	34.5	W.	
Sun.	23	23	29.981	29.833	43	27	35.0	W.	
Mon.	24	24	30.144	29.995	43	23	32.0	N.	
Tues.	25	25	30.021	29.937	50	35	42.5	S.W.	.06
Wed.	26	26	29.846	29.814	54	49	51.5	S.W.	
Thurs.	27	27	29.957	29.857	55	47	51.0	S.W.	
Average			29.873	29.768	49.3	35.7	41.5		.42

Nov. 21—Uniformly overcast; heavy rain
22—Clear above, hazy round the horizon; clear and frosty
23—Sharp frost; fine: very clear; frosty
24—Fine; very fine, with bright sunshine; foggy, with frost
25—Uniformly overcast; close small rain; foggy
26—Densely overcast throughout
27—Densely overcast.
Mean temperature of the week equal to the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Dec. 6, 1845.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 30	52.2	38.6	44.4	11	0.31 in.	—	1	1	2	3	6	4	2
Dec.													
Mon. 1	50.1	38.9	40.0	7	0.25	1	2	2	2	2	4	4	2
Tues. 2	46.7	36.1	41.4	10	0.51	1	2	1	1	2	6	2	4
Wed. 3	48.5	38.4	43.4	8	0.17	—	2	2	1	2	6	6	—
Thur. 4	47.2	38.3	42.7	8	0.14	2	2	—	2	3	6	3	1
Fri. 5	46.2	35.9	41.1	9	1.18	—	1	1	1	1	6	5	4
Sat. 6	46.0	35.4	40.7	12	0.30	1	1	1	1	3	7	5	—

The highest temperature during the above period occurred on the 5th, 1827—therm 65°; and the lowest on the 5th and 6th, 1841—therm. 14°.

Notices to Correspondents.

ASPARAGUS—It is better not to dig out the soil between Asparagus beds for the purpose of laying on the top till spring, as doing so exposes the extremities of the roots to frost.‖

CUCUMBERS—*An Amateur*—The mildew having made its appearance all you can do is to ascertain the state of the bottom heat, and regulate it so as not to be below 60°; and apply sulphur to the leaves, and occasionally dust a little half slaked lime into the pit.‖

EMIGRATION—*A L M*—Now that affairs appear to be settling in New Zealand, and there is a reasonable hope of the emigrants having a government of common sense, we advise you to go there. You are not, however, very likely to get an engagement in this country; unless by means of advertisements, which is doubtful. Apply for information at the New Zealand House, Broad-street, City.

EVERGREEN OAKS—*M B*—In order to prevent your large branches from coming asunder carry a strong iron hoop round them, so contrived that it will open and overlap on one side, in order to allow of its being lengthened as the branches increase in thickness. You should not allow the bark to grow over the hoops; that would be the death of them. The best thing you can introduce into the clefts is Forsyth's composition, described at p. 24, or something of that sort. A screw or bolt will do no harm here and there, but the fewer the better.

FUCHSIAS—*Rolla*—Little miserable things called Fuchsias, with a stem not thicker than a straw, are not easy to keep through winter, with such means as you seem to possess. We hope yours are not of that sort. If they are you can do nothing better than you have done, except that you must take care that they do not become over dry. Try to get them to be so obliging as to grow very early in the spring.

GRAPES.—Over-cropping and imperfect foliage in the preceding season occasion bad colouring of Grapes.‖

HEATING—*A Subscriber*—It is found that whether tanks or pipes are used for bottom heating of Cucumber-pits, the best plan is to place them in a chamber, for the formation of which slate slabs is most suited, as they neither mould nor decay, and are ultimately cheaper than wood. A two or three inch cavity in front will allow the heat to ascend to the top.‖——*Hortensis*—You can regulate the top heat from dung situated below the slate support of the soil by wooden slips over the front cavity; and as regards the bottom heat, when the dung in the chamber ferments too violently, it can be regulated by ventilators. Depth of soil 1 ft. to 18 ins. Inclination of glass 20°.‖——*R*—We hold ourselves responsible for nothing except what appears in the Leading Articles.——*J H N*—It is desirable that your flow-pipe should be 4 inch; but 3 inch will do. If your tank is merely to *hold* water it signifies little where it is, so that the water it contains shall be soft and of the average temperature of the house. If for evaporation, you had better place it in the centre of the house. But the latter is not wanted for mere greenhouse plants.——*H W*—By all means use hot water if you can. Flues should only be taken where there is no alternative. Figs will do on the back wall; Cherries not.

INSECTS—*Sub*—You may destroy the thrips on your French Beans by dusting the leaves with flowers of sulphur, letting it remain for a few days, and then giving the plants a good washing with the syringe. Or remove the plants to a close frame, and employ bruised Laurel-leaves, as mentioned at p. 749, vol. 1844.‡——*Entomologicus Junior's* letters are received, and the packet forwarded. The beetle discovered under the bark is generally found dead and in abundance. *R.*——*J W*—The Ichneumon is named Paniscus testaceus. *R.*——*C M*—The Calandra, &c., arrived safe. The Peas are infested by the maggots of Anacampsis sarcitella; vide the *Gardeners' Chronicle*, vol. 3, p. 156. *R.*

LAWNS—*W C*—You had better fill up the holes in your lawn with soil, and sow them with Grass seeds at once. The best kinds of Grass are Crested Dogstail, Meadow Poa, and Meadow Fescue, mixed with a little white Clover. Use pure soot as manure, and if the soil is very poor give it a thin dressing of guano in February. ‡

MANURE—*Amateur*—Do not think of using the liquid contents of your tank now. If you must empty it pour it over earth enough to soak it up, or on a manure heap; prevent its running away, and then use the soaked earth in the spring. If you have any soot or fine cinder dust, that is an excellent material for soaking up the fluid.——*F* inquires what results have followed the application of Allan Robinson and Co.'s prepared night-soil. Does anybody know?

MILDEW—*A Reader of your Columns*—The mildew is of the same character as that which attacks Peach-trees, Peas, Hops, and many other plants. It is a matter of doubt whether it is a perfect plant, or merely a state of a more highly organised fungus. Be this as it may, the oblong bodies which fall from the threads are in a very active state of vegetation, throwing out delicate fibres, which can with great ease penetrate the apertures by which the leaves breathe, and propagate the plant extensively. The most likely plan to arrest the disease is to have recourse to those plans which are found efficacious in the mildew of the Peach. The plants should have plenty of air, or, if this is impracticable, the house should be kept dry; a damp atmosphere facilitating very much the germination of the reproductive bodies. *M J B.*

NAMES OF PLANTS——*J Y*—Aphanes, or Alchemilla, arvensis, commonly called Parsley Piert.——*F B B*—Scirpus lacustris; it grows in swamps, and is one of the rushes used for making rush-bottomed chairs.——*A E N*—Abies rubra.¶——*E A N*—Kleinia articulata.——*C A*—1, Maxillaria picta; 2, Zygopetalum Mackaii.——*Enthusiast*—1, Hookeria lucens; 2, Polytrichum aloides; 3, Hypnum cupressiforme; 4, Pterogonum Smithii. We have named these, but we do not undertake to do so except when connected with horticulture or agriculture.§——*J Moore*—Catasetum naso.——*T Ann*—Pinus hispanica, *syn.* pyrenaica.¶

NEW PLANTS—*John Grigor*—Your Aquilegia is certainly one of extraordinary beauty. A flower now before us is upwards of 4 inches in diameter. We have often wondered that Aquilegias were not more the object of a gardener's care.

PEARS—*R C B*—A succession of Pears may consist of Citron des Carmes, Jargonelle, Williams's Bon Chretien, Jersey Gratioli, Fondante d'Automne, Seckel, Louise Bonne (of Jersey), Marie Louise, Aston Town, Beurré Bosc, Beurré Diel, Winter Nelis, Hacon's Incomparable, Glout Morceau, Knight's Monarch, Passe Colmar, Ne Plus Meuris, Easter Beurré, Beurré Rance, March Bergamot‖

PEAR-TREES—*T P*—You may graft the Jargonelle, Marie Louise, and Suffolk Thorn on the trees against your north wall.‖

PLANTS FOR A CONSERVATIVE WALL—*Devon*—The following may possibly suit you:—Chorozema varium and cordatum, Callistemon speciosus, lanceolatus, and viridiflorus, Metrosideros floribundus, Buddlea Lindleyana, Fabiana imbricata, Berberis trifoliata, Brugmansia sanguinea, Cestrum aurantiacum, and Lagerstrœmia indica. Of Statices, procure monopetala, Dickensonii, Reinwardtii, denudata, scoparia, sinuata, latifolia, Wilddenoviana, latifolia, and speciosa. Passiflora onychina is a pretty species, but not so well adapted for a small collection of P. kermesina.§

POTATOES—This subject is now so much exhausted that we are forced to cry, *Oh! jam satis.* For *new* facts, or really new ideas, we are sure that the public will be as thankful as ever; but in the absence of decided novelty we think the matter may as well rest for the present. May we hope that some of our kind correspondents, whose communications have not been printed, will take this hint in good part.——*J A F*—We must refer you to the endless statements that have been made in our columns, and to the last report of the Irish Commissioners, for which we have found room today. British Gum is not food.——*A Yorkshireman*—Your letter is sent to Mr. G. We have recommended Mr. Grey's method because it has been found to answer the purpose; and we feel that this is no time for trying experiments. Potatoes will not be up much the sooner for being planted now, if they are placed 6 inches deep. If you are afraid of that bury them deeper, and rake or harrow off the superfluous soil as soon as you think it safe to do so.——*A W B*—Your Potatoes are not diseased that we can see. They are merely brown on the surface, which is not uncommon.——*A Constant Reader*—Do not mind your ploughman. We had, last year, Potatoes autumn planted in roughly dry old pasture, levelled, and they did not at all suffer at 6 inches deep. If you use ridges plant rather deeper, and in the spring harrow down the crests of the ridges. If, however, you have the means of covering the ground with haulm, it will be advantageous to do so when the Potatoes begin to come nearer the surface next spring. Your own plan is not a bad one; but do not use guano, even in small quantity, so that it can come in contact with the young roots of the Potatoes; that will do far more harm than frost. We are not aware that Hawthorn berries can be economised. If pigs will eat them they may be of some use; but we suspect not much.——*A Gardener*—Much obliged; we had already come to a similar conclusion, as you will see soon. The matter has been extremely embarrassing.

PRUNING—*Enquirer*—Shorten the shoots produced by your one year planted maiden trees about one-third, cutting to a bud which points outward.‖

ROSES—*Rosa*—The iron rods for the stands we recommended, and of which you cannot think too highly, are ¼ an inch in diameter for the uprights, and ⅛ inch for the hoops. The price of 3*s.* 3*d.* is only where a good many are made, and is very low; but it is the price at which they *may* be had near London.

VINE-BORDERS—The plan you propose is good, excepting as regards the pruning of the roots, which should be carefully preserved by tying them up in bundles as you remove the soil. Slaughter-house manure should be previously well mixed, by frequent turning in compost with turfy soil.‖

MISC—*F P B M*—The vol. for 1844 may be had, price 30*s.* The previous vols. are out of print.——*R M*—You really should not trouble us with such frivolous disputes. No doubt *his* ought to be inserted before own. Tell your friend to go home and learn his grammar.——*N A Coombe*—A Providence Pine-apple, weighing 14¼ lbs., was exhibited in the Horticultural Society's rooms, Regent-street, on the 3d of Sept., 1844, by Mr. Mills, of Gunnersbury, who, we believe, also produced one weighing 15½ lbs., which was not exhibited.‡——*Sub*—Apples and Pears will keep well in boxes or close drawers, where they are little affected by vicissitudes of temperature. That this season's produce is tasteless, compared with that of last year, is a general complaint, and is, no doubt, owing to the great absence of sunlight we have experienced. You will find more information on the subject at p. 754.‡——*Inquisitor*—If you be not a gardener by trade, you cannot legally remove the bushes mentioned. We imagine that the same rule applies to box-edgings.‡——*P T O*—We believe that the oil of which the "Devoniensis" varnish is made should be boiled. A little soda will make vegetables boil a good green. Peat mould is as good as Ferns for protecting tender plants, if you use plenty of it. Pans of charcoal will not be injurious in turf-pits, with calico and asphalte coverings, during severe frosts, except to the leaves of plants, which will probably drop off. We know of no means of making the sulphur flags less unsightly. Saponaria, which is used in Italy for washing, and produces a lather, and which looks like thin slices of wood, about 1 or 2 inches diameter, is the root of Saponaria officinalis, or Soapwort.——*A Lady*—We fear there is no hope of keeping off rabbits by a broad band of sulphur-coloured Primroses, even in Kerry. It is true that Primroses and brimstone are alike in colour; but we are not aware of any other resemblance.——*W Ellis*—Little will thrive under the dripping of a Scotch Fir-tree. The common Periwinkle, the Hypericum calycinum, and Berberis aquifolium, are as likely as any. As to the blue glass, we have no experience. You had better consult Mr. Hunt's valuable statement at p. 559.——*A Constant Subscriber*—We do not know.——*J B*—The Nerii Fig is small, roundish, obovate, pale yellowish green, of first-rate quality, and adapted for pot culture.‖——*J Jackson*—The Essex Champion Pea not known.‖——*Chemical Jack*—Purple Gage and Royale Hâtive Plums; Knight's Monarch Pear.‖——*X Y*—The accelerated decay of Pears, previously over-ripe, on exposure to air and light, is not connected with the form of disease manifested in the Potato crop. It is a usual occurrence.‖——Thanks to "A. T."——*F W, Highgate*—There is nothing uncommon in the variegated Kale you sent. The degree of variegation is well known to be far from uniform as regards different sowings.‖——*Picturesque*—We will answer you privately if you will favour us with your address.

SEEDLING FLOWERS.

FUCHSIAS—*W J & Co*—Your seedling named Nonpareil will rank with the best of the light varieties—tube and sepals white, the latter slightly tinged with green; they expand freely and disclose a fine and distinct rosy purple corolla.*——*F & J D*—Your seedling makes a pretty and distinct variety; tube and sepals white, the latter having a green tinge at the terminations; they also expand well; the corolla is of a light, bright vermilion colour. It is also a profuse bloomer.*

VERBENAS—*J L*—You are not doing yourself justice in sending your seedlings so late in the season, when they are seen to a disadvantage; they appear to be good and distinct sorts. 1, very delicate pink, has a deeper vermilion rose colour in the centre of each division of the corolla, leaving the edges very light; the flowers become prettier as they fade. 2, a bright crimson rose. 3, rose vermilion, slightly variegated about the eye; these are three good flowers: we should like to see them again in the spring.*

ERRATA—In the article, "Cause of Potato Murrain," p. 785, col. *b*, line 11 from top, for "advanced" read "adverse;" and 11 lines farther down, for "direction" read "way."

**** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

The General December Meeting will be held at the Society's House in Hanover-square, on SATURDAY the 13th of December, at Eleven o'clock in the Forenoon. By order of the Council,
London, Nov. 29. JAMES HUDSON, *Sec.*

DINGLE'S HAND-DIBBLING MACHINE. — Twelve of these Machines will be exhibited at the Great Smithfield Cattle Show, on Wednesday, December 10th and following days. Two are now manufactured together to plant a double quantity, thereby effecting a great saving in labour and seed.—WILLIAM E. RENDLE & Co., Plymouth, Nov. 29.

The Agricultural Gazette.

SATURDAY, NOVEMBER 29, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Dec. 3—Agricultural Society of England.
THURSDAY, — 4—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 10—Agricultural Society of England.
THURSDAY, — 11—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Dec. 1—Usk
— 8—Darlington
— 9—Abergavenny
Dec. 11—Grove Ferry
— 12 { Wrentham / Halesworth

"The great value of Sewage Water, from its highly fertilising qualities, has long since been proved and appreciated; and the importance, in a sanatory point of view, of preserving the natural streams of the country from the pollution now caused by the discharge of the sewers, has also been much felt and insisted on. The intention therefore of the plan now proposed is to prevent the evil and obtain the benefit, thus conferring the most important advantages on the public.

"These objects are of sufficient importance to the welfare of the community to warrant their being undertaken at the public expense; but it must be satisfactory to learn that they can be effected with considerable profit, and consequently form a legitimate object of commercial enterprise. It is therefore proposed to establish a Company for carrying out this purpose. With this view a plan was long since formed, which has undergone the consideration of practical and scientific men; and the result is, that a complete scheme has been matured for conveying the Sewage Water of London, by means of a system of pumping-engines and pipes, analogous to that of the great Water Companies, and thus distributing the fertilising fluid over the land, in such manner and proportions as may be best adapted to the various kinds of field and garden cultivation."

This is the first paragraph in the lately issued prospectus of the METROPOLITAN SEWAGE MANURE COMPANY.* The evidence which has been collected in this little tract, both of the desirableness of a perfect system of Town Drainage, and of the value of the manure thus collected, is very satisfactory. The following are samples of it:—

"The condition of large rural districts in the immediate vicinity of the towns, and of the poorest districts of the towns themselves, presents a singular contrast in the nature of the agencies by which the health of the inhabitants is impaired. Within the towns, we find the houses and streets filthy, the air fetid, disease, typhus, and other epidemics, rife amongst the population; bringing, in their train, destitution and the need of pecuniary as well as medical relief; all mainly arising from the presence of the richest materials of production, the complete absence of which would, in a great measure, restore health, avert the recurrence of disease, and, if properly applied, would promote abundance, cheapen food, and increase the demand for beneficial labour. Outside the afflicted districts, and at a short distance from them, as in the adjacent rural districts, we find the aspect of the country poor and thinly clad with vegetation, except rushes and plants, favoured by a superabundance of moisture; the crops meagre, the labouring agricultural population few, and afflicted with rheumatism and other maladies, arising from damp and an excess of water, which, if removed, would relieve them from a cause of disease, and the land from an impediment to production; and, if conveyed for the use of the town population, would give that population the element of which they stand in peculiar need, as a means to relieve them from that which is their own cause of depression, and return it for use to the land as a means of the highest fertility."—*Poor-law Commissioners.*

"As, indeed, the geologists of the present day cite, as a proof of the ignorance or neglect of their predecessors, that the stone required for the fortifications at Gibraltar was brought out from England, when it might have been obtained upon the very spot; so I conceive our descendants will marvel at the inattention to chemical science evinced by the present generation of farmers, in importing from distant regions (such as South America), substitutes, and those perhaps but imperfect ones, for that fertilising material, of which the greater part is allowed to deposit itself unprofitably in the beds of our rivers."—*Dr. Daubeny.*

"Some of the meadows irrigated by the Sewage Water of Milan yield a net rent of 21*l.* per *tornatura* (a measure of 10,000 square metres, equal to about two acres and a half), besides a land-tax of 61 francs 10 cents, the expenses of administration, repairs of buildings, &c. These meadows are mowed in November, January, March, and April, for stable feeding; in June, July, and August they yield three crops of hay for the winter; and in September they furnish an abundant pasture for the cattle, till the beginning of the winter irrigation."—*Health of Towns Commission.*

By an experiment made last season, on a portion of meadow in Lancashire, applying at the rate of 15 tons of farmyard manure per acre, and 3 cwt. of guano to another equal portion, their effects were found to be inferior to the 8 tons of Sewer Water applied to a similar extent of ground.

	£	s.	d.
Cost of manuring one acre with Sewer Water .	0	12	9
Ditto with Guano, 2½ cwt. at 8*s.* . .	1	0	0
Ditto with farmyard manure, 15 tons, at 4*s.* .	3	0	0
Sewer Water is cheaper than Guano . .	0	7	3
Ditto than farmyard manure . . .	2	7	3
Ditto than the average of the two . .	1	7	3
Cost of manuring one acre with Sewer Water .	0	16	6
Ditto with Guano, 5 cwt. at 8*s.* . . .	2	0	0
Ditto with farmyard manure, 30 tons at 4*s.* .	6	0	0
Sewer Water is cheaper than Guano. . .	1	3	6
Ditto than farmyard manure . . .	5	3	6
Ditto than the average of the two . .	3	3	6

—*Mr. Smith, of Deanston.*

One of the most striking instances, however, of the value of sewage manure is that which has long been exhibited in certain meadows near Edinburgh, of which the following description is given in Mr. STEPHEN'S work on Irrigation.

"Edinburgh has many advantages over many of her sister cities; and the large supply of excellent spring water is one of the greatest blessings to her inhabitants, both in respect to household purposes, and in keeping the streets clean, and lastly in irrigating the extensive meadows situated below the town, by the rich stuff which it carries along in a state of semi-solution, where the art of man, with the common-sewer water, has made sand-hillocks produce riches far superior to anything of the kind in the kingdom or in any country. By this water about 150 acres of grass land, laid into catch-work beds, is irrigated, whereof upwards of 100 belong to W. H. MILLER, Esq., of Craigintinny, and the remainder to the EARLS of HADDINGTON and MORAY, the heirs of the late SIR JAMES MONTGOMERY, and some small patches to other proprietors. The meadows belonging to the last-mentioned noblemen, and part of the Craigintinny meadows, or what is called the Old Meadows, containing about 50 acres, have been irrigated for nearly a century; they are by far the most valuable, on account of the long and continual accumulation of the rich sediment left by the water; indeed, the water is so very rich, that the proprietors of the meadows lying nearest to the town have found it advisable to carry the common sewer through deep ponds, where the water deposits part of the superfluous manure before it is carried over the ground. Although the formation is irregular, and the management very imperfect, the effect of the water is astonishing; they produce crops of Grass not to be equalled, being cut from four to six times a year, and given green to milch cows. The Grass is let every year by public auction, in small patches, from a quarter of an acre and upwards, which generally brings from 24*l.* to 30*l* per acre. This year (1826) part of the Earl of MORAY'S meadow gave as high as 57*l.* per acre."

This is abundant evidence, we think, of the profitableness of this undertaking. We learn from the prospectus that it is proposed to raise a capital of 300,000*l.* in 15,000 shares of 20*l.*, and that the operations of the Company will, in the first instance, be confined to

"The drainage of the District comprised by the King's Scholars' Pond, and Ranelagh Sewers, with the concurrence of the Commissioners, who have evinced the most cordial disposition to facilitate the objects of the Company. The contents of these sewers will be raised by powerful steam engines, and distributed by pipes over an extent of sixty square miles through the gardening and agricultural districts to the westward. Another important feature of this undertaking will be the application of the manure to poor and waste lands, which will be thereby rendered abundantly productive with great profit to the cultivators."

We strongly recommend our readers to obtain this prospectus and read it for themselves. The success of the undertaking proposed in it is both desirable and probable.

* Temporary Office, 5, Berners-street.

FENCES.—No. IV.

THE size of fences is, in a great measure, determined by the geological character of the country. On the clay deposits we find the hedge considerably wider than on the rocky or sandy formations, and always accompanied by a ditch varying in width from 3 to 6 feet. Quickset hedges are almost the universal fence in England—stone walls are prevalent in the Oolite district, but not exclusively so. They are the cheapest fence where their materials are at hand, but they do not afford so much shelter to stock as a good Thorn fence; they are not so pleasing to the eye, and whenever the stones have to be hauled they become costly. The width of land they occupy will vary from the mere line on which they are built, in pasture fields, to the same on arable land with from 1 to 2 feet on either side of it, which the plough cannot reach. A hedge properly managed as I have shown, will occupy a space, with its ditch, of from 7 to 9 feet and upwards. It must not, however, be supposed, that all the hedges that are tolerated, even in the dry and rocky districts, where stone walls are prevalent, occupy no more space than I have assigned to them in this comparison.

Many statements have lately appeared respecting the quantity of land needlessly occupied by fences; I have, in consequence, taken some pains to ascertain what is the real quantity thus occupied as far as my experience has extended. The statistics of more than 120 parishes, accurately measured, have been brought to bear upon this subject. These parishes are very widely scattered, and possess almost every variety of soil. To render the information on this subject thus accumulated, of use, it will be advisable, in the first place, to arrange these parishes into groups distinguishing their geological character. The following are the averages of very many experiments as to the width of the fence in the parishes thus grouped:—

1. Red Sandstone..	10 feet.	5. Coral-rag	9½ feet.
2. Lias.....	12 ,,	6. Kimmeridge clay	11 ,,
3. Oolite	8 ,,	7. Chalk	8 ,,
4. Oxford clay	10¾ ,,		

To obtain the length of fences in all these parishes by actual measurement would have been a most laborious undertaking. I have, therefore been obliged to adopt other means. I had long remarked that a great majority of the fields into which parishes in England are divided, have acquired a similarity of figure in their general outline, and so striking did this appear to me, that I could hardly avoid speculating on the cause of such an appearance, or I may say *fact*, for I think that my observations have now gone far enough to establish it as such. From actual examination I find that of 32,506 fields occupied for agricultural purposes, more than six-sevenths are either of a rhomboidal shape, or would be converted into figures of that shape by any surveyor for the purpose of measurement. Of 32,506 fields, 27,823 were found to be rhomboidal, 978 triangular, and 3,705 other figures possessing no assignable geometrical form. This singular result led to a further examination of the subject, and, although it appeared that some of these rhomboids were nearly square, or as broad as long, and others stretched out into unusual length, yet the great majority of them were ascertained to be about one-third longer than broad. Having arrived at this conclusion it becomes as easy to calculate the quantity of land occupied by the fences of any parish or district as of a single field. But before attempting to rely on this mode of calculation, I considered it necessary to apply the test of actually measuring the length of the fences of many entire parishes, and found as I had expected, because of the angular irregularity of existing fences, that the result so calculated needed correction by the addition on an average of one-third its amount. From a rigid and careful examination of the 120 parishes, I find the following to be the average extent of the fields on the different formations:—

On the New Red Sandstone the average is 5½ acres per field.
Lias..... 4 ,,
Oolite ..... 11 ,,
Oxford Clay..... 6½ ,,
Coral-rag ..... 11 ,,
Kimmeridge Clay ..... 8 ,,
Chalk..... 13 ,,

Having thus obtained the average width of fence and size of fields in each district, we may now very readily apply our method of calculation by rhomboids. The results of such a calculation are exhibited in the following Table:—

DISTRICT.	Average size of Fields.	Length of Fencing.	Length of Fencing per acre.	Width of Fencing.	Quantity occupied by Fences per acre, including ¼ added for sinuosities.	Quantity per 100 acres.
	Acres.	Chains.	Chains.	Links	Perches	
Red Sandstone	5½	15.58	2.83	15	9.05	5⅔
Lias	4	12.9	3.22	18	12.36	7¾
Oolite	11	20.75	1.88	12	4.81	3
Oxford Clay....	6½	16.45	2.53	16	8.63	5¾
Coral-rag	11	20.75	1.88	14	5.61	3½
KimmeridgeClay	8	18.25	2.28	16½	8.06	5
Chalk	13	23.27	1.79	12	4.58	2⅞

The average portion of the above quantity, amounting in all to upwards of 250,000 acres, which is occupied by fences, amounts to 4¾ per cent. A wall, 2 feet wide, with 1 foot 3 inches on each side of it between arable fields, as on the oolite, occupies 1¾ per cent. of the district. A wall, similarly built, between pasture fields in the same district, occupies only ¾ per cent.

The above calculations do not include the strips which are often found along the sides of fences covered with brambles &c. Strictly speaking, such evidences of negligence do not form part of the fence. They are portions of land voluntarily abandoned and left to waste.

Let us now consider to what extent these fences may

be reduced in width, without diminishing their efficiency. The following Table will illustrate this point :—

—	Actual Width.	Proper Width.	Width Saved.	Length of Hedge saved.	Extent saved per 100 Acres.
	Links.	lks.	lks.	Per acre.	
1. New Red Sandstone....	15	9	6	2.83	1.7
2. Lias	18	10½	7½	3.22	2.4
3. Oolite	12	7½	4½	1.80	0.87
4. Oxford Clay	16	9½	6½	2.53	1.7
5. Coral-rag.....	14	8½	5½	1.88	1.
6. Kimmeridge Clay.....	16½	10½	6	2.28	1.37
7. Upper and Lower Chalk	12	7	5	1.79	.9

The average of the above saving is 1.4 per cent. Such a saving would increase the cultivated extent of England by 490,000 acres, which would be equivalent to the addition of a new county larger than Berkshire. *John Bravender, F. G. S.*

COW-CLUBS.

As institutions of the above description are fast spreading, and are of vast importance to cowkeepers, I have taken the liberty to send you a copy of the rules of a club held at West Hallam, in Derbyshire, with the view of obtaining the opinions of yourself or correspondents upon any one of them.—*Isaac Rowbottom, West Hallam.*

1. The club shall meet on the first Tuesday in every third month, at 7 o'clock, P.M., from Lady-day till Michaelmas, and at 6 from Michaelmas till Lady-day. The business shall be done within the space of two hours.

2. A clerk and two stewards shall be appointed who shall perform the duties of their office, without any reward, for one year, and shall give up their accounts on Easter Wednesday, and then fresh officers shall be chosen. A forfeit of 6*d.* shall be levied from the clerk or stewards for not attending at the proper time.

3. A committee of seven (members of the club) shall be chosen at Easter who shall be consulted in cases of difficulty.

4. There shall be two valuers chosen out of the society who shall personally inspect the cows belonging to the club at Easter and Michaelmas.

5. In every village, where reside three members of this society, an assistant shall be chosen who shall inspect the cows and report of their condition to the clerk or stewards.

6. A person entering a cow shall pay 12*s.*, and so in proportion for any number of cows. Calves shall be entered at the same rate as cows. A member wishing to enter any more cows (who has one in the club) shall pay 10*s.* each.

7. No cow to be entered above six years old. Calves shall not be under half a year.

8. At every Quarterly Meeting each member shall pay 1*s.* 6*d.* for each cow. For neglect of payment a member shall forfeit 3*d.* for each cow.

9. The books shall be settled on the last club night in the year.

10. Any member being more than one night in arrears shall receive no benefit if his cow die.

11. If any member's cow be ill, notice of the illness shall be given to the clerk, stewards, or assistants, who shall visit the cow, and see that the best medical assistance is obtained. If a member omit to give such notice, and the cow die, no benefit shall be had from the society.

12. If any member's cow die by anything which may happen to her, such person shall make the most money he can of the dead beast, which shall be paid to the society's funds ; if she die in calving, and the calf or calves be living, it or they shall be the property of the club.

13. In case of the death of a cow, a member shall receive her value if it does not exceed 12*l.* Not more than 12*l.* will be paid for any cow, whatever her worth may be. Calves to be paid for according to their value.

14. Any member who receives money on the death of a cow, shall give a surety for his continuance in the club for four years.

15. If a cow should die when there is not sufficient cash in hand to pay for her, each member shall advance in proportion to the number of cattle he has in the club; and when there is sufficient cash in hand the money advanced shall be returned.

16. If any member shall exchange or sell his cow, (or if she die), and buy another, he shall have that beast 14 days in his possession before he shall be entitled to any benefit from the society : except the said cow was in the club. Any cow being purchased, when in an unhealthy state, shall not be paid for, if she die.

17. If a member have a cow, which has calved, and which he shall sell, he shall not have another cow to calve within six months of the former cow's calving : at any rate the club will not allow any money if anything happen to the cow in calving.

18. If any member shall curse or swear, or give any member the lie, during club hours, he shall forfeit 6*d.* : and he who shall strike a member, or challenge him to fight, shall forfeit 2*s.* All forfeits for these offences shall be paid the first meeting after such offences, or the offenders shall be excluded the society.

19. If a member should die, and his cows (which are in the club) become the property of his successor, those cows shall not require to be entered afresh.

20. This society shall continue as long as a majority shall think fit to carry on the same.

[We shall be happy to publish any statements of fact exhibiting the usefulness of such societies. At the same time, there cannot be a doubt of the usefulness of the principle of insurance — the spreading over any society of the individual losses of its members—which is involved in them. This principle, of course, can only be fairly carried out when based upon accurate information as to the amount of risk involved. Whether or not the payments above named are sufficient to maintain the society, we cannot say ; but it appears to us that rule 15 is not unnecessary. If rule 18 be unnecessary, its adoption and publication will, we think, be of injurious tendency.]

MANAGEMENT OF MANURES.

A further consideration of the plan of the self-acting apparatus for manure tanks, which I described to you in a former letter, has enabled me to effect very considerable improvements in it, which will render it so simple and compact, that it may now be put together and placed on the spot where it is wanted by any ordinary workman. You will perceive by inspection of the plan I now send you, that I have done away with the second pillar and beam, and also the two slide valves, which it would have been difficult to keep in order in such an apparatus as this. The apparatus in its present form being complete within itself, may be made for sale like any other agricultural machine, and, when taken to the spot where it is wanted, all that is necessary to be done in fixing it, is to dig a hole by the side of the tank (which you perceive is so deep as to bury the whole apparatus, except the beam and about six inches of the three upright pipes), and place it in the position shown in the drawing ; in doing this a level should be set across the top of the upright pipes (a continuation upwards of the parts lettered C, H, and I), which will give the true current or fall for the liquid manure in the pipes below. This being done, that part of the pipe which enters the tank may be walled up, and the earth all round the apparatus well rammed down, so as to fix it securely in an upright position.

The drawing shows a sectional elevation, fig. 1, and a ground plan, fig. 2. The following is a description of the apparatus, which is made principally of cast and wrought iron :—The cast iron pipe A is connected with a brick drain leading to the outfall in the centre of the fold-yard ; the liquid manure from thence, through A, in its passage towards the tank, turns on each side of the waste pipe I (see fig. 2), which stands two inches above the bottom of the pipe A, and then flows on in the direction of the arrows, passing under the stone stopper B, down through the opening H, into the dipping-well C, which it fills, and then overflows into the exit pipe D at the side of the tank. This will be the regular course during dry weather, and the apparatus is shown in this

Fig. 1.

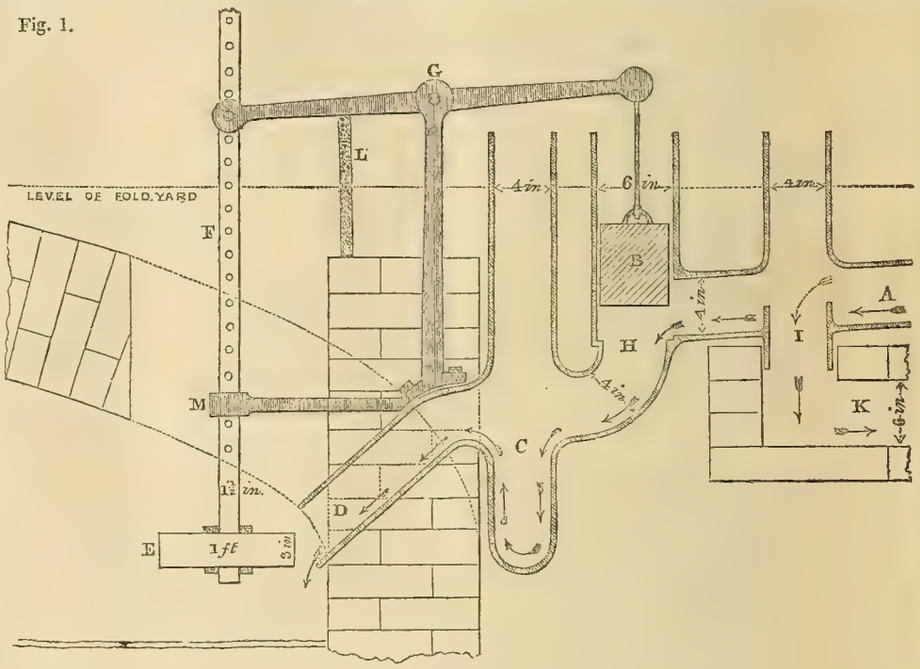
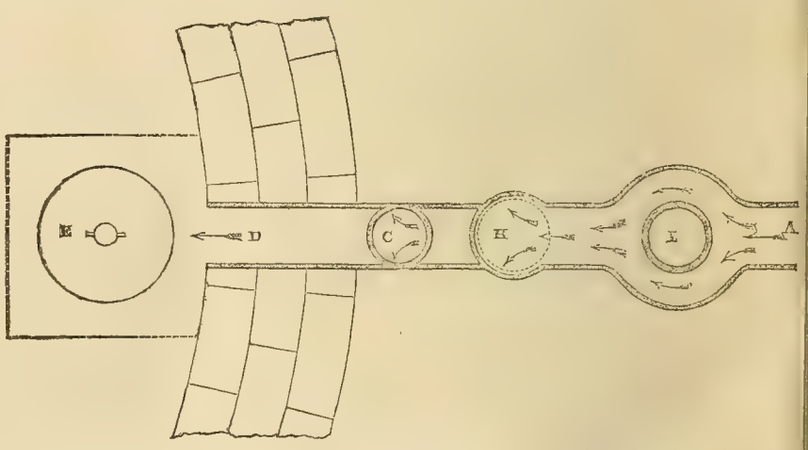


Fig. 2.



position in the drawing, and ready to act when the rain comes on. Now, when rain falls, it will go on filling the tank until it reaches the float E, which it will raise, and with it the rod F ; this rod is attached to one end of the beam G, the other end of the beam has a stone stopper B suspended from it, which falls as the float E rises, and closes the opening H. The communication with the tank being now cut off, the water from the yard becomes pent up until it flows over the edge of the waste pipe I, as shown by the dotted arrows, into the drain K, where it runs off to the nearest ditch. As soon as the rain ceases, the float is to be adjusted by propping up the end of the beam with the wooden prop L, and sliding up the rod F until the float is at the required height, when the apparatus is again ready for action. The hole in the bracket M, through which the rod slides, must be left roomy, so as to admit of its working freely up and down ; the rod is pierced with holes two inches apart, and is suspended to the beam by a pin. When the height at which the float is to be suspended above the liquid in the tank has been determined upon, so as to admit as much rain-water as will wash out the liquid manure from the undecomposed matter in the yard, say a depth of nine inches, then all that is necessary is to chalk the rod at the point of the last adjustment, and raise it seven inches ; this, with the two more that it must rise before the stopper i upon the opening H, will make the nine inches. Th wooden prop L prevents the stone stopper from bein raised higher than is necessary for the liquid to flo underneath it. The float and stopper must nearl balance, the former being rather the heaviest of th two, so as to rest lightly on the prop. The continuou line of pipe A, I, H, C, and D may be cast in one piece The pillar, beam, and bracket should be wrought iron and the stopper of tough hard stone. The whole of th apparatus should be protected from cattle and th weather ; in winter time it may be covered with litter to prevent the freezing of the liquid manure in its pas sage through the pipe ; hot water thrown down ther will clear that part of the opening H, upon which th stopper rests, and this is the only part which require any particular attention. The apparatus may be mad half the size, say 2¾-inch bore, the other parts in propor tion, for manure-tanks in gardens, &c. One of this siz will contain about half the weight of metal of the 4-inc bore pipes.—*Henry Liddell, Beverley-road, Hul Nov.* 7.

FIFTH REPORT OF THE IRISH COMMISSIONERS.

Board Room, Royal Dublin Society,
12th November, 1845.

My Lord—Having been requested to submit to your Excellency a detailed description of the methods which we propose should be employed under the authority of the Government for utilising the diseased Potatoes, and rendering available to the people all that may remain of the substance fit for food, we have to report as follows:—

We have mentioned to your Excellency, in a previous report, that our early chemical investigations led us to the recognition of two important facts—1stly, that by the action of water, the diseased parts of the Potatoes were capable of being wholly removed: and 2ndly, the pulpy material which remains is rich in the most valuable elements of food. Upon these principles are founded the process by which we propose to render the bad Potatoes useful for wholesome food. The simplicity of their practical working has been approved by the judgment of persons of practical experience, from whose co-operation we have derived very considerable advantage.

The Potatoes which we suppose to be employed in the following processes are such as being in great part, or deeply infected with the disease, present an appearance too repulsive to allow of their being used directly for human food, and do not admit of the diseased parts being peeled off previous to cooking without the sacrifice of a large portion of their substance. In such condition we propose that the Potatoes should be first washed from adherent dirt; this is very easily effected when the quantity operated on is not very large, by the means everywhere adopted in the farm-house or cottage. But when, as in Government establishments, Poor Law Unions, or other places, it might be desirable to carry on the operations on a greater scale, it would be proper to wash the Potatoes by placing them in a cylindrical vessel formed of wooden bars, and working partially immersed in a vessel of water. This mode which is adopted in all well-conducted factories, for such purposes, will clean a large quantity of Potatoes in a very short time.

The cleaned Potatoes are next to be grated down by some one or other of the machines adapted for that operation. We have had occasion to direct the attention of Government to certain forms of these machines which we consider best suited to the object among those exhibited to the Royal Agricultural Improvement Society, and the Royal Dublin Society. The size and structure of the machine, of course, will differ, according as it is destined for cottage or for farm use, or for employment in extensive operations; but in every case the machine derives great simplification from the fact that the processes we recommend do not involve the separating of starch, but only the breaking down the structure of the Potato, hence the pulp need not be so fine as if starch were to be extracted, and, consequently, the graters may be stronger and rougher; hence, also, the complex and expensive arrangement of sieves and cloths for separating starch are altogether dispensed with, the machine being reduced to the mere condition of a hopper, to hold the Potatoes upon the grater, the grater itself, and a barrel, into which the broken-down substance may be delivered.

When the Potato has thus been obtained in the form of a pulpy mass, it is to be washed with water; the diseased portions of tissue, and all the peculiar substances produced by the disease, are, in great part, dissolved by the water, and render it thick and slimy, and dark reddish brown coloured; this is to be again poured off, and more water poured on, agitated moderately, and when the pulpy mass has subsided, this second liquid is to be poured off also. In general, the second washing will fully cleanse out the diseased portion, but if necessary a third water may be used; in this way all that part of the Potato that might prove injurious may be washed out, and the residue that settles at the bottom of the vessel is to be used as food in the way described below.

It is to be remarked that by much or continued washing, the starch, which it is our object to leave in the pulp, and which, in fact, must remain in the pulp to produce the article of food that we propose to employ, may be washed out, and such washing out is the process by which Potato starch is commonly prepared; it is, therefore, indispensable that the washing should be so managed as to suffice to remove the light and partly soluble diseased matter, but not enough to take out any quantity of the denser or insoluble starch. This is, in practice, perfectly easy; once performing the operation will fully show the point at which the washing, when properly conducted, should be arrested.

When the pulp substance of the Potato has settled down at the bottom of the vessel, it will form a mass which, on examination, will be found usually not to be quite the same all through. If the washing the dirt from the Potatoes had not been thoroughly well done, there may be found at the bottom of the mass some grit, sand, or clay, which can then be perfectly removed; at the top of the mass there will be found a quantity of starch, which has been loosened from the broken-down tissue of the Potato; any grit, or clay, having been removed, the wet pulp, with its adhering starch, is to be put into a vessel, where it may be mixed with a quantity of oatmeal, in such proportions that the pulpy mass, when dried, should be two parts to one of oatmeal, this will be obtained by taking three parts of the moist pulp; the dry oatmeal and wet pulp, mixed well into a doughy mass, is to be then flattened into a cake, and heated upon a plate or floor, so that they shall be at once dried and baked thoroughly.

The drying and baking process can be carried on in a cottage or farm-house, with complete success and facility. In large establishments, the plan which we propose to be applied, consists in the formation of a plate-iron floor, heated by one or two fires, the flues from which should circulate under the plates, and bring every part to the proper temperature; on this floor, the cakes, which should not exceed the three-eighths of an inch in thickness, when dry, should be spread, and the drying and baking will proceed with ease and rapidity.

There will be then obtained from the diseased Potatoes an article of food, which, from the number of trials, and from its constitution, we do consider may be relied upon as wholesome, nutritive, and capable of being preserved for any length of time. This nutritious matter is well adapted for food, and may be preserved without being mixed with Oatmeal; it forms a matter which, when dried and ground, is very similar in appearance and taste to Oatmeal, although not so rich in nutritious matter as the latter. In this ground form it may be kept like ordinary meal, and be converted into bread, soups, or stirabout, in the cottages of the poor.

Your Excellency will remark that even when the bread is at once made, the process consists of five operations, all of the simplest kind, and but one of these requiring the aid of fire.

1st. Washing the Potatoes.
2d. Grating them down to pulp.
3d. Washing the pulpy mass.
4th. Stirring in the Oatmeal.
5th. Baking the cakes.

The only machinery necessary in the cottage or farm-house is a grater, a tub or bucket, and a griddle. In the large manufacturing establishments, or Poor-law Unions, of course, a more mechanical arrangement is desirable; but even then the process is one of extreme simplicity. The instruments are—

1st. A hollow revolving cylinder to wash the Potatoes.
2d. A grating machine for reducing them to pulp.
3d. Barrels or vats for washing the pulp.
4th. A floor for mixing pulp and Oatmeal.
5th. A heated floor or oven for baking the cakes.

As it will, for many reasons, be desirable frequently to manufacture the Potato-meal, which we have described, without mixing it with Oatmeal, or baking it, the above processes will, in such cases, be reduced and simplified.

We have attached to this report a brief statement, in the form of directions, for the use of cottiers or farmers, of how the process is to be carried on on a small scale. Such is the plan that we have the honour to propose for the utilisation of diseased Potatoes, and which we submit for your Excellency's judgment. We believe it to be the cheapest, simplest, and most certain process by which that vegetable may be rescued from destruction, which now, in great part, threatens it, and its valuable nutritious material placed in a form where it may be preserved by the people for food without being liable to loss or deterioration.

Several processes for converting diseased Potatoes into food have been placed under our notice, either by the parties themselves proposing them, or by Her Majesty's Government, to whom they had been transmitted. We have carefully examined their respective merits, and we do not consider any of them to possess the necessary qualities for adapting them to the actual circumstances of this country. Of these plans there are, however, two, which, as they approach somewhat to the character of the material we propose to be employed, we feel that we should expressly give our reasons for not recommending them to your Excellency.

The first of these plans consists in boiling the Potatoes, after cutting out the diseased portions, and afterwards drying the boiled mass by the application of heat, and preserving the dried mass in air-tight canisters or barrels.

The second plan consists in steaming the Potatoes after they are peeled, with or without the diseased parts being cut out, and ramming down the Potatoes thus softened into air-tight barrels, and closing them with air-tight lids.

Both these plans may be made to succeed, and the materials produced by their operation form an agreeable and useful food. But, at the same time, your Excellency is aware that the advantages of such processes must depend upon their simplicity, and their adaptation to the circumstances of this country. The first of these plans differs from the second, in requiring twice the expenditure of fuel required either in the second plan, or that which we have proposed to your Excellency. And it also differs from both by the waste caused in cutting out the diseased parts, which, if they are at all to be economised, must be exposed to the tedious and expensive processes of making starch, with the loss of the nutritious pulp still undestroyed. In the process of steaming Potatoes it is proposed to preserve the diseased parts, which is objectionable, not only from the appearance given to the prepared part, but also from other reasons to which we have, on former occasions, directed your Excellency's attention.

Both the plans under consideration involve a feature which we consider quite sufficient to prevent their general adoption, namely, the necessity for large and costly air-tight vessels to preserve the Potatoes mashed in the manner proposed. Unless the products are preserved in tight vessels, well secured from air and moisture, they cannot be preserved in the manner indicated. The immense expense which would necessarily be incurred in applying such methods to the produce of the entire country is sufficient, in our opinion, to prevent their general adoption.

The plan which we have recommended to your Excellency unites the advantages of the previous plans, and, at the same time, introduces simplicity into the processes, with a less expenditure of labour and fuel, with a machinery certainly equally cheap, and with facilities of application much more universal. In offering a plan for converting all the nutriment existing in the diseased Potato, into the form of a nutritious meal, as capable of preservation as ordinary meal or flour, your Excellency will perceive that it is highly important that the Potato, however preserved, should be capable of being converted into hot soup or stirabout, so as to compensate for the loss of hot diet to which the peasant was accustomed in the Potato. We have had practical experience that the Potato-meal, such as we have suggested, made into soup, with any such vegetables as can be procured, forms a palatable accompaniment to the Potato-bread, at an expense not exceeding one penny for five pints, and therefore within the means of the poorest peasant.

We would further lay before your Excellency, that the plan as proposed by us is equally applicable to the cottier as it is to the large establishments, for which it is mainly intended. When applied to the home of the cottier, we would suggest the circulation of the following simple directions which accompany this report.

We have the honour to be, your Excellency's obedient and faithful servants,

ROBERT KANE.
LYON PLAYFAIR.

TO THE FARMERS AND PEASANTRY OF IRELAND.

1st. The Potatoes should be well washed with water, so as to cleanse them from all dirt.

2nd. Grate down the Potatoes by means of a grater, which may be made of a piece of sheet-iron, or tin punched up into holes and fastened on a board; or a better machine may be had for four or five shillings, consisting of a cylinder of punched sheet-iron turned by the hand, with a hopper to hold the Potatoes. This grater should dip nearly half into a bucket or tub of water, into which the pulp will fall according as it is produced.

3rd. When the pulp has settled completely down, pour off the dirty reddish water, and put more fresh water on. Stir up all well together, and then let the pulp settle down again and pour off the liquor. If necessary, this is to be done again, if the liquor comes away reddish or brownish; but two washings will usually be enough to leave the pulp clean and free from the diseased parts, which all go off with the water.

4th. Recollect that the starch is not to be washed off the pulp, but only the reddish diseased stuff. The starch must be let to settle down along with the pulp, for they are both required in the food.

5th. The wet pulp is then to be taken out of the tub, and is to be freed as well as you can from water, by draining and pressing it. To every three stone weight of this wet pulp, is to be mixed one stone of oatmeal, and as much salt as you may think well. The mass is then to be rolled out into a thin cake, and this is to be baked on a griddle until it is quite dry and slightly browned on the outside.

6th. These cakes will keep for a very long time without souring or spoiling, if moderate care be taken to keep them dry. A good way is to put them on a string and hang them up to the ceiling near the fire.

7th. If you do not like to make all the Potatoes into this sort of bread, dry the pulp on the griddle without the oatmeal, and do not let it brown. You will then get the pure Potato meal, which will keep if you do not let damp get at it. This meal will serve very well for making broth and soup, and for mixing with oatmeal to make bread.

In this way almost every diseased Potato can be made into wholesome food.

Home Correspondence.

Kiln-drying Potatoes.—I have sent some Potatoes which had been unsuccessfully treated in a Hop-kiln. I consider it was because they had not been cut into parts. My idea is that if the Potato were cut into three or four pieces, and exposed to the fire in a tin screen till the cut surfaces had exuded their moisture, but were not hardened on the surface, or if the same pieces were put into an oven after drawing the bread, they might be preserved for any necessary length of time; and if done daily a great part of the crop might still be saved. I think the people would readily avail themselves of this suggestion because it could be done at home. I am quite satisfied they will not generally attempt anything which is not domestic; and upon this idea I have had some flat iron rasps made and distributed among the cottagers, in order to induce them to attempt saving the flour by seeing the apparatus always before them. I wish some manufacturer would make cheap rasps and other articles fitted to enable the poor to dry their Potatoes before their fires or in their ovens, as above described.—*A Stranger.*

The Potato Disease.—About the middle or towards the end of August I first observed that the Potatoes in the cottage allotments had turned black. One of the cottagers assured me that the day before the ground was quite white early in the morning with hoar frost. I conclude that he was deceived by the sparkling of dew-drops; for, a thermometer hanging about six feet from the ground did not indicate a temperature lower than 42°. He took up some of the tubers, and the disease was evident. As these cottagers use no artificial manures, nor much of any kind, it cannot be attributed to that cause. With respect to my own Potatoes I find that the crop is about one-third less than usual; and of the remainder one-half is diseased; chiefly the white, though the earliest were not at all affected. Those on the shallowest, and therefore driest soil, were the worst; but perhaps that might be owing to their being taken up last. Some Pink Kidneys, which appeared to be quite sound, have yielded to the disease within the last fortnight. I observed that though most of the stalks were black and dead, others remained green, and the centre of some leaves. As a report was current that they were poisonous, and that pigs had died of eating them, I considered it an error (if it were an error), which it was very important to remove. Accordingly, I had a pig put up and fed for a fortnight upon nothing but diseased Potatoes; he lived, but did not thrive. I then had them boiled; but a little salt was mixed with them, and the pig would not touch them, even though all other food was withheld for some time; but when the raw Potatoes were again given, together with a half-pint of Peas twice a day, he grew fat with as much rapidity as could be desired. Salt seems to have an injurious effect, and to accelerate the growth of the fungus, or at least the decomposition of the tubers. I immersed some in a solution of salt and chloride of lime, and found them grow worse most rapidly. The mixture of sound Potatoes with the bad ones, until the latter greatly preponderate, makes the whole available for feeding pigs, and cottagers who are fortunate enough to possess that animal have bought them of their neighbours for that purpose at sixpence per bushel; but others threw them away, or allowed them to rot upon the ground, and I was therefore desirous to show that even the worst contained something useful, which should not be lost. With this view I crushed, in a well-cleaned mortar-mill, 40 bushels of bad Potatoes, and by passing the pulp through several sieves, and washing it well, I obtained 98 lbs. of starch; but about one-third of this quantity could not be made white by repeated washings, though it had the true smell of starch, and its nature was tested by the beautiful blue of iodine; and here I must notice an error in the directions given for preparing this starch. Two washings are not sufficient to abstract the whole of it. After five or six repetitions of that process, some of the best and finest starch continued to be deposited; nor is the pulp containing the diseased fecula absolutely useless, even after the separation from the starch. It was given to the pigs mixed with the common hog's-wash, and though they wasted much of it by turning it out of the troughs, yet they ate about half. The tendency of the bad Potatoes to sprout is very remarkable. I have seen them lying on the ground with shoots four or five inches long, and with a healthy thickness, which would make them very valuable in the spring season. In every way it is evident that the root has not degenerated; for some of the sort which the late Mr. Knight raised from seed were as much affected as the oldest sorts. I have found a sprinkling of quick-lime arrest the growth of the fungus, except where the decomposition of its substance has penetrated deep into the interior of the tuber. Immersion in water acidulated with sulphuric acid produced the same effect, and preserves in a remarkable way the white colour of the cut surface of the Potato; but with this treatment it does not boil well for the table. —*L. Vernon Harcourt.*——In the multitude of counsel that has been given respecting the Potato disease, I do not remember seeing the recommendation of what appears to me the most simple method of preserving Potatoes, and that is, dry turf-ashes, of which every Irish cabin affords a supply. Every Potato being surrounded with ashes, its moisture is readily absorbed, the oxidising effect of the atmosphere kept off, and thus fermentation and decomposition prevented. The danger of putting Potatoes away in pits in the usual way arises, in my opinion, not from the disposition of the disease to spread, but from the facts that diseased Potatoes contain an excess of moisture, and the surface of the roots being affected, carbonic acid and other gases are readily given off, and fermentation and decay soon follow. What is wanted, therefore, is not only to preserve the Potatoes from any additional moisture, but to surround them with that which will readily absorb that which escapes from them. Powdered charcoal presents itself as the best material, when it can be obtained, and will be useful for manure when its first purpose is served; and next to this, charred sawdust or wood-peat, or coal-ashes. Simple sawdust contains a very great per centage of water. Dry earth at this time of the year is not to be obtained, and powdered lime is often difficult for the Irish peasant to procure, but dry turf-ashes are always at hand. Allow me to suggest, at

the same time, the propriety of every poor family laying in a store of Swede Turnips for the approaching winter, which will always afford a wholesome dish of vegetables, and in some measure supply the want of Potatoes.—*W. C. Spooner.*

Diseased Potatoes, to render Eatable.—Perhaps it is not generally known that Potatoes boiled and then roasted or fried over a common gridiron turn out to be quite fit to eat, the diseased parts being as good as the rest. I am not aware of the cause of this extraordinary change, but I am sure it can be satisfactorily explained by some of your readers.—*Senex, Armagh, Nov.* 20. [We presume that in the act of boiling the diseased matter, which is soluble, is removed.]

Paring Potatoes.—There is a very great loss in the present way of performing this operation. I caused a tidy woman to pare a pound of Potatoes, and they lost 4 ounces. I then got her to rasp them clean with a common grater, and they lost 2 ounces, but the eyes were to be picked out.—*P. P.*

Sprinkling Potatoes with Pyroligneous Acid, and Stacking them in the open air among Peat or Turf.—Are you aware of any experiment having been made as to the effect of pitting diseased Potatoes in layers of only one Potato deep, amongst peat or turf, in the open air? The astringent and antiseptic properties of the peat might be rendered more active and effective by the use of pyroligneous acid, with which the Potatoes might be sprinkled from a watering-pan, or in which they might be immersed. If such a process were found to arrest the decay in an early stage, then it is not unlikely that at the very beginning of the season—that is, immediately on their being taken up from the ground—Potatoes with the first symptoms of decay might, in a future year, be saved by being simply pitted among peat. Pyroligneous acid is prepared in great quantities in Scotland from the spray of Oak, Ash, Birch, and Alder, for the use of bleachers, and for other purposes. If it were found effectual in preserving even the seed Potatoes, a great point would be gained. Peat is not only an astringent and antiseptic substance, so far as its virtues extend, but it must be an excellent bedding for all bulbous and tuberous roots, as imbibing all superfluous moisture that may exude from them, and at the same time maintaining their natural and proper juices, against evaporation. Potatoes embedded in layers of one deep, with peat 4 inches thick above and below each layer, could never be too dry or too wet. It is of peat from the upper and drier part of a bag, half pulverised, and such as is rejected as inferior fuel, that I speak, and of pitting or stacking upon dry ground in the open air. I should also be glad to know whether the experiment has been tried by pitting among fresh tanners'-bark? because, if this were to succeed with decaying Potatoes, we might again be justified in hoping something from peat, if resorted to at the very first.—*R. Carr, Dunston-hill, Durham.*

Storing Potatoes.—The following simple plan has proved as yet to be effective:—Two rows of common sheep's bars were fixed in the ground at 6 or 8 feet apart, and the Potatoes laid in between them, the space being completely filled. They were then thoroughly thatched on the top so as to keep out the rain. The sides were not closed up, except by having broom loosely laid against the bars to prevent the Potatoes from falling through, but in no way to prevent the free circulation of air: upon the severe frost setting in on the 20th, another row of bars was put up at a foot distance from the others, and the space between filled with straw to keep out frost. The Potatoes were raised in the end of October, and about 15 cart-loads were put together. They grew in very wet land, and were taken up on a showery day, covered with mud, and a great proportion of them affected with the disease. Upon being examined to-day, they were found completely dry, and the progress of the disease was apparently arrested. The Potatoes which I have seen there grown upon moss land have decidedly suffered the least. In one instance in my neighbourhood the disease could scarcely be noticed, when they were taken up a month ago; and on the pits being opened, only about 1 bushel in a cart-load were found affected, and these only slightly. No other soils have escaped to the same extent.—*W., Stewartry of Kirkcudbright, N. B.*

Turnip Disease.—Lord Stair, who is a most active and zealous agriculturist, had offered a premium to any tenant (in Wigtonshire) who should produce a better field of Turnips than his. His lordship's field consisted of forty acres, and of them thirteen were rotten, and the same proportion of diseased roots was found in the field of the person who competed with him. Externally the Turnips looked quite sound and healthy, and it was not till they were pulled that the defect was discovered. I heard of some instances of other Turnips being diseased, but only to a small extent; but as yet the Turnip crop has not been much looked into, and there may be more disease than we are aware of.—*M.*——Our Swedes are much affected by disease; one large grower is much alarmed, having a thousand sheep dependant upon his hitherto luxuriant-looking crop. He is my friend, and I can vouch for the truth. I have stored mine, fearful that such would be the case with those left out after so damp a season, with, to all appearance, a continuance of humidity.—*T. Fordham, Snelsmore-hill, Chieveley, near Newbury.*

The Lease.—I do not wish another of your papers to appear without retracting any harshness of expression in clauses 8, 9, 10, 11, 12, and I may add 13, of my last paper. As they stand, without reference of any kind to the subject under discussion, I agree with you that they are calculated to excite jealousy and offence, than which nothing was farther from my mind when I wrote them. My object has been, not to set man against man, but to advise each not to look solely to his own interests, for so long as that is the case neither party can be right; and any tenant farmer who will do me the favour to blot out those obnoxious clauses, and read the remainder of that and the former paper, will, I think, be satisfied of my intentions in this respect. Language calculated to excite jealousy and offence is not likely to convince, and though there is some truth in the remarks, it is better to be silent than to speak the truth in an offensive manner, and while I repeat my regret that these clauses should have gone forth in their present form, perhaps I may be permitted to draw the attention of the reader again to the fact that they have little or no connection with the subject. This is owing to an interruption that occurred whilst writing, which broke the chain of ideas intended to have been offered for the consideration of your readers, and had these been carried out the harshness would have been materially modified by what was intended to follow, for they were introduced not with a view of maligning or giving offence to one of the most valuable classes of society, but as a kind of foundation whereon to show the various ways in which, though not a bad man, a person may be a bad tenant, as not being possessed of skill or capital sufficient, and "so be led—"his poverty and not his will consenting"—to exhaust his farm and injure (I should not have said cheat) his landlord (see clause 12), by depriving him of his rent, and exhausting the land, which, unfortunately, every one must admit does sometimes happen; and from this I had intended to draw the inference that it was necessary for the landlord's protection to insert covenants in leases, or annual agreements, as to how the land should be cropped, &c., so as to obviate this evil, as far as may be, without too rigidly tying up a tenant from using a sound discretion; which part of the subject, from that accidental interruption, was wholly omitted, and thus these unfortunate clauses were left without any connexion with the subject, or anything to explain or qualify their apparent severity. It is evident from clauses 9 and 10 that I wrote only of the characters of the respective parties of landlord and tenant, and not as man and man; and in using the argument I intended I ought to have qualified it by saying that as there are more tenants in the world than landlords, it is quite possible that there may be more good tenants than landlords, and more bad ones at the same time; or at all events to state plainly, as I have now done, that I did not intend to refer to the characters of either party, except in the limited sense just mentioned.—*A Looker-on.*

Suggestions to Landlords.—I read the leading article in the *Agricultural Gazette* of Nov. 15 with close attention, and shall be gratified to see the subject of it still further enlarged upon by men who, like the writer of that paper, can place it in a proper light before those who have it in their power to remedy a great portion of the evils complained of. I believe it to be a subject demanding the serious consideration of landlords, and am glad to find there are others as well as myself who do not attribute the imperfect cultivation of land (more of which has come under their notice than mine) so much to a want of judgment and capital amongst tenant farmers, as to the uncertainty of their tenure, and the want of security for their outlay in the event of their leaving their farms. I know of a few who are so situated that a spirited outlay would be a reckless speculation, in which the chances would be infinitely against them; and as a too parsimonious system of farming is sure to prove unprofitable, men so circumstanced need more than an ordinary degree of prudence and judgment. Still it is difficult to suggest to landlords recognisable principles on which to let their farms so as to secure the liberal treatment of the land, to render its productiveness equal to its capabilities, and conducive to the advantage of themselves and their tenants. With all possible deference to the opinions of practical men, I mention mine on the subject of letting and hiring farms. First: If a farm be in a bad state, and it be deemed by the owner expedient, in order to its proper cultivation, to get a fresh tenant, let him look out a practical farmer who has a sufficient capital (say a thousand pounds for every hundred acres), and put on the rent that the farm will be worth when it is "up to the mark," securing him in the possession of it for seven years, leaving it at the option of the tenant at the expiration of that term to take it for seven years more, and at the expiration of that for seven more, making the ultimate period of the lease 14 years; and let the first year's rent be put at a sum according to the condition and value of the land when it is entered upon; the second year's half way between that and the fixed rent for the remainder of the term. Then let it be agreed that when the tenant leaves the farm he shall be paid the full price for all labour on the land after his last harvest, for the straw of the last crop, and for all manure in the mixings and yards. This gives the present tenant a fair start, raises the value of the farm, and secures the landlord from having his land "run out" at the close of the term. Second: If a farm is in a middling state of cultivation, still below its capabilities, and what the landlord wishes it to be, the reduction of rent should be for one year, other parts of the agreement being the same as above. Lastly: If a farm is in a proper state of productiveness, pity a landlord should wish for a new tenant. If it be deemed by him needful to make an alteration in his rent or terms (which in most cases had need enough be made in favour of the tenant), let him always give the occupant the preference, and not hastily throw him out of his employment and his home. But if this step be deemed, on any account, indispensable, let him be encouraged by the promise of full remuneration for labour performed on the land after harvest, and for straw and manure left (for which the incoming tenant under these circumstances must be made to pay), to leave the farm fit to be entered upon without the necessity of the landlord submitting to those reductions in rent absolutely necessary under circumstances already mentioned. If any better arrangements than these can be devised to encourage farmers to use land which they hire as if it were their own, to secure the productiveness of the soil, and to bring good rents for good lands, I should like to see it clearly stated and universally adopted.—*J. Smeed, Bromston.*

The Plough.—I have observed in your paper repeated attempts to bring the proper construction of the plough under investigation; and trusting that any communication on that head would be agreeable, I venture to transmit this paper on the subject. I have adopted the following considerations as the basis of inquiry:—1. That the best form of plough is that which shall turn over a given furrow slice at the least possible expense of power. 2. That a plough may be regarded as a wedge, having the land side a vertical plane, and the furrow-side a twisted surface from the point of the sock to the end of the mould board. 3. That the work to be done depends principally on three fixed points on this twisted surface, the point of the sock, the extremity of the lower breadth of the section at the heel of the mould-board, which determines the breadth of the furrow slice, and the extremity of the upper breadth of said section, which lays over the furrow slice. Let these three points in the order enumerated be called A, B, and C, for the sake of future reference and conciseness. 4. That these three points are to be connected by such a system of lines composing the twisted surface as shall raise and lay over the furrow slice at the least expence of power. Now, the first question that suggests itself is this: what is the nature of the generatrix of the twisted surface? For this surface may be supposed to be generated by a straight or curved line, moving parallel to the horizontal plane, with one end moving along the head of the plough supposed to be given, and the other end passing through B and C successively. The character of the line connecting B and C is already determined by the nature of the work to be done; for it corresponds to the perpendicular section of the surface of the furrow slice when completely laid over and at rest. These two lines, therefore, the land edge of the head of the plough, and the line connecting B and C, are the directrices of the twisted surface composing the mould board. The character of the generatrix remains now to be determined.

In order to determine this, let us assume the point of the sock as the origin of the co-ordinate axes making the sole of the plough coincide with the plane of xy, and the land-side with the plane of xz. Then the equations of the points A, B and C will be the following:—

of A, $x = o$, $y = o$, $z = o$.
of B, $x = a$, $y = b$, $z = o$.
of C, $x = a$, $y = b$, $z = c$.

where B and C are both supposed to lie in a plane parallel to that of yz. It is plain that the twisted surface must pass through these points. This surface will be generally represented by the equation $\varphi(x, y, z.) = o$; and it is the particular form of this equation that remains to be determined from the conditions of the problem. To do this in the simplest manner, let us consider a section of the surface taken at the height z' and parallel to the plane of xy. For this the general equation of the surface becomes $\varphi(x, y, z') = o$, where z' is now constant, and from which we obtain the equation of the section $y = \psi(x)$. We have now to determine the form of the function ψ such, that when x becomes equal to a given magnitude, the resistance upon $s\delta z$ may be the least possible; the resistance acting along the whole length of s. The resistance upon an elementary portion of the line s, is analytically represented by $\frac{dy}{ds}\delta y = \frac{dy}{\sqrt{dx^2 + dy^2}}\delta y$; and hence the whole resistance upon the elementary section $s\delta z$ will be $\delta z \int_{x=a_1}^{x=a_2} \frac{dy^2}{\sqrt{dx^2 + dy^2}}$; which must be a minimum by the nature of the question. As δz does not affect the quantity under the sign of integration, and may be regarded as constant in this part of the inquiry, we shall suppose the quantity divided by it when $\int_{x=a_1}^{x=a_2} \frac{dy^2}{\sqrt{dx^2 + dy^2}}$ = minimum, will simply represent a line which will be the locus of the equation of the generatrix of the twisted surface. By the known method of Maxima and Minima, we have $m^2 \frac{dx^2}{y^2} = \left(\frac{dx^2}{dy^2} + 1\right)^3$; the complete solution of which gives $\frac{dx}{dy} = \varphi : m = n$; and consequently $x = ny + r$, the equation of a straight line.

We are thus led to the conclusion, that the generatrix of the twisted surface is a straight line, moving parallel to the plane of xy, along the head of the plough, and the line joining B and C as its directrices. And this is true, independently of any particular form of head, or of the character of the line joining B and C. This result is important, as it conducts to the form of mould board that lays over the furrow slice with the least resistance. It is now manifest, that this principle must be adopted in all attempts to improve the construction of the plough. The wedge of the plough may now be said to be given in species; and experiment must determine the length of the wedge, and the definite form of head, which answer best in any particular soil. The absolute force of traction is given by the dynamometer. This is the measure of the total resistance. Now this total resistance naturally divides itself into the three portions of which it is composed, namely, the mechanical resistance on the wedge, the friction arising from the pressure of the furrow slice against the sides, and the friction on the sole of the plough dependent on its absolute weight. We might now attempt to combine these separate forces in a proper formula. But enough has been said for the present.—*X. Y. Z.*

Victoria Wheat, see p. 394, "*N. B.*," *col.* b.—On Tuesday the 17th of July last, I was favoured from you with 19 grains of Victoria Wheat, which I planted that same day; it came up quickly, and as quickly came into ear, but either from the unfavourableness of the season or from, to me, unknown causes, every ear

is, what in this part of the kingdom is called blind, that is, no grain in it; in fact, I cannot find one. And as I am on the subject of Wheat, will you excuse my giving you the result of an experiment which I have recently concluded? On the 16th of July, 1844, I planted four grains of Red Wheat in a pot; in August, I divided the plants into the number 19. In Sept. I again divided them, making 31, and in Nov. I made another and last division, and had 90 plants. All but one or two lived, and in Sept., 1845, they produced 1440 stalks or straws, the ears on many of which were blind (I believe owing to mildew); there were two pints of grain by measure wieghing 23½ oz., and by counting the number of grains in a small cup-full I reckoned there were 23,645 grains, the produce of the original four grains. I hardly know if any great practical use could be made of this wonderful power of production, but, at any rate, it might be the means of speedily multiplying any rare sort, or cottagers might thereby cover a considerable space of ground from a very small portion of seed, as children could attend to the transplanting, dividing, &c.—*George Morse, Catton Park.*

Societies.

FLAX IMPROVEMENT SOCIETY.

At the Fifth Anniversary of this Society, lately held, the report for the year was read, and we make the following extracts from it:—"Last year the statistics of Flax culture, in Ireland, showed an increase of 50 per cent. on the amount grown in the first year of the Society's existence. It is difficult to form a correct estimate of the deficiency of this year's crop; but, from information which has been derived from the best sources, it may be taken at about one-fourth less than last year, say about 28,000 tons. Although there has been thus a considerable deficit in the quantity, the value of the crop, being greatly enhanced by the scarcity of the produce, both here and on the Continent, is about equal to that of last year. At 45*l.* per ton, average, the crop of 1844 was estimated at 1,782,495*l.* Calculating the advanced price of all qualities of Flax at 12*l.* per ton, average, the value of the crop of 1845 would be 1,596,000*l.*, and, adding the value of the seed saved for all purposes, the entire amount realised in Ireland, for the Flax crop of the present year, may be estimated at 1,750,000*l.*, being about the same as last year.

"*Causes of the Deficient Crop, and Measures taken against their Recurrence.*—It was known at the period in which the importation of foreign Flax-seed for sowing takes place, that the Russian crop of seed was not only extremely deficient in quantity, but that a very small portion of it would be sufficiently good for sowing. The price of all kinds of sowing Flax-seed rose at once to a very high average; and urged by fears of the quality of the seed, and of there not being enough for the amount of land prepared, as well as the high price, which precluded many of the poorer farmers from purchasing it, large breadths of land, intended for Flax, were sown with grain. Some unprincipled individuals, in the hope of realising large profits, had recourse to fraud, by making up old, inferior, crushing seed, in packages, similar to those in which good seed is imported, and imposing it on the market as genuine Riga sowing Flax-seed, of the importation of 1844. Unfortunately a large quantity of this inferior seed passed into the hands of the farmers, before your committee, or the public, were aware of the existence or extent of the fraud. Having been soon informed of this nefarious system, they publicly offered a reward for such further information as would lead to the exposure of the parties engaged in it. They also took the opinion of counsel on the liability of dealers to be sued by farmers for the loss which they suffer from such fraud; and this opinion they had published widely and circulated. As the report of these fraudulent practices had then got abroad, a panic arose among the farmers, and, to a great extent, stopped the further sowing of Flax-seed. Those who had purchased inferior seed found that very little of it would vegetate, or, that it grew so short, that they were obliged to plough it up, and occupy the land with some other crop. Three farmers who had thus suffered, applied to your committee for advice, and were advised to put their case in the hands of an attorney, and to sue the parties from whom they had obtained the seed, for the estimated value of a good crop of Flax, grown on the same quantity of ground. They hoped that if these cases were pushed to a successful issue, they would serve as precedents, which would be of great value in determining the extent to which dealers were liable by law for the results of their dishonesty. Although these cases did not eventually come forward, your committee feel much gratification in stating, that in consequence of the steps taken under their directions, the defendants, rather than let the cases be made public, paid these farmers the full amount for which they claimed, and which was upwards of 16*l.* per acre to each individual, for the produce of a Riga barrel, with the estimated costs.

"*Saving of Flax-seed for Sowing.*—The saving of Flax-seed for feeding cattle or to be sold for the oil mills, has always been urged by the society, as enabling the farmer to realise a value of from 3*l.* to 4*l.* per acre, which was formerly, and even yet is, in many instances, thrown away. Under the instruction of the agriculturists, this practice has been yearly gaining ground; and a very large quantity of the Flax-seed crop is now saved, for the purposes before-mentioned. It was not, however, until the present year, that your committee could speak with confidence of the value of home-saved seed for sowing. From the experience of the last three years, they can now fairly say, that excellent crops of Flax may be grown from seed which has been saved in this country by the Courtrai method, from the growth of foreign Flax-seed. As soon as the result of the present crop confirmed them in this opinion, they circulated extensively, full instructions, recommending every Flax farmer to save a portion of his crop in this way, and thus secure for the following year fresh and genuine seed; and by this means, ensure a good crop, and rest free from any fear of fraud. By this method it would be only necessary to import as much seed from the Continent as would produce the quantity required for the next year's sowing. One-sixth of the present importation would thus suffice, and a saving be effected to the country of from 150,000*l.* to 160,000*l.* annually, now expended in foreign Flax-seed, besides the very important advantages of being rendered almost independent of foreigners for the extent of our crop of Flax, and of being secured from any chance of the failure of that crop from the use of spurious or bad seed." The following is that part of the report which alludes to the suitability of Ireland as a Flax-growing country. "Her climate and soil have already been proved to be equal to any for nourishing its growth—her hard working, but indigent labouring population, would gladly hail the great amount of employment which its preparation affords; her capacities for inter-communication, which are now being worked out, would greatly facilitate the transport of the article to the seats of consumption—while her vast, but dormant, capabilities for manufacturing industry, would be slowly, but surely developed. It would not then be too much to expect, that a wonderful increase of the linen trade would result, and that the manufacture of linen might stand in the same relation to Ireland that the manufacture of cotton has done to England; with this important difference, that whereas, in the latter case, millions are expended in foreign countries for a raw material, which our climate does not permit us to grow, in the former these millions would be expended at home, for the produce of Irish soil, the labour of Irish hands, and wealth and industry spread happiness and comfort through the land."—*Abridged from Northern Whig.*

Farmers' Clubs.

Saffron Walden: *Drainage, &c.*—At the 13th annual meeting of this Society, Mr. Palmer said—As to pipe draining, he had himself tried it; two years ago he purchased one of the tile machines for 25*l.*, which he put up at a brick kiln, and told the tenant if he set to work with it it would be an advantage to him; he did set to work—he turned out good pipes, which sold well in the neighbourhood, and since then he changed it for a machine to make three at a time. He had tried them himself, and he found that they ran exceedingly well; he had laid down pipes of an inch and a half and an inch and three-quarters, in fields which were of a gravelly and porous nature, and they had made the land perfectly sound, and he had no doubt the produce of the fields was much increased by it. He thought it was well worth the while of those landlords who had brick earth on their estates to have a machine for making the tiles. His practice always had been to find the tiles for the tenant, if he would pay for the workmanship, and he had always found them ready to act up to that; he thought this was fair between the landlord and the tenant, and a good bargain for both parties.—Mr. Pym said, the maxim which he learned when he commenced farming was to keep his land clean, dry, and in good heart; therefore he had carried out draining to some extent, and this year he had been turning his attention to a matter of great importance to light land farms—he meant that of manuring with bones dissolved in sulphuric acid. It was a very simple thing; if they had a few old casks, and sunk them in the ground, and put the bones in them, and then added the sulphuric acid, in 24 hours they would be dissolved. He gave about 4 bushels of bones an acre, and 10*s.* worth of sulphuric acid, and with this he had Swede and particularly good white Turnips after Tares. By that means they were enabled to husband their farm-yard manure, and get a crop of winter Tares before a crop of Turnips. The expense with the bones and the sulphuric acid was 24*s.* an acre; he had a quantity of bones which he bought last year, to go on with it now; and intended to weigh the Turnips thus produced against the Turnips grown from farm-yard manure.—Mr. Bramston begged to say that, occupying land of much shallower staple than that of his friend Mr. Pym, he had himself tried the same experiment with very much the same result. In comparing the result with Turnips grown after Tares, for which guano had been used, there was perhaps a small benefit in favour of guano; but the result of manuring with dissolved bones he considered to promise great benefit to agriculture, especially as he had heard from Mr. Pym the practical advantages of the system. He could not help observing that amongst the various bubbles which were now floating upon the surface of the speculating world, there seemed to be some which promised the farmer considerable benefit. He had witnessed with pleasure the formation of a society consisting of men of great capital, of much wisdom, and some of them of consummate agricultural knowledge, whose attention has been drawn to the desirableness of preventing the refuse of our great towns from being thrown away, and applying it to agricultural puposes. He was happy also to observe among the supporters of the society the names of Baring, Samuel Loyd Jones, Wm. Miles, and Smith of Deanston; and when he saw combined great capital, agricultural knowledge, and carefulness, as a guarantee that the funds would be applied judiciously, he augured well for the destinies of agriculture in this respect.—Sir J. Hansler wished to allude to the last subject touched upon by Mr. Bramston. He was connected with all the commissions of sewers in London, and he believed that it had been correctly ascertained that from the metropolis alone the quantity of soil emptied into the Thames would, in 24 hours, fill an area of 36 acres, 6 feet deep, so that the daily supply would manure nearly 3000 acres of land an inch deep. Now, when they saw ships going out for guano, he thought it behoved them to look whether they were not, in their own country, wasting those substances calculated to produce greater good to the land than any of those at present in use, and for which they had to cross the seas. Even the town of Saffron Walden, though of comparatively small extent, might, with proper pipes, be made to contribute materially towards fertilising the land in the district.—*Essex Standard.*

Reviews.

On the Domesticated Animals of the British Islands. Comprehending the Natural and Economical History of Species and Varieties; the Description of the Properties of External Form; and Observations on the Principles and Practice of Breeding. By David Low, Esq., F.R.S.E., Professor of Agriculture in the University of Edinburgh, &c. Longman, Brown, Green, and Longmans.

Professor Low has placed the agricultural world under fresh obligations, by adding another to the many valuable works with which he has already enriched its literature.

The present volume relates to a subject on which no one is better qualified to write. The classification and specification of British domestic animals has long engaged the attention of its author. To his exertions the University of Edinburgh owe the magnificent series of paintings illustrative of this subject with which its agricultural museum is adorned. The results, given in this work, of the researches necessary to the execution of these paintings exhibit to us the great number of distinct varieties of cattle and sheep which are cultivated in these islands. It is impossible to suppose that mere local peculiarities can be so influential as to render each of their breeds the most economical for the district in which it is located; and hence the importance of works, like the present, which shall enable the agriculturist to form a correct judgment as to which, among the many existing varieties, is best suited to the circumstances in which he is placed.

Professor Low has already written on this subject: three years ago he published, in two large quarto volumes, coloured lithographic prints from the paintings in his possession, of some of the more distinct breeds of the horse, ox, sheep, and hog, accompanied by descriptive notices. The present volume, excepting the occasional woodcuts which it contains, is unadorned by engravings; the several breeds and varieties that are noticed receive merely verbal descriptions, but these are very full and interesting. Prefixed to each of the six sections in this work, respectively on the horse, ox, goat, sheep, hog, and dog, are remarks on the natural history of the animals to which they refer. And to the whole an introduction has been added, of great interest, on the classification of the animal kingdom generally, and on the properties of external form, and on the principles and practice of breeding.

Our present notice of this volume must be confined to that part of it which treats of the ox, and we cannot do better than transfer to our columns a paragraph or two in which the author recapitulates the names and some of the distinctive features of the breeds which he has described.

"1. The Wild or White Forest Breed, derived from a race which formerly inhabited, in a state of liberty, the woods of the country. Remains of this remarkable race have been preserved for ages in the parks of opulent individuals, where the animals, herding and breeding exclusively one with another, retain the habits of their wild condition. In other cases, they have been reared in a state of domestication, when they assume the habits and essential characters of the common varieties.

"2. The Zetland Breed, of Scandinavian origin, inhabiting the remote islands of that name, and spreading over the Orkneys. These cattle are of diminutive size, but fatten readily, and are valued by the consumers. The females excel the cattle of the Highlands in the faculty of yielding milk.

"3. The Breeds of the Highlands of Scotland, spreading over the primary mountainous tracts of North Britain. These cattle are of small size, covered thickly with hair, hardy, and suited to a country of heaths and mountains. The finest, usually termed the West Highland Breed, are produced in the countries on the western coasts, and certain islands of the Hebrides, the smallest in the central Highlands, and the largest towards the eastern coasts, in the countries mixing with, or bordering on the plains. These hardy cattle are reared in vast numbers on the natural herbage of the mountainous country where they have been indigenous from time immemorial, and whence they are transferred at the suitable age, to be fattened in the lower country.

"4. The Welsh Breeds, somewhat exceeding in size the West Highland Breed, and, like it, suited to a country of hills and natural herbage. They have dark or orange-yellow skins, and are mostly of a black

colour. The finest are reared in the county of Pembroke, in the district of Castle-Martin.

"5. The Kerry Breed, naturalised in the mountains of Kerry, but spread over all parts of Ireland. The cattle of this breed are of small size, and of various colours, with tapering horns. They subsist on scanty food, and the females, yielding milk abundantly, are valued by the poorer inhabitants for the dairy.

"6. The Polled Angus Breed, allied, in its essential characters, to the cattle of the mountains, but increased in size by being naturalised in a country of richer herbage, where artificial food can be supplied. This breed has dark skins, and is destitute of horns. It has been greatly improved by the care of the breeders, and is reared over a considerable tract of country.

"7. The Polled Aberdeenshire Breed, of mixed origin, and reared in the lower parts of the county of Aberdeen.

"8. The Galloway Breed, inhabiting a tract of greywacké hills in the south-west of Scotland; the cattle of which are greatly valued for their hardiness, their adaptation to the purposes of the grazier, and the quality of their beef. They are carried in great numbers to the pastures of England, chiefly of Norfolk, whence they are transferred to the London and other markets. They have deep bodies, dark skins, and are destitute of horns.

"9. The Polled Suffolk Breed, cultivated, for an unknown period, in Suffolk and the adjoining districts. The individuals are of medium size, with defective forms; but the cows are admirable for the quantity of milk which they yield. The breed is losing ground continually, from the want of care of the breeders, and the effects of crossing.

"10. The Polled Irish Breed, of large size, and well suited to the dairy, but much scattered, and merging in the races with which it is crossed.

"11. The Falkland Breed of Fifeshire, apparently derived from Holland, inheriting the milching properties of the Dutch races, but now nearly extinct in the pure state.

"12. The Alderney Breed, reared in the Norman Islands of the Channel, of small size and ungainly form, with short crumpled horns, of delicate constitution, and requiring a temperate climate, but yielding a rich and finely-coloured milk. This breed is regularly imported into England, where it is kept for the luxury of the opulent, or partially employed in the regular dairies of the countries of the Chalk.

"13. The Ayrshire Breed, derived from the county of Ayr, but widely spread over the dairy districts of Scotland, and extending in considerable numbers to Ireland. This is the most numerous breed, cultivated exclusively for the dairy, in the British Islands. The individuals are of medium size, and of various colours, with short horns. They are capable of subsisting on ordinary pastures, and yield a large quantity of milk in proportion to their size and the food consumed.

"14. The Devon Breed, naturalised in the higher parts of Devonshire, on the Bristol Channel, but spreading through the lower country. These cattle have orange-yellow skins, fine tapering horns, and are of a deep red colour. They are of a light and graceful form, agile, and suited for active labour. They fatten with sufficient facility on good pastures, and in a temperate climate; but they are inferior in hardiness, and the power of subsisting on scanty herbage, to the mountain cattle of Scotland and Wales. They increase in bulk when naturalised in a lower country, so that the breed of South Devon differs in size and aspect from that of the higher lands. The females are small, and deficient in the power of yielding milk, though the milk which they afford is well-coloured and rich in cream.

"15. The Sussex Breed, a variety of the Devon, and inheriting its properties, but of larger size, and less delicate form. This breed is now undergoing great improvement, but is little sought for, for the purposes of grazing, beyond the district in which it is reared.

"16. The Glamorganshire Breed, proper to the county of that name, common to the high and low grounds, but only brought to perfection in the vale of Glamorgan. This breed possesses valuable qualities, and combines well the properties of milching and fattening; but the numbers of the improved variety are limited, and circumscribed in their diffusion by other breeds more generally cultivated.

"17. The Herefordshire Breed, greatly valued for its fattening properties, and extensively diffused, for the purposes of grazing, in the west of England. It has a remote affinity with the Devon breed, and the cows inherit the defect of the latter, in being small and imperfectly suited to the dairy.

"18. The Long-horned Breed, from time immemorial spread over Ireland and the western counties of England, still occupying a great tract of country, both in the mountains and plains, and varying in size with the fertility, natural or acquired, of the districts in which it has been naturalised. It was on the basis of this widely-spread race, that Bakewell reared the beautiful breed of Dishley, which spread over the midland counties, and extended its influence by crossing the older and coarser varieties. The Long-horned Breed is now giving rapid place to others better suited to the purposes of the breeder, the grazier, and the consumer.

"19. The Teeswater Short-horned or Durham Breed, derived immediately from the district of the Tees, and perfected by Charles and Robert Colling, in the county of Durham. This breed is believed to possess a better combination of properties than any of the larger cattle yet produced in the British Islands, is everywhere extending its limits, and superseding the pre-existing breeds, or modifying their characters by intermixture."

Our next notice of this work will refer to that part of it descriptive of the sheep.

Miscellaneous.

Exhaustion of Land by growing Wheat.—To confine ourselves to Wheat—it appears from the recent researches of Dr. H. Will that 100 parts of the earthy constituents of the grain consist of—

Potass	22 to 34 parts
Soda	16 ,,
Lime	2 to 3 ,,
Magnesia	9 to 13 ,,
Peroxide of iron	1 ,,
Phosphoric acid	49 ,,

A trace of sulphuric acid, silica, and fluorine

whilst the earthy constituents of Wheat straw contain very little phosphoric acid, but a large amount of silica. Now, it is obvious that if the farmer continually restores all the straw to his land, but neglects, from want of knowledge, or means, to replace the earthy matter of the grain, the land will be exhausted, and he cannot continue to grow Wheat upon it. Moreover, if he make an effort to maintain the fertility of the land for Wheat, he must restore to it every ingredient of which it becomes exhausted by his crop in a proper proportion. To know this proportion essential to the growth of every particular crop, he must have recourse to information supplied by Chemistry. One of the earthy constituents of Wheat enters so largely into many other crops, that the amount taken off the land everywhere is very great, and constitutes a considerable proportion of the total amount contained in ordinary land, so that the loss has already, even in the present state of science, excited attention, and aroused the efforts of the farmer to repair it. We allude to phosphoric acid. Now, the chemist has shown, that in the bones of animals a great part of this material which has been drawn from land in the growth of vegetables is to be found, stored up in a form suitable for its restoration.—*Proposal for establishing a College of Chemistry.*

Notices to Correspondents.

AGRICULTURAL STATISTICS—*J S*—The average rent of land in England is said to be 18s. 10*d.*, and that of Wales, 9s. 5*d.*; the average of England and Wales, 17s. 8*d.* The produce of Wheat in England and Wales is probably under 21 bushels per acre.

CALCULATION OF AGRICULTURAL PRODUCE BY THE WEIGHT OF A FRACTION—*Mr. Greys*—It is rarely accurate except where the fraction is large; we may shortly be able to illustrate this subject.

CARTS—If *A Subscriber* will favour us with his address, we shall shortly be able to send him working drawings of the Scotch cart. That will be the most satisfactory way of answering his question.

DANIELL'S WHITE MANURE—*J H M*—We are not acquainted with it.

DISEASE OF THE SHEEP—*G B M*—See "Spooner on the Sheep."—*Kehl-sichté*—In the absence of a more detailed account of this disease, we can do no more than recommend the following medicine to be given as soon as the animal is attacked:—Tincture of opium and spirits of nitrous ether, of each a quarter of an ounce, to be mixed with from a quarter to half a pint of olive oil. A seton may also be inserted near the throat.——*Brandt-sichté*—It is certainly essential to keep the diseased sheep apart from the sound ones, and to use the precautions you mention with regard to the places in which they are kept. And you will find further particulars in the book named above. *W C S.* [Will you be kind enough to favour us with your name and address?]

HARROW—*F P B M*—The harrow you refer to is Smith's web-harrow. Inquire of Messrs. Cottam and Hallen, Winsley-street, Oxford-street, London.

PORK—*The Inquirer* wishes to be informed by "D. M." what proportion of sugar (to salt) was used in curing the pork that always kept good for two years.

POTATO DISEASE—*E T*—We have already sown 20 acres of diseased Potato land with Wheat, nothing being done to the land but stirring it with the scarifier. That expresses our opinion of the matter; at the same time we should say that this opinion is not founded upon any precise knowledge of the matter.

POULTRY—*A Breeder of Fowls*—To make capons, see page 91 of a little but useful book—"The Poultry Yard," by Peter Boswell, Greenlaw; published in Glasgow.

SALTING PORK—Will "D. M." be obliging enough to favour "T. France, Ham-hill, near Worcester," with his name and address?

THE PAST HARVEST—*Senex*—So far as our information extends, the past harvest appears to have been generally *below* an average. But, then, it has not come into the hands of the miller and baker so early as most previous harvests have done, and will thus not have to feed us so many months. Our last week's remarks point to the propriety of correspondents supplying us with information on this subject.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, MONDAY, Nov. 24.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	2 to 4s	4	Best Downs & Half-breds	4s	8 to 5s	0
Best Short Horns	3	10	4	2	Best Long-wools	4	6	4	8
Second quality Beasts	3	0	3	8	Ewes and second quality	4	0	4	4
Calves	4	4	5	2	Pigs	3	8	5	0

Beasts, 2524; Sheep, 27,040; Calves, 83; Pigs, 300.

We have a few more Beasts in market to-day, but the demand is equal to the supply, and late prices are fully maintained; there is also a small increase in the number of Sheep, and a little depression in the trade, but lower prices are in very few instances submitted to.—Veal trade is good; the choice qualities being scarce, have made rather over our top quotations.—Pork trade continues steady.

FRIDAY, Nov. 28.

The supply of Beasts is not large, but the demand is limited, owing to a depression in the dead markets; the very best Scots, &c., of which we have not many in market, make nearly 4s 4d, but other descriptions are quite 2d per 8lbs. lower.—Mutton is not very plentiful; we have a slow trade, but do not make any less money.—Good Veal is still dear; a choice Calf being worth quite 5s.—Pork is in demand at former prices.

Beasts, 787; Sheep, 3340; Calves, 164; Pigs, 312.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 24.

We regret to state that we cannot give you a better account of the appearance of Potatoes in this market, and it is distressing to witness the immense sacrifice of property. The greater part of the fleet that arrived at the close of last week and the beginning of this, was in a very damaged state. Several cargoes were abandoned by the consignee, and many other lots were discharged that did not pay the current expenses. The saleable samples of York Reds were sold from 5s to 10s per ton; Regents, 60s to 100s per ton; superior Regents, perfectly free from the disease, 110s to 120s per ton. There is one cargo of Jersey Blues in the market, selling slowly at 75s per ton; saleable Scotch, from 10s to 80s per ton.

COVENT GARDEN, Nov. 29.—There has been little alteration in the prices of Fruit during the week; and the supply has been well kept up, except of Pine-apples, which are somewhat scarce. Pears are sufficient for the demand, and the same may be said of dessert Apples; but good sorts for kitchen use are scarce. Hothouse Grapes are brought in considerable quantity, and good samples of Portugal and other foreign sorts are also pretty plentiful; Oranges are becoming more abundant; and Nuts of all kinds are rather plentiful. The prices of most kinds of Vegetables are on the rise—a circumstance, no doubt, to be ascribed to the want of good Potatoes, which are much dearer than they were last week. Cabbages, Savoys, and Broccoli, are also dearer, though not scarcer. Brussels Sprouts and other winter greens are likewise getting up in price. Turnips and Carrots are excellent in quality and sufficient for the demand; and some excellent samples of Celery are in the market. Cauliflowers are scarcer, and, in consequence dearer. Endive, Lettuces, and other Salading, are sufficient for the demand. Cut Flowers chiefly consist of Bignonia venusta, Epiphyllums, Heaths, Heliotropes, Cinerarias, Pelargoniums, Camellias, Chinese Primroses, Chrysanthemums, Violets, and Roses.

FRUITS

Fine Apple, per lb., 4s to 6s
Grapes, Hothouse, per lb., 2s to 4s
— Spanish, per lb., 9d to 1s
— Portugal, p. lb., 9d to 1s 6d
Melons, Spanish, each, 4s to 6s
Damsons, per hf.-sv., 9s to 6s
Apples, Dess., per bush., 4s to 8s
— Kitchen, 2s 6d to 5s 6d
Pears, per hf.-sv., 6s to 12s
Oranges, per dozen, 1s to 2s
— per 100, 4s to 16s
Lemons, per dozen, 1s to 2s
— per 100, 7s to 16s
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s 6d to 3s
Walnuts, per bushel, 16s to 28s
Filberts, English, p. 100 lbs., 60s to 65s
Nuts, Cob, per 100 lbs., 65s
— Barcelona, 24s
— Brazil, 16s
— Spanish, 14s
Chesnuts, per peck, 4s to 8s

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d
— red, per doz., 2s to 3s
Brussels Sprouts, p. hf.-sv., 1s to 2s
Savoys, per doz., 9d to 1s
Cauliflowers, per doz., 2s to 6s
Broccoli, per bundle, 6d to 1s 3d
Greens, per doz. bunches, 2s to 3s 6d
French Beans, per 100, 3s to 3s 6d
Sorrel, per hf.-sieve, 6d to 9d
Artichokes, per doz., 2s to 4s
Potatoes, per cwt., 80s to 140s
— cwt., 4s to 8s
— bushel, 2s 6d to 4s 6d
— Kidney, per bushel, 3s to 5s
Turnips, per doz., 1s 6d to 2s 6d
Red Beet, per doz., 6d to 1s 6d
Carrots, per doz. bchs., 2s to 5s
Horse Radish, per bundle, 1s 6d to 5s
Seakale, per punnet, 2s to 3s
Cucumbers, each, 6d to 1s
Spinach, per sieve, 9d to 1s 6d
Leeks, per doz. bunches, 1s to 2s
Garlic, per lb., 6d to 8d
Tomatoes, per hf.-sv., 2s to 4s 6d
Celery, per bunch, 6d to 1s 6d
Cardoons, each, 6d to 9d
Parsnips, per doz., 3d to 1s
Onions, per bushel, 2s to 3s 6d
— pickling, per hf.-sv., 2s to 3s
— Spanish, per doz., 1s 6d to 5s
Shallots, per lb., 6d to 8d
Endive, per score, 6d to 1s
Lettuce, per score, Cab., 4d to 9d
— — Cos, 6d to 1s
Radishes, per doz. bunches, 1s to 1s 6d
Mushrooms, per pottle, 1s 6d to 2s 6d
Small Salads, per punnet, 2d to 3d
Fennel, per bunch, 2d to 3d
Savory, per bunch, 4d to 6d
Thyme, per bunch, 4d
Watercress, p. 12 sm. bun. 4d to 6d
Parsley, per bunch, 1d to 3d
— Roots, per bundle, 9d
Tarragon, per bunch, 4d
Mint, per bunch, 2d
Marjoram, per bunch, 4d
Chervil, per punnet, 2d to 3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Nov. 27.

Prime Mead. Hay	80s to 92s	New Hay	—s to —s	New Clr.	—s to —s
Infr. New & Rowen	65 75	Clover	94 to 115	Straw	28 32

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Nov. 27.

Prime Mead. Hay	90s to 95s	Old Clover	115s to 120s		
Inferior	70 84	Inferior do.	100 108	Straw	33s to 37s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Nov. 28.

Fine Old Hay	90s to 95s	Old Clover	120s to 126s		
Inferior Hay	— —	New Clover	105 115	Straw	28s to 33
New Hay	80 88	Infr. ,,	70 84		

MARK-LANE, MONDAY, Nov. 24.

THE supply of English Wheat by land carriage samples this morning was small, and sold readily at 1s. to 2s. per quarter advance; free foreign was inquired after, and fine Dantzic in bond, also very low qualities, the latter for export; some sales in floating cargoes were also effected.—Best Malting Barley the turn dearer, but secondary qualities very unsaleable even on lower terms.—Beans, also Maple and Dun Peas, and inferior White, are an exceedingly slow sale and rather cheaper; fine boilers maintain our late quotations.—The Oat trade has in a great measure recovered last week's depression, and prices must be noted 6*d.* to 1s. per quarter higher.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	58	67	Red	55	63
—— Norfolk, Lincolnshire, and Yorkshire	57	65	White	59	65
Barley, Malting and distilling 31s to 34s	Chevalier	33	37	Grind.	27	30
Oats, Lincolnshire and Yorkshire	Polands	27	30	Feed	27	29
—— Northumberland and Scotch	Feed	27	29	Potato	30	33
—— Irish	Feed	24	26	Potato	26	29
Malt, pale, ship	54	60				
—— Hertford and Essex	60	65				
Rye	34	37				
Beans, Mazagan, old and new	33	to 46	Tick	34	48	Harrow	36	50
—— Pigeon, Heligoland	40	to 52	Winds	40	48	Longpod	32	35
Peas, White	50	to 54	Maple	40	43	Grey	36	40

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4511 Sks. — Brls.	6927	2248	3878	6761	—	1640	1354
Irish	— ,, — ,,	330	386	50	47470	—	—	—
Foreign	20 ,, 2504 ,,	21299	3181	—	15181	—	6262	1290

FRIDAY, Nov. 28.

There was little English Wheat offering on sale this morning, and the trade is firm at Monday's prices; in free, foreign, or bonded very little doing.—Fine Malting Barley maintains our quotations, but inferior is very difficult of disposal.—New Beans are the turn lower.—Old unaltered in value.—Peas of all sorts have declined 1s. to 2s. per quarter.—The quantity of Oats offering is still considerable and the trade inactive, but late prices are fully supported where sales are effected.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	3530	10410	8660	6190 Sks
Irish	—	500	10190	—
Foreign	10970	1390	4830	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct.	18 per Quarter.	58s 2d	32s 0d	23s 5d	34s 5d	44s 5d	43s 0d
—	25	59 5	33 0	24 11	34 5	45 5	44 1
Nov.	1	60 1	34 3	26 2	33 2	45 2	43 0
—	8	59 7	35 1	25 2	35 7	45 1	44 10
—	15	58 6	35 0	26 3	38 2	44 5	45 7
—	22	57 11	34 1	25 5	37 1	43 4	45 4
6 weeks' Aggreg. Aver.		58 11	33 11	25 3	35 6	44 8	44 5
Duties on Foreign Grain		14 0	5 0	3 0	7 6	1 0	1 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 15.

Price.	Oct. 18	Oct. 25	Nov. 1	Nov. 8	Nov. 15	Nov. 22
60s 1d	..	..	..	..	..	..
59 7	..	..	..	..	..	..
— 5	..	..	..	..	..	..
58 6	..	..	..	..	..	..
— 2	..	..	..	..	..	..
57 11	..	..	..	..	..	..
— 0	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
55 6	..	..	..	..	..	..
— 3	..	..	..	..	..	..

SEEDS, Nov. 28.

Canary	per qr	54s to 60s	Linseed Cakes, Foreign, p. ton	9l to 10l
Carraway	per cwt	48 52	Mustard, White	p. bush.	—s —
Clover, Red, English	— —	— Superfine	,, — —
— Foreign	— —	— Brown	,, — —
— White, English	— —	—	Rapeseed, English, per last	28l 28l
— Foreign	— —	— Rape Cakes	per ton — —
Coriander	10 16	Saintfoin	— — —
Hempseed	per qr.	36 36	Tares, Eng. winter	p. bush.	6 7
Linseed	per qr	54 60	— Foreign	— — 4	4s6d
— Baltic	— — 42	46	Trefoil	— — per cwt	18 23
— Cakes, Eng. per 1000	12l	13l	Turnip (too variable for quotation).

KINGSFORD AND LAY.

TO GENTLEMEN, FLORISTS, AND OTHERS.
FINAL SALE OF FIRST-CLASS DUTCH BULBS AT THE AUCTION MART.

MESSRS. PROTHEROE & MORRIS respectfully announce that the last Sale of FIRST-CLASS DUTCH BULBS for the season will take place at the Auction Mart, Bartholomew-lane, on Thursday, Dec. 4, 1845, at 12 o'clock, consisting of very fine Double and Single Hyacinths, Tulips, Narcissus, Crocus, Jonquil, Anemone, Ranunculus, Iris, &c.; also a Splendid Assortment of Standard and Dwarf ROSES, comprising all the leading varieties. May be viewed the morning of Sale; and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

TO BE LET, and may be entered on immediately, a small and compact NURSERY, situate in the centre of the Manufacturing Districts. It comprises Stoves, Greenhouses, and Pits, with Gardener's House, and every other convenience. The Stoves, &c., are planted with Vines in full bearing. There is a pit 90 ft. long, heated with hot water, built within the last three years. Coals are one penny per cwt., and within half a mile of the gardens. The rent is moderate and valuation low. All particulars may be had by applying, post-paid, to W. T. L., Post-office, Wakefield.

This Advertisement will not be repeated.

TO GARDENERS AND NURSERYMEN.

TO BE LET, with immediate possession, close to a Market Town in Suffolk, a neat and comfortable DWELLING HOUSE, and to which can be added a sufficient quantity of excellent Arable Land for a productive Garden and Nursery Ground. Satisfactory references will be required.—For further particulars apply to Mr. UTTON, Brome, near Scole, Norfolk.

THE FARMERS OF GREAT BRITAIN are requested to read the pamphlet on "GYPSUM, AS A MANURE;" describing its various important uses for Agricultural purposes, with full and plain directions for its application, and containing an account of numerous cases of its surprising efficacy and cheapness.

The Pamphlet will be sent free to any part of the Kingdom, on receipt of a post-paid application (containing Three Penny Stamps), addressed to NEWTON and PECK, Hull.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25s. per ton in the stream, or 27s. 6d. per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

POTATO DISEASE.—COTTAM and HALLEN have now ready at their Agricultural and Horticultural Implement Repository, 2, Winsley-street, Oxford-street, London, POTATO PULPING MACHINES for extracting the Starch and all other parts of the Potato which remain uninjured by the disease. These Machines are highly approved of by all who have seen and used them, as being the most effectual that can be made for the purpose.

LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, Lond on

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

SMITHFIELD CATTLE SHOW.

DRAINING TILES.—At the approaching Cattle Show in Baker-street, will be shown
AINSLIE'S PATENT IMPROVEMENTS
For MAKING and DRYING Draining Tiles of the FIRST CLASS.—Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The PROCESS combines EFFECT with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. HOWE, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from JOHN AINSLIE, Alperton, Acton, Middlesex.

SMITHFIELD CATTLE SHOW.

W. SKIRVING begs to acquaint his friends and the public, that he will attend at the ensuing Smithfield Cattle Show, to exhibit roots of his IMPROVED SWEDE TURNIP, and take orders for the Seed of it, and all other approved kinds of Agricultural Seeds.

W. S. having of late years enlarged his Nursery, to an extent beyond any precedent in England, has now on hand a most extensive stock of Trees and Shrubs of every kind, and will be happy to treat with gentlemen about to plant, on the most liberal terms.—Walton Nursery, Liverpool, Nov. 29.

CAUTION.—SMITHFIELD CATTLE SHOW.

MRS. MARY WEDLAKE, widow of the late Thomas Wedlake, respectfully reminds her friends and the agriculturists generally, that she will exhibit this year SEVERAL USEFUL MACHINES, at the Horse Bazaar, Baker-street, which must attract the attention of those who are anxious to avail themselves of the assistance of first-rate finished agricultural machinery, combining utility, economy, and durability.

London Warehouse, 118, Fenchurch-st., opposite Mark-lane.

N.B.—No connection with any other house. Please to observe the name, "MARY WEDLAKE."

THE ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

CENTRAL COMMITTEE, October 6, 1845.

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Rev. THOMAS WORSLEY, M.A. Master of Downing College, Cambridge.

Editor of the Publications of the ARCHÆOLOGICAL INSTITUTE and Resident Secretary, T. HUDSON TURNER, Esq. Hon. Member Ant. Soc. of Newcastle.

THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland is formed in order to examine, preserve, and illustrate all Ancient Monuments of the History, Manners, Customs, and Arts of our Forefathers.

The means by which the Central Committee propose to effect this object are—

1. By holding communication with correspondents throughout the Kingdom, and with provincial Antiquarian or Architectural Societies; as well as by direct intercourse with the Comité des Arts et Monuments of the Ministry of Public Instruction in France, and with other Associations on the Continent instituted for the advancement of Antiquarian Science.

2. By holding frequent and regular meetings for the consideration and discussion of communications received from correspondents and other persons.

3. By procuring careful observation and preservation of Antiquities discovered in the progress of Public Works, such as railways, foundations of buildings, &c.

4. By encouraging individuals, or public bodies, in making researches and excavations, and affording them suggestions and co-operation.

5. By opposing and preventing, as far as may be practicable, any injuries with which Ancient National Monuments of every description may from time to time be threatened.

6. By using every endeavour to spread abroad a correct taste for Archæology, and a just appreciation of Monuments of Ancient Art.

7. By collecting accurate drawings, plans, and descriptions of Ancient National Monuments, and by means of correspondents preserving authentic memorials of antiquities which may from time to time be brought to light.

8. By establishing a Journal devoted exclusively to the objects of the Institute, as a means of spreading antiquarian information, and maintaining a constant communication with all persons interested in such pursuits.

9. By taking every occasion which may present itself to call the attention of the Government to the conservation of our National Monuments, and to the other objects of the Institute.

RULES AND REGULATIONS OF THE ARCHÆOLOGICAL INSTITUTE.

I. THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland shall consist of Life Members, contributing a donation of not less than 10*l.*, of Annual Members contributing not less than 1*l.* each year, and of Corresponding Members who, taking an interest in the objects of the Institute, and being disposed to give furtherance to them without any pecuniary contribution, may desire to attach themselves to the Institute. The Corresponding Members shall not be entitled to vote, nor have any other privileges.

II. The Government of the Institute shall be vested in a Central Committee, consisting of a President, four Vice-Presidents, three Honorary Secretaries, a Treasurer, and twenty-four ordinary Members.

III. The President's tenure of office shall be for one year.

IV. The Honorary Secretaries and Treasurer shall be elected by the Committee, who shall also have the power of electing a Secretary, at such a salary as they may consider proper.

V. The Election of the President, Vice-Presidents, and Members of the Central Committee shall be made by the ballot of the Life and Annual Members at the Annual Meeting. The Committee shall select one Vice-President and six members of their body, who are to go out annually, and shall nominate one Vice-President, and six other Members to fill up the vacancies. The names of those who go out, and of those who are proposed to supply their places, shall be hung up in the Local Committee Room during the whole time of the Annual Meeting, and a printed copy of such lists furnished to each Member of the Institute, with his ticket for the Annual Meeting. No Member of the Committee, except the Honorary Secretaries and Treasurer, shall remain on the Committee more than four years, or be eligible to serve again until after the lapse of one year. Any Member of the Institute is at liberty to substitute on the list other name or names for those proposed by the Committee.

VI. The Committee shall be empowered to fill up *pro tem.* by election all occasional vacancies that may be caused by the death or resignation of the President, or any of the Vice-Presidents or ordinary Members of the Committee.

VII. These vacancies shall be supplied on the recommendation of at least three Members of the Committee, made in writing at one of the ordinary Meetings; the proposed Member to be balloted for at the succeeding ordinary Meeting.

VIII. The Annual Meeting shall be holden in one of the cities or principal towns in the kingdom, at which the elections, the appointment of the place of meeting for the ensuing year, &c., shall take place. Notice of this Meeting shall be given by one of the Honorary Secretaries, by order of the Committee.

IX. The Committee shall have the power of nominating a certain number of Local Vice-Presidents.

X. No other General Meeting of the Institute shall be holden without the consent of at least three-fourths of the Committee, expressed in writing; for such Special Meeting, a notice of at least three weeks shall be given by advertisements in the public papers. At this Special Meeting, the President, or, in his absence, one of the Vice-Presidents, shall take the chair, and, in their absence, the Committee shall appoint a Chairman.

XI. Neither at the General Annual Meeting, nor at any Special General Meeting, shall any alteration of, or addition to, any of the Rules or Regulations of the Institute be submitted to the Meeting, unless upon a proposal in the form of a resolution in writing, signed by two Life or Annual Members: which shall have been sent to the Committee one month previous to the Meeting, and suspended in their committee-room.

The Summons for the Special General Meeting shall specify the Resolution or Resolutions to be submitted to the Meeting, and the discussion shall be confined to that object only: in case such proposed Resolution or Resolutions shall be carried, another Special General Meeting shall be summoned by the Committee after the lapse of not less than a fortnight, or more than a Month, for the sole purpose of ratifying or rejecting such Resolution. If, however, the first-mentioned Special Meeting take place at a tme not more than two Months before the Annual Meeting, then such Resolution or Resolutions shall be ratified or rejected at that Annual Meeting.

XII. The Chairman of the Annual, or any other General Meeting, shall have an Independent as well as a Casting Vote.

XIII. A certain number of persons, not usually resident in London, shall be associated with the Central Committee as Honorary Members of that Body, and shall be entitled to a Vote at their Meetings. Such Honorary Members shall be proposed on the recommendation of at least three Members of the Committee, and the Election shall take place at the succeeding Ordinary Meeting.

XIV. The Committee shall appoint a certain number of persons, not resident in London, as their Local Secretaries.

XV. The Election of Local Secretaries and Corresponding Members shall be made by the Committee on the proposal of one of the Members thereof, either on his own personal knowledge or on the recommendation of two subscribing Members of the Institute.

XVI. In these and all other Elections made by the Committee, it shall be allowable for any Member thereof to demand a Ballot.

XVII. Subscriptions and Donations may be paid to the Treasurer, to any Member of the Committee, or to the Account of the Archæological Institute with the Bankers of the Institute, and no Subscriber shall be entitled to Vote at the Annual Meeting who has not paid his Subscription. The Year shall be considered as closing with the termination of the Annual Meeting; from which time the Subscription for the ensuing year shall become due.

XVIII. The Cash Book, and an account of all Receipts and of the Balance in the Bankers' hands, shall be laid on the table at each Meeting of the Central Committee. All Bills having been duly examined, and approved in writing, shall be paid by Cheque upon the Bankers, signed by the Treasurer.

XIX. The Accounts of the Institute shall be submitted Annually to two Auditors, who shall be elected for that purpose by the Members of the Institute at the General Meeting, and who shall attest by their Signatures the accuracy of the said Accounts. The Accounts having been thus approved, shall be submitted to an Annual Meeting of the Committee, to be holden on the First Wednesday in May, and shall be printed and published in the Journal of the Institute as part of the proceedings of the Committee.

XX. A Report of the Proceedings of the whole year shall be submitted to the Annual Meeting.

XXI. The Central Committee shall be empowered to make such Bye-Laws as may, from time to time, appear to them expedient.

The Central Committee request the Local Secretaries to attend, whenever it may suit their convenience, the Ordinary Meetings, which take place once in every fortnight at the apartments of the Institute, 12, Haymarket, for the discussion of Archæological communications and the exhibition of objects of interest.

ORDINARY MEETINGS OF THE CENTRAL COMMITTEE:—

12, HAYMARKET. *The Chair will be taken at Four o'clock.* Mondays, November 24; December 8.

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AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 49.—1845] SATURDAY, DECEMBER 6. [Price 6*d.*

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*Turban Ranunculus, 100 in 8 varieties	7	0
*100 ditto, in 4 varieties	4	0
*Turban Ranunculus, 100 fine large scarlet ..	2	6
*100 ditto, yellow	3	0
*Amaryllis, 12 species ..	40	0
*Ammocharis, 3 species	20	0
*Brunsvigia, 4 species ..	35	0
*Crinum, 3 species	3	6
*Cyrtanthus, 3 species ..	10	6
*Hæmanthus, 5 species ..	12	6
Strelitzia juncea	10	6
*Strumaria, 2 species....	3	0
*Vallota purpurea, large..	3	6
Babiana, 8 fine varieties.	7	0
Gladiolus, 12 new varieties	20	0
*Do. gandavensis, each	3	6
*Do. insignis..... „	3	6
Ixia, 20 fine species	5	0
Do., separate.....	7	6
Do., 100 finest mixed ..	17	6
Ornithogalum aureum, each	1	0
Oxalis, 18, in 6 varieties	5	0
Sparaxis, 30, in 6 varieties	5	0
Do., 100 extra fine, mixed,	10	0
*Tigridia canariense, each	1	6
*Ditto conchiflora „ .	1	0
*Ditto pavonia, per doz.	2	0
*Carnations, extra fine, per 12 pair	24	0
*Picotees, white grounds per 12 pair	20	0
*Do., yellow grounds „ .	24	0
*Pinks, extra fine „ .	8	0

JAMES CARTER, Seedsman and Florist, No. 238, High Holborn, London.

*** A new and extensive Catalogue of Culinary and Floricultural Seeds is in preparation.

GREAT YARMOUTH NURSERY, NORFOLK.

YOUELL AND CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15*s.* per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s.* per pair.

CARNATIONS AND PICOTEES.

			£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto ditto .	5	0	0
12	ditto	Fine Show Flowers ditto .	1	10	0
25	ditto	ditto ditto .	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12*s.*

HYACINTHS, Double and Single, Blue, Red, White, and Yellow, very fine, 6*s.*, 12*s.*, and 18*s.* per dozen.

CAMELLIAS, fine sorts, by name,	30*s.*	per dozen.
FUCHSIAS, extra fine, including "Serratifolia,"	21*s.*	p. doz.
CHRYSANTHEMUMS	ditto .. 12*s.*	per dozen.
VERBENAS	ditto .. 6*s.*	„
PETUNIAS	ditto .. 9*s.*	„
PANSIES	ditto .. 10*s.*	„
Ditto, very best first-rate Show Flowers	18*s.*	„
CINERARIAS, extra fine sorts, by name	12*s.* to 18*s.*	„

Also their New Superb Seedling CINERARIA, "No. 1." named "NORFOLK HERO," 5*s.* per plant; the following description of it will be found in the *Gardeners' Chronicle*, May 31, 1845:—"Y Y—No. 1 is a very fine specimen of a creamy-white, dark disk, very broad petals and flowers, unusually large, measuring 1½ inches in diameter."

ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

HERBACEOUS PLANTS, fine sorts, 6*s.* to 9*s.* per dozen.

AURACARIA IMBRICATA:	*s.*	*d.*
2 years old, per doz.	9	0
3 „ .. „ ..	12	0
4 „ .. „ ..	18	0
5 „ .. „ ..	30	0
6 „ .. „ ..	60	0
Cedrus Deodar, 1 yr., fine	18	0
„ „ 1 foot ..	30	0
Pinus excelsa, 3 inches..	9	0
„ „ 4 to 5 ins.	18	0
„ „ 18 inch, fine bushy plant ..	42	0
„ Gerardiana, 2 yrs.	30	0
Abies Khutrow, 2 years	9	0
Abies gracilis .. each	2	6
„ orientalis „ .	5	0
Picea cephalonica, p. dz.	30	0
Pinus cembra .. „ .	12	0
Cupressus torulosa, per doz., fine	18	0
Podocarpus totara, each	5	0
Do., seed pans, p. doz.	6	0
Do. Dicrydioides „	7	6
Do. ferrugineus „	5	0
Phylocladus trichomanoides .. .. „	5	0
Taxodium sempervirens,„	7	6
Dicrydium cupressinum,„	5	0

RIBES SANGUINEUM FLORE PLENO, 10*s.* 6*d.* per plant.
MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s.* per 100.
"PRINCESS ALICE MAUDE," „ 10*s.* „
YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12*s.* per dozen. Roots placed in a cellar or closet now will be fit for cutting in January.

Great Yarmouth Nursery, Dec. 6.

NEW SEEDLING POTATO, called the "CHALMORE KIDNEY," has received several first prizes; is a prolific bearer, mealy, and of a very superior flavour; is highly spoken of in the *Gardeners' Chronicle* of Nov. 1, 1845. May be had of Tyso and Son, Florists, Wallingford, Berks; and of Warner and Warner, 28, Cornhill, London. Price 2*s.* per gallon, or 8*s.* 6*d.* per peck.

FLORISTS' FLOWERS.

Messrs. TYSO AND SONS' descriptive priced Catalogue of RANUNCULUSES, TULIPS, ANEMONES, CARNATIONS, PICOTEES, PINKS, &c., for 1845-6; and a full description of the "CHALMORE KIDNEY" will be sent free on receipt of two postage labels.

WHALE'S NEW SEEDLING DAHLIAS FOR 1846.

W. B. Whale begs leave to call the attention of the Floricultural world generally to his new and select Seedlings for 1846. W. B. W. trusts that his long experience in Floriculture has enabled him to select only those varieties from a number of thousands of Seedlings, that will give general satisfaction to his numerous customers.

WHALE'S "MARCHIONESS OF CORNWALLIS."—Ambient white, very pure white when shaded, very superior petals, falling in close column below each other, which, together with a fine, rising, well-developed centre, gives the flower a most perfect symmetrical character, the petals perfectly smooth and thickly set, with fine arrangement, requiring no dressing, the habit is early, a profuse bloomer, height 3 feet, strong plants in May, price .. .. 10*s.* 6*d.*

In consequence of the dangerous state of the roots—raising with canker, and scarcely any tubers—it is necessary to secure plants by early orders; these facts and the above properties are warranted. The probable results of its merits may be best appreciated by its being the most successful flower of the season, pronounced by the first judges of the day, (Messrs. Glenny and Co.), at all the principal Exhibitions. Prizes awarded, 1845:—First Prize at Cambridge, beating all the favourites of the season. First at Exeter against all England. First-class Prize Certificate at Chelmsford, Essex, where Mr. Glenny pronounced it a trimmer. First-class Prize Certificate at Bath, open to all England. First-class Prize Certificate, Stonehenge, Salisbury Plain. Three blooms were sent to the South London Show, Sept. 17, instead of four, in mistake, consequently it was thrown out, though greatly admired. First-class Prize Certificate at the Great Metropolitan Show, Cremorne House, 6 blooms, Sept. 25. The blooms were stale; not in that state of perfection that W. B. W. could have wished, in consequence of all the plants, flowers, &c., being destroyed on the 23rd of September by frost, which prevented W. B. W. from exhibiting the following Seedlings, viz.:—

WHALE'S ROSE UNIQUE—A splendid silver Rose, superior petals, well arranged, and perfect outline, and very constant through the season. Height 4 feet .. .. .. 10*s.* 6*d.*

WHALE'S SCARLET UNIQUE—A perfect model, very constant through the season, and profuse bloomer; occasionally shows a floret. Height 3 feet .. .. 10*s.* 6*d.*

WHALE'S "HENRY BURN"—A vermilion scarlet; a decided improvement on Catleugh's Eclipse. Petals well set, of medium size, nearly constant. Height 4 feet .. 7*s.* 6*d.*

WHALE'S "ATTRACTION"—Quite new in colour—bright orange, tipped with buff; a good back row flower, and very constant. Height 4 feet .. .. 7*s.* 6*d.*

WHALE'S "ADMIRATION"—A Seedling of 1843, kept in last season in consequence of the stock being nearly lost, after receiving orders for nearly 50 dozen plants. Orange, margined with bright scarlet; quite new in colour: petals thickly set, with good arrangement; perfectly constant—has now been proved three seasons. Height 4 feet .. .. .. 10*s.* 6*d.*

WHALE'S SEEDLING FANCY BORDER VARIETIES for 1846.

WHALE'S "MADAME LEVETT"—Dark marone, tipped with white; a profuse bloomer, and constant. Height 3 feet, 5*s.*

WHALE'S "BEAUTY"—Rose pink, tipped with gold, very pretty. Height 4 feet, only two roots .. .. .. 7*s.* 6*d.*

WHALE'S "RANUNCULA FLORA"—Primrose ground, tipped with Cherry, quite new in colour, a most perfect symmetrical shape, quite a novelty, but too small for a Show variety, or nothing could excel it: a profuse bloomer. Height 4 feet .. .. 5*s.*

No discount unless 6 or more plants are ordered. Dry roots of most varieties in cultivation may be had of W. B. W. at reasonable prices.

Kintbury or Elcot, near Hungerford, Berks., Dec. 6.

TO THE PLANTERS OF ENGLAND AND LOVERS OF THE PICTURESQUE.

JAMES GRIGOR, Nurseryman, Norwich, begs to state that he is now sending out plants of the True HIGHLAND PINE, a noble landscape ornament, and a tree which produces very superior timber.

"I very particularly admire the Highland Pine; its growth, and leaf, and bark, are beautiful. I shall be truly proud of my first specimens, of which I beg you will send me 1000 of your finest for trial. I am very much obliged to you for calling my attention to trees of such value."—*Newcastle (Duke of), Clumber, December* 2, 1844.

"Now that we are on the subject of trees, I may mention what I have very likely told you in some of my previous letters, that I prefer the Highland Pine to all other trees except the Oak, taking into consideration its beauty in winter, and by moonlight, and in the evening."—*Wm. Wordsworth, Rydal Mount, Dec.* 7, 1844. Who, then, would be without this tree?

Plants	1 to 2 inches	.....	5*s.* per 1000
„	2 to 4 „	.....	10*s.* „
„	4 to 6 „	.....	15*s.* „
„	6 to 8 „	.....	20*s.* „
„	8 to 10 „	.....	25*s.* „
„	10 to 12 „	.....	30*s.* „
„	12 to 15 very strong, 5*s.* per 100.		

Finest picked Plants 4*d.* each, Ditto in pots 6*d.*

Norwich, December 6, 1845.

TO NURSERYMEN, FLORISTS, and the TRADE in General.

WM. WOOD AND SON'S WHOLESALE CATALOGUE of ROSES, GREENHOUSE PLANTS, &c. may still be had, GRATIS, on application, and will be found to contain many of the leading varieties at very moderate prices.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NE PLUS ULTRA PEAS, grown by Wm. Brownlees, Nurseryman, Hemel Hempstead, Herts, and sold by him at 5*s.* per quart, the stock on hand being very small. The above Pea is a tall Marrow, of a very superior quality, and most abundant bearer. It is about the same size as the British Queen Pea, but comes into bearing 14 days sooner, and is fit for use four or five weeks later. It should be sown thinly, and requires tall sticks.

A remittance is requested from unknown correspondents.

It may also be had of Messrs. W. & J. Noble, Seedsmen, 152, Fleet-street, London, by whom it can be well recommended.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL & Co. two prizes for it.

Packages containing 100 canes	.	£1	4	0
Do. do. 50 do.	. .	0	13	0
Do. do. 25 do.	. .	0	7	0

A liberal discount will be allowed the Trade when "quantities" are ordered.—Great Yarmouth Nursery, Dec. 6.

HOYLE'S SEEDLING PELARGONIUMS OF 1844.

Augusta	.. ..	£1	1s.	Lord Morpeth	..	£1	1s.
Alice ..	.. ..	1	1	Duke of Orleans	..	1	1
Gipsey Maid ..	..	1	1	Josephus	.. ..	1	1

The Set of Six, 5*l.* 10*s.* Cash, 5*l.*

The following 12 sorts, as sent out last season at 10*l.* 10*s.*, the set may be had for 3*l.* 3*s.*, or cash, 3*l.* :—Titus, Pompey, Champion, Unique, Queen of England, Claude, Amelia, Majestica, General Pollock, Flora, Rosalia, Sarah Jane.

Package free, and in either case a choice Plant will be put to defray the carriage.

WILLIAM MILLER, Providence Nursery, Ramsgate.

MITCHELL'S FIRST-RATE DAHLIAS FOR 1846.

JAMES MITCHELL begs respectfully to announce his intention of sending out the first week in May the following Superb and Distinct DAHLIAS, which he can with confidence recommend.

MERRY MONARCH—beautiful shaded rose, quite new in colour, obtained a first-class Certificate at the Grand Show at Slough; is a most noble and constant show flower, 4 ft., 10*s.* 6*d.*

ERECTUM—fine crimson, obtained the first prize at Tonbridge Wells, and is a constant show flower, 4 feet, 10*s.* 6*d.*

LADY CHARLEVILLE—Seedling of 1844, partially let out last season. J. M. exhibited three blooms at the Grand Show, Slough, but not for competition. It was pronounced the best flower of the season by the first Metropolitan amateur growers—colour, rosy pink, 4 feet, 7*s.* 6*d.*

MARIE LOUISE—Maroon, tipped with white, fine fancy variety, 3 feet, 7*s.* 6*d.*

DAWN OF DAY and GOLIAH—These two varieties J. M. purchased of J. V. Shelley, Esq., Maresfield, Park. Dawn of Day, beautiful pink, pronounced a first-class show flower by the Metropolitan Judges, 3 feet, 10*s.* 6*d.* Goliah, dark rose, a constant show flower, 5 feet, 10*s.* 6*d.*

HERO OF SUSSEX (Fowler's)—Light crimson, fine shape, 5 feet, 10*s.* 6*d.*

Piltdown Nursery, Maresfield, Uckfield, Sussex.

CHARLES FARNES, SEEDSMAN, 128, St. John's-street, London, respectfully informs his Friends and the Public generally, that he will be enabled to supply orders for the following new and choice VEGETABLE SEEDS :—

ROYAL GREEN MARROW PEA.—This most excellent Variety may be sown as a second early Pea, and will be fit for use about the same time as the Early Warwick; it will be found on trial that no Pea can surpass its flavour or rich colour when boiled. Price 2*s.* 6*d.* per quart.

QUEEN OF DWARF PEA.—It is superior to all the dwarf Peas known, and only requires more general cultivation to test its merits, when it will supersede every other variety of the same habit. Price 5*s.* per quart.

DANCER'S MONASTERY PEA.—This fine large Pea will will be found superior to all the old sorts for a middle crop. It is an excellent bearer, and of good flavour, and merits a place in all gardens. Price 2*s.* 6*d.* per quart.

A general CATALOGUE of all the new Vegetables, &c., will be forwarded on application.—Dec. 6.

WM. HEALE, NURSERYMAN and CONTRACT PLANTER, Calne, Wilts, begs to call the attention of the Nobility, Gentry, and Public in general to his extensive subjoined List of FOREST, FRUIT and ORNAMENTAL TREES, FLOWERING SHRUBS, EVERGREENS, &c., all of which are very fine this season, viz.—

200,000 Spruce Firs	from	1 to 2 feet.
200,000 Scotch ditto	,,	1 to 2½ feet.
200,000 Larch ditto	,,	1 to 2 and 3 feet.
150,000 English Oaks	,,	2 to 3 feet.
20,000 Alder	,,	1 to 3 feet.
20,000 Beech	,,	2 to 6 feet.
20,000 Wych or Scotch Elm	,,	2 to 3 feet.
20,000 Birch	,,	1 to 3 feet.
100,000 Ash	,,	2 to 4 feet.
20,000 Common Laurels	,,	2 to 4 feet.
5000 English Elms	,,	6 to 8 and 10 feet.
10,000 Italian or Black Poplar	,,	4 to 6 and 12 feet.
20,000 Fine Evergreen Privet	,,	2 to 4 feet.

Hazel, Hornbeam, and Horse Chestnuts; 1,000,000 of fine Quick or Thorn, two years transplanted; 10,000 Standard, Dwarf, and Trained Apples, including all the new leading sorts; 5000 Standard, Dwarf, and Trained Pears, including all the new leading varieties; a fine collection of Standard and Dwarf Roses; True Fastolff Raspberry, fine, 12*s.* 6*d.* per 100; Strawberries, Giant Asparagus, and Seakale Plants.

Also Garden and Agricultural Seeds of genuine quality, Russian Mats, &c.

Catalogues (Priced) can be had upon application.

MR. GEORGE CORNWALL, MARKET GARDENER, Barnet, begs to recommend his New VICTORIA RASPBERRY to the notice of Gentlemen, and likewise Gardeners, being the finest fruit and best flavoured Raspberry of any known—it was sold in Covent-garden last season higher than any other; it is likewise a most abundant bearer, and grows 6 feet high. To be had at E. CHARLWOOD'S, Covent-garden; Messrs. W. and J. NOBLE, Fleet-street; of Mr. GEORGE CORNALL, opposite the Red Lion, Barnet; and all the principal Seedsmen in London, at 3*l.* per 100, or 9*s.* per dozen.

WANTED TO PURCHASE, a Quantity of WILLOW TIMBER and WILLOW POLLARDS, sound and fit for Cricket Bats. Parties having a quantity to dispose of, by applying to Messrs. DUKE and SON, at their Cricket Ball, Bat, and Stump Manufactory, Penshurst, Kent, may hear of a purchaser.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

SEEDS.—CORNER OF HALF-MOON-STREET.
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the
"ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S, 315, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

FOREIGN SHEET GLASS.

C. JARVIS having just imported a large quantity of the above article, in quality and substance hitherto unequalled, can offer it to purchasers at a lower price than any other house in the trade, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street.

CROWN GLASS in Crates or Squares equally low.

SMALL GLASS for HOTHOUSES and GARDEN LIGHTS.

sqrs.			Per gross.	sqrs.			Per gross.
60,000	4 in. by 2 in. at		0*s.* 8*d.*	40,000	4½ in. by 2½ in. at		1*s.* 6*d.*
30,000	4½	2 ..	1 0	10,000	5	3 ..	3 6
80,000	6	4 ..	9 0	90,000	8	6 ..	18 0
60,000	6½	4½ ..	11 0	11,000	8½	6½ ..	20 0
30,000	7	5 ..	13 0	80,000	9	7 ..	22 0
12,000	7½	5½ ..	15 0	40,000	10	8 ..	30 0

PROPAGATING OR STRIKING GLASSES

Are now offered at half the usual prices; a variety of other shapes and sizes may be had.

in.	in.	each.	in.	in.	each.
About 5 high by	3 dia.	0 8*d.*	About 6½ high by	4½ dia.	1*s.* 0*d.*
5	3½ ..	0 9	7	5 ..	1 2
5½	3¾ ..	0 10	7½	5½ ..	1 4
6	4 ..	0 11	8	6 ..	1 9

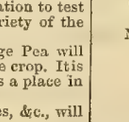
BEE GLASSES, FISH GLOBES, FRENCH SHADES FOR FERNS, &c.

R. COGAN, GLASS, LEAD, and COLOUR WORKS, 48, LEICESTER SQUARE, LONDON.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

CLARK'S METALLIC  HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.
Proprietor, Mr. THOMAS CLARK.
Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass, enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

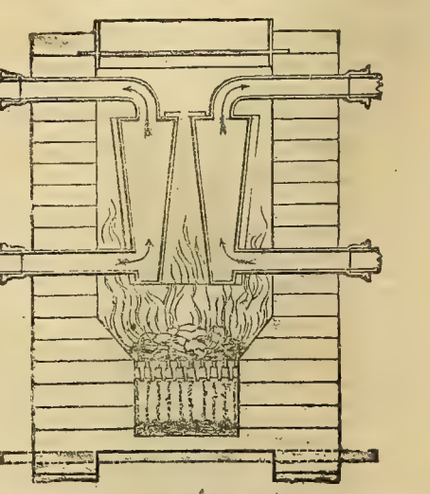
D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130 Fleet-street.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places,—130, Fleet-street, London.

GYPSUM FOR MANURE, prepared by the only method which will ensure its success for Agricultural purposes, by NEWTON & PECK, WILMINGTON WORKS, HULL. A Pamphlet containing instructions for its application and full particulars as to its uses as a fertilizer, with numerous cases of its surprising effects, sent free to any part of the kingdom, on receipt of a post-paid letter containing Three Postage Stamps.

GUANO (GENUINE PERUVIAN & BOLIVIAN,) ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, Dec. 6.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25*s.* per ton in the stream, or 27*s.* 6*d.* per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

POTATO DISEASE.—COTTAM and HALLEN have now ready at their Agricultural and Horticultural Implement Repository, 2, Winsley-street, Oxford-street, London, POTATO PULPING MACHINES for extracting the Starch and all other parts of the Potato which remain uninjured by the disease. These Machines are highly approved of by all who have seen and used them, as being the most effectual that can be made for the purpose.

DENTON AND CHARNOCK'S PATENT DRAIN-TILE AND PIPE MACHINE.

A PREMIUM OF £10 was awarded to this Machine at the recent Meeting of the Yorkshire Agricultural Society, at Beverley, as the Best Machine of the day. Price £20.

Particulars may be obtained, and a Machine seen, on application to Mr. BAILEY DENTON, 9, Gray's-Inn Square, London; or Graveley, near Stevenage, Herts; to Mr. T. H. Charnock, Wakefield; or to the Makers, Messrs. Bradley and Co., Engineers, Wakefield.

DENTON'S "A" LEVEL for workmen in cutting drains may also be had. Price 30*s.*

BECK'S SEEDLING PELARGONIUMS, 1844.—E. BECK informs the public that his sale of the above will terminate on January 1st, 1846. The small portion remaining are well established in 4½-inch pots. N.B.—E. B. proposes to send out another selection after the Exhibitions of 1846.
Worton Cottage, Isleworth.

POTATOES FROM THE SCILLY ISLANDS.
W. E. RENDLE AND CO. have been fortunate in procuring a few Tons of these POTATOES, *all of which are entirely free from the prevailing disease, and will be found most valuable for seed.* Refer to the Rev. C. A. John's Letter in the *Gardeners' Chronicle* last week, page 801.
*** Price on application.
Plymouth, Dec. 6, 1845.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 6, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
SATURDAY Dec. 13—Royal Botanic . . . . 4 P.M.
TUESDAY, — 16—Linnean . . . . 8 P.M.

THE importance to this country of GOOD POTATO SEED OR SETS for another year's crop, is such that from a very early period the attention of Government has been directed to it. Enquiries have been addressed to the British Consuls in such places as appeared likely to furnish supplies, and we are now permitted to mention some facts which have been thus elicited.

It appears that although at Bourdeaux the latter crop is diseased, yet the early Potatoes gathered in July were sound, and that some thousand bushels might be obtained.

Corsica can also furnish a few hundred tons; no disease having appeared in that island.

But the great source of supply will be Corunna. Very large numbers are annually grown in Galicia, partly for the Spanish West India Islands. The whole crop in this part of Spain is reported to be perfectly sound, and a very considerable quantity of Potatoes could be readily procured.

Considering the climate of Galicia, we can hardly imagine a province better calculated to renew our English crops; and we have no doubt that we shall soon have Spanish Potatoes in the market. Shippers would be wise if they exposed their purchases to light for some time before sending them on board; and if the Potatoes could be barrelled in dry sand they would command so much higher a price on that account as would far more than defray the additional expense.

AMONG the peculiarities of the mere cultivators of the soil, that which has most generally attracted attention is their unwillingness to believe in any possible improvement of any one thing which they are accustomed to. There is no class of men so easily contented. With them what *is*, is right. They are all optimists, except at market;

"Pascite, ut *ante*, boves, pueri!"

is their maxim.

A peasant exchanges his damp, dirty, smoky hovel unwillingly for one that is dry, clean, and ventilated. A little farmer, accustomed to the flail, abhors the sound of a thrashing-machine; he loves his inky horse-pond better than the waters of Helicon; and would rather be mired in his swampy land, though it grows nothing but rushes, than walk dry-shod over the richest pasture—

"quamvis lapis omnia nudus
"Limosoque palus obducat pascua junco."

A gardener is by no means, of necessity, free from this besetting sin. There are gardeners still who swear by flues and at hot water; who revel in the luxury of a dung-bed, though they might have a tank; are so used to mealy-bug as to think it ornamental, and find no beauty in luxuriant vegetation, but infinitely prefer a few shrivelled leaves at the top of a great many wooden spindles stuck in garden-pots, gathered together under a glass roof, and called "a collection."

It would be unfair and unjust to say that this is a universal character; but it is literally true in many instances, and, partially so, far more extensively than people are willing to admit. Let us take, for example, the discussions that have been going on for some years past as to the cultivation of the PINE-APPLE. It is undeniable that a large number of gardeners are to be found who pertinaciously insist upon their own old methods being infinitely better than those of modern invention; who can find no merit in a general crop of heavy Pines, because somebody or other has now and then grown a single fruit as well, in former days; who sneer at the so-called improvements introduced by Messrs. BARNES, GLENDINNING, HAMILTON, MILLS, or MURRAY; and, when the results are pointed at, either deny them altogether or coolly demand that the proofs shall be sent to them for their own inspection.

To tell such men to grow a Pine without pulling off its roots, would be as profitable as to desire them to boil it. The one kind of advice would be as likely to receive attention as the other. They would rather have a little Pine, by giving it the diet of an Andover pauper, than a large one by feeding it like an alderman.

We are led to these remarks by numberless letters on the subject of the Pines grown at Bicton by Mr. BARNES, and at Thornfield by Mr. HAMILTON. We need not say that each of these gardeners has published an account of his manner of cultivating the Pine; that both are enemies to cutting off roots, or exposing Pines to any kind of check; that they principally differ in subordinate matters of detail (Mr. BARNES preferring to grow his Pines in pots, Mr. HAMILTON in the open soil); and that both are said to have obtained fruit of extraordinary weight and excellence.

Mr. HAMILTON says that he frequently cuts Montserrats, weighing from 6 to 7 lbs.; that, in 1841 and 1842, 20 of this variety were cut, weighing in all 104 lbs., the largest being 7 lb. 4 oz.; and that the majority of his Envilles vary from 7 lbs. to 9 lbs.*

Less precise statements are made respecting the weight of Mr. BARNES's Pines, which are alleged to be still finer; but it is currently stated, and, we have no doubt, with accuracy, that most of his Queens weigh between 5 and 6 lbs. and very often much more.

Now, instead of endeavouring to imitate this kind of success, there are persons who depreciate it altogether. What is the use, says one, of a Queen Pine weighing 6 lbs.? two of 3 lbs. each are much better. Why do not these great men exhibit their Pines at the London shows? cries another, forgetting that there may be causes for their not doing so which gardeners are capable enough of understanding. Critics of a third class object to the manner in which such Pine-growers describe their mode of proceeding; carp at their grammar; sneer at their unskilful style of writing, and rate them for having a good opinion of themselves and their ways. For ourselves we have nothing to complain of in this last respect. It is to us a matter of indifference how a man describes his practice, provided it is intelligible; and we have no sympathy with those who, being self-sufficient enough themselves, abuse others for the same fault. They remind us of the drunken fellow who quarrelled with his comrade for tumbling into the gutter like himself.

The fact that the Bicton and Thornfield Pines are of unusual size and excellence is sufficiently shown by the favourable reports made to us respecting them by unprejudiced observers. See pp. 690, 643, &c. To this we add our own testimony. We ourselves some time since received from Mr. PHILIPS, of Thornfield, the employer of Mr. HAMILTON, a Montserrat Pine, sent as *a fair sample* of the produce of his Pine-houses, concerning which we can only say that a more beautifully grown fruit, or one of more excellence, we never saw. We have also received, by the kind permission of Lady ROLLE, a specimen of Mr. BARNES's Queens, of which the following is a description:—

It measured 17¾ inches in circumference, 12 inches in height, and weighed 6 lbs. 6 ounces. The number of pips in height was 15. It was a noble fruit, tapering regularly from the base to the top, which was terminated by a crown extremely small for the size of the fruit. The pips were large and well swelled, possessing in a high degree that rich glossy colour which is a peculiar characteristic of good cultivation. It had lost weight during its transmission to London, and remaining there for a few days unexamined. To its excellent quality some of our Irish friends would willingly testify as we do.

The following letter too from Mr. JAMES NEWTON, a gentleman residing at Cheadle Heath, near Stockport, may be quoted on this occasion in proof of the *quality* of the Thornfield Pines:—

"*Nov.* 28, 1845.—Hearing there are prejudiced persons propagating a report that the Hamiltonian system of Pine-culture has a tendency to injure the flavour of the fruit, I feel it due to this industrious and talented gardener, to state, from my own experience, that the whole of the fruit cut out of the Pine-pit here was of excellent flavour, and as far as an unusually cloudy and wet summer would permit, of good size and colour. The pit was built in August, 1844, and in the following month 50 Pines were planted in it, 45 of which were strong and healthy maiden plants, 35 of these fruited within 12 months, weighing collectively 105 lbs.; five of the plants were old stools, and treated according to the Hamiltonian system; the fruit from these was also cut within 12 months, and weighed 29 lb. 10 oz. avoirdupois, and I have no doubt by pursuing Mr. Hamilton's system of growing the suckers on the old stools there will be a much heavier crop next season."

Having produced this evidence as to there being no exaggeration about the Bicton and Thornfield Pines, we shall, for the future, decline adverting further to that point.

Another subject of animadversion is the plan pursued by Mr. HAMILTON of growing his Pines in the open soil, and not in pots. There are really good gardeners who deny either the possibility or advantage of doing so. We advise them to reconsider the matter. That it is possible, the results at Thornfield sufficiently prove. If they wish for ocular demonstration, let them look at what Mr. INGRAM is doing in her Majesty's garden at Frogmore, where the Pines are grown with as much luxuriance as Cabbages.

That persons fail in the attempt we know: but we also know the cause. The Pine-apple will not root into cold sodden materials; no plant likes to do so; the Pine-apple abhors it. That is all. If the soil is kept open and warm, the whole difficulty vanishes; if that is not attended to, the cultivation of the plant had better be abandoned. It is the opinion of persons well capable of judging correctly, that we shall some day have Queen Pine-apples of 10 lbs. weight. We do not think it improbable. It would not surprise us if such were to be cut at Frogmore some day. There is no reason to the contrary, and much in favour of the expectation.

In short, now that Pine-apples are treated like tropical plants, there is a chance for them. So long as gardeners persevered in docking their roots as they would a horse's tail, the wonder was that the Pines did not refuse to grow at all.

Let it not be supposed that such remarks as these have no application beyond the subject immediately in hand. They have, in fact, a universal bearing upon horticulture, as we must endeavour to show next week.

* See the *new* edition of his excellent "Treatise on the Pine-apple," lately published.

THE season has now arrived when PLANTING OPERATIONS are carried out. We would, therefore, offer a word of seasonable caution where the object is to produce effect in park scenery. Errors in planting are infinitely worse than errors in building. The one may be altered according to the means or caprice of the owner; not so the noble Oak or the princely Cedar. When they have assumed the size when their magnificent proportions are developed, we too often to our mortification find them blemishes rather than ornaments of the landscape. In building, the rule and plummet guide with precision the hand of him who raises the structure; they are unavailable to him who embellishes our parks and clothes with a masterly hand the naked surfaces committed to his care. No rule or line is available to the artist in matters of that kind. Taste alone, matured by reflection and experience, defines the course of his operations.

It is absurd to suppose, because an individual has attained eminence in some profession or other, that skill in landscape gardening will necessarily be shown by him, as if any one could plant trees, and stake out drives. This operation, one of the most important and difficult connected with the residence of a country gentleman, cannot be so treated with success. It is scarcely possible that the untrained eye should discover the advantages which planting is capable of effecting. And it is because incompetent advisers are consulted in matters requiring a long acquaintance with trees, their habits, and capabilities, that we so often find ground blocked up which ought to remain open, beautiful views intercepted, breadth of greensward destroyed, and all sorts of deformities starting up in the shape of ill-contrived belts and clumps perched on the tops of hills.

A man of taste, conversant with trees and the art of planting them, will never commit such mistakes. He takes advantage of the beauties which Nature has already created, and by a right distribution and appropriation of the subjects under his control, improves those features, but never disfigures them. There are some, indeed, who think that it is only necessary to effect an alteration in their grounds in order to improve them; and in their ill-directed zeal, they overlook the points most susceptible of embellishment, or mar effects which skill could easily produce.

There are so many glaring instances of this in all directions, that we trust to be forgiven for drawing attention just now to the matter, which we do in the hope that, with the coming season, gentlemen will pause before they commit to imprudent hands the task of embellishing their domains, or allow their advisers to disfigure what is beautiful, by violation of the first principles of taste. It should be borne in mind that trees are the grandest objects in Nature—that they constitute the most important features in landscapes—especially in a richly-cultivated country like England. It is, therefore, of the most urgent importance that we should study well their proper disposition from the beginning of all planting operations. It is only by distributing them with skill in the first instance, that favourite trees are saved from the edge of the woodman's axe, and remain as objects of admiration in after times.

Let us, therefore, impress upon those whom these

remarks concern, the great importance of a skilful management of their park scenery; and that no trees, be they what they may, will bear to be placed at random, and without reference to what they must eventually become. There are certain principles clearly perceived, but difficult, if not impossible to define, which the artist in these matters knows how to apply advantageously, and which no common observer can be supposed to understand.

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1844 and 1845.

	1844.			1845.	
October..... 5	50*s.* to 80*s.*		October ... 3	60*s.* to 80*s.*	
12	60	80	11	60	100
19	50	70	18	60	100
26	50	70	25	70	130
November... 2	50	70	November 1	70	130
9	50	70	8	70	130
16	50	55	15	70	130
23	50	55	22	70	130
30	50	70	29	80	140
December... 7	50	70	December 6	80	160

Also at the waterside, *Southwark*.

	1844.			1845.	
October.....21	45*s.* to 80*s.*		October ...20	50*s.*to100*s.*	
28	45	70	27	50	100
November... 4	45	70	November 3	50	100
11	45	70	10	50	100
18	45	70	17	45	80*
25	45	70	24	50	120
December... 2	50	70	December 1	50	120

* Nearly all bad, and many sold at nominal prices.

PLANT WATERING IN WINTER.

There is nothing connected with plant-culture of more importance than the judicious application of water, more especially during the winter months. The majority of the deaths which occur in cold pits, and other similarly circumstanced structures for wintering plants, result from over-watering. The hygrometer in such a situation would tell how impossible it is for vegetation to exist, at least that kind of vegetable tissue of which the inhabitants of such dormitories are composed. It is rarely that plants in such situations suffer from want of moisture. To house them dry, and to winter them dry, is the passport to their future existence. Water should be gradually withheld from all plants as winter approaches to fit them for hibernation, not only because of the suspension of active growth, but also to harden the tissue, and partially to expel the redundancy of watery fluid with which this tissue largely abounds. Plants, therefore, brought by degrees into a condition of this kind, when all their active functions are for the time suspended, are not so liable to suffer from damp, which pervades all plant structures during winter, at least where artificial heat is never applied, unless to expel frost. The application of water during winter to plants thus situated is rarely required, because the atmosphere immediately surrounding them for some months, in consequence of its coolness, is incapable of absorbing any from the bodies thus placed in contact with it.

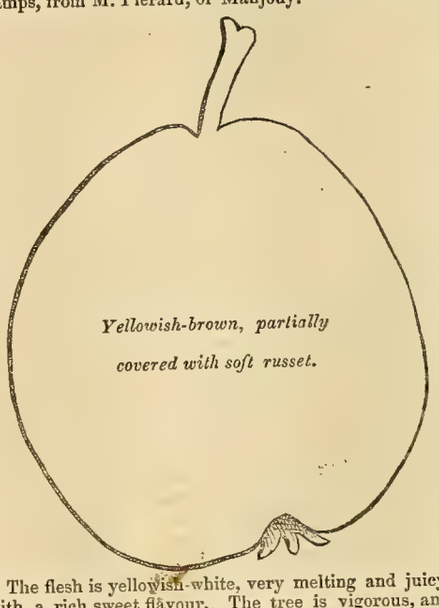
Having made these remarks more applicable to plants in pits and frames than to those in larger buildings, I may observe that it is collections of plants which are potted upon the principles I have already laid down that demand and deserve our especial care at this season. Plants which have been liberally treated, both as regards pot-room and a corresponding supply of water during the growing season, require, during the season of repose, a limited and comparatively trifling attendance from the watering-pot to sustain even a large mass of healthy and luxuriant foliage. Plants in temperate houses are not likely to have their juices exhausted by excessive and unnatural transpiration, unless under bad management, or during long and severe winters, when strong fires are required to keep out frost. It is at such a period and under such a visitation only that anything approaching a liberal supply of water should be given in the winter months. It is well, however, to remark that at no period, either in summer or winter, should water be administered unless the plant actually requires it. This observation more particularly applies to plants having heavy shifts, such as Heaths, for example, with small hairy roots, which are incapable of existing for any length of time in what may be termed a mud-pot. The whole of the fibres, which should be pearly white, turn brown and soon perish. The result is, as may be expected, the plant very soon dies, and is, in fact, dead before the discovery is made. I will venture to say that more plants are killed during winter by overwatering than by frost itself; we are always on our guard as respects the latter enemy, but rarely as regards overwatering.

It is difficult sometimes to ascertain when plants in large pots are really in want of water, but then there are certain ways of arriving at this, and if no investigation is made nothing can be discovered. To the sedulous and attentive cultivator, I would say, take no man's word in so nice a matter—a matter on which your success as a cultivator largely depends. Examine the soil with your own fingers, and see whether the pot is wet or dry externally; feel the foliage, and, using your own judgment, act accordingly.—*Duro.*

BERGAMOTTE CADETTE.

Synonymes.—De Cadet, Beauchamp, Beurré Beauchamps, Ognonet (of some).

The names of Bergamotte Cadette and Poire de Cadette occur in the works of La Quintinye, Duhamel, and some other French authors. Their descriptions are, however, exceedingly at variance, and Dr. Adrian Diel justly observes, that the Poire de Cadet of La Quintinye cannot possibly be the same variety as that described by Duhamel, who states that the fruit ripens in October, and is soon over; but according to La Quintinye, its ripening occurs in the months of October, November, and December. Few kinds of Pears continue three months in eating, especially when their becoming fit takes place so early as October. It is, however, a remarkable character in the variety here represented, that it continues ripening in succession, from the same tree, from October till March. Such may not be the case under every circumstance of soil and climate; but it has very frequently been observed to do so. It was received from M. Bosc, of Paris; and as La Quintinye ascribes a greater range as regards its maturity than has been done by authors subsequently, there is every probability that this is the variety to which he referred. It was received under the name of Beauchamps, from M. Piérard, of Manjouy.



Yellowish-brown, partially covered with soft russet.

The flesh is yellowish-white, very melting and juicy, with a rich sweet flavour. The tree is vigorous, and a good bearer. Shoots light olive brown; leaves ovate, tapering, somewhat acuminate, finely serrated; flowers middle-sized; petals oval, with long sepals. In point of flavour this cannot be said to equal the Winter Nelis, and some other first-rate sorts; but it well deserves cultivation, and will be found to afford a supply in intervals between the ripening of other kinds throughout the winter.—*R. T.*

BREEDER TULIPS OF THE MIDLAND COUNTIES.

Having noticed the rectified or broken flowers, I now proceed to give some account of the qualities of the different Breeder Tulips that came under my notice during the month of May last.

Much anxiety has been manifested of late to possess seedling breeders of good quality, and in my opinion with much reason, for being generally much cheaper, the amateur may grow a considerable number of varieties, and at the same time have the chance of breaking them fine, and thus very probably have the whole stock of a superior strain in his own hands. In Tulip growing, the strain, as it is usually termed by florists, is of the very first importance; this the amateur commencing their cultivation must ever bear in mind, for in the course of a long life it may save him hundreds of pounds. Most assuredly, a Polyphemus, Strong's King, Duke of Devonshire, &c., may be broken from the breeder, and sold as such, but as for ever coming in a winning state there are very many chances against it. Since I began Tulip growing, I have changed many of my sorts several times over, having had bad strains palmed on me as being fine. In growing breeders, this is in a great measure obviated, and the grower feels a conscious pride in the bantling of his own, which has more regular features, and evinces a steadier disposition, than the *elèves* of his neighbours.

In describing the breeders it will be well to observe that many are very scarce, though some are plentiful in this locality; still I trust that my brother florists will "jot down" the varieties that they may wish to obtain, that when opportunity serves they may not miss the chance of getting them.

In Bizarre Breeders, Harpham's *Invincible* is a fine and large flower, not yet broken to my knowledge, tall in its growth, cup of fine form, and the base of a fine golden yellow.

Diadem.—The stock of this flower, consisting of about six breeders, one rectified flower and offsets, has been bought for 15*l.*, which in this part of the country is considered a large sum. The breeder is a noble flower, cup like Polyphemus, ground-colour of a splendid bright yellow, with well rounded petals. The rectified flower is a beautiful and striking flame, having a scarlet (like Titian) mingled with the darker colour, which is intense also. A finer flower than Diadem has not been originated in this part of the world lately. As far as properties go the following is equally good, but has not yet been broke: Wood's *George John Robinson* (like its namesake) has every good quality to recommend it, cup about half a globe, thick velvety petals, obtuse, and of a clear chestnut, the base pure, and in all respects first-rate, and amongst its other good points it is one of the first to expand, and one of the last to fade; in Floricultural phraseology, "it stands well."

Duke of Hamilton.—This is a fine and good variety, peculiar for its well-shaped cup and good colour. I believe it was christened by Mr. Slater, of Manchester; it has been broken this year in very fine style, and in either state will prove an acquisition.

Defiance.—This is something in the way of Victory breeder, but with shorter cup; here it has bloomed finely in a feathered state and by most people considered superior to Royal Sovereign.

Lord Stanley (*Wood's*).—Of this variety which has now bloomed two years, all that can be said at present is, that in its breeder state it is very fine, rising well, with a strong elastic stem; it bears most gracefully a clean and nearly perfect cup: of this variety I entertain a high opinion.

Earl of Nottingham, was originated in this neighbourhood, and is one of the purest cupped flowers grown; and either to exhibit as a breeder, or in its rectified state, is certainly first-rate.

Oriflamme.—This is a beautiful bizarre breeder, inclining to scarlet; the cup is superb, and the interior of the most dazzling yellow possible; it stands in a fine form, and attracts attention in a moment. It has been broken, and flames finely up each petal, but without feathering, which is rather against it here. I should imagine, however, it is something in the way of Enterprise, broken, I understand, by Mr. Sandars. It is far superior to Osiris, which, with me, is always slightly stained.

Conquest (Mart's).—This as a breeder is good, being clear and of fine form; it has not yet broken with me; but, from its appearance, I should imagine that it will throw a good flower.

Imperator (Wheatley's).—The variety here alluded to is remarkably clean, and of good form, breaking to a fine feathered flower; it came originally from Derby, but the raiser's name is unknown.

Alderman Herbert (Wood's).—As a breeder this variety has one drawback, the cup being slightly stained; it has, however, every other good property, and the breeder-colour especially being beautiful; I fancy the tinge is so slight, that, should the flower come feathered, it may break out.

In Byblomens we have some fine varieties in the Midland Counties, the broken flowers of which have been previously enumerated. The undermentioned are generally fine, some of them peculiarly so, and deserving extensive cultivation:—

Madonna (Gibben's), is a noble flower, large, well formed, and with a pure cup. It has not yet been broken.

Dr. Hook (Wood's).—Colour a deep purple, with pure white bottom; the stock are still in a breeder state.

Democrat (Dixon's).—This variety is universally admired for its thick petals, good cup, and general qualities. I have not yet seen it rectified, but I understand it breaks well.

Portia.—The raiser's name unknown, good, and fit to stand by any byblomen I know.

Mercutius.—This is a large flower, with good qualities; with me it came perfectly pure cupped this season, though I understand an amateur in Lancashire, who had one of me last year, has bloomed it rather stained; how far certain soil or situations may affect the purity of the Tulip it will be interesting to know.

Cecilia (Wood's).—Of this breeder I can only say that its properties as to shape, purity, colour, &c., are first-rate, and equal I think to Madonna, above alluded to.

Roses are the scarcest class with us, but one of the most pleasing, and, take it altogether, one of the best in *Arlette* (Dixon's), combined to a good cup, and perfect purity, the rose or breeder colour is the most beautiful imaginable. This breaks to a finely feathered flower.

Queen Mab.—Very pretty, very pure, but rather too long.

Miss Blake.—A very pure and delicate pink breeder the cup good, and petals velvety; very distinct.

Fairy Queen (Slater's).—This sort is too long in the cup, otherwise the bottom is pure and colour good.

Amelia (Abbot's).—This was originated at the village of Stanton, near Nottingham, and sent by me some years ago to Manchester, where it was much admired. It breaks to a fine feather, but unfortunately though the cup is pure the filaments which support the anthers are impure.

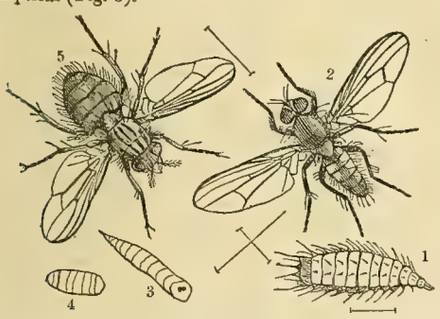
Pauline (Harpham's).—This is a very beautiful dark rose, not yet broken, and very scarce. It is inferior to none in cultivation. The very best six breeders of the above-mentioned varieties are Diadem and George John Robinson, bizarres; Madonna and Cecilia, byblomens; and in Roses, Arlette and Pauline.—*W.*

ENTOMOLOGY.

The Potato Flies.—Besides multitudes of the Mylobrus fucatus, whose history was recently published, bred the following species of flies from the same Potat namely, 2 of Scathopse punctata; 48 of Musca stabularis, 2 of them males; 58 of Anthomyia tuberosa, mo than half of them males; 18 of Drosophila cellaris, a

2 of a Borborus; making 128 specimens, independent of many more that had either died in their transformations, or been destroyed by the damp and mites during my absence from home, and also vast numbers of Psychoda nervosa, which flew out of the pot whenever it was opened.

Before describing them, I must state that about the middle of last August, on opening a wicker hamper in which Potatoes were kept for daily use, I found one growing and partially rotten: my curiosity was excited by observing that it was infested with dipterous maggots, which had accumulated in large groups beneath it in the slimy matter, together with their pupæ. The largest maggots were exceedingly like those of the flesh-fly: they were whitish, of an ochreous tint inside, exhibiting whitish lines of the viscera through the transparent skin; the head was pointed, with a black proboscis formed of two horny claws, and at the tail were the spiracles, like two black horny knobs (Fig. 3). The pupæ with them were oval, of a bright chestnut color, the segments slightly marked, the head rounded and wrinkled to a point, the tail exhibiting two black spiracular tubes (Fig. 4.) In the course of the autumn they produced flies called by Fallen Musca stabularis: the male is of an ash colour, clothed with black bristles; the palpi are ferruginous; the antennæ drooping, 5 jointed, and ferruginous, the base pitchy, third joint elliptical and hoary, except at the base, the seta black and plumose, the basal joint minute; eyes large, approximating, naked and castaneous, the margins silvery white, as well as the face, with a black stripe tapering from the antennæ to the three ocelli: thorax hoary, with four black longitudinal stripes before, the two central ones the longest, with a spot on each side beyond the centre; scutellum hoary, with a dark stripe at the base, the apex ferruginous: abdomen ashy-ochreous, shining, variegated with brown patches; wings with the apical cell not angulated but suddenly rounded; squamulæ with the margins pale, fulvous, concealing the ochreous balancers; legs black, apex of thighs and tibiæ ferruginous; pulvelli elongated. Female similar, but the eyes do not approximate, the face has a yellow tinge, and the stripe is broad and elliptical (Fig. 5).



At the same time another larva was equally numerous, but either from its being in a young state, or from its dingy colour, I observed only one; but there were great numbers of the pupæ and dead flies with the others in the pot. These maggots are very singular; they are sluggish but can crawl well, of a dull tawny colour, somewhat depressed, elliptical, tapering to the head, which is moved about, and when protruded is whitish and fleshy, with two minute ebony-like hooks, and there is a little fleshy horn on each side; on the following segment is a spiracle, on either side, surrounded by several stout short rays; the following segments have a double series of tubercles down the back, each producing a bristle, with a double row on each side; at the apex are six diverging bristles, the outer pair very long, they are toothed at the base, as are the others, but in a less degree; on the back of the apical segment are two large spiracular tubercles (Fig. 1). The pupa being the indurated skin of the larva, it varies only in being more convex above, and the fly escapes by the thorax opening laterally.

As this larva does not agree with the figures given of that of Anthomyia canicularis,* although the flies differ but little, I am constrained to assign to it a new name, and, in accordance with its habits, I shall call it Anthomyia tuberosa: Bouché has proposed the genus Homalomyia to comprise the flies with these larvæ. The male is greyish-black and bristly; the eyes are castaneous, naked, approximating on the crown, the inner margin is silvery white; antennæ drooping, 5 jointed, third oblong, fourth a slender elongated basal joint to the longest pubescent seta; thorax with five indistinct broad stripes down the back, second and third abdominal segments with bright ochreous spots on each side, third rarely with two similar minute spots; wings transparent, nervures dark, the two transverse not very remote, balancers tawny white; legs black, base of tibiæ indistinctly ferruginous (Fig. 2. The lines showing the natural sizes of the objects.) Female ashy slate colour; the eyes smaller and remote, the face not silvery; thorax with five distinct broad blackish lines down the back: abdomen ovate-conic, with two indistinct ochreous spots on the second abdominal segment, which are slightly transparent, in other respects this sex is similar to the male.

It will be observed that in A. canicularis the lines on the thorax are narrower and less visible, the basal abdominal segment is not entirely dark, the ochreous spots are larger, the knees are much more evidently ferruginous, and in the female the stripes on the thorax are scarcely defined, and different in their proportions, and the second abdominal segment is often ochreous.

It is a very remarkable fact that larvæ very similar to the above described, and belonging to allied species, have been ejected in large quantities from the human stomach and intestines, but no probable conjecture has been hinted at as to the way in which they may have been introduced into such strange localities. I am now induced to think that they are conveyed there in badly or half-cooked vegetables, either in the egg or larva state, and as they thrive in excrementitious substances, they would be able, under certain morbid conditions of the constitution, to live for many weeks in the human body.

For the other flies alluded to, I must refer to Meigen's Diptera, but Psychoda and Drosophila will be found figured and described in Curtis's British Entomology, folios and plates 745 and 473.—*Ruricola.*

* Bouché Nat. Ins. pl. 6, fig. 3 to 6, and Ent. Trans. v. 2, pl. 15, fig. 1 to 9.

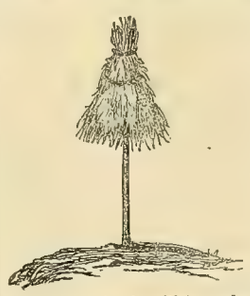
Home Correspondence.

Potato Murrain: Autumn Planting.—I am so persuaded as to the benefits of autumn planting, under existing circumstances, that I intend, if time permit, to plant all my early Potatoes as soon as possible. I am much afraid, however, that many autumn planters, who are trying for the first time, will fall into some errors, as well as labour under some degree of misconception as to the object to be attained, and how to attain it. I find an impression prevailing, that early Kidneys, with other very early kinds, planted in autumn will come earlier into the market than spring planted ones; this, I would suggest, is by no means obliged to be the case. The prime objects, I confess, that I have in view in autumn planting the early kinds are threefold. First, to secure the first sprouts; secondly, to provide against shrivelling, and, by consequence, loss of power; and thirdly, to ensure a strong body of fibres in advance of the haulm or top. Now these are, or ought to be, the principal reasons for autumn planting the early kinds, in addition to which, another of a speculative character, and which holds equally good with regard to the later crops, viz. to call in to our aid the excitability of the vital forces, as antagonistic, in some degree, to total decay. Any plan for producing earlier Potatoes from the open ground than are usually produced by ordinary means, will prove in the end fallacious, unless based on some mode of covering at night, as security against the late spring frosts. Early Potatoes as a safe crop must not be allowed to thrust their heads through the soil until the last week of April by any means: I would, however, prefer an autumn planted crop coming through in the second week of May, with a strong impulse through long accumulated power of root, to one of an earlier date. Another matter is, I consider, of some importance in autumn planting: accumulated wet on close soils may prove more prejudicial than frost, provided it lodges in any degree. Now, in this case, how much, how very much will depend on the relation the Potato set bears to the common ground level, or to the alley between the beds or rows. All I plant at present are done thus: the ground is marked out for double drills (which I consider superior for green crops in general to single drills, when managed accordingly), it is then manured and spread, and next the alleys are pared, if foul, on the manure; it is then dug, and the weeds, of course, are in the bottom, after which I draw two drills with a common hoe, like Pea drills, and insert the sets in the drill, where they are somewhat amongst, but chiefly above the manure; finally, the pair of drills are soiled over from the alleys, nine inches deep, leaving ten inches of a shoulder to each side of the double drills, which are about fifteen to eighteen inches apart. The Potato sets are by this mode about six inches above the level of the alleys, or, in other words, on the common ground level. This may be called a mere garden plan; be it so, the time will come when agriculture and horticulture will agree much better than at present. I am sorry to add that I saw a self-set Potato the other day, from an early kind, about three inches high, or, in fact, as early Potatoes are generally in the middle of May, which had the mildew fungus precisely similar to those of September last; the leaf had the same black rings or spots, and decay had already commenced; this augurs badly for those of the spring planting. As to those planted in spring, I am much afraid that precautions will be vain, as I have no doubt the very hedges are full of the sporules of this sad mildew. The Oak, the Blackthorn, and the common Nettle were prematurely destroyed around the Potato fields in this neighbourhood at the period when the mildew was at its height; they also decayed in black patches in the leaf as the Potatoes, but whether the same, or a fungus at all, I cannot say; things looked very suspicious. The Oak and the Nettle were generally affected.—*R. Errington, Oulton Park.* [We trust there is no real cause for alarm on this head. Experiments conducted for the purpose of ascertaining whether the disease will appear in any other crops seem at present to show that there is nothing to apprehend. There can, however, be no doubt that every possible means should be taken to secure a healthy growth next year.]

Storing Potatoes.—Having pitted a quantity of Prince Regent Potatoes about two months ago, of which about one-half was greened by exposure to the atmosphere, and the rest put in without undergoing that process, although dried before pitting, and having opened the pit to-day, it was found that those that were not greened ran about one good out of 20, while those that were greened ran about one bad out of 12; the shoots springing from those which were not greened were likewise formed into small Potatoes, while there was not one specimen of the kind among those which were greened; they appeared to be fine and healthy. I may add that there was no appearance of disease amongst them at the time they were pitted.—*D. S. G.*

Garden Libraries.—It is gratifying in these days, when the mind of most persons seems totally absorbed in objects of speculation, to hear of the laudable example which Messrs. Knight and Perry have set, in the establishment of a library for the use of those employed in their nursery. In an early volume of the "Gardeners' Magazine," its conductor has pointed out the advantages to be derived from the establishment of garden libraries, and that his efforts to benefit gardeners and others in this way were not in vain, abundant evidence is given by the communications from various parts of the country, announcing the formation of several of these libraries, which are to be found in the volume in which Mr. Loudon's suggestions appeared (viz., vol. 2, p. 108), and also in subsequent volumes. It is true, I regret to say, that these are by no means so numerous as they should be, but I trust the time has now arrived when a library will be considered an indispensable requisite in the garden of every country seat, and also in every nursery. It is, indeed, to be hoped that all those nurserymen who have not already a library for the use of those in their employ, and whose means will justify them in so doing, will speedily follow the admirable example which has been set them. It is very pleasing to find Mr. Chambers' saying, at the last annual *soirée* given by the Messrs. Chambers', in Edinburgh, to those employed by them, "in addition to the ordinary payment for labour, my brother and I feel that we do no more than our duty in now tendering our best thanks for the diligence and good conduct displayed by all in our employment during the past 12 months." In like manner, the nurseryman is equally indebted to those by whose labour he is enabled to carry on his concerns; and the forming of a library for their use would be a means of testifying his sympathy for them. To landed proprietors, who have abundance of means, this applies with much greater force. A few days since, I heard, from good authority, that a very benevolent lady, who takes a great interest in the subject of cottage gardens, has established in Yorkshire a small horticultural exhibition, to inspire a taste for such pursuits among the labourers; and at the same place a lending library is connected with the school. Such benevolent actions deserve our highest commendation—nay more, they call on us, very forcibly, to imitate them.—*Ortolano.*

Roses.—The following method of protecting tender Roses has been pursued by me for many years with success. In autumn I gather the branches of the trees, and tie them loosely together, after which I place a cap of Furze branches over the head of the tree in an inverted position, sufficiently thick to throw off the wet, and protect them from frost. The Furze is tied on, either with osiers or tarred string, about two ties to each cap will be sufficient to keep it in its place. I find that furze is preferable to hay, as the latter becomes wet, and in consequence settles so closely to the branches of the trees that the buds are forced into premature growth, and when uncovered in spring are found to have grown some length, and to be completely blanched, which renders it necessary to cut them quite back, and their blooming season is very much retarded in consequence. The furze, whilst affording sufficient protection from frost, admits sufficient air to keep the buds in a healthy state; and if it becomes wet with rain, it will in a short time be quite dry again, and when taken off in spring the buds will be found to be quite healthy and sound, without having been forced into an unnatural growth, as I have found to be the case where I have used hay, and as the furze retains its greenness nearly through the winter, it will not have an unsightly appearance. In this way I have preserved some of the most tender kinds as standards, without experiencing any loss from the effects of winter.—*C. Judd.*



Thornfield Pines.—In your Number for Oct. 11, p. 690, I read under this head as follows:—"Mr. Hamilton says that he only recommends pot culture for this reason: when the plants have made three or four months' growth, they may be made to show fruit a any time, by the simple process of turning the pot, shaking it now and then till the fruit appears. Th may plants, or rather suckers, be made to show at r season." Now, "A Subscriber," to Mr. H.'s first tion finds no information on pot turning or pot s ing to cause fruitfulness, which, from its vast portance, should not have been omitted. He therefore, to ask Mr. H. to give a few particul the pot shaking and pot turning system; esp how often it is necessary to perform each opera insure success.—*M. G.*

Pine-apples.—I beg to subjoin a few extracts columns of the *Chronicle*, by which it appea deners have rather retrograded than adv Pine culture:—Nov. 11, 1843, it is stated th Pines averaged 5½ lbs.; and that a Queen ing 6 lbs. 4 oz., was exhibited Oct. 1

iter er," sect with ong as rm, the oying the s given ud in saving to destroy cells. Mr.

Murray, gardener to the Marquis of Bath. In the same Number, W. Dawson, of Bicton, sends a table of the weights of the Pines there, of which the heaviest is 6 lbs. 2 oz. In the Number for Nov. 18, 1843, I find it stated that Mr. Spenser, of Bowood, had Queen Pines weighing respectively 5 lbs. 14 oz., 5 lbs. 13 oz., 5 lbs. 12 oz., and 5 lbs. 10 oz. Dec. 2, 1843, J. Piller of Exeter, eulogises Mr. Glendinning, and says that in 1835 one was cut at Bicton weighing 6 lbs. 3 oz. And, finally, in the Number for Dec. 30, 1843, R. H. Pope affirms that, 35 years ago, he cut 20 Pines, weighing 118 lbs. Some few months back, Mr. B. spoke of 21 of his Pines averaging 106 lbs., and particularises the heaviest as 5 lb. 9 oz. Surely these statements would make it appear that, in Pine growing, there is, to use Mr. B.'s own phrase, "a standing still." That this little retrospect may urge them to move is the sincere wish of—*A Kentish Amateur.* [We have omitted a portion of this letter, partly because it is personal, and partly because the personality is founded upon misinformation.]

Quercus sessiliflora.—I was in hopes that Mr. Malleson would have replied to the remarks (if such they may be called), of "An Old Forester," p. 737, who, if he be a forester, I suspect must have lived in the back woods all his life. A long list of very doubtful authorities is certainly no answer to facts. I write this in order to prevent your readers from falling into the error of "An Old Forester," and to add my testimony of the truth of Mr. Malleson's remarks upon the value of this much neglected tree. Mr. M. has referred to my memoir of the "Botany of Sussex," in which I drew attention to this tree, and in a previous portion of the memoir I drew attention to the fact that the wood of Q. sessiliflora was of as much if not of more value than that of Q. pedunculata. In confirmation of this opinion, I then stated what I now repeat, that the piles of old London Bridge which had stood so many years, were made from Q. sessiliflora, as is also the roof of Westminster Abbey, and all the wood found in old buildings, and commonly stated to be Chestnut wood, of which fact any one may satisfy themselves by comparing the two. Q. sessiliflora is a finer and taller tree than Q. pedunculata. If your correspondent be a fair sample of foresters, we need not wonder long how it is that Q. sessiliflora is so rarely met with. So far from misleading your readers they certainly are indebted to Mr. Malleson for drawing their attention to the value of this tree. This may probably be read by some who possess woods, and it may be of even further service, by drawing their attention to whom they intrust their timber and its growth—a question of much interest pecuniarily to themselves and of importance to the nation at large, but a question which I am sorry to say has hitherto been almost entirely overlooked by the owners of estates in England.—*T. H. Cooper, Camden Town, London.*

To Keep Hares and Rabbits from Barking Trees.—Mix soot and milk until it acquires the consistency of thick paint, and apply it with a paint-brush, choosing a dry day if possible for the operation; once a-year is sufficient. The garden and orchard here are surrounded with wood. Before I tried this remedy I was very much annoyed with them. I have used it with the greatest success for two years.—*Geo. Wells, Scotney Castle.*

Vines in Dwelling-houses.—A singular instance of the growth of a Vine may be seen at the Angel Inn, Halesworth, Suffolk; a large portion is trained in the front of the house and stables, but a branch 23 feet in length is conveyed through the windows of a sitting-room, crossing the ceiling to the centre of the house, where it is trained to a lofty skylight, producing fruit in abundance. Might not some of our mechanics and others enjoy this delicious fruit, by introducing the Vine in their workshops, in a similar manner?—*N. S. Hodson, Bury St. Edmunds.* [Certainly they might.]

Ornithology.—The remarks under this head at p. 785 evidently refer to the Motacilla boarula, or Grey Wagtail, of whose peculiarities an interesting account was given at p. 737, 1843, and at p. 557, 1844. In two instances I have seen this little bird perform the same sort of freaks as have been detailed by your correspondents, but in neither could I discover anything that would satisfactorily account for its singular movements. It has been suggested by a writer in the "Zoologist," that the poor bird is probably a disconsolate widower, and seeing himself in the glass, "mistakes his own mould of form for the person of his lost mate;" but however plausible may be the idea, it was not supported by the facts which came under my notice; I was inclined to think the other suggestion, quoted by your correspondent, of the bird fancying it saw insects, was more likely to be near the truth. But here, again, the supposition was contradicted in some measure by the circumstance of the bird continuing to fly and tap at the me window for several weeks, without its perceiving e resemblance of insects in any other than the it first took possession of. I suspect we have yet learn the cause which apparently renders our thered angel" so unhappy. However annoying its g may be to some, I shall welcome my visitor, and h his motions a little more narrowly the next time favoured with his company.—*W. B. Booth.*——tic the winter of last year a friend of mine had his lousattacked by a blackbird just in the way deworc "C. W. H." The window was occasionally cess see if the creature wished to gain admittance, with soon discovered this was not his object, for he or dry c. commenced dashing against some other judgment.

portion of the window which was closed. The situation of the house is in a valley adjoining, or rather is on a part of Salisbury plain; it is surrounded with trees and shrubs. In addition to the above I may mention that a water-wagtail was observed time after time to dash against a window in pursuit of flies which were inside The individual who occupied the house watched, for the purpose of discovering the object of the bird, and he is quite satisfied that food was the impelling motive. The bird was caught by the "good man of the house," who was going from home, and who took the bird with him a distance of six miles, when the creature was set at liberty. The individual returned home in the evening, when his housekeeper inquired at what time the bird was set free; upon being informed, she mentioned, to her master's astonishment, that the bird was at his old tricks within half an hour of the time of liberation. He rather questioned whether it was the same bird, but she assured him she had no doubt, as its feathers were much ruffled, which was the case, the bird having been carried to the end of its journey in a small bag.—*J. J. F., Devizes, Wilts.*——The window of a sitting-room having been occasionally visited by a bird for some years as described above, the last time being on Nov. 30th, I beg to give the following solution of the mystery. The bird is a species of fly-catcher, and the objects of its pursuit are the flies, which, drawn out by the heat of the room, crawl on the inside of the window-panes, and which during the winter months it would not find in sufficient quantities for its sustenance in the open air. This will account for its avoiding a blank or an open window. The window of my room against which it always flies, has a parapet before it along which it runs, then stops for a minute, and darts at the glass; and I have remarked it to look up as if examining the window, and then fly away, without springing against it as usual, which is I think an argument against the idea that it is attracted by the reflection of its own figure in the glass—*H. H. H.*——"The mirrors present a glittering dazzling appearance in the rays of the sun; the poor birds are attracted thither, as it were, by some irresistible impulse, and are enclosed in the nets, or shot down by hundreds. It is on the same principle that birds are attracted by the strong light exhibited by the lighthouses of our coasts: they sometimes fly with such violence against the plate-glass windows as to fall down dead, or stunned." See a little book on the Lark, as an example of cheerfulness, printed for the Society for Promoting Christian Knowledge.—*G. A. C.*

Apple Refuse as Manure.—Will some of your readers in Herefordshire or Devonshire inform me of a useful mode of applying the Apple chogs? I mean the refuse of the Apples after extraction of the juice. Chemical knowledge might perhaps suggest some useful hints as to the treatment and application of this substance. Reduced to ashes, might it not with advantage be applied to Apple orchards and other land? In the former case, it would, perhaps, restore to the soil some of the productive qualities exhausted by the trees. Mr. James F. W. Johnston, in his "Elements of Agricultural Chemistry and Geology," has a section upon ashes, in which he treats of kelp, wood-ash, straw-ashes, &c.; and in another part, p. 49, he gives a table, from which I take the following estimate of 1000 lbs., of the ash of the fruit of the Apple tree (Pyrus spectabilis—Chinese Crab).

Carbonates of potash and soda	190
Phosphate of do.	141
Carbonate of lime	370
Carbonate of magnesia	55
Phosphates of lime and magnesia	186
Silica	37
	979

—*G. A. C.*

Fraudulent Seedsmen.—A fruiterer was once observed placing the finest and largest fruit on the top of a basket for sale. "Is not that dishonest?" said an observer. "Will not the purchaser think the whole basket equal in quality to the top, and is not that a deception?" "Not at all;" said the fruiterer, "everybody knows we do so." Does any man in passing a house, and reading, "This very desirable family residence, &c. to let," believe that it is really very desirable? I doubt it. And I should have doubted also that any one in this day of floricultural advantages would have purchased seeds, flowers, or fruit, simply from an advertiser asserting they were choice, or beautiful, or matchless, or splendid, &c. Are we not neglecting the opportunities afforded us by the great horticultural exhibitions? If any florist's flower is really fine, it will find its way there, and then ought our notes to be made by which our purchases should be guided; and from our own plants so selected should be saved the seed from which we may justly hope to raise improved varieties. It may be taken as a rule that no successful raiser of seedling florist flowers will part with any seed he would sow himself. It would be as reasonable to expect an inventor to give you his secret before he had secured it by patent. Then how is it that the seeds are sold? Simply thus: the seedsmen have a demand, and they obtain the best they can, and they must take the description of its parentage as it is given them. It is advertised as saved from the choicest varieties, and the falsity justified on the fruiterer's plea, that nobody believes it; persons purchase like Mr. Malcolm, and are disgusted, and buy no more; but there is always a fresh succession to see "the horse's head where his tail should be": only they are not equally generous to tell that they have been taken in, and so keep others outside the stable door.—*Veritas.*

Societies.

HORTICULTURAL SOCIETY.

Dec. 2.—R. W. Barchard, Esq., in the chair. Considering the season, a large number of beautiful objects were brought together. A Knightian Medal was awarded to Mr. Plumbly, gr. to C. J. Dimsdale, Esq., for four magnificent specimens of Cape Heath; especially one of hiemalis, measuring about 5 feet across, and 4 feet in height.—From Mr. Moore, gr. to the Earl of Auckland, were two plants of Dysophylla stellata, for which a Banksian Medal was awarded. This pretty little Indian annual looks something like a Bedstraw; but is more erect, and bears numerous spikes of pretty violet blossoms, which, in their arrangement, somewhat resemble those of a Mint; being, in its native country, an inhabitant of warm swamps, to grow it well it requires plenty of heat and moisture.—Mr Robertson, gr. to Mrs. Lawrence, sent the charming Saccolabium denticulatum, with numerous clusters of small flowers, which appear as if covered with frozen dewdrops; Epidendrum viscosum, a species from the central part of America; and the scarlet-flowered Pitcairnia splendens, the gayest of the genus. Along with these were Cypripedium venustum; Catasetum Naso, a species imported in 1842 by Linden; Portlandia grandiflora, a fine old stove-plant, with large snow-white Convolvulus-like flowers; the beautiful little Guatemala Lælia acuminata; and cut specimens of Epidendrum nutans, and of the Indian Ipomœa cymosa, which ornaments our stoves at this season, with small white yellow-eyed flowers. A Banksian Medal was awarded for the first three plants. Several cut specimens of Orchids were produced from the gardens of the Duke of Devonshire, at Chatsworth. These consisted of the orange-flowered Cymbidium giganteum, a species of recent introduction; Trichosma suavis, an East Indian plant, introduced by Mr. Gibson, which, on account of its sweet perfume, is highly esteemed by the native women, who adorn their hair with its blossoms; Maxillaria cucullata; and the very curious Bolbophyllum Gibsoni, with dark purple flowers, arranged in a dense knot, having something of the appearance of a good-sized Raspberry. The plant was also found by Mr. Gibson, on trees near the summits of the Sylhet Hills, where the climate is temperate.—Of Chrysanthemums, beautiful collections were present, from Messrs. Chandler and Son, of Vauxhall, and from Mr. Wright, of Hackney. Mr. Higgs, gr. to J. H. Barchard, Esq., sent a plant of Primula sinensis, which, instead of flowers, had produced tufts of leaves, beautifully exhibiting the transformation of the one organ into the other, and confirming the doctrine that the different parts of which a flower is composed are not essentially different, and that at certain stages of growth they will become either the one or the other, according to the circumstances under which they may be placed. This transformation in the Chinese Primula is not uncommon, especially at this season.—Of Fruit, the greatest novelty was produced by Mr. Lane, gr. to H. Palmer, Esq., of Fulham, in the shape of ripe fruit of Benthamia fragifera. This is not fit to eat, but is a rarity, and handsome in appearance. It has been reported that this Indian tree was quite hardy; but experience has not confirmed the statement; for although it will grow out of doors, yet it requires the aid of a greenhouse to grow it to anything like perfection. The plant from which the specimens sent were taken, was stated to be growing in a pot in a conservatory, and to be about 12 feet in height.—Of Pine-apples three specimens, weighing respectively 2 lbs. 9 oz., 2 lbs. 10 oz., and 3 lbs., came from Mr. Busby, gr. to S. Crawley, Esq.; and fine bunches of Black Hamburgh Grapes were sent by G. Crawshay, Esq., of Colney Hatch. These were produced without the aid of fire-heat till about the beginning of November, when slight fires are made, not for the purpose of raising the temperature, but to keep out frost and to dry up the damp. The principal feature in Mr. Crawshay's system of Grape-growing is, that he allows the Vines to have plenty of air, the Vinery being well contrived for that purpose. They were well swelled and finely-coloured, and considering the season were remarkable specimens.—From Mr. Robson, gr. to W. Gambier, Esq., was a dish of Late Admirable Peaches.—From the Garden of the Society were plants of Cypripedium venustum and insigne, a large specimen of Zygopetalum intermedium, Achimenes picta, a Cape Heath; the showy Pimelea spectabilis, the useful Begonia semperflorens, Boldoa fragrans with clusters of greenish blossoms, and a collection of Chrysanthemums. The fruit consisted of Apples and Pears; among the former were the Golden Reinette, an old variety, but still one of the best for dessert; Claygate Pearmain, preferred by some to the Ribston Pippin; Sam Young, an Irish variety, not large, but good and an abundant bearer; Mère de Ménage, and Dumelow's Seedling, both kitchen Apples; the latter one of the very best in cultivation. The Pears consisted of Ne Plus Meuris, Glout Morceau, Winter Nelis, Bergamotte Cadette, and Beurré d'Aremberg, both from a wall and from a standard. Those from the latter were not a quarter so large as the fruit from the wall but were much better flavoured, and assumed quite a different appearance, being quite covered over with russet.

LINNEAN SOCIETY.

Dec. 2.—Edward Forster, Esq., in the chair. Mr. Edwin Charles Charlton was elected a fellow. A paper was read on the structure and anatomy of the Eriocauloneæ,

by the late William Griffith, Esq. The axis of these plants is a rhizome, from which leaves and flower-stalks arise. In most cases they are submerged plants, in Eriocaulon setaceum the leaves are emerged. The leaves are hollow, white below and green above. They are covered with an epidermis on the inner side of which is a layer of cells, the under layer containing granules of a green colour. The interior is hollow, but the cavity is divided by vertical septa, which are composed of cellular tissue. In the midst of the cells a great number of raphides are frequently observed. Raphides are seen in the same position in Pontedera. On the under side of the leaves the epidermis was supplied with stomata. The author pointed out the existence of an epidermis and stomata on these plants as forming an exception to the general law of the absence of these organs in submerged plants. He pointed out also the relation between these plants and the Xrideæ, and Lobeliaceæ. The paper was illustrated by several drawings. At the conclusion of the paper the Chairman stated his regret that they could no longer return their thanks to the lamented author of this paper, but as all Mr. Griffith's communications passed through Mr. R. H. Solly's hands, he proposed a vote of thanks to Mr. Solly.

Reviews.

The Gooseberry Growers' Register, or an account of the different Gooseberry Shows held in Lancashire and Cheshire, and other parts of the Kingdom, for the year 1845; to which is added a statement, exhibiting at one view, the number of Prizes won by each sort of Berry at the different Meetings. Manchester: T. Whittaker, Blackley, and J. Wolstencroft.

This contains accounts of 171 Gooseberry Shows, held in the last season. The following are some of the principal varieties of prize Gooseberries:—

Red.	dwts.	grs.	*Yellow.*	dwts.	grs.
London ..	.. 36	16	Leader ..	.. 26	17
Wonderful ..	.. 33	0	Catherina ..	.. 30	4
Companion ..	.. 28	0	Two to One ..	.. 28	0
Conquering Hero	.. 30	18	Pilot	.. 25	16
Lion	.. 25	12	Gunner ..	.. 23	21
Lion's Provider	.. 28	0	Dublin ..	.. 26	16
Green.			*White.*		
Thumper ..	.. 27	16	Freedom ..	.. 27	8
Overall ..	.. 25	7	Queen of Trumps	.. 24	0
Turnout ..	.. 23	6	Eagle	.. 23	14
Weathercock	.. 24	6	Cossack ..	.. 25	16
Peacock ..	.. 26	15	Tally-ho ..	.. 25	14
Queen Victoria	.. 26	0	Miss Walton	.. 24	19

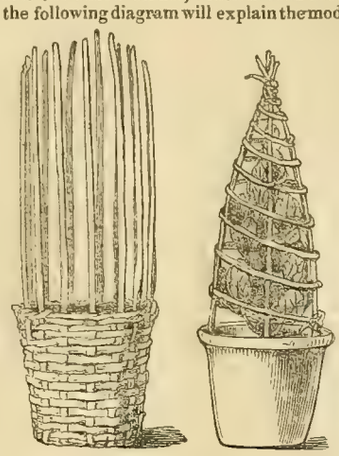
It will be seen from the above that the London is the heaviest by upwards of 3 dwts.; and Mr. Whittaker informs us it is the heaviest berry ever grown. It is astonishing that at all these shows the awards are made solely with reference to weight; and that no encouragement is held out for raising seedlings of superior flavour. The work exhibits careless printing, even in the title page. Those, however, who have a fancy for growing large Gooseberries will find it useful.

New Plants.

Anemone japonica. Japanese Anemone. (*Half-hardy Perennial.*) Ranunculaceæ. Polyandria Polygynia.—How any one, calling himself a botanist, could have fancied this plant to be an Atragene passes our skill to explain. Yet such has been the case, for it stands as an Atragene in the writings of Thunberg, a Swedish botanist, who once possessed some reputation. De Candolle might well hint that it was probably an Anemone, as indeed was tolerably apparent from the description of it. It is not only an Anemone, but a most beautiful one, not inferior to the Chinese Chrysanthemum, or even the Anemone coronaria of the East. For its introduction to this country the public is indebted to the Horticultural Society, who received it from Mr. Fortune, in 1844. That indefatigable collector had met with it at Shanghae, the Japanese port of China. It has flowered this autumn in great beauty in the garden of the Society, in a greenhouse, its flowering stems being nearly 2 feet high. It may, however, be expected to be better suited to the open border, at least during summer, and it is probable that it will not suffer even from the cold of winter. According to Siebold it inhabits damp woods, on the edges of rivulets, on the mountain called Kifune, near the city of Miako, in Japan. The same author tells us that it is much cultivated by the Japanese, for the sake of its beautiful purple blossoms. Many find it to prefer a moist loamy soil. It is usually propagated in Japan by offsets, for its seeds rarely ripen. M. Siebold adds, that it grows at considerable elevations on the mountains of the centre of Japan, whence he infers that it will bear even a continental winter.—*Botanical Register.*

Garden Memoranda.

Mr. E. Beck's, Worton Cottage, Isleworth.—Those who are growers of Pelargoniums and Roses would do well to visit this place, for the purpose of observing the mode of winter treatment of these beautiful tribes of plants. The glass erections consist of a range of tank-houses, 150 feet in length; one-third being heated with Stephenson's iron tanks, one-third with tanks constructed with wood, and the remainder with a tank formed of slate. These "lean to" a south wall. There are also two span-roofed houses, 45 feet and 30 feet respectively, and a lean-to house for specimen plants, 26 feet in length. In addition to these, there is a long range of cold frames, and a plunging-bed, over which a frame is erected adapted for shelter in winter and shade in summer. The greenhouses are filled with specimen Pelargoniums, and seedlings of the present year, the former in that state of rest described in No. 37, and the latter in beautiful condition, both as regards growth and colour. The arrangement of the whole, and the neatness and cleanliness observed in every part, reflects credit upon Mr. Dobson, the gardener. In passing, we noticed a novel and excellent mode of packing plants for sending out, and which, we learn, has ensured their transmission, in the finest condition, to the most distant parts. Four small willow twigs are stuck round the pot and tied at the top, the leaves that protrude beyond are carefully passed within, and bass tied round to keep them in their places, the whole is then enveloped in a sheet of thin paper, and dropped into the willow basket, which is then secured at the top, the following diagram will explain the mode of proceeding.



The Roses are thus disposed:—In the cold frames are placed the tender varieties; at the back and front of each box one board is hung upon hinges, by which a free current of air is admitted when it is desirable to keep on the lights. All the bottoms are slate on which the plants stand, affording perfect drainage, and preserving the wood work of the frame from decay. The hardier varieties are all placed in trenches, the sides of which are supported by slate, which in such a situation is imperishable. At the bottom of the trench two bricks are placed on edge, on these the pots are ranged, and then the trench is filled with old tan or sawdust, and well trodden in. It will at once be seen that the drainage is preserved perfect, and that though worms may get out they cannot get in. The roots also that may work out of the hole of the pot find nothing to strike into, a point of considerable importance. In a future number we hope to give some account of the cultivation of Perpetual Roses, which, under the management of Mr. Dobson, have realised everything their name would lead us to expect.—*

G. W. Norman, Esq., Bromley Common, Kent.—Those who have heard of this place, or have seen the famous specimens of plant cultivation with which Mr. W. Barnes, the gardener here, has been in the habit of decorating the tables of the principal metropolitan exhibitions for some years past, will, of course expect to hear of spacious hothouses, and every other facility necessary for first class gardening. So far, however, from the accommodation being either good or extensive, the plant houses are few and contracted in size. Mr. Barnes has, however, contended successfully against these difficulties. The glass structures consist of a plant stove twenty feet long and about twelve feet wide; an Orchid house of the same length and eight feet wide, a lean-to, little larger than an ordinary Melon-frame. These are heated by hot water and flues conjointly. A greenhouse, twenty feet long and eighteen wide, rather lofty, with a hipped stage, heated by a flue. A Vinery of the same width as the greenhouse, but a few feet longer, containing a Muscat of Alexandria Vine, from which fine crops have been annually cut for upwards of a hundred years! These houses are situated in a kind of sunk garden, near to which, on the higher ground, and parallel with the front of the houses, are some Cedars of Lebanon, and evergreen Oaks of the same age as the Vine, which throw a partial but perpetual shade upon them throughout the winter months, while the back wall of the Vinery being only a few feet in front of the stove, also throws considerable shade over it. The Vinery, during the winter, having a temporary stage put in it, forms a suitable hybernatory for Azaleas and Cacti, which are huddled closely together, and being put to work about March, it comes in handy for forwarding any plants that require the assistance of heat, and for growing a few of the larger stove plants, until such time as the Grapes begin to ripen. This house is heated by hot water and a common flue. What to do with these plants at the time the house is obliged to be cleared, is a difficult question, especially as the plants in all the other houses require more room at that season, and hence a general re-arrangement has to be made. The more hardy of the Azaleas, Heaths, and common greenhouse plants, are consigned to a temporary wooden pit, the sides of which are stuffed with hay and its top covered by some Whiteyed calico, while the Cactuses are stowed in an outhouse, covered up in case of need with straw. Last spring, in consequence of the severity of the weather, the Azaleas in this pit were repeatedly frozen, and though the plants were not injured, the bloom was so much checked that most of it came deformed. This pit through the summer is used for sheltering the principal greenhouse plants during the time they are in bloom, the subdued light of the calico being found favourable to the preservation of the flowers, and the sashes being tilted in favourable weather several feet high, visitors can readily examine the contents of the frame. This frame is, however, not the only place for preserving plants for exhibition after they are in bloom; the dusty stoke-hole, or a disused Mushroom shed, is often used for that purpose, for the want of better accommodation. The preservation of plants after they are in bloom, and the getting of them in as the term is, "to the day," is a very difficult task, and requires an amount of watchfulness which those only who have had experience in such matters can fully understand. In addition to the houses before mentioned, there is a Heathery, 25 feet by 14, heated by a flue; two ranges of pits, each 10 lights long, heated by hot water; and several one, two, and three-light boxes of various sizes, used for forcing Cucumbers, &c. Several of these frames have lately been fitted up in a range for plants; they have been raised on posts sufficiently high to give head room for a tolerably good specimen, and the sides are neatly packed with thin turf, cut in the same manner as that for laying lawn, and under each light both at the front and back several large draining pipes are introduced so as to insure a free circulation of air among the plants at all times. This turf was cut dry, and being packed about 18 inches wide, will resist a considerable amount of cold, and the outside being well aired will be removed an inch or two at a time for potting plants. The two ranges of pits are, however, the principal plant manufactories, and in them may generally be seen a great variety of superb specimens. To describe the plants, however, would be only to repeat a thrice-told tale. All, therefore, that we shall say is that, taken as a whole, they are as promising as could be desired. We may mention that the Orchids were in August last turned out of their pots, and divested entirely of the old mould, and, after being thoroughly cleaned, were repotted in a preparation consisting principally of large pieces of charcoal, with a slight admixture of very turfy peat in square pieces. They had grown most admirably since, and are now in the finest health imaginable; and so convinced is Mr. Barnes of the advantages of using charcoal, which is always pure, clean, and wholesome, that in future he thinks of potting his Orchids in that material entirely.—*Judex.*

Miscellaneous.

Bolivian Cacti.—It was within 13 leagues of this place (Cochabamba) that I had the pleasure of finding in February the beautiful Pilocereus. It is generally found on the slopes of bold, rugged mountains, whose aspect is towards the north, where it enjoys plenty of sun and a dry sandy soil. Frequently 20 or 30 stems proceed from the same root, the outer ones partly lying on the ground forming a curve upwards, the inner stems grow erect and are those which are most hairy; they seldom reach the height of 4 feet, and from the older stems in the centre spring the flowers, which are of a beautiful dark red, about the size of C. flagelliformis; the seed-vessels are round or rather oval, smooth and shining on the surface, hollow within and destitute of a pulpy substance; the seeds are round and of a blackish colour. The place where I found it most abundantly, was near the vicinity of the city of Potosi at an elevation of 12,000 feet; therefore you may judge from this it is frequently exposed to frost. In the language of the Quichuan Indians, it is called Quchuallo, pronounced Ke-wal-yo. The other enormous species of Cereus, which I mentioned, grows in the same localities and often attains the height of 20 feet. The flowers proceed from the top, and are of a dark red colour arranged in a circle; when viewed from a distance, one might imagine that a flower of a Pæonia had been artificially placed on the plant. The stems are often 18 inches in diameter; the natives use the dried stems for rafters to their houses, also for doors, being the only timber the country produces in those parts. I possess, in Valparaiso, a piece of this wood, which on my return I will forward, for the purpose of giving you an idea of its size and structure.—*T. Bridges, in the London Journal of Botany.*

Bees.

Bees' Ballast.—The curious manner in which bees collect farina has given rise to a fabulous story, which seems to rest on the authority of Aristotle and Pliny, namely, that "bees in high winds carry a small pebble for ballast." In these enlightened days of science one could hardly think this could have any weight. Dr. Badham asks, however, in his "Insect Life," "has the bee become aware that the wind will have less power over him if he steadies himself by a weight?" He followed Della Racca on this subject; but those who have studied bees amongst the flowers and at the apiary, know that the little pollen balls which they collect on their hinder legs are for a different purpose than ballast. Some think that the ancients alluded to the mason bee, but that insect carries the materials for its nest in its mouth, while the honey bee carries no visible wax into the hive. Della Racca, however, says that "the labouring bee (honey bee) carries nothing about him but wax," and adds, "he carries his ballast in his arms." Dr. B. seems to credit this, for he considers that this writer "knew more about bees than anybody, except Huber," and quotes him in preference to the author of "Insect Miscellanies," whose views on this subject accord with my own.—*W.*

Answers.—*W.*—Apiarians tell us that "so long as there is any chance of a hive throwing off a swarm, the working bees prevent the old queen from destroying the young brood queens." But when swarming is given ud from any cause, then there being no object in saving the brood queens, the old queen is allowed to destroy them before they come forth from their cells. Mr.

Nutt, in his book, mentions that, on the morning after he returned the old queen he found, to his satisfaction, two royal nymphs laid dead on the alighting board. I do not understand your statement that the old stock would be exactly in the same position without their old queen as with her. For though there is every prospect of a new queen coming forth in six or eight days, yet I believe the actual presence of their old fertile queen would make a material difference in their working in the interim. This might easily be known by experiments. Swarming is so natural to bees that it is impossible to prevent it with any certainty: but by shading them and giving room I believe there is an even chance of preventing it. This year my bees swarmed at nine o'clock one hot morning in July, owing to the hot sun coming upon the boxes before the shade was drawn over them, which was usually done at 10. If my bees happen to swarm next year I shall treat them in the same way, and I hope with the same success. As a proof of the necessity of shading wooden hives, I may mention that for two years my Nutt's hive was exposed to the full force of the sun, during which time the bees swarmed regularly, and I got no honey. Last year, by shading them, I prevented their swarming, and got 16 lbs. of honey; this year I got 15 lbs.—*S.*——*Help.*—The bad flavour of your honey might be occasioned by the bees frequenting flowers such as the Onion tribe, but being dark its bad flavour was more probably caused by honey-dews than by Heath. Milton certainly mentions that "the honey obtained from the vicinity of extensive heaths (such as Bagshot-heath, &c.), is mostly strong flavoured." But he also says, "We receive honey of the finest quality from Northumberland, and the Highlands of Scotland." Huber states that smoke has a material influence on the instinct of bees; but I think he does not mean smoke from the large puff-ball, which has a harmless effect on bees. Cotton jocosely observes that "they will get well in 20 minutes, have head-ache next morning, and are all the merrier afterwards." He is in error, however, in saying that "bees load themselves with farina to enlarge their combs." Need it be repeated that they only store up that substance in their combs as food for the larva?—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Orchidaceous-house.—A drier atmosphere and a lower temperature are now desirable here. No kind of plants is more benefited by rest than Orchids; this is natural to them in the tropics; but, then, our collections are from countries with different seasons of growth, and various kinds of temperature and climate, and hence it is extremely difficult to cultivate in one house a miscellaneous collection of them so satisfactorily as when there are two divisions, the one commanding a higher temperature, with more moisture, than the other. Where such do not exist, advantage must be taken of other houses, such, for example, as a forcing-pit; many of them, in a growing state, can be removed here to great advantage, and thus their growth may be promoted without injury to the general collection. *Conservatory.*—This building will now begin more especially to demand our assiduous care; plants, to promote its brilliancy, will now be contributed from the forcing-pit. These should be arranged with care, so as to produce the best possible effect. All decaying flowers should be removed every day; in fact, the utmost cleanliness should pervade every corner. Never allow the fine foliage of Oranges and Camellias to become dirty, for the beauty of the conservatory depends quite as much on them as on mere floral decoration.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Look carefully over rock plants, and protect the roots of such as are tender. Divide and transplant any that are spreading too much. In favourable weather, when the walks are dry, manure may be wheeled on borders, to be dug in during winter as opportunity offers. Land that is naturally very stiff should receive a coat of sand or lime rubbish, to lighten it; but by no means disturb the soil unless it is dry and in a fit state for digging. Cabbage and Provins Roses might now be pruned if the weather continues mild; but Chinese and other tender kinds should be left till winter is over. Roll walks, lawns, &c., and keep every part neatly swept. *Pits and Frames.*—If the soil in the pots has become green on the surface, it should be carefully removed with the point of a small stick; this must be done in mild weather. Scarcely any water will be required at this season; if the plants flag a little should, however, be given in fine weather. Remove damp leaves, and give air copiously every fine day.—*B.*

III.—FLORISTS' FLOWERS.

Polyanthuses are this season giving an abundance of autumnal blooms. The varieties which appear to do this most profusely are Hufton's Lord Rancliffe, a very beautifully marked variety; Hufton's Earl Grey, a fine show flower; and Brown's Free Bloomer, a new and excellent sort, and which is most appropriately named. It is not advisable to let them bloom thus prematurely, as it is calculated to weaken the trusses next spring; they should therefore be removed. *Auriculas*, as well as the above flowers, when grown in pots, should be carefully examined, and the least indication of obstruction in the drainage of the soil must be promptly attended to; if neglected during the winter months, very great danger of losing the plants will be the result. *Tulips.*—Where the beds are hooped or ironed over it will be advisable to cover with mats during excessively wet weather. *Carnations and Picotees.*—All rooted layers are of course off the plants; it sometimes happens that some varieties, such as Hepworth's Leader, emit roots more slowly than others; in this case it will be advisable to let them remain on till spring; in the first place, cleaning the surface of the pot, removing any decayed leaves, top-dressing with a little leaf soil, and then pegging down the layers afresh, with good management, and under favourable circumstances, they will make good roots by the time of planting out in spring.—*C.*

IV.—PINERIES, VINERIES, &c.

Pines.—The amount of atmospheric humidity which swelling Pines will enjoy is surprising, even at this period of the year, provided the atmospheric management is of a natural character; that is to say, heat and a free circulation of air, in proportion to the intensity of light; and comparative low temperature with abundance of atmospheric moisture through the night. My late fruiters have received this treatment; the leaves are heavy with dew every night, and when sunshine occurs, I give no air until the thermometer reaches 85°. Nothing can succeed better. Insure 50° by night and 60° by day, if possible, to your young stock in dung pits, with a very free circulation of air both night and day, if possible. Proceed slowly with early Vineries and Peach-houses. Secure plenty of atmospheric moisture in proportion to the heat, in both these structures. Take care to either impart a slight degree of bottom-heat, or at least to retain the warmth already existing, in the outside borders where forcing has commenced or is about to be commenced. Prepare Fig and Cherry houses for early forcing; the same routine as recommended for the Vines and Peaches is equally eligible here. If your Seakale "draws" in the Mushroom-house, immediately starve the bottom-heat by the application of cold water. I use strong manure water, with a good handful of salt blended, with the most beneficial effects.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Various enquiries having been made respecting the pruning of Pear trees, and as this is the best season, a few remarks on the subject may prove useful. With regard to very young trees, the object of pruning should be to encourage the growth of wood in proper directions, rather than the production of a few fruits at the expense of retarding that development of the tree. The form in which the tree is to be trained must be first decided upon. For walls and espaliers the horizontal disposition of the branches is the best; therefore, if the tree be a maiden plant, it must be headed back to the three buds best situated for producing a horizontal branch on each side, whilst the third or uppermost is trained upright. If the tree is a year older, and has been treated as above in the former season, the upright is to be cut 1 foot, or four courses of bricks higher than it was formerly. Sometimes a little deviation will be necessary on account of the buds; but generally the upright should be cut immediately above that bud which is nearest the line of brick-work along which it is desirable the horizontals should be trained. The buds to produce the latter will of course be situated below that line; it is proper they should be so in order that the shoots may grow diverging upwards a little way before they take a strictly horizontal direction. These directions with regard to the management of the upright leading shoot are applicable every year till it be finally stopped on reaching the top of the wall or espalier. If the horizontal shoots be weak it will be advisable to shorten them about one-third. The pruning of older trees, on which fruit-spurs are formed, must be deferred till next week; in the meantime the fruit-buds on such will become further developed and easier to distinguish. *Kitchen Garden.*—Continue trenching all vacant ground, draw earth to Peas and Beans as they appear above the surface; a few more may be sown. See that Celery ridges are protected from frost, particularly those in which the plants are most advanced, for if the soil get frozen about these, the leaves, and by degrees the stems, will rot.—*E.*

VI.—ARBORICULTURE.

Old Woods and Coppice.—Continue to fell and thin out, as before recommended. The weather has hitherto been most propitious for planting, and as long as it continues, every advantage ought to be taken in planting, taking care to secure the plants against high winds. Efficient draining ought now to claim especial attention. *Nursery.*—Proceed as before recommended, and protect young evergreens from severe frosts.—*F.*

State of the Weather near London, for the week ending Dec. 4, 1845, as observed at the Horticultural Garden, Chiswick.

Nov.		Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rn
Frid.	28	28	29.580	29.561	53	41	47.0	S.	.04
Sat.	29	●	29.733	29.702	52	34	43.0	S W.	.51
Sun.	30	1	29.936	29.805	52	37	44.5	W.	
Dec.									
Mon.	1	2	29.977	29.749	50	39	44.5	W.	.02
Tues.	2	3	29 952	29 501	52	36	44.0	S.W.	.30
Wed.	3	4	29.570	29.422	53	30	41.5	W.	.04
Thurs.	4	5	29.769	29 541	55	35	40 0	W.	.39
Average			29 758	29.623	51.0	38.0	43.5		1.30

Nov. 28—Densely clouded; drizzly; rain at night
29—Slightly overcast; rain; heavy rain at night
30—Cloudless: very fine; partially overcast
Dec. 1—Densely overcast; rain, cloudy, with very clear intervals; clear
2—Clear; fine; very heavy rain at night
3—Partially overcast; cloudy and sh wery; clear
4—Clear; fine; very heavy rain at night.
Mean temperature of the week 1 deg. above the average.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Dec. 13, 1845.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 7	46.7	37.6	42.1	13	0.52 in.	1	1	2	1	4	4	5	1
Mon. 8	44 6	34·0	39.3	10	0.36	1	2	2	—	2	5	6	1
Tues. 9	44.5	35.6	40.0	8	0.24	2	3	1	1	1	7	3	1
Wed. 10	45.3	35.2	40.2	6	0.20	—	2	2	1	3	5	4	2
Thur. 11	44.8	32.9	38.8	8	0.62	—	2	1	3	5	4	4	1
Fri. 12	45.3	35.9	40 6	7	0.26	1	1	1	—	4	6	5	1
Sat. 13	47.0	37.7	42.3	6	0.18	1	2	1	1	5	6	2	1

The highest temperature during the above period occurred on the 13th, 1843—therm 61°; and the lowest on the 11th, 1835—therm. 19°.

Notices to Correspondents.

Back Numbers of the Gardeners' Chronicle—The Volume for 1844 can be had, bound in cloth, price *1l.* 10*s.* The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are required, will have them sent free by post.

1841—1, 8, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 46, 47, 49.

1842—4, 6, 8, 11, 12, 16, 18, 23, 24, 25, 27, 29, 30, 31, 32, 33, 34, 35, 42, 50, 51, 52.

1843—10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 39, 40, 41, 42, 43, 48.

1844—All but Nos. 46 and 50.

Books—*George Simmons*—Miller's Dictionary is not the book in which to look for the anatomy of plants. You had better get something more modern, such as Lindley's "Elements of Botany," or his "Introduction." If you can pick up at an old book-stall Grew's "Anatomy of Plants," that book is full of fine old figures that are very useful.——*A B*—In our opinion you cannot take a better book than Roberts's "On the Vine." His own Grapes, treated in his way, were magnificent. The book may be had, like all common books, through any respectable bookseller.—— *G A P*—Thanks; we are well acquainted with the book. It is of small value.

Conifers—*W M R*—There is no book which will give you the information you require. In former parts of this Paper you will find many details: but we think your suggestion a good one and will prepare a list.

Food—We shall next week have a word to say on the relative value of different kinds of vegetable food.

Fruit Trees—*Tola*—You must thin the spurs of your old neglected Pear and Plum trees against walls, by cutting down to within ½ inch of the branch. One-fourth of them may be so cut in; the rest should be considerably shortened. Attend particularly to summer pruning.‖——*A Y*—You would better head back your old Pear-tree 40 feet high, which now scarcely bears any fruit; it will bear after it again makes young wood. If not a good variety graft with a better.‖

Fuchsias—*Sub*—Procure the following 36 varieties:—*Light*—Queen Victoria (Smith's), Alicia (Youell's), Cassandra, Norfolk Hero, Sanguinea (Halley's), Coronet (Smith's), Venusta, Alice Maud, Cleopatra, Nymph (Epps'), Queen of Beauties, Candidissima (Halley's), Chandlerii, Vesta, Duchess of Sutherland, Conspicua arborea, Prima donna. *Dark*—Paragon, Lowryii, Laconii (Youell's), Magniflora (Smith's), Expansa, Kentish Bride (Epps'), Robusta, Countess Tyrconnell, Lady Walsingham, Elegans (Youell's), Erecta elegans, Gem, Hope (Barnes's), Exoniensis, Magnet, Eclipse, Brockmanii, Iveryanii, Conductor.*——*Old Sub—Light*—Smith's Venusta, Barnes's Cassandra, Smith's Queen Victoria, Norfolk Hero, Youell's Alicia, Epps's Nymph. *Dark*—Smith's Magniflora, Lowryii, Kentish Bride, Laconii, Paragon, Countess Tyrconnell.*

Heating—*W X*—You will probably find Mr. Rendle's tank the cheapest for your purpose. It is made of wood.

Hollyhocks—*Original Sub*—Although some plants possess the property of striking from roots, yet it is very doubtful whether or not Hollyhocks possess it. They may be multiplied by dividing the roots in the same way as Dahlias, preserving an eye on each division. However, the experiment is worth a trial. Put your roots in a cutting pan, cover them slightly with light sandy soil, and place them where they may have a gentle bottom heat. The best time will be in spring.§

Insects—*B M*—Thanks for the larva; it appears to be one of the Carabidæ. *R.*——*E B*—The larva from the Potato often infests Celery, Lettuces, &c. *R.*

Manures—*T H*—You should apply manure-water to Pelargoniums in a perfectly clear state. Once in 10 days will be quite often enough.‡

Musa Cavendishii—*Troublesome*—This is a native of the Isle of France. To grow it well it should have a house entirely devoted to it; but it will succeed in the corner of a Pine-stove if there is sufficient room for the expansion of its leaves. A moist heat, not lower than 75°, suits it best; but of course it cannot always have this in a Pine-stove. Ripe fruit has been gathered from plants only 18 months old grown in tubs at Chatsworth, and it is probable that it may be fruited even at the age of 12 or 13 months.‡

Names of Fruits—*Norman*—Your Pear is the Louise Bonne, of Jersey.‖——*J E, Cambridge*—Some parcels of Apples were received, unaccompanied by the names of the parties. The following were numbered on thin brown paper in which the Apples were wrapped:—1, Downton; 3, Summer Thorle; 6, Franklin's Golden Pippin; 7, 8, Dutch Mignonne; 10, Woolman's Long; and some others of inferior quality, not known.‖——*James Lane*—Your Apple is the Court-pendu Plat.‖——*A Subscriber*—1, Beurré Diel; 4, Gansel's Bergamot; 5, Old Colmar; 6, Aston Town; 7, 8, Easter Beurré; 9, Beurré Rance; 1, White Russet; 2, 3, Downton; 4, King of the Pippins; 5, Dutch Mignonne; 6, Gravenstein; 7, Alexander.‖——*G J*—1, 8, Winter Nelis; 3, St. Germain; 5, Marié Louise; 7, Easter Beurré; 1, Rymer; 2, Dumelow's Seedling; 3, Yorkshire Greening; 5, King of the Pippins; 59, Golden Harvey.‖

Names of Plants—*A Constant Sub*—1, a Stanhopea; 2, a Tillandsia; 3, Epidendrum cochleatum; 4, Polypodium aureum; 5, an Epidendrum; 6, a Yucca. Plants cannot be named with certainty from leaves only.§——*Rahn*—387 G, Oncidium Insleayi; 10 S, Epidendrum fragrans: 15 G, one of the many varieties of Catasetum tridentatum; 611 LB, seems to be Catasetum Hookeri, but it is so much decayed that we cannot be certain; 609 LB, a very fine pale-green spotless variety of Catasetum maculatum.——*A Balston*—Your plant is unknown to us. It is very curious, and is *perhaps* a Balsamodendron, or some such genus.

Potatoes—*R Rilott*—Your seedling Potato is very good.‖

Potato-seed—*A B M*—Your note had been mislaid. Sow it thinly in a hotbed in the month of January, in light rich soil; when the young plants are 3 or 4 inches high, put them in small pots with some chopped hay mixed with the soil, and keep them in the hot-bed near the glass. If they grow very vigorously, shift them into larger pots, without breaking the ball; the chopped hay is intended to prevent this happening. As soon as the season will allow, plant them out in a warm dry border in light rather sandy soil. After that proceed as usual. Many other methods may be adopted, but this is as good as any, and as little troublesome. Some will tell you that you may sow the seed broadcast in May in a warm light dry border, and it will come up without any preparation. That is true; but you will have lost four months of growth by the delay, and that is a serious consideration. Do not, however, expect too much from raising from seed. A great deal of false reasoning has been expended on this subject, as we shall show you; perhaps next week. (See p. 260 of this year.)

The Peach—*F M D*—You must study the management of the Peach in works that treat of it. We cannot undertake at present to go into its history, &c. &c. &c. Consult Lindley's "Guide to the Orchard;" follow his advice implicitly, and you will have plenty of excellent fruit. If you try experiments, and run after whim-whams, you will perhaps have none.——*J R*—When Peaches hang long on the tree after their usual period of maturity, their flavour invariably becomes deteriorated. Melting Peaches, like your Late Admirable, become mealy, while the sugary nature of the juice is changed. Clingstone varieties, such as the Catherine, retain their qualities longer.‖

Sanguettes—*J P P*—This question has not been introduced in a religious point of view, and we *dare* not admit any such discussion into our pages.

Scotch Thistle—*A Constant Reader*—This is the Onopordon Acanthium; it is regarded as a weed, and therefore its seed is not kept in the shops: but like many other so called weeds it is a noble specimen of vegetation if subjected to cultivation. It is common in a wild state in many parts of England.

Tree Violet—*A B*—This is a variety of the common Violet, and owes its appearance mainly to artificial management. It is said to have come from China, and to have reached the height of 3 feet; but we never saw such a specimen. It is forced to form a stem by pulling off the lower leaves, and tying the stem, as it lengthens, to a small stake. You will hardly succeed in making Tuberose roots blossom the second year. The Leycesteria formosa is a hardy shrub, with thin evergreen leaves. It grows 3 or 4 feet high.

Vermin—*Rustic Robin*—We shall have a word to say presently about the phosphorus pills; they are invaluable. Rats would never carry the pills among corn, and if they did, we do not see how people are to be poisoned thereby.

Weeds—*A Yorkshireman*—If you can fork out the creeping roots of the Nettle, do so: if not, persevere in pulling up their shoots as soon as they appear 3 inches above the ground. If you have patience enough to persist in this for a whole summer, you will probably get rid of your enemies altogether.

Worm-casts—*J W L*—By persevering in the use of lime-water, used quite clear, you will get rid of worms; and by adopting Mr. Ayres' advice of using a wooden roller (see p. 802), you will easily remove their casts.

Misc—*A Constant Reader*—What is "the" Amaryllis? 28 years all but 17 days, to be sure. The "Journal of the Horticultural Society" can be purchased of all respectable booksellers, when it is published.——*Inquirer*—The best time for *salting!* salting what? We do not understand you.——*Juan Beg*—In the Isle of Man you might plant out all the things you name, in a warm place, where there is no want of thorough drainage, with the exception of the species of Amaryllis. None of those will so succeed except Belladonna. Plant now and throw litter over the young shoots if they come up too soon: or if you are afraid of frost wait till spring.——*A Y*—Your Lupine is is probably "arboreus," or some allied species. It will scarcely survive the winter, unless it is very mild. Its seeds, if ripe, and kept dry, will grow next year: and the earlier you can sow them with safety the larger will be your Lupine-tree.——*H L*—We know nothing of any Moss Rose with yellow flowers, exhibited at either Dublin or any other place.——*An Old Subscriber*—We do not know that anybody has old Wimbledon peat to sell. ——*J B D*—In order to become a Fellow of the Horticultural Society you must be recommended by some one who is already a member. The admission fee is 6*l.* 6*s.*, the annual subscription 4*l.* 4*s.*, and the whole may be compounded for 48*l.* 6*s.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

DR. LYON PLAYFAIR, the consulting chemist to the Royal Agricultural Society of England, has kindly consented to deliver Two Lectures before the Members of the Society, on the occasion of their ensuing General Meeting, at 9 o'clock on each of the Evenings of Wednesday, the 10th, and Thursday, the 11th of December, on the following subjects :—

1st Lecture.—On the Causes of the Potato Disease, and on the different methods for retarding or arresting its progress. On Seed for a future year.

2nd Lecture.—On Economising the Nutritive Ingredients of Diseased Potatoes. On the Value of Potato as Food, and its relation to other aliments.

Tickets for the Free Admission of Members to be obtained on application to the Secretary of the Society, 12, Hanover-square.

The Managers of the Royal Institution of Great Britain have liberally placed their Theatre in Albemarle-street, Piccadilly, at the disposal of the Society for the delivery of these Lectures.

ROOMS.—The Rooms of the Society in Hanover-square will be thrown open from 6 to 10 o'clock on the evenings of Wednesday, Thursday, and Friday next, for the accommodation of the Members.

GENERAL MEETING.—The DECEMBER GENERAL MEETING will be held at the Society's house in Hanover-square, on Saturday, the 13th of December, at Eleven o'clock in the forenoon.

By order of the Council, JAMES HUDSON, *Secretary*.
London, 3rd Dec. 1845.

The Agricultural Gazette.

SATURDAY, DECEMBER 6, 1845.

MEETINGS FOR THE FOLLOWING WEEK.

WEDNESDAY, Dec. 10 } Meeting of the Smithfield Club, Baker-street,
THURSDAY, — 11 } London.
FRIDAY. — 12 }
THURSDAY, — 11—Agricultural Imp Soc. of Ireland.
SATURDAY, — 13—Agricultural Society of England.

IT is by *quantitative* analysis alone that the chemist can hope to benefit the farmer. The fertility of a soil is owing to its possession both of the substances necessary as the food of cultivated plants, and of that texture which will best fit it as a vehicle of this nourishment to their roots. Infertility may thus be caused by a faulty texture of soil or (not to speak of the occasional presence of deleterious ingredients) by the absence or deficiency of vegetable food. Remedies for the former will be suggested by the farmer's own practical sagacity ; the latter can be fully explained and remedied without risk of waste only by the aid of the chemist ; and this can only be effectual when it comes in the form of *quantitative* statements well established upon rigid analyses. It is a striking fact that while the soil has long been spoken of as the storehouse of food for the vegetable world, an idea so full of truth and instruction has till lately been almost utterly inefficient towards agricultural improvement; and we take this as a forcible illustration of the statement we began with, that agricultural chemistry is useful only in so far as it is founded upon quantitative analysis.

The above answer to the question—What is fertility ? unfolds to us the entire theory (according to the present state of our knowledge) of one department of farming. Of course in order to its profitable development in practice, it requires to be united with an accurate knowledge of the other parts of the farmer's business ; but, still, so far as it goes, it embraces the entire and only explanation that can be given of, what is properly speaking, the art of *cultivation*. There are several subordinate theories connected with the subject ; but these may stand or fall without affecting the stability of what has been said. Among these is "the theory which the celebrated DE CANDOLLE has so ingeniously and eloquently maintained ; namely, that a soil becomes unfitted for supporting a second crop of any given plant, in consequence of the deleterious influence exerted upon it by juices excreted from the former one." We quote from a memoir by Dr. DAUBENY* upon the rotation of crops, to which we beg the attention of our readers as a remarkable illustration of the way in which chemical analysis may be employed in perfecting the theory of agriculture. The experiments undertaken by Dr. DAUBENY were of this nature :—A number of plants were selected for trial, and a piece of land of uniform quality was chosen as that on which they were to be tried ; to each a plot of 10 feet square was devoted, and on some of these the same crop was repeated year after year, while on others the crops succeeded one another. It was hoped, by ascertaining each year the weight of produce of the shifting and of the permanent crop respectively, and by combining the knowledge thus obtained with that afforded by the chemical analysis of a fair sample of each, and of the soil on which it grew, to determine to what any apparent change of fertility must be attributed ; whether to the injurious influence of vegetable excretions, or to an exhaustion of the soil of those substances necessary as vegetable food.

We cannot in our limited space follow the author through all the methods he adopted, and the conclusions he arrived at ; the recital of which, indeed, occupies upwards of 70 tersely written 4to pages. The following are the main points :—DE CANDOLLE's theory is considered unsound, for no foreign organic matter was found in the soil referable to the excretions of the crop which had grown upon it, nor was there that uniform difference between the shifting and permanent crop to the disadvantage of the latter, which would have been expected in accordance with the principles of it ; and, the difference observable between the shifting and permanent crop is therefore attributable not to the injury derivable from the presence of excrementitious matter, but to the abstraction from the soil of matters necessary as the food of plants.

The history of each of the crops experimented upon is given, and the results exhibited in the form of curved lines, the height of which above their respective bases represents the amount of the crops during successive years. These indicate almost universally the superiority of the shifting crop over that which was raised permanently on the same land.

A large portion of this memoir is devoted to a report of the chemical analyses of these crops, conducted by Mr. WAY, Prof. of Chemistry at the Cirencester Agricultural College. There are many points connected with these analyses which we should like to have mentioned ; especially the mode exhibited in them of analysing a soil so as to develope its true agricultural value ; but want of room obliges us to defer this.

The results, then, of Dr. DAUBENY's inquiry may be fairly considered as disproving DE CANDOLLE's theory ; and it thus appears to us that there is no hindrance in the way of a more perfect knowledge (to be derived from the researches of the chemist) hereafter, enabling us to cultivate repeatedly, and during successive years, those crops which are most valuable as human food.

Doubtless there are other reasons besides those of which chemists can take cognizance, for the practice of what is called alternate husbandry, on which all good farming is now founded ; it would doubtless be impossible on many soils, with our climate, to cultivate the land properly under the growth of successive Wheat crops. And it may illustrate this point, to consider the way in which different writers have treated other farm subjects, that, for instance, of fallowing ; while some learned professors attribute its effects to the action of light, and others discourse fluently of the agency of natural solvents in preparing during its operation fresh stores of food for successive crops.—"Take notice," says a practical writer, "the main use of the fallow is to destroy weeds." There is, however, we are persuaded, but little doubt that (when improved implements shall have enabled us to overcome one class of difficulties, and improved chemical knowledge the other) we may find our agriculture profitably directed to the cultivation of Wheat year after year on the same land.

* Memoir on the rotation of crops, and on the quantity of inorganic matters abstracted from the soil by various plants under different circumstances. By Charles Daubeny, M.D., F.R.S., &c. From the "Philosophical Transactions," Part II. for 1845.

AUTUMN-PLANTED POTATOES.

I HAVE had many inquiries on this subject similar to that from your correspondent signing himself "A Yorkshireman," arising from the great anxiety naturally produced by the present prevailing and increasing disease among Potatoes—to secure seed for the ensuing crop. If "A Yorkshireman" had read with attention the detail which I gave of the cultivation of the land on which my Potatoes of 1844 were grown and the result of the experiment, as published in October, 1844, and again repeated at p. 788, he would have known all that I can tell him on the subject. He seems to think with others, that some peculiar precautionary measures are necessary to preserve the sets in winter, and the shoots in spring, from destruction by frost. I have used none, save to plant in pretty large drill rows, measuring 30 inches in width from top to top, and admitting of being set up by the plough to the height of 8 or 9 inches. In this condition they remain till the end of March or April, when, if the land be dry enough, they are harrowed down, by which the top crust is broken, the air is admitted, and the plants are left at liberty to shoot out, which they do, but not much in advance of those planted at that time, although with greater vigour, the sets having been preparing themselves to take the first benefit of the spring, and to draw immediate nourishment from the soil.

The practice of autumn planting does not rest with me, nor have I any merit in introducing it, although I may have taken more pains than others in ascertaining the comparative produce of different times of planting and of giving the result publicity through your columns. The plan is followed by many farmers in the northern parts of this county, in Glendale, and on the Tweed, where the land is free and dry ; and I believe the only objection and risk attending it, arises from the difficulty of preserving the sets from the depredation of rooks in localities where gentlemen choose to protect them to a mischievous extent. I would not certainly hope to grow Potatoes in this way upon land so wet that a hard frost would turn it into a band of ice, or in clay which contracts and expands with the alternations from frost to fresh, and *vice versa ;* but in dry free loam or sand, little danger is to be apprehended. It is a mistake, I believe, to think that the vegetative power of Potatoes is destroyed by frost, if not in contact with water, and if they are frozen in the ground and thawed in the ground. If a frozen Potato were thawed by artificial means, by putting it in hot water or near a fire, it would, of course, be destroyed by the decomposition that would ensue ; but every one may remark (and it would be well if we would note the operations of nature with keener observation, for then we should learn many useful facts, and be saved from some troublesome doubts) that the Potatoes which are missed in gathering in autumn are found to shoot up in spring, and to be rather annoying among the Wheat and Clover. These have had no care bestowed upon them, but have lain all the winter, probably within 2 or 3 inches of the surface.

My Potatoes for the ensuing crop were planted in the last week of October in the manner I have already described, on free land which had produced Oats, and been made fine by two ploughings and harrowing, and had been limed before being set up into drills ; but I believe they would have been equally safe if planted on the flat row system, by setting them in each third furrow, which leaves the width of two intervening furrows for cleaning the land and earthing up the plants. I took no precaution as to the seed, for in ten loads which were planted, partly whole Potatoes, and partly large ones cut in two, there was no disease visible ; but, were I planting now, since I have seen the destruction of so many Potato pits in the neighbourhood, I should cut all the sets, throwing out of course any that showed indications of disease, lay them on a floor, and dust them with quicklime, turning them at the same time for three or four successive days, that the lime might extract any superfluous moisture, and destroy any latent parasitical fungus that might exist. I do not pretend to say that autumn planting offers any security against the prevailing calamity ; such escape is likely to be merely accidental, for if the disease originates in atmospheric causes at a particular stage of growth, that stage may be passed by in one instance and not in another, but in this season it is important that seed should be secured, and that an early supply next year should be obtained.—*J. Grey, Dilston.*

ARTIFICIAL MANURES.

I AM so deeply impressed with the conviction that nothing less than a very extensive series of experiments, repeated over and over again with the greatest perseverance, can give the science of agriculture any tolerable degree of certainty with respect to the utility of the artificial manures, or the comparative advantages of different modes of cultivation, that I hesitate not to send you an account of those which I have continued to try this year on Grass and corn, although, taken alone, they add little that is decisive to our previous knowledge on those subjects. First, then, I was desirous to ascertain what effect would be produced upon the crop of hay in the ensuing season by some of the artificial manures, if they were applied to the pasture land as a top-dressing before the autumnal growth was over. The subjects of this experiment were guano, sulphate of ammonia, sugar scum, and wood ashes. The produce was weighed both in the state of Grass, and after it was made into hay, and in every instance compared with the produce of an equal quantity of contiguous ground left unmanured. The rate of contraction in the process of conversion into hay was so uniform that there was no difference worthy of notice, the weight of the Grass being as nearly as possible as 3 to 1 of that of the hay.

	Weight of Hay per acre.			Cost of Manure per acre.			Profit.			Loss.	
	Tns.	cwt.	lbs.	*s.*	*d.*		£	*s.*	*d.*	*s.*	*d.*
1½ cwt. of Guano	1	15	66	14	1½		..			1	9
1 cwt. Sulph. of Amm.	1	10	106	19	6		..			7	1½
3 cwt. of Sugar-scum	1	12	56	8	0		..			8	0
40 bshls. of Wood-ashes	1	17	68	15	0		1	4	0	..	

These results are very much what might have been anticipated. In the two first cases the Grass was much strengthened, and the produce was more by many hundred weight than on the unmanured portions ; but still the additional growth was not sufficient to repay the expense of the manures, for much of their volatile parts must have been dissipated in the air during the winter, and some of their soluble parts carried down by the rain into the subsoil. But the wood ashes, being for the most part an inorganic manure, remained without loss about the roots till renewed vitality enabled them to appropriate as much as was required. The sugar-scum alone remained quite inactive, and though its fertilising powers have been highly eulogised, I can only say that having tried it in various ways, I have never been able to discover them. If the failure had been confined to this single instance, or if it had been counterbalanced by opposite evidence, it would have been rash to pronounce it as worthless, as I now consider it ; for even guano stands in the same predicament as far as a single experiment is concerned. A portion of unmanured ground produced 1 ton 7 cwt. 2 lbs. of hay, to which no addition was made by a dressing of 2 cwt. of guano in the spring on the adjoining acre. The whole of the cost, therefore, 19*s.* 6*d.*, was apparently thrown away ; but fortunately other experiments were made which tell a different story :—

Guano applied.	Without Manure.			With Manure.			Profit.			Loss.	
	Tns.	cwt.	lbs	Tns.	cwt.	lbs.	£	*s.*	*d*	*s.*	*d.*
2 cwt.	2	4	98	2	7	109	..			7	1½
2 ,, ...	2	2	55	2	7	109	0	2	6	..	
1 ,, ...	2	0	26	2	3	37	0	2	7½	..	
1 ,, ...	1	15	66	2	4	98	1	2	4	..	

In the first case, where a loss was incurred, it is

very likely that the balance would have been on the other side, if half the quantity of guano had been used, for the increase of hay was exactly the same as that produced by 1 cwt. in the third, both crops being large, without the assistance of manure, which, as might be expected, gives most remuneration where it is most needed, though not in any regular and fixed proportion. The cause of this irregularity is obvious enough; you never can be sure of the complete similarity of any two portions of soil, even in the same field, which you may wish to compare; thus, for instance, difference in the weight of hay upon two of the above-mentioned portions of unmanured ground lying very near together, and under precisely similar circumstances, amounts to almost half a ton. This source of uncertainty must be borne in mind throughout, in order to account for much apparent contradiction, and it shows the necessity of a very extensive series of experiments if we would arrive at anything like the truth. Three trials were made with sulphate of ammonia only, one of which succeeded; two with phosphate of potash, and one with superphosphate of lime, all of which failed; that is to say, they did not repay the expense; only one square perch of each was actually weighed, and the effects which they actually produced will be best represented by showing the additional pounds of weight that were gained by them respectively.

1 cwt. Sulphate of Amm.	Phosph. of Potash.	Superphos. of Lime.
No. 1, 3½; 2, 6½; 3, 14½	No. 1, 1½; 2, 5	5

The bulk and value of the crops calculated by the acre stand thus:—

Manure.	Without Manure.	With Manure.	Profit p. acre.	Loss p. acre.
	tns. cwt. lbs.	tns. cwt. lbs.	s. d.	s. d.
Sulph. Ammonia 1	1 7 2	1 8 76	.. ..	12 10
,, ,, 2	2 2 4 98	2 7 109	.. ..	7 1½
,, ,, 3	2 1 8	2 7 109	8 1	.. ..
Phos. Potash.. 1	2 2 55	2 3 37	.. ..	7 2
,, ,, 2	1 18 77	2 1 8	.. ..	1 0
Superphos. Lime..	1 17 96	2 0 26	.. ..	1 0

I know not how to account for the failure of the sulphate of ammonia, No. 1; for the season was not unfavourable, and the soil was not too rich; but it must be remembered that in using volatile manures (for sulphuric acid does not deprive the ammonia of all its volatility), much that is taken up by the air will be carried down again by rain to the adjoining ground, and fertilise it without our consent. A remarkable example of this is given by the October Number of the "Farmers' Magazine," in an extract from the American edition of Liebig, where it is stated that a piece of land was kept in a constant state of fertility, solely by the descent of vapours from a large mass of fermenting matter, accumulated from time to time on the other side of the fence, in a position where nothing in solution could reach the soil. Sometimes, too, the decomposition of the salt may perhaps leave behind a quantity of the acid injurious to vegetation. One more experiment, however, shows under what circumstances it may be used, not only without detriment, but with advantage. Eight barrels of urine from the cow-yard, neutralised by 40 lbs. of sulphuric acid, and applied to a rood of land, gave a profit of 14*s.* 9*d.* per acre, after deducting 10*s.* for the cost of the acid. This, then, may be added to the numerous proofs already adduced to convince the farmer how much loss he suffers by neglecting to collect the liquids of his yards, and a similar lesson may be learned from the following experiment upon Wheat:—

	Straw.	Corn.	Straw p. acre.	Corn p. acre.	Weight p. bush.
	trus. lbs.	bsh. gal.	trus. lbs.	bsh. gal.	lbs.
15 loads of dung on 15 perches, gave	8 29	2 6	93 32	28 6½	62
4 barrels dung-water = 320 gal...	7 26	2 7	82 13	29 5½	61½

This looks like a decided superiority in the yield of grain to be awarded to the liquid manure, and certainly warns the farmer to avoid the wasteful management of neglecting such valuable assistance; but it must be observed that the other crop was much injured by being laid, and had it stood up, the greater bulk of straw would have borne a greater proportion of grain. In the next place I have to notice a few experiments upon Oats, and the effect produced upon them by some of the manures. The acreage is calculated from 20 perches.

Black Tartarian Oats.	Straw.	Corn.	Weight. p. bush.
	trus. lbs.	bushels.	lbs.
1 Drilled without manure.....	114 24	75	34½
2 Drilled with 2 cwt. of guano.....	126 16	77	35½
3 Broadcast, with 1 cwt. of Sulphate of ammonia.....	131 20	81	36½
4 Broadcast, with 2 cwt. of guano..	154 24	95	35½

But it is worth while to observe not only the effect of manures during the same season immediately after their application, but also in the following year, in order to see how far their operation is transitory or lasting. The sort of manure used for the Turnips of last year has had a considerable influence upon the crop of Oats, which followed them in this present year.

Black Tartarian Oats.	Straw.	Corn.	Weight pr. Bshl.
	trusses lbs.	Bshls.	lbs.
1. Bones and sulphuric acid in 1844	131 4	85	37
2. Common farmyard manure in do.	143 12	89	37
3. Manure from beasts fed with oil-cake in do.	164 16	96	37

These were all broadcast, and in the preceding set of experiments it will be seen that the best crops were sown in the same way; in order to ascertain the real value of this mode of cultivation compared with drilling, a trial was made of both in two places, and I subjoin the results, calculated from ¼ acre:—

Wheat.	Straw.	Corn.	Weight pr. Bshl.
	trusses lbs.	bshls. galls.	lbs.
1. Sown broadcast	82 10	39 —	61
Drilled at intervals of 9 ins.	75 16	35 2	61
2. Sown broadcast	115 4	43 2	63
Drilled as before	125 16	44 7	62
Another part also drilled	134 —	45 —	62
Drilled & horse-hoed once	116 32	44 6	62
Drilled & horse-hoed twice	161 28	40 —	60

Thus it appears that where the soil was indifferent, broadcast had the advantage, but not where it was good, except in point of weight; in one respect it is always entitled to some advantage if it is harrowed, and if the harrow stirs the ground as effectually as the horse-hoe, which, however, may be doubted. If the same quantity of grain be distributed over the same quantity of ground, the broadcast system will have the same advantage over the drill as trees planted in the quincunx order have over an equal number planted in straight lines. Let eight, for instance, be the number; how much better will they be planted thus : : : : than thus : : : : ? they are much less crowded, and have a much more equal share of light and food; but the greater facilities for keeping the crop clean (that indispensable condition for all good farming) ought always to turn the scale in favour of the drill. Moreover, the crop can be horse-hoed for the purpose of opening the soil after it has grown too tall to be harrowed, and the comparative failure of benefit from a second hoeing, shown in the last experiments, may be easily explained. That part of the crop was very much laid; the vast increase of straw shows that the opening of the soil, by the hoe a second time, encouraged the plants to tiller afresh, and to throw up more stems than the soil could sustain in such a season as the last; in a stronger soil, no doubt, the increase of grain would have been in proportion to the increase of straw.

3. Another object of my experiments was to compare the value of a crop from thin-tailing corn with that of which the seed was good; the quantity of ground in each case was 32 perches, and, calculated by the acre, the account stands thus:—

Wheat.	Straw.	Corn.	Weight of Bshl.
	trusses lbs.	bshls. galls.	lbs.
Good seed	100 20	41 2	60½
Tailing Wheat	93 7	41 2	60½

It is certainly very remarkable that though the thin seed produced much less straw, yet it yielded the same amount of grain as the good; and, on the other hand, that though the weight was the same, yet the sample, being much affected by smut, was very inferior in value. Similar experiments were made, but with further views, on a smaller scale in garden-ground; but though they were conducted with the greatest care, the results were so extremely anomalous, that it is difficult to glean from them any useful information; instead, therefore, of troubling you with all the details, I will select such points as seem to be most curious. My object was two-fold; 1st, to see whether by any mode of treatment the bad seed could be made to yield as much grain as the good; and 2dly, how far the fertility of the soil could be maintained, when forced to bear Wheat year after year, by the application of certain salts. The same plot of ground, therefore, upon which the experiments were made last year was treated exactly in the same way this year, and the same salts applied to the same portions of it. 1st, two spaces, of 160 square yards each, were divided as before into four squares of 40, and sown—the one with tailing Wheat, the other with good wheat; in each of them one square was left without manure, the same which had received none the year before—as a sort of zero in the scale of fertility, by which the advantage of each manure was to be measured.

		1844. Wt. of Straw	1844. Wt. of Corn.	1845. Wt. of Straw	1845. Wt. of Corn.
		lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
1	4 lbs. Sulph. Amm.	Good Seed. 29 4	19 2	25 5	11 4
	6 lbs. do.	Bad Seed. 29 14	19 12	24 12	11 2
2	2 lbs. do. 2 lbs. Ph. Pot.	Good Seed. 28 14	18 10	26 12	11 2
	3 lbs. do. 3 lbs. do.	Bad Seed. 27 4	17 2	25 8	11 1
3	4 lbs. Phosph. Pot.	Good Seed. 27 6	17 4	34 8	17 4
	4 lbs. do.	Bad Seed. 25 8	15 6	22 12	14 9
4	Without Manure.	Good Seed. 24 0	13 14	28 14	6
	Ditto	Bad Seed. 20 8	11 6	23 8	11 6

The principal things to be here observed are—1st, That the phosphate of potash was by far the most efficient manure, the produce where the seed was good being just the same as last year, and even where it was bad beating all the others. 2nd, That the good seed without any manure gave a better return than the same ground did last year, and the bad not less. And 3rd, That where the ammonia was used, the bad produced almost as much as the good, and both were inferior to both the good and bad which had received no manure at all. But there was one circumstance in this experiment too remarkable to be omitted. On the two squares where sulphate of ammonia had been used, the bad seed seemed in the spring to have failed almost entirely: the ground was almost bare: perhaps the ammonia was too strong for plants which, in their first development, could not be otherwise than very weak. Anxious to repair this mischief as much as possible, I ordered a sufficient number of plants from the bad seed to be taken up from the other part to fill up, by the division of their roots, the deficient rows; and a week after the operation, when they had taken root, they were watered with half the same quantity of sulphate which had been applied before; still they did not stand near so thick together as on the good seed squares, and if they had not grown very vigorously, and thrown up an unusual number of stems, the straw could not have approached so near to the quantity which the others produced; and if they had not been very severely blighted, the produce of grain must have been considerably greater. On four other spaces, containing 160 square yards each, the seed was previously steeped in four different solutions of salts, and half of each was watered afterwards in the spring with different proportions of the same solutions in which the seed had been steeped. Each half was subdivided into four portions, but I merely give the general result.

	Wt. of Straw	Wt. of Corn.
	lbs. oz.	lbs. oz.
Watered with 2 or 4 oz. of Sulphate of Soda	63 12	27 14
Steeped in do. but not watered.....	61 12	28 12
Watered with 2 or 4 oz. of Phosphate of Soda....	51 0	27 8
Steeped in do. but not watered.....	56 8	28 14
Watered with 2 or 4 oz. of Muriate of Ammonia..	52 12	26 12
Steeped in do. but not watered.....	54 12	24 12
Watered with 2 or 4 oz. of Nitrate of Potash	57 12	24 8
Steeped in do. but not watered.....	44 0	15 14

In all these cases, the quantities under the same treatment last year were greater, but then it must be remembered that throughout the country Wheat last year gave more than an average crop. The nitrate of potash was not fairly used, being overshadowed by a large Apple tree, and more exposed on that account to the attacks of birds, but the bulk of straw was much greater than last year. But what is most worthy of notice is, that in the 1st and 2nd experiments, the seed, which was only steeped, bore a greater amount of grain than that which had the additional manure of the solutions; and in the 2nd and 3rd a greater amount of straw. I might state the effect of the different hoeings which each quarter received, but these are "conclusions from which nothing can be concluded." I have only one other experiment to mention, but it is one which may deserve further consideration. In the spring of last year I received from Sir John V. B. Johnstone 4 heads of Indian corn, presented by Mr. Colman to the Agricultural Society. The Tusconora and Sweet corn I found of no value, but the Parker corn produced fine vigorous plants, which grew to the height of five or six feet, but it was sown too late to ripen its seeds, nor do I think it can ever be depended upon for that purpose in this country. The Canada corn was not so strong, but much earlier, and ripened enough of its seed to sow one-eighth of an acre this year. Though it was sown in a soil by no means rich, the weight of the produce was at the rate of more than a ton to the acre at the end of September. At that time I began to cut it for the cows, being the season when the milk usually begins to diminish from want of sufficient nourishment in the Grass. For one week I measured the milk of a cow grazing in the ordinary pasture, and the next week I fed that cow exclusively upon Indian corn. She ate it most greedily, but fell off in condition, and gave less milk. She was then turned out to Grass again, and had only a bundle of the corn given her every night and every morning for another week. In that week she gave 18 quarts of milk more than she had done before. It may be a question, therefore, to be determined by further experiments, whether the Parker corn, which would give so much greater a bulk of green food, might not be usefully introduced every year from America, to assist our dairies. There can be no fear of its exhausting the soil; for, since the whole of the plant is eaten in that state, whatever is not given in the shape of milk would be returned to the land in the form of manure.—*L. Vernon Harcourt, West Dean House.*

ON THE CHOICE OF A VARIETY OF OAT FOR CULTIVATION;

AND CORRECTION OF AN ERROR IN HIS REMARKS ON THE BAKING QUALITIES OF WHEAT.

By Sir G. S. Mackenzie, Bart.

It has already been shown that those kinds of Wheat which contain the largest proportion of nutritive matter should be selected for cultivation, and that the weight of the bushel is no criterion of value. Before proceeding to the consideration of the Oat, it is necessary that a great error (in my papers, published some weeks ago), which I inadvertently committed and only lately discovered, should be corrected. In Table 1, the quantity of albumen in the Coul Wheat is stated as 9·0 instead of 0·9. This produces an error in the 2d Table, 21·8 instead of 13·7; and in the 3d Table 27·4 is put down instead of 19·3. Notwithstanding this error, the Coul Wheat stands at the head of the list, though it beats the finest Silesian only by 0·7. As it shows so high a quality grown in the north of Scotland it becomes a valuable variety for cultivation. I have three hybrids, and, unfortunately, am uncertain which of the three was analysed; and I was not aware of its value till the analysis was made, and did not propagate it in any quantity. I mention this in consequence of inquiries having been made for it; and I may add that all that I had of the three sorts is now sown, and they will be analysed next year, so that the best may be propagated.

Strongly suspecting that the real value of different varieties of Oat was unknown, and that weight by bushel was even less applicable to this grain than to Wheat, I procured samples of nine sorts, carefully selected by Messrs. Lawson, of Edinburgh. I have not had them

compared chemically ; I leave that to those great and wealthy bodies, associated for the ostensible purpose of conferring benefits on the farmer. I have followed a simple mechanical process, which any one may follow. The weight of each sort per bushel having been ascertained, the following Table was constructed according to the results :—

Weight per bushel of

	lbs.		lbs.
Siberian Oat	45	Potato	41½
Sandy	42¾	Early Dyock	40½
Kildrummie	42	Late Angus	40½
Early Angus	42	Black Tartarian	39
Hopetoun	41		

The useful part of the Oat being the kernel, and it being probable that the proportion of the weight of the husk to that of the kernel might vary so much as to render the weight per bushel a deception, 100 parts by weight of each sort were taken, and the husk and kernel carefully separated. The following Table shows the result.

In 100 parts by weight.

	Husk.	Kernel.
Sandy Oat	21	79
Early Angus	21	79
Late Ditto	21¼	78½
Potato	22	78
Early Dyock	25	75
Black Tartarian	25	75
Hopetoun	26	74
Kildrummie	28	72
Siberian	31	69

It is curious that the Oat at the head of the first Table should be at the bottom of the second. There may be as great differences among Oats as among Wheats in regard to their nutritive qualities, and until this shall have been ascertained by the chemist, we shall not know the real comparative values. In the mean time there need be no hesitation in preferring the Sandy Oat over all others, as it is very early and very productive in grain and straw.

Home Correspondence.

Experiments on various Forage Plants.—Produce from 1 customary perch (Cornwall), Trifolium ; 1 do. Vetches ; 2 do. Clover and Rye-grass :—

	Trifolium.	Vetches.	Clover and Rye-grass.	Clover and Rye-grass.
Weight in lbs per 18 feet square, green	252	156	218	129
Do., dried for hay, 1st weighing	40	25	55	35
Do., after having been kept six weeks in a barn	37½	..	together	87
Weight in tons and cwts per customary acre, green	18 0	11 2	15 11	9 4
Do., dried, 1st weighing	2 17	1 15	3 18	2 10
Weight in tons and cwts per statute acre	15 0	9 5	13 0	7 14
Do., dried, 1st weighing	2 8	1 8	3 5	2 2
Proportion, the heaviest Clover being taken as the standard, as 100 lbs.	80,	51,4	100,	62,8
Quantity of hay per 10,000 of green produce	1587	1602	2523	2713

The weather proved extremely unfavourable for saving the hay produce, which towards the conclusion of harvest was several times exposed to heavy rain, though it was eventually weighed in an extremely dry state in sunny weather ; hence the loss in the barn in six weeks was less than would otherwise have been the case, and no apparent change occurred in the appearance of the hay produce. The Vetches were grown in a peaty soil mixed with clay and stones ; they had taken a second growth, and while the lower part of the stem was too old the upper portions were too green ; this part of the trial was not considered fair enough to be continued in the barn. The Trifolium grew on dry ground, but it had been sown extremely thick for cutting green, and consisted of succulent stems. The blossom on the lower part of the head was withered, but the outer skin of the seeds only had been formed. The produce was a soft tough straw. The Clover was in full and the Rye-grass in partial blossom, and the produce proved to be tolerable hay. The soil in which both these crops were grown is a clay slate loam. Having constructed recently a table deduced from this trial of the weights per acre of the dried obtained from the green produce, I have forwarded it to this Paper for insertion, in case it should be deemed of sufficient interest. The trouble and attention required to insure tolerable accuracy need not be insisted on ; hence, perhaps, a record, even of imperfect trials, in which all the conditions are not quite equal, may still be held to be of some use, provided they are fairly stated.—*John S. Greys, near Penryn.*

Electro Culture.—I laid down experimental wires on various portions of my Tiptree Hall Farm, the plots varying in size from 1 to 7 acres, the whole extent being 44 acres. So far as these experiments go, there is an entire failure, the crops non-electrified being quite equal to the enclosed plots. In April, whilst my man was connecting the wires, he got three smart electrical shocks, in each case from the wire over the pole, proving the occasional passage of a considerable current of electricity. Still no beneficial results are shown. The laying down of the wires was seen and approved by Dr. Forster himself.—*J. J. Mechi*, 4, *Leadenhall-street.*

Potatoes.—It has been the observation of myself and others that the pigs fed on the infected Potatoes have fattened faster than on those that were not damaged, and I think Liebig accounts for this in his theory of the change that has taken place in the darkened parts of the Potatoes. I had an acre of Potatoes planted early, and though most of them were injured, yet I do not find them become worse. The great thing is to keep them dry. I find cows and sheep eat them readily, and thrive upon them. I have planted Potatoes this autumn, and some where the infected Potatoes grew, and am inclined to think that I shall have as good a crop there, and as free from damage, as elsewhere.—*J. W. L.*

Potatoes.—The following is copied from a work published in 1789, which may prove interesting, as showing the value placed on the Potato-crop, and the attention paid to its cultivation :—"The ground for Potatoes should be well manured with rotten horse-dung, and the seed changed every year. They should also be planted in fresh ground every year ; for, if either fresh seed or the same seed be planted in the same soil two or three years successively, the crops will in general fail, the haulm come up curled and blighted, and the roots will be worm-eaten and cankered." The Norfolk Agricultural Society gave a premium to Mr. Wright, of Great Melton, for planting and gathering the best crop of Potatoes, the quantity of land being one rood, and the produce 91 bushels. On that occasion the Society strongly recommended the cultivation of that most valuable root.

Calculation for Cultivating one acre of Land with Potatoes, according to Mr. Wright's Expenses, and the Valuation of his Crop :—

	£	s.	d.		£	s.	d.
One deep ploughing	0	4	0	Produce 364 bushels at 1s. per bushel	18	4	0
Thirty-two bushels of seed, 1s. p. bshl.	1	12	0	Expenses, deduct ..	13	2	0
Twenty-four loads of manure at 2s. per load	2	8	0				
Expenses of setting	1	0	0				
Hoeing and earthing up several times	1	0	0				
Rent, &c.	1	10	0				
Expense of taking up	5	8	0				
	£13	2	0	Clear Profit ..	£5	2	0

The item "taking up" exceeded the usual cost by one-half, in consequence of the ground being riddled up, &c. The soil was also ready manured for another crop ; both the extra labour and manure should therefore be carried to the profit account, which would increase it to nine pounds.—*Falcon.*

Cause of Potato Failure—Autumn Planting, &c.—The cause of disease has been ascribed to the want of new varieties raised from seed. Now, during the first year, Potatoes so obtained are of no benefit as an article of food. They are so small and so undecided in character, that the cultivator is obliged to plant the tubers year after year, to ascertain if they are likely to prove of value for stock. Thus it appears that the natural process to develope the virtues of the Potato is the very system now universally pursued. The physiology of the Potato points out the only means of keeping a good sort when once acquired from seed. The fault does not lie in continuing the Potato annually by either planting it whole, or cut, but in carelessness in saving, setting, and manuring the crop. Although the Potato may be considered as climatised, yet it will be most advisable to pay more attention to its cultivation than has hitherto been done ; not merely putting the sets in the ground in the spring, and taking them up in the autumn, something more is requisite—studying the habits of the plant. The selection of seed has been too much either a matter of chance or convenience. The Potatoes for this purpose should be of a middling size, ripe, and allowed thoroughly to dry previous to being placed in store. I question much if throwing large masses of Potatoes together, and permitting them to heat is at any time likely to improve their condition ; fermentation must surely impoverish their strength, and, to a certain degree, alter their nature. Then again, on opening the stacks in the spring, the greater proportion of the Potatoes are found to have thrown out long white shoots from most of the eyes, which have to be broken off before planting. These evils should be avoided if we wish to ward off disease, and preserve this nutritious root in all its vigour. Potatoes like a moderately rich earth, the soil should be well drained and pulverised, leaving it turned up rough during the winter, exposed to the action of the atmosphere and cleansing frosts. Little thought has hitherto been given to the constitution of the Potato, at least not sufficient to insure a uniform system being adopted in its cultivation. The remark is not uncommon, "Oh, a Potato will grow anywhere ;" so it will, but there is a great difference between simply vegetating and arriving at perfection. Raw manure is often applied to the sets in the trenches to keep them loose, or otherwise to give them room to swell in a stiff soil ; would it not be better to take more trouble to render the soil less tenacious and sour ? well rotted farm compost mixed in the ground previous to planting would suit better. Too much manure is injurious, either rendering the tubers large and watery, or forcing the stalk and leaves, to the destruction of the main crop. The cold and wet during the last summer have no doubt been the principal agents in fostering the murrain, rendering the Potatoes predisposed to generate the fungi which now infect them, and which are probably of spontaneous growth, attributable more to the condition of the Potato being favourable to their production, than the fungi being the primary cause of all the mischief. On opening many Potatoes, which in outward appearance were not affected, I found that decay had already extended about a quarter of an inch below the surface without breaking through the skin, leading me to suppose, that although the fungi increase the malady to a fearful extent, they are in the first instance occasioned by the unhealthy state of the Potatoes, consequent upon atmospheric influence and improper cultivation. On examination I have also found some bladder like spots on a few Potatoes, which, when broken, contained innumerable fungi, tending rather to confirm me in my statement of spontaneous production. I perceive that it is strongly recommended "to plant immediately," some autumn crops of last year having proved excellent. Surely great caution should be used in placing Potatoes in the damp soil, an excess of moisture having already done so much damage. Believing, as I do, that the only means of stopping the murrain in its ravages is by thoroughly drying and putting away the Potatoes in either wood ashes, powdered charcoal, or slaked lime, in small heaps, and looking at them frequently. I must be permitted with all deference to the opinions of more scientific men, to caution gardeners and farmers against the rash experiment of autumn planting this year. It appears to me adding fuel to the flames.—*Falcon.*

Farmers' Clubs. — Your correspondent "H." at p. 777, under this head, refers to an antiquated book, by Knight, relating to a journey through Berkshire. A description in his time would be a libel upon the country at the present day ; the 40 and 50-acre men are gone long ago ; the present race of agriculturists rank as high in their pursuits as any, and the majority of them vie with the Norfolk men ; I could name many who farm upwards of 1,000 acres, and one with whom I am acquainted 2,000 ; the land done in a systematic manner, the crops beautiful ; the farmer alluded to gained a silver cup last year for his superior sample of Barley. If your correspondent "H" will attend the forthcoming Newbury Cattle Show, on Friday, 5th December, he will have ocular demonstration of the doings of the Berkshire men. With regard to Farmers' Clubs, we have many established for some years [Will you be kind enough to give us their names, and the addresses of their secretaries ?] in the county, and well supported. If your correspondent feels inclined to visit Berks, on leaving Reading by coach westward, the first farm I would call his attention to is, Mr. Stephens, Prospect-hill, the next to Colonel Blagraves, Colthorp, Mr. Shackles, Mile-house, Mr. De Bevoir, Englefield, the next (a model farm) Mr. John Stephens, Benham, Mr. Folks, Midgam Lodge, Mr. Caves, Thatcham, Mr. Northaway, Henwick ; from thence to Newbury, if inclined to journey further to Hungerford, on the road, he will observe the improvement since Knight wrote, or if he takes a ride northward on the Oxford road, there he will perceive the land done as complete as if cultivated by the London market-gardeners, so clean and so excellent is the general system. Among the many Berkshiremen who have benefited agriculture, I could name, there is one stands pre-eminent, Philip Pusey, M.P. I hope I have not trespassed too long upon your valuable Paper, but could not quietly suffer a slur undefended upon the Berkshire men.—*F., Snelsmore-hill, Nov.* 22.

The Lease.—Like many other people at the present moment, the question of Leases occupies a good deal of my time, and the paper signed a "Looker-on" in your last Number is a valuable addition to our stock of information. Will you allow me to ask one question to help me in my search after truth ? A lease is undoubtedly a security to the tenant ; but supposing before his lease is expired, the tenant dies, leaving no person competent to carry on his farm ; or is bankrupt ; or from any other reason is obliged to quit his farm. What has the landlord then to fall back upon ? He must, as it appears to me, in self-defence, consent to cancel the lease. It, therefore, seems to an ignorant person like myself, that the granting leases must be a unilateral business, much in favour of the tenant, but nothing to meet these objections on the side of the landlord. By inserting this letter in your Paper, I may be favoured with an answer satisfactory to *A Young Landlord.* [A landowner would be much *benefited* by the sudden reversion into his hands of land occupied under lease before the natural expiring of it, were that under any circumstances possible. But the tenant's death places the occupation in the hands of his heir, and the advantage, during the series of years which has yet to run, still due to the tenant as the produce of *his* invested capital, is too valuable for it to drop into the landlord's hands for the want of a claimant. You may depend upon it the lease is no "unilateral" affair ; the landlord benefits as well as the tenant, and for this reason among others, because much of the outlay which it is the interest of the tenant to make is invested in the *permanent* improvement of the estate.]

Stall-feeding.—In your Paper of the 22d inst. there is an article on stall-feeding milch cows, in which that practice appears to be condemned, whilst in other cases it has been much commended. I think that the system was not fairly carried out by your correspondent. That milking-cows will not do on cut Grass only, I am persuaded. In stall-feeding, the extra quantity of stock that may be kept, and the extra quantity of manure that may be made, will enable the individual who adopts this system to add a certain portion of oil-cake, or Bean-meal, to each cow's allowance. In this way, I am strongly inclined to believe that the system would answer, regard being had to the health of the animal by allowing her sufficient exercise. You would, I am sure, be conferring a great benefit on some of your numerous readers by endeavouring to remove the difficulties which the contradictory statements of correspondents have a tendency to create. No plan should be found fault with which has not been tried in a manner calculated to exhibit it to the best advantage. This question of stall-feeding milch cows is one on which I should be glad to

have your opinion.—*T. Randell, Bradley, Feckenham, Novembe* 24.

Relative Value of Oil-cake and Guano.—"If we had a 10*l.* note to spend upon manure, we would certainly purchase oil-cake, and feed cattle, old or young, rather than buy guano." Such is the conclusion of an advice to one of your correspondents in last week's paper. It involves a question of considerable importance, and as I differ from you in its solution, I take the liberty of stating my reasons for doing so. A 10*l.* note will purchase a ton of oil-cake; its value to the farmer may be estimated as follows:—At 5 lbs. per day for each, this quantity will, with Turnips, feed two cattle for seven months, which may leave a gain of 1*l.* per month each, or 14*l.*, one-half of which may be supposed to be due to the oil-cake £7 0 0

In that time the two cattle will produce 20 loads of dung, which will be one-third more valuable on account of the oil-cake. The oil-cake may, therefore, be said also to produce 10 loads of dung, worth on the farm 3*s.* per load . . . 1 10 0

£8 10 0

So that 8*l.* 10*s.* is what the farmer gets for his 10*l.* worth of oil-cake. Now, take a farm managed on the self-sustaining principle, that is to say, producing within itself manure sufficient to carry on a system of crops, and suppose that by adding guano to the crops, an additional produce is obtained, it follows that all this increase, less the cost of the guano, is profit. To ascertain the amount of this profit on a four-course rotation, let us take, as an example, the results of some experiments published by the Highland Society.

On Clover—2 cwt. Peruvian guano gave an increase to Mr. Gardner, Barochen, valued at . . .	£3	17	3
On Oats—2 cwt. gave an increase to the same gentleman, valued at . .	2	0	4½
On Turnips—2 cwt. gave an increase to Mr. Hannam of 4 tons 9 cwt., worth .	2	4	6
On Barley—2 cwt. gave to the same gentleman an increase of 15 bushels, worth	2	16	3
Giving an increase on the rotation of	£10	18	4½

Produced by the application of 8 cwt. of guano; and as 1 ton of Peruvian guano can be bought for 10*l.*, the farmer, at this rate of increase, will get 27*l.* 16*s.* for his 10*l.* worth of guano. In an estimate of this kind we can, of course, only make an approximation to the truth, but if these data are tolerably accurate, they appear conclusive of the superior economical value, to the farmer, of guano. Nor is this all; for the increased produce of one year adds to the manure-heap for the next. I think it is of importance that correct notions should be entertained on matters like this; as the application of specific manures will, probably, be greatly extended by the assistance of science, and will, indeed, be the chief triumph of modern agriculture. The immense traffic in guano last year attests the good opinion entertained of its qualities, and though, for my part, I do not at all join in the fear of famine apprehended by many, yet I have no doubt whatever that the extensive use of guano and other direct foreign manures, has had a material influence in averting that calamity.—*James Caird, Baldoon, Wigtown; Nov.* 26.

Discussion on Flax Culture at Ballinasloe.—In the *Agricultural Gazette* of the 22d November, p. 791, is a letter from Mr. J. H. Dickson, on the Discussion on Flax Culture at Ballinasloe, in which my name is treated in a very unceremonious manner. Fair criticism, no author who writes for the public, has a right to complain of; but misrepresentations are unfair to every author. I am willing to believe that the misrepresentations of Mr. Dickson are not wilful, and yet he does not quote correctly from your Number at p. 744, to which he refers, and these quotations again are not accurately and fairly given from my book. As he, however, seems to write in earnest, I am also willing to believe him when he says that "I have not read the 'Book of the Farm,'" and I dare say he thinks the book the production of a mere theorist, and that I am a creature of "theoretical delusion." Now what I would suggest to Mr. Dickson is this, to read my book, at least what is said in it on the subject which has given rise to his remarks, and to ascertain whether my sentiments on the effects of the growth of Flax on the soil are in accordance with the sentiments and experience of Scottish farmers on that subject. If he do this, and afterwards adhere to the sentiments he has expressed towards me, both in the letter and the spirit, then I shall respect the position he has honestly taken up. And I also suggest that should Mr. Dickson be in Edinburgh ere long, he will favour me with a call, and judge for himself whether he or I know most of practical agriculture. Should he refuse to do either, then I must protest against his presumption in publicly criticising, in a rude manner, the works of a writer he has never read. Before concluding, it is necessary that I correct a typographical error which appears in my book. In mentioning the price of dressed Flax the error consists in saying 6*l.* per ton, whereas the price should have been 6*l.* per cwt., or 120*l.* per ton, the highest price usually given for Flax. This error is very obvious, for only a short way above I had stated the ordinary price of good Flax at 90*l.* per ton. I should also mention that the facts adduced by me are all derived from Scottish practice, and the amounts of produce derived are all given in imperial measures; but I presume that the quantities referred to by the Irish gentlemen are by the Irish acre, or perhaps the Cunningham acre.—*Henry Stephens, Redbrae Cottage, Edinburgh, Nov.* 25.

Top-dressing.—I have been so much pleased with the observations of "Oxygen," in the *Agricultural Gazette* of the 8th ult., that I should feel extremely obliged if he would kindly tell me how he would advise me to prepare some land for Carrots and Oats for sowing next spring. The last crop was Potatoes. When they were dug, I had the land thoroughly well cleaned and forked over to the depth of about 10 inches. It was double spitted before the Potatoes were planted. The soil is a light sand. The custom here is to dig in the manure before the Carrots are sown. But from the observations of "Oxygen," I feel strongly disposed to spread the manure on the land at once, and hoe in the Carrot-seed in the spring.—*John Lowder, Parsonage, Studley, Calne, Wilts.*

The Air-Churn.—My attention has been called to a paragraph in your Paper of the 8th inst. (copied from the *Globe*), relative to an air-churn, stated to be the invention of the Bishop of Derry. Being myself the inventor, I wrote to his lordship, and annex you a copy of his reply:—

(Copy.) "*Broom-hill, Derry, Nov.* 15.

"Sir,—I have this day received your letter, and lose no time in informing you that the paragraph in the *Globe* newspaper, to which you alluded, had no foundation whatever in truth; how it came to be inserted in that journal I cannot understand, as I am utterly ignorant of everything connected with the structure of such a machine as described.—I remain, your faithful servant, (signed) R. Derry."

"To Mr. Alexander Weston, Liverpool."

For your information I beg further to inform you that my churn was registered in September, 1844, and was exhibited (though not entered for competition) at Glasgow in 1844, and particularly recommended by J. Smith, Esq., of Deanston, and several other noblemen and gentlemen. I have this year exhibited it only at Liverpool Agricultural Society, where it received the silver medal, and was particularly commended by the judges in their report. As I am manufacturing them at present, and am dependant upon my exertions as a mechanic, I beg you will do me the justice of inserting this.—*Alex. Weston, Liverpool.*

Capital Needed in Farming.—I have been much amused with the modest and diffident letter of "J. S., Bromston," in the *Chronicle* of the 22d of Nov.; it puts me in mind of a fable I used to read in my youth, of the wolf and the lamb, who were quenching their thirst at the same rivulet; and although the wolf was standing much higher up the stream than the lamb, he accused the latter of muddying the stream which flowed towards him. I must be permitted to make one extract from the able letter of "J. S.," viz., "Happily for me I am so situated as neither to see, feel, or know, but little of the evils on which he expatiates." A clear acknowledgment of "J. S.'s" utter ignorance of what he is writing about, which is not difficult to gather from his erudite effusion. In my communications to your Paper I endeavour to be as concise as possible, not wishing to occupy more space than is necessary to make myself intelligible. "None are so blind as those that will not see, none are so deaf as those that will not hear;" and having some individuals of this description to deal with, I must be a little more diffuse, and recur again to a subject so interesting and important as farming, not merely as a *meum* and *teum* affair between landlord and tenant, but in a national point of view. At present I will content myself by simply asking the following questions:—Is it a proof of extreme folly and wilful malice to urge agriculturists to employ capital in the cultivation of land? Is it unfair to tell a farmer that if he holds a greater number of acres than he can properly manage, he runs a great chance of being ruined himself, and of defrauding his landlord? Is it symptomatic of a bad spirit to show the value of saving manure in the most economical way? Is it ill-natured hinting to a farmer the certainty of adding to his own comforts and his neighbours, by judiciously employing extra labour? Is it contrary to the spirit of charity to affirm that all ill drained and weedy land is comparatively unproductive? Is it unneighbourly to caution a man against wasting his substance? Is it unfriendly to guard the farmer against those who would persuade him to go on in the old careless manner of tilling the soil? Is it unwise to plead the working farmers' cause with agricultural associations? Is it contrary to fair dealing to suggest that stall feeding enables the farmer, in many instances, to convert fallows into profitable arable? If the above questions can be answered in the affirmative, I have certainly very much mistaken the use of the English language, and should feel obliged by being referred to the dictionary consulted by "J. S., Bromston." I have not yet done with capital, neglect, &c.; however, I will for a time rest on my oars. Perhaps some of your correspondents will kindly answer the following questions: 1. What were the average wages during October, November, and December, 1844; and during January, February, and March, 1845, amongst agricultural labourers in Oxfordshire, Buckinghamshire, Berkshire, and Gloucestershire; and was there a sufficiency of work? 2. What rent did the labourers pay for cottages? 3. How were they off for fuel? I can, of my own knowledge, speak to some of the points in question, but my motives having been traduced, I should wish to have other evidence of the facts. Perhaps I may be able to enlist the elergy in the service. P.S. It shows great weakness when a man perverts truth to serve his own purposes. With regard to boiling salt and water, I did not recommend it as a remedy, but proposed the trial as an experiment to destroy the fungi in the diseased Potatoes. I tried it myself as soon as possible, and found it did not kill the fungi, when I immediately wrote to the *Chronicle*, mentioning the failure. This occurred many weeks ago, and not having observed the insertion of my note, I imagined the Editor did not consider it of any consequence.—*Falcon.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's house in Hanover-square on Wednesday last, the 3d of December; present, the Rt. Hon. Lord Portman, President, in the Chair; his Grace the Duke of Richmond; T. R. Barker, Esq.; S. Bennett, Esq.; W. R. Browne, Esq.; F. Burke, Esq.; F. C. Cherry, Esq.; W. A. Cherry, Esq.; J. W. Childers, Esq., M.P.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; C. Hillyard, Esq.; W. Fisher Hobbs, Esq.; J. Kinder, Esq.; J. Parkins, Esq.; F. Pym, Esq.; Prof. Sewell; J. V. Shelley, Esq.; W. Shaw, Esq.; Prof. Solly; C. H. Turner, Esq.; T. Turner, Esq.; and H. Wilson, Esq.

The following new members were elected:—

Swaine, Thomas, Buckingham
Bull, Humphrey, Aston-Clinton, Tring, Herts
Batard, Thos. Matthias Bearda, Sydenham, Kent
Greenhow, John, Kendal, Westmoreland
Marshall, John, Alnham, Whittingham, Alnwick, Northumb.
Dyke, Henry, Papade, Monmouth
Howard, John, Brereton Hall, Sandbach, Cheshire
Fox, Robert, The Lodge, Wendover, Bucks
Henderson, Edward, Lowick, Wooller, Northumberland
Wickham, John, Butcombe, Bruton, Somerset
Allen, James, Holt Farm, Pilton, Shepton-Mallet, Somerset
Elgar, James, Wingham, Kent
Rathbone, Basil, Woodcroft, Liverpool
Walker, George, Eastwood, Nottingham
Naish, W. B., Stone-Aston, Bath
Mason, Thomas, Fallinsburn Cottage, Ford, Wooller, North.
Wells, John, Woodborough, Nottingham [Essex.
Majendie, Ashhurst, F. R. S., Hedingham Castle, Halstead,
Howard, Hon. James, Hazelby, Newbury, Berks
Watts, James, Hythe, Kent
Bagot, Hon. William, Blithefield, Rugely, Staffordshire
Pope, Thomas, Kidbrook, Blackheath, Kent
Wilkinson, William, Stainton Vale, Richmond, Yorkshire
Hearn, John Henry, Newport, Isle of Wight

The names of 41 candidates for election at the next meeting were then read.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committe, laid before the Council the monthly statement of the accounts of the Society, when it appeared that the amount of invested capital stood at 8200*l.*, and the current cash balance in the hands of the bankers at 242*l.* The Chairman also laid before the Council a balance-sheet made up to that day of the Shrewsbury meeting account, showing the total receipts (including the subscription of 1000*l.* from the town of Shrewsbury) as amounting to 3661*l.* 12*s.* 2*d.*, and the total payments to 5166*l.* 8*s.* 9*d.*, leaving an excess of payments over receipts on that account of 1504*l.* 16*s.* 7*d.* chargeable on the general funds of the Society. The Chairman stated, that as there were still, however, a few unsettled accounts connected with the Shrewsbury Meeting, the balance-sheet then presented was incomplete accordingly, and not finally closed.—Mr. Barker also presented, on the part of the House Committee, their monthly report of proceedings, which, along with that of the Finance Committee, was adopted.

Prize-Essay.—Mr. Pusey, M.P., Chairman of the Journal Committee, reported to the Council the award of the Society's Prize of 20*l.* for the best Essay on Catch-meadows, to Mr. John Roals, of Wiveliscombe, Somersetshire.

Selected Wheat.—Earl Spencer transmitted to the Council his detailed Report on the Comparative Trial of the Cultivation of the Wheat selected at the Southampton Meeting, along with other varieties grown in the neighbourhood of Northampton. The consideration of this report was deferred until the other reports on this subject have been received.

December Meeting.—The President reported that Dr. Lyon Playfair had kindly consented to deliver two lectures on the Potato Disease, before the members, on the occasion of their ensuing General Meeting, at nine o'clock in each of the evenings of Wednesday, the 10th, and Thursday, the 11th inst. The President further reported, that the Royal Institution of Great Britain had liberally granted the use of their Theatre, in Albemarle-street, Piccadilly, for the delivery of these lectures: the members of the Society obtaining as formerly their free tickets of admission on application to the Secretary, at 12, Hanover-square.—A Report from Mr. Pusey, M.P., Chairman of the Journal Committee, was then read, stating, that as Dr. Lyon Playfair had acceded to the President's request to deliver lectures to the Society on the Potato Disease, the communications from members on that subject had been transferred to him for examination.—The Council ordered the Rooms of the Society in Hanover-square to be thrown open for the accommodation of members from six to ten o'clock on the evenings of Wednesday, Thursday, and Friday next: the General Meeting being held on Saturday, the 13th inst., at 11 o'clock in the forenoon.

Committees.—The Council then proceeded agreeably with the bye-laws to re-appoint the Standing Committees for the ensuing year: adding the names of Mr. Pym and Mr. Jonas to the list of the Finance Committee, and those of the late and present Mayor of Newcastle-on-Tyne to that of the General Newcastle Committee.

Annual Prize-Sheet.—On the motion of Mr. Raymond Barker, seconded by Mr. Gibbs, it was resolved, "That in future the Prize-sheet for the Country Meeting should be finally settled at a Special Council to be held on the Thursday of the Smithfield Club week in

December, instead of at one held as formerly in the month of June, in the year preceding."

AUCTIONEER AND ENGINEER.—On the motion of Mr. GIBBS, the following Resolutions were agreed to:—

1. That the auctioneer or his clerk shall be in attendance in an office in the show-yard from 10 o'clock, A.M., until 4 o'clock, P.M., on the Thursday of the show week, for the purpose of receiving instructions from such exhibitors as may have properly entered stock or implements for sale at the auction.
2. That the auctioneer shall receive all the forfeit money for the withdrawal of stock or implements from the auction, and give the exhibitor the necessary countersigned order for the removal of such stock or implements from the yard.
3. That the auctioneer shall take charge of, and sell the catalogues of the sale, and that he shall deliver over to the director for the Society's use the money arising from the forfeits and the sale catalogues.
4. That the consulting engineer shall not act as one of the judges of implements, but only act as mechanical referee, in case the judges may deem it necessary to call in his aid.
5. That the consulting engineer shall be in attendance in the yard, and during the trials to examine the implements.

NORTHUMBERLAND PRIZES.—The PRESIDENT read to the Council a letter addressed to him by the Duke of Northumberland, in which His Grace expressed his approval of the proposed arrangement by the Council for the distribution of the premiums which he had placed at their disposal.

The President having laid before the Council numerous communications he had received for the Journal Committee on the Potato disease, and other subjects, the Council ordered that a collector of subscriptions on the part of the Society should be directed to attend, as usual, at the office of the Smithfield Club for the convenience of those members who visited the Show during the ensuing week; and referred the appointment of an auctioneer for the Country Meeting of next year to the General Newcastle Committee.

IMPLEMENT PRIZES.—His Grace the Duke of RICHMOND, at the request of the President, then took the chair, and the Council proceeded to a consideration of the distribution of the 300*l.* voted in June last for Implement Prizes at the Newcastle Meeting. On the motion of Mr. SHELLEY, the following schedule was unanimously agreed to:—

For the Plough best adapted to heavy land	£10
For the Plough best adapted to light land	10
For the best Drill for general purposes, which shall possess the most approved method of distributing compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the drill which may be best adapted to cover the manure with soil before the seed is deposited	15
For the best Turnip Drill on the flat, which shall possess the most approved method of distributing compost or other manures in a moist or dry state, quantity being especially considered, N.B.—Other qualities being equal, the preference will be given to the drill which may be best adapted to cover the manure with soil before the seed is deposited	10
For the best Turnip Drill on the ridge, which shall possess the most approved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited	10
For the best Scarifier	10
For the best Chaff-cutter	10
For the best Machine for making draining-tiles or pipes for agricultural purposes. Specimens of the tiles or pipes to be shown in the yard; the price at which they have been sold to be taken into consideration, and proof of the working of the machine to be given to the satisfaction of the judges	20
For the best Harrow	5
For the best Drill-presser depositing manure and seed	10
For the best Churn	5
For the best Weighing Machine for live cattle and farm produce generally	10
For the best Steaming Apparatus for roots	5
For the best Skim or Paring Plough	5
For the best Subsoil Pulverizer	10
For the best Horse-seed Dibbler	15
For the best Hand-seed Dibbler	5
For the best Linseed Crusher	5
For the best One-horse Cart	5
For the best Thrashing-machine	25
For the best and most economical Set of Tools and Instruments for Draining purposes	10
For the best Steam-power, applicable to Thrashing, or other Agricultural purposes	25
For the best Horse-power, ditto, ditto	25

The Council ordered that it should be distinctly stated, among the Regulations of the Implement Prize-Sheet, that each exhibitor shall be bound to execute all orders given to him in the Show-yard, at the price stated in his certificate.

LIST OF MEMBERS.—On the motion of Mr. FISHER HOBBS, the Council ordered that the List of Members of the Society should be printed immediately after Christmas.

NOTICES OF MOTION: FINANCIAL RETURNS.—Mr. HUMPHREY GIBBS gave notice that he should move at the next monthly Council—

That the Finance Committee shall in future cause to be prepared a monthly account of the state of the Society's finances, showing on the Dr. side, first, the ordinary payments that have been made, such as rent, taxes, salaries, printing of journal, prizes annually given, expenses of the annual show, &c., and secondly, the amount of ordinary debts that may remain due from the Society. Thirdly, the extraordinary payments that have been made, such as the repairs of the house, purchase of printed books, furniture, &c., and fourthly, the amount of extraordinary debts that may remain due from the Society. On the Cr. side, first the amount of arrears received of annual subscriptions for each previous year respectively. Secondly, the amount of annual subscriptions for the current year. Thirdly, the sums received for the sale of Journal, money taken at the annual shows, and other ordinary sources of income. Fourthly, as extraordinary receipts, the amount of such compositions as may have been received in lieu of the annual subscriptions; and, fifthly, any other monies that may have been received and cannot be considered as ordinary sources of income.

That the Finance Committee shall cause to be laid before the Council as ordinary debts due at the same periods, a detailed account of the arrears due to the Society for the annual subscriptions, showing the amounts due from each year respectively, and also the amount of the annual subscription due for the current year; also as extraordinary debts due to the Society on account of the amounts due for compositions.

Also a statement of the funded property, together with a memorandum of the amount of monies received as compositions, but which has not been funded.

That the report above alluded to shall be for the month previous to the one at the meeting in which the statement is to be made; for instance, the account to be laid before the Council at its meeting in January next shall comprehend the month beginning the first Wednesday in November and ending the first Wednesday in December, so as to give the Committee full time to collect and digest the materials for the report.

The Council then adjourned to Wednesday next, the 10th of December.

Farmers' Clubs.

SUSSEX: *Turnip and Root Show.*—At the late meeting of this Society, the following letter was read from Sir C. M. Burrell, Bart.—"Knepp Castle, Nov., 1845—Sir, in compliance with your request, I send you specimens of my White Cattle Carrots, of which you will perceive the abundant and valuable produce annexed in the postscript, justifies in every respect the favourable opinion I have hitherto expressed, while it offers proof of the soundness of the system of cultivation I have ventured, on practice, to recommend, not only for their more certain growth, but as leading to a greatly increased produce. I allude to the selection of land free by nature, and the introduction of good and abundant under-drainage at such depth (from two to three feet) as may best suit the nature of the soil, observing that according to the depth selected, should the drains be nearer or further apart according to my view of that question, fully agreeing as I do in opinion with that represented to have been publicly expressed by Mr. Smith, of Deanton, that to drain deeper than three feet is to incur an useless expense, unless under some peculiar circumstances, needless for me as a cultivator of Sussex clay land to enter into. Suffice it to say, that the beneficial effects of the Pearson plough drainage upon above 800 acres of clay subsoil, in no respect diminished after 12 years' experience of this cheap, and, as I believe, permanent under-drainage, executed at from 24 and 26 inches for the plough drains, and three feet depth for the tiled main drains and the outfalls, leaves me nothing to regret as respects under-drainage wholly with drain-tiles of any description; inasmuch as from a former average produce of one load of Wheat in the sheaves per acre, two have since been carried, embracing a fine sample of Wheat, while Clover has been more productive, as well as Oats, and Barley previously unfit for malting, has perfectly stood the test this year, and has been applied with success for brewing the annual stock of malt liquor. To return, however, to the main object of this letter, the raising of succulent food for cattle, after observing that my Swede Turnips have proved abundant and of good size, I proceed to particularise my preparation for White Carrots; the ground is trenched and well pulverised by the spade, two spits deep in December, before the usual period of severe frosts, and being well under-drained, the filtration through the trenched soil is rapid, and the action of subsequent frost tends to make the ground mellow, and particularly suitable for drilling in the Carrot-seed in April. When the plants grow of sufficient height, they are set out with the hoe carefully at about the same distance as Swede Turnips, and the repetition of hoeing will depend much on the season, whether the seeds come up altogether or not. If any dressing is necessary from the crops which have preceded, and of which the occupier is the best judge, I am disposed to recommend a slight top-dressing of guano mixed with free earth well pulverised, or any other suitable top-dressing while the plants are young, to be applied during mild and moderately rainy weather; and during their progress to maturity, pulling up for the use of stock any plants which begin prematurely to run to seed, sedulously keeping hares, and more especially rabbits, down as low as possible, or they will injure the Carrots greatly, coming from a greater distance than may be suspected; but flying game has not been found to injure them at all. In concluding my reply, I cannot lose the opportunity of repeating the entire satisfaction derived from Mr. Warnes's (of Trimingham), box-feeding system as set forth in his pamphlets, and brought into both summer and winter practice on my farm, the beasts thriving rapidly on the compound mode of crushed Linseed with Bean, Barley, or other meal boiled and formed into a mass, and with which my beasts have thriven more advantageously than others on oil-cake, and at less cost; and as regards the excellence and flavour of the meat, it is superior, and especially tender and juicy. And if further proof were desirable, it is afforded in their ready sale to neighbouring butchers, and in the intended increase early in the spring of the number of my cattle boxes, from 13 to 30, from the roofs of which the rain-water will be saved in one or more spacious tanks arched over, similar to one which wholly supplies my hot and greenhouses. With respect to particular statements of comparative cost in feeding on Mr. Warnes's system, it seems to me prudent to state no corrected calculations until I have completed two years' trial. Suffice it now, however, to add that I have sound grounds for preferring the box-feeding system to every other mode; the food being cheaper, the cattle thriving faster, and the dung made being so much better, that we consider 12 loads thereof equal to 20 loads from oil-cake and beasts in yard, whether tied up or otherwise. Moreover, the very recent date of your letter precludes the making accurate calculations. Hoping that what I have stated will be plain and satisfactory, I remain, Sir, your obedient servant, CHARLES MERRIK BURRELL.

P.S.—I am now enabled from the measurements made by my workmen of three rods of White Carrots taken in different spots, the Carrots of which, without green tops, averaged 4cwts. 9lbs. to the rod, calculating whereby, the amount of the crop will amount to 32 tons 12cwts. 3qrs. 12 lbs. per acre, and which, as far as can be judged from the progress made in raising the crop up to Saturday night, will be the average produce per acre of the field; naturally a wet sticky soil, but improved by the Pearson drainage; subsoiling and trenching for the White Carrot crop."—*Sussex Express.*

WITHAM: *Annual Meeting, Oct.* 9.—Mr. Mechi stated that in one of his fields at Tiptree, in preparation for Wheat he applied tank manure solid and liquid together, and on another piece he applied liquid manure alone from the same tank, at the rate of 1500 gallons per acre. During the winter the crop on the portion subjected to the latter treatment looked yellow and unpromising, but as the spring advanced it went on well, and he found no perceptible difference in the crop, the yield being 5½ quarters per acre. He mentioned this fact because there had been an impression that liquid manure was not valuable, but in this instance it proved fully equal to solid, applied at the rate of 15 cart-loads to the acre against 1500 gallons of liquid. Another fact he would mention was, that he subsoiled some heavy land for Beans. Of course the subsoil was of bad quality. It was said that it would be absurd to sow upon that, but the result was that he had a better and stronger plant there than on other portions, though he could not at present state the difference in quantity. He had no hesitation in stating it as his opinion, and also that of persons in the low lands of Scotland and in Lincolnshire, that the agriculture of Essex, however perfect in other respects was deficient in three points—namely, deep drainage of strong lands, economy of manure, and economy of time in suitable farm-buildings. It was his belief that water would percolate through strong soils, but there was a general feeling in Essex to the contrary, but it had been found to percolate to a depth of 2 ft. 6 in., and it would do so at 4 ft. and 5 ft. He had endeavoured to stimulate inquiry into this subject, and he should feel obliged if, to gratify himself and them, they would try on their strong clays, where they could get a sufficient fall, the 4 ft., 5ft., or 6 ft. drainage. Mr. M. then further alluded to the results of his experiments with liquid and solid manure, and remarked that in one field so treated, the soil of which was second or third-rate, he raised 4½ quarters of Wheat per acre, which he sold at 59*s.* It was his intention to go on draining deep, and should continue to spread his tank manure, having witnessed the satisfactory results of the plan.—Mr. William Hutley said, after the observations of Mr. Mechi, as to the draining of heavy lands, he should be very happy for that gentleman to try the experiment on his farm, and he would pay the expense of it if it suited his purpose. He should drain it 5 ft. deep, and he (Mr. H.), would take another field without draining, and all that Mr. Mechi could grow above the produce of the other field he might have for his trouble. Mr. Mechi had spoken of the price his Wheat fetched, 59*s.*; why, upon this watery land he had grown Wheat and sold it for 68*s.* His (Mr. Hutley's) opinion was, that it was of no use whatever to drain on heavy lands, as he did not believe the water would percolate.—Mr. Mechi: I'll prove it on your land.—Mr. Hutley: When Mr. Smith was there he engaged to do it, but he had not been yet forthcoming; but he had no doubt Mr. Mechi would keep his promise. He had said that this land might be made most fruitful; he (Mr. H.), could only say that it had already produced five quarters of Wheat per acre, and 10 quarters of Oats; and he would ask Mr. Mechi, taking the whole body of the land, did he think that by draining there would be more produce raised.—Mr. Mechi: I think there would. Mr. Hutley: I'll give Mr. Mechi from 5 to 20 acres to drain.—Mr. Mechi: I'll take two acres for the experiment.—Mr. Hutley was satisfied it would not answer as there was not a stratum of different soil; it was all of a strong texture.—Mr. Mechi inquired if it cracked in dry weather?—Mr. Hutley: Yes, big enough to put your legs in. (Laughter.)—Mr. Mechi: then it can be drained in wet weather.—Mr. Hutley said apart from all joking, he must say that Mr. Mechi had been a valuable person in that neighbourhood. He went to Tiptree and saw a man digging away at a drain, and he said he should not have a bellyful of victuals if it was not for Mr. Mechi. Then he (Mr. H.) said "Hurrah for Mr. Mechi! he has done good in encouraging the labourers, and he is the best man Tiptree-heath ever produced." He hoped he would proved successful in his experiments. If his plans were bad, still he had done good in setting men to think, and communicating with them on the matter; but he thought he had gone on a little too fast, for when he had said that he had laid out 800*l.* or 900*l.* more than he ought, it was necessary for persons to calculate upon what they would get for the experiments. He thought as far as trying experiments went, they ought to be much obliged to Mr. Mechi.—Mr. Mechi said, the question of deep draining was one far too important to be decided upon by opinion. It was of great importance to Essex, because they knew that many persons had suffered from the slug, and other consequences of a wet season.—Mr. Hutley said, it might answer upon Mr. Mechi's soil, but let him try the heavy lands of Wigborough.—Mr. Mechi wished to know whether a 5-feet drainage had ever been tried on heavy lands and failed. Could Mr. Hutley say that his land was ever dry at any depth below the surface?—Mr. Hutley: It is never dry, and you cannot make it

so. He could bring soil two feet below the surface, which after two months drought would be wet.—Mr. Mechi said he would mention an anecdote upon this subject. A friend of his named Spencer was draining a field 4 ft. deep; a gentleman who inspected the work inquired why such a plan was adopted to get rid of the surface-water. The man at work asked him whether, when he tapped a cask of beer he did so at the bottom or the top. Of course the gentlemen replied at the bottom. And where is it dry first rejoined the man. Why at the top was the answer. (Laughter.) The result of this system was, that the water left the top and passed off through the drain. That was what was taking place at Tiptree after these heavy rains. He wished to remove the strong prejudices which existed against the system of drainage, being certain it would be a benefit to the country at large. It must be settled by facts, and as far as he was concerned he would prove it by test and trial. Another point of importance in Essex was the timber and fences. He was certain there was more land taken up and more time lost in watching and repairing them as would produce as much corn as we required from foreigners, and leave a balance for exportation. Another point was the necessity of having suitable buildings for carrying on the operations of the farm. If he were asked the comparative value of buildings per acre, and that of land, in his opinion, in the economy of fatting stock, obtaining the manure in proper tanks, and the saving of time in thrashing, it would make a difference of from 15*s.* to 20*s.* per acre more to be paid; and that was the reason why he had erected good buildings. With reference to thin sowing he would state the fact, that on the 15th of April he sowed one peck of Barley on half an acre, and the produce was two quarters.—Mr. R. W. Dixon remarked with reference to thick and thin sowing, that in 1834 he had a field of Wheat sown at the rate of eight pecks per acre, and directed his man to put six pecks upon two stetches. It was a good season for Wheat that year, and though the appearance of the thickly-sown plants was not at first favourable, yet it proved the best crop by a yield of two or three bushels more. He had since that time sown rather thickly. He could not speak of any other test than that of Beans. The average sowing in 1841 was 5½ bushels per acre drilled in rows 2 ft. apart. It was a good Bean year. The test was tried in one field, and two stetches were sown with 6½ bushels, and upon thrashing the produce the yield of the portion sown with the 5½ bushels was 9 qrs., 2 bush., and that of the 6½ bushels, 9 qrs. 7 bushels.—The President inquired of Mr. Dixon what quantity of seed Wheat he sowed per acre?—Mr. Dixon replied that on an average if he got it in early, he used three bushels; he thought the most productive description was the large berried seed.

Miscellaneous.

Rotation of Crops.—It is better to prevent the special exhaustion we have been speaking of than to cure it. It is often difficult to discover what the land really requires, and, therefore, to cure the evil when it exists. The only method of preventing it with which we are yet acquainted, is by the introduction of a skilful rotation or alternation of unlike crops. In adopting such a rotation, we only copy from nature. In the wide forest, many generations of broad-leaved trees live and die, and succeed each other; but the time comes at last when a general pestilence seems to assail them all; their tops droop and wither, their branches fall off, their trunks rot. They die out, and a narrow-leaved race succeeds them. This race again has its life, of centuries perhaps; but death sieizes it too, and the expanded leaf of the Beech, the Ash, and the Oak, again cheer the eye—playing with the passing zephyrs and glittering in the sun. So in the broad meadow, the old pasture changes, and new races of humble Grasses succeed each other as the fields increase in age. The alternation of crops, therefore, asserts to itself something of the dignity of a natural law, and man is evidently in the right course when he imitates nature in a procedure like this. But upon what do its good effects depend? Why do the broad leaves alternate with the narrow in the ancient forest? Why do the Grasses change in the old meadow? Why does the farmer obtain a larger produce, and for a greater number of years, by growing unlike crops alternately, than by continuing year after year to grow the same? The reason is not merely that one crop carries off more, and another crop less, of all those things which all our crops derive from the soil, but that one crop carries off more of one thing, another crop more of another. The grain carries off phosphorus, the straw silica, the bulb alkaline matter. After, perhaps, 15 or 20 successive crops of the same kind, the surface soil through which the roots are spread become so poor in those substances which the crop especially requires, that the plant cannot obtain from it a sufficient supply to nourish and bring to maturity the full-grown plant, within the time allotted to it in our climate for its natural growth. The roots do their best; they collect as diligently as they can, but winter comes on, and the growth ends before the plant is fully matured. In the case of corn, the first effect of a scarcity, say of phosphoric acid, is to make the ear smaller and the number of grains less; the next to continue the growth into the winter, and only when a very fine season occurs to ripen the ear at all. But suppose we alternate the corn crop, which in its grain carries off phosphoric acid, with a hay crop which requires much silica, or a root crop to which much alkaline matter is necessary—then the one crop would live upon and remove what the other had left in greater abundance. Instead of robbing the soil every year of the same substances, we should be exhausting it more equably of all, and we should be able, for double the time at least, to crop it without the risk of its ceasing entirely to give us a profitable return. We should gradually work up also every available substance in the soil, whether such as are naturally present in it, or such as we have ourselves added in the form of manure. What is true of the simple alternation of a corn with a green crop, is more true still of a longer and more complicated rotation. The greater the variety of crops we grow, and the longer the interval between the successive crops of the same kind, the more perfectly do we avail ourselves of the benefits which an obedience to the suggestions of this principle is fitted to confer upon us. No rotation, it is true, however skilful, will alone prevent the land from becoming ultimately exhausted. Nothing but regular and generous manuring will do this, unless there be, in springs from beneath, or in the decaying fragments of rock mixed with the soil, or in substances brought down from higher grounds, or in the nature of the rains that fall upon the land, some perennial source of those substances which the crops always carry off from the soil. But in a skilful rotation there is this virtue, that land which is subjected to it cannot be ruined in so short a time. If one tenant use it ill, it may come into the hands of another before the ruin is so far irremediable that the farmer who has a rent to pay cannot reclaim it with a prospect of immediate profit to himself.—*North British Review.*

Notices to Correspondents.

BUTTER—*P T O*—Milk should yield a quarter of a pound per gallon. ——*Phosphorus*—You may use Mangold Wurzel, Carrots, hay, oil-cake, but not Turnips or Swedes, if you wish a good-flavoured butter. Give your cows 6 to 10 lbs of hay a day, and about a cwt. of roots. You may use phosphorus balls, made as recommended, with safety.

CHURNING—*A Sub.*—Will any one kindly give us their experience of the churn manufactured by Robinson, of Lisburn.

DRAGGING CART WHEELS—*A Subscriber*—This is done either by shoe or chain (the latter is now objected to in many districts by road trustees); in some places, road trustees place at great descents a sort of dragging chair (half-supported on wheels) on which the cart-wheel rests, the return cart always taking it up to the top of the hill again for use another time. Perhaps the best contrivance, however, is one in which the horse himself in the act of backing presses a drag against the nave of the wheel and renders its motion difficult. Mr. Clyburn, of Uley, Gloucestershire, will give you information on this point.

DRAINS—*P L P*—Will any one tell us where, and by whom, and at what cost, various sizes of drain-tiles may be shipped at London?——*R W*—It is the worse for them if they slope too much. If the slope is steep, carry the drains obliquely up it, giving them say 4 feet fall in 100, and let them run into a main as usual at the bottom.

FEEDING—*Inquirer*—Your two-year old bull should be castrated. It *will* make a difference in the beef.

FEEDING LAMBS—*Inquirer*—Give the oil-cake to the *ewes*; half or three-quarters of a lb. each daily.

FENCES—*Inquirer*—You may safely follow Mr. Grigor's advice.

LEVELLING PASTURES—*K R*—You had better strip, first the turf, and then a few inches of the top soil, off each hillock and adjoining hollow; then level the subsoil and replace the soil and the turf.

MIXTURE FOR TOP-DRESSING WHEAT—*G A P*—Guano will probably pay best. Salt and lime and sulphate of ammonia must not be mixed together; the lime will drive off the ammónia. Nitrate of soda is a good thing to apply to Wheat.

OLD PASTURE—*S S S*—Oats will be your best crop. They will stand better than Wheat.

PEAT DRAIN TILES—*James Russell*—They are made simply by cutting them from the bog with a spade of the proper form. When dry, these peats are ready for use.

POTATOES—*Isle of Man*—If you boil your Potatoes, or steam them, and mix 2 lbs. of salt with each bushel of Potatoes, your cows will eat them with advantage. You must not give them raw. We have mentioned this two or three times already.

SHEEP-NETS—*Inquirer*—"How can hares and rabbits be prevented cutting them?"

STALL FEEDING—*R W*—A house 10 feet square, with an opening 4 feet wide, opening into a little yard of the same width and 12 or 15 feet long, will answer for your cow very well. The flooring may be of brick or stone paving, with a gutter through it conducting to a tank holding about 80 cubic feet, *i. e.*, 4 feet deep and 5 feet square in surface. The cow may be fed on Carrots or Parsnips and hay, putting a little of each in separate cribs before her at a time, and always renewing both when she has finished. She will eat probably from 6 to 10 lbs. of hay, and from 100 to 140 lbs. of roots, according to her size.

TANKS—*A B H*—As to form, square-made tanks will be cheapest. Build them of brick, *roman* cemented, and paved at bottom. A tank large enough to hold the urine (undiluted by rain water) of 12 horses, 8 cows, 10 feeding cattle, 20 young stock, and 10 pigs, for say 100 days (and you can surely empty it once in that time) needs to be 10 feet deep, 10 feet wide, and 15 feet long.

*** As usual, many communications have arrived too late.

Markets.

SMITHFIELD, Monday, Dec. 1.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0 to 4s	4	Best Downs & Half-breds	4s	8 to 5s	0
Best Short Horns	3	10	4	2	Best Long-wools	4	6	4	8
Second quality Beasts	3	0	3	6	Ewes and second quality	4	2	4	6
Calves	4	0	5	0	Pigs	3	8	5	0

Beasts, 3814; Sheep, 22,310; Calves, 58; Pigs, 406.

We have to-day a very good show of Beasts; several from the western counties of very superior quality, many of which remain unsold, being too big for the trade. The selling qualities have gone off, although slowly, at quite late quotations.—The supply of Sheep is very small, but trade is dull, without any material alteration in price.—Good Veal continues to sell well. —Good Pigs are in demand.

Friday, Dec. 5.

The supply of Beef is good, and trade dull; the best Scots, &c., barely make 4s 4d, and best Short-horns very little over 4s. Very little is doing in the second qualities, and several remain unsold.—There are rather more Sheep to-day, and the demand is limited; best Downs still make about 5s, and the best Long-wools nearly 4s 8d, but Ewes and second qualities are decidedly lower, making from 4s to 4s 4d.—Good Veal is scarce; a very choice Calf makes 5s 4d, but second quality is no dearer.—Nice small Porkers 4s 8d to 5s 4d; large Hogs 3s 8d to 4s 4d.

Beasts, 856; Sheep, 3990; Calves, 133; Pigs, 315.

4l. West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Dec. 4.

Prime Mead. Hay	85s to 90s	New Hay	—s to —s	New Clr.	—s to —s		
Infr. New & Rowen	60 70	Clover	85 to 112	Straw	27 32		

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Dec. 4.

Prime Mead. Hay	88s to 95s	Old Clover	110s to 115s				
Inferior	70 84	Inferior do.	90 105	Straw	32s to 36s		
New Hay	— —	New Clover	— —				

JOSHUA BAKER, Hay Salesman.

COVENT GARDEN, Dec. 6—There has been little alteration in the prices of Fruit during the week, and the supply has been well kept up, except of Pine-apples, which are somewhat scarce. Pears are rather more plentiful, and dessert Apples are sufficient for the demand; but good sorts for culinary purposes are scarce. Hothouse Grapes are scarcer, and rather higher in price. Portugal, and other foreign sorts, are abundant, but the former are not very good in quality. Oranges begin to be brought in considerable quantity, and Nuts of all kinds, except Walnuts, are plentiful; Cobs are a trifle dearer. The prices of most kinds of Vegetables have not altered much since last week, except Potatoes, which are considerably dearer. Cabbages, Savoys, and Broccoli, are good in quality, and sufficient for the demand—the latter a little dearer—and Brussels Sprouts and other winter greens are abundant. Some excellent samples of Carrots and Turnips are in the market. Celery is also good in quality. Cauliflowers are scarcer, and, in consequence, dearer. Endive, Lettuces, and other Salading, are sufficient for the demand. Cut flowers chiefly consist of Bignonia venusta, Euphorbia jacquiniflora, Epiphyllums, Heaths, Acacias, Heliotropes, Cinerarias, Pelargoniums, Camellias, Chinese Primroses, Chrysanthemums, Violets, and Roses.

FRUITS

Pine Apple, per lb., 4s to 6s
Grapes, Hothouse, per lb., 3s to 6s
— Spanish, per lb., 9d to 1s
— Portugal, p. lb., 9d to 1s 6d
Melons, Spanish, each, 4s to 10s
Apples, Desss., per bush., 4s to 6s
— Kitchen, 2s 6d to 5s 6d
Pears, per hf.-sv., 3s to 10s
Oranges, per dozen, 1s to 2s
— per 100, 4s to 16s
Lemons, per dozen, 1s to 2s
— per 100, 7s to 16s
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s 6d to 3s
Walnuts, per bushel, 10s to 22s
Filberts, English, p. 100 lbs., 40s to 50s
Nuts, Cob, per 100 lbs., 60s to 70s
— Barcelona, 24s
— Brazil, 16s
— Spanish, 14s
Chesnuts, per peck, 4s to 8s

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d
— red, per doz., 2s to 3s
Brussels Sprouts, p. hf.sv., 1s to 2s
Savoys, per doz., 9d to 1s
Cauliflowers, per doz., 1s to 3s
Broccoli, per bundle, 6d to 1s 3d
Greens, per doz. bunches, 2s to 3s 6d
French Beans, per 100, 3s to 3s 6d
Sorrel, per hf.-sieve, 6d to 9d
Artichokes, per doz., 2s to 4s
Potatoes, per ton, 80s to 160s
— cwt., 4s to 9s
— bushel, 2s 6d to 4s 6d
— Kidney, per bushel, 3s to 5s
Turnips, per doz., 1s 6d to 2s 6d
Red Beet, per doz., 6d to 1s 6d
Carrots, per doz. bchs., 2s to 5s
Horse Radish, per bundle, 1s 6d to 5s
Seakale, per punnet, 2s to 3s
Cucumbers, each, 6d to 1s
Spinach, per sieve, 9d to 1s 6d
Leeks, per doz. bunches, 1s to 2s
Garlic, per lb., 6d to 8d
Tomatoes, per hf.-sv., 2s to 4s 6d
Celery, per bunch, 6d to 1s 6d
Cardoons, each, 6d to 9d
Parsnips, per doz., 2d to 1s
Onions, per bushel, 2s to 3s 6d
— pickling, per hf.-sv., 2s to 3s
— Spanish, per doz., 1s 6d to 5s
Shallots, per lb., 6d to 8d
Endive, per score, 6d to 1s
Lettuce, per score, Cab., 4d to 9d
— Cos, 6d to 1s
Radishes, per doz. bunches, 1s to 1s 6d
Mushrooms, per pottle, 1s 6d to 2s 6d
Small Salads, per punnet, 2d to 3d
Fennel, per bunch, 2d to 3d
Savory, per bunch, 4d to 6d
Thyme, per bunch, 4d
Watercress, p. 12 sm. bun. 4d to 6d
Parsley, per bunch, 1d to 3d
— Roots, per bundle, 9d
Tarragon, per bunch, 4d
Mint, per bunch, 2d
Marjoram, per bunch, 4d
Chervil, per punnet, 2d to 3d

POTATOES.—Southwark, Waterside, Dec. 1.

This market still presents a high ful picture of the prevalency of the disease among the Potatoes; about one-third of the Yorkshire and Scotch Reds that were offered for sale last week were near a total loss, and there were several other cargoes that would barely pay the current expenses. The supply last week was moderate, but fully equalled the demand. This market is likely to be thinly supplied for some time to come, those growers that have diseased Potatoes are afraid to ship on their own account, and no speculators would risk them, and those that have samples tolerably free from the disease are biding them back expecting better prices. The York Regents are generally sound, and there are also some small lots of Whites and Kidneys from Lincolnshire and from the inland counties, also some Buffs and Blues from Montrose and Aberdeen, that have arrived in tolerable condition, but at present the quantity from those places have been inconsiderable. The saleable samples are selling as follows:—York Reds, from 10s to 12os per ton; York Regents, 50s to 120s per ton; Scotch Reds, 5s to 8os per ton; Lincolnshire Whites and Kidneys, 80s to 85s per ton; Montrose and Aberdeen Buffs, 90s per ton.

Mark-lane, Monday, Dec. 1.

The supply of Wheat from Essex, Kent, and Suffolk, this morning, was small, and chiefly in very damp condition, dry samples met a ready sale on the terms of last week, but millers refused to purchase the others, even at a slight decline; free foreign meets a retail demand, also bonded for consumption, but there is nothing doing on speculation, and the value of either is unaltered.—We advance our top quotations for malting Barley 1s. per qr., other sorts are without alteration.—Beans are very unsaleable, although offered at a decline of 2s. per qr.—Good white Peas find buyers at late prices, but inferior qualities cannot be disposed of; Maple and Dun are 2s. per qr. lower.—Having again a large arrival of Oats, and many vessels coming on demurrage, sales have been made at a reduction of 1s. per qr. from this day se'nnight.

	s.	*s.*		*s.*	*s.*
BRITISH, PER IMPERIAL QUARTER,					
Wheat, Essex, Kent, and Suffolk	58	67	Red	55	63
—— Norfolk, Lincolnshire, and Yorkshire	57	65	White	59	65
Barley, Malting and distilling 31s to 35s	Chevalier	33	38	Grind.	27	31
Oats, Lincolnshire and Yorkshire	Polands	27	29	Feed	26	27
—— Northumberland and Scotch	Feed	27	28	Potato	29	31
—— Irish	Feed	24	26	Potato	26	28
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		34	37			
Beans, Mazagan, old and new	31 to 44	Tick	32	46	Harrow	35	48
—— Pigeon, Heligoland	33 to 50	Winds	40	48	Longpod	32	36
Peas, White	50 to 54	Maple	38	41	Grey	34	38

Friday, Dec. 5.

The attendance at market this morning was small, and the trade ruled dull for all descriptions of Corn. There was little English Wheat offering on sale; its value remains nominally the same as on Monday, notwithstanding the Leading Articles in the *Times*, which are generally discredited; bonded Wheat was without inquiry, or holders would have been willing to have accepted late prices.—We observe no alteration in the value of Barley, Beans, or Peas.—The sale of Oats could not be proceeded with to any extent, even at a decline of 1s. per qr.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		59s 5d	32s 0d	24s 11d	34s 5d	45s 6d	44s 1d
Oct. 25 per Quarter.							
Nov. 1		60 1	34 8	26 2	33 2	45 8	43 0
— 8		59 7	35 1	25 2	35 7	45 1	44 10
— 15		58 6	35 0	26 3	38 2	44 5	45 7
— 22		57 11	34 1	25 5	37 1	43 4	45 4
— 29		58 2	33 2	25 0	35 4	41 9	45 10
6 weeks' Aggreg. Aver.		58 11	34 1	25 6	35 8	44 3	44 11
Duties on Foreign Grain		14 0	4 0	3 0	7 6	1 0	1 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 29.

SEEDS, Dec. 5.

Canary	per qr	54s to 60s		Linseed Cakes, Foreign, p. ton	9l to 10l		
Carraway	per cwt	48 52		Mustard, White	p. bush.	— —	
Clover, Red, English		— —		— Superfine	,,	— —	
— Foreign		— —		— Brown	,,	— —	
— White, English		— —		Rapeseed, English, per last		26l 28l	
— Foreign		— —		Rape Cakes	per ton	— —	
Coriander		10 16		Saintfoin		— —	
Hempseed	per qr.	35 36		Tares, Eng. winter	p. bush.	— —	
Linseed	per qr	54 60		— Foreign		4 4s6d	
— Baltic		42 45		Trefoil	per cwt	18 23	
— Cakes, Eng. per 1000		12l 13l		Turnip (too variable for quotation).			

KINGSFORD AND LAY.

Sales by Auction.

HORSELL, SURREY, HALF A MILE FROM THE WOKING STATION ON THE SOUTH-WESTERN RAILWAY.
VALUABLE NURSERY STOCK.

MR WATERER will sell by Auction on Monday, December 15, 1845, and following day, at 10 o'clock for 11 precisely, on the premises, the whole of the valuable and well-selected NURSERY STOCK of Mr. Stephen Spooner (declining business), at Horsell, comprising One Hundred Thousand FIRS AND FOREST TREES, including Spruce, Larch, Pinaster, Stone Pine, and other Firs, from 1 to 12 ft.; Poplars of sorts, Turkey and common Oak, Ash, Beech, Birch, Alder, Lime, and other varieties; two thousand Flowering Shrubs and Evergreens, Portugal and common Laurels, Laurestines; Alexandra Laurel, striped and green Holly, Berberis, and Althænas, from 1 to 4 ft.; Phillyreas and Yew, from 3 to 5 ft.; green and variegated Box, from 1 to 5 ft.; Pyruses of sorts; 300,000 bedded and Seedling Quick, a large quantity of Seedling Oak, Birch, Ash, Spruce Firs, and Sycamore; eight thousand Standard and Dwarf Roses of the most choice sorts; six thousand Standard and Dwarf Fruit Trees, including Apples, Pears, Cherries, Peaches, Apricots, and Plums of the best sorts; Rhododendrons, Kalmias, and Azaleas; Honeysuckles, a large quantity of Mussel, Brussels, Crab, and other Stocks; the whole in great perfection, and will remove safely, having been transplanted within the last three years. May be viewed three days previous to the sale, and Catalogues had on the premises, and will be forwarded by post on application by letter, inclosing four postage stamps, to Mr. STEPHEN SPOONER, Horsell, Surrey; or to Mr. WATERER, Auctioneer, Land and Timber Surveyor, Chertsey, Surrey.

EXTENSIVE SALE OF NURSERY PLANTS.

MESSRS. TOMPSETT & ALLEN have received directions from Mr. HOOKER, to Sell by Auction, on Wednesday, the 17th of December, and the Six following days, the whole of his STOCK OF PLANTS, now standing upon more than Twenty acres of land, in the Parish of Brenchley, Kent. The STOCK comprises the usual variety of Nursery Plants, many of which are rare and of large size. The Sale to commence at Ten o'clock precisely on each day, in consequence of the shortness of the days. Catalogues may be had of Mr. G. Charlwood, Seedsman, Covent-garden; of the Auctioneers, West Peckham; and on the Premises, one week before the sale. Brenchley is 7 miles from Tunbridge-wells, and 3 from the Paddock-wood Station of the Dover Railway. Post town—Cranbrook.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

TO GARDENERS AND NURSERYMEN.

TO BE LET, with immediate possession, close to a Market Town in Suffolk, a neat and comfortable DWELLING HOUSE, and to which can be added a sufficient quantity of excellent Arable Land for a productive Garden and Nursery Ground. Satisfactory references will be required.—For further particulars apply to Mr. UTTON, Brome, near Scole, Norfolk.

SMITHFIELD CATTLE SHOW.

DRAINING TILES.—At the approaching Cattle Show in Baker-street, will be shown
AINSLIE'S PATENT IMPROVEMENTS
For MAKING and DRYING Draining Tiles of the FIRST CLASS.—Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The PROCESS combines EFFECT with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. HOWE, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from JOHN AINSLIE, Alperton, Acton, Middlesex.

SMITHFIELD CATTLE SHOW.

W. SKIRVING begs to acquaint his friends and the public, that he will attend at the ensuing Smithfield Cattle Show, to exhibit roots of his IMPROVED SWEDE TURNIP, and take orders for the Seed of it, and all other approved kinds of Agricultural Seeds.

W. S. having of late years enlarged his Nursery, to an extent beyond any precedent in England, has now on hand a most extensive stock of Trees and Shrubs of every kind, and will be happy to treat with gentlemen about to plant, on the most liberal terms.—Walton Nursery, Liverpool, Dec. 6.

CAUTION.—SMITHFIELD CATTLE SHOW.

MRS. MARY WEDLAKE, widow of the late Thomas Wedlake, respectfully reminds her friends and the agriculturists generally, that she will exhibit this year SEVERAL USEFUL MACHINES, at the Horse Bazaar, Baker-street, which must attract the attention of those who are anxious to avail themselves of the assistance of first-rate finished agricultural machinery, combining utility, economy, and durability.

London Warehouse, 118, Fenchurch-st., opposite Mark-lane.

N.B.—No connection with any other house. Please to observe the name, "MARY WEDLAKE."

SMITHFIELD CLUB PRIZE CATTLE SHOW.—1845.

THE ANNUAL EXHIBITION OF PRIZE CATTLE, Seeds, Roots, Implements, &c., will take place on the 10th 11th, 12th, and 13th December, at the HORSE BAZAAR, King-street, Portman-square.

Stands No. 90, 91, and 92, will exhibit a shed, 30 feet long by 5 feet wide, covered with
CROGGON'S PATENT ASPHALTE FELT,
which can be had on application to
THOMAS JOHN CROGGON, 8, Laurence Pountney Hill, Cannon-street, London.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows	£35
,, eight rows	40
,, ten rows	45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of the country.

DINGLE'S HAND-DIBBLING MACHINE.—Twelve of these Machines will be exhibited at the Great Smithfield Cattle Show, on Wednesday, December 10th and following days. Two are now manufactured together to plant a double quantity, thereby effecting a great saving in labour and seed.—WILLIAM E. RENDLE & Co., Plymouth, Dec. 6.

THE ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

CENTRAL COMMITTEE, October 6, 1845.

PRESIDENT.—THE MOST NOBLE THE MARQUIS OF NORTHAMPTON.

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Editor of the Publications of the ARCHÆOLOGICAL INSTITUTE and Resident Secretary, T. HUDSON TURNER, Esq.
Hon. Member Ant. Soc. of Newcastle.

THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland is formed in order to examine, preserve, and illustrate all Ancient Monuments of the History, Manners, Customs, and Arts of our Forefathers.

The means by which the Central Committee propose to effect this object are—

1. By holding communication with correspondents throughout the Kingdom, and with provincial Antiquarian or Architectural Societies; as well as by direct intercourse with the Comité des Arts et Monuments of the Ministry of Public Instruction in France, and with other Associations on the Continent instituted for the advancement of Antiquarian Science.

2. By holding frequent and regular meetings for the consideration and discussion of communications received from correspondents and other persons.

3. By procuring careful observation and preservation of Antiquities discovered in the progress of Public Works, such as railways, foundations of buildings, &c.

4. By encouraging individuals, or public bodies, in making researches and excavations, and affording them suggestions and co-operation.

5. By opposing and preventing, as far as may be practicable, any injuries with which Ancient National Monuments of every description may from time to time be threatened.

6. By using every endeavour to spread abroad a correct taste for Archæology, and a just appreciation of Monuments of Ancient Art.

7. By collecting accurate drawings, plans, and descriptions of Ancient National Monuments, and by means of correspondents preserving authentic memorials of antiquities which may from time to time be brought to light.

8. By establishing a Journal devoted exclusively to the objects of the Institute, as a means of spreading antiquarian information, and maintaining a constant communication with all persons interested in such pursuits.

9. By taking every occasion which may present itself to call the attention of the Government to the conservation of our National Monuments, and to the other objects of the Institute.

RULES AND REGULATIONS OF THE ARCHÆOLOGICAL INSTITUTE.

I. THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland shall consist of Life Members, contributing a donation of not less than 10*l.*, of Annual Members contributing not less than 1*l.* each year, and of Corresponding Members who, taking an interest in the objects of the Institute, and being disposed to give furtherance to them without any pecuniary contribution, may desire to attach themselves to the Institute. The Corresponding Members shall not be entitled to vote, nor have any other privileges.

II. The Government of the Institute shall be vested in a Central Committee, consisting of a President, four Vice-Presidents, three Honorary Secretaries, a Treasurer, and twenty-four ordinary Members.

III. The President's tenure of office shall be for one year.

IV. The Honorary Secretaries and Treasurer shall be elected by the Committee, who shall also have the power of electing a Secretary, at such a salary as they may consider proper.

V. The Election of the President, Vice-Presidents, and Members of the Central Committee shall be made by the ballot of the Life and Annual Members at the Annual Meeting. The Committee shall select one Vice-President and six members of their body, who are to go out annually, and shall nominate one Vice-President, and six other Members to fill up the vacancies. The names of those who go out, and of those who are proposed to supply their places, shall be hung up in the Local Committee Room during the whole time of the Annual Meeting, and a printed copy of such lists furnished to each Member of the Institute, with his ticket for the Annual Meeting. No Member of the Committee, except the Honorary Secretaries and Treasurer, shall remain on the Committee more than four years, or be eligible to serve again until after the lapse of one year. Any Member of the Institute is at liberty to substitute on the list other name or names for those proposed by the Committee.

VI. The Committee shall be empowered to fill up *pro tem.* by election all occasional vacancies that may be caused by the death or resignation of the President, or any of the Vice-Presidents or ordinary Members of the Committee.

VII. These vacancies shall be supplied on the recommendation of at least three Members of the Committee, made in writing at one of the ordinary Meetings; the proposed Member to be balloted for at the succeeding ordinary Meeting.

VIII. The Annual Meeting shall be holden in one of the cities or principal towns in the kingdom, at which the elections, the appointment of the place of meeting for the ensuing year, &c., shall take place. Notice of this Meeting shall be given by one of the Honorary Secretaries, by order of the Committee.

IX. The Committee shall have the power of nominating a certain number of Local Vice-Presidents.

X. No other General Meeting of the Institute shall be holden without the consent of at least three-fourths of the Committee, expressed in writing; for such Special Meeting, a notice of at least three weeks shall be given by advertisements in the public papers. At this Special Meeting, the President, or, in his absence, one of the Vice-Presidents, shall take the chair, and, in their absence, the Committee shall appoint a Chairman.

XI. Neither at the General Annual Meeting, nor at any Special General Meeting, shall any alteration of, or addition to, any of the Rules or Regulations of the Institute be submitted to the Meeting, unless upon a proposal in the form of a resolution in writing, signed by two Life or Annual Members: which shall have been sent to the Committee one month previous to the Meeting, and suspended in their committee-room.

The Summons for the Special General Meeting shall specify the Resolution or Resolutions to be submitted to the Meeting, and the discussion shall be confined to that object only: in case such proposed Resolution or Resolutions shall be carried, another Special General Meeting shall be summoned by the Committee after the lapse of not less than a fortnight, or more than a Month, for the sole purpose of ratifying or rejecting such Resolution. If, however, the first-mentioned Special Meeting take place at a tme not more than two Months before the Annual Meeting, then such Resolution or Resolutions shall be ratified or rejected at that Annual Meeting.

XII. The Chairman of the Annual, or any other General Meeting, shall have an Independent as well as a Casting Vote.

XIII. A certain number of persons, not usually resident in London, shall be associated with the Central Committee as Honorary Members of that Body, and shall be entitled to a Vote at their Meetings. Such Honorary Members shall be proposed on the recommendation of at least three Members of the Committee, and the Election shall take place at the succeeding Ordinary Meeting.

XIV. The Committee shall appoint a certain number of persons, not resident in London, as their Local Secretaries.

XV. The Election of Local Secretaries and Corresponding Members shall be made by the Committee on the proposal of one of the Members thereof, either on his own personal knowledge or on the recommendation of two subscribing Members of the Institute.

XVI. In these and all other Elections made by the Committee, it shall be allowable for any Member thereof to demand a Ballot.

XVII. Subscriptions and Donations may be paid to the Treasurer, to any Member of the Committee, or to the Account of the Archæological Institute with the Bankers of the Institute, and no Subscriber shall be entitled to Vote at the Annual Meeting who has not paid his Subscription. The Year shall be considered as closing with the termination of the Annual Meeting; from which time the Subscription for the ensuing year shall become due.

XVIII. The Cash Book, and an account of all Receipts and of the Balance in the Bankers' hands, shall be laid on the table at each Meeting of the Central Committee. All Bills having been duly examined, and approved in writing, shall be paid by Cheque upon the Bankers, signed by the Treasurer.

XIX. The Accounts of the Institute shall be submitted Annually to two Auditors, who shall be elected for that purpose by the Members of the Institute at the General Meeting, and who shall attest by their Signatures the accuracy of the said Accounts. The Accounts having been thus approved, shall be submitted to an Annual Meeting of the Committee, to be holden on the First Wednesday in May, and shall be printed and published in the Journal of the Institute as part of the proceedings of the Committee.

XX. A Report of the Proceedings of the whole year shall be submitted to the Annual Meeting.

XXI. The Central Committee shall be empowered to make such Bye-Laws as may, from time to time, appear to them expedient.

The Central Committee request the Local Secretaries to attend, whenever it may suit their convenience, the Ordinary Meetings, which take place once in every fortnight at the apartments of the Institute, 12, Haymarket, for the discussion of Archæological communications and the exhibition of objects of interest.

ORDINARY MEETING OF THE CENTRAL COMMITTEE:—

12, HAYMARKET. *The Chair will be taken at Four o'clock.* Monday, December 8.]

Subscriptions may be paid to the Bankers, Messrs. COCKBURNS, 4, Whitehall. All communications should be addressed to T. HUDSON TURNER, Esq. 12, Haymarket.

NEW MORNING PAPER,

TO BE COMMENCED EARLY IN THE NEW YEAR.

THE DAILY NEWS.

A MORNING NEWSPAPER OF LIBERAL POLITICS AND THOROUGH INDEPENDENCE.

The leading features of the Paper may be briefly stated under the following heads:—

Its CITY NEWS AND COMMERCIAL INTELLIGENCE, collected from the highest sources, will be scrupulously impartial, and always early.

Its SCIENTIFIC AND BUSINESS INFORMATION on every topic connected with RAILWAYS, whether in actual operation, in progress, or projected, will be found to be complete.

An extensive system of FOREIGN CORRESPONDENCE in all parts of the world, has been for some time, and is now, in course of organization.

Its PARLIAMENTARY REPORTS, its LAW REPORTS, and every other item of such matter, will be furnished by Gentlemen of the highest qualifications.

Among the writers of its LEADING ARTICLES, its Criticisms on BOOKS, the DRAMA, MUSIC, and the FINE ARTS, are some of the most distinguished names of this time.

The LITERARY DEPARTMENT OF THE DAILY NEWS will be under the direction of MR. CHARLES DICKENS.

☞ The Counting-house, and Office for Advertisements intended for insertion in THE DAILY NEWS, will be at No. 90, FLEET STREET, LONDON; to which place any Communications for the Editor should be addressed, until the Publishing Offices in WHITEFRIARS shall be completed.

ON THE FIRST OF EVERY MONTH, PRICE ONE SHILLING,

THE HORTICULTURAL MAGAZINE.

PART XII. CONTAINS

The Description, Culture, and an Illustration of a New Hardy Annual — The Cultivation of Flowering Thorns, with Illustrations and Descriptions of all the varieties—The Cultivation of the Gladiolus, with Five Illustrations and Descriptions of all the varieties—A Description of all the New Seedling Pelargoniums exhibited this year—Hints for the Cultivation of the Twenty-four most Popular Flowers—Alpine Plants—New Flowers—Horticultural Notes—Geology—The Practical Management of Gardens, Greenhouses, Orchards, &c.

London: Houlston and Stoneman, Paternoster-row, and all Booksellers.

*** Advertisements, Books for Review, and Communications for the Editor, to be sent to the Publisher.

ELEGANT PRESENT.

On the 11th of December will be published, price 16*s*.,

THE ANNALS OF HORTICULTURE, handsomely bound in arabesque, richly gilt, containing 138 engravings, a beautifully-coloured frontispiece, and 580 pages of original information on Gardening and Planting, including the culture and management of all popular Flowers, and Flowering Shrubs.

Houlston and Stoneman, Paternoster-row; W. Whyte and Co., Edinburgh; W. Curry and Co., Dublin. Orders received by all Booksellers.

THE CORN AND PROVISION TRADES.—The deficiency of the Harvest, the failure of the Potato Crop, and the consequent serious effects upon commercial and monetary affairs, excite great apprehension. Under such circumstances, correct information as to the produce of the harvest, the extent of the failure of the Potato Crop, the state of the markets, the stock of grain on hand, on the continent of Europe, and in the United States, is of the highest importance. No trouble or expense is spared to furnish such information, which is brought down to the latest moment of going to press, in the MARK-LANE EXPRESS, which has been for many years the authority in the Corn and Provision Trades in England and in foreign countries. Published every Monday in time for post, and may be had by order of all Booksellers, Newsmen, &c. Office, No. 24, Norfolk-street, Strand. Price 1*l*. 10*s*. 4*d*. per annum.

TO BE SOLD.—The Gardeners' Chronicle and Agricultural Gazette for 1844, in Numbers, clean and complete. Price One Guinea.—Direct to C. D., 8, Duke-street, Grosvenor-square.

THE HAND BOOK OF FOUNTAINS and GUIDE TO VERSAILLES: by Freeman Roe, Engineer and Fountain Maker, 70, Strand, London. To be had of the Author and all booksellers. Price 1*s*.

This little work contains full instructions for erecting Fountains on a [illegible] scale.

Published by R. Groombridge and Sons, Paternoster-row.

THE TENANT FARMERS' ADVOCATE.—It is abundantly manifest that the position of the Agricultural Interest as a class is undergoing and must undergo a great change. In such change the relative position of "LANDLORD AND TENANT" will form the most important feature, and the establishment of a sound system of "Tenants' Rights" will be a cardinal point for "Tenant Farmers." For 14 years THE MARK-LANE EXPRESS AND AGRICULTURAL JOURNAL has been the zealous and uncompromising advocate of the Tenants' Rights, and with the conviction that the interests of the Tenantry are vitally involved in the question, the columns of this Journal will be continuously devoted to its discussion and elucidation. Published every Monday in time for Post. May be had by order of all Booksellers and Newsmen.—Office, 24, Norfolk-street, Strand, London. Price 1*l*. 10*s*. 4*d*. per annum.

THE POPULAR REMEDY.

PARR'S LIFE PILLS.—The extraordinary success of this medicine is the wonder of the age; it has been tried by hundreds of thousands as an aperient, and has in every instance done good; it has never in the slightest degree impaired the most delicate constitution. Tens of thousands have testified that perseverance in the use of Parr's Life Pills will completely cure any disease, and are living witnesses of the benefit received from this invaluable medicine.—Testimonials are received daily, and it would be impossible, in a newspaper, to publish one-half received; and the following are selected as people well known in their respective neighbourhoods, and whose testimony is unquestionable. Further sheets of Testimonials and the "Life and Times of Old Parr" may be had gratis of all Agents.

The following important testimony to the efficacy of Parr's Life Pills has just been received by the Proprietors:—"To Messrs. T. Roberts and Co., London. Athlone, Dec. 7, 1844. Sirs,—You will please to send me six dozen more Parr's Life Pills, I am just out. They are taking well, and, I can assure you, they are doing an immensity of good; everyone who has tried them in affections of the Liver and Stomach derives a great deal of benefit. Yours, &c., William Gilchriest, Apothecary and Surgeon.

"Long Benton, near Newcastle, August 11, 1845. Sirs,—I beg to thank, and inform you, of the wonderful effect of your Parr's Life Pills. I was long subject to Shortness of Breath, with Cough, &c., but after taking your Pills a short time, I am not only cured but feel quite young again, and, although an old man of 60, I feel so much better that I think I shall live to be 90 at least. If you think this will be of service you are quite welcome to print it. Yours, with much respect, Peter Mcerhy."

Beware of spurious imitations of the above medicine. None are genuine unless the words "PARR'S LIFE PILLS" are in WHITE letters on a RED ground, engraved on the Government Stamp, pasted round each box; also the fac simile of the Signature of the Proprietors, "T. ROBERTS and CO., Crane-court, on the directions.

Sold in boxes, at 1*s*. 1½*d*., 2*s*. 9*d*., and family packets at 11*s*., by all respectable druggists and patent medicine retailers throughout the kingdom.

☞ Full directions are given with each box.

CORN LAWS.—Third Edition, now ready, price 2*s*.

AN ATTEMPT TO ESTIMATE THE EFFECTS OF PROTECTING DUTIES ON THE PROFITS OF AGRICULTURE. By John Morton, F.G.S., author of "The Nature and Properties of Soils," &c., and Joshua Trimmer, F.G.S., author of "Practical Geology and Mineralogy."

James Ridgway, Piccadilly, and all Booksellers.

Also, THE NATURE AND PROPERTY OF SOILS AND THE RENTS AND PROFITS OF AGRICULTURE. By John Morton, Fourth Edition, 10*s*.

GARDENERS' CHRONICLE.—A Gentleman, having the *Gardeners' Chronicle* for the years 1841, 1842, 1843 and 1844, complete in Half-year Volumes, neatly bound in cloth, and perfect, wishes to dispose of them. The whole for £5 10*s*.—Apply at the Office of the *Gardeners' Chronicle*.

Just Published, and to be had

FOR NOTHING.—A Pamphlet on Nervous or Mind Complaints, with Cases and Testimonials.—The nervous are invited to send to the Rev. Dr. Willis Moseley, 9, Bloomsbury-street, Bedford-square, for a small pamphlet, just published, on his new and most successful TREATMENT of NERVOUS or MIND COMPLAINTS, by which he now cures these diseases as certainly as water quenches thirst, and the pamphlet will be returned free if one stamp is sent.

EVENINGS WITH THE GREAT COMPOSERS.

THE SUCCESS which has attended the Lectures delivered by Mr. Henry Lincoln, at various Literary Institutions, the crowded audiences by which they have been honoured, and the approbation with which they have been received, alike by the public and the press, lead to the inference that there is a large body of intelligent persons who are desirous of becoming acquainted with the Great Works of the Great Masters. Mr. Lincoln therefore proposes to give a series of

LECTURES, WITH MUSICAL ILLUSTRATIONS,

AT THE

WESTERN INSTITUTION, LEICESTER-SQUARE,

in which he will, each evening, offer an outline of the Musical life and labours of one or other of these great men, tracing the development of his powers, marking his peculiarities and characteristics, with such Vocal and Instrumental Illustrations as may best tend to elucidate the subject, and gratify and satisfy a cultivated and refined taste. The Evenings at present fixed are—

Dec. 9th, 16th, and 23d Dec. to

Cherubini. Cimarosa. Mendelssohn.

This Series will be followed by Evenings devoted to Bach, Beethoven, Boieldieu, Gluck, Gretry, Handel, Jomelli, Meyerbeer, Mozart, Paiesiello, Purcell, Schubert, Spohr, Spontini, Weber, and others—the Master Minds of Europe, various in power and originality, but all of great interest:—some only known by name in England, many only known for one or two works, not one in all the infinite variety in which his genius made itself manifest.

On Tuesday next, December 9.

CHERUBINI.

Illustrations.

PART I.

Romance	Miss Duval
Duet	Miss Lincoln and Miss Duval
Two Canons—"Perfida Clori," and "Evviva Bacco"	Miss Lincoln, Miss Duval, and Mr. Lockey
First Movement of a Quartett, arranged for two performers on the Pianoforte	Miss Orger and Mr. Lincoln
Ave Maria	Miss Lincoln, Clarinet obligato Mr. Wilson
Trio—"Et incarnatus"	Miss Lincoln, Mr. Lockey, and Mr. J. A. Novello
Chorus—"Gloria."	

PART II.

Song from the Opera of "Lodoiska"	Herr Kroff
Song from "L'Hôtellerie Portugaise"	Miss Lincoln
Overture—"Les deux Journées," Pianoforte Duet	Miss Orger and Mr. Lincoln
Selection from "Les deux Journées"— Song—Mr. J. A. Novello Duet—Miss Lincoln and Mr. Lockey Chorus, with Solos by Miss Lincoln and Miss Duval	
Trio from "Faniska"	Miss Lincoln, Miss Duval, and Mr. Lockey
Quartett from "Ali Baba"	Miss Lincoln, Mr. Lockey, Mr. J. A. Novello, and Herr Kroff

Finale—March and Chorus from "Medea."

To commence at Eight o'clock.

Tickets 2*s*. for each Evening, may be had at the Institution, and Reserved Seats 3*s*. of Mr. Lincoln, 9, Upper John-street, Golden-square.

PATENT PORTABLE SUSPENSION STOVES, of which more than Four Thousand were sold last winter, are admirably adapted for Greenhouses and Conservatories, their principle of Ventilation effectually carrying off all those gases which are injurious to plants. Prospectuses may be obtained, and the Stoves seen in operation, at George & John Deane's, opening to the Monument, 46, King William-street, London-bridge.

TO AGRICULTURISTS.



MR. CROSSKILL'S PATENT CLOD CRUSHER ROLLER.

FOR ROLLING WHEATS AS SOON AS SOWN; and for Rolling Barley Stubbles in Autumn, again in Winter, and once or twice in Spring, on which the Clover plant has a tendency to throw out.

Practical opinion of one of the first Farmers in England, Mr. Hannam, North Deighton, Wetherby, Yorkshire; well known to the agricultural world:—

"I have every reason to believe that the Patent Roller has, in one instance, saved its cost and more for me, in a six-acres piece of Wheat, which was in a fair way of vanishing, through the devastations of the wireworm, in April last; I put the Roller over it twice (up the lands and across them), and in a very short time I was fully convinced of the benefit, by the gathering of the Plant. I may safely say I shall have Twenty-seven Bushels per acre, although at one time I had given orders to have the piece ploughed up. A neighbour also used the Roller with similar effects."

Mr. Crosskill directs the attention of Agriculturists in Ireland to the fact, that he has received for his Patent Roller, and Improved Liquid Manure Cart, First Prizes at the great Royal Meetings of England, Ireland, and Scotland, for each of these Implements.

Present Cash Price of Patent Roller, delivered in Hull—6 feet 6 inches, 21*l*.; 6 feet, 19*l*. 10*s*.; 5 feet 6 inches, 18*l*. In all probability the price of Rollers will be increased from the advance in iron. Potato Steamer complete, 4*l*. 17*s*. 6*d*.

Improved Liquid Manure Carts, small size, 14*l*. 12*s*.; with pump and hose complete, 5*l*. 8*s*. extra.

Ditto, ditto, ditto, large size, 18*l*.; with pump and hose complete, 7*l*. extra. Improved Potato Washers, 4*l*. 10*s*.

Patent Peg Portable Threshing Machine, four horse-power, with travelling wheels, &c. only 50*l*. Dressing Machine, 8*l*. 8*s*.

Patent Wheels and Axles, 5*l*. 10*s*. and 8*l*. 10*s*. per pair, to carry 30 cwt.

One-horse carts, with iron axletrees, 10*l*. 10*s*. & 11*l*. 11*s*. each.

Earl Ducie's Improved Cultivator, 10*l*. 10*s*., and every other Implement used in Agriculture may be had from the Beverley Iron Works.

P.S.—Models of Improved Implements will be exhibited at the forthcoming Smithfield Show, held in Baker-street, London, where Orders will be received, and every information given.

Beverley, near Hull, Dec. 6, 1845.

HYDRAULIC RAMS to be had of Freeman Roe, Engineer and Fountain Maker, 70, Strand, London. Rams adapted to all situations.

No. 1 Ram, Supply Pipe, 4 inches.
No. 2 Ram, Ditto 2 inches.
No. 3 Ram, Ditto 1 inch.

Deep Well Engines and Pumps worked by Steam, Horse-power, or Manual-labour. Fountain Basin in Iron, from W. Rowley's pattern. Jets made to any device. Buildings, Baths, &c. heated upon the most simple and economical plan. Steam Closets, Cooking Apparatus, &c.

Sole Agent for Truman's Patent Water Purifier.

The AGRICULTURAL CHEMICAL ALMANAC, by Freeman Roe, price 2*d*., now ready.

HEAL AND SON'S LIST OF BEDDING containing a full description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding. Sent free by post, on application to their Establishment, the largest in London exclusively for the manufacture and sale of Bedding (no bedsteads or other furniture being kept).—Heal and Son, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

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*** All others are SPURIOUS IMITATIONS.

THE EARL OF ALDBOROUGH AND HOLLOWAY'S PILLS.—An Astounding Cure by this Miraculous Medicine, after every other means had failed. See Extract of his Lordship's Letter, dated Villa Messina, Leghorn, Feb. 21, 1845. "To Professor Holloway. Sir, I beg to acquaint you that your Pills have effected a cure of a disorder in my liver and stomach, which all the most eminent of the Faculty at home and all over the Continent had not been able to effect—nay, not even the waters of Carlsbad or Marienbad. (Signed) Aldborough."—These wonderful Pills will cure any disease of the Liver and Stomach. Sold (also Holloway's Ointment) at Professor Holloway's Establishment, 244, Strand, London, and by all Medicine Vendors throughout the civilised world.

Printed by William Bradbury, of No. 6, York-place, Stoke Newington, and Frederick Mullett Evans, of No 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday December 6, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 50.—1845] SATURDAY, DECEMBER 13. [PRICE 6*d*.

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E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

BECK'S SEEDLING PELARGONIUMS, 1844.—E. BECK informs the public that his sale of the above will terminate on January 1st, 1846. The small portion remaining are well established in 4½-inch pots. N.B.—E. B. proposes to send out another selection after the Exhibitions of 1846.
Worton Cottage, Isleworth.

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good Cropper, with fine Pods, and most delicious flavour. Height about 2 ft.—5*s*. per quart.—To be had of WARNER and WARNER, Seedsmen, 28, Cornhill, London.

POTATOES FROM THE SCILLY ISLANDS.
W. E. RENDLE AND CO. have been fortunate in procuring a few Tons of these POTATOES, *all of which are entirely free from the prevailing disease, and will be found most valuable for seed*. Refer to the Rev. C. A. John's Letter in the *Gardeners' Chronicle* last week, page 801.
*** Price on application.
Plymouth, Dec. 13, 1845.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The importation of the above-named Bulb has just been received at A. COBBETT'S Italian and Foreign Warehouse, 16, Pall Mall. The Orange, Lemon, Citron, Lime, and Shaddock Trees, Catalonia, Agorian, and Arabian Jessamine Plants expected early in January.

LEE'S DWARF ITALIAN MARROW PEA.
J. AND C. LEE intend sending out the above new PEA this season, and having grown the Stock for the last five years, they can strongly recommend it as a distinct and most excellent variety. Its habit is exceedingly dwarf and robust; it is a very prolific bearer, and the Pea is equal in size to the largest Marrowfat, and is of most delicious flavour. It comes in earlier than any other Marrow. It has been grown in the gardens of Clumber, Welbeck, Thoresby, Nuneham, Tottenham-park, and Tedworth, and is highly extolled by the Gardeners of these places. In Quart Packets, sealed, price 5*s*.
Nursery, Hammersmith.

FAIRBEARD'S "EARLY SURPRISE" BLUE MARROW PEA.
GEORGE CHARLWOOD in submitting the above PEA to the Horticultural public feels confident that he is recommending to their notice an article that will at once prove a great acquisition to the private garden, and likewise of great importance to the market gardener; with this view he begs to submit the following description and Testimonial which he trusts will be a sufficient guarantee as to its character:—It grows from three to four feet high, is equal in flavour to the Knight's Marrow, and as early as the Double-blossomed Frame; an abundant bearer, with pods equal in size to the Marrow Peas generally, and is not subject to mildew. A second crop from the seed of the same year has been gathered in each of the two last seasons.
We, the undersigned, consider Fairbeard's "Early surprise" PEA the best in cultivation, a great cropper, and as early as the Double-blossomed Frame:—J. Creed, gardener to the Right Hon. S. R. Lushington; E. George, gardener to N. J. Knatchbull, Esq.; J. Moneylaus, gardener to the Right Hon. Lord Harris; W. Clifton, gardener to the Right Hon. Lord Sondes, Lees Court; William Hughes, gardener to Mrs. Simpson; J. Fox, gardener to the Right Hon. T. P. Leigh; J. Harris, gardener to Sir John Tylden.
Price 3*s*. 6*d*. per quart, with a liberal allowance to the Trade.
14, Tavistock-row, Covent-garden, London

THE VERY NEWEST AND BEST GERANIUMS AT UNUSUALLY LOW PRICES (Purchaser's selection).
Class I.—One Dozen 3l., Two Dozen 5l. (Cash).
Hoyle's Titus, Sarah Jane, Pompey, Unique, Claude, Duchess of Inverness, Champion, Amelia, Majestica, General Pollock, Rosalia, Flora, and Revenge. Lyne's Imogene, White Perfection, and King of Saxony. Foster's Sultana, Cid, Robustum, Nabob, Dr. Lindley, Duke of Devonshire, and Constellation. Gaines's Alice Hawthorn, Trafalgar, Ackbar, and Duchess of Leinster. Stewart's Prince de Joinville and Stewartii. Silverlock's Emperor Nicholas and Chance. Robson's Lady Ramsden and Meanee. Holmes' Beauty of Sudbury. Hoyle's Louis Philippe, Oddity, and Constellation. Roger's Lady Vernon and Lord Vernon. Gaines's King of the French. Dobre's Vesuvius. Miller's Elegans, Coquette, Constellation, Pet, Phœnix, Brunhilda, Victoriane.

Class II.—One Dozen 2l., Two Dozen 3l. (Cash).
Gaines's Sir W. Massey Stanley, Mogul, Conspicua, King of the French, Ackbar, King of the Belgians, King of Saxony, and Duchess of Sutherland. Miller's Mogul. Catleugh's Mulberry, Eclipse, and Duchess of Sutherland. Foster's Hybla, Coronation, Superb, Shield of Achilles, Nabob, Oddity, and Conflagration. Cock's Maid of Honour. Lyne's Princeps, Redworth, Coronet, King of Saxony, and Lady Tamworth. Sorrell's Pride of Essex. Cock's Hector. Beck's Cleopatra, Meteor, and British Queen. Pamplin's Fire King. Gaines's Elegans Nova and Sir R. Sale. Hoyle's Rosalia and General Pollock. Miller's Claud Darnaud, Hercules, Shackbolt, Shakspeare.

Class III.—One Dozen 1l., Twenty 1l. 10s.
Beck's Martha, Leonora, and Lucy. Gaines's Lady Sale and Queen Phillippa. Garth's Constellation and Black Dwarf. Miller's Tom Jones and Prince of Wales. Catleugh's Rosetta Superb. Foster's Pulchellum, Gipsy, and Favourite. Beck's Geraldine, Black Prince, Hebe, Evening Star, and Stella. Chandler's Celestial. Pamplin's Beauty of Walthamstow, Count d' Orsay. Enchantress, Camilla, and Oberon. Appleby's Mercury. Stewart's Mrs. Lawrence, Queen of Bourbons, and Beauty of Salt Hill. Thurtell's Pluto. Veitch's Fair Maid of Devon. Lyne's Duke of Cornwall, Sunrise, Duke of Clarence, and Circassian, &c. &c.
Twenty real good distinct sorts for 1*l*.; Twenty all New and very superior Show Flowers for 2*l*. Purchasers sending the names of the sorts they already possess, W. MILLER will send suitable distinct varieties.
*** No charge for package, and plants put to compensate for carriage. All orders must be accompanied by cash or reference.—WILLIAM MILLER, Providence Nursery, Ramsgate.

CHARLES FARNES, SEEDSMAN, 128, St. John's-street, London, respectfully informs his Friends and the Public generally, that he will be enabled to supply orders for the following new and choice VEGETABLE SEEDS:—
ROYAL GREEN MARROW PEA.—This most excellent Variety may be sown as a second early Pea, and will be fit for use about the same time as the Early Warwick; it will be found on trial that no Pea can surpass its flavour or rich colour when boiled. Price 2*s*. 6*d*. per quart.
QUEEN OF DWARF PEA.—It is superior to all the dwarf Peas known, and only requires more general cultivation to test its merits, when it will supersede every other variety of the same habit. Price 5*s*. per quart.
DANCER'S MONASTERY PEA.—This fine large Pea will be found superior to all the old sorts for a middle crop. It is an excellent bearer, and of good flavour, and merits a place in all gardens. Price 2*s*. 6*d*. per quart.
A general CATALOGUE of all the new Vegetables, &c., will be forwarded on application.—Dec. 13.

CUTHILL'S BLACK SPINE CUCUMBER, the earliest and best Bearer, and a very handsome Fruit, taken the prize at the first Show of the Royal South London Society, for these six years past. 2*s*. per packet.
CUTHILL'S Early Scarlet Flesh MELON, grown by every Melon grower for first crop for Covent Garden. 2*s*. per packet.
Passingham's GreenFlesh do., a most delicious flavour. 2*s*. do.
The British Queen and Keen's Seedling Strawberry Plants, in pots for forcing, very strong.
Lisianthus Russellianus, with directions, 1*s*. 6*d*.
Lianthus nigrescens, 3*s*. 6*d*. per packet.
Lianthus glaucifillus, 1*s*. 6*d*. per packet.
Cuthill's Prince of Denmark, Scarlet Clove Carnation; also the French Yellow Picotee, with other first rate Picotees and Carnations, at 12*s*. per dozen.—Direct to J. CUTHILL, Florist, Denmark-hill, Camberwell, near London.

FOREST-TREES, &c.—The Subscribers beg to intimate that they are prepared to execute orders, during the Planting Season, for all kinds of Forest and Ornamental Trees, Fruit Trees, Shrubs, Roses, &c.
They have succeeded in procuring their Stock of Forest Trees from the best varieties, and have made it a main object to prevent the admixture of degenerate productions. They beg to direct attention to their Collection of CONIFERÆ, which have withstood the last two winters in the open ground, and may therefore be considered sufficiently hardy for this climate.
They are proceeding to enlarge their ARBORETUM, which already contains handsome specimens of Ornamental and Rare Trees, which will be allowed to attain a considerable size, for the purpose of guiding Purchasers in their choice, and also to prove their suitableness for the climate.
Their Stock of the true Red-wooded HIGHLAND PINE is very large, and raised from seeds collected by themselves in the Native Forests of the Spey and Dulnain rivers. They have also a choice Collection of GREENHOUSE PLANTS, to which they are constantly adding approved novelties.
They are desirous to arrange their prices with moderation, and likewise to assist their customers at a distance in the carriage of their plants, where there are no facilities of transport. Catalogues of Forest Trees, Shrubs, Roses, Greenhouse Plants, and everything connected with the Nursery and Seed Trade, may be had free on application. Planting contracted for and executed under proper superintendence.
LAWSON and SMITH, Nursery and Seedsmen.
Inverness, Dec. 12.

VICTORIA NURSERY, CORK.—FOREST TREES.
J. & H. HAYCROFT can deliver free at any of the undermentioned ports, strong transplanted LARCH, 2 to 3 feet high, at 15*s*. per 1000, and 3 to 4 feet high at 18*s*. per 1000; also small LARCH 9 to 15 inches high (fit for planting in clean ground) at 7*s*. 6*d*. per 1000. By steam-vessels to London in four days, to Liverpool, Bristol, and Plymouth, in 30 hours, and by sailing vessels to Newport, Cardiff, Neath, Swansea, and nearly every port in South Wales.

BRACONDALE HORTICULTURAL ESTABLISHMENT.
TRUE "FASTOLFF" RASPBERRY.
JOHN BELL begs to inform his friends and the public he continues to supply the above RASPBERRY. The trade supplied on liberal terms when large quantities are taken.
J. B. has a very Extensive Collection of Standard and Dwarf ROSES, fine strong plants, at the following prices, the selection being left to J. B.

Full Standards, best varieties, one of a sort, per 100,				£10	0	0
Ditto	Ditto	Ditto	,, 50,	5	0	0
Half ditto	Ditto	Ditto	,, 100,	7	10	
Ditto	Ditto	Ditto	,, 50,	3	15	
Full Standards, fine show varieties			,, doz.	1	0	0
Half ditto	Ditto		,,	0	15	0
Dwarf	Ditto		,,	9*s*. to 12*s*.		

*** A few fine Strong FRUITING PINE PLANTS for Sale.

RARE AND BEAUTIFUL COLUMBINE.—The Subscribers beg to offer strong Plants of their superb AQUILEGIA GLANDULOSA, sent free by post at 1*s*. 6*d*. per pair, or 6*s*. per dozen, or stamps of that value. Seeds of the same new variety will be sent free at 1*s* 6*d*. per packet. This Plant is adapted to the open ground, being a hardy perennial. It abounds in bright two-coloured Blossoms, blue and white. Before seeing the flower, its cheapness is apt to mislead the Florist respecting its merits, which are by no means common. The following is the opinion of the Editor of the *Gardeners' Chronicle*, extracted from that Paper of 29th November last:—"NEW PLANTS:—John Grigor: Your Aquilegia is certainly one of extraordinary beauty; a flower now before us is upwards of 4 inches in diameter. We have often wondered that Aquilegias were not more the object of a gardener's care."
Nurseries, Forres, N. B.—JOHN GRIGOR and Co.

TO GERANIUM EXHIBITORS AND CULTIVATORS.
JAMES WHITE, Florist, Shacklewell, having purchased the undermentioned Seedlings of Mr. Robert Catleugh, has fine strong plants ready for delivery at the undermentioned prices:—"Cilo," clear white purple spot, good shape, fine trusser, and fine show flower, very early and free bloomer, 1*l*. 10*s*. "La Polka," upper petals deep crimson purple, surrounded by a margin of rosy tint; under petals of an even rosy purple, close habit, and abundant bloomer, 1*l*. 10*s*. "Sunbeam," fine smooth orange dark spot, good shape, fine trusser, and fine show flower, 1*l*. 1*s*. "Duke of Wellington," upper petals of a light crimson, surrounded with a dash of scarlet, under petals of a deep rosy pink, free bloomer, and good habit, 1*l*. 1*s*. They have all been successfully exhibited, and can be recommended. All the old-established varieties at the lowest prices.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea. By special appointment to the QUEEN and H.R.H. PRINCE ALBERT.
PHEASANT POULTS.—Gentlemen stocking their preserves are respectfully informed they can be supplied with any quantity of TAME BRED AND WILD PHEASANTS, as above, also a great variety of useful and ornamental Water Fowl, Domestic Poultry, including Malay, Cochin China, Dorking, Spanish, &c., Fancy Bantams, &c., &c., 3, Half-moon-passage, Gracechurch-street.

SEEDS.—CORNER OF HALF-MOON-STREET.
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

SMALL GLASS for HOTHOUSES and GARDEN LIGHTS.

sqrs.			Per gross.	sqrs.			Per gross.
60,000	4 in.	by 2 in. at	0*s*. 8*d*.	40,000	4½ in.	by 2½ in. at	1*s*. 6*d*.
30,000	4½	2 ..	1 0	10,000	5	3 ..	3 6
80,000	6	4 ..	9 0	90,000	8	6 ..	18 0
60,000	6¾	4½ ..	11 0	11,000	8½	6½ ..	20
30,000	7	5 ..	13 0	80,000	9	7 ..	22 0
12,000	7½	5½ ..	15 0	40,000	10	8 ..	30 0

PROPAGATING OR STRIKING GLASSES
Are now offered at half the usual prices; a variety of other shapes and sizes may be had.

in.	in.	each.	in.	in.	each.
About 5 high	by 3 dia.	0 8*d*.	About 6½ high	by 4½ dia.	1*s*. 0*d*.
5	3¼ ..	0 9	7	5 ..	1 2
5½	3¾ ..	0 10	7½	5½ ..	1 4
6	4 ..	0 11	8	6 ..	1 9

BEE GLASSES, FISH GLOBES, FRENCH SHADES FOR FERNS, &c.
R. COGAN, GLASS, LEAD, and COLOUR WORKS, 48, LEICESTER SQUARE, LONDON.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.
BRITISH AND FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had JAMES BROMLEY'S, 515, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.
J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

CONIFERÆ.—The Subscribers have, this Season, to offer the following:— s. d.

Pinus sylvestris, Scotch Fir, native, 1 year seedling, per 1000 - - - - - 0 9
" " " native, 2 year seedling, per 1000 - - - - - - 1 6
" " " common, 2 year seedling, per 1000 - - - - - - 1 0
" " " haguensis, 1 year, seedling per 1000 - - - - - 1 6
" " " haguensis, 1 year, transplanted, per 1000 - - 7 0
" " " native, 2 years transplanted, per 1000 - - - - - 8 0
" " " native, 1 year transplanted, per 1000 - - - - - 6 0
" " " haguensis, in pots, about 1 foot, per doz. - - - - 9 0
" " argentea, in pots, small, each - - 1 6
" " horizontalis, in pots, about a foot, each 1 0
" " uncinata, in pots, 6 to 9 inch, each - 2 6
" " rigensis, in pots, grafted, 4 to 6 inch, each - - - - - - - - 2 6
" " brevifolia, in pots, rare, each - - 15 0
" " altaica, in pots, each - - - - 3 6
" Pumilio, Mountain Pine, 1 year seedling, per 1000 - 10 0
" " " 2 year seedling, per 1000 - 20 0
" " " 1 year transp. per 1000 - 30 0
" " " 2 year transp. per 100 - 5 0
" " " in pots, 4 to 6 in. per doz. 6 0
" " Fischeri, in pots, about a foot, per doz. - 9 0
" " Mughus, 1 year seedling, per 1000 - - 10 0
" " " 2 year seedling, per 1000 - - 20 0
" " " 1 year transplanted, per 1000 - 30 0
" " " in pots, 4 to 6 inch, per doz. - 6 0
" " " var. major, in pots, small, per doz. 12 0
" " " var. nana, in pots, small, per doz. 1 6
" Laricio, Corsican Pine, 1 year seedling, per 1000 - 10 0
" " " 2 year seedling, per 1000 - 15 0
" " " 1 year transp. per 1000 - 20 0
" " " in pots, 6 to 12 in. per doz. 6 0
" " subviridis, in pots, small, per doz. - 6 0
" " caramanica, in pots, small, per doz. - 6 0
" " calabrica, in pots, small, per doz. - 4 0
" austriaca, Black Austrian Fir, 1 year seedling, per 1000 - - - - - 10 0
" " " 1 year transplanted, per 1000 - - 17 6
" " " in pots, about a foot, per doz. - - - 6 0
" Pallasiana, in pots, grafted, each - - - - 3 6
" pyrenaica, in pots, 3 to 4 inch, each - - - 3 6
" Pinaster, Cluster Pine, 1 year seedling, per 1000 - 6 0
" " " 2 year seedling, per 1000 - 8 0
" " " 1 year transp., per 1000 - 15 0
" " " in pots, about a foot, per doz. - - - - - 6 0
" " foliis variegatis, in pots, grafted, each - 10 6
" " Hamiltoni, in pots, small, per doz. - - 6 0
" " maritima major, Maritime Pine of France, 1 year seedling, per 1000 7 6
" " " 2 year seedling, per 1000 10 0
" " " 1 year transp. per 1000 - 15 0
" " " in pots, about 1 foot, per doz. - - - - 6 0
" Pinea, Italian Stone Pine, 1 year seedling, per 100 15 0
" " " in pots, small, per doz. 3 0
" " " in pots, 6 to 9 inch, per doz. - - - - - 6 0
" " " in pots, 12 to 15 inch, per doz. - - - - 12 0
" " fragilis, in pots, each - - - - - 2 6
" " cretica, in pots, each - - - - - 2 6
" " halepensis, Pine of Jerusalem, 1 year seedling, per 100 - - 10 6
" " " " in pots, small, 1 year, per doz. - - - - 3 0
" " " " in pots, 2 year, 3 inch, per doz. - - - - 4 6
" " " " in pots, 3 year, 4 to 6 inch, per doz. - - 6 0
" " " minor, in pots, 6 inch, each - 2 6
" " " maritima of Lambert, in pots, small, each - - - - 2 6
" " genevensis, in pots, small, each 2 6
" brutia, Calabrian Pine, in pots, small, each - 3 6
" altissima, in pots, grafted, each - - - - 3 6
" taurica, in pots, about 1 foot, each - - - - 1 0
" Banksiana, Labrador Pine, in pots, grafted, 6 inch, each - - - - - - - - - 2 6
" inops, Jersey Pine, in pots, small, each - - 3 6
" pungens, Table Mountain Pine, in pots, 6 in., each 21 0
" resinosa, Red Canadian Pine, in pots, small, each 1 0
" mitis, Yellow Pine, in pots, 18 inch, each - - 5 0
" nootkatensis, in pots, grafted, each - - - - 10 6
" Pithyusa, in pots, grafted, each - - - - 10 6
" tæda, Loblolly Pine, in pots, 2 feet, each - - 7 6
" rigida, Pitch Pine, in pots, small, each - - - 1 0
" " " in pots, 1 to 2 feet, each - - 5 0
" serotina, Pond Pine, in pots, small, 1 year, per doz. 6 0
" " " in pots, 2 years, per doz. - 12 0
" variabilis, in pots, 2 years, per doz. - - - 12 0
" ponderosa, in pots, grafted, each - - - - 15 0
" Sabiniana, Great prickly-coned Pine, in pots, 1 foot, each - - - - - - - - - 42 0
" Coulteri, Great hooked-cone Pine, in pots, 12 to 18 inch, each - - - - - - - - - 21 0
" macrocarpa, in pots, 12 to 18 inch, each - - - 21 0
" australis, Georgian Pine, in pots, about 1 inch, in stem, each - - - - 3 6
" " " in pots, about 2 in., each 5 0
" " " in pots, 3 to 4 feet, each 63 0
" " excelsa, in pots, 2 feet, each - - - 42 0
" insignis, in pots, grafted, each - - - - 7 6
" californiana adunca, in pots, grafted, each - - 42 0
" nivea, in pots, grafted, each - - - - - 63 0
" Teocote, in pots, grafted, each - - - - 7 6
" patula, in pots, 1 to 1½ foot, each - - - - 2 6
" " in pots, 2 to 2½ feet, each - - - - 5 0
" Llaveana, in pots, 1 foot, each - - - - 21 0
" canariensis, in pots, 9 inch to 1 foot, each - - 1 6
" " in pots, 1½ to 2 feet, each - - - 3 6
" " in pots, 2½ to 3 feet, each - - - 7 6
" longifolia, in pots, 6 inch, each - - - - 3 6
" " in pots, 18 inch, each - - - - 7 6
" Gerardiana, Short-leaved Nepaul Pine, in pots, 3 inch, each 2 6
" " " " in pots, 6 to 9 inch, each - 5 0
" sinensis, in pots, grafted, 9 inch to 1 foot, each - 5 0
" species from Nepaul, with cones like inops, in pots, 3 to 4 inch, each - - - - - - - - 7 6
" Hartwegi, in pots, 3 to 4 inch, each - - - 5 0
" " in pots, 9 inch to 1 foot, each - - 10 6
" Devoniania, in pots, 12 to 15 inch, each - - - 25 0
" Russelliana, in pots, 3 to 4 inch, each - - - 5 0
" Montezumæ, Rough-branched Mexican Pine, in pots, 3 to 4 inch, each - - - 7 6
" Pseudo Strobus, False Weymouth Pine, in pots, 1½ to 2 feet, each - - - 15 0

Pinus filifolia, in pots, 6 to 9 inch, each - - - - 5 0
" leiophylla, in pots, 1 foot, each - - - - 10 6
" ocarpa, in pots, 6 inch, each - - - - - 7 6
" " in pots, 9 inch to 1 foot, each - - - 10 6
" apulcencis, in pots, 1½ to 2 feet, each - - - 25 0
" tenuifolia, in pots, 1 to 1½ foot ,each - - - 10 6
" Cembra, Cembrian Pine, 1 year seedling, per 1000 - 40 0
" " " transplanted, 1 to 2 inch, per 100 - 10 0
" " " " 6 to 9 inch, per 100 - 20 0
" " " " 12 to 15 inch, per 100 - 30 0
" " " in pots, about 1 foot, per doz. 9 0
" " helvetica, in pots, about 15 inches, per doz. 12 0
" " siberica, in pots, about 9 inches, per doz. 12 0
" " pygmæa, in pots, 3 to 4 inch, grafted, each 3 6
" Strobus, Weymouth Pine, 1 year seedling, per 1000 10 0
" " " 1 year transplanted, per 1000 - - - 20 0
" " " transplanted, 12 to 15 inch, per 100 - - 5 0
" " " transplanted, 2 to 2½ feet, per 100 - - - 10 0
" " alba, in pots, 12 to 18 inch, each - - 12 6
" " laxa, in pots, 6 inch, each - - - 12 6
" " nana, in pots, 6 inch, each - - - 12 6
" " nivea, in pots, 6 inch, each - - - 25 0
" " umbraculifera, in pots, 6 inch, each - 25 0
" Lambertiana, Gigantic Pine, in pots, 9 to 12 inch, grafted, each - - - - - - 10 6
" Monticola, Short-leaved Weymouth Pine, in pots, grafted, 9 to 12 inch, each - - - - 7 6
" Ayacahuite, in pots, 4 inch, each - , - - 10 6
" Nepaulensis, in pots, small, each - - - - 2 6
" excelsa, Bhotan Pine, in pots, 1 to 2 inch, per doz. 6 0
" " " in pots, 3 to 4 inch, per doz. 9 0
" " " in pots, 6 to 9 inch, per doz. 20 0
" " " in pots, 12 to 15 inch, each - 2 6
" " " not in pots, about 1 ft., p. doz. 12 0
Abies excelsa, Norway Spruce Fir, 1 year seedling, p. 1000 1 6
" " " 2 year seedling, p. 1000 3 0
" " " 1 year transpl., p. 1000 7 6
" " " 2 year transpl., p. 1000 10 0
" " communis, White Fir of Norway, in pots, 6 inch, each - - - - - - 1 0
" " nigra, Red Tree of Norway, in pots, 6 inch, each - - - - - - 1 0
" " pendula, in pots, small, each - - - 1 0
" " foliis variegatis, in pots, small, each - 1 6
" " Clanbrassiliana, in pots, 9 to 12 inch, each 3 6
" " " stricta, in pots, 9 to 12 inch, each - - 3 6
" " " elegans, in pots, 9 to 12 inch, each - - 15 0
" " pygmæa, in pots, 4 to 6 inch, each - - 7 6
" " tenuifolia, in pots, 4 to 6 inch, each - - 15 0
" " monstrosa, in pots, 4 to 6 inch, each - 63 0
" orientalis, in pots, 6 to 9 inch, each - - - 7 6
" alba, White American Spruce Fir, 1 year seedling, per 100 - - 2 0
" " " " transplanted, 4 inch,per 100 5 0
" " " " transplanted, 1 foot, per 100 7 6
" " " " transplanted, 1½ to 2 ft., p. 100 10 0
" " nana, in pots, each - - - - 1 0
" nigra, Black American Spruce Fir, 2 year seedling, per 100 - - 3 0
" " " " 1 year transpl., per 100 - 7 6
" " " " transpl. 1 to 1½ ft., p. 100 10 0
" " " " transpl., 1½ to 2 feet, per 100 15 0
" Khutrow, in pots, 9 inch, per doz. - - - - 20 0
" Morinda, in pots, small, per doz. - - - - 6 0
" " in pots, 3 to 4 inch, per doz. - - - 9 0
" " in pots, 5 to 6 inch, per doz. - - - 12 0
" " in pots, 9 inch to 1 foot, per doz. - - 20 0
" " in pots, 15 to 18 inch, each - - - 3 6
" Douglasi, in pots, various sizes, each - 7s. 6d. to 21 0
" Menziesi, in pots, 3 to 4 inch, each - - - - 1 6
" " in pots, 6 to 9 inch, each - - - - 3 6
" " in pots, 1 foot, each - - - - - 5 0
" " in pots, 2 feet, each - - - - - 7 6
" canadensis, Hemlock Spruce Fir, 6 to 8 in., per doz. 6 0
" " " 2 to 2½ft., per doz. 12 0
" " " in pots, each - 1 6
" religiosa, in pots, each - - - - - - - 21 0
" Novæ Hollandiæ, in pots, each - - - - - 7 6
Picea pectinata, Silver Fir, 1 year seedling, per 1000 - 8 0
" " " transplanted, 1 year, per 1000 15 0
" " " transplanted, 2 year, per 1000 25 0
" " " in pots, 6 to 9 inch, per doz. - 6 0
" cephalonica, 6 to 9 inch, per doz. - - - - 9 0
" " in pots, 6 to 9 inch, per doz. - - 12 0
" Pinsapo, Mount Atlas Cedar, 9 to 12 inch, per doz. - 6 0
" " " in pots, small, per doz. - 3 0
" " " in pots, 3 to 4 in., p. doz. 6 0
" " " in pots, 9 to 12 in., p. doz. 9 0
" Nordmanniana, in pots, 6 to 9 inch, each - - 21 0
" Pichta, in pots, 6 to 9 inch, each - - - - 2 6
" " in pots, 12 to 15 inch, each - - - - 5 0
" balsamea, Balm of Gilead Fir, 2 yr. seedling, p. 1000 5 0
" " " 1 yr. transpl., p. 1000 15 0
" dumosa, in pots, small, each - - - - - 15 0
" Fraseri, Double-Balsam Fir, in pots, small, per doz. 6 0
" " " in pots, about 2 in., p. doz. 9 0
" " " in pots, 1 to 2 ft., each - 3 0
" grandis, Great Californian Fir, in pots, 1 foot, each 42 0
" Hudsoni, in pots, each - - - - - - - 15 0
" amabilis, in pots, 12 to 18 inch, each - - - 31 6
" nobilis, large bracticated Silver Fir, in pots, grafted, 4 to 6 inch, each - - - - - - - 10 6
" Webbiana, Purple-coned Silver Fir, in pots, small, each - - - 1 6
" " " in pots, 1 to 1½ inch, each - 2 6
" " " in pots, 3 to 4 in., each - 3 6
" " " in pots,9 in.,each 5 0
" " " in pots, 12 to 15 in., each 7 6
" " " in pots, 18 to 20 in., each 10 6
" " " in pots, 2 feet, each - - 15 0
" Pindrow, Tooth-leaved Silver Fir, in pots, 3 to 4 in., each - - 15 0
" " " in pots, 15 to 18 inch, each 31 6
Larix europæa, Common Larch Fir, 1 year seedling, per 1000 - 1s. 6d. to 2 0
" " " 2 year seedling, per 1000 - - 3s. to 4 0
" " from Tyrolese seed, 1 year seedling, p.1000 3 0
" " " 2 year seedling, p.1000 5 0
" " laxa, 1 to 1½ foot, per. doz. - - - 3 0
" " compacta, 1 to 1½ foot, per doz. - 8 0
" " pendula, 1 to 1½ foot, per doz. - 0

Larix europæas flore rubro, 1 to 1½ foot, per doz. - - 3 0
" " iberica, in pots, 6 to 9 inch, per doz. - 6 0
" " dahurica, in pots, 6 to 9 inch, per doz. - 6 0
" " Kellermanniana, in pots, grafted, each - 2 6
" Americana rubra, in pots, 6 to 9 inch, per doz. - 9 0
" " pendula, in pots, 6 to 9 inch, per doz. - 12 0
Cedrus Lebani, in pots, 4 to 6 inch, per doz. - - - 6 0
" " in pots, 9 to 12 inch, per doz. - - - 12 0
" " in pots, 15 to 16 inch, per doz. - - 18 0
" " nana, in pots, small, each - - - 1 0
" " some seedling varieties, in pots, small, each 1 0
" Deodara, in pots, small, 9 to 12 inch, from seed, each 7 6
" " in pots 9 to 12 inch, grafted, each - - 5 0
" " in pots, 15 to 18 inch, grafted, each - 7 6
" Africana, in pots, small, each - - - - - 10 0
Araucaria imbricata, Chili Pine, in pots, 3 to 4 inch, p. 100 63 0
" " " in pots, 3 to 4 inch, p. doz. 9 0
" " " in pots, 6 to 9 inch, p. 100 75 0
" " " in pots, 6 to 9 inch, per doz. 12 0
" " " in pots, 1 foot, each - - 2 6
" Braziliana, in pots, 1½ foot, each - - - 7 6
" " in pots, 3 feet, each - - - 10 6
" " in pots, 6 feet, each - - - 63 0
" Cunninghami, in pots, small, each - - 10 0
" " in pots 8 to 10 feet, each, £30
" excelsa, in pots, 6 to 8 inch, each - - - 42 0
" " in pots, 3 feet, each, £10
Cunninghamia sinensis, in pots, 1 to 1½ foot, each - - 3 6
Damara orientalis, in pots, 2 feet, each - - - - 63 0
" australis, in pots, 4 inch, each - - - - 15 0
Thuja occidentalis, American Arbor vitæ, 4 to 6 inch, p. 100 12 6
" " " " 8 to 9 inch, p. 100 20 0
" " " " 1 to 1½ foot, p. 100 30 0
" " " " 4 feet, each - 0 9
" plicata, Nee's Arbor vitæ, 3 to 4 inch, in pots, each 1 0
" orientalis, Chinese Arbor vitæ, 1 year seedling, p. 100 5 0
" " " " 4 to 6 inch, per 100 - 15 0
" " " " 9 to 12 inch, per 100 - 25 0
" " " " 15 to 18 inch, per doz. 50 0
" " " " in pots,1 to 1½ foot,per doz. 12 0
" " tatarica, 1 year seedling, p. 100 - - 7 6
" " " 9 inch to 1 foot, p. doz. - - 6 0
" " " 15 to 18 inch, per doz. - - 12 0
" " " in pots, 1 foot. per doz. - - 18 0
" articulata, 1 year seedling, per 100 - - - 10 0
" " 2 year old, in pots, per 100 - - - 25 0
" " in pots 9 inch to 1 foot, per doz - - 6 0
" " in pots, 15 to 18 inch, per doz. - - 12 0
" pendula, in pots, 6 inch, each - - - - - 7 6
" " in pots, 1 foot, each - - - - - 15 0
Callitris quadrivalvis, in pots, 3 inch, each - - - 0 9
" australis, in pots, 3 inch, each - - - - 1 0
Cupressus sempervirens, common Cypress, 2 year seedling per 100 - 5 0
" " " in pots, 1 foot, per doz. 6 0
" " stricta, 1 year seedling, per 100 - 3 6
" " " in pots 9 inch to 1 foot, p. doz. 6 0
" " horizontalis, 1 year seedling, per 100 3 6
" " in pots 9 inch to 1 foot, per doz. - 6 0
" " pendula, in pots, small, per doz. - 4 0
" " " glauca, small, in pots, p. doz. 6 0
" thyoides, White Cedar, in pots 2 to 3 inch, p. doz. 6 0
" " " in pots, 1½ foot, each - 2 6
" " foliis variegatis, in pots, 6 inch, each 3 6
" " atrovirens, in pots, 6 inch, each - 1 6
" lusitanica, Cedar of Goa, in pots, small, per doz. 4 0
" " " in pots, 3 inch, each 1 0
" torulosa, Bholan Cypress, in pots, small, p. doz. 4 0
" " " in pots, 2 inch, p. doz. 9 0
" " " in pots 6 to 9 inch, each 1 0
" " " in pots,1 to 1½ foot,each 1 6
" " viridis, in pots, 6 inch, each - - 10 6
" " pendula, in pots, 1½ inch, each - 10 6
" " elegans, in pots, 18 inch, each - 10 6
" thurifera, in pots, 18 inch, each - - - 5 0
" australis, in pots, 4 to 6 inch, each - - - 2 6
" occidentalis, in pots, 4 to 6 inch, each - - 1 6
" Tourneforti, in pots, 2 year, per doz. - - 3 0
" " in pots, 9 inch to 1 foot, per doz. - 6 0
" " in pots 1½ to 2 feet, each - - 1 0
" nepalensis, in pots, small, each - - - 2 6
" " religiosa, in pots, 5 inch, each - 25 0
" bacciformis, in pots, 9 inch, each - - - 10 6
" Lamberti, from California, in pots, 12 to 15 inch each - - - 25 0
" species from Garden Island, in pots, small, per doz. 6 0
Taxodium distichum, Deciduous Cypress, 1 year old, p. doz. 2 0
" " " 1½ foot, each - 1 0
" " pendulum, in pots, 9 inch, each - 5 0
" " " in pots, 18 inch, each - 7 6
" sempervirens, in pots, small, each - - - 21 0
" " in pots, 6 to 9 inch, each - - 42 0
" " du Hugel, in pots, small, each - 21 0
" pinnatum, in pots, 18 inch, each - - - - 63 0
" Horsfieldi, in pots, small, each - - - - 21 0
Juniperus communis, Common Juniper, 1 year seedling, per 1000 - 5 0
" " " 2 year seedling, p. 1000 7 6
" " " 1 year transpl., p. 1000 15 0
" " " transpl., 1½ foot, each 0 9
" " " in pots 6 to 9 inch, each 0 9
" " sueicica, Swedish Juniper, in pots, 3 inch, per doz. 6 0
" " nana, in pots, 6 inch, each - - 3 6
" " oblonga, in pots, 9 inch to 1 foot, each 10 6
" " pendula, in pots, 9 inch to 1 foot, each 10 6
" " canadensis, in pots,9 inch to 1 foot,each 5 0
" Oxycedrus, Brown-berried Juniper, in pots small, per doz. - 6 0
" " " in pots, 3 to 6 inch, each 1 0
" " taurica, in pots 9 inch to 1 foot, each - 10 6
" " echinoformis, in pots, 9 inch, each - 10 6
" macrocarpa, in pots, 9 inch, each - - - 10 6
" drupacea, in pots, 9 inch, each - - - 10 6
" cracovia, in pots, 9 inch, each - - - - 7 6
" virginiana, Red Cedar, in pots, small, p. doz. - 3 0
" " " in pots, 3 to 6 inch, per doz. 6 0
" " " in pots, 9 to 12 inch, per doz 9 0
" " " in pots,15 to 18 inch,p.doz. 12 0
" " pendula, in pots, 15 to 18 inch, each - 10 6
" " humilis, in pots, 6 to 9 inch, each - 7 6
" " foliis variegatis, in pots, 9 to 12 inch, each 21 0
" Bermudiana, in pots, 1½ foot, each - - - 3 6
" Sabina, common Sabin, in pots, 3 inch, per doz. 6 0
" " tamariscifolia, in pots 9 inch to 1 foot, each 2 0
" " prostrata, in pots, 4 to 6 inch, each - 1 6
" " alpina, in pots, small, each - - - 3 6
" phœnicea, in pots, 2 to 3 inch, each - - - 0 9
" phœnicea, in pots, 4 to 6 inch, each - - - 1 6
" Lycia, in pots, 2 to 3 inch, each - - - - 1 0
" " in pots, 4 to 6 inch, each - - - - 2 6
" thurifera, Spanish Juniper, in pots, 6 to 9 in., each 10 6
" excelsa, Himalaya Cedar Wood, in pots, 1 to 2 inch, each - 1 0
" squamata, in pots, 6 inch, each - - - - 5 0
" recurva, in pots, 1 to 1½ foot - - - - 2 6
" chinensis, in pots, 6 inch, each - - - - 3 6
" Smithii, in pots, 6 to 9 inch, each - - - 10 6
" tetragona, in pots, 6 inch, each - - - - 7 6
" flaccida, in pots, 9 inch, each - - - - 10 6
" dealbata, in pots, 9 inch, each - - - - 25 0
" flagelliformis, in pots, 9 inch, each - - - 10 6

CONIFERÆ—CONTINUED. s. d.

Juniperus Gossamthania, in pots 3 to 4 inch, each - - 1 6
,, Bedfordiana, in pots, 3 to 4 inch, each - - 1 6
,, Hudsoniana, in pots, 6 inch, each - - - 10 6
,, Reevesiana, from Chinas in pots, 6 to 9 inch, each 21 0
,, religiosa, from Himalaya, in pots, 6 to 9 inch, each 21 0
Taxus baccata, common Yew, 1 year seedling, per 1000 25 0
,, ,, ,, transpl., 2 inch, per 100 - 5 0
,, ,, ,, transpl., 9 inch, per 100 - 10 6
,, ,, ,, transpl., 2 to 3 feet, per 100 25 0
,, ,, stricta, in pots, 2 to 3 inch, each - - 1 0
,, ,, horizontalis, in pots, 6 inch, each - - 1 6
,, ,, foliis variegatis aureis, long-leaved, in pots, 4 to 6 in. each 5 0
,, ,, ,, ,, ,, short-leaved, in pots, small, each 7 6
,, ,, foliis argenteis, in pots, small, each - 21 0
,, fastigiata, Irish Yew, 6 to 9 inch, per doz. - - 6 0
,, ,, ,, 1 foot, per doz. - - - 9 0
,, ,, ,, 1½ to 2 feet, per doz. - - 18 0
,, ,, procumbens, in pots about a foot, each 5 0
,, ,, erecta, in pots, about a foot, each - - 5 0
,, japonica, in pots, each - - - - - - 5 0
,, coriacea, in pots, each - - - - - - 3 6
,, tardiva, in pots, 4 inch, each - - - - 63 0
,, adpressa, in pots, 4 inch, each - - - - 15 0
,, montana, in pots, 4 inch, each - - - - 63 0
,, *Harringtonia*, in pots, 4 to 6 inch, each - - 3 6
,, ,, macrophylla, in pots, 1 foot, each - 7 6
,, ,, angustifolia, in pots, 6 inch, each - 5 0
,, ,, Mackayi, in pots, 1 foot, each - - 7 6
,, ,, longifolia, in pots, 1 foot each - - 7 6
Salisburia adiantifolia, in pots, 6 inch to 1 foot, each - 1 6
Dacrydium cupressinum, in pots, 9 to 12 inch, each - 10 6
Cryptomaria japonica, in pots, 3 to 4 inch, each - - 63 0

PETER LAWSON AND SON,
Seedsmen and Nurserymen to the Highland and Agricultural Society of Scotland.

AGENTS: — Messrs. W. and J. NOBLE, Seedsmen, 152, Fleet-street, London.

Edinburgh, November, 1845.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

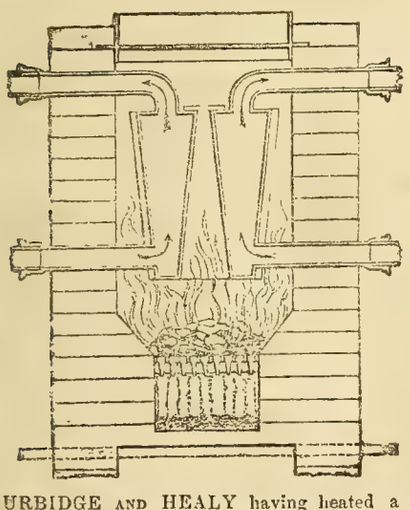
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

EXHIBITIONS AT THE GARDEN

OF THE

HORTICULTURAL SOCIETY OF LONDON,

FOR THE YEAR 1846.

THE EXHIBITIONS will take place on the SECOND SATURDAYS in the months of MAY, JUNE, and JULY.

MEDALS AND REWARDS.—The Society distributes the following Medals and Rewards; namely—

C. The Certificate	value—£0 10 0	SG. Large Silver Gilt Medal	value—£4 0 0
SB. Silver Banksian Medal	1 0 0	GB. Gold Banksian Medal	7 0 0
SK. Silver Knightian Do.	1 5 0	GK. Gold Knightian Medal	10 0 0
LS. Large Silver Medal	1 15 0	LG. Large Gold Ditto	20 0 0

Class I.—FLOWERS; for which Nurserymen and Private growers exhibit independently of each other.

A Pelargoniums; in collections of 12 new and first rate varieties, cultivated with superior skill, in 8-inch pots. GB—SG—LS

B Pelargoniums; in collections of 12 varieties, in 8-inch pots. GB—SG—LS

C Pelargoniums; in collections of six varieties, in 11-inch pots. LS—SK—SB

D Roses, in pots; Amateurs to show in collections of 12, Nurserymen in collections of 18, distinct varieties. GB—SG—LS

NB. The Judges are required to disqualify any collection which shall be found to contain a plant which has been recently placed in the pot from the open ground.

E Roses, in pots; single specimens displaying superior cultivation. SK—SB—C

F Moss Roses in loose bunches, each consisting of three trusses as they are gathered, so as to exhibit, as far as possible, the habit of the variety; in 12 varieties. SK—SB—C

G Other Roses, exhibited as in the last letter, and in 50 varieties. LS—SK—SB

NB. No one who exhibits in this letter can also compete in the following.

H Other Roses, exhibited as in the letter F, and in 25 varieties. SK—SB—C

NB. Higher Medals than those here offered for Roses cannot be given by the Judges; and if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I Cape Heaths; in collections of 20 entirely distinct varieties. GK—GB—SG

NB. It is expected that the same plant shall not be exhibited on more than one occasion.

K Cape Heaths; in collections of 12 entirely distinct varieties. GB—SG—LS

L Cape Heaths; in collections of six entirely distinct varieties, SG—LS—SK

NB. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M Cape Heaths; single specimens displaying very superior cultivation. LS—SK—SB

N Calceolarias, in sixes; in 8-inch pots. LS—SK—SB

O Carnations, in pans of 24 distinct varieties. LS—SK—SB

P Picotees, in pans of 24 distinct varieties. LS—SK—SB

Q Pinks; in pans of 24 distinct varieties. SK—SB

R Ranunculuses, excluding Turbans; in stands of 12 distinct varieties for private growers, and 24 for Nurserymen. LS—SK—SB

Class II.—FLOWERS; for which all persons are admitted to equal competition.

S Stove or Greenhouse plants; in collections of 40 plants. LG—GK—GB

NB. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums to be excluded from *S*, *T*, *V*, and *W*.

T Stove or Greenhouse plants; in collections of 20 plants. GK—GB—SG

NB. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*.

V Stove or Greenhouse plants; in collections of 12 plants. GB—SG—LS

W Stove or Greenhouse plants; in collections of six distinct species. SG—LS—SK

X Greenhouse Azaleas; in 12 distinct varieties. GB—SG—LS

Y Greenhouse Azaleas; in six distinct varieties. SG—LS—SK

NB. No one can show in both classes of Azaleas.

Z Collections of New Hardy Evergreens in pots; LS—SK—SB

AA Exotic Orchids; in collections of not fewer than 20 species. LG—GK—GB

NB. Exhibitors cannot show in more than one of the classes *AA*, *BB*, *CC*.

BB Exotic Orchids; in collections of 12 species. GK—GB—SG

CC Exotic Orchids; in collections of six species. GB—SG—LS

DD Scarlet Pelargoniums; in six distinct varieties, in pots not less than 11 inches in diameter. LS—SK—SB

EE Pelargoniums; in six DISTINCT SPECIES. SG—LS—SK

NB. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden cross-breds.

FF Achimenes; in collections of six species, grown in pans not less than a foot in diameter. LS—SK—SB

GG Distinct varieties of Tall Cacti in flower. GB—SG—LS

NB. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH Fuchsias; single specimens. SK—SB—C

NB. No person can receive more than one prize under this head.

II Hardy Orchids in pots, in collections; exclusive of Cypripediums. SK—SB—C

KK Hardy Cypripediums. SK—SB—C

LL Hybrid Alstromerias; cut specimens. LS—SK—SB

MM Statices; in collections of six species. SG—LS—K

NN New or extremely rare ornamental plants. SG—LS—SK

NB. These Medals will be awarded by the Society's Officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare plants can be exhibited under this letter. *Nothing will be regarded as new which has been exhibited in the Garden in a previous season.*

OO Single specimens of very superior cultivation. SG—LS—SK

PP Miscellaneous subjects. SK—SB—C

NB. Exhibitors under *PP*, will not be thereby *entitled* to a pass ticket. Cockscombs, Heartsease, Hydrangeas, and bouquets, are altogether excluded from exhibition.

RR Seedling Florist's flowers. SK—SB—C.

NB. Every seedling must be shown singly, and marked with the name it is to bear. The same seedling cannot gain a prize more than once in the season. Pelargoniums are to be shown in pots, and not in a cut state. No person will be allowed to exhibit more than 6 seedlings at each meeting. Exhibitors under this head will not be thereby *entitled* to a pass ticket. For seedling Pelargoniums exhibited the first year no higher prize shall be given than a certificate, and this is to be awarded to flowers of decided merit. Seedling Pelargoniums of the second year must be shown in pots not smaller than 32s, and each exhibitor may produce 6 of them, but not a larger number.

IN ADDITION to any Medals assigned to the classes, *I*, *S*, *T*, and *AA*, the SK, SB and C are offered for the collections in those classes which shall be best named by the Exhibitor.

N.B. The Society's Officers, who will make this award, will be guided in their judgment by a consideration not only of the correctness of the names, but of the accuracy of the spelling, and the neatness of the writing.

Class III.—FRUIT; for which Market Gardeners, Fruiterers, or Persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY ripe and WELL COLOURED, and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary, it will be disqualified.

SS Miscellaneous collections of fruit, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS

NB. Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter. Exhibitors of collections of Fruit should bear in mind that however fine one or two of the kinds in this collection may be, they cannot gain a prize unless they furnish at *least* three different kinds of fruit of *first rate quality*.

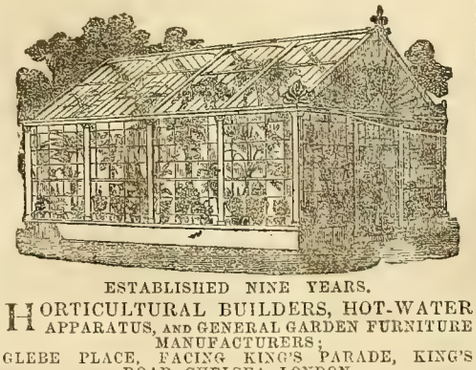
TT Grapes. SG—LS—SK—SB

VV Pine Apples. SG—LS—SK—SB

WW Peaches or Nectarines, in dishes of six specimens. SK—SB

XX Other kinds of fruit. SK—SB—C

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[SPECIMEN OF THE WORK.]

Egyptian mummies. Its branched ears are very remarkable.

SECALE.

Glumes subulate. Spikelets 2-flowered, with the rudiment of a third flower in the middle. Otherwise like Triticum.

1. S. *Cereale* (*Rye*). Glumes shorter than the spikelet. Rachis tough. ——— *Fields.* The grain of this sort of corn produces flour inferior to that from wheat, and forming a dark sweet nutritious bread. It is the common food of the peasantry of Germany, but is little used in England.

*** Rye differs from Wheat in having very small narrow glumes, and the centre floret of each spikelet constantly imperfect.

HORDEUM.

Spikelets in pairs or threes, 1-flowered. Glumes 2. Paleæ 2, the lower awned at the apex. Scales obtuse, fringed. Styles feathery. Ovary villous at the end.

1. H. *hexastichon* (*Six-rowed Barley, Winter Barley, Bere, or Bigg*). Spikelets all fertile, arranged in 6 rows. Grain adhering to the paleæ. ——— *Fields.*

2. H. *distichum* (*Two-rowed or common Barley*). The middle spikelets only fertile, the two lateral of each cluster barren and beardless. One palea of the middle florets furnished with a very long awn. Grain adhering to the paleæ. ——— *Cornfields.* This is the sort of barley commonly grown in England. It prefers light land. Bread is sometimes made from its flour; but it is chiefly used for malting, previously to being fermented for beer. Malt is the grain of barley forced to germinate, by which it acquires sweetness, and then kiln dried.

3. H. *murinum* (*Wall Barley*). Lateral flowers barren. Glumes of the intermediate ones lanceolate, fringed. Grain adhering to the paleæ. ——— *Walls and waste places.* A worthless weed.

*** Barley differs from Rye, which it somewhat resembles, in having its spikelets one-flowered only, and constantly



Fig. CCXLI.



Fig. CCXLII.

Fig. CCXLI. Hordeum distichum with 3 spikelets separate, of which the two lateral are sterile, and the central only perfect.
Fig. CCXLII. Secale Cereale with a spikelet separate.

umbel, while the involucels at the base of the partial umbels consist of many bracts.

The manner in which flowers are arranged is called their *inflorescence.* It is a sort of branching, and has different names, according to the manner



Fig. XXXVII.



Fig. XXXVIII.



Fig. XXXIX.

in which the branches are arranged. The principal kinds are these:—1. The *capitulum*, or *flowerhead*, when all the flowers are sessile upon a broad plate called a *receptacle*, as in the Daisy (Bellis perennis). 2. The *umbel*, when the pedicels all radiate from one point, as in the Cherry (Fig. XL.); this is called compound, when each ray of the umbel is itself umbellate, as in the Fool's Parsley (Æthusa Cynapium, Fig. XXXIX). The *spike*, when the flowers are sessile along a common peduncle, or axis, as in Ribgrass (Plantago lanceolata). 4. The *raceme*, when the flowers are all stalked along a common axis, as in the Currant. 5. The *corymb*, when the flowers of a raceme are all on the same level, as in Candy Tuft (Iberis). 6. The *panicle*, when the pedicels of a raceme are themselves branches, as in the Fiorin Grass (Agrostis stolonifera). 7. The *cyme*, when a panicle is corymbose and irregularly contracted, as in the Elder-tree (Sambucus nigra, Fig. XLI.) A *spadix* is the inflorescence inclosed in a spathe (Fig. XXXVIII.;) an *amentum*, or *catkin*, is a



Fig. XL.

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THE TRUE FASTOLFF RASPBERRY.

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YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Soudes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL & Co. two prizes for it.

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A liberal discount will be allowed the Trade when "quantities" are ordered.—Great Yarmouth Nursery, Dec. 13.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 13, 1845.

MEETING FOR THE FOLLOWING WEEK.
TUESDAY, Dec. 16—Linnean . . . . 8 P.M.

DO THE RACES OF PLANTS WEAR OUT? Is it true that when a tree or other perennial plant becomes unhealthy from old age all the offspring previously obtained from it by cuttings in all parts of the world becomes unhealthy too? Is such a doctrine a reasonable inference from known facts? or is it forced upon us by evidence although not deducible from mere reason? This is an important question, to a laboured advocacy of which pamphlets and newspapers have been lately abundantly brought into requisition. We have ourselves adverted to it incidentally, and on the present occasion propose to consider it in its various aspects.

1. No one pretends that the species of plants disappear. It is alleged on the contrary, that seeds renew the languid vigour of a species as often as they are sown; and that if an unhealthy plant is multiplied from seeds the immediate offspring becomes healthy. It is also said that multiplication by seed is the only natural mode of propagation known among plants, and that all other kinds of increase are artificial and lead to debility.

It would, we think, be difficult to find an hypothesis more entirely at variance with notorious facts. That propagation by seed is *a* natural method of multiplication is doubtless true; but to say that no other natural means exist is absurd. The Sugar-cane is rarely propagated by seeds; its natural mode of propagation is by the stem, which when blown down by the storm emits roots at every joint. Of this natural property man has availed himself as a means of artificially extending the plant. The Tiger Lily naturally propagates itself by bulbs, formed in the bosom of its leaves; we never saw it form a seed. The Jerusalem Artichoke naturally multiplies itself by its tubers, which are bodies of the same nature as the so-called root of a Potato; no one ever saw it produce seed in this country. Every gardener knows that his Achimenes are principally multiplied by little scaly bodies resembling tubers, and that these are formed in such abundance as to render seed unnecessary. In short we have not space for other instances of this, the denial of which could only arise from an entire unacquaintance with common facts. These examples sufficiently show that Nature does provide other means of propagating plants than seeds, and that tubers are one of those means.

As to the assertion, that all other means than multiplication by seeds lead to debility, we must ask for the proof. The wild Strawberry has been more propagated by its runners than by its seeds; and where do we find any sign of debility there? The Jerusalem Artichoke was introduced before the year 1617; for nearly two centuries and a half it has increased itself entirely by tubers, and never by seed. Does any one find debility in that plant? Couch Grass increases chiefly by its creeping roots; we wish we could adduce, at least, that one instance of failing vigour in a plant whose seeds are but little yielded. It, therefore, is not true that plants multiplied much, or wholly, by other means than seeds become on that account unhealthy.

Seeds, however, are said, in all instances, to produce healthy plants. But this, like the previous assertions, will not bear exact investigation. The health of a seedling depends entirely upon that of the seed. Under no circumstances will unhealthy seeds yield vigorous offspring; this is proved every day by what comes from grain debilitated by age. And there cannot be found a gardener, of any large experience, who does not know that seedlings will exhibit every diversity of constitution from health to decrepitude. Of the latter, MYATT's Pine Strawberry is a modern and striking instance.

We, therefore, regard the whole string of propositions now examined as entirely destitute of all foundation in fact.

2. What are called the varieties of plants are said to wear out. It is maintained that vegetable, like animal life, has its fixed periods of duration, and that there is a time beyond which the debility incident to old age cannot be warded off. The inference from this is, that all the cultivated races of plants require to be incessantly renewed by seed, in the absence of which precaution they gradually become unhealthy, and unfit for cultivation.

The first person who proposed this theory was the late Mr. KNIGHT, who, in the latter part of the last century, finding that the orchards of Herefordshire no longer contained healthy trees of certain varieties of Apple, which were said to have flourished 50 years before, and failing in his attempt to restore health to such varieties by grafting, assumed that old age had overtaken them, and that they were incurable. Thence he extended the theory to all other plants; and here and there writers on vegetable physiology, rather out of respect to Mr. KNIGHT's great name than from any correct examination of the facts for themselves, have blindly adopted his views. But reason and evidence are alike opposed to the conclusion, which seems to have sprung out of a mistaken application of the laws of animal life to that of vegetables, and a desire to push analogy beyond its proper limits.

All who understand the nature of plants, and the manner in which they grow, and have witnessed that incessant renewal of their vitality with which Providence has so wonderfully endowed them, would hesitate to adopt Mr. KNIGHT's views except in the presence of facts capable of no other possible interpretation. No physiologist can separate the nature of what gardeners call varieties (of course mules are not here included), from that of a wild race. In their intrinsic qualities they are the same. It can make no difference in the nature of a plant whether it is sown by a gardener or by winds, birds, animals, or other agents. The Oak which springs up in a forest is not in the smallest physiological particular different from that which rises from the bed of a nurseryman. The Cabbages which load the waggons of a market gardener are in their essence the same as those which sprout forth from the sea-beaten cliffs of the ocean. They may be greener, or redder, more succulent and larger; but they are physiologically the same. We therefore must dismiss from our argument the word variety, which only leads to a confusion of ideas. Now, wild perennial plants, whether woody or herbaceous, whether forming a trunk or a mere permanent root, have never yet been shown by any trustworthy evidence to be subject to decrepitude, arising from old age. On the contrary, every new annual growth is an absolute renewal of their vitality, in the absence of disturbing causes. Hence the enormous age at which trees arrive. A thousand years is still youth to a forest tree which no accident has injured; and there is no intelligible reason why it should not, if guarded from violence, continue to grow to eternity. It is very true that plants do in reality perish commonly without attaining any such longevity; and that constitutional feebleness is notoriously one of the accompaniments of advancing age. But this arises from external, not intrinsic, causes. The soil which surrounds them is exhausted, their roots wander into uncongenial land, water in unnatural excess is introduced, the food they require is withheld, violence rends them, men mutilate them, severe cold disorganises them, and these and other causes produce *disease*, which may end in death. But this is very different from dying of mere old age; and for practical purposes it is most material to draw the distinction.

If no evidence exist to show that wild plants suffer from mere old age, we cannot admit such a property to be incident to those which are cultivated. It would indeed be a waste of space, which we can ill afford, to dwell further upon this part of the argument.

What are called facts, the real value of which we shall presently discuss, have been adduced to prove that if plants do not die of old age in a wild state, yet that they incontestably do wear out when artificially multiplied by division. In opposition to this it is sufficient to quote the White Beurré Pears of France, which French writers assure us have been thus propagated from time immemorial, and which exhibit no trace of debility; or the Jerusalem Artichoke already named; or the cultivated Vines of which the very varieties known to the Romans have been transmitted by perpetual division, but without deterioration or decrepitude, to our own day. The *Vitis præcox* of Columella is admitted by Dr. HENDERSON, on the authority of the most trustworthy writers, to have been the *Mauvillon* or *Early Black July* Grape of the present day; the *nomentana* to have been the German *traminer*; the *græcula* the modern Corinth or Currant; and the *dactyli* our *Cornichons* or *Finger* Grapes.

But it is affirmed that some cultivated plants have really worn out. The Redstreak, the Golden Pippin, and the Golden Harvey Apples are among the number quoted. The first of these is little known to us, and we have no evidence about it; but the Golden Pippin and Golden Harvey are certainly not capable of being employed in support of Mr. KNIGHT's theory. Both are to be found in various places at this moment in as perfect health as they ever enjoyed. The Golden Pippin is among the most vigorous Apples of Madeira; the Golden Harvey is in all good gardens. Of the former, healthy trees were many years since shown to exist in Norfolk; in warm dry places it has no particular appearance of suffering. Recruited by the fine climate of France, the Golden Pippin has been received back to this country in as healthy a state as ever, and is now growing in the Garden of the Horticultural Society. The old Nonpareil was well known in the time of Queen ELIZABETH; in cold places it cankers, and no doubt always has cankered; but what can be more healthy than that variety in favourable places? In short, what is called evidence breaks down wherever it is examined; and the argument about the wearing out of races proves to be baseless.

"We may easily conceive," says DE CANDOLLE, "that every cultivated variety owed its origin to some special circumstance, which once occurred, and but once. In such a case the variety has been multiplied by division, and every plant so obtained from it has been a portion of the same individual; which accounts for their all being exactly like each other. An identity of origin in all the plants of the same variety has led some physiologists to imagine that these varieties or fractions of an individual might die of old age. This was founded upon circumstances observed by Mr. KNIGHT with regard to the Golden Pippin. But it appears to us difficult to admit, upon such a single fact, an hypothesis opposed to all other facts. That varieties will last, so long as man takes care of them, appears to be proved by many of them having been preserved from the most remote periods. But it is also certain that negligence will cause some to disappear, just as accident or industry brings others into existence."—(*Phys. Végétale*, p. 731, somewhat abridged.)

Although an examination of evidence leads us to the inevitable conclusion, that the wearing out of the races of plants by old age is a delusion, yet we are far from denying the accuracy of the statements made by some recent writers on this subject. We may admit their facts, but reject their reasoning, and protest against the inferences they would have us draw. This, however, involves most important practical considerations, which we must defer till another week. In the meanwhile, we would refer our readers to some very just remarks, by Mr. GARDEN, of Glenae, in the *Farmers' Gazette* of Nov. 29, an Irish paper, conducted with talent and intelligence, and, in those qualities, offering a striking contrast to its rival, the *Irish Farmers' Journal*.

ADVICES from Mr. FORTUNE, dated Shanghae, August 16, mention that he had returned from the river Min, and was busily engaged in gathering together his collections of plants left at Ningpo, Chusan, and other places, preparatory to his return to England, where he is expected in April or May next. His plants are described by him as being extremely valuable; and he had decided upon bringing the whole of them home under his own superintendence.

He had been in the Black Tea country, and had witnessed the processes of preparing the leaves; he had been seriously ill with fever, from which he was recovered; and on his passage from the Min to Chusan, he had been twice attacked by pirates, who, however, were on each occasion driven off by himself, unassisted by his cowardly Chinese crew.

WE have been requested by several correspondents to state what kinds of FOOD may be used instead of Potatoes. In order that an efficient substitute be provided for any kind of food in general use, it is necessary that the nature of foods generally be understood. Chemical and physiological science have succeeded in pointing out the fact that there are two great classes of secretions elaborated by the vegetable kingdom that are essential to the food of man and of all other animals. The one class of these secretions contains carbon as a distinguishing ingredient, and may be called *carbonaceous*; the other, in addition to carbon, hydrogen, and oxygen, contains nitrogen, and is called *nitrogenous* or *azotized*

The first class is taken into the stomach as food, and being carried into the blood, meets there with oxygen gas, unites with it, forms carbonic acid gas, and, during this process, gives out heat. This is the source of animal heat. Unless this heat is developed in due quantities, the animal perishes.

These secretions and their composition are as follows:—

	Carbon.	Hydrogen.	Oxygen.
Starch . . .	12	10	10
Sugar . . .	12	9	9
Oil of Fat . . .	11	14	1

These substances enter largely into the food of the whole animal kingdom. Starch is contained in the seeds of most plants, as of the Wheat, Barley, Maize, Rice, &c., and in the various other parts of plants used as food by man. It can easily be separated from plants, and is done so for use as food, in the form of tapioca, arrow-root, Potato-starch, Wheat-starch, sago, &c. Sugar is also separated from the sap and fruits of plants, in which it is so generally contained. Oil is secreted by, and separated from, a number of plants, as the Olive, Almond, &c., and is also formed from starch and sugar by the animal, and deposited in its body in the form of fat.

The nitrogenous secretions are found not only in plants but in animals. The fact is, they are simply conveyed from the plant to the animal in its food, without undergoing any change. The nitrogenous secretions form the fabric of the body. Nerves, muscles, blood, &c., are principally composed of them. Their object in food is not the keeping up of animal heat, but the nourishment, the building up of the body. It is only as food contains these secretions that it is nutritious, that it can fulfil the demand for supply by the continual waste of the body in the actions of life. These secretions, though called by different names, as fibrine, albumen, and caseine, and varying somewhat in their physical properties, are modifications of one substance, *protein*. Protein is composed of 48 parts carbon, 36 hydrogen, 14 oxygen, 6 nitrogen. The other substances are easily convertible one into the other, and only vary in possessing different proportions of sulphur and phosphorus, in addition to the elements of protein.

In all the food man eats he requires that it should possess in one form or another these two classes of secretions. The carbonaceous secretions are constantly needed in all food, to keep up the heat of the body; the nitrogenous for building up its fabric. The quantity of the latter required depends on the waste going on in the system, and when this is great, as in severe bodily exertion of any kind, the demand for them will be the greatest. As an average, it has been stated that man requires 80 per cent. of carbonaceous matters, and 20 per cent. nitrogenous. This is about the proportion of such secretions found in Wheat flour, and it is undoubtedly this relation of the two classes of alimentary matters that render it the staple food of man in so large a proportion of Europe. Of other things eaten as food by man and animals, the following Table, from Dr. Playfair, gives the relative quantities of carbonaceous and nitrogenous matters:—

100 parts contain—

	Water.	Nitrogenous Matter.	Carbonaceous Matter.	Ashes.
Peas.....	16	29	52	3
Beans.....	14	31	52	3
Lentils.....	16	33	48	3
Oats.....	18	11	68	3
Barley.....	16	14	69	2
Potatoes....	72	2	25	1
Turnips	89	1	9	1

It will be seen from this list how low in the scale of nourishing and respiratory elements the Potato stands. It does not contain more than a fifth of the nutritive matter of Oats, a tenth of Wheat, and a fifteenth of Peas, whilst its carbonaceous or respiratory elements are not more than one half of those seeds. It will be found, then, that although Potatoes are cheap, yet in as far as they serve the purpose of food they are really as dear as any other article on the list. If Potatoes are a penny a pound and bread two-pence halfpenny, which is about the price they are in London just now, bread containing 10 times the quantity of nitrogenous matter, and twice the quantity of carbonaceous matter, is the cheaper article of diet. Bread, then, under such circumstances, may be successfully substituted for Potatoes. But there are other articles on this list cheaper than Wheat and its flour. Peas may be obtained at 6*s.* a bushel, half as cheap as Wheat, and contain 15 times the quantity of nutritious matter found in Potatoes. A pound of Peas at 1*d.*, and a pound of Tapioca at 4*d.*, would contain as much alimentary matter as 15 lbs. of Potatoes.

The flesh of animals is composed chiefly of protein (fibrine), and is consequently more nutritious than vegetable food. It needs, however, carbonaceous matter with it, and this is the reason that Potatoes, and other vegetables containing starch, are so frequently eaten with it. The Tables in the *Athenæum*, in the review of an absurd book recommending a vegetable diet, referred to by "Veritas," in the *Gardeners' Chronicle* of November 22, are not now to be relied on, as they contain no distinction between carbonaceous and nitrogenous principles, and are in many points evidently incorrect. With regard to the use of blood as food, there can be no doubt of its being available for this purpose. It contains about 10 per cent. of protein, which, by proper cooking, may be made as available to the system as any other kind of food.

In the above Table there are one or two substances omitted, which might be used as food. Maize has a composition closely resembling Oats and Barley. It contains more oil than either; and thus, in proportion to its protein, more carbonaceous or combustible matter than either of those grains. It is the food of a large class of the community in America, although they prefer feeding pigs on it, and thus obtaining its protein and oil second-hand, in the form of pork. It may be obtained in London at about two-thirds of the price of Wheat. Rice is another grain used as food. It contains only two per cent. of protein, and in this respect is not more nutritious than the Potato itself. It could only be the food of an indolent people, unless it was eaten in the quantities that Potatoes are in Ireland. It would, in this way, be a very expensive substitute for the Potato.

There is a class of foods which are not often eaten in this country on account of their presumed indigestibility, which, however, when cooked properly, are not exposed to this objection, viz., Nuts which might be eaten. All the forms of Nuts, as the Walnut, Chestnut, Cocoa Nut, &c., contain large quantities of oil and also starch, and protein. On account of their price, there is but one of these which could be used extensively in this country, and that is the Cocoa Nut. This Nut is the entire support of the inhabitants of many countries where it grows. It may be purchased in Ceylon at the rate of 12*s.* per 1000. The cost of carriage could not be much, and they might, therefore, become a cheap article of diet. The average amount of meat in the Nut is about 10 ounces, but we have no accurate analysis of its composition, so as to be able to compare it with Potatoes or other foods. We have recently heard of a gentleman in England who has lived on these Nuts for a twelvemonth, and who finds himself in stronger and better health than ever he was in his life. This proves that such things might be eaten with safety, was there need.

Amongst the carbonaceous and nitrogenous substances used as food, there are two, *gum* and *gelatine*, which resemble the others in composition, the first belonging to the carbonaceous and the last to the nitrogenous class, but which either do not enter the blood at all, or when there do neither serve to keep up the animal heat nor to build up the fabric of the body; gummy and gelatinous substances, therefore, cannot become substitutes for the other forms of carbonaceous and nitrogenous matter. Gelatine is found abundantly in the growing parts of animals, in the skin, in the bones, and cartilages; and these parts of animals are used for making soups, jellies, &c. It should, however, be remembered that although gelatine contains nitrogen, it does not contain protein, and it is questionable as to whether it can in any way be used as a nutritious agent. The experiments of the French Commission satisfactorily proved this. Dr. Buckland is therefore wrong when he states that bread made with powdered bones, which contain gelatine, is more nutritious than before; nor is bone-broth so nutritious as it has been sometimes regarded.—*L. E.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1844 and 1845.

	1844.			1845.	
October.....	12	60*s.* to 80*s.*	October	11	60*s.* to 100*s.*
	19	50 70		18	60 100
	26	50 70		25	70 130
November .	2	50 70	November..	1	70 130
	9	50 70		8	70 130
	16	50 55		15	70 130
	23	50 55		22	70 130
	30	50 70		29	80 140
December...	7	50 70	December...	6	80 160
	14	50 70		13	80 160

Also at the waterside, *Southwark*.

	1844.			1845.	
October 28		45*s.* to 70*s.*	October.....20		50*s.* to 100*s.*
November..	4	45 70	November..	3	50 100
	11	45 70		10	50 100
	18	45 70		17	45 80*
	25	45 70		24	50 120
December..	2	50 70	December..	1	50 120
	9	50 70		8	50 120

Nearly all bad, and many sold at nominal prices.

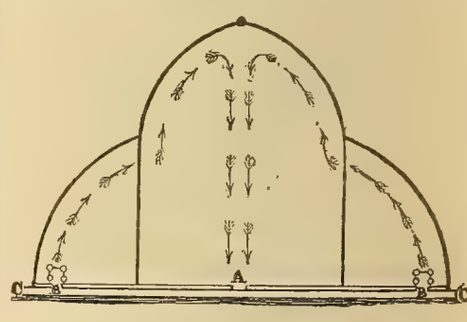
HEATING AND VENTILATING.

[FOURTH NOTICE.]

There can be no question that we are as yet totally unacquainted with the effects which may be produced upon vegetation by the adoption of a more comprehensive and complete system of ventilation than has hitherto been considered necessary. Dr. Lindley, and other writers on vegetable physiology and pathology, have attributed much to the effects which an atmosphere kept in constant motion has on plants cultivated under glass. That benefit to some extent does result from keeping the air of the house in motion will not be disputed by those who have reflected at all on this subject. Hence the importance of further inquiry into the matter. Anything, in fact, which throws the least ray of light on the better cultivation of plants under glass deserves and demands our attention and investigation, although it must be admitted that we have few data to guide us in the inquiry; at least nothing conclusive as to the actual amount of benefit resulting to plants cultivated under such circumstances.

In hothouses of large dimensions, the difficulty has always been how to produce something approaching a natural atmosphere. A bad arrangement of the heating apparatus, and incomplete ventilation, have marred this desirable object.

Any system, therefore, of ventilation, that can be devised, calculated to avert or modify such misfortunes must, I apprehend, be acceptable to every one interested in gardening. Practically, we have always found plants thrive much more luxuriantly in small than in large houses, and with much less trouble. The interchange of atmosphere constantly going on, and the motion in which it is continually kept, from being thus circumstanced, is a tolerably clear proof of the immediate cause of the healthiness of plants in such houses; and there is one other reason also equally clear, that the inequality of temperature in such buildings is manifestly inconsiderable, compared with buildings of large dimensions. In houses constructed like that which the accompanying woodcut represents, the pipes are usually carried immediately round the inside of the front wall. The heat, therefore, passes up under the glass until it reaches the highest part of the building, that part generally being intolerably hot. The great body of air in the centre of the house remains stationary, and does not participate in the heat thus given off from the pipes to the extent intended or supposed. This is accounted for by the greater density of the air; and from this fact also it is likely to remain stationary, because the means usually employed to heat or cool the house cannot, from the arrangement in most cases adopted, drive it from its position. Nothing can be more certain than that plants in such buildings, where the heating and cooling powers are so applied, must suffer considerably. Now, the point we have arrived at is to change the position of the cold air, constantly and rapidly, either by the admission of external air in hot weather, or by some other contrivances, so as to mingle with promptitude and certainty the cold and hot air within the building. This can certainly be accomplished, because of the unequal gravity of the inclosed atmosphere in different parts of the house, provided means are introduced by which one of the simplest laws of nature will come into full and active operation.



In the annexed woodcut, the coldest part of the house is at A, and, of course, the air is heaviest at that place. A drain, therefore, communicating with B B, would at once set the atmosphere in motion in the direction indicated by the arrows, provided an artificial temperature was kept up by means of the heating apparatus. During summer, when artificial heat is unnecessary, I would open valves having communications to them from those air-tunnels at C C, to admit the external air, which would invert the direction of the current, as is now shown. An impulse would thus be given, not only in winter, but in summer also, by the colder air to the hotter, thus keeping the atmosphere constantly excited and in motion, besides equalising the temperature throughout the entire building. To attain satisfactorily these two most important points in the construction and heating of large buildings designed exclusively for the culture of plants, is indeed very desirable; that is, to equalise the temperature, or render it more uniform over a large building, and at the same time, by thus intermingling the cold and hot air, to keep it always in motion. This subject is deserving of further discussion, for there cannot be a doubt that much of the successful issue of these large buildings depends upon the right application of the principles involved in the present communication.—*R. Glendinning.*

THE AMATEUR GARDENER.

Nor does he govern only or direct,
But much performs himself. No works, indeed,
That ask robust, tough sinews, bred to toil,
Servile employ; but such as may amuse,
Not tire, demanding rather skill than force.
COWPER, *The Garden.*

GARDENING, in all its branches, demands the exercise of an active industry, and as much self-denial as an industrious habit will be willing to practice. By self-denial, I mean that which is deemed such by the luxurious or the slothful, and by the very large class of persons who have an abhorrence of labour. To those who exercise it, it becomes a source of a high degree of pleasure; so much gratification, indeed, is afforded by the toils of gardening, that we have long entertained a conviction that corporeal labour is a natural provision for man's happiness. When intellectual pursuits alone are followed, or when life is spent in a round of easy and fashionable employments, it will be found that a healthy state is rarely maintained. But field sports and husbandry, and gardening, seem necessary to those who have not to labour for a subsistence, and are admirable preventives of sickness, and set *ennui*, and dyspepsia, and hypochondriasis, at defiance.

I have heard of some devotees of Flora, who have taken the blankets off their beds to preserve their favourites from the destructive influence of some unexpected frost. We generally laugh at such conduct, and call it enthusiasm or folly; and most persons would be unwilling to get up in the night to protect a collection of flowers. But, happily, ridicule is not the test of truth, and I am of opinion that the amateur who would occasionally deny himself sleep or a blanket, rather than lose a choice flower, has reason on his side. Let us see who those are who would jeer at such a course, and it will be easy to employ against them, with success, the *argumentum ad hominem.* One of them may be a lover of hunting, and he would not refuse to pass a sleepless night to save the life of a sick horse; another may be a prosperous man of business, who would turn night into day to execute a profitable order. Things become valuable, because skill, and time, and labour, are expended on them, and money is only the exponent of that expenditure; if, therefore, a florist has devoted his energies to some plants during the summer and autumn, they have a money value to him, if not to others, and he is as reasonable in making sacrifices to preserve the product of his toil as any other man. I have mentioned an extreme case to illustrate my principle, that labour and self-denial are demanded in floriculture. In the cold evenings of winter, the greenhouse, the frames, or the window plants, must not be forgotten. If you have love enough for your pursuit to leave a cheerful fire in the evening, and throw down your cigar, to cover up that which you know will require protection before morning, you have then the right degree of enthusiasm, and may be admitted to a fellowship in the Royal Society of Philosophic Gardeners.

How often have I been vexed and ashamed of myself when a love of ease has led me to give up to the chances of a bright starry night in the winter, some pots of flowers which have only been placed in the open air to catch the influences of a day unusually mild. Indolence has suggested, "It will not freeze;" and the pots have been left till the morning. Then the penalty is paid for sloth, when a collection of Chrysanthemums, for instance, which have been attended to daily for six months, hang their beautiful heads in hopeless prostration! Whole greenhouses have sometimes been given up in this way to the blasting of the frosty king. The night being mild, no fire has been kindled. Towards morning there has come a nipping frost, and glazed every leaf and succulent branch in the house, and the only chance of safety has been in securing a gradual thaw, by matting up all the windows. The amateur has seen the fantastic figures of the frost upon his bedroom windows and known the position of his plants, but sleep has been too attractive for him. He flatters himself there will be time to prevent the mischief if he rise at the ordinary hour; but Phœbus gets the start of him, and pouring his golden rays upon the frozen leaves, irrevocably destroys them. In such cases we should ask ourselves which sacrifice is the greatest, that of self-denial, as it is called, which exhibits itself in a temporary disregard of ease and comfort, or that of self-reproach, which visits us as we look upon the permanent consequences of our negleet!

I have referred to what the devoted gardener must sometimes do, if he has not professional servants to do it for him; but such labours are only occasional, and may be often rendered unnecessary by forethought. The ordinary and every-day toil will be its own reward, and at length will become almost necessary to happiness. Even the winter season presents attractions to the true lover of gardening. A novice will find it shivering work at first, to go out on a dull, cold, November day, to look over the pots in frames, or to plant a new Strawberry bed. But let him persevere. Defend your feet with good waterproof coverings, and put on a stout gardening overall, and commence operations courageously. You will soon forget the cold; your cheeks will glow; your eyes and ears will open to a hundred sights and sounds which the denizen of the house knows not the existence of.

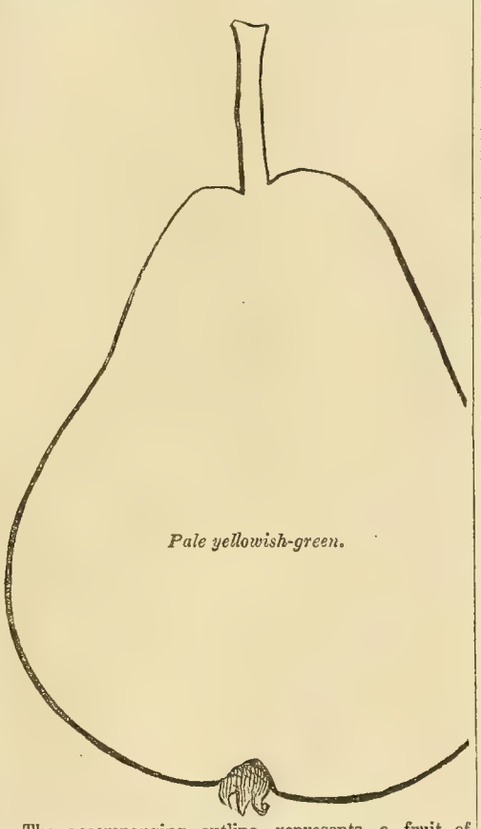
"No noise is here, or none that hinders thought.
The redbreast warbles still, but is content
With slender notes, and more than half suppress'd:
Pleased with his solitude, and flitting light
From spray to spray, where'er he rests he shakes
From many a twig the pendent drops of ice,
That tinkle in the withered leaves below.
Stillness, accompanied with sounds so soft,
Charms more than silence."—*Cowper.*

Away will fly all melancholy thoughts, and the season which some poets have spoken of as the funeral time of the year will develope an infinitude of nameless charms. From such healthful pursuits we return to the social circle with enhanced delight. We detail to the "gude wife," and to the "expectant wee things," the labours we have accomplished, and feel that the primitive curse has, by a kind providence, been turned to a blessing. Nor should the fair sex scorn such occupations, whenever the weather allows them to go forth. Let them see that their favourite tender Roses are defended from the coming winter; that plants of Thyme and Sage are provided with some temporary shelter against the blasts of the east, and in other ways either garden themselves or direct their gardeners, and if their cheeks do not mantle with a rosy hue I shall be sadly mistaken.

NAPOLEON PEAR.

Synonymes.—Médaille, Beurré Napoléon, Wurtemburg, Roi de Rome, Napoleon's Butterbirne, Sucré Doré, and Charles d'Autriche (of some). Captif de St. Hélene.

This, the most succulent of all known varieties, was raised in 1808, by M. Liart, a vintner at Mons, who obtained, in consequence, a gold medal from the Pomological Society of Hennegau. Even after the last synonyme above enumerated became applicable, this Pear still retained the name of Médaille in some of the continental collections. The name it now bears was slowly adopted by those who suffered from their country having been made the battle-field of Europe, when in many instances the finest collections in Belgium were swept away or thrown into confusion by the Pioneers. The original tree of the variety in question was purchased at a high price by the Abbé Duquesne; and to him, according to Dittrich of Saxe-Gotha, it owes its memorable name of Napoléon.



Pale yellowish-green.

The accompanying outline represents a fruit of medium size. The skin is smooth, green when first gathered, gradually changing to pale yellowish green as it approaches maturity. The flesh is whitish, somewhat granular, but so exceedingly juicy that it cannot be cut without flowing. In using the fruit, a combination of the processes of eating and drinking must take place. Dr. Diel says that it is of "solchen saftfülle, dass man die frucht zu trinken glaubt." It is exceedingly rich and refreshing when obtained in perfection; but otherwise it is too watery. Usually ripens in November and December. It has a tendency to give way at the core, and must, therefore, be watched. The tree is vigorous, shoots olive green, with numerous distinct pale brown spots; buds prominent. Leaves broad, ovate, widely but not deeply serrated. Flowers remarkably large, with broad obovate petals, late in expanding. This ought to be in every good collection; and it rests with the cultivator to endeavour to render its most copious juice of that rich saccharine nature which it is known to possess when in perfection. It is best from a standard; and soil not over rich is of course preferable as regards flavour.—*R. T.*

THE CIRCULATION OF SAP.

A NEW theory having been proposed, at pp. 543, 560, by Mr. J. M. Goodiffe, of Granard, to account for the manner in which plants derive their nutriment; and attention having been invited to this theory, I take the liberty of making a few observations upon it. It is certainly praiseworthy in the highest degree, when a man thinks that his brethren are misled by a false doctrine, to set them right, if possible; yet, while I freely thank Mr. G. for his good intentions, I, at the same time, beg to differ from him in the opinions he has advanced, and I think he has not shown cause why we should abandon the theory of circulation. The conclusions derived from his premises are—"That plants absorb (essentially) water only from the soil by their roots, which is carried up the plant through its cellular tissue; that this water evaporates principally at the leaves, and that this evaporation is the cause of its ascent, the parenchyma remaining necessarily always saturated with water; that the other constituent parts of plants are conveyed to them in an aeriform state through the stoma into the vessels in a constant current, with a velocity and in quantity proportional to the demand and supply, and stimulating causes; that these gases are supplied by the air, but principally by a stream arising from the earth, of decomposing matters contained in it. That these gases, with the water contained in the parenchyma, and with heat, light, and electricity, act upon each other, and form the various matters found in plants; and that thus a return of the sap, in the general acceptation of the term, is not necessary, and does not take place." Mr. G. supposes that the notion of circulation in plants first took its rise in the fondness of the age for analogy, and to this cause he attributes the many errors which have attended the progress of botanical knowledge. I agree with him that we ought not to be led away, by lame analogies, from the true path of science; but after all, it cannot be denied that, considered in the abstract, there is a considerable degree of analogy in the functions performed by the principal organs in both kingdoms. We should not forget that it was this process of reasoning which first induced the late Mr. Knight to institute his experiments in hybridising plants; and the glorious results are too well known and appreciated by every lover of horticulture, to need any remarks here. It will be sufficient to state that, observing how the breeders of stock improve them by crossing, he instituted his experiments on plants; the result of which has bestowed upon us some of the most splendid flowers of which our gardens can boast, and conferred on man the important power of modifying the works of Nature, and making them subservient to his purposes.

I think the principal error into which Mr. G. has fallen in his theory of circulation, lies in considering a plant to be a mere mechanical structure, the movements of which originate in light, heat, electricity, and other external agents; whereas these agents only assist in developing the vital principle. Dutrochet has clearly shown, by experiments, that the visible motions of plants are owing to an internal vital cause, brought into action by external agents, but not originating with those agents. It is the possession of this vital principle which enables plants to resist chemical action, to overcome the force of gravity, and, finally, it is the cause of all the changes which are constantly taking place in the vegetable system.

However painful and humiliating it may be to the proud philosopher to find that there are countless pages in Nature's book which he is not permitted to open—to feel the truth of the divine words, "Thus far shalt thou go, and no further," yet it is surely better to refer things at once to their proper source, and acknowledge our ignorance, than distract ourselves by false and shallow speculations. I am therefore of opinion with Du Petit Thouars, that the circulation of the sap is an inherent power derived from nature; and I have some slight notion that this is, after all, a more rational view to take of it than by referring it to purely mechanical means, such as condensation by heat, contraction of the cells, hygrometrical property of the silver grain, capillarity of the sap vessels, or, lastly, to evaporation, as Mr. G. supposes. With all these theories, excepting the last, I have nothing to do; they have been long since exploded; but Mr. G. says that evaporation by the leaves is the cause of the sap ascending; that it is as purely a mechanical action as a piece of linen hung out to dry. I think if such were the case, the absorption by the roots should always equal the evaporation from the leaves; yet we find that in sunshine, or very intense light, absorption is not equal to the evaporation; and if a plant, after losing weight in the light, be placed in a dark room or in the shade, then evaporation by the leaves will not keep pace with absorption by the roots, and the plant will become charged with fluid, consequently these two phænomena are not dependent on each other.

Mr. G. says that the circulation of the sap is explained by some experiments of Darwin, Knight, and others, when plants have taken up coloured infusions, and after those infusions have reached the leaves, a pale milky fluid is seen in vessels on the lower side of the leaves; and he asks, "What proof is there that these two fluids are identical? or, What proof have we of connexion between the vessels of the upper and lower side of the leaf, granting that such vessels exist?" I answer, that in our present imperfect state of botanical knowledge, there are many things yet undiscovered; and I am quite ready to admit, with Mr. G., "that physiological phænomena prove the existence of these vessels, but anatomical observation has not at all observed them;" but I do not at all agree with him that the only evidence for the existence of these vessels rests on the circulation of the sap, and that the circulation of the sap depends on the existence of these vessels; both these phænomena can be proved independent of each other. It would, indeed, be arguing in a vicious circle, as Mr. G. contends, if we reasoned thus: "A circulation of sap takes place, therefore there

must be vessels to convey it; and as there are vessels in plants, therefore a circulation takes place." But although we cannot prove the existence of phenomena as we would prove a proposition of Euclid, yet we may prove it by induction. If, for instance, Botanical physiologists having injected a colouring matter into plants, which they trace to their leaves on the upper side, and that, immediately after, a sensible addition takes place in colour or quantity to the cells at the under side, it is but reasonable to suppose that this addition has taken place by the matter elaborated in the upper side of the leaf, and transferred either through vessels, or by the cells possessing some permeable qualities which we are not able to discover. I may remark, however, that the fluid has been observed descending in its unaltered state, for De la Baisse caused a Euphorbia to pump up water coloured red; the fluid ascended in the wood, reached the leaves, tinged the latex, and spread from above downwards in the bark; and Schultz, of Berlin, succeeded on two occasions in repeating this experiment with the same result. Indeed, it is highly probable that, if the colouring fluid could be rendered free from objectionable matter, there would be no difficulty in attaining the same results. As a further proof of the circulation of the sap, I may adduce the testimony of Bertholet, who relates that the people of the Canary Islands tear off the bark of the poisonous Euphorbia Canariensis, and suck the limpid sap of the alburnum, which, in its ascent upwards, acquires none of the poisonous properties of the plant, but is in much the same state as when it entered the roots; whilst the descending sap of the bark, after it is elaborated in the leaves, is deadly poisonous.

To prove that certain vessels are destined for the conveyance of sap, I need only refer to Lindley's "Introduction to Botany" (a work, by the way, which I would recommend every young gardener to possess). The learned author (in the third edition, p. 298), treating of pitted tissue, thus writes:—

"Articulated Bothrenchyma, when it is collected together into hollow cylinders, serves for the rapid transmission of fluids in the direction of the stem; and it is well worth notice that the sides of the tubes of articulated Bothrenchyma, and their abundance, are usually in proportion to the length to which the fluid has to be conveyed. Thus, in the Vine, Phytocrene, the Cane, and such like plants, the pitted tissue is unusually large and abundant; in ordinary trees much less so; and, in herbaceous plants, it hardly exists." In the same page, treating of Pleurenchyma (woody tissue), the author thus writes: "That it is intended for the conveyance of fluids in particular channels seems to be proved; 1st, from its constituting the principal part of all wood, particularly of that which is formed in stems, the last in each year, and in which fluid first ascends in the ensuing season; 2d, from its presence in the veins of leaves where a rapid circulation is known to take place, forming in those plants the adducent and reducent channels of the sap; and 3dly, from its passing downwards from the leaves into the bark, thus forming a passage through which the peculiar secretions, may, when elaborated, arrive at the stations where they are finally to be deposited. Knight is clearly of opinion that it conveys fluid upwards or downwards, in which I fully agree with him; the power of cuttings to grow, when inverted, seems indeed a conclusive proof of this."

With the testimony of those eminent men before me, both as to the circulation of the sap and the existence of the vessels by which it is conveyed, I cannot think I am acting rashly in abiding by their views, at least until I see their experiments disproved by counter-experiments conducted with equal care and ability. I have refrained from alluding to special circulation or cyclosis which certainly cannot be explained on any known principle, but must be referred to the vital force; and I think any person reading the article on "Rotation," in page 391, of "The Introduction to Botany," and that on "Cyclosis" (page 393) will be convinced of the circulation of sap, unless, indeed, he be extremely sceptical.

I shall now proceed to examine the second part of Mr. G.'s theory. "That water alone is essentially taken up by the roots, and that, therefore the ascending sap contains no vegetable principles to be elaborated by the leaves." Mr. G. says that this hypothesis, namely, "that plants feed on unvegetised water, and that the carbon and nitrogen found in their system is derived from the atmosphere," is favoured by the researches of eminent chemists, but we know, from experience, that these "eminent chemists" sometimes play curious pranks "before high Heaven," which should make us cautious in relying on their testimony, especially when opposed to experience. We heard a great stir some time ago about the necessity of fixing ammonia, and the worse than useless practice of allowing manure to lie on the surface of the ground. This theory took its origin from Liebig, the father of "eminent chemists;" and, in a subsequent publication, he is of opinion that plants derive their nitrogen and carbon from the atmosphere. "Who shall decide when doctors disagree?" is an old adage, and I should be very loth to give an opinion at all on the subject, but that it is one which is capable of being proved by direct experiments. That Liebig is in error in the latter opinion must appear very evident to any person taking up the *Agricultural Gazette* of July 26th, and at p. 517, perusing a very able article by Mr. Bree, of Stowmarket, where that gentleman shows, in a very clear and convincing manner, that the question does not rest upon the testimony of chemists; and he further shows, by a series of experiments instituted by Mr. Lawes, and published in the Number for June 14, that plants take up nitrogen and carbon by their roots.

Mr. G. says, "I do not deny that the roots of plants may take up vegetable principles in a state of solution in water which may be incidentally offered to them, because they have no power of refusal, but I believe they are rarely offered to them and that they are not essential." Let me observe that there is a slight error here. That plants do not possess any power of selection seems extremely probable, judging from the facility with which they may be poisoned; yet it has been clearly shown by Daubeny that plants have, to a certain extent, the power of selecting their food by the roots. He found that when Barley was watered with distilled water, containing in every two gallons 2 oz. of nitrate of strontian, not a trace of that earth could be found in the ashes of the plants; and the same result was obtained with other plants treated in the same manner. "Hence it appears that plants do possess, to a certain extent at least, the power of selection by their roots, and that the earthy constituents which form the basis of their solid parts are determined as to quality by some primary law of nature, although their amount may depend more or less on the abundant supply of the principles presented to them from without." (Linn. Trans., vol. 17, p. 266.)

Mr. G. says that vegetable principles are not essential, and that the more we dig and manure the more the roots descend into the crude subsoil; but I consider they descend because they have deprived the soil of the matter necessary for their development, as in the case of corn, which requires a certain proportion of alkaline matter in the earth to render the silex necessary for their development quite soluble; and, of course, the roots having exhausted the soil around them, are continually going deeper in search of a further supply. It is certain that plants will not thrive where plants of the same species had previously grown; as for example, a young Apple orchard cannot be made to succeed where an old one previously existed; and why? because their roots have robbed the earth of certain principles which are necessary for the health of the young plants. No gardener thinks of planting Strawberries where a plantation had previously existed; but if their roots derived no nourishment from the soil, then, if Mr. G.'s theory be correct, he would only have to lay some manure on the surface, and a stream of gases arising from thence would be all-sufficient to give vigour and health to his plants. Why do we practise a rotation of cropping? Because when the wide-spreading roots have exhausted the soil in their vicinity, we then crop with tap-rooted plants, which penetrate where the wide-spreading roots could not, or did not; but when they, in their turn, have robbed the soil of its nutritive properties, we add manure, the component parts of which being soluble in water, are taken up into the system of vegetables to increase and perfect their organisation. This is surely a more rational theory than Mr. G.'s top-dressing, and however he may have "astonished the natives," by his crops of Celery and Cabbages, I am pretty certain that their astonishment would be much increased if they saw the Celery produced around Manchester by the application of plenty of good rotten muck to their roots; and I fancy it would not be easy to persuade a market gardener of Fulham or Battersea that to ensure success it was not at all necessary to manure the soil, manuring the plant being a much better method.

If plants derive their nourishment exclusively from the atmosphere, then it is quite foolish for gardeners to manure their Vine-borders, as in this case the leaves being under glass, cannot receive the influence of those gases of which Mr. G. speaks; yet we know that a judicious application of manure to a Vine-border is attended with the most beneficial results. Mr. G. fancies that he can perceive a beautiful example of the economy of nature in the manner in which the gases are caught by the stomata, and he exclaims with admiration, "How constant, how regular the supply!" But I view the subject in a very different light from him, and I, too, can perceive the beautiful manner in which Nature has disposed these pores, in enabling the plant to part with superfluous moisture, in allowing the entrance of atmospheric moisture when the tissue of the leaf is dried up; by their position on the under side in greater numbers, to prevent the too rapid evaporation which would infallibly take place if exposed directly to the sun's rays; and finally ceasing to exist in submersed leaves, where no variation can take place in the medium in which they are placed. Filled with admiration at this beautiful adaptation of means to the end, may I not exclaim

> "These are thy glorious works,
> Parent of good."

I have thus far, in a fair and candid spirit, stated my reasons for rejecting Mr. Goodiffe's theory; I may not have answered all his positions, but I have endeavoured to answer the principal ones, and any one may understand that an objection which takes up but a line, may take a page to answer it.

In conclusion, the principles deducible from what I have stated may be thus set down: That nitrogen and carbonic acid gases are taken up into the vegetable structure in a state of solution in water; that this fluid is absorbed by the roots, and ascends principally through the wood of the tree; that it is conveyed upwards by the cells and intercellular passages in part, but principally by vessels or tubes, provided for that purpose; that having reached the leaf in its crude and undigested state, it is there exposed to the influence of atmospheric action; that having parted with its superfluous water by evaporation, and decomposed carbonic acid, it is then sent downwards by the bark, and from thence distributed by means of the medullary rays, to every portion of the plant where its presence is necessary.—*James Whitaker, Lake House, Cheltenham.*

Home Correspondence.

Frosting of Asparagus—The best treatment, in my opinion, is to cut down the tops to 9 or 12 inches above the ground, and to fork over the beds in November, or now, between the rows, and to lay the crowns bare for the frost to act upon by turning the soil into the walks, there to remain during winter. As soon as the frost breaks up return the soil out of the walks to the beds, which will be good and rich, then fill up the walks only with good manure and dig it into them to be in readiness for another year, and it will cause the outside rows to push the shoots a week or two before the centre of the bed, and it makes a succession. The frost will not injure the roots of either Asparagus or Rhubarb, it invigorates and makes them grow stronger; my stalks are from seven to nine feet in height, more like young Larch firs than Asparagus. In returning my soil from the walks this spring I added salt sand from the beach and mixed it up with the fine pulverised soil before returning it to the beds, this next spring I intend only to return the soil and manure to the beds, and when I have done cutting, I shall apply next summer 1 cwt. of salt to each bed, and then fork it over between the rows; my beds are 12 yards long and 1½ wide.—*Wm. Coulam, Louth, Lincolnshire*

How to preserve Rhubarb.—My method is to take a quart bottle with a wide neck, and to cut the stalks small enough to go into the bottle; I add brayed loaf sugar and tie a piece of bladder tight round the neck, I put as much water into the copper as will immerse the bottles, get the copper to boil just over the bladder, then rake out the fire, and let the bottles remain in till cooled, I then take them out, place them on a dry shelf, and use the bottle at once.—*W. C.*

Landscape Gardening.—Your remarks in regard to the planting &c. of parks, are quite true. But who are landscape gardeners: we hear a great deal about young gardeners learning the use of the rule and compass, and so far so good. But nature is not guided by either, let the young gardener lay aside these, for they are useless in imitating Nature, and taking his paper or canvas, with colours, and pencils, &c., let him try to imitate Nature with these. But it may be said those belong to the fine arts; and so does landscape gardening. Every gardener, and landscape gardener in particular, ought to cultivate the fine arts. It will be both a pleasure and a profit to them, and an improvement in landscape gardening will follow.—*J. W.*

Benthamia fragifera.—It is stated, in the last report of the meeting of the Horticultural Society, respecting this shrub, "that though it will grow out of doors, yet that it required the aid of a greenhouse to grow it to anything like perfection." As I was the first who grew it in this country, I feel anxious that this should not be stated without qualification. It grows and flowers and fruits abundantly at many places in this county; and this year does not seem to have been affected by the severe weather of last March, when, on one or two nights, the thermometer stood at 15° at this place, and at 16° at Sir Charles Lemon's. It is true that we escaped the severe trial of February, when the thermometer stood below zero at Chiswick; for, on the severest of those nights, it did not fall here below 29°. I think I have heard that the Benthamia grows in the open air, at Belsay Castle, in Northumberland. My impression is, that, if it has shelter from wind and has a favourable situation, it will flourish in many counties of England; on the contrary, in the draught of a cold valley, I know, by experience, it will not flourish in the western part of Devonshire. The parent plant here, which has grown from seed sent from Nepaul, is now 21 or 22 feet in height, and 20 inches in circumference at 3 feet from the ground, and 18 ins. at 6 feet.—*J. H. Tremayne, Heligan.*

Mr. Fleming's System of Vine-pruning.—My practice has hitherto been to pinch out all the eyes, except two at the base of each summer's shoot, as soon as they appear, and to cut off the shoot close to the first eye. But having been induced to try Mr. Fleming's plan of pruning (described at p. 115), I have found the result all I could desire, and more than I could expect; so much so that I intend practising his system upon all my Vines, as well as upon weak and newly planted trees. I find by correct measurement that the disbudded shoots decrease in circumference ⅔ of an inch at least. It was when the Grapes began to colour that I first observed that the shoots grew smaller, and they continued to decrease till the fruit was ripe, which was in June. This being the case, allow me to inquire how the shoots did become smaller, unless by a return of the sap.—*John Toy, Portnall Park, Virginia Water.*

Glass.—An article in your Paper of Nov. 27, (page 802,) signed A., Walton, is a misstatement I feel it necessary to contradict. S. I. Arnold, Esq., of Walton-upon-Thames, says, that in consequence of a *great* smash, he obtained a sample of glass from me, which he found equal in all respects to foreign except in colour; he then makes a flourish about his national feeling, inducing him to give the order (it amounted to 16*s.*) to a native, and regrets his folly for trusting to me. My reply is this, I issue samples of all sorts daily, in some cases not knowing to whom; and when this order came (without a sample enclosed), I concluded from the smallness of the size that crown was required, and I

sent it. I shortly afterwards received a most uncivil letter, and judging I had to do with some ill-tempered or litigious person, I wrote to say if he was not pleased I would take the glass back,—what fairer proposal could a tradesman make?—*Robt. Cogan*, 48, *Leicester-square*. [We have inserted this letter in justice to Mr. Cogan, but with some curtailment.]

Ornithology (see p. 785).—I met lately a person who was obliged to destroy a magpie which incessantly annoyed people in the drawing-room by pecking and throwing itself against a window in a small ante room, of which, being rather dark, the panes on the outside resembled a looking-glass. It being the breeding season this bird was supposed to have lost its mate; on recollection I think it generally came early in the morning, and not while people were about.—*M. R.*

Quercus sessiliflora.—I was not conscious before I read the communication of Mr. T. H. Cooper, in your last Number, that a continuation of the discussion in the shape of a reply to "An Old Forester," would have been acceptable to any party. I now resume, however, in warm hopes that Mr. Cooper's good example may make the conversation become more general. It is surprising how little this subject seems attended to. After the general invitation issued four months since, three individuals alone have offered their opinions, one of whom has, it would appear, no personal acquaintance with the tree in question. Is this owing to the rarity of the tree—to the silence of bashful scepticism—or to a general ignorance of the existence of such a tree as the sessile-fruited Oak? Whatever be the truth of the two former conjectures, I do not believe that observers of a common degree of penetration can pass the tree without notice. I was induced in October to take a walk to Steepwood, in consequence of my friend, Mr. Hugh Clement, having told me there was an Oak unlike any other Oak he had ever seen. I found it was Quercus sessiliflora that had attracted his attention, which proves that in this case we do not find the unscientific observer misled by believing "*Omne simile est idem*." There are great numbers of these Oaks in that wood, many of them very fine indeed, and all of a more elevated structure than the common Oak. I am informed by C. Serace Dickins, Esq., that he has the tree at Coolhurst, his seat, Though apparently to the weakening of the cause I am advocating, I will venture to quote here a portion of a letter I have received on the subject from W. Stent, Esq., the owner of the wood on Lisgate Common, where the tree is so abundant. "I was aware a variety (species) of the Oak grew there, and that it was of more rapid growth than the common; but whether more durable for ship-building I believe is questionable. We have been accustomed to call it the Fir-oak, I believe, from its growing with a spiral leader like a Fir-tree." Possibly many of your readers know the tree by that name, though I confess I see no good reason for distinguishing it by such a name. I will leave inferences from so opposite an account to be drawn by those who possess greater practical knowledge of the subject than I possess. It is for them to settle this momentous question, and not for such as I who have not a timber-tree in the world to cut down, whether for experiment or for profit. Experiments should be instituted to ascertain with exactitude the specific gravity, tenacity, and durability of the wood, and then no doubt this ill-understood, and little known tree will stand in much higher estimation than at present. This discussion should be carried on further by more competent authorities than myself. We all know the propagative tendencies of error, and that one generation is misled by its forerunner, through an indolent propensity to honour with unquestioning faith those traditions which the test of experiment would certainly have exploded—erroneous traditions of which every writer is more or less guilty in proportion as he examines truth for himself. Without meaning to wound the feelings of our sylvan friend, I cannot refrain from telling him that I think him at least one propagator, whether of truth or of error, upon this faulty principle; otherwise, why should he attempt to overwhelm me with a heap of quotations, and not one fact attested by his own experience. "Omnia explorate, meliora retinete" ought to be a chief maxim with every real naturalist.—*F. A. Malleson, Pulborough, Petworth.*

Chapman's Prince of Wales' Plum.—This Plum was raised at Brentford End in 1830, and is a seedling from the Orleans, but is quite distinct from that variety. It is larger, of a different shape, being inclined to be oval, different in colour, which is a bright purplish pink, with much more bloom, and the flavour is much superior. The flesh is yellowish or pale amber, and parts from the stone. Unlike the Orleans it never cracks, and the shoots differ from those of that variety in being smooth, whereas in the Orleans they are downy. The leaves are broad, roundish, and easily distinguishable from those of any other Plum. The trees are of vigorous growth. Upon stocks planted in the spring of 1844, and budded in August following, are this year shoots upwards of 8 feet in height. The bloom is protected by the foliage in a most remarkable manner, and it has a peculiar habit of spurring all up the branches. We have had trees, three years old, covered with Plums as thickly as they could be placed, at 3 feet up the stem, and we have been obliged to fasten the branches up with stakes to prevent them breaking down. We find them to bear well on suckers from the mother plant.—*Chas. Chapman, for C. and T. Chapman, Brentford End.*

Cereus grandiflorus.—I have a plant of this which produced 22 flowers last summer, but never more than eight were expanded at one time. It is trained on the back of a succession Pine-stove, at the hottest end, and made shoots last summer 3 feet in length, which I expect will produce abundance of bloom. With regard to the preservation of the flowers, I can assure "Bluebell" (p. 785) that I have not only preserved them, but have taken them to exhibitions, and have been awarded prizes for them four days after they had been taken off the plant. My plan is as follows:—As soon as they are fully expanded I cut them off, and then with sealing wax seal up the wound at the bottom of the flower; I then procure as many jars as I have flowers, and sufficiently large to contain one without touching the petals; I take a piece of string and tie it round the end of the flower, and attach it to the knob on the top of the lid, turning the latter upside down, and suspending the flower within the jar, which I then remove to a cool place and fill with water to the brim. I cannot say how long the blooms would keep in this way, but I have taken them carefully out four days after they had been enclosed, and upon giving them a gentle shake or two they have appeared as fresh as when they were removed from the plant.—*J. Marshall, gr., Grove House, Shelton, Staffordshire Potteries.*

The Potato Disease.—In this period of doubt and uncertainty with regard to the origin and extent of the disease which has so extensively attacked the Potato plant, will you allow me to inquire if the growers of seedling Potatoes—that is, of new varieties raised from the seed—have had their crops attacked? If it shall appear that such young varieties have escaped, this fact will lend some countenance to the conclusion that it is owing to the exhaustion of the powers of the old and common kinds of Potato that the origin of the malady may be traced. It is certain, however, that in some portions of our island and on the Continent, the Potato has entirely escaped the visitation; and I have also received some curious and valuable reports of the preservation of extensive crops when dressed with particular manures, which, when confirmed by more careful examinations, shall form the subject of a future communication.—*Cuthbert W. Johnson*, 14, *Gray's Inn-square*. [A conclusive answer to this inquiry has already been given by ourselves at p. 768.]

Potato Sets.—Your suggestions in last week's Number respecting keeping the eyes of Potatoes in wood ashes, has been previously tried, and we have a considerable quantity stored in that manner, which, so far, is satisfactory. In some parts of North America a practice has been resorted to which might possibly be useful here. The eyes are cut off daily from the Potatoes as they are consumed by the family, and placed in dry wood ashes which have never been wet; and when a sufficient quantity have been collected, they are packed with dry wood ashes in a barrel, or other vessel, so that they should not press against each other. In this manner the eyes may be kept till the spring, and then planted.—*Thos. Davidson, Stackpole Court, Nov.* 8

Potato Disease not Caused by Moisture.—Dr. Bell Salter has stated, in a late Number, that he does not believe the past summer to have been so wet as has generally been supposed, and that the Potato disease can, therefore, scarcely be attributable to excess of moisture. An examination of the quantity of rain at Chiswick, during the summer of 1845, as recorded in the "Annals of Natural History," compared with the series of years from 1838, fully bear him out in this assertion; the quantity from May to September inclusive having really been below the average, and no one month having greatly exceeded it. The quantity of rain at Chiswick from May to September, 1845, inclusive, has been 11·12, the average of the last eight years being 11·20. The monthly accounts stand as follows:

	Average of last 8 years.	1845.
May	2·02	2·80
June	2·26	1·86
July	2·10	2·31
August	2·26	2·79
Sept.	2·52	1·77
	11·16	11·12

It will be observed that the average of the five months is slightly lower than 11·20, as stated before, in consequence of a little loss in taking the mean of each month. I have taken these five months as the only ones which can greatly affect the question.—*M. J. B., King's Cliffe.*

Autumn Planting Potatoes.—I promised to send you the result of Dr. Charles Trotter's experience with autumn planted Potatoes; last year he had the sixth of an acre planted in autumn, and had from it 60 bushels of large Potatoes, I say large, for they were all of a fine average size, with no small among them; while those planted in spring were very inferior samples, not half the quantity, and principally small. This is the third season that Mr. Trotter has planted in autumn and always with great success. The idea that first led Mr. T. to try the experiment was this, he found that strong soils in general could not be worked until very late in spring, in consequence of their retentiveness; whereas in autumn they could be got ready before they became wet, and then, also, the ground gets thoroughly pulverized by the winter frosts. All the farmers with whom I have had any talk on the subject, that is those that will only follow the old way that their grandfathers did, say, stop until a severe winter comes and the effects of autumn planting will be seen. Now I went over the field with Mr. Trotter in the end of February last, and many of the Potatoes had not more than 5 inches of soil as a covering, the manure being placed underneath them, and notwithstanding this the sets were found to be firm, sound, and good; they came up with great vigour, few only were diseased. I should say 10 per cent., although on a strong retentive soil. This is surely enough to convince those who follow the old system, that planting Potatoes in autumn is improving their practice. The greatest amount of frost last winter was 23°.—*G. Grey Watson*. [We presume the writer to mean 9° Fahr.]

Planting Potatoes.—I would be obliged by your opinion on the method I am now adopting in planting Potatoes. I am causing the "blind end" of the Potato to be cut off, keeping the end with the eyes for sets, which are carefully dusted with quick-lime, and then put on a loft for a week to dry. The sets when so prepared are planted 3 inches under long dung, and the dung is covered with about 8 inches of earth; the beds are two sods narrower than usual, and only three sets are put across the bed. Is there any fear of frost destroying the sets so treated? Is it safer to treat the Potatoes in this manner than to plant them whole? The sets were taken from the largest and best shaped Potatoes I could get. I cut off a portion of each Potato for two reasons; first, because I considered all the tubers this season surcharged with moisture; and, secondly, because the quicklime coming in contact with the cut part may possibly check any after tendency to disease.—*J. R. W., Cork.*

Greening Potatoes.—I wish I could confirm a correspondent's experience relative to the beneficial effects of greening Potatoes, but here the green ones have not kept so well as those not exposed. With me it has been a practice for some years past to lay such Potatoes as were not fit for table out to green daily as they are dug, and this year, at the time the disease made its appearance, I had several bushels so exposed, and perfectly green. Some of these Potatoes had been exposed two months, being the refuse of the frame forced ones, and had been severed from their parent stem long before the disease was heard of, so that those who assert that it commenced in the stem or haulm will see that it seized those which were stemless at the same time. The malady first made its appearance here on some Ash-leaved Kidneys, planted upon the "lazybed" fashion, the beds, however, being filled with the refuse of the garden and pleasure ground, with sufficient hot dung to excite fermentation; this rubbish was put in sufficient quantity to raise the beds considerably above the level of the surrounding soil, so that it was perfectly porous and dry, and the Potatoes were of the finest quality imaginable. Shortly afterwards it manifested itself on two other pieces of the same kind, one a piece well drained and trenched the autumn before planting, and the other a piece of ground newly taken in, well drained and deeply dug, but not trenched. On the latter piece of ground every Potato was rotten, and the other about one-half was lost, so that although they suffered the most in untrenched ground, where the water could not pass rapidly away, perfect drainage did not stop the disease. All these Potatoes were dug on the same day and laid out to dry and green, and though they were exposed for two months, and perfectly greened, the disease is still spreading in them. At the time these were dug, the end of July, a peck or so was found among them that had made young shoots and were perfectly sound; these Immediately planted with some of Chapman's Kidney for winter use, and though the latter produced a tolerable crop of sound tubers, very few of the Ash-leaved made their appearance above ground. I examined the sets to day, and find most of them sound, and intend as an experiment to take them up, and replant them deeper to see if they will produce a crop in the spring. Now, although I cannot say anything in favour of greening, as to its effect in stopping the disease, I may state that the process, in my opinion, renders the Potato set much more capable of enduring frost and cold. It may seem strange what I am about to state, but nevertheless it is a positive fact. After the severity of the last winter was over, indeed after the thermometer had been as low as zero, a friend brought me several Potatoes from a market garden on the Maize Hill, Greenwich, which were a part of a quantity that had lain fully exposed to the severity of the weather without being in any way injured, and placed them in the plant stove in some sand, and they grew vigorously, and I had intended to have preserved the stock, but unfortunately the garden woman, when she cleaned the house, considering them intruders, threw them out, and I lost my stock. This fact, will, I hope, give a little confidence to those who may be afraid of autumn planting, as I am quite sure there is nothing to be feared, more especially if the ground is well trenched, so as to allow the latent heat of the earth to rise to its surface. It would also be well, after the frost has mellowed the surface of the soil, to take a rake on a dry day and rake the ground perfectly smooth and fine. This will prevent the heated air from escaping, and we all know that confined air is an excellent non-conductor, and therefore, when properly managed, is a good protecting medium. It may be as well to remark, in connection with the frost-resisting powers of the greened Potatoes, that of a quantity of them placed in a basket and exposed to the weather, those on the top of the basket were sound, while most of the under ones (not greened) were much injured. So much for greened Potatoes. In addition to the preceding Potatoes, I had a quantity planted in a field on old pasture ground in a dry situation, and from which the turf or sward had been taken for repairing the lawns, &c. This ground being shallow and sandy, was repeatedly ploughed and harrowed until I got it into fine tilth, and upon it I planted the Ash-leaved Kidney,

Shaws, and Bratten's Kidney — an excellent late Potato. In this patch of about 1½ acre, the disease first made its appearance, in the driest and warmest corner of the Ash-leaved Kidney, and in a week the tops were lifeless. It then spread to the Shaws, and finally to the Brattens. On digging the Ash-leaved several weeks after the tops were dead, I found them diseased, but not so extensively as I expected. I had them collected without sorting, and laid in an outhouse in a layer about 18 inches or 2 feet thick. Here they remained and sweated for a month or more, my opinion being that if I allowed them to sweat, all that were infected would rot at once, and in this I was quite right, as on sorting them carefully not more than one sack in ten was found to be diseased, while the remainder were, and are as sound as could be desired. The Shaws were dug, sorted, and the best of them pitted, and nearly half of them rotted, while of the small ones sweated in a shed very few were lost, and the same may be said of the Brattens; so that so far as my experience extends, careful sweating and selecting afterwards is the best preventive for the spread of the disease. I have as fine a lot of seed of the preceding kinds as could be desired. All kinds of roots here are more or less affected; Onions, Turnips, Carrots, Parsnips, Beet, and Mangold Wurzel. Indeed, I have no doubt that the excessive cold which seized, as by paralysis, the Potato crop, also did considerable injury to all tender vegetation. It will be well if the injury should be confined to the present crop, but I am afraid the Irish Commissioners' suspicion that injury may be done to a succeeding crop if the ground is not limed and well prepared, is too well founded. Mr. Pawley, of the White Hart Hotel, Bromley, informs me that in a field of his, one-half of which was sown with Tares, and the other planted with Potatoes, and which were very much diseased, he finds, now that it has been sown with Rye, the plants on the Potato part very thin, weak, and sickly, while on the Tare part of the field the crop is as good as could be wished. This looks unpromising, and it would not only be interesting but useful to know how others who have sown it find the Potato ground where the disease was bad, likely to produce another crop. My ground sown with Turnips, to plough in or be folded off with sheep, is promising.—*W. P. Ayres, Brooklands Park, Blackheath.* [Experiments instituted for the express purpose of determining whether crops are injured by immediately following tainted Potatoes seem at present to prove that no danger is to be apprehended.]

Storing Potatoes.—In reply to Mr. Curr's inquiries (p. 808), as to the efficiency of turf or peat in preserving Potatoes, I imagine that that material is more to be depended upon than any of those chemical appliances about which so much has been written and so little known. The readers of the *Liverpool Mercury* may recollect a short article, inserted about a month since, on this subject. The statement is substantially correct, and I am convinced from experiment that the softer kind of turf, broken into pieces about the size of the Potatoes, and mixed with the same, bulk for bulk, will preserve them dry and sound during the severest frosts and rains; and this, with a very slight covering. I offer the following facts in proof:—The writer pitted a quantity of different kinds of Potatoes, obtained from seed, in October, 1844. These were put into large flower-pots, to keep them separate, intermixed with turf broken into small pieces: placed in a trench side by side, and covered over with two or three inches of soil. This covering, in the course of the winter, being partly washed off by the rains, or having crumbled down so as to expose the rims of the flower-pots, I had not the least idea of finding my seedlings uninjured, my object in using the turf being, as a non conductor to keep them cool, at the same time reckoning upon its absorbing any superfluous moisture that might arise in what is called the sweating. On removing the soil in February, in order to plant some bulbs, my surprise was great indeed to find all my pots not only safe and sound, but what may appear rather marvellous, considering the extreme severity of the season, although the Potatoes were perfectly dry, the peat was covered with hoar-frost, and numbers of centipedes, woodlice, and small slugs had found a safe shelter at the bottom of the pots. The sound and dry state of my seedlings, of which many persons were eye-witnesses, led me to adopt a kind of roofing with the same material, as a protection to their progeny, now increased to several bushels. About two months since these were placed in narrow rows and covered over. They were inspected this morning, and with the exception of two of the tubers that happened to lie above the apex of the roofing, all were sound. The antiseptic qualities of bog-water is generally admitted; and should Mr. C. have any doubts on this head, I could furnish him with a particular instance of its efficiency that might appear too improbable for public insertion, but which is equally well attested as the above. In conclusion I may mention that Mr. Tinsham, the manager of the Ravenhead Plate-Glass Works, near St. Helen's, informs me that he has managed to stop the progress of disease among his Potatoes, by leaving an opening at the bottom of the heaps, so as to cause an upward current of air. I suppose the channel must have been covered with hurdles or brushwood.—*A Correspondent.*

Storing Potatoes in Bean-dust.—As you are collecting facts which may bear upon the several questions connected with the failure of the Potato crop, I send you one. A labourer of this parish, observing that several of his Potatoes had sprouted, thought he would try to preserve them for seed; he carefully stored up 2 bushels in perfectly dry Bean-dust—the refuse that is left after threshing and removing the Bean-stalks. The moisture exhaled from the Potatoes so completely saturated the Bean-dust, that it heated and became charred! Some of the Potatoes were half roasted; and if the circumstance had remained unnoticed for a day or two longer, it is not impossible that his cottage might have been burnt down by the spontaneous ignition of the heating mass.—*J. S. Henslow, Hitcham.*

Potatoes from Seed.—(From the *Preussische Zeitung* of Oct. 19th, 1845). Made public by order of the Minister of the Interior.—The disease in Potatoes, which has this year appeared in many parts, has rendered it necessary to raise them from seed, but as the old method required several years to produce tubers of a sufficient size, it is little practised. Zander, Count Arnim's gardener, at Boitzenburg (in Mecklenburg), has succeeded in producing a good crop of Potatoes from seed the same year it was sown, and as large as those from sets, and those seedling Potatoes are entirely free from disease. His plan is as follows:—He gathers the Apples before the frost sets in (according to others a slight frost does not injure them), and keeps them in a dry place till the end of January. The Apples are then crushed with the hand into a vessel, where they lie from six to eight days to rot, that the seeds may be easily separated from the pulp. Water is then poured on, and the seed is washed and dried like Cucumber seed, and put away in a dry place. At the end of March, or beginning of April, the seed is sown in a hot-bed, and treated much the same as other culinary plants. If there is a convenient place for a hot-bed near a wall or house, exposed to the sun, glass is not necessary; the plants may be treated like tuberous plants, but as they are very susceptible of frost at night, they should be covered with straw or boards, which can easily be done, as the bed is surrounded with boards set in the ground, upon which the covering can be laid without injuring the plants. In May, if the plants are well grown, they can be planted out in a light soil about the usual distance that sets are planted. Zander this year sowed early Potato seed on the 11th of April, and planted them out on the 26th May; and here we may remark, that vegetation is 14 days later in Boitzenburg than in Berlin. The plants produced from 1 to 1½ gallons (Metze) of tubers. One plant even produced 280 tubers. There were of course a great many small tubers among them, yet the produce of large ones was on the whole equal to the produce from sets. As Zander has followed this plan for five years, he was able this year to give seed to several gentlemen's gardeners and labourers. The Potatoes raised by them have all been healthy, while the disease was everywhere, and even in the neighbourhood. The result of this experiment deserves to be widely spread, that people may still preserve the Apples for next year. The space of half a square rood of land (7 ft.) is sufficient to raise enough to plant 1 acre,* so that it will be useful for small farmers who plant just enough for themselves.

Societies.

MICROSCOPICAL SOCIETY.

Dec. 9th.—Dr. Lankester in the chair. J. Handford, Esq., and W. Theobald, Esq., were elected members. Professor Edward Forbes read a paper on the organs of sense in Thaumantias, a genus of Medusæ. The bodies of these animals are exceedingly small, of the form of a watch-glass, and having from eight to sixteen tentacula. He had taken these animals in great abundance off the Shetland islands during the month of August last. After describing the structure of the whole animal, he drew attention to the development of its tentacula. These first commence with a cell, which, by dividing itself into two parts, lengthens out and forms the tentacula. The first cell does not go on increasing above, but remains at the edge of the body of the animal, and grows larger, at last exhibiting in its interior crystals of carbonate of lime. These were regarded by Keliger, Will, and others, as otolites, and to this opinion the author was inclined to subscribe. No nervous system had yet been demonstrated in these animals. Mr. Varley made a second communication on the subject of the Characeæ, and exhibited preparations illustrative of the remarks made at the last meeting. He exhibited and described diagrams of the species of Nitella, in which he had discovered a structure consisting of cells containing green matter, and which was found both in the inside and on the outside of the tubes in which the circulation was observed. The Chairman pointed out the fact that the nucules containing the reproductive matter of the Chara vulgaris were surrounded by five tubes which corresponded with the number of branches developed from each bud, and thus indicating the morphological relation of these parts.

Reviews.

Drummond's First Steps to Anatomy (12mo. Van Voorst) claims our attention in consequence of the comparison which the author draws between animal and vegetable vitality. In the conclusion at which he arrives with regard to the nature of life we entirely concur. "From all that has now been said," he remarks, "it must be obvious that our knowledge of the immediate cause of life only becomes more obscure the more we attempt to penetrate the mystery; we find it in a thousand forms; we trace it in various states in animals and their germs, and in plants and their seeds; but in what its original essence consists we cannot understand." As a useful and agreeable introduction to a most important branch of study, this book may be confidently recommended. The following anecdote, illustrating irritability, as distinguished from vitality, is, probably, new to some of our readers:—"I had, on one occasion, a rather novel illustration of muscular action in an organ dismembered from the body it belonged to. Being on the sea-shore, at Pulo Bay, in Sardinia, and searching for specimens of natural history, I observed a large lizard running for shelter under a heap of stones. I was just in time to seize it by the end of the tail, but suddenly the resistance made by the animal to my attempt to drag it from its hiding-place ceased, and I gave it up for lost; but as suddenly had cause for alarm myself, on seeing what appeared to be a small snake, leaping with great agility about my feet, and springing as high as my knee. I instantly started out of its way, and watched it at a respectful distance, when I found that it was the tail of the animal, which I was not before aware could so easily separate; it kept leaping about for a few minutes, but long after it had become spontaneously quiescent, it exhibited lesser degrees of muscular contraction when disturbed."

De Prati on Chronic Diseases of the Skin (12mo. Baillière) demands a place here for the same reason as the last book. Although principally occupied with skin diseases and their cure, it admits some account of the medicinal virtues of plants. Dr. de Prati is a great advocate for vegetable remedies, and evidently belongs to that class of practitioners who lament the neglect into which the uses of herbs have, as we too think, undeservedly fallen. He points out the efficacy of Leopard's-bane, or Arnica montana, in ulcers and diseases of the skin; of the Lady Thistle, Carduus marianus, in derangements of the liver, &c.; of Herb Bennett, or Geum urbanum, as a tonic when bark and cascarilla fail; and of Pot Marigold, Masterwort, Soapwort, and others which have all fallen into unmerited oblivion. Herbalists, and all who have faith in vegetable remedies, should read this little book.

Hamilton on the Pine-apple (2d edition, 8vo. Masters) was alluded to by us last week in a Leading Article. It is a great improvement upon the 2d edition, and contains plans of a Pine-house. No Pine-grower can dispense with it.

Johnson's Gardeners' Almanack for 1846 is, as formerly, all that a gardener can desire in such a book. It is full of useful information, well arranged, and carefully indexed. We have frequently found it convenient to refer to the last edition, and we doubt not that this will be equally serviceable. We would suggest that in next year's edition a comparative scale of Fahrenheit and Reaumur's thermometers, and a reduction of common French weights and measures to their English value should be permanently introduced. They would make a good frontispiece.

Roe's Handbook of Fountains (12mo. Groombridge). The author, who is a well-known and ingenious hydraulic engineer, states that "the object of his work is to draw attention to the use of fountains as a valuable and desirable decoration to parks, gardens, &c.; to show what taste has done and may accomplish, point out the mechanical contrivances and appliances, and the resources necessary or which may be available, and give an indication for the direction of design. In following the latter purpose, and noticing the examples given in the celebrated fountains of Versailles, the observations are intended as a guide to the stranger in his visit to that far-famed spot." Some designs, neatly drawn, representing some of the celebrated Versailles fountains, accompany the pamphlet; and although their taste is open to criticism, yet they afford the untravelled reader an idea of what should be done with fountains; just as those of London show what they should *not* be. At the end is a repetition of the story of Du Barri's diamond necklace, the connection of which with fountains it passes our skill to explain.

Hassall's Fresh Water Algæ (2 vols. 8vo. Highley), is severely criticised in Taylor's "Annals of Natural History" by some one much more conversant with the subject than we are. The author of that notice says that many of the plates, professing to be original, are copies, made without acknowledgment; that the comparative characters by which one species is distinguished from another are absurd; and that the references to other writers are unpardonably incorrect. Nevertheless, as a whole, the work is regarded as a proof that "the author is possessed of very considerable ability, more especially of extensive powers of discrimination, though not of definition." We cannot attempt to soften this down; on the contrary, we must add that Mr. Hassall does not appear to possess that most important attribute of a naturalist, the power of arranging all things in due order. His introduction, for example, is a confusion of facts and opinions brought together with so little method that it is often difficult to perceive what relation they bear to the matter in hand. In the body of the work the author follows some plan of arrangement peculiar to himself; but for what that plan is we search in vain. To augment the confusion, some of the author's "families" have characters given them, as Siphoneæ and Characeæ; but others, such as Lemaneæ and Callithamneæ, have none! In short, a very difficult subject is rendered more perplexed than ever by the strange way in which it is treated. However, we must not let it be supposed that Mr. Hassall's book deserves no sort of commendation. On the contrary, it has some good observations, and the plates that accompany it, whether original or not, are extremely useful, and will

* The German acre is much the same as the English one.

prove of great assistance to the student of the obscure slime-plants and water-threads which it illustrates. They are neatly engraved, nicely printed in colours, and although not comparable to Kutzing's, form by far the best collection of such figures which we have in English botany. We also think that Mr. Hassall has acted judiciously in steering clear of the ocean of "new" species in which his original announcement led us to fear he would be engulfed.

The Supplement to Yarrell's British Birds (Van Voorst) contains figures and an account of several rare species lately added to the list of visitors to these islands. Need we say that the Supplement is in all respects worthy of the high reputation of Mr. Yarrell's original work?

New Plants.

Lælia peduncularis. Long-stalked Lælia. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—When this plant was named, in the winter of 1841-2, upon the inspection of a specimen sent to London, from the collection of Mr. Barker, of Birmingham, a very imperfect idea was formed of its real beauty, for the specimen was withered, and injured in the transmission. In November, 1844, we, however, again received it from the same gentleman, and then found it to be what is here represented, one of the most ornamental, and perhaps the most graceful, of the genus. Its flowers are of one deep rose colour, a little heightened at the lower part of the lip, and they droop gracefully from the end of a slender elastic scape. The unusually long peduncles add to the elegant appearance of the species. It approaches most nearly to the Lælias rubescens and acuminata. From the former it differs in its lip: having none of the hairiness of that species, and its flowers being much more closely arranged; from the latter, in neither its petals nor lip being wavy and sharp pointed; and from both, in its very large whole-coloured flowers, flat jagged petals, short recurved lip-lobes, and very long flower-stalks. The species is one of Mr. Barker's valuable importations from Mexico. It may either be tied to a block of wood, with a little sphaguum to retain moisture, or it may be potted in turfy-heath-mould, in the usual way. During the growing season, an ample supply of water should be given, and the atmosphere kept as moist as possible, at a temperature of 80° by day. To accomplish this, it will be necessary to use a slight shading in bright weather, which will also prevent the leaves of the plant from being scorched by the mid-day sun. In winter, if the atmosphere can be kept moist, very little water will be required for a few weeks. The temperature should never be raised above 65° with fire heat.—*Botanical Register.*

Govenia fasciata. Linden's Govenia. (*Stove Perennial.*) Orchidaceæ. Gynandria Monandria.—This is one of the prettiest of the genus, having clear yellow flowers, whose sepals and petals are beautifully marked by fine broken bands of crimson. The long bracts, thin narrow spike of flowers, and oblong, not ovate, lip, are the marks by which it is best recognised. The leaves are about 1 foot long, and 3 inches wide. It flowered in the collection of Mr. Rucker in September, 1843. It requires to be potted in rough peat mixed with about one-third sandy loam. Being a terrestrial Orchid, it necessarily requires an ample supply of water during the growing season, and a slight shade in sunny weather. In autumn, when its leaves begin to die off, water should be gradually withheld, in order to give it its due season of rest; for if watered and excited to grow in winter, when there is not sufficient light to mature the tubers, they will be small and apt to damp off; nor will it succeed in summer if this is not properly attended to. In spring, when it begins to show symptoms of growth, it should be re-potted and placed in a humid atmosphere, where, for a few weeks, it may receive water every fine day.—*Botanical Register.*

Garden Memoranda.

The Conservatory at Chatsworth Park.—This magnificent structure may be regarded as one of the greatest of modern works in gardening. Whether viewed externally, in its extreme elevation, or internally, in its general adaptation to the mature growth of exotic plants, the eye is fully satisfied by the uniform and simple grandeur of its proportions; presenting a striking instance of the power of art over the adverse influence of climate and situation. The superstructure represents a curvilinear dome of progressive elevation—the lower side-wings rising 25 feet from the ground-level, from the angle of which the upper dome rises to a final elevation of 60 feet, the length being 270 feet, the width of the ground area is nearly 100 feet, and the upper dome is 70 feet in diameter. The principal side-fronts face the east and west. The general entrance is at the north end, forming a direct communication with the grand central carriage-road which passes through the conservatory to the south end in immediate connection with the pleasure-ground which surrounds it. The ground-level is formed into four pits or borders, two on each side of the central path; a pathway is also formed between the borders for convenience of access to the plants. A platform surrounds the entire area along the side-wings for the arrangement of plants in pots, the north-east end of which is occupied with a select collection of Ferns; amongst them were vigorous plants of Aspidium Serra, Polypodium spectabile, Gymnogramma ochracea, Woodwardia radicans, Asplenium Nidus, Lonchitis pubescens, a species of great delicacy and beauty; Cænopteris japonica, and Aspidium falcatum. On the right of the north-east front is an immense pile of rocks, from the recesses of which some of the larger growing Ferns are thriving luxuriantly. Amongst the most conspicuous, were—Cibotium Baromez, having noble fronds or leaves 9 feet in length; Asplenium præmorsum, Didymochlæna pulcherrima, and Dicksonia ferruginea. As a continuation of the east front, the artificial rock-work extends 54 feet at a lower elevation, and forms an aquarium (for water-plants), having a massy belt on the back-ground, formed of fossil-rock and tufa stone, amongst which were growing in ornamental masses luxuriant specimens of Caladium odoratum, C. esculentum, Arum venosum, the latter remarkable for its immense leaves. The elegant Papyrus antiquorum was displaying its graceful terminal clusters of rush-like stems, from 6 to 9 feet in length, near the margin of the water. Limnocharis Humboldtii was also unfolding its lovely lemon coloured blossoms, which reposing upon the dark green foliage had an admirable effect. Amongst the miscellaneous species upon the margin and inner verge, were extraordinary plants of Richardia æthiopica, forming a striking ornament throughout the winter. Nymphæa cærulea, with azure-blue flowers, and Sagittaria gigantea. On the more elevated parts of the rock, large masses of Hedychium coronarium, Alpinia nutans, and various species of Canna, together with the beautiful-habited Papyrus, formed a highly picturesque back-ground to the whole. Passing the aquarium, a noble group of the Musaceæ appears as a commencement of the east front ground-pit, in which all the plants now under notice are planted. The species of Musa comprise rosacea, coccinea, Cavendishii, and a new species with large irregular purple blotches upon the leaves. These noble specimens were from 18 to 20 feet in height, with leaves from 7 to 10 feet in length, and 2 to 3 feet in width, and presented a rich contrast to the differently-habited plants around them.

Amongst the finest plants, as they occurred in continuation, were Erythrina Crista-galli, 8 feet in height, and the same in diameter, producing a second crop of flowers, in spikes of from two to three feet in length. Salvia splendens, 8 feet in height, and 25 feet in circumference, with several hundred spikes of orange-scarlet flowers. An Aralia, a noble plant, 16 feet in height; Euphorbia jacquiniflora, 7 feet in height, and 12 feet in circumference, promising a rich harvest of bloom; Hibiscus Jerroldianus (same as speciosus) 10 feet in height; this is a fine herbaceous species, with rich crimson flowers, 6 and 8 inches in diameter. Michelia oblonga, a fine specimen, 16 feet in height, and 36 feet in circumference, producing thousands of fragrant blossoms, similar to those of a Magnolia. Lagerstrœmia indica, 12 feet in height, and 22 feet in circumference, crowned with rose-coloured blossoms; and Carica Papaya, 12 feet in height. On the south end border were Lagerstrœmia elegans, a magnificent shrub, 14 feet in height, and 44 feet in circumference (differing from L. indica in its more diffuse habit of growth) producing hundreds of rosy-pink blossoms. Hibiscus sinensis Parkeri, 13 feet in height, and 21 feet in circumference, one of the most beautiful shrubs for conservatory culture, and ornamented with crimson blossoms from four to six inches in diameter. Saccharum officinarum (the Sugar Cane) about 20 feet in height, Cookia punctata, a neat habited tree, with dark green winged leaves. Inga Harrisii, 13 feet in height, and 30 feet in circumference, producing thousands of delicately-shaded crimson, tassel-like flowers in spring. Amongst plants on the east front border, were amazingly fine specimens of the old stove shrub, Eranthemum pulchellum, from 2 to 3 feet in height and 12 feet in circumference; Justicia speciosa, equally neat in its habit of growth, producing numerous purple flowers in autumn; Gesnera oblongata, also one of the finest winter-flowering plants. On the south-west end border are beautiful specimens of Cycas revoluta, and C. glauca, extending their elegant feather-like fronds, or leaves, 24 feet in circumference. A large and noble group of Musa Cavendishii introduces the visitor to the west front, in the border of which was a matchless specimen of Poinsettia pulcherrima, 17 feet in height and 18 feet in circumference, displaying its gorgeous orange-scarlet bracts, from 12 to 18 inches in diameter; also, Hibiscus rosa sinensis, 10 feet in height, and 24 feet in circumference, forming a compact tree, richly ornamented with scarlet blossoms; Lantana mixta, 10 feet in height, and 33 feet in circumference, uniformly studded with orange blossoms; Duranta Plumieri, 11 feet in height and 15 feet in circumference.

A varied feature is assumed in the continuation of the west-front border, by a group of plants, representing the natural order of Cycads, in the genera of Zamia and Cycas, planted between the interstices and divisions of artificial rock-work, representing their native modes of growth; amongst these were Cycas revoluta, 21 feet in circumference, and C. circinalis (Sago Palm), 15 feet, the latter producing its elegant feather-like fronds (from a central column), 5 feet in length. Zamia pungens, 8 feet in height, and 26 feet in circumference. Z. Altensteinii, 10 feet in height, and 27 feet in circumference. Z. caffra, with column-like stems, 10 feet in height, each surmounted with a crown of winged leaves, 15 feet in circumference. Elate sylvestris, with a pillar-like trunk or stem, 10 feet in height. In the west-front border is a small but luxuriant grove of the Mandarin Orange (Citrus nobilis), many of the plants measuring 6 feet in height, and from 10 to 14 feet in circumference. On the north-west end, a plant of Abutilon striatum presents a fine appearance, being nearly 20 feet in height, and as much in circumference, gaily ornamented with hundreds of pendent bell-shaped orange blossoms. Near this were two magnificent specimens of Brugmansia suaveolens, nearly 15 feet in height, and 40 feet in circumference, on each of which were several hundred flowers, each measuring 12 inches in length. A portion of the west and the north-west borders is margined in front with a row of the Agave americana, relieved with occasional specimens of the variegated variety, and with good effect. Amongst the plants, on the west border which appeared well adapted for under shrubs, or for marginal effect, were Justicia carnea superba, a beautiful shrub, with large terminal racemes of lively rose-coloured flowers; Stachytarpheta mutabilis, with long flower-spikes of light rose and pink; Melastoma Mexicanum, a neat habited species, with white blossoms; Goldfussia anisophylla, a compact and dwarf-growing shrub, producing purplish-lilac Gloxinia-like flowers in winter; Barleria purpurea; Ruellia formosa, a valuable but neglected plant, which produces numerous scarlet blossoms in spring and summer; and lastly, a plant which everybody ought to possess, viz., Franciscea Hopeana; this has a good habit, is easily managed, and a profuse bloomer; it is also admirably adapted for forcing. Amongst the principal plants occupying the inner borders right and left of the great central path, were two specimens of Dracæna fragrans, 16 feet in height; Charlwoodia stricta, 18 feet; and a noble specimen of Sabal Blackburniana, extending its elegant fan-shaped fronds nearly 60 feet in circumference; Bombax aculeata, 35 feet in height; Carolinea alba 22 feet in height; Hibiscus liliflorus, a wonderful tree-like specimen, 18 feet in height, and 48 feet in circumference, expanding hundreds of bright rose-coloured flowers, 6 to 8 ins. in diameter; Cocos plumosa, 40 feet in height, with terminal feather-like fronds, each 18 to 20 feet in length; Cassia corymbosa, a very beautiful object, 14 feet in height, and 36 feet in circumference, having large terminal racemes of golden yellow blossoms, forming a fine contrast with its dark green Ash-like leaves; Dracæna draco (the Dragon tree), with a trunk or stem 18 feet in height; Crotalaria laburnifolia, 18 feet in height, with drooping panicles of flowers like the Laburnum, but of a larger size; Araucaria Braziliensis, 30 feet in height. Several fine specimens of Furcræa gigantea, extended their immense crowns of leaves upwards of 40 feet in circumference; Hibiscus splendens (producing large light rose-coloured flowers, from 6 to 9 ins. in diameter), 30 feet in height; Sterculia platanifolia, 40 feet in height; Acacia cornigera, 12 feet in height; Erythrina arborea, a robust branching species, 12 feet; Corypha umbraculifera (the Great Fan Palm), 20 feet; Corypha australis, 14 feet in height, and 45 feet in circumference; Cedrela serrata, a fine habited plant, with beautifully-winged leaves, from 4 to 5 feet in length. Amongst plants of medium sized growth, were Strelitzia reginæ, S. angustifolia, S. ovata, S. juncea—the last four species are extremely valuable for winter decoration; Solanum Quitense, an extremely large-leaved species with axillary blue flowers 2 ins. in diameter; Hedychium Gardnerianum, one of the most ornamental of the genus; Hibiscus militaris, a neat herbaceous species, 8 ft. in height; the buff-flowered H. Cameronii; H. palustris, a robust herbaceous species, with large pink blossoms, 5 ins. in diameter; H. hirta, a fine herbaceous species, 5 feet in height; the well-known Manihot, a very ornamental half-shrubby species, with red and yellow blossoms, measuring from 6 to 8 inches across. A central cross-path, passing at right angles from east to west, has parallel borders planted with Musa sapientum; the specimens being from 16 to 25 feet in height, have a very noble and imposing effect. From the south entrance the general view of the inner borders is partially intercepted by a lofty screen, formed of Bambusa arundinacea (the Himalaya an Bamboo Cane), which is admirably adapted for the object in view, on account of its immensely long and elegant reed-like stems. Returning to the north entrance, attention is again arrested by the immense mound of rock and tufa-stone, which is rendered not less subservient to ornamental effect, than to its primary object—of access to the upper dome; on its summit were specimens of the Mandarin Orange, 25 feet in circumference, bearing a profusion of fruit; also luxuriant plants of Anona Cherimolia (Cherimoyer). Various species of Opuntia (Indian Fig), and Epiphyllum, also gave a diversified feature, whilst the numerous masses of Ferns and of the still more delicate Lycopodium (Club Moss), and the creeping stems of the Ficus repens (F. stipulacea?) adhering to the surface, softened down the rugged outline to the harmony of natural effect. In the centre of this artificial arrangement is the winding ascent to the gallery and the spacious dome, which is nearly 30 feet from the ground-level, and from whence a view may be obtained of the central area, where the rare and unique specimens which meet the eye impress the stranger with a belief that every climate under heaven has contributed its richest ornaments to adorn this magnificent fabric. —*W. W.*

Miscellaneous.

Challenge from the Derby Florists.—We learn from a country newspaper that a letter has been sent to Mr. J. F. Wood, of the Coppice, from Derby, throwing down the gauntlet to the florists of Nottingham for a friendly tilt in the floricultural arena.—Mr. Wood lost no time in convening (by public notice) some of the principal growers. Mr. Spencer, of Adbolton, was unanimously voted to the chair, when the subject underwent a full discussion, and certain resolutions were passed, which

are to be forwarded to Derby, for the approval of the florists there. The following is the challenge:—"We propose to show you—six growers within four miles of Derby, against six growers within four miles of Nottingham—five pans of Tulips and five pans of Carnations; and to have every flower a distinct variety, that is to say, thirty tulips, not two of a sort, and fifty-five Carnations, all distinct varieties. No shower to be allowed to crop from any garden unless he has had that garden in his possession twelve months prior to the exhibition."

Scenery of the Lower Region of the Rocky Mountains to the Eastward. 1st Sub-region.—Extensive depressed tracts of the great plains, on the sources of Platte River and the Colorado on the West, being subterraneous continuations of the southerly spurs of the Black-hills. They consist of great ranges and detached piles of horizontal new red sandstone based on deeply inclined masses of the coarsest conglomerate, rarely directly on bituminous shale, under the great detached piles, or near river-defiles. The depression is about 200 feet below the general level of the plains above. In traversing the great sandy deserts, the traveller's attention is excited by numbers of obtuse conical piles, towering above the level of the plains, and forming a sort of belt north and south in the south pass along the horizon. Northward, leaning on the pine and snow-clad central chain of the R. Mountains; southward, losing themselves in the endless plains of Upper California. Suddenly the traveller finds his course arrested by a precipice, he surveys it with wonder, and imagines the exhumed ruins of Herculaneum or Pompeii are before him. Spacious streets and avenues of level rock, formed by regular ranges of new red sandstones heaped into grotesque ruins, or high massive piles of conglomerate, containing globular, oblong, or columnar boulders imbedded in a grayish soft claystone cement. These boulders are of great size, smoothed by trituration, sometimes partially freed from cement, fronting the main pile and resembling columns, statues, or monuments of every shape On the top rests the obtuse conical cupola remnant of sandstone, surrounded by a variety of small turrets, bearing likewise on their summits curiously shaped cupolas of greenish or brownish sandstone. In another direction a series of low, oblong, angular platforms of sandstone, resembling tombs, or extensive terraces of astonishing regularity, with basins full of brackish water; piles of globular boulders, or obelisks, balancing a curious block of sandstone, may be met with here and there in the spacious plains. The outlets are mostly narrow, dark defiles, and, on passing them, another such monumental city of Nature's own work is before the traveller; and not until he is so fortunate as to strike upon a river can he again resume his direct route. An almost total absence of animal and vegetable life, and a death like stillness pervade these regions, which, together with the want of good water, of Grass for the horses, and the parching sun of August, rendered this the most intolerable place I ever visited in my botanical rambles. Yet I was not disappointed, for some of the rarest specimens of plants in my collection were gathered from one solitary cliff within this region, about the junction of Ham's and Black's rivers, of the uppermost waters of the Colorado on the west. A low crest-like ridge of sandstone rises on an isolated massive bed of bituminous shale, sloping towards the river from the adjacent desert; plains teeming with luxuriant plants of Stanleya viridiflora, Nuttall, &c. Around it grew bushes of the singular Helianthus, No. 96; and below, on the carbonaceous shale, I found the splendid Hydrophyllum, No. 93, with the Bartonia, No. 95. On the lower part of the slope I gathered, partly on a loamy calcareous crust, various Chenopodiaceæ, and a few Onagrarieæ, comprising the numbers 92, 91, 100, 101, 103 and 104. There is perhaps not another Hydrophylleous plant more elegant than the above. It is about 6 inches high, robust, and divided from its base into branches, which bear ample cymes of long recurved racemes, denseiy covered with rather small azure-blue or deep indigo-coloured flowers, which by their contiguity give a neat semi-globose outline to the plant. The other plants, though rare, are mere botanical curiosities, except a few species of Pentstemon, which were already in seed. On the depressed plains no plants are visible except a few groups of Onosmodium, n. 161, and the arborescent species of Artemisia (cana and tridentata), fringing the margin of the adjoining plains; these are the only signs of vegetable life. Of animals we saw none, save a single prowling wolf and a solitary smoky-coloured Emberiza. The latter seemed delighted with our unexpected visit, and followed us for about 10 miles, until sunset; alighting on our hats, or travelling with us, by taking a seat on the crupper, or settling alternately on some Artemisia bush. Both these creatures probably had lost their way as we three had lost ours. Our bad luck, as we called it then, turned out good for us, for by that involuntary circuit (of about 90 or 100 miles) we evaded a party of marauding Shyenne Indians.—*Geyer, in "London Journal of Botany."*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Stove.—Little can be added to the directions already given under this head. It would be well, however, to remind the amateur especially, that he must be exceedingly cautious not to overheat the house, as this would cause the plants to start into growth, a circumstance which would be very injurious at this season. Be very particular in watering all plants under glass.

Conservatory.—This department will now occupy much attention. See that a constant and liberal supply of all winter-flowering plants is always ready to succeed each other, and that they are placed to the greatest advantage in the house: much depends on the arranging of them. This, as I have already mentioned, deserves the careful study and attention of all gardeners.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

In favourable weather like the present forward all out-door work as much as possible. Trenching ground, and planting evergreen shrubs, should still be carried on with activity, in case the ensuing spring should prove unfavourable. Dry borders that have been manured may be dug. Look over seeds collected during the past season, and clean them, when the weather is wet previous to storing. Keep lawns free from fallen leaves, sticks, &c. Roll and sweep walks, &c. *Pits and Frames.*—Keep a watchful eye over all store pots, and remove damp leaves as soon as they appear. Calceolarias that have rooted would do well to be potted off into small pots, should the weather continue fine. Give air and water as formerly directed.—*B.*

III.—FLORISTS' FLOWERS.

Attend to the routine management as previously recommended. After frosts examine the Polyanthus and Pink beds, if young plants have been put out late, it is possible that they may be raised by the action of the weather. As soon as the soil is moderately dry fasten them in their proper situations; take care that all weeds are removed as soon as they are large enough to take hold of; as the late Mr. Loudon advised, never, let them get above the "ecouomic point," they are easier eradicated when small, and at less risk of disturbing your plants, than when they have attained some size, and their roots have mingled with those of the flowers.—Now is a good time to get together leaves, which, as the florist well knows, form a most invaluable soil or compost. No time or labour should be grudged to obtain a sufficiency, for in this all florists' flowers luxuriate. Attend to newly formed Pansy beds, and if the worms are troublesome, pour a little lime-water down their holes, which will speedily relieve you of their presence. Remove Polyanthus blooms as advised last week, and carefully observe, during a shower, whether any pots are exposed to drip; it is equally injurious to the Carnation and Picotee in frames, as to the Auricula.—*C.*

IV.—PINERIES, VINERIES, &c.

Pursue former directions with regard to Pines; little more can be added until January next. *Vineries.*—Those recently shut up for forcing should be commenced with a temperature of about 55° by day and 50° by night; during this period the wood should be kept constantly moist until they break, when the night moisture must be moderated considerably. Suffer the wood to become dry in the day, and if sunshine occurs allow the thermometer to rise 8° or 10°. If the stems of the Vines are near flues, wrap moss over that part, and keep it constantly moist. Attend to your root covering, and maintain, if possible, a slight fermentation. However it is an excellent plan to lay the covering on pretty thickly in the course of September, to arrest the departure of the accumulated heat of the past summer. Pursue similar top and root management in the earliest Peach-house; taking care that the whole volume of soil which had become dry is moistened through with warm liquid manure. See that all Vines, Figs, and Peaches, in pots or tubs, are secure from frost and access of wet. A fermenting body in a forcing Vinery or Peach-house is an excellent plunging medium for such of these as are wanted very early. The forcing of Kidney Beans may now be successfully commenced, and Strawberries introduced now into a slight bottom-heat about 12° or 15° in advance of the top heat will have a pretty good chance of success; a bottom-heat of 70° from fermenting materials is well adapted for the purpose: when they come in flower they may be introduced into the house.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Pruning the leading shoots in order to give the required form to trees against walls was explained in last week's Calendar. It now becomes necessary to advert to the management of spurs formed along the branches. In the Pear and Apple, fruit-buds are sometimes formed directly on the two-year-old portions of the branch. When such is the case, nothing is necessary with regard to them except a little thinning, if there should be more than the branch can bring to perfect fruit. But it is more frequently the case that instead of a completely-formed blossom-bud a tapering spur is only produced, which frequently goes on elongating for years; part of these should be shortened to within a quarter of an inch of their bases, whilst the greater number should be allowed to remain untouched. If, instead of spurs, shoots have been produced, they must be cut back to within an inch of their bases; and some, where numerous, still closer. Older spurs should be shortened down to the lowest fruit-buds, taking care, however, not to cut too near the latter. In short, keep the fruit-buds in view, and endeavour to remove, as much as possible, whatever is in front of them. Where there are old neglected spurs, producing only a crowded mass of foliage without fruit, they had better be thinned and well cut back; and by attending properly to summer pruning, fruitfulness will be induced. *Kitchen Garden.*—Examine Potatoes in pits, and if they exhibit no symptoms of fermentation, they may be finally earthed over, or otherwise made secure from severe frost. If they have not been put together in large quantities, fermentation cannot take place now that the weather is cool. In small pits the heat generated by a few decaying tubers among the lot is abstracted by the cool surrounding earth, and cannot possibly accumulate, as it does to a fearful extent in the case of large quantities.—*E.*

State of the Weather near London, for the week ending Dec. 11, 1845, as observed at the Horticultural Garden, Chiswick.

Dec	Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min	Mean.	Wind	Rain
Frid. 5	6	29.514	29.479	51	30	40.5	W.	—
Sat. 6	7	29.495	29.454	47	28	37.5	S.W	.01
Sun 7	8	29.590	29.634	7	19	33.0	N.W.	—
Mon 8	9	30.185	30.014	50	41	45.5	S.W	.05
Tues. 9	10	30.71	30.169	48	29	38.5	W	—
Wed. 10	11	30.3 0	30.45.	53	29	41.0	N.W.	—
Thur. 11	12	30.027	29.879	51	34	43.5	N.W.	—
Average		29.952	29.831	49.5	34.0	39.9		.07

Dec. 5—Clear throughout; slight frost at night
6—Fine; very clear, frosty; slight rain
7—Partially overcast; clear; frosty
8—Sharp frost; bright until noon; overcast; rain
9—Fine; frosty; very clear at night
10—Clear; fine; slight frost at night
11—Cloudy clear; brisk cold wind with clouds in different moving strata.

Mean temperature of the week 4 deg. below the average

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Dec 2, 1845.

Dec	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 11	45.3	33.5	39.4	9	0.32 in.	2	2	1	2	5	4	3	—
Mon. 15	45.9	31.7	40.8	9	0.50	1	2	1	3	6	4	2	—
Tues 16	44.9	35.5	40.1	12	0.45	—	2	2	2	3	3	3	4
Wed 17	48.4	35.2	41.8	10	0.37	3	1	2	2	6	3	2	1
Thur. 18	45.2	39.1	40.6	6	0.20	2	6	—	1	2	3	5	—
Fri. 19	44.3	36.8	40.9	7	0.48	1	3	2	1	3	6	3	—
Sat. 20	44.8	35.1	40.0	7	0.78	—	5	—	2	3	7	1	1

The highest temperature during the above period occurred on the 17 h 1243—term 57°; and the lowest on the 18th, 1841—therm. 16°.

Notices to Correspondents.

Conservatories, &c.—*St Ives*—You may make an evergreen edging in your conservatory with Oxalis Bowiei, or any of the Mexican Woodsorrels, or you may employ such Cape evergreen herbs as Aristea cyanea, Anomatheca cruenta, &c., or you may employ Ferns of various kinds and Lycopods. But you will probably find stones necessary and the best for the purpose. For climbers, take the Hardenbergias, hardier Passionflowers, Mandevilla, Dolichos lignosus, Phaseolus Caracalla, Clematis Sieboldi, Clematis balearica, Tecoma australis, Bignonia capreolata, picta, or Carolinæ.——*Amateur*—Sheet iron will not do. You must use wood, or, which is much better, slate, or stone. Peat will do very well for plunging in. Brick rubbish is unnecessary. In placing your bed for Cucumbers over your flue, you will probably render your soil too dry. Why not place the Cucumber pots on the back of the stage, and conduct the Vines to the roof by means of a trellis. We do not see any other point which demands rectification.——*Reverteus*—Gas burnt in a greenhouse will keep off frost: but it dries and poisons the air, so that the remedy is worse than the disease.——*D B B*—Metallic roofs are as good as wood, but dearer. They also demand better gardeners. Of course they are much lighter. We should hardly advise you to use metal, unless your horticultural arrangements are very perfect.

Dahlias—*E H L*—On referring to the back numbers, it appears that the reports of Country Dahlia Shows are too few, and too imperfectly given to form a summary from; if you wish to know the names of the favourite show flowers, you had better consult the report of the South London Floricultural Exhibition, at page 642 of the present volume.*

Emigration—*R M S*—All European vegetable, fruit, and tree-seeds are useful in New Zealand. They will go there readily, without loss, if packed in coarse canvas bags, and hung up in a cabin or other well ventilated dry place: and will enjoy that fine climate when they get there.

Filbert-trees—*A Y*—As your trees do not bear, although large, you should root-prune them. ‖

Hardy Climbers—*Sub*—The following may possibly suit you: Pyracantha, Cearothus thyrsiflorus, Berberis fascicularis, Cotoneaster microphylla and marginata, Escallonia rubra, Caprifolium flexuosum, and Magnolia grandiflora.¶

Heating—*An Old Sub*—If you can afford it, by all means use one single 4-inch pipe carried all round your house, and a hot-water boiler. If you cannot do that, build a common flue. As your object is merely to keep out frost, a flue is less objectionable. But you might, perhaps, effect the same object by a thatched roof, if you can provide the labour and machinery required to move it daily.

Glass—*O D*—The foreign houses have no agents here, except such as advertise in our columns.

Insects—*A Constant Reader*—I think that heat might be applied to matured trees with good effect, by means of a lighted torch or wisps of straw; or you may first rub off the scales with a blunt knife, and then wash the most infected parts with gas-tar, and the whole, if you please, with train-oil, which cannot injure the tree; but the tar must not be too freely administered. Vide vol. iii, p. 735; and vol. iv, pp. 427 and 499 of this Journal. *R*——*W*—There is a genus of leaf-cutting bees called Megachile, whose history is given, vol. ii, p. 573; they are not very unlike the hive-bee in size and colour; but the males have palmated fore feet of an ochreous tint, and in flight they carry them, if I mistake not, in such a position that they look as if they were embracing a pebble. May not this have led to the error, if error it be, that the hive bees carry ballast? *R.* See also Curtis's "Brit. Ent.," fol. and pl. 218, for figures of the foot, &c.

Lopping—*R D J*—If the stumps left on your fine old Oaks have any spray upon them you had better leave them undisturbed. If they have none and are decaying, then saw them off close to the main trunk, pare them to a smooth face, and then dress the wounds with Forsyth's composition (see p. 24), or some such preparation. The fellow who lopped your trees should have had his ears cropped for his pains.

Mildew—*R E*—We cannot find any trace of Botrytis on your leaves of Primula sinensis. They have been attacked by some mining insect, and the hairs are somewhat in a morbid condition.

Names of Fruits—*Ald. C*—The Pigeon Apple.‖——*G P*—The Blenheim Pippin.‖

Names of Plants—*Vicariensis*—Some Daphne, but further we cannot say from *one* shrivelled flower and no leaf.——*A E N*—Aristotelea Macqui.——*H M C D*—We neither can nor will waste time in finding out the names of fragments of plants having neither flower nor fruit. If names are to be furnished by us, those who send plants must themselves furnish specimens in a state fit for examination.——*W. Dingle*—Cæsalpinia Sappan from Mato Grosso.

Potatoes—*S S S*—We recommend that which experience shows to have succeeded, and this is no time for experimenting. Probably the rationale of placing littery dung under the Potatoes is, that it keeps them dry, acting as drainage. We see no objection to placing it both above and below; but there is little to fear from frost.——*Enquirer*—It would not be advisable to cut down a single stemmed Potato plant for cuttings; but frequently several stems are produced, some of which may be layered or used for cuttings.‖——*Tweed*—We do not understand your statement. If your seed Potatoes were attacked by the "late" disease, how could they have already yielded such a crop as you describe? Perhaps you will favour us with some further explanation.

Rhubarb—*Z B*—Plant now in rich rather free soil, well trenched, and manured with rotten dung. ‖

Roses—*Magna Rosea*—You may with safety cut away now the long top-shoot, to about a foot above the buds; you may also roughly prune in the old wood, preparatory to its being entirely removed in spring.‡——*Sub*—Procure Blush Moss, Globe White Hip, Enchantress, Duc de Luxembourg, Riego, Double Yellow, Sweet Briar, Duc d'Aumale, Bernard, Rose du Roi, and Emerance.¶

Strawberries—*R W*—You may fork over the ground between Strawberry rows at this season without injury to the plants, if you take proper care. ‖

Undergrowth for Silver Firs—*E C*—It is difficult to form an undergrowth in a narrow belt of Silver Firs, which will grow sufficiently high and thick to shut out unsightly objects behind Common Laurels and Hollies answer the purpose better than anything else.

Vineries—*J A*—Plant your Vines next your rafters. Take care never to place next each other a strong and a weak growing sort. If you can make your border inside the house do so.

Misc—*H E*—You should refer to some catalogue of garden plants for the information you ask. Sweet's, or Don's, or Loudon's. If we were to answer such questions, we should fill our limited space with matter of no sort of interest to anybody. A good garden catalogue is indispensable to those who wish for information respecting authorities for names. ——*J Lawford*—Daphne Cneorum does not require any protection in winter; well-rotted cow-dung, mixed with peat and road-sand from limestone will form an excellent soil for it.‡ ——*A B, Bristol*—The Number would be useful.——*Zeta*—Where peat cannot be procured, Aquilegia glandulosa may be grown in a light soil, consisting of loam, leaf-mould, and sand.‡——*Ely*—Soho Glass Company, 18, Crown-street, Soho.

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

Errata—In "Ruricola's" last paper, pp. 816 and 817, for Musca stabularis read Musca stabulans, and 20 lines from the bottom for longest read longish.

STEPHENSON AND CO., 61, Gracechurch-street London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

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The Agricultural Gazette.

SATURDAY, DECEMBER 13, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, Dec. 17—Agricultural Society of England.
THURSDAY, — 18—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 24—Agricultural Society of England.
THURSDAY, — 25—Agricultural Imp. Soc. of Ireland.
FARMERS' CLUB. Dec. 23—St. Peter's, Kent.

☞ Our readers will find in another column, a Report of the SMITHFIELD CLUB Exhibition of Fat Cattle, Sheep, and Pigs, at the Baker-street Bazaar.

THERE has been a good deal of controversial writing in our pages lately on the subject of the capital needed by the farmer, *i. e.*, the amount per acre which he can invest, with the greatest profit to himself and others. It is the object of the young farmer commencing business so to invest his capital as that it shall yield him the largest annual return. And a most important matter for consideration this is, for on the capital invested in agriculture there is, doubtless, dependent much of the national welfare. But it has been urged that this is not a proper subject for discussion; that the amount per acre invested in farming, dependent as it mainly is on the population of the country, and on that of the district, as well as on their will and ability to purchase agricultural produce, is quite beyond the control of writers on the subject—that evils arising out of any existing circumstance on this head must be left to work their own remedy, and so on. But does not this mode of treating the matter sound very like the saying quoted last week by Dr. LINDLEY—"Whatever is, is right'!

One of the circumstances on which the amount of capital invested in farming depends, doubtless, is the degree of security offered to the tenant by the landlord, and is not the endeavour right to point out the true interests of both parties here. For another of these circumstances may be the ignorance of one or other of these parties of their true interests; and is it not always a noble achievement to dispel that? Certainly it is much to be wished that more capital were invested in farming; there is room both for it and its produce, as we lately showed, and that is not lost labour which is spent in pointing out the true policy of all parties on this head. We hope, therefore, that "Falcon," and "J. S.," and many others, will join in keeping alive this discussion: they cannot labour in vain as long as they write with the simple object of eliciting truth.

We may just point out one way in which a skilful investment of capital acts. Everyone knows how dependent the farmer is upon climate: it is not simply that a certain quantity of rain falls—that the thermometer falls to such an extreme in the winter months, and rises in summer, and that there is a certain liability to storms. Two districts shall be perfectly alike in these particulars—in the one the farmer may be entirely enslaved by them, while in the other he feels their influence but slightly. The reason is, that the former occupies undrained land, and the farm of the other is dry and free, either naturally or artificially. A very good instance of this is given by Prof. JOHNSTONE, in one of his District Reports. He says—From St. Abb's Head to the Mull of Galloway, there stretches a broad zone of slate rocks, over nearly the whole of which obstacles (arising from climate) to agricultural improvement exist, and a stationary or slowly advancing husbandry. But if in the midst of this broad tract of country a patch of limestone, or trap, or of old red sandstone appears, all at once the difficulties of climate appear to vanish, and heaven and earth seem to conspire in rewarding the diligent cultivator of the soil. It is the nature of the rock, therefore, on which the soils rest, and by the decay of which they have generally been formed, that has created, as it were, the climate of the spot—has caused the production of its bogs—has subjected its crops to mildew—and has made its harvests scanty and uncertain.

The limestone subsoil is just a natural development of the Deanston frequent drain system. Take a district, itself undrained and wet, and surrounded by an extensive tract of similar soil, and let its occupant, by the proper investment of his capital, drain and cultivate it properly, and it will assume the very same character, of easy cultivation in contrast to the neighbouring farms, as that which Professor JOHNSTONE found on the patches of limestone amid the clay-soils of Lowland Scotland.

This is a point, then, capable of lengthened and instructive illustration. A man farms land with a capital of 5*l.* an acre—suppose his holding and, of course, his rent, to be suddenly reduced one half—how shall he re-invest the unengaged half of his capital?—shall he resume the land of which he has been deprived, and thus double his rent again?—or is it not his interest to farm his reduced occupation doubly as well?—his rent would remain unincreased to the end of his lease, and every fresh outlay of capital, if judiciously invested, while it increased the gross produce of the farm, would *diminish the expense of its cultivation.*

WE are exceedingly anxious to make the *Agricultural Gazette* more the organ of FARMERS' SOCIETIES than it now is, especially of those which are in effect Agricultural Debating Clubs. It would, we are persuaded, be much for the benefit of Farmers' Clubs to possess a weekly periodical in which to publish their debates and resolutions—one in which they might both call the attention of the Agricultural world to the subjects which have engaged their attention, and in which at the same time they might see how far their opinions meet the views of similar bodies of practical men cultivating different soils, under different climates.

The benefit derivable thus, is, we think, sufficiently clear; and we beg to place our columns at their disposal for this purpose. Our circulation is already sufficient to enable us to assume this position if they will only avail themselves of us, and there is a similarity in our objects which should induce them to do so. The rules which guide the management of this Paper are precisely those which have been adopted by the majority of Farmers' Clubs throughout the kingdom—all subjects proper for discussion at Farmers' Clubs are proper for discussion in our columns—and it is only by publishing the experience of practical men, and the opinions on these subjects which that experience teaches, that either we or they can hope to be useful.

Utility in its true meaning—usefulness to the agricultural interest, whether by urging the adoption of means which shall raise the character and increase the comforts of the labourer—or by indicating the general principles and the particular methods of profitable farming—or by exhibiting to landowners how their own interests are concerned in the establishment of an intelligent and wealthy tenantry—usefulness in these ways is the *object* of this periodical, however small may have been the results of its endeavours. And what are the objects of Farmers' Clubs? precisely the same. They are Societies for mutual instruction—communities whose members unite for the common benefit in stating their experience as farmers on all these topics. And it is simply this character of a mutual instruction society that we have long wished our readers increasingly to assume. Our pages, we are happy to say, have this year contained communications from many practical farmers—it is on pens such as theirs that the usefulness of an Agricultural periodical must depend, and the benefit to our pages which the proposed arrangement with Farmers' Clubs would ensure is of course a great inducement to us in seeking for it.

We have a list, compiled chiefly from the results of personal inquiry, of 628 Agricultural Societies and Farmers' Clubs in England, Scotland, and Ireland, with the names and addresses of their secretaries, and with the view of bringing this subject under the notice of these gentlemen, we have sent to each a copy of this day's Paper, and a circular has also been forwarded to them, asking for such information as would enable us at once in a measure to assume the position we desire. Announcements of meetings and of subjects to be discussed, and reports of discussions and resolutions by these societies, will, it is hoped, in future be forwarded to us for the benefit of others. We shall feel highly honoured and delighted to know that Farmers' Clubs have favourably considered and resolved upon these suggestions.

Enquiries frequently reach us as to the best method of starting and maintaining Farmers' Clubs. For the first, all that seems necessary is, that the farmers attending any market town be spoken to upon the subject, and that ultimately a meeting be called to agree to certain rules. On the nature of these rules, and on the preparations which may have been made for carrying on the business of the Society, depend its probability of permanence. The following appear to be a good set of rules:—

1. That the object of this Society is the benefit of its members by the improvement of their agricultural practice. [It is not well, we think, to *say* anything about labourers, or about rewarding them with certificates and sums of money for good behaviour during a number of years' *servitude* (we do heartily agree with Mr. Colman in hating this word.) We may depend upon it that the interests of the labourer will be better served by the Society, should it be influential in inducing a better system of farming, than ever they would be by such means as money rewards. A ploughing match, however, seems to be a very fair mode of employing a portion of the Society's funds, and one which is perfectly consistent with this rule.]

2. That the officers of this Club shall consist of a Chairman, Secretary, and Committee of seven members, all to be elected annually. Three of the Committee, including the Secretary, to be a quorum.

3. That the authority of the Chairman shall suffice to preserve order during discussions, that the Secretary shall receive subscriptions, keep accounts, keep the minutes of the Society, and have the care of the library.

4. In the absence of the Chairman, the Committee shall provide a President for the evening, whose care it shall be to preserve order, and to see that at each meeting a subject is named for discussion at the ensuing one.

5. That any person wishing to be elected a member of this Club must be proposed by one member, seconded by another, and elected by a show of hands.

6. That the annual subscription of a member shall be 5*s.* (?) to be paid in advance, dating from the annual meeting *preceding* his election.

7. The club shall meet monthly on [the market-day, or some day near the full moon]. And that an annual meeting shall be held for transacting the annual business of the society.

8. That all matters of a party, political, or religious nature shall be ineligible for discussion.

9. That the management of the library shall be in the hands of the Secretary and Committee; but that books of an agricultural or horticultural character may be ordered by the Society on the seconded motion of a member.

10. That strangers may be admitted by members; but, if resident within [ ] miles of [ ], not more than once as a non-subscriber; they may take part in the debate, but not vote. That the sons of members intended for the farming business, who are under 21 years of age, shall have free admittance to the club-room.

11. That no smoking or drinking be allowed during the meetings of this Society.

12. That any member wishing to alter any of the above rules must give notice in writing to the secretary at one meeting, and propose it at the next, when it shall be determined by vote.

A very important part of the preparation to be made by any one anxious to start a Farmers' Club consists in the selection of useful subjects for discussion. A Farmer's Club will soon cease to exist if the discussions are of no use to its members. The secretary will need to obtain and engage the assistance of all who are qualified to give useful information; he will need to work hard himself, as on him will devolve the business of sustaining a flagging debate.

For the assistance of secretaries of Farmers' Clubs we prepared hand a list of 150 subjects in another page, with a few references under some of them to the best methods of treating them. It is proposed in the ensuing year to head the section of this paper which is appropriated to Farmers' Club reports with a weekly paragraph, giving full reference to the best sources of information to one or two subjects suitable for discussion.

SUBJECTS FOR DISCUSSION BY FARMERS' CLUBS.

WITH OCCASIONAL REFERENCES TO METHODS OF TREATING THEM.

1. The benefit derivable from Farmers' Clubs, with the proper constitution of such clubs, that the benefit may be the greatest. Shall matters involved in the party politics of the day be deemed suitable for discus-

sion? The causes of a falling off (where this is the case), in the attendance of members.

2. The relative merits of good, middling, and parsimonious farming.

Consider the present condition of the people for food—the present condition of the labour market for want of employment—the present remuneration of the farmer for his capital and abilities. In what does high differ from slovenly farming? It renders cultivation easier and thus more profitable—it provides employment—and increases the produce of food.

3. The advantages of the lease.

Security for the tenant—an inducement to the outlay of capital. Length of tenure causes landowners to be more careful in selection of their tenants. Consider the nature and results of both of these tendencies.

4. What are the merits of a system for securing the "tenants' rights?"

Determine what period of permanence should be allotted as a security for outlay of various kinds. How many years will pay for drainage, for liming, for boning, for the use of oil-cake, &c. See the present condition of some districts in Lincolnshire, compared with what they were formerly. On the other hand, point out the evils of running accounts between landlord and tenant, and the uncertainty of tenure which still remains, however cloaked over it may be. Read letter by "A Looker On," in a former Number of this Paper.

5. The best period and conditions under which to enter upon or leave a farm—reference being had to the interests of the landowner, and of the outgoing and incoming tenants—as well as to any risk of loss to the *nation*.

The object of all conditions should be to preserve high farming on to the *end* of the lease, and this must be by rendering it as profitable for the tenant to farm as well the last year of his lease as during any preceding one. He should get full value for dung and straw, and unexhausted labour; he should have permission to consume his roots on the farm. His successor should be permitted to do any of the labour attending his first year's crops.

6. The importance to the farmer of an acquaintance with the theory of his art.

Consider the advantages of knowing the nature of every farm operation, the certainty of its results under given circumstances. Exhibit the opinion now prevalent on this subject as evidenced in the establishment of agricultural colleges.

7. The benefits of which science has been to agriculture.

Trace the agricultural history of the past few years: the influence of the full development of the theory of manures, and of the theory of the food of animals, on the farmer's practice.

8. The dependence of soil on subsoil, and an illustration of the connection between geology and agriculture.

See Morton on Soils, and papers by "M.S." on the Geo-agriculture of Gloucestershire, in the *Agricultural Gazette* of last year.

9. The theory of the action of manures.

The soil contains two classes of substances—one of which is in abundance, and confers on it a texture such as will enable it both to hold plants upright upon its surface, and at the same time convey to their roots, dissolved in water, the other substances present in smaller quantity in it, which act as their food. These latter substances are diminished in quantity by the abstraction of successive crops, and the soil loses its fertility. But this may be restored to it by applying to the land in sufficient quantity the substances, ascertained by analysis, of which the crops have deprived it.

10. The principles of vegetable physiology applied to the improvement of agriculture.

Consider what the seed requires to assist its germination—what the young plant requires to favour its growth and the full development of its parts—what is needed while the seed is being matured—and point out what agricultural processes are thus beneficial at the different stages.

11. What is the best seed-bed—the condition of soil most suitable to the process of germination.

See a Lecture on this subject by Dr. Madden, of Penicuick, near Edinburgh, delivered a year or two ago before the Highland and Agricultural Society of Scotland.

12. The principles of animal physiology applied to the feeding of cattle and sheep, &c.

See Dr. Playfair's Lectures before the English Agricultural Society, reported in their Journal, and Boussingault's "Rural Economy."

13. The best methods of improving the condition of the agricultural labourer.

The influence of education, of savings' banks, of benefit societies, of emigration, of allotments, of having farms of various sizes—the steps as it were in a ladder up which an industrious man may mount in the scale of society. The influence of temperance societies, of high farming, of various systems of paying the labourer. The want of cottage accommodation.

14. On the *economic* value of education.

See Dr. Chalmers's works on this subject.

15. On savings' banks and benefit societies in their influence on the labourers contributing to them.

See "North British Review," August 1845.

16. On allotments as a means of increasing the comfort and elevating the condition (?) of the labourer.

See a periodical entitled "The Labourers' Friend," and "North British Review" August 1845, and a pamphlet by Professor Henslow on "The Policy of Landlords Establishing a Spade Tenantry."

17. Should emigration be encouraged?

See "Quarterly Journal of Agriculture," p. 155, vol. 1, and "North British Review," August 1845.

18. On paying labourers partly in kind.

See Mr. Grey, of Dilstone's description of the hind system, in a late number of the "Journal of the English Agricultural Society."

19. On the propriety of reducing horse-culture by a partial substitution of manual labour.

This policy is unquestionably beneficial to the labourer, and it might to a certain extent be profitably adopted by the farmer. As in the cultivation of his headlands, and in the more thorough cultivation of some of his crops.

20. On the best methods of hiring agricultural labourers.

See a paper by Mr. C. H., in one of the Reports of the Gloucester Farmers' Club.

21. On the *professional* education of the agricultural labourer.

See various papers by the late Mrs. Davies Gilbert, upon the efficiency and success of her self-supporting schools.

22. The importance of correct agricultural statistics. How can *this club* best collect statistics of its own district? Is it advisable to correspond with other societies on this subject?

Mutual instruction is the object of the members of this club; how can this object be better fulfilled than by the compilation of a statement of the agricultural practice and experience of each? Let certain monthly meetings be devoted to this object, each member taking up a certain subject, and being assisted by a committee to assist him in obtaining local information upon it.

23. On the prices of labour, and the amount of agricultural labour *within the district* of this club. What alterations in farm practice might be profitably made, in order to increase the demand for labour?

24. On the average expense and amount of horse labour *within the district*, per 100 acres of arable and Grass land respectively.

25. What is the relative extent of Grass and arable land *within the district?* How often is the first mown, and what is the average crop? What is the rotation of crop adopted on the arable land? What are the average crops?

E. g. thus:—Total extent of the district, 50,000 acres, viz.: Arable 30,000; Grass 20,000. The latter mown on an average twice in 3 years: average produce, 18 cwt. per acre. The arable land cultivated thus, say 500 acres of Potatoes, averaging 8 tons per acre; 200 acres of Teasles, averaging 3 packs per acre; and the rest—

1 Wheat	averaging	.....	28 bushels per acre.
2 Turnips	,,	.....	15 tons ,,
3 Barley	,,	.....	33 bushels ,,
4 Seeds mown	,,	.....	25 cwt. ,,

5 Seeds depastured, equal to the keep of — sheep per acre.

Every fact here might be the heading of a whole chapter of valuable information.

26. What implements of agriculture are in use in *this district?* State cases where the substitution of more efficient implements is possible.

27. Describe the breeds of cattle and sheep *within the district*, and discuss the merits of other breeds in relation to their ability to cope with local peculiarities.

28. Is it good policy, and in what cases is it so, to pay for work by the piece rather than by the day?

Give also the prices of various descriptions of piece-work.

29. What is the best system of farm accounts?

Stephens's "Book of the Farm," vol. iii., p. 1341.

30. The importance of employing land agents versed in practical farming.

This is the less necessary in a well cultivated district all let on lease. But in parts, such as the greater portion of Ireland, the evils of mere lawyers being between landlord and tenant are obvious.

31. The influence which railroads may be expected to exert on our agriculture.

Consider the advantages of having markets near and accessible—of a travelling spirit finding its way amongst farmers. Consider also the effects of a large abstraction of hands from the labour market.

32. On making and repairing roads.

33. On the making and management of fences.

See Mr. Gregor's essay in the "Journal of the English Agricultural Society;" also papers by Mr. Bravender in the *Agricultural Gazette*.

34 On the disadvantage to landlord and tenant of hedgerow timber.

See Mr. Grant's pamphlet on the actual waste of land paying no rent to the landowner. Consider the evils of shading arable lands; of obstructing drainage; of harbouring vermin, &c.

35. Advantages and disadvantages of corn-rents.

See a pamphlet on this subject, lately reviewed in this Paper. Consider how the currency laws interfere, occasionally, to spoil the connection between landowner and tenant.

36. Architecture in its relations to agriculture. Main points to be attended to in farm-buildings.

See vol. viii. of "Highland Society's Transactions." The main points are shelter and sunshine for the beasts and other stock; and a ready connection, in fact, between those parts of the buildings between which there is necessarily a connection in labour.

37. The theory of drainage.

See the writings of Mr. Smith, of Deanston, on this subject, and the essays of Mr. Parker, in the "Eng. Agr. Soc. Journal."

38. The relative merits and objects of Smith, of Deanston, and Elkington's, systems of drainage.

The one has reference to the removal of rain, falling on it from the skies; and the other, to water having, of course, a similar origin, but which reaches the land (perhaps from some distance) by means of subterraneous springs.

39. Drain-tiles and tile-machines.

See a capital paper, by Mr. Maughan, in past Numbers of the *Agricultural Gazette*.

40. The cost of drainage, by whom to be borne, its amount under various circumstances.

See information on this subject in the Report of the Lords' Committee on the improvement of settled estates.

41. Policy of breaking up Grass lands, and the best methods of doing it.

See *Agricultural Gazette*, 1844-5.

42. The best methods in which national societies can help the cause of agricultural improvement.

By exhibiting cattle and implements, or by means of disseminating amongst all the knowledge and experience (more especially in the art of *cultivation*) of the few.

43. What is "economy," properly speaking, in farming?

That mode of investing a given capital by which it shall be made to yield the largest annual return. Consider this in detail.

44. "Agricultural Economy the Antidote to Agricultural Distress."

This is the title of a pamphlet, by O. O. Roberts, on the contents of which a useful discussion may be founded.

45. What capital does the Farmer require per acre on clay and light land respectively. (Name the circumstances.)

46. Our neglect of home-made manure. Town waste-liquid manure.

See Hannam on "Waste Manure."

47. Advantages of deepening and mixing soils.

See Cuthbert Johnson's tract on this subject.

48. Relative value of manures, natural and artificial. (Naming them.)

See Boussingault and other writers on the "Theory of Agriculture."

49. The extent to which a farmer is injured for want of suitable buildings. (Naming the circumstances.)

50. Importance of uniformity in weights and measures.

"Quarterly Journal of Agriculture," vol. 2, p. 254.

51. Relative value of different sorts of fodder. (Naming them).

See Boussingault's "Rural Economy," Playfair's Lectures in the "English Agricultural Society's Journal," &c.

52. The best means of hindering adulteration of manures.

How are crimes of other kinds hindered? By the employment of a detective force. This idea may be amplified in reference to the subject in hand.

SUBJECTS AFFECTING THE GENERAL MANAGEMENT OF THE FARM.

53. The best rotation adapted to light soils.

54. The best rotation adapted to heavy soils.

55. The impolicy but occasional necessity (?) of the fallow.

56. What breed of stock is best suited to the district?

57. What breed of cattle for fatting is to be preferred?

58. What breed of sheep is best suited to the district?

59. What breed of pigs is to be preferred?

60. Our means of improving breeds of cattle, sheep, &c.

61. Whether is it better to buy artificial manures, or to enrich the dung of cattle by feeding them with oil-cake?

See reports on artificial manures made to the Highland and Agricultural Society.

62. Best method of managing farm-yard manure.

63. How to preserve and apply liquid manure.

64. Best method of improving poor pastures.

Drainage. Feeding sheep on them with roots and oil-cake.

65. The policy of top-dressing.

See articles on this subject by "Oxygen."

66. Whether should dung be used long or well-rotted?

See "Oxygen's" articles and "Rural Economy" by Boussingault.

67. On clay-burning.

See paper by Mr. Randell in "Eng. Ag. Soc. Journal."

68. On bringing peat-land into cultivation.

Ascertain the practice of the fen farmers of Lincolnshire. Drainage, liming, marling, &c.

69. The diseases of plants.

See *Gardeners' Chronicle*, 1844.

70. Hybridising as a means of improving plants.

Gardeners' Chronicle, 1844, *Agricultural Gazette*, 1844-5.

71. On marling, chalking, and claying lands; methods, expense, results, and theory of the process.

72. The quantity of labour necessary, per 100 acres, to the good cultivation of clay and light lands respectively, under given circumstances.

73. The crops to which farm manure can be best supplied.

Green crops or grain?

74. The best seeds to sow for green crops, to plough in as manure.

75. Best methods of eradicating our worst weeds.

76. The use and action of lime in agriculture.

77. Best method of fallowing.

78. Artificial manures.

Each of the various artificial manures may afford suitable subject-matter for discussion: their relative influence on various crops.

79. The quantity and kind of stock that can be kept on clay soil, ½ arable, ½ pasture, compared with when it is all arable (per 100 acres).

80. The dairy versus grazing, their relative profitableness under given circumstances.

81. Under what circumstances is it advisable for the farmer to rear his own stock for fatting in preference to buying them.

82. Propriety of breeding and keeping sheep on heavy land.

83. Best methods of depositing seed, broadcast sowing, drilling, dibbling?

84. Best methods of increasing our stock of manure.

A forced high cultivation by purchased manures for one year, will, by its influence on the straw and green crops of that year—on the crops, in fact, to be consumed by stock—increase the quantity of dung so as to render that method of farming permanent for the future at no additional expence.

SUBJECTS CONNECTED WITH THE CULTIVATION OF PARTICULAR PLANTS.

85. The best varieties of Wheat to grow.

See Col. Le Couteur on Wheat; an article by Mr. Morton in the 1st vol. of "English Agricultural Society's Journal;" Sir G. S. Mackensie's pamphlet and papers on this subject in the *Agricultural Gazette*, &c.

86. The best methods of preparing seed.

Campbell's steeps: Salt and lime, sulphate of copper (blue vitriol), &c.

87. The proper quantity to sow per acre, and the best seed-time.

Hewitt Davis's pamphlet, &c.

88. The crop after which Wheat succeeds best; fallow, Grass, or root crops.

89. The proper treatment of the Wheat crop during its growth, the policy of top-dressing and hoeing, of spring mowing, or eating down with sheep when too forward, &c.

90. When and how to reap Wheat.

91. The cultivation of Bean and Pea.

92. The best varieties of Barley and Oats to cultivate.

93. What treatment should land receive for Barley and seeds?

94. The best mixture of seeds and Rye-grass, Italian or other varieties, for a one-year, or two-year, or permanent pasture.

95. The relative value of Mangold Wurzel, Swedish and common Turnips and Carrots, as food for cattle, &c.

Consider the difficulty of determining this in these roots, each attaining their best state as food at different times.

96. The best varieties of the above roots to grow.

97. The cultivation of the Carrot.

98. The cultivation of the Mangold Wurzel.

99. The cultivation of the Swede and common Turnip.

100. Relative merits of horse and hand-hoeing. The advantage of *deep* stirring in drill-culture.

101. How to harvest roots.

102. Best way to consume roots.

Whether on the ground or cut—whether under shelter or not—whether by sheep or beasts.

103. On stall-feeding as against feeding in yards.

See experience of East Lothian Farmers.

104. On shed feeding of sheep.
See the account of Mr. Childer's experiments; of those by r. Huxtable. Ascertain the practice at Whitfield farm, near otton.
105. Whether should food be given steamed or raw? What kinds, and to what animals?
See *Agricultural Gazette*, 1845.
106. The cultivation of the Potato. Selection of sorts.
107. The disease of the Potato.
108. The cultivation of the Cabbage—of Rape or ole—of Kohl rabi.
Best methods of preserving and of consuming them.
109. Best substitutes in winter in case of a failure of oot crops.
Oilcake, Linseed, and straw, &c.
110. How to renovate Clover-sick lands.
111. With what to fill up blanks in Clover-fields
112. Cultivation of Lucerne and Sainfoin.
113. On laying down land as permanent pasture.
See Leader, *Agricultural Gazette*, 1845.
114. On the cultivation of Flax.
See Mr. Sproule's letters, *Agricultural Gazette*, 1844, Mr. Dickson's letters, *Agricultural Gazette*, 1845.
115. On the cultivation of Hops.
116. On the cultivation of Hemp.
117. On the growth of seeds, Canary, Clover, Radish, Sainfoin, Lucerne, &c.
118. Proper management of pasture-land. Best method of hay-making.
119. On Irrigation.
Low's "Elements of Practical Agriculture." Stephens on Irrigation.
120. On methods of extirpating slugs and wire-worms.
121. Natural history of the wire-worm, Turnip fly, &c.
Essays by J. Curtis, Esq., "English Agricultural Society's Journal."
122. On bones as a manure, bones and sulphuric acid, &c.
See the writings on this subject of Mr. Hannam, of North Deighton, Wetherby.
123. Does fibrous covering stimulate vegetable growth, and how?
See *Agricultural Gazette*, 1845, giving the statements on this head of Goldsworthy Gurney, Esq., Launceston.

SUBJECTS CONNECTED WITH THE INSTRUMENTS OF FARMING.

124. The best method of keeping farm horses in summer.
125. The best method of keeping farm horses in winter (comparative advantages of stall and shed-feeding).
126. The policy of employing ox-labour instead of horse-labour.
127. Ploughs and ploughing.
128. The best construction of harrows, cultivators, horse hoes, &c.
129. The efficiency of various kinds of rollers and clod crushers, and their usefulness in various cases to the farmer.
130. The cart and waggon in their relative merits as machines of carriage.
131. What is the best mode of construction for the thrashing and winnowing machines.
132. Chaff-cutters, Turnip-cutters, and corn-bruisers.
133. Drills, dibbles, and sowing machines.

SUBJECTS CONNECTED WITH THE MANAGEMENT OF CATTLE.

134. What is the proper daily treatment of the horse.
135. On horse-shoeing.
"Quarterly Journal" for August, vol. ii., pp. 75, 214.
136. The diseases of the horse.
137. The best method of rearing cattle with a view to early maturity.
138. The details of stall-feeding—policy of using Mr. Warnes's system of box-feeding, and his porridge or jelly.
139. The diseases of cattle.
140. The treatment of ewes during the lambing season.
141. The details of winter-feeding sheep.
142. The diseases of sheep.
143. The details of pig management, where the object is pork.
144. The details of pig management when the object is bacon.
145. The diseases of pigs.
146. Dairy management,

ADDENDA.

147. The management of the orchard, and cider making.
148. The management of poultry.
149. The policy of a labour-rate.
150. A library for a Farmer's Club.
See Stephens's "Book of the Farm," vol. i., p. 6.

The following is a list of works constituting a good agricultural library for a Farmers' Club.

PERIODICALS.

Annual and Quarterly.—1. Journal of the English Agricultural Society. 2. Quarterly Journal of Agriculture, with the Transactions of the Highland and Agricultural Society. 3. Transactions of the Irish Agricultural Improvement Society. 4. British Farmers' Magazine. 5. Johnson and Shaw's Almanac.

Monthly.—Farmers' Magazine, Agricultural Magazine, the Veterinarian.

Weekly.—Gardeners' Chronicle and Agricultural Gazette—Mark Lane Express—New Farmers' Journal—Dublin Farmers' Gazette—Irish Farmers' Journal.—Besides these there are many valuable local periodicals, such as the Ayrshire and Renfrewshire Agriculturist, the Scottish Farmer, &c.

WORKS ON THE THEORY OF AGRICULTURE.

Boussingault's Rural Economy—Chemistry in its Relation to Agriculture, from the "North British Review"—Daubeny's Lectures—Davy's (Sir H.), Agricultural Chemistry—Grisenthwaite's Theory of Agriculture—Henslow's (Professor) Letters to Farmers—Johnson's (Professor) Lectures on Agricultural Chemistry and Geology—Liebig's Agricultural Chemistry; do. Organic Chemistry—Lindley's Theory of Horticulture—Marcet's, Mrs., Conversations on Vegetable Physiology—Morton on soils—Petzholdt's Lectures on Agricultural Chemistry—Reid's Chemistry of Nature—Solly's Rural Chemistry—Squarrey's Agricultural Chemistry—Trimmer's Chemistry for Farmers—Tower's Domestic Gardener's Manual—Topham's Chemistry made Easy—Von Thaer's Principles of Agriculture—Whitley's Agricultural Geology.

WORKS ON THE PRACTICE OF FARMING.

Agricultural Reports of Counties to the Board of Agriculture, 1813—Anderson's Essays—Anderson's Recreations—Alpaca, by W. Walton—Atkinson on the Agriculture, &c., of Australia—Beatson's (Major-General) New System of Cultivation—Blacklock on Sheep—Bayldon on Rent and Tillage—Blacker on Small Farms—Cooke on the Value of Land—Cleghorn's System of Agriculture—Curwin's Hints on Agricultural Subjects—Cobbett's Rural Rides—Cobbett's Woodlands—Code of Agriculture, by Sir J. Sinclair—Coventry's Introductory Discourses—Cully on Live Stock—Colman's Report on European Agriculture—Donaldson on Manures, Grasses, and Farming—Farmer, The, by G. Nicholls; Knight & Co.—Farming for Ladies—Farmers' Medical Dictionary—Hillyard's Practical Farmer and Grazier—Hannam on Waste Manures—Harleian Dairy System—Hayward's Agriculture—Hunter on the Scotch Swing Plough—Hogg on Sheep—Hutt's State and Prospects of British Agriculture—Jackson's Treatise on Agriculture and Dairy Husbandry; Chambers, Edinburgh—Johnson, C. W., On Fertilisers; Do. Encyclopedia of Agriculture; Do. On Increasing the Depth of Soils; Do. On Increasing the Demand for Agricultural Labour—Kame's, Lord, The Gentleman Farmer—Le Couteur, Col., On Wheat—Lawrence's Land Steward—Library of Useful Knowledge: The Horse, Cattle, Sheep, British Husbandry, Reports on Select Farms, Flemish Husbandry—Low, Professor, Elements of Practical Agriculture; Do. On Landed Property; Do. On Breeds of Domestic Animals—Lawson's Agricultural Manual—Martin Doyle's Practical Husbandry—Main's Domestic Poultry; Do. Farmer's Manual—Muck Manual, by Mr. Falkner—Munroe's Guide to Farm Book-keeping—Marshall's Agricultural Reports—Monteith's Foresters' Guide—Newman on Draining—Norfolk Agriculture, 1844, by R. Bacon—Philipps on Tropical Agriculture—Poultry Yard, by P. Boswell—Roberts's British Wine-Maker—Ransome's Implements of Agriculture—Radcliff's Agriculture of Flanders—Rawstone on Lancashire Farming—Rham's Dictionary of the Farm—Smith on Thorough Draining and Deep Ploughing—Sproule's Agriculture—Stephens's Book of the Farm—Stewart's Planters' Guide—Smith's Productive Farming—Spooner on the Sheep—Strachan's Agricultural Tables—Sinclair's Hortus Gramineus Woburnensis—Steele's History of Peat-moss—Stephens on Irrigation—Tull's Husbandry—Tussar's 500 Points of Good Husbandry—Twamley's Essays on the Dairy—Williamson's Agricultural Mechanics—Weeds of Agriculture, by Holditch—Young's Farmer's Calendar, Annals of Agriculture, Tour in Ireland, Six Weeks' Tour through the S. W. Counties of England and Wales, Farmer's Letters to the People of England.

FOREST PRUNING.

In the whole round of subjects bordering upon agriculture, there is hardly one which has been more unsatisfactorily handled than that of the pruning of forest trees. It would be difficult for any one seeking for information, either from the works upon arboriculture or from general opinion, to come away with any other feeling or conclusion upon this point, than that which leaves him just where he set out, viz., that "Doctors differ." Many, indeed, are the interesting subjects that have been overlaid and stifled by this stupid and stupefying answer. The only conclusion from this conclusion, is either that the question has, in fact, made very little scientific progress, or else that the contending parties have not really defined the subject and object of their discussion. The tall sky-scraping Elm or Poplar, ruthlessly stripped of every branchlet, that tower up, "small by degrees and beautifully less," in the farmer's hedgerow, does not stand in more ludicrous contrast with the wide-spreading Beech or Oak in the "old park" of some ancient baronial domain, than do the written and spoken opinions of the existing authorities on each side as to the adoption or rejection of the pruning-knife. Instead of investigating principles, they all appeal to the results of individual practice, or what is still worse, blindly and authoritatively refer to some recorded opinion. Now, inasmuch as the results of practice vary with every variety of tree, soil, climate, proximity, exposure, purpose, and a great many other obvious causes of difference, and inasmuch as recorded opinion varies with all these inherent causes of variation, it is not to be wondered at that the strife remains still, as ever, *sub judice*. But, surely one might have hoped better things of a matter which has received such ample illumination, collateral and direct, from the labours of such men as De Candolle, Saussure, Macaire, Du Trochet, and many others who have (if one might dare to say so of any physical inquiry), almost exhausted, by analytical investigation, the principles of physiology, upon which, and upon which alone, correct practice can be founded.

The empiric who trims up a tree like a Hop-pole, and the sagacious sciolist who tells you with an air of pompous discovery that "Nature should be left entirely to herself," and be allowed, if it so please her, to rot the decayed lower branches into the heart of the stem, do poor dame Nature equal injustice. Nature laughs at a servile worship, as much as she frowns at ignorant mutilation. The mind of man is an important part of Nature, and was intended to operate upon the material she supplies, and to direct its growth and increase towards the object required by his necessities and use. To prune a park tree (whose purpose is free beauty, and even bold extravagance of outline) as you would a tree in a plantation (whose purpose is clean, long, straight, sound timber, for the saw-pit) is as obviously absurd in theory, when once pointed out, as its converse is in practice; so far from forbidding the removal of the lower branches, in a plantation, Nature herself suggests it, by killing them, which she does not do in the park. Nothing can be more judiciously and kindly discriminating than the opinion which she delivers upon the subject, if man will but open his eyes and read it. "But if Nature herself kills them, why employ the knife?" Why, for the same reason that you cut your nails and your hair, and shave your beard, because it is more convenient to do so; and because the great suggester, who gave you the perception and the means, shows by the consequences that she not only permits, but intended and approves it. If you leave the dead branch to decay into the stem, you will have a dead knot running into the very heart of the tree, which drops out of each plank when the timber comes to be sawed up, and shrinks in the seasoning. The same Power that gave branches to the tree gave us eyes to see, and a mind to prevent for the future the inconvenient consequences of past neglect.

But are no branches, then, to be taken off but such as are dying? Not so. The same perception of future convenience suggests the removal of a double leader, or of a branch, which from accidental advantages of space, light, or aspect, has obtained disproportionate growth; or which, relatively with some contiguous tree, is doing more harm than its removal would to the growth of the first tree; or, lastly, where the internode above the lowest tier of branches is so much smaller in girth than the stem below them, that the disproportion requires to be reduced in order to produce more regularity of girth. This is easily accomplished by the removal of the whole or a part of that tier of branches. Why it does so, and how it does so, are questions, the answer to which is the basis and true principle upon which the whole art of pruning depends. Briefly stated, it is this. The leaves are to the tree what the sucker is to the pump. The roots and stem are the pump-tree, immersed in the soil, which is the well containing the moisture. The sun is the man at the winch, who, with his two arms (light and heat) works the pump. This is no idle metaphor; the analogy is as close as truth can make it. It is no imaginary or hypothetical theory: it has been proved step by step, under the incontestible evidence of repeated unfailing experiment. The moisture is drawn up into the leaf, and we call it sap. The sun exhales off the superfluous water by heat from the upper surface of the leaf, leaving the sap thicker with the salts and other substances, such as soda, potash (and carbon?) that it contained in solution when taken up by the roots. Meantime the light stimulates the pores on the under side of the leaf to a mysterious capacity, which they possess of absorbing the carbonic acid of the atmosphere, appropriating the carbon, and re-emitting the oxygen: this is a second, and probably the main source of carbon (according to Liebig the only one) enriched by which the sap (now called cambium) begins to descend, and as it descends, deposits its rich stores, thus elaborated by the leaf, and adapted to its new existence, as young wood (alburnum) in a thin layer between the inner bark (liber) and the outer (last year's) layer of wood, throughout the branch, and the whole of the stem which lies below that branch. Thus it is by the descent of the sap that the stem increases in girth. Every leaf that is taken off the tree, reduces, *pro tanto*, the growth of the branch it grows on, and that part of the stem which lies below that branch. Cut off a branch, or a whole tier of branches, and you reduce considerably the immediate increase of girth in the stem below, but not above, consequently the proportionate girth above the removed tier increases for a year or two, and a greater equality of girth is obtained. But then, it is replied, this equality is obtained by a loss of increased bulk to the lower stem. To a very trifling degree: for there is a property called anastomose, in vegetable structure, precisely analogous to the well-known power in animal anatomy, by which when a main artery is tied (as in an amputated limb, or the operation for the cure of aneurism), the small varicose arteries, almost invisible before, are stimulated by the checked blood, swell in dimension and carry on the circulation as perfectly as ever. Now, as the roots of a tree correspond to the quantity of foliage above, if you cut off a branch, you leave a superabundance of root-power. The process of anastomose immediately commences, and the sap which would have gone to the nourishment of the lost branch, finds its way into the upper part of the tree, provided there be still sufficient vigour of foliage left to work it up, and bear the stimulated supply. But this is one of nature's mysterious and beautiful supplementary processes, which must not be pushed too far; for if too many branches be removed at once, as in "stripping up" a tree, the superabundance of roots finding no responsive power in the miserable remnant of foliage, begin to rot for want of vital action, and permanent damage is caused which the tree never entirely recovers. It is needless to add, that this suggests the propriety of early and very gentle and gradual use of the knife, where it is necessary at all.

It is an error to suppose that the same rules do not apply to the Fir-tribe as to other deciduous trees. There is not the slightest foundation for the supposition. In a thick plantation their lower branches soon begin to die, and should be taken off neatly at the stem whilst there is still vitality left in them, and leaving no jagged wound, that the bark may quickly cicatrise over it: but to prevent the too rapid decay of the lower tiers, thinning must be at the same time attended to, for the purpose of admitting light. But thinning, which is often sadly neglected, may also be overdone, especially in a young plantation which is very susceptible of the change of temperature it produces. Both theory and practice are favourable to the postponement of thinning and pruning, until the severity of winter is over. Cicatrisation takes place only in summer and autumn. To prune a tree after they are over, is an useless exposure of the wound to an extra winter's frost beyond what is necessary before the healing process commences, and injures the plant by reduction of its temperature, which has been proved by repeated experiment to be in winter above that of the atmosphere. The great object, in fact, in the pruning of trees intended for the saw-pit, is to prevent dead knots. Brief exposure and rapid

cicatrisation are the only things that will prevent this. There are many reasons which concur to point out the period when the tree has just got into leaf, as the best time for removing small branches. If cut off before the buds are burst, shoots will be thrown out around the wound, causing future trouble: this is not the case after the leaf is out. In making the cut, the edge of the knife should lean a little outwards; for if the cut be quite vertical, a nidus will be left for insects during the ensuing winter upon the under-lip of the bark that closes around the wound. This should be avoided, as they eat into the tender juicy formation, and arrest the future granulation.

This, of course, all applies to those branches only that are small enough (compared with the stem) to be cut close off at once. The gradual excision of large branches by the system oddly enough called "foreshortening" in previously neglected plantations, is a process requiring so much time, care, and nicety of judgment that it deserves a separate consideration. —*C. W. H.*

POTATO DISEASE IN THE ISLAND OF ARRAN.

In this island, and in many other parts of the highlands of Scotland, and elsewhere, a disease prevailed among the Potatoes for many years, but of a different description from that at present so severe here and elsewhere. It began in 1829, and continued till 1842, doing more or less damage yearly. During the first three years, there was not nearly half a crop of these roots, and the deficiency was great in general, in most places, for years after; but that sort of Potatoes called "Cups" was introduced from Ireland, and although the failure in this kind was not nearly so great as before its introduction, the produce from them was not great for years; still, they did not fail to produce moderate crops, while the other sorts hardly vegetated at all.

This disease, as I have said above, was very different from the present. The Potatoes in the pits and houses were affected, very generally, with what was called the dry rot, the rotten parts being a dun yellowish colour and dry; but it is remarkable that the eyes still retained the power of vegetating, and did grow when planted, putting up dark purple stalks about the thickness of quills, which rarely produced any Potatoes under ground, but a number of small ones, of the size of Peas, above it, clustered on the stalks. The same thing very often happened, even when Potatoes apparently sound were planted, and the fields appeared as if only a few Potatoes had been planted here and there in each drill, as the defective ones made no appearance at a little distance, though they did send up very slender shoots, as above described. This disease gradually wore away, and for three or four years past there was little appearance of its existence, although the principle of life, in most varieties of Potatoes, was hardly so vigorous as it was before the disease commenced. The crop of the year before this malady showed itself was unusually great. Of course no Potatoes, but for experiment, were planted, except such as seemed sound; but it often happened that those planted in the morning failed, while the same sort, cut at the same time, and planted immediately adjoining, grew well, and *vice versâ*. During the prevalance of the disease, I and others imported Potatoes from districts on the mainland, where the disease had never shown itself; and it is remarkable that though beautiful roots, the crops from them were almost uniformly more affected with the disease than those planted with our own seed, among which it was strongly marked. So much was this the case, that we ceased to import seed Potatoes, and planted only such of our own raising as appeared, at the time of planting, to be sound and good. We never plant Potatoes two years in immediate succession on the same ground. So very fatal was the disease in many instances, that not a fifth part of the usual crops were produced; and, as might have been expected, it produced great suffering among the poor in the highlands of Scotland for several years. The crops of Potatoes both in the present year and in the last were very great in this quarter, and I understand from a number of the tenant-farmers here, that in many instances the same disease which at present affects these roots was observed last season, though not by any means to the same extent as in this season.

It is therefore not entirely a new disease here. It may be observed that on the crop, a very great one, which immediately succeeded the failure, which I have shortly above described, the Potatoes produced an immense quantity of seed, or, as they are called here, "bullets," and the same fact was noticed on the crop of 1844. For several years previous to 1844, there were very few "bullets" on the Potatoes. I may further state that during the seasons in which the above-described disease prevailed, I raised a variety of sorts of Potatoes from the seed; but as soon as they were fit for planting for a crop, the disease, or dry rot as it was called, was just as severe on them as on the Potatoes from which they were raised. From these facts I hope, and would infer, that the present disease, though an extremely distressing one, will gradually wear away; as I cannot believe that any vegetable, in present cultivation, has entirely lost the power of reproduction. One of the great revolutions that have taken place on the earth's surface would I think, be required to bring about so important a change; and if such did occur, Potatoes would not alone be the sufferers.

As the most easy and likely means of preserving at least a portion of so bulky a crop as the Potatoes are, the farmers here have put them up in very narrow pits and covered them with rooty turf, which they remove in dry weather, so that the tubers have the benefit of the sun and air; and remove such as appear affected with the disease. In this manner a great deal of the water contained in the Potatoes will be carried off, and thus brought into a dry state, in which they are more likely to be preserved sound till the time of planting. As there is little frost here, this process of drying may be continued, if found necessary, during great part of winter and spring. There are very few Potatoes in this island but are affected, more or less, with the disease so common in almost every part of the empire, and in not a few instances the loss is almost total. The early garden Potatoes are generally almost free of this malady.

I very much approve of planting Potatoes early in winter. I did so last year, and had a very good crop. I believe that the seed is more likely to be preserved in this way than in any other. It is advisable, however, to plant whole Potatoes of the size of pigeons' eggs, or a little larger, rolled in powdery lime before planting. I followed this plan, and found it to answer well.—*J. P. Whitehouse, Arran.*

ON THICK AND THIN SOWING.

The question of thin sowing is a most important one individually and nationally, involving the consideration whether we do not bury in the soil every year wastefully and prejudicially 3 million quarters of corn. I have endeavoured to bring my mind quite unprejudiced to the examination of this question, and present, for the consideration of my brother agriculturists, some facts and reasonings with a view to stimulate unprejudiced experiments, which, I hope, will be fairly tried on a moderate scale, for an average of seasons, in every district.

Before proceeding to the general question, I would propound as theories, supported by facts observable within my own knowledge on my own farm,—

1. That the tendency of thin sowing is to increase the size, vigour, and perfect development of the stem, ear, and kernel, prolonging its growth, and consequently delaying its maturity.

2. That, on the contrary, thick sowing hastens ripening, but renders the plant in every respect more diminutive and less productive.

3. That a large quantity of seed will not produce so large a crop in a short time, as a small quantity of seed in a longer time; the supply of manure, soil, and climate being alike to both.

4. That dibbling delays the maturity of a corn-crop, but promotes its tillering.

5. That drilling and broadcasting hasten its maturity, but diminish its tillering.

6. That the propriety of thick, moderate, or thin sowing must depend on the nature, quality, and condition of the soil; the comparative temperature and moisture of the climate, and the period at which it may be most convenient to the farmer to put in his seed. The quantity that would be judicious in the luxuriant soil and moist warm climate of the south and west of Ireland and England, would most probably be quite insufficient in the highlands of Scotland, or in our cold and dry northern and eastern districts, with long winters and short summers.

7. That neither a large nor a small quantity of seed will produce a full crop if the soil contains only food enough for half a crop.

8. That a small quantity of seed sown at a proper early period, with deep and frequent cultivation between the widely-placed rows, will produce a much larger return than an abundantly-seeded close sown crop in which the horse-hoe could not be worked. Tillage here supplies manure.

9. That by varying the quantity of seed we sow in our different fields, we can cause an interval of succession in their ripening, and so prevent their all coming ready for the sickle at the same time. This is convenient at harvest time.

10. That on land that has been subsoiled or trenched for the previous root-crop, the Wheat-crop is delayed in its maturity at least one week. This is worth noticing—the fact being obvious in several of my fields this season. The cause is a more vigorous and prolonged growth; which instructs us that in well-drained deeply-cultivated soils we may expect greater bulk, and should therefore give longer time for growth by earlier and thinner sowing.

I am convinced that thin sowing must rank with deep drainage and deep tillage as one of the bases of our agricultural structure. To Jethro Tull in ancient, and to Mr. Hewitt Davis in modern times, belongs the honour and credit of this discovery. The latter gentleman's essay (rejected by the Royal Agricultural Society) supported by long and well-proved practice—is one of the most important agricultural documents ever promulgated—second only to deep drainage and deep and frequent tillage, on which it is dependant. The mere rejection of this document is a great honour to Mr. Davis; for it proves his practice to be so far in advance of his own times, that cautious men are afraid to go with him, even in his facts. It was, no doubt, the fear of a great responsibility * that caused Mr. Davis to lose the prize to which he aspired; but honour will, and must, nevertheless, soon come, and followed by an amendment of our at present wretched defective system of tillage. I will now proceed to give reasons for the opinions I have expressed. In various portions of my fields I have dibbled and drilled Wheat at the rate of 2½ pecks, 4 pecks, and 5 pecks per acre. These have been sown in December and January. I will be readily admitted that if I can obtain a crop from such late and thin sowing in a winter like the last (which has been almost a continuous frost since the time of sowing until May), the experiment has been tested under the most adverse circumstances. In fact so severe has it been that, on the north side, or round the edge of the ridges in one well-drained field, some portion of both the dibbled and drilled thick and thin sown have each perished where the snow was blown off, and the birds were most persevering in their attack.

So thin (but not yellow) have looked my Wheat that we have been most abundantly pitied or blamed by our numerous visitors, until my late tenant (who manages for me) absolutely fancied they must be right and quite desponded. 'Tis true, here and there a visitor has remembered that his Wheats, which he had half determined on ploughing up in early spring, owing to their wretched appearance, have always turned out his best crops. And we have been occasionally consoled by a stray remark, "Oh! it will get together there will be Wheat enough!"—"there will be more than people expect;" and so on. Whilst another has remembered that his luxuriant crop of April has, in cold and wet July and August, been laid, matted, and rotted, or destroyed. However, amid this storm of conflicting opinions, I have calmly and confidently looked on as an unprejudiced observer depending on facts and common sense, and not on opinions.

I have taken some pains to ascertain how results adverse to the principle of thin sowing, have been obtained. The following are illustrations amongst others. —Well, you sowed 3 pecks per acre: how did it answer?—We did not get quite so much as with 8 pecks. Did you give it more than the usual hoeings?—No, we gave it two hand-hoeings. Were there not many weeds?—Oh, yes, a great many more than usual. It did not occur to you that the ground being so much less covered in the plant's early growth, that it was necessary to prevent entirely the growth of weeds by additional hoeing?—No, it did not. And do you consider this a fair trial?—We do. Why is Wheat an exhausting crop? and why are roots not considered a scourging crop, although they really are much more so than Wheat? We may safely compare the undisturbed shaded cold and sour ground under a dense Wheat-crop to soil shaded by trees. There is a foul fusty smell in soil that has been long excluded from light, very different from the healthy nosegay of a summer tilth. In one case we see the result; in the other we only see the Wheat. We admit that the benefits of light, air, and evening dews are great; nobody denies the excellence of a clean fallow. That atmosphere which has disintegrated and reduced to dust the solid marbles and cities of antiquity, will alike chemically decompose the particles of earth we expose to its influence. Frequent tillage and comminution is our best and cheapest manure; and yet we obstinately decline following Jethro Tull's and Mr. Hewitt Davis's plan of a fallow amongst the growing corn-crops. This is the great secret of Mr. Davis's subsequent good crops. The soil is ready to receive them. Were we to treat our Turnip-crop as we do our Wheat-crop, where would be the following crop? Imagine a crop of Turnips on the ground 10 months out of the 12, not thinned, and only a couple of scratchings, called hand-hoeings, bestowed on it. Oh! but a Turnip swells so. Well, does not a Wheat plant swell into a giant if you will but give it space and time, with deep and frequent cultivation and ample food? Would you have grown into your well-developed form had you been cramped in the clothing of your boyish days, and had not more room been given to you as you advanced in size? The struggle for air, light, and food is quite as great amongst a crowded Wheat crop on poor land, as it was amongst our unfortunate countrymen when confined in the black-hole at Calcutta. Like them, many perish in the struggle. The puny ears, shrivelled kernels, and spindling stems, are caused by the plants striving to get their heads above their companions, whose pressure on their sides forces them up to a longitudinal decrepitude. Here let me quote the truthful, eloquent, and impressive words of Professor Johnstone:—"The light of the sun, in the existing economy of nature, is indeed equally necessary to the health of plants and of animals. The former become pale and sickly, and refuse to perform their most important chemical functions when excluded from the light. The bloom disappears also from the human cheek, the body wastes away, and the spirit sinks, when the unhappy prisoner is debarred from the sight of the blessed sun. In his system, too, the presence of light is necessary to the performance of those chemical functions, on which the healthy condition of the vital fluid depends." Who after this will advocate the exclusion of light by thick sowing? A blanched Sea-kale is a powerful illustration of the effect of absence of light.

I do not consider the system of thin sowing can be

* In 19-20ths of the heavy, undrained, weedy, half-tilled lands of this country, thin sowing would be in wet winters a ruinous affair, because we well know in such seasons on such lands, much of the seed rots or perishes. In fact, I have often heard farmers say, the water lies in, or follows the line of drill, and yet such men never dream of drainage. But on chalks, limestones, sands, gravels, and other self-drained soils, thin sowing (or in preference thin dibbling) cannot fail to be profitable, provided the horse-hoe and hand-hoe (with heavy autumnal and spring rollings) keep the intermediate surface open and free. It was, no doubt, a consideration of these circumstances that caused the Society to decide as they did.

profitably carried out with the ordinary hand-hoe. My plan is to use Garrett and Son's horse-hoe, which covers a whole ridge, 7 feet 2 inches wide, and will, with two horses, disturb deeply 10 acres per day, and remove all weeds from between the rows. I shall use it, weeds or no weeds, whenever the ground is dry, for the purpose of fallowing the land, and facilitating the escape of moisture and change of air by percolation and evaporation; whilst the warm night dews are in summer admitted into the open comminuted surface. Unless this is done thin sowing must prove a failure. The horse-hoe should precede and succeed such little hand-hoeing as may be necessary between the plants. It is a singular corroborative fact that our dibbled Wheat (on the heavy land, not on the light land), which looked best all the winter, during the spring rains turned yellow, which I attribute entirely to our being unable to horse-hoe between the rows. The thin sowed drilled, which had been horse-hoed, looked beautifully green on the same description of soil. I am having Newberry's dibbling machine altered to cover the whole stetch, 7 feet 2 inches, with 1 foot distance between the rows, so as to enable me to use Garrett's horse-hoe. I am not aware there was any other cause for the yellow appearance of the dibbled portion.

Horse-hoeing, or opening of the soil, I consider indispensable with all crops, but especially dibbled Wheats on heavy land: being deeply rooted, they are deprived by a tenacious surface of a proper supply of oxygen, &c., without which the roots cannot perform their functions.

In light or mellow soils there is no such risk. In such soils all corn should be dibbled; but until I have an opportunity another season of trying dibbled Wheat on heavy land, well horse-hoed, I am not prepared to say whether dibbling with the machine in a late cold and wet season is advisable on heavy lands. I am convinced drilling is to be preferred to dibbling, if we get a cold wet spring and cannot use the horse-hoe. Such soils (even though recently drained) in wet cold weather become so much solidified as to prevent evaporation, and consequently percolation, and the internal circulation of air, unless the surface is frequently opened by cultivation. Even in drained heavy land the surface should be kept well open, for when the surface is sodden or solidified, the internal water cannot descend to the drains. As an illustration, liquid will not flow out of a cask unless we let in air above by removing the vent peg. The deeper the roots the more they suffer.

It may be admitted that, in such rare seasons as the last, dense crops were productive, because from the extraordinary drought, innumerable cracks or fissures were the means of permitting extensive percolation and evaporation, but against such a season must be balanced those more commonly wet ones, which cause loss by mildewed and laid crops. But even last year, I know of thin crops being the most productive on well cultivated soils. The deficiency in the number of stems is compensated by the length, size, and uniformity of the ears, and the greatly increased number of kernels, 110 of which I have frequently counted from one Wheat ear. The blade or flag leaf is also much larger.

It is well known that on poor light lands Wheats never tiller or branch so well as in heavier soils; there is a tendency to a more rapid or surface growth. In order to prevent this, they should, in such soils, be well rolled when sown, and as soon as they are above ground, and again shortly after, as well as in the spring. This checks their upward growth, and obliges the tap root to descend into the subsoil, out of the way of frost and excessive drought, for there are two roots to Wheat, a fibrous surface root and a downward tap root, which are connected by a neck between them (varying from 1 to 6 inches, according to the depth at which the seed is placed).

For want of this autumnal rolling, many thousand acres of light land Wheats have this severe winter been killed by the frost which perished the roots; especially on the north side of the ridges. A farmer who lost 50 acres told me to-day, that where he rolled in autumn he saved his Wheats, having previously observed that where cart-wheels had passed over the land, the plant was vigorous. No implement answers so well for this purpose as Croskill's clod roller. Of course, in heavy land such rolling cannot be required in a wet autumn; in a very dry one it might be useful, although such land would seldom require pressure.

Supposing we are satisfied to receive as a crop 5 quarters, or 160 pecks of Wheat per acre,—what ratio of increase do we require from each kernel, assuming that we sow 2 pecks per acre? Why 80 kernels, or one full sized ear. (I saw some ears last season containing 110 kernels.)

Now where is the man to deny that the average produce from each kernel may be, instead of 80 kernels, from 500 to 2000 or more, with ample space, and absence of weeds, wire-worm, and game.

It is quite clear that on the tillering or branching of Wheat, depends the whole question—that branching or tillering is indicative of vigour in the roots, both tap and fibrous. That vigour can alone be produced by deep drainage, early sowing, frequent, deep, and clean cultivation, a total absence of weeds, occasional top-dressings of manure, if the land is not of rich quality, or the plant be weak; and on light land, ample rollings. With the present defective system of farming, thin sowing must be a failure.

No doubt peculiarity of seasons, such as mild growing winters and moist summers, or severe winters and very dry summers, must always occasionally be alternately favourable or unfavourable to both thick and thin sowing; but that does not alter the general average rule or principle.—*I. J. Mechi.*

(To be continued.)

THE CULTIVATION OF ROOT CROPS ON HEAVY LAND.

We are now to inquire into the best mode of cultivating our strong and tenacious soils for the growth of root crops, and likewise to what extent the cultivation of them can be carried with profit on such soils. I believe it will be readily conceded that roots can be produced on heavy soils, and large crops of them too, by good tillage and careful cultivation; but then comes the grand and puzzling question, "Can we consume the crop when we have brought it to maturity, without positive loss to our pockets, and ultimate injury to the land?" Some time ago I certainly should not have attempted to answer the question, or if I had replied to it at all, it would have been by declaring my conviction of the uselessness and folly of the attempt; but now the case is far different: we have discovered a mode of taking up and stacking away the roots when arrived at their full growth with ease, and certainty of their preservation till a late period in the spring: and we have also by the result of experiments carefully tested and duly registered, found out that sheep as well as other stock, when housed and kept warm and dry, will thrive faster and with less food than when folded in the usual way in the open field. I must remark likewise that the drainage of moist clay soils (which formerly were, from being saturated with surface water, difficult to cultivate) is now well understood; without which drainage the necessary operations of husbandry cannot be carried on to good purpose; and without which the cultivation of roots should not be attempted; for if attempted, it will not be successful. I am sorry that I am not enabled to state as the result of my own experience, facts on which you might safely proceed, but that I shall be compelled instead to resort rather to hints and suggestions for your adoption or rejection. These I leave to your better judgment, and to the test of future experiment and experience.

I will commence then by telling you what I did for upwards of 30 years since, when I began to attempt to be a farmer and a grower of root-crops, and you may take me as an example to avoid: shun my errors. Well then, being aware of the great advantage of a plentiful supply of roots as food for my stock during the winter months, whereby to save my hay-ricks and increase my heap of dung, I divided my arable land into eight parts, taking as a rotation of cropping—Turnips, Barley, Clover, Wheat; Cabbages and Beet, Oats, Beans, or Vetches; and lastly Wheat; thus a fourth of my arable land was annually producing a root crop. This went on for a bit; I grew roots, good ones, and plenty of them; but how were they to be got off the land, at that time not thoroughly drained? I will tell you how it was; got off they must be, for it was out of the question to think of feeding them off where they were growing; so I pulled them and fetched them away in carts as I wanted them, let the weather be as it might, wet or dry. You will say I got into the mire; I did so most certainly: but this was not all, for as the season advanced, and when the spring crops of Oats and Barley were to be planted, the land could not be worked properly, notwithstanding much labour and pains were bestowed upon it, the lent grain was consequently oftentimes a failure, or at best an indifferent crop, and so the scheme was after a time given up; mine was an experiment farm rather than an example, at least one to be followed. I did not, however, like to allow myself to be dead beaten; and finding the great advantage of having a few roots in winter for my stock, I changed my course of cropping, and managed the eight pieces of arable land I at that time farmed as follows, viz, a rotation of six years. First, fallow or Vetches manured, Wheat, Clover, Wheat, Beans, the land previously manured, and lastly, Oats—to be succeeded again by winter Vetches. On this rotation I have no cause to complain of my crops, which have been to the full as good as those of my neighbours.

The two remaining pieces situated near the homestead, and also being tolerably sound land, they having been pretty effectually drained, I reserved for roots alternately with white straw or corn crops. The roots I have always carted off at my convenience, choosing as dry a time as I could, and have stowed them away with various success as to their keeping sound. This plan I have now pursued for several years, and have found the roots so grown to be of considerable advantage to my winter stock of cattle. The quantity of land being small (not exceeding seven or eight acres in a season), I have been enabled to go on without difficulty. These two pieces I consider the most profitable of my whole farm, having always grown me excellent crops of roots and corn alternately, having never lain idle, or having required a naked fallow for upwards of 30 years. I have always kept them clean at a small expense, by forking out the little Couch the land produced at a cost not exceeding in any one year two shillings per acre. The ground is never ploughed more than once in preparation for the root crop, and in alternate years the succeeding corn crops are usually put in, the ground being worked with the scuffler without ploughing. The only difficulty I had to contend with was to get the land into fine tillage for the root crop by once ploughing. This I effected after the following manner. As soon as my winter Vetches were in and my Wheat sowing finished (which I always drilled on a stale furrow, and in many instances after the scuffler, without ploughing at all), I looked over the field intended for a root crop very carefully; forking out with a three-grained fork every blade of Couch that was visible. This, after the land had been once got into condition, was by no means either a troublesome or expensive job; never exceeding, as I before observed, 2*s.* per acre. The ground being thus prepared, at my earliest convenience, and having previously well opened out the old furrows in dry weather, I carted out on the land the usual dose of dung; and spreading the manure by carefully shaking out every lump, so as equally to cover the ground with it, I proceeded immediately to plough it into ridges of 6 feet in width, taking a deep furrow of at least 7 inches. The land thus ploughed remained to receive the benefit of the winter frost, to mellow and sweeten till the spring, at which time, when thoroughly dried, I passed, if found needful, a heavy roller lengthways and across the ridges; and then put the scuffler to work lengthways, with the broad shares, cutting the whole surface about 2 inches in depth, and thereby destroying a multitude of annual weeds which had sprung up since the land was ploughed. The dung ploughed in before winter remained undisturbed and well covered. Nothing now remained to be done till the time arrived for planting the Cabbages and the Beet Root, or for drilling the Swedes; at which time the scuffler was again put through the ground nearly to the full depth of the furrow, now pretty well mellowed, mixing the manure, and further pulverising the soil. By these means I have rarely failed to produce the requisite fine tilth; and have never been compelled to sow the Swedes twice. For should I apprehend danger of losing the plant from an attack of the fly, I have while the dew was on the young Turnip, dusted them with fresh slaked lime; this I have always found a complete safeguard. The roots have been carted off the land and stacked away, and the land immediately prepared and drilled with Wheat, generally with the scuffler alone, or it has got one furrow for some white straw crop, to be planted in the spring.

I have now told you all I know and have practised in the growth of root crops on my land, as grounded on my own actual experience, and shall now have to launch out into the region of fancy and untried experiment. No doubt you will say, why not let well alone; for if you do not you will again, in all probability, stick in the mire. Perhaps I may; I cannot, however, burn my fingers in this matter, and have sanguine hopes of better success than attended me when I commenced farming many years since. Circumstances are now in my favour, which were then against me. I imagine that I possess more knowledge and experience; the drainage of the heavy clays is now well understood; a greatly improved method of storing the root crop is practised; which (since we can by no means reckon upon feeding off the Turnips as they grow), is a necessary part of the business; and Mr. J. Morton, by means of accurate and well-tested experiments, has shown us that sheep can be fed in littered yards and under shelter, well and quickly, with less food than they would have consumed in the exposed and open field fold.

Now, gentlemen, matters standing thus, I confess that I am induced again to tempt my fate, and a second time to alter my course of cropping.

Arable land must, by management and by judicious husbandry, be rendered fit, not only to produce good corn, but also by the introduction of roots, where practicable, and by green crops, be made capable of carrying a large stock of cattle and sheep. I consider that system the best and most profitable where the land is made to produce alternately food for man and beasts; in other words, that two white straw crops should never be permitted to be planted in succession: this is the foundation and the groundwork of all good husbandry, and ought never to be departed from; it is the sole restraining covenant I would ever introduce into an agreement between landlord and tenant as to the cultivation of his arable land; for if this were strictly adhered to, the land and the landlord could never be materially injured by a tenant; and it might also be a means of removing a prejudice, at this time prevailing in the minds of most of the landlords in the vale of Gloucester, against converting worthless pasture into tillage land; which, if it were set about judiciously, would benefit the tenant, the landlord, and the country at large. I can show you two pieces of land which I myself broke up from pasture more than 30 years since; and which at that time produced me little or nothing, but which are now very valuable arable land; and as they have never been over driven, are at present more fitted for being returned to pasture, and are in better heart than when first ploughed up. But, gentlemen, you will say I have been running rather wide of the subject proposed, and I come back to tell you what I next propose doing, or endeavouring to do.

I must first observe that much of my land has been laid out in wide ridges of 8 yards, gathered twice from the flat, and drained where needful, with tiles and stones up every furrow; the remaining part of the farm is in lands of 6 feet or 2 yards wide, and has been drained many years since with shallow stone drains in a direction across the run of the furrows at intervals of 8 or 9 yards, and with tile heads. This method of draining does not answer upon our close and adhesive clay soils, as it does not carry off the surface water readily. It is my intention to set out these lands afresh, and to put them (as I have done the others) into ridges of 8 yards in width, and to intersect the old drains, where

necessary, by running others up the new furrows, at intervals of 16 or 32 yards. By this means I hope to give the old drains a quicker vent, and to enable them to discharge the water more readily than they do at present. Other drains may at a future period be laid in those furrows which are at first missed, whenever it may appear necessary. We will now suppose the ground drained and rendered as sound and dry as such land can be made. We will also suppose the land to be in fair condition and tolerably free from Couch and root weeds (for should the field have been run out, as we say, and full of Couch, a naked fallow on this kind of soil must of course be resorted to). My mode of proceeding will be thus; I shall in the first place have the ground very carefully looked over, and with three-grained forks dig up every blade of Couch and every Dock that can be seen; having previously finished, as I said on a former occasion, sowing my winter Vetches and drilled my Wheat. The land intended for a root crop is then to be ploughed, in a direction diagonally to the run of the furrows, into single bouts of 27 or 28 inches; or into two bout ridges where Cabbages are intended to be grown. The appearance of the field will then be like garden ground laid up in trenches. I should plough as deep a furrow as practicable, exposing a large surface for the winter frosts to mellow and sweeten. After the land has become sufficiently pulverised and the trenches are in a dry state, with a double mould-board plough, I purpose thoroughly to open out and considerably deepen them, directly following with a stout plough, having the turn-furrow taken off, and with a strong team of horses harnessed at length, subsoil or stir the hitherto unmoved soil in the bottom of every furrow trench, as deeply as may be practicable—6 or 8 inches at the least. This being not trampled on while in a moist and tender state, will lie light and hollow for the air and frost to sweeten and pulverise. Nothing will have to be done now to the land till the dry weather sets in in the early spring, be it in February or the beginning of March; at which time I intend to set the dung carts to work, and having spread the manure carefully in the bottom of the trenches, with a pair of horses driven abreast, cover it up, by splitting or reversing the bout ridges. These are again to remain untouched till well dried and pulverised, when an opportunity will be afforded of subsoiling or stirring the intervals. Thus then nearly the whole of the ground will have been loosened to the depth of 12 inches at the least, and a sufficient tilth gained, and that too at no very ruinous expense. I prefer to cultivate my Turnips and other roots (such as Cabbage and Beet) on the ridge system after the Scotch manner, because it will give me an opportunity of working the ground deeply and frequently, during the growth of the crop; and because it will allow me, at the time of singling out the Turnips, to draw the earth well away from the plants, whereby they appear to swell, and form better bulbs. I am now working a piece of 7 acres in this way for roots, and shall be happy to show what I am about, to any of the members who may feel disposed, or who may think it worth their while to pay me a visit.

It is somewhat remarkable that in the autumn of last year, I was suggesting the mode which I have now adopted of preparing my land for roots, by trenching and subsoiling, to one of our members, when he observed to me that he had met with the same idea or something similar to it, in a Gloucester Journal of November last. That member has sent me a copy of the paper, which I have now lying before me. I completely agree with the writer in principle, but not exactly in his practice. In the first place, I do not well understand how land can be ploughed into single bout ridges with a wheel plough, and I consider a swing plough with two horses abreast far better calculated for the operation. I would likewise confine the trench ploughing and subsoiling to the fields under preparation for the root crop; as I well know by practical experience, that a surface which has been exposed to the action of the weather through the winter should by no means be ploughed down, but should alone be worked by the scuffler and harrows in putting in the lent grain. Strong heavy clays, such as I am farming, should be carefully and deeply ploughed before winter; this will enable the farmer (provided his land has been properly drained) to get through the necessary work in a way that would surprise any one who has never given the plan a trial. Our calcareous clays by exposure are rendered so friable that in spring they can be worked quite as readily as the lighter soils; but turn up the stiff and clung bottom after winter, and you will never recover that you have lost—namely a fine workable surface; but instead you will be plagued with clods as hard as brickbats, which you may beat and hammer to all eternity without producing the desired effect, and that too at a vast expense. I am happy to find that some of my neighbours are at length beginning to open their eyes and are following the lead I have given them.

Having thus stated to you in the best manner I am able my opinion of the practicability of raising root crops upon heavy soils, with profit and advantage to the grower, it only remains for me to declare to you to what extent I would propose their culture. I have now before me a paper, sent me by a friend out of the county of Nottingham, wherein Mr. Richard Parkinson, an eminent practical farmer of that county, has stated that on a clay farm, he has for many years past pursued a course of cropping on a rotation of 12 or twice six years. I consider that his authority may be relied upon, and would follow in his track. I myself am holding 12 pieces of arable land which I would crop nearly after Mr. Parkinson's manner:—

1. Cabbages, Carrots, Mangold Wurzel, manured with dung.
2. Oats or Wheat.
3. Seeds (White Clover and Ray Grass).
4. Ditto (red and ditto).
5. Wheat or Oats.
6. Winter Tares.
7. Swedes, manured with dung and bone-dust.
8. Wheat or Barley.
9. Clover or cow Grass.*
10. Wheat.
11. Beans or Peas, dunged.
12. Wheat.

Thus one-sixth part of the whole arable land would be under a root crop. I have little doubt of the practicability of this rotation provided the land is furrow-drained as it ought to be, and the ground thoroughly cultivated, and subsoiled on the plan I have proposed. I will now leave the subject in your hands. The cultivation of root crops on such soils as those I am farming, has been little practised and less understood, but is a matter well worthy your serious attention. I would by no means advise you to attempt it till such time as your land has been properly furrow drained. And observe that your roots and Turnips must be planted early, so that they be ripe and ready for stacking away before the bad or wet season sets in in the autumn; for you must not attempt to feed them off where they grow, or you will be, as I was some years since, set fast in the mire; and from which I feel assured you will not get out without serious loss—*Mr. N., in the 4th Report of the Gloucester Farmers' Club.*

* Dressed with lime previous to Wheat, or a light dose of compost.

Home Correspondence.

Soap as a Manure.—Having seen in some late Number of your excellent Paper some discussion on the value of soap as a manure, I am inclined to give you my experience in this matter. I am a silk dyer, and use about 15 cwt. of soap weekly to discharge the gum and oily matter from the silk before dyeing. I also use about 1 cwt. of soda to 3 cwt. of soap, which I presume unites with the oily matter of the silk, forming a species of soap. The result is, that I produce from 4000 to 6000 gallons of strong soap suds per week; and, having a small farm, I have latterly applied the whole of this to my land, and its effect is most extraordinary. My experience in its use has been only one season, and I cannot, therefore, give any comparative results; but I consider it more powerful than any manure that I am acquainted with. If any of your readers will do me the honour to come and see my land next spring, when vegetation begins to move, they will have ample evidence of the value of soap as a manure; and if farmers were allowed the drawback of the duty on soap used as a manure, in the same way that us manufacturers are allowed it by the government, there is no doubt in my mind that soap would soon supersede the use of guano. P.S. There is a very large consumption of soap by the manufacturers of cloth, linen, silk, and cotton goods, and the duty is remitted to such consumers; the farmer has surely an equal claim, as he is the manufacturer of food, and they of raiment. The soap which I use on my land is duty free, because I employ it first as a manufacturer.—*Thomas Dalton, Coventry, Dec.* 10.

Management of Liquid Manure.—The principle of the apparatus is a very ingenious one, by which your correspondent, Mr. Liddell, of Hull, proposes to solve your mechanical problem respecting the drainage of a fold yard, but in a part of the practical details, his invention appears to me susceptible of improvement, which I proceed to point out. Your correspondent makes his float (which is the regulator of the apparatus) to rest on the fluid in the manure-tank, and consequently the degree of its efficiency is entirely dependent on the varying height of the fluid contained therein. One or other of the following results must flow from this arrangement: 1st. Either a constant and harassing attention must be given to adjusting or regulating the float on its stem, which destroys its character as a self-acting instrument; or 2d, if this be not done, and the fluid get low in the tank, it is liable to be inundated with rain-water before the float is in a condition to act upon the stopper or valve. When the rain-water and fluid manure combined have risen to such a height in the tank as to cause the valve to be closed, the latter must remain in that situation until some of the fluid has been abstracted from the tank, or a new adjustment made, and unless one or other of these conditions be complied with, the liquid manure will be detained in the drain, and compelled to flow over into the waste pipe. A sufficient remedy for all these inconveniences will be found by making the float to rest upon fluid contained in a separate well of small dimensions, with a graduated and narrow outlet, ample enough to allow whatever manure may enter the drains to flow off into the manure-tank without materially affecting the float, but also small enough to make it quickly sensible to any unusual addition from an influx of rain-water. In an accompanying drawing I have represented this well, communicating on the one side with the drain from the fold-yard, and on the opposite side by a contracted outlet with the drain leading to the manure-tank, capable of being still further contracted by means of a sliding plate, which is fixed to the float by a projecting arm, and moves up and down loosely, and without friction, in raised grooves, formed parallel with the sides of the outlet or aperture. In the ordinary state of the apparatus, when liquid manure only is flowing into the tank, the upper edge of this plate is on a line with the bottom of the outlet: but when a fall of rain brings into the well a greater quantity of fluid than can flow off by the outlet in the same time, the float will begin to rise, and with it the plate, which will thus assist in restricting the efflux of water from the well, and ensure the speedier action of the valve. It will be seen, then, that the apparatus, when once properly adjusted, is strictly self-acting, without requiring human care and attendance. In dry weather it will remain nearly stationary, with the valve open; but during rain the instrument will be under the influence of successive alternate movements, minute in degree, and regular in time. The influx of rain-water first raises the float and closes the valve, and, accumulating in the drain, flows over into the waste pipe: in the meantime, however, fluid is also escaping from the well, which lowers its level, the float begins to descend, and the valve is slightly raised, and a fresh influx of water again closes it, and thus it goes on as long as the rain continues.—*J. H. H., B—k.* [This is, in effect, an apparatus for regulating the rate at which water shall enter the tank. Supposing the machine able to deliver into the tank one gallon per minute, and rain to pour on the yard equal to 10 gallons per minute, then every minute, *from the very commencement of the shower*, one gallon will be saved and 9 wasted. But we do not want this: we want the whole of the first hour of the rain to run into the tank, because all this is a strongish decoction of the soluble matter in the yard, and, after the first hour, on the assumption that by that time the decoction is so weak, owing to previous washings, that it is not worth keeping to cart on the land, we want the whole of it to run to waste.]

Cabbages, Potatoes, &c.—I am surprised to see so little agricultural matter from Devon or Cornwall, two counties of large extent, and from their situation and state of cultivation well able to contribute the results of good farming. The lack of time, not of inclination, has hitherto prevented me from sending you any little information. I now send an account of some extraordinary Cabbages; there is no doubt of its correctness. "A few days since a wager was decided respecting the weight of some Cabbages grown at Saltash, which speaks well for the cultivation of vegetables in that place. Bets had been laid that six Cabbages could not be produced by any grower in Saltash that would weigh 300 lbs. The requisite number were exhibited last week; they were of the Flat-pole kind, and cut from a field belonging to Mr. William Toms, of the New Inn, Saltash, their total weight being 337 lbs.—viz., 61, 59, 57, 56, 54, 50—337 lbs., when cut; but in taking them to St. Budeaux they lost 5½ lbs., from some of the leaves being knocked off, and the moisture evaporating from them."—(Taken from the *Devonport Telegraph*, Saturday, Nov. 15, 1845.) In the same paper an account is given of a Carrot, drawn in St. Budeaux, 13 inches in girth; and a Turnip 3 feet 3 inches ditto. The Flat-pole Cabbage is the same as the Scotch Drumhead kind; the parish of St. Budeaux, and a small tithing adjoining, named Western Peverell, have long been famed for growing this sort, which is chiefly used for milch cows. Mr. W. Toms, the grower, is a native, I believe, of St. Budeaux, and has lately emigrated to Saltash. I expect he took the art of growing Cabbages of this size with him. I suppose, also, they were grown at a considerable distance apart; but even if the interval were 8 ft., a very large produce would be derived per acre. The strange disease of the Potato is in this neighbourhood as quoted in your Paper. It exists almost generally throughout the country, with some exceptions, however, worth remarking. I grow something about an acre, mostly for the family use and for pigs. I planted about 20 land yards with a kind called Gilliflowers, on a dry substratum of slate rock; the ground has for the last 10 years been occupied with forest trees of various kinds, and I have never applied any manure to them. This last spring the ground was cleared and planted with the above kind, no manure; the result, all good. Again, a small space was planted with Early Frames, the same culture, all good. A large portion of my crop was planted on a subsoil of loamy kind of clay, well manured with dung, and well limed on the top; those of a kind named Spanish Lords were nearly all good; but of the two kinds, Red Lords and Red Ladies, the two prevalent kinds here, one-half were useless; but it should be remarked that where the lime was laid in greatest quantity, the crop is less injured.—*J. B., 5 miles north-west of Plymouth.*

Seed Wheat.—Monsieur Girardin communicated to the French Academy on the 24th of November the result of some new experiments on the best method of preparing seed-wheat with a view to prevent bunt. It has sometimes been supposed that the principal benefit arises from the skimming off of the light grains, and that it is quite a matter of indifference what the brine is so long as it be of sufficient specific gravity to insure all diseased grains floating. Monsieur Girardin, however, is decidedly against the practice of sowing without the previous use of some chemical substance. He recommends, after many experiments, the method of Monsieur Matthieu de Dombasle, in preference to all others, as simple, economical, free from hazard to the labourers and the public, and yielding the soundest and most productive crops. Since arsenic, blue vitriol, verdigris, and other poisonous substances may be advantageously replaced by sulphate of soda and lime, he recommends the adoption by Government of measures for the prevention of the old dangerous mode of steeping. The method so highly and even exclusively recommended by M. Girardin, is described in Phillipar's useful Treatise on the Diseases of Corn, from whence the following is extracted:—Sulphate of soda (Glauber's salts) is dissolved in water in the proportion of 25 lbs.

to 31 gallons of water * With this solution the Wheat laid upon a paved or slabbed floor is sprinkled, the whole being meanwhile well turned till the grain will absorb no more of the liquid. Twelve pounds and a half of sifted quicklime are then added to each quarter of corn, taking care to mix the seed as carefully as possible. The seed thus prepared should be sown immediately. The sulphate of soda, which is composed of sulphuric acid and soda, combines with the lime; the lime forms sulphate of lime or gypsum; the caustic alkali acts on the diseased germs, and the calcareous salt stimulates the corn. A very simple mode is adopted occasionally in this neighbourhood with perfect success. A large shovelful of sifted quicklime, the fresher from the kiln the better, is mixed with a bucketfull of boiling water. This is poured on 4 bushels of Wheat, the whole being intimately mixed. Each 4 bushels of Wheat is treated separately, and then the whole quantity formed into one heap. The Wheat should be sown, if possible, the next day. This plan has stood the test of above 30 years. — *M. J. B., King's Cliffe.*

Tropical Agriculture.—Though beyond your present sphere of action, you will be glad to hear that the West India planters are becoming more alive to the necessity of scientific culture. You will see that we labour under great difficulties in acquiring the principles of agriculture, because they must be culled from works bearing expressly upon agricultural systems of a very dissimilar character, and, therefore, requiring to a certain extent different means, though, no doubt, based in reality upon the same principles. Thus, in this country, drains, for the most part, are introduced to carry off superfluous water. In the West Indies they should be introduced in order to give access to a store of moisture, whilst in both cases the introduction of air is equally important. Now, to get at these general principles, you will see that more time and labour is required than can well be expected in men exposed for many hours each day to a tropical sun, and you feel, I know, that to advise in such matters requires a particular train of thought and knowledge of local particulars. I gather this from the answers which you have given at different times to the questions I have taken the liberty to put to you. I hope, however, to see the day when colonial planters may peruse your valuable pages with increased advantage, owing to their increased acquaintance with general principles. With respect to the answer to my inquiry as to the best green crop for the West Indies, which appeared in a late *Gazette*, you will, no doubt, perceive that it is unsatisfactory in many points. The writer did not probably see the drift of my question, which was to elicit from you some information, not based upon the practice of the colonies, but upon general principles, and an acquaintance with districts liable to suffer from drought in this or continental countries. Doubtless the cane tops are invaluable food for the cattle, and so are the sprouts of the cane, and the corn-blades mentioned; but, except as regards the cane-tops, which we must have, and therefore should use to the best advantage, such food is rather to be looked upon as a *dernier resort*, than a link in scientific agriculture, because they exhaust the land, which, with every care, can hardly pay the expenses of cultivation. The corn plant, for instance, requires the silicates, and other ingredients of the cane. I apprehend that on many accounts tuberous roots should be cultivated expressly as food for our cattle, and the question is, which would make the best return? I fancy Mangold Wurzel; but I am not competent to say positively. Turnips, I fear, would not answer; Lucerne is, no doubt, good. I hope by the spring to be able to speak with more confidence.—*P. Lovell Phillips, M.D.*

Potato Disease.—Allow me to remark that you may with great propriety suggest to your readers, who are growers of the Swedish Turnips, that each should stack a few tons—say 10 or 20—and thus have the opportunity of rendering their poor neighbours a great service in case of need in the spring, and this without loss to themselves. 20*s.* a ton will pay the grower very well—certainly a moderate price for the consumer to pay. I believe I am correct in saying the crop of Swedes this year is good, as well as hay, so that almost every grower can spare the quantity I mention, which, together, would amount to a great weight.—*Invalid.*

Manure.—F. Marston (page 777) complains that his manure when ploughed into the ground was washed away by heavy rains, and was seen issuing from the drain in a dark stream; and he infers, somewhat strangely, from this, that "Oxygen" is wrong in his view of the affinity of soils for the fertilising salts of manure. The principle maintained by "Oxygen" is, that exposure to rain is necessary to effect that kind of decomposition, oxidation, by which the union of the soil and salts is insured. Had F. Marston put his dressing upon the land, and not into it, the drains would not have washed it away. Much as I have been interested in "Oxygen's" communications, I should be a stronger convert to his theory if he would bring some chemical experiments to support it, or would adduce some analogous facts from nature in support of his views, which, though highly plausible and apparently sound, require more elucidation from science than he has as yet given. I quite agree with your remarks on this subject in one of your preceding Numbers, and I hope he will supply the deficiency.—*Lapis.*

* The figures in Phillippar's book are 80 grammes to the litre of water, 8 kilogrammes to the hectolitre of seed. This gives 50 pounds of sulphate of soda to a quarter of Wheat, which is evidently wrong.

House Feeding.—Though deeply interested in the welfare of the agriculture of my country, and fond, or foolish enough to believe that it is able to compete with any competition that can be brought against it, I am only about to put my theory to the test, by engaging an arable farm of middling quality at its present rental, with every prospect of open ports on an early year of my occupancy. I am a grazier of some years' standing, but as the land is of excellent quality this is not considered a fair test. My farm is about 112 acres, divided into 14 fields of nearly 8 acres each, at present all in pasture, except two meadows and two fields of sown Grass. It is my intention to break up 10 fields —half at present for green crop, and half in spring for Oats—bringing them into operation for a five-course rotation. I purpose keeping as large a stock of dairy cows as possible, and had decided on house-feeding them as much as practicable, of the advantage of which practice, if the expense were incurred, I had no doubt; but recent communications to your Paper throw considerable doubts on the question. One in last week's Paper (p. 792) states, the quantity of milk was reduced one-half after the cows were eight days in the stalls. I suspect, in this case, the Grass was too old; but the question is so important, and bears so directly against my theory, I shall be extremely obliged if you will favour me with information on the subject. The Potato pits have been examined by our farmers, and I am grieved to say that those which were stored as good, a month ago, are turning out in most cases masses of rottenness. Picked ones are sent to market at present in great abundance, but what the price will be after Christmas is difficult to guess.—*A Subscriber, Whitehaven.* [We have not much experience of stall-feeding cows, and shall be obliged for statements of that of our readers. What experience we have is certainly opposed to the paragraph in p. 792. The glass milk-pan is, we believe, a very excellent one, and now that glass is so much cheaper, good ones—well annealed ones—may, doubtless, be had at reasonable prices. See p. 267, 1844.]

Turkeys and Potatoes. — Having several young turkeys (hatched last July) lately mope about for a few days and die, I should be glad to learn from some kind correspondent if the partly decayed Potatoes, so common this season, could be the cause, or what? though we have very few yet the turkeys might have got at some. I opened their bodies to discover the cause of death, found the entrails quite inflamed, and to all appearance no food could have passed for several days. I administered castor oil, onions, pepper, &c., without effect. Indeed I fear my doctoring hastened the death of the birds.—*Turkeycock.*

Rooks and Insects.—I see the Turnip is much infested by insects in Scotland. Now, very lately they have killed all their rooks in most parts of the country. Do not you think many wish them back again? There ought to be a severe law against shooting swallows, brown owls, and other birds, whose labours are solely directed towards relieving us of animal pests, and not against shooting corn eaters as the law is at present.—*Ornithophilus, Merioneth, North Wales.*

Dairy.—Among the agricultural queries in a late Number of the *Gazette*, is one from "a Subscriber," who complains that his dairy is overheated in summer, and seeks a protection from outside the roof. I beg leave to suggest to your querist that a protection inside his roof would be effectual and more lasting. His roof, he says, is slated, if it is only "rendered" with mortar against the slates, if he will have thin boards nailed against the rafters beginning at the wall-plate, and stuff the space from the board to the slates with straw, fern, or moss, he will have a non-conducting medium which will intercept both the heat of the summer's sun and the cold of winter's frost; if his dairy be already hollow-ceiled, and the envelope of air in the hollow ceiling from its facility of being heated proves still to be an insufficient non-conducting medium, let him put "risers" on his rafters, and a casing of thin boarding to hold a bedding of straw or other material, as above recommended. If the boarding be whitewashed with a good coat of lime-whitening, the sheeting of boards will be less ready to catch fire; but this precaution is scarcely required in a dairy. Our cabins in Ireland, when well built and roomy, are very economical structures for retaining heat, a most important matter in our humid climate, but many of the slated cabins have their walls so thin and their roofs so stingily slated that the poor are often, as Miss Edgeworth says, "kilt with the cough and kilt dead with the rheumatism," but still worse, some of these slated "bird-cages" are not hollow-ceiled, and "rendering" is a poor protection against the "winter's flaw;" whatever little heat the scanty fire below emits, instead of doing the part of an Arnott's stove, and drying and warming the whole house, it is carried off through the leaky slates, and the comfort of even the old and much-abused mud cabin is not secured to the inhabitants; but I do not hereby recommend the dirty and decaying straw roof for the outsides of residences or dairies, I only say that comfort ought to accompany taste in the residences of the poor. With respect to dairies, however, the straw inside-roof is an equaliser of temperature and may be found useful. I would say to your subscriber that this suggestion has had but one experiment to support it, but it seems in theory at least feasible. — *Rd. Dowden, Rathlee, Sunday's-Well, Cork.*

Dairy.—Your correspondent, "A Subscriber" (see p. 762, col. *c*), will find a covering made of straw or Reed, according to the inclosed pattern, will answer his purpose. (I have also found this kind of covering excellent for frames, &c., in winter.) Milk will turn sour from various causes; an ill-constructed dairy, want of ventilation, allowing the milk to stand too long before skimming, and last, not least, a neglect of scalding the utensils. Your correspondent should also bear in mind that when once the milk is suffered to turn sour, the dairy will not be sweet again for several months, unless every article in the dairy is thoroughly scalded, and in some instances it will be found requisite to whitewash the walls and scald the floor also. The best dairies are those that have the floor about 2 feet below the surface, so that the benches for the milk-pans stand nearly level with the soil on the outside of the dairy.—*W. P.* [The pattern sent was about the thickness of three straws, and consisted of straws combed out and placed parallelly and tied and platted together in threes by means of string. Another correspondent says, "I recommend your correspondent to paint the slates of his dairy-roof white and he will find them cool on the hottest day."]

Salt as Food.—It is to be regretted that there are so many opposite opinions entertained by parties on agricultural subjects. It is in consequence of such a difference of opinion existing on the use of salt in the feeding of stock that I am induced to trouble you at present. In No. 2 of the "Journal of Agriculture" for Scotland, page 136, Mr. James Ol. Fennell, writes unequivocally in favour of the use of salt in feeding, and quotes from a host of authors in support of his statement, of which those that are most to the point, I beg to offer to your notice, viz., Matthew Aphonin, a Russian naturalist, remarks that "Oxen fatten very quickly upon the sea coasts where the Arrowgrass (Triglochin maritimum), their favourite food abounds;" "and if this be so," adds Mr. Fennell, "it is probably ascribable to the saline nature of the plant, and to the sea breezes containing particles of salt, which appear necessary to stimulate their digestive organs, and therefore conducive to their health." Dickson, in his "Husbandry of the Ancients," tells us they were accustomed to prepare the straw for feeding stock, by keeping it for a considerable time steeped in brine; that it was then dried, rolled up in bundles, and given to oxen instead of hay. Dr. Brownrigg, in his "Art of Making common Salt" (1748), remarks that "Black cattle and sheep take a pleasure in licking it (salt), and by it are preserved from many diseases; they also thrive to admiration upon it." Sir John Sinclair tells us that a Mr. Bracebridge, "drenched some rotten sheep night and morning with strong brine, after which he did not lose one; they became fat, and the meat was fine and good, as if the animals had never been affected." Mr. Fennell also states that, "the fattening property of our own salt marshes is well known to graziers and farmers." As I think I have now shown that there is a notion that the use of salt is favourable to fattening, I proceed now to inform you that it is also said that "in fattening salt must be avoided." In No. 5, page 473 of the Journal already named, we find an admirable article on "Animal Life," by that talented advocate of "Shelter," Mr. Donald Bain, of Edinburgh. The following quotation he gives from Liebig's "Animal Chemistry:" — "The presence of free muriatic acid in the stomach, and that of soda in the blood, prove, beyond all doubt, the necessity of common salt for the organic processes; but the quantities of soda required by animals of different classes to support the vital processes are singularly unequal. Again, it cannot be accidental that the life, the development of a plant, is dependant on the presence of the alkalies which it extracts from the soil. This plant serves as food to an extensive class of animals, and in these animals the vital process again is most closely connected with the presence of these alkalies. We find the alkalies in the bile, and their presence in the animal body is the indispensable condition for producing the first food of the young animals; for without an abundant supply of potash, the production of milk becomes impossible." "Alkalies," adds Mr. Bain, "are useful to general health therefore, and indispensable to giving milk. But in fattening, salt must be avoided;" "for it is worthy of observation," says Professor Liebig, "in reference to the production of fat, that the absence of common salt (a compound of sodium which furnishes soda to the animal organism), is favourable to the formation of fat; and that the fattening of an animal is rendered impossible when we add to its food an excess of salt, although short of the quantity required to produce a purgative effect." Mr. Bain now goes on to state that "It is possible that this may account for the fact that the Islands of Guernsey, Jersey, Alderney, and the British Islands generally, being loaded with spray from the sea, their cows are excellent milkers, while the beef of all their cattle is, I believe, indifferent. Our Scottish feeders have at once found out that Grass too much impregnated with salt does not feed, and they have rejected it accordingly. May it not, however, be useful in producing milk?" I trust I have laid the matter properly before you, and now wait the result; but before leaving the subject, I might inquire, seeing that all agree that salt is favourable to health, is fattening a healthy process?—*Young Scotland.*

Salting Pork.—(See p. 777, the Curing of Pork, by "D. M.") Some of your subscribers would be obliged by your correspondent "D. M." stating the reasons why he recommends curing the pork while it is hot; also, why he uses hot water when he desires to increase the quantity of brine; the general practice being that meat should remain till it is cold before it is cut up, and that brine should not be used till it is cold. It would also be desirable to know the weight of the meat, of the sugar, and the salt. If brine is used made of sugar

and salt, the quantity of each, and the specific gravity of the best made brine.—*An Old Subscriber.*

Top-dressing.—The Rev. Mr. Lowder enquires in the last No. of the *Agricultural Gazette* if land, which he purposes to sow with Carrots and Oats in the spring, may be top dressed during the present month instead of the manure being dug or ploughed in before sowing. The land having been well cleared and dug to the depth of 10 inches, after clearing away the Potato crop, there cannot be any doubt of success attending his proposed plan of laying on the manure now, and leaving it to the oxidizing influence of the air and rain. The ground, by the time the seed is put into it in the spring, will be in the best possible state of preparation to receive it. The writer of this has this season some ground preparing in the same way for Turnips. It was forked last month to the depth of 13 inches, and the manure laid on for exposure to the weather during the winter. Over the manure is strewed a mixture of chalk and salt in equal parts, in the proportion of 2½ cwt. of each to an acre. The chalk and salt had been well mixed and kept for four months before being used, in order to effect a double decomposition by which two soluble salts are formed, muriate of lime and carbonate of soda—both good fertilizing salts, and as effective for Carrots as for Turnips. In using manure for autumn top dressing, care should have been taken to make it as rich as possible, by mixing with it plenty of liquid manure, especially human if it can be obtained; and the dressing cannot be used too fresh. If left to become very putrid, as is commonly done, the best parts of the manure fly off in the form of ammoniacal gases; and I am inclined to think, from what I have observed of the comparative effects of fresh and putrid manures, that they act on different parts of a plant. Putrid manure makes the green part of Turnips, Carrots, &c., very luxuriant, while the bulb does not grow in proportion. Fresh manure, on the contrary, if left to oxidize on the surface during the winter encourages the growth of the bulb, and makes the plant less inclined to run to leaf. A friend of the writer's took possession of a few acres of pasture on a slope, facing the south; the soil, gravelly loam on chalk. The herbage had been for many years so bad, that he was told by his neighbours that it never had and never would produce a good crop of hay. It had been manured sometimes with common farm-yard dung. The first year he cut a ton and a half of hay per acre, and had as good after feed as any in the parish. The plan he adopted was that which the writer of this advocates; namely, preventing the manure becoming putrid, by taking care that the droppings of the animals (horses and oxen) were spread about at least twice a day. The land so treated during the last autumn and winter is now as rich in good herbage as any in the parish; whereas the former practice of manuring with well rotted dung had only produced a rank grass, not relished by stock, and unfit for hay. Will Mr. Lowder be kind enough to let us know the result of his trial, and oblige, among others—*Oxygen.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Dec. 9th.—The first Annual Lecture was delivered this evening in the theatre of the Royal Institution, by Dr. Lyon Playfair. The subject was the present distemper in the Potato. The lecturer commenced by making some general remarks on the history of the Potato, and its cultivation in this and the other countries of Europe. He also exhibited diagrams of the structure of the Potato, and tables of the chemical composition of the tuber in its healthy state. He then described the nature of the changes which took place in the Potato under the influence of the disease. Much had been said and written with regard to the source of the disease, and since minute fungi were frequently found present in the decayed Potato, the disease had been attributed to them as a cause. Some Potatoes, Apples, and other things had been inoculated with the sporules of the fungus, and these had become diseased. But if there were not some previous disease in the Potato, how was it that some Potatoes escaped whilst others were attacked? The disease, he believed, arose from physical or chemical causes. It was simply a decay of the tissue of the Potato, arising from the union of the tissues of the Potato with the oxygen of the atmosphere. When a decayed Potato was examined, it was found that the diseased spots were always found in the region of the tissue called spiral vessels, whose function it was to carry air into the tissue of the Potato. The reason why the cells entered into this decomposition so rapidly arose from a constitutional weakness on the part of the cells of the tuber. This decay is rapidly spread from one cell to another, and the looser the tissue the more rapid the decay. By grating the tissue of some sound Potatoes, and exposing it to the atmosphere of the lecture-room, it speedily assumed the colour of the diseased Potato. The cause of the constitutional weakness in the cells of the tuber was undoubtedly to be looked for in the weather. A peculiar weather had been observed over the whole of the north of Europe, where the disease had been observed, as well as in America. The disease was no new things and appeared always when such weather occurred. At the time the plant commenced growing, there was very warm and mild weather, and this was followed by cold and wet weather. The consequence was, the cellular tissue of the tuber contained more water than usual. In previous years an analysis of the Potato gave on an average 72 per cent. of water, but analyses which he had made this year of healthy Potatoes, gave from 72 to 75 per cent. of water, whilst the analyses of diseased Potatoes gave as much as 80 per cent. of water. Other plants contained the same increase of water constituents, as Turnips, and Turnips were also affected with the same disease. Turnips were not affected so generally as Potatoes, on account of their nitrogenous principles not being soluble as those of the Potato were. The disease then was a "consumption" of the Potato, arising from the decay of its particles in combination with the oxygen of the atmosphere, produced by the state of the cellular tissue, brought on by the weather. It arises from no degeneracy in the Potato, and it need only to be feared from a repetition of the same circumstances. In the storing and preserving the Potato one great fact should be borne in mind, and that is that the decaying particles were capable of communicating the decay to the sound tissue. Care then should be taken that they be freely ventilated, that they are kept dry and cool, and that there is absence of contact of the Potatoes. He defended the directions given by the Irish Commissioners for the storing and preserving the Potatoes as those best adapted for obtaining the object in view in the community to which those directions were addressed. At the conclusion of the lecture a vote of thanks to the lecturer was proposed by the Duke of Richmond, and seconded by P. Pusey, Esq.

Dec. 10th.—Lord Portman in the Chair. Dr. Playfair commenced by stating that the object of the lecture this evening would be to point out the mode of treating the Potato for the future, and first with regard to planting. He recommended that the Potato should be planted *immediately* for several reasons. 1st. Because there might be little left for seed in the spring. 2d. Because Potatoes planted now might be ready for use at the latter end of May or the beginning of June. Where economy of seed was not necessary, he thought it would be better to plant the whole tuber of the Potato than to cut it. Where economy of seed was necessary, single buds or "eyes" of the Potato might be removed and planted, the rest of the tuber being used as food. With regard to diseased Potatoes, he recommended that they should not be used for seed where sound ones could be obtained, but where these could not be got, then he advised the planting diseased Potatoes rather than none at all. There was no prospect of obtaining sound Potatoes from abroad for seed, and he had the permission of the late government authorities for stating that this was the result of their consular returns. If he were right in his views with regard to the nature of the disease in the Potato, then no evil could arise from planting Potatoes in the same soil in which they had become diseased. The fungus theorists objected to planting Potatoes in the same soil, but he had shewn their theory to have no foundation in facts. He would now consider how the bad Potatoes might be used, and quoted Boujeau's experiments, to shew that no injurious effect was produced on the system by eating them cooked; they might when boiled be safely given to animals, which would thrive on them. He described the various processes of procuring the starch which had been brought before the public, and pointed out the fact, that in procuring the starch only one of the alimentary secretions of the Potato was obtained, that which assisted in keeping up the animal heat. The nitrogenous portion is thus lost. The plan he recommended by which these last might be saved to a great extent, was to grate the Potato, and pour water upon it till no more soluble matter was taken up, the remaining insoluble substance should then be dried, when it would be found an excellent meal, with which to make soups, puddings, bread, and other articles of food. He did not apprehend a scarcity of food, but he wished to point out the fact that Potatoes contained a very small proportion of nutritious or nitrogenised matter, and as this was the most important constituent of a working man's diet, he had drawn up a table of the comparative expense at which various articles of food might be obtained which contained one pound of this nitrogenous matter:

lbs.		*Substance.*	Price—s.	d.
25	of Milk contains	1 lb. of protein	3	1
100	Turnips	.. ..	2	9
50	Potatoes	.. ..	2	1
50	Carrots	.. ..	2	1
4	Flesh	.. ..	2	2
9	Oatmeal	.. ..	1	1
7½	Barley-meal	.. ..	1	2
7½	Bread	.. ..	1	2
7½	Flour	.. ..	1	2
2½	Peas	.. ..	0	7
3½	Beans	.. ..	0	6½

He drew attention to the importance of cultivating the Leguminosæ with such plants as the Potato, on account of the large quantity of nitrogen they contain. In conclusion, he hoped the present blight would direct attention to Potatoes as an article of diet, and lead to a much less extensive dependence on them as food, a dependence of which they were unworthy, and in the end, this dreaded visitation might prove a national blessing.

SMITHFIELD CATTLE SHOW.

The Cattle Show of the Smithfield Club is best described this year by the epithet respectable. If we missed some of those astonishing mountains of tallow, which have graced former exhibitions, the level character of the show, and the close approximation of the unsuccessful bovine, ovine, and porcine candidates to their more fortunate brethren who carried off the prizes, or who exulted in the judges' "commendation," demonstrates the extent to which the improved breeds of cattle are diffused. Every animal in the yard was fattened beyond the point which is desirable for the stomach of the consumer, or conducive of profit to the feeder, and the expenditure of food employed in bringing them to that state can only have been incurred to prove a fact which is now questioned by none, namely, the aptitude of the improved breeds of British cattle to fatten at an early age. In one or two instances the weight of the different descriptions of food consumed was stated on the placards exhibited above the animal, and we would respectfully suggest to the ruling powers of the Smithfield Club that by requiring such a statement from every exhibitor, they would add much to the practical utility of the exhibition, accumulate data for scientific agriculture, and establish the best criterion for testing the economical value of the different breeds, and of different descriptions of food. Instead of being merely lost, as now, in vague astonishment that a beast supplied *ad libitum* with the food prescribed to the different classes should attain such an enormous size, we should be furnished with means for estimating correctly the cost of producing a pound of beef and mutton, and of deciding whether they can be obtained respectively from Devons, Herefords, or Short-Horns—from Downs or Leicesters, with Turnips alone, with cake, with linseed, or corn, at the cheapest rate. Economy, meaning thereby not close-fist-dness, but a judicious economy must henceforth be the order of the day with farmers, and the practice which is the most profitable will prevail. This, however, can only be ascertained by bringing the feeding department in common with all operations of agriculture to the test of weight and measure.

The candidates—we have hitherto applied the term to the animals; we now use it for their owners—exhibited the usual array of noble and illustrious breeders and feeders, with Prince Albert at their head, and though the aristocratic competitors received a fair share of the prizes, the subjoined list proves that in making their award, the judges paid more respect to the merits of the animal than the title of his owner. When princes and peers enter the lists as competitors at agricultural shows, they must feel more satisfaction in winning a prize, from knowing that they deserve it, and that it was won on an arena where the *yeoman's* toe doth sometimes gibe the courtier's heel, than they would derive from their degree if they were entitled, as at Oxford, to claim it without an examination.

The exhibition of implements and roots, though no part of the Show as regards the Club, and a work of supererogation on the part of the seedsmen and implement-makers, is by no means the least important feature of it. With respect to the roots, Gibbs and Co. seemed to bear away the bell for Wurzel, and Skirving for Swedes. As regards White Carrots, we have at home whole acres of much larger roots than any we saw there the length of the tap-root of some exhibited exceeding 4 feet is a fact well worthy the consideration of your advocates for shallow ploughing. Among the implements we saw no addition worth noticing to the list of agricultural appliances exhibited at Shrewsbury. There were the usual number of machines of which without the information so readily afforded by the inventor, it would have puzzled not only the old jog-trot farmer but the most refined and scientific agriculturist to guess the name or divine the use. There were the usual number of complicated and expensive chaff-cutters, and we know not whether it is to be regarded as a sign of the revolutionary tendency of the times that the guillotine chaff-cutter, a modification of the old box and knife made its appearance there, and seemed to promise better for simplicity and effectiveness than most of them. It would be rash, however, to judge of the merits of any implement without witnessing a more extended trial than can be exhibited at any agricultural Show. There is one point we would enforce again and again on the makers of improved agricultural implements, namely, that machines which are to stand the wear and tear of agriculture must be not merely pretty playthings, but simple, substantial and durable; and above all, they must be less costly than most of those which are produced in numbers almost as countless as projected railways. The number of patents which are taken out for agricultural machinery, and the unceasing activity with which mechanists rack their brains to construct traps to catch the farmers, show that they consider the agricultural world worth their enjoying. If they would enjoy it they must think it worth their winning; and the surest way to win it is by the qualities we have mentioned, and, above all, cheapness. That is the best toasted cheese with which they can bait their traps. Farmers are proverbial for liking a good bargain, and, as we have before observed, existing circumstances render the study of economy of more importance than ever to them.

One of the most striking and gratifying features at this, and other exhibitions of agricultural implements is the activity and energy which is directed to the construction of machines by which the cost of manufacturing tiles and pipes for draining may be diminished. It is a proof that in agriculture, as elsewhere, the schoolmaster is abroad. Thorough drainage is the foundation of all improvement in agriculture, and whatever diminishes the cost of draining, diminishes the cost of producing human food. Dr. Johnson said that any fool could build a fine house, but that every fool could not adorn it with a fine tree. Given an ox of any of our improved breeds, and an unlimited supply of food, and any fool can fatten him; but we have millions of acres of which, in their present state, the wisest of men and the

of farmers could not raise the Turnips for the ox.
p and effectual drainage removes the impediment, and
s up prize cattle from land that previously starved
ose. Machines for making drain-tiles, however, to
any value, must produce them faster and cheaper
they can be made by hand. This is more than we
d venture to affirm of all the tile-machines we have
in operation to day. Ainslie's was the only one
h produced a continuous stream of tiles. As a proof
s merits it may be stated that, a few years ago, we
ed some hundred acres with tiles purchased at 40s.
thousand, and we have lately purchased the same
ription of tiles, made within a few miles of us with
lie's machine, at 18s. the thousand.

ut to return to the special object of the Smithfield
)—the fat cattle—the following is the list of the
es and commendations awarded by the judges :—

JDGES.—For Beasts and Long-woolled Sheep : Mr.
mas Parkinson, Mr. Franklin, Mr. Thomas Harris ;
Short-woolled Sheep and Pigs : Mr. William Tan-
Mr. R. Boys, Mr. Stace.

OXEN OR STEERS.

ss I.—*Oxen or Steers, of any breed, under 5 years
d, without restrictions as to feeding, yet the kind or
nds of food must be certified.*

Mr. Robert Martin Layton, of Thorney Abbey,
Peterborough, Cambridge, for a 4 years and 8
ths old Hereford Ox, bred by Mr. Paul Prosser, of
way Court, near Monmouth, Hereford, and fed on
, Green Clover, Swedish Turnips, Carrots, and Lin-
-cake. Travelled to the Show on foot 2 miles, by
60 miles, and by railway 98 miles.—*Prize* 20*l.* and
er Medal to the Breeder, and *Gold Medal* as the
Ox or Steer in the 1st, 2d, 3d, 4th, and 5th Classes

o Mr. William Woodward, of Bredons Norton,
Tewkesbury, Worcester, for a 3 years and 9
ths old Improved Short horned Steer, bred by him-
and fed on Grass, Hay, Swedish Turnips, Bean,
, Barley, and Mixed Meal, and Linseed-cake.
velled to the Show by van 26 miles, and by railway
miles.—*Prize* 15*l.* [This we noticed as having
n the First Prize at the Gloucester Show the pre-
s week.]

o His Royal Highness Prince Albert, of Windsor
tle, for a 3 years and 10 months old Short-horned
bred by the late Lord Huntingfield, and fed on
e, Turnips, Tares, Hay, Meal, and Potatoes. Tra-
ed to the Show by van 22 miles.—*Prize* 10*l.*

o the Most Hon. the Marquis of Exeter, of Burgh
near Stamford, Northampton, for a 2 years and 11
ths old Durham Ox, bred by his Lordship, and fed
Grass, Hay, Swedish Turnips, Oil-cake, Bean-meal,
Linseed-oil. Travelled to the Show by van 89
es.—*Highly Commended.*

o Mr. John Davies, of Warden, near Biggleswade,
fordshire, for a 3 years and 1¾ month old Improved
rt-horned Steer, bred by himself, and fed on Grass,
y, Oil-cake, Swedish Turnips, and Cabbage. Tra-
ed to the Show by van 45 miles.—*Commended.*

o Mr. John Steeds, of Frome Selwood near Frome,
erset, for a 4 years and 10 months old Hereford Ox,
d by Mr. Thomas Roberts, of Ivingtonbury, near
minster, Hereford, and fed on Grass, Hay, Bean
Barley-meal, and roots. Travelled to the Show by
12 miles and by railway 108 miles.—*Commended.*

ss II.—*Oxen or Steers, of any breed, under 6 years
ld, weight 90 stone and upwards, that shall not have
ad Cake, Corn, Meal, Seeds, Grains, or Distillers'
Wash, during 9 months previous to the 1st of May,*
845.

Mr. Thomas White Fouracre, of Durston, near
nton, Somerset, for a 3 years and 11 months old Devon
er, bred by himself, and fed on Hay, Clover, Vetches,
ots, and about 12 bushels or 720 lbs. of Bean and
rley-meal. Travelled to the Show on foot 6 miles,
l by railway 163 miles.—*Prize 30l.*, and *Silver Medal*
the Breeder.

To Mr. Henry Adams, of Calcut, near Cricklade,
lts, for a 4 years and 8 months old Hereford Ox,
d by Mr. Charles Mason, of Tarrington, near Led-
y, and fed on Hay, Grass, Turnips, and 1800 lbs. of
e. Travelled to the Show by van 84 miles.—*Prize* 20*l.*

To His Grace the Duke of Bedford, of Woburn
bey, Bedford, for a 4 years and 8 months old Here-
d Ox, bred by his Grace, and fed on Barley-meal,
rnips, Hay, Chaff, and 2000 lbs. of Linseed. Tra-
led to the Show by van 41 miles.—*Prize* 10*l.*

ass III.—*Oxen or Steers, of any breed, under 5 years
ld, under 100 stone and above 70 stone weight, that
hall not have had Cake, Corn, Meal, Seeds, Grains,
r Distillers' Wash, during 9 months previous to the
1st of May*, 1845.

Mr. Thomas Umbers, of Wappenbury, near Royal
amington Spa, Warwick, for a 3 years and 9 months
North Devon Steer, bred by himself, and fed on
ass, Hay, Turnips, 760 lbs. of Cake, and 20 bushels
Barley and Pea-meal. Travelled to the Show by van
miles and by railway 103 miles.—*Prize* 15*l.*, and
ver Medal to the Breeder.

To the Rt. Hon. the Earl of Warwick, of Warwick
stle, Warwickshire, for a 3 years and 7 months old
reford Steer, bred by the Rt. Hon. the Earl of Ox-
d and Mortimer, of Eywood, near Kington, Hereford,
l fed on Grass, Hay, Turnips, 798 lbs. of Cake, 130
. of Bean-meal, and 130 lbs. of Barley-meal. Tra-
led to the Show on foot 5 miles and by railway 100
les.—*Prize* 10*l.*

To Mr. Henry Adams, of Calcut, near Cricklade, Wilts, for a 4 years and 8 months old Hereford Ox, bred by Mr. Charles Mason, of Tarrington, near Ledbury, Hereford, and fed on Grass, Hay, Turnips, and 1800 lbs. of Cake. Travelled to the Show by van 84 miles.—*Commended.*

Class IV.—*Oxen or Steers, of any breed, not exceeding 4 years and 3 months old, under 80 stone weight, that shall not have had Cake, Corn, Meal, Seeds, Grains, or Distillers' Wash, during 9 months previous to the 1st of May*, 1845.

To Mr. Thomas White Fouracre, of Durston, near Taunton, Somerset, for a 3 years and 11 months old Devon Steer, bred by himself, and fed on Hay, Clover, Vetches, Roots, and 720 lbs. of Bean and Barley-meal mixed. Travelled to the Show on foot 6 miles and by railway 163 miles.—*Prize* 10*l.* and *Silver Medal* to the Breeder.

To Mr. Wallett Goodale, of Boroberry House, near Peterborough, Northampton, for a 2 years and 11¼ months old Hereford Steer, bred by Mr. John Bishop, of Aldon, near Ludlow, Salop, and fed on Hay, Grass, Swede Turnips, and 300 lbs. of Cake. Travelled to the Show on foot 4 miles and by railway 110 miles.—*Prize* 5*l.*

Class V.—*Oxen or Steers, of any breed, under 4 years and 6 months old, and under 80 stone weight, without restrictions as to feeding, yet the kind or kinds of food must be specified.*

To Mr. Thomas Umbers, of Wappenbury, near Royal Leamington Spa, Warwickshire, for a 3 years and 6 months old North Devon Steer, bred by himself, and fed on Grass, Hay, Turnips, Barley and Pea-meal, and Oil-cake. Travelled to the Show on foot 5 miles and by railway 103 miles.—*Prize* 10*l.* and *Silver Medal* to the Breeder.

To the Rt. Hon. the Earl of Leicester, of Holkham Norfolk, for a 4 years and 4 months old North Devon Steer, bred by his Lordship, and fed on Swedish Turnips, Mangold Wurzel, Hay, Oil-cake, and Bean-meal. Travelled to the Show by van 40 miles and by railway 70 miles.—*Commended.*

To His Royal Highness Prince Albert, of Windsor Castle, for a 4 years old West Highland Ox, fed on Cake, Turnips, Tares, Hay, Meal, and Potatoes. Travelled to the Show by van 22 miles.—*Commended.*

COWS AND HEIFERS.

Class VI.—*Fattened Cows or Heifers, under 5 years old. Freemartins and spayed Heifers are not qualified.*

To Mr. W. Trinder, of Wantage, Berkshire, for a 3 years and 10 months old Durham Heifer, bred by the Right Hon. Lord Sherborne, of Sherborne, near Northleach, Gloucester, and fed on Hay, Cabbage, Swedes, Mangold Wurzel, Oat, Pea, and Barley-meal, and Oil-cake. Travelled to the Show on foot 2 miles, by van 52 miles, and by railway 63 miles.—*Prize* 20*l.* and *Silver Medal* to the Breeder, and *Gold Medal* as the best Cow or Heifer in Classes 6, 7, and 8.

To Mr. William Bennett, of Lewsey Farm, near Dunstable, Bedfordshire, for a 4 years and 7 months old Improved Short-horned Heifer, bred by himself, and fed on Grass, Hay, Turnips, Cabbage, and Oil-cake. Travelled to the Show by van 36 miles—has had one calf.—*Prize* 10*l.*

To Mr. Drinkwater Scott Hayward, of Frocester Court, near Stroudwater, Gloucester, for a 4 years and 11 months old Short-horned Cow, bred by himself, and fed on Oil-cake, Barley, Bean, and Lentil-meal, Hay, Mangold Wurzel, Swede Turnips, and Cabbage. Travelled to the Show by van 5 miles, and by railway 101 miles—has had one calf.—*Prize* 5*l.*

To Mr. William Firth, of Kirkstall, near Leeds, Yorkshire, for a 4 years and 8 months old Short-horned Heifer, bred by Mr. Jonas Whitaker, of Burley, near Otley, Yorkshire, and fed on Hay, Cake, Turnips, and Bean-meal. Travelled to the Show by van 3 miles, and by railway 234 miles.—*Commended.*

Class VII.—*Fattened Cows, of 5 years old and upwards. Freemartins and spayed Heifers are not qualified.*

To the Right Hon. the Earl of Radnor, of Coleshill House, near Farringdon, Berkshire, for a 5 years and 1 month old Hereford Cow, bred by Mr. Thos. Yeld, of the Broome, near Leominster, Hereford, and fed on Hay, Corn, Cake, Swedes, and Cabbages. Travelled to the Show by van 6 miles, and by railway 71 miles—has had one calf.—*Prize* 20*l.*, and *Silver Medal* to the Breeder.

To Mr. Morris Edward Lythall, of Hartshill, near Atherstone, Warwick, for a 5 years and 7 months old Durham Cow, bred by Mr. John Bowers, of Braunston, near Daventry, near Northampton, and fed on Grass, Linseed-cake, and Barley-meal. Travelled to the Show by van 11 miles, and by railway 94 miles—has had one calf.—*Prize* 5*l.*

Class VIII.—*Fattened Cows, of 5 years old and upwards, that shall have had at least two live Calves at separate births.*

To the Rt. Hon. the Earl of Leicester, of Holkham, Norfolk, for a 11 years and 2 months old North Devon Cow, bred by the late Mr. G. Talbot, of Temple Guiting, near Winchcomb, Gloucester, and fed on Swedish Turnips, Mangold Wurzel, Hay, Oil-cake, and Bean-meal. Travelled to the Show by van 40 miles, and by railway 70 miles—has had four calves.—*Prize* 15*l.*, and *Silver Medal* to the Breeder.

To Mr. James W. Walters, of Barnwood, near Gloucester, for a 9 years old Hereford Cow, bred by Mr. John Walker, of Lulsley Court, near Worcester, and fed on Hay, Oil-cake, Carrots, Mangold Wurzel and Barley-meal. Travelled to the Show on foot 3 miles, and by railway 114 miles—has had four calves.—*Prize* 5*l.*

To the Hon. M. W. B. Nugent, of Higham Grange, near Hinckley, Leicester, for a 10 years and 6 months old Pure Leicester or Long-horned Cow, bred by Mr. Edward Thornton Twycross, of Canley, near Coventry, Warwick, and fed on Hay, Rape-cake, Grass, and boiled Barley. Travelled to the Show on foot 14 miles, by van 11 miles, and by railway 101 miles—has had five calves.—*Commended.*

To Mr. John Smith, of Welton-Garth, near South Cave, Yorkshire, for a 7 years and 2 months old Short-horned Cow, bred by Mr. Samuel Beecroft, of Anlaby-road, near Hull, Yorkshire, and fed on Linseed-cake, Hay, Turnips, Grass, and Green Tares. Travelled to the Show on foot 1½ mile, and by railway 232 miles—has had three calves.—*Commended.*

Extra Stock.

To Mr. Nathaniel Bland, of Randall's Park, near Leatherhead, Surrey, for a 3 years and 10 months old Durham Short-horned Steer, bred by the late Mr. W. Calvert, of Hunsdon, near Ware, Herts, and fed on Grass, Oil-cake, Hay, Carrots, Swedes, Bean-meal, and bruised Linseed. Travelled to the Show by van 20 miles.—*Silver Medal.*

Not Competing.

To the Executors of the late Right Hon. Earl Spencer, of Althorp Park, Northampton, for a 4 years and 10 months old Short-horned Ox, bred by the late Earl Spencer, and fed on Grass, Hay, Turnips, Mangold Wurzel, and Oil-cake. Travelled to the Show by van 10 miles, and by railway 66 miles.—*Highly commended.*

To the Executors of the late Right Hon. Earl Spencer of Wiseton, near Bawtry, Nottingham, for a 4 years and 2 months old Short-horned Ox, bred by the late Earl Spencer, and fed on Oil-cake, Barley and Bean-meal, Turnips, Cabbages, and Hay. Travelled to the Show by van 21 miles, and by railway 172 miles.—*Highly commended.*

To the Executors of the late Right Hon Earl Spencer, of Wiseton, near Bawtry, Nottingham, for a 9 years and 4 months old Short-horned Cow, bred by the late Earl Spencer, and fed on Oil-cake, Barley and Bean-meal, Turnips, Cabbages, and Hay. Travelled to the Show by van 21 miles, and by railway 172 miles.—*Highly commended.*

SHEEP.

Class IX.—*Long-woolled fat Wether Sheep, 1 year old, that have never had Cake, Corn, Meal, Seeds, or Pulse.*

To Mr. John Painter, of Burley, near Oakham, Rutland, for a pen of three 20 months old New Leicester Wethers, bred by himself.—*Prize* 20*l.* and *Silver Medal* to the Breeder, and *Gold Medal* as the best Pen of Long-woolled Sheep in the 9th, 10th, and 11th Classes.

To Mr. Thomas Twitchell, of Wellington, near St. Neot's, Beds, for a pen of three 20 months old Pure Leicester Wethers, bred by himself, from Rams hired of Mr. Samuel Bennett, of Bickerings Park, near Woburn, Beds.—*Prize* 5*l.*

Class X.—*Long woolled fat Wether Sheep, 1 year old, under 8 stone weight, that have never had Cake, Corn, Meal, Seeds, or Pulse.*

To Mr. Thomas Umbers, of Wappenbury, near Royal Leamington Spa, Warwickshire, for a pen of three 21 months old New Leicester Wethers, bred by himself.—*Prize* of 10*l.* and *Silver Medal* to the Breeder.

Class XI.—*Long-woolled fat Wether Sheep, 1 year old, without restrictions as to feeding.*

To Mr. Thomas Twitchell, of Willington, near St. Neot's, Beds, for a pen of three 20 months old Pure Leicester Wethers, bred by himself, from Rams hired of Mr. Samuel Bennett, of Bickerings Park, near Woburn, Beds.—*Prize* 20*l.* and *Silver Medal* to the Breeder.

To Mr. Richard Redgrave, of Bunker's Hill, near Boughton, Northampton, for a pen of three 21 months old Leicester Wethers, bred by himself, from Rams hired of Mr. Manning, of Orlingbury, near Wellingborough, Northampton.—*Prize* 5*l.*

To the Right Hon. the Earl of Aylesford, of Packington, near Coventry, Warwick, for a pen of three 20 months old Leicester Wethers, bred by his Lordship, from Rams hired of Mr. Pratt, of New Fields, Southam.—*Commended.*

Class XII.—*Long and Short-woolled Cross-bred fat Wether Sheep, 1 year old, without restrictions as to feeding.*

To Mr. John Hitchman, of Little Milton, near Wheatley, Oxford, for a pen of three 21 months old Hampshire and Oxfordshire Cross Wethers, bred by himself.—*Prize* 10*l.* and *Silver Medal* to the breeder.

To Mr. Charles Thompson, of Sundon, near Luton, Beds, for a pen of three 21 months old Down and Gloucester Cross Wethers, bred by himself.—*Prize* 5*l.*

Extra Stock—Long-woolled Sheep.

To Mr. William Sanday, of Holme Pierrepoint, Nottingham, for a 57 months old Leicester Ewe, bred by himself.—*Silver Medal.*

To Mr. Charles Large, of Broadwell, Oxfordshire, for a 56 months old New Oxfordshire Ewe, bred by himself.—*Highly Commended.*

To Mr. Wm. Smith, of Gaydon, near Kineton, Warwick, for a 116 months old Improved Cotswold Ewe, bred by himself, from a Ram hired of Mr. Garner, of Aldsworth, Gloucestershire.—*Highly Commended.*

To Mr. William Hewer, of Northleach, Gloucester, for a 57 months old Cotswold Ewe, bred by himself.—*Commended.*

CLASS XIII.—*Short-woolled fat Wether Sheep, 1 year old, without restrictions as to feeding.*

To Mr. SAMUEL WEBB, of Babraham, near Cambridge, for a pen of three 20 months old South-down Wethers, bred by himself, from rams hired of Mr. Jonas Webb, of Babraham.—*Prize*, 20*l.*, and *Silver Medal* to the Breeder, and *Gold Medal* as the best pen of Short-woolled Sheep in the 13th and 14th Classes.

To Mr. DAVID BARCLAY, M.P., of Great Bookham, near Leatherhead, Surrey, for a pen of three 21 months old South-down Wethers, bred by himself.—*Prize* 5*l.*

To His Grace the DUKE of RICHMOND, of Goodwood, near Chichester, Sussex, for a pen of three 20 months old South-down Wethers, bred by His Grace.—*Highly commended.*

To Mr. JOHN WILLIAMS, of Buckland, near Farringdon, Berks, for a pen of three 21 months old South-down Wethers, bred by himself.—*Commended.*

CLASS XIV.—*Short-woolled fat Wether Sheep, 1 year old, under 8 stone weight, without restrictions as to feeding.*

To Mr. JOHN HARRIS, of Hinton, near Abingdon, Berks, for a pen of three 18 months old South-down Wethers, bred by himself—*Prize* of 10*l.* and *Silver Medal* to the Breeder.

To His Grace the DUKE of RICHMOND, of Goodwood, near Chichester, Sussex, for a pen of three 20 months old South-down Wethers, bred by His Grace.—*Highly commended.*

CLASS XV.—*Short-woolled fat Wether Sheep, 2 years old, without restrictions as to feeding.*

To Mr. SAMUEL WEBB, of Babraham, near Cambridge, for a pen of three 32 months old South-down Wethers, bred by Mr. H. J. Adean, of Babraham, from rams hired of Mr. Jonas Webb, of Babraham.—*Prize* 20*l.*, and *Silver Medal* to the Breeder.

To His Grace the DUKE OF RICHMOND, of Goodwood, near Chichester, Sussex, for a pen of three 32 months old South-down Wethers, bred by His Grace.—*Prize* 5*l.*

EXTRA STOCK.—SHORT WOOLLED SHEEP.

To Mr. W. B. HARRIS, of Hinton, near Abingdon, Berks, for an 18 months old South-down Wether, bred by himself.—*Silver Medal.*

To Mr. JOHN HARRIS, of Hinton, near Abingdon, Berkshire, for a 32 months old South-down Wether, bred by himself.—*Highly commended.*

To Mr. SAMUEL WEBB, of Babraham, near Cambridge, for a 20 months old South-down Sheep, bred by himself, from rams hired of Mr. Jonas Webb, of Babraham.—*Highly commended.*

PIGS.

CLASS XVI.—*Pigs, of any breed, above 13 and not exceeding 26 weeks old.*

To Mr. CHARLES ELEY, of Heathfield Farm, near Hounslow, Middlesex, for a pen of three 18 weeks and 2 days old Berkshire and Yorkshire Pigs, bred by Mr. C. Eley, Sen., and fed on Buckwheat, Barley, and Pea-meal, and Milk.—*Prize* 10*l.*, and *Silver Medal* to the Breeder.

To the Right Hon. the EARL of RADNOR, of Coleshill House, near Farringdon, Berkshire, for a pen of three 18 weeks and 6 days old Coleshill Pigs, bred by his Lordship, and fed on Whey, Skimmed Milk, Barley-meal, and Potatoes.—*Prize* 5*l.*

CLASS XVII.—*Pigs, of any breed, above 26 and under 52 weeks old.*

To H. M. L. WHITING, of Heston, near Hounslow, Middlesex, for a pen of three 32 weeks and 4 days old Improved Buckinghamshire Pigs, bred by himself, and fed on Barley and Pea-meal, Skimmed Milk, and Linseed.—*Prize* 10*l.* and *Silver Medal* to the Breeder.

To Mr. W. F. HOBBS, of Marks Hall, near Kelvedon, Essex, for a pen of three 29 weeks and 2 days old Improved Essex Pigs, bred by himself, and fed on Oats, Peas, Meal, Potatoes, Mangold Wurzel, and Milk.—*Prize* 5*l.*

EXTRA STOCK.—PIGS.

To Mr. H. M. WHITING, of Heston, near Hounslow, Middlesex, for a 32 weeks and 4 days old Improved Buckinghamshire Pig, bred by himself, and fed on Barley and Pea-meal, Skimmed Milk, and Linseed.—*Silver Medal.*

B. T. BRANDRETH GIBBS, *Hon. Sec.*

Miscellaneous.

Management and Composition of Manure (Boussingault, vol. ii. p. 52.)—In some farms it is the practice to keep the different kinds of manure distinct. The stable manure is kept apart from that of the stall; the produce of the sty from that of the fold. Circumstances sometimes make this necessary, but the supposed advantages may be doubted, and the notions on which they are maintained depend on observations which are far from being rigorous. Without denying the fact that certain crops flourish most with certain manures, it appears to me best to make one common heap only where there are no local difficulties: a mean quality is thus obtained, which, in all ordinary cases, is the most advantageous. The supposed distinctions are far too absolute, and, for this reason doubtless, it is very difficult to reconcile the various accounts. Thus, according to Sinclair, pig-manure is of all the strongest and richest in fertilizing principles, while, according to Schwertz it is, on the contrary, the worst.—The truth is, that manure heaps, arising from the same species of animal, differ often more in quality from one another than those which arise from various sources. The quality depends on the kind of food, the age, and condition of the animal which produces it. It is well known that the dung of beasts in the straw-yard is far inferior to that of the stall. When litter impregnated with animal digestions is accumulated in sufficient quantity in the yard, fermentation soon takes place; the temperature rises, and abundant vapours are disengaged. As amongst these volatile substances carbonate of ammonia is one, it is important to moderate its production; this is effected by keeping the mass tolerably moist, and preventing as much as possible the access of atmospheric air. The daily addition of new litter from the stable contributes greatly to prevent the dispersion of the volatile principle, which it is important to retain in the manure; properly spread it becomes an obstacle to evaporation; it forms a covering which condenses the vapour, while it keeps the lower bed from too intimate a contact with oxygen. While the manure heap is managed in this way, the fermentation is confined to the lower part of the mass. Thaer believes that air collected from the surface of a dung-heap in a moderate state of fermentation does not contain more carbonic acid than that which is collected from the atmosphere at a distance from the heap. Neither does a vessel containing nitric acid when placed near the fermenting mass produce those thick white vapours which are the sure sign of the presence of ammonia. The slow decomposition, which it is so desirable to produce, is not easily realized, except in sufficiently compact masses, in which the manure has been spread as equally as possible. An important point is to cart out the dung before the upper more recent portions are in a state of decomposition; otherwise the whole mass enters into an active state of fermentation, and the volatile substances being no longer arrested by the upper stratum escape and are lost in the air. A means of preventing this loss in the rare cases where it is desirable that the whole mass should be decomposed, would be, to cover it with vegetable soil, which would condense the volatile matters, and itself become a powerful manure. The dissipation of carbonate of ammonia is further prevented, during fermentation, by the application of salts capable of changing the ammoniacal carbonate into a fixed salt. On this account Monsieur Schattenmann, after having himself made trial of the plan, proposes to apply a certain quantity of sulphate of iron, or sulphate of lime, to fix the ammonia which is formed during the process of putrefaction. We must not, however, exaggerate the loss of ammonia in manure managed in the way we have recommended. It is in such cases, I believe, very trifling. Gentle fermentation presents characters essentially different from those of rapid putrefaction, which never fails to take place where proper precautions are not used. I have even seen horse-manure left to itself, without any addition of water, in the course of a few days acquire an immense heat, and take fire. I have seen it also reduced to an earthy state. Such are not the results of gradual decomposition. When the yard is cleared after a slow fermentation has taken place, the upper layer is almost in the same state as when brought from the stall or stable; that beneath it emits a slight smell of ammonia. In the inferior strata the change is greater; the straw has lost its consistence, is fibrous, and breaks with great ease; the colour is dark in proportion to the depth. Near the ground it is quite black, and smells like hydrosulphuric acid; it contains sulphuret of iron, the sulphuret arising doubtless from the decomposition of the sulphates under the influence of organic matter. It is from this indication that I judge best whether the manure hea hasp been well managed. The presence of sulphurets and hydrosulphate of ammonia need not be any cause of anxiety, for no sooner is the dung spread than they are transformed into sulphates, and it emits the musky odour which is peculiar to it. Doubtless such a condition of the manure is due to the treatment to which it has been subjected; the elements would have then another course in their decomposition had they been left to themselves. The purely ammoniacal odour developed in stables where the urine of herbivorous animals accumulates is a striking proof of the truth of this assertion. We can easily conceive how unfavourable to the proper preparation of manure, the practice, common as it is in some countries, must be of turning and exposing the manure to the air. It decomposes, indeed, much more rapidly, but it is at the expense of the quality, for it is clear, the more the surface in contact with the air is augmented, the more easily the volatile principles evaporate.—*M. J. B.*

Notices to Correspondents.

BERKSHIRE AGRICULTURE—*H*—The date of the work "Knight's Journey Book of Berkshire," quoted at p. 777, is 1840; published by Charles Knight and Co.

BISHOP OF DERRY'S CHURN—*C*—Mr. Alex. Weston, Liverpool. See page 824.

ECCALEOBION, OR APPARATUS FOR HATCHING EGGS BY HEAT—*Rasore*—Can any of your correspondents give me any information concerning this art? I have a plan of my own, but think there is a way of doing it in a less time.

GAS-LIME—*J A, Bromley*—Do not apply it fresh from the works, but mix it up in a compost of loose vegetable matter, leaves, &c., and after some months' exposure to the air apply such a quantity of the compost per acre as contains a waggon-load of the gas-lime.

LEGISLATIVE PROTECTION TO AGRICULTURE—*X X*—We cannot discuss this subject in our columns. We have read the pamphlet you allude to, and if you will favour us with your address, we shall be happy to give a private answer to your question.

MARKETS FOR SHORT-HORNS—*T Bowen*—Ashbourn, Derbyshire, 1st Tuesday in January and 13th February, is said to be a very good fair. We mention this as we suppose you are in immediate want. We shall shortly be prepared to give a fuller answer.

SKIM MILK—*Rusticus*—What is the most profitable mode of consuming the milk which has been skimmed for churning, in a place where it cannot be sold or given to the poor?

SPRING MANURE FOR POTATOES—*Clericus*—4 cwt. of guan acre early in *spring* is a very good dressing for an planted Potatoes. We have planted a lot of *cut* Ash-leaf neys, at about 6 inches from the surface. The following figure of a good fork, only it is rather heavy:—

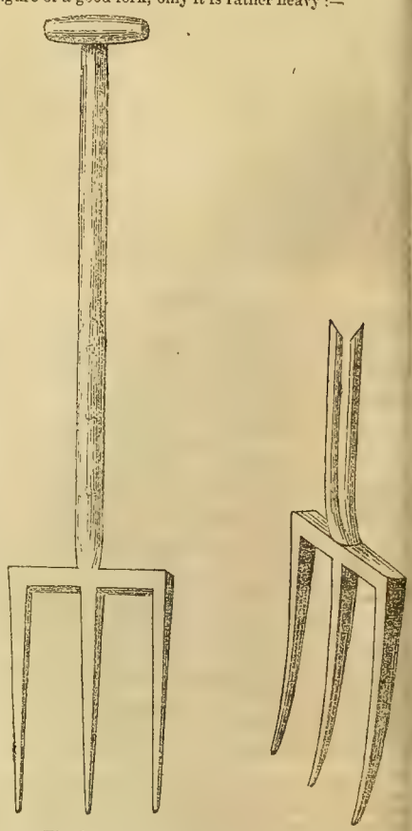


Fig. 1. Fig. 2.

Fig. 1. Front view of the fork. Whole length, 3 ft. 3½ Handle, 2 ft. 2 in. Diam. 1⅛ in. Diam. near cross-pie 1½ in. Width of cross-piece or base of the trident, 7 in.; the points, 6 in. The upper part of each lateral trident ⅝ in. in front, by ⅝ at the sides, where more strength is quired; the centre one is ⅝ by 1 in., all gradually tapering a point. Each strap appears to be ½ in. thick at its junct with the base of the trident, diminishing up the handle; th are 11 in. long, 2 in. wide. The handle goes down nearly the cross-piece. The length of the trident is 13½ in. Weig of the fork, 8 lbs. It appears to be made of a good materi as it is as sonorous as bell-metal; a file makes but little i pression on it.

Fig. 2 is given to show the curve, which is similar to th of a spade or shovel.

STORING ROOTS, &c.—*R Taylerson*—You had better get yo roots home, and on dry ground erect two parallel rows hurdles about 3 yards apart: fill the interval with roo pile them up in a roof-like form, and thatch them over. T Swedes are not nearly so sound this year as they were las most of ours exhibit a tendency to rot in the appearance of sort of juicy semi-transparent discoloration at the hea Cattle and sheep eat them readily enough, however; b there is a good deal of waste owing to rottenness. Mr. Mec is both alive and active, and you need not fear as to any no performance by him of any of his engagements to the publi

SCOTCH CARTS—*H Dawkins*—Our plans are quite at your servi as soon as we receive them again.

SUPERSULPHATE OF LIME—*P L P*—There is no salt of the kin you describe. Sulphuric acid does not form a supersulpha with sulphate of lime; a *mixture* of gypsum and sulphu acid forms a very good fixer for ammonia. *E.*

TERMS OF ENTRY AND BOARD PER ANNUM AT CIRENCESTE COLLEGE—*Oxygen*—Nomination by a shareholder, and 3 per annum. Application to the principal at Cirencester w obtain the fullest information.

Markets.

SMITHFIELD, MONDAY, Dec. 8.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0 to 4s	4	Best Downs & Half-breds	4s	8 to 5s	0
Best Short Horns	3	10	4	2	Best Long-wools	4	4	4	4
Second quality Beasts	3	0	3	6	Ewes and second quality	4	0	4	4
Calves	4	4	5	2	Pigs	4	0	5	0

Beasts, 3441; Sheep, 25,400; Calves, 59; Pigs, 581.

We have but a moderate supply of Beasts to-day, the time of year co sidered, the trade is somewhat depressed, yet late prices are fully mai tained for the best qualities. There are a few more she p in market, th trade is very heavy, the late prices for best qualities are with difficul obtained, and second-rate descriptions are a trifle lower. Good Calves an Pigs continue dear.

FRIDAY, Dec. 12.

The quality of this day's supply is inferior, generally speaking, among which description trade is heavy. In the few best qualities prices Monday are fully supported. Mutton is not very plentiful but qui adequate to the demand; the best qualities are readily disposed of Monday's quotations—inferior ones heavy on hand.—Good Veal is dear; choice Calf is worth 5s 4d; as also is good Pork.—Nice small Porkers mak about 5s 4d.

Beasts, 1155; Sheep, 3090; Calves, 144; Pigs, 350.

41, West Smithfield.

WOOL.—BRITISH, FRIDAY, Dec. 12.

There has been little or no variation in our market for some time pas The demand is still very limited, but prices cannot be said to have decline materially.

	per lb.				per lb.	
Long-woolled Wethers	1s 0 to 1s 1½		Southdown Hoggitts	1s 1d to 1s 3
Do. Hoggitts	1 1	1 3½	Kent Fleeces	1 2	1
Southdown Fleeces	1 0	1 1		

JAMES PHARIN, Wool-Broker.

HOPS, FRIDAY, Dec. 12.

The Market is in a very quiet state; we expect an advance as soon a Christmas is over.

PATTENDEN & SMITH, Hop-Factors.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Dec. 11.

Prime Mead. Hay	85s to 90s	New Hay	—s to —s	New Clr.	—s to —
Infr. New & Rowen	35 75	Clover	85 to 115	Straw	28 30

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Dec. 11.

Prime Mead. Hay	90s to 95s	Old Clover	115s to 150s		
Interior	70 84	Interior do.	95 108	Straw	32s to 36
New Hay	— —	New Clover	— —		

JOSIAH BAKER, Hay Salesman.

WHITECHAPEL, Dec. 12.

Fine Old Hay	90s to 98s	Old Clover	120s to 126s		
Interior Hay	— —	New Clover	105 115	Straw	28s to
New Hay	70 84	Infr. „	70 80		

Supply large and trade very dull at the above prices.

COVENT GARDEN, Dec. 13.—Little alteration in anything has taken place during the week; the supplies of most articles have been good, and trade tolerably brisk. Pine-apples continue to be sufficient for the demand, and Hothouse Grapes, although scarcer, are brought in considerable quantity; foreign sorts are plentiful. The supply of Apples is well kept up, and that of Pears also sufficient for the demand. Oranges are becoming more abundant, and prices for them are in consequence lower. Lemons are also cheaper. Nuts are not so plentiful. Of Vegetables the supplies of most articles are sufficient for the demand. Cauliflowers are, however, scarcer; but Broccoli is abundant and Savoys, Brussels Sprouts, and other winter Greens are plentiful. Carrots and Turnips are excellent in quality, and sufficient for the demand. Potatoes have altered very little in price since last week, and, although a great many of them are still affected by the prevailing disease, yet, upon the whole, they may be said to be better in quality than the samples hitherto produced. Sealkale is more plentiful, and the same may be said of French Beans. Celery, both red and white, is good and abundant, and Lettuces, Endive, and other kinds of salading, are sufficient for the demand. Cut Flowers chiefly consist of Euphorbias, Bignonia venusta, Epiphyllums, Acacias, Heaths, Heliotropes, Cinerarias, Pelargoniums, Camellias, Chinese Primroses, Chrysanthemums, Violets, and Roses.

FRUITS.

Pine-Apple, per lb., 4s to 6s
Grapes, Hothouse, per lb., 3s to 6s
— Spanish, per lb., 9d to 1s
— Portugal, p. lb., 9d to 1s 6d
Melons, Spanish, each, 4s to 10s
Apples, Desa., per bush., 4s to 6s
— Kitchen, 2s 6d to 3s 6d
Oranges, per dozen, 6d to 2s
— per 100, 3s to 10s
— Seville, per 100, 1s
— per dozen, 2s to 2s 6d
Lemons, per dozen, 6d to 2s
— per 100, 5s to 12s
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s 6d to 3s
Filberts, English, p. 100 lbs., 45s to 60s
Nuts, Cob, per 100 lbs., 70s to 75s
— Barcelona, 24s
— Brazil, 16s
— Spanish, 14s
Chesnuts, per peck, 3s to 7s
Pears, per hf.-sv., 3s to 10s

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d
— red, per doz., 2s to 3s
Brussels Sprouts, p. hf.sv., 1s to 2s
Savoys, per doz., 9d to 1s
Cauliflowers, per doz., 1s to 3s
Broccoli, Brown, per bdle., 6d to 1s 6d
— White, 1s 6d to 3s
Greens, per doz. bunches, 2s to 3s 6d
French Beans, per 100, 2s 6d to 3s
Sorrel, per hf.-sieve, 6d to 9d
Artichokes, per doz., 2s to 4s
Potatoes, per ton, 80s to 160s
— cwt., 4s to 9s
— bushel, 2s 6d to 4s 6d
— Kidney, per bushel, 3s to 6s
Turnips, per doz., 1s to 2s 6d
Red Beet, per doz., 6d to 1s 6d
Carrots, per doz. bchs., 2s to 5s
Horse Radish, per bundle, 1s 6d to 5s
Sealkale, per punnet, 1s 6d to 3s
Cucumbers, each, 1s to 2s
Spinach, per sieve, 9d to 1s 6d
Leeks, per doz. bunches, 1s to 2s
Garlic, per lb., 6d to 8d
Celery, per bunch, 6d to 1s 6d
Cardoons, each, 6d to 9d
Parsnips, per doz, 3d to 1s
Scorzonera, per bundle, 1s to 1s 6d
Salsify, do., 1s to 1s 6d
Onions, per bushel, 2s to 3s 6d
— pickling, per hf.-sv., 2s to 3s
— Spanish, per doz., 1s 6d to 5s
Shallots, per lb., 6d to 8d
Endive, per score, 6d to 1s
Lettuce, per score, Cab., 4d to 9d
— — Cos, 6d to 1s
Radishes, per doz. bunches, 1s to 1s 6d
Mushrooms, per pottle, 10d to 1s 6d
Small Salads, per punnet, 2d to 3d
Fennel, per bunch, 2d to 3d
Savory, per bunch, 4d to 6d
Thyme, per bunch, 4d
Watercress, p. 12 sm. bun. 4d to 6d
Parsley, per bunch, 1d to 3d
— Roots, per bundle, 1s
Tarragon, per bunch, 6d
Mint, per bunch, 2d
Marjoram, per bunch, 4d
Chervil, per punnet, 2d to 3d

POTATOES.—SOUTHWARK, WATERSIDE, Dec. 8.

There has been a considerable clearance of Potatoes at the Waterside during the past week, and the town markets would have felt the shortness of the supply had not been for the quantity that was sent by the railways and through the canals principally from the inland counties that do not usually contribute to the supply of the London market. There was some few fresh arrivals from Yorkshire and Scotland on Saturday and Sunday last, and considering the length of time that some of those cargoes had been on their passage they looked in better condition than many of those of former shipments. Prices range as follows:—York Reds, from 10s to 120s per ton; ditto Regents, 100s to 120s per ton; ditto Blues, 55s to 60s per ton; Scotch Reds, 20s to 30s per ton.

MARK-LANE, MONDAY, Dec. 8.

The supply of Wheat by land carriage samples from Essex, Kent, and Suffolk, was small this morning, and the millers availing themselves of the present uncertain state of the trade, (created by the report of the *Times* paper, which we believe to be false), succeeded in purchasing the same at a reduction of 3s. per qr. under the prices of this day se'nnight; holders of free Foreign and Bonded refusing to sell at any decline, few, if any, transactions occurred in these descriptions. Fine Malting Barley sold freely, but secondary qualities were difficult of disposal. Beans must be noted 1s. and Peas of all kinds 2s. to 3s. per qr. cheaper. Oats are a slow sale, at a decline of 1s. per qr. The top price of Flour is altered to 57s. per sack.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk White	58	66	Red	55	63
—— Norfolk, Lincolnshire, and Yorkshire	57	65	White	59	65
Barley, Malting and distilling 31s to 36s Chevalier	33	38	Grind.	27	31
Oats, Lincolnshire and Yorkshire	24	27	Feed	22	26
—— Northumberland and Scotch	23	26	Potato	25	30
—— Irish	22	24	Potato	25	28
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	34	37			
Beans, Mazagan, old and new	30 to 43		Tick	32	45
—— Pigeon, Hellgoland	34 to 49		Winds	40	48
Peas, White	48 to 62		Maple	36	38
			Harrow	34	47
			Longpod	32	36
			Grey	33	36

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4362 Sks. — Brls.	3259	4704	2849	875	—	1280	2160
Irish	— " — "	—	200	10	11903	—	—	—
Foreign	190 " 3593 "	3199	320	—	2033	—	4	653

FRIDAY, Dec. 12.

As it is generally considered that the change of Administration must prolong the uncertain fate of the Corn-laws, business this morning in all descriptions of Grain, either free or bonded, was completely at a stand-still, and the value of each may be considered nominally the same as on Monday.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	8250	7260	6460	4940 Sks
Irish	—	—	3150	—
Foreign	6990	—	9710	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
1845	60s 1d	34s 3d	25s 2d	33s 2d	45s 2d	43s 0d
Nov. 8	59 7	35 1	25 2	35 7	45 1	44 10
— 15	58 6	35 0	25 3	38 3	44 6	45 7
— 22	57 11	34 1	25 5	37 1	43 4	45 4
— 29	58 2	33 2	25 0	35 4	41 9	45 10
Dec. 6	59 0	32 10	24 7	35 0	41 8	43 4
6 weeks' Aggreg. Aver.	58 10	34 1	25 5	35 9	43 7	44 9
Duties on Foreign Grain	14 0	4 0	3 0	7 6	1 0	1 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 29.

Prices.	Nov. 1	Nov. 8	Nov. 15	Nov. 22	Nov. 29	Dec. 6
60s 1d						
59 7						
— 0						
58 6						
— 2						
57 11						
— 0						
56 6						
— 0						
55 10						
55 6						
— 3						

SEEDS, Dec. 5.

Canary	per qr	54s to 60s	LinseedCakes, Foreign, p. ton	9l to 10l	
Carraway	per cwt	48	50	Mustard, White - p. bush.	6	—
Clover, Red, English	-	—	—	— Superfine "	—	—
— Foreign	-	—	—	— Brown "	—	—
— White, English	-	—	—	Rapeseed, English, per last	26l	28l
— Foreign	-	—	—	RapeCakes - perton	—	—
Coriander	-	10	16	Saintfoin - - -	—	—
Hempseed	per qr.	35	36	Tares, Eng. winter p. bush.	—	—
Linseed	per qr	54	60	— Foreign - - -	4	4s6d
— Baltic	-	42	46	Trefoil - - per cwt	18	23
— Cakes, Eng. per 1000		12l	13l,	Turnip (too variable for quotation).		

KINGSCOTE AND LAY.

Sales by Auction.

HORSELL, SURREY, HALF A MILE FROM THE WOKING STATION ON THE SOUTH-WESTERN RAILWAY.
VALUABLE NURSERY STOCK.

MR WATERER will sell by Auction on Monday, December 15, 1845, and following day, at 10 o'clock for 11 precisely, on the premises, the whole of the valuable and well-selected NURSERY STOCK of Mr. Stephen Spooner (declining business), at Horsell, comprising One Hundred Thousand FIRS AND FOREST TREES, including Spruce, Larch, Pinaster, Stone Pine, and other Firs, from 1 to 12 ft.; Poplars of sorts, Turkey and common Oak, Ash, Beech, Birch, Alder, Lime, and other varieties; two thousand Flowering Shrubs and Evergreens, Portugal and common Laurels, Laurestines; Alexandra Laurel, striped and green Holly, Berberis, and Althæas, from 1 to 4 ft.; Phillyreas and Yew, from 3 to 5 ft.; green and variegated Box, from 1 to 5 ft.; Pyruses of sorts; 300,000 bedded and Seedling Quick, a large quantity of Seedling Oak, Birch, Ash, Spruce Firs, and Sycamore; eight thousand Standard and Dwarf Roses of the most choice sorts; six thousand Standard and Dwarf Fruit Trees, including Apples, Pears, Cherries, Peaches, Apricots, and Plums of the best sorts; Rhododendrons, Kalmias, and Azaleas; Honeysuckles, a large quantity of Mussel, Brussels, Crab, and other Stocks; the whole in great perfection, and will remove safely, having been transplanted within the last three years. May be viewed three days previous to the sale, and Catalogues had on the premises, and will be forwarded by post on application by letter, inclosing four postage stamps, to Mr. STEPHEN SPOONER, Horsell, Surrey; or to Mr. WATERER, Auctioneer, Land and Timber Surveyor, Chertsey, Surrey.

EXTENSIVE SALE OF NURSERY PLANTS.

MESSRS. TOMPSETT & ALLEN have received directions from Mr. HOOKER, to Sell by Auction, on Wednesday, the 17th of December, and the Six following days, the whole of his STOCK OF PLANTS, now standing upon more than Twenty acres of land, in the Parish of Brenchley, Kent. The STOCK comprises the usual variety of Nursery Plants, many of which are rare and of large size. The Sale to commence at Ten o'clock precisely on each day, in consequence of the shortness of the days. Catalogues may be had of Mr. G. Charlwood, Seedsman, Covent-garden; of the Auctioneers, West Peckham; and on the Premises, one week before the sale. Brenchley is 7 miles from Tunbridge-wells, and 3 from the Paddock-wood Station of the Dover Railway. Post town—Cranbrook.

TO NOBLEMEN, GENTLEMEN, FLORISTS AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Monsieur Louis Van Houlte, (Nurseryman and Florist to the King of the Belgians), to submit to public competition at the Auction Mart, Bartholomew Lane, London, on Friday, Dec. 19, 1845, at 12 o'Clock, about Eight Hundred CAMELLIAS, consisting of all the esteemed varieties, most of which are beautifully furnished with bloom buds. Also Two Hundred GHENT AZALEAS, comprising all the finest sorts, which are also well furnished with bloom. The Plants will be on view at the Mart one day prior and morning of Sale, where Catalogues may be had; also of the Auctioneers, American Nursery, Leytonstone.

FENCING, GYMNASTIC, AND CALISTHENIC EXERCISES.

MR. J. CHIOSSO, Superintendent of the above branches of physical education at University College, London, begs to announce that his Academy, 21, New-road, corner of Gower-street, is open on Monday, Tuesday, and Thursday from 10 till 7 in the afternoon, and will be open every day during the Christmas Holidays. Exercises adapted for peculiar cases of Debility or Deformity will be attended to individually at convenient hours. Schools and private families attended. For terms apply at the Academy.

SALE OF PLANTS, THE PROPERTY OF A GENTLEMAN LEAVING THE NEIGHBOURHOOD.

MR. DUCKWORTH WILL SELL BY AUCTION, on Thursday the 18th December, on the premises, New Lodge, near Barnet, a quantity of fine healthy GREENHOUSE PLANTS, including Indian Azaleas, Camellias, &c. Some of the latter are extra fine specimens, and well set with bloom.

There are also 800 pots of Strawberries in first-rate condition, for early forcing. Sale to commence at 1 oclock.

Barnet, December 10.

DORKING, SURREY.—TO NURSERYMEN.

TO BE DISPOSED OF immediately, the old-established NURSERY BUSINESS OF MR. ROBERT WESTLAND, in an eligible situation at Dorking, fronting the Turnpike-road. The whole of the Stock to be taken at a valuation. The commodious House, with the Seedshop, useful Out-buildings, and Nursery Garden, is let at a moderate Rent, and may be entered upon immediately.

For particulars, apply to Messrs. HART & HART, Solicitors, Dorking, Surrey.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25s. per ton in the stream, or 27s. 6d. per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

FOREIGN SHEET GLASS.

C. JARVIS having just imported a large quantity of the above article, in quality and substance hitherto unequalled, can offer it to purchasers at a lower price than any other house in the trade, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street.

CROWN GLASS in Crates or Squares equally low.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows..... £35
" eight rows..... 40
" ten rows..... 45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of the country.

DINGLE'S HAND-DIBBLING MACHINE.—Twelve of these Machines were be exhibited at the Great Smithfield Cattle Show, on Wednesday, December 10th and following days. Two are now manufactured together to plant a double quantity, thereby effecting a great saving in labour and seed.—WILLIAM E. RENDLE & Co., Plymouth, Dec. 13.

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING,

and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company, and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy. — Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public are respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made, is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, New Bridge-street, London. Sold in pots, with full directions for use, at 1s., 2s., and 20s. each.

MECHI'S NOVELTIES FOR CHRISTMAS PRESENTS.—The greatest variety for Ladies and Gentlemen, both in price and choice, are at MECHI'S Manufactory, and Emporium of Elegance, 4, Leadenhall-street, London, where may be suited the economist or the luxurious. Bagatelle tables, 3l 10s, to 13l 10s; writing-desks, 10s, to 20l; dressing-cases, 20s, to 100l; work-boxes, 12s, to 20l; leather writing-cases (with or without dressing-case), 18s to 16l; tea-chests, 7s 6d, to 8l; envelope-cases, 10s, to 10l; inkstands in bronze, wood, and papier maché, 6s, to 6l 6s; splendid papier maché work tables, 10l 10s; sets of tea-trays, 8l to 20l; work and cake baskets, 25s, to 50s; card-racks, 26s, to 40s; hand-screens, 18s, to 48s; netting-boxes, 25s to 27s; card-boxes, 2l, to 5l 5s; pole-screens, 4l 10s per pair; ladies' folios, richly painted, 30s, to 3l 3s; ladies' companions, or pocket work-boxes, in pearl, shell, paper, and leather, at all prices; ladies' scent and toilet bottles, 7s 6d, to 3l 3s; ladies' card cases, 10s to 5l; elegant chess-boards, and ivory chess-men, various prices, to 10l 16s; watch-stands, 27s each; gold and silver pencil-cases; elegant cases of seven-day razors, from 25s, to 10l 10s; ivory-handled and Scotch strops in every variety; sporting knives, 10s to 3l; splendid Wharncliffe knives; ladies' scissors, 5s to 50s per pair; cases of plated and silver desserts, to 25l; cases of splendid table cutlery, to 40l; and a variety of other articles, of which catalogues may be had gratis. As MECHI manufactures extensively on his own premises, the quality of every article is warranted. Table-cutlery, Sheffield-plate, &c.

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Hon. Member Ant. Soc. of Newcastle.

THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland is formed in order to examine, preserve, and illustrate all Ancient Monuments of the History, Manners, Customs, and rts of our Forefathers.

The means by which the Central Committee propose to effect this object are—

1. By holding communication with correspondents throughout the Kingdom, and with provincial Antiquarian or Architectural Societies; as well as by direct intercourse with the Comité des Arts et Monuments of the Ministry of Public Instruction in France, and with other Associations on the Continent instituted for the advancement of Antiquarian Science.

2. By holding frequent and regular meetings for the consideration and discussion of communications received from correspondents and other persons.

3. By procuring careful observation and preservation of Antiquities discovered in the progress of Public Works, such as railways, foundations of buildings, &c.

4. By encouraging individuals, or public bodies, in making researches and excavations, and affording them suggestions and co-operation.

5. By opposing and preventing, as far as may be practicable, any injuries with which Ancient National Monuments of every description may from time to time be threatened.

6. By using every endeavour to spread abroad a correct taste for Archæology, and a just appreciation of Monuments of Ancient Art.

7. By collecting accurate drawings, plans, and descriptions of Ancient National Monuments, and by means of correspondents preserving authentic memorials of antiquities which may from time to time be brought to light.

8. By establishing a Journal devoted exclusively to the objects of the Institute, as a means of spreading antiquarian information, and maintaining a constant communication with all persons interested in such pursuits.

9. By taking every occasion which may present itself to call the attention of the Government to the conservation of our National Monuments, and to the other objects of the Institute.

RULES AND REGULATIONS OF THE ARCHÆOLOGICAL INSTITUTE.

I. THE ARCHÆOLOGICAL INSTITUTE of Great Britain and Ireland shall consist of Life Members, contributing a donation of not less than 10*l.*, of Annual Members contributing not less than 1*l.* each year, and of Corresponding Members who, taking an interest in the objects of the Institute, and being disposed to give furtherance to them without any pecuniary contribution, may desire to attach themselves to the Institute. The Corresponding Members shall not be entitled to vote, nor have any other privileges.

II. The Government of the Institute shall be vested in a Central Committee, consisting of a President, four Vice-Presidents, three Honorary Secretaries, a Treasurer, and twenty-four ordinary Members.

III. The President's tenure of office shall be for one year.

IV. The Honorary Secretaries and Treasurer shall be elected by the Committee, who shall also have the power of electing a Secretary, at such a salary as they may consider proper.

V. The Election of the President, Vice-Presidents, and Members of the Central Committee shall be made by the ballot of the Life and Annual Members at the Annual Meeting. The Committee shall select one Vice-President and six members of their body, who are to go out annually, and shall nominate one Vice-President, and six other Members to fill up the vacancies. The names of those who go out, and of those who are proposed to supply their places, shall be hung up in the Local Committee Room during the whole time of the Annual Meeting, and a printed copy of such lists furnished to each Member of the Institute, with his ticket for the Annual Meeting. No Member of the Committee, except the Honorary Secretaries and Treasurer, shall remain on the Committee more than four years, or be eligible to serve again until after the lapse of one year. Any Member of the Institute is at liberty to substitute on the list other name or names for those proposed by the Committee.

VI. The Committee shall be empowered to fill up *pro tem.* by election all occasional vacancies that may be caused by the death or resignation of the President, or any of the Vice-Presidents or ordinary Members of the Committee.

VII. These vacancies shall be supplied on the recommendation of at least three Members of the Committee, made in writing at one of the ordinary Meetings; the proposed Member to be balloted for at the succeeding ordinary Meeting.

VIII. The Annual Meeting shall be holden in one of the cities or principal towns in the kingdom, at which the elections, the appointment of the place of meeting for the ensuing year, &c., shall take place. Notice of this Meeting shall be given by one of the Honorary Secretaries, by order of the Committee.

IX. The Committee shall have the power of nominating a certain number of Local Vice-Presidents.

X. No other General Meeting of the Institute shall be holden without the consent of at least three-fourths of the Committee, expressed in writing; for such Special Meeting, a notice of at least three weeks shall be given by advertisements in the public papers. At this Special Meeting, the President, or, in his absence, one of the Vice-Presidents, shall take the chair, and, in their absence, the Committee shall appoint a Chairman.

XI. Neither at the General Annual Meeting, nor at any Special General Meeting, shall any alteration of, or addition to, any of the Rules or Regulations of the Institute be submitted to the Meeting, unless upon a proposal in the form of a resolution in writing, signed by two Life or Annual Members: which shall have been sent to the Committee one month previous to the Meeting, and suspended in their committee-room.

The Summons for the Special General Meeting shall specify the Resolution or Resolutions to be submitted to the Meeting, and the discussion shall be confined to that object only: in case such proposed Resolution or Resolutions shall be carried, another Special General Meeting shall be summoned by the Committee after the lapse of not less than a fortnight, or more than a Month, for the sole purpose of ratifying or rejecting such Resolution. If, however, the first-mentioned Special Meeting take place at a tme not more than two Months before the Annual Meeting, then such Resolution or Resolutions shall be ratified or rejected at that Annual Meeting.

XII. The Chairman of the Annual, or any other General Meeting, shall have an Independent as well as a Casting Vote.

XIII. A certain number of persons, not usually resident in London, shall be associated with the Central Committee as Honorary Members of that Body, and shall be entitled to a Vote at their Meetings. Such Honorary Members shall be proposed on the recommendation of at least three Members of the Committee, and the Election shall take place at the succeeding Ordinary Meeting.

XIV. The Committee shall appoint a certain number of persons, not resident in London, as their Local Secretaries.

XV. The Election of Local Secretaries and Corresponding Members shall be made by the Committee on the proposal of one of the Members thereof, either on his own personal knowledge or on the recommendation of two subscribing Members of the Institute.

XVI. In these and all other Elections made by the Committee, it shall be allowable for any Member thereof to demand a Ballot.

XVII. Subscriptions and Donations may be paid to the Treasurer, to any Member of the Committee, or to the Account of the Archæological Institute with the Bankers of the Institute, and no Subscriber shall be entitled to Vote at the Annual Meeting who has not paid his Subscription. The Year shall be considered as closing with the termination of the Annual Meeting; from which time the Subscription for the ensuing year shall become due.

XVIII. The Cash Book, and an account of all Receipts and of the Balance in the Bankers' hands, shall be laid on the table at each Meeting of the Central Committee. All Bills having been duly examined, and approved in writing, shall be paid by Cheque upon the Bankers, signed by the Treasurer.

XIX. The Accounts of the Institute shall be submitted Annually to two Auditors, who shall be elected for that purpose by the Members of the Institute at the General Meeting, and who shall attest by their Signatures the accuracy of the said Accounts. The Accounts having been thus approved, shall be submitted to an Annual Meeting of the Committee, to be holden on the First Wednesday in May, and shall be printed and published in the Journal of the Institute as part of the proceedings of the Committee.

XX. A Report of the Proceedings of the whole year shall be submitted to the Annual Meeting.

XXI. The Central Committee shall be empowered to make such Bye-Laws as may, from time to time, appear to them expedient.

The Central Committee request the Local Secretaries to attend, whenever it may suit their convenience, the Ordinary Meetings, which take place once in every fortnight at the apartments of the Institute, 12, Haymarket, for the discussion of Archæological communications and the exhibition of objects of interest.

ORDINARY MEETINGS OF THE CENTRAL COMMITTEE

12, Haymarket. *The Chair taken at Four o'clock.*

Subscriptions may be paid to the Bankers, Messrs. Cockburns, 4, Whitehall. All communications should be addressed to T. HUDSON TURNER, Esq. 12, Haymarket.

PUNCH'S ALMANACK will be published on the 24th instant. Price 3*d.*; Stamped 4*d.*

*** Vol. IX. will be published at the end of the month, price 8*s.*

London: Punch Office, 92, Fleet-street.

Just published, post 8vo. cloth,

EXPLANATIONS; by the Author of "Vestiges of the Natural History of Creation."

London: John Churchill, Princes-street, Soho.

NEW POCKET MAGAZINE.

On the 1st of January will be published, price 6*d.*, with Illustrations, Number One of the

ALMANACK OF THE MONTH, A REVIEW OF EVERYTHING AND EVERYBODY.

Edited by GILBERT ABBOTT à BECKETT.

Among the principal contents of this new Monthly Publication will be found Notices of

ALL THE PRINCIPAL OCCURRENCES OF THE MONTH: including Reviews of the Books of the Month—The Absurdity of the Month—The Play or Opera of the Month—The Speech of the Month—The Abuse of the Month—The Fashion of the Month—The Great Event of the Month—The Talk of the Month—The Exhibition of the Month, &c. &c. &c.

Books, &c. for Review, and Contributions for the Editor, may be addressed to the Punch Office, No. 92, Fleet-street; where the Almanack of the Month will be published.

Just Published, price 16*s.*,

Dedicated by permission to the Right Honourable the Earl of Auckland, G.C.B., Vice President of the Horticultural Society of London.

THE ANNALS OF HORTICULTURE & YEAR-BOOK OF INFORMATION ON PRACTICAL GARDENING.

Orders received by all Booksellers.

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Introduction to Liebig's "Agricultural Chemistry."

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LECTURES TO FARMERS ON AGRICULTURAL CHEMISTRY. By Alexander Petzholdt.

"It is the first work we have seen in which the chemist has condescended to write so as those not initiated in the mysteries of the science may understand what he writes about."—*Northern Star.*

London: Taylor and Walton, 28, Upper Gower-street.

On the 1st of January, 1846 (to be continued Quarterly), will published PART I. of

THE JOURNAL OF THE HORTICULTURAL SOCIETY OF LONDON, containing 96 pages in 8vo with one Coloured Plate and other Illustrations, price 5*s.*

In this work it is intended to publish periodically an account of the Proceedings of the Society, the Journals of the Society's Collectors, Papers on Horticultural Practice, or Subjects connected with Gardening, Reports upon the new Esculents, Fruits, or ornamental Plants, that may be from time to time introduced, an account of all Experiments tried in the Garden, and such other matter bearing upon Horticulture as may appear interesting to the Public. It will be distributed gratuitously to the Fellows of the Society, instead of the 4to Transactions; which will be discontinued after the completion of the current volume.

Fellows, Corresponding Members, and others, are invited to forward communications upon all matters *of either theory or practice*, to the Vice Secretary, at the House of the Society, 21, Regent-street, London.

THE TENANT FARMERS' ADVOCATE.—It is abundantly manifest that the position of the Agricultural Interest as a class is undergoing and must undergo a great change. In such change the relative position of "LANDLORD AND TENANT" will form the most important feature, and the establishment of a sound system of "Tenants' Rights" will be a cardinal point for "Tenant Farmers." For 14 years THE MARK-LANE EXPRESS AND AGRICULTURAL JOURNAL has been the zealous and uncompromising advocate of the Tenants' Rights, and with the conviction that the interests of the Tenantry are vitally involved in the question, the columns of this Journal will be continuously devoted to its discussion and elucidation. Published every Monday in time for Post. May be had by order of all Booksellers and Newsmen.—Office, 24, Norfolk-street, Strand, London. Price 1*l.* 10*s.* 4*d.* per annum.

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*** All other "*MACASSAR OILS*" are FRAUDULENT COUNTERFEITS!!!

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 51.—1845] SATURDAY, DECEMBER 20. [Price 6*d.*

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SEED TRADE.

J. G. WAITE'S WHOLESALE CATALOGUE of GARDEN SEEDS is now ready, and can be had on application at 4, Eyre-street Hill, Hatton Garden.

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good Cropper, with fine Pods, and most delicious flavour. Height about 2 ft.—5*s.* per quart.—To be had of Warner and Warner, Seedsmen, 28, Cornhill, London.

"CINERARIA BLADWOOD"—THE GREATEST NOVELTY OF THE SEASON.

S. WALTERS, Florist, Hilperton, Wilts, has much pleasure in offering to Public notice, the above truly beautiful Variety. (See *Gardeners' Chronicle*, May 27, 1845, under the initials "H.D.");—"Your Cineraria is the most novel in appearance which has come under our notice this season; the dark disk, with petals equally even, divided into white and crimson, with the colour breaking off abruptly, gives it a singular and gay appearance."

Plants in April 7*s.* 6*d.* each. Early orders only can ensure plants.

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All communications promptly attended to.

BECK'S SEEDLING PELARGONIUMS, 1841.—E. Beck informs the public that his sale of the above will terminate on January 1st, 1846. The small portion remaining are well established in 4½-inch pots. N.B.—E. B. proposes to send out another selection after the Exhibitions of 1846.

Worton Cottage, Isleworth.

TO THE PLANTERS OF ENGLAND AND LOVERS OF THE PICTURESQUE.

JAMES GRIGOR, Nurseryman, Norwich, begs to state that he is now sending out plants of the True HIGHLAND PINE, a noble landscape ornament, and a tree which produces very superior timber.

"I very particularly admire the Highland Pine; its growth, and leaf, and bark, are beautiful. I shall be truly proud of my first specimens, of which I beg you will send me 1000 of your finest for trial. I am very much obliged to you for calling my attention to trees of such value."—*Newcastle (Duke of), Clumber, December* 2, 1844.

"Now that we are on the subject of trees, I may mention what I have very likely told you in some of my previous letters, that I prefer the Highland Pine to all other trees except the Oak, taking into consideration its beauty in winter, and by moonlight, and in the evening."—*Wm. Wordsworth, Rydal Mount, Dec.* 7, 1844. Who, then, would be without this tree?

Plants	1 to 2 inches	.....	5*s.* per 1000
,,	2 to 4 ,,	.....	10*s.* ,,
,,	4 to 6 ,,	.....	15*s.* ,,
,,	6 to 8 ,,	.....	20*s.* ,,
,,	8 to 10 ,,	.....	25*s.* ,,
,,	10 to 12 ,,	.....	30*s.* ,,
,,	12 to 15 ,,	very strong, 5*s.* per 100.	

Finest picked Plants 4*d.* each; Ditto in pots 6*d.*

Norwich, Dec. 20.

TRANSPLANTED LARCH 3 TO 4 FEET.

MESSRS. WILLMOTT and CHAUNDY, Nurserymen and Seed Growers, Lewisham, Kent, have a quantity of twice-transplanted LARCH, 3 to 4 feet high, to dispose of at a moderate price; also a good and healthy Stock of Fruit Trees of all descriptions, Forest Trees (particularly English Elms 9 to 12 feet high), Shrubs, and Evergreens of various sizes, well-grown plants, which will remove with safety from their being often transplanted.

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MESSRS. SUTTON & SONS have the pleasure of intimating that they have now harvested and arranged for delivery all their new KITCHEN GARDEN SEEDS, consisting of all the most esteemed sorts in cultivation, among which the following are particularly recommended:—

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Fairbeard's Early Surprise
Sutton's Superb
Waite's Queen of Dwarfs
Cormack's Prince Albert
British Queen
Hay's Mammoth
Green's Superb
Shilling's Early Grotto
Thompson's Early Dwarf
And many other fine sorts.

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True Walcheren
Chappel's Large Cream
Sutton's Early White
Hammond's White Cape
Large German Cauliflower
True Beechwood and other Melons
Cuthill's Black Spine, Latter's Victory of England, and other Cucumbers
Fine new sort Bath Cos Lettuce
Adey's Large Cos Lettuce
Shilling's Queen Cabbage
Early Dutch Horn Carrot
Fine Long Surrey Carrot
Whyte's New Dark Beet
True Reading Onion
Seymour's Superb and Lion's Paw Celery
Soden's Early Oxford Potatoes
Swaile's Early Frame, Ashleaf Kidney, and others.

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No. 2.	Complete Collection, in smaller quantities	2	2	0
No. 3.	Ditto Ditto	1	1	0

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Early Orders are requested and recommended, as some sorts are in great demand.

*** Parcels delivered free to any office in London, or any Station of the Great Western Railway between London and Bristol.

Remittances are not required from known correspondents, nor from those who give satisfactory references.

Reading Nursery, Reading, Berks, Dec. 20.

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YOUELL and CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15*s.* per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s.* per pair.

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			£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto ditto .	5	0	0
12	ditto	Fine Show Flowers ditto .	1	10	0
25	ditto	ditto ditto .	3	0	0

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HYACINTHS, Double and Single, Blue, Red, White, and Yellow, very fine, 6*s.*, 12*s.*, and 18*s.* per dozen.

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FUCHSIAS, extra fine, including "Serratifolia,"	21*s.*	p. doz.
CHRYSANTHEMUMS	ditto .. 12*s.*	per dozen.
VERBENAS	ditto .. 6*s.*	,,
PETUNIAS	ditto .. 9*s.*	,,
PANSIES	ditto .. 10*s.*	,,
Ditto, very best first-rate Show Flowers	18*s.*	,,
CINERARIAS, extra fine sorts, by name	12*s.* to 18*s.*	,,

Also their New Superb Seedling CINERARIA, "No. 1," named "NORFOLK HERO," 5*s.* per plant; the following description of it will be found in the *Gardeners' Chronicle*, May 31, 1845:—"Y Y—No. 1 is a very fine specimen of a creamy-white, dark disk, very broad petals and flowers, unusually large, measuring 1½ inches in diameter."

ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

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	s.	*d.*
AURACARIA IMBRICATA:		
2 years old, per doz.	9	0
3 ,, .. ,, ..	12	0
4 ,, .. ,, ..	18	0
5 ,, .. ,, ..	30	0
6 ,, .. ,, ..	60	0
Cedrus Deodar, 1 yr., fine	18	0
,, ,, 1 foot ..	30	0
Pinus excelsa, 3 inches..	9	0
,, ,, 4 to 5 ins.	18	0
,, ,, 18 inch, fine bushy plant ..	42	0
,, Gerardiana, 2 yrs.	30	0
Abies Khutrow, 2 years	9	0

	s.	*d.*
Abies gracilis .. each	2	6
,, orientalis ,, .	5	0
Picea cephalonica, p. dz.	30	0
Pinus cembra .. ,, .	12	0
Cupressus torulosa, per doz., fine	18	0
Do., seed pans, p. doz.	6	0
Podocarpus totara, each	5	0
Do. Dicrydioides ,,	7	6
Do. ferrugineus ,,	5	0
Phylocladus trichomanoides .. .. ,,	5	0
Taxodium sempervirens,,	7	6
Dicrydium cupressinum,,	5	0

RIBES SANGUINEUM FLORE PLENO, 10*s.* 6*d.* per plant.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s.* per 100.

"PRINCESS ALICE MAUDE," ,, 10*s.* ,,

YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12*s.* per dozen. Roots placed in a cellar or closet now will be fit for cutting in January.

Great Yarmouth Nursery, Dec. 20.

POTATOES FROM THE SCILLY ISLANDS.

W. E. RENDLE and CO. have been fortunate in procuring a few Tons of these POTATOES, *all of which are entirely free from the prevailing disease, and will be found most valuable for seed.* Refer to the Rev. C. A. John's Letter in the *Gardeners' Chronicle* Nov. 29, page 801.

*** Price on application.

Plymouth, Dec. 20, 1845.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded Youell & Co. two prizes for it.

Packages containing 100 canes	.	£1	4	0
Do.	do. 50 do. . .	0	13	0
Do.	do. 25 do. . .	0	7	0

A liberal discount will be allowed the Trade when "quantities" are ordered.

FINE STANDARD ROSES, by name, 15*s.* per dozen.

Great Yarmouth Nursery, Dec. 20.

CHARLES FARNES, Seedsman, 123, St. John's-street, London, respectfully informs his Friends and the Public generally, that he will be enabled to supply orders for the following new and choice VEGETABLE SEEDS:—

ROYAL GREEN MARROW PEA.—This most excellent Variety may be sown as a second early Pea, and will be fit for use about the same time as the Early Warwick; it will be found on trial that no Pea can surpass its flavour or rich colour when boiled. Price 2*s.* 6*d.* per quart.

QUEEN OF DWARF PEA.—It is superior to all the dwarf Peas known, and only requires more general cultivation to test its merits, when it will supersede every other variety of the same habit. Price 5*s.* per quart.

DANCER'S MONASTERY PEA.—This fine large Pea will be found superior to all the old sorts for a middle crop. It is an excellent bearer, and of good flavour, and merits a place in all gardens. Price 2*s.* 6*d.* per quart.

A general CATALOGUE of all the new Vegetables, &c., will be forwarded on application.—Dec. 20.

VICTORIA NURSERY, CORK.—FOREST TREES.

J. & H. HAYCROFT can deliver free at any of the undermentioned ports, strong transplanted LARCH, 2 to 3 feet high, at 15*s.* per 1000, and 3 to 4 feet high at 18*s.* per 1000; also small LARCH 9 to 15 inches high (fit for planting in clean ground) at 7*s.* 6*d.* per 1000. By steam-vessels to London in four days, to Liverpool, Bristol, and Plymouth, in 30 hours, and by sailing vessels to Newport, Cardiff, Neath, Swansea, and nearly every port in South Wales.

TO GERANIUM EXHIBITORS AND CULTIVATORS.

JAMES WHITE, Florist, Shacklewell, near London, having purchased the undermentioned Seedlings of Mr. R. Catleugh, has fine strong plants ready for delivery at the undermentioned prices:—"Clio," clear white purple spot, good shape, fine trusser, and fine show flower, very early and free bloomer, 1*l.* 10*s.* "La Polka," upper petals deep crimson purple, surrounded by a margin of rosy tint; under petals of an even rosy purple, close habit, and abundant bloomer, 1*l.* 10*s.* "Sunbeam," fine smooth orange, dark spot, good shape, fine trusser, and fine show flower, 1*l.* 1*s.* "Duke of Wellington," upper petals of a light crimson, surrounded with a dash of scarlet, under petals of a deep rosy pink, free bloomer, and good habit, 1*l.* 1*s.* They have all been successfully exhibited, and can be recommended. All the old-established varieties at the lowest prices.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The importation of the above-named Bulb has just been received at A. Cobbett's Italian and Foreign Warehouse, 16, Pall Mall. The Orange, Lemon, Citron, Lime, and Shaddock Trees, Catalonia, Agorian, and Arabian Jessamine Plants expected early in January.

SEEDS.—CORNER OF HALF-MOON-STREET

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea. By special appointment to the Queen and H.R.H. Prince Albert.

PHEASANT POULTS.—Gentlemen stocking their preserves are respectfully informed they can be supplied with any quantity of TAME BRED AND WILD PHEASANTS, as above, also a great variety of useful and ornamental Water Fowl, Domestic Poultry, including Malay, Cochin China, Dorking, Spanish, &c., Fancy Bantams, &c., &c., 3, Half-moon-passage, Gracechurch-street.

TO NURSERYMEN, GLASS MANUFACTURERS, and OTHERS.—A person just commencing the Nursery Business is in want of the following as a beginning, delivered free in Liverpool, for cash :—

2000 squares of German Sheet Glass, not less than 20 oz. to the foot, say from 18 ins. to 2 feet long, and 10 or 12 wide, as may best cut. 2000 do., from 6½ to 8 ins., by 6½, good strong Crown do. 200 White and Red Currants. 200 Gooseberries, good sorts. 100 each Standard and Dwarf Cherries. 200 Dwarf Apples; 100 Standard do. 200 Dwarf Pears; 100 Standard do. 50 each Apricots, Nectarines, Peaches, maiden and trained. 200 Canes of the Red and White Antwerp Raspberries. 200 do. of Fastolff do. 50 good strong Vines, from 3 to 5 years old. Together with a general assortment of Stove and Greenhouse Plants, Flowers, Shrubs, and Forest Trees, and a general assortment of Seeds.—Direct to J. Oulton, Frodsham, Cheshire, stating the lowest price for the whole or any part.

POTATO SEED.—Important to Gentlemen, Nurserymen, Seedsmen, and others.—A. HARDY and SONS, seed-growers, Maldon, and Bures, Essex, beg to offer their carefully selected Potato Seed of 1844 and 1845 from the best early kinds extant, in pockets at 2s. 6d. each, with directions for sowing, &c., &c. : and their Seedling Potatoes, warranted free from disease, at 2s. 6d. per 100 : also their very large and choice assortment of Vegetable and Annual Flower Seeds, wholesale and retail. A. H. & Sons strongly recommend early applications, as their stock is getting low. Town orders received by H. J. Hardy, Agent, 7, Windsor Place, City Road, where samples may be seen, and every information given.

FINE SUCCESSION PINES ON SALE.

TO BE SOLD, about 120 fine SUCCESSION PINES, principally of the sort known in Lancashire as the Black Jamaica. Also six or eight Providence in the lot. The Pines are of three sizes, and will be sold cheap; they are beautifully grown and warranted free from every insect that attacks the Pine. All applications to Joseph and Charles Whalley, Nurserymen and Seedsmen, South George Crescent, Liverpool, will be immediately responded to.

MR. GEORGE CORNWALL, Market Gardener, Barnet, begs to recommend his New VICTORIA RASPBERRY to the notice of Gentlemen, and likewise Gardeners, as being the finest fruit and best flavoured Raspberry of any grown—it was sold in Covent-garden last season higher than any other; it is likewise a most abundant bearer, and grows 10 feet high. To be had at E. Charlwood's, Covent-garden; Messrs. W. and J. Noble, Fleet-street; of Mr. George Cornwall, opposite the Red Lion, Barnet; and all the principal Seedsmen in London, at 3l. per 100, or 9s. per dozen.

SMALL GLASS for HOTHOUSES and GARDEN LIGHTS.

sqrs.			Per gross.	sqrs.			Per gross.
60,000	4 in. by 2 in. at		0s. 8d.	40,000	4½ in. by 2½ in. at		1s. 6d.
30,000	4½	2 ..	1 0	10,000	5	3 ..	3 6
80,000	6	4 ..	9 0	90,000	8	6 ..	18 0
60,000	6½	4½ ..	11 0	11,000	8½	6½ ..	20 0
30,000	7	5 ..	13 0	80,000	9	7 ..	22 0
12,000	7½	5½ ..	15 0	40,000	10	8 ..	30 0

PROPAGATING OR STRIKING GLASSES

Are now offered at half the usual prices; a variety of other shapes and sizes may be had.

in.	in.	each.	in.	in.	each.
About 5 high	by 3 dia.	0 8d.	About 6½ high	by 4½ dia.	1s. 0d.
5	3½ ..	0 9	7	5 ..	1 2
5½	3¾ ..	0 10	7½	5½ ..	1 4
6	4 ..	0 11	8	6 ..	1 9

BEE GLASSES, FISH GLOBES, FRENCH SHADES FOR FERNS, &c.

R. COGAN, GLASS, LEAD, and COLOUR WORKS, 48, LEICESTER SQUARE, LONDON.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, & OTHERS.

BRITISH and FOREIGN SHEET GLASS for Horticultural purposes, Sky-lights, &c., may be had at JAMES BROMLEY'S, 315, Oxford-street, London, at the Reduced Prices; also Microscopical Glass, French Shades, Plate and Crown Window-glass.

J. B. will be happy to furnish Lists of Prices, or any other particulars that may be required.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

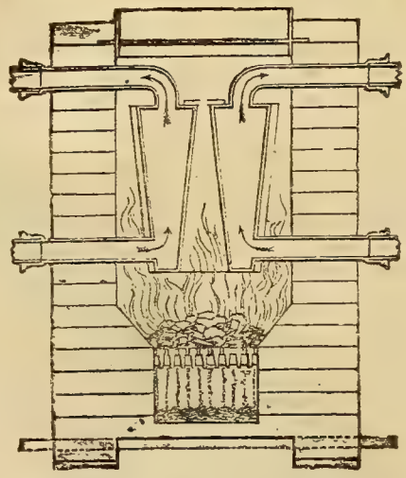
STEPHENSON and CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE and HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 130 Fleet-street.

THE TANK SYSTEM.



BURBIDGE and HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. Mills's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by Burbidge and Healy's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25s. per ton in the stream, or 27s. 6d. per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By Mark Fothergill, 40, Upper Thames-street, London.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS and SONS, LONDON; WM. J. MYERS and CO., LIVERPOOL; And by their Agents, COTSWORTH, POWELL, and PRYOR, LONDON; GIBBS, BRIGHT, and CO., LIVERPOOL and BRISTOL. 47, Lime-street, Dec. 20.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. Purser, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by Benjamin Fowler, Engineer, &c., 63, Dorset-street, Fleet-street, London.

DRAINING TILES.



AINSLIE'S PATENT IMPROVEMENTS.—For Making and Drying Draining Tiles of the 1st Class. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The Process combines Effect with Economy, as Tiles can be made ready for Burning at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. Howe, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from John Ainslie, Alperton, Acton, Middlesex.

LIQUID MANURE.

METROPOLITAN SEWAGE MANURE COMPANY.

The Plans, Sections, and Books of Reference, in accordance with the Standing Orders, have been deposited, and the proper Notices given, so that the Company is now prepared to go to Parliament in the ensuing session for an Act of Incorporation.

An early allotment of Shares will be made.

Applications for Shares and Prospectuses to be addressed to the Provisional Committee of the Metropolitan Sewage Manure Company, at No. 5, Berners-street, Oxford-street.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows..... £35
,, eight rows..... 40
,, ten rows..... 45

Applications for further particulars may be made to Mr. John Weatherstone, Cassington, near Oxford; or to Messrs. Gill and Ward, High-street, Oxford.—Agents wanted in all parts of the country.

THE FAILURE IN POTATO CROPS.

R. BENNETT'S IMPROVED ALEMBIC, or POTATO STEAMER.—The disease in Potatoes so prevalent at the present time, has given rise to many inquiries and suggestions. But all agree that steaming is the best mode of cooking them, as according to the opinion of scientific men, heat at which steam is produced, destroys anything injurious they contain; and if the steamer is constructed so as to carry off the condensed steam instead of allowing it to fall back upon the Potatoes, the acid and unwholesome flavour complained of will be entirely removed.

R. B. feels great pleasure in recommending his Steamer as possessing all the above advantages, in addition to which it can be fitted to any saucepan or boiler, or condenser and receiver, attached to steamers at present in use. As all Potatoes are more or less affected, no family should be without an article possessing such great advantages at this lamentable season of failure in Potatoes.

Manufactured and sold wholesale and retail, by R. Bennett, 22, Shoemaker Row, Doctor's Commons, London.

FENCING, GYMNASTIC, AND CALISTHENIC EXERCISES.

MR. J. CHIOSSO, Superintendent of the above branches of physical education at University College, London, begs to announce that his Academy, 21, New-road, corner of Gower-street, is open on Monday, Tuesday, and Thursday from 10 till 7 in the afternoon, and will be open every day during the Christmas Holidays. Exercises adapted for peculiar cases of Debility or Deformity will be attended to individually at convenient hours. Schools and private families attended. For terms apply at the Academy.

HEAL AND SON'S LIST OF BEDDING containing a full description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding. Sent free by post, on application to their Establishment, the largest in London exclusively for the manufacture and sale of Bedding (no bedsteads or other furniture being kept).—Heal and Son, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them and invariably proves certain destruction. Prepared only by Edward Purser, 40, New Bridge-street, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

CHRISTMAS HOLIDAYS.

ROYAL POLYTECHNIC INSTITUTION.—The Lectures selected for this period of the year, by Dr. Ryan and Professor Bachhoffner, in CHEMISTRY and NATURAL PHILOSOPHY will be illustrated by Interesting and Brilliant Experiments. A LECTURE on the PREVALENT DISEASE in POTATOES will be delivered by Dr. Ryan, and also on the ATMOSPHERIC RAILWAY, by Professor Bachhoffner, a Working Model of which, carrying several Persons, is exhibited daily. The additions of the OPAQUE MICROSCOPE, DISSOLVING VIEWS, and CHROMATROPE, are very effective. The PHYSIOSCOPE. Submarine Experiments by Means of the DIVER and DIVING BELL. Among the various additions to the Working Models is COLEMAN'S NEW AMERICAN LOCOMOTIVE ENGINE, for ascending and descending Inclined Planes. A Magnificent COLLECTION of TROPICAL FRUITS. Mr. DOWNE, the celebrated Flute-player, will take part in the Music, conducted by Dr. Wallis. Open from Eleven to Half-past Five, and from Seven to Half-past Ten in the Evening.—Admittance, One Shilling. Schools, Half-price.

THE POPULAR REMEDY.

PARR'S LIFE PILLS.—The extraordinary success of this medicine is the wonder of the age; it has been tried by hundreds of thousands as an aperient, and has in every instance done good; it has never in the slightest degree impaired the most delicate constitution. Tens of thousands have testified that perseverance in the use of Parr's Life Pills will completely cure any disease, and are living witnesses of the benefit received from this invaluable medicine.—Testimonials are received daily, and it would be impossible, in a newspaper, to publish one-half received; and the following are selected as people well known in their respective neighbourhoods, and whose testimony is unquestionable. Further sheets of Testimonials and the "Life and Times of Old Parr" may be had gratis of all Agents.

The following important testimony to the efficacy of Parr's Life Pills has just been received by the Proprietors:—"To Messrs. T. Roberts and Co., London. Athlone, Dec. 7, 1844. Sirs,—You will please to send me six dozen more Parr's Life Pills, I am just out. They are taking well, and, I can assure you, they are doing an immensity of good; everyone who has tried them in affections of the Liver and Stomach derives a great deal of benefit. Yours, &c., William Gilchriest, Apothecary and Surgeon.

"Long Benton, near Newcastle, August 11, 1845. Sirs,—I beg to thank, and inform you, of the wonderful effect of your Parr's Life Pills. I was long subject to Shortness of Breath, with Cough, &c., but after taking your Pills a short time, I am not only cured but feel quite young again, and, although an old man of 60, I feel so much better that I think I shall live to be 90 at least. If you think this will be of service you are quite welcome to print it. Yours, with much respect, Peter Murphy."

Beware of spurious imitations of the above medicine. None are genuine unless the words "PARR'S LIFE PILLS" are in WHITE letters on a RED ground, engraved on the Government Stamp, pasted round each box; also the fac simile of the Signature of the Proprietors, "T. ROBERTS and CO.," Crane-court, on the directions.

Sold in boxes, at 1s, 1½d., 2s. 9d., and family packets at 11s., by all respectable druggists and patent medicine retailers throughout the kingdom.

☞ Full directions are given with each box.

RANUNCULUSES.

HURST and M'MULLEN, Seedsmen & Florists, 6, Leadenhall-street, London beg to offer the following very splendid RANUNCULUSES for sale. As the Stock is limited early orders are requested.

	Per root—s. d.		Per root—s. d.
Aust's Nonsuch	4 0	Aust's Adeline	3 6
,, Mirabile	4 0	,, Henrietta	5 0
,, Wonder	2 6	,, Sir Robert Peel	2 6
,, Nelson	2 6	,, Carmine Perfection	5 0
,, Milo	2 6	,, Pretiosa	4 0
,, Queen Victoria	4 0	Lightbody's Marshal Soult	3 6
,, Prince George	4 0	,, Herald	5 0
,, Prince Albert	2 6	,, Rob Roy	3 6

Splendid Varieties mixed, 20s. per 100.

NEW PEAS.—Sold by J. G. WAITE.—

	Per quart—s. d.		Per quart—s. d.
Waite's Queen of the Dwarfs	5 0	Carter's New Colossus Marrow	3 0
New Early Hybrid, very early and long podded, extra fine	5 0	Dancer's Monastery	2 6
Mummy Marrows, fine	5 0	Farnes's Royal Green Marrow	2 6
Hays' New Mammoth	2 6	Prince Albert, early	1 6
Cormack's British Queen	2 0	Early Railway, fine	2 6
Frazer's Shinley Marrow	3 0	Prince of Wales, new Marrow	5 0

All other kinds of SEEDS 30 per cent. lower than any house in London.—4, Eyre-street Hill, Hatton Garden.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 20, 1845.

MEETING FOR THE FOLLOWING WEEK.

WEDNESDAY, Dec. 24—Society of Arts . . . 8 P.M.

ALTHOUGH we regard the notion that the RACES OF PLANTS WEAR OUT as utterly baseless and visionary, we are by no means opposed to certain conclusions at which writers adopting that erroneous hypothesis have arrived. We admit that their statements are in many instances correct; we have nothing to offer in the way of objection to their experiments; it is only against their false reasoning that we are obliged to protest.

Mr. KNIGHT found that diseased Apple trees produced diseased descendants, and that the evil of the parents went onwards to their children from generation to generation: and therefore he concluded that the Apple trees were dying of old age. A writer of elaborate articles in the *Morning Herald*, Mr. TOWNLEY, infers because the Gooseberry growers of Lancashire find the weight of their fruit diminishes "after the varieties have been cultivated some time," that therefore these varieties are dying of old age, and he has expended no inconsiderable quantity of learning in attempting to fit this speculation to the Potato. So impressed, indeed, is he with a conviction of its truth, that he recommends people to be sent to Peru, or wherever else the Potato grows wild, in order to get seeds and tubers of vigorous wild plants. And all this is imitated by a shoal of persons who catch up the idea, and forthwith write letters to newspapers, or men in office, or rush into pamphlets with all the complacency which invariably attends an ignorance of facts, or even of sound principles. When we read these things, we cannot but exclaim with the old satirist

Hos pueris monitus patres infundere lippos
Cum videas, querisne, unde hæc sartago loquendi
Venerit in linguas?

Whence indeed?

It is very singular that not one of all those writers who have of late been fatiguing the public eye should have perceived that the very few facts on which they rely are susceptible of a much more simple interpretation than that given by Mr. KNIGHT, and caught up by themselves. It is marvellous that they should have imagined that the common sense, to say nothing of the science, of the intelligent cultivators of the present day, should accept for truth such an extraordinary exhibition of false reasoning. One would think that all death or disease was exclusively the consequence of old age.

It has been well known from all antiquity that if vigorous children spring from vigorous parents, so also is a diseased and debilitated progeny the sure issue of parents weak in body and mind. Among men this is notorious. The obvious interpretation of the Apple tree and Gooseberry bush cases, which have so perplexed the minds of the little patriots of our day is this; a tree is allowed, from some cause or other, to become unhealthy; a piece cut from it and put upon another tree carries its disease with it; when again divided, the disease is again propagated; and this will go on so long as the unhealthy plants remain exposed to the circumstances which originally caused their bad health. But change those circumstances, place the plants in more favourable circumstances, keep off the cause of the evil, and the evil will gradually disappear, as has actually happened in the instances mentioned last week, which are a conclusive answer to the whole wearing out hypothesis.

These were the just views of Mr. GARDEN, of Glenae, to which we alluded last week. "We may for a time," says this gentleman, "raise species of DISEASED plants, and employ these as the seed (sets) of the next crop. Nothing can be more manifest than that the offspring of diseased parents will participate in their disease, and even be incapable of cure, or of becoming the seed of a healthful crop on any soil. * * It is evident that diseased plants may be more easily cultivated on a healthful and fresh soil than on one which is diseased and run out. * * But the *abundance* and *healthfulness* of the crop are two very different things. It is well ascertained that seed Potatoes (sets) taken from fields on the higher grounds, and where Potatoes have been much seldomer cultivated, are less liable to fail than those raised on fields which have produced *many* Potato crops. * * The latter *forced* in diseased or exhausted fields are unfit for seed (sets) in any situation."

Nothing can be more true. The health of the Potato crop is not with any certainty to be increased by raising new varieties from seeds. The result of that operation may be better or worse according to the health or constitutional peculiarity of the individual from which the seeds were gathered, or according to the way in which those mysterious influences which cause constitutional difference operate while the young seedling is passing through the processes of organisation. We all know that some seedlings are tall, others dwarf, some early, others late, some robust, others delicate, some extraordinarily rich in starch (as, for example, the famous Rohan sort), others deficient in that product; and we can never tell beforehand, with any certainty, what peculiarities a given seedling will possess. The idea, therefore, of renovating the Potato crops of Europe by raising them from seed is a dream.

What is really wanted, and what *must* be better attended to, is the renovation of the crop by a skilful cultivation of the Potatoes we already have. We do not mean that general cropping demands much alteration, for that we believe to be in a satisfactory state, now that autumn-planting has been hit upon. What is very bad is the total want of all care in procuring good, healthy, vigorous sets. As the case now stands a man gathers his Potatoes into heaps, keeps them there all winter, allows them to commence growing in the spring, then uncovers them, rubs off their sprouts, lets them dry, cuts them into sets, and finally after six months of unnatural treatment commits them to the soil. He thus plants the germs of disease; and although we have no reason whatever to connect this practice with the late murrain, yet it is impossible to doubt that such a treatment, long persevered in, must have a tendency to diminish the constitutional vigour of the crop.

Fortes creantur fortibus et bonis.—In no department of nature is this more true than among plants. A Potato, forced in rich land, nursed in a warm valley, and unnaturally expanded into a monster of its kind by high and debilitating manure, becomes well suited to the table, but has an uncompacted tissue, and a feeble constitution. A small matter makes it ill. Its unhealthiness is communicated to its successors, and so the evil is ceaselessly augmented. On the other hand a Potato, raised in poor or rocky ground, small and compact, thoroughly organised by the action of healthy foliage operating upon a small surface, will not answer indeed the purpose of the grower of a crop, but is admirably adapted for his sets. It is not in itself marketable, but it forms the best of seed. Thus it was that the small green stem-Potatoes, which high cultivation has almost driven out of recollection, always proved the best of all for sets, though utterly uneatable and useless for the table.

What we, then, would advise growers to do, is not to indulge in a vain hope that seedling Potatoes will be any better than what they now have; but to adopt the practice of raising Potatoes for sets upon a different principle from those which are for the table. To treat the latter as they now do; but to grow the former in poor, light land, where there shall be no excessively rapid growth, and no great produce; but where a small, compact Potato, thoroughly ripened, thoroughly organised, and therefore thoroughly healthy, will be a guarantee that all the freedom from disease, which in the nature of things is to be expected, shall be secured for the crop it is to furnish beyond all chance of risk.

If such Potatoes are left in the ground all the winter undug; or are planted in the autumn; or, if taken up, are thoroughly greened, and packed in sand, and planted before sprouting, a far more rational means of renovating the Potato crop will be adopted than running to Peru for seed not half so good as our own.

WE observe that his Excellency the Lord Lieutenant of Ireland has placed 500*l.* at the disposal of the ROYAL IRISH AGRICULTURAL IMPROVEMENT SOCIETY, to be expended by them in such a way as they may deem most expedient, with reference to the operation of thorough draining.

We cannot allow this circumstance to escape without offering our humble testimony to the excellent management of this Institution; and we regard the assistance thus rendered far more valuable as an acknowledgment, by Lord HEYTESBURY, of the national value of a most admirable working body, than for its pecuniary amount. We have had means of seeing how the Irish Agricultural Society is managed, how its funds are expended, and how its business is transacted by its indefatigable secretary, Mr. BULLEN; and we should regard it as a dereliction of public duty if we did not use the opportunity now afforded us of expressing our opinion, that no association of individuals, to work out a great public good, has ever been formed upon better principles, or with a more entire absence of all personal objects.

The accounts of the Society for 1844 show that, with an ordinary income of 1501*l.*, they actually awarded 1526*l.* in premiums; the whole of their other expenses being defrayed by the interest of a small capital invested in the funds, and by the profits upon their annual cattle show. They have local farming societies in constant correspondence with them in every district of Ireland, and through these Societies prizes are offered for various objects, while information is collected or dispersed with a rapidity and certainty that are admirable.

It is impossible that such a Society, if its present excellent system of management is persevered in, should not be productive of the greatest benefit to Ireland; and we cannot but again express our satisfaction that the Irish Government should have thus significantly expressed its entire approbation of their proceedings.

OF all the vermin that infest gardens, WATER-RATS are the most mischievous in low situations, where ditches or ponds are numerous. They feed on the roots of trees, and we have known them do incredible mischief in the course of a hard winter. On one occasion, Hollies of large size were observed as the spring advanced, to grow pale, and shrivel, and put on the unmistakeable symptoms of death from no apparent cause. At last a high wind threw them on their sides, and then it was discovered that their roots had been so entirely devoured, that only the stump of the main stem remained, and that was cut by the creatures to a smooth surface, as if it had been operated upon by a keen-edged gouge. The rats had made a gallery from a neighbouring ditch to the roots of the Hollies, and there had formed a chamber in the dry bank, roomy and warm. In another instance, a long Whitethorn hedge, of vigorous growth and some years old, placed near the edge of a ditch, was so entirely cut through below the ground level, that every plant could be pulled up by the hand. In short, the destructive habits of these little animals are notorious, and most inconvenient.

Some time since (p. 489, 1844), we published a statement by Dr. URE that water-rats could be certainly poisoned by phosphorus. The method of using it having been also given, a friend of ours made an experiment with it. A ball of the preparation, as large as a pigeon's egg, was placed in each hole, as far within the mouth as it could be introduced by the hand. In a short time the rats disappeared. Whether they perished, or whether they merely took to their heels; whether phosphorus pills are unsuited to a rat's stomach, or whether these creatures were terrified by the unwonted phosphoric gleams that illuminated their galleries, we do not know: but it is certain that they went away.

After a few months, however, they returned in very small numbers, and we hear that they are again taking possession of the ground. But the owner of the premises has no one to blame on that account except himself. He should have kept off the marauders as soon as their long trails among his Duckweed indicated their presence. Had he repeated the dose, he would have been rid of the second colony as he was of the first: and so convinced is he of the value of phosphorus, that we know him to have now ordered a supply of the phosphorus pills advertised in our columns by Mr. PURSER.

For the convenience of those who prefer making the material for themselves, we reprint Dr. URE's directions.

Melt hogs'-lard in a bottle plunged in water heated to about 150 deg. Fah.; introduce into it half-an-ounce of phosphorus for every pound of lard; then add a pint of proof-spirit, or whisky; cork the bottle firmly after its contents have been heated to 150 deg., taking it at the same time out of the water-bath, and agitate smartly till the phosphorus becomes uniformly diffused, forming a milky-looking liquid. This mixture being cooled, with occasional agitation at first, will afford a white compound of phosphorus and lard, from which the spirit spontaneously separates, and may be poured off to be used

again, for none of it enters into the combination; but it merely serves to comminute the phosphorus, and to diffuse it in very fine particles through the lard. This fatty compound, on being warmed very gently, may be poured out into a mixture of Wheat-flour and sugar incorporated therewith, and then flavoured with oil of Rhodium, or not, at pleasure. The flavour may be varied with oil of aniseed, &c.

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1844 and 1845.

	1844.			1845.	
October..... 19	50*s.*	to 70*s.*	October 18	60*s.*	to 100*s.*
26	50	70	25	70	130
November . 2	50	70	November.. 1	70	130
9	50	70	8	70	130
16	50	55	15	70	130
23	50	55	22	70	130
30	50	70	29	80	140
December.. 7	50	70	December .. 6	80	160
14	50	70	13	80	160
21	50	70	20	80	160

Also at the waterside, *Southwark*.

	1844.			1845.	
November.. 4	45*s.*	to 70*s.*	November.. 3	50*s.*	to 100*s.*
11	45	70	10	50	100
18	45	70	17	45	80*
25	45	70	24	50	120
December.. 2	50	70	December.. 1	50	120
9	50	70	8	50	120
16	50	70	15	50	120

* Nearly all bad, and many sold at nominal prices.

THE AMATEUR GARDENER.

Preserving Plants in Winter.—Nothing has more discouraged the cultivation of flowers than the supposed difficulty of preserving them in winter; and as this apparently formidable obstacle disappears as the amateur acquires experience, I shall endeavour to detail some of the methods I have employed, and their successful results. Of course, my remarks are intended for those who garden on a small scale, and who have not greenhouses for winter protection. At the same time, the principles of the treatment about to be described will apply to the largest collections, and may be of service to all whose object is to secure the beauties of the spring and summer from the desolations of winter.

Those whose stock of flowers consists of a few greenhouse plants, which they have cultivated in windows, have a very easy task to perform in protecting their favourites, as far as frost is concerned; for a very small amount of care will suffice when the plants are in a dwelling-house. The temperature of an occupied sitting-room will always be sufficiently high to keep out the frost in the day time, even if the plants are close to the light, and they may easily be removed in the evening to that side of the apartment which is furthest from the window. If the amateur has a large number of plants (young Pelargoniums, for instance) arranged on shelves close to the window, to remove these would be troublesome, and they may therefore be allowed to remain in their places in ordinary frosty weather, the precaution being taken to interpose the blind between them and the window. I once preserved 200 plants in good health through a severe season, in a room having only one large window, which admitted a good deal of sun. Some of the pots (which were all small 60s) were placed on narrow shelves, ascending to the top of the window, and as near the glass as possible; the others were set on a table. An Arnott stove was lit when required either by very damp or very cold weather; air was given as often as possible; the whole collection was often moved, that light might be equally dispensed, and advantage was taken of mild rains. I succeeded in preserving the whole, without any sickly growth being developed, and was rewarded by having an abundance of strong plants for bedding out in the spring. Most of these were Pelargoniums.

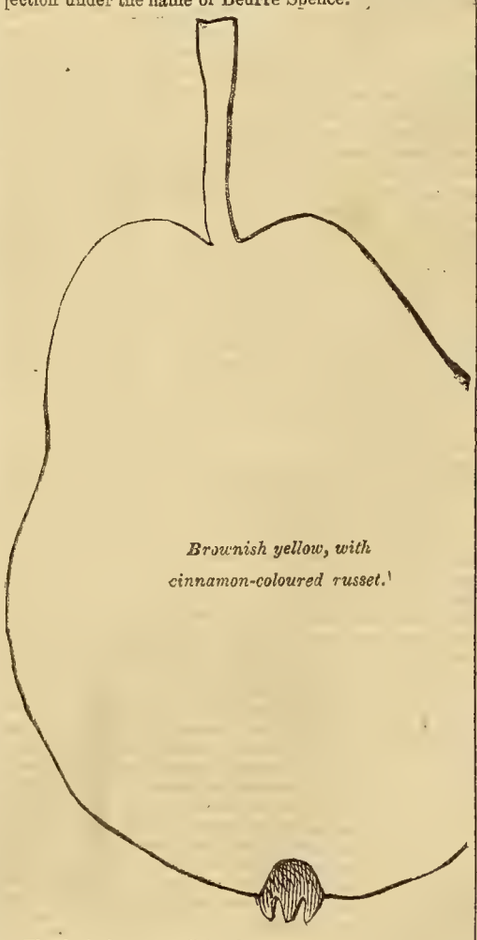
Many plants may be more summarily dealt with. Cactuses and Scarlet Pelargoniums will do well in any dry cellar, provided no water is given them. The latter when taken up from the flower-garden, I have preserved by shaking off the soil, and hanging them, root upwards, in a shed or coach-house from which frost could be excluded. In the spring they were found in full possession of their vital powers, and on being trimmed and potted, made handsome plants. In all the cases to which I have alluded it will be seen that care and forethought are the requisites demanded of the amateur. Attention must not be remitted for a day. I have always found that more plants are lost in the winter by damp than by frost. Much water, therefore, must not be given; indeed it should be altogether withheld so long as the plants do not flag. A plant in a moist growing state will yield easily to frost, while, if it had been kept dry and dormant, its powers of resistance would have been great.

But no plan of preserving plants from frost, independent of a greenhouse, is equal to a well-regulated pit or frame in the open air. I have tried this in various ways and always found it succeed if properly attended to. At the present time all my plants, intended to be put into the borders next year, or brought into the house, are in a large two-light frame, the management of which I will endeavour to describe. The frame stands about 2 feet from the ground, sheltered by a south wall, on an exhausted hot-bed, on which Cucumbers were grown in the spring. The mould of this bed having been kept from rain in the early autumn, at the close of October the pots were sunk into it up to the rims. A double light was then put on, by which wet and frost are more effectually excluded, and at the present time, Dec. 16th, the soil around the pots is quite dry. Around the frame long stable dung is piled up about 18 inches in width, and level with the top. Over the whole, an old carpet is thrown when necessary, and I have no apprehension that I shall lose anything if damp does not defeat my efforts. Every day when it is not frosty, air must be freely admitted, and dead or mildewed leaves must be carefully removed. When frost sets in, two or three extra mats may be laid on, and the whole kept on till a thaw takes place. On no account remove the coverings until at least a day after the frost is gone. This is a very important rule, for the admission of light may be fatal if any of the leaves should be frozen. In this way I have preserved Pelargoniums, Calceolarias, Verbenas, Hydrangeas, &c.; and the freshness of the whole collection after the winter has passed away has always been encouraging. Ordinary greenhouse plants may therefore be preserved by every one during the hardest winter. With reference to tender plants in the open air, my observations on the treatment adapted to defend them must be deferred until another opportunity.—*H. B.*

THE BEURRÉ DIEL.

Synonymes.—Poire des Trois Tours, Diel, Diel's Butterbirne, Dorothée Royale, Grosse Dorothée, Beurré Royal, Grosse Dillen, Dillen, De Melon, Melon de Kops, Mabille, Beurré Magnifique, Beurré Incomparable, Fourcroy Bouvier; Beurré d'Yelle, Beurré Spence (of some).

This Pear, possessing the most noble appearance, is said to have been raised by Dr. Van Mons, of Louvain, in 1805. At all events it was named by him in honour of Dr. Augustus Friedrich Adrien Diel, of Nassau Dietz, one of the best Pomologists, not excepting the celebrated Du Hamel. Its primitive name is, however, stated to have been that of the Poire des Trois Tours, from the Chateau des Trois Tours, where the original tree stood; a statement which throws considerable doubt as to whether it was actually raised by Van Mons, or whether it had been obtained for his collection of varieties not raised by himself. Nor is it certain whether this is the identical variety which Van Mons named the Beurré Spence, and which he said was the best of all Pears. The Beurré Spence was, of course, eagerly sought after; and it has been a subject of inquiry for the last 25 years, but no distinct variety has yet been ascertained; under that name Beurré de Capiaumont, Beurré Diel, Beurré de Mons, and Urbaniste, have been fruited, and in some instances the Beurré Diel was received direct from Van Mons' collection under the name of Beurré Spence.



The fruit from a wall is often much larger than the accompanying representation, and frequently quite as large from vigorous standards. Flesh, yellowish white, a little gritty near the core, melting, buttery, with a rich aromatic, sugary flavour. In perfection between the end of October and beginning of December, succeeding the Marie Louise, and preceeding the Glout Morceau. The tree is a very strong grower, and bears most abundantly in any situation; the best flavoured fruit being from standards or dwarfs, the latter are most to be recommended, because the fruit, being heavy, is apt to be blown down prematurely from high standards. The shoots are somewhat pubescent, of a dull olive brown, sprinkled with a few small linear specks. Leaves large, roundish-ovate, acuminate, nearly flat, slightly pubescent beneath, irregularly toothed on the margin. Flowers large, petals roundish-oval imbricated; stamens strong, with large anthers.

The tree, owing to the great breadth of its foliage, requires to be well thinned in pruning. In periods of several successive warm summers the fruit was highly esteemed. I am aware it has lost much of its former reputation in recent cold seasons; but its cultivation ought to be pursued. If it should prove gritty from old standards, let them be headed back, or young trees will soon grow up from which the fruit is usually more melting, though perhaps less sugary. If it can only be obtained in full perfection, its rich cinnamon flavour will afford general satisfaction.—*R. T.*

NOTES ON A COLLECTION OF WOODS.

Some years ago I devoted much attention to the collection of specimens of every British species of wood that I was able to procure, together with others from trees introduced into England; and I have now in my possession a nearly perfect set. There is in Sir Hans Sloane's collection (I believe) in the British Museum, a collection of above 800 square pieces of the woods of different parts of the world, neatly arranged in the drawers of small chests; but I object to the specimens being all cut square without any regard to the grain of the wood; and I have adopted the plan of cutting the wood from a bough or stem, if a small tree, or shrub, on which I left the bark, and directed the carpenter to plane it obliquely at one end, and straight across at the other, so as to stand conveniently, a second specimen of each piece being made to present a longitudinal section of the wood; the surfaces were then all varnished to exhibit the grain as nearly as possible in perfection. It is true that specimens from the boughs present the characters of the wood in miniature when compared with pieces from the trunk; but this disadvantage is small, and compensated for by the convenience with which it is otherwise attended.

In all ordinary wood or timber work, we are so little accustomed to be shown the true features of the structure of the wood, that under the treatment I have described, almost every specimen discloses elegant lines, indented circles, and many an ornamental touch of a beauty little expected in so unlikely a material. Among the most beautiful are the Furze, Laburnum, and Phillyræa.

Among the facts generally known respecting this subject is the existence of distinctly marked concentric rings, surrounding the pith as a centre to the bark, each of which represents the space of one year of the trees' existence, though it is said that a sudden check to vegetation by cold winds during the summer will have the effect of producing a second fresh ring for that season; but in this case the additional one is so faint as to be readily distinguished from those caused by a winter's rest. As a warm genial season promotes a rapid increase of vegetation, it follows, of course, that more wood will be formed during a favourable than a cloudy, cheerless summer, and hence the inequalities in the thickness of the rings of trees; thence, indeed, might be deduced a sort of calendar of seasons, a narrow ring recording a cold, a wide one a warm summer. When the pith is not in the centre of the wood, it is that part which faced the south, or which was most exposed to the light, which is most developed.

Besides the annual concentric rings, most woods exhibit a number of whitish lines, formed not of fibrous, but of cellular tissue, radiating from the pith to the circumference, and which are termed medullary rays. I would request especial attention to these, because I conceive that an examination of them will generally afford at a glance an idea of the relative strength and tenacity of the wood. Whenever wood splits, it is almost invariably through the comparatively weak line of a medullary ray, which is abundantly testified to my view by the yawning gaps in those of my specimens, which are strongly marked with rays. If, therefore, a species of wood is free from these lines it may safely be inferred that it is possessed of superior tenacity. It is one of my chief objects in this paper to furnish from my collection lists of those woods in which either the concentric zones, or the medullary rays are most conspicuous, with another list of those in which both are marked, and which are usually most adapted to ornamental purposes.

Between the two British species of Oak (Quercus pedunculata and Q. sessiliflora) the former of which is by far the most common, there is a remarkable difference of structure; Q. pedunculata (the Oak whose Acorns are stalked) being decisively marked with medullary rays, and hence liable to fracture; Q. sessiliflora, so free from them, and so clearly marked with annual rings alone, as to be called by carpenters "Chesnut Oak," in allusion to the character in the Spanish Chesnut. As the superiority, in point of weight, also rests with the latter, it appears to me to be beyond doubt that it should be acknowledged and planted as the true, that is, the most substantial and durable naval Oak. Observations on the "Botany of Sussex," by Mr. T. H. Cooper, fully carry out this opinion by numerous interesting observations. It is well known that the wood of the Cork Oak (Q. Suber) is

nearly worthless; and why? because its medullary rays are of the greatest breadth, dividing, for instance, a circular piece in my collection, 5 inches in diameter, into 70 distinct sectors.

In the following woods the annual rings predominate; sessile-fruited Oak; Mountain-Ash; Service; Lime, which owes its suitability for ornamental moulding to this quality combined with its lightness; Alder, Horse-Chesnut and Birch. All trees of the Fir tribe (Coniferæ), Willow, which from its extreme lightness, and the absence of medullary rays, is so well adapted to works subjected to concussion, as cricket-bats, &c. In Apple and Pear, the rings are indistinct; in Yew and Spanish Chesnut, there is not the least appearance of medullary rays; Acacia and Phillyrœa, very handsome indeed, especially the latter, wh ch is cream-coloured, profusely marked with white dots; Lilac, Walnut, Sumach, a deep brown glossy wood; Camellia japonica, which, like other hothouse shrubs, has even regular rings.

The following have the medullary rays conspicuous: Cork Oak and Hazel have them decidedly marked; common Oak less so. In Plum, Blackthorn, Cherry, Alder and Holly, they are abundantly and delicately traced; Beech and Ivy have them at irregular intervals; the former presents a handsome section. In the Vine and Clematis vitalba, the rays are broad, the wood very porous; black and red Currant, very spongy woods; Dog-wood has wavy rays; the cause, perhaps, of that toughness, for which it is always used in making butcher's skewers. Mistletoe has no appearance of annual rings. Both the medullary rays, and the annual zones are exhibited in these. Box, rays fine and rings very close; Hawthorn, Laurel, Elm, Ash, Damson, Plum, Hornbeam, and Peach, have numerous delicate rays with distinct rings. Both the common and the dwarf Furze are beautiful woods, richly variegated with white and grey dots. Sycamore, which is sonorous, and best adapted of British woods to the construction of the stethoscope. Gooseberry, wild Cherry, and Laburnum, are handsome woods; Mulberry, Maple, and Rose.

I offer this list, which I have drawn up with careful observation, rather with the hope that practical uses may be derived from it, than with the present view of pointing out all its utility; and I trust that a comparison of the known qualities of particular woods, with the characters here specified, will tend to particularise certain rules which have hitherto stood as generalities —one of the constant aims of science. I once entertained an idea that it was possible to arrive at rules for ascertaining the age of a tree from the simple datum of its circumference, and an arithmetical rule; and took the trouble to make numerous observations on the annual increase of different trees; but I noticed so much irregularity attending the rate of increase of individuals of the same species, arising firstly, from soil and situation; and, secondly, from a diminished rate of growth at advancing periods, that it was impossible to arrive at anything like an accurate result. I found, for instance, the annual rings of the Elm to vary between $1\frac{1}{8}$ line, and $2\frac{3}{4}$ lines per annum; the Oak from $1\frac{1}{8}$ to $2\frac{3}{4}$, and so on with the rest. It is evident that an average between such widely different results as these would not prove satisfactory even when allowance should be made for the nature of the situation in which the tree grew. Again, after the first 50 years, a tree adds less to its girth the next 50 years and so on continually, until, when arrived at its full maturity, it ceases growing, and the diminished vigour with which it puts forth its foliage points out the sinking of its vital powers. In such a condition it is evident that no records the tree possesses in itself, will serve to chronicle its true age.—*F. A. Malleson, Pulborough.*

WINTER FLOWERS.

The Cactus Family.—These showy flowers, although not usually seen in bloom during the dull winter months, nevertheless possess very considerable capabilities for that purpose, provided room can be made, and special treatment afforded them at proper periods.

Like most other tribes adapted for forcing, in the strict sense of the term, early growth, with a corresponding early rest are the only principles by which we can expect success. To accomplish this with the Cactus family, a pit or other close structure should be appropriated to them, as early as the middle of January in the spring previous to the forcing period. Having received a decided rest or cessation from growth for three months previous, they may readily be excited into growth with a lively temperature of 70° by day, and from 55° to 6 ° by night; more especially if a bottom-heat of from 75° to 80° can be afforded.

The refuse wood should be pruned away previous to this, and the main shoots placed in proper order. Nothing more is wanted to carry out and do justice to the plan than a very light roof; this is indi pensable, and the glass should therefore be previously well washed.

The constant use of clear liquid manure for a month or two whilst the plants are making their wood, will be of great service; for, like the Pine-apple, rapid growth is everything for a while. They enjoy while in this stage a tolerably moist atmosphere, especially at night; but equally enjoy a free circulation of air through the day, accompanied with very high temperature during sunshine; with the thermometer ranging to 90°, or even 95° in such cases.

By the early part of May they will have made sufficient growth, and should be withdrawn from all excitement of bottom heat and atmospheric moisture, and placed on the back shelf of any very light and warm house. The liquid manure should now be withheld, and very moderate watering, with clean water, substituted.

They may remain here until Midsummer, when about the beginning of July they should be removed to a sunny and somewhat sheltered situation out of doors, and there remain, very sparingly watering them until the end of September, when they may be removed to a cool greenhouse, and thence progressively introduced to the forcing pit, where a temperature of 70° will be necessary, with abundance of light.

They must still be rather sparingly watered, until the blossom buds are of the most decided character, when, if size be an object, weak liquid manure may be again resumed. All shoots made after midsummer should be disbudded, and the terminal bud of all the principal young wood destroyed with the thumb nail about that period. These plants to force early should be always what gardeners term "pot bound."

The best soil for them is composed of one part chopped turf, if from a roadside all the better, and the other part coarse leaf mould, sandy heath soil, coarse bone, waste coarse charcoal, and lime rubbish: these materials should be rough, and the best of drainage secured in the pots. They will, however, grow well in chopped roadside turf alone, in a fresh state.

Lachenalias.—This interesting little family, especially L. tricolor, is of very easy culture, and when well blossomed, has much the appearance of a pot of cowslips. If the roots are potted and set to work early in autumn, they will be in blossom by the first week in January, provided a shelf near the glass in a warm stove can be provided for them. They delight, however, in a bottom heat, and should, like most other bulbs, be most sparingly watered for some time after emerging from a rest state. I have some this season placed on a hot water pipe by way of experiment, and kept almost without water, which are doing extremely well: there is no occasion, however, for this extreme.

When their leaves turn yellow in March or April, water should be entirely withheld, and when decayed the pots may be placed under any dry arches in houses, or laid upon their side at the back of a wall until the end of August, when they must be taken out of their pots and sorted, the largest planted five in a five-inch pot, and the rest thinly in store pots for the year ensuing. Soil: equal parts of sound loam, sandy peat, rough leaf mould, and sharp sand.—*R. Errington, Oulton.*

PICOTEES AND CARNATIONS.

As many most beautiful Picotees and Carnations have made their appearance during the last two or three years, and as most of them have come under my observation, I venture to offer the following remarks made during the blooming season. Carnations usually take precedence at exhibitions, but I will devote the first part of my paper to Picotees, as they are generally more highly esteemed by the many. Some few years ago the class of yellow Picotees was composed entirely of flowers which now would be considered sad frights, more like Ragged Robins (Lychnis Flos-cuculi), in the deep serrature of their petals, than anything else; and whilst rapid improvements were making in the other varieties, this class was comparatively neglected. Martin's Queen Victoria was the greatest advance, having a very fair yellow ground, with an almost unexceptionable petal, laced with crimson. Fox's Beauty of Miltown is a fine and attractive flower, though, unfortunately, serrated; still, its fine colour, size, &c., cause it to have many admirers. But, perhaps, one of the handsomest is Barraud's Euphemia, which has a fine pod and petal, of good form, with a violet-purple lace, or feather, on a rather deep yellow ground colour. Very fine varieties, but not in general cultivation, are Hoyle's Topaz, Barraud's Favourite, and Brooks's Aristides.

When prizes are more generally given at floricultural exhibitions for yellow Picotees, there will undoubtedly be more attention bestowed by florists in the seeding and fertilisation of their flowers. Formerly the varieties cultivated were tender, and difficult to keep, but those lately raised (as noticed above) in this country appear to have more robust constitutions, and will become general favourites. Proceeding to the rose-edged class, I would observe that, singular enough, when seedlings of this description were raised in some parts of the country, they were discarded as comparatively worthless, though in the neighbourhood of the metropolis their beauty has always been appreciated, and from thence I first had that fine, heavy-edged variety, Green's Queen Victoria, a flower possessing a striking contour, having petals enough to make a full and noble flower, rising tier above tier in most beautiful style. Yet, however high an opinion I may entertain of the Queen, the Princess Royal (Wilmer's), a variety of more recent date, must, I think, take precedence. The petals are so very fine, the white pure, and the broad lacing of rosy salmon, is less disposed to bar or strike down, than in the previous sort; it is, indeed, an admirable flower. Occasionally it is called Lovegrove's No. 5, but the former designation appears to be in most general use.

In addition to the above two first-rate sorts, I have seen a seedling this season raised by a most enthusiastic and first-rate cultivator near Leeds, which ranks very close, if not equal, to the preceding. It is styled "Proconsul," and is a large bold flower possessing the requisites of a first-rate variety in an eminent degree.

Wilson's Fanny Irby must not be forgotten; this is a good and useful sort, fine petal, and of good size. The margin is rather paler than the above sorts, and it is likewise an older flower: still it is a general favourite. Twitchett's Fair Rosamond I have grown, but perhaps my expectations had been raised too high; with me it striped too much, and certainly last year did not realise my anticipations. Wilmer's Agnes is of fine form and petal, not very heavily edged; in fact it is one of the intermediate varieties, though rather inclining to this class; it often comes with a slight bar about the eighth of an inch in the centre of each petal, but is a most pleasing variety. Ely's King of Roses is not so good as many of his flowers are, the margin is too much like some of the striped Picotees shown in Lancashire a few years past, having a "scratchy" appearance (if I may so term it), and, consequently, is but second-rate. Trude's Queen Victoria is immeasurably inferior to Green's, and though a large and bold flower, will not do, as the petals are too rough to be now tolerated. Amongst other varieties worth adding to collections, I may mention Sykes's Eliza, Kirtland's Mr. Annesley, and Gidden's Miss Desbro, forming with those above described (the two latter ones excepted) the cream of the sorts now out.

Light-edged Rose Picotees are generally delicate and beautiful flowers. Gidden's Beauty of Hemmingford and Vere's Belle of the Village being two of the older favourites. I well recollect receiving a description of Wain's Queen Victoria from a first-rate amateur, with whom it bloomed the first year after letting out. He was, and I believe now is, a most successful cultivator; and he wrote me that on its blooming he was so enraptured with it, that he could hardly tolerate any other Picotee in his garden. When bloomed well, it certainly deserves very high encomiums; the white is good, the margins smooth, and the colour laid on delicately and truly; but it is a sort that requires most careful watching during expansion, and assistance as it blooms; for it is more apt to come with confused and ill-arranged petals than any other sort with which I am acquainted. Those who flower Wain's Queen Victoria well, may certainly take their stand as good florists. I have this season seen it in very fine character, but even then it was not equal to that pre-eminent variety—Barnard's Mrs. Barnard. This is one of the most beautiful and attractive sorts grown, having fine broad, smooth, and wax-like petals, delicately margined with rosy-salmon; its pod and habit is likewise good, and no one who makes any pretension to a good collection ought to be without this chaste and lovely flower. Unfortunately it is not plentiful, and its quality may be inferred from the high price it bears, and that price increasing.

Garrett's Lady Dacre is another first-rate flower, though I give the decided preference to Mrs. Barnard; and Wood's Marcus is an old sort with an ugly pod, but fine petal, and can only now be called second-rate.

Crouche's Ivanhoe is also a delicate and finely-coloured flower, of good form, and will be extensively grown; and though I have not yet bloomed Dickson's Sophia, I am given to understand that it will run the established favourites hard. I shall close this notice by observing that in this class, Gidden's Diana and Brooks' Miss Brooks are not to be despised, which, with Barraud's Bride and Portia I bloomed this season very prettily; and all four may be very safely added to collections, certain of increasing their efficiency.—*W.*

Home Correspondence.

Wearing out of Races.—I have two old Apple trees, and have endeavoured to continue them by grafting. The new trees have in every instance had the marks of old trees, and would not grow but as old trees do, with dead branches to be removed continually, year after year. None of these young trees are of the least use to me. One of the old trees is, I believe, the Juneating, the other an excellent large baking Apple, but I do not know its name. Potatoes, when the sorts get old, are discarded in this neighbourhood. The Strawberry, when it becomes old, will not produce its fruit as when young. This is the case in my garden, and I have been obliged to give up a favourite kind, after every care with it. The Abele or White Poplar bears marks of old age in young trees. Let grafts be taken from very old Oak trees, and could you have such confidence in them that you would raise a plantation by grafting them on young stocks? There is a very old Oak tree near Shrewsbury into which it is said Owen Glendower climbed to see the battle of Shrewsbury. This would be a good one from which to make such an experiment as I have mentioned. I have not the least confidence that it would succeed.—*C. A. A. Lloyd, Whittington, Oswestry.* [We would represent to our correspondent that this is answered in a Leading article of to-day.]

Quercus sessiliflora.—A great deal has been said respecting the relative value of our two indigenous species of Oak, Quercus sessiliflora and Q. pedunculata; and generally speaking, it appears to be satisfactorily proved, that the wood of Q. sessiliflora is more durable and more valuable than that of Q. pedunculata, but there are two points connected with the subject which require further investigation; first, the relative qualities of the different varieties or races of each species; and second, the relative pecuniary advantage to the planter of each species. The different varieties of each of the two Oaks often appear to differ full as much or more from each other in point of luxuriance of growth, and perhaps even in the quality of the timber, than the species, and as probably these varieties are generally owing to local circumstances, such as soil, climate, &c., they would be permanent only under those circumstances which gave rise to them, and might degenerate if

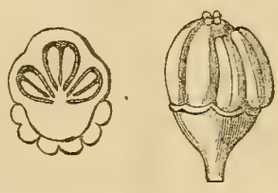
transplanted to other localities less favourable. It might thus turn out, that in one part of the country the Q. sessiliflora may be the most advantageous, whilst in others the Q. pedunculata would be preferable, and it would always be advisable to select the acorns for sowing from a good variety. The common Oak of Herefordshire, Monmouthshire, Shropshire, &c., is the Q. pedunculata; in the greater part of Herefordshire it is a tree of very fine upright growth, and the timber is as highly esteemed by shipbuilders as that of any wood in England. In some parts of Herefordshire, bordering on Radnorshire, and in Radnorshire, this Oak is replaced by a variety of Q. sessiliflora of a slow spreading growth, which in the cold higher parts of the latter county is a stunted tree, of little value. In the valleys, and where it spreads into Herefordshire, it is a fine tree, but of slow growth, makes very strong spreading limbs, but seldom produces a good upright bole. Here, therefore, whatever be the real difference in the durability of the timber, both are so durable that that difference makes none in the marketable value, and the Q. pedunculata, from its better and more rapid growth, makes a better return to the planter. In some parts of Shropshire there is a variety of the Q. pedunculata, of which the fruit-stalk remains very short, and has been confounded by some with Q. sessiliflora, but the foliage is very different. Its general aspect is that of the Herefordshire Q. pedunculata. In Buckinghamshire, and some neighbouring Counties, there is a variety of Q. pedunculata, with the leaves downy underneath (they are quite smooth in Herefordshire), the qualities of this variety are unknown to me, but the mode of growth has struck me as not near so fine as that of the Herefordshire Oak. On the Continent (that is in western states), the Q. sessiliflora and pedunculata are the two finest Oaks, but there the sessile one is generally the most spreading, whilst the pedunculata tends rather to assume the pyramidal form, making a better bole, but inferior limbs. There are, however, many varieties of both, as to hairiness or smoothness of leaves, the duration of the leaves, falling off in some early in autumn, in others remaining green till January, or turning brown in November or December, but not falling off till they begin budding in spring, and most of these varieties differ from each other in the general form and mode of growth of the tree, which of course affect the value of the timber. The great difference in the value of Deals from different countries, though all the produce of one species (but of different local varieties), is well known. In the mountains of Styria I have been shown two varieties of that species (Pinus sylvestris), scarcely distinguishable botanically, but which I have been assured are well known as yielding Deals of very different qualities, and all over Europe the Deals from Norway and North Germany are much more highly esteemed than those from the centre of Europe. In the warmer hilly parts of France and of Italy the Q. sessiliflora is replaced by the Q. pubescens, which some have considered to be a mere variety of it. It is a tree of small stature, and very little value.—*G. B.*

Resinous Timber.—What is the proper season for felling resinous trees, viz.: Larch and Fir; winter or summer? The above is a very important, but I believe as yet an unsettled question; some persons entertaining the notion that such trees should, like all others, be felled in winter; others that their timber will be more durable if felled in summer, when the whole tree is thoroughly impregnated with resinous juices. I am informed, on what I consider good authority, that all the Baltic timber is felled in summer, and in Cumberland, where Larch bark is used for tanning, the trees are of course felled in the same season. Any of your readers who should visit Switzerland, might easily obtain decisive information from the mountain guides, who no doubt are thoroughly acquainted with the subject.—*X. Y. Z.* [Perhaps this matter will receive the attention of some correspondent who has experience concerning it.]

Glass.—As you have deemed it justice to Mr. Cogan to print his letter, I doubt not you will think it equally just to publish the condescension of my notice of it. Mr. Cogan states, "an article in your Paper of Nov. 29 (page 802) signed 'A., Walton,' is a mis-statement I feel it necessary to contradict." He then proceeds to state facts which corroborate to the letter every circumstance I, in that article, asserted. My statement was simply that he, Mr. Cogan, sent me a sample of good glass, with which he undertook to furnish me at a named price; that I ordered 14 dozens of small squares of such glass, and that he sent me 14 dozens of an article (of both of which I enclosed you a sample), which you, yourself, pronounced to be, not only inferior, but of not half the value. After a bungling attempt at sarcasm, Mr. Cogan proceeds in his "reply" (?) In this he frankly, though for his purpose not very wisely, admits that he sent me the sample of thick, good glass, and executed the order with thin, bad glass—the very commonest of the old window glass! So much for my "mis-statement," and for Mr. Cogan's "contradiction"! He says, "when this order came (without a sample inclosed), I concluded from the smallness of the size that crown was required," omitting the broad fact, which I am confident was contained in my first inquiry, that the two sizes were therein mentioned, and he concludes with asserting: "I shortly afterwards received a most uncivil letter, and judging I had to do with some ill-tempered or litigious person, I wrote to say if he was not pleased, I would take the glass back. What fairer proposal could a tradesmen make?" None, certainly, if he paid the carriage to and fro. But Mr. Cogan may think it "uncivil," that I doubt the fact of his having ever written any such letter at all, as certainly I never received it; as to the "incivility" of which he complains, persons in general do not, I believe, bandy compliments with tradesmen whom they deem guilty of fraud; and though Mr. Cogan, for aught I know, may be far above the suspicion of any such delinquency, his mistake, if mistake it were, would have been more judiciously repaired by a frank private acknowledgment of error, than by an evasion which, if he possesses common sense, he must have foreseen would draw upon him this unanswerable *exposé* of his mode of transacting business.—*J. Arnold, Walton-on-Thames.*

Heating and Ventilating.—I am glad to see the subject of keeping the atmosphere of hothouses in constant motion, brought into notice; as Mr. Glendinning observes, it is a subject which has had much less attention than it deserves. On referring to the section given at p. 834, I can easily comprehend how the atmosphere will be set and kept in motion while the external air is admitted, but as it would be alike desirable to keep up this motion in the house at seasons when it would not be advisable to admit a rush of external air, I do not quite understand how this could be effected, unless the air tunnel was in some degree converted into a syphon, the openings B B being the longer legs, and A the shorter. I am perfectly sensible that the hottest portion of the house is, as Mr. G. observes, where the hot-water pipes are placed, yet surely a greater impetus and certainty would be communicated to the motion of the atmosphere, if the air at B B made its escape at a higher point (or level) than where it enters the air-tunnel at A.—*Wm. Henderson, Oxton-hill Nursery, Birkenhead.*

Morphology.—A short time ago, while describing a new species of Glochidion, I casually met with a very curious flower, of which I send you a sketch and description, as a contribution to the articles which occasionally appear in the *Chronicle* on vegetable morphology. The genus Glochidion is monœcious,



belongs to the natural order Euphorbiaceæ, and is nearly related to Phyllanthus. The calyx in both the male and female flowers is six-parted, with the divisions in two series. The male organs in the species in question consist of a central column, round the axis of which are six adnate linear two-celled anthers; the whole very much indeed resembling the antheriferous column of Myristica or Nepenthes. The ovary in the female flower is six-celled, each cell containing two collateral pendulous ovules. In the flower of which I send you a sketch, you will find that the one-half of it is male and the other female, there being three cells on one side with two ovules in each, and three anthers in the other attached to a semiterete fleshy column. The calyx was exactly similar to that of a normal female flower. In the median line the male and female organs have firmly united to each other. In this case there can be no doubt that one-half of the elementary organs of a male flower have become feminine, or *vice versa*, and it is another of the many instances already on record which prove that the different parts of a flower are not special organs, but modifications of a simple elementary organ—a leaf—liable to particular changes under particular circumstances.—*G. Gardner, Ceylon.*

The spot on the Pelargonium leaf.—I am of opinion that this is caused by cramping the roots, and the following are my reasons:—In a miscellaneous collection of Pelargoniums, I observed that some plants were much affected by spots, while others standing close beside them were perfectly free from the evil. Upon examination of their roots, I found that those most affected had become pot-bound, while others not so much disfigured, had not quite filled their pots with roots; and those perfectly free from spot had their roots scarcely through the mould. Those that were pot-bound I shifted, and watered with guano-water, which induced them to produce new leaves, and although this was done nearly three months ago, they have, as yet, shown no symptoms of disease, while the old leaves remain spotted, clearly indicating where the disease stopped. I still continue occasionally to water the plants with guano-water, with beneficial effect. Surely this goes far to prove that cold and damp is not the cause of the spot.—*S. Hood, Ickleford Gardens.*

Horticultural and Agricultural Societies.—In an editorial article some time back, I think you pretty well set the question at rest, as to the beneficial tendency of Horticultural and Agricultural Societies. Previously I had always endeavoured to advocate them in my small way, whenever I heard their utility, or beneficial tendency impugned. It will be no new thing to you to be told that there are some "croakers" still—some so selfish, that unless they can see a Society so constructed and managed as in a direct way to promote their own interests, they scruple not to raise the hue and cry that these Societies are a great evil, and predicate all evil things concerning them—as their ultimate extinction—coming to nought, and "like the baseless fabric of a vision, leaving not a wreck behind," &c. I, for one, have no such gloomy apprehension, but just the reverse. One notion I have often combated, with a "croaking" friend of mine, viz., that these Societies are injurious to the nursery trade. Now, of all possible things that may be charged against them, this is one of the most baseless. What in the name of wonder has created, and what sustains the unprecedented taste (rage shall I call it?), for horticultural pursuits and ornamental gardening, so widely, I may say universally, diffused throughout the length and breadth of the land?—what but these very Societies? And has not the stimulus thus given created a demand for the productions of the nursery infinitely exceeding all former example?—so that now there is hardly a town, or even a village from John o'Groats to the Land's End, but what can boast of possessing its nursery—many of a plurality and of no mean extent either. Away, then, with the absurd outcry, which is as groundless as it is untrue. Some, also, object to detail and management, and one of the principal parts of which, as regards the public, is the exhibitions. Unsuccessful exhibitors are not unfrequently "croakers," and find all sorts of faults, some with the placing of their articles; some with the blindness and stupidity of the judges, who cannot discern the merits of their articles; and finally, some find fault with the appointment of the judges and those who appoint them, &c. It would be a hopeless task to try to satisfy all the "croaking" fraternity; at the same time, it would be presuming too much to aver that everything is conducted up to the very acme of perfection. Of the two great Societies, the Horticultural and the Botanic, which adorn the vicinity of London, some say this of one, and some that of the other; but one point in regard to the latter Society (the Botanical), I have heard many remarks about, and a great degree of dissatisfaction expressed in the mode of choosing judges for their exhibition. If I understand it rightly, a circular is sent to all the exhibitors, and they choose each a name, or set of names, and those having the majority are appointed. This may seem a very fair mode, but some say it brings in a host of nurserymen, whom they object to as likely to be biassed in favour of their own customers. Others say that nurserymen should never be so employed at all: to this I demur. Others say that the exhibitors choosing, is like a person on trial choosing his own judge, instead of that appointed by the Crown, which involves a corrupt bias. All this I mark down as showing so many currents of opinion; my own comes last, and it is this: that in all cases the Council, or officers of these Societies, should select the judges; and, to use a phrase of jurisprudence, the exhibitors should be tried by their peers: to this no one could reasonably object.—*Q.*

Potato Murrain.—It is the belief of some that a fungus is the cause of this disease. From facts, however, which have come under my own cognizance, I am led to hold a contrary opinion. I have about three or four bushels of last year's Potatoes (they have been above twelve months out of the ground) that have been since spring in a corner of a tool-house, held up in front by a few loose bricks, and, as might be expected, they have put forth numbers of small tubers, and the greater part of these small tubers are diseased and bad as any that have been grown in the soil in the open air. I should suppose that the manner in which the fungus is conceived to affect them is by a transition from the leaf to the tuber; however, in my case it will be perceived that such is not the case, as not a single leaf has been formed. The small tubers have been produced from the intercellular tissue, or elaborated matter of the old Potato, and without the assistance of any foliage whatsoever; but as the tool-house door stands open all day, and the Potatoes are not far from it, they are consequently under atmospheric influence, and the greater portion of them are covered with fungus, which seems to have proceeded from the top to the bottom of the heap. I have likewise some early Potatoes that are diseased to the very centre without a fungus having yet made its appearance upon them. These two facts surely prove that the fungus is not the primary cause of the disease, which certainly does not occur through the agency of the leaf. I have always been of opinion that it is to the dull weather we have experienced that we must attribute the cause. The plants have been charged to excess with water, which, owing to the absence of sun-light, could not pass off by evaporation; this, then, has produced a disorganisation of the tissues, and disease has followed in consequence. I observe an article in last week's Number setting forth the average quantity of rain that has fallen during the last eight years, as a proof that the disease is not caused by moisture. It is not the great quantity of rain that has fallen that is to be considered the cause, for we certainly have had more in other years, but the absence of bright sunlight must be kept in view; for days the sun never broke forth to dispel the moisture of the atmosphere, or to elaborate the juices of the plant. I cannot conceive any other cause for the small tubers grown in the tool-house being diseased (unless it is to be ascribed to some unknown atmospheric condition); this fact sets at rest the opinion as to manure of any kind being the cause, none whatever being present. Lime cannot be considered an antidote to the growth of fungus; for a great quantity of diseased Potatoes here has been well dosed some time ago with caustic lime, and on many of them the fungus is abundant; not even drying and greening by exposure will entirely prevent its growth, as I myself have proved, although it does partially. Mr. Ayres remarks that he cannot add his testimony to the beneficial effects of greening. If the Potatoes are diseased previously to greening, the disease will proceed, although much more slowly, and such I have no doubt was Mr. Ayres's case; such is the case with some of mine; but greening Potatoes for seed, if perfectly sound, I believe does produce bene-

ficial effects; that the Potatoes have received the disease during their growth I feel firmly convinced, otherwise they would not receive it after, for I have some Ash-leaved Kidneys green and ripened early on a raised slope in the garden, and greened by a long exposure, and they are now as promising seed as I could wish, and I have no fear that they would have remained sound if not greened. The question for seed another year appears to me a serious one. I am afraid planting Potatoes diseased at all, either now or in spring, will prove a fruitless effort, as I doubt they will rot when they come in contact with the moisture of the soil.—*Henry Wood, Statfold Hall.*

Experiments with Autumn-planting Potatoes.—Walnut-leaved Kidney Potatoes were planted whole in my garden three days before the commencement of the severe spring frost. A portion was covered with straw, and the remainder left without protection. They were planted about three inches deep; not a single set was destroyed by the frost. This autumn I have had some planted whole; some cut; some with the manure above; some with it below the sets; some with the manure dug into the whole of the ground; some with no manure; some with the surface level, and some with it ridged above the sets. I have induced a number of my allotment tenants, by small presents, to try the same experiments. In spring you shall be informed of the result. —*Sigma.*

Autumn Planting Potatoes.—I live in a neighbourhood (Cheddar and Axbridge) where there are more early Potatoes grown than in any other parishes in England, and at this season, when all persons are complaining of the disease, I have done my utmost with the Potato croppers to prevail on them to plant during the autumn, but without success. The man who I was desirous in particular should adopt this plan more than any other, was a Mr. George Spencer, of Cheddar, whose industry in bringing forward early vegetables for the Bristol and Bath markets I had often admired, and whom I had talked to on the subject of the new method of cultivation. I did my best to get him to plant in the autumn, but my efforts were fruitless; why should I take this trouble, said he, when I can grow three crops of Potatoes in the same ground in the year, if I begin in February? that he could do so, or had done so, I doubted, but he assured me that he was ready to verify on oath that in February, 1840, he planted some early Ash-leaved Kidneys with good rotten manure, and on the 18th May he dug a good crop, without manuring he planted the same sort and dug again in August, immediately after which he planted and dug the third crop on the 25th October. The second and third crops he states (if possible) were better than the first, but at each digging they averaged 1*s.* 9*d.* per peck, so that there was only one manuring for the three crops. Now, said George Spencer (and he is a man who is respected, and can be believed) can any of the gentlemen professors beat this? Mr. Spencer is a neighbour of mine, and I know him to be a man of the strictest integrity, and who would shudder at a falsehood, so that I can safely say that what I have written is correct. Our land is of the best quality. Mr. Spencer assures me that he regularly grows his two crops of Potatoes, after which he sows Vetches, and digs them in in December, to manure the land for the next crop of Potatoes, and I have sufficient proof that they are of the very best quality, which I account for from being grown continually in the same ground.—*A Subscriber.*

Societies.

CALEDONIAN HORTICULTURAL SOCIETY.

December 4.—At this, the winter meeting, a considerable number of good things were brought together, and numerous prizes were awarded. For the prize offered for the two best bunches of retarded Grapes, there were five competitors. The Silver Medal was voted to Mr. Young, gr. to Mrs. H. N. Ferguson, the kind being White Muscat of Alexandria. A second premium was awarded to Mr. Dodds, gr. to the Earl of Mansfield, for Black Damascus and White Tokay. For the best six sorts of dessert Pears eight competitors appeared. The first prize was again assigned to Mr. Young, for Gansell's Bergamot, Swiss Bergamot, Beurré d'Aremberg, Beurré Diel, Winter Nelis, and Crassane; and a second premium was voted to Mr. Gardiner, gr. to the Earl of Stair, for Beurré Diel, Beurré d'Aremberg, Marie Louise, Crassane, Winter Nelis, and Forelle. Seven competitors tried for the best six kinds of table Apples. The Silver Medal was awarded to Mr. Robertson, gr. at Kinfauns Castle; the kinds were—Ribston Pippin, Golden Pippin (large and in the most healthy state), King of Pippins, Phillips's Seedling, Hay's Seedling, and Redstreak; and a second premium was awarded to Mr. M'Donald, gr., Drummond Castle, for Delaware, Golden Pippin, Winter Strawberry, Old Nonpareil, Calville Blanche, and Cellini. For the 12 finest clusters of Chinese Chrysanthemum, different varieties, there were four competitors. The first prize was gained by Mr. Young, with Princess Maria, Queen, Marquis, Lucidum, Superb clustered Yellow, Bicolor, Defiance, Vesta, Beauty, Victory, Madame Pompadour, and Minerva; and a second premium was awarded to Mr. Addison, gr., Gosford House, for Princess Maria, Gem, Formosum, Lucidum, Minerva, Tasselled Yellow, Marquis, Queen, Vesta, Superb clustered Yellow, Theresa, and Defiance. The only kinds of vegetables for which premiums were offered were Broccoli and Savoys; and very excellent specimens of both were produced. For Broccoli a first prize was voted to Mr. Gibb, gr., Salisbury Green, for Grange's variety; and a second to Mr. Cossar, gr., Kingsmeadows, for Seaford and Early White. The premium for Savoys was awarded to Mr. Pearson, gr. to Captain Peat, for the Cape sort. Among Amateurs Mrs. Haig exhibited specimens of Epiphyllum truncatum and bicolor, Centradenia rosea, covered with flowers, and Ardisia crenulata, with bright red berries. Professor Syme exhibited an admirably grown specimen of Erica hiemalis, measuring nine feet in circumference and three feet in height, densely clothed with flowers. Some very superior White Brompton Stocks, from the garden of Sir J. Gibson Craig, Riccarton, were much admired. Messrs. J. Dickson and Sons exhibited an Erica hiemalis about eight feet high, thickly set with flowers; and Messrs. Carstairs, Kelly, and Co., a flowering plant of Tropæolum Lobbianum. Some excellent specimens of fruit were sent for exhibition only, in particular a large collection of French and Flemish Pears, of the newest and most approved sorts, from M. René Langelier, of Jersey; and others of equal merit from the garden of Luffness in East Lothian. From Scone, besides the two sorts of retarded Grapes already mentioned, seven other kinds were transmitted for exhibition, viz., White Frontignan, Grizzly Frontignan, White Muscadine, Black Hamburgh, West's St. Peter's, White Muscat of Alexandria, and Chasselas musqué. Figs of the second crop, from the Peach-house at Callander House garden, were regarded as a remarkable production; and beautiful specimens of the Dumelow Seedling and Coates Apple, from standards in Strathallan Castle garden, were much admired. At this meeting it was agreed that there should be a Strawberry Festival held in the Garden on the 18th of July next, and an Anniversary Dinner in Edinburgh on the 3d of September.

LINNEAN SOCIETY.

Dec. 16.—E. Forster, Esq., in the chair. G. B. Buckton, Esq., of Hornsey, was elected a fellow. A specimen of the fruit of Talauma fragrantissima, the Organ Nut of Brazil, was presented by J. Miers, Esq. A collection of Australian plants, chiefly from the neighbourhood of Sidney, and the fruit of a species of Lecythis, were presented by the Rev. W. Hincks. A paper was read by the Rev. W. Hincks, on the causes of disruption of vegetable tissue, especially in a horizontal direction. The object of the paper was to point out the immediate physical cause of the various forms of horizontal dehiscence of various parts of plants. The three principal causes to one or other of which all the forms of disruption might be referred were, first, the ligature of parts contained within by an external growth. Secondly, an unequal growth of parts. Thirdly, internal parts growing more rapidly than the external. To one or other of these causes may be referred the separation of tissue which takes place in the articulation of the stems of some plants, and perhaps, also, the fall of the leaf, the separation of the petals and sepals, the bursting of the anthers in Lauraceæ, the horizontal dehiscence observed in the fruits of Anagallis, Lysimachia, &c., and the more remarkable dehiscence of the various forms of Lecythis. The horizontal dehiscence of the fruits of plants was mostly due to the third cause enumerated, as also the dehiscence observed in the urns of Mosses. The paper was illustrated by specimens from the museum of the Society, and the author's own herbarium.—A continuation of Dr. Hooker's description of the plants of the Galapagos Islands was also briefly communicated to the Society.

New Plants.

Oxalis sensitiva. Sensitive Wood-sorrel. (*Greenhouse Annual.*) Oxalidaceæ. Decandria Pentagynia. —This curious little sensitive plant often comes up among mould received from the East Indies, and, being an annual, will sometimes take possession of the soil in the garden pots of hothouses, so as to become troublesome. It is found wild over all the tropics of Asia; or at least, if there are several species confounded under the same name, some one or other is there found. Dr. Wight inclines to the opinion that various species are mixed up by botanists under the name of Oxalis sensitiva, differing in their manner of growth, hairiness, form of the leaflets, and other circumstances. We know not how this may be, but this is the only one that we have seen in cultivation. It was raised in the garden of the Horticultural Society from seed sent from China by Mr. Fortune; and is quite different in the stamens and stigmas from the plant figured by Dr. Wight under the name of Biophytum Candolleanum. De Candolle distinguished this, and another species, from the genus Oxalis, because the stamens are separated all the way to the base; but the analogy of the genus Geranium forbids us to attach any importance to the circumstance. Rumphius tells us, that in Amboyna the leaves are so extremely irritable that they cannot bear that the wind should blow on them, or even that they should be breathed upon. At the least irritation they close up, and the plant looks as if it were dead. We see no such sensibility in our hothouses. He adds, that the amount of irritability varies from time to time, and from individual to individual; that the leaves are most able to bear irritation before 8 o'clock in the morning, when the sun has just expanded them. This sensitive quality is somewhat injured if the plant is removed into a garden. The worthy Dutchman expresses his surprise that so delicate a plant, which cannot bear the least molestation, should, nevertheless, be so continually found in gardens, and by the roadside, where it is most exposed to violence; doubtless, he adds, it is like young ladies, who wish to be looked at, but not to be touched. Among the nations of the East, the plant has been applied to various superstitious purposes, as an ingredient in philters, and magical incantations, concerning which the reader is referred to Rumphius, who gives a curious account of the odd fancies connected with its uses.—*Botanical Register.*

Stanhopea inodora. Scentless Stanhopea. (*Stove Epiphyte.*) Orchidaceæ. Gynandria Monandria.—Among the most beautiful of the Stanhopeas is that apricot-coloured species, with very large flowers forming a spreading spike, to which the name of graveolens has been applied in consequence of its offensive odour. This species is in many respects very like it; but it is scentless, and much paler than any variety of S. graveolens which we have seen. Messrs. Loddiges imported it from Mexico, and it flowered in June, 1843. It differs from S. graveolens not merely in its pale scentless flowers, but other circumstances of more importance. In the parts of the flower we are not, indeed, prepared to point out much difference beyond the form of the column, which in this species has its sidewings gradually narrowing downwards till they disappear, while S. graveolens has them as broad at the one end as the other, whence the column has almost the form of a parallelogram. The form of the spike is quite different in the two species, owing to the unusual shortness of the ovaries. In S. graveolens it is very wide, after the manner of S. oculata, the ovary being considerably longer than the lateral sepals; but in S. inodora it is as much contracted as in S. insignis, there being little difference between the length of those parts. If the species were to be distinguished by more popular characters, it might be stated to have the inflorescence of S. insignis, the form of S. graveolens, and the colour of S. saccata, without its dots. If S. insignis inhabited the same country as S. graveolens, one might fancy the S. inodora to be a mule between the two.—*Botanical Register.*

Miscellaneous.

Attachment of Wolves to Man.—Our menagerie contains several tame wolves. A female wolf, snared when full grown, had nevertheless grown tame enough to be permitted to live with dogs, among whom she had several whelps. Another wolf, of which F. Cuvier relates the history, presents to us an instance of one of those profound attachments of which we believe the species of the dog even to be hardly capable. "This wolf," says F. Cuvier, "had been reared like a young dog; he followed his master everywhere, and was pained by his absence; he obeyed his voice, showed the most entire submission, and in all these matters scarcely differed in any respect from the most tame domestic dog. His master being obliged to absent himself, made him a present to the king's menagerie: there, shut up in a cage, this animal was several weeks without showing any gaiety, and hardly eating at all; nevertheless, his health was restored, he became attached to his keepers, and seemed to have forgotten any other affection, when after 18 months his master returned. At the first word which he pronounced, the wolf, who had not seen him in the crowd, recognised him, and testified his joy by his movements and his cries. Put at liberty, he soon covered his old friend with caresses, as the most attached dog would have done to his master after a separation of a few days. Unfortunately, it was necessary to quit him a second time, and this separation was again a source of the most profound sorrow; but time healed this new grief. Three years passed away, and our wolf lived very happily with a dog whom they had given her for a companion. After this space of time, which certainly would have been sufficient for a dog of the most faithful species to forget his master, that of the wolf returned; it was evening, all was closed up, and the animal's eyes were of no avail, but the voice of this dear master had never been effaced from his memory; as soon as he heard it, he recognised him, and responded by cries which announced his impatient desires; as soon as the barrier which separated them was raised, the cries were redoubled, the animal bounded forth, placed its two paws before upon the shoulders of him whom it loved so tenderly, passed its tongue over every part of his face, and threatened with its teeth its ordinary keepers, upon whom the moment before it bestowed marks of affection. It was necessary to separate again. After this sad moment the wolf became melancholy, immovable, it refused all nourishment and became thin: at the end of eight days it was inconsolable, and for a long time they were fearful of losing it. At length its health was re-established, its keepers dared to approach it again, but it no longer suffered the caresses of any other person, and only replied by menaces to those whom it did not know."—*M. Flouren's Instinct of Animals.*

The Botanic Garden, Cambridge.—The Syndicate appointed to consider the steps necessary to be taken for changing the site of the Botanic Garden have reported (in addition to their report of July last), that Professor Henslow had visited the Botanic Garden at Kew; that they had calculated the probable expense of income. They conceived that the available funds were inadequate to meet the expense of the proposed new garden; and that such a design could only be carried into effect by taxing the members of the University for a certain number of years. They recommended, in case the University wished the design of a new garden to be carried into effect, a new syndicate to be appointed to consider the most convenient manner of taxing the members of the University.—*Cambridge Paper*

Museum of Cassel in Northern Germany.—In the

collection of natural history at this museum is a very interesting set of volumes, as they appear to be; though, when examined, they prove to be no real library, but specimens of the woods of 500 different European trees, made up in the form of books. The back is formed of the bark; the sides, of the perfect wood; the top, of the young wood, with narrow rings; the bottom, of the old wood, where the rings are wider apart. When one of the volumes is opened, it proves to be a little box containing the flower, seed, fruit, and leaves of the tree, of which it is a specimen either dried, or imitated in wax. Something of this kind, though with a more especial reference to the age of trees, might be made an interesting portion of our own collections in natural history, both public and private — *Chronicles of the Seasons.* [There is a similar collection, formed in Mexico and California by the late Dr. Coulter, now in the Herbarium of Trinity College, Dublin.]

The Potato Disease.—At a meeting of the Manchester Literary and Philosophical Society, Mr. A. Campbell, curator of the Botanic Gardens, stated that he had tested the efficacy of fumigating with sulphur, suggested by Mr. Thom, and had found that in those Potatoes which had been subjected to the process, the disease never made any further progress, even though they were subsequently placed in contact with diseased tubers. He also referred to other experiments, most of which went to prove the necessity of exposing the Potatoes to light and air, and the evil effects of hogging or pitting them. Mr. Dale said he had planted a Potato which had been fumigated, and found it to vegetate as well as those to which the sulphur had not been applied. The whole of the observations that were made confirmed the accounts previously given, that light and air, a good ventilation, and a frequent examining and turning of the Potatoes, are the most effective agents in checking the disease.—*Manchester Guardian.*

Bees.

ANSWERS.—*S.*—There was nothing remarkable in one instance of two "royal nymphs" being cast from the hive after the queen was replaced with the swarm, such might have happened whether she was replaced or not. I knew an instance during bad weather of 12 young queens being cast out of the hive before the second swarm. I do not dispute the real meaning of the word nymph; but I do in the sense that most entomologists use it, viz., that bees' larvæ spin cocoons and change to the pupa state before they are insects. The fact is, when they are about to change they merely close the openings of the cells, and are matured as young wasps are, in the cells, not cased in a tough varnished substance like the larva of moths and flies as a fence against the weather. Those who fish with young wasps as bait, find many as soft and milky as the maggots in the open cells, which is the case with the bees. Your stock must have been ripe for swarming or the hive badly constructed, otherwise the morning sun could not have induced them to swarm at 9 o'clock. Sunshine has much influence on bees, but few will trust them to the shade during the swarming season. The following is a good instance of it:—A friend of mine in Norwich, like Bonnear of Glasgow, kept bees in his dwelling-house; the hives stood upon a table close to the wall, in which were holes for the bees to enter by. The sun, of course, never shone upon the hives, still they swarmed in the usual way, and even though there were air-holes in some of the hives. You say that your bees regularly swarmed before you shaded them, therefore you found the ventilators of no use. What I said concerning the state of a stock after a swarm was replaced with a queen seemed plain enough, especially the extracts from Dunbar. You consider that the presence of the "old fertile queen would make a material difference in their working in the interim." Need I repeat that the bees will be more or less idle according to the condition of the hive and the weather. And also that the interim may be a day, nay, perhaps only a hour. I say so on the fact that the old queen knew the condition of her successors before she left the hive, and where is the certainty of her remaining when replaced? Since your bees swarmed this season, and you do not say that you replaced them, but observe, when they swarmed, you got no honey, the following is not very clear:—"Last year, by shading them, I prevented their swarming, and got 16 lbs. of honey; this year I got 15 lbs."—*W.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouses.—The decoration of this department will depend in a great degree upon Begoniass, Euphorbias, and Luculia gratissima, although the latter will bloom in a colder house. These should be carefully tied up and placed in the most conspicuous situations. It is always a good plan, when accommodation can be afforded, to keep some of these in a colder house, so as to prolong their season of blooming. Continue to keep up the temperature by artificial heat at 60°. *Conservatories.*—About every ten days the plants in this house should be completely re-arranged, those going out of flower should be removed, and a new supply added from the forcing pit; all plants, whether in this or in other departments, should be regularly gone over, removing the dead leaves, and tying in straggling branches. The surface soil ought to be stirred a little, and some fresh mould added. These little points, when attended to, give a tidyness of appearance, and produce a relish for the enjoyment of such places during the dreary season of winter. Be careful not to be caught in frost, keep out as much of it as possible by mats or other coverings, and have recourse to fires only when positive danger is to be apprehended. Attend to the compost yard, exposing decaying manures required for potting to frost at all times when opportunity offers.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

In this very changeable weather, walks requiring turning, or a coating of fresh gravel in the spring, might now have the sides or edgings adjusted; gravel might also be got in readiness for use, when wanted. Plants that have been protected during the few past cold nights, should again be exposed, if the weather continues mild. Ripe fruit, or seeds of shrubs, should be collected; cones of Cedars, Pinuses, &c., might also now be gathered. Roll walks that have been loosened by the late frosts, and protect shrubs from hares and rabbits, before the winter sets in. *Pits and Frames.*—Take particular care that damp leaves are removed from Neapolitan Violets, and give air every fine morning. Keep Roses in pots moderately dry, until they are to be started for forcing. Every fine day the lights should be taken off Verbenas, Petunias, Calceolarias, and Pelargoniums, and stop such as are growing freely, or appear to be drawing.—*B.*

III.—FLORISTS' FLOWERS.

Attend to the routine management as previously recommended. After frosts examine Polyanthus and Pink beds, removing all weeds as soon as they appear. Now is a good time to get together leaves, which form invaluable compost. Attend to newly formed Pansy beds; if the worms are troublesome, pour a little lime-water down their holes, which will speedily relieve you of their presence. Remove Polyanthus blooms as advised last week, and carefully observe, during a shower, whether any pots are exposed to drip; it is equally injurious to the Carnation and Picotee in frames, as to the Auricula.—*C.*

IV.—PINERIES, VINERIES, &c.

Watering Pines at this period of the year is in general out of the question, nevertheless cases may occur in which with swelling fruit, under a somewhat elevated temperature, it may become necessary—observing great moderation. As before observed, with respect to Vineries and Peach houses, in which forcing has commenced, let moderation be your maxim with regard to increase of temperature; all hurrying or quick forcing, at this period, is very likely to end in abortion. However, on bright days a much higher temperature may be indulged in—for solar warmth, although somewhat in excess, has a very different effect on vegetation in general to that of fire heat. Cucumbers in Pineries, or other structures adapted to their winter growth, should have every possible amount of foliage exposed to the light. The system of close stopping requisite in summer cultivation, by no means benefits the winter management. In summer, one or two full-grown leaves will cater for a given fruit; whereas, in winter, through the comparative absence of light, it requires treble the number to accomplish the same object. Continue, as opportunities occur, successional crops of Kidney Beans, Mushrooms, &c., and a few Ash-leaved Kidneys placed singly (whole) in forty-eight pots, will make an excellent early frame or pit in January, if a little bottom heat with covering can be insured.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

The comparatively mild state of the weather is favourable for the operations of planting, pruning, and nailing being carried on. Examine old fruit-trees, in order that such as are either not productive, or bear fruit of indifferent or bad quality, may now be cut back preparatory to their being grafted with better varieties in spring. Deferring to cut large limbs of fruit-trees till the sap is flowing is always injurious. The portions left, die back much farther from the sections than will be the case if the operation is performed before winter, and canker also is apt to ensue, so that the grafts are left with an unsound footing. In heading back large trees, imagine one or two branches, the result of grafting, to proceed from each stump, and then cut the limbs so that the new branches may not originate too near each other. *Kitchen Garden.*—In some cases hedges form the outer fence of gardens; Quick, more especially, should now be trimmed; dead wood, and unhealthy shoots, liable to be half killed by insects in the summer, are the consequences of cutting these hedges late in spring; and nakedness at bottom is occasioned by allowing the top to overhang. The sides of a hedge should slope regularly, like those of a pyramid—the top cannot be too sharp. If so managed, the barbarous mode of plashing will be rendered unnecessary—it may be said an impossibility. Attend to the covering of Sea-kale. Give plenty of air to Cauliflower plants, Lettuces, and Endive in frames. Potato chips, where sets are scarce, will be best preserved till the time of planting by being placed in soil only moist enough to keep the eyes or buds from drying up.—*E.*

¶ State of the Weather near London, for the week ending Dec. 18, 1846, as observed at the Horticultural Garden, Chiswick.

Dec.	Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 12	13	30.428	30.356	43	23	33.0	N.	
Sat. 13	O	30.447	30.390	39	25	30.5	S.W.	
Sun. 14	15	30.311	29.903	44	35	39.5	S.W.	.02
Mon. 15	16	29.833	29.749	51	39	45.0	W.	.02
Tues. 16	17	29.773	29.753	51	42	46.5	W.	
Wed. 17	18	29.921	29.536	49	40	44.5	S.W.	.05
Thurs. 18	19	29.417	29.254	49	35	42.0	S.W.	.33
Average		30.004	29.831	46.1	34.1	40.1		.42

Dec. 12—Unusually high tide; slightly overcast; fine; very clear
13—Frosty and foggy; slight fog; partially clouded
14 Foggy; hazy; shower in forenoon; drizzly at night
15—Rain; fine; slightly overcast
16—Fine throughout; overcast at night
17—Densely and uniformly overcast, slight drizzle: rain; overcast
18—Foggy; constant rain throughout.

State of the Weather at Chiswick during the last 19 years, for the ensuing Week ending Dec. 27, 1846.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 21	44.5	35.8	40.2	5	0.20 In.	—	4	1	1	2	6	3	2
Mon. 22	46.4	36.0	41.2	10	0.26	2	2	1	1	2	5	4	2
Tues. 23	44.9	33.8	39.3	9	0.29	2	4	—	1	1	7	1	3
Wed. 24	44.0	33.0	38.5	6	0.36	3	1	1	1	1	8	1	3
Thur. 25	43 8	28 7	36.2	3	0 22	1	2	3	—	2	5	3	8
Fri. 26	41.8	31.0	36.9	7	0.39	1	3	2	3	3	6	—	1
Sat. 27	41.9	30.1	36.0	6	0.40	1	4	1	3	2	3	4	1

The highest temperature during the above period occurred on the 25th, 1827—therm. 58°: and the lowest on the 24th, 1830—therm. 10°. The average temperature of the night of the 25th is lower than that of any other night throughout the year.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALLENDAR is now ready, price 3*d.* each copy. An index has been added to this present edition. Parties wishing to have copies for distribition among their tenantry can have them at the rate of 25 for 5*s.*

AMARYLLIS—*A Constant Reader*—The stove species of Amaryllis will not succeed in Man. A. advena, sarniensis, and Belladonna, Lycoris radiata and Vallota purpurea probably will.

ASPARAGUS—*J H G*—We cannot give you the *rationale* of frosting; we do not understand it ourselves.

CUCUMBERS (see No. 37)—*Cucumis*—Mr. Walker has been so obliging as to say that he has not forgotten his promise to give his mode of growing Melons, and that he will proceed to redeem it early in the year.

HEATING—*W H*—All kinds of covering will assist in keeping frost out of a house, because they keep warmth in. Russia mats, and reed or straw mats, are among the best and cheapest contrivances for the purpose.

INSECTS—*Alpha*—Your Vines are infested with a scale called Aspidiotus Ostreæformis, *vide* the *Gardeners' Chronicle*, vol. 3, p. 805. The only remedy is to scrape and peel off the old bark and burn it immediately. *R.*——*F J C*—They are a species of Dung-fly, bred, I expect, from the manure. The minute worms on the Potato are a Vibrio; a Julus and Polydesmus accompanied them. *R*

LAWNS—*W C*—Now is a good time for dressing lawns with pure soot.

MUSHROOMS—*Greenwood*—Mushroom-beds are prepared by collecting a sufficient quantity of horse-droppings, as free from straw as possible, into a heap, and turning them over repeatedly previously to the formation of the beds, in order that the violent heat arising from them at first may be dissipated. In making the bed, the droppings are well beaten down and trodden; and when, after a few days, the temperature of the bed has settled down to about 70°, the spawn may be put in, barely covering it with dung, and afterwards firmly encasing the bed with soil to the depth of 1½ or 2 inches. The whole is then lightly covered with hay several inches in thickness, and the work is finished.‡

NAMES OF FRUITS—*F, Waterford*—Bishop's Thumb Pear; Carlisle Codlin.‖——*R E*—3, Aston Town; 4, Glout Morceau; 5, Wormsley Pippin; 6, Cluster Golden Pippin; 7, Lamb Abbey Pearmain; 8, Braddick's Nonpareil; 10, King of the Pippins; 14, Easter Pippin or French Crab; 15, Wyken Pippin; 16, Althorp Crassane; 17, Ord; 18, White Russet. The Seedling Apple, No. 12, is worthy of further trial; the other wants juice.‖

NAMES OF PLANTS—*Ghent*—512, Oncidium sanguineum; 908, Odontoglossum cordatum; 906, is not this the same as 512? 342, Oncidium ornithorhynchum; 907, this class of Oncidium cannot be distinguished by single flowers; it seems to be the large variety of O. sphacelatum.——*F K*—Your plant is a Tritoma not a Tritonia.——*W H W*—Chironia decussata, a greenhouse half-shrubby plant.——*A Subscriber*—Salvia confertiflora and Verbena Salviæfolia.——*Juvenis*—Vestia lycioides.——*Vicairensis*—Daphne odora rosea.——*J Y*—You must open your eyes a little wider; the plant you have sent is *not* in flower.——*Salopian*—Daphne odora rosea. You are no doubt right; it must have been the Mezereum, and some others allied to it, that Linnæus meant.——*Inquirer*—We cannot name seeds. No 1 is the seed-vessel of a Dolichos, and perhaps of D. Lablab.

PANSIES—*W K*—Procure the following 12 sorts:—Cook's Paragon and Mulbery superb, King's Exquisite and Sulphurea elegans, Brown's Curion, Thompson's Coronation and Fizarro, Major's Bridegroom, Pearson's Black Prince and Prince Albert, Duchess of Richmond and Arethusa.*

PELARGONIUMS—*P Q*—These may be preserved over winter in a box, if packed with alternate layers of dry soil, sand, or peat, and placed in a situation free from the effects of frost or damp; the plants must be cut back freely, and divested of all their leaves before they are packed, and they should not remain longer than the begmning of March in the box before they are again potted.

POTATOES—*J B C*—We understand a cyder mill does not answer the purpose; it crushes but cannot rasp. Why not use the machines of which we have published plans. They are extremely cheap, and answer perfectly.

PRUNING—*Reader*—You may prune your Gooseberry and Currant bushes now. Let the centres be kept free and open, cutting clean off any strong shoots that rise from that part. Cut out all branches that cross one another, leaving the leading shoots about 10 inches apart, and topping at a bud inclining to the open space. All lateral twigs not required to form branches should be spurred into a few buds. Black Currants require no pruning except thinning out the branches a little when the bushes have become large and thick of wood. With regard to Raspberries which produce their fruit entirely on the previous year's wood, the old shoots should be removed and four or five of the strongest of the young ones tied up in their places, cutting clean off by the root all the rest of the young shoots. After they are tied up to the stakes (if that mode of training be preferred), shorten them to about 4 feet in height. You may water your Hyacinths as soon as they have made good roots.‡

RHODODENDRONS—*D D*—The colours of the following are—floribundum, crimson; rigidum, purplish crimson; campanulatum, large rosy-pink; alta-clerense, crimson, free bloomer; Russellianum, bright crimson spotted; nobile, deep crimson, bad flowerer; kermesinum (?); tyrinum, purplish crimson, with dark marking, very fine; liliaceum, pink; formosum, crimson; catawbiense, very large, light pink. We cannot recommend dealers. ¶

ROSES—*J P L Pyne*—The following are eight standard Roses adapted to a sheltered situation in the south of the county Cork:—Bregnus, Village Maid, Globe White Hip, Crested Moss, Queen of Denmark, Madame Desprez, Duc de Luxembourg, and Double Persian Yellow.¶——*Constant R*—We seriously advise you to place yourself in the hands of any one of the great Rose growers, to explain to them your wants, name your limits as to price, and trust to them for a selection. Rely upon it, this is the best and most economical way of setting to work. We have repeatedly given lists of choice Roses. See also the Appendix to the "Tree Rose."

TRELLIS—*Botanico*—Use iron uprights, and paint the whole black with black oxide of manganese, the cheapest and best of black paint. If you can get Bamboos cheap, they make a good fence by being placed aslant with respect to each other, so as to form lozenge-shaped spaces; but they are not very durable.

TULIPS—*An Ignoramus*—Seed having been saved from the best flowers, is sown at the proper time, the little bulbs taken up when the leaves turn yellow, are again planted and taken up, and this is repeated annually till they bloom. A selection is made from these *seedlings* when in flower, and those only preserved that have straight stems, finely-formed cups, with clear bottoms, either white or yellow; these *bulbs*, with their *offsets*, constitute the *breeders* or *breeder state* of the flower, and must be grown till the colour breaks into stripes; when this takes place they are called *broken Tulips*, and are propagated by their *offsets*, which come like the parent. *Strain* is a word used to express a particular race or quality in a flower, as being inferior or superior to others of the same kind. *Rectified flowers* are those, having clear grounds and more decided markings than are usually seen, and is an expression equivalent to a flower being of a *superior strain.**

MISC—*Gib*—We cannot interfere. If a man chooses to offer hot buns to beggars, how are we to prevent it?

——— "Oleum artocreasque popello
Largior,"

is a very old cry, and you should not wonder at its being repeated now-a-days.——*Killogie*—The cause for the soreness is transparent. We do not approve of people being called upon to subscribe large sums for purposes which cannot end in any good to the subscribers; we do not like to see men of science demanding payment for every trifling service they may endeavour to render to the public; we are not inclined to sanction the erection of turnpike gates on the high road to knowledge, and we have no feeling in common with the toll-takers.——*Petimus*—Human physiology is not within the scope of this publication.——*W C*—The only sure way by which bulbous roots can be preserved from mice when planted out is by setting traps for the latter. Use brick traps, which may either be the figure 4-trap, or a pea may be put on a thread to support the brick.¶——*A Z*—If you have no better place you may keep your Pelargoniums through the winter in your large room over the stable. They should receive very little water and care must be taken in administering it not to scatter it about, as that would produce damp, which must be carefully guarded against. If there is any means of admitting air it should be taken advantage of in fine weather, as Pelargoniums are very impatient of close confinement.‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the required inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

HYDRAULIC RAMS to be had of FREEMAN ROE, Engineer and Fountain Maker, 70, Strand, London. Rams adapted to all situations.

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The Agricultural Gazette.

SATURDAY, DECEMBER 20, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, Dec. 24—Agricultural Society of England.
WEDNESDAY, — 31—Agricultural Society of England.
THURSDAY, Jan. 1—Agricultural Imp. Soc. of Ireland.

WE take the liberty of referring once more to Dr. DAUBENY'S paper ON THE ROTATION OF CROPS. His experiments had special reference to the theory of DE CANDOLLE regarding root excretions; and his object was to determine whether a failing fertility of soil consequent upon the repeated growth of the same crop on the same land, during a series of years, was attributable to poisonous matter of vegetable origin, or simply to an abstraction of those substances in the soil which we speak of as the food of plants. His objects, in fact, were, to use his own words, "first, to detect, if possible, the chemical nature of these supposed excretions; and secondly, to demonstrate their poisonous influence, by taking account of the expected diminution in the amount of the crop exposed to them, beyond that of another in which all the circumstances were the same, excepting the presence of the excretions in question. To accomplish these two objects, it seemed sufficient to set apart a number of plots of ground uniform as to the quality and richness of its soil, planting one-half of the number year after year with the same species of crop until the land no longer produced it, and the other moiety with crops of the same description, succeeding one another in such a manner, that no one plot should receive the same twice during the period of the continuance of these experiments, or at least within a short interval of one another. By weighing the produce of each plot, reduced to the same uniform condition of dryness, when it had arrived at maturity," he states, "I hoped to obtain data for computing, how much of the expected diminution might be referred to the exhaustion of the ground, and how much to the effect of excretions which the preceding crop had given out."

The following Table gives the results arrived at, as to some of the crops, so far as the influence of their repetition on the same land affected the weight of their produce :—

Tabular View of Experiments on the Rotation of Crops.

Name of the crop.	Whether planted in the same, or in diff. plots of ground.	Average of the first five years.	Average of the whole period.	General Remarks.
		tubers.	tubers.	
Potatoes	1 in the same	72·9	68·9	Merely cleaned from dust before weighing.
	2 in different	92·8	89·1	
	3 in the same	74·77	..	
Flax	1 in the same	15·0	12·6	Dried in the sun before weighing.
	2 in different	19·9	22.7	
	3 in the same	32·5	..	
Beans	1 in the same	32·8	24·7	Dried in the sun before weighing.
	2 in different	34·8	33·6	
Barley	1 in the same	30·0	28·9	Dried in the sun before weighing.
	2 in different	46·5	42·1	
Turnips	1 in the same	104.0	100·8	In a green state when weighed.
	2 in different	173.0	176·5	
Hemp	1 in the same	32·55	30·13	Dried in the sun before weighing.
	2 in different	..	40·0	
Poppy	1 in the same	21·9	18·2	Dried in the sun before weighing.
	2 in different	20·3	18·7	
Clover	1 in the same	10·9	14·8	Dried in the sun before weighing.
	2 in different	..	16·9	
Endive	1 in the same	53·9	51·5	Dried in the sun before weighing.
	2 in different	..	47·0	
Mint	1 in the same	31·5	24·7	Dried in the sun before weighing.
	2 in different	..	22·5	
Bk.-wheat	1 in the same	11·6	9.1	Dried in the sun before weighing.
	2 in different	12·5	10·6	
Parsley	1 in the same	61·25	39·75	In a green state when weighed.
	2 in different	..	87·8	
Tobacco	1 in the same	69·2	48·0	Dried in the sun before weighing.
	2 in different	..	32·0*	
Oats	1 in the same	..	28·0	Dried in the sun before weighing.
	2 in different	..	32.4	
Beet	1 in the same	..	256·0	In a green state when weighed.
	2 in different	..	231·0	
Tares	1 in different	..	13.25	Dried in the sun before weighing.

Setting aside four of these cases—Tobacco, Beet, Endive, and Mint—as exceptional, and these exceptions are satisfactororily explained by circumstances, for the recital of which we have no room, the general tenour of these experiments would seem to indicate a *manifest* advantage on the side of the shifting crops, varying from 1 to 75 per cent., but more generally approaching to the latter. Yet it by no means follows that this difference is to be attributed to the influence of root excretions. Were such the cause, we ought to perceive a more regular, as well as a more rapid, diminution in the permanent crop than is indicated in the above Table; we should not find, as was the case, the crop of Potatoes equalling in the fifth year the produce of the first; the Turnips, after sinking to 37·0 lbs. in the third year, rising in the sixth to 128 lbs.; not to allude to other similar instances of oscillation. If DE CANDOLLE'S theory too could be carried out, we might have expected to find a more manifest improvement in the shifting crop occasionally occurring, owing to the excretions of the family of plants which had preceded it proving congenial to its constitution. But if nothing positively injurious be imparted to the soil by the crop, the gradual falling off in the amount of the latter can only be attributed to the deficiency either of organic or of inorganic matter fitted for its development, in the soil in which it was reared. And a large portion of Dr. DAUBENY'S memoir is devoted to the report of his inquiry into this matter. Its results were conclusive as to the less quantity of inorganic elements in every case, found both in the ashes of the plants of the permanent crops and in the soil of the beds on which they had been grown. The analyses necessary to the determination of the latter point exhibited a fact of very considerable agricultural importance, viz., the large quantities of various fertilising substances existing in the soil, but in a condition in which they were not immediately available for the growth of plants.

It had long been known that the older analyses, those for instance by Sir H. DAVY, were very imperfect indices of the agricultural value of the soils of which they professed to give the constitution. They gave information neither on the texture of the land nor on the presence of the phosphates and alkalies, those substances present, relatively speaking, in small quantities, but on which nevertheless fertility has been proved mainly to depend. But we now find that but few even of the later analyses are entitled to much confidence; for a distinction first made by Dr. URE in reference to the ammonia existing in guano, is shown by Dr. DAUBENY to be equally applicable to the phosphates and alkalies occuring in soils. They generally exist "potentially" or in a dormant state, in abundance—but it is not till they have been brought into a soluble form that they are of any use as the food of plants; and the powerful reagents employed by the chemist may have demonstrated the existence of substances in abundance—substances admirably capable of conferring fertility, and yet if they are not present in a form in which plants can make use of them, barrenness may prevail after all. It was reserved for Dr. DAUBENY, in conjunction with Mr. WAY, to devise and execute a method of analysis, by which not only the amount of each ingredient of the soil, but the condition also of each, whether dormant or active, was ascertained. This consisted mainly in ascertaining and weighing the substances in a given quantity of soil, which a certain quantity of water, impregnated with carbonic acid, was capable of dissolving out in a given time. The water thus prepared and used was, in fact, a sort of strong rain-water, containing, as it did, more than the ordinary quantity of carbonic acid, and it acted on the soil, only with more than ordinary intensity, just as does every shower that falls. The analyses of soil thus conducted, showed that while hardly any difference existed in the *absolute* composition of the soils which had borne repeated crops of the same plant, and those which had yielded successive crops of different plants, yet there was a great difference between them in the various materials they contained, as regards the quantity of each, in a form immediately available as the food of plants. The following is the instructive inference on this subject which Dr. DAUBENY himself draws from the results of his inquiry :—

"That it by no means follows, because a soil is benefited by manuring, even though that manure may, as in the case of bones, guano, &c., derive its efficacy from the phosphates it supplies, that the soil is therefore destitute of the ingredient in question, since it may happen, that it possesses abundance of it in a dormant, though not in an immediately available condition.

"In those cases, in which the agriculturist has been assured by the results of actual analysis that there is no real dearth of the principles essential to his crops in the soil which he is cultivating, but where he has ascertained either by the chemical mode pointed out, or by an experience of the good effects brought about by manures, that the principles in question are not in a state to become immediately applicable to the purposes of vegetation, three courses appear to be open to him :—

"1st. To apply a sufficient quantity of the same materials in a state in which they can be absorbed by the plants without delay; 2dly, to allow the ground to remain fallow, by which expedient time is allowed for a further decomposition of its materials, and for a renewed extrication of its useful ingredients, to take place; 3dly, to produce by the various methods in daily use, such a stirring and pulverization of the ground, as may admit of a more thorough admission of air and moisture, and consequently accelerate the process of disintegration in a greater degree than would take place under natural circumstances.

"Examples will occur to every one of the successful adoption of each of these three practices; of the first, in the ordinary process of manuring, and especially in the beneficial consequences resulting from the use of bones in the exhausted pastures of Cheshire and other similar localities; of the second, of the system so general in the early stages of agriculture, of allowing land to remain at rest for a certain period, with a view of restoring to it its exhausted powers—a method which would be absurd, if the alkalies, phosphates, and other of the more scanty ingredients were absolutely deficient, but which would be likely to prove efficient if they were only locked up within the recesses of the soil, and required time to render them active; of the third, in the practice resorted to by JETHRO TULL, who boasted that he could always realise an abundant crop year after year without manure, provided the ground were only stirred and broken up sufficiently,—a statement which seems confirmed by some of the results of spade husbandry, and in a certain degree by those detailed in this paper, with respect to the permanent crops which are herein mentioned as having been made the subject of experiment.

"The choice between the above three methods will of course be determined in each instance by a balance of economy, and although in general this latter consideration will incline the farmer to prefer the ordinary method of manuring, either to the sacrifice of a year's produce, as in the second method, or to the expenditure of labour required to put into practice the third, still there may be cases where it might better answer his purpose to resort to one or other of them, either as being more advantageous in itself, or more suitable to the circumstances of the case.

"At any rate it may be important for him to be assured, that at the very time he is ransacking the most distant quarters of the globe for certain of the mineral ingredients required for his crops, he has lying beneath his feet in many instances an almost inexhaustible supply of the very same."

* The average is here lower than in the former, because two crops of a different kind had been previously taken off the ground before the first crop of Tobacco was sown. Hence this is so much inferior to the first crop of the preceding column.

ON THE CARRIAGE OF SEWERAGE WATER BY RAILWAY.

THE leading article in your *Gazette* of the 30th ult. contains some important statements respecting the value and means of employing the sewerage of towns for agricultural purposes. The sewerage company alluded to in that article will confer vast benefits in the country around those towns whose locality is favourable for carrying out such a plan; but there are very many others which are either too small, or from other circumstances so situated as to be unlikely to pay for the erection of costly apparatus. Now, it is in such places as these that I would propose some such plan as the following, as the means to be employed in conveying the sewerage water or liquid manure into the surrounding agricultural districts.

It is well known that all railways are so laid down as to approach as near as possible to every town of any importance; I therefore believe that in a majority of cases the liquid manure could be had alongside of some part of a railway in or near such towns; here, for instance, near Hull, the line of the Hull and Selby Railway actually crosses the outfall, within a few yards of the Humber, of one of the main sewers of the town; a projected line of railway from the one above mentioned, to be carried on to Patrington, through the rich agricultural districts of Holderness, will cross a street at no great distance from the outfall of another main sewer; and from a second position on this line, a third large sewer will be crossed, so that here is an example to show that the sewerage of two-thirds of a town containing 70,000 inhabitants may be had without any difficulty. The country for some miles round Hull is nearly a dead level, and therefore not favourable for irrigation; but I have little doubt that there are many places on the various lines about to communicate with it, where the sewerage water might be conveyed with great advantage to the land, and the disposal of it to the farmers would be a source of considerable income to the parties interested in the sale of it. At Beverley eight miles from Hull, the Bridlington branch of the

Hull and Selby Railway will cross the main sewer of that town, where vast quantities of rich sewerage might be collected.

Having described the main features of the plan, I will now show how I think it might be carried out. The municipal corporations in all towns, being the legitimate proprietors of the sewerage, will have a direct interest in providing the means for delivering it to those who purchase it, and this might be effected by a simple arrangement of reservoirs constructed alongside the railway, and furnished with pumps for lifting the sewerage into wrought iron tanks built upon railway trucks. These tanks would no doubt be provided by railway companies, as the conveyance of the sewer-water would form an important item in their goods traffic; it would be certain, too, and increasing, as the mode of applying it became better understood. According to Mr. Smith's statement, eight tons of sewer water are sufficient to manure an acre of land; and Mr. Hudson says that the trucks on the narrow gauge lines will weigh (of course he means when laden) from seven to nine tons; so that in all probability about six tons of sewer water may be conveyed upon one truck, which might be left at the depôt on the railway in the same manner as other descriptions of manure, to be carted thence by the farmers in suitable liquid manure carts.

There are several questions to be considered with reference to the carrying out such a plan as I have here described. In the first place, there is the first cost of the liquid manure. Secondly, the carriage to the depôt on the railway in the country. And thirdly, the expense of conveying it into the fields: the sum total of these would give the cost of manuring the land. The next thing we are to consider is its relative value as a fertilizer, compared with other manures, and this is a question of great importance, because it involves many inquiries respecting the source from whence it is derived, and the manner in which it is collected and prepared for the use of the farmer. In densely populated towns, the sewerage will contain a greater proportion of fertilizing ingredients than in one that is more thinly so; then again, in a town where the contents of the water-closets are discharged into the drains, with other animal matter, the sewerage will be richer than where there are open privies; another enquiry should be, to what extent is the sewerage diluted with rain water. I am of opinion, that in order to render sewer water generally applicable and useful as a fertilizer, it must be delivered to the farmer of, as near as may be practicable, a standard quality; I mean that it should always contain, in a given quantity, the same proportions of fertilizing ingredients diluted to the same extent, which state of dilution should be that most suitable for direct application to the land. I have no doubt this might be accomplished, partly by chemical analysis in the first instance; and secondly, by such an arrangement of branch drains betwixt the sewerage of a town and the reservoir containing the liquid manure, as would regulate the admittance of water into it during heavy rains. The reservoirs could be so placed as to draw off any portion of the liquid in a sewer in dry weather, when it would be in the most concentrated state, as might be required for the purpose of preparing it for the use of the farmers. Perhaps it might be necessary to have more than one reservoir for the purpose of effecting a more complete chemical union of the several elements contained in sewer water. The various kinds of matter in fresh sewer water are merely suspended, when at rest some portion of it is deposited, other portions are decomposed, gases evolved and fresh combinations take place, and when the union of the several elements is complete, the liquid manure is in the most fit state as food for plants. Sewer water taken directly from its source must be of very variable quality, and uncertain in its effects; and, although in this form a most valuable fertilizer, science may yet do much to render it still more extensively beneficial; but these are mere speculative opinions, the real difficulties of employing the sewerage of towns for the purposes of agriculture will vanish before the chemical and mechanical science of the present age.—*Henry Liddell, Beverley-road, Hull.*

PULVERISATION OF THE SOIL.

The grand object of pulverisation of the soil is to give free scope to the roots of plants, for without an abundance of roots no plant will become vigorous, however rich the soil may be in which it is planted. Pulverisation, therefore, is not only advantageous previous to planting, or sowing, but also during the progress of vegetation of most plants. At this stage the operator, by means of pruning, or cutting off the extending fibres, causes them to send out numerous others, by which such food as is in the soil is the more readily taken up. Pulverisation increases the capillary attraction, or sponge-like property of soils, by which their humidity is rendered more uniform. This capillary attraction is always greatest where the particles of the soil are finely divided. Gravels or sands retain little or no water, while stiff soils, as clays, which have not been opened by pulverisation, either do not absorb water, or when by long action it is absorbed, they retain too much. Water is not only necessary to the growth of plants, but it is essential to the production of extract from the vegetable matter which they contain, and unless the soil by pulverisation is so constituted as to retain the requisite quantity of water to produce this extract, the application of manures would be useless. Water is known to be a condenser and solvent of carbonic acid gas, which is immediately carried by it to the roots of vegetables. The depth of pulverisation must depend upon the soil and subsoil. In rich lands it can scarcely be too deep, and even in sands, unless the subsoil contain particles noxious to vegetables; but very dry sands, if the season is hot and dry, should merely be stirred, otherwise the great evaporation of moisture which would take place by deep pulverisation, would render them too dry for the vigorous growth of plants. By deep pulverisation the temperature of the earth is increased. As earths are bad conductors of heat, it would be a considerable time before the gradual increasing temperature of spring could communicate its genial warmth to the roots of vegetables. It is thus of the utmost importance to have the land open, so that the warm air and tepid rains of spring may have free ingress. Some soils are more readily heated than others, and some soils cool much sooner than others. In general, soils that consist principally of a stiff white clay are difficult to heat, and being usually very moist, they retain the heat only for a short time. Chalks are similar in one respect, they are difficult to heat, but being drier they retain the heat longer. A black soil is readily heated: coloured soils, and those soils containing much carbonaceous matter, exposed under equal circumstances, acquire a much higher temperature than pale-coloured soils. When soils are perfectly dry, those which most readily become heated by the solar rays, likewise cool much more rapidly. Abundance of animal and vegetable matter, when heated to the same degree, will cool much more slowly than a wet pale soil entirely composed of earthy matter. Sir H. Davy found "that a rich black mould, which contained nearly one-fourth of vegetable matter, had its temperature increased in one hour from 65° to 88°, by exposure to sunshine; whilst a chalk soil was heated only to 60°, under the same circumstances; but the mould removed into the shade, where the temperature was 62°, lost, in half an hour, 15°, whereas the chalk, under the some circumstances, had lost only 4°. A brown fertile soil, and a cold barren clay, was each artificially heated to 88°, having been previously dried. They were then exposed to the temperature of 57°; in half an hour the dark soil was found to have lost 9°, and the clay 6°. An equal portion of the clay containing moisture, after having been heated to 88°, was exposed to a temperature of 65°; in less than a quarter of an hour it was found to have gained the temperature of the room."

The moisture of the soil and subsoil materially affects its temperature, and prevents their ever attaining to any great degree of either heat or cold. As before remarked, the power of soils to absorb water depends in a great measure upon the division of their parts; the more divided they are, the greater is their absorbent power. The different constituent parts of the soil likewise appear to act with different degrees of energy. Thus, vegetable substances are more absorbent than animal substances; animal substances more so than compounds of alumina and silica; and compounds of alumina and silica more so than carbonate of lime and magnesia. These differences, however, depend greatly upon the state of division, and the surface exposed. Stiff clays, which absorb the greatest quantity of water when it is poured upon them in a fluid state, are not the soils which absorb the most moisture from the atmosphere in dry weather. They cake, or run together in hard lumps, and present only a small surface to the air, which requires much trouble to reduce to a fine state, and in hot dry seasons the vegetation on them is generally burnt up almost as readily as on sands. The soils which are most efficient in supplying the plant with water by atmospheric absorption are those in which there is a mixture of sand, clay, and carbonate of lime, with some animal and vegetable matter, and which are loose and tight, so as to be permeable to the atmosphere. With respect to this quality, animal and vegetable matter, with carbonate of lime, are of the greatest use in soils; they give absorbent power to the soil without giving it tenacity. Sand, which also destroys tenacity, on the contrary, gives little absorbent power. The absorbent power of soils with respect to atmospheric moisture, is always greatest in the most fertile soils. When soils are immediately situated upon a bed of rock or stone, they dry sooner by evaporation than when their subsoil is of clay or marl. A clayey subsoil will sometimes be of material advantage to a sandy soil; in this case it will retain moisture in such a manner as to be capable of supplying that lost by the earth above, in consequence of evaporation, or consumption of it by plants. On the other hand, a sandy or gravelly subsoil often corrects the imperfection of too great a degree of absorbent power in the true soil. In a moist climate a siliceous sandy soil is much more productive than in dry districts; and, in such situations, Wheat and Beans will require a less absorbent soil than in dry situations; and plants, having bulbous roots, will flourish in a soil containing as much as 14 parts out of 15 of sand. Even the exhausting powers of crops will be influenced by like circumstances; for, by means of pulverisation, the atmospheric air buried in the soil is of essential assistance (by its influence on the food of plants there lying) in the maintenance of vegetable growth. Heat is given out during the chemical processes which ensue, and hence the great propriety of cropping lands immediately after they have been turned over, and this especially if manure has been added at the same time; as the process of fermentation will go on faster when the soil is loose, and the cavities filled with air, than afterwards, when it becomes compressed with its own gravity. The advantage of heat thus obtained in exciting vegetation—whether in respect to seed or roots, especially in spring, when the soil is cold—must be very great.

There is yet an undecided point amongst many farmers relative to the best manner of laying the furrow slice. Some contend for turning it completely over, *i. e.*, laying it quite flat; and others, that it is most advantageous to place each slice in such a manner that its outer edge may extend a little over the inner edge of the furrow which was drawn before it. In my opinion the principal objects in ploughing are, to expose as much as possible to the atmosphere, and lay the land so that the harrow may in the most effectual manner raise the mould to cover the seed; these objects are the more readily accomplished by ploughing land of every description (with the exception of dry sandy soil) with a furrow slice of 7 inches deep and about 10½ broad; the furrow slice will form an angle of about 45°. The depth of the furrow should, in general, bear a due proportion to the width, *i. e.*, about two-thirds, or as six inches deep is to nine broad. The angle 45° is strongly recommended in Bayley's Essay on the "Construction of the Plough," and in Brown's Treatise on "Rural Affairs." Ploughing previous to winter setting in is of great use to stiff clayey lands, exposing the surface to the frost, which mellows and reduces it in a manner infinitely superior to what could be accomplished by all the operations of man; the hollow place between the furrows will carry off all superfluous water, and render the soil, with the action of the winter's frost, fit for tillage earlier in spring, The harrows will also more readily take hold of the soil. and thus a proper mould will be procured for covering the seeds. Should there be danger of the land lying too loose and hollow, repeatedly harrowing, and rolling it with a heavy roller, will furnish a remedy.

Dry sandy soils should not be ploughed in ridges, but be turned completely over and kept as level as possible. Such soils, if rendered loose, and laid light by cultivation will be greatly robbed of their fertilizing particles. It is of the greatest advantage to such soils to fold sheep, or to consume the crops of Turnips upon the ground where they are raised. This practice has now become pretty general over England, as it is found from experience to contribute to the improvement of such soils, not only by the dung and urine thus deposited, but by the consolidation and firmness of texture, which the treading of the sheep occasions. The cultivators of this kind of soil have, therefore, many advantages over those who are engaged in the more stiff and heavy sorts of soils, in being able to perform the various operations of arable husbandry with much less expense, and being less interrupted by a wet and backward season. I have already adverted to deep ploughing, and the results to be derived from it. And, in conclusion, I would remark, that some proportion ought to be observed between the depth of ploughing, the nature of the soil, subsoil, and the quantity of manure annually spread. I have witnessed where old pasture-land of a sandy loam has been broken up in spring for a crop of Oats by subsoil ploughing, that the crop failed. Now, there appears to me two reasons for this failure; in the first case, the subsoil brought to the surface to form the seed-bed had long been deprived of the action of the atmospheric gases, consequently must have been infertile and cold. In the second case, the dry tenacious sward being placed under the seed-bed, the moisture of the soil was quickly evaporated. The grand object of deep pulverisation is to cause the soil to retain heat and moisture, so necessary to the healthy growth of vegetables of every description.—*J. M'Intosh.*

ON THICK AND THIN SOWING.

(*Continued from p.* 845.)

There is a statement of experiments adverse to thin sowing in "Mr. Almack's Prize Essay on the Farming of Norfolk." ("Royal Agricultural Society's Journal," vol. v., p. 354). On which subject I have been favoured with the annexed letter. We must bear in mind it is a light-land district, and the Wheat not dibbled or autumn rolled. "*Sussex Farm, Burnham, Norfolk, June* 9, 1845.

"Sir,—I have much pleasure in replying to your letter respecting Wheat-sowing. The experiments to which you refer, and which are reported by Mr. Almack, were made by me for my own satisfaction. I had been for many years in the habit of sowing what is now called a thin seed, 8 or 9 pecks per acre; many of my neighbours sowed from 11 to 13 pecks per acre; and I could not help noticing not only that they were more sure of a plant in the spring, but also had generally a better yield at harvest. The late Lord Leicester was a great advocate for thick seed, even to 4 bushels per acre (no doubt some was required for his game). My father, more than 20 years ago, wished to see a fair trial between his usual quantity of seed (2 bushels) and Lord Leicester's (4 bushels). I superintended that, and the result was in favour of the two. This, and an accidental crop which yielded well from 6 pecks per acre, induced both him and myself to persevere for many years with a thinner seed, until I was induced by my neighbour's continued practice, and my own observation, to try for myself in the two instances reported. I have also had three or four experiments as to the width of the drills, and the result has always been in favour of seven inches. This was so much against my own preconceived ideas that I was not satisfied with less than three decided experiments. I now drill all my Wheat at 7⅛ inch or five drills to a yard, with 11 pecks of seed before Michaelmas, 12 pecks after: the experiments referred to were at 7⅛ inch. I attended at the sowing, the reaping, the carting, the thrashing, and dressing—

in every instance, assisting in all the operations. The experiment of 1842 was horse-hoed; there was no apparent difference in the quantity of weeds (which were very few in any part). I never hand-hoe, but generally weed with a hoe if here and there a weed springs up after horse-hoeing. In 1843 the crop was so clean (after Carrots) it was not horse-hoed at all, and hardly a weed in the field. My plan is to horse-hoe as early in the spring as the season will permit, and then (a week afterwards) to roll with a heavy roller before the land becomes dry. This year the Wheat lands are so free from Poppy, that I have hardly occasion to horse-hoe any. I have not perceived any difference in the succeeding crops, between that sown thick and the thin; though if the crop be very thin we are sure to have more and stronger plants of such weeds as do spring up. In the years 1820 and 1821 I had two experiments between dibbling and drilling Wheat; the result in each instance was a little in favour of dibble as to quantity and quality, but in favour of the drill as to net produce; the expense of sowing and cleaning being so much less, and as the chief advantage of the dibbling appeared to be the treading of the soil, we adopted a heavier rolling for the flag, and I think succeeded in the desired result. I have had some very decided results from the effects of rolling in the spring—these and some others you will find reported in the "Prize Essay on the Agriculture of Norfolk," published by the author, R. N. Bacon, of Norwich. Knowing the interest you take in agriculture, I should at any time have pleasure in communicating anything in my power; mine is a light-land farm, and moderate land.

"I am, your most obedient servant, H. E. Blyth."

Thin sown corn should always be sown as forward as possible. It has been stated, and correctly too, that thin sown crops are later than thick sown. This is correct, and consistent with the principle, that the more vigorous and perfect the development of a plant, the longer must be its growth; although this may be remedied by early sowing, an improved condition of the soil by drainage, superior cultivation, and abundance of manure.

In a thick sown crop, the growth of the plant is premature, as shown by the smallness of the ear and kernel, and the deficiency in the number and quality of grains. Time is thus saved at the cost of perfection.

The weakness of the stem caused by this prematurity is often a ruinous affair in heavy land. The stormy summer rains of 1843, caused several superb-looking fields of Wheat to be laid and nearly destroyed, only producing from 4 to 12 bushels per acre. This was in one small parish, under my own observation. Thin sown and vigorous stems would not have suffered.

The following gratifying fact proves more for thin sowing, even in a most severe winter like the past, than a thousand arguments or opinions:—

My friend, Mr. ———, of Chapel, Halstead, Essex, deposited one kernel of Wheat in each dibble-hole, on one stetch, in a Wheat-field, measuring 1-12th of an acre; the quantity so deposited was exactly one quart, or at the rate of 1½ pecks per acre; of course, during the winter and early spring, it looked miserably thin, but healthy. Now, he will defy any person to distinguish that particular stetch from the rest of the field, although 8 pecks per acre was drilled on the remaining portion. The adjoining field, which received 10 pecks per acre, is inferior to this field, and of course to the 1½ pecks. He is of opinion, from the superior breadth of the flag, that the thin sown stetch will produce the largest quantity and best quality of corn. My manager has inspected this field, and although adverse to thin sowing, acknowledges with surprise he could not detect the thin sown stetch until pointed out to him. Another corroborative fact is, that Mr. Sargeant, of Louth (whose letters are quoted in my book, p. 41), has the finest Wheat in the county from thin dibbling, and this after Potatoes.

I have proved practically on my farm this season that thin sowing in December and January makes the harvest a fortnight to three weeks later in the same field with thicker sown, although both were put in on one day. The produce of the thin sown is estimated to be smaller; but I am not prepared to admit this till the thin sown has reached maturity, when it may, and very likely will excel the thick sown; but the bushel will settle that question. My October thin sown and dibbled corn is admitted to be excellent.

The following will be about the quantities of Wheat I shall sow, having regard to circumstances:—

In August	2 pecks	dibbled.
In September	3 „	dibbled.
In October	4 „	dibbled or drilled.
In November	5 „	dibbled or drilled.
In December	6 „	drilled.
In January	7 „	drilled.
In February	8 „	drilled.
In March	12 „	drilled or broadcast.
In April	16 „	drilled or broadcast.
In May	24 „	broadcast.

Of course, to sow Wheat so late as the two last months, would be unusual; but I would avoid the risk of a dry season, by covering the ground as quickly as possible, and prevent tillering, thus economising time. In sowing such extreme quantities, an abundant top-dressing of manure must be added to perfect a crop. Oats or Barley I seldom grow; but I should graduate the quantity according to the period of sowing, following Mr. Hewitt Davis's average in a climate similar to his, for his system is a most excellent one. This season, 1 bushel of Barley dibbled on 1 acre promises to be a good crop.

In northern and late districts, thick sowing presents the very great advantage of forwarding the harvest considerably; I should, therefore, always regulate the quantity of my seed by the period of its deposit, and the nature and condition of the soil and climate. The disadvantage of thick sowing in poor or moderate land is the want of sufficient support to mature each ear, thus causing death to many plants by starvation, whilst the survivors are crippled and debilitated by the contention they have had with their defunct companions, as clearly shown in Mr. Hewitt Davis's Essay. I would always, therefore, as I increased my quantity of seed, take care to supply a corresponding addition of manure, which is easily effected by occasional top-dressings of soot, guano, bone-dust, nitrate of soda, salt of gypsum, in March and April, when vegetation becomes active, and the roots more in search of food.

The quantity of corn to be produced depends not on the quantity of seed sown, but on the amount of food for plants the earth contains. Thick-sown crops require more manure for their perfect development than thin sown. I know a farmer who grows from 6 to 7 qrs. of Wheat per acre, by drilling 3 bushels of seed in October, on strong land very highly manured. I recently examined the crops, which were very level, the ears numerous and evenly developed, the straw not very strong. Such crops suffer occasionally by lodging in a very wet season.

I consider the perfection of Wheat-growing is to produce a full crop of uniformly ripened large well-developed ears, on strong upright stems. The only way to accomplish this is by thin and early dibbling, frequent cultivation between the plants, and abundance of manure. The best crop I know of in Essex is from 5 pecks of Wheat per acre, dibbled in August by Newberry's dibbling machine; it promises to be 7 qrs. per acre. Not many miles from this is a crop from 4, 5, and 6 bushels of seed. The 6 bushels promises to be better than the 5 and 4, but not so good as the one I mentioned from 5 pecks. The saving here is 5 bushels of seed Wheat. Some of my own Wheat looks like 5 to 5½ qrs. per acre. There appears to be an extraordinary clashing of opinions on the subject of thin or thick sowing, which I can only account for by the various circumstances under which the experiments have been tried; for instance, where there is an abundance of game, which would reduce the plant to be a thin one by the spring, it would be injudicious to sow too little, and so it would on undrained heavy land, or on very weedy land. In light sandy lands there is more to be feared from frost, and less risk of a laid crop, such soils being usually deficient in alkalies, which promote the growth of straw. It is said on such soils thick sowing has been found to answer best. I think it is very much in our power to increase the tillering of Wheat in such light lands, by deep dibbling, and consolidation by autumnal and spring heavy rollings.

It would be wrong to expect uniform success in either thick or thin sowings; they must both be subject to the vicissitudes of seasons and variations in soils. It certainly can never be necessary to sow 3 or 4 bushels, as is often done; for this is assuming that each kernel will only produce tenfold. I think the balance of reason and evidence is decidedly in favour of thin sowing. By this means we can economise seed, and keep our land clear of weeds, and in frequent tillage by horse-hoe, at a diminished expense — hand-hoeing being seldom required. Should adverse circumstances cause too thin a plant, how easy to transplant or dibble in the vacancies, or cause an increased branching by a stimulus of manure, or harrowing and rolling.

The facts now required are, the minimum of seed and maximum of distance. Jethro Tull and Lieut. Goodiffe have grown splendid crops at 18 inches from row to row; and if so, 1 peck dibbled, and 1½ peck drilled, may be sufficient; but let us try, compare, and communicate results to each other. It is a curious and instructive fact, that, whenever a farmer has any particular sample of corn he wishes to raise a stock from, he carefully deposits one kernel in each hole, and manages generally to get an enormous increase. It is true, he mostly does this in his garden; but ought not all his farm to be a garden? There is no difficulty in rendering it so; it only requires manure and cultivation, both of which can be had by paying for; and these two items do not increase the rent, tithes, tradesmen's bills, or taxes, although they do increase the profits. I know a farmer who, having a new stock of Tares, dibbled 5 pints, one in a hole, and threshed out 17 pecks (being an increase of 54 for 1) of fine seed; they were podded to the ground. He then dibbled 1 bushel per acre, and the 17 pecks produced 33 qrs. and 2 bushels, being an increase of 62 for 1. If we can obtain an increase of from 54 to 62 for 1 in Tares, surely we are quite safe in calculating 100 for 1 in Wheat, Oats, and Barley. Of course, when any crop is grown for feeding green, it would be wrong and absurd to sow thin, because an early growth is required, and the crops are cut in a premature state. An abundance of seed is in this case desirable.—*I. J. Mechi.*

(To be continued.)

Home Correspondence.

Notes on Matters Discussed at the Witham Agricultural Meeting.—An article appeared in your last week's *Gazette*, headed "Witham," which gave a summary of a running conversational skirmish betwixt several of the members of our agricultural society, at our annual meeting. The matters then talked about are practically important, and one of them, if carried out, as I hope it will be, I will take care shall be noticed hereafter. Mr. Mechi is of opinion, that the very strong, uniformly tenacious clay, in Mr. Hutley's occupation, can be effectually drained at the depth of from 4 to 5 feet. Mr. Hutley is sceptical, but offers the land for the experiment; and Mr. Mechi undertakes to drain it on the terms proposed; so far the parties are agreed. The land in question lies upon the shore of one of the estuaries of the German ocean. Its texture and stubbornness is probably not to be surpassed by any soil in the kingdom. Under the present system of farming, the water is directed from the surface by deep and frequent clean cut furrows. These lands in good condition produce great crops of Beans, Wheat, and Oats, and long red Mangold, after Wheat, which follows Clover, without manure. The seeding is later both in spring and autumn, and the harvest earlier than in light soils inland. Draining these soils to advantage is a "questio vexata" in agriculture, and I hope Mr. Mechi will not "back out" as it seems Mr. Smith has done. *Thick Seeding.*—Mr. R. W. Dixon made, as you have noticed, some remarks upon thick seeding, which is his uniform practice. Some of your readers may think that the crop of 9 qrs. and 7 bushels of beans per acre is a mistake, but it is not so. Mr. Dixon's high farming is well-known here, as well as his careful accuracy in any statements that he may make; and it is also true, that the principal part of his arable land is in Wheat every other year. He is a deep cultivator with the plough, and his practice is to manure heavily for the Bean crop, but he bargains for no weeds. *Forking.*—In a former Journal* I described the methods we practise with the fork, and since then several of our farmers here, and many elsewhere, have set about it in earnest. All our surplus labourers were thus employed last winter, on lands intended for Turnips and Carrots, and both last year and this testify abundantly the profit of the principle, even in the first result in the root crops. I believe the increased produce is from 5 to 10 tons per acre. On my farm, in a field which I forked last winter, I put in Swedes, without ploughing, except covering the farm-yard manure with a light furrow of 3 inches, and I stored the crop last week, 1050 baskets, each weighing half a cwt. to the acre, which is 26 tons. 8 cwt. The blades of the Turnips were cut off, but not the tops. In another field, forked in the same manner, and which was ploughed three times after forking, I carried 900 baskets per acre, cleaned from blades and tops. White Belgian Carrots, on the same system of farming, without the plough, and without manure after Wheat, yielded 23½ tons to the acre; the plant was deficient 1 quarter. It is evident that the texture of light soils is improved by deep culture; they become more adhesive, and sustain vegetation and growth better in dry weather. The theory which indicates these advantages is sufficiently obvious to need comment, as well as the character of the soils, which are only to be subject to the system. *Potatoes.*—Your publication has been largely and usefully occupied with this question. I shall not trespass upon your space but with a hint or two. After I took up my Potatoes, I left them in shallow heaps, on fresh ground lightly covered with straw for six weeks; I then picked them a second time over, and removed the apparently sound ones, about 2-3ds, into a dry and covered shed, mixing them freely with fresh burnt turf ashes (of which I happened to have a large quantity), covering them over with the same. Up to this time they remain perfectly dry, and show no indication of decay. The quantity is upwards of 400 bushels, and the sorts are Phillips's Bread-fruit, and the Devonshire Red. My friend Dr. Maclean's new seedling, the "Red Lion," which you have several times adverted to, is one of the best keepers we cultivate, and not easily to be surpassed in quality. I planted in October an acre of Potatoes, the sets whole, and partly damaged by the disease. I had them ploughed in 6 inches deep, sprinkling the sets freely with turf ashes, mixed with one-fourth of rape cake dust.—*Henry Dixon, Witham, Dec.* 9, 1845.

Autumn Planting.—By way of experiment I have adopted the following plan with two sorts of Potatoes, early and late; the Early Prolific, and a very good sort of purple. The rows are 34 inches apart, and the sets (whole) are placed 6 inches in depth. I have drilled Vetches between the rows, which are now above ground. Should I put any covering over the Potatoes? When the Vetches are cut in spring, I intend to plant Potatoes in their place; thus, should the autumn-planted fail, I shall be in time to occupy the ground.—*A. Bancock, Bristol.* [6 inches of loose cultivated soil over the tubers is sufficient protection.]

Farm Capital. — Notwithstanding the ill-natured, and, I have great pleasure in saying, unfounded remark made upon my last letter by "Falcon," I once more venture to tell him that many of his ideas of farming are far from practicable, and his letters written by no means with that good spirit which usually urges one man to advise remedies for evils endured by another. "Falcon," in the *Gazette* of November 22, says, "the farmers are, of all classes of men, the most prejudiced." Do the rapid steps of improvement taken by the agriculturist the last 20 years warrant that assertion? The manner in which "Falcon" proposes sufficient capital to the farmers, viz., by entering into partnerships, is, to a great degree, impracticable; true it is that partnerships have existed and do exist in the country, but did "Falcon" ever know a farming firm to get on well? Partnership may suit very well "grocers, butchers, millers, &c.," where there is only one way of manufacturing their produce, and consequently can be no differ-

* I have no means of referring to the page and volume.

ence of opinion as to the proper way of setting about it. But this is not the case with farmers. How many ever-changing processes are required to produce their commodities? How many operations, impeded by a shower or other circumstance taking place during the temporary non-agreement of the masters, might ruin a crop? Difference of opinion there must inevitably be at times; very frequently, I am afraid, if "Falcon" and any practical farmer were in partnership; the one continually urging the necessity of laying out more money, the other prudently wishing to be as economical as possible. Another circumstance must prevent this system from becoming general, for it is well known to every practical farmer that some time must elapse before any return can take place for extra capital; and then, at first, from only a portion of farm, so that the man who was not able to support his family upon the whole proceeds of a farm, would, by entering into partnership, have to live some time upon half the same, and some time longer upon little more. "Falcon" owns, in the *Gazette* of December 6, that one of his suggestions for the relief of the farmer, respecting the saving of the Potato, was of little use; would it not be better if he were to prove all his remedies before he recommended them to the public?—*E. L., Cambridgeshire.*

Price of Labour in England and Scotland.—In the *Newspaper* of the last *Gazette*, there is an account of the annual meeting of the Great Oakley Farmers' Club, where a great deal of interesting matter was discussed, the most of which is not difficult to understand. There is one passage, however, which has puzzled some of us in this country, and I would thank you or some of your correspondents, who know both England and Scotland, to state why the difference in the price of labour, as applied to agriculture, is so very great between the two countries. The passage I refer to is where Mr. Barker, the chairman, in noticing some remarks made by Mr. Mechi relative to Scotch farming, is made to say that "he thought the reason why the English were able to buy Scotch Oats (the latter being dearer rented), was that labour was much cheaper in Scotland than in this country, they being able to get for 100*l.* as much labour as the English farmer can for 200*l.*" The Scotchmen are certainly well off if the above be true; but it is to be hoped we do not farm so cheaply by pinching either our men or horses. Your setting your readers right will oblige—*A Looker-on, Stirlingshire, N.B.* [Taken in one sense, we should consider Mr. Barker's statement to be simply erroneous, *i. e.*, labourers are not paid so well *generally* in England as Scotland. But it may be true after all in another sense; for one difference between Scotch farming, where it is good, and English farming, where it is inferior, is the skill shown in the former in the application and economising of labour. Thus the number of men and horses employed per 100 acres on an East Lothian farm is not nearly so great as that employed per 100 arable acres in many districts of England, though the former may be the better cultivated of the two].

Agricultural Chemical Almanack.—"Full of errors" it decidedly is not, although I own that the views in one or two instances may be questioned (and in the present progressing state of agricultural chemistry such must be the case), yet I feel convinced that our authorities are such as ought to be fairly entitled to respect. The composition of Barley soil not fit for Wheat I have on the respectable authority of Thaër, corroborated by Cuthbert Johnson, who inserts it without question in his excellent little book, entitled "Agricultural Chemistry for Young Farmers." The constitution of a fertile Wheat soil rests on the authority of Sir Humphrey Davy himself, who, although he does not use the word Wheat in the paragraph to which I owe my information on the subject, yet implies such to be his meaning when he mentions the composition of a soil for the farmer's purpose to be most fertile, when composed as I have given it. The error which had inadvertently crept into the "Almanack" respecting the composition of water could not mislead the veriest tyro in chemistry, as the atomic numbers are close at hand to detect and correct the mistake. The source of uranium was correctly given in my manuscript, and is a typographical error.—*Freeman Roe, 70, Strand.* [Mr. Roe has requested us to insert the above. We must, nevertheless, abide by the opinion we have expressed. A Barley soil, with 68 per cent of clay in it, never existed — taking the word clay in the meaning which would at once be attached to it, *i. e.* as signifying alumina: 12 to 20 per cent. of alumina make a very stiff soil. We do not deny that Wheat may grow on a soil containing 360 (out of 440) parts of carbonate of lime; but to put that down in a formula, expressing the general constitution of "a fertile Wheat soil" is absurd.]

Dog Thistle.—Will any of your correspondents inform me the most effectual way to eradicate the Dog Thistle. A Grass-field is overrun with them. I would willingly employ people to dig them out, but my gardener says that will not eradicate them, as the roots are so deep in the ground they cannot get them up.—*S. S.* [If digging them out will not eradicate them, nothing will.]

Management of Liquid Manure.—On a reconsideration of the subject of my communication of the 4th inst. (see last *Gazette*), it has occurred to me that the object of the invention may be obtained, and the apparatus simplified, by merely inverting the order of the valve and floats, placing the floats and well first, and the valve last. By this arrangement the sluice plate of the former drawing may be dispensed with. It is only necessary to observe that the valve should act at the end of a longer lever than the float, to enable it to close and open more rapidly on a small motion of the float; and the instrument should be so adjusted that the valve should close on its seat just as the water in the drain rises to the edge of the waste pipe, and is about to flow over into it.—*J. H. H.*

Salting Pork.—"D. M." is very sorry that she did not see "Inquirer's" request before to-day, December 13th, or she would have answered it immediately. "D. M." thinks from 10 to 12 lbs. of sugar would be quite sufficient for a large hog; perhaps less. "D. M." should have added, that as soon as sufficient pork had been used out of the tub to admit of it, two heavy pieces of stone or marble were placed upon the pork to keep it from rising up. "D. M." has eaten the pork when it has been 2½ years in the brine. The brine is useful afterwards for the land, but it will not do to be used a second time.—*Dec. 13, 1845.*

Magnificent Auroral Arch and Phenomena.—On Wednesday the 3rd of December, 1845, most unusual and magnificent phenomena were visible in the evening. There had been several heavy snow and hail showers during the day, and many beautiful cumulostrati reared their rocky heads above the horizon in almost every direction. At 5h. two currents of wind were observable by—1st, a mass of cirrostrati clouds moving on the N.W. horizon from the west; and secondly, by a quantity of scud and nimbi rising from the S.W., in a S.S.W. current; occasional hail-stones fell. At half-past 5 faint appearances of Auroræ Boreales were noticed, which increased very rapidly in brilliancy. At 20m. to 6h. a dense cirrostratus cloud extended along the north horizon; above this, at an altitude of 15° was another cirrostratus of 5° in breadth, and upwards of 20° in length, parallel to the former one. The space between the two clouds exhibited a great intensity of Auroræ. One broad beam was remarkably brilliant, which covered the breadth between α, β, and υ, ϕ, Ursæ majoris; it consisted of pale silvery intense light. A vivid coruscation passed through θ, Ursæ majoris, of about 30° in breadth; also another, very vivid, through ϵ, Ursæ majoris, of 15° in breadth. Several others were visible but very imperfect and indistinct. The moon was shining dimly. The clouds in the neighbourhood of the Auroræ were rendered black by the phenomenon, 15m. to 6h. the beautiful beam which covered the space between the stars α, β, and υ, ϕ, Ursæ majoris, was exceedingly intense in brilliancy. Although so near the horizon the sky was very considerably illumined by it; indeed, more so than by the moon. 10m. to 6h. a very decided coruscation passed through the stars, α and β, Ursæ majoris, and λ Draconis, and extended within 5° of α, Ursæ minoris; this coruscation, from the circumstance of its passing through the pointers, seemed to offer a favourable opportunity for comparison. Another coruscation passed through λ, μ, and ϕ, Ursæ majoris, and a 3d through λ, θ, and ι, Canes-venatici; these coruscations were about 18° in breadth. The moon at this time was perfectly obscured by clouds. 7m. to 6h., the Auroræ not so brilliant; but was 10° nearer the zenith; the most intense part was the coruscation that passed through λ and θ, Canes-venatici; this had extended to α, Draconis. 6m. to 6h., the sky in the neighbourhood of the Auroræ had become overcast; therefore, although occasional coruscations were noticed, still no stars were visible by which to mark them. The north horizon was still very bright, and the light assumed the shape of a half wide portion of an arch; this continued visible until 20m. to 7h., when the sky was overcast, and snow fell, and continued to fall until half-past 7h., when there was a break in the clouds in the N.W., and the Auroræ again were visible and brilliant, but no coruscations were seen. There was no change until 7h. 55m., when the phenomenon became much more brilliant, and a coruscation passed through α, β, γ, δ, Delphini, through ι, Pegasi; this remained visible 2 minutes. At 8h. 18m., a most magnificent phenomenon was visible, viz., an Auroral arch; when first discovered it was at its maximum brightness, and of a somewhat orange colour; the light it emitted was very strong; in fact, although the moon was setting, the night was quite light; its average breadth was 5°, and it extended the whole of the way from W. by S. horizon to E. by N. horizon, and was of an almost equal breadth the whole arch; the stars appeared perfectly bright through this phenomenon; at least those of the 1st, 2d, and 3d magnitude did. The flickering light had a rapid cymoid motion from West to East when first discovered; but at 8h. 27m., when the arch was declining in brightness, it had a reverse motion; this was very apparent. At 8h. 23m. the phenomenon passed through and near the following stars:—(5° north of the moon), through the head of Aquarius; (3° north of Saturn, 13° north of Mars), through ξ, 31, and α, Pegasi, ζ and η, Andromedæ, α and λ, Arietis, 10° north of Jupiter through 64, Tauri, (3° north of Pleiades, 30′ north of β, Aurigæ), crossing the Via lactea, κ, Aurigæ, κ, Gemini (3° S. of Pollux). A falling star fell from the Constellation Cygnus through the phenomenon at α, Pegasi, which left a trail of light behind it for the space of one second; the light where it crossed the Auroral arch became instantly more brilliant, and remained visible a moment longer in the arch than anywhere else, and vanished about 5° beyond the Auroral arch. Many other falling stars were observed during the evening, but no other crossed the phenomenon; 8h. 24m., the auroral arch very brilliant, but of a silvery colour; it had moved 1° nearer the Pleiades; 8h. 25m. the arch separated, and formed into two bands of about 2° 30′ each, becoming nearer the S.E., the Pleiades were in the space between the two bands; 8h. 26m. the phenomenon had become less brilliant; 8h. 27m. a portion of the arch was separated from the rest, near κ, Gemini; the eastern portion remained nearly motionless, whilst the other had moved nearly a degree nearer the S.E. 8h. 30m., the arch was now very faint, although perfectly well defined; 8h. 32m., sky suddenly overcast from the W., and a snow-shower came over which lasted nearly five minutes; when the clouds cleared off a very faint portion of the arch near Jupiter could be detected. The thermometer was 31° when first the phenomenon was discovered, afterwards 30·5°. During the whole of the time the phenomenon was visible, and indeed all night, the north horizon was illumed by what I took to be the reflection of very brilliant Auroræ below the horizon. This must have been very magnificent in a lower latitude. A comparison of remarks might prove useful to science, therefore I give the latitude and longitude of Highfield House, which is—lat. 52° 57′ 30″ N.; long. 1° 10′ W.; and 4′ 38″ slow of Greenwich time. Any one having recorded the above phenomenon would greatly oblige me by forwarding a duplicate.—*E. J. Lowe, Highfield House, near Nottingham, Dec. 5.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A weekly Council was held at the Society's House in Hanover-square, on Wednesday last, the 10th Dec.: present—the Right Hon. Lord Portman, President, in the chair; T. Raymond Barker, Esq.; S. Bennett, Esq.; W. A. Browne, Esq.; F. Burke, Esq.; Dr. Calvert; F. C. Cherry, Esq.; J. W. Childers, Esq., M.P.; J. Bell Crompton, Esq.; W. Fisher Hobbs, Esq.; W. H. Hyett, Esq.; S. Jonas, Esq.; J. Kinder, Esq.; G. Kimberley, Esq.; W. Miles, Esq., M.P.; R. Milward, Esq.; P. Pusey, Esq., M.P.; Professor Sewell; W. Shaw, Esq.; C. Stokes, Esq.; H. S. Thompson, Esq.; G. Turner, Esq.; T. Turner, Esq.; J. L. Wright, Esq.; J. Wood, Esq.; and T. Tweed, Esq.

The following new Members were elected:—

Headlam, Thomas Emmerson, Mayor of Newcastle-on-Tyne
Potter, Addison Langborn, late Mayor of Newcastle-on-Tyne
Pulleine, James, Crakehall, Bedale, Yorkshire
Parker, Harrington, Parbold Hall, Standish, Wigan, Lanc.
Twining, F., Parbold Hall, Standish
Cotton, Michael George, The Terrace, White-hart-lane, Tottenham
Carrol, Hutchinson, Tulla House, Nenagh, Co. Tipperary
James, Thomas, Brandon, Wooller, Northumberland
Milne, Oswald, jun., Prestwick Wood, Manchester
Merest, Charles William, The Priory, Fornham, Bury St. Edmunds
Thorp, Thomas, Alnwick, Northumberland
Stent, Bridger, Hastings, Sussex
Martinson, Edward, Hedgefield, Newcastle-on-Tyne
Carr, William Cochrane, Blagdon, Newcastle-on-Tyne
Carr, John, Roseworth, Newcastle-on-Tyne
Cowen, Joseph, Blagdon Burn, Newcastle-on-Tyne
Bell, Christopher Seymour, Cumberland Road, Newcastle-on-Tyne
Cookson, Isaac, Meldon Park, Morpeth, Northumberland
Reed, Nicholas Ridley, Byruess, Redesdale, Jedburgh, N.B.
Laycock, Robert, Wenlaton, Newcastle-on-Tyne
Laycock, Richard, Wenlaton, Newcastle-on-Tyne
Brown, Rev. R. G. S., Vicar of Atwick, Hornsea, Yorkshire
Parker, Rev. William, Rector of Little Comberton, Pershore, Worcestershire
Vere, John, Carlton-on-Trent, Newark, Notts.
Phillott, Edward Pender, The Clevelands, Dawlish, Devon
Creswell, A. J. Baker, M.P., Creswell, Morpeth, Northumb.
Bell, Thomas, Newcastle-on-Tyne
Anderson, Joseph, Whitley, Tynemouth, Northumberland
Anderson, William, jun., Newcastle-on-Tyne
Potts, Timothy, Rising Sun, Long Benton, Newcastle-on-Tyne
West, Captain, R.N., Jesmond, Newcastle-on-Tyne
Spoor, Richard, Whitburn, Sunderland, Durham
Cornewall, Sir Velters, Bart., Moccas Court, Hereford
Rees, Rees Edward, Packington, Newport, Monmouthshire
Dyke, J. D., Glovers, Sittingbourne, Kent
Hutchison, John Monyrur, Peterhead, N.B.
Bennet, Philip, jun., M.P., Rougham Hall, Bury St. Edmunds
Drummond, Dr., 103, Gloucester-place, Portman-square
Stagg, Thomas, Great Bedwin, Wiltshire

The names of 14 candidates for election at next meeting were then read.

Mr. Woodward, of Little Comberton, transmitted to the Council a memorial from the city of Worcester, soliciting the Society to hold its Country Meeting of 1847 at that place; and the various plans and points of information required by the regulations of the Council being at the same time duly forwarded, the whole of these papers were referred to the monthly Council in April.

Earl Spencer and Mr. Miles, M.P., submitted to the Council the various specimens of results obtained in making the trial of the Southampton and other Wheats, as judges selected for that purpose. Mr. Lister Maw presented specimens of the Belgian Carrot, grown on his farm at Tetley, along with a statement of the circumstances under which they were cultivated. Mr. Cuthbert Johnson suggested, in a letter to the President, a minute chemical examination into the cause of the failure of the Clover crop on certain soils, where formerly that crop was grown with perfect success by their present cultivators. The committee on the analyses of the ashes of plants, were requested by the Council to favour them with a report on the actual state of that investigation. Mr. G. Turner submitted various papers and models to the inspection of the Council. The Council then adjourned over the Christmas recess to the first Wednesday in February.

A Special Council was held on Friday, the 12th of December. Present: the Right Hon. Lord Portman, President, in the chair: T. Raymond Barker, Esq.; H. Blanshard, Esq.; W. A. Browne, Esq.; F. Burke, Esq.; J. Bell Compton, Esq.; G. Kimberley, Esq.; R. Milward, Esq.; J. Morton, Esq.; J. A. Ransome, Esq.; Prof. Sewell; and W. B. Wingate, Esq. The

Council took into consideration and unanimously agreed to their Report to the General Meeting.

General Meeting.—The December General Meeting of the Society was held at the Society's House, in Hanover-square, on Saturday last, the 13th instant. The Right Hon. Lord Portman, President, in the chair:

The Secretary, by direction of the President, read the following report from the Council:—

REPORT.

The Council have to report to the members at their present general meeting the result of their consideration on the three following principal subjects during the past half-year, namely:—

1. The Annual Country Meetings;
2. The Finances of the Society; and
3. The Potato Disease.

Annual Country Meetings.—The following comparative statement of the entries of stock and implements at each of the country meetings already held, and of the amount of receipts and expenditure on each occasion, will furnish, at a single view, the requisite data for estimating the extent of the several meetings, and their respective charge on the general funds of the Society:—

Entries.

	Stock.	Implements.	Receipts	Expenditure.	Excess of Expenditure.
			£	£	£
1839, Oxford	249	23	2394	2688	294
1840, Cambridge	352	36	3416	3589	173
1841, Liverpool	319	312	4106	5052	946
1842, Bristol	510	455	4202	4775	573
1843, Derby	730	508	3390	5090	1700
1844, Southampton	575	948	4929	5736	807
1845, Shrewsbury	437	942	3662	5166	1504

It will be seen by this statement that the last Country Meeting of the Society, held at Shrewsbury, exceeded the first Meeting, held at Oxford, by double the entries of stock, and more than 40 times the entries of implements; while the expenses required at the Shrewsbury Meeting, to provide the increased amount of accommodation, have been only double those of the Oxford Meeting. But the number of persons who visited the Show-yard at Shrewsbury being, from local causes, much less than at Oxford, a heavy excess of expenditure over the receipts at the Shrewsbury Meeting has become chargeable on the funds of the Society. If, however, the multitudes who had thronged the former Country Meetings, in localities more accessible and more thickly populated than that of the North Wales District of the Society, in which Shrewsbury is situate, were wanting at the Society's recent Country Meeting in that town, the Council feel that a great principle of the Society has been carried out, in having held one of their Country Meetings in a district purely agricultural, remote from opportunities of direct information as to means of improvement, of personal inspection of the various breeds of stock, and of the peculiar character of the implements of distant districts. While, however, the assemblage that formed the Shrewsbury Meeting was less than on previous occasions, it comprised within its numbers a large proportion of the most eminent agriculturists from every part of the kingdom, including distinguished foreign visitors, and a deputation from the Duchy of Mecklenburg-Schwerin: the splendid exhibition of Hereford cattle, and the quality of the show generally, both of stock and implements, constituted an exhibition fully equal in merit and intrinsic excellence to the more numerously attended meetings of previous years. The trial of Implements, both at Shrewsbury, and subsequently at Pusey, in Berkshire, has proved highly satisfactory to the Stewards and Judges of that department, who have, however, reported to the Council that the trial made on the spot, and at the time of the meeting at Shrewsbury, was fully adequate to the purpose, and might have spared the delay, expense, and trouble occasioned by a subsequent trial. In acknowledgment of the obligations which the Society owed to the Mayor and Corporation of Shrewsbury; to Mr. Isaac Taylor, of Monkmoor; to Mr. Pusey, M.P.; to the Railway Companies, and to the Commissioners of Police, the Council have transmitted to those parties respectively a vote of their best thanks.

The Council have appointed Committees for taking into consideration the following questions respectively referred to them:—

1. For recommending the best method of providing for the personal accommodation of the Judges, and for regulating the future rate of remuneration for their services.
2. For reporting to the Council the most suitable rotation of districts, to commence in 1848, for the Annual Country Meetings of the Society, to be adopted on the termination of the present schedule which ends in 1847; and
3. For ascertaining, in conjunction with the legal advisers of the Society, the security to be provided in future against alleged infringement of patent rights, in making use of implements selected by the Judges for trial.

The Cattle Prize Sheet for the Newcastle meeting, as arranged in the month of June last according to the bye-law, in which an increase is made in the amount of the principal prizes, has been already published; the list of prizes to be offered for implements at Newcastle has also been arranged. The Council are gratified to find, from the numerous applications received from various parts of the kingdom, soliciting the Society to hold its country meeting in each of their respective districts, that the effects resulting from the system of a succession of districts adopted by the Council have not only proved to be of a most practical and beneficial character, but that they are duly estimated by the country at large. For the accommodation of the exhibitors, they have decided on further arrangements to be made with the auctioneer at the sale of stock; and in order to enable the consulting-engineer to have increased facilities for drawing up his report on the exhibition and trial of implements, they have released him from the duties of acting as a judge, for the purpose of allowing him to devote his attention more exclusively to a detailed examination of the principles, construction, and practical working of the implements exhibited.

The Council have received from the Judges appointed for the trial of Wheat selected at the Southampton Meeting, their respective reports on its cultivation, along with other local varieties, which will appear at length in the ensuing Part of the Journal now on the eve of publication.

The Committee having reported to the Council that unexpected difficulties had arisen in effecting the analyses of the ashes of plants, for which the Council had voted a sum of money, the Council have requested the Committee to ascertain the actual state of the investigation, and favour them with a report on the subject.

Finances.—The following statement of the amount of members, income, and expenditure, from the year of the Oxford meeting to that of the Southampton inclusively, will show the corresponding relation of each of these particular heads of enquiry during the period of the Society's past history:—

	Members.	Income.	Expenditure.
1838 } 1839 }	2172	£7446	£6941
1840	4262	5001	4040
1841	5382	6028	5150
1842	6500	6236	5699
1843	6703	7907	6906
1844	6427	9291	9070

The arrears of subscription at the present time are as follows:—

1841	£ 336
1842	636
1843	1141
1844	1702
1845	2987
Total	£6802

The total number of members in arrear is 2902.

£1915 having been discharged from the arrear account since the last general meeting in May. Since that date 264 new members have been elected, 42 have died, and 316 been struck off the list; and the Society now consists of the following members:—

Life Governors	94
Annual Governors	198
Life Members	527
Annual Members	5399
Honorary Members	15
Total	6733

The Council having ordered the list of the Society to be printed for the use of the members, it is now in the press, and will appear with the ensuing Part of the Journal. The members of the Society who receive the List and Journal would render effective service to the Society, if they would inform the secretary of any errors in the List.

Potato Disease.—His Grace the Duke of Northumberland, one of the vice-presidents of the Society, having placed at the disposal of the Society the sum of 100*l.*, to be appropriated to such purpose for promoting the objects of the Society as the Council might decide; the Council, with the Duke of Northumberland's entire concurrence and approval, have resolved to divide this donation into three prizes to be offered for the best essays on the Potato disease and its history, such essays to be sent in to the secretary of the Society by the 1st of June, 1846. The prize essays being reserved for announcement and reading at the Newcastle meeting, namely:—

Prize of 50*l.*, for the best essay on the remedy for the Potato disease, and on its treatment in the various stages of its planting, growth, and preservation.

Competitors for this prize will be required to furnish information under the following heads:—

1. An account of the growth of the Potato during the last year, with reference to the nature of the season.
2. The nature and cause of the disease.
3. The remedies for the disease; explaining the principles on which the remedy is founded.
4. The treatment of the Potato in planting, both from the tubers and from the seed, and in various stages of its growth.
5. The mode of pitting and preserving Potatoes in ordinary seasons, with the principles upon which any improved plans may be founded.

Prize of 20*l.* for the second-best essay on the same subject.

Prize of 30*l.* for the best history of the disease at the present time affecting the Potato; involving a condensed detail of facts developed by experiments.

Competitors for this prize will be required to furnish information on the following points:—

1. The history of the disease in the Potato in Great Britain, with particular reference to authentic returns regarding any peculiarity of season or seasonal variations.
2. On the methods for retarding the progress of the disease.
3. On the methods proposed for extracting the nutritive ingredients of diseased Potatoes.

Dr. Lyon Playfair, the Consulting-Chemist to the Society, having kindly consented to deliver two lectures on the Potato disease before the members, on the occasion of their present general meeting, the Council, at the suggestion of the Journal Committee, directed all papers on that subject to be submitted to Dr. Playfair's inspection previously to their future consideration by that Committee; and the Royal Institution of Great Britain having liberally placed their theatre at the disposal of the Council, for the delivery of these lectures, the President, in the name of the Council, and on behalf of the Society, has expressed to Dr. Lyon Playfair his best thanks for the important practical lectures delivered to the members on that occasion; and to the Managers of the Royal Institution of Great Britain his best thanks for the favour they have shown to the Society, by the courtesy and liberality of the grant of their theatre, and their cordial co-operation in thus aiding the Society in the prosecution of its objects of public utility.

The Journal Committee, since the last General Meeting, have reported the following awards of Prizes for Essays:—

Mr. O. O. Roberts, of Bangor, North Wales; Lord Kenyon's Prize of 20*l.*, for the best Essay on Gorse as the food of Cattle, Horses, and Sheep.

Mr. John Roals, of Brendon Farm, Wiveliscombe, Somerset; the Society's Prize of 20*l.*, for the best Essay on Catch-Meadows.

The House Committee have reported the execution of the various alterations and repairs required in the Society's House; the progress of the plans for the arrangement of the specimens of Wheat, and of the models and implements presented to the Society; and the completion of alphabetical and classed catalogues of the books in the library.

A vacancy having occurred in the list of the Trustees of the Society, by the lamented death of John Charles Earl Spencer, the Council, in unanimously electing Frederick Earl Spencer to fill that office, have availed themselves of that opportunity of recording on their minutes an expression of their sincere regret at his loss, and their deep sense of his private virtues, and of the valuable services he had so uniformly and unweariedly rendered to the Society in promoting every practical object connected with its welfare, and the general advancement of agricultural improvement. They have elected Mr. Grey, of Dilston, a Member of the Council, in the vacancy caused by the transfer of Frederick Earl Spencer to the list of Trustees.

The Council beg, in conclusion, to congratulate the members on the steady progress of the Society in the advancement of its various objects; and on the distinct evidences, throughout the country, of the impulse given to the national cause of agricultural improvement by its movements. They are more and more convinced, as their labours proceed, that, in every attempt to establish sound principles of practical agriculture, the indispensable necessity exists of combining the application of abstract reasonings with a careful collection of facts, aided by that discussion of the rich store of practical experiment to which every member of the Society, from within the sphere of his own local observation, has it in his power more or less to contribute, and especially at the weekly Councils, which will be held as usual, during the session of the Society, from February to August.

By order of the Council, James Hudson, Secretary.

On the motion of the Rev. Mr. Warren, seconded by Mr. Umbers, this report was received and unanimously adopted.

Mr. Raymond Barker, Chairman of the Finance Committee, then read the report of the auditors, from which it appeared that the total receipts during the first half of the present year (including the Christmas balance), had been 7086*l.* 18*s.* 11*d.*, and the total expenditure during that period (including the purchase of 500*l.* stock), 3169*l.* 18*s.* 2*d.*, leaving a current cash balance of 3917*l.* 0*s.* 9*d.* He also read to the meeting the balance sheet of the Shrewsbury meeting, showing the receipts on that account (including the subscription of 1000*l.* from the town of Shrewsbury), to have been 3661*l.* 12*s.* 2*d.*, and the payments up to that date, 5166*l.* 3*s.* 9*d.*, leaving an excess of expenditure over the receipts on that occasion of 1504*l.* 16*s.* 7*d.*, which had been already paid out of the general fund of the Society in addition to the amount of prizes awarded at the Shrewsbury meeting.

The following resolutions were carried unanimously:

1. On the motion of the Duke of Richmond, seconded by Mr. Fisher Hobbs, That the best thanks of the Society be given to the judges at the Shrewsbury meeting.
2. On the motion of Mr. Browne, seconded by Mr. Burke, That the best thanks of the Society be conveyed to Dr. Lyon Playfair, for the lectures with which he had favoured the Society on Wednesday and Thursday last.
3. On the motion of Mr. Ransome, seconded by Professor Sewell, That the best thanks of the Society be conveyed to the managers of the Royal Institution of Great Britain, for the liberal grant of their theatre for the delivery of Dr. Playfair's lectures.
4. On the motion of Mr. Divett, M.P., seconded by Mr. Hillyard, That the best thanks of the Society be given to the auditors, Mr. Tawney, Mr. Hampden Turner, and Mr. Thomas Knight, for their care in auditing the Society's accounts.

The auditors having then been re-elected for the year ensuing, Mr. Pusey, M.P., at the request of the meeting took the chair; when it was moved by Mr. Divett, M.P., and carried by acclamation, "That the best thanks of the Society be given to Lord Portman, for the valuable services he had already rendered to the Society as its President, and for his conduct in the chair at that meeting." The President having suitably acknowledged this unanimous expression of the thanks of the Society, Mr. Pusey left the chair and the meeting broke up.

The Meetings of the Council stand adjourned over the Christmas recess to the first Wednesday in February.

In the Report of Dr. Lyon Playfair's second lecture, our reporter has fallen into an error in making Dr. Playfair state that "there was no prospect of obtaining sound Potatoes from abroad for seed." From the following extract from Dr. Playfair's manuscript lecture, it will be seen what is really the case in this point. There are Potatoes to be had abroad, but not enough:—"I the more impress upon you the necessity for taking care of seed, from the circumstance that we

can look only for a very limited supply from abroad. At the request of the Commissioners sent to Ireland, the Government ordered consular returns to be made; and I have authority to state my opinion of those which I have seen, although all have not yet been received. With the exception of Gallicia, from whence a considerable quantity might be obtained, and perhaps from Bourdeaux, although that is more questionable, we cannot look to foreign sources for supplying the deficiency. Now, as Professor Lindley has shown the enormous quantity which would be necessary for seed (800,000 tons, on his calculation, if all Ireland required new seed), you will see the urgent necessity of looking to yourselves, and taking all the care you can, and not resting upon foreign supplies."

Farmer's Clubs.

Darlington: *Dec.* 8.—*The Best and Cheapest Mode of Keeping Draught Horses during Winter.*—Mr. Walton, Vice-Chairman. Mr. Trotter said: I have paid some attention to the subject of keeping draught horses during winter for some years past, but for the last three years I have adopted quite a different mode to what I previously followed. My method formerly was to allow my draught horses each 2 bushels of Oats per week, together with 1 bushel of Beans and as much hay as they could eat, generally Clover-hay; but for the last three winters I have fed them almost entirely on cut Oat-sheaf, cut into half-inch chaff, which to me has been a very great saving. In an Oat-crop of about 40 stooks per acre, which might yield near 60 bushels, the feed of a draught horse averages 2 sheaves per day, or 14 sheaves per week, which would be about a bushel and 3 pecks per week, if they had been thrashed out, which is a saving of a peck of Oats per week each horse, from what I formerly gave them; besides, I save the bushel of bran per week, and the Clover-hay, which was a very considerable item; for draught horses, you are aware, gentlemen, when they get three feeds of clean Oats in a day, when at work, they will eat a great quantity of Clover-hay besides. Now, when I first changed my mode of feeding from corn and hay to cut sheaf, the horses improved in condition wonderfully, thus showing that it suits them well. In very busy seasons, when they are very hard worked, I allow them half a peck of Oats at dinner-time besides the cut sheaf. Last winter I had only 18 acres of Oats; those kept 12 draft horses, besides four young horses occasionally. This quantity of Oats would not have served me through the year, had I not pursued this system of feeding. The mode I have adopted of preparing the cut sheaf is this: I have my straw-cutter to work from the horse-wheel of my thrashing-machine, and I generally have as much cut in one day as will serve 12 draught horses for near a month. One man attends to and feeds the cutter with the Oat-sheaves, whilst another man carries the cut sheaf into the granary ready for use, when it is taken to the stable in bags as required.—At the close of Mr. Trotter's remarks, a rather lengthy discussion ensued on the subject, but upon the whole it appeared that Mr. Trotter's mode was much the cheapest. The Secretary also read an extract from the Highland and Agricultural Society's Transactions, by Mr. Carmichael, in which he says, in speaking of the draught horses of the clayey districts of Scotland, that—"In the winter months each horse has a daily mess, or mash of boiled or stewed (not steamed) Bean-chaff, mixed with light corn and small Beans, separated by the winnowing-machine, or sieve, from the best grain, to which a few Turnips and a portion of salt are added, with just enough of water to secure the boiler from injury, whilst the whole is being reduced to a pulpy state, and the pulp is then put into one or more troughs, to remain till the evening, when the mash is divided among the horses at a temperature of about blood-heat, immediately on their return from the yoke. This, with Bean-straw, and the additional allowance of one feed of inferior Oats and Beans in the morning, and one at mid-day, when constantly employed, keep the horses in best possible condition." At the conclusion of the meeting it was resolved that from the statement of Mr. Trotter, it appears that his mode of feeding draught horses is much more economical than the methods usually practised, therefore it is desirable that it should be more generally adopted.

Miscellaneous.

Northumberland Hind System.—"The manner of hiring and paying hinds, or farm servants who are householders, in the north of England, is as follows:—Each man is provided with a cottage* and small garden upon the farm, free of rent, for himself and family; several of whom, in many cases, are engaged for the year upon the farm as well as himself. The wages of the hind are chiefly paid in kind: those of his son or sons, if he has any able to work, either in money, or partly in money and partly in grain, as best suits his convenience; but it is generally an object with him to have such a proportion of the earnings of his family paid in kind as will keep him out of the market for such articles as meal, Potatoes, cheese, bacon, milk, &c.; and notwithstanding what the economists say about money being the only proper medium of exchange for labour, as well as other things, the custom of paying farm labourers in kind works well for both master and servant. In times when grain sells at a high price, the conditions of the hind will cost his master more than the ordinary rate of wages for day labourers at the same season; but, on the other hand, in times of great depression, the conditions are the same, though at such times the farmer would be compelled to sell nearly double the produce to enable him to pay his labourers in cash. He has also a benefit in paying for his labour in an article which otherwise would cause him some expense in sending to market, and in disposing of which he might incur the risk of making a bad debt with his corn merchant. The conditions of a hind (I adhere to the local term), vary with the price of grain from 30*l.* to 40*l.* a year; and, at the present prices, are as under:—

36 bushels of Oats	.. .. ..	.. £6	12 0
24 do. Barley	.. .. ..	.. 5	12 0
12 do. Peas	.. .. ..	.. 3	0 0
3 do. Wheat	.. .. ..	.. 1	5 0
3 do. Rye	.. .. ..	.. 0	15 0
36 to 40 do. Potatoes	.. ..	.. 2	14 0
24 lbs. of wool	.. ..	.. 1	0 0
A cow's keep for the year	.. ..	£8 to 9	0 0
Cottage and garden	.. ..	.. 3	0 0
Coals carrying from the pit	..	.. 2	0 0
Cash	.. ..	.. 4	0 0
		£38	18 0

In 1841, 36*l.*†

Each hind being bound to supply the labour of one woman (or boy) whenever the farmer requires it, at 1*s.* per day in harvest, and 10*d.* per day at other seasons. The other females of the family receive 10*d.* or 1*s.* a day generally, and 2*s.* 6*d.* in harvest. The food of the peasantry in the north of England, as in Scotland, consisting chiefly of porridge made of oatmeal with milk, for breakfast, and bread, made with Barley and Pea-meal mixed, regulates the above proportions to the demands of a family. Were the same mode adopted in the southern districts, although they could not probably get a more wholesome food, yet the kinds and proportions of grain would have to be regulated by the taste and habits of the people. These 'conditions' are proved, in innumerable instances, to be adequate, under a proper economy (which economy the system has a tendency to produce), to the support of a man, his wife, and any ordinary number of children; for the eldest are probably earning, at the same time, from three or four to eight or nine shillings per week; and the joint produce of their labour, under the management of a frugal housewife, renders their cottage a scene of comfort and contentment. It often happens, indeed, that a hind, with but few in family, has, at the end of the year, a good deal of corn to dispose of, for which, of course, his master is always willing to give him the market price. The grain given to the hind is always of the best that the farm produces. He is paid in advance at the beginning of each quarter, a fourth part of his conditions. It is sent to one of the many small mills which abound in the country, and ground at a cheap rate into the different kinds of meal; and thus the intermediate profits of retail dealers, meal-sellers, and bakers are saved to the consumer; and the corn, which would cost the farmer 16*l.* to pay his hind, is more valuable to the latter than 20*l.* paid in money wages, to be expended in stones of meal or quartern loaves at the end of each week. One very obvious benefit arising to the hind from this mode of paying in kind, besides that of having a store of wholesome food always at command which has not been taxed with the profits of intermediate agents, is the absence of all temptation, which the receipt of weekly wages, and the necessity of resorting to a village or town to buy provisions, hold out of spending some part of the money in the ale-house which ought to provide for the wants of the family; and to this circumstance, and to the domestic employment which their gardens afford in their leisure hours, we are probably much indebted for the remarkable sobriety and exemplary moral conduct of the peasantry of the north. The produce of his garden, his small Potatoes, and the refuse of his dairy, enable the hind to fatten two pigs in the year. The keep of a cow, supplied entirely by his master, consists of pasturage in summer, and a ton of hay, or an equivalent in Turnips, generally ten cart-loads of white Turnips, or five of white and three of Swedes, and as much straw as he chooses in winter. This is reckoned to cost the farmer 8*l.* or 9*l.*; but if the cow be a good one, it is evident that the advantage must be much more than that to a family. The calf, if early in the season, sells for 40*s.*, or thereabouts; if later, perhaps for 30*s.*; and if the good wife be a frugal manager, she will sell 40*s.* or 50*s.* worth of butter, besides an ample supply of milk and cheese for the use of the family. The wool received gives employment to the females, to spin and knit it into stockings in the winter evenings, or it is sent, after being spun into yarn, to be made into blankets. In this way habits of industry and economy are promoted, and domestic and social virtues engendered and preserved, in a manner and to an extent unknown in those districts where the younger members of a family are early driven from the shelter of their paternal roof and the control of a parent's eye; or where the parents, deserted by their children, are forced to take refuge, under the infirmities of age or the pressure of want, in the corrupting atmosphere of a parish workhouse."—*Mr. Grey, of Dilston, in the "English Agri. Soc. Journal."*—[*To be continued.*]

How to Save Oats.—However humble our situation, we may all of us at times be able to throw out some suggestion which may tend to the general weal; and as you are always willing to lend the powerful aid of your journal in making known whatever is, or seems likely to tend to a general benefit, I have made bold to offer to the keepers of horses, through the medium of your columns, a plan which I have successfully practised for the last three years to save a large consumption of Oats; and having had the management of upwards of 200 horses belonging to the Hammersmith Conveyance Company, I can confidently state that the plan is not only a great saving in expense, but in the highest degree conducive to the health and the development of the capabilities of the horse. At this season of the year, I lay in a sufficient store of either white or red Carrots (white preferred) to last till the spring, and from every stud of eight horses I deduct from their daily allowance of Oats (which is 4 bushels, or 152 lbs.), 1 bushel, or 38 lb., in place of which I substitute about 72 lbs. of Carrots sliced thin, and then mixed with the chaff and Oats, thus saving 1 bushel of Oats in every stud per day. Now, taking the number of horses working in the omnibuses round London at eight per omnibus, and the number of omnibuses at 1400, the saving in the consumption of Oats by omnibus horses only would be 1400 bushels, or 175 quarters, per day. But almost all descriptions of horses do well upon this food. Blaine, in his "Veterinary Art" (pp. 94, 95), says, "Agricultural horses may be supported on them wholly, when sliced and mixed with chaff; the sweet Parsnip has similar properties, and may be used with almost equal success, and the Swedish Turnip has proved an excellent food, the sugar predominating in all these to an eminent degree;" and he adds, "but Carrots stand foremost, and hardly too much can be said on their excellent qualities; they appear particularly favourable to condition, as the skin and hair always look well under their use; they are highly nutritious, and so favourable are they to the free exercise of the lungs, that horses have been found even to hunt on them, and, in conjunction with a certain portion of corn, would form as good a food as could be devised for our coach and machine horses and our hacknies;" and further on he states, "that in very many cases of horses in fair work, Carrots may be wholly substituted for corn, provided the quantity be doubled or trebled; and with additional advantage to the health and condition of the animals." In the "Museum Rusticum" is an account of two hunters fed with Carrots and small loaves made of Barley, and these horses were said to be the pride of the field. The saving, therefore, if carried out only partially by all who keep horses, would be immense, as I have shown the quantity saved by omnibus proprietors round London only, would be 175 quarters per day, or 1225 quarters per week. Blaine's theory I have carried out into practice extensively, and am continuing to do so, and find it not only beneficial, but economical. The partial failure of the Potato crop, and the scanty supply of Oats coming to hand, will, I trust, be a sufficient justification for my humbly endeavouring at such length to point out, *pro bono publico*, how an immense saving may be made in an article the short supply of which is being and will be severely felt.—N.B. A ton of Carrots is equal to 4 quarters of Oats, consequently every ton of Carrots thus used saves 4 quarters of Oats to the country.—*R. G. Durham; Turnham-green, Nov.* 8.—[*To the Editor of the Times.*]

* Many old cottages in the country were justly deserving of condemnation; but a laudable attention to the subject of late years has had the effect of adding much to the comfort and accommodations of the dwellings of the poor.

† In addition to the above, the steward on the farm receives 6*l.* or 7*l.* extra; and the shepherd has, besides, several sheep kept, of which he sells the produce, thereby possessing a particular interest in the safety and welfare of the flock.

Notices to Correspondents.

Blindness of the Horse—*M*—We do not think it likely that oil of cloves will have the injurious effect on your horse's eyes that you speak of, though the practice of giving these cordials is much to be condemned. The loss of sight in your horses most probably proceeds from specific ophthalmia, which is a constitutional and often hereditary disease. Five and six years are the ages most liable to this disease. High keep, hard work, dark stables, and the ammoniacal fumes from the litter, are the predisposing causes.—*W. C. S.*

Dairy Management—*Revertens*—A cow *can* be kept on grains and a little hay and carrots in a stable. We know that grains are good food for cows, and we shall obtain for you the *experience* on this head of some who have used them.

Seed Potatoes—*F E*—The best seed is that which has been harvested when hardly ripe, and afterwards greened in the sun. We should not like tubers from "curled" haulm.

Scotch Cart—*S S S*—We offered the loan of some plans of the kind you describe to one of our correspondents; but since then they have been asked for by so many that it will probably be some time before your turn comes, and therefore you had better apply to Mr. Clyburn, Uley, Gloucestershire.

Warnes's Pamphlet—*E D*—Your booksellers will obtain it for you. We do not know the publisher. Try Ridgway, Piccadilly.

Winter Barley—*J R W*—Will any of our readers give us their experience of Barley sown before winter, say by 1st of October, and whether there is any advantage in putting it in the ground at that season?

Markets.

SMITHFIELD, Monday, Dec. 15.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4	to 4s	8	Best Downs & Half-breds	4s	8 to 5s 0
Best Short Horns		4	2	4	6	Best Long-wools	4	4 4 8
Second quality Beasts		3	6	4	0	Ewes and second quality	4	0 4 4
Calves		4	4	5	2	Pigs	4	0 5 2

Beasts, 5326; Sheep, 25,240; Calves, 90; Pigs, 353.

To-day being The Great Christmas Market we have a large supply of Beasts, but not quite so many as on this occasion last year, nor do we think anything like the weight of meat. We do not observe so many extraordinary animals, but the supply is of average good quality, which is far more useful to the butcher. There are, however, some of a superior class, which for the sake of Show are readily purchased at rather over our top quotations, but for the common qualities barely supported, and a clearance is not effected. Although the number of Sheep is not very large, in consequence of the mildness of the weather, there is quite enough for the demand. The general quality is very good. The fattest Sheep are a heavy trade, but sizeable Downs and half-breds are readily disposed of. Veal and Pork trade remain steady.

Friday, Dec. 19.

We have to-day a full supply of Beasts, and of good quality; the weather still being bad, trade is excessively heavy. The larger description of Beasts is lower by 2d per 8 lbs. than on Monday. The more sizeable Scots and Herefords are making from 4s 4d to 4s 8d; and best Short Horns 4s 2d to 4s 6d; but these prices are with difficulty obtained, and several remain unsold; second quality 3s 4d to 3s 10d. Sheep are scarce, and Monday's prices are fully supported, in some instances the best qualities make a trifle over, but nothing quotable. Veal trade is heavy, but late prices are supported. Pork trade is steady.

Beasts, 1461; Sheep, 3690; Calves, 168; Pigs, 350.

41, West Smithfield.

COVENT GARDEN, Dec. 20.—The Market has been well supplied during the week with Vegetables of almost every kind, and the quantity of Fruit has also been sufficient to meet the demand. Among Pine Apples we noticed some handsome specimens, which are offered at nearly the same prices as quoted in our last Report. Grapes are also selling at last week's prices. The supply of Apples continues to be well kept up; good samples meet with a ready sale, but small Apples, which form by far the greater proportion, can scarcely be sold at any price. Pears are good in quality, and command a tolerably brisk trade. Oranges are becoming more abundant, and prices for them are in consequence lower. Lemons are also cheaper. Nuts remain nearly the same as last week. Of Vegetables the supplies of most articles are sufficient for the demand. Cauliflowers are, however, scarcer; but Broccoli is abundant, and Savoys, Brussels Sprouts, and other winter Greens are plentiful. Carrots and Turnips are excellent in quality, and sufficient for the demand. Potatoes have altered very little in price since last week; trade for them is not brisk. Seakale is more plentiful, and the same may be said of French Beans. Asparagus, although rather small, is good in quality. Celery, both red and white, is abundant, and Lettuces, Endive, and other kinds of salading, are sufficient for the demand. Cut Flowers chiefly consist of Euphorbias, Bignonia venusta, Epiphyllums, Acacias, Heaths, Heliotropes, Cinerarias, Pelargoniums, Camellias, Chinese Primroses, Chrysanthemums, Violets, and Roses.

FRUITS

Pine Apple, per lb.,	4s to 6s	Lemons, per dozen,	6d to 2s
Grapes, Hothouse, per lb.,	3s to 6s	— per 100,	6s to 12s
— Spanish, per lb.,	9d to 1s	Almonds, per peck,	6s
— Portugal, p. lb.,	9d to 1s 6d	Sweet Almonds, per lb.,	2s 6d to 3s
Melons, Spanish, each,	4s to 10s	Filberts, English, p. 100 lbs.,	40s to 45s
Apples, Desk, per bush.,	4s to 10s	Nuts, Cob, per 100 lbs.,	60s to 65s
— Kitchen,	2s 6d to 6s 6d	— Barcelona,	20s
Oranges, per dozen,	6d to 2s	— Brazil,	16s
— per 100,	3s to 10s	— Spanish,	14s
— Seville, per 100,	14s	Chesnuts, per peck,	3s to 7s
— per dozen,	2s to 2s 6d	Pears, per bush.,	3s to 10s

VEGETABLES.

Cabbages, per doz.,	6d to 1s 6d	Cardoons, each,	6d to 9d
— red, per doz.,	2s to 3s	Parsnips, per doz.,	3d to 1s
Brussels Sprouts, p. bush.,	1s to 2s	Scorzonera, per bundle,	1s to 1s 6d
Savoys, per doz.,	6d to 1s	Salsify, do.,	1s to 1s 6d
Cauliflowers, per doz.,	3s to 6s	Onions, per bushel,	1s 6d to 3s
Broccoli, Brown, per bdle.,	6d to 1s 6d	— pickling, per half-sv.,	2s to 3s
— White,	1s 6d to 3s	— Spanish, per doz.,	1s 6d to 5s
Greens, per doz. bunches,	2s to 3s 6d	Shallots, per lb.,	6d to 8d
French Beans, per 100,	3s 6d to 5s	Endive, per score,	6d to 1s
Sorrel, per half-sieve,	9d to 1s	Lettuce, per score,	Cab., 4d to 9d
Potatoes, per ton,	80s to 160s	—	Cos, 6d to 1s
— owt.,	4s to 9s	Radishes, per doz. bunches,	1s to 1s 6d
— bushel,	2s 6d to 4s 6d	Mushrooms, per pottle,	1s to 1s 6d
— Kidney, per bushel,	3s to 5s	Small Salads, per punnet,	2d to 3d
Turnips, per doz.,	1s to 2s	Fennel, per bunch,	2d to 3d
Red Beet, per doz.,	6d to 1s 6d	Savory, per bunch,	4d to 6d
Carrots, per doz.,	2s to 5s	Thyme, per bunch,	4d
Horse Radish, per bundle,	1s 6d 0 5s	Watercress, p. 12 sm. bun.	4d to 6d
Seakale, per punnet,	1s to 3s	Parsley, per bunch,	1d to 3d
Asparagus per bundle,	3s to 10s	— Roots, per bundle,	1s
Cucumbers, each,	1s to 2s	Tarragon, per bunch,	6d
Spinach, per sieve,	9d to 1s 6d	Mint, per bunch,	2d
Leeks, per doz. bunches,	1s to 2s	Marjoram, per bunch,	4d
Garlic, per lb.,	6d	Chervil, per punnet,	2d to 3d
Celery, per bunch,	6d to 1s 6d		

POTATOES.—SOUTHWARK, WATERSIDE, Dec. 15.

The arrivals to this Market during the past week have been very limited, and in consequence of the prevalence of the W.N.W. wind those cargoes from the Northern districts that had a quick passage arrived in tolerable condition. Some cargoes of York and Scotch Reds, the arrivals of which we announced in our last report, turned out much damaged; York Reds were sold as low as 5s per ton; and Scotch Reds at 90s per ton; but the best samples of York Reds sold as high as 120s; ditto Regent's, from 100s to 130s. The best samples of Perth Reds were sold at 80s per ton, but 90s has been asked for one or two fresh, small cargoes that arrived at the close of the week.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Dec. 18.

Prime Mead. Hay	85s to 92s	New Hay	—s to —s	New Clr.	—s to —s
Infr. New & Rowen	68 80	Clover	90 to 115	Straw	26 32

CUMBERLAND MARKET, Dec. 18.

Prime Mead. Hay	88s to 95s	Old Clover	115s to 120s		
Inferior "	70 83	Inferior do.	98 108	Straw	32s to 36s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Dec. 19.

Fine Old Hay	90s to 100s	Old Clover	115s to 120s		
Inferior Hay	— —	New Clover	100 110	Straw	28s to 33s
New Hay	75 88	Infr. "	70 84		

With a dull trade at the above prices.

MARK-LANE, MONDAY, Dec. 15.

The uncertainty respecting an alteration in the Corn-laws continues to have a very depressing influence on the prices of all descriptions of Corn. This morning, although the supply of English Wheat by land carriage samples was one of the smallest received since harvest, owing to the above cause and its bad condition, sales were difficult to effect, even at a decline of 2s. to 3s. per qr.; holders of free Foreign and Bonded not being disposed to submit to a reduction, their value remains nominally unaltered. Best Malting Barley barely maintains our quotations, inferior qualities are very unsaleable and 2s. per qr. cheaper. Beans and Grey Peas are 1s. per qr. lower. White scarcely saleable unless at a reduction of 3s. to 4s. per qr. The Oat trade is exceedingly heavy, and confined to retail purchasers, at a decline of 1s. to 1s. 6d. per qr.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	58	66	Red	54 63
—— Norfolk, Lincolnshire, and Yorkshire		57	63	White	59 63
Barley, Malting and distilling 31s to 35s	Chevalier	33	38	Grind.	27 30
Oats, Lincolnshire and Yorkshire	Polands	22	24	Feed	20 23
—— Northumberland and Scotch	Feed	20	23	Potato	24 28
—— Irish	Feed	20	22	Potato	24 26
Malt, pale, ship		54	60		
—— Hertford and Essex		60	65		
Rye		34	37		
Beans, Mazagan, old and new	28 to 42	Tick	31	44	Harrow 33 46
—— Pigeon, Heligoland	37 to 48	Winds	40	48	Longpod 32 35
Peas, White	44 to 48	Maple	35	37	Grey 32 35

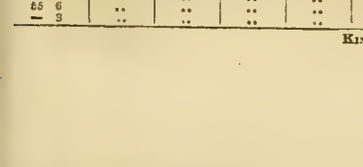
FRIDAY, Dec. 19.

Business in all descriptions of Corn is dull, and confined to the merest retail purchases for immediate consumption; prices may be regarded nominally the same as Monday, but sales of moment could not be effected in any article, free or bonded, without submitting to a decline. New York letters of the 29th ult. inform us, that the price of Flour there, on the arrival of the Britannia, touched 33s. 9d. per barrel f. o. b., but had subsequently receded to 29s. 7d. per barrel f. o. b. The stocks were estimated from 350,000 to 500,000 barrels; the former quantity it was calculated would be required for the consumption of the town and its environs during winter.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Nov. 8 per Quarter.	59s 7d	36s 1d	25s 2d	35s 7d	45s 1d	44s 10d
— 15	58 6	35 0	26 8	38 9	44 5	45 7
— 22	57 11	34 1	25 5	37 1	43 4	45 4
— 29	58 2	33 2	25 0	35 4	41 9	45 10
Dec. 6	59 0	32 10	24 7	35 0	41 8	43 4
— 13	59 4	32 9	24 6	36 8	40 8	43 6
6 weeks' Aggreg. Aver.	58 9	33 10	25 2	36 4	42 10	44 9
Duties on Foreign Grain	14 0	5 0	3 0	6 8	1 0	1 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Nov. 29.



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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 52.—1845] SATURDAY, DECEMBER 27. [Price 6*d*.

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30,000	4½	2	..	1	0	10,000	5	3	..	3	6
80,000	6	4	..	9	0	90,000	8	6	..	18	0
60,000	6½	4½	..	11	0	11,000	8½	6½	..	20	0
30,000	7	5	..	13	0	80,000	9	7	..	22	0
12,000	7½	5½	..	15	0	40,000	10	8	..	30	0

PROPAGATING OR STRIKING GLASSES

Are now offered at half the usual prices; a variety of other shapes and sizes may be had.

in.	in.	each.	in.	in.	each.
About 5 high	by 3 dia.	0 8*d*.	About 6½ high	by 4½ dia.	1*s*. 0*d*.
5	3½ ..	0 9	7	5 ..	1 2
5½	3¾ ..	0 10	7½	5½ ..	1 4
6	4 ..	0 11	8	6 ..	1 9

BEE GLASSES, FISH GLOBES, FRENCH SHADES FOR FERNS, &c.

R. COGAN, GLASS, LEAD, and COLOUR WORKS, 48, LEICESTER SQUARE, LONDON.

HORTICULTURAL GLASS.—NET CASH PRICES.

In Squares under 5 inches by 3 inches .. .. 1½*d*. per foot.
Ditto, 5 in. by 3 in., and under 6 in. by 4 in... 2*d*. ,,
Ditto, 6 in. by 4 in., and under 9 in. by 7 in... 3½*d*. ,,

In Large Sizes up to 40 inches, long and quite flat.

No.						per ft.
0—1-16th of an inch thick, or averaging 12 oz. to the foot,						1½*d*.
1—1-14th	,,	,,	,,	,,	16 oz. ,,	5½*d*.
2—1-10th	,,	,,	,,	,,	21 oz. ,,	7*d*.
3—1-6th	,,	,,	,,	,,	32 oz. ,,	1*s*.

The thicknesses most recommended are Nos. 1 and 2, and the most proportionate sizes are 18 inches by 6 inches, 28 in. by 7 in., or 38 in. by 9 in.

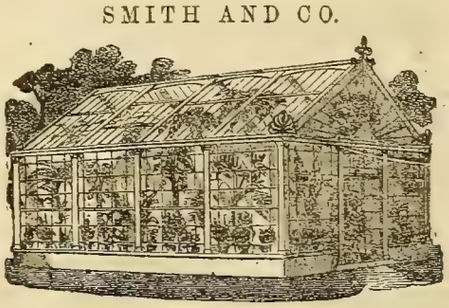
ROBERT DALL & CO., Glass Merchants, Hull, beg to call the attention of Noblemen and Gentlemen to the above prices for Glass suitable for Horticultural purposes; and as they are advantageously situated for importing, there being a daily steam communication between the port of Hull and the Continental Markets, and, in addition to this, having made arrangements with eminent English Manufacturers for a regular supply, they are enabled to offer every advantage to the purchaser, and also to insure the prompt execution of all orders with which they may be favoured.

N.B. Cucumber and Striking Glasses supplied.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea. By special appointment to the Queen and H.R.H. Prince Albert.

PHEASANT POULTS.—Gentlemen stocking their preserves are respectfully informed they can be supplied with any quantity of TAME BRED AND WILD PHEASANTS, as above, also a great variety of useful and ornamental Water Fowl, Domestic Poultry, including Malay, Cochin China, Dorking, Spanish, &c., Fancy Bantams, &c., &c., 3, Half-moon-passage, Gracechurch-street.

SMITH AND CO.



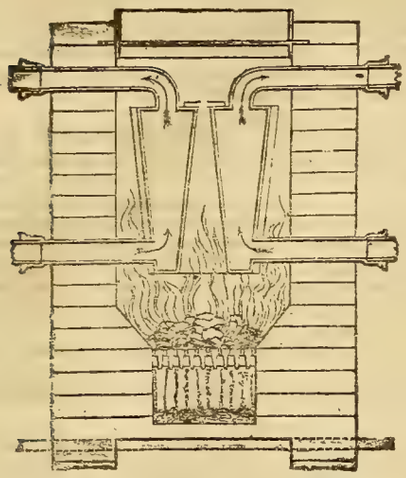
ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, and GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.
Fountains, Vases, Figures, &c. &c., in great variety.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—139, Fleet-street, London.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM & SON'S Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15*s.* to 20*l.*—19, Wigmore-street, Cavendish-square.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

EXHIBITIONS AT THE GARDEN OF THE HORTICULTURAL SOCIETY OF LONDON,

FOR THE YEAR 1846.

THE EXHIBITIONS will take place on the SECOND SATURDAYS in the months of MAY, JUNE, and JULY.

MEDALS AND REWARDS.—The Society distributes the following Medals and Rewards; namely—

C. The Certificate	value—£0 10 0	SG. Large Silver Gilt Medal	value—£4 0 0
SB. Silver Banksian Medal	1 0 0	GB. Gold Banksian Medal	7 0 0
SK. Silver Knightian Do.	1 5 0	GK. Gold Knightian Medal	10 0 0
LS. Large Silver Medal	1 15 0	LG. Large Gold Ditto	20 0 0

Class I.—FLOWERS; for which Nurserymen and Private growers exhibit independently of each other.

A Pelargoniums; in collections of 12 new and first rate varieties, cultivated with superior skill, in 8-inch pots. GB—SG—LS

B Pelargoniums; in collections of 12 varieties, in 8-inch pots. GB—SG—LS

C Pelargoniums; in collections of six varieties, in 11-inch pots. LS—SK—SB

D Roses, in pots; Amateurs to show in collections of 12, Nurserymen in collections of 18, distinct varieties. GB—SG—LS

NB. The Judges are required to disqualify any collection which shall be found to contain a plant which has been recently placed in the pot from the open ground.

E Roses, in pots; single specimens displaying superior cultivation. SK—SB—C

F Moss Roses in loose bunches, each consisting of three trusses as they are gathered, so as to exhibit, as far as possible, the habit of the variety; in 12 varieties. SK—SB—C

G Other Roses, exhibited as in the last letter, and in 50 varieties. LS—SK—SB

NB. No one who exhibits in this letter can also compete in the following.

H Other Roses, exhibited as in the letter F, and in 25 varieties. SK—SB—C

NB. Higher Medals than those here offered for Roses cannot be given by the Judges; and if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I Cape Heaths; in collections of 20 entirely distinct varieties. GK—GB—SG

NB. It is expected that the same plant shall not be exhibited on more than one occasion.

K Cape Heaths; in collections of 12 entirely distinct varieties. GB—SG—LS

L Cape Heaths; in collections of six entirely distinct varieties, SG—LS—SK

NB. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M Cape Heaths; single specimens displaying very superior cultivation. LS—SK—SB

N Calceolarias, in sixes; in 8-inch pots. LS—SK—SB

O Carnations, in pans of 24 distinct varieties. LS—SK—SB

P Picotees, in pans of 24 distinct varieties. LS—SK—SB

Q Pinks; in pans of 24 distinct varieties. SK—SB

R Ranunculuses, excluding Turbans; in stands of 12 distinct varieties for private growers, and 24 for Nurserymen. LS—SK—SB

Class II.—FLOWERS; for which all persons are admitted to equal competition.

S Stove or Greenhouse plants; in collections of 40 plants. LG—GK—GB

NB. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums to be excluded from *S*, *T*, *V*, and *W*.

T Stove or Greenhouse plants; in collections of 20 plants. GK—GB—SG

NB. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*.

V Stove or Greenhouse plants; in collections of 12 plants. GB—SG—LS

W Stove or Greenhouse plants; in collections of six distinct species. SG—LS—SK

X Greenhouse Azaleas; in 12 distinct varieties. GB—SG—LS

Y Greenhouse Azaleas; in six distinct varieties. SG—LS—SK

NB. No one can show in both classes of Azaleas.

Z Collections of New Hardy Evergreens in pots; LS—SK—SB

AA Exotic Orchids; in collections of not fewer than 20 species. LG—GK—GB

NB. Exhibitors cannot show in more than one of the classes *AA*, *BB*, *CC*.

BB Exotic Orchids; in collections of 12 species. GK—GB—SG

CC Exotic Orchids; in collections of six species. GB—SG—LS

DD Scarlet Pelargoniums; in six distinct varieties, in pots not less than 11 inches in diameter. LS—SK—SB

EE Pelargoniums; in six DISTINCT SPECIES. SG—LS—SK

NB. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden cross-breds.

FF Achimenes; in collections of six species, grown in pans not less than a foot in diameter. LS—SK—SB

GG Distinct varieties of Tall Cacti in flower. GB—SG—LS

NB. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH Fuchsias; single specimens. SK—SB—C

NB. No person can receive more than one prize under this head.

II Hardy Orchids in pots, in collections; exclusive of Cypripediums. SK—SB—C

KK Hardy Cypripediums. SK—SB—C

LL Hybrid Alstrœmerias; cut specimens. LS—SK—SB

MM Statices; in collections of six species. SG—LS—K

NN New or extremely rare ornamental plants. SG—LS—SK

NB. These Medals will be awarded by the Society's Officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare plants can be exhibited under this letter. *Nothing will be regarded as new which has been exhibited in the Garden in a previous season.*

OO Single specimens of very superior cultivation. SG—LS—SK

PP Miscellaneous subjects. SK—SB—C

NB. Exhibitors under *PP*, will not be thereby *entitled* to a pass ticket. Cockscombs, Heartsease, Hydrangeas, and bouquets, are altogether excluded from exhibition.

RR Seedling Florists' flowers. SK—SB—C.

NB. Every seedling must be shown singly, and marked with the name it is to bear. The same seedling cannot gain a prize more than once in the season. Pelargoniums are to be shown in pots, and not in a cut state. No person will be allowed to exhibit more than 6 seedlings at each meeting. Exhibitors under this head will not be thereby *entitled* to a pass ticket. For seedling Pelargoniums exhibited the first year no higher prize shall be given than a certificate, and this is to be awarded to flowers of decided merit. Seedling Pelargoniums of the second year must be shown in pots not smaller than 32s, and each exhibitor may produce 6 of them, but not a larger number.

IN ADDITION to any Medals assigned to the classes, *I*, *S*, *T*, and *AA*, the SK, SB and C are offered for the collections in those classes which shall be best named by the Exhibitor.

N.B. The Society's Officers, who will make this award, will be guided in their judgment by a consideration not only of the correctness of the names, but of the accuracy of the spelling, and the neatness of the writing.

Class III.—FRUIT; for which Market Gardeners, Fruiterers, or Persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY ripe and WELL COLOURED, and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary, it will be disqualified.

SS Miscellaneous collections of fruit, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS

NB. Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter. Exhibitors of collections of Fruit should bear in mind that however fine one or two of the kinds in this collection may be, they cannot gain a prize unless they furnish at *least* three different kinds of fruit of *first rate quality*.

TT Grapes. SG—LS—SK—SB

VV Pine Apples. SG—LS—SK—SB

WW Peaches or Nectarines, in dishes of six specimens. SK—SB

XX Other kinds of fruit. SK—SB—C

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, Dec. 27.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25*s.* per ton in the stream, or 27*s.* 6*d.* per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows..... £35

" eight rows..... 40

" ten rows..... 45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of the country.

ROYAL BOTANIC SOCIETY OF LONDON, REGENT'S PARK.—The days fixed for the Exhibition of Plants, Flowers, and Fruit, in the Gardens of this Society next year, are Wednesdays, May 20, June 3, and July 1. Schedules of Prizes will shortly be ready.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 27, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS

FRIDAY,	Jan. 2—Botanical	8 P.M.
MONDAY,	— 5—Entomological	8 P.M.
SATURDAY	— 10—Royal Botanic	4 P.M.

WHEN in the year 1844 (p. 500). we gave some account of a very simple method of HEATING VINERIES, practised at Polmaise, near Stirling, some of our correspondents disapproved of the plan, and depreciated its effects; others, without discussing the principle, contented themselves with inquiring wherein the advantage consisted, and whether as good Grapes had not been grown without any such contrivance? At that time we contented ourselves with expressing our opinion that it was a good working plan, worthy of imitation; but we refrained from making it a prominent subject of discussion until more experience should have been had as to its permanent working.

That experience has been had. We know, upon indisputable testimony, that the Grapes this last year at Polmaise were of the finest quality, as had been anticipated by all who saw them in leaf. "More vigorous and healthy Vines and foliage I never saw," says a friend who visited Polmaise; and an interesting communication from a correspondent who was lately gardener there, which we publish to-day, sets the matter so fully at rest, that we shall next week call especial attention to the nature of the plan pursued by Mr. MURRAY, and perhaps also to the cause of its failure in one place where it has been tried without success.

WE are perfectly aware that the observations made lately on the subject of PINE-GROWING have proved unpalatable to a certain class of people. We intended that they should be. Physic is rarely pleasant, even though honey be rubbed on the edge of the cup that holds it. It is, however, sometimes necessary; and never more so than at the present moment, when the zeal and intelligence of a large number of admirable gardeners, and the aid freely given by the true friends of horticulture, have excited the jealousy and evil-mindedness of a crowd of blockheads, who either cannot, or will not, imitate the examples so worthily placed before them.

A gardener, properly so called, is a man of industry well directed, of knowledge wisely gathered, and of science practically applied. He thus becomes a perfect master of routine, and when routine fails him, he possesses the resources calculated to extend or replace it. And he must necessarily be so; for of all the arts of peace gardening is precisely that which is most varied and least stationary. The ceaseless discoveries of travellers, the quick advance of science, the instability of fashion, the daily invention of new wants by the wealthy, and of new means of supplying them, all involve incessant changes of routine, and render it impossible for an intelligent gardener to stand still. In these respects he is very differently circumstanced from a farmer, whose grain and root-crops are not likely to be changed, who has the season and the season only to contend with, and who runs no risk of the taste of his corn or cattle market changing from Wheat and beef to Durroo and bear's-flesh.

In further illustration of this, let us only see what is now happening all around us. Everywhere hot-water is taking the place of smoke-heat; tanks and aqueous vapour are driving away tan and heating dung; the necessities of the farm are robbing the garden of its stable-manure; iron is replacing wood; little panes of glass are exchanging for large squares; light in excess is thus to be dealt with instead of dimness; and nobody now rests satisfied with the scrubby bushes which are everywhere ousted by "specimen" plants. These things have happened, and are happening every day. In the prospect, but close upon us, are further changes. Winter gardens, covered with glass but unheated, will infallibly make their appearance; healthy plants will be as universal an appendage of a drawing-room as the chairs and tables; squares in great towns must not only be planted, but kept in health and beauty; coloured glass will be used for roofs instead of white glass; foreign fruits till now unheard of will be as common as Pines and Grapes: and even the kitchen-garden may expect the advent of vegetables hitherto unknown. Hoo-sungs, Han-tsis, and Arracachas, are but the heralds of a host of novelties which universal commerce, rapid voyages, wealth and luxury, will require of the gardener.

And how are gardeners to meet these demands? In what way are they to give the world an assurance that as the nature of the objects and means of gardening change, they will be found capable of dealing with them? Not by shutting their eyes to the advantage of learning; not by sneering at that which they cannot equal; not by fancying that the whole aim of life is to make shift to keep a place when one is found; but by a diligent striving after excellence; by a firm resolution to regard nothing as well done which others can do better, and by an eager desire to imitate the great masters of their art, not to disparage them.

Some persons fancy that because they can hoe, dig, rake, and sow Radish-seed, they therefore are gardeners. They quite mistake the matter: they are only garden-labourers. Others are of opinion that industry of body is equivalent to activity of mind; forgetting that the first is also the virtue of a ploughman. A gardener must have both qualities; he must be industrious in order to get his work done, and he must be active-minded in order to get it well done. Some, again, we hear of, who flatter themselves that the whole duty of a gardener consists in the art of cultivation: that if he can but grow a plant he is under no obligation to know its name. This is mistake the third. Such men as these gather Lovage for Fennel, buy Alaternuses for Phillyreas, and plant Mountain Ash for Alders. They are no better than the London servant, who being sent into a garden to fetch some Strawberries, complained that she could not find a single tree that bore any. Yet we see such persons expecting the wages, and claiming the respect due only to those who have really qualified themselves as gardeners. They also mistake their position; they are but one step above the garden-labourer.

We quite believe that the great class of intelligent men, who do honour to their profession, will doubt whether the preceding remarks can have any real application at the present day. Alas! for the cause of education. We have too much reason to know that prejudice and ignorance are rife enough among gardeners to deserve much more than we are inclined to say of them. A remarkable illustration of this has so forced itself upon our attention as to compel from us these remarks. A few weeks since we printed a series of questions (p. 545), which Messrs. KNIGHT and PERRY, the Nurserymen, require all gardeners applying to them for places to answer before they can be recommended. In our opinion nothing could be more judicious than their plan, and we said so. Its object was to ascertain what a man really does or does *not* know. Nothing more was proposed or required. Nevertheless it has produced the most absurd abuse; as a specimen of which we select the following scrawl, which the writer has particularly requested us to insert. We print it literally, merely omitting the name and residence of the man, who would probably be ruined if he were known:—

"A NEW PHENONIMEN.
"Wonders sure will never ceace
While wit and wisdom so increace.

"Acording to the suggestion of those wise and all-knowing men, Messrs. Knight and Perry, the unfortunate gardener is to answer, verbatim, all impertinent, prying, and scrutiniseing questions that may be asked him as to his abilities and characture, in public and in private from the day of his birth untill the time he makes applycation for a situation. If so, it will be absolutely necessary to keep a journal or memorandum of incidents and occurrence, from early youth, while genus is in bud, to manhood and the meridiam of life, when it emerges and expands its accumulated knowledge with all the lofty excellence and subblimity of a Knight or a Perry. If a young man chooses gardening for his profession, he must be well versed in all the technicallities of science, in short, he must not be defective in any point of knowledge or mentel accomplishments; then I ask, how is he to aquire those indespenceble qualifications—not from an ordanary cource of education, as that is impossible; and few, comparatively speaking, have the means of giving their sons a classical education. Then, through all adverse circumstances and unpropetious fortune, he has to battle all difficulties untill he obtains that scope of knowledge ere he is equipt for a gardener. Then, for instance, suppose a gentleman applys for a gardener to Messrs. K. and P., a single-handed place, or one of minor import, of cource they cannot supply him with one, for non of their tallented men whould accept of such a situation. Again, if a man writes to K. and P. for a situation under them, and can dexterously wield his pen and smoothly write the incidents of his eventful life, in accordance with their wisely matured gage, he is considered a clever and skillful gardener; if, on the contrary, he is thought to be unskillful in his profession, and concequently not worthy of a place. What man of phillantrophy and impartiallity will acquies with thees living encyclopedias in carrying out such mean and illiberal measures? Again I ask why gardeners are to be under greater restrictions than any other class of men? After years of labour and studdy, practically and theorycall, how is he remunerated? not as workmen of other professions are. 12*s.* per week is the sum he recieves for his industry and skill—as men of industry, respectability, and morrall conduct, with minds to pennitrate the misteres of his profession, he is no better paid than the common pot-boy. In other professions, any illiterate man, on an average, earns double the money a gardener earns. Then, in conclution, I hope the few remarks I have made may be rightly understood by all who peruse them, still keeping one object in view, that is, to endeavour to ameliorate the condition of journeymen gardeners. Then, if the feble efforts of my pen can in any way assist in so doing, it will be an unspeakable pleasure to your—*Well-Wisher.*"

What is to be said of such a man as this? He is one of those to whom our remarks apply, and we confidently put it to the good sense of gardeners whether they have been too severe.

Another correspondent from Streatham, to whom these remarks do *not* apply, has evidently misunderstood the objects of Messrs. KNIGHT and PERRY'S test questions, which we advise all gentlemen wanting gardeners to insist upon being answered. He alleges that "because two-thirds of the situations filled by nurserymen's recommendations, give from fifteen to twenty-one shillings per week, it is absurd to tell the public that gardeners ought to be all skilful in every department of gardening for such wages." Of course it would be most absurd to do so. But who does? Test questions are framed for the express purpose of enabling all classes of gardeners to obtain the wages that they are really entitled to; to prevent one man from passing for more and another for less than he is worth. Such an end they appear exactly calculated to attain; and it is for that reason we recommend them. We will just ask our Streatham friend, whether he would think it right to be degraded to the level of the man whose letter he has just read. Yet they are both gardeners, and we entertain no doubt that the "Well-wisher," as he calls himself, has the folly to imagine that he really belongs to the first class in his profession.

Of course workmen of all kinds are wanted, and must be provided, and there would be no common sense in expecting that a man who can only gain fifteen shillings a week should possess the qualifications of him who receives forty. In fact the man who is only worth labourer's wages is but a labourer himself, in spite of his blue apron and the name he gives himself; and nobody expects more of a labourer than honesty, sobriety, and good conduct. It is to persons obtaining gardeners' wages without possessing a gardener's qualifications; in fact, to labourers falsely calling themselves gardeners, that all which is severe in these remarks is addressed, and to them alone.

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1844 and 1845.

1844.			1845.		
October..... 26	50*s.* to 70*s.*		October 25	70*s.* to 130*s.*	
November.. 2	50	70	November.. 1	70	130
9	50	70	8	70	130
16	50	55	15	70	130
23	50	55	22	70	130
30	50	70	29	80	140
December... 7	50	70	December... 6	80	160
14	50	70	13	80	160
21	50	70	20	80	160
28	50	70	27	80	160

Also at the waterside, *Southwark*.

1844.			1845.		
November. 11	45*s.* to 70*s.*		November..10	450*s.* to 100*s.*	
18	45	70	17	45	80*
25	45	70	24	50	120
December.. 2	50	70	December.. 1	50	120
9	50	70	8	50	120
16	50	70	15	50	120
23	50	70	22	50	120

* Nearly all bad, and many sold at nominal prices.

THE POLMAISE SYSTEM OF HEATING.

I BEG to offer the following statements relative to the working of warm air stoves in Vineries, and the effects produced upon the Vine by the circulation of the warm air through the house, as exemplified in the Vinery at Polmaise.

Several letters have already appeared in your columns respecting the good effects which the circulation of the warm air has upon the growth of the Vine, especially in producing large leaves with bunches of Grapes of an enormous size. The simplicity and cheapness of the system also render it superior to any plan that has been hitherto tried. In the plan of the house, which appeared at p. 500, 1844, it will be seen that the stove, which is made of malleable iron, is placed at the back of the Vinery, about the centre of the house, the warm air being introduced by an aperture in the back wall, a little above the level of the floor. In front of the aperture is a woollen cloth, three feet in breadth, extending nearly to each end of the house, and fixed to a wooden frame, leaning upon the wall above the aperture at about an angle of 45 degrees. On this frame are three shelves for plants in pots, such as Cactuses, &c.; on the upper shelf is a gutter for holding water supplied from a cistern at the end, from which is suspended woollen threads which conduct the water from the gutter to the cloth, and keep it constantly wet; the warm air passing beneath the cloth, and penetrating through it, enables it to throw off a moist vapour, and to produce a soft atmosphere.

At each end of the house is a valve to admit fresh air; this is conducted to the stove, and heated before it enters the house, and this constant supply keeps the atmosphere in a healthy unexhausted state. Much has hitherto been done in order to produce a natural atmosphere for the Vine within doors, but it is my belief that the Polmaise system is the nearest approach to nature of any system that has yet been tried. The atmosphere in the house is kept constantly in motion, similar to that in the external air. Plants consume air as well as man, and as the Vine is a rapid growing plant, we may ex-

pect that it will consume more air, or appropriate to itself more food from the atmosphere in a given time than many other plants. The feeding of plants, especially the Vine, by the leaves as well as by the roots, is a consideration deserving attention. What will the feeding of the roots do for the growth of the Vine if it has not a proper climate to grow in? And this can only be obtained in-doors by imitating, as closely as possible, Nature's laws. When we wish to grow healthy vigorous Vines, let them have plenty of fresh but warm air. Some chemists say that carbon is derived by plants principally, if not entirely, from the carbonic acid of the atmosphere; and, if this is the case, and as there exists so small a portion of it in the air (1 part in 1000 parts), then the more the leaves of the Vine are supplied by fresh quantities of it the better; this substance forming, as it does, the greater portion of the wood.

In regard to the fruit, from experience I can say that plenty of air and heat are most essential in giving colour and flavour to the Grape; the former is, however, counteracted, less or more, when the border is not in a proper condition; but if a natural climate is produced within (which can be obtained by the Polmaise system), the Vine will struggle against much of the opposition which its roots may have to encounter. The size of the bunches, as well as of the berries, produced at Polmaise for the last three years, has been the surprise of everybody who has seen them, some of the bunches weighing from 5 lbs. to 5¾ lbs. At the Caledonian Horticultural Society's competition last year, many of the most experienced gardeners were astonished at the Polmaise Grapes; some said that the Vines must be young to bring forth such large bunches, and this was the case; and, like all young plants, they produced larger bunches than old Vines. But in Vineries put up in the same year, the young Vines being like those planted at Polmaise, and the borders well made by men of much experience, the Grapes are much inferior to those at Polmaise. The cause of the difference of growth and produce is to be attributed, in my opinion, in a great degree to the continual circulation of air in the house.

I hope, before long, to see the same plan applied to the growth of the Melon and Cucumber; the former is a plant requiring a good deal of heat, with little moisture, being very subject to damping off at the neck, especially in dull weather; and I know of no better plan for remedying this evil than the adoption of the above system of heating.—*C.*

THE BRITISH EVERGREENS.

Reminiscences of Christmas festivities and associations of fireside comfort, and the happiness of our childhood, are of old connected with that cheerful British evergreen, the Holly (Ilex aquifolium); and long may it be ere the early freshness of our inherited prepossessions shall be obliterated by the breath of that purely utilitarian spirit which seems to enlarge upon the view at every step of advancing civilization? Few trees have proved more fertile of poetical allusions than this deserving favourite; the observation of the spring lower leaves of a well-grown tree, contrasted with the smooth unarmed upper ones, is allusive to the calm, unruffled serenity which may pervade the higher arms and loftier associations of life, however rude and repulsive the thorny path may be which besets our feet; as though toil and vexation alone should be the basis of that peace we hope at last to enjoy. Nor has the poet neglected to note the shining gloss which at all seasons gives an air of cheerfulness to the green Holly, and whose summer months seem spent in the preparation of that fair garb, decked with scarlet, which enlivens it amidst the frosts and snows of winter:—

> So serious should my youth appear among
> The thoughtless throng;
> So would I seem amidst the young and gay,
> More grave than they,
> That in my age I might as cheerful be
> As the green winter of the Holly-tree.—*Southey.*

In an old carol of the time of Henry VI., we discover the key to the preference enjoyed by the Holly over the other English evergreen, the Ivy:—

> Nay, Ivy, nay, it shall not be, I wys;
> Let Holly hafe the maystry, as the maner is;
> Holly stonde in the hall, fayre to behold;
> Ivy stonde without the door—she is ful sore a-cold.

But the practice, according to Dr. Chandler, dates from a far higher antiquity than that. The Druids enjoined that the habitations of the Britons should be thickly garnished with Holly in the winter, in order that the spirits of the forests, driven from their sylvan shades by the nipping frosts, might take refuge within the foliage of the sheltered Holly until the sunny spring should return to court them back to their wonted abodes. Again, as a further remove into antiquity, Mr. J. P. Selby considers the practice to have been first introduced by the early Christians at Rome, where the Holly had long been used as an emblem of good wishes during the Saturnalia.

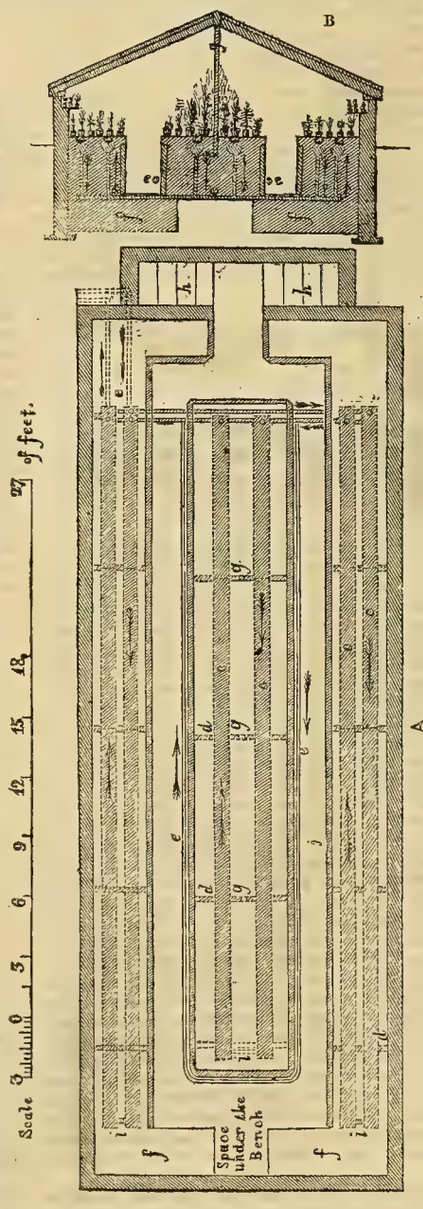
One of the finest forests of Britain, that of Needwood, contains great masses of noble Hollies, in such conspicuous bodies as to serve as well known land-marks (Darwin). The wood is hard and of a clear white, sometimes tinged with green; and as both the concentric rings and medullary rays are finely marked, it is very susceptible of being used for the ornamental woodwork known as Tunbridge ware.

The Ivy (Hedra helix), when well grown, is so ornamental an appendage as well to reward the trouble of planting it at the foot of large trees; and suspected as it is of doing injury by the closeness of its embrace, the question yet remains an open one. I am acquainted, for instance, with two very fine Plane-trees, growing side by side in the gardens of the Rectory at Pulborough, one densely covered with Ivy almost to its summit, and consequently unable to accomplish its annual shedding of bark; its neighbour growing unencumbered, and yet the trees are equally in fine condition, and put forth their leaves with equal vigour. In Parham Gardens there is a remarkably fine Poplar, about which is entwined a gigantic Ivy full 1½ feet in diameter; yet this overgrown dependent seems to exercise none of the usual injurious influence of a parasite. The Ivy is the last of British trees in flower. It blossoms in October and November; the berries ripen during the winter, and are ready for the birds in early spring, when hips and haws have disappeared. It is not unfrequent with the peasants of France to take 10 or 12 berries of Ivy, *pour se purger*; but their action is very violent.

It is not surprising that this very adhesive plant should have been adopted as a symbol of friendship. It is sometimes engraven on a seal, covering a fallen tree. "Even ruin cannot separate us;" or a twig of Ivy, with the motto, "I die where I attach myself." These affectionate professions call to mind the humorous maxim of the worthy Laird of Logan:—"Friends, like fiddlestrings, should not be screwed owre tight."—*F. A. Malleson, Pulborough.*

PLAN OF A SEED-PIT AT KEW.

The high terms in which gardeners have spoken of this house have induced me to offer the accompanying plan. I do this the more readily from knowing that several gardeners have expressed a desire to possess it. In the centre are delicate stove plants, and on each side pit seeds and young plants; besides being used in this way, the pit might also be employed as a Pine or Cucumber house, or for forcing Strawberries, Roses, &c.



Reference to Plan.—A, ground plan; B, transverse section; *c*, tanks, supported by the walls (*d*) at the joints; *e*, pipes; *f*, two cisterns which receive the water from the roof; *g*, three pillars which rest upon the walls which support the tanks; *h*, steps. The flow and return tanks are connected by a small pipe at *i*; *j*, walk. The water can be turned off the tanks by plugging up the pipes, and from the pipe round the centre pit by a valve.

In addition to the superiority of this over the generality of pits, in having a span roof, it also possesses the advantage of being heated on the tank system, by one of Burbidge and Healy's boilers, by which the water, though conveyed through 2-inch pipes in a covered drain about 110 feet from the boiler to the house, can be kept almost in a boiling state in the tanks. The capabilities of this boiler were fully proved during the severe weather of last winter, when not the least difficulty was found in maintaining a high temperature with very little fuel. The walk being continued round the house enables the gardener to reach any part without disturbing the plants.—*Chas. Walton.*

WINTER FLOWERS.

The Camellia.—Of all the tribes adapted to cheer the gloomy months of December and January, this when highly cultivated is one of the most useful, combining the character of a glossy and rich evergreen with the gay tints of the rose. I need say little in detail about the best mode of forcing the Camellia, as the principles applied to the Azalea indica are for the most part equally applicable here.

Forcing into wood early in the previous year is the one grand principle on which all success with this, as a winter flower, must depend. If this principle is strictly pursued, and under a rather high temperature, combined with much atmospheric moisture (affording a full and free development of the latent energies of the plant), no midsummer or after growth will be procured. When the latter takes place, it is a sure sign that conflicting principles have been at work, through a somewhat capricious mode of treatment; that is, with regard to the ultimate object in view. Some persons advocate placing them out of doors in the end of summer. I am prepared to admit, that when the weather is genial, and all is right at the root, this course may be conducive to size in the blossom; however, there is no real necessity for it. I never place mine out unless necessity compels me, and when such has been the case, damage of some kind has generally counterbalanced the benefits anticipated. My plan (and I have been very successful), is this:—First, to force them into wood with rapidity, the moment they show a tendency of their own accord to commence growth. Secondly, to lower the temperature (if possible), as soon as they cease to grow. Thirdly, to cut off in a considerable degree their supply of moisture at root during this stage. And lastly, to reverse in some degree the latter plan as soon as the stock in general have formed decided flower-buds.

All potting or shifting rendered imperatively necessary is performed by me shortly after they have ceased growing. Limitation of space precludes all possibility of showing here how the application of these principles produces the desired results: such, however, is the case, and those who follow them out, with plants possessing (as one of our best gardeners facetiously observes with regard to Pines) "live roots," will always ensure success. I may remark in regard to soils, in conclusion, that chopped turf of any kind will grow them in perfection if combined with a particular drainage and accompanied at proper periods by the uses of highly clarified liquid manures. I prefer unctuous loam two parts, sandy heath soil one part, in a somewhat fresh state, chopped and equally blended, to which I add most liberally coarse boiled bone and charcoal, with a little sharp sand.

Anomatheca cruenta, is an interesting little bulb, and although not a very early bloomer, may be easily had in beauty in abundance by the end of January; its treatment as to forcing may be the same as that of the Lachenalia. It is a plant which requires much water, and is liable to the red spider. By giving it very liberal treatment, however, and using much cool and tenacious loam in the compost, this propensity is easily overcome.

Phaius grandifolius, or Bletia Tankervilliæ of former days, a native of China, is a very noble and useful plant for the conservatory, if grown in a proper way; it is, moreover, when treated on genuine forcing principles, an early bloomer, and may be obtained under a high and moist atmosphere very easily by the early part of December. Like many of the terrestrial Orchids, it does not like to be severely disturbed through division of the root. However, if it must be divided, it should be accomplished early in the spring, with a view to the next winter's forcing. This plant revels in an unctuous soil, mixed with much charcoal. Equal parts greasy yellow loam, peat, and half-decomposed leaf-soil, with an extra drainage, will grow it in high perfection, combined with a regular system of administering clear liquid manure. I will merely observe that any one who will treat this plant as he does his succession Pines, beginning with the month of February, and rapid growth the object, will succeed to his perfect satisfaction.

Franciscæas.—These shrubs, more especially F. Hopeana, will flower very well during winter or early spring under similar treatment to the Azalea indica. Young stock potted in the end of January, and grown with rapidity, will become, when under proper management, eligible for forcing in the ensuing November. The young plants, when growing very fast, should have their shoots frequently topped; and when they have become dense and neat little bushes, they should be taken from the excitement of the stove or propagating-house, and placed on a cool greenhouse shelf, with abundance of light and air. They always force the better for being pot-bound, provided in that state they can be well supplied with water, as thorough ripening of the wood is here a most important point. Let the soil be equal parts sound loam, sandy Heath-soil, and half-rotten leaf-mould, with plenty of charcoal dust.

Justicia salicina.—This handsome little Peruvian

ergreen flowers naturally in September and October. may, however, be retarded, so as to continue flower- until the middle of November. Cuttings struck in nuary and grown with rapidity, having recourse frequent stopping, will make bushy and handsome nts by the early part of August, when the whole ck may be withdrawn from the stove, and placed on comfortable greenhouse shelf for a while. After a weeks here they may be introduced in succession to warmer house, and when in blossom may be again arded if necessary. A mixture of loam, leaf-soil, l peat, is well adapted for their cultivation.

Cytisus rhodopnœa or fragrans. — This charming ter shrub, when well blossomed, is so sweet, that good bush will scent a large room. No establish- nt desirous of winter flowers should be without it; l it is especially the amateur's plant, being of very y management. The young plants should be kept der high cultivation through the early part of the mmer, and most frequently stopped at the growing nts of the young wood. They should be in a some- at pot-bound state by the end of July, and should n be placed out of doors in a light situation, until the ddle of September, when they should be placed in a y light part of a cool greenhouse. They will not r strict forcing, being liable under a high tempera- e to "run to wood." They will, however, if managed above, enjoy an intermediate climate in the early t of November, and will begin to blossom abundantly the middle of December. The soil may be equal ts sound loam and sandy heath, with plenty of char- l; I have grown them particularly fine, indeed, in -half charcoal.—*Robert Errington, Oulton.*

FRUIT-TREE BORDERS.

NOTHING can be of greater importance to a country tleman than a flourishing and productive garden; if proper means are allowed, there can be no reason this should not be the case. True, there are ad- e situations and soils, opposed in some degree to quality of their productions; but gardening is an and he who aspires at a masterly knowledge of that by dexterity and perseverance renders every op- ng object subservient to his skill. A thorough and usiastic cultivator of the soil reduces its obstinacy, rects its barrenness, and causes the bark-bound ited trees to assume a living and vigorous appear- e. It may be assumed that these are hidden and ruse matters which belong exclusively to science, we deny it; good gardeners know all this, and bad should set about learning without delay. Let such n by casting off their prejudices; let them take r stand by the side of the inquiring and industrious, their course and success are alike clear.

ll fruit trees, of whatever kind, should be planted hallow ground, more especially if the quality of the is adhesive. As a first principle, the border should ry; and, if not naturally so, drainage, complete and ient, must be introduced. The drainage must, from lepth, entirely prevent the roots from getting beyond The soil between the drainage and the atmosphere ld be rendered friable by exposure to the elements, when it partakes of considerable tenacity I would ently recommend an admixture of stones, flints, kbats, or any similar material, say to the extent of fourth. These will enable the rains to percolate ly through the body of earth in which the roots are. y will also in dry weather hold moisture, and tend tly to maintain the border in an equable state. roots under such circumstances will be satisfactorily ed; no water can remain or be held in the soil ciently long to prove injurious, the stones inter- ed with the soil will allow it freely to pass into the nage beneath, where preparation must have been e for its passing readily off.

o kind of fruit-bearing tree should ever be planted), the proper position of the roots in planting is to ch them carefully on the surface of the border, to cover them loosely with soil to the depth of e inches; on this lay a slight covering of decayed es, merely to protect them from drying winds until roots are perfectly established in the soil. The s are certain to find their way downwards, but when are down they are not so likely to find their way rds the surface.

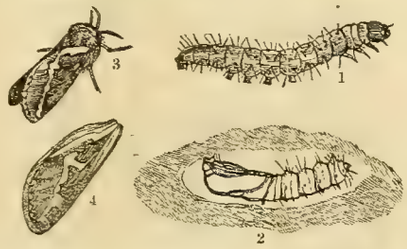
uit tree borders should never be dug with the spade. surface may be stirred and kept open with the , and then merely for the purpose of loosening soil. The roots should be encouraged to the ace by the application of dressings of decomposed es. Wood-ashes will occasionally prove useful, so will soot. These encourage the kind of wood y to prove productive, and the produce is entirely rent both as regards size and quality, from that heavy dressings of stable manure are applied, icularly when the borders are imperfectly drained, the soil of considerable adhesiveness. Manure dug borders thus circumstanced is only increasing the

The soil is constantly wet and spongy. The s are surrounded with unhealthy fluid; the air r penetrates beyond the surface; consequently, and barren wood, in large quantities, is annually, to no useful purpose, produced. The roots should r be allowed, if it can possibly be avoided, to get nd the reach of atmospheric influences. It is in a position alone that they can procure and assi- te the kind of aliment indispensable to the fruitful- of the trees. When the borders are imperfectly ned, the fruit produced is not only small in quantity, of inferior quality, and not fit for dessert or kitchen use, compared with such as is grown on dry and healthy soil. Where the situation is bad, it should not by bad gardening be made worse; every means should be adopted to modify an evil, of itself of sufficient magnitude. I should hope that nobody would ever think of planting trees in future without a complete examination of the condition of the soil, and particularly the subsoil, in order, if necessary, to apply those remedies which skilful gardening may suggest; and surely there is sufficient skill and talent amongst us to meet, if brought into the field, all the exigencies of the case.—*One who has handled the Spade.*

ENTOMOLOGY.

HEPIALUS LUPULINUS (*the Garden-swift*).—This moth varies so exceedingly, that it has been described under many different names,* and as the English appellations of brown, silver, spotted-silver, tawny, and small swift, are only applicable to particular varieties, I shall, in future, employ the cognomen above proposed. About the end of May or the beginning of June, these moths may be seen hovering over meadows and grassy places in the evening, with a vaulting flight: from such localities the females wander to visit our gardens, dropping their eggs over Strawberry, Raspberry, and other beds, as well as about the flower borders. In all probability they do not long remain in this state before they produce caterpillars, which for their destructive habits are scarcely to be equalled by the surface grubs. I expect they are long-lived, as I find them in the autumn, winter, and spring, full grown, and it is remarkable that I should never have detected any much younger.

It was several years before I could rear the parent of this pest, which inhabited my garden near London as well as in the country. The first caterpillars I remember to have observed were found on the 3d of April, 1841, at the root of a Snowdrop, the bulb of which one had gnawed, and likewise the leaf; another had eaten through the root of the common Bear's-ear, and many Auricula plants in pots belonging to a friend, were destroyed by them. On the 12th of May one of my caterpillars appeared to be forming a cell under a tuft of Grass placed over it, but it eventually died, for want of moisture I apprehend. It was not long, however, before I had another opportunity of studying their economy, for on the 4th of June, I saw two Lettuce plants drooping, and on pulling them up, I found the tap root eaten through just below the crown, but occasionally they are divided much lower down,



and thus, every morning, my crop was reduced, by the most healthy plants having fallen a prey during the night. I then commenced clearing away the earth round the mutilated roots with a pointed stick, and by each plant I found a full-grown larva, about 5 or 6 inches deep in the soil. In November and December, 1844, these caterpillars were equally destructive to my young Cos Lettuces; they also ate the Parsnip roots, and on the last day of the year I dug up one which had formed a longish cell in the earth: the 27th of the following March I detected six in a Lettuce bed, exactly like the figure 1, only that the dots at the base of the hairs were obsolete; indeed they now appeared to be all unspotted. In April they again attacked the same border, and many more were found in some stiff soil where a crop of Lettuces had been grown. On the 1st of May I discovered three chrysalids and a few of the caterpillars about a foot deep under an old Strawberry-bed: they were all enclosed in very loose webs, adhering to particles of the mould. In June the moths were bred, but the unspotted larvæ were again detected the first week in November, at the Strawberry roots, just about to change to pupæ; on the 22nd I cut a spotted one out of the crown of a root of Celery, where it had formed a large hole, and a short time before one was sent to me by Mr. Edwin Brown, which he had taken from the centre of a Potato, in which it had eaten a winding burrow. I have been particular in recording these data, because the economy of the Garden-swift seems to be unknown, and never having received the caterpillar from any horticulturists, I expect it has hitherto eluded their search, owing to the depth at which it generally lives.

The caterpillars are cylindrical, yellowish-white, the head is brown and horny, with two minute antennæ; the first thoracic segment is horny and pale brown, the following segments have 4 dark dots on the back of each, producing bristles, with a greyish intestinal line between them, often blackish at the tail; there is a similar line of dots and hairs down each side, and beneath them the black spiracles, which are bristly; they have 6 pectoral, 8 abdominal, and 2 anal feet; fig. 1. They changed to a very sensitive, cylindrical pupa, ochreous and shining; the eyes, short horns and shorter proboscis, legs and wings, are distinctly visible through the skin; there is a tubercle on the forehead, and another on the face, with several bristles, the spiracles down the sides are blackish; the abdominal segments are very coarctate, with two transverse rows of sharp teeth on the back of each, and on the belly is a transverse broken ridge serving as analogues of the abdominal feet, with three bristles on each side, placed obliquely; there are also a few hairs about the spiracles; the penultimate segment has a broad transverse ridge very serrated, and the apex is tuberculated; fig. 2. The moth which came from them was named by Linnæus and Fabricius Hepialus lupulinus, its specific name implying that it is in some way connected with the Hop plant, but of this there is no evidence. The male is small, and when at rest sits with its wings deflexed, as at fig. 3, the horns being often concealed. It is of a chalky-brown colour; the eyes are very black, and almost concealed by its woolly head and thorax; the horns are very short and simply tapering, of a bright ochreous colour; the abdomen is attenuated, but obtuse: the superior wings are of a darker bright brown, more or less rusty, with a white spot beneath the costa and not far removed from the base; there is an irregular white stripe along the inner margin at the base, which forms an angle at the centre, and then takes an oblique direction to the apex, the dark nervures forming it into various irregular white spots; along the posterior margin is also a row of semi-oval white spots, less distinct; the inferior wings are long, narrow, and of a uniform brown colour; the fringe is short. In some varieties the wings are entirely brown, in others chalky-white, with scarcely a trace of the spots remaining: the female is much larger (as shown by the upper-wing, fig. 4); it is very like the male, but the white stripes are often broader and the body is much stouter. Sometimes the moths appear the end of May, but mine did not hatch this year until the first week in June, and it is a singular circumstance that they were all males.—*Auricola.*

* Vide Curtis's Brit. Ent., fol. and pl. 185; and the Guide Genus, 791.

CONDITIONS OF SOIL FOR PLANTS IN POTS.

1. AN essential condition of soil for the growth of plants in pots, consists in its possessing a degree of mechanical force (by its texture and arrangement), equivalent to its bulk, and the amount of nutritive matter which it contains, or is capable of absorbing, during the entire growth of the plants.

2. By mechanical force in soil, I mean an arrangement of its parts, or layers (in potting), capable of maintaining a given distance during the progressive growth of the plant. For instance, a porous texture will admit a quicker passage of water throughout its bulk for a greater length of time than a quality which is less so;—again, of two equal-sized flower-pots, one having two inches of drainage, and the other four inches, the degree of force maintained in the passage of fluid upon the latter will be greater than that in the former. The ratio of circulation being in proportion to the degree of porosity, and *vice versâ*.

3. The object of maintaining a due relation between the mechanical and chemical conditions of soil is, to secure a uniform circulation of moisture, by means of which plants are enabled to assimilate food in proportion as the chemical elements are held in solution, for a period equal to the power of secretion in the plants. As a general rule, the chemical properties of soil derive their mean force from those forces which act mechanically upon them, in connection with light, air, &c.

4. The relation which mechanical force (by draining, &c.) should bear to the chemical or nutritive properties of soil is governed, 1st, by its absorbent quality;—2dly, by its bulk;—3dly, by the structural adaptation of plants for secreting fluid;—4thly, by the uniform vigour of the plants;—5thly, by the extent of growth required in a given period, and 6thly, by the amount of exposure to light, air, heat, &c.

5. The absorbent quality of soil is generally in proportion to the amount of vegetable fibre which it contains in various states of decomposition; the higher the decomposition the lower is the absorbent quality, and *vice versa*.

6 The general means of modifying the absorbent quality of soil, are, 1st, by a higher decomposition of its vegetable fibre; and 2dly, by exposure to a dry temperature previously to its being used. The first preparation lessens its porosity; the second enables it to retain its mechanical or porous texture, but lessens its power of preserving moisture beyond a given period. A medium or equal degree of each is essential in all preparations of soil (for pot-culture), each degree being regulated by the conditions under 4 and 14.

7. The lower the absorbent quality of soil, the greater is its mechanical fitness for the growth of plants generally; but especially under a deficient exposure to light, air, heat, &c.

8. The lower the absorbent quality of soil, the greater is its mechanical fitness for circulating fertilising fluids.

9. The lower the absorbent quality of soil, the greater is its mechanical fitness for the production of growth favourable to fertility.

10. The lower the absorbent quality of soil for plants in pots, the greater is its mechanical fitness for resisting an excessive application of water to their roots, and *vice versa*.

11. The lower the absorbent quality of soil the greater is its mechanical fitness for receiving the most intense action of light, air, heat, &c., and *vice versa*.

12. The lower the absorbent quality of soil the greater is its mechanical fitness for the growth of plants, when excessively impaired in vigour by long ex-

posure to, or exclusion from, light, air, &c., and *vice versa*.

13. The lower the absorbent quality of soil the greater is its mechanical fitness for the growth of plants when re-shifted; and this to an amount greatly disproportioned to their mean, or existing vigour, and *vice versa*.

14. The lower the absorbent quality of soil the greater is its mechanical fitness for the growth of plants distinguished for rapid circulation of sap, and for assimilating food from vegetable matter in a partially gross state. It also enables them to withstand alternations of drought and moisture, with exposure to intense sunlight, and *vice versa*.

15. The lower the absorbent quality of soil the greater is its mechanical fitness for the growth of plants, (requiring a dry and low temperature), in indifferently ventilated greenhouses, &c., or when placed upon stages, or platforms, considerably below the level (or access) of side-light, and *vice versa*.

16. As the shifting of plants progressively from smaller to large pots, is contrary to their natural conditions of growth; 1st, by counteracting the lateral expansion of their rootlets; 2dly, by impeding the circulation of sap; 3dly, by hastening a premature maturity of growth, which is inseparably connected with impaired constitutional vigour; 4thly, by exposing them to repeated extremes of temperature by exclusion of air, light, &c. and by applications of water to their roots, when, by their disarrangement they are the least capable of imbibing it; and, 5thly, by causing an excessive evaporation from their pores—the following rule may be deduced: that the general adaptation of soil for superseding the shifting of plants from smaller to larger pots, consists in its porous texture and mechanical arrangement being duly proportioned to its bulk, in connection with an exposure to intense light, air, heat, &c., and *vice versa*.

17. All preparations of soil for potting should be sufficiently moist to dispense with immediate watering, when the plants are newly shifted (the plants being watered previously to the operation), in order to modify the absorbent quality of the newly-added soil, by a partial exposure to the air, &c., and to secure an equality of moisture between the old ball and that which surrounds it.

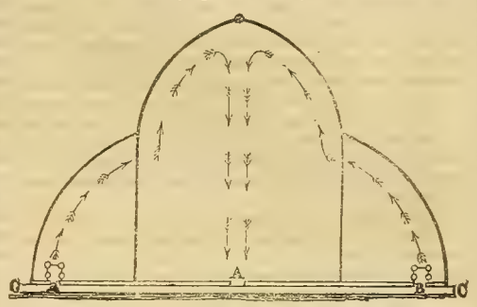
18. In all cases of newly-potted plants, when, by the disarrangement of their roots, they are rendered incapable of deriving benefit from newly-added soil, their loss of vigour is compensated for by a partial exclusion of air and sunlight, together with an increased humidity and temperature for a proper period.—*William Wood, Pine-apple-place.*

Home Correspondence.

Pruning Forest Trees.—In last Number, "C.W. H." has given about two columns on "Forest Pruning," the sum of which appears to be merely this, that "the great object, in fact, in pruning trees intended for the saw, is to prevent dead knots." There are, however, some sensible remarks in "C. W. H's" essay, and accordant with nature and the reason of the thing, but for all that we have nothing but what was well known before. In former communications I have deprecated all "systems" of forest pruning, when the object sought is the greatest amount of good timber in the shortest time, for, as "C. W. H." justly observes, "cut off a branch, or a whole tier of branches, and you reduce considerably the immediate increase or girth in the stem below." Again, "Now, if the roots of a tree correspond to the quantity of leaves above, it you cut off a branch you leave a superabundance of root power," &c. &c. This is a fact, but I would ask "C. W. H.," who is a physiologist, whether that superabundant "root power" would be exerted with the like force when deprived of the leaves essential to reciprocal action? I trow not: for, however the process he designates "anastomose" may operate, there is still a derangement of that reciprocity, and balance of influence and action between roots and leaves, that operates as a check upon increase. I have founded all my former arguments on this subject on the plain common-sense principle of reciprocity; physiological disquisitions are here unnecessary, and I think I may claim "C. W. H." as a coadjutor. Forest woods, or plantations for the produce of timber trees, if properly thinned, will never require any large living branches, nor dead ones either, to be amputated. It is known to all your readers who have attended to this subject, that I have heretofore deprecated all pruning save giving young trees a direction upwards, by removing a rival leader, &c, and I would as strenuously recommend the removal of all dead and dying under branches close to the stem. I have commended Dr. Thackeray for his unremitting attention to his plantations at Nerquis, though I disapprove of his pruning. There is another matter connected with this subject worthy of attention: suppose I were an advocate for pruning, or, rather, suppose "C. W. H." had a tree-t of from 200 to 500 acres to prune, and wished the process conducted exactly according to his own, say physiological principles, he might perhaps find it necessary to employ 20 or more working men; could he inspire them all with his own ideas? Could he get them all to work, each man at his tree, with its physiological structure and functions ever present to his mind? The thing is practically impossible. It is all very well to write physiologically about the cambium, and the alburnum, and the liber, and the "anastomosing process," &c., but how are workmen in smock frocks to act upon it? Let us have nature and common sense, and nothing else is wanted to lead to a proper and successful practice.—*Quercus.*

Gooseberry Caterpillars; and Sulphur v. *Rabbits.*—At p. 21 it was mentioned that dusting Gooseberry bushes with soot in spring had the effect of preventing the caterpillar attacking them during that season. I dusted all my bushes heavily twice last spring, as directed, and I have never before found the caterpillar so severe on them, as it was last season. Again, at p. 117 it is said, that placing rags dipped in sulphur on sticks in the ground three yards asunder, had the effect of preventing hares and rabbits from barking Apple-trees. I have put up the sulphur rags on sticks as directed, but the trees are nevertheless as much barked as ever they were in former years. Now I beg to ask the reason why these two receipts have entirely failed with me, when they were stated to be effectual remedies.—*J. T.* [Perhaps those correspondents who furnished the original information will supply the answers now asked for.]

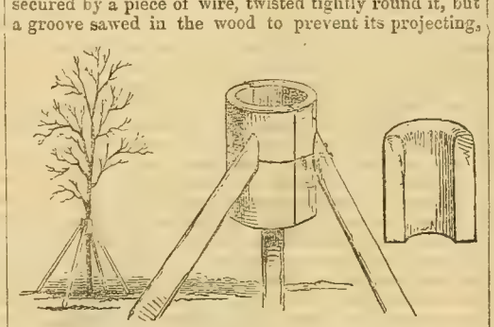
Heating and Ventilating (see p. 858).—Mr. Henderson by experiment would find that by allowing the cold air to escape at a higher level, the rapidity of circulation would be exclusively governed by the difference of



density at the two points A and B., and supposing the inverse were the positions adopted to those suggested by Mr. H., the air would pass rapidly notwithstanding, if not even at a greater rate.—*R. Glendinning.*

Cements.—I should feel obliged if any of your correspondents could inform me if India-rubber can be successfully used to render slate cisterns water-tight? I want well-water to run into them, and have an objection to white-lead.—*A Subscriber.*

Plan of Securing Single Trees in Pleasure Grounds.—I have always observed that the old fashioned plan of protecting trees in pleasure grounds was open to many objections. In the first place, a great deal of wood was consumed in barricading each tree; the workmanship was expensive; sheep could not feed near the roots, consequently the Grass grew too high; besides, it was no protection against wind; in ramming down a long pole, the roots of the tree would be injured; besides, when the pole yielded to the wind it became a dead weight upon the tree, instead of a support; in tying bunches of thorns round the root and stem, the current of air was obstructed, and the tree smothered. Having occasion to transplant a great many trees from 20 to 25 feet high this autumn, and being dissatisfied with the old system, I have adopted the mode represented by the accompanying woodcut. It is simply a piece of Fir, from 6 to 10 inches long, according to the size of the tree to be protected; it is split in two, then hollowed out sufficiently for the tree to be at perfect liberty when surrounded by it; each part is put on one side of the stem, about 4 or 5 feet from the ground; it is then secured by a piece of wire, twisted tightly round it, but a groove sawed in the wood to prevent its projecting,



which would prevent the oblique supporters going close to it; these supporters are then nailed on to the wooden ring, and the other end fixed into the ground. From three to six supporters might be used, according to the situation. I find that cattle do not like to come near trees supported in this manner. This hollow tube ought to be a trifle larger at the top than at the bottom, to prevent the tree being chafed in a high wind.—*J. D.*

Landscape Gardening.—At p. 836 "J. W." recommends young gardeners to lay aside the rule and compass, and to take colours, canvass, &c., and learn to imitate Nature (the rule and compass being useless for that purpose), anticipating that an improvement in landscape gardening would consequently follow. Now, this is all very well if it could be accomplished; but when we consider the many disadvantages under which young gardeners labour, and even the manner in which they in general are remunerated for their services, a practical knowledge of the fine arts is surely too much to expect from them; not but what it would be very desirable for gardeners to possess such a knowledge, but it ought to be considered more as an accomplishment than a qualification which they ought necessarily to possess. On the other hand, however, I would earnestly recommend that instead of laying aside the rule and compass, they should study the use of them well; for every gardener ought to be able to give plans for, and superintend the erection of horticultural buildings of every description. For if these constructions be erected on wrong principles (which is too often the case) the gardener who has the management of them is generally the first sufferer; for, if the plants, &c., under his charge indicate by their appearance that something is wrong it is more likely to be attributed to mismanagement on his part than to the bad construction of the house they inhabit; too many gardeners know unfortunately what it is to labour under the disadvantages of a deficiency of ventilation, heating, &c.—*G.* [We nearly agree in "G.'s" remarks. Landscape gardening, if not a mere accomplishment, is at least a subject which only persons having great opportunites can profitably study. We to say, study *well* the rule and compass; and learn how to make good geometrical gardens rather than bad landscape ones. Fifty, nay five hundred of the former are wanted for one of the latter; and no greater mistake has been committed than discarding, so much as has been the case, the fine old plans of geometrical gardens. The barbarous things that we now see in small places are usually miserable attempts at compromise between the pieturesque and the symmetrical—an elephant's head upon a monkey's shoulders.]

Natural Classification of Plants.—If not drawing too far upon your liberality in answering questions, I would beg for some information upon a subject which must be of great interest to most of your readers—I allude to the natural classification of the Vegetable Kingdom. I am most anxious to know whether any prospect is entertained by eminent botanists of their being able to arrange plants according to the system of Macleay—so successfully applied by him to insects, by Vigors to birds, and by Swainson to quadrupeds. I am the rather induced to seek this information, as the outlines of your natural system of botany come nearer to a coincidence with what is really valuable in Macleay's system than any other. It has always appeared to me that a great impediment to the progress of the latter system has arisen from the attempt to arrange all natural families in circles and to fix too hastily any one number of such families as that adopted by Nature. It is obvious that such families might just as well be disposed in any other figures, or in right lines, or that, for all we can tell, the microscopic beings may afford reasons for altering any assumed number. This has given too ambitious an air to the whole. It is unphilosophical, too, and brings incredulity along with it. Laying aside, therefore, such matters, as being, to say the least of them, unnecessary, it seems that the really useful and valuable principles of the system are as follows:—1st, That all organised beings are divisible into certain great primary groups, each of which is again divisible into others. 2dly, That one of these—the normal group—always possesses a more perfect degree of the common structure than the others which are in that respect more or less aberrant from the normal type. 3dly, That each group possesses a distinct character—in its own modification of the common structure—which re-appears again in each corresponding group, as we descend in the process of subdivision, each successive normal group representing, as it were, the original normal type, and each aberrant group the original aberrant type. 4thly, That every set of groups in each division are analogous to the corresponding set of groups in each other division. That these principles can only be ascertained by observation is of course undeniable. But a few general remarks upon their *rationale* will make what is observed more intelligible. It is obvious that the material world presents itself to us under two grand divisions of organic and inorganic matter—that the former divides itself into the Animal and Vegetable Kingdoms—and that the latter divides itself into the palpable forms of Air, Earth and Water; or at least, into three forms of which those are the types. It is from the adaptation of one of these worlds to the other that order seems to arise. Nature has made nothing in vain. It follows, therefore, that every condition of the inorganic world is probably intended to meet an equally-varied condition of the organic world—for the one is to subsist upon the other. Thus, the uniformity of the one fixes the uniformity of the other. We can in this way understand how it is that Nature has pursued one plan in the Creation—how, in a word, having once laid down certain original principles of structure, the endless variety we meet is but an endless modification of these. Again, we may assume, on general consent, that every organised being exhibits a creative design—an adaptation of means to an end. Hence, as everything done by Nature is on the best plan, and we cannot conceive two best plans, we must expect to discover a constant repetition of analogous modes of attaining analogous objects. This consideration at once leads us to look for analogies between groups of the same, and even of different kingdoms. He who admits the perfect adaptation of the camel to his position in the desert, will not be surprised to observe the resemblance it bears to the ostrich—each being equally suited to the same circumstances. He who admits the perfect adaptation of the wading bird to its position in the marsh, will not be surprised to discover its analogy to perhaps the tall stiff-like Rush or Reed, each being destined to maintain the existence under similar circumstances. I dwell upon this principle because it does not appear to me to have been put forward for the same purpose by any of the writers to whom I have referred, and it is in fact the true basis of the whole system. It explains analogies which would otherwise appear fanciful, and it goes far to determi

the number of groups of the same rank existing in nature. Our observation may be deceived upon the more complicated side of the picture; but we can hardly be mistaken on the other side, as the inorganic world presents us only with the three conditions I have noticed—air, earth, and water; or, at most, with these and two other intermediate or mixed conditions, giving rise to a parasitic or climbing type between the two first, and to an amphibious one between the two last. Zoologists appear to have clearly made out an aerial, a parasitical, a terrestrial, an amphibious, and an aquatic group, allocated to as many distinct modes of existence. We are thus led to expect three or five natural groups, whose organic functions are suited to derive their subsistence from these three or five sources or mediums of animal and vegetable life. We accordingly find that the animal kingdom presents us with a normal group of vertebrate animals, and with several invertebrate or aberrant groups, viz., the Annulosa, or insects—the Mollusca, or shell-fish—the Radiata, or star-fish—and the Acrita, or polypes. Nothing can be clearer than the expression of a terrestrial character in the first, and of an aerial one in the second; whilst an aquatic one seems more or less to pervade the last three. It would be beyond my purpose to examine here the intermediate types. I will therefore only notice the above three most conspicuous ones. Turning now to the Vegetable Kingdom, we find a normal group of exogenous plants, whose bony structure and vascular system exhibit a striking analogy to the vertebrate animals; and several aberrant groups, of which the Endogenous plants are equally analogous to the Annulose animals; whilst, as in the Animal Kingdom, an aquatic character seems more or less to pervade the others. The same principle seems to discover itself in every minor group. In the Cryptogamic plants, which appear to be the aquatic type amongst those of the same rank, we have an aerial group in the Musci, &c.; a terrestrial one in the Filices; and an aquatic one in the Algæ; with, perhaps, intermediate groups, exhibiting the amphibious type in the Equisetaceæ, and the climbing, parasitic, or creeping type in the Fungi. The eye of the botanist will see many more evidences of this plan in every part of the Vegetable Kingdom. I only notice them thus far, in the hope of learning from you whether they exist universally. If they do, and if the present Orders and Classes are really natural, that is, according to their vegetative, and not merely according to their re-productive organs, it would only remain to dispose and define them, so as to exhibit the above relations. I need not dwell upon the advantage of such a classification, if admitted by Nature. It would necessarily express every vegetative function in the simplest form, according to their uses; it would be a classification, not according to the imperfect discrimination of man, but according to the beneficent designs of Providence, manifested in the uniform adaptation of each plant to the sources from which it is to derive its subsistence.—*Student.*

Societies.

STAMFORD HILL, CLAPTON, AND STOKE NEWINGTON GARDENERS' ASSOCIATION.

Nov. 24.—Mr. W. Williams in the chair. Mr. C. Tant, gr. to E. Johnstone, Esq., read the following paper on the Chinese Chrysanthemum:—For many years, says Mr. Tant, after the introduction of this fine autumnal flower, which was about the year 1790, the sorts cultivated were only the small-flowered and earliest, the predominant colours of which were buff, yellow, rose, and white. Ripe seed could but rarely be obtained in the neighbourhood of London; and the Chrysanthemum appearing to offer but little facility for improvement, became neglected or gave place to gayer rivals; but about the year 1820 it appears to have attracted the attention of German and French cultivators. In their dryer climate seed was abundantly produced, and from them and from Jersey, and other channel islands, many sorts of superior size and colour were obtained. From the above date to the present time continual additions have been made to the varieties of this beautiful tribe of plants, among which there exists as perfect symmetry of form and vivid colouring as in any other class of flowers.

Chrysanthemums, for flowering in the open air, succeed best when planted against a wall with a due south aspect; they should be trained so as to completely cover the space allotted to them, the leading branches only being nailed close in, and the laterals of short growth suffered to hang loosely; every bud may be allowed to remain on. They flourish best when copiously supplied with water, and mulching or liquid manure, if the soil is poor, are necessary. Only the earliest flowers should be used for this purpose; among the best of which are Formosa, Tasselled Yellow, Princess Marie, Minerva, Lucidum, David, Queen, Victory, and Flechier; the colours appear to most advantage when contrasted as strongly as possible. For pot-culture the soil should consist of good top-spit loam of a porous character, well mixed with one-fourth its bulk of well-reduced stable manure: the remains of an old Mushroom bed answers well for the latter; a little sand may be added if the loam is deficient in that material. If very dwarf plants in small pots are required, they may be obtained by laying the points of young shoots in the month of August. As soon as well rooted, these should be potted into 5 or 6-inch pots, shaded for a few days, and, when the pots are filled with roots, supplied with liquid manure once a week until the time of flowering. Only the earliest and most certain bloomers should be chosen for this, such, for example, as are named in the last list. Another mode of obtaining dwarf plants, when of earlier and stronger growth, is by coiling or training down the stems as they advance, either to a trellis or short stakes; this, if cleverly done, exhibits plants with foliage down to the pots, and a considerable display of bloom; but is so much the reverse of the rigid erect habit of the plant as to rarely or never produce a graceful effect or first-rate flowers. The practice of growing dwarf plants can only be recommended to those persons who have no accommodation for tall ones. As perfect flowers are my object, if I can get these with a healthy foliage and firm stem I am satisfied, whatever may be the height of the plant. In growing a Myrtle or Cape Heath, a compact bushy plant is preferred; in an Orange or Lemon, the fruit, and in a Cockscomb, an enormously enlarged receptacle; but in the Chrysanthemum, perfect flowers are the ultimate object. To obtain these, the utmost development of stem, leaf, and bud is required; with this end in view the following has been my most successful plan of treating them, whether as ornamental specimens or for exhibition:—From the latest and shyest bloomers, such as Two-coloured Incurved, Perfection, Tasselled Crimson, and Aristides, I take cuttings in September, strike them in the usual way, and keep them in small pots till the following spring; of all other kinds, I take root-cuttings, or suckers, in the end of February, strike them on a slight hotbed, and afterwards harden them to the open air; rearing of the most slender growers, such as Formosa, Lucidum, or Campestrini, three plants in a 5-inch pot; the more robust, such as Princess Marie, Goliath, King, &c., are potted singly; when these pots are well filled with roots, I shift them at once into 11-inch pots, or those in which they are to bloom, using 1 inch depth of drainage and the compost before mentioned, only filling the pots to within 1½ inch of the rims, to allow room for a top-dressing in August; this practice I find to be far better than repeated shifts. Plunging the pots during hot weather in old tan or leaf-mould (in which salt is strewn, to check the worms) is highly beneficial; the plants stand thin in an open spot of ground, and a plentiful supply of water is given throughout their whole growth. I never stop a shoot in any stage of its existence; the practice is highly injurious even to the freest bloomers, while the flower-buds of the large, late varieties would be utterly destroyed by it. To obtain first-rate blooms, thinning the buds is essential; the central, or other most promising, only being left on each shoot.

I have generally from 10 flowers to 50 and upwards on each plant. After the roots have fully filled the pots (including the top dressing, and not till then), a little guano, or liquid manure, is applied once a week; this preserves the foliage, and invigorates the whole plant.

The following list contains what Mr. Tant considers the best varieties in cultivation; they are placed in the order in which they come into bloom:—

Earliest.	*Medium.*	Columbus
Imperial	Louis Philippe	Campestrini
Princess Marie	Pulcherrima	*Latest.*
Queen	Napoleon	Celestial
Formosa	Defiance	Two-coloured Incurved
Tasselled Yellow	Minerva	Orion
Vesta	Goliath	King
David	Memnon	Tasselled Crimson
Lucidum	Duc de Calineau	Perfection
Gem	Victory	Grandis
Bethulia	Mirabile	Chancellor
Marquess	Exquisite	

Mr. Tant exhibited a stand of most beautiful blooms of the following varieties: Formosa, King, Superb Clustered Yellow, Vesta, Goliath, Beauty, Imperial, Pulcherrima, Princess Marie, Minerva, Campestrini, Incomparable, Orion, and Bethulia.—Mr. M'Elroy stated that the water from a cesspool, containing the drainings from a cowhouse, was an excellent liquid manure for Chrysanthemums.—Mr. Sherwood had, for the sake of experiment, stopped the shoots of several of his plants twice during the past spring and summer; the results were, dwarf healthy-looking plants, small flowers on the freest bloomers, and on the late ones no flowers at all.—Mr. Croxford, after his plants had filled the blooming pots with roots, plunged them in the open ground, in order that the roots might run over the rims into the rotten dung placed above and around them. He took them up when near blooming, and placed them in a pit or raised frame until the flowers were expanded; if well supplied with water, their removal from the ground did not injure them in the least.—*W. Sherwood, Hon. Secretary.*

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

This Society held its tenth Anniversary Meeting, on Monday the 22nd inst., at the Horns Tavern, Kennington; James Coppock, Esq. in the chair. The Chairman opened the Proceedings by reading the Report of the Committee and Auditors, with the Treasurer's account, which was agreed to and adopted. The Auditors say, "We have examined the accounts of the Society, and find that the liabilities are Nil; the balance remaining in the Treasurer's hands £13 2*s.* 1*d.*; and the value of medals in hand, unawarded, £8." The following gentlemen were then elected officers for the ensuing year;—John Bright, Esq., Treasurer; for the Committee, consisting of 12 Amateurs, J. P. Burnard, Esq., J. Beetham, James Coppock, John Chapman, W. Davis, J. F. Hadow, G. Jeffs, T. J. Pring, M. Sangster, R. Seldon, W. Sandiland, and W. Trahar; 6 Nurserymen, Mr. R. Atlee, J. Bushell, James Dickson, John Dickson, Joseph Fairbairn, and W. Ivery; 6 Gentlemen's Gardeners, Mr. W. P. Ayres, J. Bance, P. N. Don, C. Embleton, E. A. Hamp, and G. Young; for Auditors, W. Moates, T. C. Wildman, and J. Dutson, Esq. A society like this is deserving of the warmest support of every lover of floriculture, for while the handsome and numerous prizes they have offered at their five shows this year have drawn together exhibitions which would not have disgraced the most powerful societies, by adhering to their plan of paying the prizes as soon as awarded, they will at all times command the efforts and the emulation of the best growers; this is much for any local society to do, and we are glad to find from the unanimity and good feeling which prevailed at the meeting, that the zealous and persevering efforts of the Committee for the past year were well appreciated by the members of the Society. Several extra prizes of 5*l.*, 3*l.*, 1*l.* 11*s.* 6*d.*, 2*l.*, &c., were offered principally by amateurs, and everything promises a brilliant campaign for the ensuing year. Five shows were announced among the arrangements already settled, the first to take place in April, at the Horns tavern, and the four following at the Royal Surrey Zoological Gardens, in May, June, July, and September.

Reviews.

Hortus Vanhouttianus; ou Description de Plantes Nouvelles, Rares, ou Peu Connues, introduites dans les Jardins de Louis Van Houtte, &c. Vol. 1. Part I. Ghent: 1835. 8vo.

This work is intended to appear about six times a year, and will give an account of the new plants which may be for sale in the extensive nursery of Mr. Van Houtte, of Ghent. It is given to his customers and sold to the public. We have two of Mr. Van Houtte's latest catalogues before us, and we certainly think that they promise an abundance of materials for his periodical. Many of the names are new to us. Others are those of plants very little known; and we understand that a large number of imported species at present undetermined, are necessarily omitted from the catalogue. Some account of the beautiful Alströmerias in this nursery was given by the Dean of Manchester, at p. 607. Specimens were subsequently exhibited to the Horticultural Society in Regent-street. We have ourselves received many species for examination which attest the richness of the collection. It was from this source that Habrothamnus fasciculatus, and we believe Cuphea strigillosa, first found their way to this country; and upon the whole we think that the course which Mr. Van Houtte has taken for bringing his plants more prominently into notice, is likely to be deserving of support from the public.

The new plants for sale are either figured or described in a really scientific as well as popular manner, or both; and therefore the world is able to judge of the accuracy of the names by which they are designated. This is a most important thing for buyers, who are by this time thoroughly tired of the endless disappointments to which they are doomed by the bad system, adopted by certain nurserymen, of applying some fancy name of their own to their plants, without giving themselves the smallest trouble to ascertain whether they may not already have received a dozen others.

The work is written in French: the plates are well executed in lithography. The Number before us contains figures of Thunbergia fastuosa, Mussænda Afzelii, Amorphophallus leonensis, Gunnera scabra, and a bird's-eye view of the grounds and houses of this enterprising nurseryman. A good many new plants are also described. We shall endeavour occasionally to draw attention to the novelties, and to ascertain how far they are absolutely new. But the latter is a very difficult task, and can only be done with more spare time than we at present possess.

New Plant.

Anthocercis ilicifolia. Holly-leaved Anthocercis. (*Greenhouse Perennial.*) Scrophularineæ. Didynamia Angiospermia.—A species, in colour and general habit, nearly allied to the showy A. littorea, but very distinct, and remarkable for its size, often 6 feet in height, and its very long twiggy branches, leafy below, terminating in elongated compound spikes of graceful pendent yellow flowers, the inside of the widely campanulate tube of which is elegantly marked with dark blood-coloured lines. It was first detected at the Swan River settlement by Mr. Fraser, who speaks of it as general on the river banks, and afterwards sent to us by Mr. J. Drummond. The plant requires a warm greenhouse in the winter; but in summer, during the flowering season, a cooler place, with a plentiful admission of air, will be the best suited to it.—*Botanical Magazine.*

Miscellaneous.

Extracts from a Report by Mr. Gardner on the Royal Botanic Garden in Ceylon; dated August, 1844.—Besides the staple articles cultivated at present for commercial purposes, such as Coffee, Sugar, Cinnamon, Cotton, &c., there are many other productions peculiar to tropical countries which might be cultivated on a large scale in the island, not only with profit to the agriculturist, but as a source of increase to the public revenue. As the introduction of novelties, however, is generally attended with much difficulty, and no little expense, when undertaken by private individuals, few interest themselves with such matters. Fearful of failure they remain contented with what they have been accustomed to cultivate. Even after their introduction experiments require to be made with regard to the soil best adapted to their growth—the most effectual and rapid method of propagating them, and the amount of

produce compared with the expense of labour bestowed thereon. It is only an institution maintained at the public expense which is able to undertake in an efficient manner the investigation of such matters. Apart from the productions which might be cultivated on a large scale, there are others which are not only highly essential to the domestic comfort of every colonist, but which might be made a source of profit to the less wealthy European settlers and natives residing in the vicinity of towns: I mean fruit, vegetables, and fodder for stock. Nothing surprised me more, on my arrival in the island, than the inferior quality of those articles, particularly the fruits, compared with those I have been accustomed to in other tropical countries, and the inattention which prevails among almost all classes with regard to their improvement. A colonial botanic garden should be allowed the means of introducing from other countries the best qualities of fruits, vegetables, and other useful productions, and be a nursery for their propagation, their amelioration, and their diffusion through the colony.—It is a remarkable, but not the less a true circumstance, that of all the British possessions in India, the vegetation of Ceylon is the least known to the botanists of Europe; and that most of what is known is the result of the investigations of a lady—the accomplished and indefatigable Mrs. Col. Walker. The reason why other parts of India are better known has no doubt been the liberality of the East India Company in maintaining numerous collectors and draughtsmen in various parts of their territories, under the direction of the superintendents of their botanical gardens, who have almost always been well-educated medical men, and passionately devoted to the furtherance of their favourite science.—Another, and a very important manner in which a tropical colonial botanic garden may be of use to the mother country, is the observations and experiments which may be carried on regarding the temperature of the earth and air, the amount of moisture suspended in the atmosphere, the quantity of rain which falls, and the intensity of the solar light, all of which are most important matters to be known by those who are endeavouring to cultivate the fruits and other vegetable productions of tropical countries in the hothouses of England.—Much requires to be done before the part now under cultivation can be made to assume the appearance it ought to have. On my arrival at Peradenia I found nearly all the principal borders and other parts overrun with white ant-hills, most of them several feet in height, and consequently very offensive to the eye, as well as injurious to the plants. My first business was to employ a number of men to root them out, which I am happy to say has now nearly been accomplished, and care shall be taken in future that they be destroyed as they make their appearance. Many of the walks require to be thoroughly cleared of the mass of weeds by which they are now overrun, and re-laid with gravel. The only one out of the cultivated portion which it is my intention to keep up, is the continuation of the great central one down to the river, and from thence up the stream to the upper part of the garden, so that there may be a carriage drive round at least the greater half of the whole grounds. For the last 12 months the garden has been deprived of its usual supply of water in consequence of the water-course having been allowed to get out of repair. This was found to be a serious evil during the drought which occurred in the months of May and June. Now, however, that the rains have set in, it is not so much felt; but I would urge on his Excellency the necessity of having the course put into a substantial state of repair, previous to the occurrence of much dry weather.—Much has been talked about the necessity of having all the plants in the garden arranged according to some scientific plan of classification. This, which is a very desirable thing to have adopted in a garden belonging to a university or a medical school, I do not consider to be at all necessary either for increasing the beauty or utility of such a garden as this. Indeed, the more mixed ornamental plants are, the more pleasing are they to the eye of those especially who are not initiated into the mysteries of botanical affinities. A more important object will be to have the botanical name of each plant attached to it.—On my arrival at Peradenia I was not a little astonished to find that a large portion of the Botanic Garden had a few months previously been converted into a market garden, in which nearly one-third of the labourers allowed for the entire operations were daily occupied. Indeed, I may say that at that period nearly double the number mentioned were engaged in this department. As the drought was then excessive, and the watercourse out of repair, 10 men were constantly occupied in carrying water from the river, the greater part of which was used in the kitchen garden. I likewise found that another man with a bullock-cart was daily sent to Kandy with vegetables, &c., for sale, the returns for which seldom exceeded 1*s.* or 2*s.*, and not unfrequently only extended to the paltry sum of 9*d.*

CALENDAR OF OPERATIONS

For the ensuing Week.

I.—HOTHOUSES, CONSERVATORIES, &c.

Hothouse.—The uncertain state of the weather will entail an unusual degree of assiduity on the part of the cultivator, as the application of a large supply of artificial heat at one time, and the absence of it at another, are alike dangerous to all plants under glass, but particularly so to those requiring only a temperate climate. It will therefore be absolutely necessary to employ a more than ordinary amount of diligence and forethought to ward off the destruction which will assuredly follow the least negligence. The young gardener should set about studying the atmospheric changes, being guided in a great measure by the instruments usually employed for that purpose. Nothing relating to his profession can be of much more use to him than an intimate acquaintance with these phenomena which affect so seriously his pursuits. A gardener, in fact, is always at the mercy of the weather. A chief part of his occupation is to apply heat and water to counteract the drying and freezing effects of summer and winter. To understand how to apply these without injury to vegetation is a matter of great importance to all plant growers, more especially to the inexperienced in such matters; they cannot therefore do better than begin the year by making themselves thoroughly acquainted with the subject.—*A.*

II.—FLOWER-GARDEN AND SHRUBBERIES.

Discontinue the digging of borders for a short time until the soil gets into a sufficiently dry state. Lay turf if not already done. Dig gravel, &c., for spring use. Rhododendrons in woods would be much benefited by having a small quantity of leaves placed over their roots to keep the ground moist during the summer months; also gather the seed as soon as the capsules begin to burst. In wet weather prepare labels, sticks, crocks, &c., for spring and summer use. Clean seeds, &c. See that recently-planted shrubs and trees are not loosened by wind and rain. Sweep and roll walks, lawns, &c. Protect bulbs if the weather changes to frost. Nail and tie up climbers on walls, trellises, &c., and protect the roots of any that are not perfectly hardy. *Pits and Frames.*—Plants suffering from drip must be removed to a better situation, in order to prevent their roots from perishing. Cold pits and frames ought to be defended by linings of Fern or leaves to repel the frost. Give air freely when the weather is not frosty. Avoid watering at this season, and remove all damp leaves, &c., the moment they appear.—*B.*

III.—FLORISTS' FLOWERS.

Trusting that former injunctions have been duly observed, the amateur's collection ought to be in first-rate condition, especially as the weather has hitherto been so open and propitious. It is possible that seedling Tulips and offsets, which were planted early, are now beginning to show themselves above ground; in this case, care must be taken to cover them as they appear. I usually put small cones of white pit sand over the advancing plants; by which means they are saved from frost, and canker is prevented. In severe or rainy weather, mats or other covering should be put over the best bed. Auriculas and Polyanthuses in frames ought not to be closed up in a wet state, the former in particular being extremely impatient of damp. Take great care that the drainage is effective, and remove all dead or decaying leaves as they become yellow. After frost examine all plants, as Carnations, Pinks, Pansies, &c., on beds; fasten them as required; small Fir branches, 6 or 9 inches in length, stuck round and amongst the plants, will have a very beneficial sheltering effect. Collect leaves, turn soil heaps, cast leaden labels and layering pegs, prepare crocks for drainage, mend and make shades for Carnations, and see that everything is put away ready for use.—*C.*

IV.—PINERIES, VINERIES, &c.

Do not suffer the linings of dung pits containing young Pines to decline; keep, if possible, a temperature of 50° at night and 60° by day, with air less or more at all possible opportunities. Late swelling fruit should be sedulously attended to, supplying much atmospheric moisture to counteract the parching tendency of pipes or flues, and suffering the plants to become dry in the leaf once in 24 hours. Keep up strong fires on light days, so as to be enabled to give front air; if sunny, allow the thermometer to rise up to 85°, lowering it to 55° or 60° on dark days and on the approach of evening. *Strawberries.*—As soon as these put up their blossom stems, encourage them to lengthen by all possible means; to this end do not hurry them; it will probably end only in abortion. Liquid manure is of great service; a mixture of soot water and guano as clear as fine ale will be found to benefit them exceedingly, using plenty of the soot. *Vineries.*—Proceed cautiously with your Peach forcing and Vines; as soon as the latter "break," the temperature by day should be allowed to advance to 65°.—*D.*

V.—HARDY FRUIT AND KITCHEN GARDEN.

Proceed with pruning and nailing as previously directed. Whilst the ground is not frozen trench as near the roots of fruit-trees as can possibly be done without injuring them, and work in fresh compost with a fork. In bad weather prepare nails and shreds. Nails should be heated, but not to redness, and then plunged in Linseed-oil. Frequently examine Apples and Pears, and remove all that exhibit the least symptoms of decay. Place a number of fragments of unslaked lime in small flower-pots or boxes throughout the fruit-room, in order to render the air dry and sweet. Lime will continue to abstract moisture from the surrounding air till completely slacked, and before this becomes the case, a bushel will absorb an amount of moisture equal to 5 gallons of water. *Kitchen Garden.*—The seed-room should be kept cool, yet perfectly free from damp, which should be effected without the admission of a current of air. This can be done by the means above recommended for the fruit-room. It is a good plan to procure more seeds than will actually be required for the sowings of one season; for although seedsmen ought to be answerable for the quality of their seeds as far as their vegetation is concerned, yet they may be deceived with regard to some of the varieties coming true to their kinds; and therefore if you have had seeds of Cauliflower, Walcheren Broccoli, &c., which have come true this season, take care of any seed that may have been left. Plants from such can be depended on, whilst those from the new seeds may prove a degenerate race.—*E.*

State of the Weather near London, for the week ending Dec. 25, 1845, as observed at the Horticultural Garden, Chiswick.

Dec.		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid.	19	20	29.358	28.937	49	36	42 5	S W.	.17
Sat.	20	21	29 019	28.785	47	32	39.5	S.W.	.03
Sun.	21	☾	29.794	29.421	39	28	33.5	N.W.	.10
Mon.	22	23	29.618	28.933	46	34	40.0	S.W.	.20
Tues.	23	24	29.719	29.081	41	31	37.5	N.	.11
Wed.	24	25	30.211	30.042	43	24	33.5	N.E.	
Thurs.	25	25	30.264	30 176	48	34	41.0	W.	.01
Average			29 711	29.346	45.1	31.3	38 2		.52

Dec. 19—Densely and uniformly overcast; rain: clear
20—Barometer exceedingly low; clear and fine; dark clouds and rainbow; clear
21—Boisterous and densely clouded; clear, with dry frosty wind at night
22—Densely overcast; snow; sleet; rain; very boisterous at night
23—Boisterous, with heavy clouds; clear and frosty
24—Clear; cloudless, with bright sun; exceedingly fine throughout
25—Densely overcast; hazy; rain; foggy at night.
Mean temperature of the week 1½ deg. below the average.

State of the Weather at Chiswick during the last 19-20 years, for the ensuing Week ending Jan 3, 1845.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 28	41.1	30 9	36.0	7	0.15 in.	2	1	2	3	2	—	5	4
Mon. 29	42.5	34 7	38.7	8	0.15	1	2	1	2	2	2	6	3
Tues 30	45.2	34 7	39 9	7	0.16	1	3	2	2	—	5	5	1
Wed. 31	44.8	33.5	39.2	5	0.24	—	4	—	1	3	5	4	2
Jan.													
Thur. 1	43.1	30 9	37.0	7	0 70	3	2	1	1	3	3	4	3
Fri. 2	41.3	29 8	35.5	7	0.21	2	1	3	—	3	2	3	5
Sat. 3	41.1	30 0	35.6	10	0.30	1	1	3	—	3	5	3	4

The highest temperature during the above period occurred on the 31st, 1834—therm. 53°; and the lowest on the 3d, 1827, and 1st, 1837—therm. 12°.

Notices to Correspondents.

Books—*Dublin, College Green*—"Hoare on the Vine" for Vines on walls, "Roberts on the Vine" for forcing.——*F*—Lindley's "Theory of Horticulture."——*A Constant Reader*—We fear that your object is one which no periodical will supply. You had better try the "Botanical Register."

Cacti—*E R*—Most certainly your question never reached us, or it would have been duly answered.

Cucumber Pits—*John Kelly*—If you are a good gardener you may grow Cucumbers and Melons in flued houses, and of course you may get them forward enough there to ridge out. Plant your Bangers over the dung; the course you have taken is very proper. We do not comprehend your question about "getting off the present beds." If you mean that your Potatoes are sprouting, why you had better plant them at once, and ridge them up enough to prevent the shoots getting frost bitten; you can easily rake the ridges down again in the spring.

Heating—*Clio*—Indeed we cannot recommend tradesmen; you will find full information in our advertisements, or by application to the advertisers. By no means use the gun-barrel pipes, but good 3 or 4 inch pipes; and add a small tank for hot-water vapour if you can afford it. Fellows of the Horticultural Society are supplied with such plants as are in distribution without charge. Many such lists as you request will be found in previous Numbers, among the Notices to Correspondents; especially consult pp. 72 and 460; however, by next week we will have a new list prepared for the new year. We never take fees.——*W P K*—Having a quantity of 4-inch pipes, you can very well employ them for heating your pit. All you have to do is to place them in a chamber, communicating with cavities at front and back. Slate is the best material for supporting the soil; but whether slate or wood be the material employed, it should be laid perfectly close and level. Sufficient top-heat will ascend by the cavities.‖——*A Subscriber*—You will find ample information respecting tank-heating in previous Numbers of this Journal. Hot water is by far the best material for obtaining bottom-heat. If you can make the flow-pipe rise a little into the tank, and the return-pipe fall, so much the better. For such a tank as you speak of, a second-sized boiler will do. We cannot recommend tradesmen. Consult our correspondence.

Insects—*ψλ*—The slightest touch of naphtha, applied with a brush, will kill the American blight on Apple-trees. Coal-tar naphtha answers the purpose as well as any other kind, and is the cheapest. With regard to the brown scale on Vines, the surest plan is to displace them by mechanical means, and then wash with a brush and soap-suds.‖

Melon-pits—*Banks of Doveron*—Pigeon-holes in wood-work will answer for the admission of heat from dung linings, as well as if they were formed in brick-work; but wood in such a situation cannot last long. If well-worked dung be employed, sufficient heat will be generated in trenches 2½ feet wide; but the walls should be pigeon-holed nearly to the bottom of the trench.‖

Names of Plants—*Sub*—Tropæolum azureum.——*C B, Clericus*—The Lucombe Oak.——*Harraby*—Teucrium fruticans.——*A B D*—Dendrobium aureum.——*B C*—We must beg to direct your attention to our having repeatedly stated that if plants are to be named, examinable specimens *must* be sent, and that we cannot waste time in finding out the names of leaves without flowers. No. 1 *may* be a morsel of some Daviesia; No. 3 may be Sempervivum arboreum. Periploca græca is a hardy twining shrub; you have only to plant it in light, well-drained soil, and it will take care of itself.

Potato Fungus—*Ely*—We will attend to your suggestion in our next, if possible.

Primula sinensis—*J W*—Among your seedlings, the bright rosy crimson variety is the highest coloured one we have seen, the other specimens are not uncommon.

Pruning—*Stockton*—Next week.

Sea-kale—*An Amateur*—The rotting of your plants is more likely to have been occasioned by over-heating with rank dung in forcing, than by the state of the soil. Mix the heating materials with leaves. Trench and prepare the ground for a new plantation as you propose. You may safely use 12lbs. of salt to a rod, cropped with this vegetable.‖

Sea-water—*J W*—We do not anticipate any serious mischief to your garden from its having been overflowed by the sea. If the crops are washed away dig the ground and replant with Cabbages, which like a little salt. Your Pelargoniums must be treated with more care. Knock the soil off them, wash them in fresh water, and repot in fresh soil, cutting back the unripe wood which is beginning to change colour.

Training—*Charing*—In training branches spirally upwards from two main horizontals which your headed-down old Colmar tree has formed, you need only shorten the former a little, merely depriving them of the imperfectly-matured extremities.‖

Vine-borders—*Tyro*—The component parts of concrete are—1 proportion of powdered quicklime, 2 of coarse sand and small pebbles, worked up with water to the consistence of thin mortar. 40 bushels of lime will be proportionate for a border 50 feet by 12. The mixture should be worked till the lime is completely slaked, and immediately spread evenly where it is intended to set.‖——*Corresp. Norfolk*—You may apply 30lbs. of guano to a Vine-border 60 feet by 15; but it will ensure safety if you first mix the guano with rich fresh loam, and fork in the compost a few weeks hence, taking care that the guano is exposed to the air as little as possible.‖——*J A P*—Under your peculiar circumstances of being compelled to build a floor upon your Vine-border, we would advise you to proceed thus. 1. See that it is thoroughly drained. 2. Lay sleepers of brick or wood or stone across it, and on those sleepers lay your flooring. In that way you will prevent the latter resting upon your Vine-border. Then contrive ventilating holes in the side of the wall which carries your floor, so that air may get at it. Leave also traps here and there in the floor itself, which may be opened for the purpose of giving your Vine *warm* water in the spring, when it is making its growth.

Ward's Case—*Muscus*—He who wishes to grow Mosses in this contrivance need only put them with some damp peat into a bottle and cork it up. Nature does the rest. A bell-glass with its edge resting in sand is as good as anything, provided the sand is kept moist. You would do well to read Mr. Ward's little book published by Van Voorst. We never recommend tradesmen. It is their business to bring their wares into notice by advertisements. We cannot undertake the settling of exchanges.

Misc—*C C*—Fellows of the Linnean Society are allowed to borrow books; we believe an A.L.S. pays 1*l.* 1*s.* a year. You should apply to the Secretary.——*M W K*—If your plants are rightly named there are some very good things among them; and they are not at all dear. The Veronica speciosa is dog cheap.——*Norfolk Corresp*—You may apply guano to Asparagus beds at the rate of 15lbs. to a rod, with abundance of water.‖——*Woglog*—You will find instructions have been given in the Calendar of Operations.——*R W*—In pruning Apricots and Plums trained against a wall, the wood of this year's growth should be a little shortened, in addition to thinning out where it is too thick.‡——*J A T*—Royal Muscadine and Black St. Peter's.‖——*A S*—Royal George and Grosse Mignonne.‖——*Banks of Doveron*—Your Apple-trees intended for espaliers should be grafted on English Paradise Stocks; your Pears on Pear stocks, for your subsoil, being rotten slaty rock, would be too dry for the Quince stock.‖——*Horsham*—You had better apply to the Secretary of the Agricultural Society, Hanover-square. Camellias will bear the same heat as Pelargoniums. A greenhouse for forcing the latter may be kept between 50° and 60°.‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

FARM TO LET, Seven Miles to the South of London. 184 acres: about 60 Grass and 70 Arable. Soil, rather heavy. Address, S., Gardeners' Chronicle Office.

The Agricultural Gazette.

SATURDAY, DECEMBER 27, 1845.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Jan. 1—Agricultural Imp. Soc. of Ireland.
FARMERS' CLUBS.

Jan. 3—Melrose; — 5—Darlington, Usk | Jan. 6—Wrantage, Aberavenny; — 7—Monmouth

WITHIN the past week we have received a great many reports of AGRICULTURAL SOCIETIES from their secretaries, accompanied generally by short histories of their progress, and statements of their present prospects. From information thus acquired, we are bound to conclude that Farmers' Discussional Clubs are, unfortunately, for the most part, short-lived Societies. They spring up under the fostering care of two or three intelligent members, increase for a year or two in the numbers who join them, and in the interest they excite, but, at length declining in both of these respects, after struggling through a few seasons, they die. Among the communications in answer to our appeal on this subject, many contained professions of willingness to satisfy our inquiries; but, says one, "I am sorry to say it is long since I made the last effort to assemble our members;" and another, "Our Farming Society has not been in existence for the last two years; it died from the want of that sustenance which the resident gentry shamefully neglected to give it;" and a third, "Our Club has ceased to exist for 3 or 4 years; it met with a violent death through the folly of two or three of its members, who objected to your humble servant continuing the office of secretary, because of his political principles;"—in fact, the answers received to many of our inquiries have just been a series of epitaphs, each recording the period during which a Society existed, and the date and cause of its death. Now, in order to determine the proper method of treating a disease, it is important that the symptoms which it exhibits should be fully understood; and it may, therefore, be as well here to mention that, among the many deaths detailed to us, very few, indeed, have been abrupt and violent; they have more generally been of a lingering character, such, indeed, as that hinted at above, which would result from a sufficiently long period of semi-starvation. The following letter, received from the secretary of what, as it is now in its third year, must, we fear already be considered a middle-aged Society, exhibits very fairly the condition of the majority of existing Farmers' Clubs, so far as we are able to judge from the reports which have been received:—

"If you can give me any advice as to the best means of reviving our Club, I should be very glad. When we began, we had good meetings, but they gradually fell off. There is hardly a person in the Club, except myself, and, perhaps, two or three others, who would, for a moment, entertain the idea of committing their thoughts on any subject to paper. If a scientific subject is brought forward at one meeting, it is, I fancy, a pretty sure antidote to attendance at the next on the part of many. I have, therefore, endeavoured to raise conversational discussions on points of practice. A great deal of information is struck out in this way, but no man thinks of waiting to deliver his sentiments till others have done speaking, and the result is a pretty considerable hubbub. The conversational mode of discussion is the only way to be pursued, because most of our farmers have no notion of getting up and making a speech. Conversation begun, it is soon carried on in groups, and it would take a cleverer secretary than myself to furnish a report of the meeting. I can hardly blame the farmers for non-attendance now, because I feel that, from the reasons above given, our meetings have been, to a considerable extent, unprofitable. We have an anniversary meeting in June, at which we obtain a lecturer, and an annual ploughing match in October. On each of these occasions we have a dinner, and *this* is well attended, and at *these* the members of the Club are tolerably enthusiastic in its support. If the members of the Club would really co-operate with the few who do exert themselves to sustain it, I feel strongly that the ——— Farmers' Club is most favourably situated for success. We meet in a market town in the centre of a very fertile agricultural district, presenting great field for improvement, and the farmers, prejudiced though they may be in a great degree, are, for the most part, very sound and intelligent practical men. Your list of subjects [see p. 842] for discussion is calculated to be of great service, and if we do elicit anything which I think suitable for your pages, you shall receive it."

It only needs, in order that our readers may be able to judge of the general history and present condition of these Discussional Societies, that we give an extract from one more of the reports which have been sent us, which may be taken to represent the character of a very few out of some hundreds. The writer says:—

"I have great pleasure in stating to you that we have had an accession of members this year, several of whom have been living in the immediate neighbourhood, and when asked to join us, used to reply, 'Oh, I don't see of what use it is; I already know how to farm as well as any of you can tell me,' but I believe such notions are fast giving way; it always appeared strange to me that farmers should not be members of a Club, when there is an opportunity of gaining information, and, also, I am confident, profit, when, on the other hand, they have no chance whatever of loss."

The fact is, Farmers' Clubs, in their present condition, are a failing population, whose members rarely attain more than 6 or 8 years of age. The majority are drooping towards death, many have already ceased to exist; some, it is true, are rising up here and there to fill the void which has been left, but a few only of them all exhibit full vigour and activity. It is certainly much to be desired that this last case were more general, for no Societies, we are persuaded, are so useful in the cause of agricultural improvement as those which, like these, tend to that kind of self-instruction which a body acquires by the intercourse of its members.

Farmers' Clubs are of two kinds: first, those existing in well cultivated districts, where the occupiers of land are an intelligent class of men, who know the importance of inter-communication on agricultural topics, and the advantage of an acquaintance with the theory of their art, and who, therefore, unite together to discuss points of farm practice, or to hear hired lecturers illustrate the teachings of agricultural chemistry or geology; and, secondly, those existing in the ill-cultivated parts of the country, amongst a comparatively uneducated tenantry, which have been established, it may be, by some of the neighbouring landowners, and are to be kept alive only by the constant exertions of their office-bearers. It is amongst Clubs of the latter description that mortality prevails; the former have all the elements of permanence and vitality *within* them, and, though liable in rare cases to an abrupt and violent death, this, like similar cases amongst ourselves, is generally the consequence of an excess, as it were, of the vital principle; or, to drop the simile, it is owing to an excess of interest in the subjects they discuss; the latter class of Clubs, on the other hand, have to be maintained by a force from *without*, by nourishment to be supplied, and we cannot help thinking that the lingering sort of dissolution which sometimes attacks them is generally caused by that semi-starvation, the effects of which it so resembles. Perhaps the majority of Farmers' Clubs belong to this second class, and it is well that where any have established a Society of this description, they should fully understand that it will not do to leave it to itself; the attendance of its members must be kept up solely by *their* exertions; any relaxation of effort on their part before the members have been educated, as it were, into a spontaneous interest in the matters they discuss, is subjecting the Society to a course of starvation which will surely end in death.

The interest of its members in the continuance and activity of a Farmers' Club is, of course, to be kept alive simply by such a selection of subjects so treated, as it shall evidently be for their interest, as farmers, to consider and discuss. And we have only to add that we are happy to place all the means of assistance we can command at the free disposal of the office-bearers of such Societies as these. There are none, we are persuaded, of greater usefulness to the agricultural interest, and no men have a more influential connection with the progress of agricultural improvement than their secretaries; and we shall feel highly honoured, if permitted, so far as our means extend, to assist these gentlemen in the performance of their arduous duties.

ON THICK AND THIN SOWING.

(*Continued from page* 863.)

SINCE writing the foregoing, such a mass of recent facts have come to my knowledge, all in favour of thin sowing, that I am perfectly convinced it must answer as a principle on an average of seasons, with proper management, and a regard to circumstance of game, weeds, &c. I have reason to believe that the frequent disturbance of the soil in the various stages of the growth of the plant, is a great protection against insects, by exposing or destroying their larva prematurely. I do hope prejudice will not prevent every farmer from satisfying himself, by trying an acre or part of one, in each field, with a small quantity of seed, and do this for several successive years.

It is quite possible that when once the principle of thin sowing is well established, that transplanting corn, one plant on every square foot, will be extensively adopted. It can be done very cheaply, say about 12*s.* per acre or less, and if (as is shown at page 42 of my book) we can thus secure a greater crop and economise seed, it would be doubly advantageous, by allowing us to feed off our roots for Wheat on light land, or to expose our heavy land to the pulverising and chemical action of frost. It appears to be agreed on all sides that if there is a sufficient plant in March, or the early part of April, we have nothing to fear from thin sowing in common seasons. Now even admitting that a particularly adverse winter, like the last, should kill a portion of the thin-sown Wheat plants, I see no reason why we should not transplant the vacant places from a rich seed-bed, late in March, or early in April; I have reason to know that such plants will come in good time, in ordinary seasons, with the rest of the crop. At all events, let us try and convince ourselves in all these points, by experiments on a small scale.

One of the chief benefits derived from using Newberry's dibbling-machine is the consolidation of the soil, by its great weight, thus closing up the burrows and retreats of the insect tribe, crushing and starving them. It should never be used when the land is in a pasty state. Where the drill is used on light lands, it ought to be followed by Crosskill's clod-roller, to obtain a similar result.

The remarks made by various farmers, who have inspected my farm, convince me that thin sowing will never become a favourite by its appearance, but by calculation. Thin sowing in its early growth never looks like a crop till it is measured in the bushel. The length and breadth of ear, and size of kernel, are slightingly passed over, whilst fear points to the uncovered intervals. The abuse bestowed on Mr. Hewitt Davis is characteristic of obstinate and prejudiced attachment to old customs. How frequently am I told, "Oh! but Mr. Davis is, I hear, not a good farmer." My answer is, "Look at his stacks and his stock. The man who produces 14 stacks on the same land that only used to produce 4, and keeps three times as much stock, cannot be a bad or middling farmer." But, then, thin sowers will always be pitied and abused, because the crops look thin on the ground, and because two halfpence always look bigger than a penny. No doubt I shall be equally contemned, but my stacks and my stock will be my justification with men who calculate; with those who do not, it is useless to reason.

A neighbour of mine, at Stamford-hill, has this season dibbled one Wheat kernel in every square foot. Each kernel has produced, on an average, 15 perfect ears. I have closely inspected them myself, and consider they would produce an increase of 9 qrs. per acre, had that quantity of land been sown; and yet most farmers would call this a thin-looking crop. They bow down to the tremendous thunder showers we have recently had, but boldly raise their heads again; they were sown in October. My neighbour is of opinion with me, that, with early sowing, they would have tillered still more; but, most probably, the more numerous the heads the smaller would have been the ears and kernels, so that nothing would be thus gained—except time, a most important object. They are giants in appearance, compared with the ordinary puny ears and stems of those sown in an adjoining seed-bed at the same time, and on the same quality of soil. This is an important fact; because it proves that thick sowing absolutely diminishes the produce in an extraordinary degree, whilst the reverse takes place by thin sowing. The height of the thin sown was 5 feet, that of the thick about 18 inches less. The ears of the thin sown 6 inches long, the flag-leaf fully 1 inch broad, the rows of kernels were about 12 to 13 on each side, and it is calculated that each would average at least 100 kernels. Thus, as every kernel dibbled vegetated, there would be an increase of 1500 for 1. The appearance of this crop justifies my opinion, that, although sown in good soil, it would have been more forward, and the ears more uniformly developed, had it received, during two or three periods of its growth, top-dressings of manure, such as soot or guano, mixed with fine bone-dust, gypsum, and nitrate of soda. I also conclude that, had this Wheat been sown in July, in a seed-bed, and transplanted in October, one plant in each square foot, it would have been a fortnight earlier. A friend of mine produced ears 8 inches long, by transplanting in October. Transplanting deeply, say from 4 to 5 inches, a foot every way, either in October or April, will produce a crop; but I should much prefer September or October, because it would forward harvest. I have seen some transplanted last April, one plant in every square foot, which quite surpasses that in the seed-bed from which it was taken, although sown in October.

In my opinion the safest and cheapest way to secure an early and abundant crop, is to sow in a rich seed-bed in July, and transplant in September or October, or as early as your operation will permit, giving ample space and abundant food. I hope we shall as a system consider it good policy to forward the growth and increase the quantity of our Wheat-crops by top-dressings, and so leave our land ready for another crop. To do this with thick sowing would be ruination. Let us then try it with thin dibbling or transplanting. We must not forget that one kernel on every square foot is only two quarts per acre, and that those who sow three bushels per acre put 48 kernels on every square foot, and only get a return of 13 for one when they reap five quarters per acre. Let us bear in mind it is the ample supply of manure and not the large quantity of seed that ensures an abundant return and improved staple of

soil. Many farmers in a particular description of soil are fearful of growing Wheat, because from its rankness it gets ruinously laid. Thin dibbling and abundant rolling would remedy this. The maximum of size and number combined is the point we want to ascertain; much depends on the quality of the soil and character of the season; but still more on the supply of food we administer to the plant. I have no doubt in my own mind, that by occasional top-dressings in a showery season, as much as 13 quarters per acre could be grown by thin sowing, perhaps more. Of course this opinion will be ridiculed by those who do not calculate. Let such folks bear in mind that 240 kernels for one, supposing we sow two pecks per acre, would be 15 quarters per acre. But then we must apply to the soil a sufficiency of food to mature such a crop.

To attempt to grow 15 quarters per acre with only food enough for 5 quarters, would be as absurd as trying to keep three horses in condition with only one horse's allowance. You can never ripen a large quantity of large ears unless you give a proportionate quantity of manure to mature them. Starvation to either man, beast, or plants, will reduce them to mere skeletons; abundance of suitable food, with cleanliness and warmth, will make them comparative giants. The concentration of manure and its consequences are plainly exemplified at our flower-shows, where enormous masses of flowers and foliage are produced by one solid foot of prepared earth. In a state of nature forty times the quantity of soil would fail to produce similar results. No doubt the frequent application of moisture when requisite assists in producing this effect; but a knowledge of this fact should stimulate us to study irrigation, and apply our liquid manure to the roots when the plant is in vigorous growth, instead of wasting it in our horse-ponds. I know and can appreciate practically the effects of such applications.

I hope we shall hereafter deem it good policy (at least I shall do so), to expend 3*l.* to 5*l.* per acre in top-dressings upon our Wheat crops at various periods of their growth. If by doing this we can increase our quantity by three quarters per acre, which I am sure we can, it is not only a present profit but a future gain, because as we increase the surface-growth, the subterranean growth is equally encouraged, filling the earth with vegetable food for a subsequent crop, and leaving the land in condition to support immediately another crop, with the unconsumed portion of our top-dressings. We must never forget that roots are most sensible fellows, they will never go away from a meal that contains all the necessary component parts for the formation of their superstructure, provided they have in addition a sufficiency of air and moisture. A Vine-root will enjoy a bone for many years, and never leave it till its goodness is completely exhausted; but then a bone is porous and attracts and retains moisture and air, as well as containing all other requisites. Let us apply this knowledge by mixing bone-dust, burnt-earth, and gypsum with our guano and other stimulating manures. Let us never forget that by wide and thin sowing our land can be kept like a garden, in readiness to receive another crop. The principal advantages of thin sowing, are, in my opinion, the effects of frequent tillage on the subsequent crops of the course, and the consequent continual amelioration of the soil—matters of importance to both tenant and landlord.—*I. J. Mechi, 4, Leadenhall-street, July* 1845.

P.S.—It is a curious fact that no farmer would allow Cabbages or roots to cover the ground in their early growth; and yet he denies to his Wheat-plants that room for expansion which he considers so necessary to the Cabbages. As to a provision for the wire-worm, that is quite unnecessary now, because it is a well-established fact that Croskill's clod-crusher roller is an effectual remedy or preventive; although I believe there are plenty of farmers who will not believe it, or decline using it, preferring the loss of their Wheats—a heavy penalty for prejudice or obstinacy.

The following remarks received by me in two letters from an experienced farming friend, are so just and appropriate that I annex them in the hope that they may assist in removing prejudice:—"Some 40 years since a relative of mine, who farmed most extensively and scientifically, drilled never more than one Winchester bushel per acre, and he continued to do so for many years, and until the day of his death; but few or none followed his example: men were too ignorant to emerge from their ancient prejudices of sowing much in order to reap much; but whoever lives to see it, the time is near when no more seed than four pecks, if so much, will become general; indeed, it is absurd to put in more seed than that quantity. Last year there were some wonderful yields of Wheat, but as far as I have been able to ascertain from inquiries, wherever the plant was the thinnest—there the yield was the largest. In my parish, nearly seven quarters or quite, was produced from less than six pecks of seed; and one farmer in the neighbourhood told me and my friend, that he had an unusually thin plant on one field; so much so, that he was near ploughing it up; but he let it stand, and on that field, 16 acres—he had 16 coombs to the acre; and I never heard of a large crop from a thick plant. I rejoice, therefore, that you are trying thin seeding; depend upon it you will succeed in the end. You know I am, from many years experience, thoroughly convinced of the reasonableness and of the advantages of thin seeding; indeed, I consider it is just as absurd to put 20 Acorns into a hole to produce an Oak-tree, or 20 Windsor Beans to produce one Bean-stalk, as to put 20 grains of Wheat, or Barley, or Oats, as is often done, into a hole, in order to produce one shoot or plant; indeed, did we not see it done, did we not see two, three, or three and a half bushels of Wheat upon one acre of land for seed, we should not believe that men in their common senses would do it. But so it is, and it *is* done everywhere nearly, and almost by everybody, though no man can give a rational reason why it is done; but if you ask a farmer why, he replies, 'because I always have sown so much, and so did my father, and so did my grandfather, and uncle Toby, and all our family.' Aye, say I, and they either walked to London, if they ever went thither, or rode on horseback, and probably made their wills before they set out, and took their leave of their families, and were always three days on the road, that is from these parts. But now people go the same journey in three hours, and so do you; but if you were to follow all the practices of your forefathers, you would go to town now as they did then, and in fact do everything which they did, and as they did, and alter in nothing. But so it is, they sow bountifully, that they may reap bountifully, as they think, and as they will continue to think, until education will push them out of their seats, and place other men with more enlightened views in their places."

June 25.—A gentleman in Suffolk writes to me thus, under yesterday's date:—"I have a piece of Wheat sown at 10 inches distant, 1 bushel to the acre, drilled, which I heard pronounced by a stranger to be the best looking field he had witnessed between Cambridge and Sudbury. My drilled Wheat at 3 pecks per acre was rather later than it ought to have been; but, I believe, from present appearances, it may be estimated at above the average. I have no hesitation in saying, that the thin sown Barley, at 7 pecks*, 10 inches apart, is the best crop in this neighbourhood."

"*Suffolk, July 18th*, 1845. Dear Sir,—Your letter followed me here from Herts, but I regret that I should not in any case have had a moment for a call in Leadenhall-street on my way to Surrey, where I passed two very interesting days, one of which was entirely devoted to the inspection of Mr. Davis's farms, which he was kind enough to accompany us over in person, explaining his whole course of cropping, working the land, and finally (but I agree with you, indisputably, and inseparably connected with the other two, deep drainage and deep and frequent tillage) his plan of thin sowing. My nephew has carried out the latter in Herts most successfully, though experimentally, as any prudent man would. In the same field I saw portions of 5 pecks and two bushels of Barley, and the decided superiority of the former was very apparent. What was very remarkable, also, was that the thin sown grain appears to be of slower growth and development than the other, as I was assured that three weeks ago it was as much below the other in length of Straw and vigour of growth as it stands now above it. The same remark may apply to his Wheat lands, where the breadths of 4 and 3 pecks are very superior to those sown with 2 bushels and 2½ bushels.

"But the most decided and satisfactory proof to my own mind is to be met with on my own little farm, which I have been walking over this evening after a fortnight's absence. I think I told you that I had some doubts about a piece of Wheat, dibbled at 3 pecks to the acre, on account of the lateness of the period at which it was sown. This apparent failure, however, I now see was the slow development of the plant under the extraordinary vigour which it was assuming; for the extraordinary size and number of the ears, and length and strength of the straw, have really surprised me; and they are evidently still growing. I am but a young calculator of such matters, but I cannot estimate the produce at less than six quarters per acre; and next month, as the crop stands well for inspection, I shall certainly have it viewed by some experienced hand; and if the harvest and housing is favourable, shall test the yield by accurate measurement. The same remark applies to my Barley, for I find finer ears and stronger straw on land after a very foul unmanured Pea crop, sown with six and seven pecks, than on that coming after the clean tilth of a Turnip crop, with the ordinary quantity of 2 bushels and 10 pecks. In short, my maximum next year will be 3 pecks of Wheat and 5 pecks of Barley, at 1 foot of the one and 10 inches the other. But I concur with you in thinking that the horse-hoe is desirable if not indispensable. My only question now is, what is the maximum of distance between the rows, and if it admits of the safe use of the horse-hoe. I shall always be happy in receiving any suggestions you may be good enough to make. I remain, very faithfully yours.

"As an instance how difficult it is to arrive at an opinion on a subject of this sort, and how apt some people are to run away with a prejudice, a gentleman holding land in the south of Essex assured me, only last week, that his crops under the adopted system of thin sowing had proved a complete failure, and that several small farmers in his neighbourhood would be completely ruined by it. But when I asked him if his land had previously been well drained and deep ploughed, as well as thoroughly well hoed, he was unable to answer me satisfactorily on these points, and I could therefore only beg him not to be so hasty in arriving at his conclusions. From the same authority I learned, that Davis had ploughed up his Wheat crops under an utter failure! So I went to judge for myself."

* This is three to four pecks too much seed. Mine, at a bushel per acre, will be a full average crop.—*I. J. M.*

ON THE PRODUCTIVENESS AND VITALITY OF POTATO SETS.

I send you two papers of mine which have appeared in the "Irish Farmers' Journal." They are perhaps too much Irish to be of any use in England; yet you may find something in them to serve the holders of allotments. You will find I allude in them to some curious facts, by which it appears that plants are productive rather from the space they obtain over-ground than below it, and that on rich ground, which we might suppose better able to sustain a close crop, if its nourishment proceeds from the root, grain sown at very wide distances gives an acreage return equal to that sown at much narrower intervals; is it that the ammonia, light, and electricity of the air, is not in sufficient quantity for plants at these intervals? The strength and length of the straw would indicate a greater action of light on the carbonic acid. Do plants, instead of absorbing by their roots their particular food, throw off by their leaves the peculiar matters they do not assimilate, and thus plants of different assimilating powers thrive together? and where they do not exist together, may not the soil absorb them, and in part retain?—*J. M. Goodiff, Granard.*

The following are the papers alluded to by Mr. G.

On the Productiveness of Potato Sets.

There is, perhaps, nothing more worthy of inquiry than the differences which exist in the productiveness of plants, under the same treatment, in the same soil, and in close contiguity with each other, and without any discernible cause for these differences; and, with a view rather to draw attention to the subject than to the conclusiveness of its results, I beg leave to detail an experiment made with Potatoes. It occurred to me that the very great variations in the productiveness of Potato plants of the same kind of Potato, and in the same drills and ridges, and in immediate proximity to each other, were not likely to arise from any peculiar property of the contiguous soil, or any gaseous influence in the air, but rather from either the manner of cutting the sets, their more or less exhausted state from previous growths, or from some internal construction indicated by the form of the Potato, or the eye, from which the shoot proceeds. I submit this experiment with some hesitation, as from a mistake in over-manuring the ground it is not so decisive as it might otherwise have been. I had it manured on the surface after the Potatoes came up, not recollecting that it had been previously dunged, and the consequence was that the plants grew with almost equal and very great luxuriance. The rows were 7 yards long, at 2 feet asunder, and planted on the 30th May. This late planting allowed the first growing eyes of the Potato to have made and lost some previous shoots. I say the first growing eyes, for it must have been observed by others as well as myself, that some eyes of the Potato shoot earlier than others, and that some of the late-shooting eyes (those generally nearer the stem of the Potato) do not shoot at all when a whole Potato is planted. I have, by cutting out the eyes of the Potato as they successively grew, not only induced every eye to shoot, but have even got a shoot near the stalk, from where there was no perceptible eye till the shoot came forth. From this property in the Potato, we may see how wasteful it is to plant it whole, as also the cutting it down in two parts, from the rose-buds to the stalk, recommended by some. The first row was of the rose-eyes (three top eyes) scooped out with a tea-spoon in the form and about the size of the top of a man's thumb; the second row was of the bottom or stalk-eye; the third of the stronger eyes that had previously sprouted, and lost their shoots; the fourth of the later and weaker-looking eyes that had not sprouted; the fifth the scoops taken downwards so as to take in the protuberance under the eye, and which I think may possibly contain sap-channels of the eye*; the sixth scooped upwards so as to exclude this protuberance; the seventh, those projecting or nipple eyes, which appear to be the result of a later growth, and are generally an aggregation of small eyes; the eighth, scooped downwards as the fifth row; the ninth as the sixth; the tenth as the seventh; the eleventh, deep-eyed Potatoes; the twelfth, shallow-eyed, having a disposition to appear as the sixth; the thirteenth and fourteenth, deep-eyed, with a very deep-eyed red Potato among them: the plants of this red Potato all had the curl, and were unproductive. All the eyes were scooped, the direction of the scoop being towards the stalk in all except those otherwise stated, as either upwards or more decidedly including the protuberance beneath the eye.

No.	Kind of Set.	Produce in lbs.
1	Top, or rose eyes	2¼
2	Bottom eyes	1¼½
3	Strong eyes that had sprouted	20½
4	Later eyes, that had not sprouted	15
5	Cut downwards with protuberance	14
6	Cut upwards, without protuberance	14
7	Nipple eyes	7½
8	As No. 5	20
9	As No. 6	14
10	As No. 7	5
11	Deep-eyed sets	11
12	Shallow-eyed sets, disposed to nipple	11½
13	Deep-eyed, mixed with a red Potato	8
14	Do. do.	16

* I use the term "sap-channel," though not quite satisfied with it. I conceive the eye or bud of the Potato is connected with it in the same way as the leaf-bud of a plant is connected with the stem; for the Potato is not properly a root: both the leaf-bud of a tree and the leaf-bud of a Potato send their roots down into the soil; the leaf-bud of the tree at all times mediate the stem of it; the bud of the Potato immediate to the soil after it has sent forth or developed.

In other experiments I have found no difference in the produce of the top and bottom eyes. I did not expect to have found the early sprouting eyes, so late in the season, producing more than the eyes that had not previously sprouted, and this is contrary to an opinion that has lately gained ground, of the advantage attending planting early in the season, previous to the Potatoes sprouting. The experiment is in favour of cutting the sets downwards, but not very decidedly so, for in 5 and 6 there exists no difference, yet there is a decided one in 8 and 9. The deep eyes do not appear to have an advantage over the shallow ones, even where they appear disposed to nipple; while the decidedly nipple-formed eyes are very unproductive. But the most extraordinary difference is between 13 and 14, in which I am not aware that there was any difference in treatment or seed; they both had equally intermixed sets of a red Potato, that produced none but curled plants, with a few small Potatoes under them. Had it not been so, they would, I think, have produced at least half as many more Potatoes, and number 14 would at least have equalled number 1; and these are so much more productive, from their being the outside rows in the experiment, I feel assured. They are a further confirmation of what I have frequently observed before, that the produce of a crop depends much on its having a free space above the surface of the earth, and not below it. On the one side of this experiment, that of number 1, was a plot of summer Cabbage, manured on the surface; that on number 14 was a plot of Onions, with the manure also spread on the surface. In former times, the plain, practical farmer was much laughed at by those who thought themselves scientific men, for sowing a mixture of Grasses, but it has lately been found in England, by some men who are not too knowing to learn, that a mixture of other crops may be advantageously admitted. This has been generally done with a view of advancing the growth of a late crop in the spaces of an early one; so that, on the removal of the early one, the late one should be so far forward as to cover the ground shortly afterwards, and in this connection Beans and Cabbage, and Beans and Turnips, have been the crops. The Earl of Lovelace, in the "English Agricultural Society's Journal," states that the Beans are dibbled in February, in double lines, 4 inches apart, and with an interval of 3 feet to the next row, and the ground worked between them till the planting of the Cabbage (the thousand headed kind), and which are planted in May and June, that he was first led to this experiment in 1838 from having accidentally read an account of the husbandry of M. de Fellenberg, at Hofwyl in Switzerland, in which a similar custom is mentioned. The success has been complete, and it has never been omitted for a single year since its introduction at Oakham; and so far from the Bean crop being diminished (in consequence of the greater distance at which the rows are planted to admit the Cabbages between them), it has, on the contrary, been increased from about 35 bushels to 41—the average yield for five years, since the Cabbages were introduced. Again, with the same object, Mr. Hewitt Davis writes to a South Lincolnshire farmer, as communicated in the *Agricultural Gazette*, of June 14, 1845:—"I grew this winter a Russian Bean, which is planted in September, October, and November, and drilled in rows 27 inches apart, and are horse-hoed two or three times; and the Turnips are drilled in rows 27 inches apart, in May, in the centre of the spaces between the Beans. In this way I never fail to produce perfect crops of Turnips; and a month after the Beans are cleared off, the Turnips cover the ground, and are as clean as the best fallow-grown ones. I assure you, I have grown 90 acres of Turnips in a season, and without a fault."

Lord St. John, of Melchbourne, near Kimbolton, made the following communication to the weekly council of the Royal Agricultural Society of England, on Wednesday, the 12th March, 1845:—

"In consequence of the remarks made to the council at their last weekly meeting, on the subject of growing Beans and Cabbages together, I beg to inform you that for the last four years I have grown the double crop of Beans and Swede Turnips on clay land, with the most complete success. The Turnips last season were particularly good; in many instances measuring 26 inches round: the Beans for the season were also a good crop. I am so satisfied of the advantages of this system of cropping, that I intend adopting it again this year, and am now dibbling the Beans in close double rows, leaving a yard at least between these rows for the Turnips—the field 14 acres."

Now, I stated some time ago, in the *Irish Farmers' Journal* an unexpected result in an experiment, made with other views, of a great return in two rows of Barley, at a wide interval of 3 feet 6 inches, and in a part of another row, where a wide space was afforded it, these two rows giving 3 lbs. 9½ oz., and 3 lbs. 6½ oz., while none other of the rows, at 21 inches apart, gave more than 2 lbs. 5½ oz., with the exception of the part of another drill mentioned above. These two rows, therefore, though at so wide a distance, would, in an acreage calculation, have produced as much as the closer rows of 21 inches. A crop of grain, then, might be grown in drills, at this distance, as weighty as in any other way, and a crop of Turnips, Parsnips, or other low-growing herbaceous plants, at the same time produced. This is found, also, to be the case with Beans. In the case mentioned in the earlier part of this paper, of my Potato experiment, Potatoes appear to follow the same rule, of increasing productions at increasing distances.

In the probable scarcity of seed in the ensuing season, this may be an object worth attending to; an equal crop of Potatoes may probably be obtained with one-fourth of the usual quantity of seed, and a very fair crop of Parsnips also got—an excellent substitute for Potatoes, should a disease similar to that of this year, which very probably may, visit them in the next. In drills drawn at 16 inches asunder, one row of Potatoes and two of Parsnips should be sown successively; this would give a distance of 4 feet for the Potatoes. In beds made 3 feet wide, with a furrow of 1½ foot, in like manner a row of Potatoes should be planted along the middle of the ridge, and a row of Parsnips near each edge. These operations should take place as early as possible in the spring, not only as the Parsnip is a slow grower, and therefore requires early-planting, but that the Potatoes may be got into the ground before they begin to decay in the spring, which, I fear, is not improbable; for, in the rot which commenced in the neighbourhood of Killybegs, in the county of Donegal, about 14 years ago, and which brought on famine and desolation to many, and for many years ravaged the country, the disease did not show itself till the spring, and it increased with the increasing warmth of the season; and this present disease, although differing in mode and in appearance, bears, as far as my recollection goes, the same perfume, and communicates the same taste to the Potato affected with it. I cannot too strenuously press these remarks on the Irish public, nor can I urge too strongly the absurdity of a nation trusting to one sort of vegetable for its food, and that one that has for these 14 years been a failing one. We have a warning afforded to us this year. If we neglect it, the most dreadful affliction may fall on us and our children. What has been partial this year may be total next. It is a blasphemous neglect of the warnings of the Most High, bearing a false semblance of faith, to say, "God is good," and refuse to listen to his voice, spoken in the pestilence. I know of no crop that can equal the Parsnip as a substitute for the Potato, nor one that the Irish palate can so soon reconcile itself to. I call for exertion; humble as I am, let me not call in vain.

On Procuring Early Potatoes.—It has been recommended to plant Potatoes before the end of January, and my experience tells me it may be safely done; but I think an earlier crop may be insured by promoting the vegetation of the Potatoes in a warm house; and I am told early vegetation is assisted by mixing them with turf-mould. I would scoop out the growing sets in succession as vegetation appeared. Thus, in time, the whole of the eyes would be planted, and a single failure could scarcely ensue. By planting sprouted sets I obtained in Donegal a crop of well-grown Potatoes by the middle of June. Last spring out of 18 large Cup Potatoes weighing 7½ lbs., I took 176 fine scoops, one inch in diameter and one inch deep—they weighed 4½ lbs., and I had 3¼ lbs. of refuse capable of being used as food. A statute acre, planted in rows 4 feet asunder, the sets being 9 inches apart, would take only 14,520 sets, weighing only 3 cwt. 1 stone, with a refuse of 2 cwt. and 3 stones—altogether 5½ cwt.—but this refuse fit for food. It has also been recommended to plant the sets nearly in contact, but not touching, on a headland, to preserve them till the regular time of planting out. When the rot first appeared in Donegal I secured in a similar way a crop of Potatoes on two acres of ground, where I should in the common way of planting have lost all. I made a hot-bed early in the spring—it could hardly be called a hot-bed, for it scarcely heated—covered it with about two inches of earth, and laid scooped sets (which are more convenient for transplanting than cut ones, as they drop more readily into the holes made by the dibble) within an inch of each other on it, covering them with about three inches of earth, and commenced transplanting them as soon as they generally appeared above ground; they appeared though when three or four inches high to sustain no check, even when planted out in hot dry weather, so that they were kept covered from the sun when taken up until they were planted. I planted them as deep as I could, even to the covering them when they were not much above the ground in the bed. Although the sets were in many cases completely rotten, so much so indeed as to fall off when removing from the bed, yet there was no failure among them; but of a quarter of an acre that I planted in the common way, not one set succeeded. The early growth in the bed is, I think, accelerated by laying a little loose straw on the top of it.

Home Correspondence.

Flax Improvement Society of Great Britain.—As I am here in Leeds, where there are 27 very extensive firms engaged in Flax spinning, with samples of Flax grown by my instructions in several districts in this country, and also some I have grown to great perfection in my own garden, within two and a half miles of the Bank of England, all of which has been approved by the spinners, I shall quote an additional proof of what can be done by attention in cultivating Flax in a proper manner. I have been handed a sample of Irish Flax grown by Mr. J. M'Castin, Warringstown, county Down, which I have sent to the Royal Agricultural Society; it was bought by Mr. John Morfitt, Flax-spinner, Leeds, 40 stones, at 22*s.* per stone of 14 lbs.; the quality is so superior that I should have no difficulty to sell 40 tons at the same price. Now, as the Belfast Flax Improvement Society reckon 45 stones per acre as an average crop, although I know 60 has been produced, when fine quality such as this comes to market, can the growers of Turnips, Wheat, Barley, Oats, or any other crop, or those that gain prizes for fat oxen, pretend to say, that there is any comparative chance of bringing to excellence and actual profit those articles, equal to that of Flax. I say no.; and challenge comparison. The industrious small farmer can do no more than make out a decent living by the general method of grain cropping, whilst the careless or indolent often ends his days in the workhouse; however, I prove by experiments that there is (in the cultivation of Flax) a treble reward reaped by the industrious continental farmers, who are at this moment drawing from our spinners for their Flax 150*l.* to 180*l.* per ton, and even at this high price spinners complain they cannot get a supply equal to the demand. I rejoice in being able to announce a cure for this evil, and to inform the landowners of this kingdom that the very extensive houses of Messrs. Marshall and Co., and Messrs. Hives and Atkinson, and all the other firms engaged in Flax spinning that I have called on, have promised me to contribute towards a society for the purpose of sending out practical men to teach the farmers in cultivating this very important article; if such a society be established and directed by landowners, in the same way as the society in Belfast, which has been so successful in its teaching; and as the cry for cheap food gathers strength and increases, I cannot but imagine that the day is not far distant when the farmers will be glad to turn their attention to the production of other articles than corn. Therefore I beg to say, in conclusion—landowners give your influence and a little of your time to promote such a society (as it will benefit your tenants and yourselves), when you can be backed and have the offered assistance from a wealthy body of merchants, who have, it is well known, their hundreds of thousands sunk in machinery, and must have Flax to keep it going; they are all well pleased with the quality of British Flax, and will be glad to pay the money they transmit to foreigners to British farmers.—*J. H. Dickson, Bull and Mouth Hotel, Leeds, Dec.* 20.

Farmers' Clubs.—I am not aware that in my communications on the establishment of Farmers' Clubs I cast a slur on the agriculturists of Berkshire, as implied by your correspondent "F.," at p. 823, my object being simply to show their necessity and advantages. If I did so it was unintentionally. He, however, certainly exposes, I will not say wilfully, a no inconsiderable degree of ignorance. First, he makes allusion to the work I quoted, at p. 777, which contains a descriptive account of the state of agriculture in Berkshire, under the title of "Knight's Journey Book of Berkshire," or, as he terms it, "an antiquated book by Knight relating to a journey through Berkshire," remarking "a description in his time would be a libel upon the country at the present day." So far from being an "antiquated" book, it was published as recently as 1840, so that I am in no fear of an action being maintained. He further says, "the 40 and 50 acre men are gone long ago, the present race of agriculturists rank as high in their pursuits as any, and the majority of them vie with the Norfolk men; I could name many who farm upwards of 1000 acres, and one with whom I am acquainted 2000." As to the opulency of landowners or the proprietors of large estates, to which he afterwards alludes, that has nothing to do with the question of the establishment of Farmers' Clubs; and, besides, in agriculture Berkshire is known to rank only as the 14th county. One statement, however, which he makes is too glaring to pass over. He says "With regard to Farmers' Clubs, we have many established for some years in the county, and well supported." I shall anxiously look forward for his reply to your inquiry; for my own part, I assert there is not one Farmers' Club established in Berkshire; and I give him the opportunity of refuting this by naming any. In inviting me to visit Berkshire, taking a journey through the central part, your correspondent could not be aware that he alighted on the very point of my locality; so that by accepting his invitation, I should derive no new information, but rather might impart some to him of the places he mentions, a slight knowledge of which he can only have gained by passing observations, residing as he does at the remotest part of Berkshire, at a place known only to its inhabitants. Berkshire, indeed, ranks some eminent agriculturists, but Farmers' Clubs are alike wanting in this as in other counties.—*H.*

Trap-rock a Manure.—Seeing reports that, if the railroads contemplated to be made through Radnorshire went on, it was likely there would be a great many valuable minerals discovered that would cause a great traffic on the line; and living in Cornwall, and all my life practically engaged in mining pursuits, I thought I would go and inspect the county; and I have been up through the county, but the formation of the county is so undulated, that there will not be much mineral discovered except there be deep cuttings. The only thing that I observed, that is likely to make a railroad pay, will be the transit of trap-rock from the hundred of Painscastle, which is a valuable manure.(?) I saw in a field, about three miles from Hay, about 20 tons of it hauled out for manure; a man was breaking it up; he called it marl, but it is a regular trap-rock. I went and saw the rock they raised it from, and it is plain to any person that knows anything about the different formations, that it was formed in a state of lava by volcanic action. I calcined a piece of it, and I found it contained a large portion of carbon—I should think 10 or 12 per cent., and not more than 40 of silica. I understand it has been analysed, but those analyses that are obtained at a low price (generally a pound) or a

guinea) never notice potash, soda, and the more valuable nutriments, and there are thus many people much deceived; as they get a specimen analysed, and it contains some valuable nutriment, but as there is no report of potash and soda and the silicates, it is considered not to contain any of those ingredients, which I will venture to say is the case in this mineral. The expense of ingredients to analyse for potash and soda would be four times as much as they charge for analyses. Any person wishing to know the different nutriment contained in trap-rock, had better look to Professor Johnson's account of trap as a manure, and there they will see the component parts of felspar and hornblend stated; and when mixed, as in the trap-rock, it contains all the nutriments of vegetation, where carbon is contained along with organic and inorganic. Any person wishing to satisfy himself that this rock is trap, has only to go and view it, and he will see that it was formed in a fluid state.—*Josiah Jenkins, Painscastle, Radnorshire.*

Agricultural Improvement.—Ever since I commenced farming I have had nothing less in view than the acme of perfection, and certainly each succeeding year has found me a few steps higher up the interminable ladder of improvement. My land is now in first-rate condition, and I am hard-up to know to what extent manure may be profitably applied. For instance, I put 25 tons per acre of good cake manure upon my Turnip fallow every four years, and get good average crops; but I want to ascertain how many tons I may increase it, getting better crops, and not being out of pocket. This no doubt might be done by actual experiment, but probably with loss. So much depends on the kind of soil, that I should think an analysis would be the best criterion, and bring one to the nearest possible conclusion which can be attained. Many of our landed proprietors who have the national welfare at heart come forward in a most liberal manner and try various experiments *pro bono publico*, and these are the parties upon whom this duty ought to devolve, for a failure to them is not worth a thought. It is well known that frequently among gentlemen, farming is a losing game, and we cannot wonder when we see the needless expense which is often incurred. Few consider how prejudicial this is to improvement. In looking over land, I have sometimes named to the occupier (who has been one treading in the steps of his grandfather), what a good example 'squire so and so set in a certain branch of farm management. He would directly reply, it would not answer to us who have to get our bread and cheese by farming; and, moreover, you may hammer at him as long as you like, but there is no convincing him to the contrary. In this way the whole advantage to be derived is lost; for farmers of this class have not the sense to gather up the Wheat and discard the chaff in the system, but depreciate it altogether as "all very well, Mister Ferguson, but it won't do.."—*Titus Oats.*

To Cure Bacon.—Can you, or any of your correspondents tell me if there is really any risk in having my bacon cured in a building but recently erected—say eight or nine months? My neighbours alarm me by citing numerous instances of bacon having been quite spoiled, so as to have to be buried, from having been cured in new houses; but as I happen to know of quite as many cases of its having been spoiled in old buildings, and bearing in mind that most people are in the habit of lime-washing their salting house, once at least, if not oftener in the year, without any ill effects of the kind, I am rather sceptical in the matter.—*Ignoramus.*

Gypsum and Sulphuric Acid to fix Ammonia.—I observed in one of the *Gazettes* for last year, that the gypsum for this purpose should not be burnt; where is it to be got in powder unburnt? I have the burnt gypsum sprinkled over all my cattle houses, three times a day, and then watered from the rose of a leaden watering pot with dilute sulphuric acid. It sweetens the houses much, but it is not yet quite effectual; perhaps from the gypsum being burnt.—*J. W. L.*

Drill Machine.—I have a drill of the fashion of the Suffolk drill, only more simple, with which I put in Barley, &c., at 44 furrows to the rod, or 22, or 11. I have invariably found the largest produce from the small furrows, and this season the difference between 22 and 44 was nearly a sack of Barley from half an acre in favour of 44.—*Thomas Hooper, Chilton, near Ramsgate.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

The Council of the Agricultural Improvement Society has issued an address to the landowners and occupiers of Ireland, in which, after urging upon them the propriety and advantage, and, indeed, the probable necessity, in the event of national distress, of Ireland depending upon its own exertions, they proceed:—"It is ascertained by the concurrent testimony and experience of the most enlightened agriculturists, that there is in this country and climate, no obstacle so powerful to the development of the true agricultural riches of the soil, as the wetness with which the land, even in favoured districts, is constantly infiltrated. It would be here unnecessary, and indeed in addressing an agricultural body so enlightened as the landed proprietors of Ireland, quite superfluous to describe the several ways in which moisture deteriorates the quality of the soil, abstracts its heat, and impoverishes the produce. They are facts fully established as parts of our authentic agricultural experience, and the remedy is also known. It is drainage; the removing the surplus moisture, and admitting the various agencies which mature the process of vegetation, to come into full play, and suitably reward the industry of the prudent farmer. Drainage is fundamental and anterior to all other agricultural improvements. You may apply the richest and most suitable manures, yet if your farm is wet and cold they are of no profit; but if the farm be brought into proper condition by judicious drainage, then, not merely, are artificial manures capable of yielding full returns, but the natural powers of the soil are brought to life, and luxuriant crops reward the labour upon land previously branded as barren. There is not an estate in Ireland, scarcely a farm, in which this change is not still to be effected. In every district may be seen tracts upon which labour could be thus expended with advantage, and in all those districts are to be found masses of people who may be in want of food, or of wages to purchase food, to whom the improvement of the soil should be the natural and most important object. It is for the landed proprietors of Ireland to place the wants of the land and the wants of the people in suitable connection; to support the one by employing them in the improvement of the other; to provide sufficient food and shelter for the body, and to give peace and contentment to the mind of the labouring poor, whilst the interest of the landlord is effectively promoted by this most valuable improvement in the condition of his property; and thus it may be rendered evident and recognised by all, how necessarily interwoven and mutually beneficial are the relations of society, and practically exhibit the proprietor as the benefactor, the friend, and the instructor of those whom Providence has placed under his charge. The question of drainage improvement, however, deserves the attention of the landed proprietors, and is recommended to them by the Council at the present juncture, not merely upon the grounds of beneficence and kindly intervention, but there are pecuniary advantages connected with the occupation of the people in that way, which it is of great importance that the landed proprietors of Ireland should fully appreciate. The Council will, therefore, proceed briefly to consider them. If the present fears of a material deficiency in the amount of Potatoes, available as food, be justified by the event, it is certain that a large proportion of the poorer classes must be supported by some means, other than their own, during a considerable portion of the coming year. No matter through what channel the means of support may come, they must ultimately be paid for by the landed proprietors. If the action of the poor-law be extended so as to embrace a larger amount of destitution, this must be met by additional rates, for which, in the actual season of distress, the land must be liable. If the Government advance money, or give employment by public works, the sums advanced must be repaid, and hence must ultimately fall upon the land; and it is certainly well worthy of the attention of the owners of land, whether it would not be both better and cheaper to employ the poor of their estates in the improvement of those estates, under their own or their agent's guidance, than to have to support them in a poor-house, or on a distant public work, of possibly little advantage to each proprietor, and for which they may be equally chargeable. There is no investment now known so absolutely profitable as the improvement of land by drainage. A manufacturer realising 15 or 20 per cent. on the capital he embarks in trade, is considered as most successful, and a hundred competitors rush into the same line, and cut down his profits to the ordinary level of trade. But it is perfectly established by experience, in every kind of circumstances, that the expense of thorough draining land is repaid by the increased produce frequently in four years, and sometimes in three, under judicious management. Thus, the profit becomes 25 or 33 per cent. until the capital has been repaid. But the good is not then exhausted; the benefit to the land continues. It is certain, that to the labourer, to whom it gives employment; to the farmer, to whom it gives greater produce, and more certain returns; to the capitalist and proprietor, to whom it affords the most suitable and profitable investment; and to the state, to which it gives an improved soil, and an industrious population, there is no field for enterprise so important as the drainage of the land in the present circumstances of Ireland." The address after a few further paragraphs concludes thus: It is important to remark that the means which the Council of the Society felt it so useful to recommend, as a remunerative source of employment, have been considered also by his Excellency the Lord Lieutenant, and by her Majesty's Government, to be an object upon which the attention of the landed proprietors of Ireland might be beneficially fixed, and that for that object the Council has been requested by his Excellency to take charge of the allocation of a sum of 400*l.* to be dispensed in prizes, for the most extensive and best conducted system of thorough drainage, carried on in Ireland during the next year. The generous and beneficent donation of his Excellency, agreeing so fully with the views which the Council has long entertained, as to the importance of improvement by drainage, as useful equally to landlord and to tenant, encouraged the Council to give greater definitiveness and publicity to these sentiments, and to promulgate this address to the proprietors and occupiers of land in Ireland. (Signed) Clancarty, Chairman of the Council.

Farmers' Clubs.

Sturminster: *Annual Meeting.*—The Rev. A. Huxtable said, I cannot claim to be a great farmer; I am more like an agricultural adventurer, making all sorts of experiments; but these, I rejoice to say, are not unblessed with success. It is unfair to cry out, as many do, to such as me, "Show us your accounts," because my farm is yet in the infancy of high cultivation. Then, a good farmer is ever reinvesting his capital, and I have voluntarily, under the auspices of a kind landlord, put up, at my own expense, farm-buildings at a cost of 1600*l.*, thorough drained 86 acres of heavy land, and made sundry other permanent improvements, the execution of which I found it impossible to separate, in many cases, from the usual labours of the farm. Yet I am prepared to maintain and show, that in almost every case of cultivation, differing either in nature or in cost from that usually pursued by my neighbours, such deviation has been justified by what is the surest test of success, the profit accruing. I acknowledge the outlay to have been large, and that I should charge an interest of 10 per cent. upon it, and yet I confidently expect, from the valuations given to me of the crops and stock, that I shall receive a surplus of clear profit of 30*s.* to 40*s.* an acre, depending on the prices of agricultural produce at the time of selling the crops and stock. Speaking to you now, gentlemen, as one who has been making trials of improved modes of culture, I think I shall be doing almost as much service by detailing failures as by describing successful plans. And, first of all, which I beg to call Humbug No. 1 (a laugh), thin sowing I have tried largely, and believe it to be as unsafe and unprofitable a mode of proceeding as could have been recommended by names of celebrity. I have been a great loser by it, and so will you, except in certain cases. One supposed pre-requisite is, that the Wheat should be sown in September. Now, to take up your Swedes or Mangold Wurzel prematurely, and thus lose six weeks' growth (some 4 or 5 tons per acre), for the sake of 6 pecks of Wheat, cannot be called good husbandry. Moreover, the very act of tillering largely must tend to produce a coarse sample of grain, and if you have the misfortune to have land given to annual weeds, they will, upon ground uncovered by the Wheat-plant, shoot vigorously, and make your land look most unseemly; but if you sow plenty of seed, broadcast, and use lots of manure, so as to make the plant start vigorously, the Wheat I have found completely to stifle the weeds, and after harvest you see a weedless stubble. I believe that he who adds one real improvement to practical agriculture, is advancing the temporal interests of man. Therefore, gentlemen, I repeat an invitation to any and every farmer, to come and see the result and management of my small farm. To many of you who, having witnessed my plan of shed-feeding sheep, on boards, and the particulars of which have been published, I need not speak of my plan of shed-feeding; yet I will repeat, that the experience of this season has served to confirm my opinion of the great worth of the system. I venture also to recommend the method of keeping the stall-fed cattle on raised boards, their fore feet standing on saw-dust; thereby not only are the animals kept clean, as the manure will mostly fall through the interstices, the rest being scraped out; but the manure itself being free from long unmanageable straw, placed in a covered house, kept from sun, wind, and rain, is in a condition, being mixed with dry burnt clay, either for drill with green crops, or to be broadcast with corn. Last year I spoke of growing hay for pasture, as a relic of barbarism. Now I am still more confirmed in my hatred of this bigotry: I shall speak presently of the immense public loss sustained by dairy pastures altogether; but I refer now to hay however made whether from Clover, Lucerne, or natural Grass; I think I can prove what an unscientific and wasteful process hay-making is altogether, as it now is usually practised. Grass, in its green state, is known to be so much more fattening and milk-giving than hay, that some have even estimated that they are equal, weight for weight, in their value; but this seems doubtful, for the whole process of drying cut Grass is productive of loss—the exposure to sun, wind, and rain converts a very large proportion of the nutritious sugar, gum, and starch into insoluble woody fibre. To see this, it is only necessary to examine the dung of horses fed upon hay principally: it will be found to be chiefly composed of hard dry fibre, which, of course, has contributed nothing to the support of the animal. Now this loss may in a great measure be avoided, by only half drying the Grass, and stacking it with layers of straw, of equal bulk (not weight) and scattering evenly, by a sieve, fine salt, at the rate of 2lbs. per cwt. to the grass; I tried this method on Vetches this summer, in their half dried state; and the result has been most successful; the salt and the juices of the Vetches rendering the straw comparatively soluble and delicious to the cattle. Sir, I beg to repeat, that we ought to seek to raise farming to the rank of an art. But this cannot be done until a system of accurate weights and measurements is introduced into all our processes. In this one particular we are inferior to the Germans, Belgians, and French. I went, this summer, to see the Royal Agronomic Institution of Grignon, about 16 miles from Versailles, and amongst many other instructive parts of their system I particularly admired the record kept of the weight and measure of all their crops, whether of corn, or roots, or seeds; the number and weight of their sheaves, the produce of their Lucerne, &c.—everything is registered. Now I think this much desiderated among ourselves. Surely, long ago we ought by accurate and oft-repeated experiments, to have determined the value of our Swede crop, as given to sheep, cattle, or pigs; yet how varying and how vague the valuation set upon them by practical men. (Hear.) I have tried to contribute my mite by answering the question "What are Swedes worth per ton, when given to full grown Southdown wethers, under shelter from cold winds and rain?" I have found, then, that sheep, in these circumstances,

will eat on an average from 16 to 18lbs. a day, of cut Swedes, and that this food, joined with one pint of Oats, and half a pound of Barley straw, cut into chaff, and salted, will put on 3lbs. of live weight per week. (Hear.) Now I assume that three-fourths of this increase of live weight from week to week, in a full grown animal (where head, bones, and offal are almost a constant quantity) represents the increase of mutton :—

Dead weight, ¾ of 3 lbs., 2 lbs. 4 oz. at 7*d.*	1*s.*	3¾*d.*
Deduct 7 pints of Oats at ¾*d.*, attendance 3¾*d.* or ..	0	4½
	0	11¼

This 11¼*d.* will represent the value of Swedes consumed per week, that is, 7 × 17 = 119 lbs. ; this makes 1 cwt. = 10½*d.* ; or 1 ton = 17*s.* 6*d.* This is exclusive of the value of manure. To determine the value of the dung resulting from the consumption of a ton of Swedes by sheep eating a pint of Oats to every 17 lbs. weight of Turnips :—

The ash resulting therefrom, being about 1-40th of the grain, gives, for the 75 lbs. consumed, nearly ..	2
The ash in 1 ton of Swedes	17
	19
The whole weight of dung from Swedes being about 1-10th of roots = 2 cwt. or	224
Weight of dung from corn is nearly ½, or	37
	261

The nitrogen in this measure, according to Boussingault ("Economie Rurale," vol. 2, page 148), is 1 1-10th per ct. nearly, or 2¾ lbs. nearly, which at 7*d.* per lb. is = 1*s.* 7¼*d.* The ash, considering the proportion of potash, I think, may be fairly valued at 1½*d.* per lb.

That is, for 19 lbs. of ash	2*s.*	4½*d.*
And for the nitrogen	1	7¼
Making value of the manure	3	11¾

which being added to 17*s.* 6*d.* per ton, gives, under these circumstances, as the whole value of the Swedes, 1*l.* 1*s.* 5¾*d.* And now, gentlemen, allow me to narrate the circumstances of an experiment which so many of you have witnessed, an attempt to grow a crop of Swedes on very poor and high chalk land, which seemed in pasture to be worthless. I wanted to see whether I could raise a crop there upon the principle of carrying to the spot the ingredients of which that crop was formed. A large proportion of the Swede crop consists of water; when it is sliced, dried, and burnt, each ton of bulbs leaves 17 lbs. of ash, each ton of tops 33 lbs. of ash. Now these are the earth elements of a ton of Swedes. Besides these, there are certain others very important, which I call the air ingredients, because in burning they went back to the air, nitrogen and carbon, and sulphur. The ash, when analysed, is known to consist of a certain varying proportion of potash, soda, lime, chlorine, phosphoric acid, &c. To raise a crop of 20 tons of bulbs and 5½ tons of tops, there would be needed about 500 lbs. of ash ; I believed, from the almost absolute sterility of the soil, that I could not calculate on the presence of these salts, save of lime, which the chalk contained abundantly. In the early stages of the plant's growth, there would be needed nitrogen in the shape of ammonia, and carbon in the shape of carbonic acid. From a rough analysis, I calculated that 30 bushels of wood-ashes, 2 cwt. of Ichaboe guano, 50 lbs. of burnt bones, 22 lbs. of sulphuric acid, and 30 bushels of sawdust, would give me all the ash required, as well as a portion of the carbon; the atmosphere was to supply the rest. These were the chemical conditions; but next the mechanical were to be provided for. The ground was so steep that it could not be ploughed, save with a turnwrest plough, which I had not. Next, the manure must be exactly allotted, in close contact with the plant ; this I tried to effect by making holes for the manure and seed ; but the ground was too rubbly to admit of it. The labourers then went to the top of the hill, and hoed out drills, 2 feet apart, working down hill, the manure having been previously hauled to the highest point ; a large wheelbarrow loaded with manure enough for two drills, was wheeled down the interval, and a handful of the contents placed at distances of 1 foot in each drill ; children followed, dropping upon each deposit of manure 3 fingers' full of seed, mixed with fine soil, to prevent the strong manure burning the seed. In descending the hill they trod on their work, and this completed the process. The manure was mixed with two pot-loads of rotting sawdust, the great affinity of which substance for moisture would prevent the effect of drought ; whereas the opposite danger of the manure being washed away by heavy rains was provided for by using an excess of sulphuric acid, which converted the highly soluble carbonate into comparatively insoluble sulphates of ammonia and potash. The crop, of which you saw this day some samples, on 5 acres of land, averaged 21 tons of clean bulbs the acre. The cost of the manure was 2*l.* an acre, of labour 19*s.* 6*d.*, horse labour 7*s.*, seed, rent, and rates, 12*s.* This crop, on the poorest imaginable land, at a cost of 3*l.* 19*s.* 3*d.*, of 21 tons, at 15*s.* at the least, has produced a return of 15*l.* 15*s.* per acre or more than 300 per cent. Now let us compare the results of this husbandry with dairy farming. Three acres of pasture, at 27*s.* the acre rent, are allotted to the keep of one cow. (I hear a cry "that is too much"). I am quite aware that 2½ acres are said to be sufficient, but then the cows are kept in the straw-yard for three months, and as they will consume 2½ cwt. per week of straw to produce this food, another half acre would surely be required. Now the produce of one cow, for the year, is 200 lbs. of butter and 2 cwt. of cheese, and the curds will produce 42 lbs. of pork. Therefore, one-third of this, or 67 lbs. of butter, 75 lbs. of cheese, and 13 lbs. of pork, is the produce of one acre of pasture in one year. On the other hand, 1 cwt. of Swedes, given to sheep, under shelter, will produce 2 lbs. of mutton, or 1 ton 4 lbs. ; one acre of land 20 tons, will produce 800 lbs. of mutton. It is not necessary to add more, sir, to prove the enormous injury done to the nation by keeping lands of this character in Grass. I am aware that a farmer letting his cows at 9*l.* a head to a dairyman is considered to adopt a safe mode of carrying on his business ; but private profit is not the only consideration to which regard must now be paid. I think the implied meaning of protection given by Parliament to the agricultural body (and also given, be it remembered, to other interests) is, that it engages, on its part, to feed the nation, but that on account of our peculiar circumstances, this cannot be done unless foreign corn shall pay a duty. Let it be granted, gentlemen, that we are entitled to a certain amount of protection ; yet, surely, on the other hand, we are bound, on our part, to do our utmost to provide corn and meat for the people. But how can we say that we are in earnest doing this, so long as this wretched dairy system is continued among us ? Nor can we lose sight of the labourer's side of the question. Keep the labourer we must. Shall he be to us a burthen, or (as by improved farming he will become) the right hand of our strength and of our nation's power. Now, it is the glory of improved farming that the labourers must be employed, and if the wants of the people of England are to be supplied, so great will be the demand for his aid and skill, that he will find himself at length in a condition to demand fair remuneration. Mr. Chairman, much as I have been pleased with the proceedings of this evening, may I be permitted to submit one piece of criticism ? When you gave to those old men a coat or a sovereign, in simple acknowledgment—not as a reward for the faithful discharge of their duty—you read from the award list "for forty years' servitude." I beg pardon if I express strongly, that as an Englishman, since no man can live on our shores as a slave, I object to such a term as "servitude" being applied to any class of my fellow men, but especially to that class whose voluntary services are so precious to us, and whose virtues we so highly prize. (The rev. gentleman sat down amidst loud plaudits, followed by hearty cheers.)

Sir C. Morgan's Annual Cattle Show, *Dec.* 9.—We are glad to have an opportunity of referring to Sir C. Morgan's long course of philanthropic exertions in the cause of agriculture. The following passages are extracted from the *Monmouthshire Merlin* : —"The venerable baronet of Tredegar has acquired fresh civic laurels, by another anniversary of what may be deemed a most important agricultural institution, of which he is the zealous founder. It is impossible to consider the amiable, anxious, and generous feelings and exertions of this venerable gentleman for the welfare of the farming interests, and, indeed, of all around him, and for the alleviation of poverty amongst the labouring classes, without admitting that to him may be well applied the language of a favourite writer, 'He who with a benevolence warm as the heat of the sun, and diffusive as its light, takes in all mankind, and is sincerely glad to see poverty, whether in friend, stranger, or foe, relieved, and worth cherished, makes the merit of all the good that is done in the world his own, by the complacency which he takes in seeing or hearing it done.' The career of Sir Charles Morgan is a bright example of the comprehensive blessings that may be conferred on the country by those to whom Providence has allotted a command of wealth and high station amongst their fellow men, and whenever his span of human existence terminates, a period which we trust may be still far distant, his name will go down to posterity with the Cokes and Spencers as the best friends of those who live by the soil—of agriculture." In the course of the evening of the day on which the Cattle Show took place, the following remarks were made by Mr. Colman, from America : "I congratulate you on the state of agriculture. The prices of produce are all that farmers can hope for. We should consider high prices in two aspects—if they were occasioned by scarcity, distress would be the result ; but if from a great demand, it must show the prosperous state of the country. And I appeal to you, gentlemen, if there was ever greater prosperity than during last year. Look at your noble dock. You thought, when it was formed, that it would be large enough for all the necessities of your port ; and what is the truth ? Why, your dock is not large enough for the vessels that float in for your mineral wealth, and you want more room. Ships from almost every nation crowd within the already ample space of your dock, and you must increase your land accommodation. Look at a single fact, to judge of the prosperity of your own county. There were upwards of 17,000 tons of coal passed down over the railway which runs through Sir Charles Morgan's park, in one month ! All ranks of society are linked together. As any one branch of commerce flourishes, so must agriculture. I will allude to another circumstance. I understand the difference between making railroads, and speculating in railroad shares. The latter is a curse to the community. Any mode of getting money, except by honest industry and legitimate enterprise, must prove a curse. I have been asked what were the advantages of roalroads. Why, I came from London to Swindon a few days since, and my fellow-travellers were six or seven drovers who had been to London. They took their cattle to the London market on Thursday—they sold them on Friday—and they were at home again on Saturday ! and this was usually a 10 days' business with them, before they possessed the wonderful facilities offered by steam. The calculation in my country is this : In driving a fat animal 100 miles to market it loses 100 lbs. in weight—whereas in taking it by railway to market it loses nothing, and goes into the market as fresh as it left its shed. Thus the saving of time and the non-depreciation of the animal by travelling, compensate fully for the additional expense of transit. I shall be asked, when I reach my home, what struck me most forcibly in England. I shall then answer at large ; but I may say now, that one thing strikes us all forcibly, and that is the contrast in the human condition—the contrast of enormous wealth by the side of destitution, which cannot be exaggerated. What is the remedy ? Is a poor man the worse because his neighbour is rich ? Certainly not. Is a poor man the worse for the wealth possessed by my distinguished and beneficent friend, Sir Charles ? Assuredly not. Government should give the poor man a fair chance to accumulate. Education is wanted ! The power of mind elevates men in their condition. Give this to every class. Exalt them in self-respect—in becoming pride—in laudable ambition to be greater and wiser. You have all heard of the subsoil plough—it does not disturb the top of the soil. No ; it loosens the subsoil, and brings it into contact with the air and the blessed sun, which both enrich it and the upper soil. We want the great subsoil-plough education to do this for us—and when both soils come in contact, both shall be enriched."

Reviews.

Purdon's Irish Farmers' and Gardeners' Almanack for 1846. *Farmers' Gazette* Office, 23, Bachelors'-walk, Dublin.—It contains as full and perfect a Farmers' Calendar as any almanack we are acquainted with. It is in all respects an excellent Irish Farmers' Almanack, and it is as well suited for England or Scotland as it is for Ireland.

On the Domesticated Animals of the British Islands. Comprehending the Natural and Economical History of Species and Varieties ; the Description of the Properties of External Form ; and Observations on the Principles and Practice of Breeding. By David Low, Esq., F.R.S.E., Professor of Agriculture in the University of Edinburgh, &c. Longman, Brown, Green, and Longmans.

[Second Notice.]

We notice this work for the second time merely for the purpose of transferring to our columns a series of short paragraphs in which the author recapitulates the contents of one of the most interesting sections of his work—that on sheep. There are some curious instances, as for instance that of the Penistone breed, of the local permanence of inferior breeds in districts fitted for the cultivation of varieties which are superior both in carcass and wool. They are cases like these which indicate the value of works like the present, which place before the readers that information which will guide him safely to the selection of animals either for breeding or fattening, whose constitution and other qualities are best qualified to cope with, and take advantage of the circumstances in which he is placed. The following is the passage to which we have alluded:—1. The Zetland and Orkney Breeds, of the variety *brevicauda*.—They inhabit the most northerly islands, and are distinguished by their bearing a fleece of fine soft wool, largely intermixed with hairs. The purest of them are found on the remoter Islands of Zetland. They are hardy, wild, and of small size ; and do not merit extension beyond the countries which they now occupy. 2. The Older Soft-woolled Sheep of Scotland.—They are of small weight, have long lank bodies, and bear a short soft wool, fitted for the manufacture of flannels, but deficient in the property of felting. These varieties are now nearly extinct, or confined to the remoter islands and islets of the Hebrides. 3. The Sheep of Wales, which may be divided into two classes; 1. The Sheep of the Higher Mountains, horned, of diminutive size, usually of a dark colour, and bearing soft wool, largely intermixed with hairs; 2. The Hornless Soft-woolled Sheep, likewise of small size, bearing wool of a soft texture, fitted for the manufacture of hose and flannels, but deficient in the property of felting. To the typical forms of these races all the Mountain Sheep of Wales are more or less allied. They are valued for the delicacy of their mutton, and are carried in numbers to the lower country, for the purpose of being fattened. They are hardy, but impatient of restraint, when removed from their native pastures. Allied in their characters to the Mountain Breeds of Wales are the Sheep of the Wicklow Mountains, now disappearing in the pure state, from the effects of crossing. 4. The Kerry and other Sheep of the high lands of Ireland, wild, slow in arriving at maturity, and producing a fleece of medium softness, but irregular, and mixed with hairs. 5. The Black-faced Heath Breed, inhabiting the central chain of heathy mountains and moors which extend from Derbyshire northward. These sheep have long been carried to the mountains of Scotland, and now extend all northward through the northern Highlands to the Pentland Firth. They are armed with horns, and are the hardiest and boldest of all the races of British Sheep. They have dark-coloured faces and limbs, and bear shaggy fleeces of coarse wool. Their characters change when they are naturalised in the less rugged mountains and moors. In the lower heaths of Yorkshire, they approximate, through the coarse and unthrifty breed of Penistone, to the larger sheep of the plains : in other cases they pass into the finer-woolled sheep of the commons, lower heaths, and forests. They produce a juicy and well-flavoured mutton, and are brought in great numbers

from the mountains, to be fattened in the lower country. 6. The Cheviot Breed, derived from a limited tract of green hills in the north of England, and thence widely spread over the mountainous districts of Scotland, and some parts of England and Ireland. These sheep somewhat exceed in weight the Black-faced Heath Breed: they are less robust, and less suited to a country of heaths, but yet they are amongst the hardiest of our Mountain Sheep. They are destitute of horns in both sexes, and bear wool of medium fineness, fitted for preparation by the card, and employed in the manufacture of the coarser woollen cloths. 7. The Old Norfolk Breed, reared in the heathy parts of the counties of Norfolk, Suffolk, and Cambridge.—They are a strong and agile race of Sheep, armed with horns in both sexes, bear a clothing of wool of medium length, and are greatly valued for the excellence of their mutton. They produce admirable crosses with the more highly cultivated breeds, and especially with the South Down, from which cause they are rapidly diminishing in numbers in the pure state. 8. The Breeds of the Older Forests, Commons, and Chases.—These vary in their aspect, size, and properties, with the localities in which they have been naturalised. They have often dark or gray faces and limbs, have sometimes horns, and are sometimes destitute of horns, and bear, for the most part, a short felting wool. They have been continually diminishing in numbers with the appropriation of commons and the improvement of the country, so that few now remain without a mixture of the more cultivated breeds. In the West of England, however, are still to be found the Dartmoor and Exmoor breeds in considerable numbers, the former occupying the high lands of Devonshire in the forest of Dartmoor; the latter, a rugged district of limited extent at the sources of the river Exe in Somersetshire. They are both very wild and hardy races of small Sheep, and differ from the other forest breeds by producing wool of medium length, and more fitted for preparation by the comb than the card. 9. The Ryeland Breed, the remains of some of the smaller fine-woolled varieties of the western counties.—These Sheep are hornless, of small size, and of good forms, patient of scanty food, and productive of a fine short felting wool, which was long the most esteemed for the making of cloth of any in England. This breed, from the substitution of the larger varieties, and the effects of crossing, has been long diminishing in numbers, and is now nearly extinct. 10. The Southdown Breed, derived from the chalky hills of Sussex on the British Channel.—It is to be classed amongst the down and forest breeds, but it has been made to surpass them all by the effects of breeding and careful culture. It has been widely spread over all the south-eastern counties of England, and has passed into districts beyond the countries of the chalk, taking the place of the pre-existing breeds of the downs and commons. The Sheep of this breed are destitute of horns, have dark-coloured faces and limbs, and produce a short felting wool fitted for preparation by the card. Their size varies with the locality, and the taste and opinions of the breeders; but they are of greater weight, and bear heavier fleeces, than the older Sheep of the Sussex Downs. They are adapted to a lower range of pastures than the Black-faced Sheep and Cheviot Breeds, and are better fitted for a dry and temperate climate than for a cold and moist one. 11. The Old Wiltshire.—This and the other varieties of the larger fine-woolled Sheep of the central counties of chalk, may be said to be now extinct beyond a few scattered remnants. They produced good felting wool, and fattened to a considerable weight; but they were of coarse forms, and have universally yielded to the progress of the more highly cultivated Southdowns. 12. The Dorset and Pink-nosed Somerset Breeds, naturalised in the calcareous district of the south-western counties.—They have horns in both sexes, bear a clothing wool of medium quality, and are noted, beyond any other breed, for the faculty of the females to receive the males at an early season. This latter property has caused them to be extensively cultivated for the rearing of house-lambs. They have now been much diminished in numbers by the effects of crossing, and the substitution of other breeds regarded as more profitable. Allied to these varieties is the Isle of Portland Breed, of small size, and of little economical importance beyond the narrow district which it inhabits. 13. The Merino Breed, derived from the mountains of Spain, but partially naturalised in England.—It bears the finest wool of any known race of Sheep. On account of this property it has been extensively diffused over a great part of Europe, and carried to America, the Cape of Good Hope, and the Colonies of England in Australia. The individuals, however, are of defective forms, of tender constitutions, deficient in the power of yielding milk, and slow in arriving at maturity. For these reasons, the Merino Breed, notwithstanding the abundance and excellence of its wool, has been received with little favour in England, and is deemed inferior in value to the more improved varieties of the country. 14. The Long-woolled Sheep, comprehending, first, the pure New Leicester Breed; and, secondly, the varieties more or less intermixed with it in blood, of which the principal are: 1st, the larger class of Lincolnshire Sheep; 2d, the Romney Marsh Breed; 3d, the Cotswold Breed; 4th, the Devonshire Notts; 5th, the Long-woolled Irish varieties. All these Sheep are of large size, are destitute of horns in both sexes, and bear long wool, unsuited for preparation by the card, but eminently fitted for preparation by the comb, and the manufacture of stuffs termed worsted. They are the kinds of Sheep more especially adapted to the plains, and the districts where artificial food can be reared in the necessary quantity. They have been continually increasing in numbers with the extension of tillage and the general improvement of agriculture. Of the several varieties, the New Leicester Breed occupies the first class with respect to form and the aptitude to fatten readily. The larger Lincolnshire, the Romney Marsh, the Cotswold, and the improved Devonshire Breeds, have each properties which render their cultivation profitable under particular circumstances. The Irish varieties have not yet generally attained to the perfection at which the others have arrived.

Miscellaneous.

On the Manufacture and Application of Manure (Boussingault, vol. 2, p. 47).—In agricultural establishments where the importance of manure is properly understood, every precaution is taken to insure its production and preservation. The expense so incurred is soon amply repaid. One may at first sight judge of the industry and intelligence of the farmer, by the attention he pays to his manure heap. It is a deplorable thing to see the negligence from which manure is wasted in the greater part of France;* in too many villages the dung heap is placed so as to receive all the drippings of the farm buildings as if the object were to wash it with as much rain-water as possible. The greatest secret of the successful cultivation in French Flanders, consists perhaps in the extreme care which is taken to collect everything which may tend to fertilize the soil. Agricultural societies, which are now so numerous, would render a real service if they would encourage by all the means in their power the economy of manure. To this end prizes might be proposed for those farmers who prepare their manure-heaps in the most rational way. The manure-heap should be as near the stables and cow-house as possible. The main object is to secure the following conditions. 1. That the moisture should not run off from the premises. 2. That the liquid which drains from it should be received into a common reservoir under ground, so that in dry weather it may be thrown back on the heap. 3. To prevent any moisture except that which falls immediately upon it from running into the yard. 4. That the yard shall be sufficiently large to prevent the necessity of piling up the manure too high. It is convenient to make the yard slightly concave, and to have the tank at the lowest point. The soil too should be clayey and impervious to water, and if there is not this advantage naturally, it must be obtained artificially. The waters of the dunghill, which are collected in the tank, are pumped up and returned to the manure when the surface becomes too dry. For this purpose, Schwertz recommends moveable spouts and tressils to convey the liquid to every part of the yard. The mouth of the tank is closed by a strong very firm wooden grating, of which the bars are sufficiently near to prevent any solid substance or straw from entering. A most important point is to take care that the inclination of the gutters is such that the urine from the stables and stalls shall run naturally into the manure heap. The litter, however abundant, does not absorb the whole of the urine, especially when the beasts are on green food: to neglect this arrangement is quite unpardonable. The materials of the dung heap must not be thrown carelessly upon the mass. They must be spread and divided so as to leave no cavities in which mould may be produced. They must be well compacted to avoid too rapid fermentation, which is always prejudicial when the heap is too loose. At Bechelbronn the manure heap is made so firm that a loaded waggon, requiring four horses, can pass over it without much difficulty. The depth to which the manure is laid is not a matter of indifference; besides the convenience of loading, which should not be forgotten, too great a depth would be injurious by causing too great a temperature, and should circumstances make it convenient to keep so thick a mass for a long period, decomposition would become so rapid as to occasion a heavy loss. Experience has shown that the depth of the manure should be somewhere between 5 and 7 feet. The heap usually slopes from the centre, for the convenience of drawing the waggons upon it. The practice in Alsace is to load upon the heap itself. To prevent its becoming too dry it is the custom in some districts to lay the manure in a northern aspect. This is certainly an excellent plan, but it is seldom practicable in a large establishment, where, in certain localities, the immediate neighbourhood of a large mass of materials in a state of decomposition may be disagreeable, if not unwholesome. A simple plan is sometimes adopted in the Department du Nord, viz., planting a row of Elms to shade the yard. This is far preferable to a roof, which has sometimes been proposed, the expense being far too great, the exposure to rain not being a great inconvenience, and the timber of the roof being liable to speedy destruction from the steam of the fermenting mass. If peculiar circumstances or the smallness of the farm do not permit the construction of a tank, and the subjacent soil is easily permeable by moisture, the essence of the manure will, to a great extent, be lost. In such cases the surface of the yard should be covered with a layer of soil, sand or turf, marl, or, in short, any substance capable of absorbing the moisture. This is a frequent practice with farmers in Alsatia.—*M. J. B.*

* This is, unfortunately, quite as much the case in England. Many of our best farmers, who are intelligent enough in other respects, suffer the essence of the farm-yard to be washed away from the want of proper tanks, and even where the position is such as to prevent the liquid manure absolutely running off, no pains are taken to prevent its being absorbed by the earth.

Notices to Correspondents.

Corn Steeped in Nux vomica—*Inquirer*—It will kill crows but not frighten them; it will not drive them away, although any that come will doubtless pay the penalty.

Cost of Wheat per Acre—*J H*—Please to excuse the delay of an answer till next week.

Damp Guano—*E D*—Mix it up with a lot of calcined gypsum (Paris plaster); that will make it dry enough to drill.

Drainage—*W C*—Drains placed up and down the ascent do "meet with the general approbation of scientific practical men," unless the ascent be excessive. You need not place broken stones over the tiles.

Feeding in Stalls or in Hammels—*A Gloucestershire Landholder*—Supposing these methods to be alike in their influence on the health of the cattle, then where straw is abundant the latter is to be preferred; but where a large part of the farm is Grass-land we should prefer the former. We will refer you to authorities next week.

Fences—*Inquirer*—A ditch should be made on the upperside of a fence.

Fork Culture—*Mr. Paterson* says, "I have been using forks for a considerable time past, and find them excellent; they are larger than your sketch at p. 849, viz., 14 inches deep and 7 broad, and handle 34 inches. My people find great relief in the long handle; it does not fatigue them nearly so much as the spade, which is generally 4 to 5 inches inches shorter." As regards the time required to fork an acre, this depends of course on the texture of the soil. A light stony soil, in Rutlandshire, was lately dug at the rate of one-thirteenth of an acre, *i. e.*, 12 perches a day, 12 to 14 inches deep. We were told this by the farmer who occupies the land, and superintended the work, and he paid 25*s.* per acre for it. Now, we have been lately paying for digging, not however by the fork, but by the grafting-tool (a straight, narrow, and deep spade); and it cost us 4½*d.* a perch to dig it a foot deep: a strong man cannot do more than 5 or 6 perches in a day. But it is a stiffish soil. You thus see that there is a great variety in the extent which can be mastered.

Horse Keep—*Inquirer*—Do not stint them—it is not economical to do that. Give them, in addition to their "bushel of Oats and 2 bushels of Carrots a week," as much hay as they will eat. Not knowing the size of your horses we cannot guess at this—but it will probably be from 10 to 20 lbs. a-day Our horses eat about 2½ bushels of Oats a-week, about 3 cwt. of Carrots, and straw *ad lib.*

Labourers per 100 Acres—*Inquirer*—Five men per 100 acres of arable land, and 1½ per 100 acres of pasture, exclusive of extra work at particular seasons, may be about the thing.

Flax-dressing Machine—*Monmouth*—Next week.

Peat Draining-tile—*J Russell*—We shall be able to answer when we shall have heard from Mr. Smith. As we take it, the peat is simply cut and dried, and then ready for use.

Relation of Straw to Grain in Weight—*Inquirer*—Most Wheat ricks contain twice as many cwt. of straw as of grain.

Salting Pork—*To Inquirers*—The best time for salting fat pork in the way described is when the weather is very cold during the coldest part of the winter season. *D. M.*

Small Farm, to Purchase—*H Lewton*—You must advertise for it. We have no means of assisting you.

Stall Feeding.—*P M Fisher*—Cattle must be fed oftener than twice a day—the oftener the better, provided such a quantity only is given as will be eaten clean up each time. We feed our cattle three times a day, and they eat about 150 lbs. of Swedes daily each. Our horses get no hay; they get Oats, Carrots, and straw—they will eat Swedes but do not much like them, and they will not eat Mangold Wurzel. You can give your chaff-refuse from the thrashing-machine to your beasts just as you would cut straw. Feed your pigs on Potatoes and Barley-meal. Fuller next week.

Subsoil Plough—*N N*—We greatly prefer Smith's.

The Lease—Will a "*Looker-on*" be kind enough to excuse the unavoidable delay of his valuable paper?

To Cure Bacon—*Curly Tail* says "I am about to kill two pigs, weighing, in my opinion, about 5 cwt. each, and am told by my herd, who has not been accustomed to see swine of that weight, that he despairs of curing them effectually. I shall be grateful, therefore, to any of your correspondents for a recipe which experience has proved to be a safe pickle."

When does the Sun Rise on the Shortest Day, and at what Point of the Compass—*Inquirer* must first tell us his latitude.

*** As usual, many communications have arrived too late.

Markets.

COVENT GARDEN, Dec. 27.—The market still continues to be well supplied with Vegetables, and Fruit has also been sufficient for the demand. Among Pine-apples are many handsome specimens, which are offered at nearly the same prices as quoted in our last Report. Grapes also have not altered since last week. The supply of Apples continues to be well kept up, and good samples meet with a ready sale. Pears are good in quality, and command a tolerably brisk trade. Oranges are becoming more abundant; but in consequence of the increased demand, prices for them, and also for Lemons, are higher than they were last week. Nuts remain nearly the same. Of Vegetables the supplies of most articles are sufficient for the demand. Cauliflowers are rather scarce; but Broccoli is abundant, and Savoys, Brussels Sprouts, and other winter Greens, are plentiful. Carrots and Turnips are excellent in quality, and sufficient for the demand. Potatoes have altered very little in price since last week; trade for them is not brisk. Seakale and Rhubarb are more plentiful; and the same may be said of French Beans. Asparagus, although rather small, is good in quality. Celery, both red and white, is abundant, and Lettuces, Endive, and other kinds of salading, are sufficient for the demand. Cut Flowers chiefly consist of Euphorbias, Bignonia venusta, Epiphyllums, Acacias, Heaths, Heliotropes, Cinerarias, Pelargoniums, Camellias, Chinese Primroses, Chrysanthemums, Violets, and Roses.

FRUITS

Pine Apple, per lb., 4*s* to 6*s*
Grapes, Hothouse, per lb., 3*s* to 6*s*
— Spanish, per lb., 9*d* to 1*s*
— Portugal), p. lb., 1*s* to 2*s* 6*d*
Melons, Spanish, each, 4*s* to 10*s*
Apples, Dess., per bush., 4*s* to 10*s*
— Kitchen, 2*s* 6*d* to 6*s* 6*d*
Oranges, per dozen, 1*s* to 2*s*
— per 100, 4*s* to 14*s*
— Seville, per 100, 14*s*
— per dozen, 2*s* to 2*s* 6*d*
Lemons, per dozen, 1*s* to 2*s*
— per 100, 6*s* to 14*s*
Almonds, per peck, 6*s*
Sweet Almonds, per lb., 2*s* 6*d* to 3*s*
Filberts, English, p. 100 lbs., 40*s* to 45*s*
Nuts, Cob, per 100 lbs., 60*s* to 65*s*
— Barcelona, 20*s*
— Brazil, 16*s*
— Spanish, 14*s*
Chesnuts, per peck, 4*s* to 8*s*
Pears, per h.-sv., 3*s* to 10*s*

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*
— red, per doz., 2*s* to 3*s*
Brussels Sprouts, p. h.-sv., 1*s* to 2*s*
Savoys, per doz., 6*d* to 1*s*
Cauliflowers, per doz., 3*s* to 6*s*
Broccoli, Brown, per bdle., 6*d* to 1*s* 6*d*
— White, 1*s* 6*d* to 3*s*
Greens, per doz. bunches, 2*s* to 3*s* 6*d*
French Beans, per 100, 2*s* 6*d* to 3*s*
Sorrel, per h.-sieve, 3*d* to 1*s*
Potatoes, per ton, 80*s* to 100*s*
— cwt., 4*s* to 9*s*
— bushel, 2*s* 6*d* to 4*s* 6*d*
— Kidney, per bushel, 3*s* to 5*s*
Turnips, per doz., 1*s* to 2*s*
Red Beet, per doz., 6*d* to 1*s* 6*d*
Carrots, per doz. bchs., 2*s* to 5*s*
Horse Radish, per bundle, 1*s* 6*d* to 5*s*
Seakale, per punnet, 1*s* to 3*s*
Rhubarb, per bundle, 1*s* 6*d* to 2*s*
Asparagus per bundle, 3*s* to 10*s*
Cucumbers, each, 1*s* to 2*s*
Spinach, per sieve, 9*d* to 1*s* 6*d*
Leeks, per doz. bunches, 1*s* to 2*s*
Garlic, per lb., 6*d* to 8*d*
Celery, per bunch, 6*d* to 1*s* 6*d*
Cardoons, each, 6*d* to 9*d*
Parsnips, per doz., 3*d* to 1*s*
Scorzonera, per bundle, 1*s* to 1*s* 6*d*
Salsify, do., 1*s* to 1*s* 6*d*
Onions, per bushel, 1*s* 6*d* to 3*s*
— pickling, per h.-sv., 2*s* to 3*s*
— Spanish, per doz., 1*s* 6*d* to 4*s*
Shallots, per lb., 6*d* to 8*d*
Endive, per score, 6*d* to 1*s*
Lettuce, per score, Cab., 4*d* to 9*d*
— — Cos, 6*d* to 1*s*
Radishes, per doz. bunches, 1*s* to 1*s* 6*d*
Mushrooms, per pottle, 1*s* to 1*s* 6*d*
Small Salade, per punnet, 2*d* to 3*d*
Fennel, per bunch, 2*d* to 3*d*
Savory, per bunch, 4*d* to 6*d*
Thyme, per bunch, 4*d*
Watercress, p. 12 sm. bun. 4*d* to 6*d*
Parsley, per bunch, 1*d* to 3*d*
— Roots, per bundle, 1*s*
Tarragon, per bunch, 6*d*
Mint, per bunch, 3*d*
Marjoram, per bunch, 4*d*
Chervil, per punnet, 2*d* to 3*d*

POTATOES.—Southwark, Waterside, Dec. 22.

The supply to this market during the past week was very limited, but in consequence of the wind being favourable the Potatoes arrived in tolerable condition; but the trade at the Waterside was not so good as it usually is when the supply is short, as many of the large retailers are getting Potatoes from the various railway stations and steam-boat wharfs, besides which the consumption always decreases as the prices advance. But there are other causes which only apply to the present season. A large class of persons do not eat Potatoes in consequence of the disease, fearing that they are deleterious; and there are a still larger number of persons that abstain from consuming Potatoes lest they should deprive their poorer neighbours of the article of food which the scanty means of the necessitous can best provide for their families, and it is generally considered that the misplaced sympathy of the latter is equal to the absurdity of the former.—The prices ranged as follows: York Reds, from 70s to 120s per ton; ditto Regents, from 70s to 130s per ton; Scotch Reds, from 80s to 90s per ton, but there were some fresh cargoes that arrived at the close of the week, when 100s per ton was asked, but there was comparatively few sold at that price; some fine samples that came by the steam-boats realised 100s per ton; some small cargoes of Jersey Blues were sold at from 80s to 85s per ton, but the samples being too small for this market the demand for them was very limited.

An Account of the number of Sacks (1½ cwt. each) of Potatoes delivered from ship, in the Port of London, during the following periods:—

	Sacks (1½ cwt.).
Three months ending Saturday, December 3, 1842	404,400
,, ,, ,, 2, 1843	315,800
,, ,, ,, 7, 1844	381,800
Average	867,100
Three months ending Saturday, December 6, 1845	185,400
Less this year by	171,709

The prices fluctuated in 1842-3-4 from 40s to 90s per ton; the present season the price has varied from 10s to 150s per ton. The supplies of 1842 came three weeks earlier than this year, but that only affected the above comparison 24,000 sacks. William Ruston, City Corn-office.

SMITHFIELD, Monday, Dec. 22.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	2 to 4s	6	Best Downs & Half-breds	4s	8 to 5s	0
Best Short Horns	4	0	4	4	Best Long-wools	4	4	4	8
Second quality Beasts	3	0	3	8	Ewes and second quality	4	0	4	4
Calves	4	4	5	4	Pigs	4	0	5	0

Beasts, 1289; Sheep, 11,200; Calves, 46; Pigs, 200.

This being so near Christmas-day it is almost a holiday market; the demand is very small, and the supply of Beef, although small, is with difficulty disposed of at a reduction of about 2d per 8lbs.—Good Mutton is scarce, and the trade for it quite as good as of late—in some instances the very best qualities have made rather over our top quotations.—Veal and Pork continue a brisk trade.

Friday, Dec. 26.

The supply of Beef is small, but quite equal to the demand; the prices remain as on Monday.—Mutton is also very short, but very little is wanted; the quantity has, however, an effect on the trade, and the best qualities are readily disposed of at rather more money.—Good Veal is scarce and dearer, a choice Calf being worth fully 5s 8d.—Pork trade is steady.

Beasts, 441; Sheep, 3400; Calves, 22; Pigs, 87.

41, West Smithfield.

HOPS, Friday, Dec. 26.

Nearly the whole of the bags are sold, and there is but very few fine-coloured Hops remaining. It is generally believed, that should Sir R. Peel again alter the Corn-laws he will repeal the Malt-tax, in which case there must naturally be a great increase in the consumption of Hops; and with the small stock on hand we may reasonably expect a considerable advance in prices. The market (for the time of year) is very firm.

Pattenden & Smith, Hop-Factors.

HAY.—Per Load of 36 Trusses,

SMITHFIELD, Dec. 25.

Prime Mead. Hay	85s to 92s	New Hay	—s to —s	New Clr.	—s to —s
Infr. New & Rowen	68 80	Clover	90 to 115	Straw	26 32

John Cooper, Salesman.

CUMBERLAND MARKET, Dec. 26.

Prime Mead. Hay	90s to 96s	Old Clover	114s to 120s		
Inferior ,,	70 80	Inferior do.	95 103	Straw	30s to 36s
New Hay ,,	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

WHITECHAPEL, Dec. 26.

Fine Old Hay	90s to 103s	Old Clover	120s to 126s		
Inferior Hay	— —	New Clover	105 115	Straw	28s to 33s
New Hay	75 88	Infr. ,,	70 80		

MARK-LANE, Monday, Dec. 22.

The supply of English Wheat from Essex, Kent, and Suffolk, was again very small this morning, and the trade opening with more confidence it was realised at an advance of 1s. to 2s. per quarter upon the prices of this day se'nnight; free Foreign was held firmly at late prices, but transactions were limited; bonded and floating cargoes were rather more inquired after, and several sales were effected at prices which have not been obtainable of late. Fine Malting Barley sells freely, but inferior continues difficult of disposal. Beans and Peas support our quotations. The arrivals of Oats are good, and meet a moderate sale at about 6d. to 1s. below the rates of last Monday.

	s.	d.		s.	d.
BRITISH, PER IMPERIAL QUARTER,					
Wheat, Essex, Kent, and Suffolk	59	67	Red	54	63
—— Norfolk, Lincolnshire, and Yorkshire	57	63	White	59	68
Barley, Malting and distilling 21s to 25s	Chevalier	33	38	Grind.	27	30
Oats, Lincolnshire and Yorkshire	Polands	22½	24	Feed	20	23
—— Northumberland and Scotch	Feed	20	23	Potato	24	28
—— Irish	Feed	20	22	Potato	24	26
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		34	37			
Beans, Mazagan, old and new	28 to 42	Tick	31	44	Harrow	34	46
—— Pigeon, Heligoland	37 to 48	Winds	40	48	Longpod	32	36
Peas, White	44 to 48	Maple	35	37	Grey	32	35

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	6057 Sks.	— Bls.	7321	9203	4766	8353	—	1091	1539
Irish	,,	,,	—	740	20	19819	—	—	—
Foreign	1807 ,,	6894 ,,	96725	2870	—	6565	—	1306	1201

Friday, Dec. 26.

There has been very little addition to the supply of any description of Grain since Wednesday; the arrivals of Irish Oats, however, are considerable. We have had quite a holiday Market this morning, and where sales of English Wheat have been made, Monday's prices were fully maintained; there was some inquiry for Bonded, but we did not hear of any transactions. All other articles remained unaltered.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	540	1830	1410	2230 Sks
Irish	—	900	21870	—
Foreign	5820	740	3550	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Nov. 15 per Quarter.	58s 6d	33s 0d	25s 8d	38s 2d	44s 5d	45s 7
— 22 ,,	57 11	34 1	25 5	37 1	43 4	45 4
— 29 ,,	58 2	33 2	25 0	35 4	41 9	45 10
Dec. 6 ,,	59 0	32 10	24 7	35 0	41 8	48 4
— 13 ,,	59 4	32 9	24 6	36 8	40 8	43 6
— 20 ,,	57 11	32 7	23 4	34 5	39 6	42 5
6 weeks' Aggreg. Aver.	58 6	33 5	24 10	111	41 11	44 4
Duties on Foreign Grain	14 0	5 0	4 0	6 6	1 6	1 8

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Dec. 20.

Price.	Nov. 15	Nov. 22	Nov. 29	Dec. 6	Dec. 13	Dec. 20
59s 4d	..	..	..	..	..	..
— 0	..	..	..	..	..	..
58 6	..	..	..	..	..	..
— 2	..	..	..	..	..	..
57 11	..	..	..	..	..	..
— 0	..	..	..	..	..	..
56 6	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, Dec. 26.

Canary	per qr	48s to 60s	Linseed Cakes, Foreign, p. ton	9l to 10l
Carraway	per cwt	48 60	Mustard, White	p. bush.	3 —
Clover, Red, English	— —	— Superfine	,, — —
—— Foreign	— —	— Brown	,, — —
—— White, English	— —	Rapeseed, English, per last	26l 28l
—— Foreign	— —	Rape Cakes	per ton — —
Coriander	10 16	Saintfoin	— —
Hempseed	per qr.	35 36	Tares, Eng. winter	p. bush. — —
Linseed	per qr	54 60	—— Foreign	4 4s6d
—— Baltic	42 48	Trefoil	per cwt	18 23
—— Cakes, Eng. per 1000	12l 13l	Turnip (too variable for quotation).	

Kingsford and Lay'

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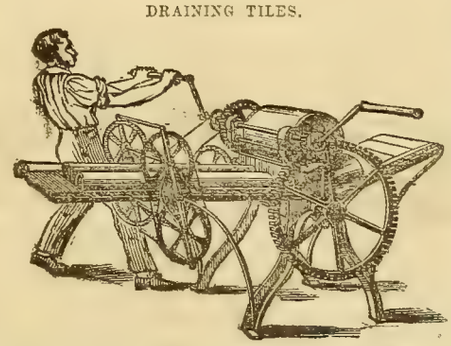
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